DDP184

Engine Maintenance Manual

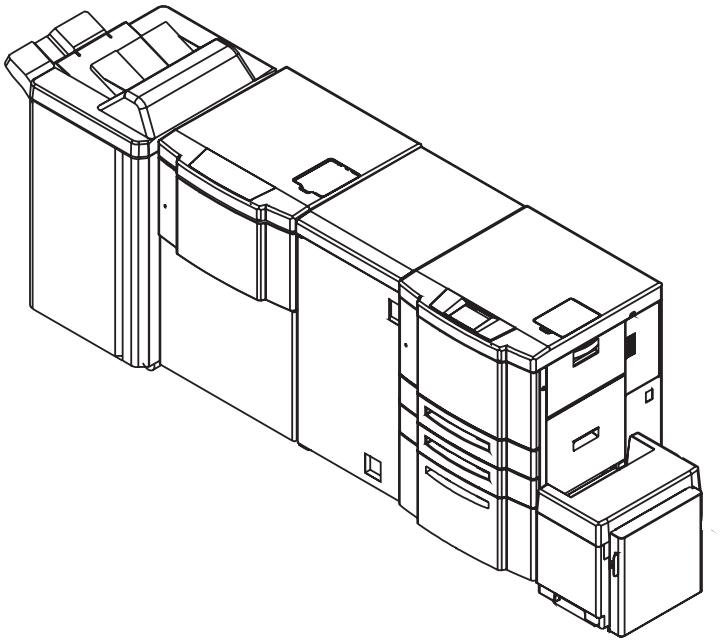
May 2008
N901396

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. As a result, this manual may not exactly reflect future changes made to the product. Please be sure to consult all manual updates or addenda when using this product's documentation.

DDP184 Engine Maintenance Manual

"Click on blue to view"



Dated: May, 2008

DDP184

Engine Maintenance Manual

N901396

Revision Table for manual

Rev. for manual	Machine Rev.	Page No. (Contents)	Date
00	-	First Edition	May, 2005
01	-	4-18(01), 4-32(01), 7-1(01), 7-90(01), 8-48(01), Sup1-1(01)	Oct., 2005
01	-	4-2(01), 4-3(01), 4-4(01), 4-5(01), 4-12(01)	Oct., 2005
01	-	5-37(01), 5-44(01), 5-91(01), 5-101(01), 8-11(01)	Dec., 2005
01	B 1	3-17(01), 3-20(01), 3-33(01), 3-34(01), 4-10(01), 5-7(01), 5-8(01), 5-58(01), 7-191(01)	Mar., 2006
-	-	Delete 10-1 to 10-16 inclusive	Mar., 2006
01	-	5-80(01), 7-47(01)	Mar., 2006
00	-	4-2(00), 4-3(00), 4-4(00), 4-5(00), 4-12(00)	Apr., 2006
00	-	(Additional pages 5-71(00), 5-72(00), 5-147(00), 5-148(00), 5-149(00), 5-150(00), 5-151(00), 5-152(00), 5-153(00), 5-154(00), 5-155(00), 5-156(00), 5-157(00), 5-158(00), 5-159(00) and Supplement 8)	Oct., 2006
01	-	5-70(01)	Oct., 2006
01	-	7-37(01)	Nov., 2006
01	V(Front) Z(Rear)	3-40(01), 3-53(01), 5-83(01), 7-53(01)	Feb., 2007
02	V(Front) Z(Rear)	7-47(02)	Feb., 2007
04	V(Front) Z(Rear)	3-34(04)	Feb., 2007
05	-	Sup1-1(02)	Aug., 2007
06	-	Sup2-1(01), Sup2-2(01)	Nov., 2007
07	-	5-53(01), 5-55(01), 5-57(01), 5-59(01), 5-96(01), 5-102(01), 7-94(01), 8-6(01)	Dec., 2007
		5-93(02), Sup2-2(02)	
		Sup1-1(03)	
08	-	Additional pages 3-10(00), 3-16(00), 3-28(00), 3-36(00), 7-315(00), 7-316(00), 7-317(00), 7-318(00), 7-319(00), 7-320(00), 7-32100), 7-322(00), 7-323(00), 7-324(00), 7-325(00), 8-45(00), 8-46(00), 8-50(00) to 8-108(00) inclusive, Sup1-2(00), Sup1-3(00)	Apr., 2008
		1-2(01), 3-2(01), 3-3(01), 3-11(01), 3-13(01), 3-21(01), 3-27(01), 3-32(01), 3-34(01), 3-68(01), 9-26(01)	
		3-22(02), 3-37(02)	
		Sup1-1(04)	
		Additional pages 5-162(00) to 5-168(00)	May, 2008
		3-38(05), Sup1-1(05)	June, 2008
		5-167(01), 5-168(01)	June, 2008

Safety

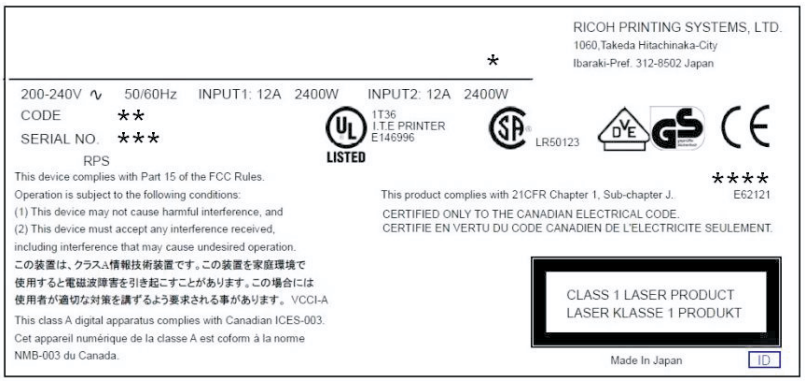
Safety in Operation

(1) Laser product

This product is a laser product.

This product complies with 21 CFR Chapter 1, Subsection J. (CDRH, U.S.A)
Certification and Identification label is attached on the rear cover of the printer.

(a) Certification and Identification label



* :Stamp the model (ex. LB184ADP1-RU)

* * :Stamp the product code (ex. G152-17)

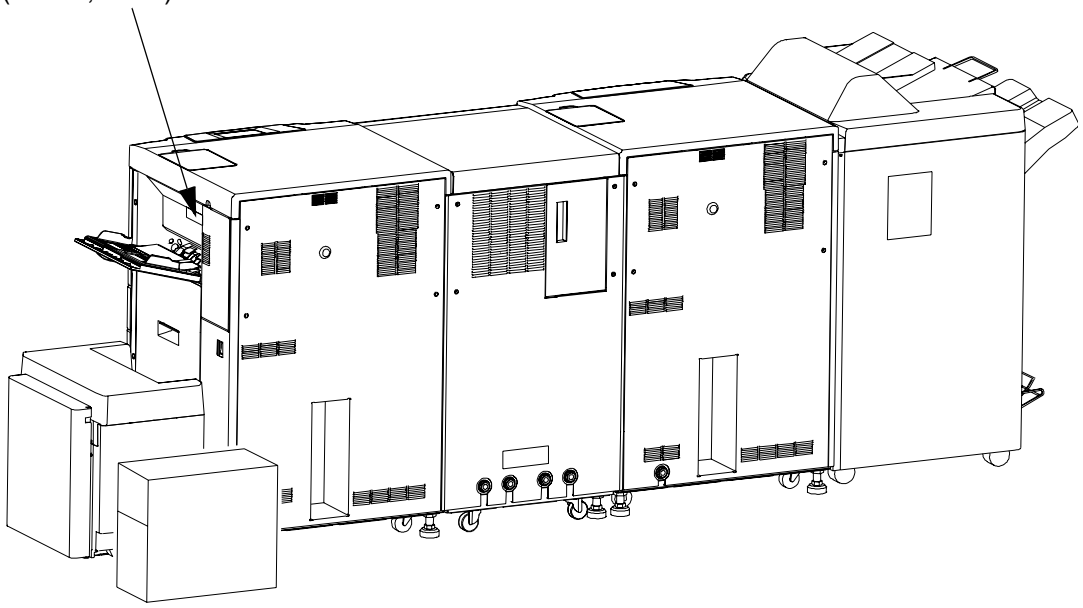
* * *:Stamp the serial production number (ex. Q4850602001)

* * * * :E62121 marked in this position is the code of the place of manufacturer. This code represents the place as follows

Name :Ricoh Printing Systems, Ltd.
Address :1060 Takeda, Hitachinaka City, Ibaraki-Pref., 312-8502 Japan

(b) Location

Certification and Identification label
(CDRH,U.S.A)



(2) Caution laser radiation

(a) Label

①

DANGER:VISIBLE LASER RADIATION WHEN
OPEN. AVOID DIRECT EXPOSURE TO BEAM.

注意：このカバーを開くとレーザー光がでます。レーザー光を直接見たり、
触れたりしないで下さい。

CAUTION: VISIBLE LASER RADIATION WHEN
OPEN. AVOID EXPOSURE TO BEAM.

VORSICHT: SICHTBARE LASERSTRAHLUNG
WENN ABDECKUNG GEOFFNET UND
SICHERHEITSVERRIEGELUNG UBERBRUCKT
NICHT DEM STRAHL AUSSETZEN.

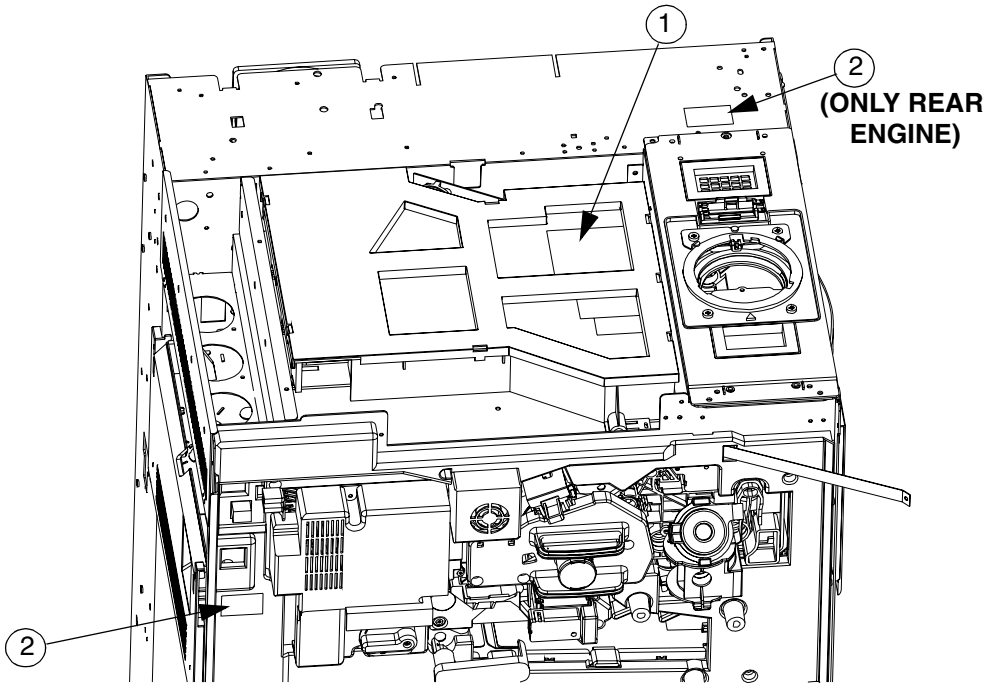
ATTENTION: RAYONNEMENT LASER EN CAS
D'OUVERTURE EXPOSITION DANGEREUSE
AU FAISCEAU.

VARO!:AVATTAESSA OLET ALTTIINA
NAKYVALLE LASERSATEILYLLE ALA
KATSO SATEESEEN.

②

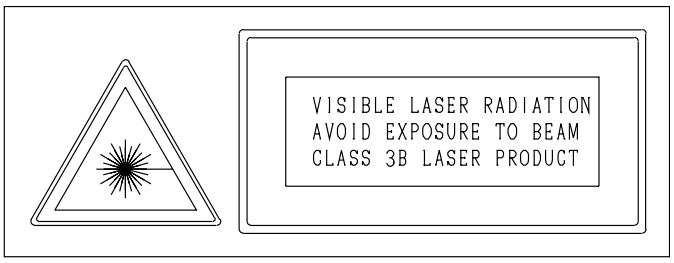
DANGER - VISIBLE LASER RADIATION
WHEN OPEN AND INTERLOCK DEFEATED
AVOID DIRECT EXPOSURE TO BEAM

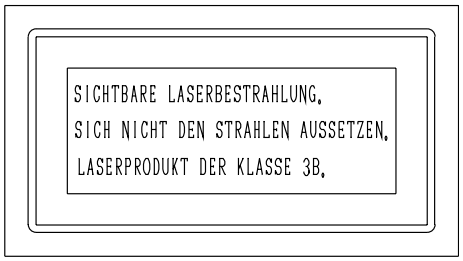
(b) Location



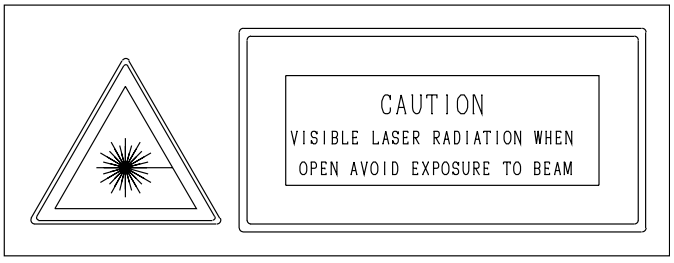
Laser class label and caution labels are attached as follows.

(1) Labels

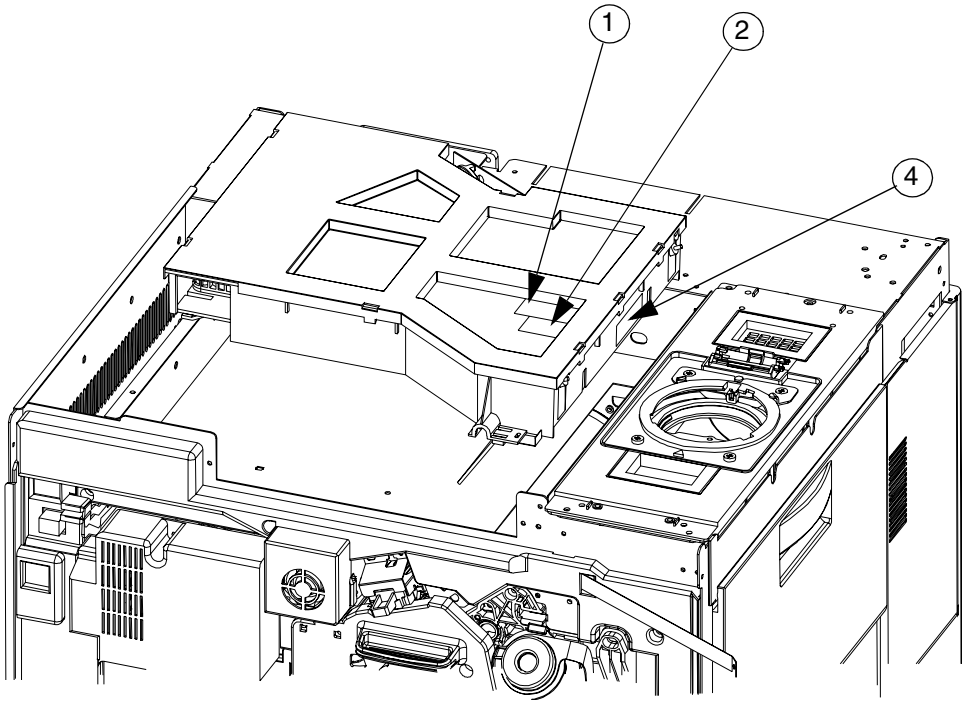
① 

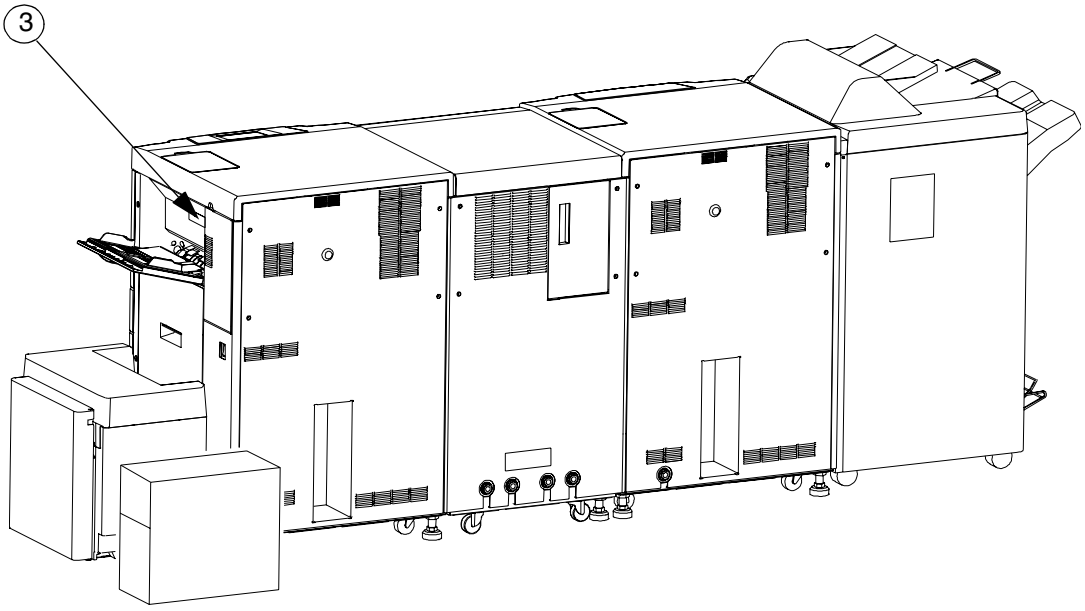
② 

③ 

④ 

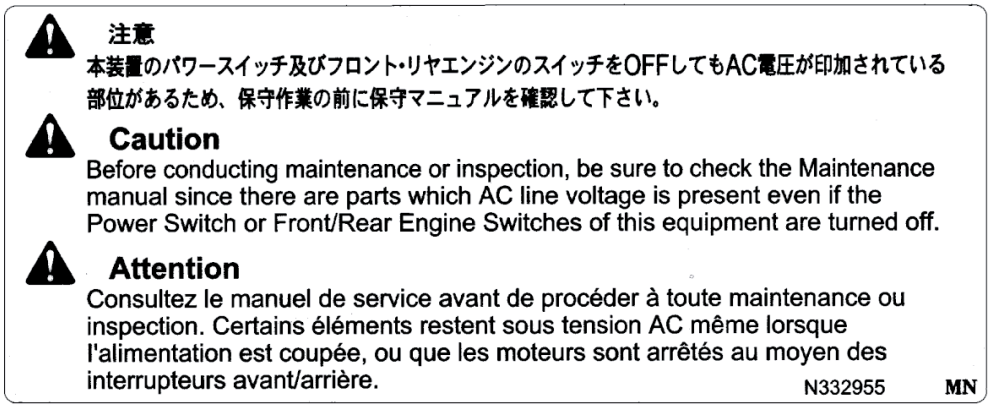
(2) Locations



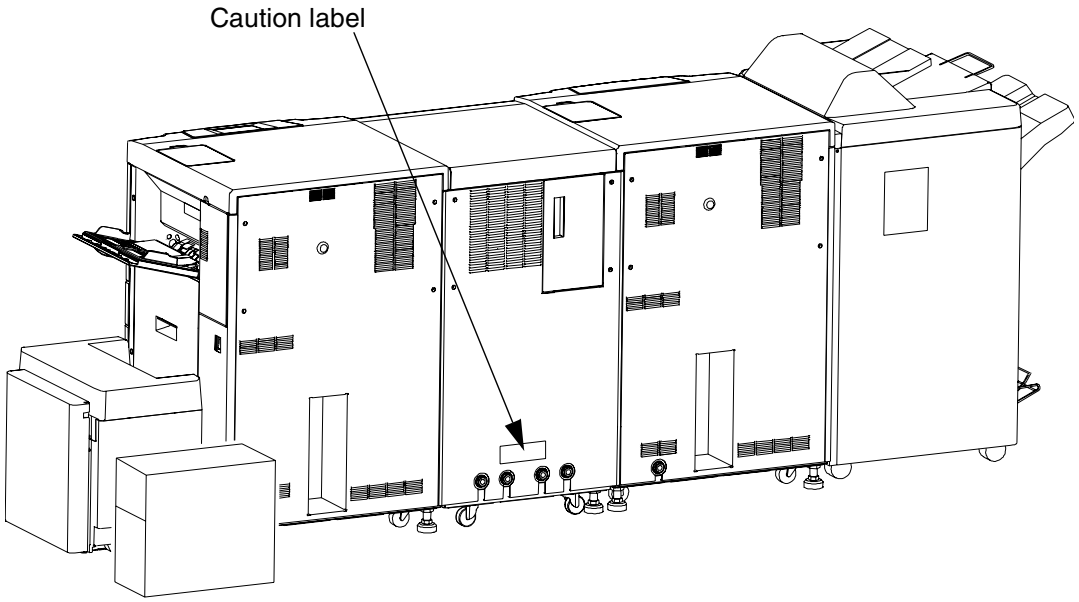


Caution label before maintenance is attached as follows.

(1) Label



(2) Location



Contents

Chapter 1. Outlines

1.1. Characteristics

Maximum 184 ppm (Black/Black printing), 92 ppm (Black/Color printing) high speed cut sheet page printer

High print quality applicable for graphics and images

Adoption of semiconductor laser and VLSI

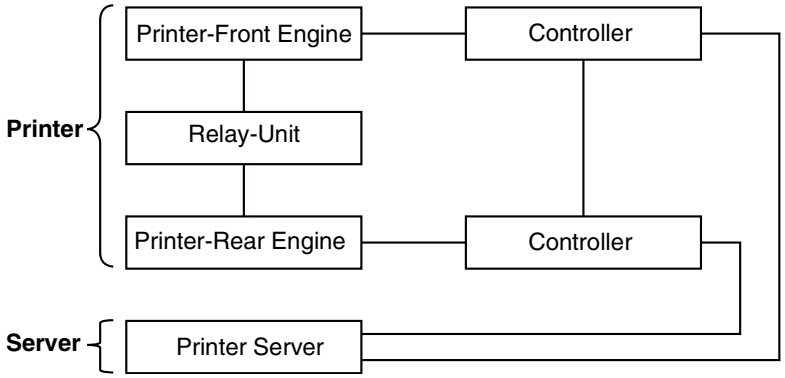
Applicable for various forms

1.2. Specifications

Printing speed	184 pages per minute (ppm), A4(LEF)/Letter(LEF) in case of Black/Black duplex printing 92 pages per minute (ppm), A4(LEF)/Letter(LEF) in case of Black/Color printing
Paper	Size: A5, A4, B4, B5, A3, Letter, Tabstock, 8.5"x12.4", Legal 13", Legal 14", Ledger, 12"x18", Free size paper Ream weight: 17 to 90lbs Index (64 to 163g/m^2) (Black/Black duplex printing), 20 to 90lbs Index (75 to 163g/m^2) (Black/Color printing)
Dimensions	Approx. 1800mm(width) x1008mm(height) x665mm(depth)
Weight	Approx. 395kg(Engine Only: Front Engine, Relay Unit, Rear Engine)
AC Input	AC200 to 240V ±10%, 12A, 50/60Hz x2 - Single Phase, two wires + G x2

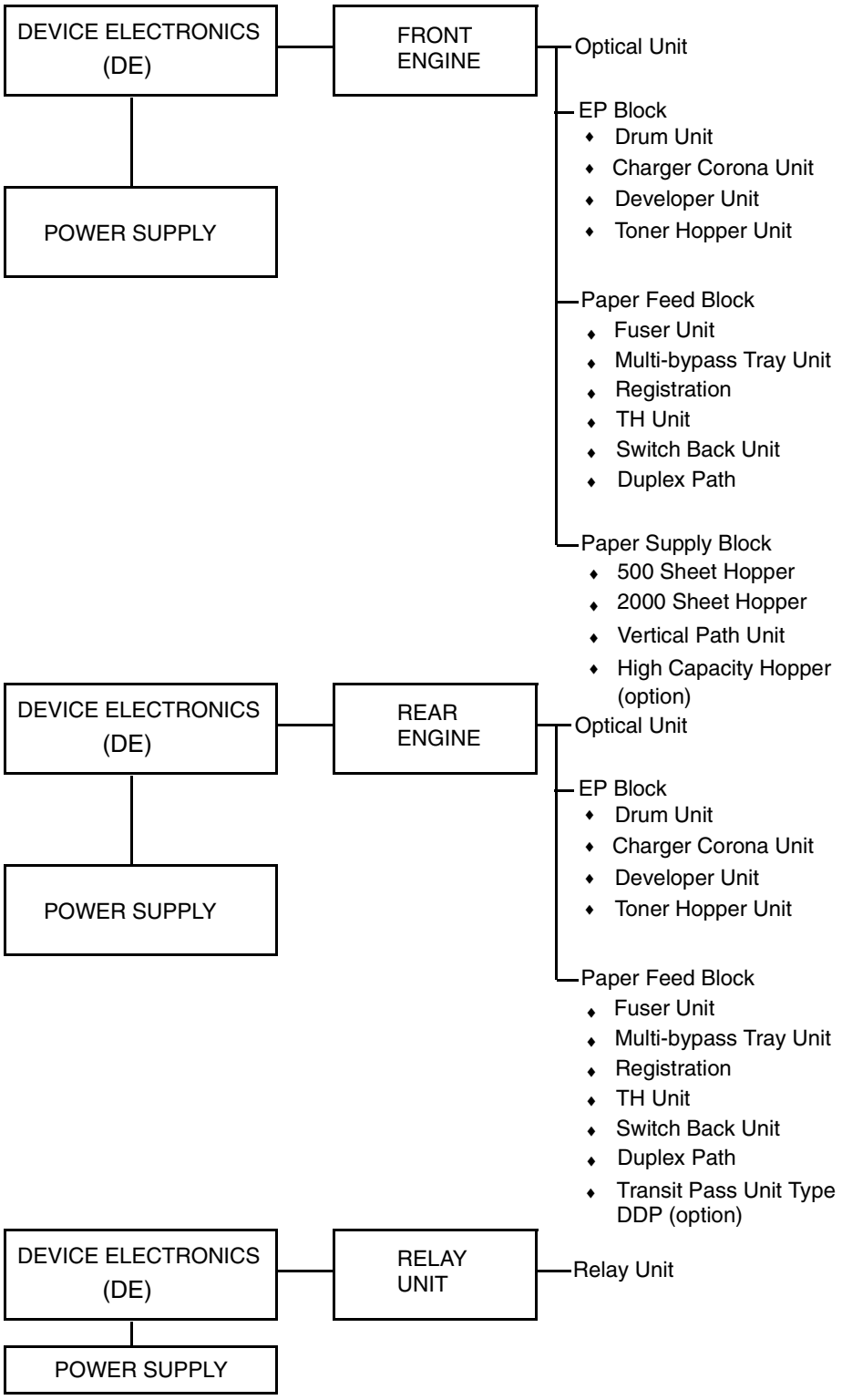
1.3. Configurations

1.3.1. System Configuration



1.3.2. Printer Configuration

The basic configuration of this printer is as follows and this manual is described in the same order.



Chapter 2. Safe Handling of the Printer

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

1. Before conducting maintenance or inspection, be sure to switch the power supply **OFF**.
2. Make sure that the grounding cable is connected securely to the grounding terminal of the printer.
3. If it is absolutely necessary to work with the power turned ON, observe the following:
   (a) Have one individual watch while the work is being performed so that that personnel may switch **OFF** the power switch at anytime if necessary.
   (b) Never allow two individuals to work at the same time. It is very dangerous if a drive part actuates suddenly.
   (c) Never wear a ring, wristwatch, cuff-links, bracelet, metal fastener or any other metallic objects.
   (d) 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.
   (e) Be particularly careful not to let a tool or a part drop into the printer.
4. 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 printer. Always wear a working cap.
5. Before handling a movable part, make certain that it has completely stopped.
6. The interior temperature of the fuser unit is as high as about 180 degrees Celsius during operation. It does not cool down quickly even if the power is switched **OFF**, so leave it for more than 60 minutes to cool down sufficiently before starting work.
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. Be particularly careful with the rotating blades of fans. Avoid performing work near a fan.
9. In order to check the power supply of the printer, label the breaker noting, "**Do not switch the power ON**" to prevent other personnel from turning it on by mistake when the switch on the breaker in the computer room has been put **OFF**.
10. Make sure that the power is **OFF** when replacing a PCB.
11. Care must be taken to store covers which are detached at a proper place to avoid other people from tripping or stumbling, over them.
12. 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.

13. When you are going to move the printer, first check to see that no personnel or customers are around a dangerous position.
14. The following operations can be performed with the power ON, providing that the specified work procedures are undertaken;
    (a) Replacing the Drum Unit
    (b) Replacing the Fuser Unit
    (c) Replacing the Fuser Cleaning Web
15. Carefully observe cautions itemized in this Maintenance Manual for your operations.
16. Be sure that nobody touches the printer and carefully recheck if there is incorrect wiring, incorrect connections, or tools remaining on the printer before turning ON the printer.
17. Replace all the covers of the printer back to their original position and make the final checks by TMP(Test & Maintenance Program) without fail.
18. Before handing the printer over to the customer, perform overall checking again.
19. Whenever the Optical Unit cover is removed, observe the following precautions to avoid exposure of the eyes to the laser beam. The semiconductor laser of the Printer emits a beam with a wavelength of about 780 nm, which is not visible. Exercise caution.
    (a) When adjusting the laser beam, use black tools for minimum reflection. Do not wear reflective jewelry or any other article which can reflect the beam.
    (b) When adjusting the position or angle of the reflecting mirror, adjust carefully, and in small increments to avoid emitting the beam outside the Optical Unit.
20. After removing the Ground Cables, always install them to their original positions.

Nach der Beseitigung der Erdungskabel sind diese wieder in ihre upsprngliche position zu installieren.

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 printer safely as described in Chapter 2, “Safe Handling of the Printer,” 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. Cautions for handling the Drum Unit.
   (a) If external light should reach the Drum surface, its elementary functions may be lost no matter how weak the light may be. Therefore the cover must be closed to keep the light from penetrating when you run printing.
   (b) The Drum surface may suffer from light fatigue or deteriorates in charging, if it is exposed to a bright light. For this reason when the Drum Unit is removed from the printer and left out for some time, then there is a need to temporarily store it in a box or in a dark place. Light fatigue can be healed by leaving it in a dark room, but it may take 24 hours to heal it. Use another one for the time being, should such a problem occur.
   (c) The Drum Unit is ideally stored in a cool place. Never in a place under the direct sunlight.

Temperature for storage	-30 to 50 deg.C (-22 to 122° F)
Humidity in storage	1 to 95 % RH

   (d) Never touch the Drum surface with your bare hands.
4. Notes for disposal of expendable parts.

   Given below are the basic procedures and principles defined separately which must be adhered to for disposal.

   (a) Fuser Unit/Drum Unit/Toner/Developer Mix

   These cannot be incinerated, and must be disposed of as nonflammable materials
5. Reset the detach voltage according to the altitude of the place where the printer is installed. (Refer to item 8.6.1 on page 8-110)
6. As the regist buffer is set for regular paper, it is not suitable for Label Paper or 16 lb. paper. These kinds of paper require less regist buffer.
   Therefore when the customer is going to use the Label Paper or 16 lb. paper, change the data of the address below from the maintenance panel.

3.2. Printer Features

3.2.1. External view of the printer

The following are the important parts of the printer and function of each part.

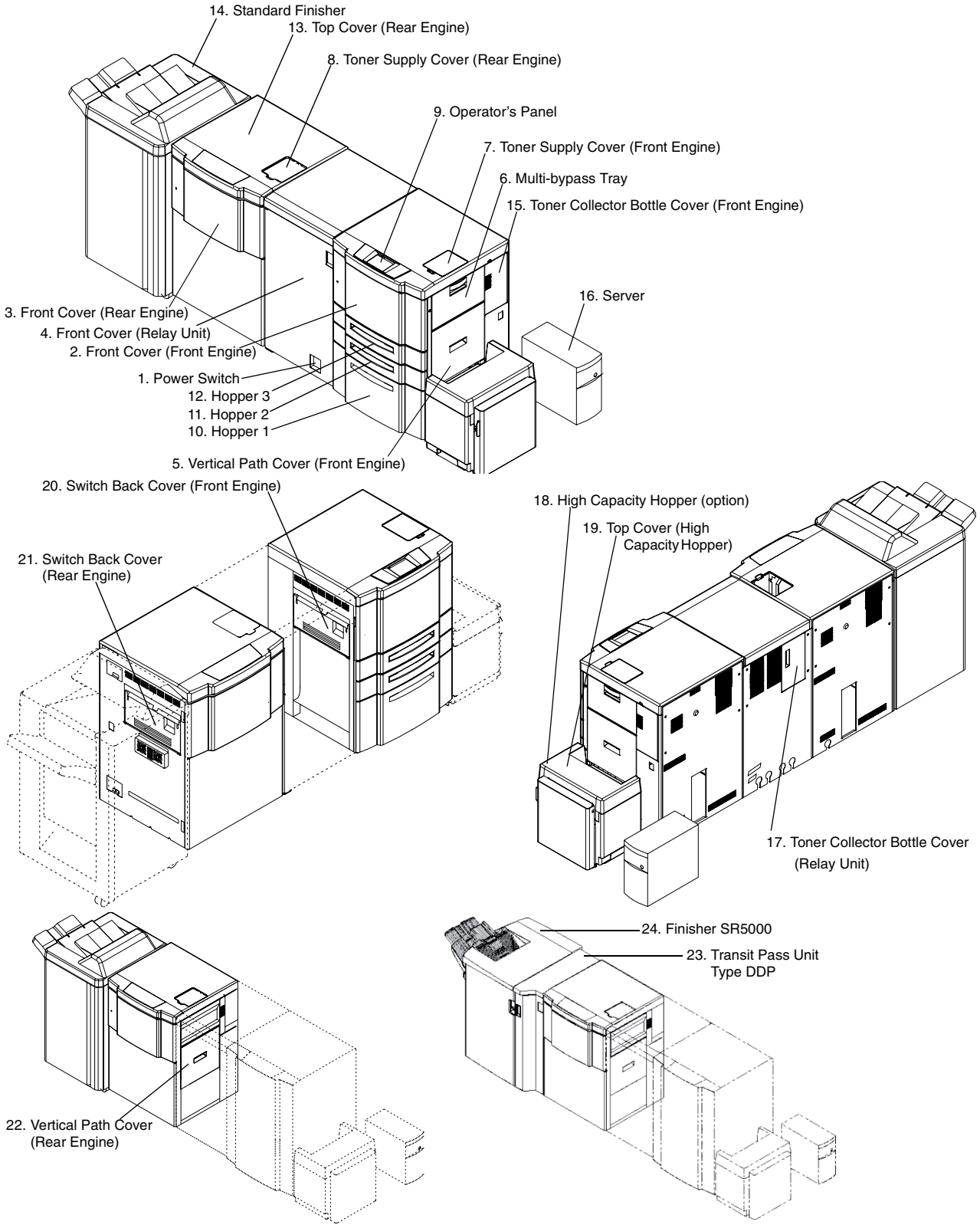


Figure 3-1. Printer Covers

1.	Power Switch	The Power Switch is to turn the printer on and off.
2.	Front Cover (Front Engine)	The Front Cover (Front Engine) opens when replacing each unit, clearing paper jams or cleaning the inside of the printer.
3.	Front Cover (Rear Engine)	The Front Cover (Rear Engine) opens when replacing each unit, clearing paper jams or cleaning the inside of the printer.
4.	Front Cover (Relay Unit)	The Front Cover (Relay Unit) opens when clearing paper jams or cleaning the inside of the printer.
5.	Vertical Path Cover (Front Engine)	Vertical Path Cover (Front Engine) opens when clearing paper jams.
6.	Multi-bypass Tray	Multi-bypass Tray loads 150 sheets of the paper.
7.	Toner supply Cover (Front Engine)	Toner supply Cover (Front Engine) is for supplying the Toner.
8.	Toner supply Cover (Rear Engine)	Toner supply Cover (Rear Engine) is for supplying the Toner.
9.	Operator's Panel	Operator's Panel has an indicator, display, status indicator and keys. The display shows printer status and error messages. The keys are not used to start, stop or set the printer functions.
10.	Hopper 1	Hopper 1 loads 2,000 sheets of paper.
11.	Hopper 2	Hopper 2 loads 500 sheets of paper.
12.	Hopper 3	Hopper 3 loads 500 sheets of paper.
13.	Top Cover (Rear Engine)	Top Cover (Rear Engine) opens when replacing Toner Hopper and Developer Unit.
14.	Standard Finisher	
15.	Toner Collector Bottle Cover (Front Engine)	Open to replace the Toner Collector bottle.
16.	Server	
17.	Toner Collector Bottle Cover (Relay Unit)	Open to replace the Toner Collector bottle.
18.	High Capacity Hopper (option)	High Capacity Hopper loads 3,000 sheets of paper.
19.	Top Cover (High Capacity Hopper)	Top Cover (High Capacity Hopper) opens when clearing paper jams.
20.	Switch Back Cover (Front Engine)	Switch Back Cover (Front Engine) opens when clearing paper jams.
21.	Switch Back Cover (Rear Engine)	Switch Back Cover (Rear Engine) opens when clearing paper jams.
22.	Vertical Path Cover (Rear Engine)	Vertical Path Cover (Rear Engine) opens when clearing paper jams.
23.	Transit Pass Unit Type DDP	When Finisher SR5000 is connected, it is necessary.
24.	Finisher SR5000	

3.2.2. Using the Printer's Operator Panel

3.2.2. (1) Functions of the Operator Panel

3.2.2. (1) -1 For Operation

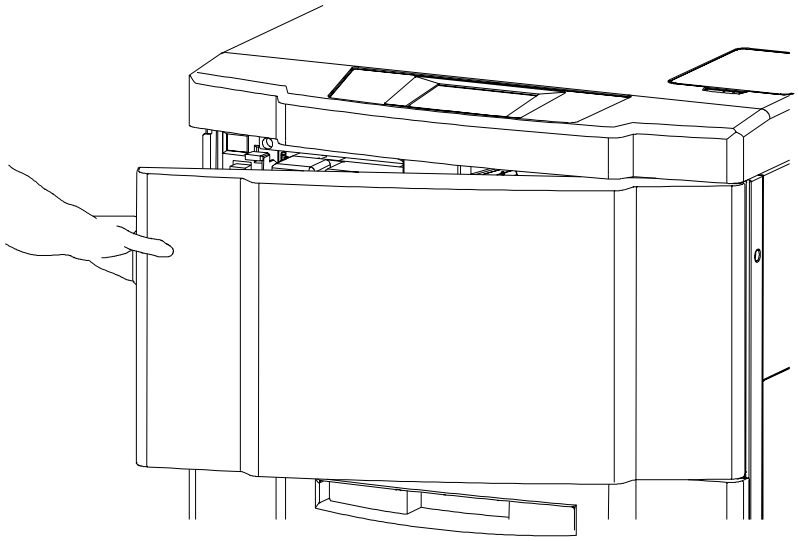
3.2.2. (1) -2 For Maintenance

3.2.2. (2) Replacing the Developer Mix.

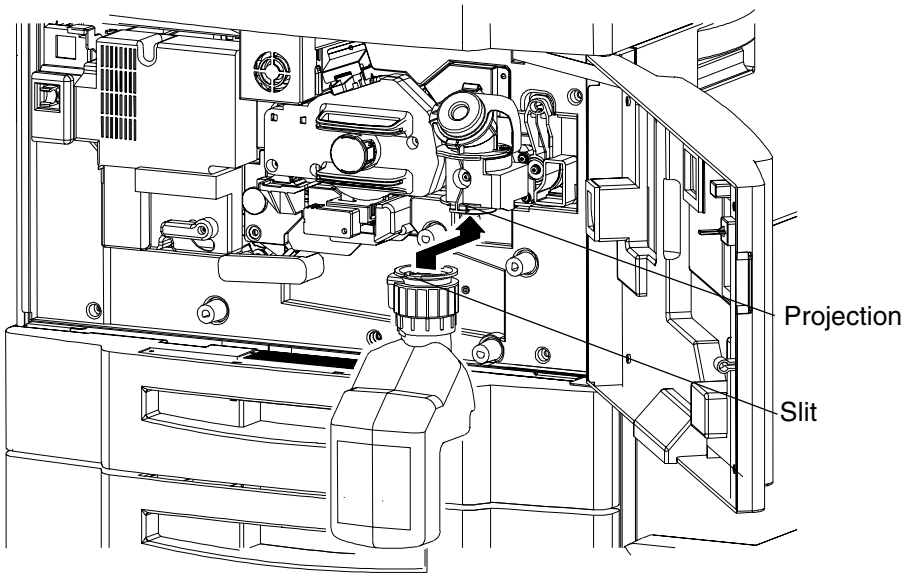
Replace the developer when DEVELOPER LIFE REPLACE DEV is displayed on the Operator's Panel. Follow the steps below to replace the developer mix.

Exhausting the Developer mix

1. Take the empty developer bottle out of the box.
2. Open the Front Cover of the printer.



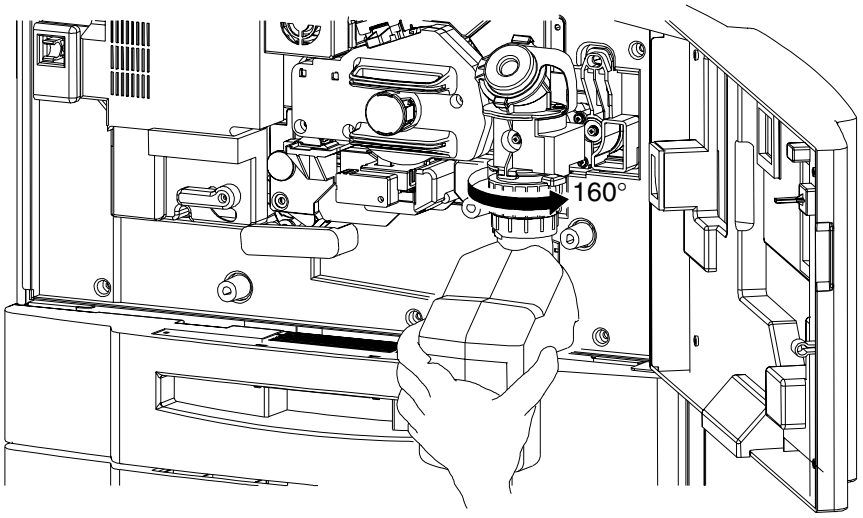
3. Attach the empty developer bottle to the Developer Unit Duct so that the slit of the bottle fits the projection of the duct.



4. Lock the empty developer bottle.

   Turn the developer bottle cap about 160 degrees in the arrow direction shown below.

   Note: Hold the developer bottle when you turn the cap so that the bottle is not turned together with the cap.



5. Press the key to start the developer exhaust process.

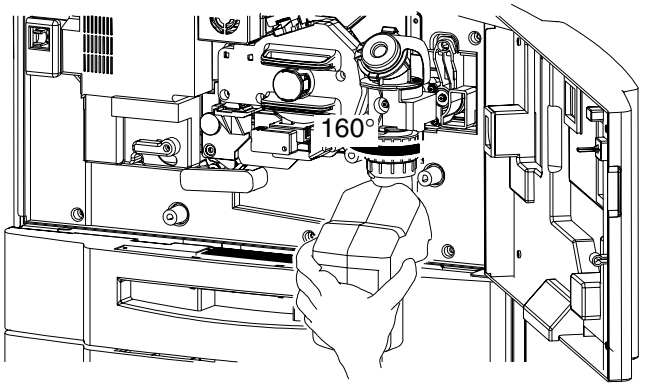
   The exhaust process takes about 1 minute and 50 seconds.

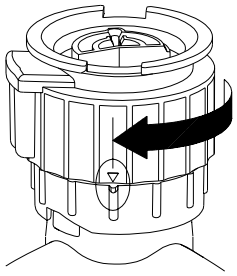
   (Max: 2 minutes and 10 seconds)

6. Remove the developer bottle.

   Turn the developer bottle cap back about 160 degrees until it clicks in the arrow direction shown below, and remove the developer bottle.

   Note: Be careful not to drop the developer mix left on the bottle cap.





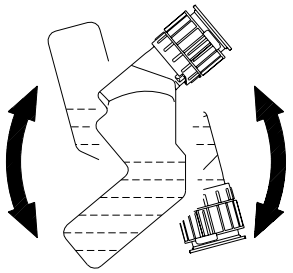
CAUTION:
Dispose of the developer bottle after the exhaust process as incombustible waste.

WARNING:
Never attempt to burn the developer bottle. Developer bottles are dangerous when exposed to fire.

Supplying the Developer mix

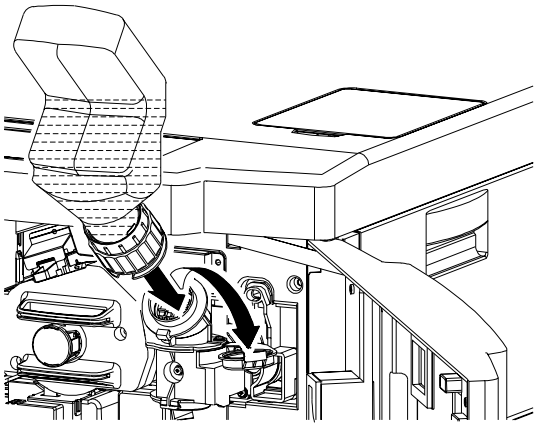
CAUTION:
It becomes the cause of failure when the other Developer mix is supplied.

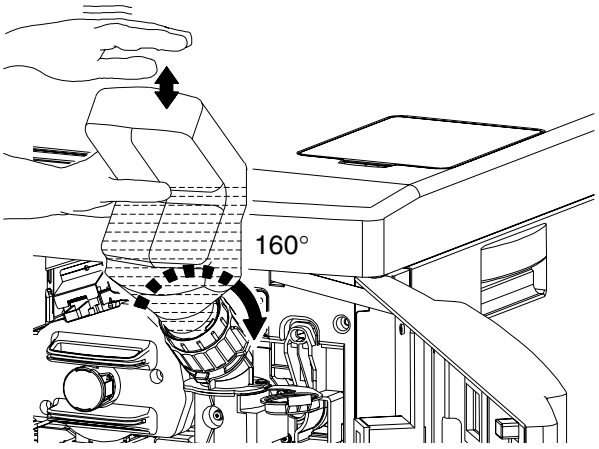
1. Take the new developer bottle out of the box and shake it.



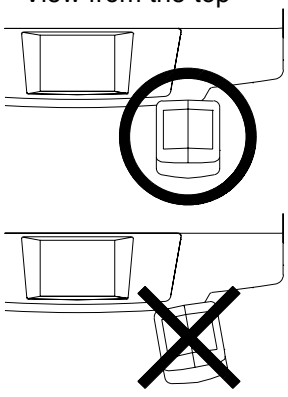
2. Remove the duct cap from the Developer Duct.
   Install the new developer bottle onto the Developer Duct.
   Turn the developer bottle cap about 160 degrees in the arrow direction shown below.

   Note: Hold the developer bottle when you turn the cap so that the bottle is not turned together with the cap.





View from the top



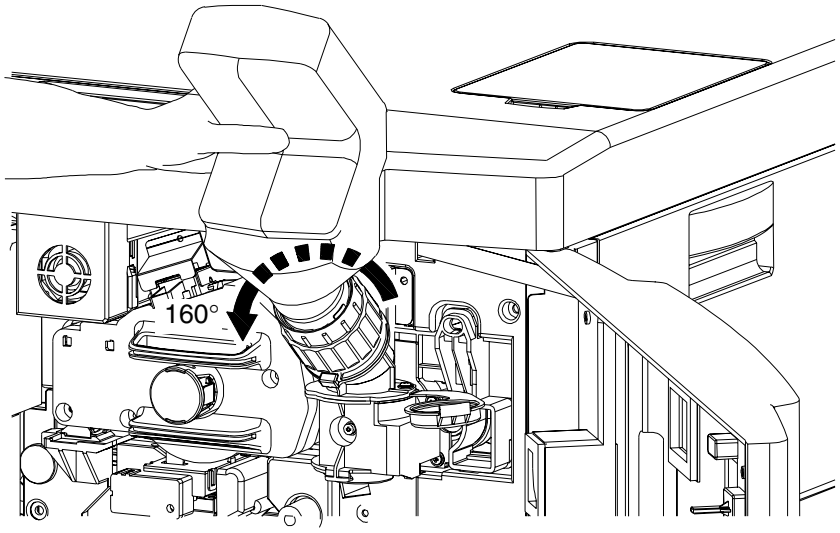
3. Press the key to start the developer supplying process.

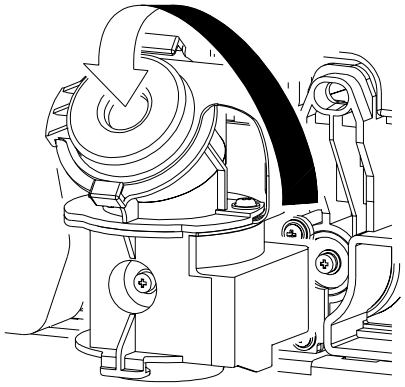
   The supplying process takes about 2 minutes. (Max: 4 minutes and 30 seconds)

Note: Tap the top of the developer bottle to make it empty.

4. Remove the developer bottle.

   Turn the developer bottle cap back about 160 degrees in the arrow direction shown below.
   Put the duct cap back on the Developer Duct.





5. Clean any spilled developer on the printer.
6. Close the Front Cover of the printer.
   The COVER OPEN FRONT COVER error message appears. Press the key to clear the error message.

Note: Keep the empty developer bottle after supplying the developer mix in order to use it for the next developer exhaust process.

3.3. Removing procedures of the covers

3.3.1. Names of Covers and Opening directions

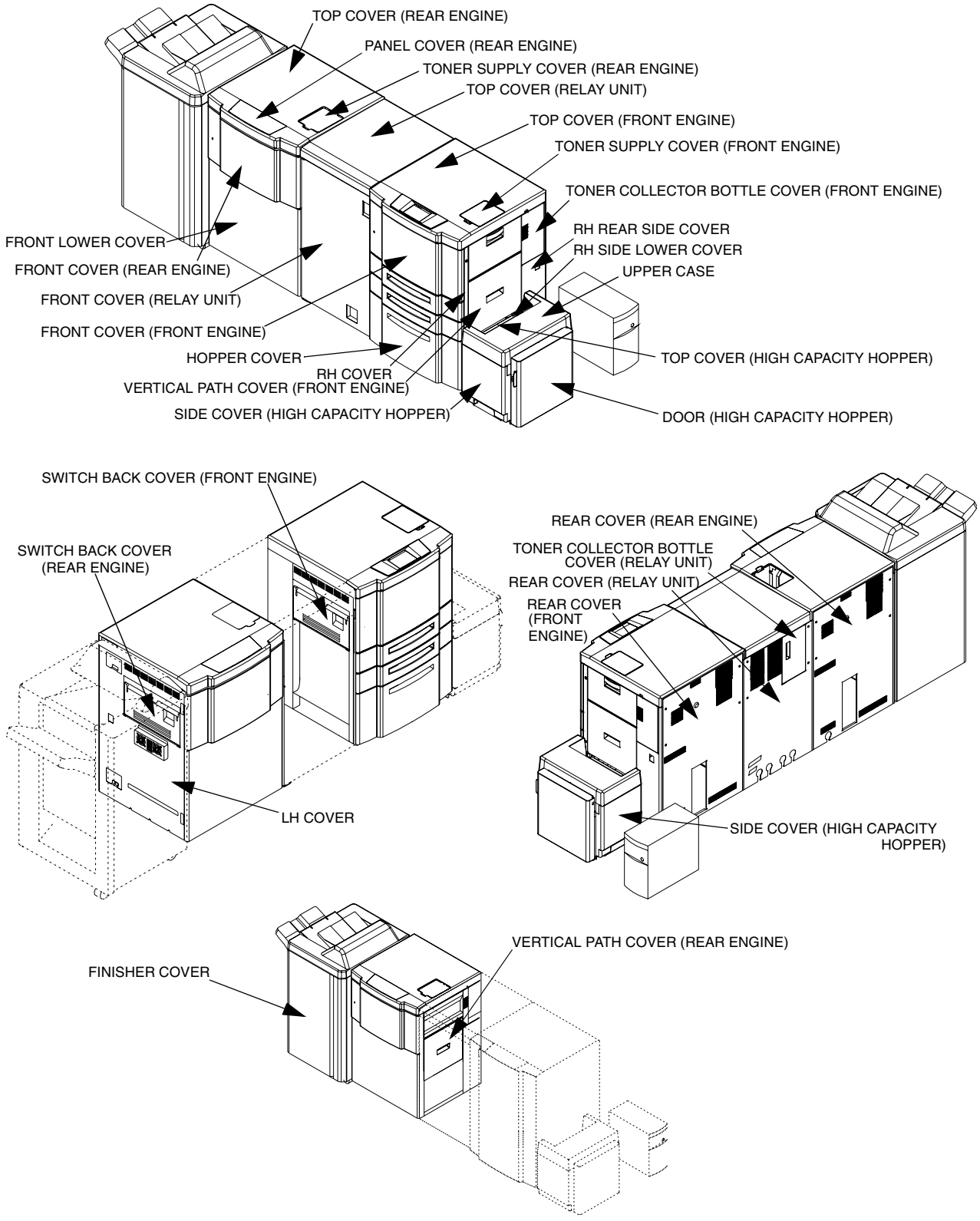


Figure 3-2. Names of Covers

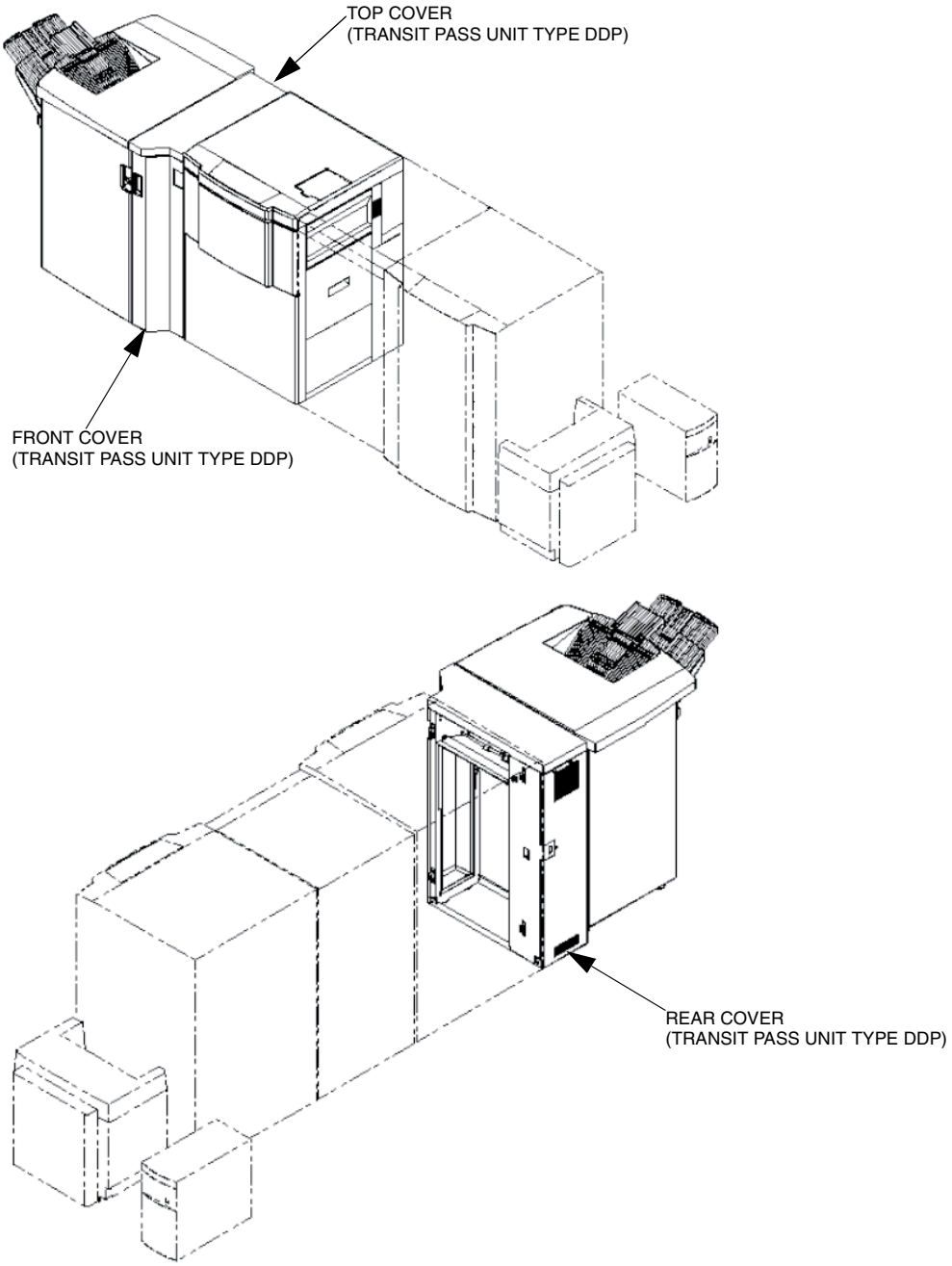


Figure 3-3. Names of Covers

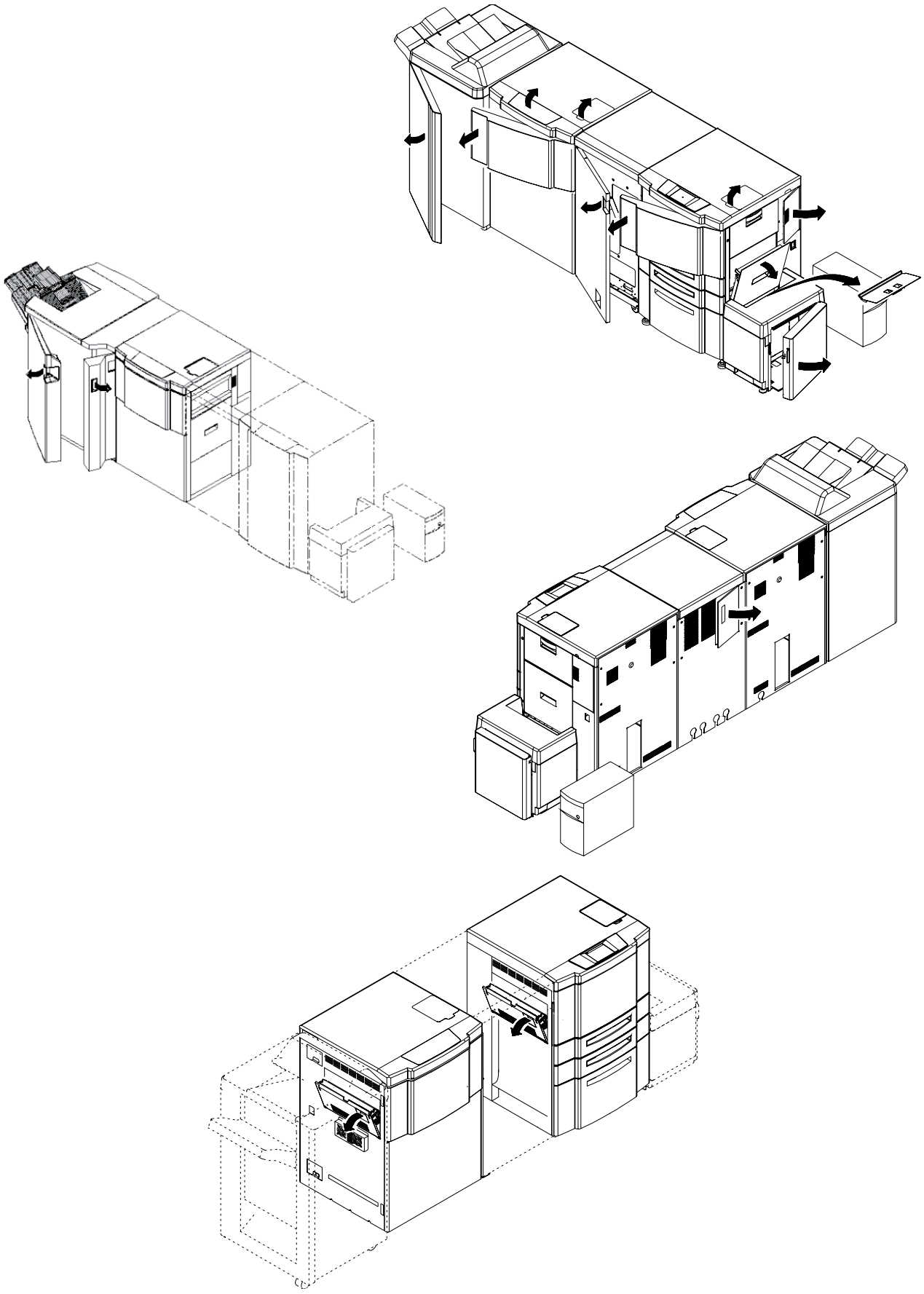


Figure 3-4. Opening direction of Covers

3.3.2. Removing of the Covers

3.3.2. (1) Removing of the Engine Covers

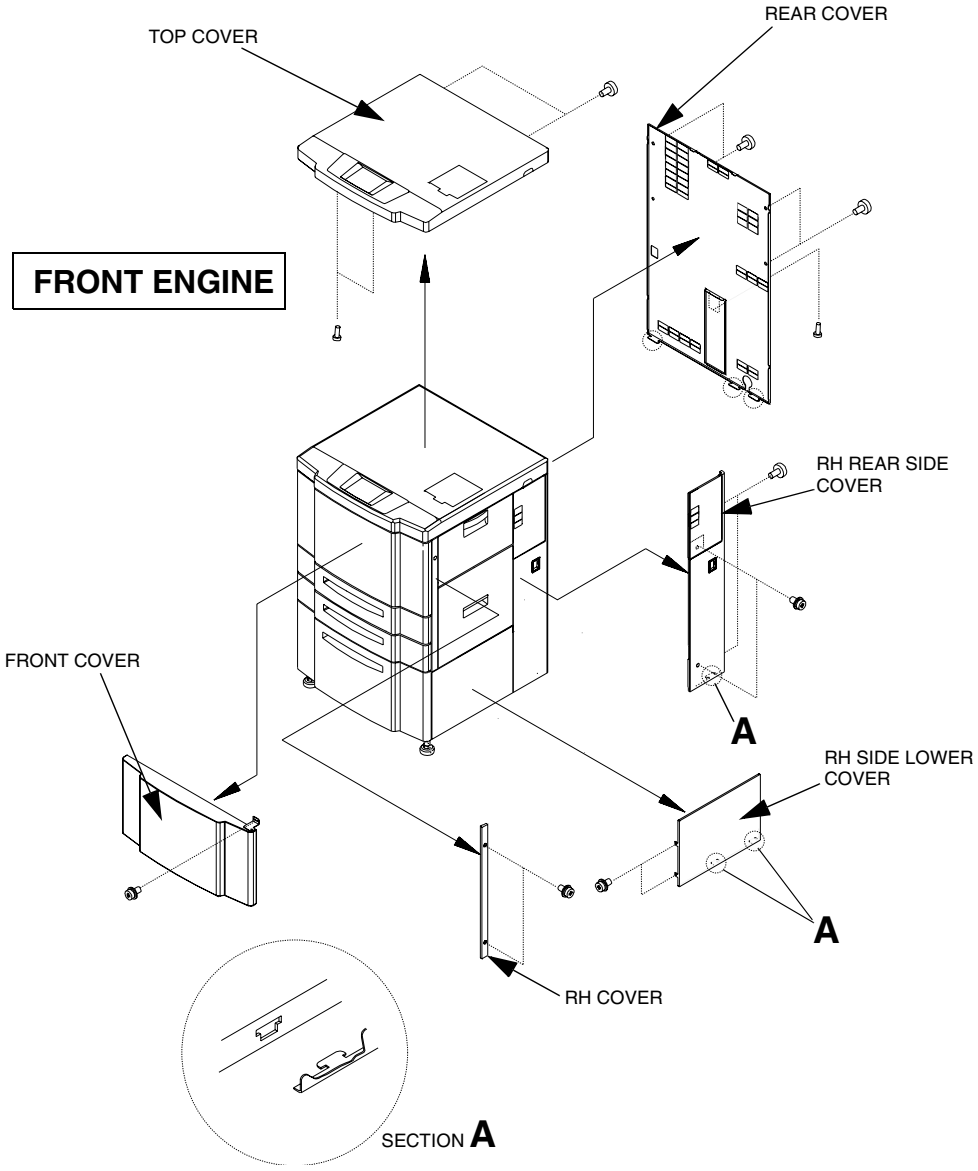
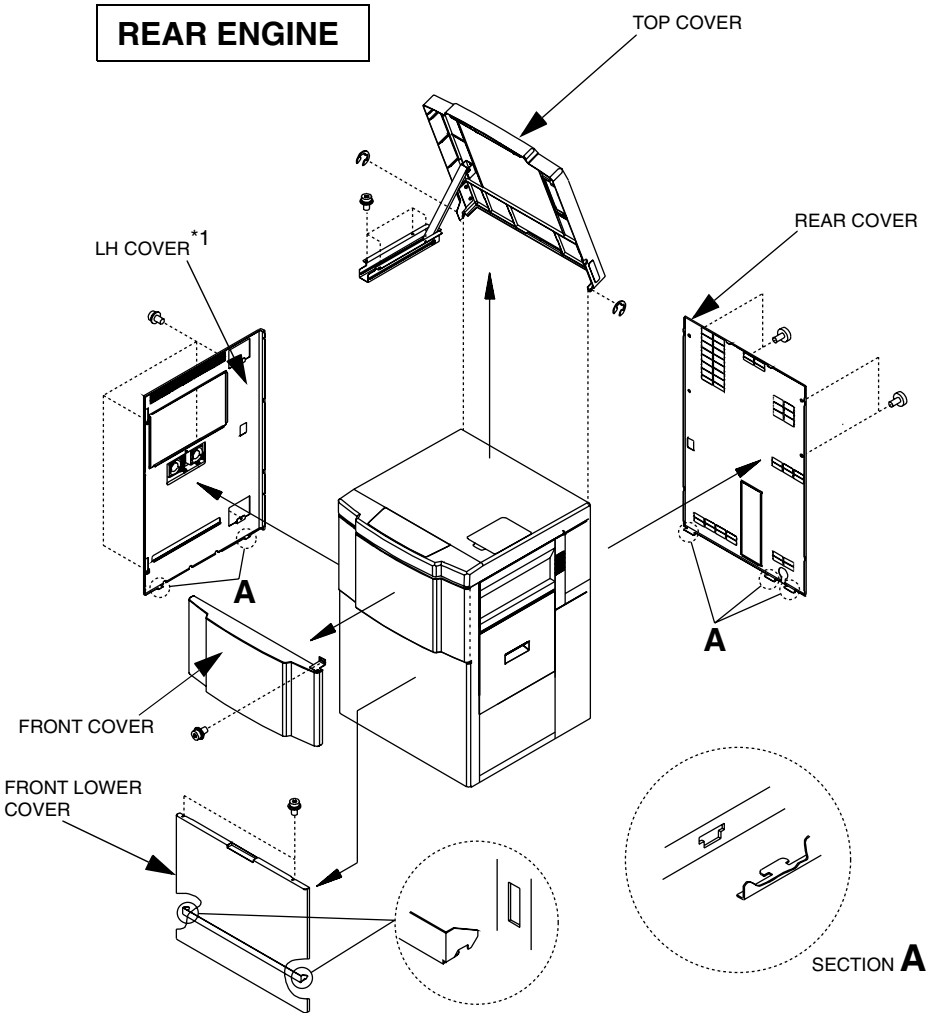


Figure 3-5. Removing the Engine Covers



*1 REMOVE THE CONNECTED UNIT (FINISHER OR TRANSIT PASS UNIT TYPE DDP OR CONTAINER STACKER) BEFORE REMOVING THE LH COVER.

Figure 3-6. Removing the Engine Covers

3.3.2. (2) Removing of the High Capacity Hopper Covers

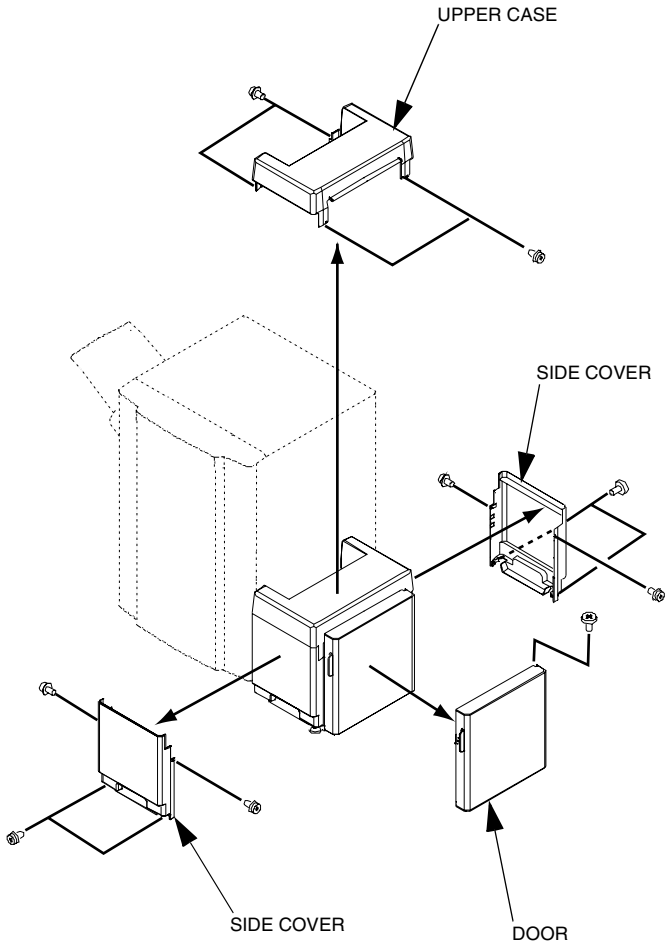


Figure 3-7. Removing of the High Capacity Hopper Covers

3.3.2. (3) Removing of the Relay Unit Covers

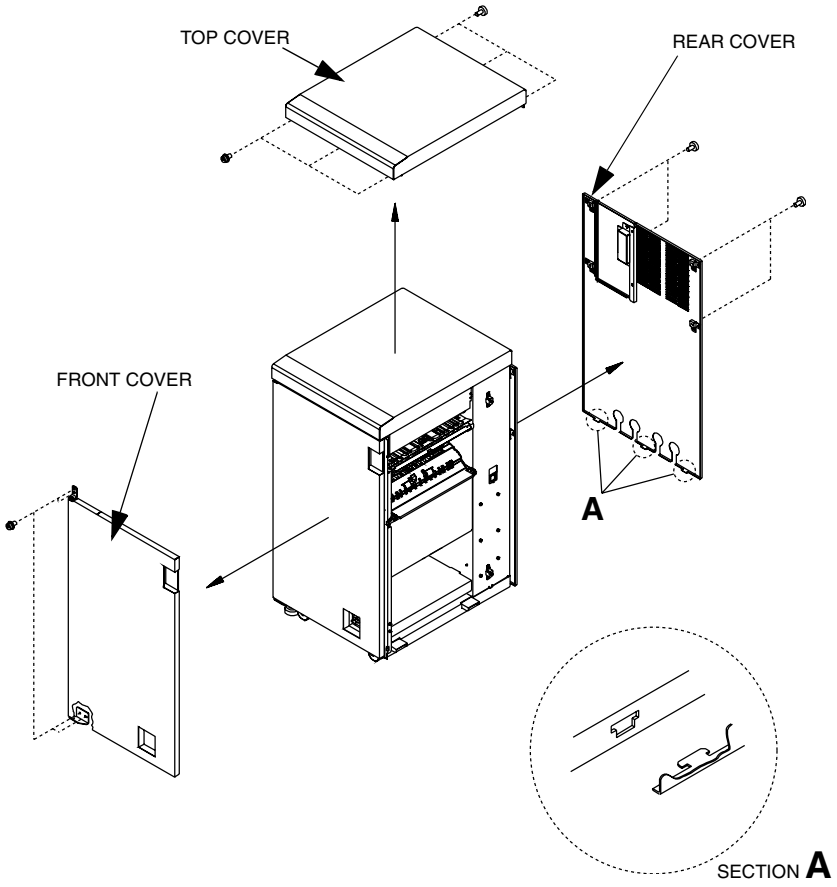


Figure 3-8. Removing of the Relay Unit Covers

3.3.2. (4) Removing of the Transit Pass Unit Type DDP Covers

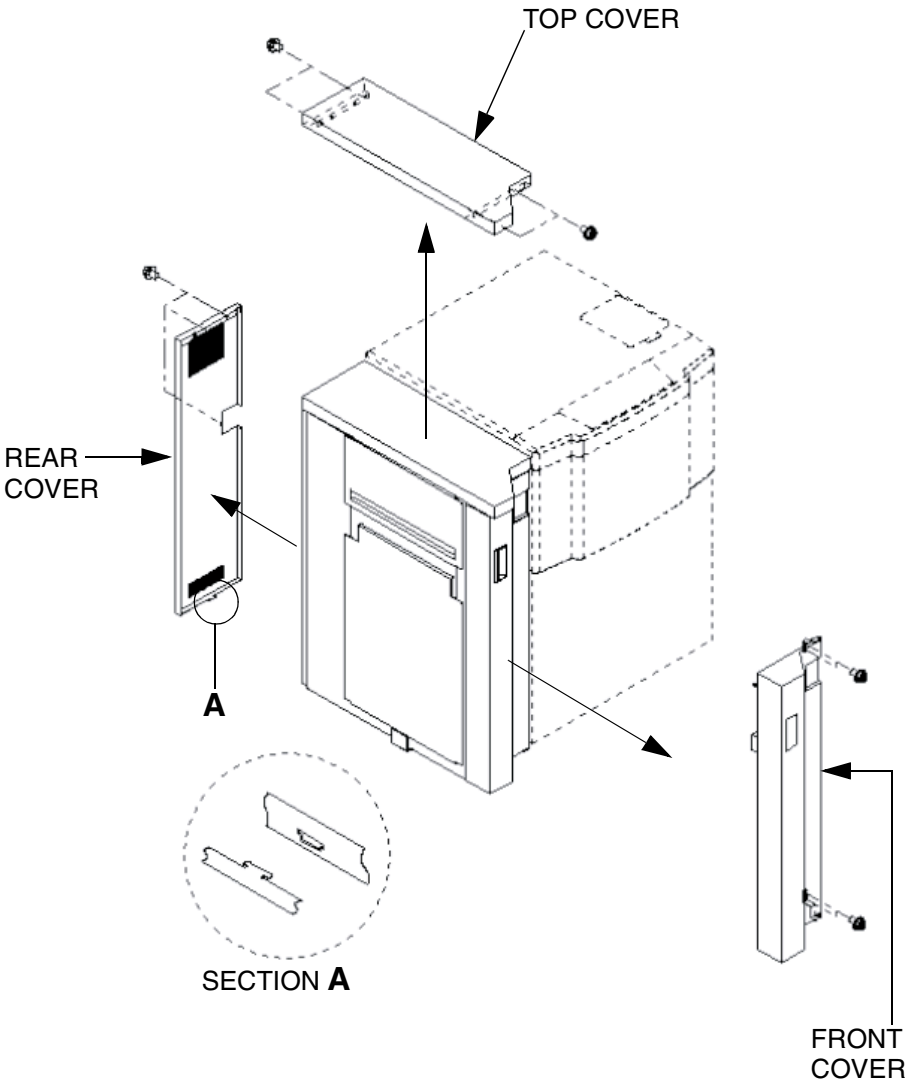


Figure 3-9. Removing of the Transit Pass Unit Type DDP Covers

3.4. Powering ON and OFF the Printer

3.4.1. Powering ON and OFF

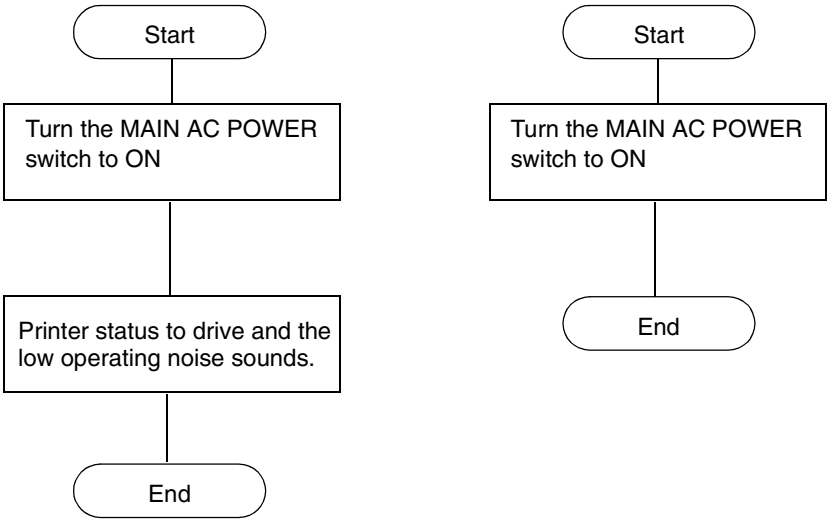


Figure 3-10. Powering ON & OFF

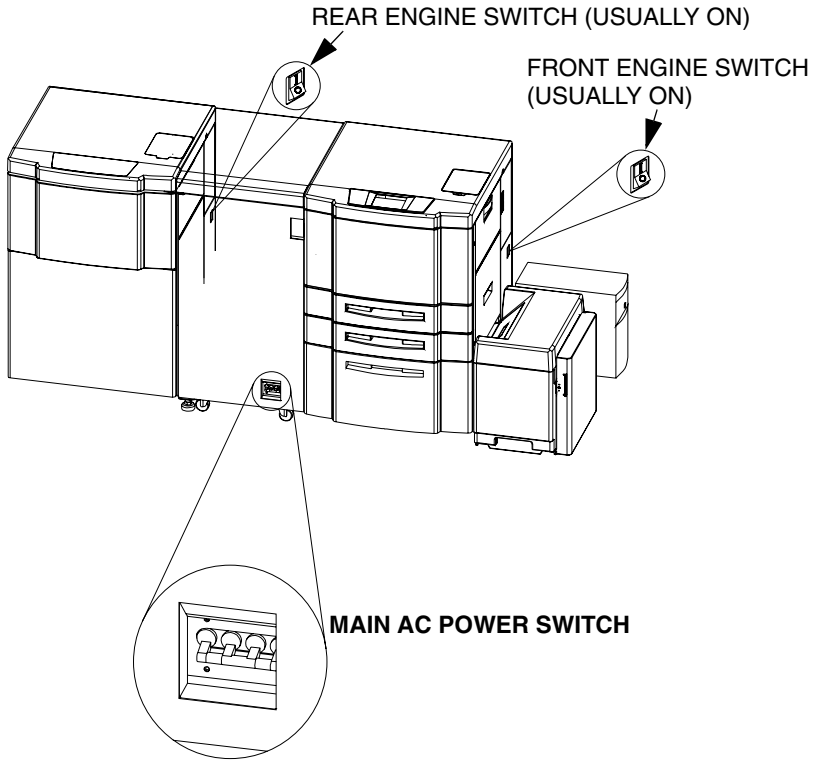


Figure 3-11. Location of the Main AC Power Switch

Note: **1)** It is not necessary to turn off the Front Engine Switch and Rear Engine Switch.
2) If Front Engine Switch and Rear Engine Switch is in off condition when turning on the Power Switch error will occur or display will not be up.
In this case, turn off the Power Switch and turn on the Front Engine Switch or Rear Engine Switch, subsequently turn on the Power Switch.

3.5. Where Adjustments and Removals are prohibited

The following units and parts are particularly assembled and adjusted. Therefore, never disassemble them.

1. Optical Unit ..... This is assembled and adjusted in precision.
2. Developer Unit ..... The position of the Doctor Blade is adjusted in precision.
3. Fuser Unit ..... These are consumable parts.
4. Fuser Cleaner Web ..... These are consumable parts.
5. Parts painted in red ..... These are specially adjusted.

3.6. Tools Required

3.6.1. List of all tools

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

Table 3-1. Names of Special Tools

Item	Name	Q'ty	Part Number	APPLICATION	Maint. Ref.	NOTE
1.	Interlock Stopper	2	G1552542 (7534159)	To be used when the front cover is open.		To be shipped with the Printer as the accessory (when ordered) or may be purchased separately.
2.	Wire Cleaning Tool	2	G1501426 (N320426A)	To clean the wire of the Corotron Assembly.		
3.	Blower	1	G1521218 (7096010)	To clean the Image Sensor and Multi Feed Sensor.		
4.	Stapler Jig	1	G8581458 (N426067)	Used at staple position Adjustment.		It is purchased separately.

Table 3-2. Names of General Tools - Scale in metric

Item	NAME	SPECIFICATION
1.	Philips Screwdriver	No. 2 MediumShaft length ; approx. 100mm
2.	Philips Screwdriver	No. 2 LongShaft length ; approx. 300mm
3.	Philips Screwdriver	No. 2 ShortShaft length ; approx. 40mm
4.	Screwdriver	Tip width; approx. 6mm, shaft length; approx. 100mm
5.	Jeweller's Screwdriver Set	Tip width 2.0 to 2.5 mm
6.	Hex Wrench Set	2.5, 3.0mm size must be included in the set
7.	Long Nose Chain Plier with side cutter (Radio Nipper)	
8.	Blower Brush	
9.	Push-Pull Scale	1 kg
10.	Thickness Gauge Set	0.05, 0.1, 0.2, 0.3, 0.4, 0.5 mm
11.	Adjustable Open End Wrench	Span 30mm
12.	Pincette (Tweezers)	

Table 3-3. Measurement Instruments

Item	NAME	USAGE
1.	Digital Multimeter	Measurement of Voltage and Resistance

Note: It may not be possible to measure correctly if the multimeter (analogue multimeter) of Low Input Impedance is used.

Table 3-4. Consumables

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

Table 3-5. Others

Item	NAME	USAGE
1.	Vacuum Cleaner (toner proof)	Cleaning contaminated areas of the printer
2.	Note PC (for update of Controller S/W) OS: WindowsNT 4.0 or Windows 2000 Storage: CD-ROM drive LAN: 10BaseT/100BaseTx	
3.	Ethernet Cable - Category 5 UTP/STP - Cross cable	

3.6.2. Usage of the Interlock Stopper

The Interlock Stopper is used to check with the Front Cover open if the printer operates correctly.

CAUTION:
Stop the print operation prior to performing the operation.

Applicable jigs and tools : Interlock Stopper.

[Usage Procedures]

1. Open the Front Cover. (Refer to item 3.3.1 on page 3-9)
2. Insert the Interlock Stopper into the Interlock Switch and fix it there.
3. Check if the printer operates correctly.

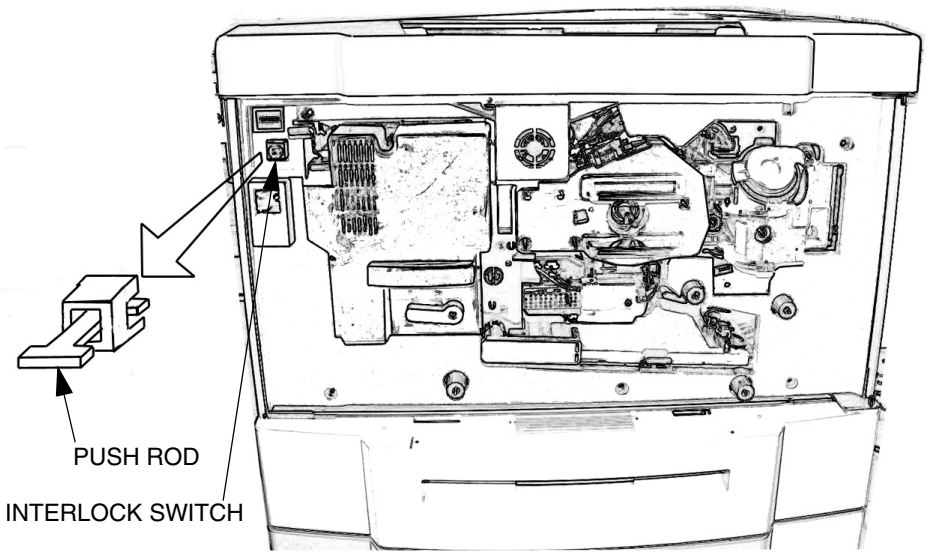


Figure 3-12. Usage of the Interlock Stopper

[Assembling Procedures]

Release the Interlock Stopper after performing checks. Do not leave it in the printer.

3.7. Motor Locations

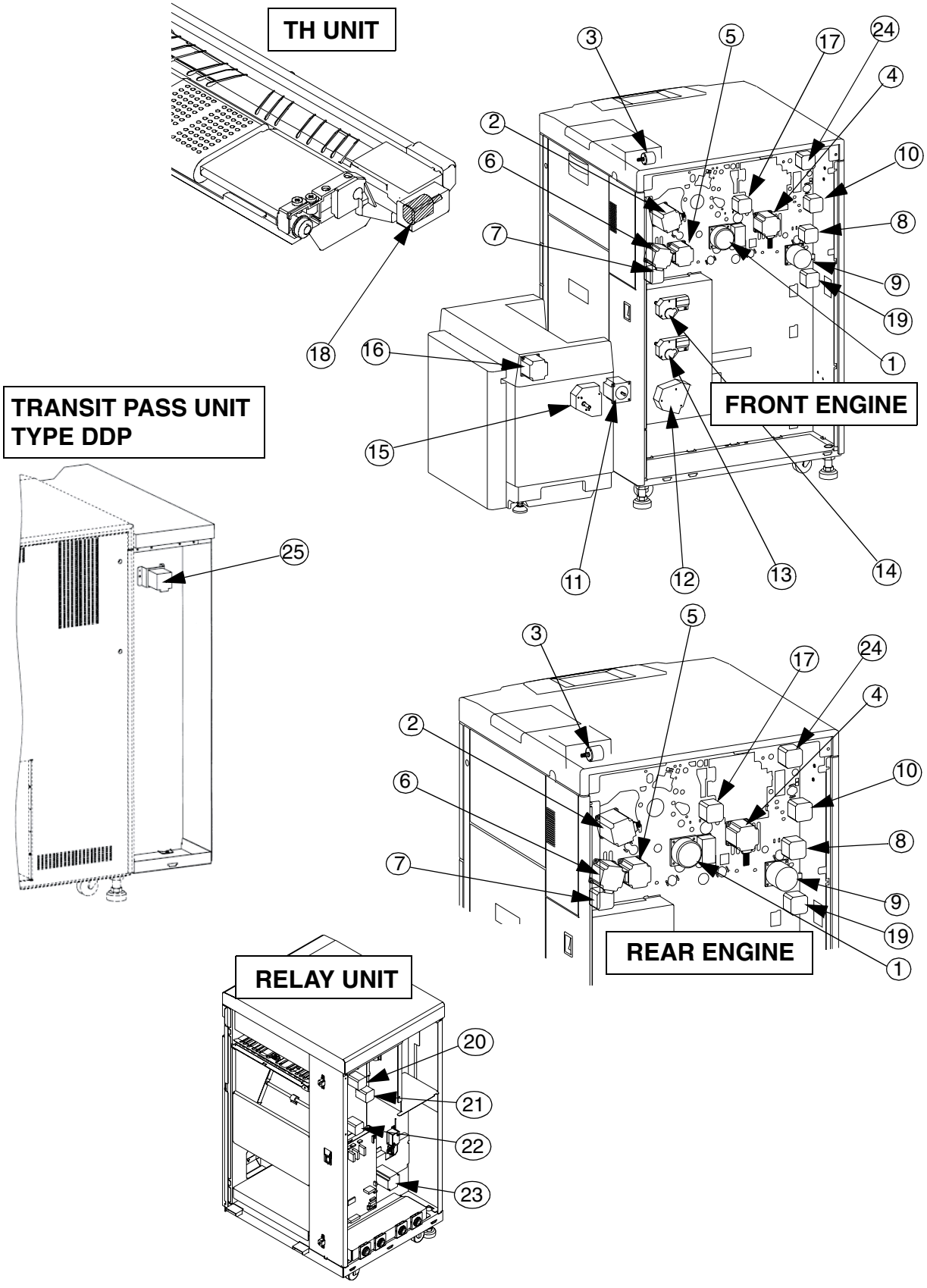


Figure 3-13. Location of all Motors

Table 3-6. Names of Motors

No.	Name	Marks	Motor Connector	Maintenance Ref. + Page	Parts Catalog			Remarks
					List	Item No.	Block	
1.	Drum Motor	M701	P/J728	7.1.2.5. (7) Page 7-53	12, 28	4[*1] 25[*2]	PMK	Drum Drive Unit
2.	DEV. Motor	M321	P/J321	7.1.2.3. (3) Page 7-13	8 9	76 76	PMD PMD	Developer Unit
3.	Toner Feed Motor	M322	P/J329	7.1.2.4. (2) Page 7-38	10 11	8 8	PMH PMH	Toner Hopper Unit
4.	HR Motor	M501	P/J729	7.1.2.5. (8) Page 7-54	12, 28	16	PMK	Drum Drive Unit
5.	Registration Motor	M301	P/J725	7.1.3.10 Page 7-151	13	50	PH	Paper Feed Block
6.	Timing Motor	M302	P/J726	7.1.3.11 Page 7-152	13	50	PH	Paper Feed Block
7.	Return Motor	M305	P/J727	7.1.3.12 Page 7-153	13	51	PH	Paper Feed Block
8.	Flip Motor	M503	P/J731	7.1.3.7 Page 7-148	13	12	PH	Paper Feed Block
9.	SB Motor	M504	P/J733	7.1.3.8 Page 7-149	13	38	PH	Paper Feed Block
10.	PF Out Motor	M505	P/J730	7.1.3.9 Page 7-150	13	12	PH	Paper Feed Block
11.	Hopper Feed Motor	M401	P/J405	7.1.4.3. (11) Page 7-189	23	103	PTV	Paper Supply Block
12.	HP1 Table Motor	M402	P/J431	7.1.4.3. (12) Page 7-190	23	36[*1] 37[*2]	PTV	Paper Supply Block
13.	HP2 Table Motor	M403	P/J	7.1.4.3. (13) Page 7-191	23	26[*1] 28[*2]	PTV	Paper Supply Block
14.	HP3 Table Motor	M404	P/J	7.1.4.3. (13) Page 7-191	23	26[*1] 28[*2]	PTV	Paper Supply Block
15.	HP5 Table Motor	M422	P/J440	7.2.18 Page 7-252	26	9[*1] 18[*2]	LH	High Capacity Hopper
16.	HP5 Feed Motor	M421	P/J424	7.2.15 Page 7-246	26	162	LH	High Capacity Hopper
17.	TH Motor	M308	P/J736	7.1.2.5. (9) Page 7-55	12, 28	62	PMK	Drum Drive Unit
18.	Corotron Cleaner Motor	M304	P/J338	7.1.3.4. (14) Page 7-116	18	51	PHT	Paper Feed Block
19.	SB Gate Motor	M506	P/J533	7.1.3.16 Page 7-157	13	24	PH	Paper Feed Block
20.	Relay Unit Feed Motor 1	M351	P/J727	7.3.2 Page 7-288	25	107	R	Relay Unit Block
21.	Relay Unit Feed Motor 2	M352	P/J726	7.3.3 Page 7-289	25	107	R	Relay Unit Block
22.	Relay Unit Feed Motor 3	M353	P/J725	7.3.4 Page 7-290	25	107	R	Relay Unit Block
23.	Relay Unit Feed Motor 4	M354	P/J733	7.3.5 Page 7-291	25	113	R	Relay Unit Block
24.	CW Motor	M502	P/J735	7.1.3.14 Page 7-155	13	26	PH	Paper Feed Block
25.	Transit Pass Unit Type DDP Motor	M801	P/J421	7.4.4 Page 7-318	32	19	TP	Transit Pass Unit Type DDP

[*1] Do not use these parts for RoHS

[*2] Use these parts only for RoHS (from S/N Q48406xxxxx)

3.8. Clutch Locations

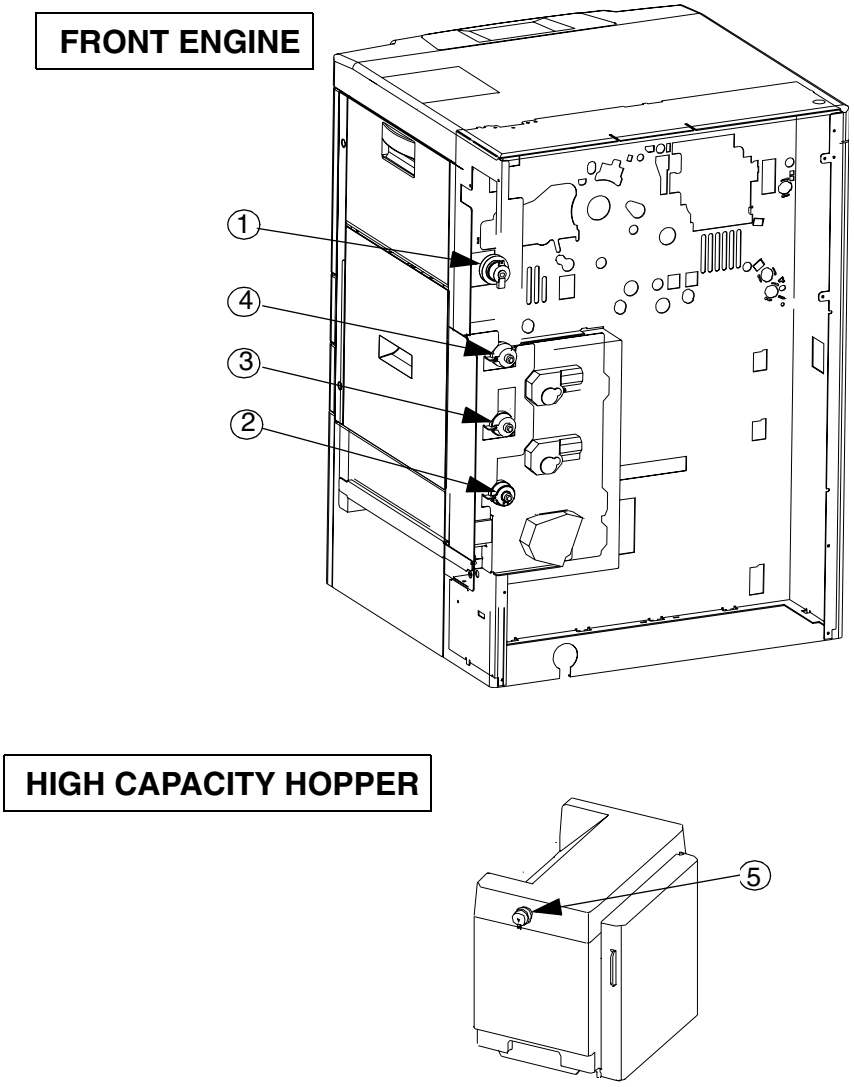


Figure 3-14. Location of all Clutches

Table 3-7. Names of Clutches

No.	Name	Marks	Clutch Connector	Maintenance Ref. + Page	Parts Catalog			Remarks
					List	Item No.	Block	
1.	MB Pick Clutch	L301	P/J330	7.1.3.2. (7) Page 7-78	15	40	PHM	Multi-bypass Tray Unit
2.	HP1 Pick Clutch	L401	P/J434	7.1.4.3. (7) Page 7-185	23	68	PTV	Vertical Path Assembly
3.	HP2 Pick Clutch	L402	P/J435	7.1.4.3. (7) Page 7-185	23	68	PTV	Vertical Path Assembly
4.	HP3 Pick Clutch	L403	P/J436	7.1.4.3. (7) Page 7-185	23	68	PTV	Vertical Path Assembly
5.	HP5 Pick Clutch	L421	P/J441	7.2.23 Page 7-268	26	119	LH	High Capacity Hopper

3.9. Fan Locations

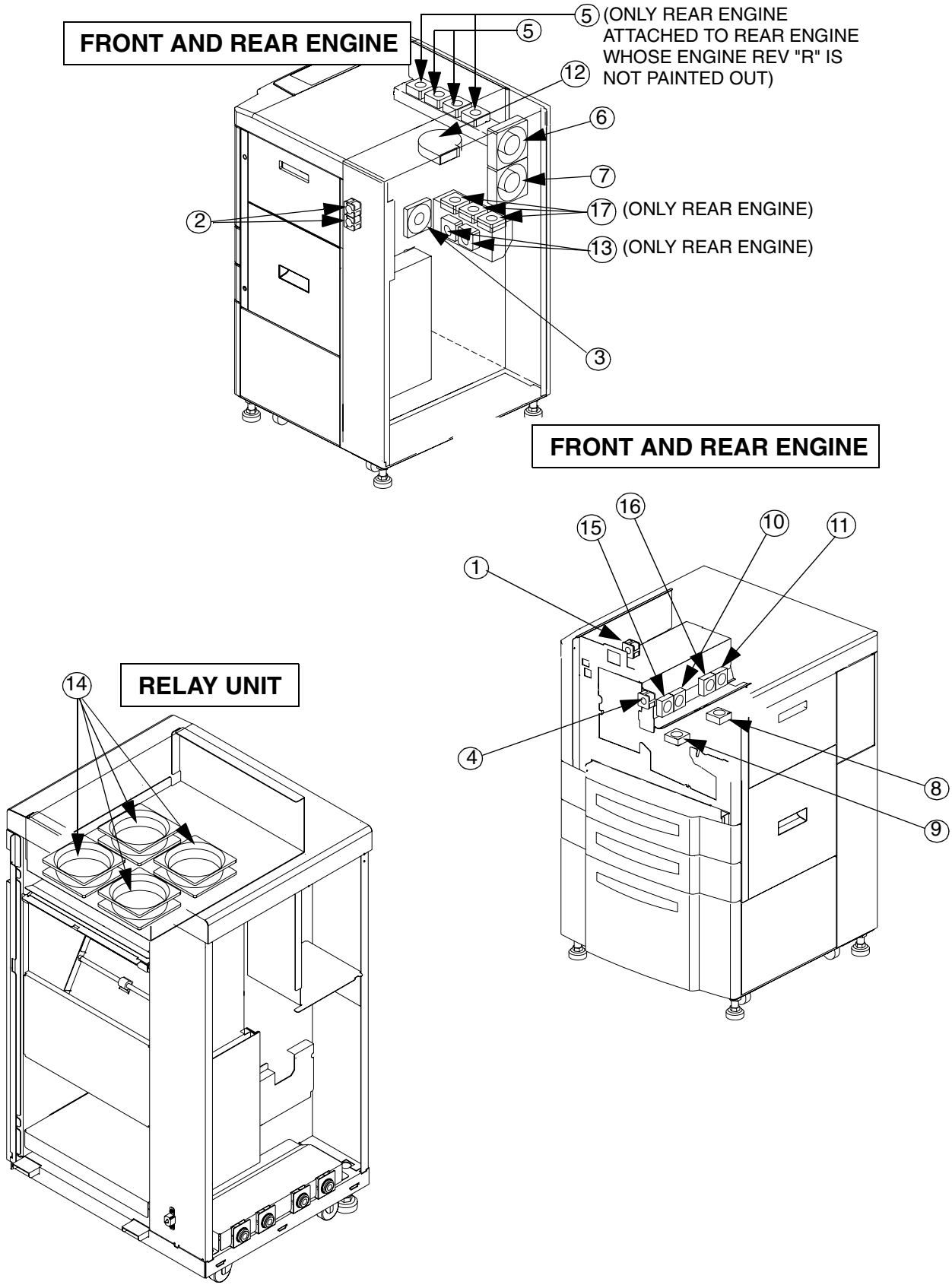


Figure 3-15. Location of all Fans & Blowers

Table 3-8. Names of Fans & Blowers

No.	Name	Marks	Fan Connector	Maintenance Ref. + Page	Parts Catalog			Remarks
					List	Item No.	Block	
1.	Mirror Cooling Fan	B101	P/J117	7.1.5.1. (1) Page 7-202	1 2	166	K1 K2	Final Assembly
2.	DEV Cooling Fan	B323	P/J331 P/J332	7.1.5.1. (6) Page 7-207	1 2	10	K1 K2	Final Assembly
3.	DEV Rear Fan	B321	P/J333	7.1.5.1. (5) Page 7-206	1 2	78	K1 K2	Final Assembly
4.	Charger Fan	B301	P/J334	7.1.5.1. (3) Page 7-204	1 2	144	K1 K2	Final Assembly
5.	DC Fan(Paper Out)	B504	P/J525	7.1.5.1. (4) Page 7-205	1 2	34	K1 K2	Final Assembly
6.	HR Fan 1	B505	P/J527	7.1.5.1. (2) Page 7-203	1 2	133	K1 K2	Final Assembly
7.	HR Fan 2	B506	P/J530	7.1.5.1. (2) Page 7-203	1 2	19	K1 K2	Final Assembly
8.	TH Fan Ass'y (1)	B302	P/J337	7.1.3.4. (8) Page 7-109	18	60	PHT	TH Unit
9.	TH Fan Ass'y (2)	B303	P/J343	7.1.3.4. (9) Page 7-110	18	69	PHT	TH Unit
10.	Separating Blower 1	B304	P/J344	7.1.3.18 Page 7-159	1 2	69	K1 K2	Final Assembly
11.	Separating Blower 2	B305	P/J345	7.1.3.18 Page 7-159	1 2	69	K1 K2	Final Assembly
12.	Ozone Blower	B311	P/J348	7.1.5.1. (7) Page 7-208	1 2	4 4	K1 K2	Final Assembly
13.	SB Cooling Fan	B357 B358	J/P368 J/P369	7.1.5.1. (24) Page 7-227	2	246	K2	Final Assembly
14.	Relay Unit Cooling Fan	B351 B352 B353 B354	J/P361 J/P362 J/P363 J/P364	7.3.6 Page 7-293	25	135	R	Relay Unit
15.	Separating Blower 3	B306	P/J346	7.1.3.18 Page 7-159	1 2	69	K1 K2	Final Assembly
16.	Separating Blower 4	B307	P/J347	7.1.3.18 Page 7-159	1 2	69	K1 K2	Final Assembly
17.	Finisher Cooling Fan	B361 B362 B363	J/P386 J/P387 J/P388	7.1.5.1. (24) Page 7-227	2	246	K2	Final Assembly

3.10. Solenoid Locations

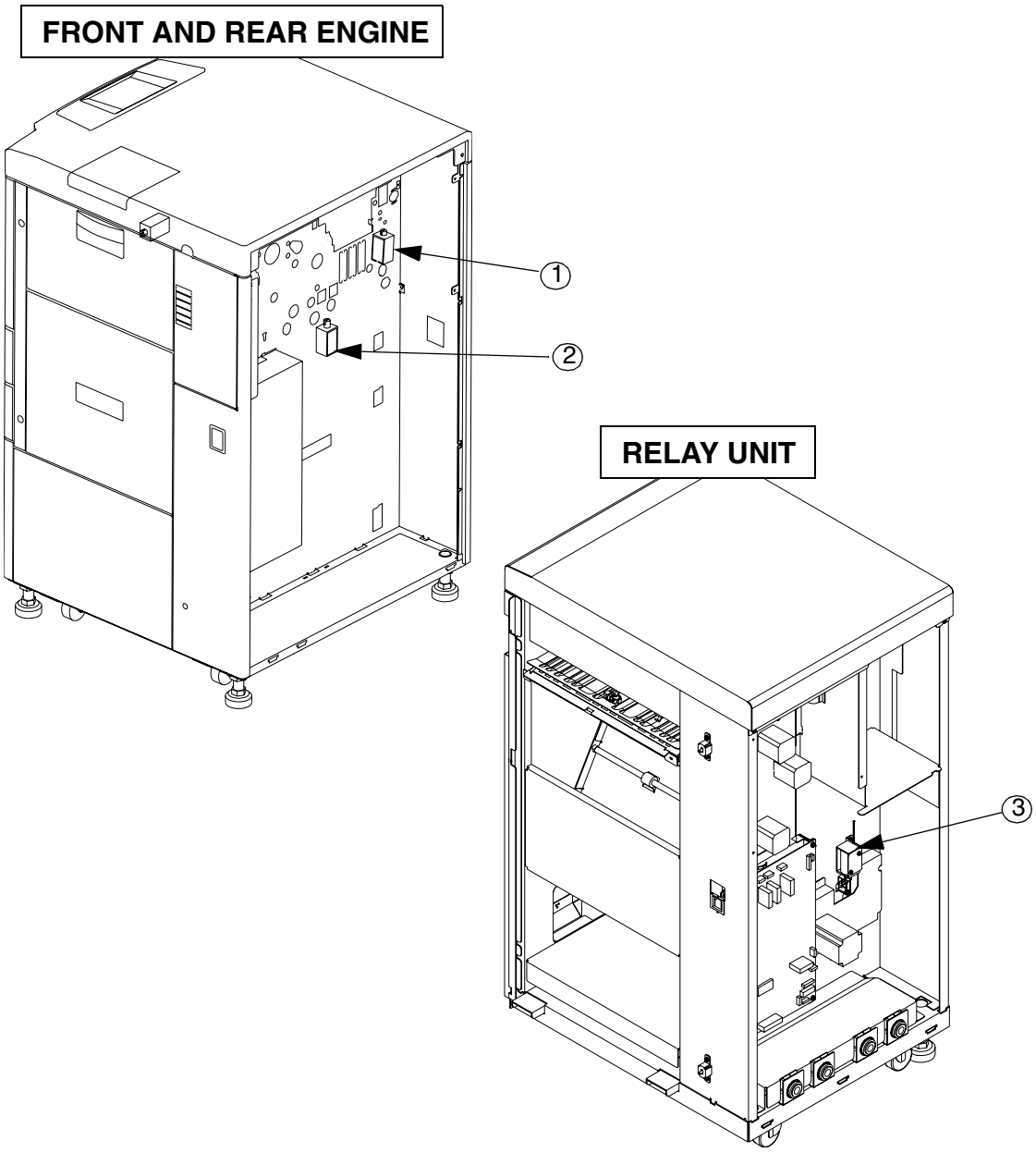


Figure 3-16. Location of all Solenoids

Table 3-9. Names of Solenoids

No.	Name	Marks	Solenoid Connector	Maintenance Ref. + Page	Parts Catalog			Remarks
					List	Item No.	Block	
1.	Flip Solenoid	L501	P/J732	7.1.3.15 Page 7-156	13	13	PH	Paper Feed Block
2.	Solenoid (Decurler)	L350	P/J350	7.1.3.6. (14) Page 7-145	20	60	PHD	Duplex Path Assembly
3.	Relay Unit Solenoid (Decurler)	L351	P/J370	7.3.7 Page 7-294	25	89	R	Relay Unit

3.11. Switch & Sensor Locations

3.11.1. Switch Locations

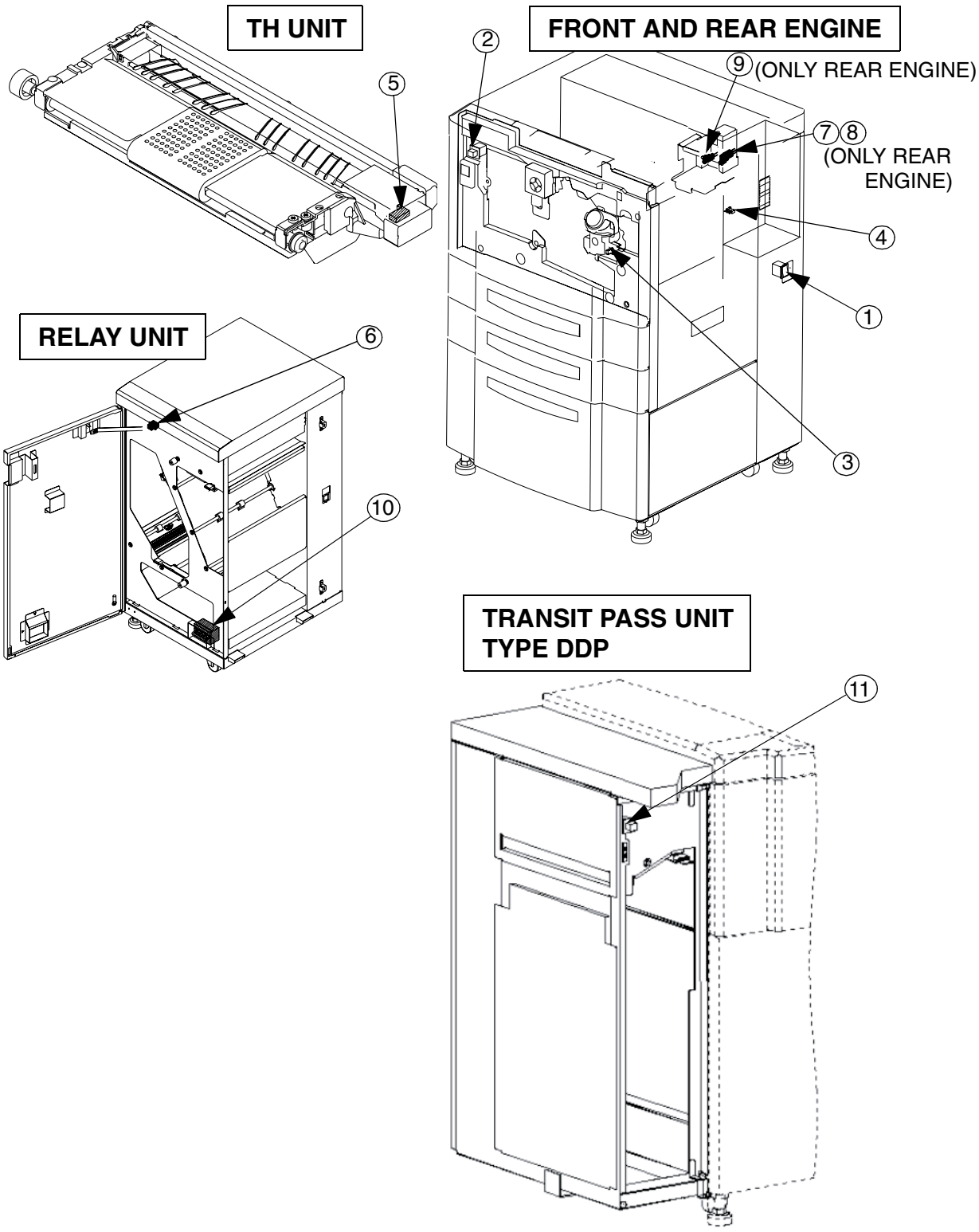


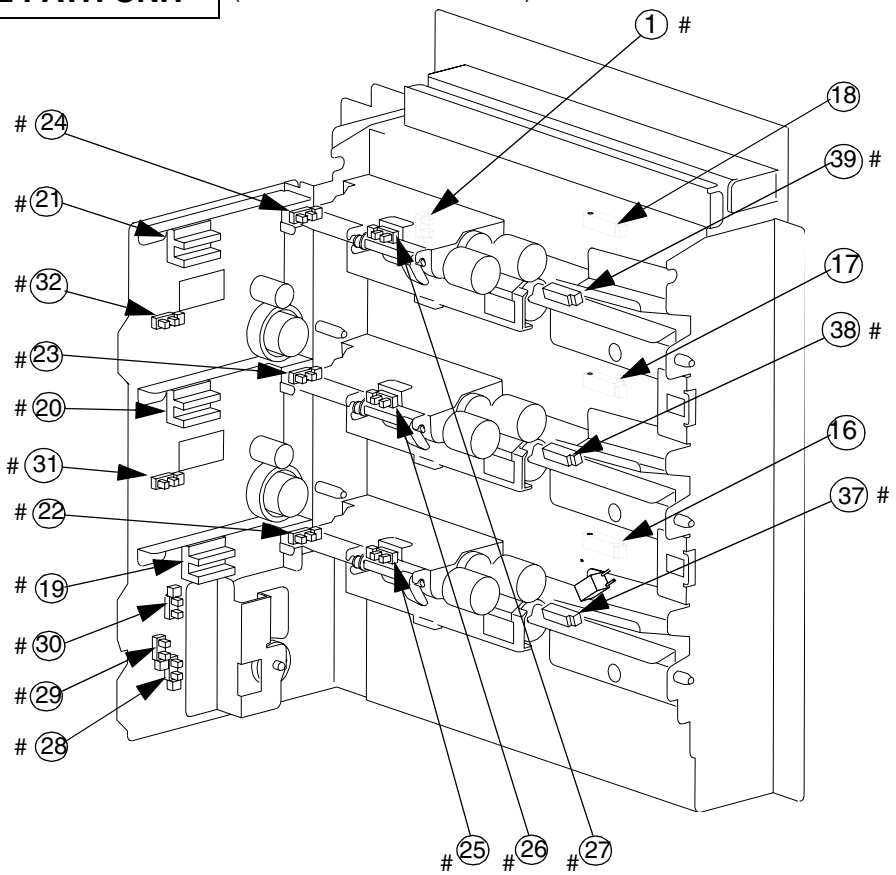
Figure 3-17. Location of all Switches

Table 3-10. Names of Switches

No.	Name	Maintenance Ref. + Page	Parts Catalog			Remarks
			List	Item No.	Block	
1.	Power Switch					
2.	Push Button Switch		1 2	157 157	K1 K2	Final Assembly
3.	DEV Bottle Set Sensor	7.1.2.3. (2) Page 7-12	8 9	85 85	PMD	Developer Unit
4.	Toner Collector Bottle Set Sensor	7.1.2.6. (2) Page 7-63	4 5	37	PM	EP Section
5.	Cleaner Position Sensor	7.1.3.4. (15) Page 7-117	18	53	PHT	Paper Feed Block
6.	Push Button Switch (Relay Unit)		25	134	R	Relay Unit
7.	Toner Hopper Set Sensor 1	7.1.5.1. (26) Page 7-229	2	253	K2	Final Assembly
8.	Toner Hopper Set Sensor 2	7.1.5.1. (26) Page 7-229	2	253	K2	Final Assembly
9.	Developer Set Sensor	7.1.5.1. (25) Page 7-228	2	259	K2	Final Assembly
10.	Power Switch (Relay Unit)	7.3.8 Page 7-295	25	128	R	Relay Unit
11.	Push Switch	7.4.11 Page 7-325	32	24	TP	Transit Pass Unit Type DDP

3.11.2. Sensor Locations

VERTICAL PATH UNIT (# : ONLY FRONT ENGINE)



FRONT AND REAR ENGINE

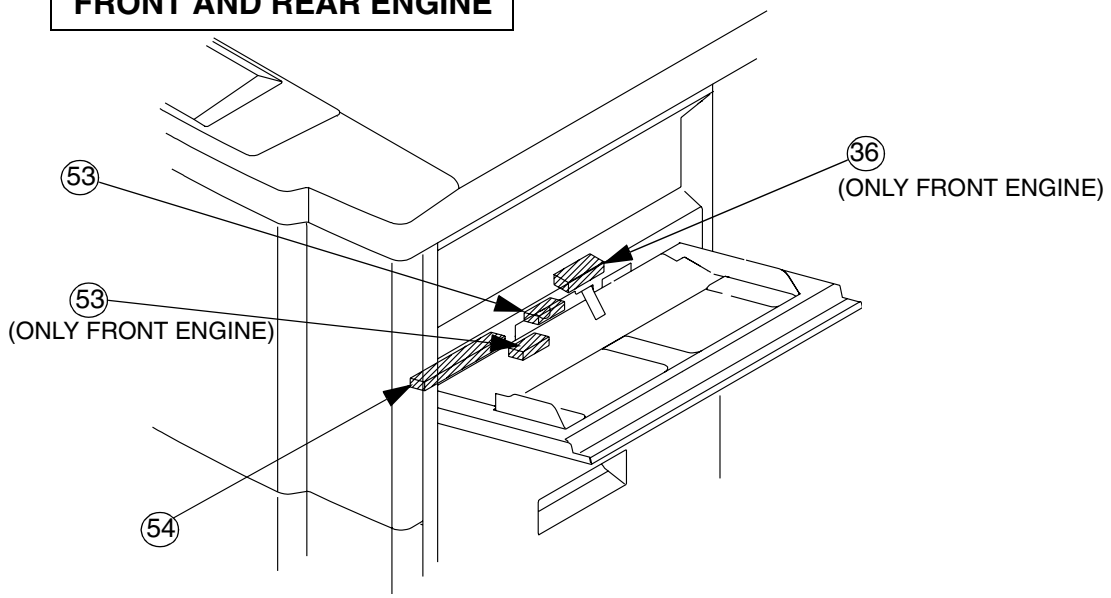


Figure 3-18. -1 Location of all Sensors

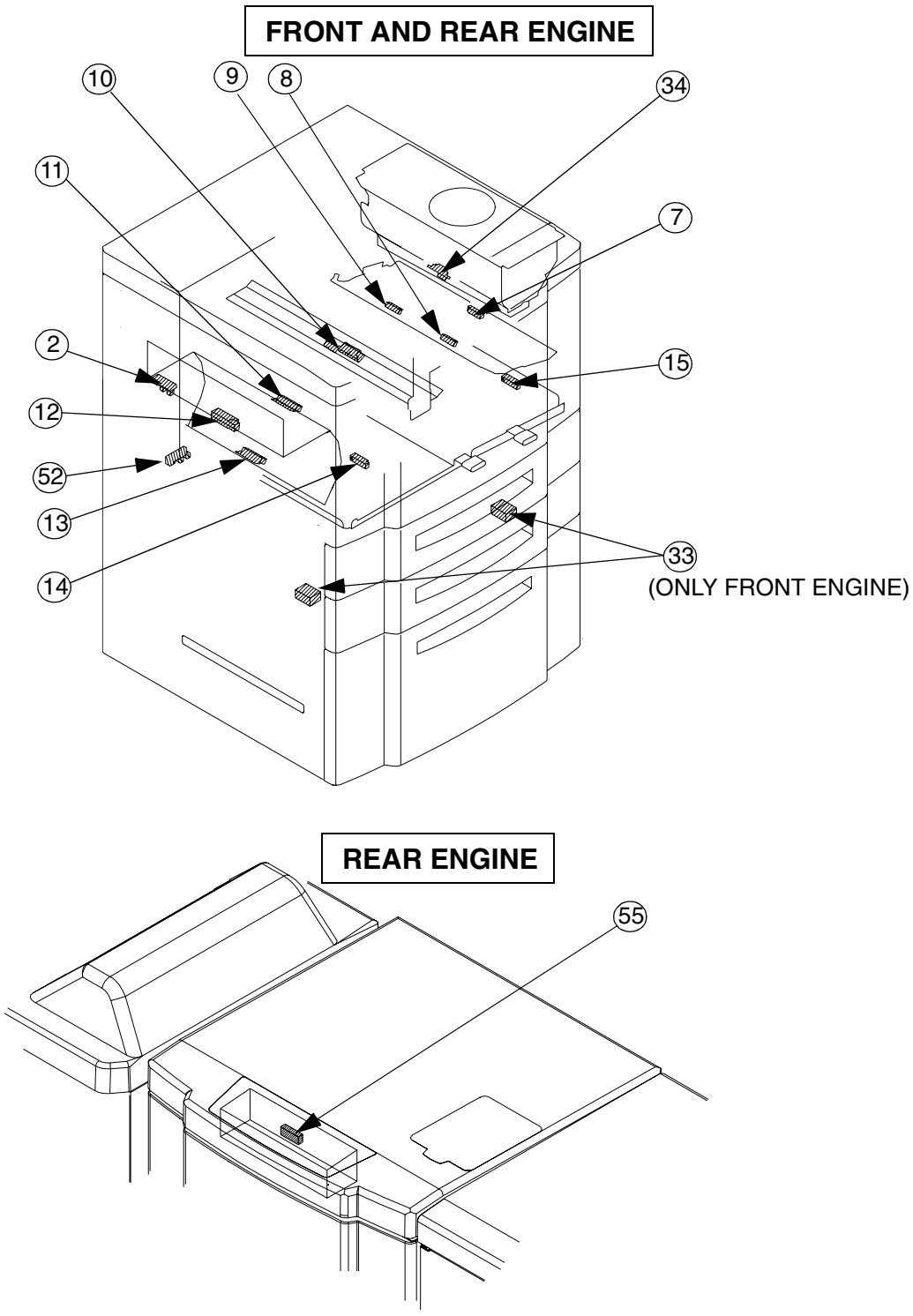


Figure 3-19. -2 Location of all Sensors

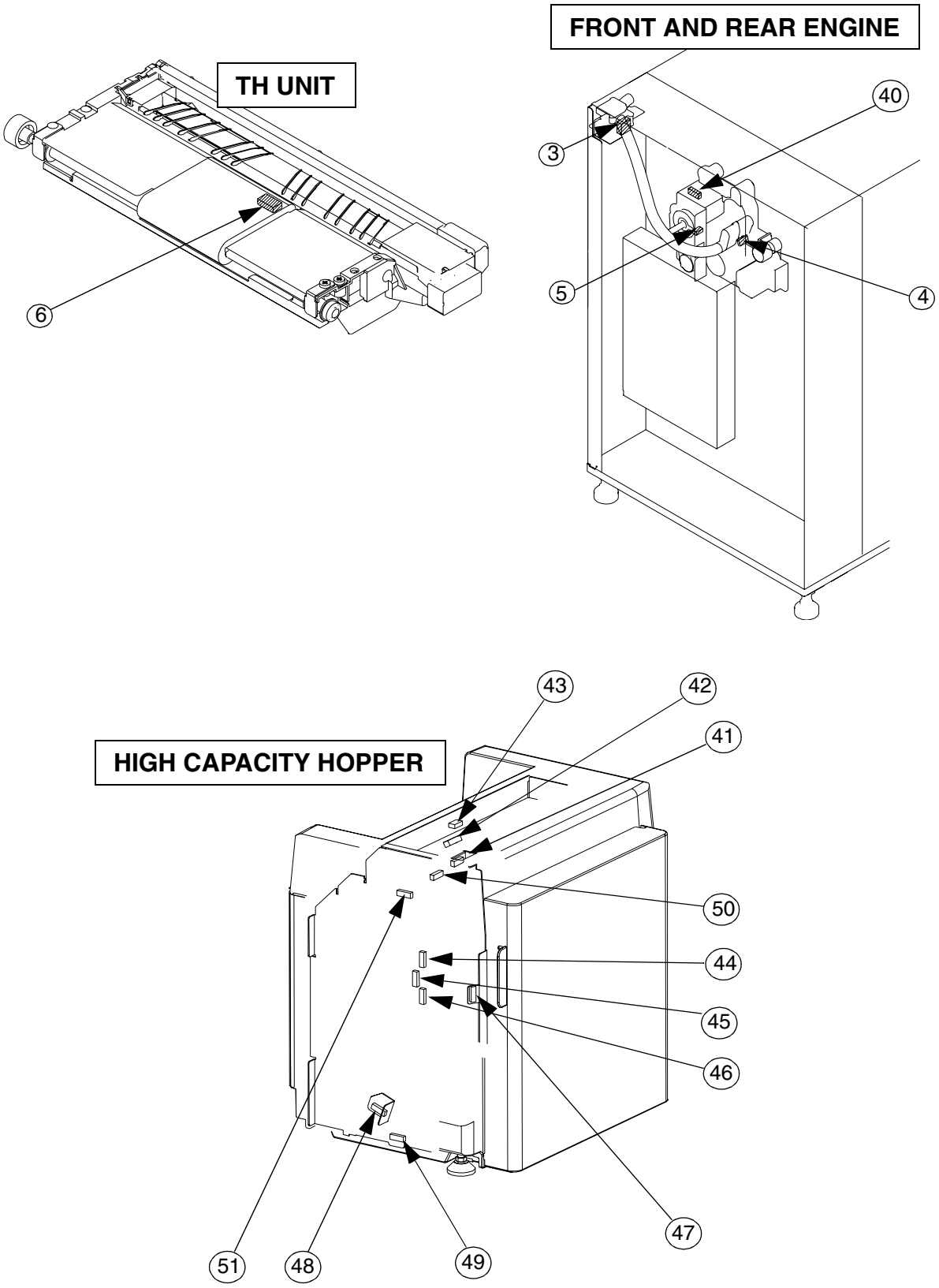


Figure 3-20. -3 Location of all Sensors

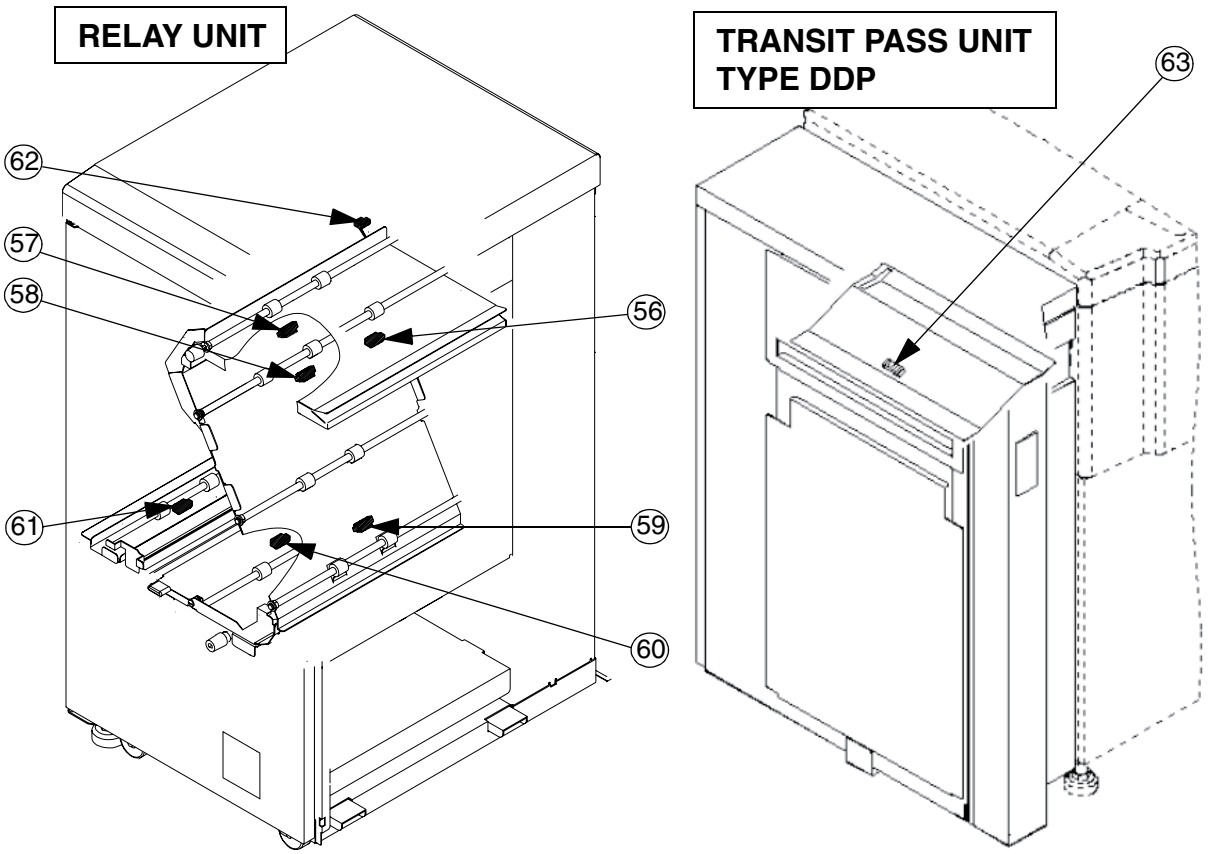


Figure 3-21. -4 Location of all Sensors

Table 3-11. Names of Sensors

No.	Name	Maintenance Ref. + Page	Parts Catalog			Remarks
			List	Item No.	Block	
1.	IS Cover Open Sensor	7.1.4.3. (21) Page 7-199	23	21	PTV	Vertical Path Assembly
2.	SB Cover Sensor		19	17	PHS	Switch Back Assembly
3.	Toner Sensor (Recycle Unit)	7.1.2.6. (5) Page 7-66 Bottle Full	4 5	29 29	PM PM	EP Section
4.	Recycle REV Sensor	7.1.2.6. (4) Page 7-65	4 5	28 28	PM PM	EP Section
5.	Drum REV Sensor	7.1.2.5. (3) Page 7-49	12	51	PMK	Drum Drive Unit
6.	Temperature Humidity Sensor	7.1.3.4. (7) Page 7-108	18	17	PHT	TH Unit Assembly
7.	Timing Sensor	7.1.3.3. (4) Page 7-95	17	29	PHR	Resist Assembly
8.	Skew Sensor 1	7.1.3.3. (5) Page 7-96	17	29	PHR	Resist Assembly
9.	Skew Sensor 2	7.1.3.3. (5) Page 7-96	17	29	PHR	Resist Assembly
10.	Drum Wrap Sensor	7.1.5.1. (12) Page 7-213	4 5	1 1	PM PM	EP Section
11.	Flip Sensor	7.1.3.5. (5) Page 7-126	19	16	PHS	Switch Back Assembly
12.	PF Out Sensor	7.1.3.5. (7) Page 7-128	19	18	PHS	Switch Back Assembly
13.	SB Sensor	7.1.3.5. (6) Page 7-127	19	16	PHS	Switch Back Assembly

Table 3-11. Names of Sensors

No.	Name	Maintenance Ref. + Page	Parts Catalog			Remarks
			List	Item No.	Block	
14.	Return Sensor 1	7.1.3.6. (6) Page 7-137	20	11	PHD	Duplex Path
15.	Return Sensor 2	7.1.3.6. (7) Page 7-138	20	11	PHD	Duplex Path
16.	IS Feed Sensor 1	7.1.4.3. (20) Page 7-198	23 24	10 10	PTV PTV	Vertical Path Assembly
17.	IS Feed Sensor 2	7.1.4.3. (20) Page 7-198	23 24	10 10	PTV PTV	Vertical Path Assembly
18.	IS Feed Sensor 3	7.1.4.3. (20) Page 7-198	23 24	10 10	PTV PTV	Vertical Path Assembly
19.	HP1 Size sensor	7.1.4.3. (15) Page 7-193	23	23	PTV	Vertical Path Assembly
20.	HP2 Size sensor	7.1.4.3. (15) Page 7-193	23	23	PTV	Vertical Path Assembly
21.	HP3 Size sensor	7.1.4.3. (15) Page 7-193	23	23	PTV	Vertical Path Assembly
22.	HP1 Height Sensor	7.1.4.3. (17) Page 7-195	23	22	PTV	Vertical Path Assembly
23.	HP2 Height Sensor	7.1.4.3. (17) Page 7-195	23	22	PTV	Vertical Path Assembly
24.	HP3 Height Sensor	7.1.4.3. (17) Page 7-195	23	22	PTV	Vertical Path Assembly
25.	HP1 Empty Sensor	7.1.4.3. (14) Page 7-192	23	65	PTV	Vertical Path Assembly
26.	HP2 Empty Sensor	7.1.4.3. (14) Page 7-192	23	65	PTV	Vertical Path Assembly
27.	HP3 Empty Sensor	7.1.4.3. (14) Page 7-192	23	65	PTV	Vertical Path Assembly
28.	HP1 Rest Sensor A	7.1.4.3. (19) Page 7-197	23	22	PTV	Vertical Path Assembly
29.	HP1 Rest Sensor B	7.1.4.3. (19) Page 7-197	23	22	PTV	Vertical Path Assembly
30.	HP1 Rest Sensor C	7.1.4.3. (19) Page 7-197	23	22	PTV	Vertical Path Assembly
31.	HP2 Rest Sensor A	7.1.4.3. (19) Page 7-197	23	22	PTV	Vertical Path Assembly
32.	HP3 Rest Sensor A	7.1.4.3. (19) Page 7-197	23	22	PTV	Vertical Path Assembly
33.	HP1 Upper Limit Sensor	7.1.4.3. (16) Page 7-194	1	199	K1	Final Assembly
34.	Toner Sensor (Toner Hopper)	7.1.2.4. (3) Page 7-40	10 11	12 12	PMH PMH	Toner Hopper
35.						
36.	MBF Empty Sensor	7.1.3.2. (6) Page 7-77	15	59	PHM	Multi-bypass Feeder
37.	HP1 Pick Sensor	7.1.4.3. (18) Page 7-196	23	18	PTV	Vertical Path Assembly
38.	HP2 Pick Sensor	7.1.4.3. (18) Page 7-196	23	18	PTV	Vertical Path Assembly
39.	HP3 Pick Sensor	7.1.4.3. (18) Page 7-196	23	18	PTV	Vertical Path Assembly
40.	MG Sensor	7.1.2.5. (4) Page 7-50	12	34	PMK	Drum Drive Unit
41.	HP5 Size Sensor	7.2.1 Page 7-232	26	184	LH	High Capacity Hopper
42.	HP5 Feed Sensor	7.2.8 Page 7-239	26	199	LH	High Capacity Hopper
43.	HP5 Top Cover Sensor	7.2.9 Page 7-240	26	22	LH	High Capacity Hopper
44.	HP5 Rest Sensor (A)	7.2.11 Page 7-242	26	21	LH	High Capacity Hopper
45.	HP5 Rest Sensor (B)	7.2.11 Page 7-242	26	21	LH	High Capacity Hopper
46.	HP5 Rest Sensor (C)	7.2.11 Page 7-242	26	21	LH	High Capacity Hopper
47.	HP5 Door Sensor	7.2.12 Page 7-243	26	21	LH	High Capacity Hopper
48.	HP5 Over Run Sensor	7.2.13 Page 7-244	26	91	LH	High Capacity Hopper

Table 3-11. Names of Sensors

No.	Name	Maintenance Ref. + Page	Parts Catalog			Remarks
			List	Item No.	Block	
49.	HP5 Lower Limit Sensor	7.2.14 Page 7-245	26	21	LH	High Capacity Hopper
50.	HP5 Empty Sensor	7.2.21 Page 7-265	26	134	LH	High Capacity Hopper
51.	HP5 Height Sensor	7.2.22 Page 7-266	26	21	LH	High Capacity Hopper
52.	SB Gate Sensor	7.1.3.17 Page 7-158	13	25	PH	Paper Feed Block
53.	Multi Feed Sensor	7.1.3.2. (11) Page 7-84 7.1.3.3. (8) Page 7-101	15 17	84 67	PHM PHR	Multi-bypass Feeder Resist Assembly
54.	H.Pos. Sensor	7.1.3.2. (12) Page 7-85 7.1.3.2. (13) Page 7-87	15 16	83 15	PHM PHM	Multi-bypass Feeder
55.	Top Cover Open Sensor	7.1.5.1. (27) Page 7-230	2	305	K2	Rear Engine Final Assembly
56.	Relay Unit Feed Sensor 1	7.3.9 Page 7-297	25	24	R	Relay Unit
57.	Relay Unit Feed Sensor 2	7.3.10 Page 7-298	25	130	R	Relay Unit
58.	Relay Unit Feed Sensor 3	7.3.10 Page 7-298	25	130	R	Relay Unit
59.	Relay Unit Feed Sensor 4	7.3.10 Page 7-298	25	130	R	Relay Unit
60.	Relay Unit Feed Sensor 5	7.3.11 Page 7-299	25	53	R	Relay Unit
61.	Relay Unit Feed Sensor 6	7.3.11 Page 7-299	25	43	R	Relay Unit
62.	Paper Guide Open Sensor	7.3.14 Page 7-302	25	95	R	Relay Unit
63.	Transit Pass Sensor	7.4.10 Page 7-324	32	10	TP	Transit Pass Unit Type DDP

3.12. PCB & Power Supply Locations

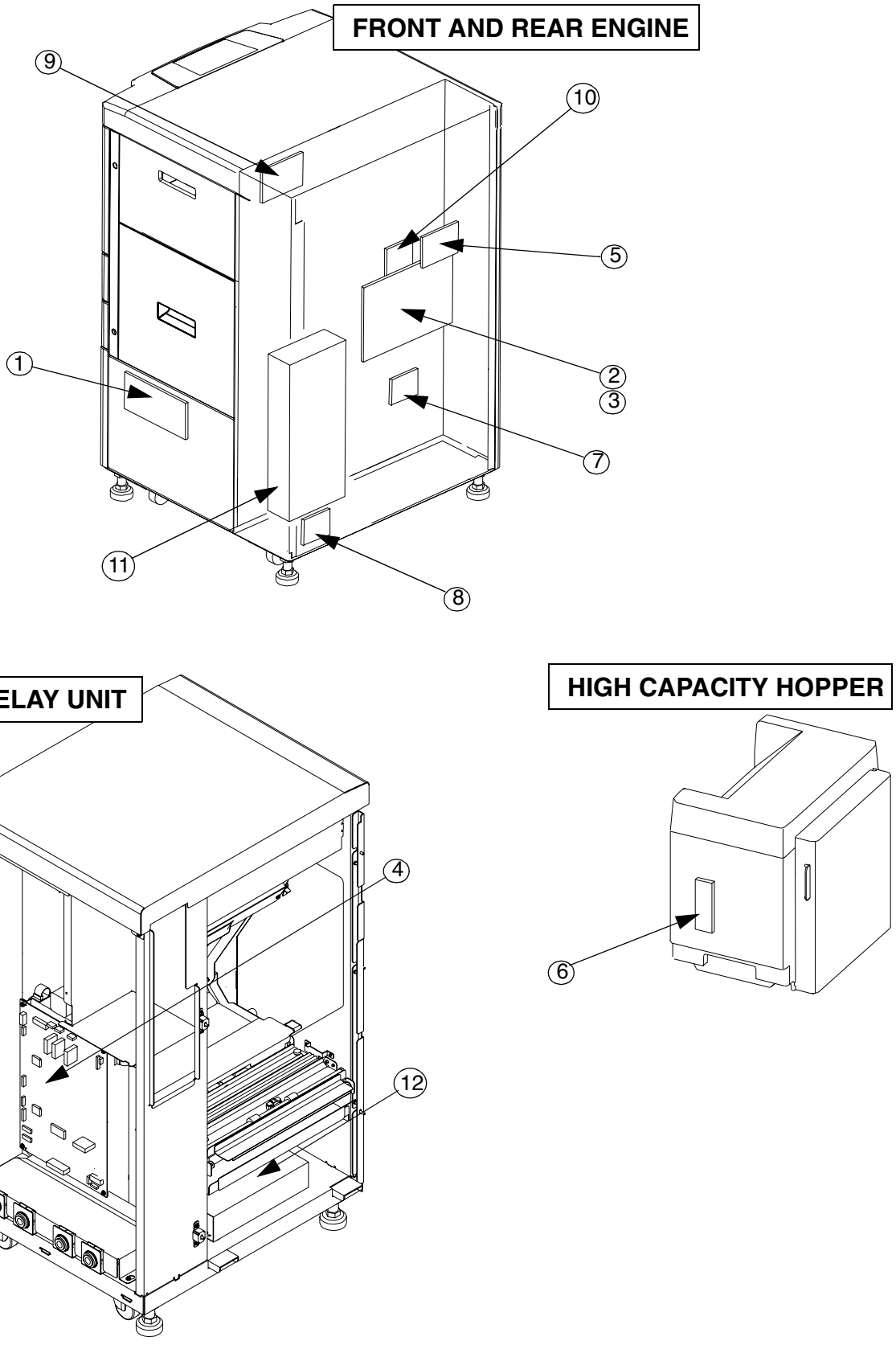


Figure 3-22. -1 Location of all PCBs & Power Supplies

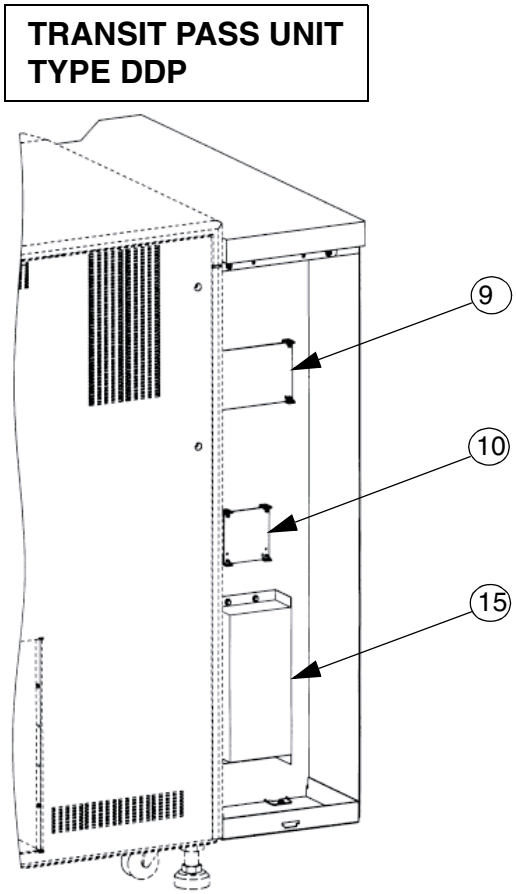


Figure 3-23. -2 Location of all PCBs & Power Supplies

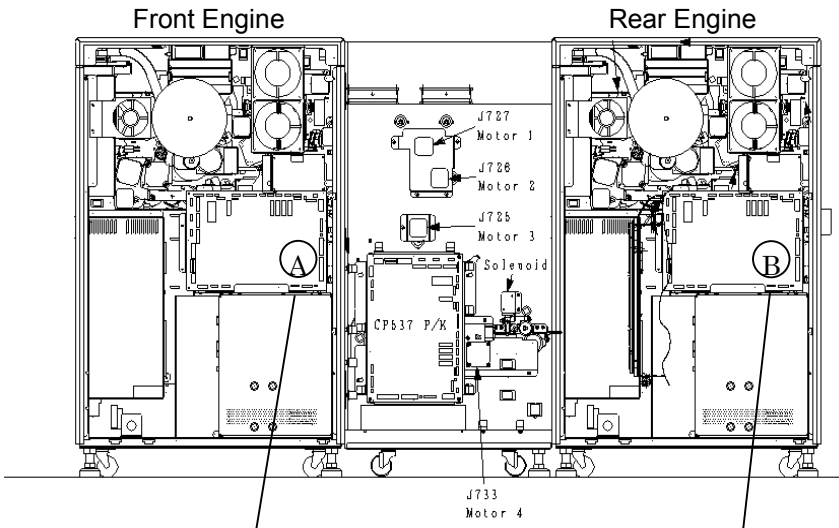
Table 3-12. Names of PCBs & Power Supplies

No.	Name	Maintenance Ref. + Page	Parts Catalog			Description	Remarks
			List	Item No.	Block		
PCB Locations							
1.	HPxxx Assembly	7.1.4.3. (22) Page 7-200	23 24	143	PTV PTV	Hopper Part Vertical Path Assembly	500 Sheet Hopper (Hopper 2,3) 2000 Sheet Hopper (Hopper 1) Vertical Path Assembly
2.	CPxxx Assembly	7.1.5.1. (13) Page 7-214	1	180[*1] 192[*2]	K1	Final Assembly	As Drawing No. Refer to Parts Catalog
3.	CPxxx Assembly	7.1.5.1. (13) Page 7-214	2	180[*1] 192[*2]	K2	Final Assembly	As Drawing No. Refer to Parts Catalog
4.	CPxxx Assembly	7.3.12 Page 7-300	25	121	R	Relay Unit	
5.	OCxxx Assembly	7.1.5.1. (17) Page 7-218	1 2	62 62	K1 K2	Final Assembly	
6.	AHxxx Assembly	7.2.10 Page 7-241	26	24	LH	Option Hopper Part	3000 Sheet Hopper
7.	AC011 Assembly	7.1.5.1. (22) Page 7-225	1 2	220	K1 K2	Final Assembly	
8.	Heater Driver	7.1.5.1. (23) Page 7-226	1 2	225	K1 K2	Final Assembly	
9.	ED089 Assembly	7.4.7 Page 7-321	32	48	TP	Transit Pass Unit Type DDP	
10.	RB301 Assembly	7.4.8 Page 7-322	32	44	TP	Transit Pass Unit Type DDP	
Power Supply Locations							
11.	High Voltage Power Supply (1)	7.1.5.1. (14) Page 7-215	1 2	177 177	K1 K2	Final Assembly	
12.	High Voltage Power Supply (2)	7.1.5.1. (15) Page 7-216	1 2	178 178	K1 K2	Final Assembly	
13.	Power Supply	7.1.5.1. (16) Page 7-217	1 2	175 175	K1 K2	Final Assembly	
14.	Power Supply (Relay Unit)	7.3.13 Page 7-301	25	99	R	Relay Unit	
15.	Power Supply (Transit Pass Unit Type DDP)	7.4.9 Page 7-323	32	41	TP	Transit Pass Unit Type DDP	

[*1] Do not use these parts for RoHS

[*2] Use these parts only for RoHS (from S/N Q48604xxxxx)

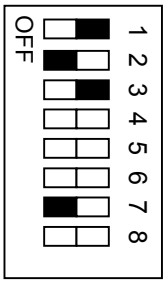
3.13. Setting of the DIP SW



A and B are positions of the DIP Switch.

Front Engine (CP6xx Ass'y)

SW1



No.	function
1	Fixed "ON"
2	Fixed "OFF"
3	Fixed "ON"
4	with CS 2 : "ON"
5	with CS 1 : "ON"
6	with HCF : "ON"
7	Sixed "OFF"
8	with A finisher : "ON"

SW2

No.	function
1	Fixed "OFF"
2	Fixed "OFF"
3	with Drum motor type "DR-6236" : "ON"
4	Fixed "OFF"
5	Fixed "OFF"
6	with Finisher SR5000 : "ON"
7	Fixed "OFF"
8	Fixed "OFF"

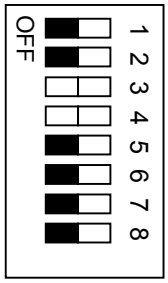
Rear Engine (CP6xx Ass'y)

SW1

No.	function
1	Fixed "ON"
2	Fixed "OFF"
3	with CS 1 and Finisher SR5000 : "ON"
4	Fixed "OFF"
|	|
8	Fixed "OFF"

* CS : Container Stacker

SW2



No.	function
1	Fixed "OFF"
2	Fixed "OFF"
3	with Drum motor type "DR-6236" : "ON"
4	with Finisher SR5000 : "ON"
5	Fixed "OFF"
6	Fixed "OFF"
7	Fixed "OFF"
8	Fixed "OFF"

Note : Don't change the DIP SW of the Relay Unit.
Don't mix up the SW1 and the SW2.

3.14. Printer Circuit Diagram

3.14.1. Front Engine Circuit Diagrams

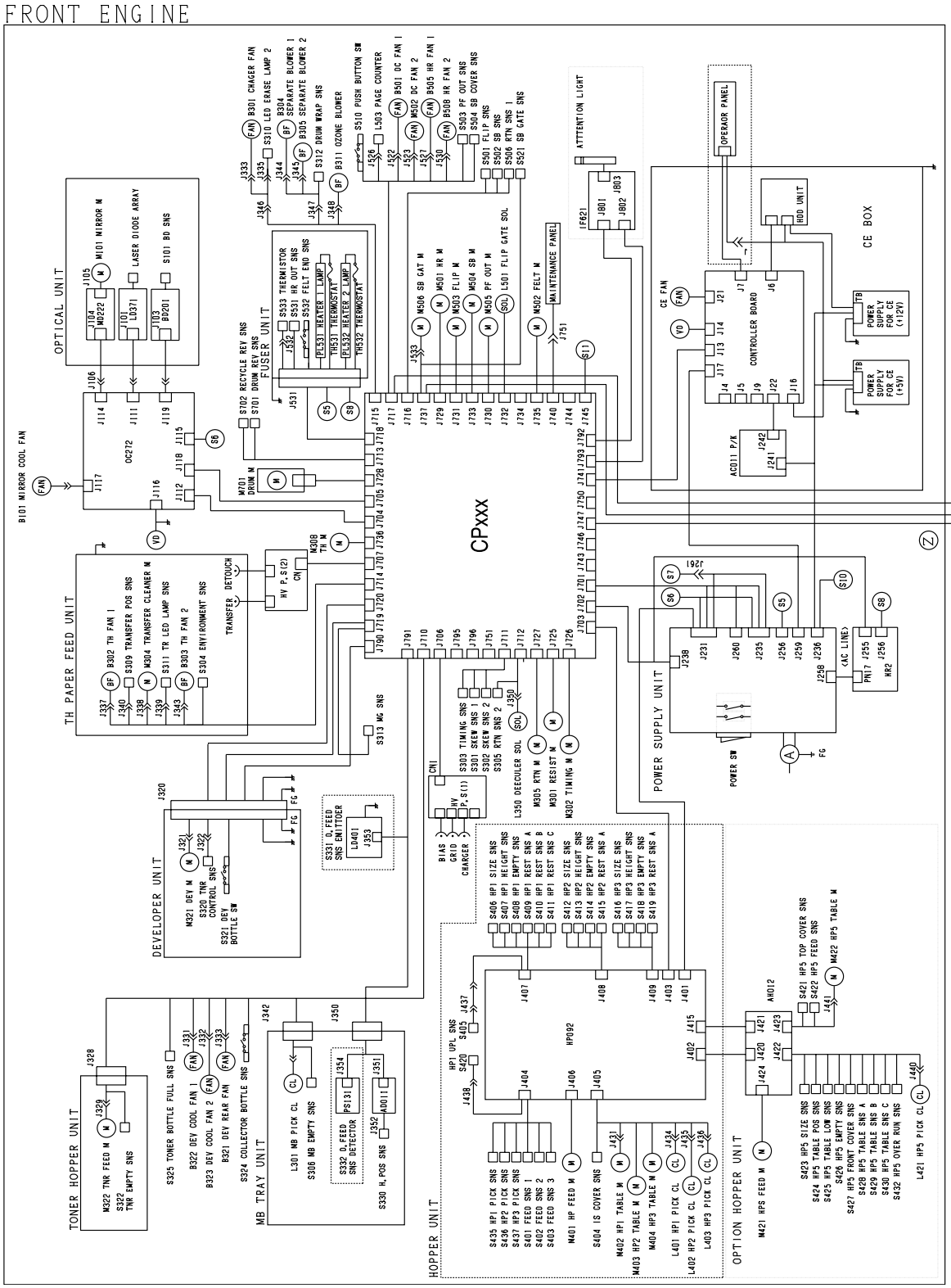
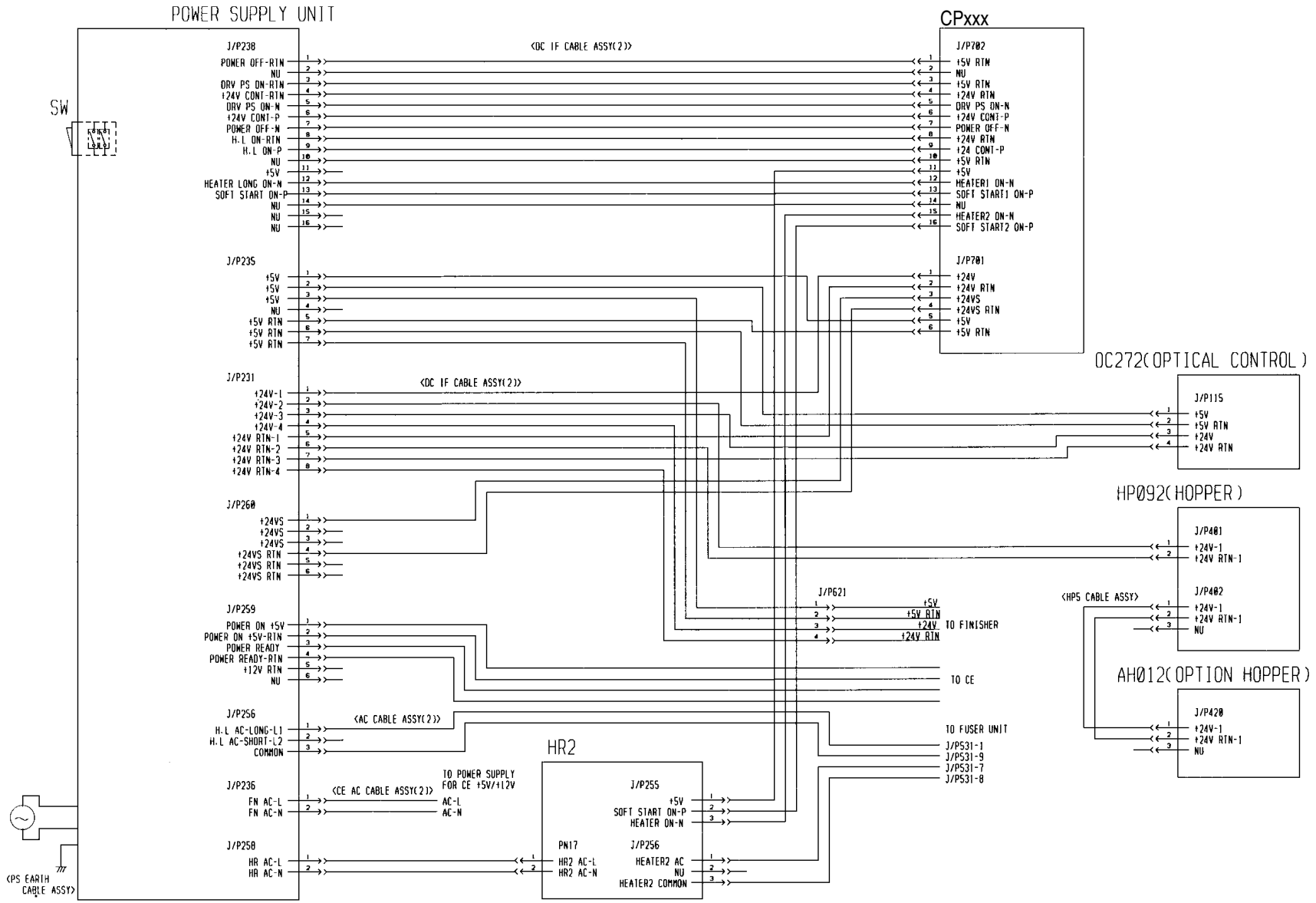


Figure 3-1. Printer Circuit Diagram

Figure 3-2. Printer Circuit Diagram



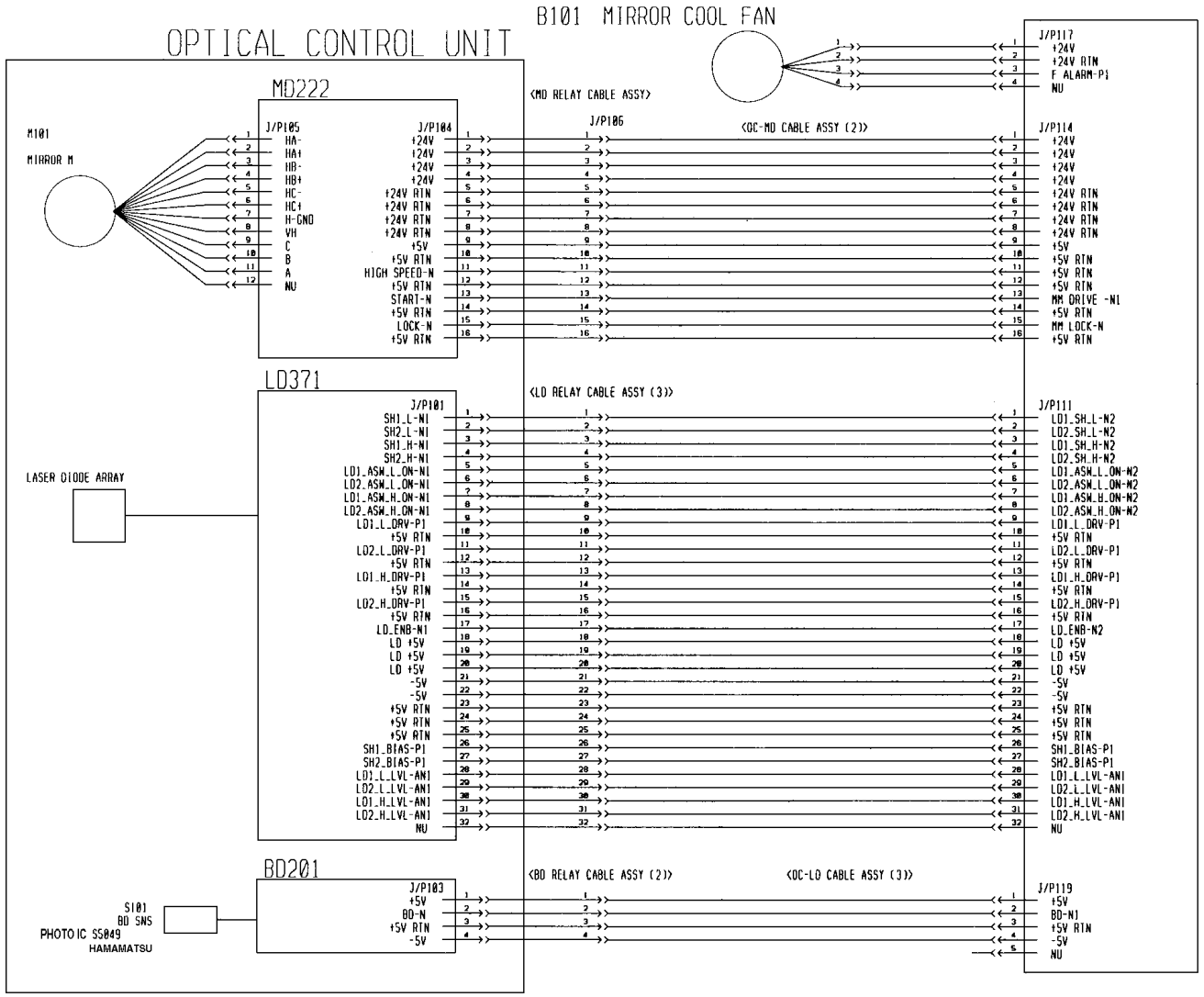


Figure 3-3. Printer Circuit Diagram

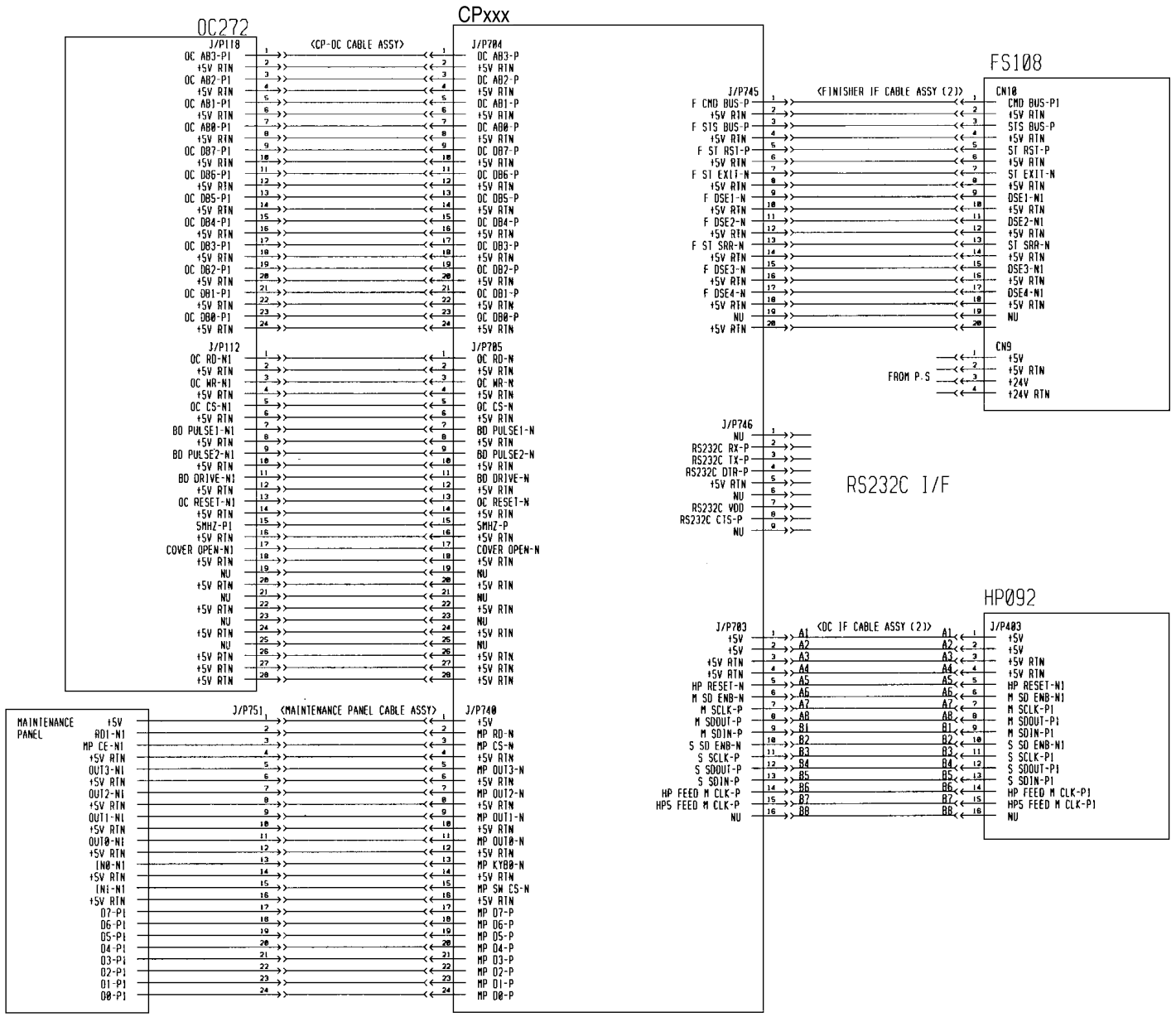


Figure 3-4. Printer Circuit Diagram

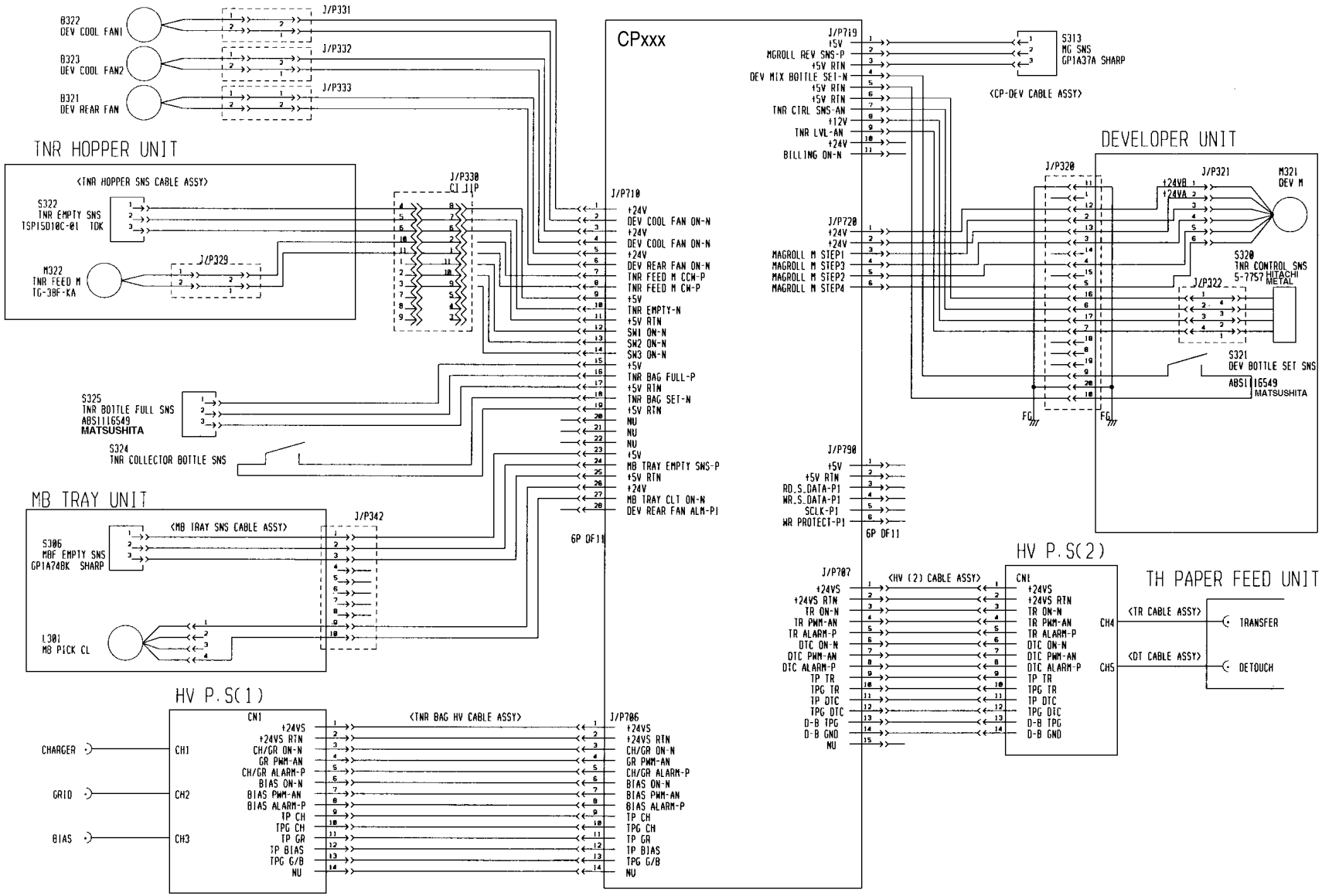


Figure 3-5. Printer Circuit Diagram

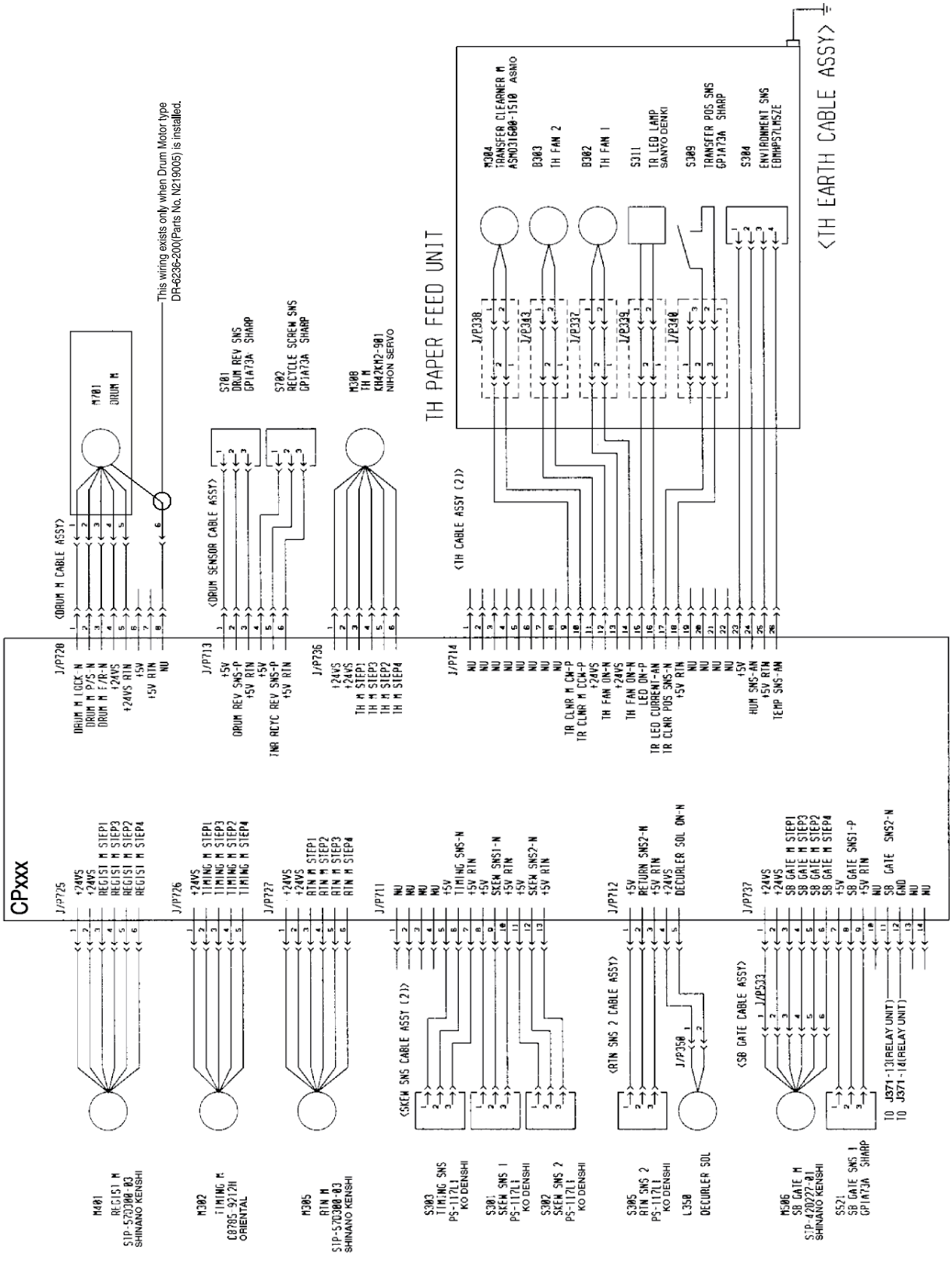


Figure 3-6. Printer Circuit Diagram

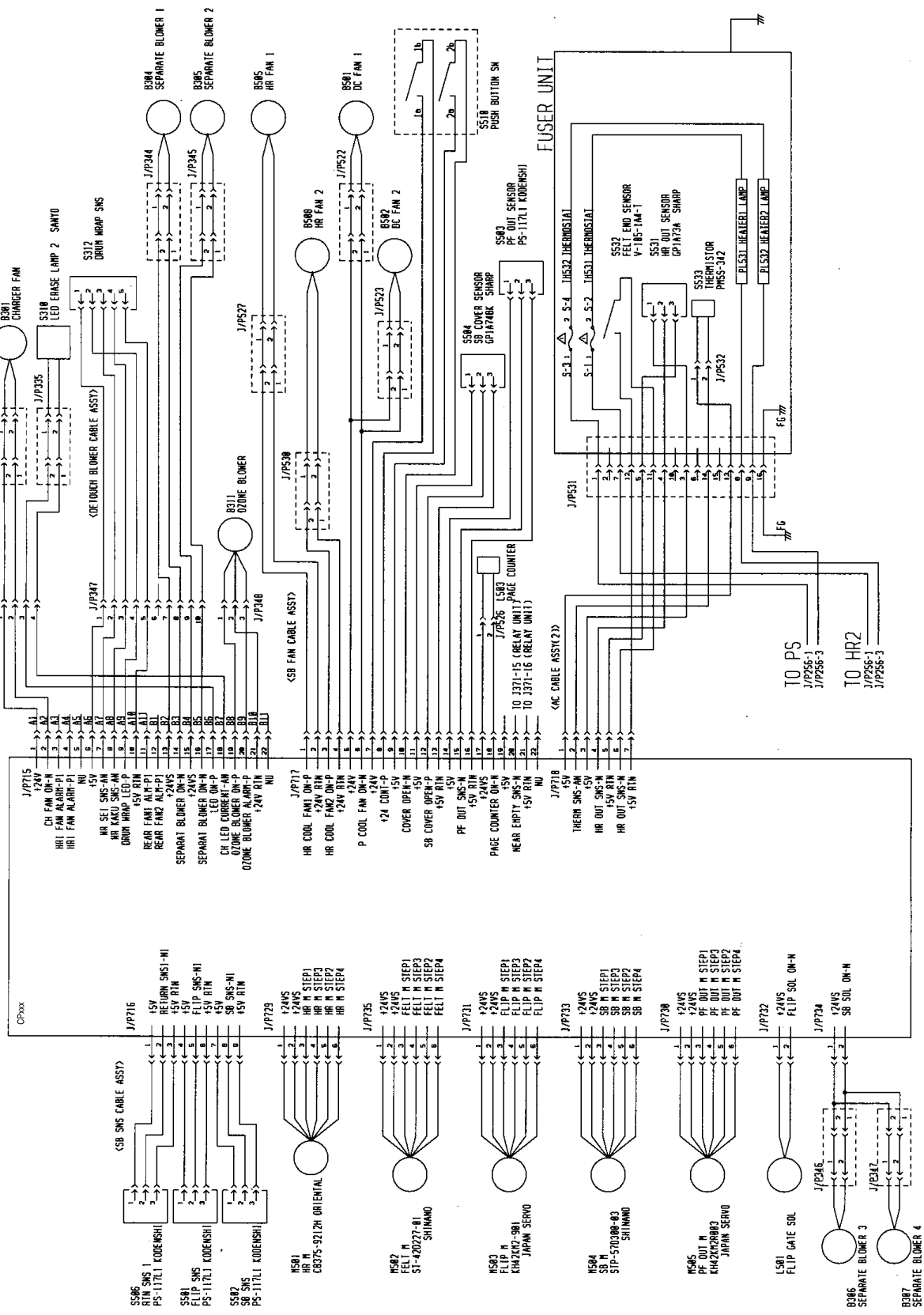


Figure 3-7. Printer Circuit Diagram

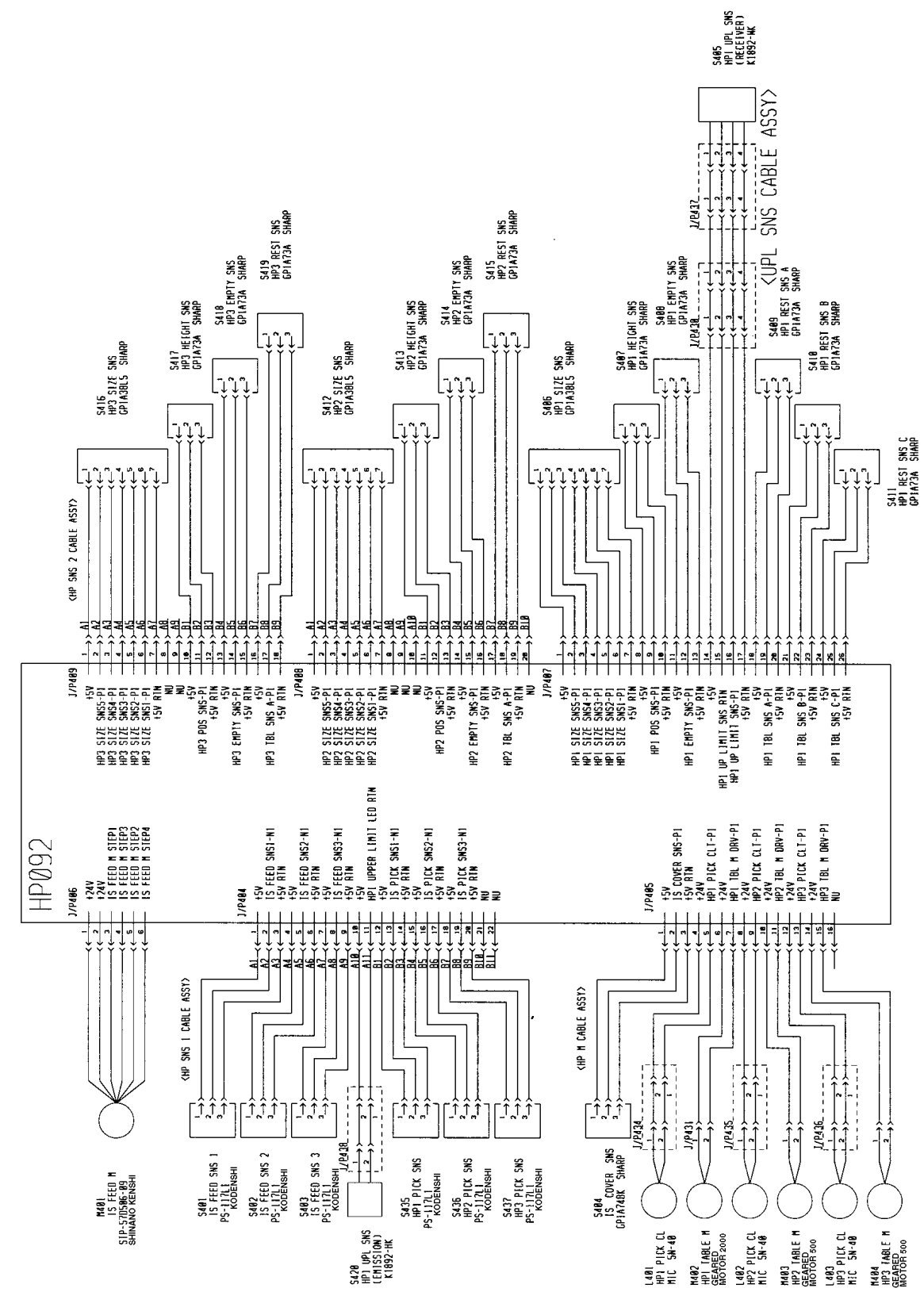


Figure 3-8. Printer Circuit Diagram

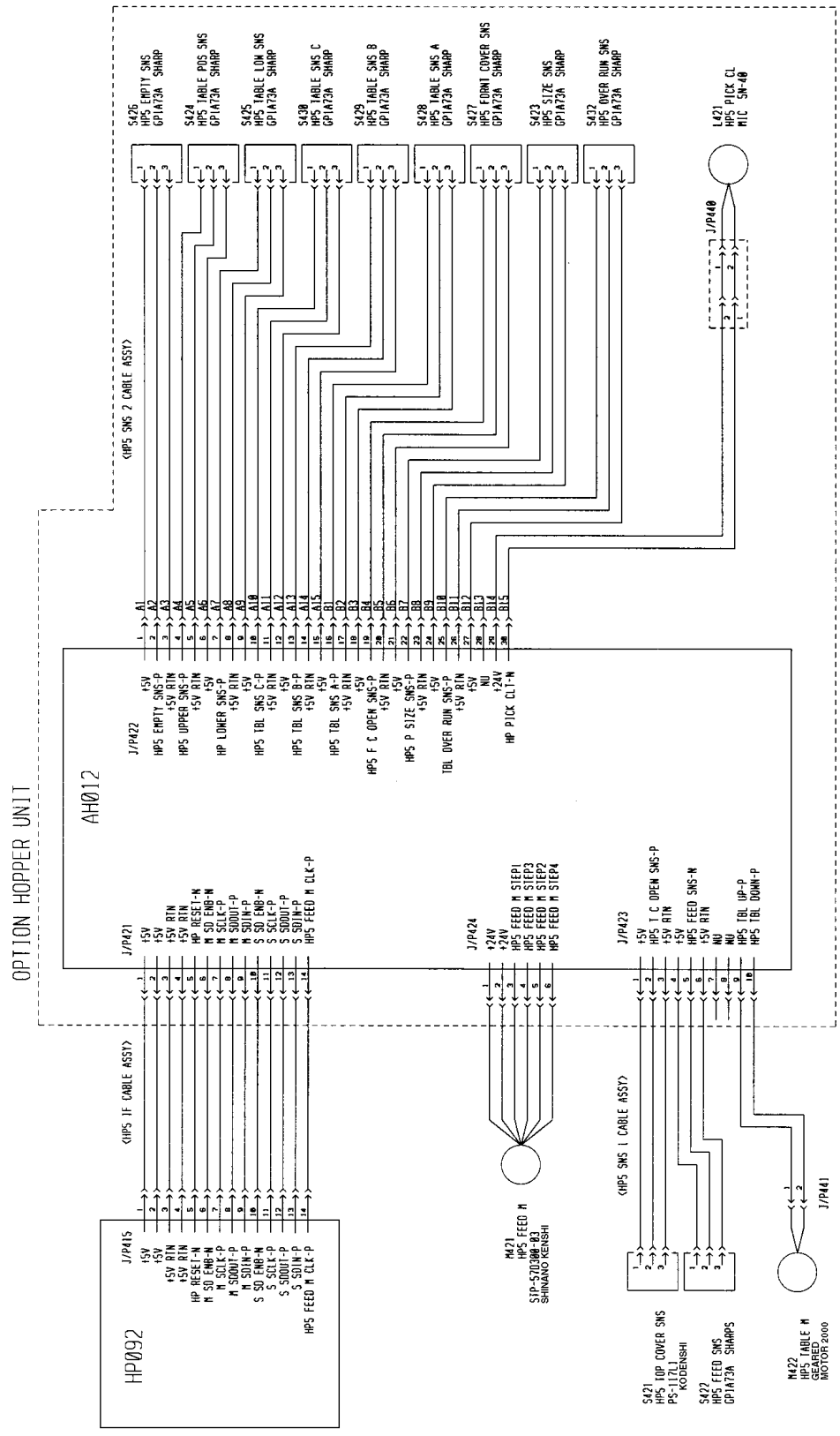
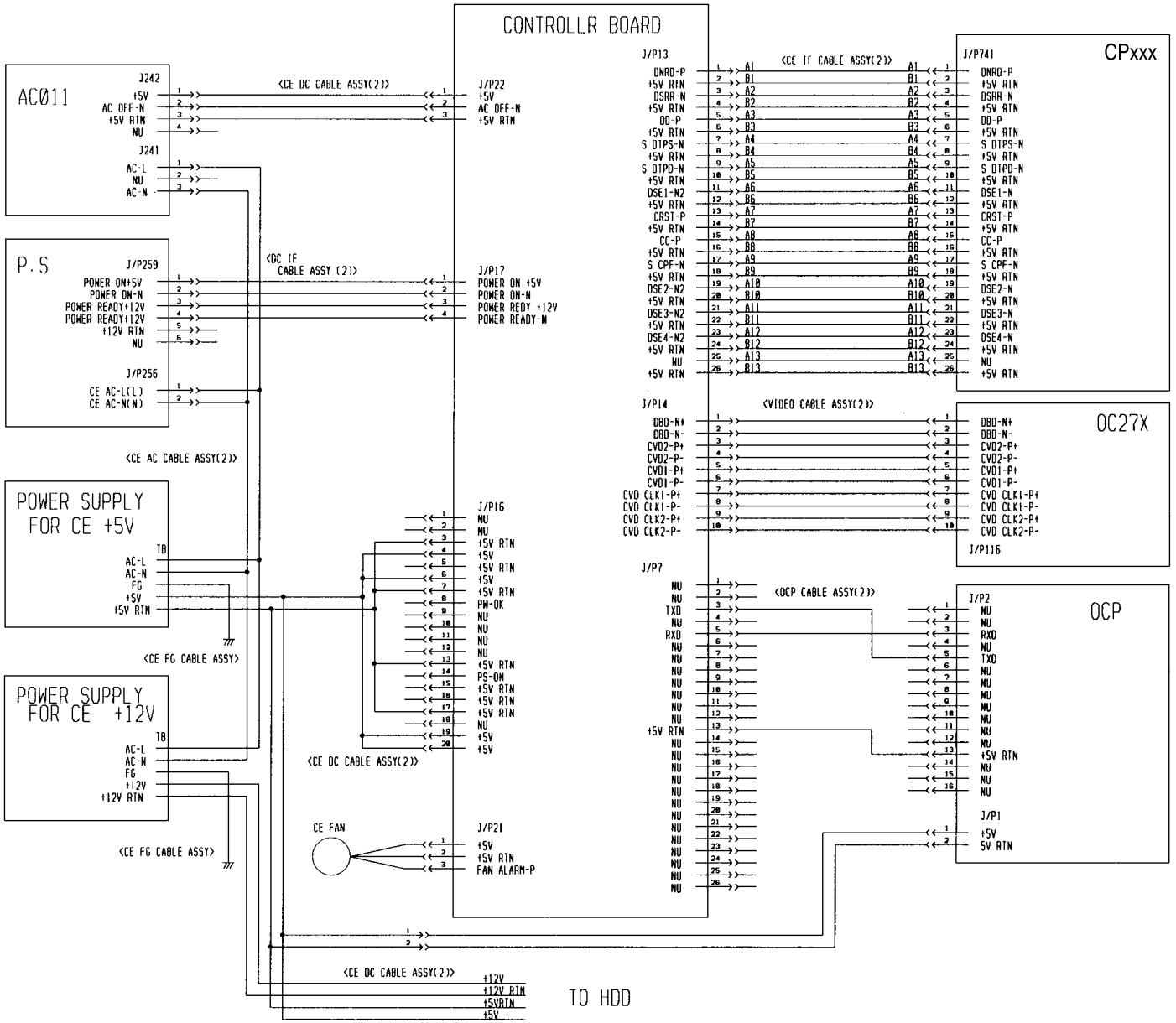


Figure 3-9. Printer Circuit Diagram

Figure 3-10. Printer Circuit Diagram



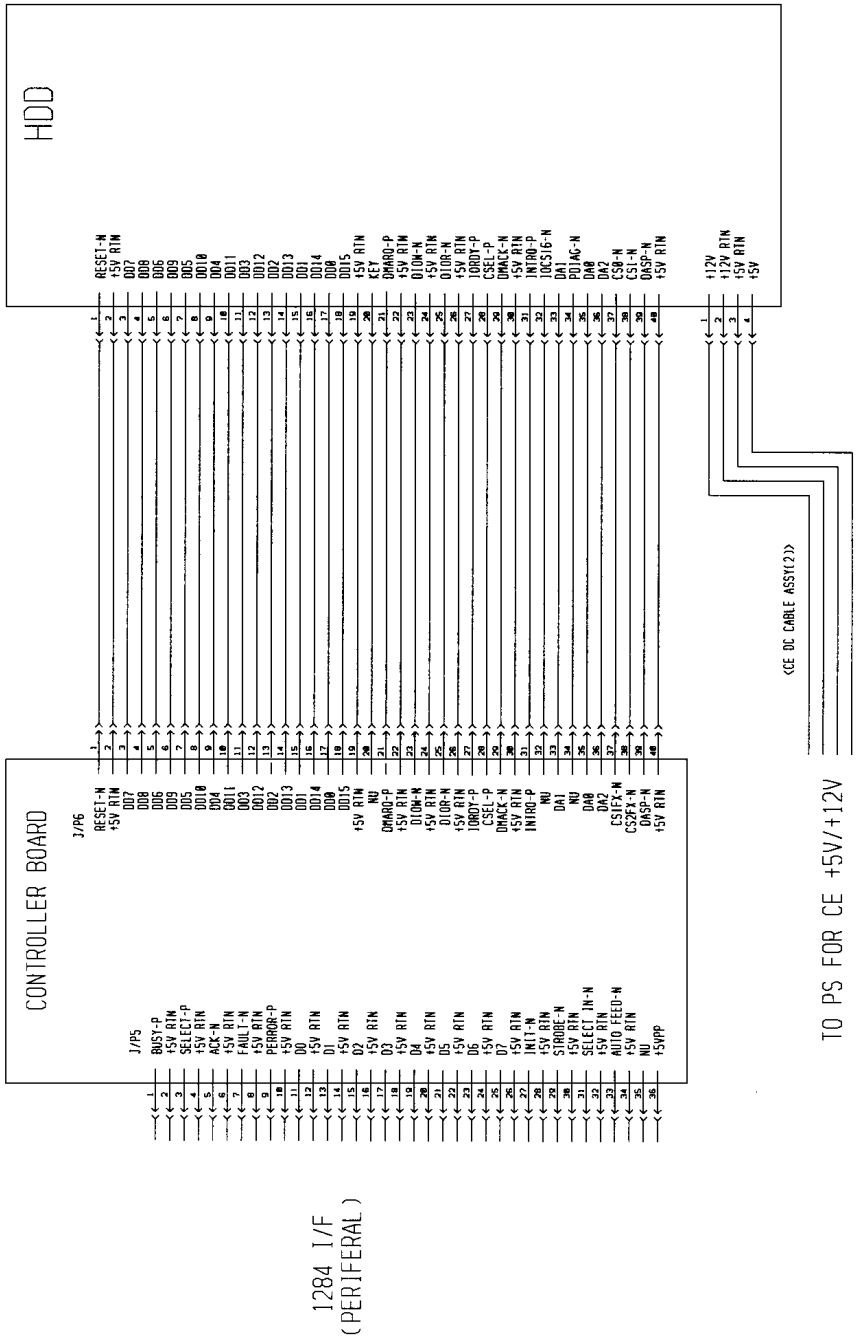


Figure 3-11. Printer Circuit Diagram

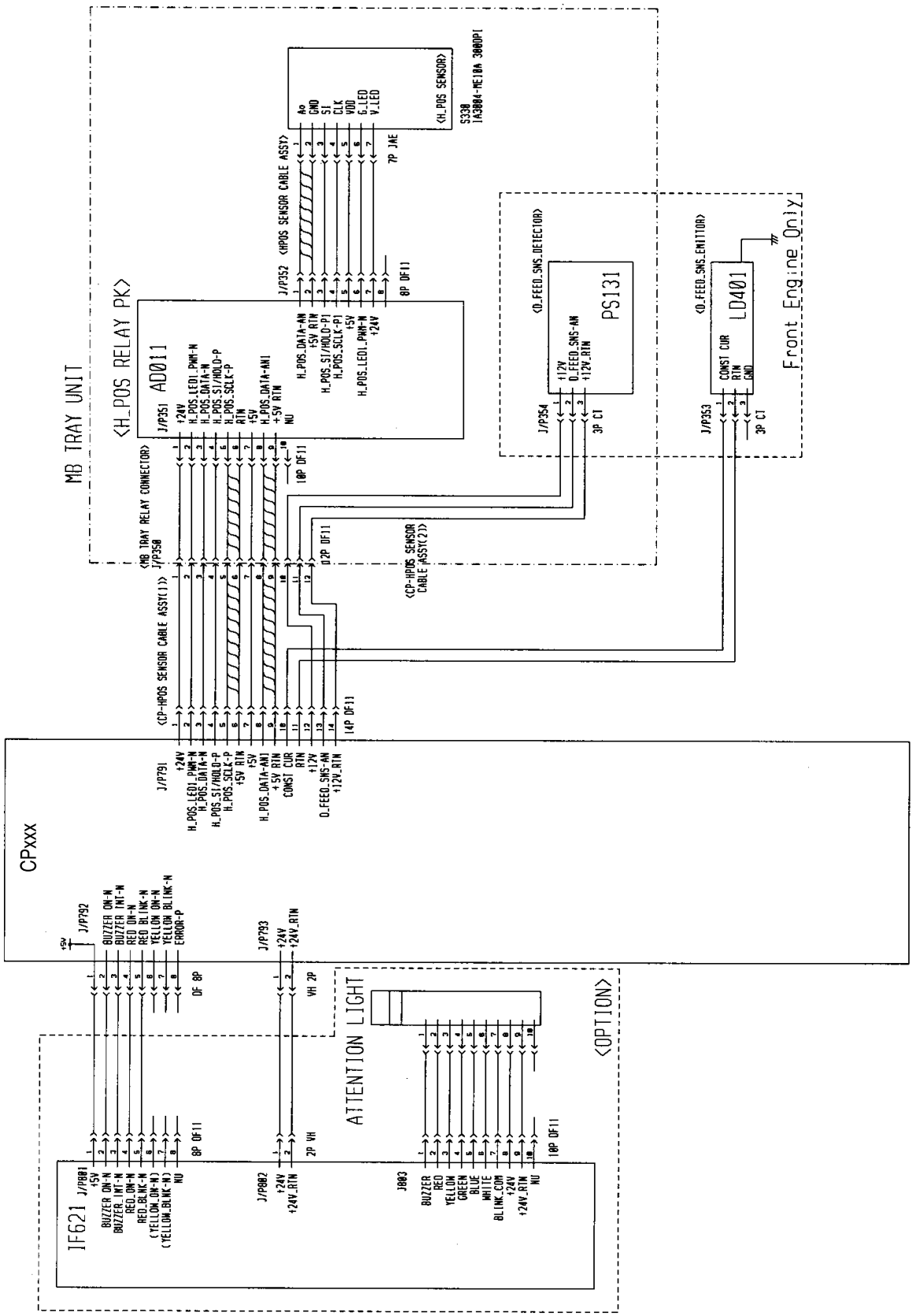


Figure 3-12. Printer Circuit Diagram

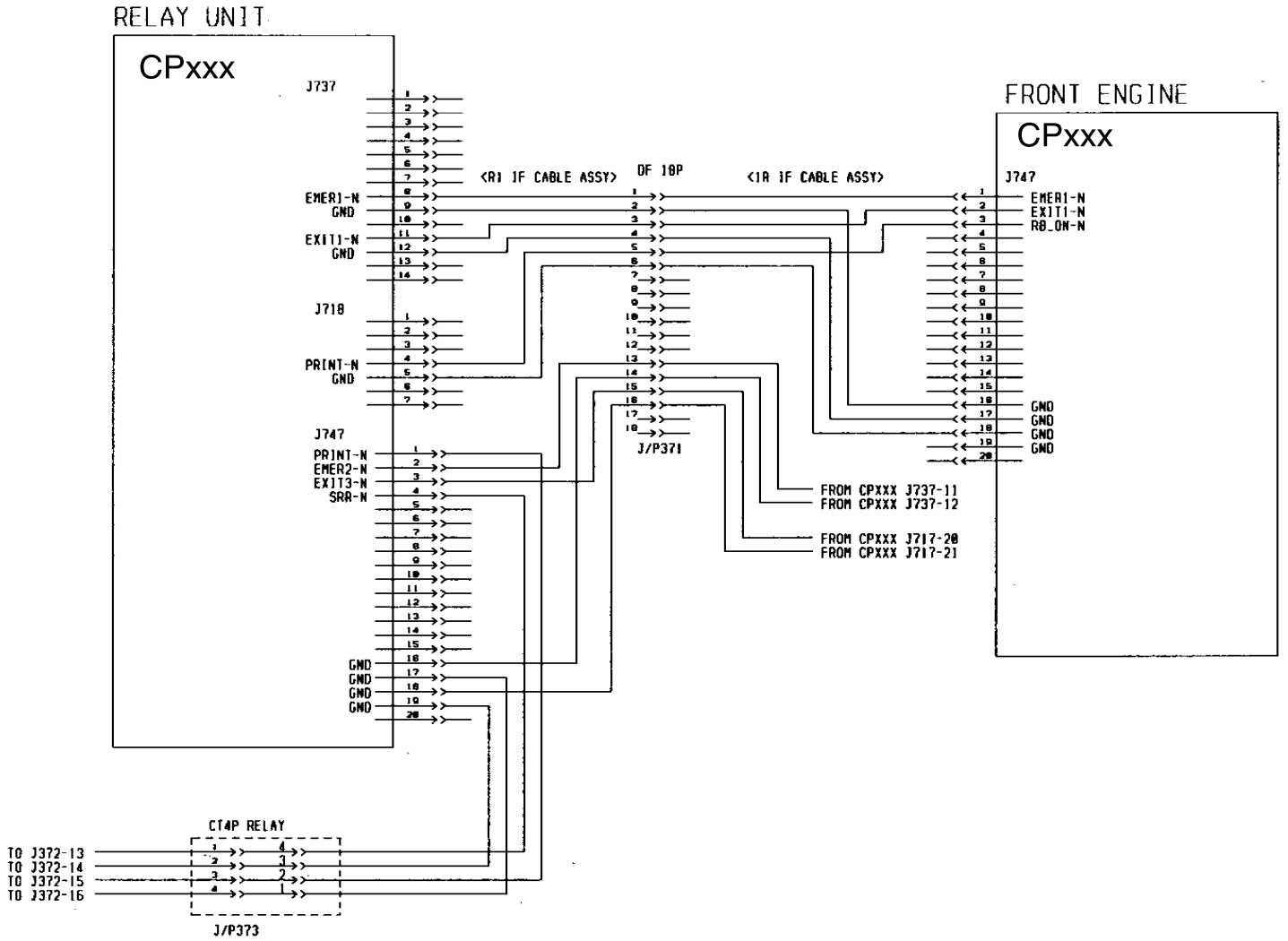


Figure 3-13. Printer Circuit Diagram

3.14.2. Rear Engine Circuit Diagrams

REAR ENGINE

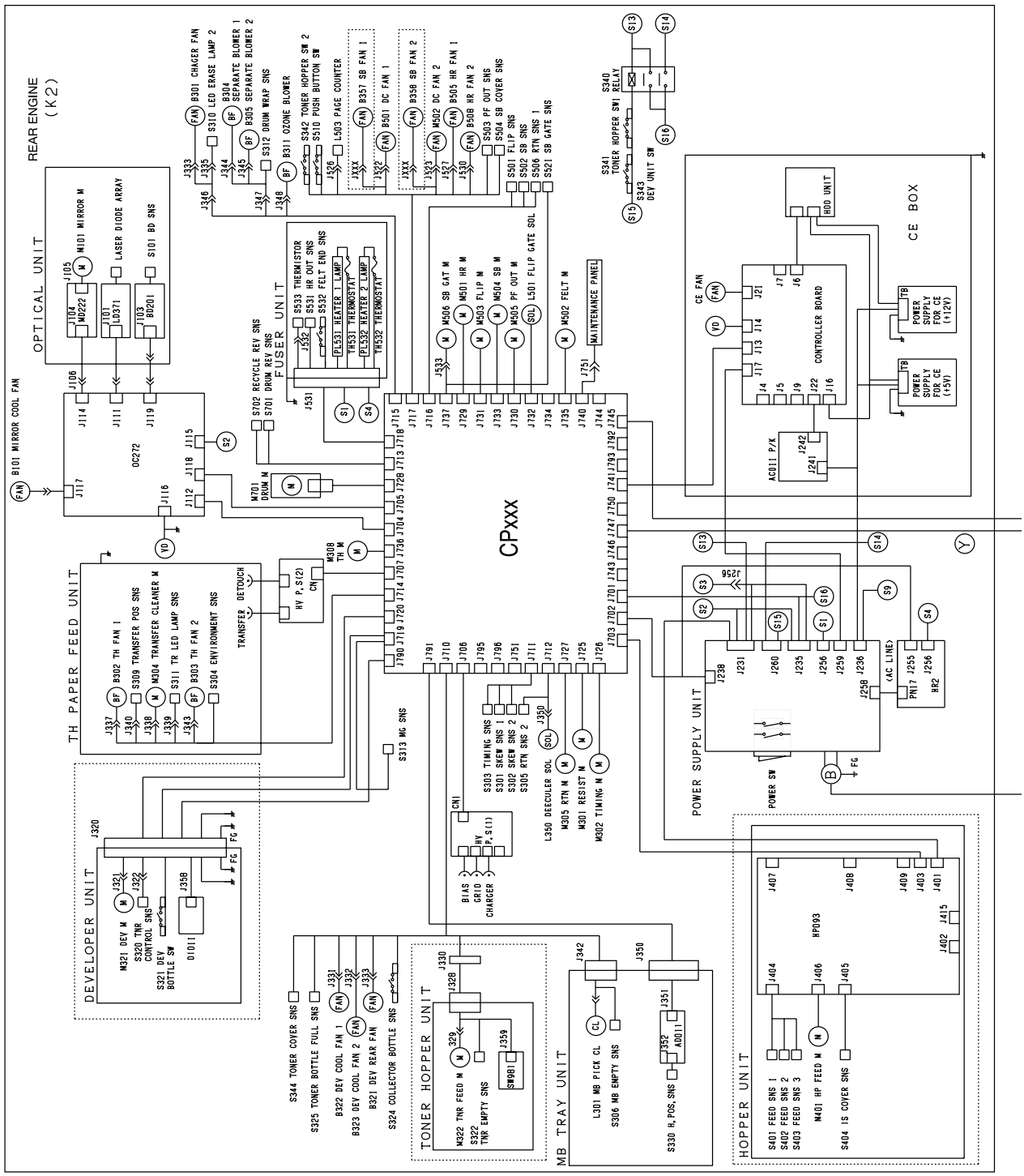


Figure 3-14. Printer Circuit Diagram

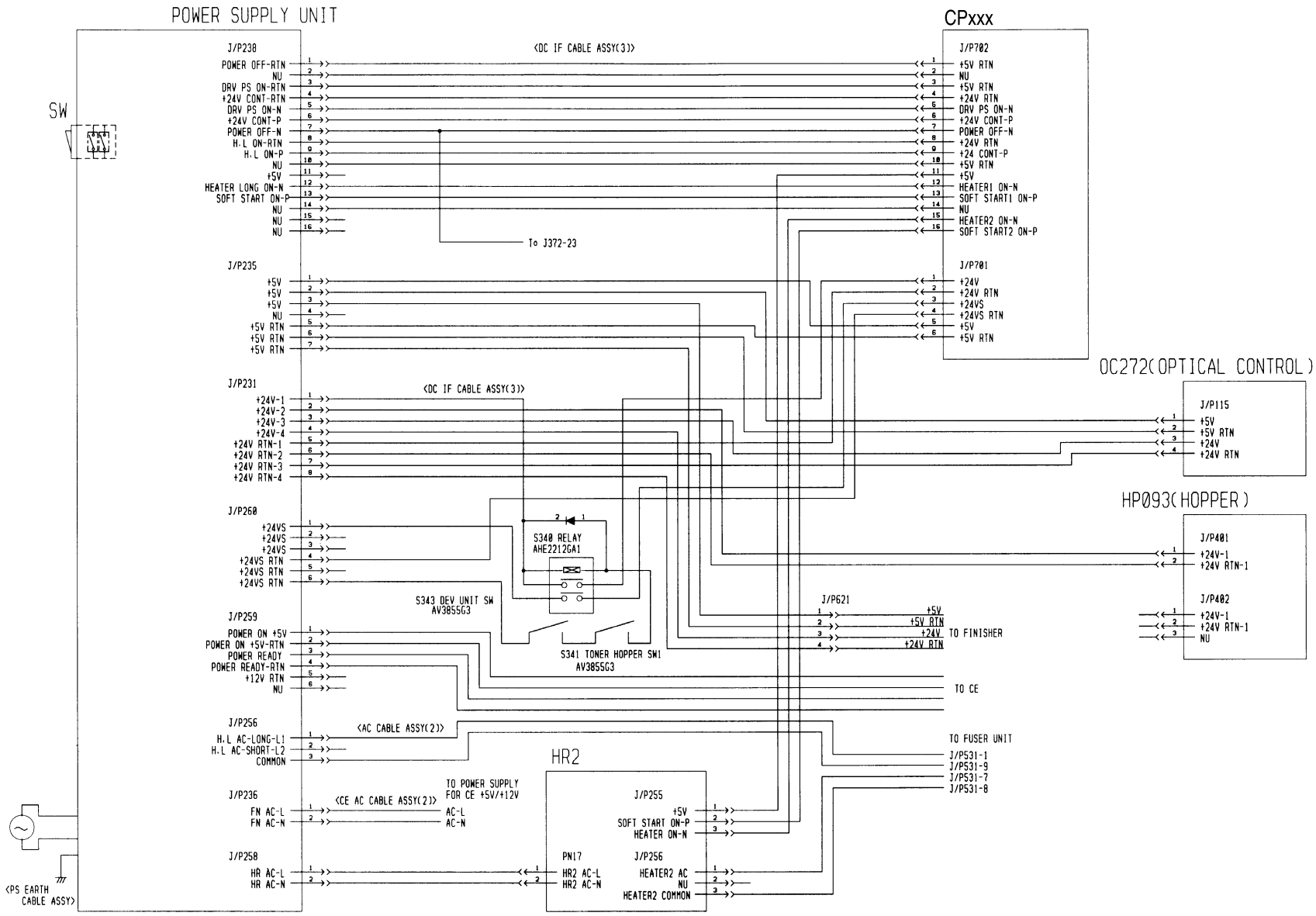


Figure 3-15. Printer Circuit Diagram

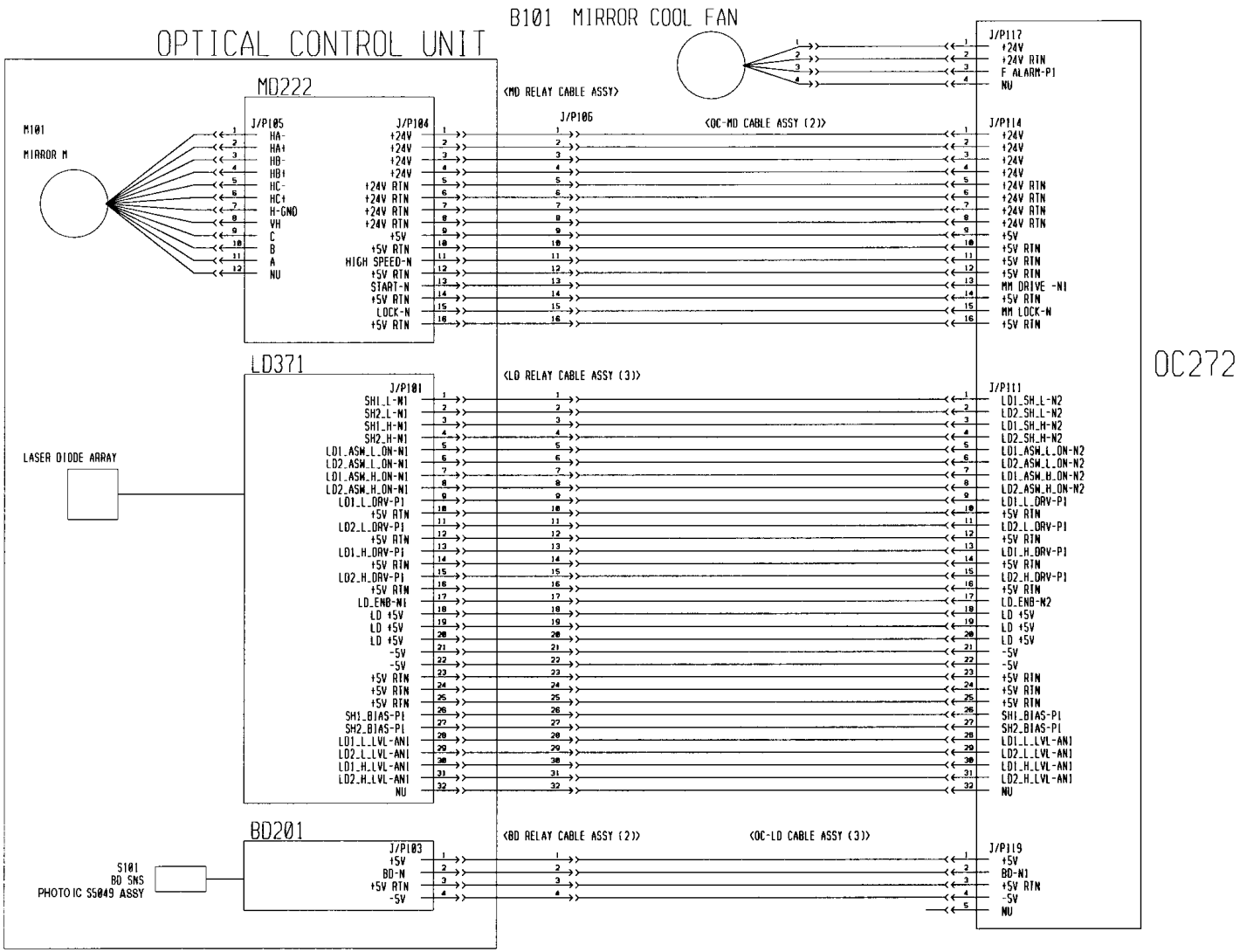


Figure 3-16. Printer Circuit Diagram

MM	L	00	

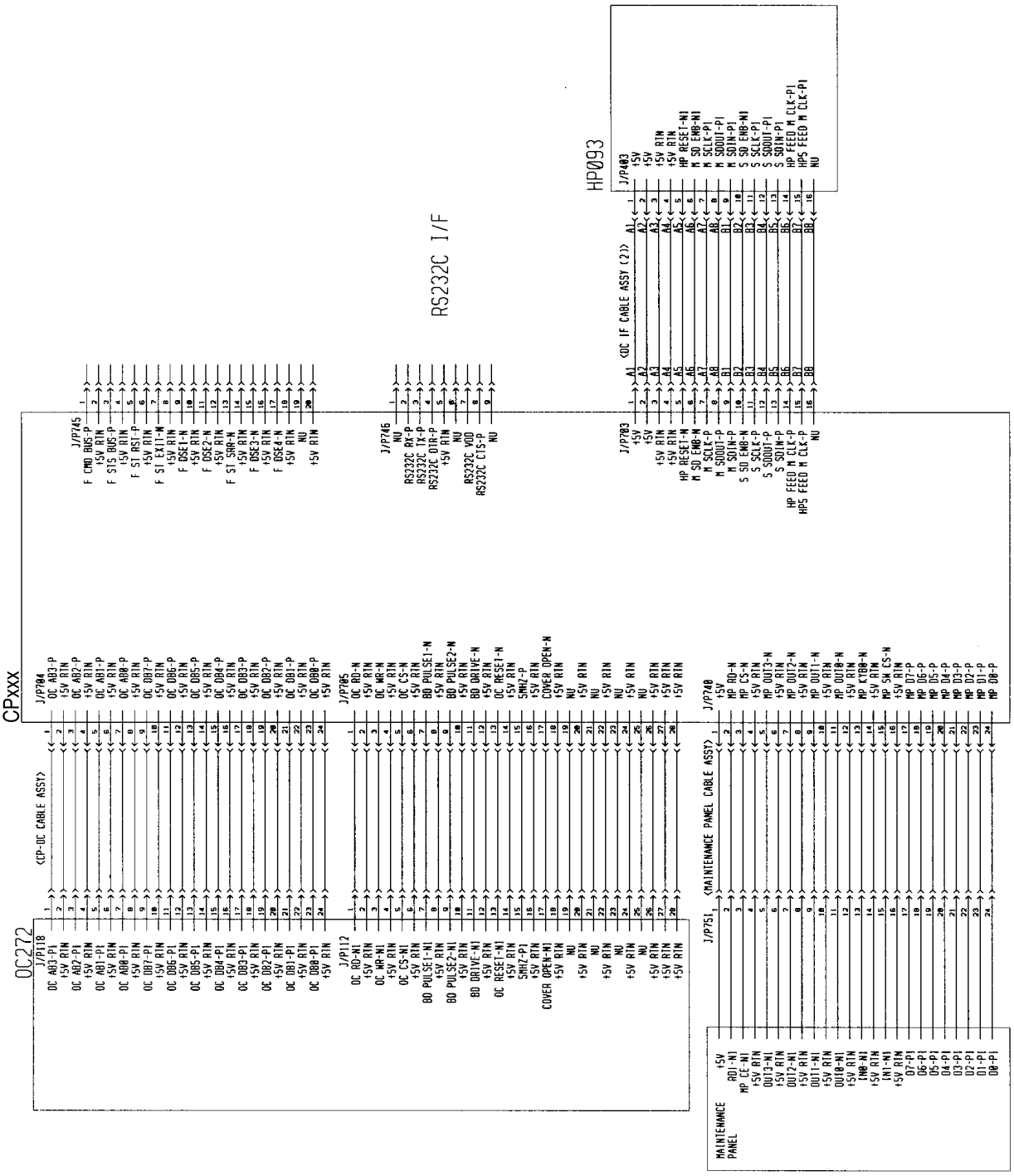
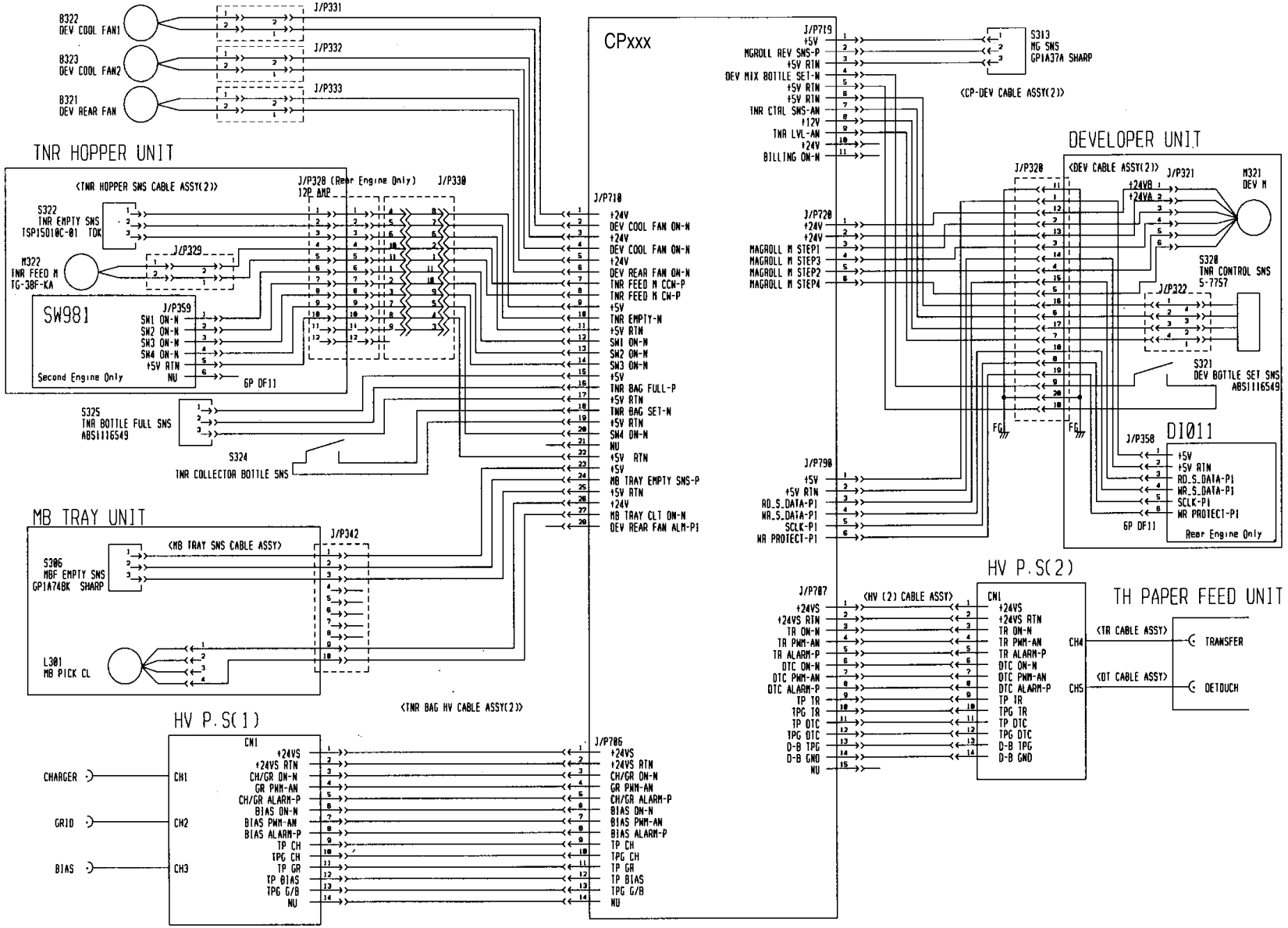


Figure 3-17. Printer Circuit Diagram

Figure 3-18. Printer Circuit Diagram



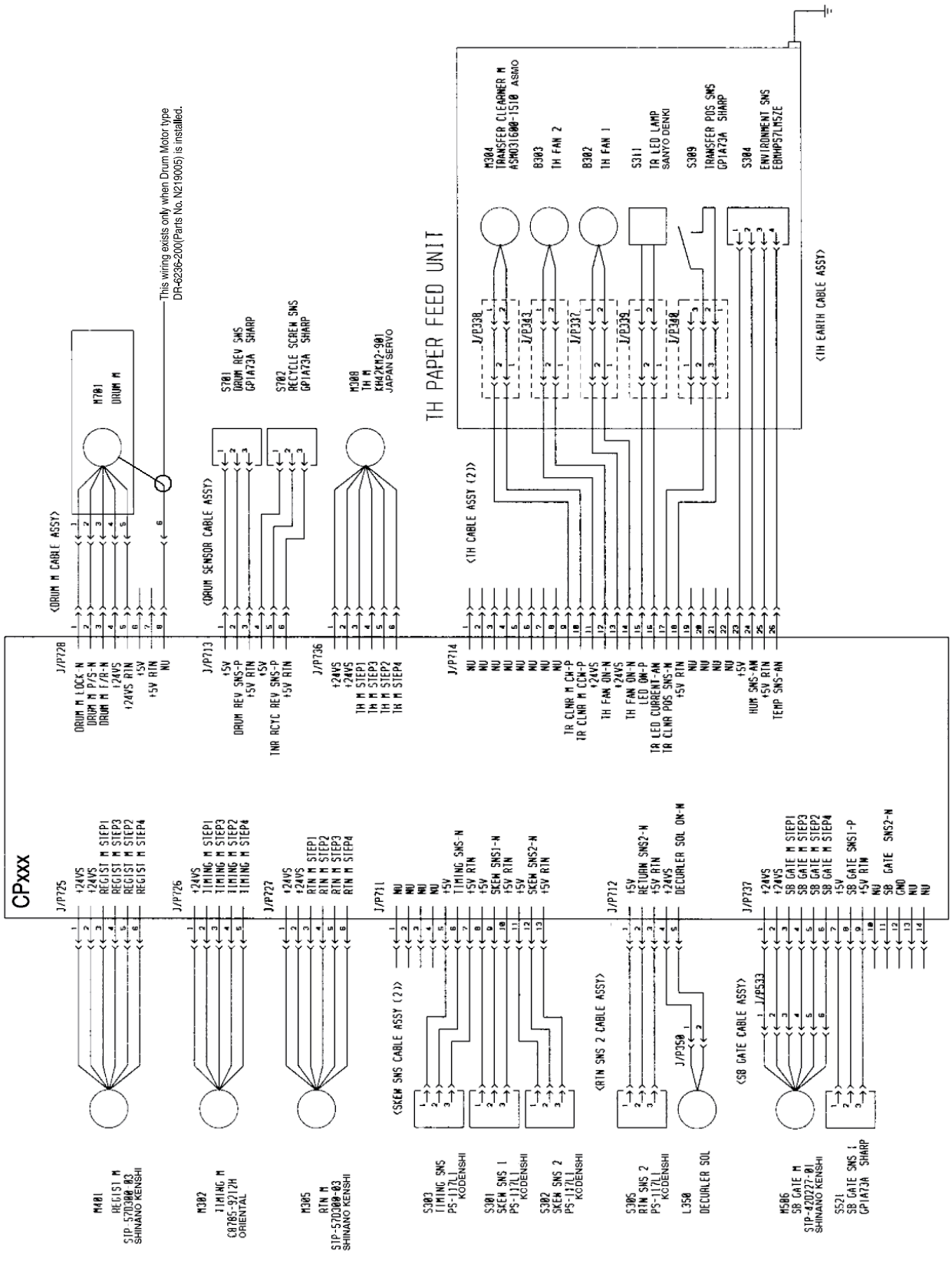


Figure 3-19. Printer Circuit Diagram

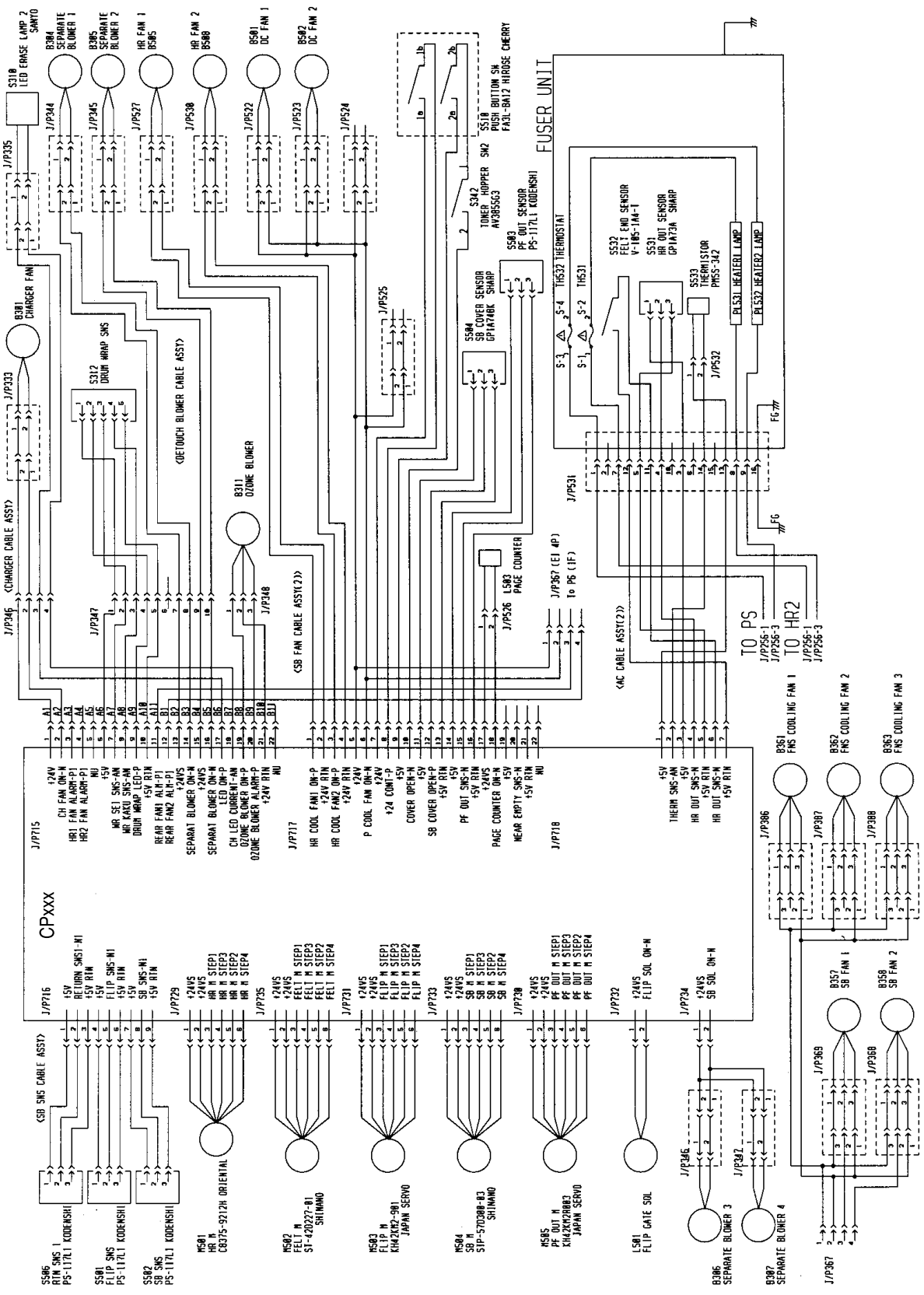


Figure 3-20. Printer Circuit Diagram

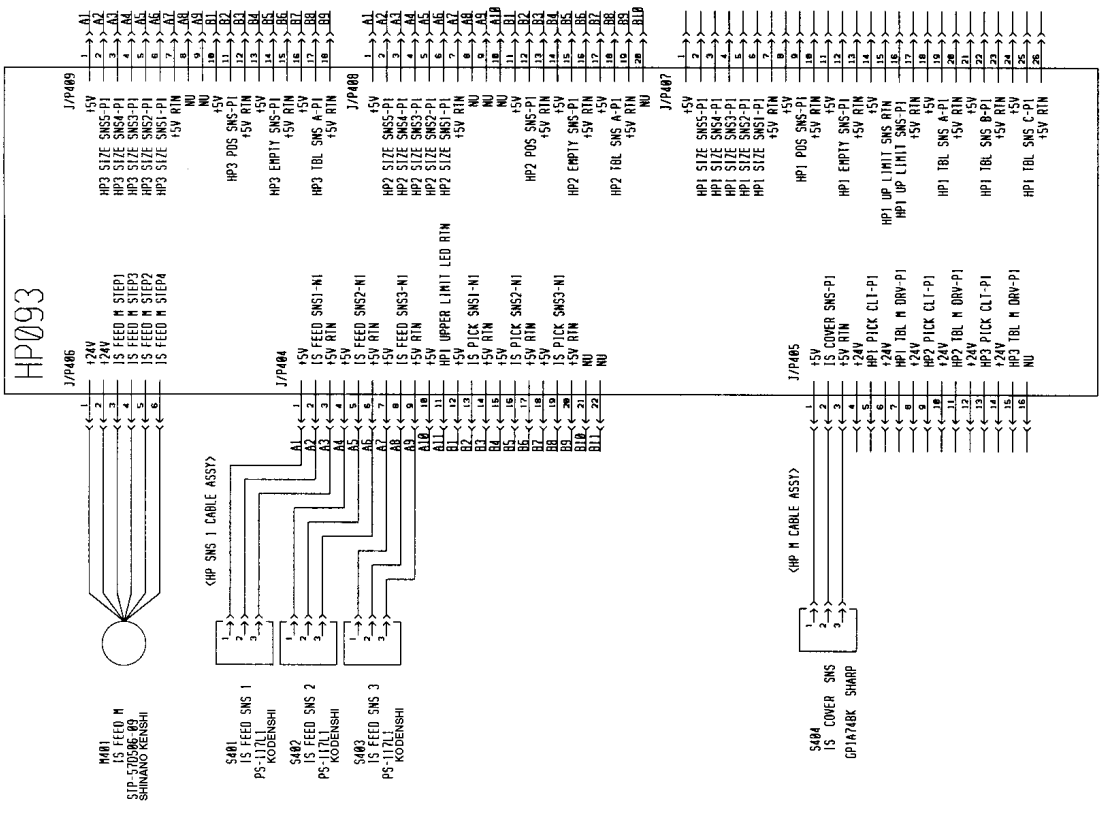
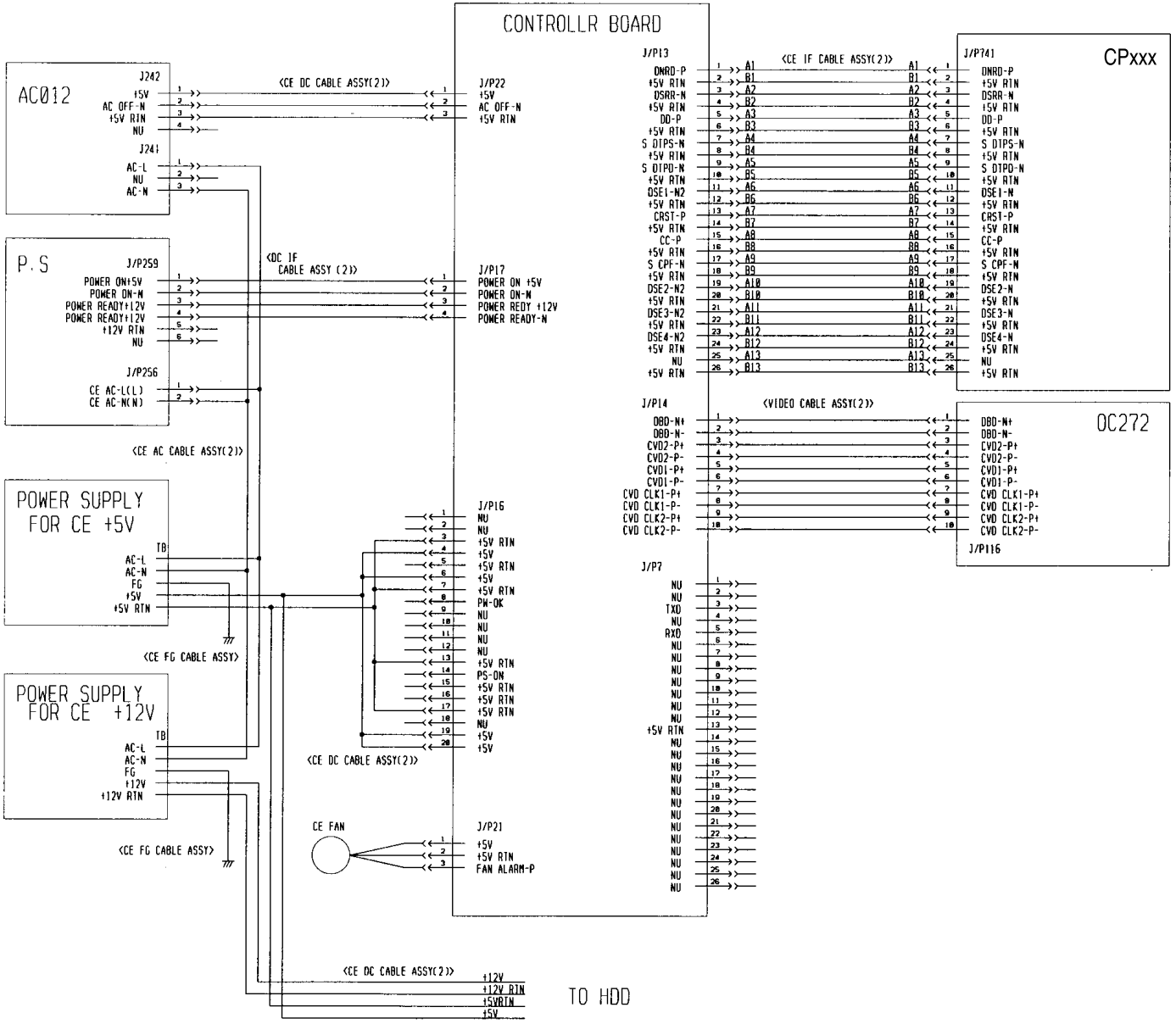


Figure 3-21. Printer Circuit Diagram

Figure 3-22. Printer Circuit Diagram



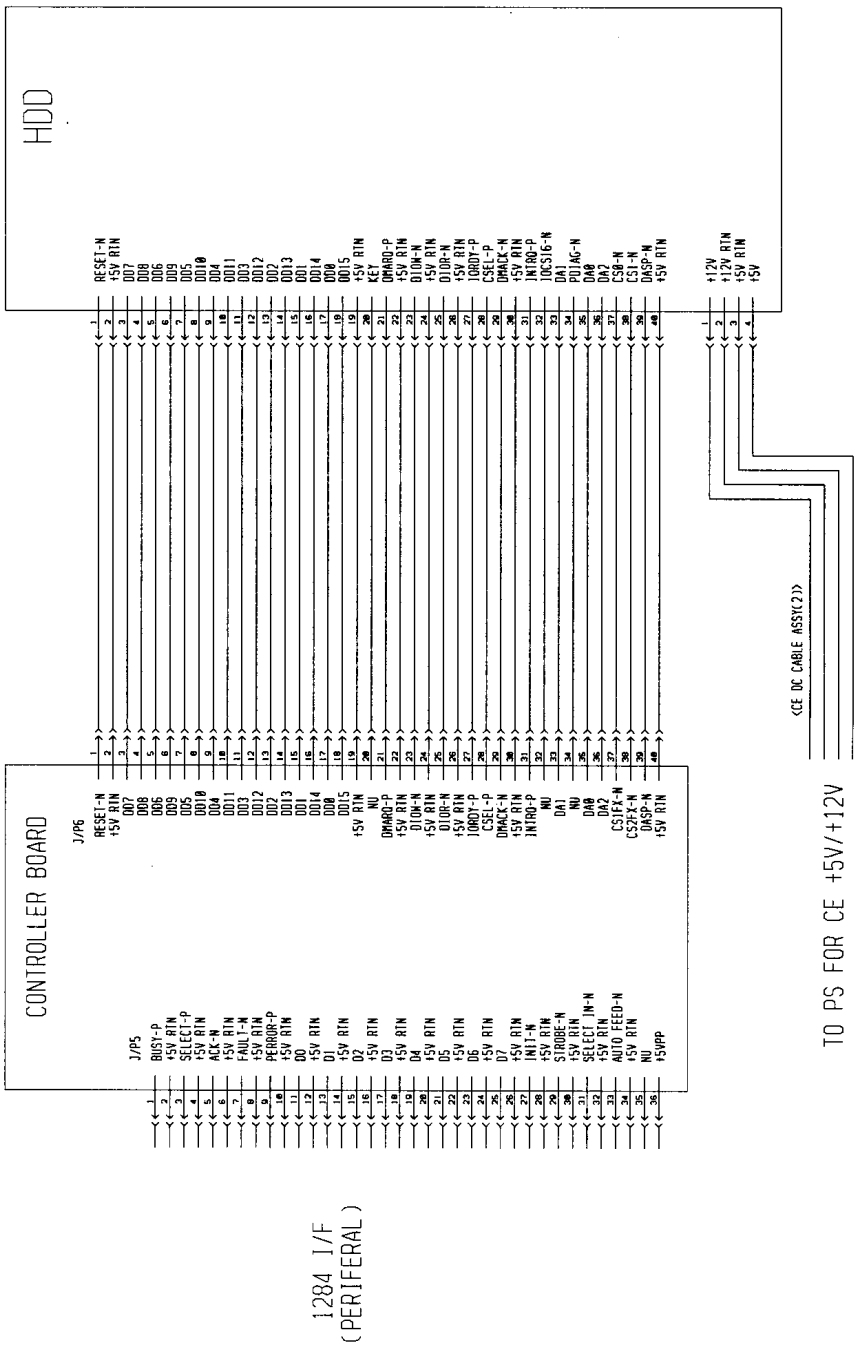


Figure 3-23. Printer Circuit Diagram

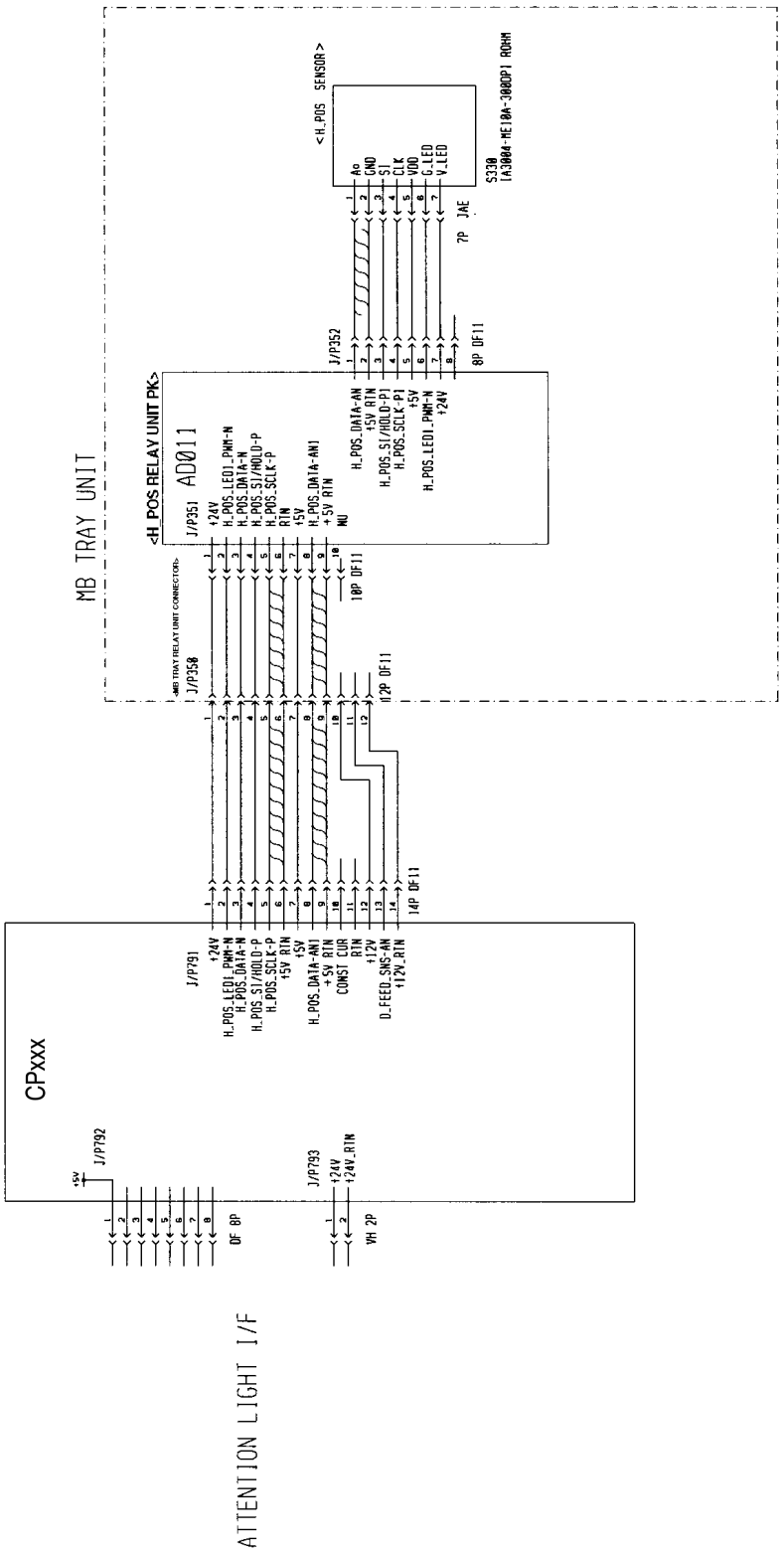


Figure 3-24. Printer Circuit Diagram

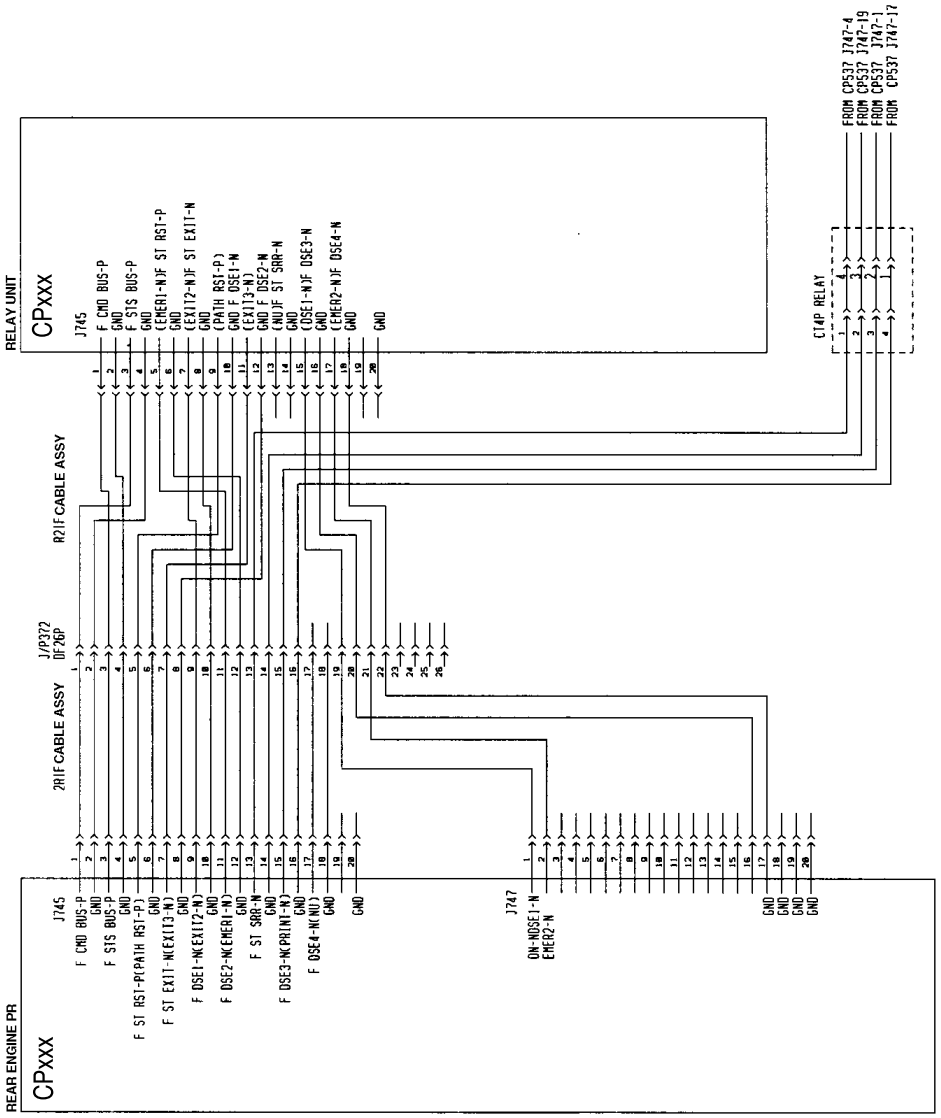


Figure 3-25. Printer Circuit Diagram

3.14.3. Relay Unit Circuit Diagrams

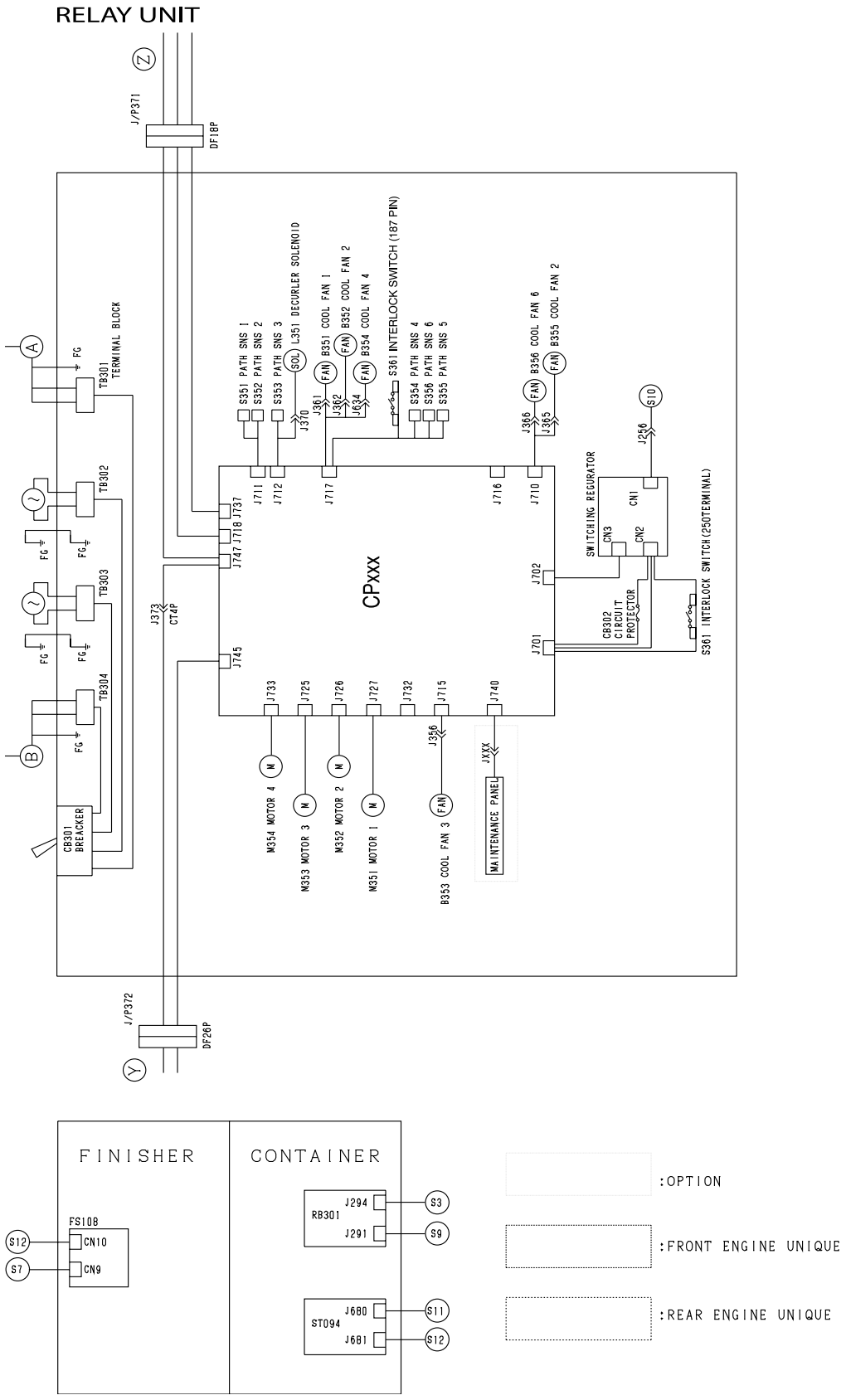


Figure 3-26. Printer Circuit Diagram

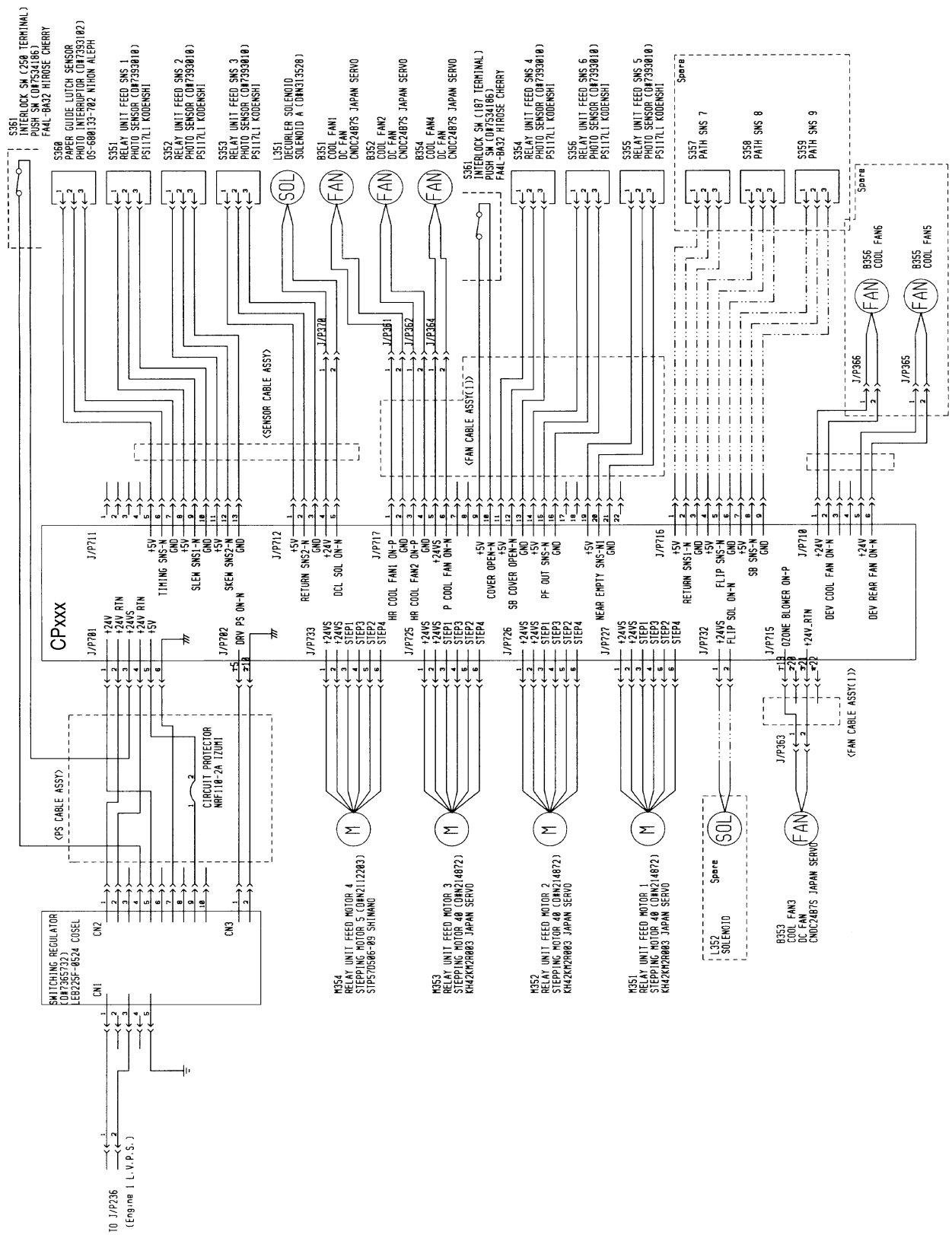


Figure 3-27. Printer Circuit Diagram

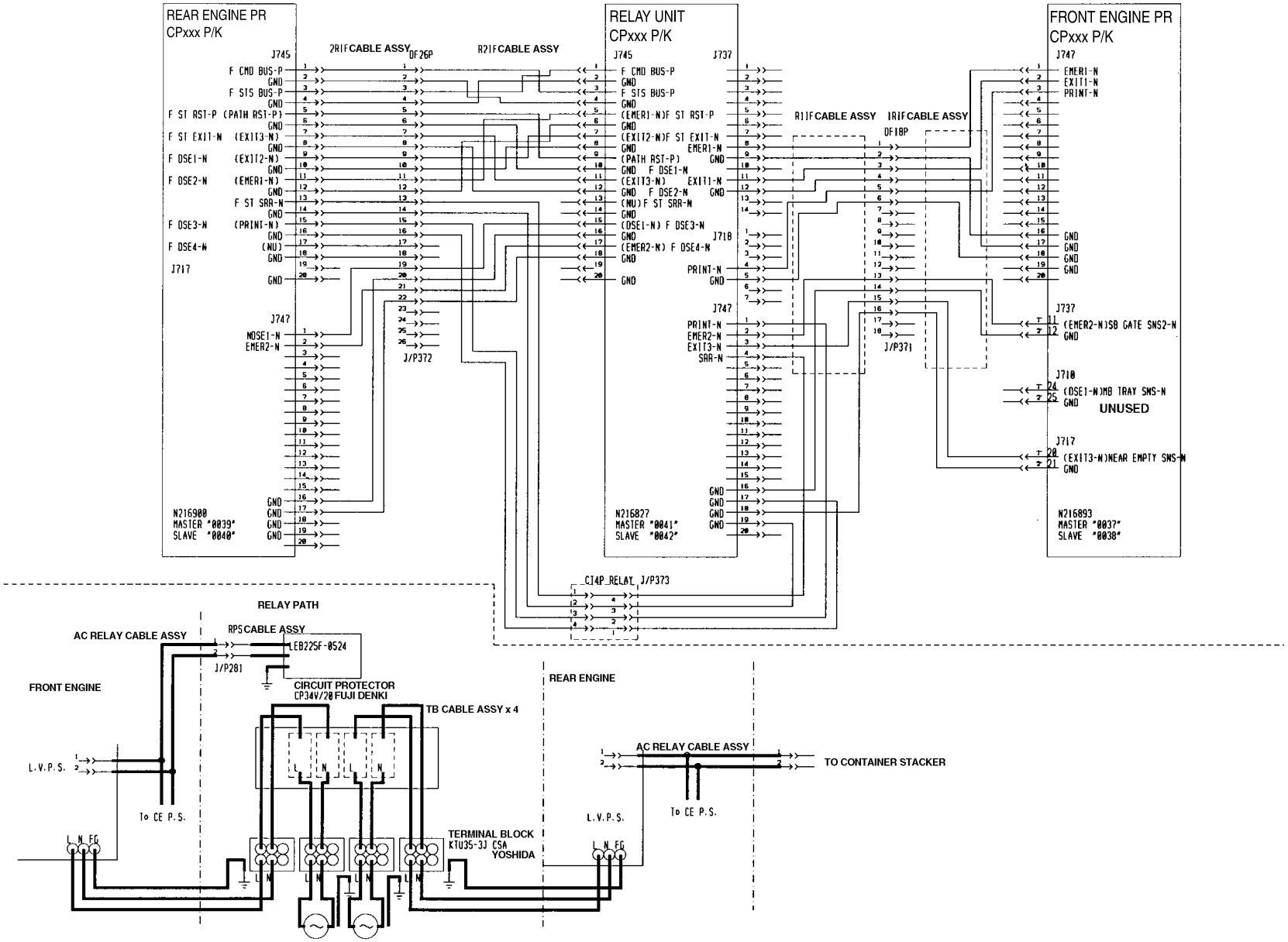
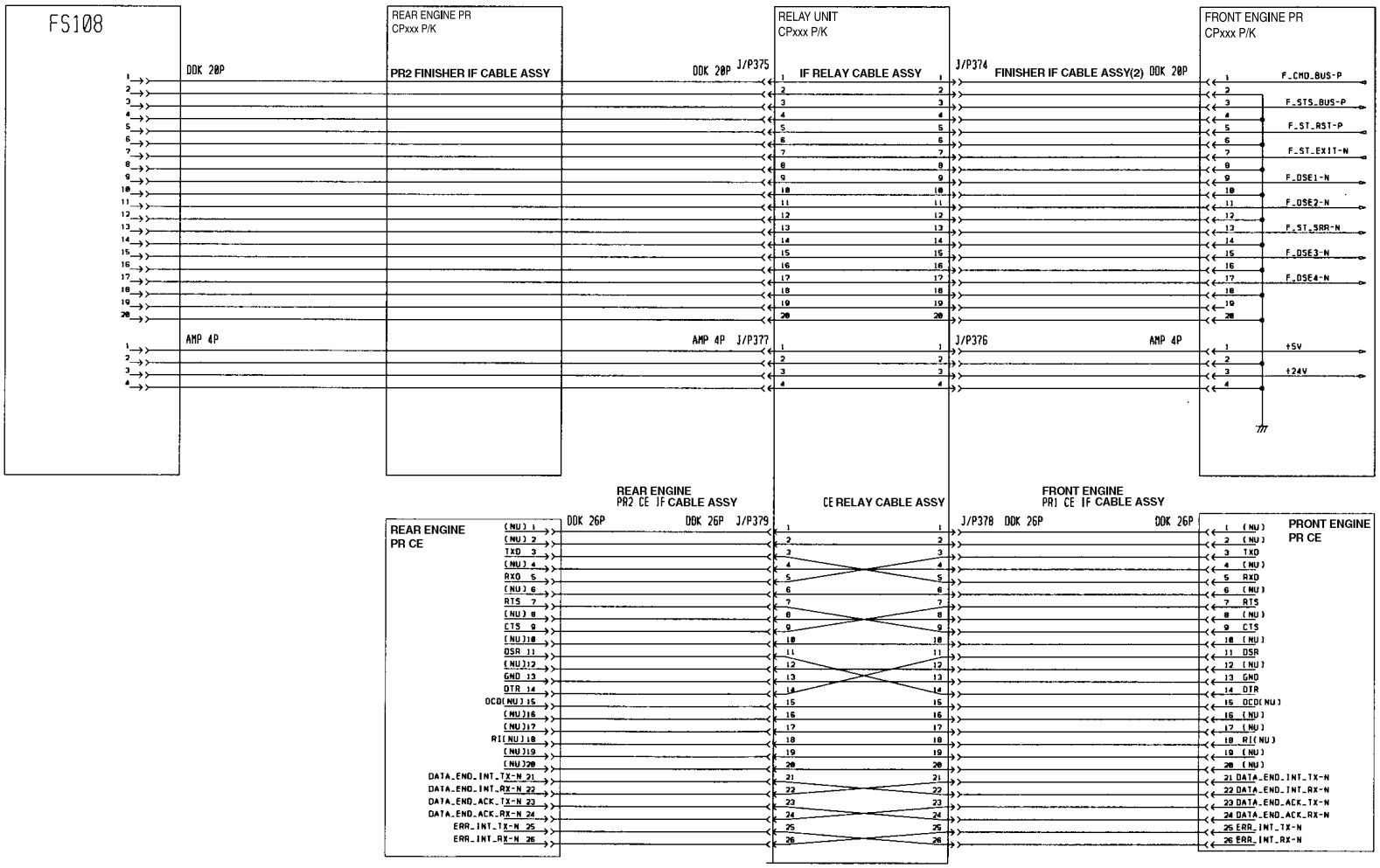


Figure 3-28. Printer Circuit Diagram

MM	L	00	

FINISHER to FRONT ENGINE CIRCUIT DIAGRAM

FRONT CONTROLLER to REAR CONTROLLER CIRCUIT DIAGRAM



3.14.4. Transit Pass Unit Type DDP Circuit Diagram

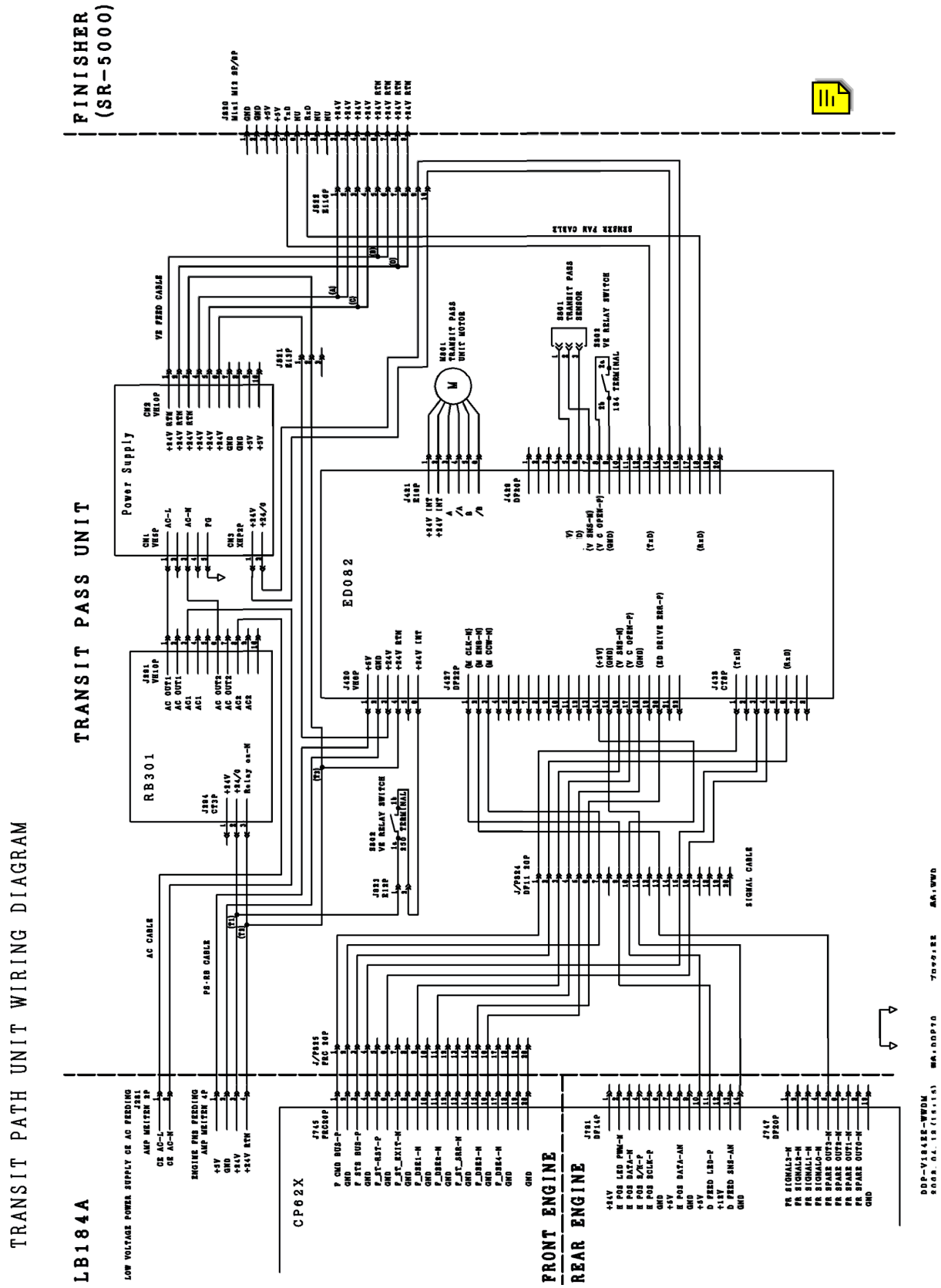


Figure 3-30. Transit Pass Unit Type DDP Circuit Diagram

3.15. Outputting the Printer Log Data

Chapter 4. Preventive Maintenance

This section contains information for maintaining the printer for continuous failure-free, high quality performance. Including in this section are procedures for cleaning the exterior and interior of the printer.
While performing any maintenance procedure, visually inspect the printer for loose, broken or missing cables, connectors or other parts. Look for scratches, nicks or gouges on the Conveyance Belt. In addition look for spilt toner on or around the print path which may degrade the print quality.

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. Printers that are used more heavily will require more frequent preventive maintenance.

CAUTION:
The print density may change depending on the environment. When the printer is used in the environment where the temperature is lower or higher than the specified ambient temperature(10 to 32°C, Recommendable temperature : 19 to 25°C), the print density may deteriorate. Therefore, instruct the customer to use the printer within the specified ambient temperature.

PREVENTIVE MAINTENANCE RESPONSIBILITY

Table 4-7 provides some guidelines regarding who is responsible for the various preventive maintenance procedures.

Symbol Key for PM Tables

I: Inspect. Clean, replace, or lubricate as needed.

C: Cleaning required.

R: Replacement required.

L: Lubrication required.

Note: **Definition of images;**
Duplex Letter size LEF black printing and simplex Letter size LEF spot color printing are counted as each engine 1 image.
Duplex Letter size LEF spot color printing are counted as each engine 2 images.
Duplex Ledger size SEF spot color printing are counted as each engine 4 images.
The abbreviation: **Kc**=1,000 number of Drum Rotations.
The abbreviation: **KPics**=1,000 number of Paper Picks.
The abbreviation: **Ki** = 1,000 images.

Table 4-1. PM Parts List (1)

	500Kc	1000Kc	1500Kc	Expected	Note
Drum Unit					
Drum Unit	R	R	R		7.1.2.1. (1), 7-4
Inside the Printer	C	C	C		4.4.6, 4-21

Table 4-2. PM Parts List (2)

	600 KPics	1200 KPics	1800 KPics	Expected	Note
500 Sheet Hopper, 2000 Sheet Hopper					
Pick Roller	R	R	R		7.1.4.3. (2), 7-180
Separation Roller	R	R	R		7.1.4.3. (4), 7-182
Separator Assembly	R	R	R		7.1.4.3. (3), 7-181

Table 4-3. PM Parts List (3)

	600 KPics	1200 KPics	1800 KPics	Expected	Note
3000 Sheet Hopper					
Pick Roller	R	R	R		7.2.2, 7-233
Separation Roller	R	R	R		7.2.4, 7-235
Separator Assembly	R	R	R		7.2.3, 7-234

Table 4-4. PM Parts List (4)

	320Ki	640Ki	960Ki	1280Ki	1600Ki	Note
Fuser Unit						
Fuser Cleaning Web	R	R	R	R		7.1.3.1. (2), 7-70
Fuser Unit Front Engine					R	7.1.3.1. (1), 7-68
Fuser Unit Rear Engine					R	7.1.3.1. (1), 7-68

Table 4-5. PM Parts List (5)

	400Ki	800Ki	1200Ki	1600Ki	1800Ki	Note
PM Parts						
Charger Unit	C	C	C	C		4.4.8, 4-23
Corotron Assembly	C	C	C	C		4.4.3, 4-17
Transfer Corona Wire	C	C	C	C		Wire Cleaning Tool In case of Black/ Color printing (Rear Engine) 7.1.3.4. (12), 7-113 7.1.3.4. (13), 7-114
Separating Corona Wire	C	C	C	C		
Transfer Corona Wire	C	C	R	C		Wire Cleaning Tool In case of Black/ Black printing 7.1.3.4. (12), 7-113 7.1.3.4. (13), 7-114
Separating Corona Wire	C	C	R	C		
Drum Wrap Sensor	C	C	C	C		4.4.7, 4-22

Table 4-5. PM Parts List (5)

	400Ki	800Ki	1200Ki	1600Ki	1800Ki	Note
Erase Lamp	C	C	C	C		4.4.9, 4-25
Developer Unit	C	C	C	C		4.4.10, 4-26
Optical Unit Window			C			4.4.11, 4-28
Fuser Unit BR Nails	C	C	C	C		4.4.12, 4-29
Spring Holder (R)						4.4.15, 4-32
Flip Pressure Roller			C			4.4.16, 4-33
Coupling Gear						4.4.17, 4-34
Transfer Corona Unit Cleaner						In case of Black/ Color printing (Rear Engine) 7.1.3.4. (16), 7-118 7.1.3.4. (17), 7-119
Transfer Corona Unit Cleaner						
Transfer Corona Unit Cleaner			R			In case of Black/ Black printing 7.1.3.4. (16), 7-118 7.1.3.4. (17), 7-119
Transfer Corona Unit Cleaner			R			
Charger Corotron Wire						In case of Black/ Color printing (Rear Engine) 7.1.2.2. (2), 7-7 7.1.2.2. (3), 7-8
Grid						
Charger Corotron Wire			R			In case of Black/ Black printing 7.1.2.2. (2), 7-7 7.1.2.2. (3), 7-8
Grid			R			
Ozone Filter	C	C	C	C	R	7.1.5.1. (8), 7-209
Ozone Filter R1	C	C	C	C	R	7.1.5.1. (9), 7-210
Ozone Filter R2	C	C	C	C	R	7.1.5.1. (10), 7-211
Air Filter (1)	C	C	C	C	R	7.1.5.1. (9), 7-210
Air Filter (2)	C	C	C	C	R	7.1.5.1. (9), 7-210
Air Filter (3)	C	C	C	C	R	7.1.5.1. (10), 7-211
Air Filter (4)	C	C	C	C	R	7.1.5.1. (11), 7-212
Front Air Filter	C	C	C	C	R	7.1.5.1. (18), 7-219
Air Filter	C	C	C	C	R	7.1.5.1. (8), 7-209
Image Sensor	C	C	C	C		Blower 4.4.14, 4-31
Multi Feed Sensor	C	C	C	C		

Table 4-5. PM Parts List (5)

	400Ki	800Ki	1200Ki	1600Ki	1800Ki	Note
Mirror Cooling Fan			I			3.9, 3-24 4.3.1. (4), 4-14
DEV Cooling Fan			I			
DEV Rear Fan			I			
Charger Fan			I			
DC Fan (Paper Out)			I			
HR Fan 1			I			
HR Fan 2			I			
TH Fan Assembly(1)			I			
TH Fan Assembly(2)			I			
Separating Blower 1			I			
Separating Blower 2			I			
Separating Blower 3			I			
Separating Blower 4			I			
Ozone Blower			I			
SB Cooling Fan			I			
Finisher Cooling Fan			I			
Relay Unit Cooling Fan			I			
Conveyance Belt						7.1.3.4. (6), 7-107
Nip Guide Plate W Assembly						7.1.3.4. (3), 7-104
Drive Pulley1(A)						7.1.3.10, 7-151
Idler Gear (Z28) Assembly						7.1.2.3. (6), 7-16

Table 4-6. PM Parts List (6)

	2000Ki	2400Ki	Expected	Note
PM Parts				
Charger Unit	C	C		4.4.8, 4-23 4.4.3, 4-17
Corotron Assembly	C	C		
Transfer Corona Wire	C	R		Wire Cleaning Tool In case of Black/ Color printing (Rear Engine) 7.1.3.4. (12), 7-113 7.1.3.4. (13), 7-114
Separating Corona Wire	C	R		
Transfer Corona Wire	C	R		Wire Cleaning Tool In case of Black/ Black printing 7.1.3.4. (12), 7-113 7.1.3.4. (13), 7-114
Separating Corona Wire	C	R		

Table 4-6. PM Parts List (6)

	2000Ki	2400Ki	Expected	Note
Drum Wrap Sensor	C	C		4.4.7, 4-22
Erase Lamp	C	C		4.4.9, 4-25
Developer Unit	C	C		4.4.10, 4-26
Optical Unit Window		C		4.4.11, 4-28
Fuser Unit BR Nails	C	C		4.4.12, 4-29
Spring Holder (R)		L		4.4.15, 4-32
Flip Pressure Roller		C		4.4.16, 4-33
Coupling Gear		C		4.4.17, 4-34
Transfer Corona Unit Cleaner		R		In case of Black/ Color printing (Rear Engine) 7.1.3.4. (16), 7-118 7.1.3.4. (17), 7-119
Transfer Corona Unit Cleaner		R		
Transfer Corona Unit Cleaner		R		In case of Black/ Black printing 7.1.3.4. (16), 7-118 7.1.3.4. (17), 7-119
Transfer Corona Unit Cleaner		R		
Charger Corotron Wire		R		In case of Black/ Color printing (Rear Engine) 7.1.2.2. (2), 7-7 7.1.2.2. (3), 7-8
Grid		R		
Charger Corotron Wire		R		In case of Black/ Black printing 7.1.2.2. (2), 7-7 7.1.2.2. (3), 7-8
Grid		R		
Ozone Filter	C	C		7.1.5.1. (8), 7-209
Ozone Filter R1	C	C		7.1.5.1. (9), 7-210
Ozone Filter R2		C		7.1.5.1. (10), 7-211
Air Filter (1)		C		7.1.5.1. (9), 7-210
Air Filter (2)		C		7.1.5.1. (9), 7-210
Air Filter (3)		C		7.1.5.1. (10), 7-211
Air Filter (4)		C		7.1.5.1. (11), 7-212
Front Air Filter		C		7.1.5.1. (18), 7-219
Air Filter		C		7.1.5.1. (8), 7-209

Table 4-6. PM Parts List (6)

	2000Ki	2400Ki	Expected	Note
Image Sensor	C	C		Blower 4.4.14, 4-31
Multi Feed Sensor	C	C		
Mirror Cooling Fan		I		3.9, 3-24 4.3.1. (4), 4-14
DEV Cooling Fan		I		
DEV Rear Fan		I		
Charger Fan		I		
DC Fan (Paper Out)		I		
HR Fan 1		I		
HR Fan 2		I		
TH Fan Assembly(1)		I		
TH Fan Assembly(2)		I		
Separating Blower 1		I		
Separating Blower 2		I		
Separating Blower 3		I		
Separating Blower 4		I		
Ozone Blower		I		
SB Cooling Fan		I		
Finisher Cooling Fan		I		
Relay Unit Cooling Fan		I		
Conveyance Belt			7200Ki	7.1.3.4. (6), 7-107
Nip Guide Plate W Assembly			7200Ki	7.1.3.4. (3), 7-104
Drive Pulley1(A)			7200Ki	7.1.3.10, 7-151
Idler Gear (Z28) Assembly			10000Ki	7.1.2.3. (6), 7-16

4.1. Operator's Task

The following tasks should be performed by the operator at the following frequencies. Refer to the Operator's Guide for a full description of each item.

Table 4-7. Operator's tasks/checks and cleaning items

	PM ITEM	FREQUENCY
Tasks	Turning the power ON/OFF	Before and after using.
	Operating the Operator's Panel	As needed.
	Loading and unloading paper (Hopper)	As needed.
	Removing paper (Stacker)	As needed.
	Supplying the Toner	When Toner empty occurs.
	Exchanging the Toner Collector Bottle	When the OCP displays the message Toner Bottle Full.
	Exchanging the Developer Mix	480 ki / Each engine.
	Exchanging the Fuser Cleaning Web	320 ki / Each engine.
	Exchanging the Drum Unit	500 kc / Each engine.
	Exchanging the Color Unit	As needed.
	Exchanging the Corotron Assembly (In case of Black/Color printing)	200 ki /Rear Engine.
	Exchanging the Charger Unit (In case of Black/Color printing)	200 ki /Rear Engine.
Checks & Cleaning	Check the print quality	Daily and after jam occurs.
	Recovering the paper jams	When paper jam occurs.
	Cleaning the inside of the printer	Per Drum Unit replacement.
	Cleaning around the Toner Collector Bottle area	When the Toner Collector Bottle is exchanged and as needed.
	Cleaning around the Toner Bottle Joint area	When toner is supplied and as needed.
	Cleaning the Paper Hopper/Tray and Finisher area	Daily.
	Cleaning the Conveyance Belt area	Daily.
	Cleaning the Printer Covers	As needed.
	Cleaning the Image Sensor and Multi Feed Sensor	Before using and as needed.

4.2. Periodic check 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 : 600K Images / month
   Power on time : 200 hrs/month
   Operating time : 60 hrs/month

4.2.1. Items and Intervals of Periodical Check

Table 4-8. Items and intervals of periodic check

Item No.	Inspection maintenance items of periodical check	Frequencies		Work Time (Min.)	Maint. Manual
		Print Images	Period		
1.	Printer conditions				
	(1) Reading printer counter values (To grasp print images from last maintenance)	-	Per Visit	1	4.3.1. (1)
	(2) Printing logged data *Number of periodical replacement parts used *Troubles *Paper Jams	-	Per Visit	3	4.3.1. (2)
	(3) Checking the print quality (Test print)	-	Per Visit	3	4.3.1. (3)
2.	Checking the mechanism				-
	(1) Checking the fan revolution	1200 ki	M4	4	4.3.1. (4)
	(2) Hopper/Tray and Finisher area	-	Per Visit	1	-
	(3) Photoconductor surface	-	Per Visit	10	-
	(4) Drum Wrap Sensor	-	Per Visit		-
	(5) Charger Corona Unit	-	Per Visit		-
	(6) Transfer/Separating Corona Unit	-	Per Visit		-
	(7) Fuser Unit	-	Per Visit		-
	(8) Erase Lamp	-	Per Visit		-
	(9) Developer Unit area	-	Per Visit		-
	(10) Drum Unit area	-	Per Visit		-
3.	Cleaning				4.2.2
4.	Replacing periodic replacement parts				4.2.3

Note:

Definition of images;
Duplex Letter size LEF black printing and simplex Letter size LEF spot color printing are counted as each engine 1 image.
Duplex Letter size LEF spot color printing are counted as each engine 2 images.
Duplex Ledger size SEF spot color printing are counted as each engine 4 images.

The abbreviation: ki = 1,000 images
M4 = every four month

4.2.2. Items and Intervals of Periodical Cleaning

Table 4-9. Items and intervals of periodic cleaning

Item No.	Inspection maintenance items of periodical cleaning	Frequencies		Work Time (Reqd.) (Min.)	Special Tools	Maint. Manual
		Print Images	Period			
1.	Paper Hopper/Tray and Finisher area	-	Per Visit	1	-	4.4.1
2.	Toner Bottle Joint area	-	Per Visit	2	-	4.4.2
3.	Transfer Corona Wire/Separating Corona Wire	400 ki	-	16 (In case of Black/ Black printing) 24 (In case of Black/ Color printing)	Wire Cleaning Tool Roller Divider	4.4.3
4.	Conveyance Belt area	-	Per Visit	2	-	4.4.4
5.	Nip Guide Plate	-	Per Visit	10	-	4.4.5
6.	Inside the printer	-	Per Drum replacement	10	-	4.4.6
7.	Drum Wrap Sensor	400 ki	-	10	-	4.4.7
8.	Charger Corona Unit	400 ki	-	10 (In case of Black/ Black printing) 15 (In case of Black/ Color printing)	Roller Divider	4.4.8
9.	Erase Lamp	400 ki	-	6	-	4.4.9
10.	Developer Unit	400 ki	-	6	-	4.4.10
11.	Optical Unit Window	1,200 ki	-	2	-	4.4.11
12.	Fuser Unit BR Nails	400 ki	-	2	-	4.4.12
13.	Toner Collector Bottle area	-	Per Visit	2	-	4.4.13
			Per Bottle replacement	2	-	4.4.13
14.	Toner Sensor	-	Per Bottle replacement	6	-	4.4.13

Table 4-9. Items and intervals of periodic cleaning

Item No.	Inspection maintenance items of periodical cleaning	Frequencies		Work Time (Reqd.) (Min.)	Special Tools	Maint. Manual
		Print Images	Period			
15.	Ozone Filter/Air Filter (Clearing of dust)	-	Per Visit	20	-	7.1.5.1. (8) 7.1.5.1. (9) 7.1.5.1. (10) 7.1.5.1. (11) 7.1.5.1. (18)
16.	Image Sensor/Multi Feed Sensor	-	Per Visit	2	Blower	4.4.14
17.	Spring Holder (R)	2,400 ki	-	20	Grease	4.4.15
18.	Flip Pressure Roller	1,200 ki	-	20	-	4.4.16
19.	Coupling Gear	2,400 ki	-	40	-	4.4.17

4.2.3. Parts for Periodical Replacements and Frequencies

Table 4-10. Parts for periodical replacements and frequencies

Item No.	PERIODIC REPLACEMENTS PARTS	DWG. No.	Qty / engine	Frequencies		Work time reqd. (Min.)	Maint. Ref.
				Print Images	Period		
1.	Drum Unit DDP70/92/184	G1501179 * (N000595Q) G1505179 (N000595T)	1	500 kc	-	1	7.1.2.1. (1)
2.	Fuser Unit DDP184 Front Engine	G1521130 * (N329396E) G1525130 (N337007B)	1	1,600 Ki	-	2	7.1.3.1. (1)
3.	Fuser Unit DDP184 Rear Engine	G1521131 * (N329396F) G1525131 (N337007C)	1	1,600 Ki	-	2	7.1.3.1. (1)
4.	Fuser Cleaning Web DDP70/92/184	G150310 (N212407L)	1	320 Ki	-	1	7.1.3.1. (2)
5.	Transfer Corona Wire /Separate Corona Wire (Front Engine)	G1501453 (N3228303)	2	1,200 Ki	-	12	7.1.3.4. (12) 7.1.3.4. (13)
6.	Transfer Corona Wire /Separate Corona Wire (Rear Engine)	G1501453 (N3228303)	2 (In case of Black/ Black Printing)	1,200 Ki	-	12	7.1.3.4. (12) 7.1.3.4. (13)
			4 (In case of Black/ Color Printing)	2,400 Ki		24	

* Do not use these parts for RoHS.

Table 4-10. Parts for periodical replacements and frequencies

Item No.	PERIODIC REPLACEMENTS PARTS	DWG. No.	Qty / engine	Frequencies		Work time reqd. (Min.)	Maint. Ref.
				Print Images	Period		
7.	Transfer/Separat-ing Corona Unit Cleaner (Front Engine)	G1501829 (N421608BN) G1501830 (421609B)	1	1,200 Ki	-	12	7.1.3.4. (16) 7.1.3.4. (17)
8.	Transfer/Separatin g Corona Unit Cleaner (Rear Engine)	G1501829 (N421608B) G1501830 (N421609B)	1 (In case of Black/ Black Printing)	1,200 Ki	-	12	7.1.3.4. (16) 7.1.3.4. (17)
			2 (In case of Black/ Color Printing)	2,400 Ki		24	
9.	Conveyance Belt Nip Guide Plate W Assembly	G1501452 (N322824) G1501391 (N213996B)	2 2	7,200 Ki 7,200 Ki	-	52	7.1.3.4. (6) 7.1.3.4. (3)
10.	Charger Corotron Wire and Grid (Front Engine)	G1501750 (N420029) G1501529 (N323697)	1	1,200 Ki	-	7	7.1.2.2. (2) 7.1.2.2. (3)
11.	Charger Corotron Wire and Grid (Rear Engine)	G1501750 (N420029) G1501529 (N323697)	1 (In case of Black/ Black Printing)	1,200 Ki	-	7	7.1.2.2. (2) 7.1.2.2. (3)
			2 (In case of Black/ Color Printing)	2,400 Ki		14	
12.	Paper Pick Assembly 500, 2,000 Sheet Hopper Pick Roller Separation Roller Separator Assembly	 G1501549 (N324285) G1501551 (N324286) G1501712 (N413640B)	1 6 3 3	600 kpics	-	 5	 7.1.4.3. (2) 7.1.4.3. (4) 7.1.4.3. (3)
13.	Paper Pick Assembly (3,000 Sheet Hopper(Option)) Pick Roller Separation Roller Separator Assembly	 G1501549 (N324285) G1501551 (N324286) G1501712 (N413640B)	1 2 1 1	600 kpics	-		 7.2.2 7.2.4 7.2.3

Table 4-10. Parts for periodical replacements and frequencies

Item No.	PERIODIC REPLACEMENTS PARTS	DWG. No.	Qty / engine	Frequencies		Work time reqd. (Min.)	Maint. Ref.
				Print Images	Period		
14.	Ozone Filter	G1501717 (N417348)	2	1,800 Ki	-	14	7.1.5.1. (8)
	Ozone Filter R1	G1501624 (N325866)	2				7.1.5.1. (9)
	Ozone Filter R2	G1501625 (N325867)	2				7.1.5.1. (10)
15.	Air Filter (1)	G1501729 (N4199104)	2	1,800 Ki	M6		7.1.5.1. (9)
	Air Filter (2)	G1501730 (N4199105)	2				7.1.5.1. (9)
	Air Filter (3)	G1501727 (N4199102)	2				7.1.5.1. (10)
	Air Filter (4)	G1501728 (N4199103)	2				7.1.5.1. (11)
	Front Air Filter	G1501861 (N423751)	2				7.1.5.1. (18)
	Air Filter	G1501732 (N4199107)	2				7.1.5.1. (8)
16.	Idler Gear (Z28) Assembly	G1501775 (N420292A)	2	10,000Ki	-	60	7.1.2.3. (6)
16.	Drive Pulley1(A)	G1501454 (N322837)	2	7,200Ki	-	40	7.1.3.10

Note: Frequencies of parts marked * are counted with a mechanical counter and their life is not displayed on the Operator Panel. 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: Frequencies are based on print condition :

Black printing : 4.0% image coverage on Xerox 4024 20 lbs letter size paper (LEF) or Hitachi Standard 17 lbs A4 size paper (LEF)

Color printing : 1.5% image coverage on Xerox 4024 20 lbs letter size paper (LEF) or Hitachi Standard 17 lbs A4 size paper (LEF)

Temperature; 19 -25 deg. C(66.2 - 77 deg. F) Humidity; 40- 60 %RH

80% print utilization

Note: The abbreviation kpic=1,000 number of Paper Pick

4.3. Procedures of the Periodical Check

4.3.1. Check and Confirmation Procedures

4.3.1. (1) Reading the Printer Counter Values

Definition of images;
Duplex B5, A4 and Letter size LEF black printing and simplex B5, A4 and Letter size LEF spot color printing are counted as each engine 1 image.
Duplex B5, A4 and Letter size LEF spot color printing are counted as each engine 2 images.
Duplex B4, A3 and Ledger size SEF spot color printing are counted as each engine 4 images.

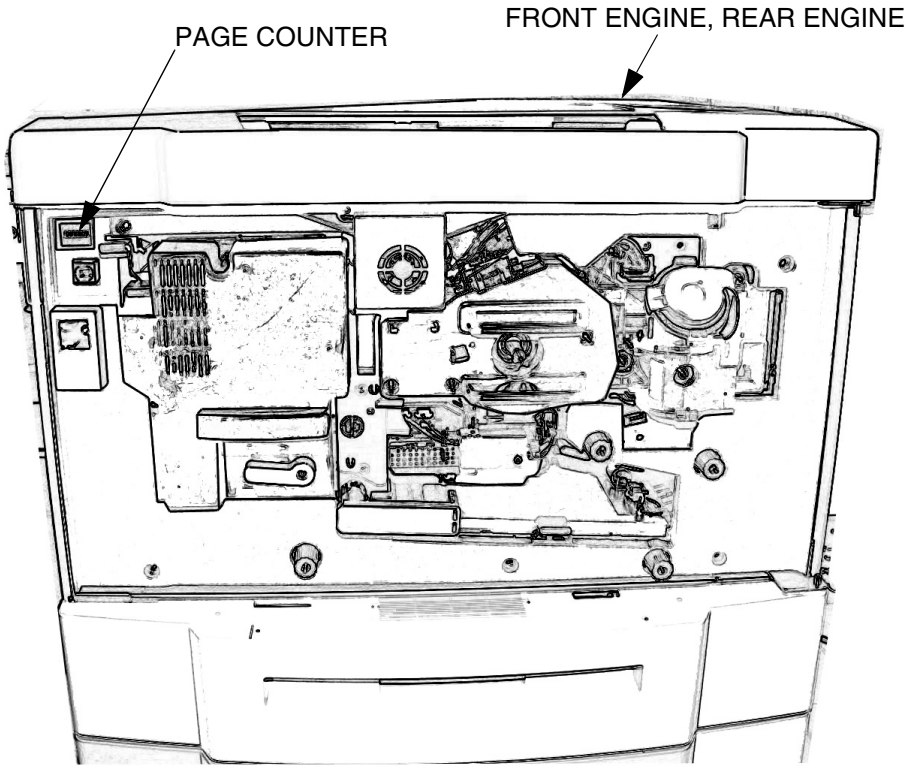


Figure 4-1. Reading the Printer Counter Values

The page counter counts the number of printed images. The number of the printed images in the page counter increases by one after 100 images are printed.

(1-99 printed images= a page counter value of 0, 100-199 printed images= a page counter value of 1, 200-299 printed images= a page value of 2, etc.)

4.3.1. (2) Analyzing the Printer Log

Subject to the controller.

(How to initiate log printing is a controller subject. But, how to analyze is an engine subject.)

4.3.1. (3) Checking the Print Quality

Test Print

Perform a test print(test print pattern) and check that there is no abnormality such as that of the following in the print quality.

When printing with no print-data

- No black spot exceeding the allowance
- No abnormal background
- No vertical line or smudge

When printing test pattern

- No void exceeding the allowance
- No abnormal uneven printing
- No fusing fault

  (Rub the whole surface of the print sample to check it.)

*If there is any abnormality in the above test print sample, refer to Chapter 5, “Trouble-shooting,” on page 5-1 and perform the necessary countermeasures.

4.3.1. (4) Checking the Fan Revolution

CAUTION:
The checks are performed with the power ON, so it requires the upmost care.

Applicable jigs and tools: None.

[Checking Procedures]

1. Check that the fan is rotating during test printing, by placing hands to the outlet of the following fans:

No.	Names	Direction	During Rotation
1.	Mirror Cooling Fan	Inflow	During power on. (When 24V is ON)
2.	DEV Cooling Fan	Outflow	At the time of initialization. During printing.
3.	DEV Rear Fan	Outflow	During power on. (When 24V is ON)
4.	Charger Fan	Inflow	During power on. (When 24V is ON)
5.	DC Fan (Paper Out)	Inflow	During power on. (When 24V is ON)
6.	HR Fan 1	Outflow	Except the time of initialization.
7.	HR Fan 2	Outflow	Except the time of initialization.
8.	TH Fan Assembly (1)	Inflow	At the time of initialization. During printing.
9.	TH Fan Assembly (2)	Outflow	At the time of initialization. During printing.
10.	Separating Blower 1	Outflow	At the time of initialization. During printing.
11.	Separating Blower 2	Outflow	At the time of initialization. During printing.
12.	Ozone Blower	Outflow	During power on. (When 24V is ON)
13.	SB Cooling Fan	Inflow	During power on. (When 24V is ON)
14.	Relay Unit Cooling Fan	Inflow	At the time of initialization. During printing.
15.	Separating Blower 3	Outflow	At the time of initialization. During printing.
16.	Separating Blower 4	Outflow	At the time of initialization. During printing.
17.	Finisher Cooling Fan	Outflow	During power on. (When 24V is ON)

4.4. Cleaning Procedures

4.4.1. Cleaning of the Paper Hopper / Tray

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

Applicable jigs and tools: Lint-Free Cloth.

[Cleaning Procedures]

1. Open the Hopper or the Tray and remove the paper.
2. Clean inside the Hopper or Tray, especially the corners, by wiping any visible toner away with a Lint-Free Cloth.
3. Load the paper back into the Hopper or Tray and close the Hopper or Tray.

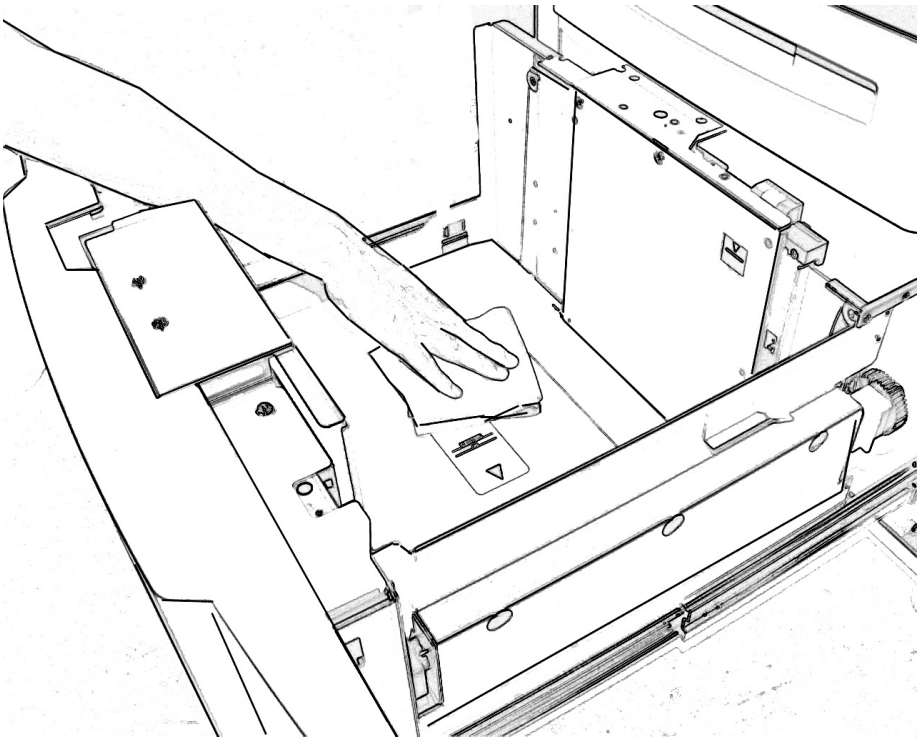


Figure 4-2. Cleaning of the Paper Hopper / Tray

[Assembling Procedures]

Perform the cleaning procedures in the reverse order.

4.4.2. Cleaning of the Toner Bottle Joint

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

Applicable jigs and tools: Lint-Free Cloth, Vacuum Cleaner.

Note: Only toner guaranteed vacuum cleaners can be used for the cleaning.

[Cleaning Procedures]

1. Open the Hopper Cover.
2. Clean the Toner Bottle Joint with a vacuum cleaner, and wipe off excess toner with a Lint-Free cloth.
3. Clean up inside of the Hopper Cover with a Lint-Free cloth.
4. Close the Hopper Cover.

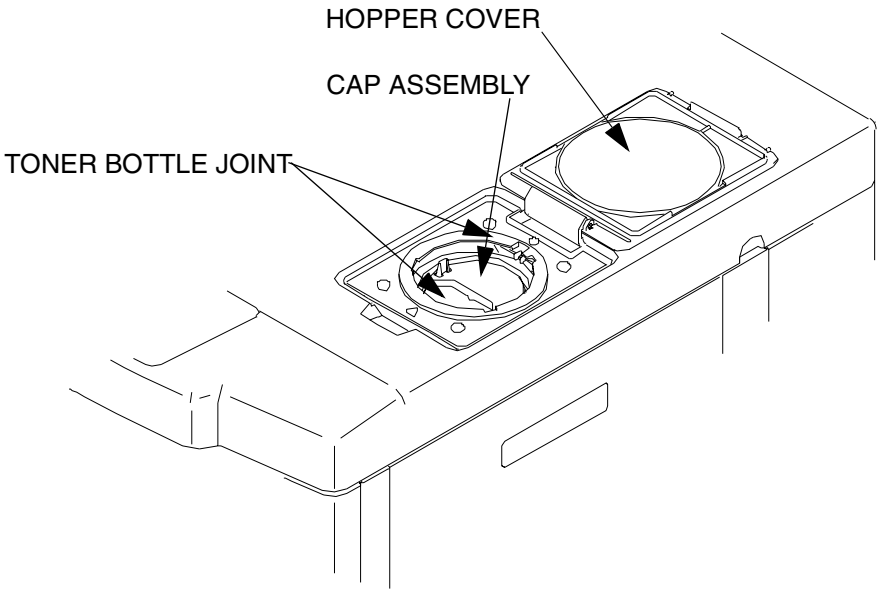


Figure 4-3. Cleaning of the Toner Bottle Joint

[Checks]

Make sure that the Cap Assembly is closed after performing the cleaning.

4.4.3. Cleaning of the Transfer Corona Wire / Separating Corona Wire

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

Applicable jigs and tools:Minus Screwdriver, Lint-Free Cloth, Blue Wire Cleaning Tool, White Wire Cleaning Tool.

[Cleaning Procedures]

1. Remove the Corotron Assembly. (Refer to item 7.1.3.4. (11) on page 7-112)
2. Remove the Cover (F) and the Cover (R) from the Corotron Assembly. (Refer to item 7.1.3.4. (12) on page 7-113)
3. Remove the Detach Guide from the twelve hooks.

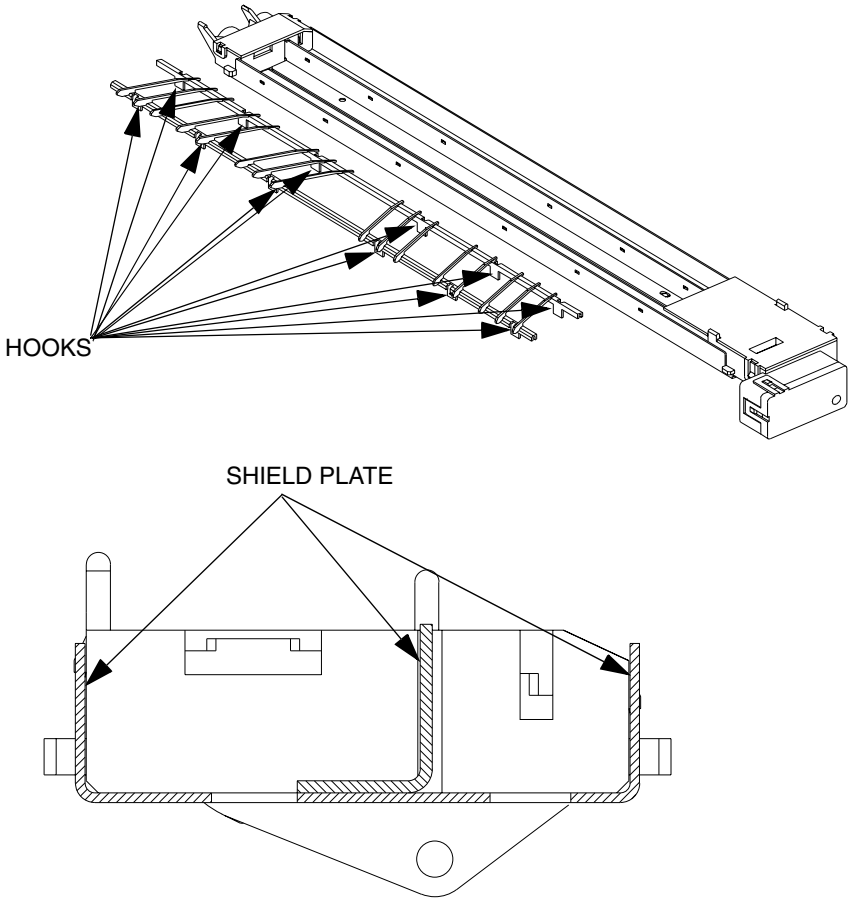


Figure 4-4. -1 Cleaning of the Transfer Corona Wire / Separating Corona Wire

4. Clean the Shield Plate.
   Wipe the inside of the Shield Plate with a clean, Lint-Free Cloth dampened with water.
   Wipe again with a clean, dry, Lint-Free Cloth. (Do not use alcohol instead of water.)

Note: Do not apply excessive pressure during cleaning. This could damage the Wire or the Shield Plate.

5. Clean the Transfer Corona Wire and the Separating Corona Wire.
   Firstly, carefully clamp **the blue** , Wire Cleaning Tool on the Transfer Corona Wire and the Separating Corona Wire and gently wipe along the Wire.
   Next, carefully clamp **the white**, Wire Cleaning Tool on the Transfer Corona Wire and the Separating Corona Wire and gently wipe along the Wire.

Note: Do not apply excessive pressure during cleaning. This could bend or break the Wire.

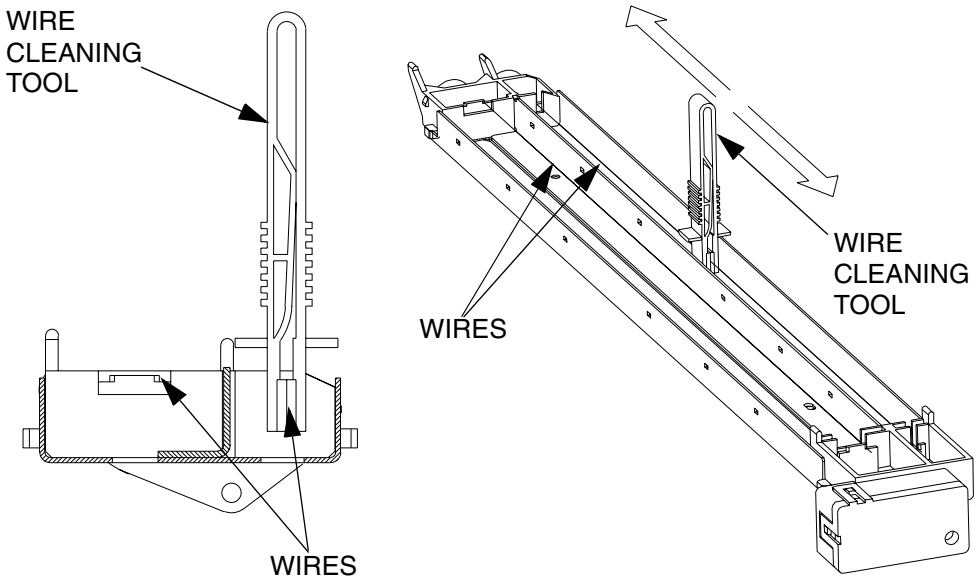


Figure 4-5. -2 Cleaning of the Transfer Corona Wire / Separating Corona Wire

[Assembling Procedures]

Perform the cleaning procedures in the reverse order.

Reattach the Detach Guide so that the "Front Side" in the illustration below faces the operator side of the machine.

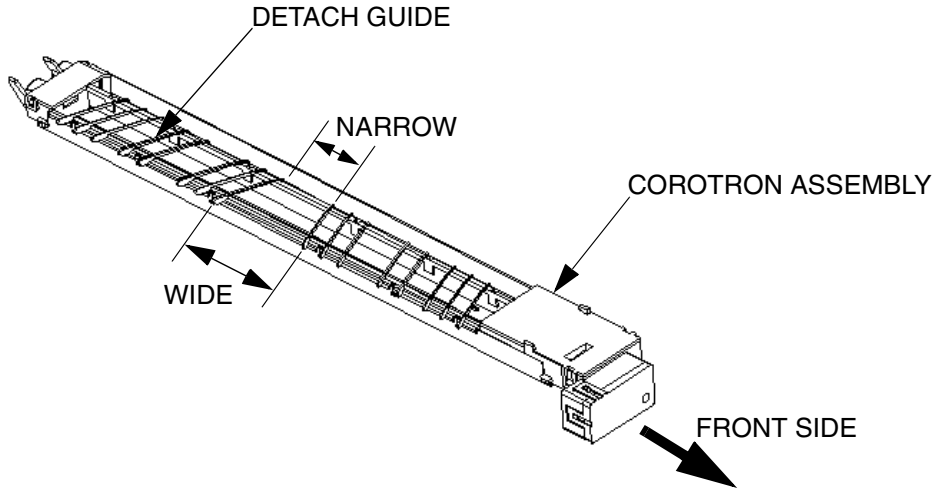


Figure 4-6. -3 Cleaning of the Transfer Corona Wire / Separating Corona Wire

4.4.4. Cleaning of the Conveyance Belt Area

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

Applicable jigs and tools: Lint-Free Cloth.

[Cleaning Procedures]

1. Remove the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
2. Clean the Conveyance Belt Area with Lint-Free Cloth.

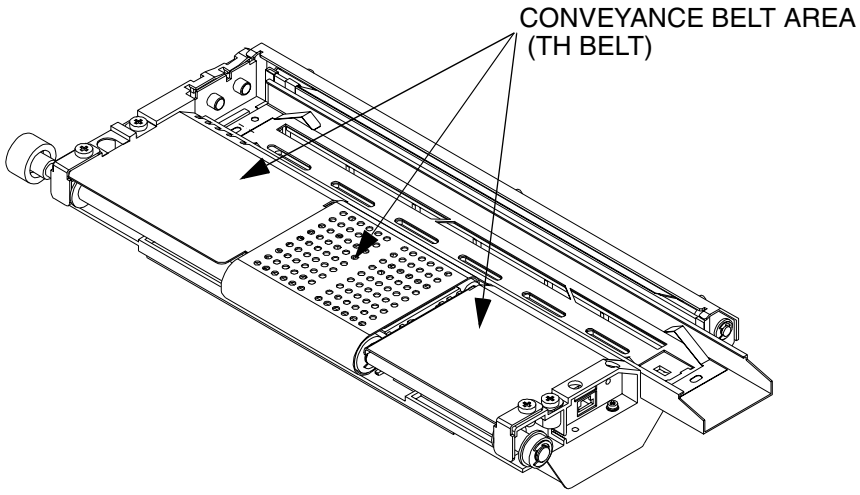


Figure 4-7. Cleaning of the Conveyance Belt

[Assembling Procedures]

Perform the cleaning procedures in the reverse order.

4.4.5. Cleaning of the Nip Guide Plate W Assembly

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

Applicable jigs and tools: Lint-Free Cloth.

[Cleaning Procedures]

1. Remove the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
2. Clean the Nip Guide Plate W Assembly with Lint-Free Cloth.

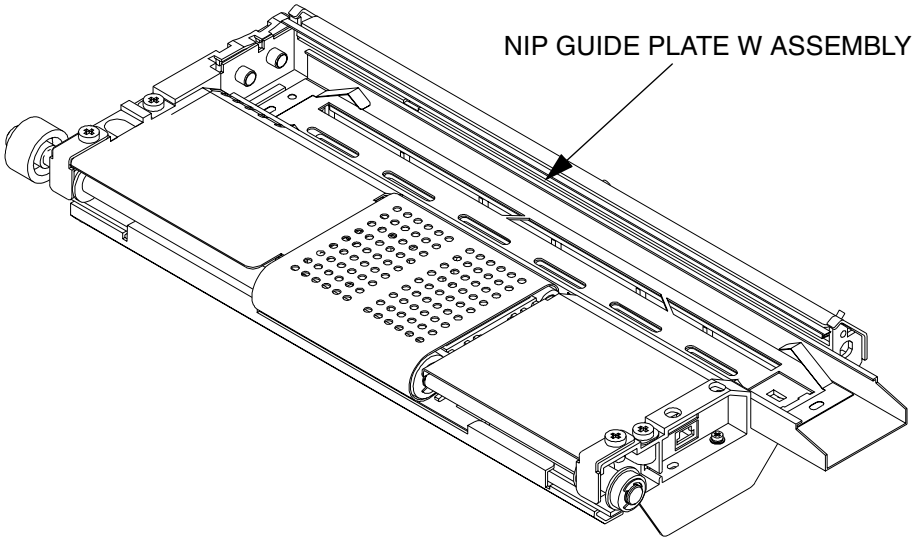


Figure 4-8. Cleaning of the Nip Guide Plate W Assembly

[Assembling Procedures]

Perform the cleaning procedures in the reverse order.

4.4.6. Cleaning of the Machine Inside

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

Applicable jigs and tools: Lint-Free Cloth, Vacuum Cleaner.

Note: Only toner guaranteed vacuum cleaners can be used for the cleaning.
Do not touch the Drum Wrap Sensor and the hook of the Drum Wrap Sensor Holder, when the surrounding of the Drum Wrap Sensor is cleaned.

[Cleaning Procedures]

1. Remove the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
2. Remove the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
3. Clean up the inside of the machine with Lint-Free Cloth and a Vacuum Cleaner as shown below.

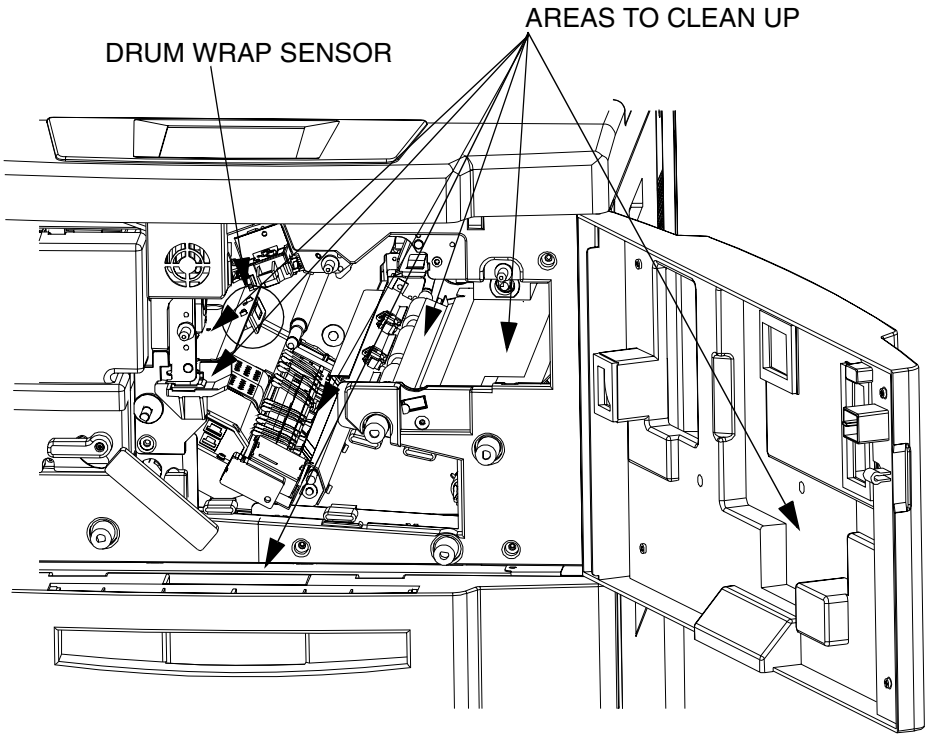


Figure 4-9. Cleaning of the Machine Inside

[Assembling Procedures]

Perform the cleaning procedures in the reverse order.

4.4.7. Cleaning of the Drum Wrap Sensor

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

Applicable jigs and tools: Lint-Free Cloth.

[Cleaning Procedures]

1. Remove the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
2. Remove the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
3. Unscrew the two ⊕ screws to remove the Toner Guard Plate.
4. Clean up the Glass Sheet of the Drum Wrap Sensor with Lint-Free Cloth.

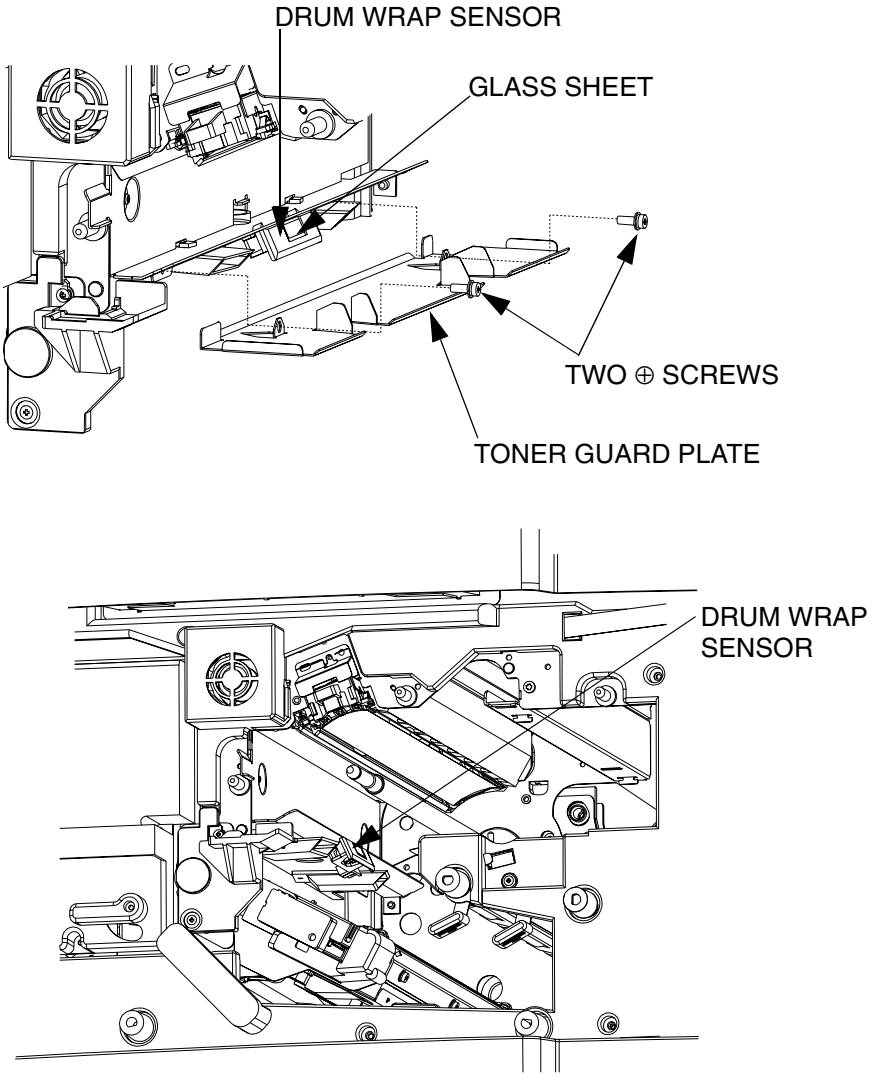


Figure 4-10. Cleaning of the Drum Wrap Sensor

CAUTION:
Be careful not to break the Glass Sheet during performing the cleaning.

[Assembling Procedures]

Perform the cleaning procedures in the reverse order.

4.4.8. Cleaning of the Charger Unit

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

CAUTION:
Never touch the Corotron Wire during cleaning. If it is touched, there is the fear that streaks may occur by uneven electrical discharge. When Charger Wire is touched, it must be replaced with a new one. (Refer to item 7.1.2.2. (3) on page 7-8) **If Corotron Wire is wiped, it's quite possible that streaks will occur more.**

Applicable jigs and tools: ⊕ Screwdriver, Lint-Free Cloth, Tweezers, Paper.

[Cleaning Procedures]

1. Remove the Charger Unit. (Refer to item 7.1.2.2. (1) on page 7-6)
2. Unscrew the ⊕ screw to raise the Grid Tensioner Assembly.
3. Remove the Grid from the three hooks of the Grid Stand (F) and put it on the paper.
4. Remove the Grid Stand (R).

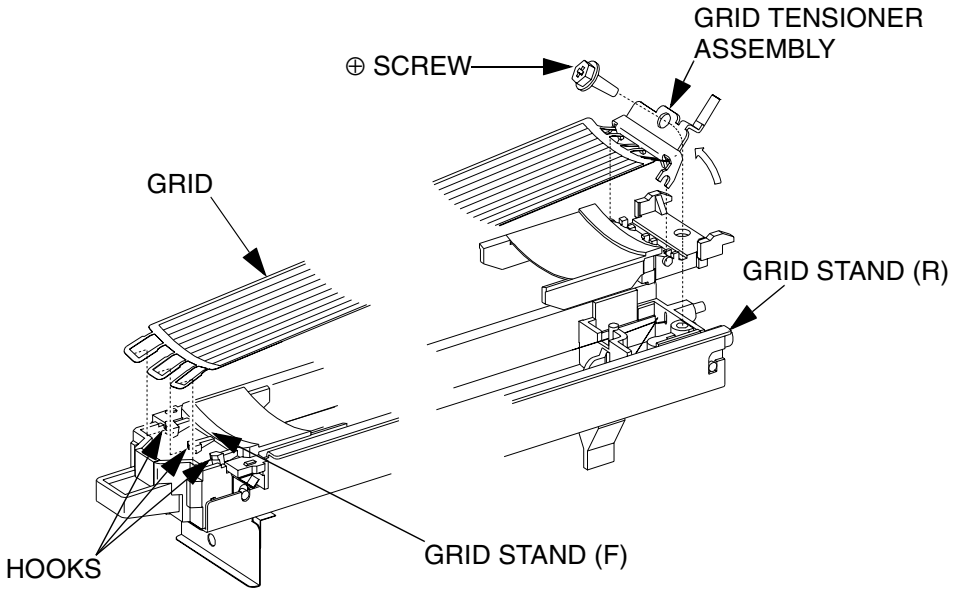


Figure 4-11. Cleaning of the Charger Unit

5. Clean the Shield Plate.
   Hold a clean, Lint-Free Cloth dampened with water in the Tweezers and wipe the four surfaces of Shield Plate in figure.
   Wipe again with a clean, dry, Lint-Free Cloth. (Never use alcohol instead of water.)

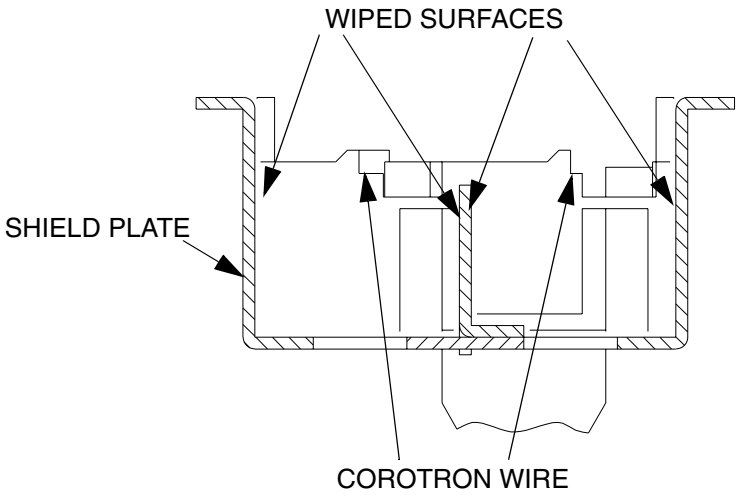


Figure 4-12. Cleaning of the Charger Unit's Shield Plate

6. Clean the Grid.
   Wipe both sides of the Grid surface with a clean, Lint-Free Cloth dampened with water.
   Wipe both sides again with a clean, dry, Lint-Free Cloth. (Never use alcohol instead of water.)

Note: Do not apply excessive pressure during cleaning. This could damage the Grid.

[Assembling Procedures]

Perform the cleaning procedures in the reverse order Nos. 4-1.

4.4.9. Cleaning of the Erase Lamp

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

Applicable jigs and tools: ⊕ Screwdriver, Lint-Free Cloth.

[Cleaning Procedures]

1. Open the Front Cover.
2. Draw out the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Draw out the Charger Unit. (Refer to item 7.1.2.2. (1) on page 7-6)
4. Disconnect the connector.
5. Draw out the Erase Lamp.

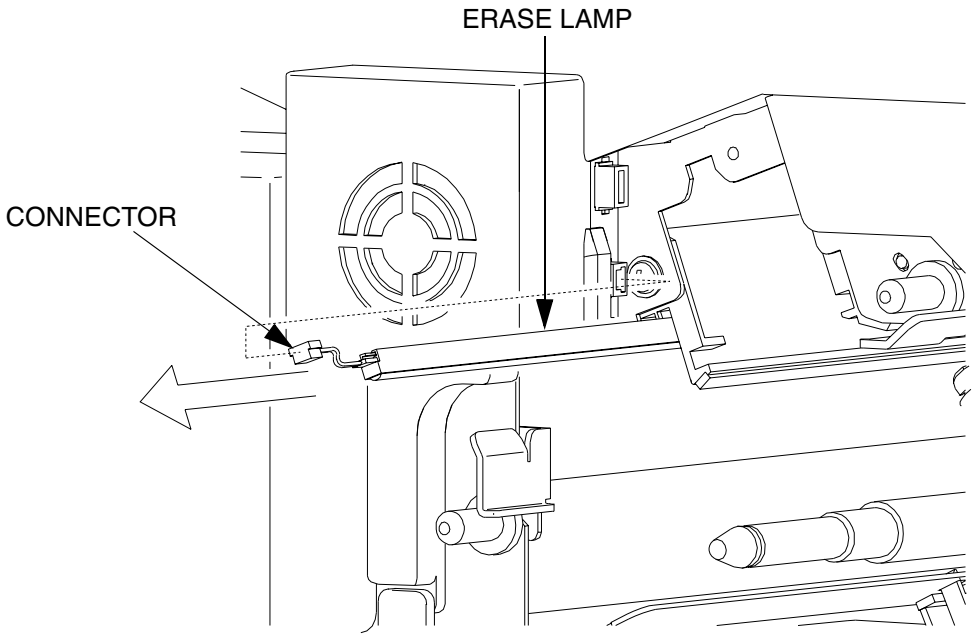


Figure 4-13. Cleaning of the Erase Lamp

6. Wipe the Erase Lamp with a clean, Lint-Free Cloth dampened with water. Wipe again with a clean, dry, Lint-Free Cloth. (Do not use alcohol instead of water.)

[Assembling Procedures]

Perform the cleaning procedures in the reverse order Nos. 5-1.

4.4.10. Cleaning of the Developer Unit

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

Applicable jigs and tools: Lint-Free Cloth, (recommend a Vacuum Cleaner).

Note: Only toner guaranteed vacuum cleaners can be used for the cleaning.

[Cleaning Procedures]

1. Remove the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
2. Clean the Developer Unit with a Lint-Free Cloth (recommend to use a Vacuum Cleaner).

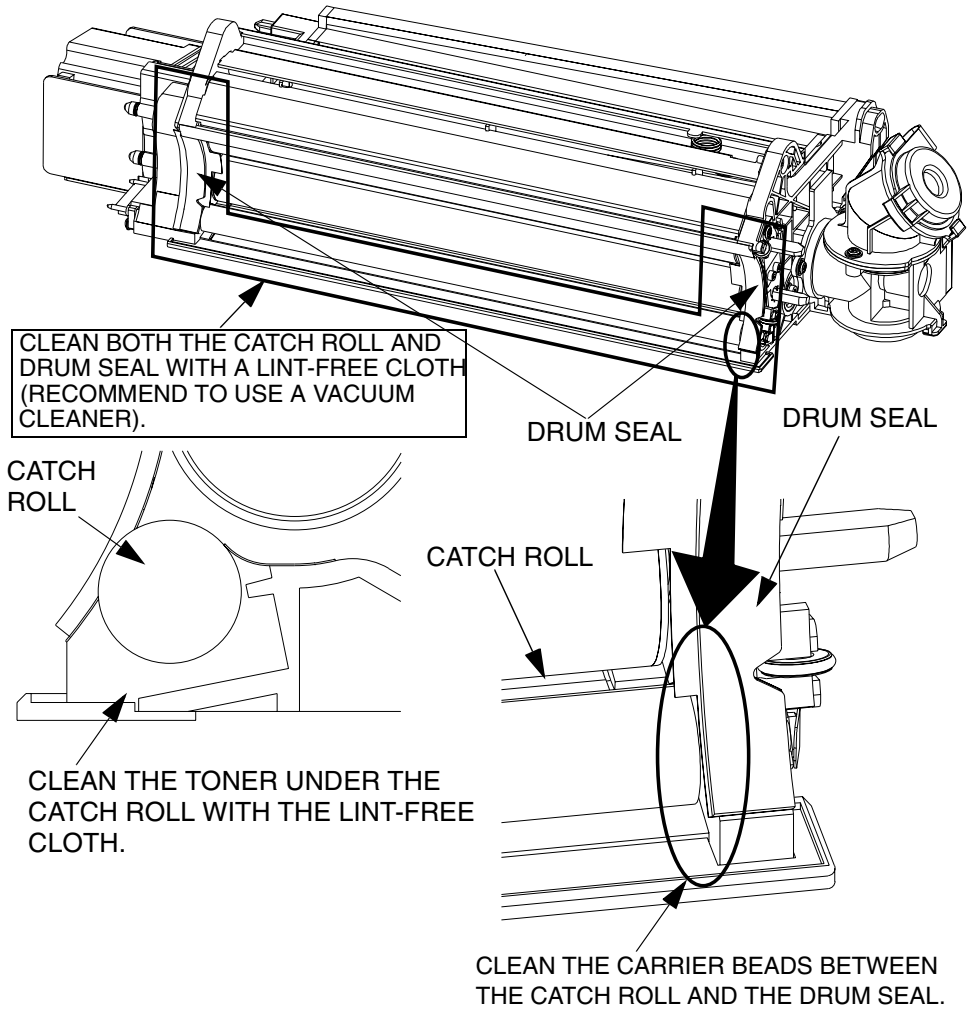


Figure 4-14. Cleaning of the Developer Unit

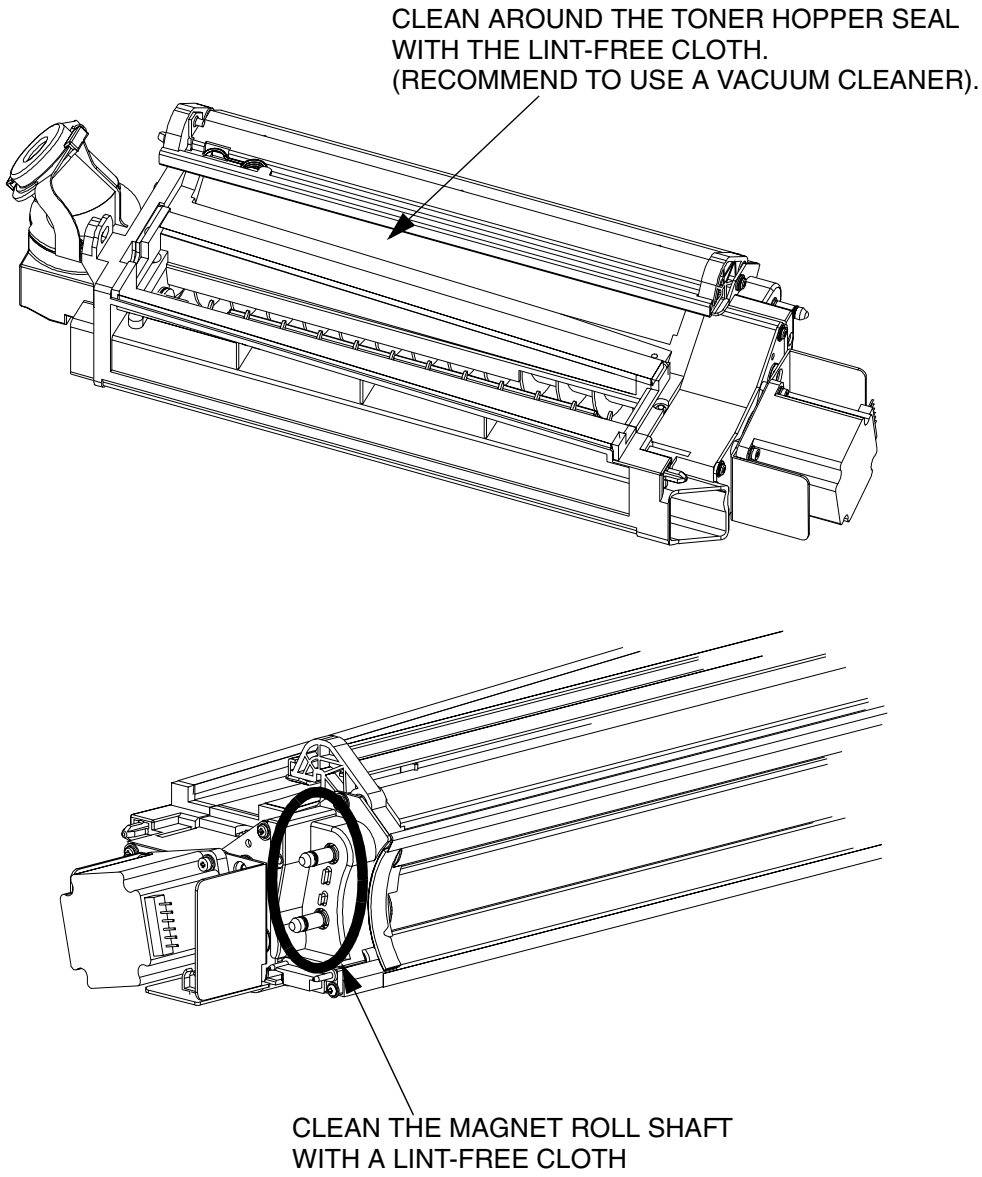


Figure 4-15. Cleaning of the Developer Unit

[Assembling Procedures]

Perform the cleaning procedures in the reverse order.

[Checks]

Make sure that the Cap Assembly is closed after performing the cleaning.

4.4.11. Cleaning of the Optical Unit Window

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

Applicable jigs and tools: ⊕ Screwdriver, Lint-Free Cloth.

[Cleaning Procedures]

1. Open the Front Cover.
2. Remove the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Remove the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Carefully clean the Optical Unit's Window with Lint-Free Cloth.

CAUTION:
Prior to cleaning, wash your hands with soap to avoid contamination.

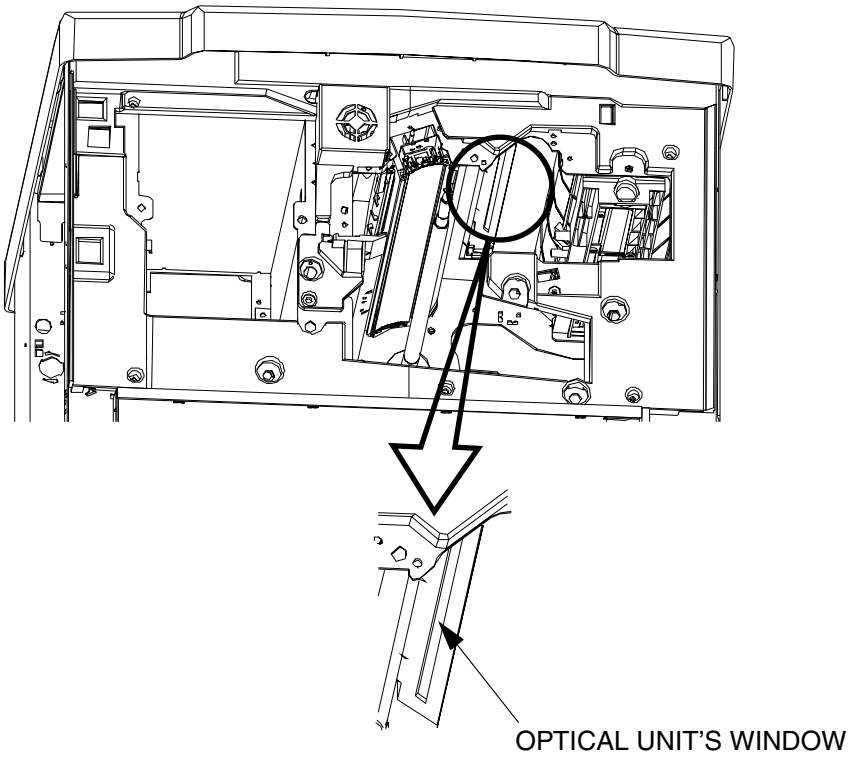


Figure 4-16. Cleaning of the Optical Unit Window

[Assembling Procedures]

Perform the cleaning procedures in the reverse order.

4.4.12. Cleaning of the Fuser Unit BR Nails

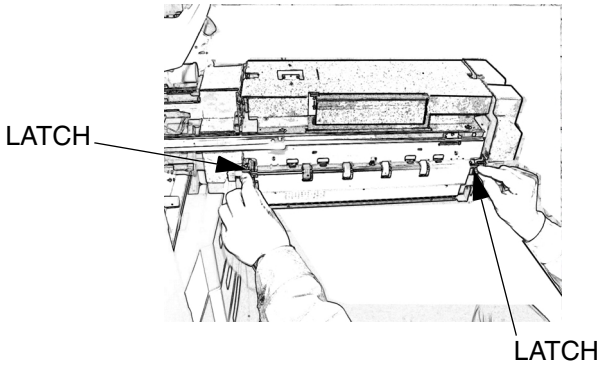
CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

The temperature of the Heat Roll in the Fuser Unit is approximately 190C during operation. So let the Fuser Unit cool and be carful not to touch the high temperature parts.

Applicable jigs and tools: Lint-Free Cloth.

[Cleaning Procedures]

1. Remove the Fuser Unit. (Refer to item 7.1.3.1. (1) on page 7-68)
2. Open the BR Separators Assembly by sliding the right and left latches in the direction of the arrows.
3. Clean the four BR Separators with Lint-Free Cloth.



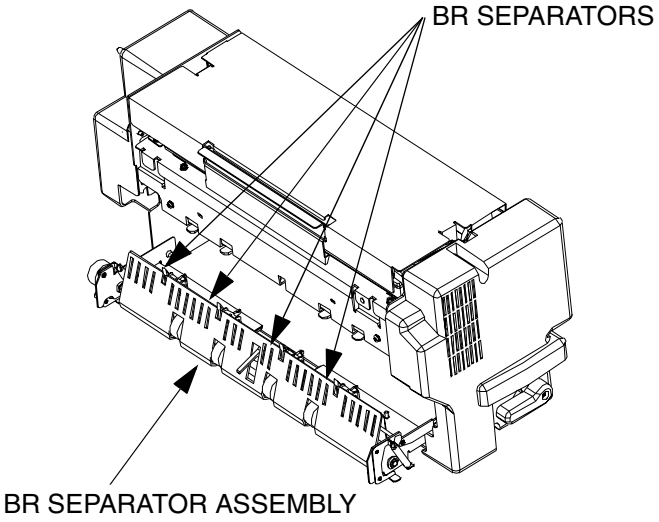


Figure 4-17. Cleaning of the Fuser Unit BR Nails

[Assembling Procedures]

Perform the cleaning procedures in the reverse order.

4.4.13. Cleaning around the Toner Collector Bottle Area

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

Applicable jigs and tools: Lint-Free Cloth, Vacuum Cleaner.

Note: Only toner guaranteed vacuum cleaners can be used for the cleaning.

[Cleaning Procedures]

1. Open the Toner Collector Bottle Cover. (Refer to item 3.3.1 on page 3-9)
2. Open the Inner Cover.
3. Remove the Toner Collector Bottle.
4. Clean surface of the Toner Sensor with Lint-Free Cloth.
5. Clean up inside of the Toner Collector Bottle Box, the surfaces of the Shutter and the Inner Cover with Lint-Free Cloth and a vacuum cleaner.

Note: Since the Toner Sensor can be at fault, don't clean the Toner Sensor with a vacuum cleaner.

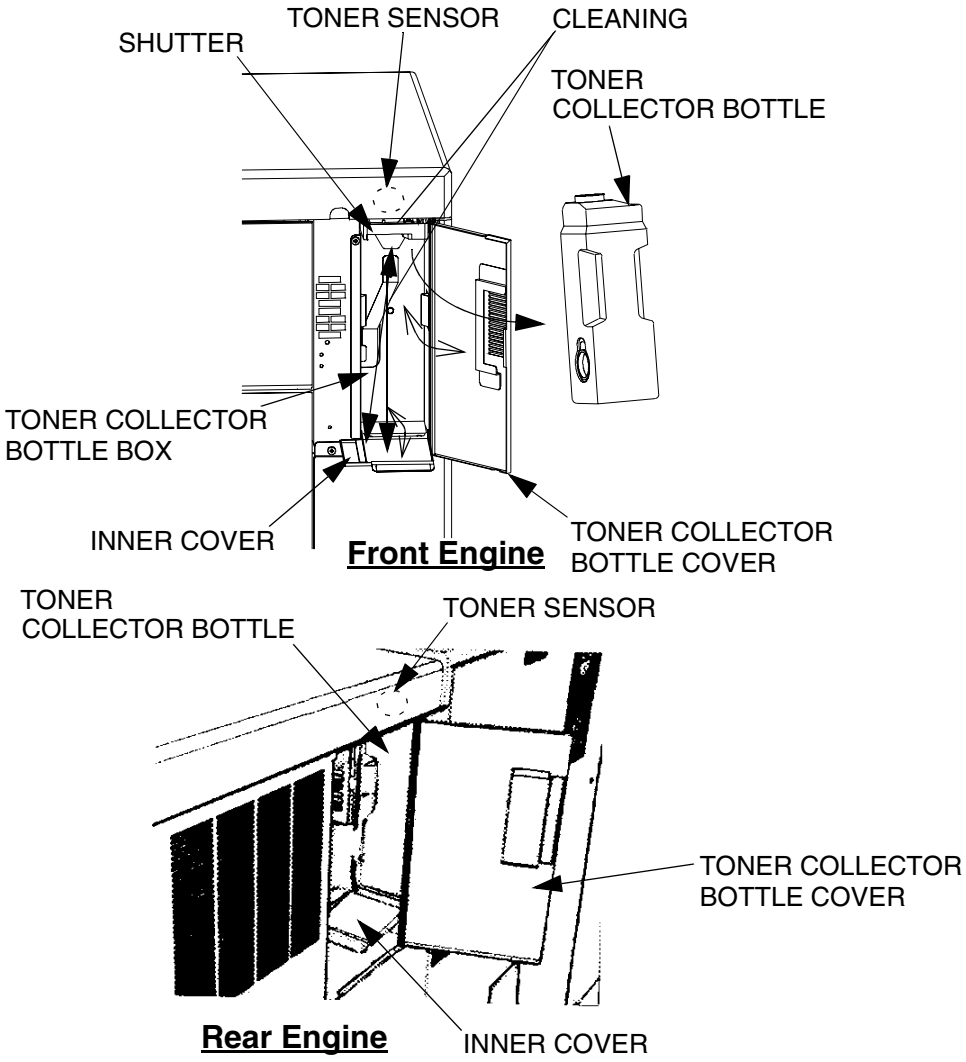


Figure 4-18. Cleaning of the Toner Collector Bottle Joint

[Assembling Procedures]

Perform the cleaning procedures in the reverse order.

4.4.14. Cleaning the Image Sensor and the Multi Feed Sensor

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

Applicable jigs and tools: Blower.

[Cleaning Procedures]

1. Open the IS Cover.
2. Insert the top of the Blower in the Gap of the Outer Paper Guide Assembly and the Paper Guide Stay Assembly.
3. In the Cleaning Area, air is sprayed at intervals of about 5cm, and the whole width of a paper guide is cleaned.

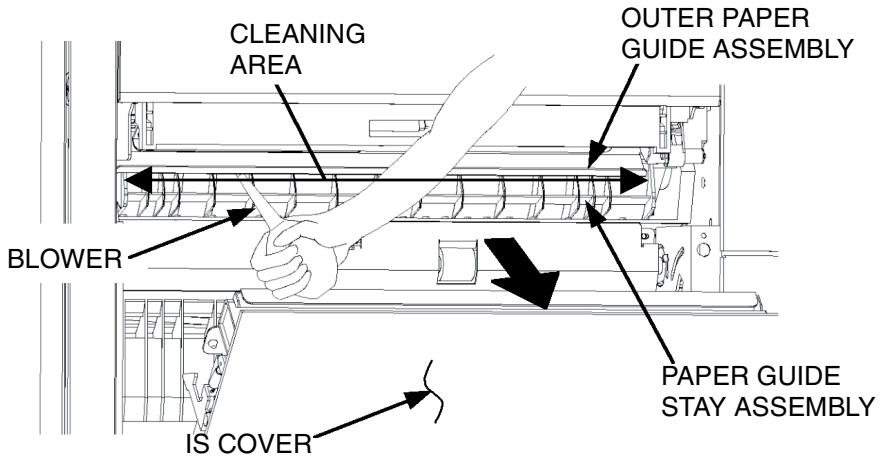


Figure 4-19. Cleaning of the Image Sensor and the Multi Feed Sensor

[Assembling Procedures]

Perform the cleaning procedures in the reverse order.

4.4.15. Cleaning of the Spring Holder (R)

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

Applicable jigs and tools: Lint-Free Cloth, ⊕ Screwdriver, Grease.

[Cleaning Procedures]

1. Draw out the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
2. Draw out the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
3. Remove the Cleaner Holder Assembly.
4. Unscrew the two ⊕ screws to remove the Cleaner Holder Base Assembly.
5. Remove the two Roller-Springs of the **A** and **B** parts.
6. Remove the two Spring Holder (R).
7. Cleaning inner area of Spring Holder (R).
8. Apply Grease to the inner area, and in the hole.

[Lubrication]

Types of Grease

a	Shell Alvania Grease No.2 or Shell Alvania Grease S

Registration Area

No.	Lubrication Point	Type of Grease	Notes/Remarks
1.	Inner area and hole of Spring Holder (R)	a	Frequency: 2,400Ki

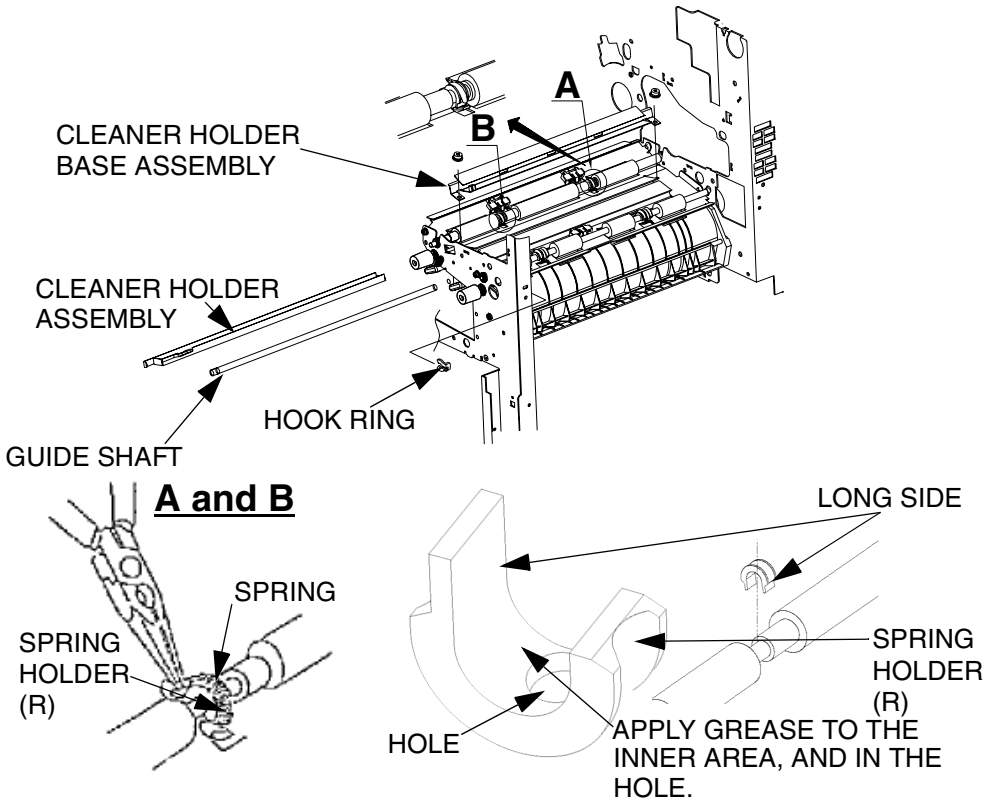


Figure 4-20. Cleaning of the Spring Holder (R)

[Assembling Procedures]

Perform the cleaning procedures in the reverse order.

4.4.16. Cleaning of the Flip Pressure Roller

Applicable jigs and tools: Lint-Free Cloth, Alcohol.

[Cleaning Procedures]

1. Open the Switch Back Cover.
2. Cleaning the Flip Pressure Roller with alcohol.
3. Close the Switch Back Cover.

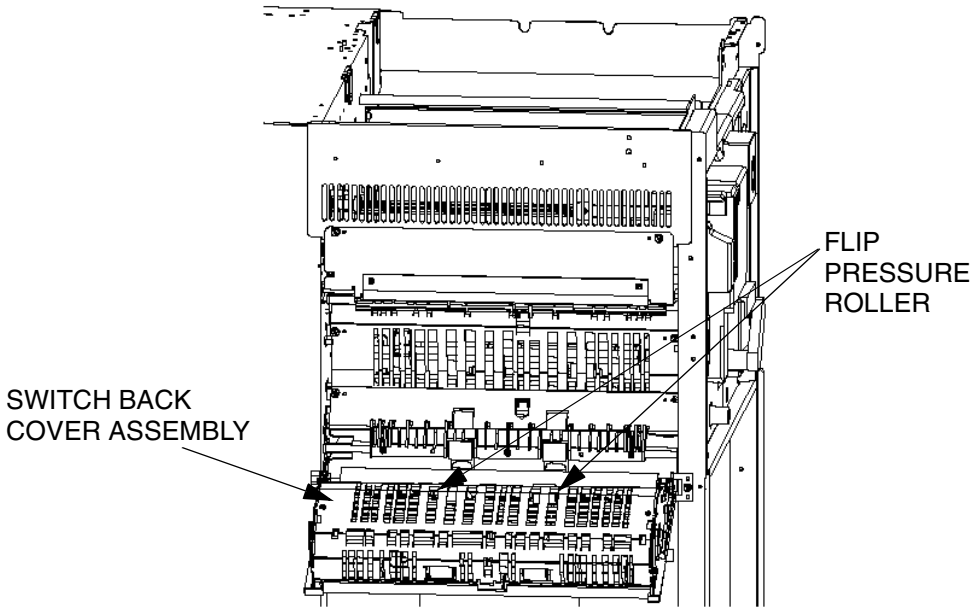


Figure 4-21. Cleaning of the Flip Pressure Roller

4.4.17. Cleaning of the Coupling Gear

Applicable jigs and tools: Lint-Free Cloth, Alcohol.

[Cleaning Procedures]

1. Removal of the DC Fan (Fuser). (Refer to item 7.1.5.1. (2) on page 7-203)
2. Because the access from a printer rear side to the Coupling Gear becomes possible, the dirt of the surface of the shaft exposed with Lint-Free Cloth to move the Coupling Gear to a rear side, and to contain alcohol is wiped off.
3. Only the Sleeve Bearing is similarly moved, and the dirt of the shaft is wiped off.

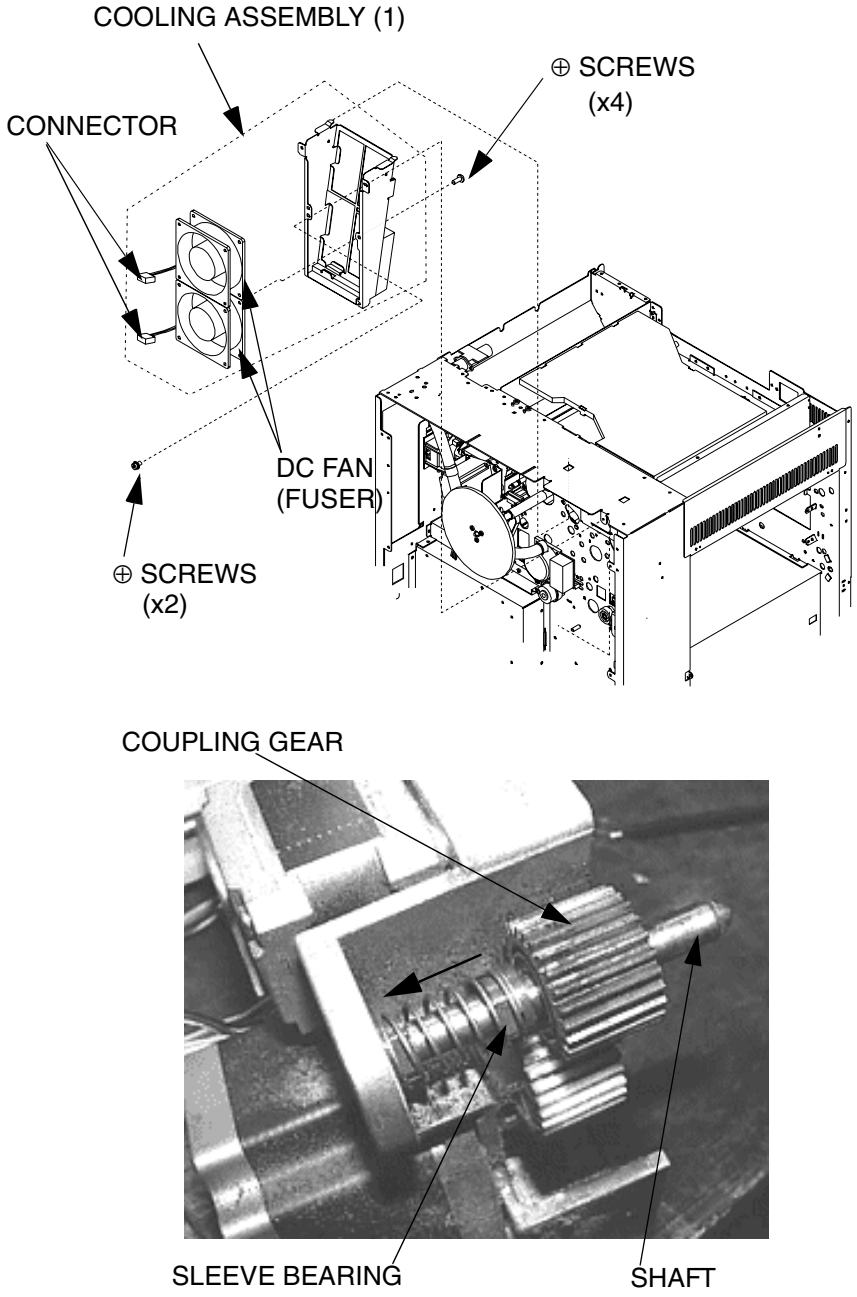


Figure 4-22. Cleaning of the Coupling Gear

[Assembling Procedures]

Perform the cleaning procedures in the reverse order.

Chapter 5. Troubleshooting

5.1. Grasping Trouble Phenomenon and Countermeasures

5.1.1. Countermeasures

[Trouble]

Grasp the trouble condition and phenomenon according to "Display and Phenomenon in case of Trouble Generation," on page 5-1.

[Power source trouble]

1.	The printer cannot be powered on.	Troubleshooting according to "Printer Power ON Impossible" on page 5-2.

[Error Code Trouble]

2.	Displays the error code.	Troubleshooting according to "Error Code Indication" on page 5-10

Print Quality Trouble

3.	Defective Print Quality.	Troubleshooting according to "Troubles in Print Quality" on page 5-121

Other Troubles

4.	Abnormal noise or any additional errors except the above.	Troubleshooting according to "Troubles in Other Parts(Abnormal Noise, etc.,)" on page 5-144

Paper Jams

5.	Paper Jam obstacles.	Troubleshooting according to "Countermeasures for Paper Jams" on page 5-144

5.1.2. Display and Phenomenon in case of Trouble Generation

(1)	Has the trouble generated under a specific job?	[a. YES, b. NO]
(2)	In what condition was it before the trouble generated?	[a. Just powered on, b. At the start of printing, c. During Printing, d. In non-printing, e. Others.]
(3)	Has the trouble generated at a specific operation?	[a. YES, b. NO]
(4)	Has the trouble generated when using special paper?	[a. YES, b. NO]

5.1.3. Display and Phenomenon in case of Trouble Generation

(1)	Display of Status Code(SC)	[a. Nothing, b. [ ] displayed]
(2)	Printing Quality [Select samples in case of abnormal printing quality]	[a. Normal, b. Abnormal]
(3)	Other abnormal conditions	[a. Nothing special, b. Abnormal noise, c. Damaged parts, d. Others.]

5.2. Troubles

5.2.1. Printer Power ON Impossible

PRIMARY FACTOR;

The printer cannot be powered on.

CAUTION: Perform the maintenance with special care as it is the power supply.

Disconnect AC 200V with a distribution board to replace the MAIN POWER SWITCH or low voltage power supply as AC200V is always supplied to the 200V input terminal block even when the printer's main power switch is off.

Grasp the situation correctly. Printer power on impossible problem fall into following cases.

	(Power ON/OFF Status when turning on the MAIN POWER SWITCH)		
	<FRONT ENGINE>	<RELAY UNIT>	<REAR ENGINE>
Phenomenon 1	OFF	OFF	OFF
Phenomenon 2	OFF	OFF	ON
Phenomenon 3	OFF	ON	ON
Phenomenon 4	ON	ON	OFF
Phenomenon 5	ON	OFF	ON
Phenomenon 6	OFF	ON	OFF
Phenomenon 7	ON	OFF	OFF

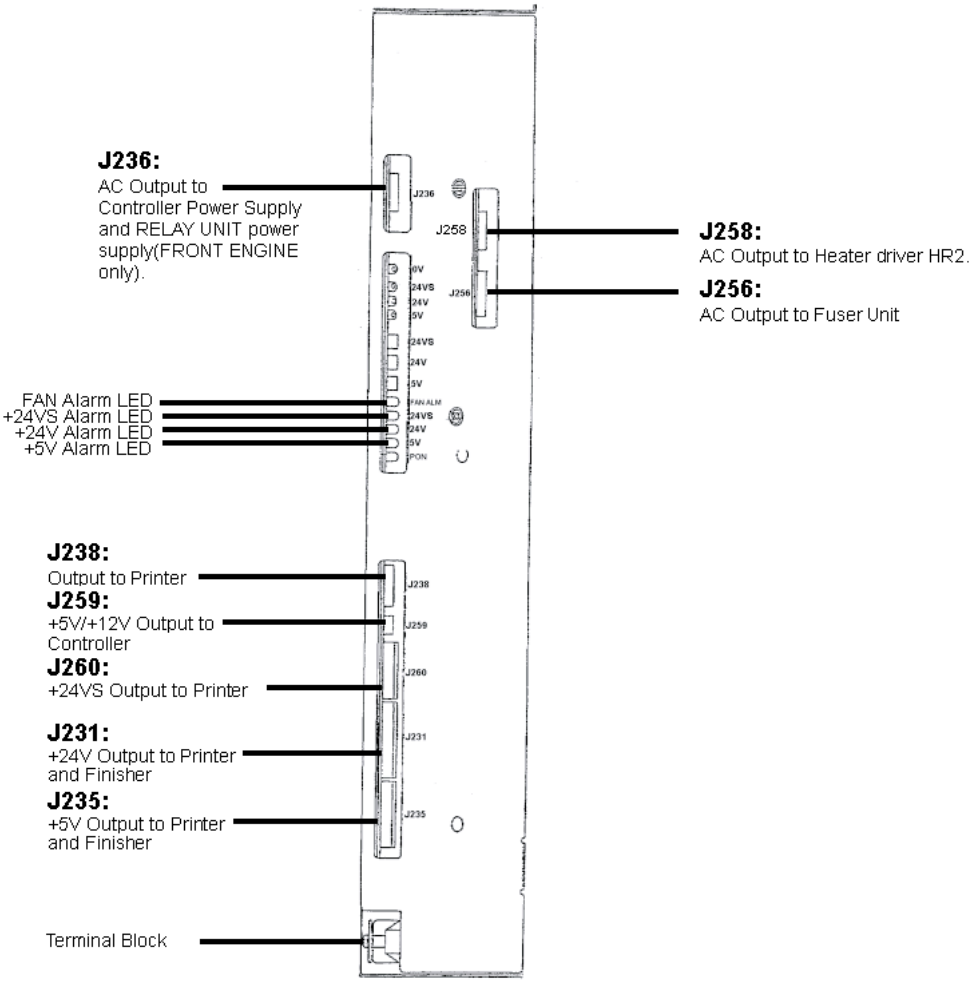
Power ON/OFF status should be judged by checking the +5V voltage at connector J/P701-5 and 6 pin on CPxxx board.

PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS
1. OCP displays Nothing. And FRONT ENGINE, RELAY UNIT and REAR ENGINE do not start initializing.	(1) The MAIN POWER SWITCH is not turned on.	Turn on the MAIN POWER SWITCH.
	(2) Supply voltage is insufficient. Spec. 200-240Vac ±10%	Check: Supply voltage between L and N at TB302/TB303 in RELAY UNIT.
	(3) THE MAIN POWER SWITCH is broken.	Check: AC voltage at terminal block in RELAY UNIT. <MAIN POWER SWITCH is ON condition> TB301: Supply voltage should be observed. TB304: Supply voltage should be observed. If the supply voltage is not observed at TB301 and TB304, The MAIN POWER SWITCH is broken. Replace: MAIN POWER SWITCH

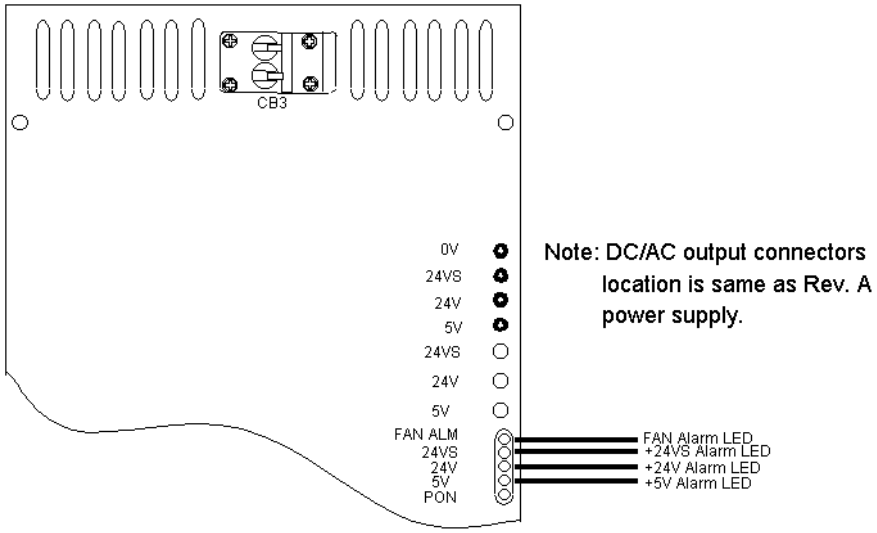
2. OCP displays Nothing, FRONT ENGINE and RELAY UNIT do Not start Initializing. But REAR ENGINE start Initializing when turning on the MAIN POWER SWITCH.	(1) Power cord between RELAY UNIT and FRONT ENGINE is not connected correctly.	Check: Power cord connection Between RELAY UNIT and FRONT ENGINE. Refer to Installation instruction.
	(2) FRONT ENGINE SWITCH is not turned on.	Turn on the FRONT ENGINE SWITCH.
	(3) Supply voltage is insufficient. Spec. 200-240Vac±10%	Check: Supply voltage between L and N at TB302 in RELAY UNIT.
	(4) The CIRCUIT BREAKER CB3 of FRONT ENGINE POWER SUPPLY is not turned on.	Turn on the CIRCUIT BREAKER CB3 at POWER SUPPLY of FRONT ENGINE.
	(5) THE MAIN POWER SWITCH is broken.	Check: AC voltage at terminal block in RELAY UNIT. <MAIN POWER SWITCH is ON condition> TB301: Supply voltage should be observed. If the supply voltage is not observed between L and N at TB301, the MAIN POWER SWITCH is broken. Replace: MAIN POWER SWITCH
	(6) POWER SUPPLY circuit is faulty.	Replace: FRONT ENGINE POWER SUPPLY.
3. OCP displays Nothing, FRONT ENGINE does not start Initializing. But RELAY UNIT and REAR ENGINE start Initializing when turning on the MAIN POWER SWITCH.	(1) Supply voltage is insufficient. Spec. 200-240Vac±10%	Check: Supply voltage at TB302 in RELAY UNIT.
	(2) PCI signal from the Controllers of FRONT ENGINE is faulty.	Check: - Connector P259 at POWER SUPPLY is connected correctly or not. - Measure the voltage of the power on signal. (Between J259-2 pin and 5pin.) Normal: 0V Abnormal: 5V Replace: Controller board.
	(3) FRONT ENGINE POWER SUPPLY detects fan alarm. Fan alarm LED Is Turned on. - Foreign substance Block the power supply Fan rotation. - POWER SUPPLY FAN is faulty.	Remove: Foreign substance. Replace: FRONT ENGINE POWER SUPPLY

3. Continued.	(4) FRONT ENGINE POWER SUPPLY detects over current or low voltage (in +5V circuit) because of short circuit of the load. +5V alarm LED is Turned on.	Load isolation from Printer Power Supply. (Refer to "Load Isolation from Printer Power Supply," on page 5-7)
	(5) POWER SUPPLY circuit is faulty. +5V alarm LED is not turned on.	Replace: FRONT ENGINE POWER SUPPLY
4. OCP displays Normally, FRONT ENGINE and RELAY UNIT start initializing when turning on the MAIN POWER SWITCH. But REAR ENGINE does not start Initializing.	(1) Power cord between RELAY UNIT and REAR ENGINE is not connected correctly.	Check: Power cord connection between RELAY UNIT and REAR ENGINE. Refer to installation instruction.
	(2) REAR ENGINE SWITCH is not turned on.	Turn on the REAR ENGINE SWITCH.
	(3) Supply voltage is insufficient. Spec. 200-240Vac±10%	Check: Supply voltage at TB303 in RELAY UNIT.
	(4) The CIRCUIT BREAKER CB3 of REAR ENGINE POWER SUPPLY is not turned on.	Turn on the CIRCUIT BREAKER CB3 at POWER SUPPLY of REAR ENGINE.
	(5) THE MAIN POWER SWITCH is broken.	Check: AC voltage at terminal block in RELAY UNIT. <MAIN POWER SWITCH is ON condition> TB304: Supply voltage should be observed. If the supply voltage is not observed at TB304, the MAIN POWER SWITCH is broken.
	(6) PCI signal from the Controllers of REAR ENGINE is faulty.	Check: - Connector P259 at POWER SUPPLY is connected correctly or not. Measure the voltage of the power on signal during power on condition. (Between J259-2 pin and 5pin.) Normal: 0V Abnormal: 5V Replace: Controller board.
	(7) REAR ENGINE POWER SUPPLY detects fan alarm. Fan alarm LED Is turned on. - Foreign substance block the power supply Fan rotation. - POWER SUPPLY FAN is faulty.	Remove: Foreign substance. Replace: REAR ENGINE POWER SUPPLY

4. Continued.	(8) REAR ENGINE POWER SUPPLY detects over current or low voltage (in +5V Circuit) because of short circuit of the load. +5V alarm LED is turned on.	Load isolation from Printer Power Supply. (Refer to "Load Isolation from Printer Power Supply," on page 5-7) Replace: REAR ENGINE POWER SUPPLY
	(9) POWER SUPPLY circuit is faulty. +5V alarm LED is not turned on.	Replace: REAR ENGINE POWER SUPPLY
5. OCP displays Normally , FRONT ENGINE and REAR ENGINE start initializing when turning on the MAIN POWER SWITCH. But RELAY UNIT Does not start Initializing.	(1) The +5V circuit breaker in RELAY UNIT is tripped because of short circuit of the load.	Load isolation from RELAY UNIT POWER SUPPLY. (Refer to "Load Isolation from Printer Power Supply," on page 5-7) After repairing the short circuit, push the reset button of +5V circuit breaker.
	(2) The circuit of POWER SUPPLY in RELAY UNIT is faulty.	Replace: Relay UNIT POWER SUPPLY
	(3) The AC power connection between FRONT ENGINE and RELAY UNIT is faulty.	Check: Connection of following Connectors. J/P236 (FRONT ENGINE POWER SUPPLY) - CN1 (RELAY UNIT POWER SUPPLY)
6. OCP displays Nothing, RELAY UNIT does not start Initializing. But FRONT ENGINE and REAR ENGINE start Initializing when turning on the MAIN POWER SWITCH.	(1) This phenomenon is caused by Multi-factor. Phenomenon 3 and 4 are the factors.	Check: Refer to phenomenon 3 and 4.
7. OCP displays Normally , FRONT ENGINE start initializing when turning on the MAIN POWER SWITCH. But REAR ENGINE and RELAY UNIT does not start Initializing.	(1) This phenomenon is caused by Multi-factor. Phenomenon 4 and 5 are the factors.	Check: Refer to phenomenon 4 and 5.



Right Side View of POWER SUPPLY (Front/Rear Engine)
Parts No. G1501337 (N2127492) Rev.A



Front Side View of POWER SUPPLY (Front/Rear Engine)
Parts No. G1501337 (N2127492) After Rev.B

Figure 5-1. The Power Supply

5.2.2. Load Isolation from Printer Power Supply

PRIMARY FACTOR; +5V/+24V/+24VS alarm has generated due to a load short circuit.

Disconnect the power supply load(Examing method when a load short-circuit occurs)

CAUTION: **Perform the maintenance with special care as it is the power supply.**

Disconnect AC 200V with a distribution board to replace the MAIN POWER SWITCH or low voltage power supply as AC200V is always supplied to the 200V input terminal block even when the printer's main power switch is off.

CAUTION:**Be sure to turn off the printer prior to connecting/disconnecting connectors.**

Disconnecting +5V load (FRONT ENGINE / REAR ENGINE / RELAY UNIT)

Disconnection Unit	Connector for Disconnection	Connector to be disconnected for protecting a circuit
High Capacity Hopper NOTE1)	HPxxx Assembly - P415	HPxxx Assembly - P402
Finisher NOTE1)	FS-108H P/K - CN9, CN10 * FS-108R P/K - CN6, CN7	-
Hopper Unit NOTE2)	HPxxx Assembly - P403	HPxxx Assembly - P401
Toner Hopper Unit NOTE2)	CPxxx Assembly - P710	-
Developer Unit NOTE2)	CPxxx Assembly - P719, P790(Rear Engine only)	-
TH Unit NOTE2)	CPxxx Assembly - P714	-
Optical Unit NOTE2)	CPxxx Assembly - P704, P705	OCxxx Assembly - P115
Fuser Unit NOTE2)	CPxxx Assembly - P718	-
Heater Driver NOTE2)	Heater Driver HR2 - P255	-
Maintenance panel NOTE2)	CPxxx Assembly - P740	-
Sensors	CPxxx Assembly - P711, P712, P713, P715, P716, P717	-
Control Unit	CPxxx Assembly - P701	-

NOTE1) FRONT ENGINE only.
NOTE2) FRONT ENGINE / REAR ENGINE only.
* Only for RoHS Machine.

Disconnecting +24V load(FRONT ENGINE / REAR ENGINE / RELAY UNIT,
The printer should be powered on with all load disconnected.)

Disconnection Unit	Connector for Disconnection	Connector to be disconnected for protecting a circuit
High Capacity Hopper NOTE1)	AHxxx Assembly - P420	-
Finisher NOTE1)	FS-108H P/K - CN9 * FS-108R P/K - CN6	-
Hopper Unit NOTE2)	HPxxx Assembly - P401	-
Toner Hopper Unit NOTE2)	CPxxx Assembly - P710	-
Developer Unit NOTE2)	CPxxx Assembly - P720	-
TH Unit NOTE2)	CPxxx Assembly - P714	-
Optical Unit NOTE2)	CPxxx Assembly - P115	-
Fans/Motors	CPxxx Assembly - P715, P710(RELAY UNIT only), P717,	-
Sensors	CPxxx Assembly - P791	-
Control Unit	CPxxx Assembly - P701,	-

Disconnecting +24V load(FRONT ENGINE / REAR ENGINE / RELAY UNIT,
The printer should be powered on with all load disconnected.)

Disconnection Unit	Connector for Disconnection	Connector to be disconnected for protecting a circuit
High Voltage Power Supply NOTE2) (Charger/Grid/Bias)	CPxxx Assembly - P706	-
High Voltage Power Supply NOTE2) (Transfer/Detach)	CPxxx Assembly - P707	-
TH Unit NOTE2)	CPxxx Assembly - P714	-
Fans / Motors / Solenoids	CPxxx Assembly - P712, P715, P725, P726, P727, P728, P729, P730, P731, P732, P733, P734, P735, P736, P737	-
Control Unit	CPxxx Assembly - P701,	-

NOTE1) FRONT ENGINE only.
NOTE2) FRONT ENGINE / REAR ENGINE only.
NOTE3) In relay unit, source of +24V and +24VS channel is the same. Since if there is a short circuit in +24V or +24VS channel, both outputs are shut down.
* Only for RoHS Machine.

5.2.3. PCB Fault

PRIMARY FACTOR; The IC on the CP P/K is faulty.

The printer does not operate at all when this trouble occurs.

The following message is displayed on the Maintenance Panel.
"..01": An error of the Ram (D-P RAM/SRAM/nvRAM) occurs at the Master CPU side.
"..10": An error of the Timer occurs at the Master CPU side.
"..02": An error of the Ram (D-P RAM/SRAM/nvRAM) occurs at the Slave CPU side.
"..20": An error of the Timer occurs at the Master CPU side.

PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page
1. The following message is displayed. "..01", "..10", ",,02", "..20"	1. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214

5.3. Error Code Indication

Note: MB Tray means the Multi-bypass Tray
Hopper 5 means the High Capacity Hopper
Refer to Part 5.7, “Error Code Indication (Finisher SR5000),” on page 5-162 when the Finisher SR5000 is connected.

Detail Error Code	Error Name	Description	Page No.
0000	NORMAL		
E001	HOPPER 1 PAPER EMPTY	No paper is detected in Hopper 1.	5-22
E002	HOPPER 2 PAPER EMPTY	No paper is detected in Hopper 2.	5-22
E003	HOPPER 3 PAPER EMPTY	No paper is detected in Hopper 3.	5-22
E004	MB TRAY PAPER EMPTY	No paper is detected in Multi-bypass Tray.	5-22
E005	HOPPER 5 PAPER EMPTY	No paper is detected in High Capacity Hopper.	5-22
E008	FNS COVER SHEET TRAY EMPTY	The FNS Cover Sheet Tray is empty.	Finisher Manual
E009	SHIFT TRAY FULL 1	Shift Tray is full of paper.	Finisher Manual
E00A	SHIFT TRAY FULL 2	Paper on the Shift Tray is abnormal.	Finisher Manual
E010	TONER COLLECTOR BOTTLE FULL	Toner Collector bottle has reached prearranged replacement.	5-24
E011	TONER SUPPLY EMPTY	Replenish the toner.	5-25
E012	DEVELOPER MIX REPLACEMENT REQUIRED	Developer mix in the developer unit needs to be replaced.	5-25
E013	TONER COLLECTOR BOTTLE FULL 2	Toner sensor becomes on.	5-24
E014	FELT END	Fuser Cleaning Web needs to be replaced.	5-26
E015	FUSER UNIT END	Fuser Unit needs to be replaced.	5-27
E016	PC END	Drum Unit needs to be replaced.	5-27
E017	FELT END 2	Felt End sensor becomes on.	5-26
E018	WRAP SENSOR	The Wrap Sensor level is abnormal.	5-27
E019	LOW STAPLE (R)	Detected no needle of stapler. (Rear)	Finisher Manual
E01A	LOW STAPLE (F)	Detected no needle of stapler. (Front)	Finisher Manual
E01D	TONER COLLECTOR BOTTLE NONSET	Toner Collector bottle is not set correctly.	5-28
E01E	DEVELOPER BOTTLE NONSET	Developer bottle is not set during discharging the Developer Mix.	5-28
E01F	H.POS SENSOR ERROR	Image Sensor (H.POS Sensor) gets dusty.	5-29
E020	HOPPER 1 OPEN	Hopper 1 is open.	5-30
E021	HOPPER 2 OPEN	Hopper 2 is open.	5-30
E022	HOPPER 3 OPEN	Hopper 3 is open.	5-30

Detail Error Code	Error Name	Description	Page No.
E023	HOPPER 5 OPEN	High Capacity Hopper is open.	5-30
E027	STACKER 4 TABLE FULL	The Stacker 4 is full.	Finisher Manual
E036	TONER UNIT NONSET	The toner unit is not set.	5-31
E037	DEVELOPER UNIT NONSET	The developer unit is not set.	5-31
E03E	FINISHER TOP COVER OPEN	The Top Cover of the Finisher is open.	Finisher Manual
E03F	FINISHER FRONT COVER OPEN	The Finisher Front cover is open.	Finisher Manual
E040	CENTER GUIDE OPEN	The paper guide of the center path is open.	5-33
E041	CENTER COVER OPEN	The center path cover is open.	5-34
E042	TOP COVER OPEN	The top cover is open.	5-35
E043	FRONT COVER OPEN	The Front Cover is open.	5-36
E044	IS COVER OPEN	The IS cover is open.	5-38
E045	SB COVER OPEN	The SB cover is open.	5-39
E046	TOP COVER OPEN	The Top Cover of the High Capacity Hopper is open.	5-39
E047	DEVELOPER ERROR 1	The abnormality was detected when replacing the Developer mix.	5-41
E048	DEVELOPER ERROR 2	Charging the Developer mix was executed though the Developer mix is in the Developer Unit.	5-41
E049	DEVELOPER ERROR 3	The color of toner in the Developer Unit is not same as that in the Toner Unit.	5-42
E050	PAPER ON PAPER PATH 1 (IS FEED SENSOR 1)	Paper is detected on the HP1 Pick Sensor or the IS Feed Sensor 1.	5-43
E051	PAPER ON PAPER PATH 2 (IS FEED SENSOR 2)	Paper is detected on the HP2 Pick Sensor or the IS Feed Sensor 2.	5-43
E052	PAPER ON PAPER PATH 3 (IS FEED SENSOR 3)	Paper is detected on the HP3 Pick Sensor or the IS Feed Sensor 3.	5-43
E056	PAPER ON PAPER PATH 4 (TIMING SENSOR)	Paper is detected on the Timing Sensor.	5-43
E057	PAPER ON PAPER PATH 5 (SKEW SENSOR)	Paper is detected on the Skew Sensor.	5-43
E05A	PAPER ON PAPER PATH 6 (DRUM WRAP SENSOR)	Paper is detected on the Drum Wrap Sensor.	5-43
E05B	PAPER ON PAPER PATH 9 (SB SENSOR)	Paper is detected on the SB Sensor.	5-43
E05C	PAPER ON PAPER PATH 10 (RETURN SENSOR 1)	Paper is detected on the Return Sensor 1.	5-43
E05D	PAPER ON PAPER PATH 11 (RETURN SENSOR 2)	Paper is detected on the Return Sensor 2.	5-43
E05E	PAPER ON PAPER PATH 12 (PF OUT SENSOR)	Paper is detected on the PF Out Sensor.	5-43

Detail Error Code	Error Name	Description	Page No.
E05F	PAPER ON PAPER PATH 8 (FLIP SENSOR)	Paper is detected on the Flip Sensor.	5-43
E064	PAPER ON PAPER PATH 14 (FIN ENTRANCE SENSOR)	Paper is detected on the FIN Entrance Sensor.	Finisher Manual
E065	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.	Finisher Manual
E066	PAPER ON PAPER PATH 16 (STACKER CONVEYANCE SENSOR)	Paper is detected on the Stacker Conveyance Sensor.	Finisher Manual
E067	PAPER ON PAPER PATH 17 (STACKER PAPER SENSOR)	Paper is detected on the Stacker Paper Sensor.	Finisher Manual
E068	PAPER ON PAPER PATH 18 (SUB-TRAY EXIT SENSOR)	Paper is detected on the Sub-Tray Exit Sensor.	Finisher Manual
E069	PAPER ON PAPER PATH 30	A paper on the entrance path of the folding path needs to be removed.	Finisher Manual
E06A	PAPER ON PAPER PATH 31	A paper on the folding path needs to be removed.	Finisher Manual
E06B	PAPER ON PAPER PATH 32	A paper on the exit path of the folding path needs to be removed.	Finisher Manual
E06C	PAPER ON PAPER PATH 33	A paper on the paper path of the cover sheet feeder needs to be removed.	Finisher Manual
E070	PAPER ON PAPER PATH 7 (HR OUT SENSOR)	Paper is detected on the HR Out Sensor.	5-43
E072	PAPER ON PAPER PATH 19 (HP5 FEED SENSOR)	Paper is detected on the HP5 Feed Sensor.	5-43
E080	ERASE LAMP NONSET	The Erase Lamp is not set correctly	5-44
E090	PAPER SIZE UNMATCH	The paper size of the designated hopper is invalid.	5-45
E09A	LACK TONER RECOVERY	Supplying toner to recover Lack toner error.	5-46
E0A1	DEVELOPER CHARGE	Replacement of the developer is running.	5-46
E0A2	DEVELOPER DISCHARGE	Replacement of the developer is running.	5-46
E0C2	PAPER ON PAPER PATH 52	A paper on the Center path 1 needs to be removed.	5-47
E0C3	PAPER ON PAPER PATH 53	A paper on the Center path 2 needs to be removed.	5-47
E0C4	PAPER ON PAPER PATH 54	A paper on the Center path 3 needs to be removed.	5-48
E0C5	PAPER ON PAPER PATH 55	A paper on the Center path 4 needs to be removed.	5-48
E0C6	PAPER ON PAPER PATH 56	A paper on the Center path 5 needs to be removed.	5-49
E0C7	PAPER ON PAPER PATH 57	A paper on the Center path 6 needs to be removed.	5-49

Detail Error Code	Error Name	Description	Page No.
E110	REGIST JAM 1	Paper did not arrive at Skew Sensor. (Simplex sheet)	5-51
E111	REGIST JAM 2	Paper did not depart from Skew Sensor. (Simplex sheet)	5-51
E112	REGIST JAM 3	Paper did not arrive at Skew Sensor. (Duplex sheet)	5-51
E113	REGIST JAM 4	Paper did not depart from Skew Sensor. (Duplex sheet)	5-51
E118	DRUM WRAP 1	Simplex paper is wrapped around the Drum.	5-53
E119	DRUM WRAP 2	Duplex paper is wrapped around the Drum.	5-53
E128	HR JAM 1	Paper did not arrive at Flip Sensor.	5-55
E129	HR JAM 2	Paper did not depart from Flip Sensor.	5-55
E130	SWITCH BACK JAM 1	Paper did not arrive at SB Sensor	5-56
E131	SWITCH BACK JAM 2	Paper did not depart from SB Sensor.	5-56
E134	PAPER OUT JAM 1	Paper did not arrive at PF Out Sensor.	5-57
E135	PAPER OUT JAM 2	Paper did not depart from PF Out Sensor.	5-57
E138	RETURN FEED JAM 1	Paper did not arrive at Return Sensor 1.	5-59
E139	RETURN FEED JAM 2	Paper did not depart from Return Sensor 1.	5-59
E13A	RETURN FEED JAM 3	Paper did not arrive at Return Sensor 2.	5-59
E13B	RETURN FEED JAM 4	Paper did not depart from Return Sensor 2.	5-59
E140	CENTER PATH JAM 1	The paper did not get to the Center path 1 in the specified time.	5-60
E142	CENTER PATH JAM 3	The paper did not get to the Center path 2 in the specified time.	5-61
E144	CENTER PATH JAM 5	The paper did not get to the Center path 3 in the specified time.	5-62
E146	CENTER PATH JAM 7	The paper did not get to the Center path 4 in the specified time.	5-63
E148	CENTER PATH JAM 9	The paper did not get to the Center path 5 in the specified time.	5-64
E14A	CENTER PATH JAM 11	The paper did not get to the Center path 6 in the specified time.	5-65
E14B	CENTER PATH JAM 12	A paper jamming was occurred on the Center path 6.	5-66
E150	OVER SKEW 1	Skew of sheet picked from Hopper1 is detected at the Registration Unit.	5-67

Detail Error Code	Error Name	Description	Page No.
E151	OVER SKEW 2	Skew of sheet picked from Hopper2 is detected at the Registration Unit.	5-67
E152	OVER SKEW 3	Skew of sheet picked from Hopper3 is detected at the Registration Unit.	5-67
E153	OVER SKEW 4	Skew of sheet picked from Multi-bypass Tray is detected at the Registration Unit.	5-67
E154	OVER SKEW 5	Skew of sheet picked from Duplex path is detected at the Registration Unit.	5-67
E155	OVER SKEW 6	Skew of sheet picked from High Capacity Hopper is detected at the Registration Unit.	5-67
E156	OVER SKEW 7	A skew paper was detected in the Center path unit.	5-70
E157	MULTI-FEED JAM 1	The former page from the Hopper 1 was the paper which overlapped two sheets.	5-73
E158	MULTI-FEED JAM 2	The former page from the Hopper 1 was the paper which overlapped two sheets.	5-73
E159	MULTI-FEED JAM 3	The former page from the Hopper 1 was the paper which overlapped two sheets.	5-73
E15A	MULTI-FEED JAM 4	The former page from the Hopper 1 was the paper which overlapped two sheets.	5-73
E15B	MULTI-FEED JAM 5	The former page from the Hopper 1 was the paper which overlapped two sheets.	5-73
E15C	MULTI-FEED JAM 6	The former page from the Hopper 1 was the paper which overlapped two sheets.	5-73
E15D	MULTI-FEED JAM 7	The former page from the Hopper 1 was the paper which overlapped two sheets.	5-73
E15E	MULTI-FEED JAM 8	The former page from the Hopper 1 was the paper which overlapped two sheets.	5-73
E180	PICK JAM 1	Paper traveling time from Hopper 1 to IS Feed Sensor 1 is too long.	5-75
E181	INPUT STATION FEED JAM 1	Paper did not depart from IS Feed Sensor 1.	5-79
E182	INPUT STATION FEED JAM 2	Paper traveling time from IS Feed Sensor 1 to IS Feed Sensor 2 is too long.	5-79
E183	PICK JAM 2	Paper traveling time from Hopper 1 to IS Feed Sensor 1 is too short.	5-75
E184	PICK JAM 3	Paper traveling time from Hopper 2 to IS Feed Sensor 2 is too long.	5-75

Detail Error Code	Error Name	Description	Page No.
E185	INPUT STATION FEED JAM 3	Paper did not depart from IS Feed Sensor 2.	5-79
E186	INPUT STATION FEED JAM 4	Paper traveling time from IS Feed Sensor 2 to IS Feed Sensor 3 is too long.	5-79
E187	PICK JAM 4	Paper traveling time from Hopper 2 to IS Feed Sensor 2 is too short.	5-75
E188	PICK JAM 5	Paper traveling time from Hopper 3 to IS Feed Sensor 3 is too long.	5-75
E189	INPUT STATION FEED JAM 5	Paper did not depart from IS Feed Sensor 3.	5-79
E18A	INPUT STATION FEED JAM 6	Paper traveling time from IS Feed Sensor 3 to Timing Sensor is too long.	5-79
E18B	INPUT STATION FEED JAM 7	Paper did not depart from Timing Sensor.	5-79
E18C	PICK JAM 7	Paper traveling time from Multi-bypass Tray to Timing Sensor is too long.	5-75
E18D	PICK JAM 6	Paper traveling time from Hopper 3 to IS Feed Sensor 3 is too short.	5-75
E190	PICK JAM 8	Paper traveling time from Hopper 5 to HP5 Feed Sensor is too long.	5-75
E191	INPUT STATION FEED JAM 8	Paper did not depart from HP5 Feed Sensor.	5-79
E192	PICK JAM 9	Paper traveling time from Hopper 5 to HP5 Feed Sensor is too short.	5-75
E193	INPUT STATION FEED JAM 9	Paper traveling time from HP5 Feed Sensor to IS Feed Sensor 1 is too long.	5-79
E194	PICK JAM 10	Paper traveling time from Duplex path to Timing Sensor is too long.	5-75
E195	IS FEED JAM 10	The paper did not get to the IS 1 path from the Center path 6 in the specified time.	5-81
E1C3	FNS LEAD JAM 6	The paper did not get to the bypass of the folding path of the Finisher.	Finisher Manual
E1C4	FNS LEAD JAM 7	The paper did not get to the exit of the folding path of the Finisher.	Finisher Manual
E1C5	FNS LEAD JAM 8	The paper did not get to the entrance of the folding path of the Finisher.	Finisher Manual
E1C6	FNS TRAIL JAM 7	A paper jamming occurred in the exit path of the folding path.	Finisher Manual
E1C7	FNS INSERTER JAM 1	The paper did not get to the sheet path of the Finisher.	Finisher Manual
E1C8	FNS INSERTER JAM 2	The paper did not get to the bypass of the Finisher.	Finisher Manual
E1C9	FNS INSERTER JAM 3	The paper did not get to the exit (non staple) of the Finisher.	Finisher Manual

Detail Error Code	Error Name	Description	Page No.
E1D0	FNS 1 LEAD JAM 1	Paper did not arrive at FIN Entrance Sensor.	Finisher Manual
E1D1	FNS 1 LEAD JAM 2	Paper did not arrive at Paper Exit 2 Sensor.	Finisher Manual
E1D2	FNS 1 LEAD JAM 3	Paper did not arrive at Stacker Conveyance Sensor.	Finisher Manual
E1D3	FNS 1 LEAD JAM 4	Paper did not arrive at Paper Exit 1 Sensor.	Finisher Manual
E1D5	FNS 1 TRAIL JAM 2	Paper did not depart from Paper Exit 2 Sensor.	Finisher Manual
E1D6	FNS 1 TRAIL JAM 3	Paper did not depart from Stacker Conveyance Sensor.	Finisher Manual
E1D7	FNS 1 TRAIL JAM 4	Paper did not depart from Paper Exit 1 Sensor.	Finisher Manual
E1D8	FNS 1 LEAD JAM 5	Paper did not arrive at Sub-Tray Exit Sensor.	Finisher Manual
E1D9	FNS 1 TRAIL JAM 5	Paper did not depart from Sub-Tray Exit Sensor.	Finisher Manual
E210	DRUM REV. ERROR	Drum seal position undetected when drum rotating started.	5-82
E218	DRUM MOTOR TIMEOUT	Drum motor did not reach its specified speed.	5-83
E219	CENTER P/K CPU ERROR	The CP2 P/K CPU has an error.	5-83
E21A	CENTER P/K INCORRECT COMMAND	The command data was not issued to the CP2 P/K on the valid condition.	5-84
E21B	CENTER P/K ACT TIMEOUT	The CP2 P/K dormant signal has been on over the specified time.	5-84
E21C	CENTER P/K DORMANT TIMEOUT	The CP2 P/K dormant signal has been off over the specified time.	5-84
E21D	CENTER P/K BUSY TIMEOUT	The CP2 P/K busy signal has been on over the specified time.	5-84
E21E	CENTER P/K PRINT TIMEOUT	The CP2 P/K print signal has been on over the specified time.	5-84
E21F	CENTER P/K ST EXIT SIGNAL ERROR	The exit signal of the CP2 P/K has been on over the specified time.	5-84
E224	DEV. BIAS VOLT	The output of the Developer bias high voltage power supply is out of order.	5-85
E225	CHARGE/GRID VOLT	The output of the Charger/Grid high voltage power supply is out of order.	5-86
E226	TRANSFER VOLT	The output of the Transfer high voltage power supply is out of order.	5-86
E227	DETACH VOLT	The output of the Detach high voltage power supply is out of order.	5-87
E228	MAGROLL REV. ERROR 1	Developer motor rotating speed is out of order.	5-88
E229	MAGROLL REV. ERROR 2	Abnormality was detected in the Toner Control Sensor.	5-89

Detail Error Code	Error Name	Description	Page No.
E22A	OVER TONER	Toner concentration is abnormally high.	5-90
E22B	LACK TONER	Toner concentration is abnormally low.	5-90
E22F	TONER FEED MOTOR EMERGENCY	Toner Feed Motor locked.	5-91
E231	TONER SCREW REVOLUTION ERROR	Toner Screw does not rotate normally.	5-92
E233	TR CLEANER ERROR	Transfer wire cleaner cannot come to its home position.	5-92
E238	BD TIME OUT	BD signal is not detected in the specified time.	5-93
E239	BD ERROR	BD signal period is abnormally long.	5-93
E23C	MIRROR MOTOR TIMEOUT	Mirror motor did not reach its specified speed.	5-95
E23E	MIRROR MOTOR ALARM	Mirror motor speed goes out of its specified range.	5-95
E23F	VD OPEN 1	PR detected the abnormal signal in the CVD1 line.	5-96
E240	VD OPEN 2	PR detected the abnormal signal in the CVD2 line.	5-96
E241	CVD CLOCK 1 OPEN ERROR	The CVD Clock 1 remains ON.	5-96
E242	CVD CLOCK 2 OPEN ERROR	The CVD Clock 2 remains ON.	5-96
E243	CVD CLOCK 1 ERROR	The CVD Clock 1 does not be detected.	5-97
E244	CVD CLOCK 2 ERROR	The CVD Clock 2 does not be detected.	5-97
E250	CCD BUS ERROR	The transfer error occurred in the DI P/K. (master CPU)	5-97
E251	INCORRECT COMMAND	PR received the command when PR condition prohibits CE from issuing.	5-98
E252	PICK COUNT OVER	The number of pick commands before printing exceeded eight sheets.	5-98
E253	INVALID CONFIGURATION	PR received the command which is concerned with nonsupported optional feature.	5-98
E254	SLAVE CPU ERROR	Master processor cannot receive the status data from the Slave processor.	5-98
E255	INSERT PICK COUNT OVER	The insert pick count is over 15 sheets.	Finisher Manual
E256	OC BUS ERROR	An error occurs at the Bus line in the OC P/K.	5-99
E257	SIGNAL TRANS. ERROR 3	Abnormal sequence is detected in the HPxxx Assembly. (Slave CPU)	5-99
E258	SIGNAL TRANS. ERROR 4	Abnormal sequence is detected in the AHxxx Assembly. (Slave CPU)	5-99

Detail Error Code	Error Name	Description	Page No.
E259	CONFIGURATION ERROR	Finisher configuration is changed.	Finisher Manual
E25A	CENTER PATH PICK ERROR	When there was no pick command, the paper was discharged from the 1st printer.	5-100
E25B	CPF/DTP ERROR	An abnormal response was detected in CPF/DTP signal.	5-101
E25C	SIGNAL TRANS. ERROR 5	Abnormal sequence is detected in the HPxxx Assembly. (Master CPU)	5-99
E25D	SIGNAL TRANS. ERROR 6	Abnormality sequence is detected in the AHxxx Assembly. (Master CPU)	5-99
E25E	LNB DT ERROR	An error occurs at the Line Memory in the OC P/K.	5-102
E25F	DLB DT ERROR	An error occurs at the Laser Beam circuit in the OC P/K.	5-102
E260	FINISHER 1 CPU ERROR	Slave processor cannot receive the status data from the Finisher processor.	Finisher Manual
E262	FINISHER 1 INCORRECT COMMAND	Finisher received the command when its condition prohibits PR from issuing.	Finisher Manual
E264	FINISHER 1 ACT TIMEOUT	Finisher does not become an activate condition.	Finisher Manual
E266	FINISHER 1 DORMANT TIMEOUT	Finisher does not become an dormant condition.	Finisher Manual
E268	FINISHER 1 BUSY TIMEOUT	The Busy signal of the Finisher is on more than specified time.	Finisher Manual
E26A	FINISHER 1 ST EXIT SIGNAL ERROR	The Stacker exit signal is on more than specified time.	Finisher Manual
E26C	FINISHER 1 PRINT TIMEOUT	The Print signal of the Finisher is on more than specified time.	Finisher Manual
E270	HEATER LAMP OFF	Heat Roll temperature does not rise in spite of heater lamp on while non printing.	5-102
E271	THERMISTOR OFF	Thermistor is blown out.	5-102
E272	HEATER OVER TEMP	Heat Roll temperature is too high.	5-103
E274	HEATER ON TIMEOUT	It takes more than 4 minutes for the Heat Roll temperature rising up to the control level.	5-103
E275	HEATER LOW TEMP	Heat Roll temperature is lower than control level for longer than 1 minute during heater ready.	5-103
E281	ERASE LAMP OFF ERROR	The abnormal current is detected in the Erase Lamp.	5-103
E282	SENSOR ERROR 5	The adjustment of the multi feed sensor did not complete.	5-104
E283	SENSOR ERROR 1	The toner level adjustment is failed.	5-105
E284	SENSOR ERROR 2	Hopper 1 paper size is not specified.	5-105

Detail Error Code	Error Name	Description	Page No.
E285	SENSOR ERROR 3	Hopper 2 paper size is not specified.	5-105
E286	SENSOR ERROR 4	Hopper 3 paper size is not specified.	5-105
E287	DEVELOPER ERROR 4	The developer has no color information.	5-106
E288	DEV REAR FAN ALARM	The Developer rear cooling fan did not rotate normally.	5-107
E289	HR FAN 1 ALARM	The HR cooling fan 1 (upper) did not rotate normally.	5-107
E28A	HR FAN 2 ALARM	The HR cooling fan 2 (lower) did not rotate normally.	5-107
E28B	REAR FAN 1 ALARM	The rear cooling fan 1 (right) did not rotate normally.	5-107
E28C	SB GATE POS. ON ERROR	The signal from the SB gate sensor has been on regardless of the operation.	5-108
E28D	SB GATE POS. OFF ERROR	The signal from the SB gate sensor has been off regardless of the operation.	5-108
E28E	REAR FAN 2 ALARM	The rear cooling fan 2 (left) did not rotate normally.	5-109
E28F	SENSOR ERROR 2	The adjustment of the horizontal position sensor did not complete correctly.	5-110
E291	BLOWER FAN ALARM	Cooling fan for the TH unit does not rotate.	5-111
E292	OC FAN ALARM	Cooling fan for the mirror motor does not rotate.	5-111
E2A2	HOPPER 1 TABLE TIMEOUT	It takes more than the specified time for Hopper 1 table rising up to the ready position.	5-112
E2A6	HOPPER 2 TABLE TIMEOUT	It takes more than the specified time for Hopper 2 table rising up to the ready position.	5-113
E2AA	HOPPER 3 TABLE TIMEOUT	It takes more than the specified time for Hopper 3 table rising up to the ready position.	5-113
E2AD	HOPPER 5 TABLE OVER RUN 1	The table of the High Capacity Hopper is lower than the specified position.	5-113
E2AE	HOPPER 5 TABLE TIMEOUT	It takes more than the specified time for Hopper 5 table rising up to the ready position.	5-114
E2AF	HOPPER 5 TABLE OVER RUN 2	The table of the High Capacity Hopper is higher than the specified position.	5-114
E2B1	FNS COVER SHEET TRAY TIMEOUT	The table of the FNS cover sheet tray did not move normally.	Finisher Manual
E2C1	STAPLER POSITION ERROR	Abnormality was detected in the Staple Movement HP Sensor.	Finisher Manual

Detail Error Code	Error Name	Description	Page No.
E2C2	STAPLING ERROR	Both staplers missed to staple.	Finisher Manual
E2C3	STAPLING F ERROR	Stapler (Front) missed to staple.	Finisher Manual
E2C4	STAPLING R ERROR	Stapler (Rear) missed to staple.	Finisher Manual
E2C5	STAPLER ROTATE ERROR	Abnormality was detected in the Staple Rotation HP Sensor. (slant)	Finisher Manual
E2C6	SHIFT TRAY TIMEOUT	The Shift Tray was driven too long time.	Finisher Manual
E2C7	ALIGNMENT PLATE POSITION ERROR	Abnormality was detected in the Alignment Plate HP Sensor.	Finisher Manual
E2C8	SHIFT POSITION ERROR	Abnormality was detected in the Roller Shift HP Sensor.	Finisher Manual
E2C9	BELT POSITION ERROR	Abnormality was detected in the Paper Exit Belt HP Sensor.	Finisher Manual
E2CA	PAPER EXIT OPENING POSITION ERROR	Abnormality was detected in the Paper Exit Opening Sensor.	Finisher Manual
E2CB	STAPLER ROTATE ERROR 2	The Stapler did not rotate normally. (parallel)	Finisher Manual
E2DE	CP2 DRIVER 1	The +24V error was occurred in the CP2 P/K.	5-115
E2DF	CP2 DRIVER 2	The +24VS error was occurred in the CP2 P/K.	5-115
E2E0	CP DRIVER 1	Abnormality was detected in the CP driver. (+24V OFF)	5-116
E2E1	CP DRIVER 2	Abnormality was detected in the CP driver. (+24VS OFF)	5-116
E2E2	HP DRIVER	Abnormality was detected in the HP driver.	5-117
E2E5	FNS DRIVER	Abnormality was detected in the Finisher driver.	Finisher Manual
E2E7	FNS CONVEYANCE MOTOR ERROR	The FNS conveyance motor did not work correctly.	Finisher Manual
E2E8	FOLDING CONVEYANCE MOTOR ERROR	The folding conveyance motor did not work correctly.	Finisher Manual
E2E9	ALIGNMENT PLATE/LOWER ERROR	The error occurred at the alignment plate/lower motor.	Finisher Manual
E2EA	STOPPER RELEASE M ERROR	An error occurred at the stapling/folding stopper release motor.	Finisher Manual
E2EB	FOLDING STOPPER ERROR	An error occurred at the folding stopper motor.	Finisher Manual
E2EC	FOLDING KNIFE POS. ERROR	An error occurred at the knife motor.	Finisher Manual
E2ED	STAPLING & FOLDING STOPPING M ERROR	An error occurred at the stapling/folding stopper motor.	Finisher Manual
E2EE	FNS SIGNAL TRANSLATION ERROR	A transfer error occurred in the FNS P/K.	Finisher Manual

Detail Error Code	Error Name	Description	Page No.
E2F0	MASTER SUM CHECK ERROR	A sum check error occurs in the master rom when the power is on.	5-118
E2F1	SLAVE SUM CHECK ERROR	A sum check error occurs in the slave rom when the power is on.	5-118
E2F2	MASTER ROM ERASE ERROR	An erase error is detected in the master rom during download.	5-118
E2F3	SLAVE ROM ERASE ERROR	An erase error is detected in the slave rom during download.	5-118
E2F4	MASTER ROM WRITE ERROR	A write error is detected in the master rom during download.	5-118
E2F5	SLAVE ROM WRITE ERROR	A write error is detected in the slave rom during download.	5-118
E2F6	FRAM/ OVER RUN/PARITY ERROR	An interface error is detected during download.	5-118
E2FB	SIGNAL TRANSLATION ERROR 9	A sum check error of the CP2 P/K master ROM was detected.	5-118
E2FC	SIGNAL TRANSLATION ERROR 10	A sum check error of the CP2 P/K slave ROM was detected.	5-118
E2FD	MASTER ROM ERROR 2	An error occurred during erasing or writing the CP2 P/K Master ROM.	5-119
E2FE	SLAVE ROM ERROR 2	An error occurred during erasing or writing the CP2 P/K Slave ROM.	5-119
E2FF	FRAME / OVER RUN/ PARITY ERROR 2	Frame / Over Run / Parity Error was occurred in the CP P/K interface.	5-119

5.3.1. E001 HOPPER 1 PAPER EMPTY
E002 HOPPER 2 PAPER EMPTY
E003 HOPPER 3 PAPER EMPTY
E004 MB TRAY PAPER EMPTY
E005 HOPPER 5 PAPER EMPTY

PRIMARY FACTOR;	Detected that the Hopper Empty Sensor is turned ON. Detected that no paper is loaded in the specified hopper at the time of printing.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. PAPER EMPTY is detected because the hopper has no paper.	1. The hopper has no paper.	Load the paper into the hopper.	
2. PAPER EMPTY is detected though the hopper is loaded with paper.	1. The breaking of cables.	Repair the cables or rest the connector in the correct position. E001:S408 - P407 E002:S414 - P408 E003:S418 - P409 E004:S306 - P410 E005:S426 - P422	
	2. The empty sensor is not correctly mounted. Check points: Check that the actuator operates when the table rises in the paper-loaded state.	Reset the Empty Sensor correctly. E001:HP1 Empty Sensor (S408) E002:HP2 Empty Sensor (S414) E003:HP3 Empty Sensor (S418) E004:MBF Empty Sensor (S306) E005:HP5 Empty Sensor (S426)	
	3. Sensor fault.	Replace: E001:HP1 Empty Sensor (S408) E002:HP2 Empty Sensor (S414) E003:HP3 Empty Sensor (S418) E004:MBF Empty Sensor (S306) E005:HP5 Empty Sensor (S426)	 7.1.4.3. (14), 7-192 7.1.4.3. (14), 7-192 7.1.4.3. (14), 7-192 7.1.3.2. (6), 7-77 7.2.21, 7-265
	4. PCB fault.	Replace: E001/E002/E003: CPxxx Assembly HPxxx Assembly E004 CPxxx Assembly E005 CPxxx Assembly AHxxx Assembly	 7.1.5.1. (13), 7-214 7.1.4.3. (22), 7-200 7.1.5.1. (13), 7-214 7.1.5.1. (13), 7-214 7.2.10, 7-241

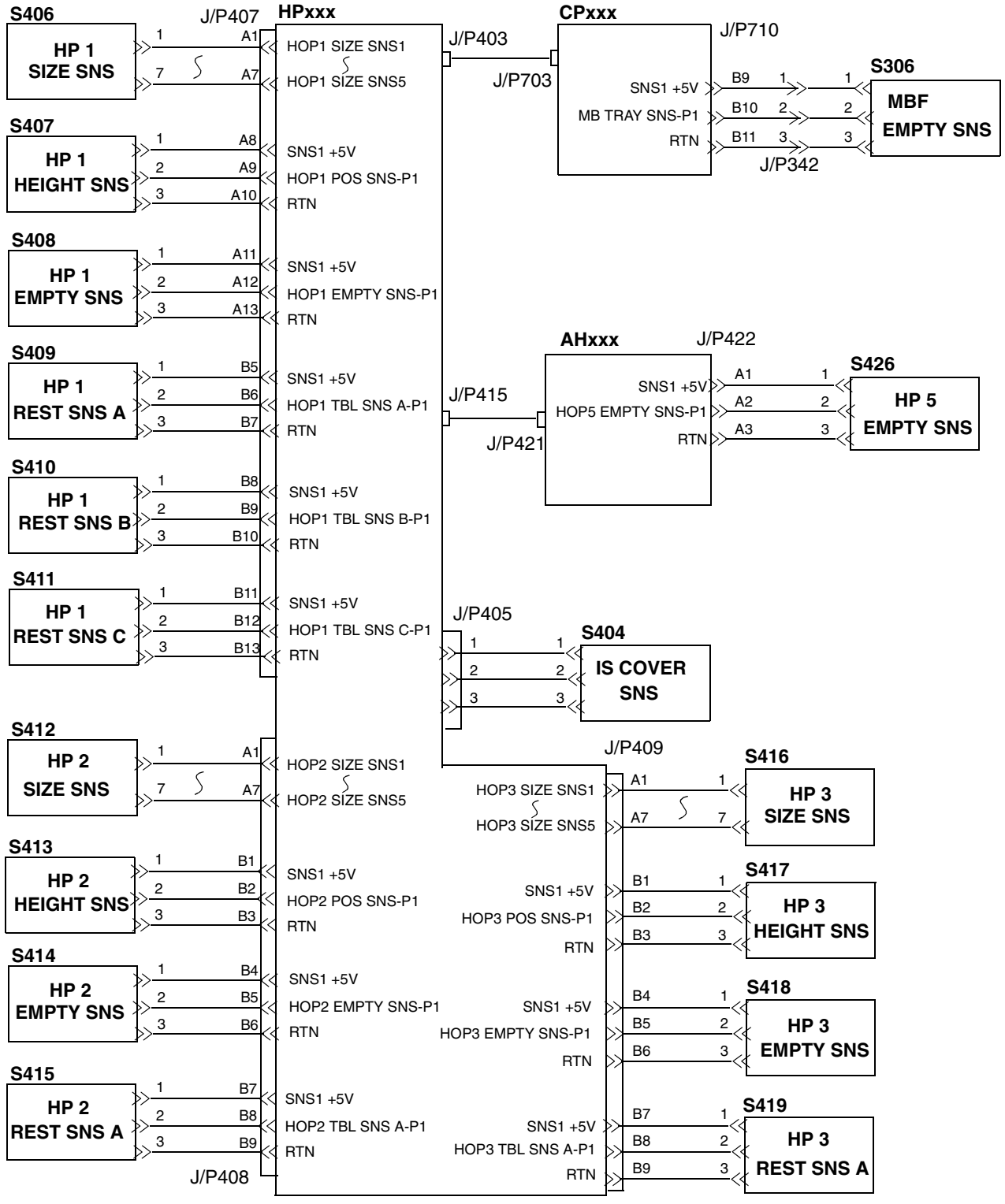


Figure 5-2. Error Codes E001, E002, E003, E004 & E005

5.3.2. E010 TONER COLLECTOR BOTTLE FULL 1
E013 TONER COLLECTOR BOTTLE FULL 2

PRIMARY FACTOR;	E010: The Toner Collector Bottle has reached the prearranged replacement. E013: The Toner Sensor detected that the Toner Collector Bottle is physically full.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs every other refilling of the Bottle of Toner .	1. The Toner Collector Bottle has reached the prearranged replacement.	Replace: Toner Collector Bottle Set the Toner Collector Bottle after removing the old Toner Bottle.	Refer to Operator's Guide
2. This phenomenon occurs though the Toner Collector Bottle has not reached the prearranged replacement.	1. Toner Collector Bottle is physically full. Check points: Check if the Toner Sensor is turned on.	Replace: Toner Collector Bottle Set the Toner Collector Bottle after removing the old Toner Bottle.	Refer to Operator's Guide
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable S324-P710, S325-P710 or reset the connector in the correct position.	
	3. Sensor fault. (1) The Toner Collector Bottle set sensor is OFF though the Toner Collector Bottle is set. (2) The Toner sensor is ON though the Toner Collector Bottle is not physically full.	Replace: Toner Collector Bottle Set Sensor (S324) Replace: Toner sensor (S325)	7.1.2.6. (2), 7-63 7.1.2.6. (5), 7-66
	4. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
	5. The contamination on the surface of the Toner Sensor.	Cleaning: Toner Sensor (S325)	4.4.13, 4-30

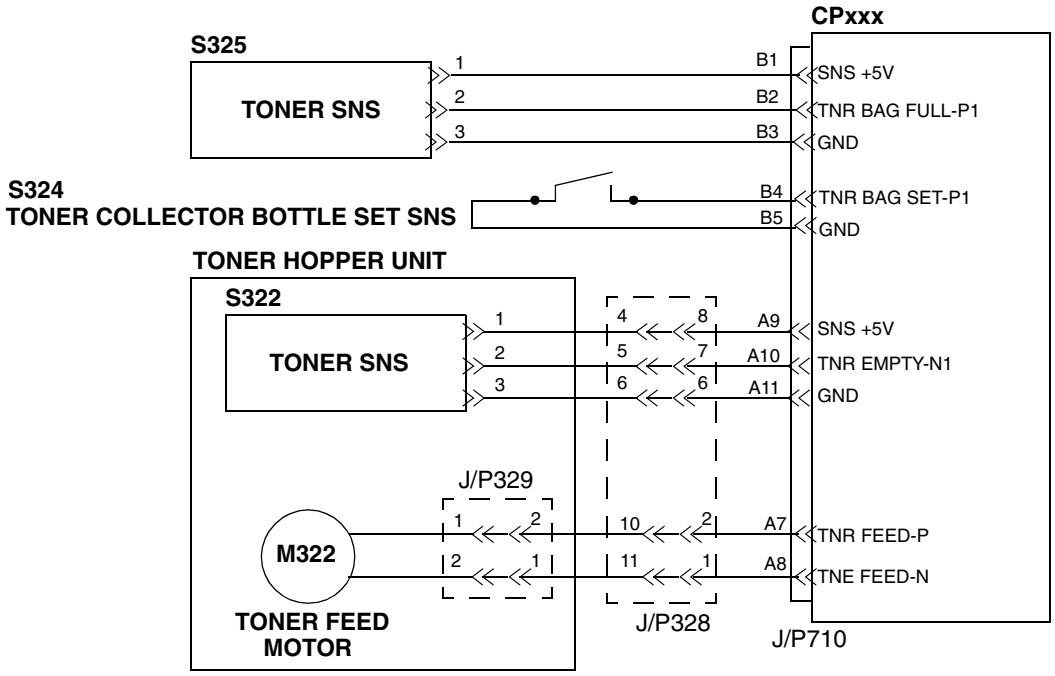


Figure 5-3. Error Code E010, E013

5.3.3. E011 TONER SUPPLY EMPTY

PRIMARY FACTOR;	Detected that the Toner Sensor is turned ON.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. No Toner is on the Toner Sensor.	Supply: Toner	Refer to Operator's Guide
2. TONER SUPPLY EMPTY is detected though the Toner Hopper is filled with enough toner.	1. No Toner is on the Toner Sensor. Check points: Check if the toner is stirred evenly. Stir Shaft Assembly fault. Toner Feed Roll fault. Motor fault.	Replace: Toner Hopper Unit	7.1.2.4. (1), 7-36
	2. Toner is on the Toner Sensor. (1) The breaking of cables or the disconnecting of connectors. (2) PCB fault.	Repair the cable S322-P710 or reset the connector in the correct position. Replace: Toner Hopper Unit Replace: CPxxx Assembly	7.1.2.4. (1), 7-36 7.1.5.1. (13), 7-214
3. TONER SUPPLY EMPTY is not detected though no toner is found in the Toner Hopper Unit.	1. The sensor connector is not fixed.	Reset: Connector	
	2. The breaking of cables.	Repair the cable. S322-P710	
	3. Sensor fault.	Replace: Toner Sensor (S322)	7.1.2.4. (3), 7-40
	4. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
Refer to Figure 5-3 on page 5-24.			

5.3.4. E012 DEV. REP. REQ.

PRIMARY FACTOR;	Detected that the number of print images of the Developer mix exceeds the standard value of life.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs because the Developer mix has reached its life.	1. Developer mix has reached its life.	Replace: Developer mix	3.2.2. (2), 3-5
2. This phenomenon occurs though the Developer mix has not reached its life.	1. PCB fault. Check points: Check if the content of memory is correct by using the MD function.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214

5.3.5. E014 FELT END 1
E017 FELT END 2

PRIMARY FACTOR;	E014: Detected that the number of print images of the Felt exceeds the standard value of life. E017: The Felt End Sensor turned ON.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs because the Felt has reached its life.	1. Felt has reached its life.	Replace: Fuser Cleaning Web	Refer to Operator's Guide 7.1.3.1. (2), 7-70
2. This phenomenon occurs though the Felt has not reached its life.	1. Sensor fault.	Replace: Fuser Unit	7.1.3.1. (1), 7-68
	2. The breaking of cables or the disconnecting of the connector.	Repair the cable P718-S532 or reset the connector in the correct position.	
	3. PCB fault. Check points: Check if the content of memory is correct by using the MD function.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214

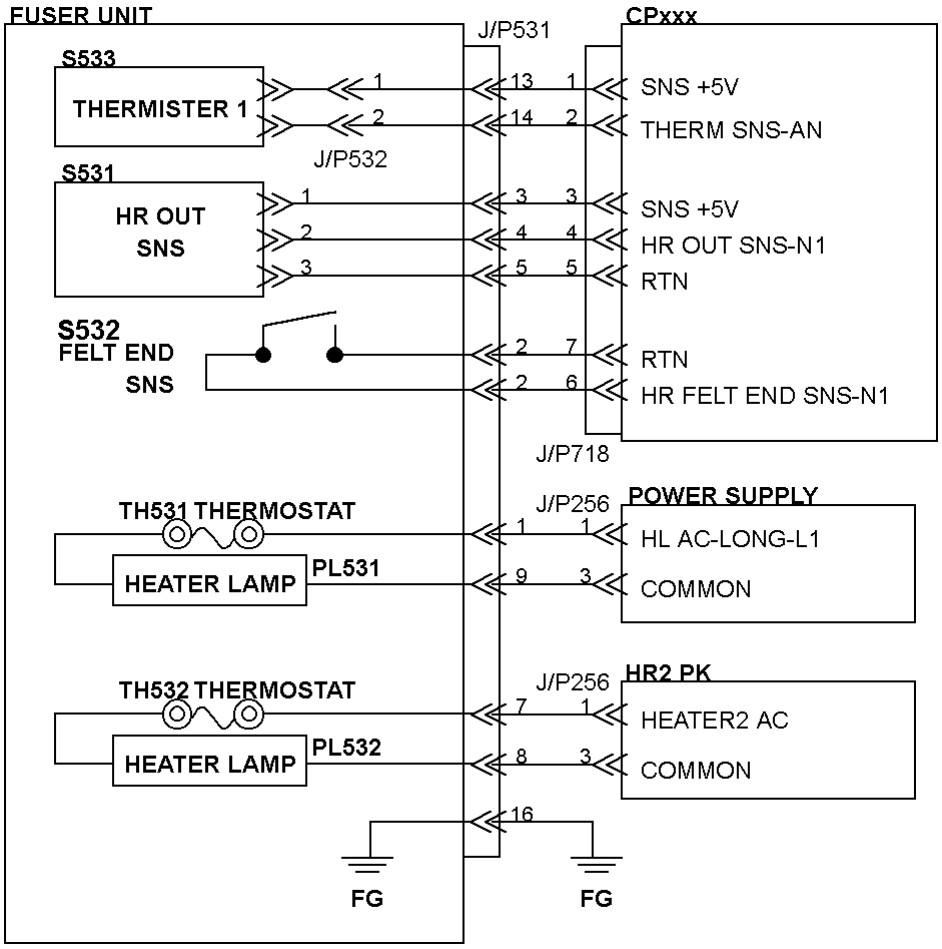


Figure 5-4. Error Code E014, E017

5.3.6. E015 FUSER UNIT END

PRIMARY FACTOR;	Detected that the number of print images of the Fuser Unit reaches the standard value of life.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs because the Fuser Unit has reached its life.	1. Fuser Unit has reached its life.	Replace: Fuser Unit	7.1.3.1. (1), 7-68
2. This phenomenon occurs though the Fuser Unit has not reached its life.	1. PCB fault. Check points: Check if the content of memory is correct by using the MD function.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
Refer to Figure 5-4 on page 5-26.			

5.3.7. E016 PC END

PRIMARY FACTOR;	The Drum Unit is due for replacement. This status is generally detected when the usable surface of the Drum is exhausted.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs because the Drum Unit has reached its life.	1. Drum has reached its life.	Replace: Drum Unit	7.1.2.1. (1), 7-4
	2. Drum is damaged.	Replace: Drum Unit	7.1.2.1. (1), 7-4
2. This phenomenon occurs though the Drum Unit has not reached its life.	1. PCB fault. Check points: Check if the content of memory is correct by using the MD function.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214

5.3.8. E018 WRAP SENSOR

PRIMARY FACTOR;	The Wrap Sensor level is abnormal.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. The mounting of the Drum Wrap sensor is faulty.	Reset the Drum Wrap sensor correctly.	
	2. Sensor fault.	Cleaning: Drum Wrap Sensor Replace: Drum Wrap Sensor	4.4.7, 4-22 7.1.5.1. (12), 7-213
	3. The breaking of cables or disconnecting of connectors.	Repair the cable P715-S312 or reset the connector.	
	4. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
	5. Drum fault. Check if the usable surface of the drum is exhausted.	Replace: Drum Unit	7.1.2.1. (1), 7-4
Refer to Figure 5-10.			

5.3.9. E01D TONER COLLECTOR BOTTLE NONSET

PRIMARY FACTOR;	Detected that the Toner Collector Bottle Set Sensor is OFF. This status is generally detected when a Toner Collector Bottle is not set.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. Toner Collector Bottle is not set.	1. Replacing the Toner Collector Bottle.	Set the Toner Collector Bottle after removing the old Toner Collector Bottle.	Refer to the Operator's Guide.
	2. Not replacing the Toner Collector Bottle.	Set: Toner Collector Bottle.	Refer to the Operator's Guide.
2. Toner Collector Bottle is set.	1. The mounting of the Toner Collector Bottle is faulty.	Reset the Toner Collector Bottle correctly.	
	2. The breaking of cables.	Repair the cable S324-P710.	
	3. The ON/OFF system of the Toner Collector Bottle Set Sensor is faulty. (1)The mounting of the sensor is faulty. (2)The plate does not push the sensor actuator when the Toner Collector Bottle is set.	Reset the Toner Collector Bottle Set Sensor (S324) correctly. Repair the plate operation.	
	4. Sensor fault.	Replace: Toner Collector Bottle Set Sensor (S324)	7.1.2.6. (2), 7-63
	5. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
Refer to Figure 5-3 on page 5-24.			

5.3.10. E01E DEVELOPER BOTTLE NONSET

PRIMARY FACTOR;	Detected that the Developer Bottle is not set during discharging the Developer Mix.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. Developer Bottle is not set.	1. Developer Bottle is not set.	Set the Developer Bottle before discharging the Developer mix.	
2. Developer Bottle is set.	1. The breaking of cables.	Repair the cable S321-P719.	
	2. The mounting of the Developer Bottle Set sensor is faulty. Check points: Check if the actuator of the sensor operates correctly when the Developer Bottle is set.	Reset the DEV Bottle Set Sensor correctly.	7.1.2.3. (2), 7-12
	3. Sensor fault.	Replace: DEV Bottle Set Sensor	7.1.2.3. (2), 7-12
	4. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
Refer to Figure 5-19 on page 5-89.			

5.3.11. E01F H POS SENSOR ERROR

PRIMARY FACTOR;	H.Pos sensor (Image sensor) gets dusty.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. H.Pos sensor gets dusty.	Cleaning : H.Pos sensor When the error cannot be released, the sensor is cleaned detaching the Multi-bypass Tray.	4.4.14, 4-31 7.1.3.2. (1), 7-71
	2. LED quantities of light are excessive.	Execute the H.Pos sensor LED quantities of light adjustment routine : "95".	
	3. The breaking of cables or disconnecting of connectors.	Repair the cables P791 - P350, J350 - P351, P352 - H.Pos sensor or reset the connector.	
	4. Sensor fault.	Replace : H.Pos sensor	7.1.3.2. (12), 7-85 7.1.3.2. (13), 7-87
	5. PCB fault.	Replace : CPxxx Assembly ADxxx Assembly	7.1.5.1. (13), 7-214

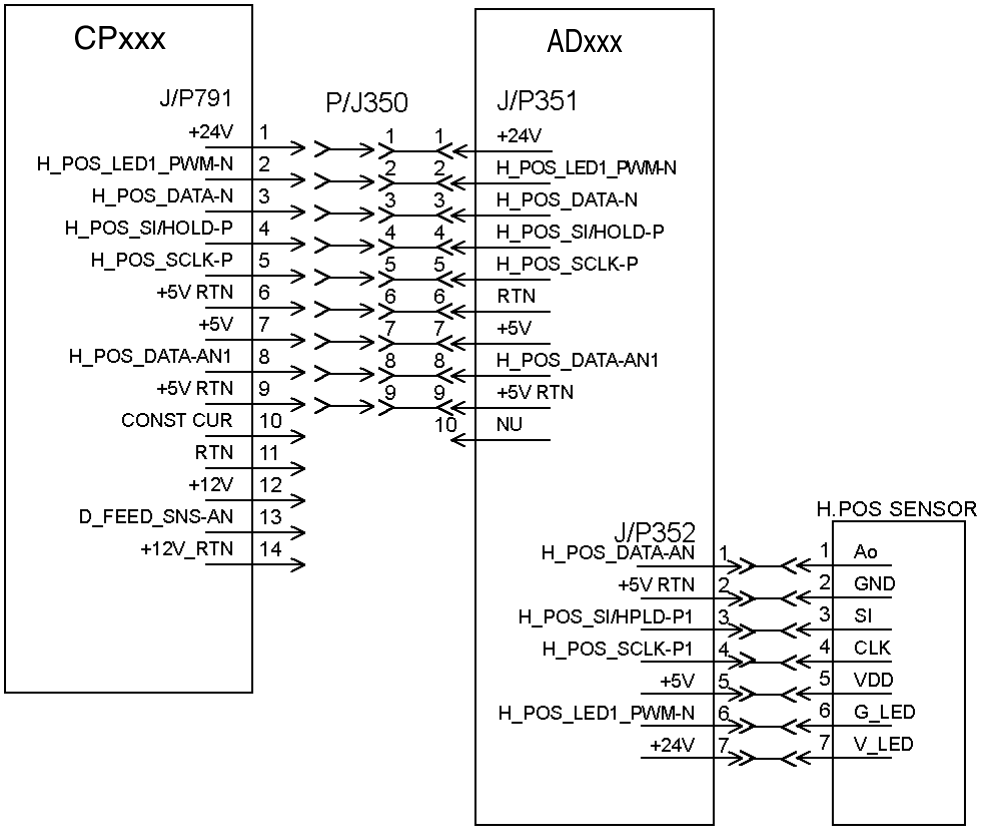


Figure 5-5. Error Code E01F

5.3.12. E020 HOPPER 1 OPEN
E021 HOPPER 2 OPEN
E022 HOPPER 3 OPEN
E023 HOPPER 5 OPEN

PRIMARY FACTOR;	Detected that the Hopper is Open.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. HOPPER OPEN is detected because the Hopper is open.	1. Hopper is open.	Reset the Hopper correctly.	
2. HOPPER OPEN is detected though the hopper is loaded with paper.	1. The breaking of a cable.	Repair the cable or reset the connector in the correct position. E020:S406-P407 E021:S412-P408 E022:S416-P409 E023:S427-P422	
	2. The Sensor is not correctly mounted. Check points. Check that the actuator operates when the table rises in the paper-loaded state.	Reset the Sensor correctly. E020: HP1 Size Sensor (S404) E021: HP2 Size Sensor (S412) E022: HP3 Size Sensor (S416) E023: HP5 Door Sensor (S427)	
	3. Sensor fault.	Replace: E020: HP1 Size Sensor (S404) E021: HP2 Size Sensor (S412) E022: HP3 Size Sensor (S416) E023: HP5 Door Sensor (S427)	 7.1.4.3. (15), 7-193 7.1.4.3. (15), 7-193 7.1.4.3. (15), 7-193 7.2.1, 7-232
	4. PCB fault.	Replace: E020/E021/E022: CPxxx Assembly HPxxx Assembly E023: CPxxx Assembly AHxxx Assembly	 7.1.5.1. (13), 7-214 7.1.4.3. (22), 7-200 7.1.5.1. (13), 7-214 7.2.10, 7-241
Refer to Figure 5-2 on page 5-23.			

5.3.13. E036 TONER UNIT NONSET

PRIMARY FACTOR;	The Toner Unit is not set.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. Toner Unit is not set.	1. Replacing the Toner Unit.	Set the Toner Unit.	Refer to the Operator's Guide.
	2. Not replacing the Toner Unit.	Set the Toner Unit.	Refer to the Operator's Guide.
2. Toner Unit is set.	1. The mounting of the Toner Unit is faulty.	Reset the Toner Unit correctly.	
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable P359-J328 or P328-J330 or P330-P710 or reset the connector in the correct position.	
	3. Toner Unit fault.	Replace: Toner Hopper Unit.	7.1.2.4. (1), 7-36
	4. PCB fault.	Replace: CPxxx Assembly.	7.1.5.1. (13), 7-214
Refer to Figure 5-6 on page 5-32.			

5.3.14. E037 DEVELOPER UNIT NONSET

PRIMARY FACTOR;	The Developer Unit is not set.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. Developer Unit is not set.	1. Replacing the Developer Unit.	Set the Developer Unit.	Refer to the Operator's Guide.
	2. Not replacing the Developer Unit.	Set the Developer Unit.	Refer to the Operator's Guide.
2. Developer Unit is set.	1. The mounting of the Developer Unit is faulty.	Reset the Developer Unit correctly.	
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable P358-J320 or P320-J790 or reset the connector in the correct position.	
	3. Developer Unit fault.	Replace: Developer Unit.	7.1.2.3. (1), 7-10
	4. PCB fault.	Replace: CPxxx Assembly.	7.1.5.1. (13), 7-214
Refer to Figure 5-6 on page 5-32.			

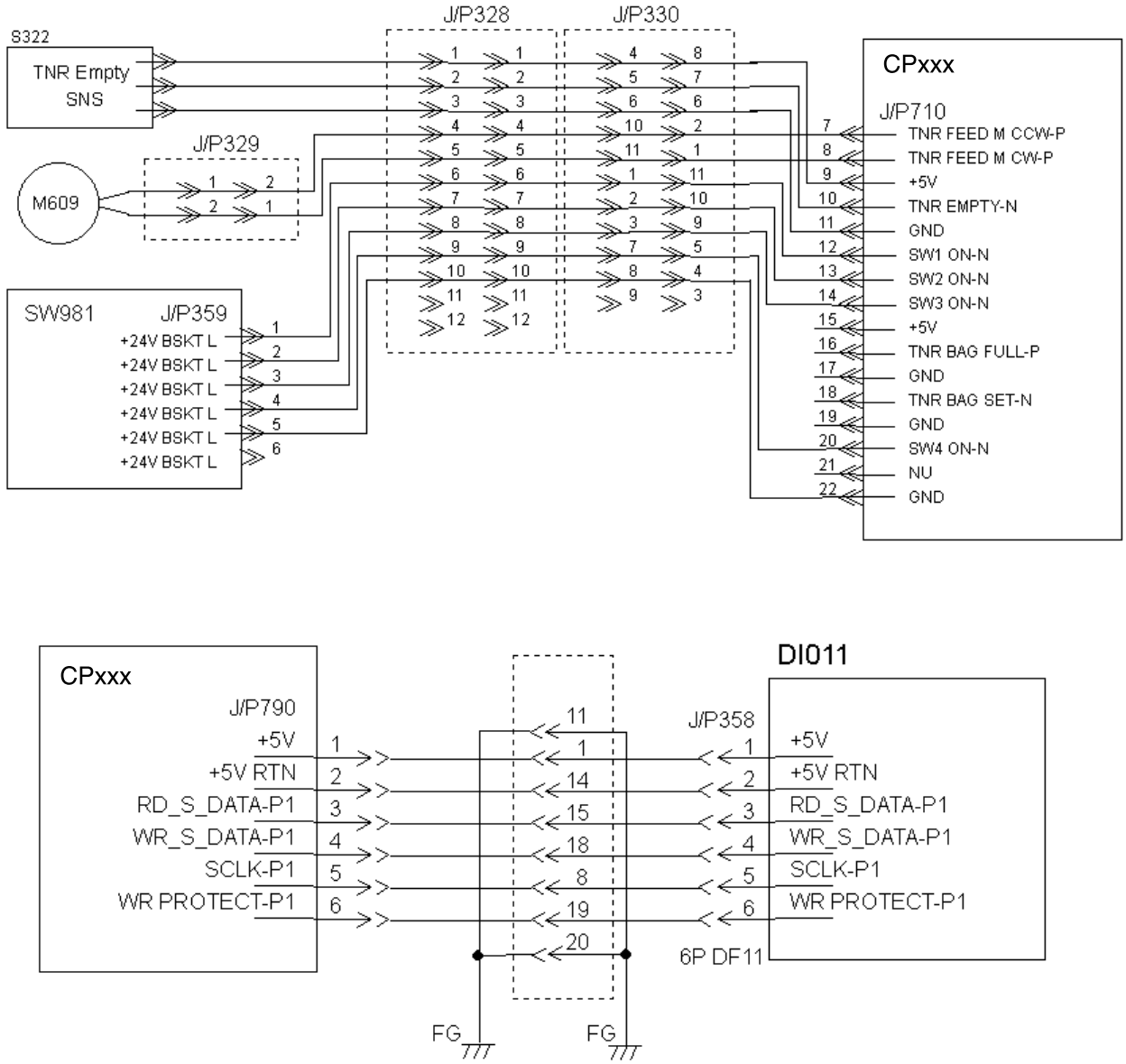


Figure 5-6. Error Code E036, E037

5.3.15. E040 CENTER GUIDE OPEN

PRIMARY FACTOR;	Detected that the CENTER Guide Sensor is turned OFF.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. CENTER GUIDE OPEN is detected because the Center Guide is open.	1. Center Guide is open.	Close the Center Guide.	
2. CENTER GUIDE OPEN is detected though the Center Guide is closed.	1. The protuberance of the Center Guide is faulty.	Replace: Center Guide Assembly	
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable S360-P711 or reset connector in the correct position.	
	3. The mounting of the Center Guide Sensor is faulty.	Reset the Center Guide Sensor correctly.	
	4. Sensor fault.	Replace: Center Guide Sensor	7.3.14, 7-302
	5. PCB fault.	Replace: CPxxx Assembly	7.3.12, 7-300

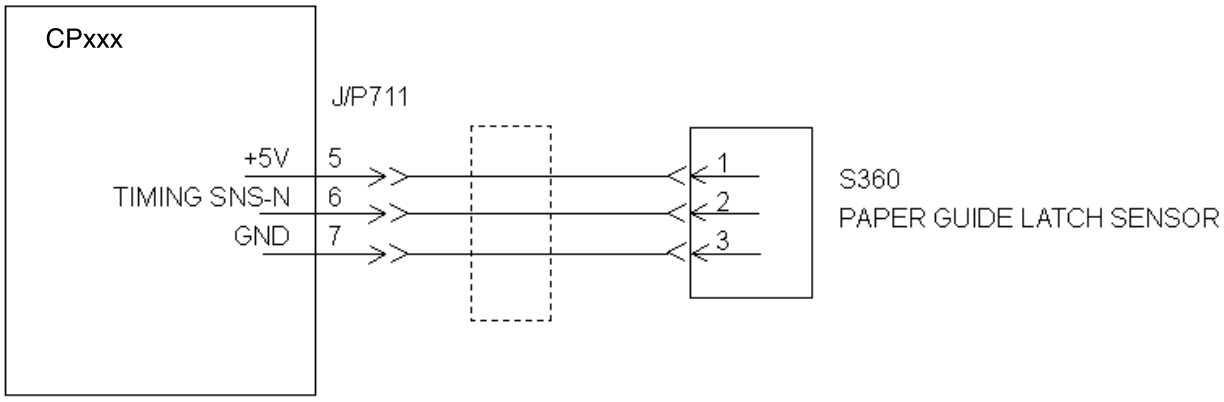


Figure 5-7. Error Code E040

5.3.16. E041 CENTER COVER OPEN

PRIMARY FACTOR;	Detected that the Push Button Switch is turned OFF. When the Center Cover is open during printing, this status is detected and is not in operation, the status is automatically canceled.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. CENTER COVER OPEN is detected because the Center Cover is open.	1. Center Cover is open.	Close the Center Cover.	
2. CENTER COVER OPEN is detected though the Center Cover is closed.	1. The mounting of the Center Cover is faulty. Check points: The protuberance of the cover dose not coincide with the hold of the switch.	Reset the Center Cover correctly.	
	2. The protuberance of the Center Cover is faulty.	Replace: Center Cover Assembly.	
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable S361-P717 or reset connector in the correct position.	
	4. Switch fault.	Replace: Push Button Switch (S361)	
	5. PCB fault.	Replace: CPxxx Assembly	7.3.12, 7-300

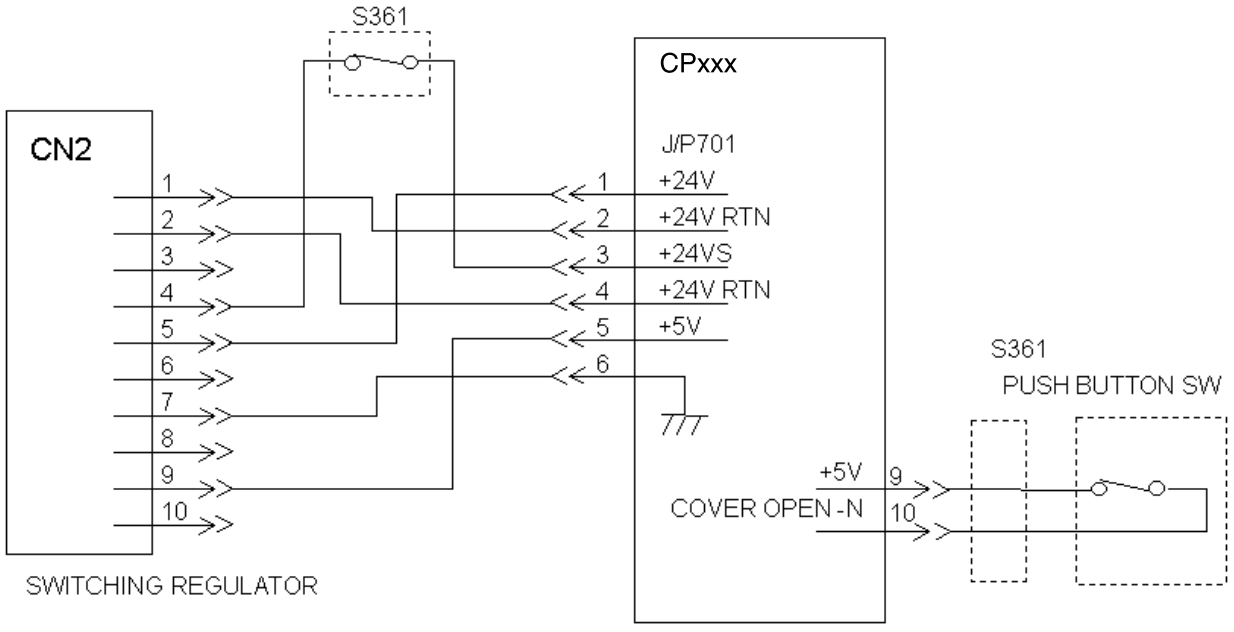


Figure 5-8. Error Code E041

5.3.17. E042 TOP COVER OPEN

PRIMARY FACTOR;	The top cover is open.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. TOP COVER OPEN is detected because the Top Cover is open.	1. Top Cover is open.	Close the Top Cover.	
2. Top COVER OPEN is detected though the Top Cover is closed.	1. The mounting of the Top Cover or the Panel Holder is faulty.	Reset the Top Cover and Panel Holder correctly.	7.1.5.1. (27), 7-230
	2. The protuberance of the Panel Holder is faulty.	Repair the Panel Holder.	7.1.5.1. (27), 7-230
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable S344-P737 or reset the connector in the correct position.	
	4. The mounting of the Top Cover Sensor is faulty.	Reset the Top Cover Sensor correctly.	7.1.5.1. (27), 7-230
	5. Sensor fault.	Replace: Top Cover Sensor.	7.2.9, 7-240
	6. PCB fault.	Replace: CPxxx Assembly.	7.1.5.1. (13), 7-214

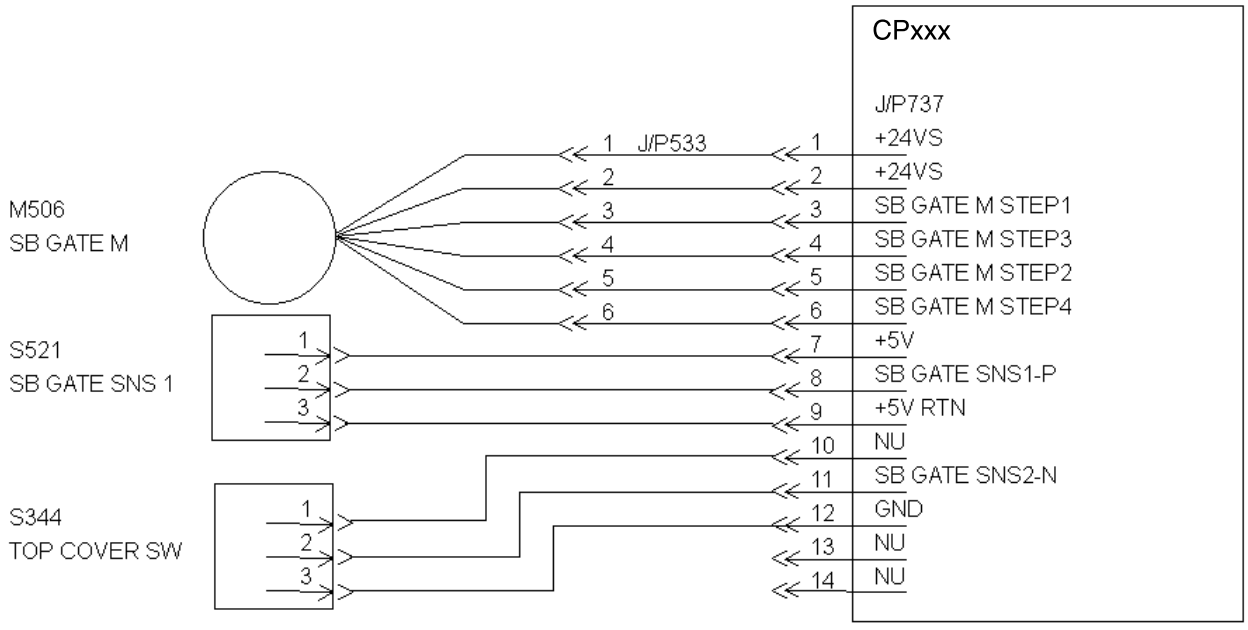


Figure 5-9. Error Code E042

5.3.18. E043 FRONT COVER OPEN

PRIMARY FACTOR;	Detected that the Push Button Switch is turned OFF. When the Front Cover is open during printing, this status is detected and is not canceled until the Reset Switch is pressed. If the cover is closed when the printer is not in operation, the status is automatically canceled.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. FRONT COVER OPEN is detected because the Front Cover is open.	1. Front Cover is open.	Close the Front Cover.	
2. FRONT COVER OPEN is detected though the Front Cover is closed.	1. The Toner Unit is not set.	Set the Toner Unit.	
	2. The mounting of the Front Cover is faulty. Check points: The protuberance of the cover does not coincide with the hold of the switch. The switch is not pressed deeply enough at the protuberance of the cover.	Reset the Front Cover correctly.	
	3. The protuberance of the Front Cover is faulty.	Replace: Front Cover Assembly	
	4. The breaking of cables or the disconnecting of connectors.	Repair the cable S510-P717 or reset the connector in the correct position.	
	5. Switch fault.	Replace: Push Button Switch (S510)	
	6. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214

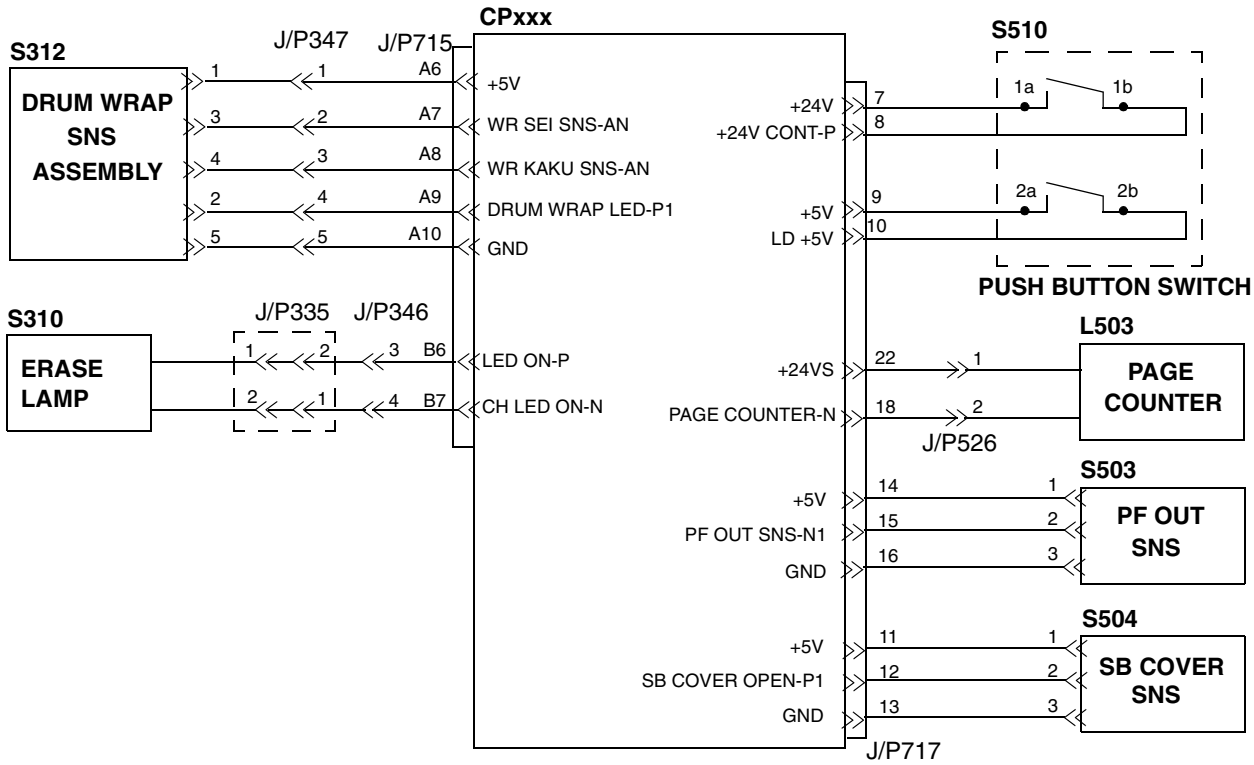


Figure 5-10. Error Code E043

5.3.19. E044 IS COVER OPEN

PRIMARY FACTOR;	Detected that the IS Cover Open Sensor is turned OFF. This status is generally detected when the IS Cover is open and is not canceled until the Reset Switch is pressed. If the cover is closed when the printer is not in operation, the status is automatically canceled.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. IS COVER OPEN is detected because the IS Cover is open.	1. IS Cover is open.	Close the IS Cover.	
2. IS COVER OPEN is detected though the IS Cover is closed.	1. The mounting of the IS COVER is faulty. Check point: The protuberance of the cover is not inserted in the sensor detection part.	Reset the IS Cover correctly.	
	2. The protuberance of the IS Cover is faulty.	Replace: IS Cover Assembly	
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable S404-P405 or reset the connector in the correct position.	
	4. The mounting of the IS Cover Open Sensor is faulty.	Reset the IS Cover Open Sensor correctly.	7.1.4.3. (21), 7-199
	5. Sensor fault.	Replace: IS Cover Open Sensor	7.1.4.3. (21), 7-199
	6. PCB fault.	Replace: HPxxx Assembly	7.1.4.3. (22), 7-200
Refer to Figure 5-2 on page 5-23.			

5.3.20. E045 SB COVER OPEN

PRIMARY FACTOR;	Detected that the SB Cover Sensor is turned OFF. This status is generally detected when the SB Cover is open and is not canceled until the Reset Switch is pressed. If the cover is closed when the printer is not in operation, the status is automatically canceled.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. SB COVER OPEN is detected because the SB Cover is open.	1. SB Cover is open.	Close the SB Cover.	
2. SB COVER OPEN is detected though the SB Cover is closed.	1. The mounting of the SB COVER is faulty. Check point: The protuberance of the cover is not inserted in the sensor detection part.	Reset the SB Cover Assembly correctly.	7.1.3.5. (1), 7-120
	2. The protuberance of the SB Cover is faulty.	Replace: SB Cover Assembly	7.1.3.5. (1), 7-120
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable S504-P717 or reset the connector in the correct position.	
	4. The mounting of the SB Cover Sensor is faulty.	Reset the SB Cover Sensor correctly.	
	5. Sensor fault.	Replace: SB Cover Sensor	7.1.3.5. (9), 7-130
	6. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
Refer to Figure 5-10 on page 5-37.			

5.3.21. E046 TOP COVER OPEN

PRIMARY FACTOR;	Detected that the HP5 Top Cover Sensor is ON. (High Capacity Hopper)		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. TOP COVER OPEN is detected because the Top Cover is open.	1. Top Cover is open.	Close the Top Cover.	
2. TOP COVER OPEN is detected though the Top Cover is closed.	1. The mounting of the TOP COVER is faulty. Check point: The protuberance of the cover is not inserted in the sensor detection part.	Reset the Top Cover correctly.	
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable S421-P423 or reset the connector in the correct position.	
	3. The mounting of the Top Cover Sensor is faulty.	Reset the Top Cover Sensor correctly.	7.2.9, 7-240
	4. Sensor fault.	Replace: Top Cover Sensor (S421)	7.2.9, 7-240
	5. PCB fault.	Replace: CPxxx Assembly AHxxx Assembly	7.1.5.1. (13), 7-214 7.2.10, 7-241

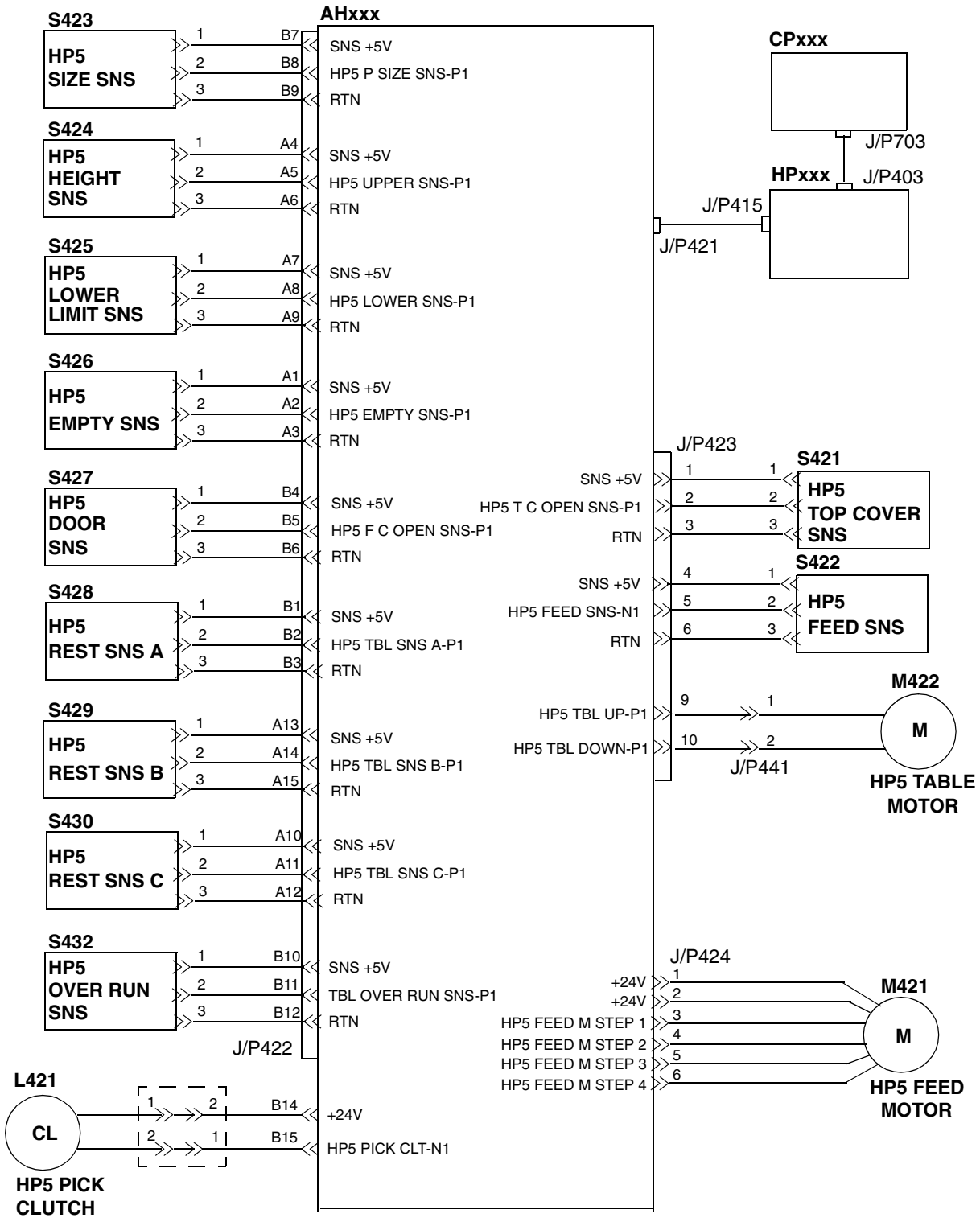


Figure 5-11. Error Code E046

5.3.22. E047 DEVELOPER ERROR 1
E048 DEVELOPER ERROR 2

PRIMARY FACTOR;	E047: The abnormality of the toner level is detected when charging or discharging the Developer mix. E048: Charging the Developer mix was executed though the Developer mix is in the Developer Unit.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs when charging the Developer mix. (E047)	1. Developer mix is old.	Supply new Developer mix	
	2. The failure of Charging the developer mix. (1) Developer mix remains in the Developer bottle. (2) Developer mix goes into the Developer Unit completely.	Retry charging after reset. Discharge the Developer mix and charge it after reset.	
	3. Toner Control Sensor fault. Check if this error occurs continuously.	Replace: Developer Unit	7.1.2.3. (1), 7-10
2. This phenomenon occurs when discharging the Developer mix. (E047)	1. The failure of Discharging the developer mix. (1) Developer mix remains in the Developer Unit. (2) Developer mix goes out of the Developer Unit completely.	Retry discharging after reset. Retry discharging after reset.	
	2. Toner Control Sensor fault. Check if this error occurs continuously.	Replace: Developer Unit	7.1.2.3. (1), 7-10
3. This phenomenon occurs. (E048)	1. Developer mix is in the Developer Unit.	Charge new Developer mix after discharging old Developer mix.	
	2. Developer mix is not in the Developer Unit.	Retry charging after reset.	
	3. Toner Control Sensor fault. Check if this error occurs continuously though Developer mix is not in the Developer Unit.	Replace: Developer Unit	7.1.2.3. (1), 7-10
Refer to Figure 5-19 on page 5-89.			

5.3.23. E049 DEVELOPER ERROR 3

PRIMARY FACTOR;	The color of toner in the DEVELOPER UNIT is not same as that in the TONER UNIT.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs when changing the Toner Unit.	1. The color data differs by Developer unit and Toner unit.	The color data of Developer and Toner unit is made the same.	
	2. The setup of DIPSW of Toner unit is different.	A setup of DIP SW is set correctly.	
	3. Toner unit is wrong.	Replace: Toner Hopper Unit.	7.1.2.4. (1), 7-36
	4. PCB fault.	Replace: CPxxx assembly of the rear engine.	
2. This phenomenon occurs when changing the Developer Unit.	1. The color data differs by Developer unit and Toner unit.	The color data of Developer and Toner is made the same.	
	2. Toner unit is wrong.	Replace: Developer Unit	7.1.2.3. (1), 7-10
	3. PCB fault.	Replace: CPxxx assembly of the rear engine.	7.1.5.1. (13), 7-214
3. This phenomenon occurs.	1. Cable fault. Check the cable between the SWxxx assembly of the Toner Unit and CPxxx assembly of the rear engine.	Replace: If the cable is damaged, replace it. Check especially the damage of the pin of drawer connector. *Drawer connector : P328 - P710	
	2. PCB fault.	Replace: CPxxx assembly of rear engine or SWxxx assembly of Toner Hopper Unit.	7.1.5.1. (13), 7-214

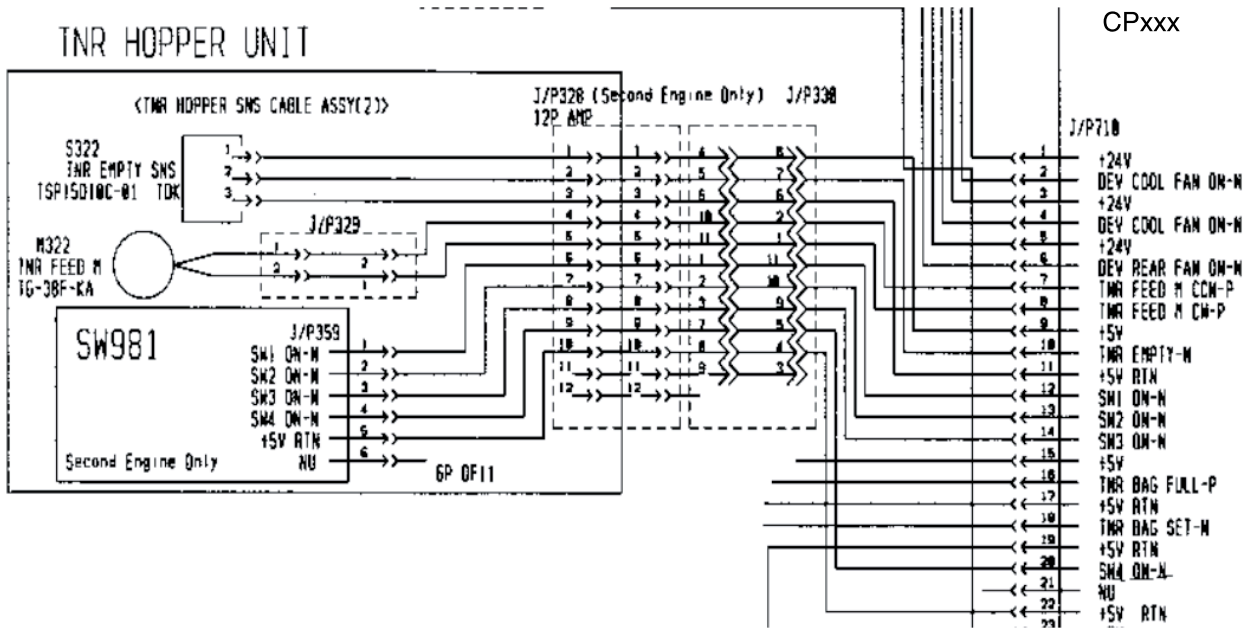


Figure 5-12. Error Code E049

5.3.24. E050 to E052 PAPER ON PAPER PATH 1 to 3
E056 to E057 PAPER ON PAPER PATH 4 to 5
E05A PAPER ON PAPER PATH 6
E05B to E05E PAPER ON PAPER PATH 9 to 12
E05F PAPER ON PAPER PATH 8
E070 PAPER ON PAPER PATH 7
E072 PAPER ON PAPER PATH 19

PRIMARY FACTOR;	Detected that the sensor of each sensor unit is turned ON. This status is generally detected when paper is in the printer.		
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 in the correct position.	
	4. The mounting of the Sensor is faulty.	Reset the Sensor correctly.	
	5. Sensor fault.	Replace: Sensor (see the table)	
	6. PCB fault.	Replace: E05X, E070:CPxxx Assembly E072:CPxxx, or HPxxx Assembly	7.1.5.1. (13), 7-214 7.1.5.1. (13), 7-214 7.1.4.3. (22), 7-200

Item	**Error Code**	**Sensor to be specified**		**Maint. Ref. + Page**
		Sensor Name	**Sensor Description**	
(1)	E050	S435 or S401	HP1 Pick Sensor or IS Feed Sensor 1	7.1.4.3. (18), 7-196 7.1.4.3. (20), 7-198
(2)	E051	S436 or S402	HP2 Pick Sensor or IS Feed Sensor 2	7.1.4.3. (18), 7-196 7.1.4.3. (20), 7-198
(3)	E052	S437 or S403	HP3 Pick Sensor or IS Feed Sensor 3	7.1.4.3. (18), 7-196 7.1.4.3. (20), 7-198
(4)	E056	S303	Timing Sensor	7.1.3.3. (4), 7-95
(5)	E057	S301 or S302	Skew Sensor 1 or Skew Sensor 2	7.1.3.3. (5), 7-96
(6)	E05A	S312	Drum Wrap Sensor	7.1.5.1. (12), 7-213
(7)	E070	S531	HR Out Sensor (Fuser Unit)	7.1.3.1. (1), 7-68
(8)	E05F	S501	Flip Sensor	7.1.3.5. (5), 7-126
(9)	E05B	S502	SB Sensor	7.1.3.5. (6), 7-127
(10)	E05C	S506	Return Sensor 1	7.1.3.6. (6), 7-137
(11)	E05D	S305	Return Sensor 2	7.1.3.6. (7), 7-138
(12)	E05E	S503	PF Out Sensor	7.1.3.5. (7), 7-128
(13)	E072	S422	HP5 Feed Sensor	7.2.8, 7-239

5.3.25. E080 ERASE LAMP NONSET

PRIMARY FACTOR;	The Erase Lamp is not set.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs because the Erase Lamp is not set.	1. The Erase Lamp is not set.	Set the Erase Lamp.	
2. This phenomenon occurs though the Erase Lamp is set.	1. The breaking of cables or the disconnecting of connectors.	Repair the cable or reset the connector in the correct position. Erase Lamp: P715-S310	
	2. Erase Lamp fault.	Replace: Erase Lamp (S310)	7.1.2.7, 7-67
	3. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
Refer to Figure 5-10 on page 5-37.			

5.3.26. E090 PAPER SIZE UNMATCH

PRIMARY FACTOR;	Detected that the paper sizes from the CE do not match the paper sizes of the designated hoppers.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. The size of paper in the hopper is different from that of the paper to be printed.	1. The size of paper in the Hopper is different from that of the paper to be printed. Check points: Check if the paper size in the Hopper is correct or not.	Replace:Paper Check: Job program of the Host.	
2. This Phenomenon occurs though the correct paper is set in the Hopper.	1. The setting of the Paper Size Plate is faulty.	Set the Paper Guide correctly.	
	2. The paper size is detected by Hopper size sensor incorrectly. (1) Foreign substances such as paper dust are adhered to the size sensor. (2) Size sensor fault. (3) PCB fault.	 Remove: Foreign substances Replace: Size Sensor Hopper 1, 2, 3. High Capacity Hopper Replace: CPxxx Assembly	 7.1.4.3. (15), 7-193 7.2.1, 7-232 7.1.5.1. (13), 7-214
	3. The breaking of cables or disconnecting of connectors.	Repair the cable or reset the connector in the correct position.	

Hopper Size Sensor ON/OFF (Hopper 1 to Hopper 3)					
Paper Size	**Hopper Size Sensor Signal**				
	1	**2**	**3**	**4**	**5**
A4 (LEF)	OFF	OFF	OFF	ON	ON
A3 (SEF)	OFF	OFF	ON	ON	ON
B4 (SEF)	OFF	ON	ON	ON	ON
LT (LEF)	ON	ON	ON	ON	OFF
LG (SEF)	ON	ON	ON	OFF	ON
LDG (SEF)	ON	ON	OFF	ON	OFF
A5 (SEF)	ON	OFF	ON	OFF	OFF
B5 (LEF)	OFF	ON	OFF	OFF	OFF
valuable size	ON	OFF	OFF	OFF	OFF
Hopper unset	OFF	OFF	OFF	OFF	OFF

*SEF: Short Edge Feed*LEF: Long Edge Feed

NOTE: Hopper 1 does not support A5 (SEF) size paper.

5.3.27. E09A LACK TONER RECOVERY

PRIMARY FACTOR;	Supplying the Toner.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs during supplying of the Toner.	1. Supplying the Toner from the order of the Controller.	Wait till the end of supplying the toner.	
2. This phenomenon occurs though the Toner is not supplied.	1. The breaking of cables or disconnecting of connectors.	Repair the cable or reset the connector in the correct position.	
	2. The Toner Sensor is not correctly mounted.	Reset the Toner Sensor (Toner Hopper) correctly.	7.1.2.4. (3), 7-40
	3. Sensor fault.	Replace: Toner Sensor	7.1.2.4. (3), 7-40
	4. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214

5.3.28. E0A1 DEVELOPER CHARGE

PRIMARY FACTOR;	Charging the Developer.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs during charging of the Developer.	1. Charging the Developer from the order of the Controller.	Wait till the end of charging the Developer.	
2. This phenomenon occurs though the Developer is not discharged.	1. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214

5.3.29. E0A2 DEVELOPER DISCHARGE

PRIMARY FACTOR;	Discharging the Developer.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs during discharging of the Developer.	1. Discharging the Developer from the order of the Controller.	Wait till the end of discharging the Developer.	
2. This phenomenon occurs though the Developer is not discharged.	1. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214

5.3.30. E0C2 PAPER ON PAPER PATH 52

PRIMARY FACTOR;	A paper on the Center path 1 needs to be removed.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. Paper jam occurs.	Remove jammed paper.	
2. The Relay Unit Feed Sensor 1 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 Relay Unit Feed Sensor 1 is contaminated.	Clean the Relay Unit Feed Sensor 1.	
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable P351-P711(CPxxx) or reset the connector in the correct position.	
	4. The mounting of the Relay Unit Feed Sensor 1 is faulty.	Replace: Relay Unit Feed Sensor 1.	7.3.9, 7-297
	5. Relay Unit Feed Sensor 1 fault.	Replace: Relay Unit Feed Sensor 1.	7.3.9, 7-297
	6. PCB fault.	Replace: CPxxx Assembly.	7.3.12, 7-300
Refer to Figure 5-13 on page 5-50.			

5.3.31. E0C3 PAPER ON PAPER PATH 53

PRIMARY FACTOR;	A paper on the Center path 2 needs to be removed.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. Paper jam occurs.	Remove jammed paper.	
2. The Relay Unit Feed Sensor 2 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 Relay Unit Feed Sensor 2 is contaminated.	Clean the Relay Unit Feed Sensor 2.	
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable P352-P711(CPxxx) or reset the connector in the correct position.	
	4. The mounting of the Relay Unit Feed Sensor 2 is faulty.	Replace: Relay Unit Feed Sensor 2.	7.3.10, 7-298
	5. Relay Unit Feed Sensor 2 fault.	Replace: Relay Unit Feed Sensor 2.	7.3.10, 7-298
	6. PCB fault.	Replace: CPxxx Assembly.	7.3.12, 7-300
Refer to Figure 5-13 on page 5-50.			

5.3.32. E0C4 PAPER ON PAPER PATH 54

PRIMARY FACTOR;	A paper on the Center path 3 needs to be removed.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. Paper jam occurs.	Remove jammed paper.	
2. The Relay Unit Feed Sensor 3 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 Relay Unit Feed Sensor 3 is contaminated.	Clean the Relay Unit Feed Sensor 3.	
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable P353-P711(CPxxx) or reset the connector in the correct position.	
	4. The mounting of the Relay Unit Feed Sensor 3 is faulty.	Replace: Relay Unit Feed Sensor 3.	7.3.10, 7-298
	5. Relay Unit Feed Sensor 3 fault.	Replace: Relay Unit Feed Sensor 3.	7.3.10, 7-298
	6. PCB fault.	Replace: CPxxx Assembly.	7.3.12, 7-300
Refer to Figure 5-13 on page 5-50.			

5.3.33. E0C5 PAPER ON PAPER PATH 55

PRIMARY FACTOR;	A paper on the Center path 4 needs to be removed.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. Paper jam occurs.	Remove jammed paper.	
2. The Relay Unit Feed Sensor 4 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 Relay Unit Feed Sensor 4 is contaminated.	Clean the Relay Unit Feed Sensor 4.	
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable P354-P711(CPxxx) or reset the connector in the correct position.	
	4. The mounting of the Relay Unit Feed Sensor 4 is faulty.	Replace: Relay Unit Feed Sensor 4.	7.3.10, 7-298
	5. Relay Unit Feed Sensor 4 fault.	Replace: Relay Unit Feed Sensor 4.	7.3.10, 7-298
	6. PCB fault.	Replace: CPxxx Assembly.	7.3.12, 7-300
Refer to Figure 5-13 on page 5-50.			

5.3.34. E0C6 PAPER ON PAPER PATH 56

PRIMARY FACTOR;	A paper on the Center path 5 needs to be removed.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. Paper jam occurs.	Remove jammed paper.	
2. The Relay Unit Feed Sensor 5 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 Relay Unit Feed Sensor 5 is contaminated.	Clean the Relay Unit Feed Sensor 5.	
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable P355-P711(CPxxx) or reset the connector in the correct position.	
	4. The mounting of the Relay Unit Feed Sensor 5 is faulty.	Replace: Relay Unit Feed Sensor 5.	7.3.11, 7-299
	5. Relay Unit Feed Sensor 5 fault.	Replace: Relay Unit Feed Sensor 5.	7.3.11, 7-299
	6. PCB fault.	Replace: CPxxx Assembly.	7.3.12, 7-300
Refer to Figure 5-13 on page 5-50.			

5.3.35. E0C7 PAPER ON PAPER PATH 57

PRIMARY FACTOR;	A paper on the Center path 6 needs to be removed.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. Paper jam occurs.	Remove jammed paper.	
2. The Relay Unit Feed Sensor 6 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 Relay Unit Feed Sensor 6 is contaminated.	Clean the Relay Unit Feed Sensor 6.	
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable P356-P711(CPxxx) or reset the connector in the correct position.	
	4. The mounting of the Relay Unit Feed Sensor 6 is faulty.	Replace: Relay Unit Feed Sensor 6.	7.3.11, 7-299
	5. Relay Unit Feed Sensor 6 fault.	Replace: Relay Unit Feed Sensor 6.	7.3.11, 7-299
	6. PCB fault.	Replace: CPxxx Assembly.	7.3.12, 7-300
Refer to Figure 5-13 on page 5-50.			

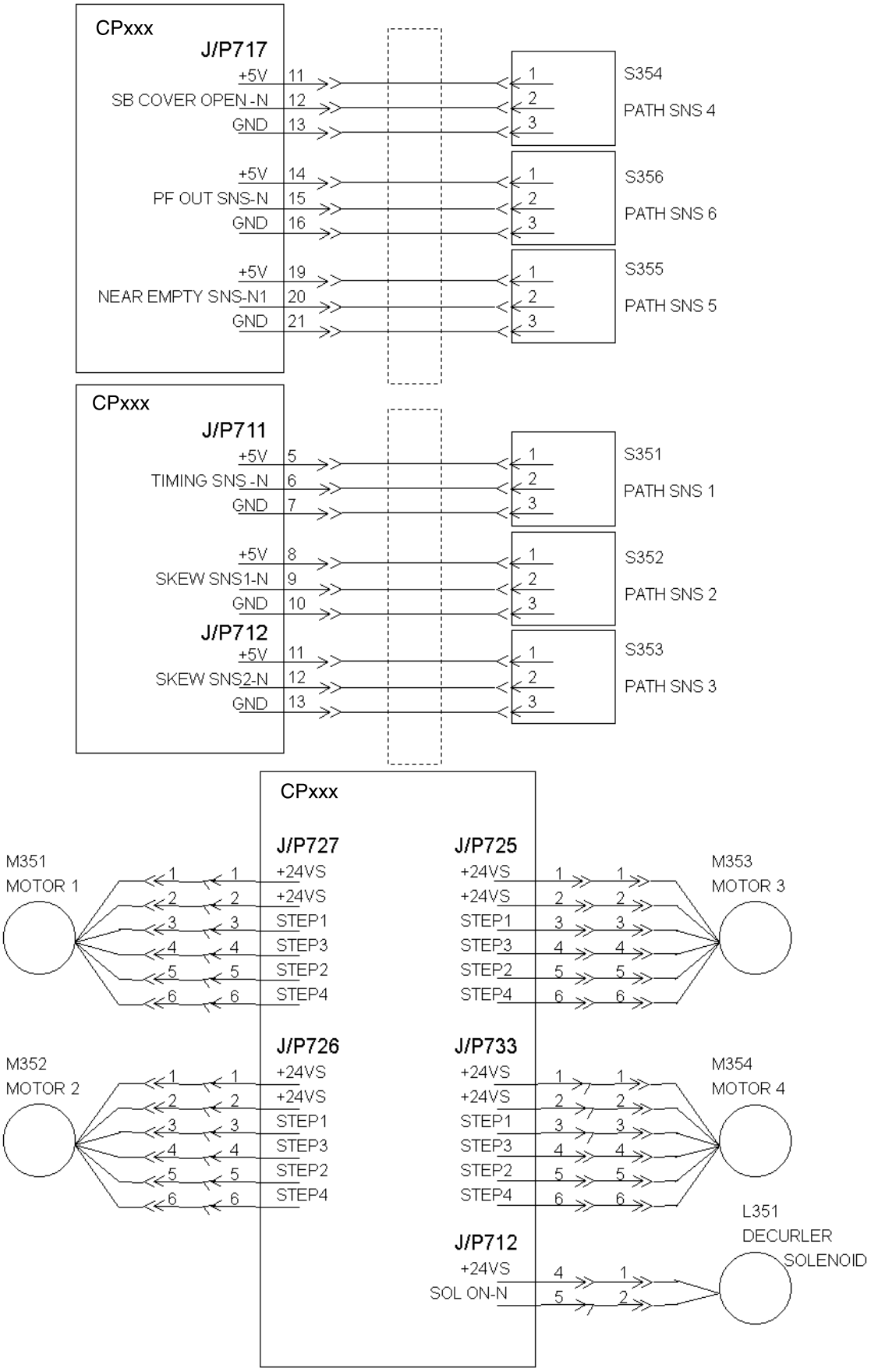


Figure 5-13. Error Codes E0C2, E0C3, E0C4, E0C5, E0C6, and E0C7

5.3.36. E110 to E113 REGIST JAM 1 to 4

PRIMARY FACTOR;	E110: Paper did not arrive at the Skew Sensor. (Simplex sheet) E111: Paper did not depart from the Skew Sensor. (Simplex sheet) E112: Paper did not arrive at the Skew Sensor. (Duplex sheet) E113: Paper did not depart from the Skew Sensor. (Duplex sheet)
Precaution:	If the IS Cover is opened after E110 or E112 has occurred, the paper is automatically ejected from the printer. When checking the status of the remaining paper, open the IS Cover in the state that opened the Front Cover. This operation shuts down the +24V line and disables automatic paper ejection.

PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page
1. Paper jam occurs.	1. Paper is skewed.	Remove: Skewed paper	
	2. Foreign substance is on the paper path.	Remove: Foreign substance	
	3. Roller friction or insufficient pressure force of the Idler Roller.	Replace: Registration Roller Timing Drive Roller	7.1.3.3. (1), 7-89 7.1.3.3. (2), 7-91
	4. The motor step out due to overloading.	Check: Load of the Regist Motor (M301) Check: Load of the Timing Motor (M302)	
	5. Motor fault	Replace: Regist Motor (M301) Timing Motor (M302)	7.1.3.10, 7-151 7.1.3.11, 7-152
	6. PCB fault	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
	7. Regist Buffer Setting fault	Check: Regist Buffer data	
	8. Spring Holder (R)	Cleaning: Spring Holder (R)	7.1.3.3. (3), 7-93
2. The Skew Sensor detected the jam though a jam does not occur.	1. The Skew sensor is contaminated.	Cleaning: Skew Sensor 1 (S301) Skew Sensor 2 (S302)	
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable P711-S301, P711-S302 or reset the connector in the correct position.	
	3. Sensor fault. Check points: Check if the paper on the paper path error occurs on initialization after masking of the sensor window. Error code E057(Skew Sensor) when the sensors are normal.	Replace: Skew Sensor 1 (S301) Skew Sensor 2 (S302)	7.1.3.3. (5), 7-96 7.1.3.3. (5), 7-96
	4. Multi-fed Sheets	Check: Separation Pad in Pick Tray.	

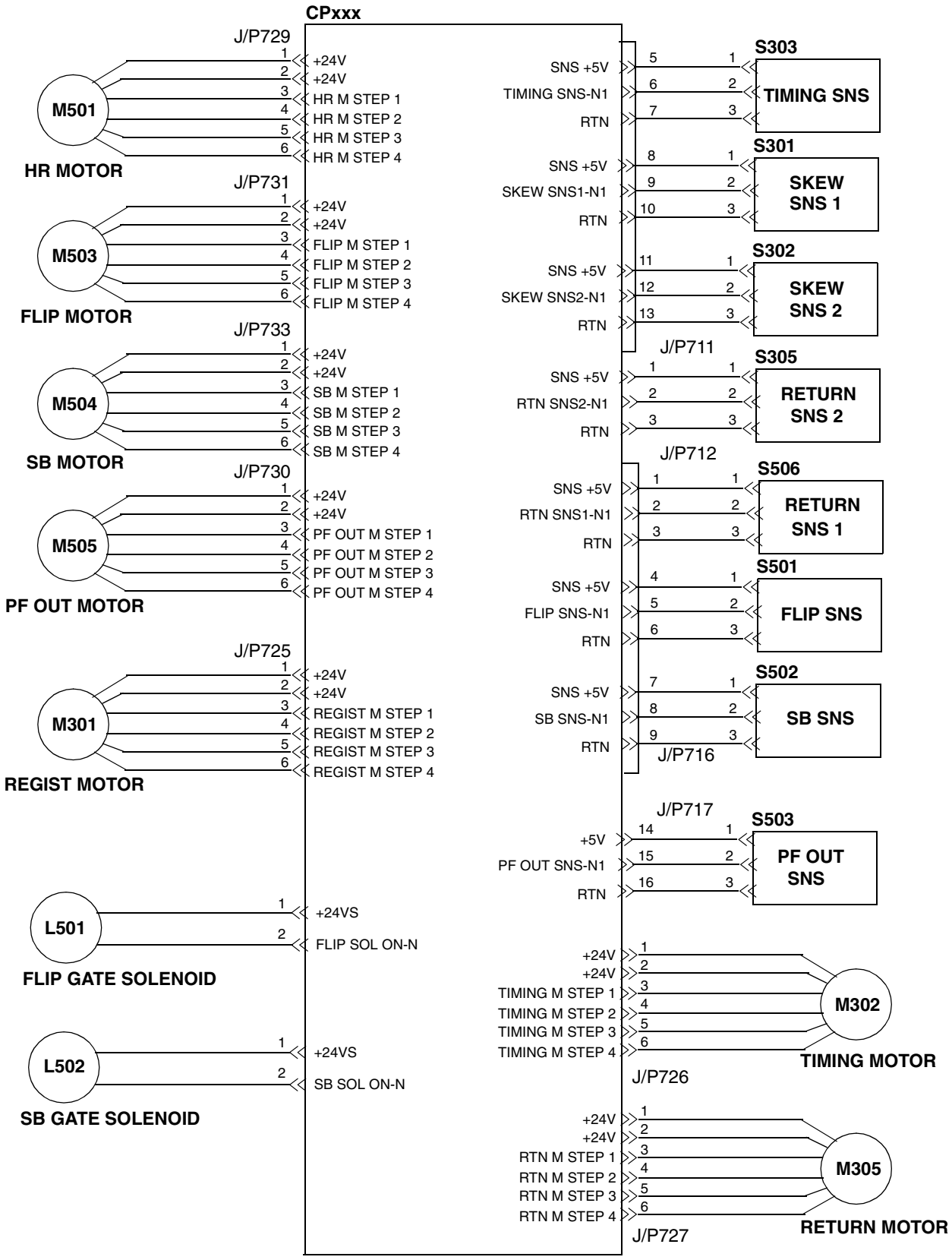


Figure 5-14. Error Code E110 to E113

5.3.37. E118 DRUM WRAP 1
E119 DRUM WRAP 2

PRIMARY FACTOR;	E118: Simplex paper was wrapped around the Drum. E119: Duplex paper was wrapped around the Drum.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. Simplex paper is wound around the drum. (Error code:E118)	1. Paper fault. Check points: Check if the paper in the Hopper is curled. Check if the leading edge of the paper is excessively burred.	Replace: Paper	
	2. Corotron wire fault. (1)Wire is contaminated. (2)Wire is worn out.	Cleaning: Separating corona wire Check if Separating Corona Unit is contaminated. Replace: Separating corona wire	4.4.3, 4-17 4.4.4, 4-19 4.4.5, 4-20 7.1.3.4. (13), 7-114
	3. Detach Volt fault.	Check: Detach Volt High Voltage Power Supply (2)	 7.1.5.1. (15), 7-216
	4. The breaking of cables or the disconnecting of connectors.	Repair the cable P715-S312 or reset the connector in the correct position.	
	5. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
	6. Blower fault.	Replace: Separating Blower 1 (B304) Separating Blower 2 (B305) Separating Blower 3 (B306) Separating Blower 4 (B307)	7.1.3.18, 7-159 7.1.3.18, 7-159 7.1.3.18, 7-159 7.1.3.18, 7-159
	7. Altitude Setting fault.	Check: Detach current data	8.6.3, 8-112
	8. Detach Voltage fault.	Set: Detach Voltage	8.6, 8-110
	9. TH Drive Roller fault.	Replace: TH Unit Assembly	7.1.3.4. (1), 7-102
	10. The damage of TH Drive Roller bearing.	Replace: TH Unit Assembly	7.1.3.4. (1), 7-102
2. Duplex paper is wound around the drum. (Error code:E119)	1. Corotron wire fault. (1)Wire is contaminated. (2)Wire is worn out.	Cleaning: Separating corona wire Check if Separating Corona Unit is contaminated. Replace: Separating corona wire	4.4.3, 4-17 4.4.4, 4-19 4.4.5, 4-20 7.1.3.4. (13), 7-114
	2. Paper with one side printed is curled toward the unprinted side.	Adjust: Reverse the front and back of the paper. Replace: Paper	
	3. The decurler does not operate.	Check if the decurler operates.	
	4. Altitude Setting fault.	Check: Detach current data	8.6.3, 8-112
	5. Detach Voltage fault.	Set: Detach Voltage	8.6, 8-110
	6. TH Drive Roller fault.	Replace: TH Unit Assembly	7.1.3.4. (1), 7-102
	7. The damage of TH Drive Roller bearing.	Replace: TH Unit Assembly	7.1.3.4. (1), 7-102

PRIMARY FACTOR;	E118: Simplex paper was wrapped around the Drum. E119: Duplex paper was wrapped around the Drum.		
3. Drum wrap is detected though the paper does not wrap around the drum.	1. Sensor does not detect correctly. (1) The drum is scratched or the Drum is worn out. (2) The surface of the Drum Wrap Sensor(S312) is contaminated. (3) The Drum Wrap Sensor(S312) is mounted loosely. (4) Sensor fault. (5) PCB fault.	Replace: Drum Unit Cleaning: Drum Wrap Sensor (S312) Reset the Drum Wrap Sensor (S312) correctly. Replace: Drum Wrap Sensor (S312) Replace: CPxxx Assembly	7.1.2.1. (1), 7-4 4.4.7, 4-22 7.1.5.1. (12), 7-213 7.1.5.1. (13), 7-214
4. Drum wrap is not detected though the paper wraps around the drum.	1. Sensor does not detect correctly. (1) The surface of the Drum Wrap Sensor is contaminated. (2) Sensor fault. (3) PCB fault.	Cleaning: Drum Wrap Sensor (S312) Replace: Drum Wrap Sensor (S312) Replace: CPxxx Assembly	4.4.7, 4-22 7.1.5.1. (12), 7-213 7.1.5.1. (13), 7-214
Refer to Figure 5-10 on page 5-37.			

5.3.38. E128 HR JAM 1
E129 HR JAM 2

PRIMARY FACTOR;	E128: Paper did not arrive at the Flip Sensor. E129: Paper did not depart from the Flip Sensor.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. Paper jam occurs.	1. Paper is skewed.	Remove: Skewed paper	
	2. Foreign substance is on the paper path.	Remove: Foreign substance	
	3. Paper fault. Check points: Check if the paper is greatly warped or the paper printed on one side is greatly warped.	Replace: Paper	
	4. Fuser Unit fault.	Replace: Fuser Unit	7.1.3.1. (1), 7-68
	5. Motor fault.	Replace: HR Motor (M501) Flip Motor (M503)	7.1.2.5. (8), 7-54 7.1.3.7, 7-148
	6. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
	7. Solenoid fault.	Replace: Flip Solenoid (L501)	7.1.3.15, 7-156
	8. Fan fault.	Replace: TH Fan (1) (B302) TH Fan (2) (B303)	7.1.3.4. (8), 7-109 7.1.3.4. (9), 7-110
	9. Detach Volt fault.	Check: Detach Volt High Voltage Power Supply (2)	7.1.5.1. (15), 7-216
	10. Altitude Setting fault. (only E128)	Check: Detach current data	8.6.3, 8-112
	11. Detach Voltage fault. (only E128)	Set: Detach Voltage	8.6, 8-110
	12. TH Drive Roller fault.	Replace: TH Unit Assembly	7.1.3.4. (1), 7-102
	13. The damage of TH Drive Roller bearing.	Replace: TH Unit Assembly	7.1.3.4. (1), 7-102
2. The Flip Sensor detected the jam though a jam does not occur.	1. The Sensor is contaminated.	Cleaning: Flip Sensor (S501)	
	2. The breaking of cables, or the disconnecting of connectors.	Repair the cable P716-S501 or reset the connector in the correct position.	
	3. Sensor fault. Check points: Check if the paper on paper path error occurs on initialization after masking of the sensor window. Error code E05F(Flip Sensor) when the sensors are normal.	Replace: Flip Sensor (S501)	7.1.3.5. (5), 7-126
Refer to Figure 5-14 on page 5-52.			

5.3.39. E130 SWITCH BACK JAM 1
E131 SWITCH BACK JAM 2

PRIMARY FACTOR;	E130: Paper did not arrive at the SB Sensor. E131: Paper did not depart from the SB Sensor.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. Paper jam occurs.	1. Paper is skewed.	Remove: Skewed paper	
	2. Foreign substance is on the paper path.	Remove: Foreign substance	
	3. Paper fault. Check points: Check if the paper in the Hopper is warped. Check if the paper which passes through the Fuser Unit is greatly warped or damaged.	Replace: Paper	
	4. Gate operation fault. Check point: Check if the Flip Gate or the Flip Solenoid operates correctly. Check if the Switch Back Gate or the SB Solenoid operates correctly.	Check: Flip Gate Replace: Flip Solenoid (L501) Check: Switch Back Gate Replace: SB Solenoid (L502)	7.1.3.15, 7-156 7.1.3.16, 7-157
	5. Roller friction or insufficient pressure force of the Idler Roller.	Replace: Flip Paper Feed Roller SB Paper Feed Roller	7.1.3.5. (2), 7-121 7.1.3.5. (3), 7-123
	6. The Motor steps out due to overloading.	Check: Load of Flip Motor. Load of SB Motor.	
	7. Motor fault.	Replace: SB Motor (M504) Flip Motor (M503)	7.1.3.8, 7-149 7.1.3.7, 7-148
	8. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
2. The SB Sensor detected the jam though a jam does not occur.	1. The SB Sensor is contaminated.	Cleaning: SB Sensor (S502)	
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable P716-S502 or reset the connector in the correct position.	
	3. Sensor fault. Check points: Check if the paper on paper path error occurs on initialization after masking of the sensor window. Error code E05B(SB Sensor) when the sensors are normal.	Replace: SB Sensor (S502)	7.1.3.5. (6), 7-127
Refer to Figure 5-14 on page 5-52.			

5.3.40. E134 PF OUT JAM 1
E135 PF OUT JAM 2

PRIMARY FACTOR;	E134: Paper did not arrive at the PF Out Sensor. E135: Paper did not depart from the PF Out Sensor.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. Paper jam occurs.	1. Paper is skewed.	Remove: Skewed paper	
	2. Foreign substance is on the paper path.	Remove: Foreign substance	
	3. Paper fault. Check points: Check if the paper in the Hopper is warped. Check if the paper which passes through the Fuser Unit is greatly warped or damaged.	Replace: Paper	
	4. Gate operation fault. Check point: Check if the Flip Gate or Flip Solenoid operates correctly.	Check: Flip Gate Replace: Flip Solenoid (L501)	7.1.3.15, 7-156
	5. Roller friction or insufficient pressure force of the Idler Roller.	Replace: Flip Paper Feed Roller PF Out Paper Feed Roller	7.1.3.5. (2), 7-121 7.1.3.5. (4), 7-124
	6. The Motor steps out due to overloading.	Check: Load of Flip Motor (M503) Load of PF Out Motor (M505)	
	7. Motor fault.	Replace: SB Motor (M504) Flip Motor (M503) PF Out Motor (M505)	7.1.3.8, 7-149 7.1.3.7, 7-148 7.1.3.9, 7-150
	8. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
	9. Altitude Setting fault. (only E134)	Check: Detach current	8.6.3, 8-112
	10. Detach Voltage fault. (only E134)	Set: Detach Voltage	8.6, 8-110
	11. TH Drive Roller fault.	Replace: TH Unit Assembly	7.1.3.4. (1), 7-102
	12. The damage of TH Drive Roller bearing.	Replace: TH Unit Assembly	7.1.3.4. (1), 7-102
2. The PF Out Sensor detected the jam though a jam does not occur.	1. The Sensor is contaminated.	Cleaning: PF Out Sensor (S503)	
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable P716-S503 or reset the connector in the correct position.	

PRIMARY FACTOR;	E134: Paper did not arrive at the PF Out Sensor. E135: Paper did not depart from the PF Out Sensor.		
2. Continued.	3. Sensor fault. Check points: Check if the paper on paper path error occurs on initialization after masking of the sensor window. Error code E05E(PF Out Sensor) when the sensor is normal.	Replace: PF Out Sensor (S503)	7.1.3.5. (7), 7-128
3. Finisher fault.	1. The Finisher does not operate. (1)Setting of the Dip Switch on CP P/K is faulty. (2)Setting of the Dip Switch on FS108R P/K is faulty. (3)PCB fault.	Set the Dip Switch correctly. Replace: FS-108H P/K * FS-108R P/K CPxxx Assembly	Refer to the Installation Instruction. Refer to the Finisher Manual 7.1.5.1. (13), 7-214
	2. The paper does not go into the Finisher normally.	Set the Guide Plate of the Finisher correctly.	
4. Container Stacker fault.	1. The connection of Printer and Container Stacker is wrong.	Replace: Container Stacker	Refer to the Installation Instruction.
	2. L Paper Guide A Assembly is opened.	Check: L Paper Guide A Assembly	Refer to Container Stacker Parts Catalog block 5-13.
Refer to Figure 5-14 on page 5-52.			

* Only for RoHS Machine.

5.3.41. E138, E139, E13A, E13B RTN FEED JAM 1 to 4

PRIMARY FACTOR;	E138: Paper did not arrive at the Return Sensor 1. E139: Paper did not depart from the Return Sensor 1. E13A: Paper did not arrive at the Return Sensor 2. E13B: Paper did not depart from the Return Sensor 2.
Precaution:	If the IS Cover is opened after E139, E13A or E13B has occurred, the paper is automatically ejected from the printer. When checking the status of the remaining paper, open the IS Cover in the state that opened the Front Cover. This operation shuts down the +24V line and disables automatic paper ejection.

PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page
1. Paper jam occurs.	1. Paper is skewed.	Remove: Skewed paper	
	2. Foreign substance is on the paper path.	Remove: Foreign substance	
	3. Paper fault. Check points: Check if the paper in the Hopper is warped. Check if the paper which passes through the Fuser Unit is greatly warped or damaged.	Replace: Paper	
	4. Gate operation fault. Check if the Switch Back Gate or SB Gate Motor operates correctly.	Check: Switch Back Gate Replace: SB Gate Motor	7.1.3.16, 7-157
	5. Roller friction or insufficient pressure force of the Idler Roller.	Replace: Return Roller 1 Return Roller 2 Return Roller 3	7.1.3.6. (3), 7-134 7.1.3.6. (4), 7-135 7.1.3.6. (5), 7-136
	6. The Motor steps out due to overloading.	Check: Load of Return Motor (M305) Load of SB Motor (M504)	
	7. Motor fault.	Replace: SB Motor (M504) Return Motor (M305)	7.1.3.8, 7-149 7.1.3.12, 7-153
	8. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
	9. The size of paper in the hopper is different from the paper size setting tab.	Check & Replace: • Paper size setting tab • Paper size	
2. The SB Sensor detected the jam though a jam does not occur.	1. The Return Sensor 1 or Return Sensor 2 is contaminated.	Cleaning: Return Sensor 1 (S506) Return Sensor 2 (S305)	
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable P716-S506, P712-S305 or reset the connector in the correct position.	
	3. Sensor fault. Check points: Check if the paper on paper path error occurs on initialization after masking of the sensor window. Error codes E05C(Return Sensor 1) or E05D(Return Sensor 2) when the sensors are normal.	Replace: Return Sensor 1 (S506) Return Sensor 2 (S305)	7.1.3.6. (6), 7-137 7.1.3.6. (7), 7-138

Refer to Figure 5-14 on page 5-52.

5.3.42. E140 CENTER PATH JAM 1

PRIMARY FACTOR;	The paper did not get to the Center path 1 in the specified time.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. Paper jam occurs.	1. Paper is skewed.	Remove skewed paper.	
	2. Foreign substance is on the Paper Path.	Remove foreign substance.	
	3. Roller friction or insufficient pressure force of the Idler Roller.	Replace: Drive Roller.	7.3.18, 7-306 7.3.19, 7-307
	4. The motor step out due to overloading.	Check the load of the Relay Unit Feed Motor 1 (M351).	
	5. Motor fault.	Replace: Relay Unit Feed Motor 1.	7.3.2, 7-288
	6. PCB fault.	Replace: CPxxx Assembly.	7.3.12, 7-300
	7. Paper guide is not closed properly.	Close the paper guide properly.	
	8. Relay Unit is not exactly connected with Front Engine.	Check connection of Front Engine and Relay Unit.	
2. The Relay Unit Feed Sensor 1 detected the jam though a jam does not occur.	1. The Relay Unit Feed Sensor 1 is contaminated.	Clean the Relay Unit Feed Sensor 1.	
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable P351-P711(CPxxx) or reset the connector in the correct position.	
	3. Sensor fault. Check if the paper on the paper path error occurs on initialization after masking of the sensor window. Error code E0C2 when the sensor is normal.	Replace: Relay Unit Feed Sensor 1.	7.3.9, 7-297

5.3.43. E142 CENTER PATH JAM 3

PRIMARY FACTOR;	The paper did not get to the Center path 2 in the specified time.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. Paper jam occurs.	1. Paper is skewed.	Remove skewed paper.	
	2. Foreign substance is on the Paper Path.	Remove foreign substance.	
	3. Roller friction or insufficient pressure force of the Idler Roller.	Replace: Drive Roller.	7.3.18, 7-306 7.3.19, 7-307
	4. The motor step out due to overloading.	Check the load of the Relay Unit Feed Motor 1 (M351).	
	5. Motor fault.	Replace: Relay Unit Feed Motor 1.	7.3.2, 7-288
	6. PCB fault.	Replace: CPxxx Assembly.	7.3.12, 7-300
	7. Paper guide is not closed properly.	Close the paper guide properly.	
2. The Relay Unit Feed Sensor 2 detected the jam though a jam does not occur.	1. The Relay Unit Feed Sensor 2 is contaminated.	Clean the Relay Unit Feed Sensor 2.	
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable P352-P711(CPxxx) or reset the connector in the correct position.	
	3. Sensor fault. Check if the paper on the paper path error occurs on initialization after masking of the sensor window. Error code E0C3 when the sensor is normal.	Replace: Relay Unit Feed Sensor 2.	7.3.10, 7-298

5.3.44. E144 CENTER PATH JAM 5

PRIMARY FACTOR;	The paper did not get to the Center path 3 in the specified time.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. Paper jam occurs.	1. Paper is skewed.	Remove skewed paper.	
	2. Foreign substance is on the Paper Path.	Remove foreign substance.	
	3. Roller friction or insufficient pressure force of the Idler Roller.	Replace: Drive Roller.	7.3.18, 7-306 7.3.19, 7-307
	4. The motor step out due to overloading.	Check the load of the Relay Unit Feed Motor 2 (M352).	
	5. Motor fault.	Replace: Relay Unit Feed Motor 2.	7.3.3, 7-289
	6. PCB fault.	Replace: CPxxx Assembly.	7.3.12, 7-300
	7. Paper guide is not closed properly.	Close the paper guide properly.	
2. The Relay Unit Feed Sensor 3 detected the jam though a jam does not occur.	1. The Relay Unit Feed Sensor 3 is contaminated.	Clean the Relay Unit Feed Sensor 3.	
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable P353-P711(CPxxx) or reset the connector in the correct position.	
	3. Sensor fault. Check if the paper on the paper path error occurs on initialization after masking of the sensor window. Error code E0C4 when the sensor is normal.	Replace: Relay Unit Feed Sensor 3.	7.3.10, 7-298

5.3.45. E146 CENTER PATH JAM 7

PRIMARY FACTOR;	The paper did not get to the Center path 4 in the specified time.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. Paper jam occurs.	1. Paper is skewed.	Remove skewed paper.	
	2. Foreign substance is on the Paper Path.	Remove foreign substance.	
	3. Roller friction or insufficient pressure force of the Idler Roller.	Replace: Drive Roller.	7.3.18, 7-306 7.3.19, 7-307
	4. The motor step out due to overloading.	Check the load of the Relay Unit Feed Motor 3 (M353).	
	5. Motor fault.	Replace: Relay Unit Feed Motor 3.	7.3.4, 7-290
	6. PCB fault.	Replace: CPxxx Assembly.	7.3.12, 7-300
	7. Paper guide is not closed properly.	Close the paper guide properly.	
2. The Relay Unit Feed Sensor 4 detected the jam though a jam does not occur.	1. The Relay Unit Feed Sensor 4 is contaminated.	Clean the Relay Unit Feed Sensor 4.	
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable P354-P711(CPxxx) or reset the connector in the correct position.	
	3. Sensor fault. Check if the paper on the paper path error occurs on initialization after masking of the sensor window. Error code E0C5 when the sensor is normal.	Replace: Relay Unit Feed Sensor 4.	7.3.10, 7-298

5.3.46. E148 CENTER PATH JAM 9

PRIMARY FACTOR;	The paper did not get to the Center path 5 in the specified time.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. Paper jam occurs.	1. Paper is skewed.	Remove skewed paper.	
	2. Foreign substance is on the Paper Path.	Remove foreign substance.	
	3. Roller friction or insufficient pressure force of the Idler Roller.	Replace: Drive Roller.	7.3.18, 7-306 7.3.19, 7-307
	4. The motor step out due to overloading.	Check the load of the Relay Unit Feed Motor 4 (M354).	
	5. Motor fault.	Replace: Relay Unit Feed Motor 4.	7.3.5, 7-291
	6. PCB fault.	Replace: CPxxx Assembly.	7.3.12, 7-300
	7. Paper guide is not closed properly.	Close the paper guide properly.	
2. The Relay Unit Feed Sensor 5 detected the jam though a jam does not occur.	1. The Relay Unit Feed Sensor 5 is contaminated.	Clean the Relay Unit Feed Sensor 5.	
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable P355-P711(CPxxx) or reset the connector in the correct position.	
	3. Sensor fault. Check if the paper on the paper path error occurs on initialization after masking of the sensor window. Error code E0C6 when the sensor is normal.	Replace: Relay Unit Feed Sensor 5.	7.3.11, 7-299

5.3.47. E14A CENTER PATH JAM 11

PRIMARY FACTOR;	The paper did not get to the Center path 6 in the specified time.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. Paper jam occurs.	1. Paper is skewed.	Remove skewed paper.	
	2. Foreign substance is on the Paper Path.	Remove foreign substance.	
	3. Roller friction or insufficient pressure force of the Idler Roller.	Replace: Drive Roller.	7.3.18, 7-306 7.3.19, 7-307
	4. The motor step out due to overloading.	Check the load of the Relay Unit Feed Motor 4 (M354).	
	5. Motor fault.	Replace: Relay Unit Feed Motor 4.	7.3.5, 7-291
	6. PCB fault.	Replace: CPxxx Assembly.	7.3.12, 7-300
	7. Decurler Unit fault.	Replace: Decurler Unit.	7.3.23, 7-311
	8. Relay Unit is not exactly connected with Front Engine.	Check connection of Front Engine and Relay Unit.	
2. The Relay Unit Feed Sensor 6 detected the jam though a jam does not occur.	1. The Relay Unit Feed Sensor 6 is contaminated.	Clean the Relay Unit Feed Sensor 6.	
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable P356-P711(CPxxx) or reset the connector in the correct position.	
	3. Sensor fault. Check if the paper on the paper path error occurs on initialization after masking of the sensor window. Error code E0C7 when the sensor is normal.	Replace: Relay Unit Feed Sensor 6.	7.3.11, 7-299

5.3.48. E14B CENTER PATH JAM 12

PRIMARY FACTOR;	A paper jamming was occurred on the Center path 6.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. Paper jam occurs.	1. Paper is skewed.	Remove skewed paper.	
	2. Foreign substance is on the Paper Path.	Remove foreign substance.	
	3. Roller friction or insufficient pressure force of the Idler Roller.	Replace: Drive Roller.	7.3.18, 7-306 7.3.19, 7-307
	4. The motor step out due to overloading.	Check the load of the Relay Unit Feed Motor 4 (M354).	
	5. Motor fault.	Replace: Relay Unit Feed Motor 4.	7.3.5, 7-291
	6. PCB fault.	Replace: CPxxx Assembly.	7.3.12, 7-300
	7. Decurler Unit fault.	Replace: Decurler Unit.	7.3.23, 7-311
	8. Relay Unit is not exactly connected with Front Engine.	Check connection of Front Engine and Relay Unit.	
2. The Relay Unit Feed Sensor 6 detected the jam though a jam does not occur.	1. The Relay Unit Feed Sensor 6 is contaminated.	Clean the Relay Unit Feed Sensor 6.	
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable P356-P711(CPxxx) or reset the connector in the correct position.	
	3. Sensor fault. Check if the paper on the paper path error occurs on initialization after masking of the sensor window. Error code E0C7 when the sensor is normal.	Replace: Relay Unit Feed Sensor 6.	7.3.11, 7-299

5.3.49. E150 to E155 OVER SKEW 1 to 6

PRIMARY FACTOR;	E150: Skew of paper picked from Hopper 1 is detected at the Registration Unit. E151: Skew of paper picked from Hopper 2 is detected at the Registration Unit. E152: Skew of paper picked from Hopper 3 is detected at the Registration Unit. E153: Skew of paper picked from MB Tray is detected at the Registration Unit. E154: Skew of paper picked from Duplex path is detected at the Registration Unit. E155: Skew of paper picked from High Capacity Hopper is detected at the Registration Unit.

PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page
1. Paper skew occurs. ERROR CODE: E150 to E153 E155	1. The transfer force of the Pick Unit (mechanism) is unbalanced. (1) The Pick Roller or Separator Roller is contaminated. (2) The Pick Roller or Separator Roller is worn out. (3) The Separator Roller spring is faulty.	Cleaning: Pick Roller Separator Roller Replace: Pick Roller (H1/H2/H3) (MB Tray-H4) (High Capacity Hopper -HP5) Replace: Separator Assembly	 7.1.4.3. (2), 7-180 7.1.3.2. (2), 7-72 7.1.4.3. (3), 7-181 7.2.2, 7-233 7.2.3, 7-234
	2. Pick Unit Separator fault.	Replace: Separator Assembly (H1/H2/H3) (High Capacity Hopper -HP5)	 7.1.4.3. (3), 7-181 7.2.3, 7-234
	3. The setting of the Hopper Unit is not correct.	Reset the Hopper Unit correctly.	
	4. The transfer force of the Vertical Path Unit is unbalanced. (1) The Rubber Roller is contaminated. (2) The Rubber Roller is worn out. (3) The mounting of the Rubber Roller Shaft and bearing is faulty.	Cleaning: Rubber Roller Replace: Rubber Roller Assembly Replace: Rubber Roller Assembly Reset the Rubber Roller Assembly and bearing correctly.	 7.1.4.3. (6), 7-184 7.1.4.3. (6), 7-184
	5. The mounting of the IS Cover is faulty.	Reset the IS Cover correctly.	
	6. The transfer force of the Registration is unbalanced. (1) The Registration Roller is contaminated. (2) The Registration Roller is worn out. (3) The mounting of the Registration Roller Shaft and bearing is faulty.	Cleaning: Registration Roller Replace: Registration Roller Assembly Replace: Registration Roller Assembly Reset the Registration Roller Assembly and bearing correctly.	 7.1.3.3. (1), 7-89 7.1.3.3. (1), 7-89
	7. The mounting of the Skew Sensor is faulty.	Reset: Skew Sensor 1 (S301) Skew Sensor 2 (S302)	7.1.3.3. (5), 7-96

PRIMARY FACTOR;	E150: Skew of paper picked from Hopper 1 is detected at the Registration Unit. E151: Skew of paper picked from Hopper 2 is detected at the Registration Unit. E152: Skew of paper picked from Hopper 3 is detected at the Registration Unit. E153: Skew of paper picked from MB Tray is detected at the Registration Unit. E154: Skew of paper picked from Duplex path is detected at the Registration Unit. E155: Skew of paper picked from High Capacity Hopper is detected at the Registration Unit.		
2. Paper skew occurs. ERROR CODE: E154	1. The transfer force of the Duplex Path is unbalanced. (1) The Pressure Roller or Return Roller is contaminated. (2) The Pressure Roller or Return Roller is worn out. (3) The mounting of the Roller Shaft is faulty.	Cleaning: Pressure Roller Return Roller Replace: Pressure Roller Return Roller 1 Return Roller 2 Return Roller 3 Reset the Roller Shaft correctly.	7.1.3.6. (8), 7-139 7.1.3.6. (3), 7-134 7.1.3.6. (4), 7-135 7.1.3.6. (5), 7-136
	2. The mounting of the Duplex Path is faulty.	Reset the Duplex Path correctly.	
	3. The transfer force of the SB Unit is unbalanced. (1) The SB Paper Feed Roller is contaminated. (2) The SB Paper Feed Roller is worn out. (3) The mounting of the SB Paper Feed Roller is faulty. (4) The transfer force of the SB Gate Shaft is unbalanced.	Cleaning: SB Paper Feed Roller Replace: SB Paper Feed Roller Reset the SB Paper Feed Roller correctly. Readjust the SP Hook.	7.1.3.5. (3), 7-123 7.1.3.5. (10), 7-131
	4. Fuser Unit fault. (1) The Fuser Unit is not set correctly. (2) The Heat Roll or Backup Roll is partially worn out.	Reset the Fuser Unit Replace: Fuser Unit	7.1.3.1. (1), 7-68
	5. The transfer force of the Decurler is unbalanced.	Replace: Solenoid (Decurler)	7.1.3.6. (14), 7-145
	6. The transfer force of the Timing Pressure Roller is unbalanced.	Cleaning: Timing Pressure Roller Shaft Ends and Frame Bushings. (use paint thinner)	7.1.3.3. (2), 7-91

PRIMARY FACTOR;	E150: Skew of paper picked from Hopper 1 is detected at the Registration Unit. E151: Skew of paper picked from Hopper 2 is detected at the Registration Unit. E152: Skew of paper picked from Hopper 3 is detected at the Registration Unit. E153: Skew of paper picked from MB Tray is detected at the Registration Unit. E154: Skew of paper picked from Duplex path is detected at the Registration Unit. E155: Skew of paper picked from High Capacity Hopper is detected at the Registration Unit.		
3. The Skew Sensor detected the over skew though the paper does not skew.	1. There is paper dust and pieces of paper on and around the Skew Sensor Window.	Cleaning: Skew Sensor window and its environs.	
	2. The mounting of the Skew Sensor is faulty.	Reset the Skew Sensor.	
	3. The breaking of cables or the disconnecting of connectors	Repair the cable P711-S301, P711-S302 or reset the connector in the correct position.	
	4. Sensor fault. Check points: Check if the paper on paper path error occurs on initialization after masking of the sensor window. Error code E057(Skew Sensor) when the sensors are normal.	Replace: Skew Sensor 1 (S301) Skew Sensor 2 (S302)	7.1.3.3. (5), 7-96 7.1.3.3. (5), 7-96
4. The Skew Sensor does not detected the over skew error though the paper skew occurs.	1. Sensor fault.	Replace: Skew Sensor 1 (S301) Skew Sensor 2 (S302)	7.1.3.3. (5), 7-96 7.1.3.3. (5), 7-96
	2. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
5. H POS. sensor detected the over skew though the paper does not skew. (E150-E152, E154, E155)	1. Misdetection of H POS. sensor for preprint paper or color paper.	Change the setup for Skew Detect of H Positioning from "Enable" to "Disable" by using OCP. Or change the setup for H Positioning from "Enable" to "Disable" by using OCP.	Refer to User's Guide
	2. Misdetection of H POS. sensor for preprint paper or color paper.	Set up the data for address 9852H of Front Engine to default value.	8.5.5, 8-67
	3. Lack of LED brightness for H POS. sensor.	Readjust the LED brightness for H POS. sensor of Front Engine by using "95" routine.	8.5.5, 8-67
Refer to Figure 5-14 on page 5-52 and Figure 5-5 on page 5-29.			

5.3.50. E156 OVER SKEW 7

PRIMARY FACTOR;	A skew paper was detected in the Center path unit.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. E156 is detected.	1. Observe whether the paper that stopped in the resist part of the Rear Engine is skew, when the E156 is detected.	If the paper that stopped in the resist part of the Rear Engine is skewed, confirm whether which place of following a), b), c), and d) causes the skew. (a). Before the Relay Unit (b). Between the entrance of the Relay Unit and before the Decurler Assembly of the Relay Unit. (c). Around the Decurler. Assembly of the Relay Unit (d). Between entrance of the Rear Engine and the Resist of the Rear Engine.	5.6.7. (1), 5-147
a). The paper skew is caused before the Relay Unit.	1. Paper guide is not closed properly.	Close the paper guide properly.	5.6.7. (2) (a), 5-147
	2. The gap between the size guide and the papers is wider than 2mm.	Adjust the Paper Guide of the Hopper	
	3. Paper Curl is large in the Hopper.	When the papers have any curl, reset the papers or change the papers.	
	4. Relay Unit is not exactly connected with Front Engine.	Check connection of Front Engine and Relay Unit.	
	5. Damage of the SB Gate ribs.	Replace the SB Gate Assembly.	
	6. The transfer force of the Flip Roller of Front Engine is unbalanced.	Clean the Flip Pressure Roller Assembly or replace it. Add some grease.	
	7. TH Drive Shaft Assembly doesn't rotate normally.	Replace the TH Drive Shaft Assembly.	
	8. The drum tends to be wrapped in the paper during printing.	Adjust the Detach Voltage by OCP.	
	9. The Resist Pressure Roller doesn't rotate correctly.	Replace the Resist Pressure Roller or replace or clean the Spring Holder (R).	
	10. The mounting of the Skew Sensor is faulty.	Reset the Skew Sensor 1 (S301) and Skew Sensor 2 (S302).	
b). The paper skew is caused between the entrance of the Relay Unit and before the Decurler Assembly of the Relay Unit.	1. The transfer force of the Pressure Roller Assembly of Relay Unit is unbalanced.	Add the grease to the shaft of the Pressure Roller that causes the paper skew or replace the Pressure Roller Assembly with the new type.	5.6.7. (2) (b), 5-153

PRIMARY FACTOR;	A skew paper was detected in the Center path unit.		
c). The paper skew is caused around the Decurler of the Relay Unit.	1. Confirm that "Paper weight" setting of OCP panel is correct.	Please set it correctly if it is not correct.	5.6.7. (2) (c), 5-154
	2. Observe the curl direction of the paper before the Decurler Assembly of the relay unit is passed.	Change the setup for the Decurler Assembly of the Relay Unit from "Auto Select" to "Disable" by using OCP.	
	3. The paper touches the tip of the Gate Assembly of the Decurler Assembly.	Replace the Solenoid.	
	4. The gap of the paper guide of the relay unit exit is too narrow and the paper knocks against.	Install the two Guide Plates and Guide Plates (L) so that the gap become 1mm or more.	
	5. The transfer force of the Pressure Roller Assembly of the Paper Guide (BL1) Assembly is unbalanced.	Add the grease to the shaft of the Pressure Roller that cause the paper skew or replace the Pressure Roller Assembly with the new type.	
d). The paper skew is caused between entrance of the Rear Engine and the Resist of the Rear Engine.	1. Relay Unit is not exactly connected with Rear Engine.	Check connection of Rear Engine and Relay Unit.	5.6.7. (2) (d), 5-156
	2. The transfer force of the Vertical path Unit of Rear Engine is unbalanced.	Clean or replace or reset the Rubber Roller.	
	3. The mounting of the IS Cover of Rear Engine is faulty.	Reset the IS Cover.	
	4. The Resist Pressure Roller doesn't rotate correctly.	Replace the Resist Pressure Roller or replace or clean the Spring Holder (R).	
	5. The mounting of the Skew Sensor is faulty.	Reset the Skew Sensor 1 (S301) and Skew Sensor 2 (S302).	
	6. The gap between S paper Guide and the Resist Roller is out of specification.	Adjust the S Paper Guide Gap.	
2. The Skew Sensor detected the over skew though the paper does not skew.	1. There are paper dust and pieces of paper on and around the Skew Sensor Window.	Clean the Skew Sensor Window and its environs.	
	2. The mounting of the Skew Sensor is faulty.	Reset the Skew Sensor.	
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable S301/S302-P711(CPxxx) or reset the connector in the correct position.	
	4. Sensor fault. Check if the paper on the paper path error occurs on initialization after masking of the sensor window. Error code E057 when the sensor is normal.	Replace: Skew Sensor 1 or Skew Sensor 2.	7.1.3.3. (5), 7-96
	5. PCB fault.	Replace: CPxxx Assembly.	7.3.12, 7-300

PRIMARY FACTOR;	A skew paper was detected in the Center path unit.		
The Skew Sensor detected the over skew though the paper does not skew.	6. Detection error of skew sensor.	Change the Skew sensor jam check setting. Address 82FFH : X'04' to X'05'. **Note:** The change of the setting shown in the above-mentioned make the skew detection becomes loose. As a result, there is a possibility that the skew deteriorates.	8.5.5. (6), 8-68 "SUPPLEMENT 8 - Information about Skew sensor jam check setting"
3. H POS. sensor detected the over skew though the paper does not skew.	1. There is paper dust on and around the H POS. sensor.	Cleaning: H POS. sensor and its environs.	4.4.14, 4-31
	2. Misdetection of H POS. sensor for preprint paper or color paper.	Change the setup for Skew Detect of H Positioning from "Enable" to "Disable" by using OCP. Or change the setup for H Positioning from "Enable" to "Disable" by using OCP. **Note:** The change of the setting shown in the above-mentioned make the skew detection becomes loose. As a result, there is a possibility that the skew deteriorates.	Refer to User's Guide, Chapter 3, Paper Handling, 3-3 Chapter 6, Care and Maintenance, 6-71
	3. Lack of LED brightness for H POS. sensor.	Readjust the LED brightness for H POS. sensor of Front Engine by using "95" routine.	
Refer to Figure 5-14 on page 5-52 and Figure 5-5 on page 5-29.			

5.3.51. E157 MULTI-FEED JAM 1
E158 MULTI-FEED JAM 2
E159 MULTI-FEED JAM 3
E15A MULTI-FEED JAM 4
E15B MULTI-FEED JAM 5
E15C MULTI-FEED JAM 6
E15D MULTI-FEED JAM 7
E15E MULTI-FEED JAM 8

PRIMARY FACTOR;	The former page from the Hopper 1 was the paper which overlapped two sheets.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. The overlapped paper remains in the hopper.	1. The paper in use is not suitable. - Punched paper - Thin paper - Label paper, etc.	CHECK : Paper - Use recommended paper	
	2. Separator fault (1) Separator Assembly mounting fault. (2) Separator Roller fault (3) Separator Assembly fault.	Reset: Separator Assembly Replace: Separator Roller High Capacity Hopper Separator Roller Replace: Separator Roller High Capacity Hopper Separator Roller	7.1.3.2. (3), 7-73 7.1.4.3. (4), 7-182 7.2.4, 7-235 7.1.4.3. (3), 7-181 7.2.3, 7-234
2. No overlapped paper remains in the hopper.	1. Different weight papers are set in the hopper. - Paper weight - Paper color, etc.	CHECK: Paper - Set only one kind of paper. - Mixed kind of paper causes the miss-detection of the Multi-feed sensor.	
	2. The sensor is dirty. - The surface of the Multi-feed LED or photo-conductor is dirty with paper dust or so.	Cleaning: The Multi-feed LED on the LDxxx Assembly and the photo-conductor on the PSxxx Assembly.	
	3. The disconnection of Connectors.	J/P791, J/P350, J/P353, J/P354	
	4. Sensor fault.	Replace: LDxxx Assembly PSxxx Assembly	
	5. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214

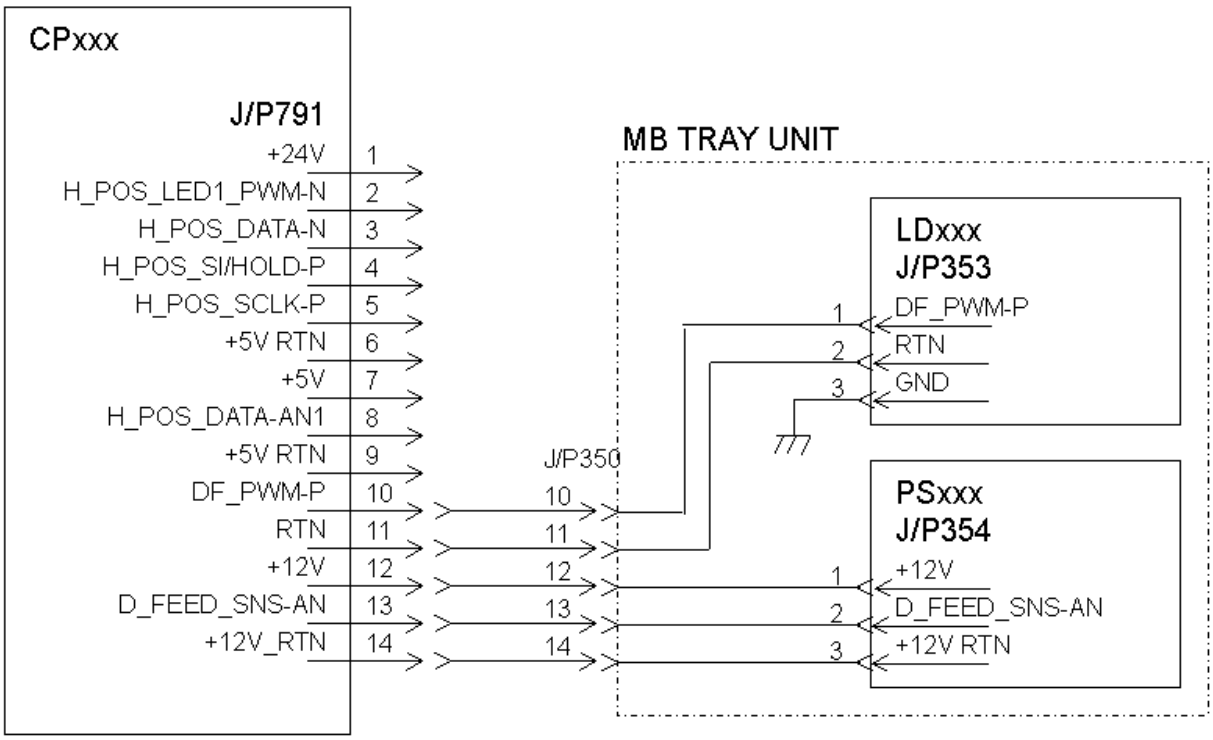


Figure 5-15. Error Code E157, E158, E159, E15A, E15B, E15C, E15D, E15E

5.3.52. E180 PICK JAM 1 (HOPPER 1)
E183 PICK JAM 2 (HOPPER 1)
E184 PICK JAM 3 (HOPPER 2)
E187 PICK JAM 4 (HOPPER 2)
E188 PICK JAM 5 (HOPPER 3)
E18D PICK JAM 6 (HOPPER 3)
E18C PICK JAM 7 (MB TRAY)
E190 PICK JAM 8 (HIGH CAPACITY HOPPER)
E192 PICK JAM 9 (HIGH CAPACITY HOPPER)
E194 PICK JAM 10 (DUPLEX)

PRIMARY FACTOR;	E180: Paper traveling time from Hopper 1 to IS Feed Sensor 1 is too long. E183: Paper traveling time from Hopper 1 to IS Feed Sensor 1 is too short. E184: Paper traveling time from Hopper 2 to IS Feed Sensor 2 is too long. E187: Paper traveling time from Hopper 2 to IS Feed Sensor 2 is too short. E188: Paper traveling time from Hopper 3 to IS Feed Sensor 3 is too long. E18D: Paper traveling time from Hopper 3 to IS Feed Sensor 3 is too short. E18C: Paper traveling time from MB Tray to Timing Sensor is too long. E190: Paper traveling time from High Capacity Hopper to HP5 Feed Sensor is too long. E192: Paper traveling time from High Capacity Hopper to HP5 Feed Sensor is too short. E194: Paper traveling time from Duplex Path to Timing Sensor is too long.
Precaution:	If the IS Cover is opened after E110 or E112 has occurred, the paper is automatically ejected from the printer. When checking the status of the remaining paper, open the IS Cover in the state that opened the Front Cover. This operation shuts down the +24V line and disables automatic paper ejection.

PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page
1. No paper is picked.	1. The Pick Roller is worn out or faulty.	Replace: Pick Roller	
	2. The Pick Roller does not operate. (1) The disconnecting of connectors.	Reset the connector. E180: J/P406, J/P434 E184: J/P406, J/P435 E188: J/P406, J/P436 E18C: J/P726, J/P330, J/P342 E190: J/P424, J/P440 E194: J/P727	
	(2) Pick Clutch fault.	Replace: HP1 Pick Clutch (L401) HP2 Pick Clutch (L402) HP3 Pick Clutch (L403) MB Pick Clutch (L301) HP5 Pick Clutch (L421)	7.1.4.3. (7), 7-185 7.1.4.3. (7), 7-185 7.1.4.3. (7), 7-185 7.1.3.2. (7), 7-78 7.2.23, 7-268
	(3) Motor fault.	Replace: Hopper Feed Motor (M401) Timing Motor (M302) Return Motor (M305) HP5 Feed Motor (M421)	7.1.4.3. (11), 7-189 7.1.3.11, 7-152 7.1.3.12, 7-153 7.2.15, 7-246
	(4) Gear engagement fault.	Adjust: Gear engagement	

PRIMARY FACTOR;	E180: Paper traveling time from Hopper 1 to IS Feed Sensor 1 is too long. E183: Paper traveling time from Hopper 1 to IS Feed Sensor 1 is too short. E184: Paper traveling time from Hopper 2 to IS Feed Sensor 2 is too long. E187: Paper traveling time from Hopper 2 to IS Feed Sensor 2 is too short. E188: Paper traveling time from Hopper 3 to IS Feed Sensor 3 is too long. E18D: Paper traveling time from Hopper 3 to IS Feed Sensor 3 is too short. E18C: Paper traveling time from MB Tray to Timing Sensor is too long. E190: Paper traveling time from High Capacity Hopper to HP5 Feed Sensor is too long. E192: Paper traveling time from High Capacity Hopper to HP5 Feed Sensor is too short. E194: Paper traveling time from Duplex Path to Timing Sensor is too long.		
Precaution:	If the IS Cover is opened after E110 or E112 has occurred, the paper is automatically ejected from the printer. When checking the status of the remaining paper, open the IS Cover in the state that opened the Front Cover. This operation shuts down the +24V line and disables automatic paper ejection.		
1. **Continued** No paper is picked.	3. Inclination of the Hopper Table. (Defective levels)	Adjust: Table levels	
	4. Separator fault. (1)Separator Assembly mounting fault. (2)Separator Roller fault. (3)Separator Assembly fault.	Reset: Separator Assembly Replace: Separator Roller High Capacity Hopper Separator Roller Replace: Separator Assembly High Capacity Hopper Separator Assembly	 7.1.3.2. (3), 7-73 7.1.4.3. (4), 7-182 7.2.4, 7-235 7.1.4.3. (3), 7-181 7.2.3, 7-234
	5. Paper fault.	Replace: Paper	
2. The paper does not reach the paper path or is not transferred on the paper path.	1. The Guide Plate is dislocated.	Reset the Guide Plate correctly.	
	2. Foreign substances are mixed in the paper path.	Remove: Foreign substance	
	3. The transfer force of the Pick Roller or the Separator Roller is insufficient.	Replace: Pick Roller High Capacity Hopper Pick Roller Separator Roller High Capacity Hopper Separator Roller	7.1.3.2. (2), 7-72 7.1.4.3. (2), 7-180 7.2.2, 7-233 7.1.3.2. (3), 7-73 7.1.4.3. (4), 7-182 7.2.4, 7-235
	4. The transfer force of the Duplex Path Unit Roller is insufficient.	Replace: Return Roller 3 Return Motor (M305)	7.1.3.6. (5), 7-136 7.1.3.12, 7-153
	5. Pick Clutch fault.	Replace: HP1 Pick Clutch (L401) HP2 Pick Clutch (L402) HP3 Pick Clutch (L403) MB Pick Clutch (L301) HP5 Pick Clutch (L421)	7.1.4.3. (7), 7-185 7.1.4.3. (7), 7-185 7.1.4.3. (7), 7-185 7.1.3.2. (7), 7-78 7.2.23, 7-268

PRIMARY FACTOR;	E180: Paper traveling time from Hopper 1 to IS Feed Sensor 1 is too long. E183: Paper traveling time from Hopper 1 to IS Feed Sensor 1 is too short. E184: Paper traveling time from Hopper 2 to IS Feed Sensor 2 is too long. E187: Paper traveling time from Hopper 2 to IS Feed Sensor 2 is too short. E188: Paper traveling time from Hopper 3 to IS Feed Sensor 3 is too long. E18D: Paper traveling time from Hopper 3 to IS Feed Sensor 3 is too short. E18C: Paper traveling time from MB Tray to Timing Sensor is too long. E190: Paper traveling time from High Capacity Hopper to HP5 Feed Sensor is too long. E192: Paper traveling time from High Capacity Hopper to HP5 Feed Sensor is too short. E194: Paper traveling time from Duplex Path to Timing Sensor is too long.		
Precaution:	If the IS Cover is opened after E110 or E112 has occurred, the paper is automatically ejected from the printer. When checking the status of the remaining paper, open the IS Cover in the state that opened the Front Cover. This operation shuts down the +24V line and disables automatic paper ejection.		
3. The Pick Jam Sensor detects the paper jam though a paper jam does not occur.	1. The breaking of cables or the disconnecting of connector.	Repair the cable or reset the connector in the correct position. E180: J/P404-S401 E184: J/P404-S402 E188: J/P404-S403 E18C: J/P711-S303 E190: J/P423-S422 E194: J/P711-S303	
	2. The surface of the Pick Jam Sensor is contaminated.	Cleaning: Pick Jam Sensor	
	3. Sensor fault. Check points: Check if the paper on paper path error occurs on initialization after masking of the sensor window. Error codes when the sensors are normal. Sensor Name-Error Code Pick Jam Sensor1-E050 Pick Jam Sensor2-E051 Pick Jam Sensor3-E052 IS Feed Sensor1-E050 IS Feed Sensor2-E051 IS Feed Sensor3-E052 Feed Sensor of High Capacity Hopper-E072 Timing Sensor-E056	Replace: Pick Sensor 1 (S435) Pick Sensor 2 (S435) Pick Sensor 3 (S435) IS Feed Sensor 1 (S401) IS Feed Sensor 2 (S402) IS Feed Sensor 3 (S403) HP5 Feed Sensor (S422) Timing Sensor (S303)	7.1.4.3. (18), 7-196 7.1.4.3. (18), 7-196 7.1.4.3. (18), 7-196 7.1.4.3. (20), 7-198 7.1.4.3. (20), 7-198 7.1.4.3. (20), 7-198 7.2.8, 7-239 7.1.3.3. (4), 7-95
	4. PCB fault.	Replace: CPxxx Assembly HPxxx Assembly AHxxx Assembly	7.1.5.1. (13), 7-214 7.1.4.3. (22), 7-200 7.2.10, 7-241

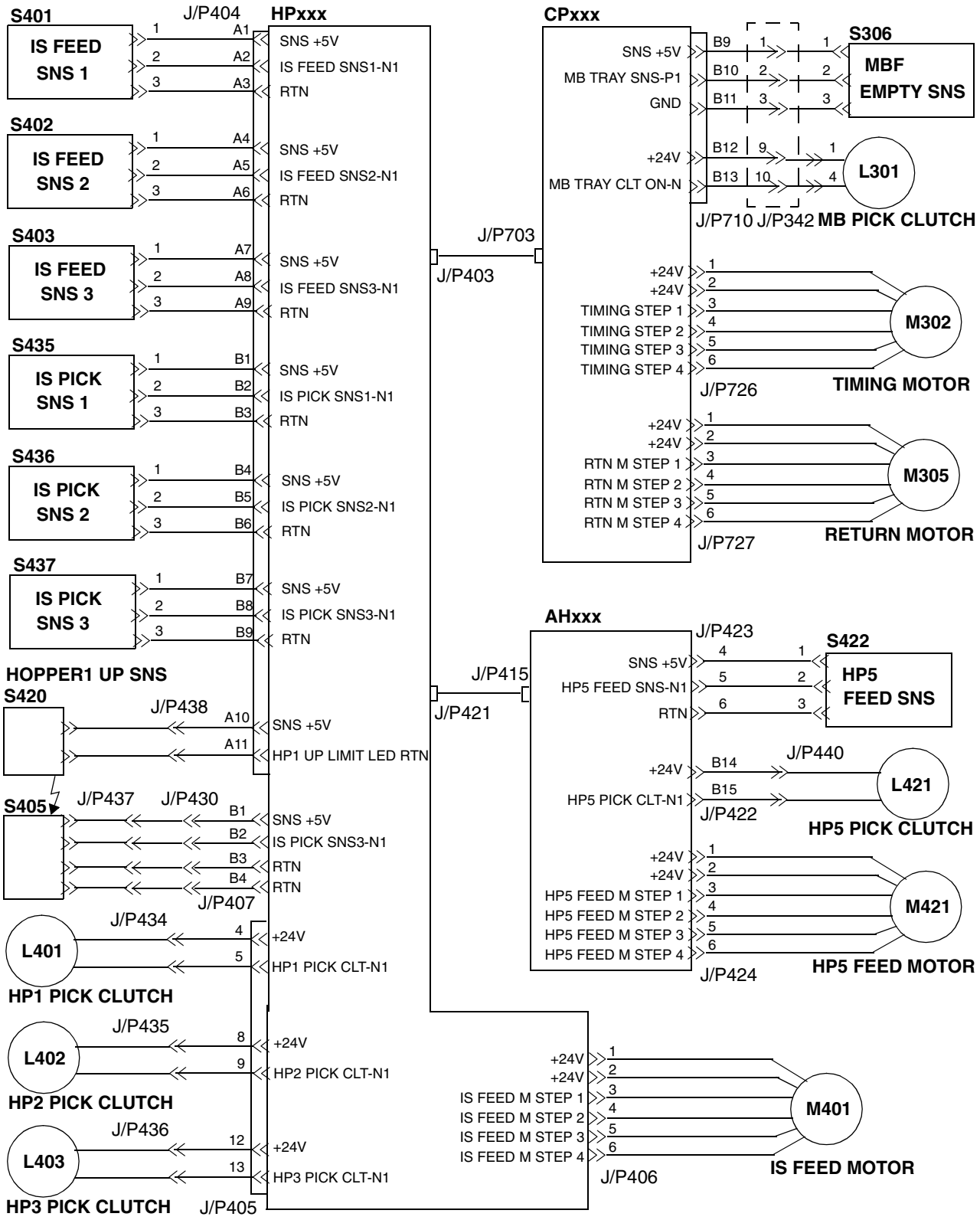


Figure 5-16. Error Code E180, E183, E184, E187, E188, E18D, E18C, E190, E192, & E194

5.3.53. E181 INPUT STATION FEED JAM 1
E182 INPUT STATION FEED JAM 2
E185 INPUT STATION FEED JAM 3
E186 INPUT STATION FEED JAM 4
E189 INPUT STATION FEED JAM 5
E18A INPUT STATION FEED JAM 6
E18B INPUT STATION FEED JAM 7
E191 INPUT STATION FEED JAM 8
E193 INPUT STATION FEED JAM 9

PRIMARY FACTOR;	E181: Paper did not depart from the IS Feed Sensor 1. E182: Paper traveling time from the IS Feed Sensor 1 to the IS Feed Sensor 2 is too long. E185: Paper did not depart from the IS Feed Sensor 2. E186: Paper traveling time from the IS Feed Sensor 2 to the IS Feed Sensor 3 is too long. E189: Paper did not depart from the IS Feed Sensor 3. E18A: Paper traveling time from the IS Feed Sensor 3 to the Timing Sensor is too long. E18B: Paper did not depart from the Timing Sensor. E191: Paper did not depart from the HP5 Feed Sensor. E193: Paper traveling time from the HP5 Feed Sensor to the IS Feed Sensor 1 is too long.
Precaution;	If the IS Cover is opened after E181 to E18B has occurred, the paper is automatically ejected from the printer. When checking the status of the remaining paper, open the IS Cover in the state that opened the Front Cover. This operation shuts down the +24V line and disables automatic paper ejection.

PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page
1. Paper jam occurs.	1. Paper is skewed.	Remove: Skewed paper	
	2. Paper fault. Check points: Check if the paper folded or warped.	Replace: Paper	
	3. Foreign substance is on the paper path.	Remove: Foreign substance	
	4. Paper Path fault. (1) IS Cover Unit is loosely mounted. (2) The Timing Belt is loose or faulty. (3) Rubber Roller Assembly is faulty. (4) Pressure Roller is faulty. (5) Registration Roller Assembly is faulty. (6) Timing Drive Roller Assembly is faulty. (7) Spring Holder is faulty.	Reset the IS Cover Replace: Timing Belt Replace: Rubber Roller Assembly Replace: Pressure Roller Assembly Replace: Registration Roller Assembly Replace: Timing Drive Roller Assembly Replace: Spring Holder	 7.1.4.3. (5), 7-183 7.1.4.3. (6), 7-184 7.1.4.3. (9), 7-187 7.1.3.3. (1), 7-89 7.1.3.3. (2), 7-91 7.1.3.3. (3), 7-93
	5. Paper Path fault. (High Capacity Hopper) (1) Pressure Roller Assembly is faulty. (2) Rubber Roller Assembly is faulty.	Replace: Pressure Roller Assembly Replace: Rubber Roller Assembly	7.2.6, 7-237 7.2.17, 7-249

PRIMARY FACTOR;	E181: Paper did not depart from the IS Feed Sensor 1. E182: Paper traveling time from the IS Feed Sensor 1 to the IS Feed Sensor 2 is too long. E185: Paper did not depart from the IS Feed Sensor 2. E186: Paper traveling time from the IS Feed Sensor 2 to the IS Feed Sensor 3 is too long. E189: Paper did not depart from the IS Feed Sensor 3. E18A: Paper traveling time from the IS Feed Sensor 3 to the Timing Sensor is too long. E18B: Paper did not depart from the Timing Sensor. E191: Paper did not depart from the HP5 Feed Sensor. E193: Paper traveling time from the HP5 Feed Sensor to the IS Feed Sensor 1 is too long.		
Precaution;	If the IS Cover is opened after E181 to E18B has occurred, the paper is automatically ejected from the printer. When checking the status of the remaining paper, open the IS Cover in the state that opened the Front Cover. This operation shuts down the +24V line and disables automatic paper ejection.		
1. **Continued**	6. Motor fault. (1) Hopper Feed Motor (M401) (2) Timing Motor (M302) (3) Return Motor (M305) (4) HP5 Feed Motor (M421)	Replace: Hopper Feed Motor (M401) Replace: Timing Motor (M302) Replace: Return Motor (M305) Replace: HP5 Feed Motor (M421)	7.1.4.3. (11), 7-189 7.1.3.11, 7-152 7.1.3.12, 7-153 7.2.15, 7-246
	7. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
2. Paper jam is detected though jam does not occur.	1. The sensor is contaminated.	Cleaning: Sensors	
	2. The breaking of cables or the disconnecting of connector.	Repair the cable or reset the connector in the correct position. E181: P404-S401 E182: P404-S401 or P404-S402 E185: P404-S402 E186: P404-S402 or P404-S403 E189: P404-S403 E18A: P404-S403 or P711-S303 E18B: P711-S303 E191: P423-S422 E193: P423-S422 or P404-S401	
	3. Senor fault. Check points: Check if the paper on paper path error occurs on initialization after masking of the sensor window. The following error code is displayed when the sensors are normal. E050 (IS Feed Sensor 1) E051 (IS Feed Sensor 2) E052 (IS Feed Sensor 3) E056 (Timing Sensor) E072 (HP5 Feed Sensor)	Replace: IS Feed Sensor 1 Replace: IS Feed Sensor 2 Replace: IS Feed Sensor 3 Replace: Timing Sensor Replace: HP5 Feed Sensor	7.1.4.3. (20), 7-198 7.1.4.3. (20), 7-198 7.1.4.3. (20), 7-198 7.1.3.3. (4), 7-95 7.2.8, 7-239
	4. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
Refer to Figure 5-14 on page 5-52 and Figure 5-16 on page 5-78.			

5.3.54. E195 IS FEED JAM 10

PRIMARY FACTOR;	The paper did not get to the IS 1 path from the Center path 6 in the specified time.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. Paper jam occurs.	1. Paper is skewed.	Remove skewed paper.	
	2. Foreign substance is on the Paper Path.	Remove foreign substance.	
	3. Roller friction or insufficient pressure force of the Idler Roller.	Replace: Drive Roller or Rubber Roller.	7.3.18, 7-306 7.3.19, 7-307
	4. The motor step out due to overloading.	Check the load of the Relay Unit Feed Motor 4 (M354) and Hopper Feed Motor (M401).	
	5. Motor fault.	Replace: Relay Unit Feed Motor 4 or Hopper Feed Motor.	7.3.5, 7-291 7.1.4.3. (11), 7-189
	6. PCB fault.	Replace: CPxxx Assembly or CPxxx Assembly.	7.3.12, 7-300 7.1.5.1. (13), 7-214
	7. Relay Unit is not exactly connected with Front Engine.	Check connection of Front Engine and Relay Unit.	
2. The IS Feed Sensor 1 detected the jam though a jam does not occur.	1. The IS Feed Sensor 1 is contaminated.	Clean the IS Feed Sensor 1.	
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable S401-P404(HP093) or reset the connector in the correct position.	
	3. Sensor fault. Check if the paper on the paper path error occurs on initialization after masking of the sensor window. Error code E050 when the sensor is normal.	Replace: IS Feed Sensor 1.	7.1.4.3. (20), 7-198

5.3.55. E210 DRUM REV ERROR

PRIMARY FACTOR;	During the Activate operation, the Drum REV Sensor is not turned ON.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs because the Drum does not rotate normally.	1. The drive system for the Drum Unit is faulty. (1) The Timing Belt is loose. (2) The Timing Belt is worn out.	Reset the Timing Belt correctly. Replace: Timing Belt	 7.1.2.5. (6), 7-52
	2. Motor fault.	Replace: Drum Motor (M701)	7.1.2.5. (7), 7-53
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable P728-M701 or reset the connector in the correct position.	
	4. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
2. This phenomenon occurs though the Drum rotates.	1. The sensor is contaminated. Check if the sensor is contaminated.	Cleaning: Drum REV Sensor (S701) and its environs.	
	2. The mounting sensor is faulty.	Reset the sensor (S701).	
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable P713-S701 or reset the connector in the correct position.	
	4. Sensor fault.	Replace: Drum REV Sensor (S701)	7.1.2.5. (3), 7-49
	5. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214

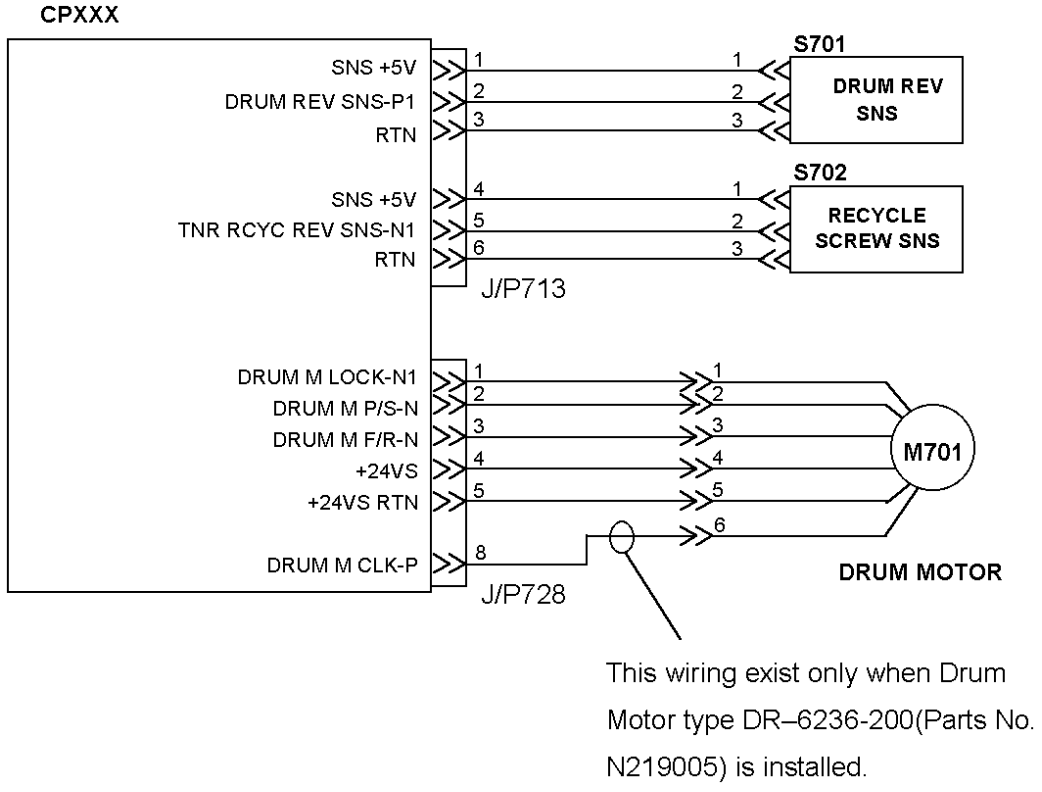


Figure 5-17. Error Code E210

5.3.56. E218 DRUM MOTOR TIME OUT

PRIMARY FACTOR;	During the Activate operation, the Drum Lock Signal is detected.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs because the drum does not rotate normally.	1. Drum Unit fault.	Replace: Drum Unit	7.1.2.1. (1), 7-4
	2. Motor fault.	Replace: Drum Motor (M701)	7.1.2.5. (7), 7-53
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable P728-M701 or reset the connector in the correct position.	
	4. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
	5. Setting of the DIP SW on CP P/K is faulty.	Set the DIP SW correctly.	3.13, 3-38
	6. Improper use of CPxxx Assembly (Non RoHS machine)	Replace: CPxxx Assembly (Front : G1528078) (Rear : G1528079)	7.1.5.1. (13), 7-214
	7. Old ROM version of CPxxx Assembly	Upgrade: Engine firmware G1521232A Ver. B or higher	
2. This phenomenon occurs though the drum rotates.	1. Motor fault.	Replace: Drum Motor (M701).	7.1.2.5. (7), 7-53
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable P728-M701 or reset the connector in the correct position.	
	3. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
Refer to Figure 5-17.			

5.3.57. E219 CENTER P/K CPU ERROR

PRIMARY FACTOR;	The CP2 P/K CPU has an error in the rear engine or in the relay unit.		
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 J745-P372(Rear Engine) or J745-J372(Relay Unit) or reset the connector in the correct position.	
	2. PCB fault.	Replace: CPxxx Assembly of the rear engine or that of the relay unit.	7.1.5.1. (13), 7-214 7.3.12, 7-300
Refer to Figure 5-24.			

5.3.58. E21A CENTER P/K INCORRECT COMMAND
E21B CENTER P/K ACT TIMEOUT
E21C CENTER P/K DORMANT TIMEOUT
E21D CENTER P/K BUSY TIMEOUT
E21E CENTER P/K PRINT TIMEOUT

PRIMARY FACTOR;	E21A: The command data was not issued to the CP P/K of the relay unit on the valid condition. E21B: The CP P/K of the relay unit dormant signal has been on over the specified time. E21C: The CP P/K of the relay unit dormant signal has been off over the specified time. E21D: The CP P/K of the relay unit busy signal has been on over the specified time. E21E: The CP P/K of the relay print signal has been on over the specified time.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs. (E21A)	1. CPxxx of the relay unit program.	Check: CPxxx of the relay unit program.	
	2. CPxxx of the Rear engine program fault.	Check: CPxxx of the rear engine program.	
	3. Cable fault. Check the cable between the CPxxx assembly of the Relay Unit and CPxxx assembly of the rear engine.	Replace: If the cable is damaged, replace it.	Figure 3-25, 3-63
2. This phenomenon occurs. (E21B, E21C, E21D, E21E)	1. CPxxx of the Rear engine program fault.	Check: CPxxx of the rear engine program.	
	2. Cable fault. Check the cable between the CPxxx assembly of the Relay Unit and CPxxx assembly of the rear engine.	Replace: If the cable is damaged, replace it.	Figure 3-25, 3-63
Refer to Figure 5-24.			

5.3.59. E21F CENTER P/K ST EXIT SIGNAL ERROR

PRIMARY FACTOR;	The exit signal of the CP2 P/K has been on over the specified time.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs continually even after Reset Switch is pressed.	1. Cable fault. Check the cable between the CP assembly of the relay unit and CPxxx assembly of the rear engine.	Replace: If the cable is damaged, replace it.	Figure 3-25, 3-63
	2. CPxxx assembly fault	Replace: CPxxx assembly of the front engine or the rear engine.	7.1.5.1. (13), 7-214
2. This phenomenon is eliminated by pressing the Reset Switch.	1. Noise check.	Change the cable or Change the cable route.	
Refer to Figure 5-24.			

5.3.60. E224 DEV BIAS VOLT

PRIMARY FACTOR;	An error occurs in the DEV Bias high voltage power supply.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. DEV. BIAS VOLT leak to the Drum surface.	Cleaning: Developer Unit	4.4.10, 4-26
	2. High-voltage supply control system error.	Replace: High Voltage Power Supply (1) Replace: CPxxx Assembly	7.1.5.1. (14), 7-215 7.1.5.1. (13), 7-214
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable P706-DEV BIAS or reset the connector in the correct position.	
	4. The Power Supply fault.	Replace: Power Supply.	7.1.5.1. (16), 7-217

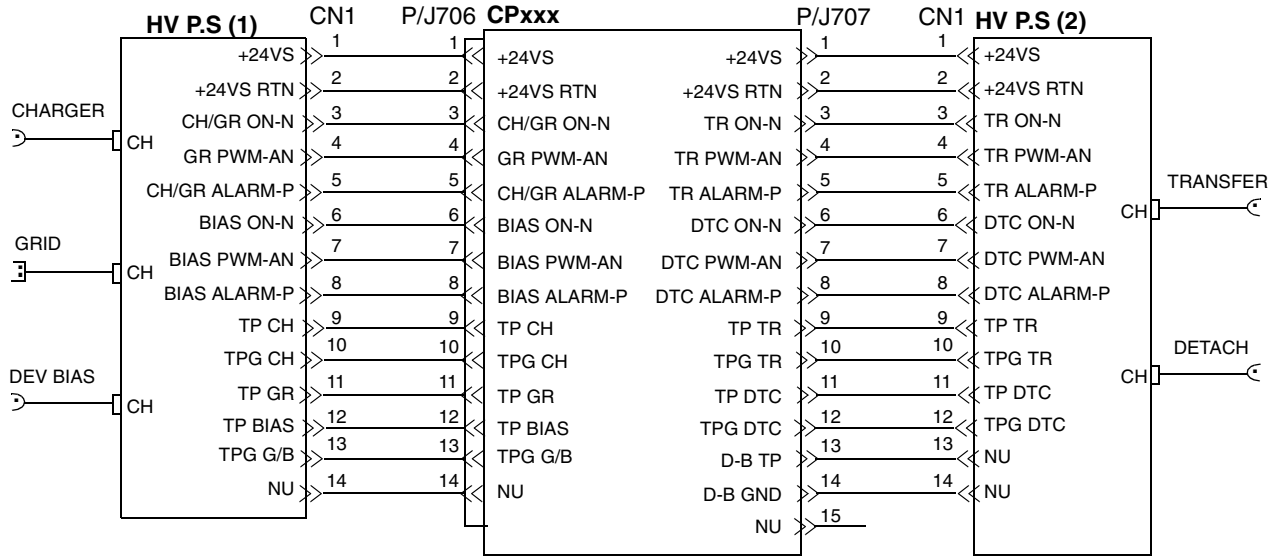


Figure 5-18. Error Code E224

5.3.61. E225 CHARGER/GRID VOLT

PRIMARY FACTOR;	An error occurs in the Charger/Grid high voltage power supply.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. The mounting of the Charger Unit is faulty.	Reset the Charger Unit correctly.	7.1.2.2. (1), 7-6
	2. Charger Unit fault. (1) The wire is contaminated. (2) The grid or corotron wire is damaged, deformed, or loose.	Replace: Charger Unit Replace: Charger Wire Replace: Charger Grid	7.1.2.2. (1), 7-6 7.1.2.2. (3), 7-8 7.1.2.2. (2), 7-7
	3. High-voltage supply control system error.	Replace: High Voltage Power Supply (1) Replace: CPxxx Assembly	7.1.5.1. (14), 7-215 7.1.5.1. (13), 7-214
	4. The breaking of cables.	Repair the cable P706-Charger/Grid or reset the connector in the correct position.	
	5. The Power Supply fault.	Replace: Power Supply.	7.1.5.1. (16), 7-217
Refer to Figure 5-18.			

5.3.62. E226 TRANSFER VOLT

PRIMARY FACTOR;	An error occurs in the Transfer high voltage power supply.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. The mounting of the Transfer Unit is faulty.	Reset the Corotron Assembly correctly.	7.1.3.4. (11), 7-112
	2. Transfer Unit fault. (1) The wire is contaminated. (2) The corotron wire is damaged, deformed, or loose.	Replace: Corotron Assembly	7.1.3.4. (11), 7-112
	3. High-voltage supply control system error.	Replace: High Voltage Power Supply (2) Replace: CPxxx Assembly	7.1.5.1. (15), 7-216 7.1.5.1. (13), 7-214
	4. The breaking of cables.	Repair the cable P707-Transfer or reset the connector in the correct position.	
	5. TH Unit fault.	Replace: TH Unit	7.1.3.4. (1), 7-102
	6. The Power Supply fault.	Replace: Power Supply.	7.1.5.1. (16), 7-217
Refer to Figure 5-18.			

5.3.63. E227 DETACH VOLT

PRIMARY FACTOR;	An error occurs in the Detach high voltage power supply.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. The mounting of the Corotron Assembly is faulty.	Reset the Corotron Assembly correctly.	7.1.3.4. (13), 7-114
	2. Corotron Assembly fault. (1) The wire is contaminated. (2) Corotron wire is damaged, deformed, or loose.	Replace: Corotron Assembly	7.1.3.4. (13), 7-114
	3. High-voltage power supply control system error.	Replace: High Voltage Power Supply (2) Replace: CPxxx Assembly	7.1.5.1. (15), 7-216 7.1.5.1. (13), 7-214
	4. The breaking of cables.	Repair the cable P707-Detach or reset the connector in the correct position.	
	5. The Power Supply fault.	Replace: Power Supply.	7.1.5.1. (16), 7-217
Refer to Figure 5-18.			

5.3.64. E228 MAGROLL REV. ERROR 1

PRIMARY FACTOR;	The Developer Motor does not rotate.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. The Magnet Roll is rotating.	1. Overload (1) When the Developer Unit is removed, the Magnet Roll overloads so it cannot rotate.	Replace: Developer Unit Check: Gear	7.1.2.3. (1), 7-10
	2. Motor fault. (1) When the Developer Unit is removed, the Magnet Roll overloads so it cannot rotate.	Replace: Dev. Motor Assembly (M321)	7.1.2.3. (3), 7-13
	3. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
	4. The breaking of cables or the disconnecting of connectors.	Repair the cable P719-S313 or reset the connector in the correct position.	
	5. Sensor fault.	Replace: MG Sensor (S313)	7.1.2.5. (4), 7-50
	6. The sensor is contaminated.	Cleaning: MG Sensor (S313)	
	7. Both ends of the MG Roll are dirty.	Cleaning: Both ends of the MG Roll.	
2. The Magnet Roll does not rotate.	1. Overload (1) When the Magnet Roll of the Developer Unit is locked. (2) The gear is damaged or locked.	Replace: Developer Unit Check: Gear	7.1.2.3. (1), 7-10
	2. Motor fault.	Replace: Dev. Motor Assembly (M321)	7.1.2.3. (3), 7-13
	3. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
	4. The breaking of cables or the disconnecting of connectors.	Repair the cable P720-M321 or reset the connector in the correct position. Check: Deformation of the terminal on the Drawer Connector.	

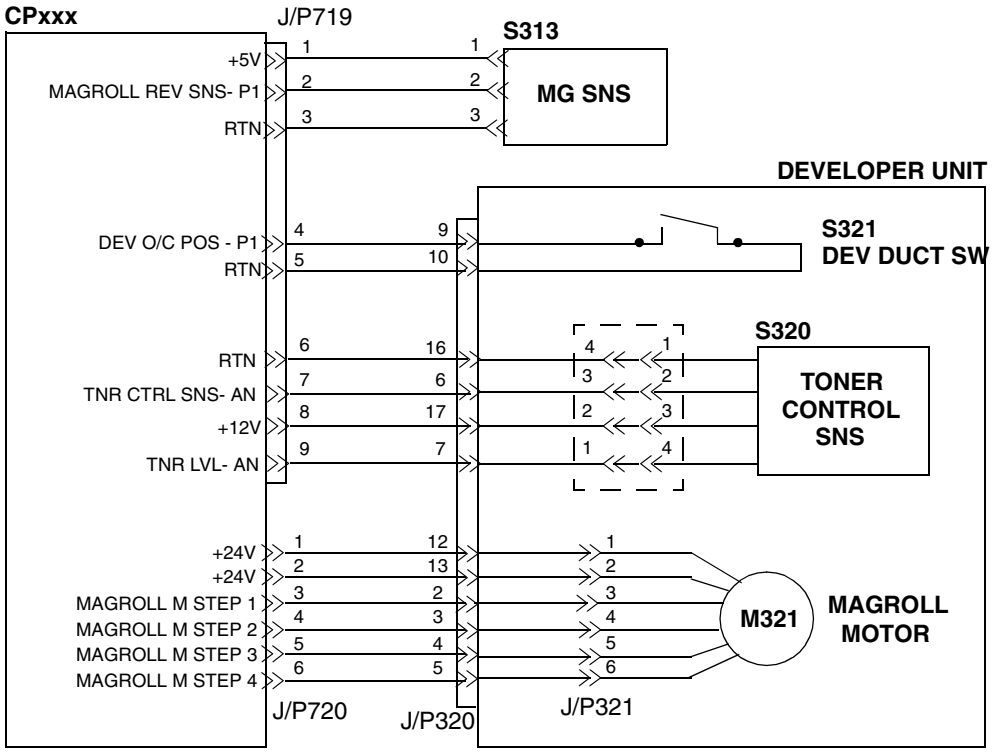


Figure 5-19. Error Code E228

5.3.65. E229 MAGROLL REV. ERROR 2

PRIMARY FACTOR;	Abnormality is detected at the Toner Control Sensor.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. Toner Control fault.	Check: Developer Unit	
	2. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable P719-S320 or reset the connector in the correct position.	
	4. Toner Control Sensor fault.	Replace: Developer Unit	7.1.2.3. (1), 7-10
Refer to Figure 5-19.			

5.3.66. E22A OVER TONER

PRIMARY FACTOR;	The toner concentration in abnormally high.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. The printing density is higher than that of the print sample before the OVER TONER occurs.	1. A large quantity of toner is contained in the Developer Unit.	Replace: Developer mix.	3.2.2. (2), 3-5
	2. Developer mix fault. (1) When the Developer mix is replaced, check whether some of the new Developer mix remains in the bottle. (2) Toner is accumulated near the outlet of the Developer Unit. (3) The value of the Developer mix is less than the standard value.	Replace: Developer mix Replace: Developer Unit Replace: Developer mix	3.2.2. (2), 3-5 7.1.2.3. (1), 7-10 3.2.2. (2), 3-5
	3. Control fault. Toner feed control is out of order.	Check: Cable Replace: CPxxx Assembly Replace: Developer Unit	 7.1.5.1. (13), 7-214 7.1.2.3. (1), 7-10
2. Although the density remains unchanged, the OVER TONER occurs.	1. Control fault. (1) The breaking of cables or disconnecting of connectors. (2) PCB fault. (3) The Toner Sensor in the Developer Unit is out of order.	Reset: Developer Unit Repair the cable P720-P320 or reset the connector in the correct position. Replace: CPxxx Assembly Replace: Developer Unit	 7.1.5.1. (13), 7-214 7.1.2.3. (1), 7-10
Refer to Figure 5-19.			

5.3.67. E22B LACK TONER

PRIMARY FACTOR;	The toner concentration in abnormally low.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. The print density is lower than that before the status LACK TONER occurs.	1. Toner Sensor fault. The toner empty status cannot be detected.	Replace: Toner Hopper Unit Repair the cable P710-P328 or reset the connector in the correct position.	7.1.2.4. (1), 7-36
	2. Toner Feed Motor fault. (1) The breaking of cables. (2) The disconnecting of connector. (3) Toner Feed Motor fault. (4) PCB fault.	Replace: Toner Hopper Unit Reset the connector in the correct position. Replace: Toner Feed Motor Replace CPxxx Assembly	7.1.2.4. (1), 7-36 7.1.2.4. (2), 7-38 7.1.5.1. (13), 7-214
2. The print density is not lower than that before the status LACK TONER occurs.	1. Toner Control Sensor fault.	Replace: Developer Unit	7.1.2.3. (1), 7-10
	2. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
Refer to Figure 5-3 on page 5-24 and Figure 5-19 on page 5-89.			

5.3.68. E22F TONER FEED MOTOR EMERGENCY

PRIMARY FACTOR;	The Toner Feed Motor locked.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs because the Toner Feed Motor does not rotate normally.	1. Motor fault.	Replace: Toner Feed Motor (M322)	7.1.2.4. (2), 7-38
	2. The breaking of cables.	Repair the cable P710-P328 or reset the connector in the correct position. Replace: Toner Feed Motor	7.1.2.4. (2), 7-38
	3. PCB fault.	Replace CPxxx Assembly	7.1.5.1. (13), 7-214
	4. The toner is overloaded in the Toner Hopper.	Put out the toner.	
2. This phenomenon occurs though the Toner Feed Motor rotates.	1. The breaking of cables.	Repair the cable P710-P328 or reset the connector in the correct position. Replace: Toner Hopper Unit	7.1.2.4. (1), 7-36
	2. Motor fault.	Replace: Toner Feed Motor (M322)	7.1.2.4. (2), 7-38
	3. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
Refer to Figure 5-3 on page 5-24.			

5.3.69. E231 TONER SCREW REVOLUTION ERROR

PRIMARY FACTOR;	The toner screw does not operate normally. **NOTE:** The Drum Motor drives the toner screw.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs because the Drum Motor does not rotate normally.	1. The toner is overloaded in the Recycle tube.	Cleaning: Recycle tube	
	2. Motor fault.	Replace: Drum Motor (M701)	7.1.2.5. (7), 7-53
	3. The breaking of cables.	Repair the cable P713-S702 or reset the connector in the correct position.	
	4. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
2. This phenomenon occurs though the Drum Motor rotates.	1. The sensor is contaminated. Check if the Sensor is contaminated, etc.	Cleaning: Recycle Sensor(S702) and its environs.	
	2. The mounting of the sensor is faulty.	Reset the sensor in the correct position.	
	3. The breaking of cables.	Repair the cable P713-S702 or reset the connector in the correct position.	
	4. Sensor fault.	Replace: Recycle REV Sensor (S702)	7.1.2.6. (4), 7-65
	5. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
	6. Coming apart of the Recycle Path Assembly structure.	Replace: Recycle Path Assembly	7.1.2.6. (1), 7-60
Refer to Figure 5-17.			

5.3.70. E233 TR CLEANER ERROR

PRIMARY FACTOR;	TR Cleaner is not detected in time.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs because the TR Cleaner does not operate.	1. Corotron Assembly fault.	Replace: Corotron Assembly	7.1.3.4. (11), 7-112
	2. The breaking of cables.	Repair the cable P714-S309 or reset the connector in the correct position.	
	3. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
2. This phenomenon occurs though the TR Cleaner operates.	1. TR Cleaner Pos. Sensor fault.	Replace: Corotron Cleaner Position Sensor (S309)	7.1.3.4. (15), 7-117
	2. The mounting of the sensor is faulty.	Reset the sensor. (S309)	
	3. The breaking of cables.	Repair the cable P714-S309 or reset the connector in the correct position.	
	4. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214

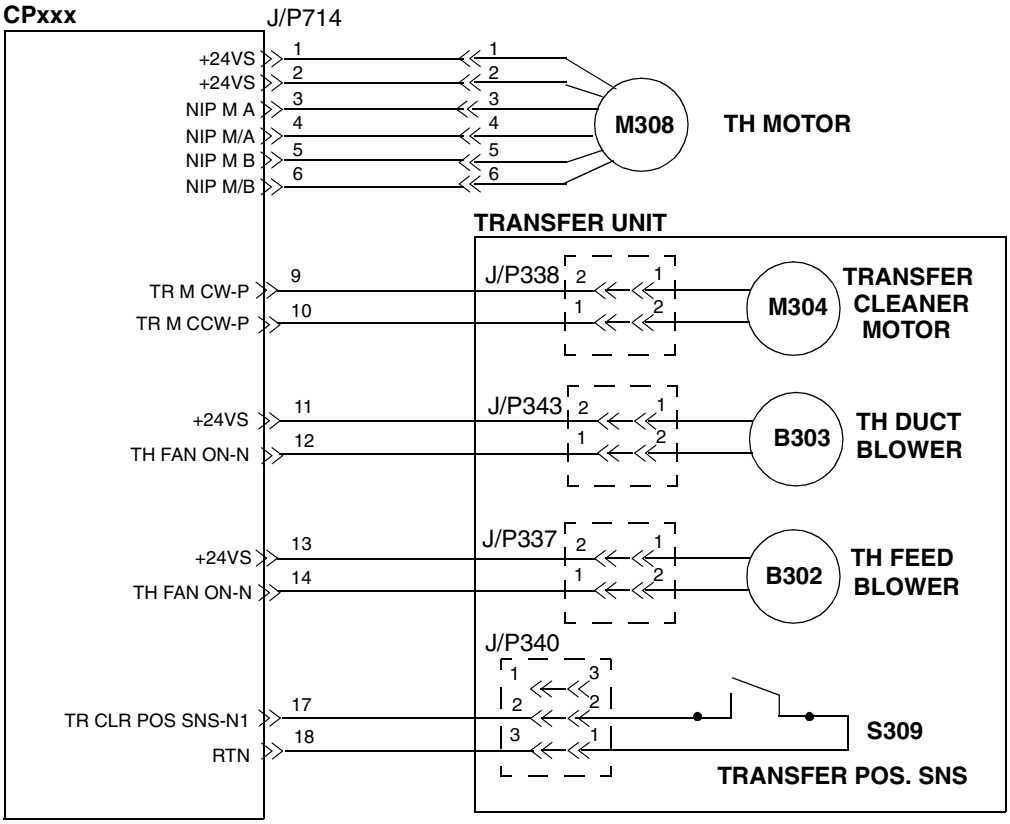


Figure 5-20. Error Code E233

5.3.71. E239 BD ERROR
E238 BD TIME OUT

PRIMARY FACTOR;	E238: The BD Signal is not detected in time. E239: The BD Signal interval is not detected in time.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. The breaking of cables or the disconnecting of connectors.	Repair the cables P114-P104, P111-P101, P113-P103 or reset the connector in the correct position.	
	2. Optical Unit fault. (1) PCB fault. (2) Optical Unit fault.	 Replace: OCxxx Assembly Replace: Optical Unit	 7.1.5.1. (17), 7-218 7.1.1, 7-1
	3. Sensor fault.	Replace: Optical Unit	7.1.1, 7-1
	4. Laser fault.	Replace: Optical Unit	7.1.1, 7-1
	5. Motor fault.	Replace: Optical Unit	7.1.1, 7-1
	6. CE fault.	Check: CE	
	7. Noise check		
	8. TH Unit broken.	Check:Bearing Stopper position or TH Unit Frame is broken.	
	9. TH Drive Roller fault.	Replace: TH Unit Assembly	7.1.3.4. (1), 7-102
	10. The damage of TH Drive Roller bearing.	Replace: TH Unit Assembly	7.1.3.4. (1), 7-102

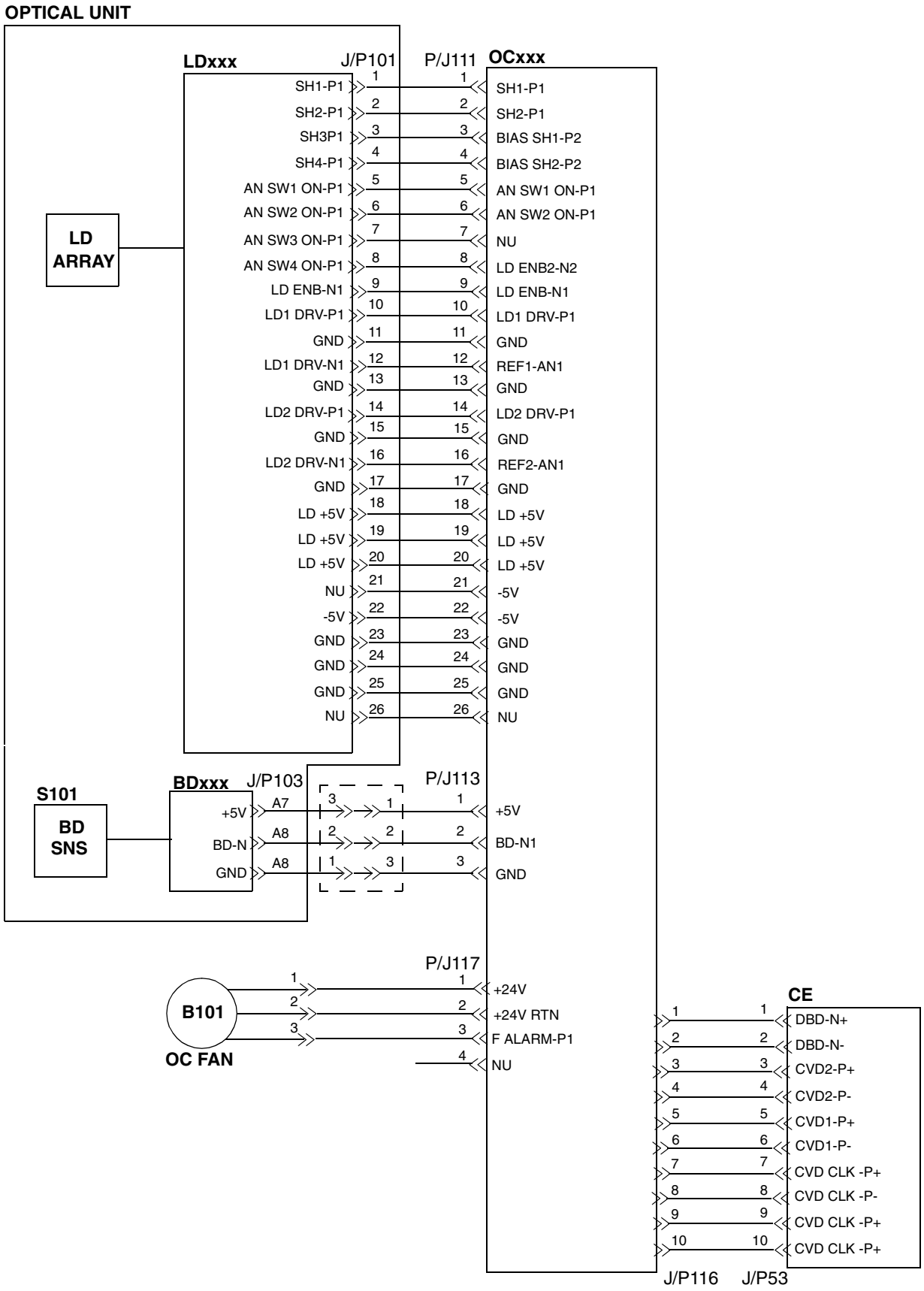


Figure 5-21. Error Code E238 & E239

5.3.72. E23C MIRROR MOTOR TIME OUT
E23E MIRROR MOTOR ALARM

PRIMARY FACTOR;	E23C: The Mirror Motor speed does not reach its specified speed. E23E: A rotation error of the Mirror Motor is detected.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. Mirror Motor fault.	Replace: Optical Unit	7.1.1, 7-1
	2. Optical unit fault.	Replace: Optical Unit	7.1.1, 7-1
	3. The breaking of cables or the disconnecting of connectors.	Repair the cables P104-P114, P118-P704, P112-P705, P115-P231 or reset the connector in the correct position.	
	4. PCB fault.	Replace: OCxxx Assembly CPxxx Assembly Optical Unit	7.1.5.1. (17), 7-218 7.1.5.1. (13), 7-214 7.1.1, 7-1

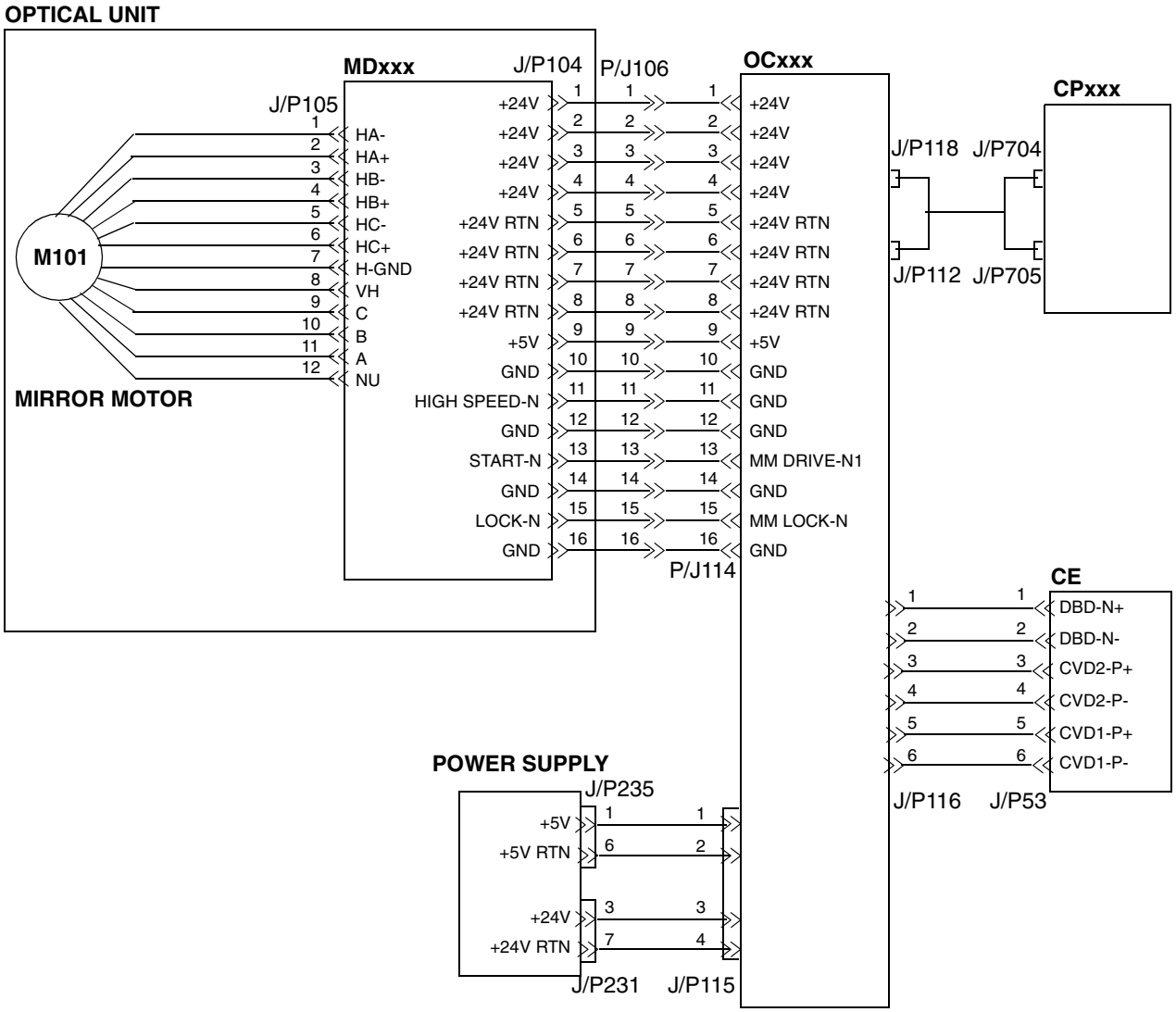


Figure 5-22. Error Codes E23C & E23E

5.3.73. E23F VIDEO OPEN 1
E240 VIDEO OPEN 2

PRIMARY FACTOR;	E23F: An error is found in the CVD 1 signal from the CE. E240: An error is found in the CVD 2 signal from the CE.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. No CVD signal is sent from the CE. (1) The breaking of the cable or the disconnecting of the connector. (2) CE fault.	Repair the cable P53-P116 or reset the connector in the correct position. Check: CE	
2. This phenomenon occurs though the CVD signal is sent from the CE.	1. PCB fault.	Replace: OCxxx Assembly CPxxx Assembly Optical Unit	7.1.5.1. (17), 7-218 7.1.5.1. (13), 7-214 7.1.1, 7-1
	2. Noise check.		
Refer to Figure 5-22.			

5.3.74. E241 VIDEO CLOCK OPEN 1
E242 VIDEO CLOCK OPEN 2

PRIMARY FACTOR;	E241: An error is detected that the CVD 1 Clock signal remains ON. E242: An error is detected that the CVD 2 Clock signal remains ON.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. No CVD Clock signal is sent from the CE. (1) The breaking of the cable or the disconnecting of the connector. (2) CE fault.	Repair the cable P741-P52 or reset the connector in the correct position. Check: CE	
2. This phenomenon occurs though the CVD Clock signal is sent from the CE.	1. PCB fault.	Replace: OCxxx Assembly CPxxx Assembly	7.1.5.1. (17), 7-218 7.1.5.1. (13), 7-214
	2. Noise check.		
	3. TH Drive Roller fault.	Replace: TH Unit Assembly	7.1.3.4. (1), 7-102
	4. The damage of TH Drive Roller bearing.	Replace: TH Unit Assembly	7.1.3.4. (1), 7-102
Refer to Figure 5-21.			

5.3.75. E243 VIDEO CLOCK 1 ERROR
E244 VIDEO CLOCK 2 ERROR

PRIMARY FACTOR;	E243: The CVD Clock 1 does not be detected. E244: The CVD Clock 2 does not be detected.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. CE fault.	Check: CE	
2. This phenomenon occurs though the CVD Clock signal is sent from the CE.	1. PCB fault.	Replace: OCxxx Assembly CPxxx Assembly	7.1.5.1. (17), 7-218 7.1.5.1. (13), 7-214
	2. Noise check.		
Refer to Figure 5-21.			

5.3.76. E250 CCD BUS ERROR

PRIMARY FACTOR;	The transfer error occurred in the DI P/K. (master CPU) in the rear engine		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. Developer Unit is not set correctly.	Set the Develop Unit correctly.	
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable J790-P320(Rear Engine) or J320-J358(DI PK) or reset the connector in the correct position.	
	3. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
	4. Developer Unit fault.	Replace: Developer Unit.	7.1.2.3. (1), 7-10

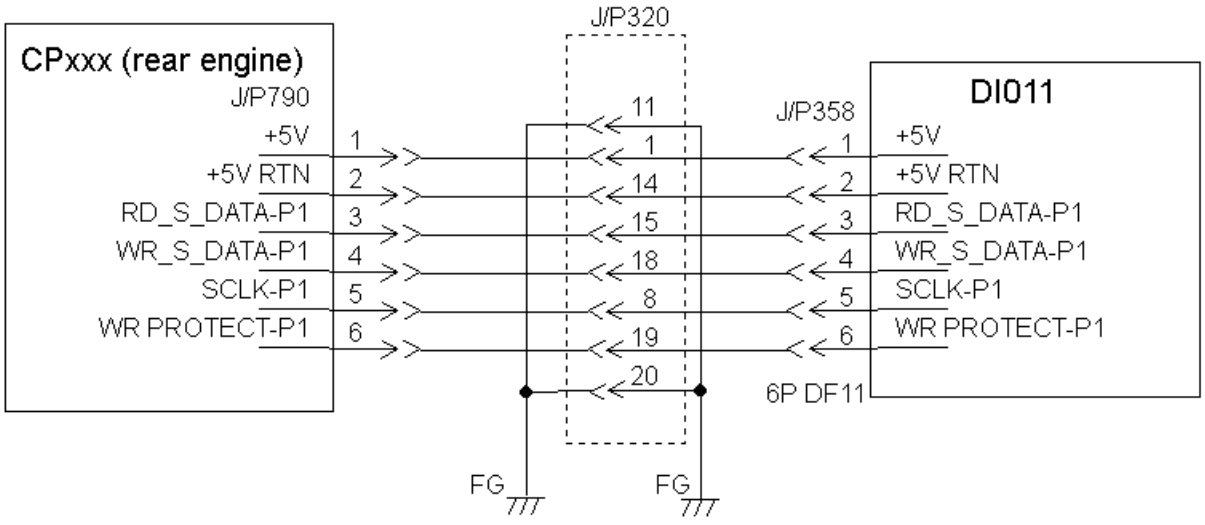


Figure 5-23. Error Code E250

5.3.77. E251 INCORRECT COMMAND

PRIMARY FACTOR;	E251: Detected that the CE issued a command on an undefined condition.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs continually.	1. CE fault.	Check: CE	
	2. Interface fault. Check the interface cable between the CE and PR.	Replace: If the cable is damaged, replace it, otherwise replace the CPxxx Assembly.	7.1.5.1. (13), 7-214
2. This phenomenon is eliminated by pressing the Reset Switch.	1. CE fault.	Check: CE	

5.3.78. E252 PICK COUNT OVER

PRIMARY FACTOR;	Detected that the number of pick commands before printing exceeded eight.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs continually.	1. CE fault.	Check: CE	
	2. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
2. This phenomenon is eliminated by pressing the Reset Switch.	1. CE fault.	Check: CE	
	2. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214

5.3.79. E253 INVALID CONFIGURATION

PRIMARY FACTOR;	A command relating to an unmounted option is received.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs continually.	1. An unmounted option is specified by the system.	Check: Program	
	2. CE fault.	Check: CE	
	3. PCB fault.	Check: CPxxx Assembly	7.1.5.1. (13), 7-214
2. This phenomenon is eliminated by pressing the Reset Switch.	1. CE fault.	Check: CE	
	2. PCB fault.	Check: CPxxx Assembly	7.1.5.1. (13), 7-214

5.3.80. E254 SLAVE CPU ERROR

PRIMARY FACTOR; Precaution:	Detected that the interface error between the MASTER CPU and the SLAVE CPU. The way of this error reset is power off.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
	2. Noise check.		

5.3.81. E256 OC BUS ERROR

PRIMARY FACTOR;	Detected that OC bus line gets out of control.		
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 P704, P705-P118, P112 or reset the connector in the correct position	
	2. PCB fault.	Replace: OCxxx Assembly CPxxx Assembly	7.1.5.1. (17), 7-218 7.1.5.1. (13), 7-214
Refer to Figure 5-21.			

5.3.82. E257, E258, E25C, E25D SIGNAL TRANS. ERROR 3 TO 6

PRIMARY FACTOR;	E257: Detected that the interface error between the SLAVE CPU and the HPxxx. E258: Detected that the interface error between the SLAVE CPU and the AHxxx. E25C: Detected that the interface error between the MASTER CPU and the HPxxx. E25D: Detected that the interface error between the MASTER CPU and the AHxxx.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. The breaking of cables or the disconnecting of connectors.	Repair the cables or reset the connector in the correct position. E257: J703-J403 E258: J703-J403, J415-J421 E25C: J703-J403 E25D: J703-J403, J415-J421	
	2. Setting of the DIP SW of Option Hopper is faulty.	Set the DIP SW correctly.	
	3. PCB fault.	Replace: E257: CPxxx Assembly, or HPxxx Assembly. E258: CPxxx Assembly, or HPxxx Assembly, or AHxxx Assembly. E25C: CPxxx Assembly, or HPxxx Assembly E25D: CPxxx Assembly, or HPxxx Assembly, or AHxxx Assembly.	7.1.5.1. (13), 7-214 7.1.4.3. (22), 7-200 7.1.5.1. (13), 7-214 7.1.4.3. (22), 7-200 7.2.10, 7-241 7.1.5.1. (13), 7-214 7.1.4.3. (22), 7-200 7.1.5.1. (13), 7-214 7.1.4.3. (22), 7-200 7.2.10, 7-241
Continued.	4. Noise check.		
Refer to Figure 5-2 on page 5-23			

5.3.83. E25A CENTER PATH PICK ERROR

PRIMARY FACTOR;	When there was no pick command, the paper was discharged from the 1st printer.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs continually even after Reset Switch is pressed.	1. Connector has separated. CPxxx assembly of the rear engine J745 or CPxxx assembly of the relay unit J745.	Correctly connect it. Check connector between the rear engine and the relay unit.	
	2. Cable fault. Check the cable between the CP assembly of the relay unit and CPxxx assembly of the rear engine.	Replace: If the cable is damaged, replace it.	
2. This phenomenon occurs during printing.	1. This error has the problem of data between the front engine and rear engine.		

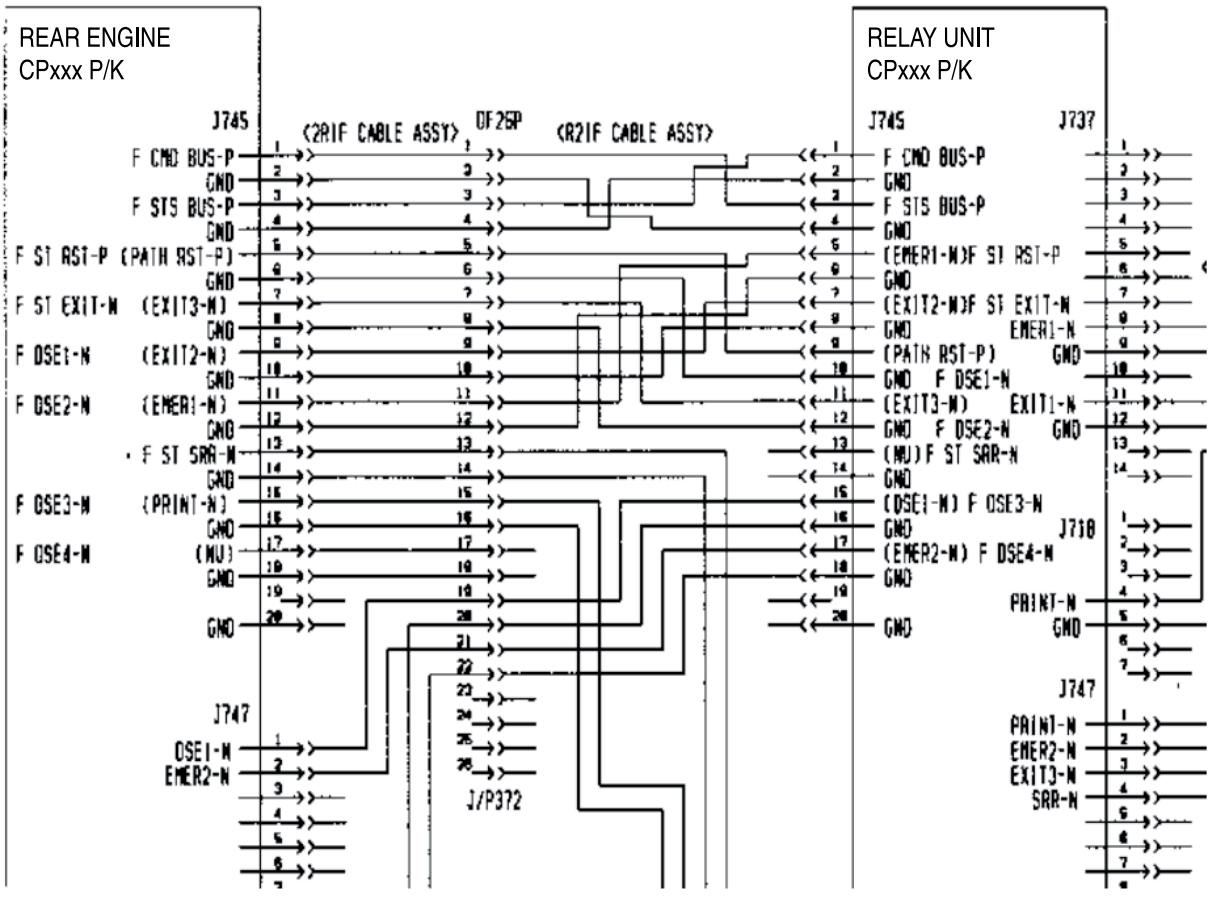


Figure 5-24. Error Code E219, E21A, E21B, E21C, E21D, E21E, E21F, E25A

5.3.84. E25B CPF/DTP ERROR

PRIMARY FACTOR;	The CPF Signal is left OFF.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. The CPF Signal is left OFF.	Check: CE Check: cable (J52-J741)	
	2. The CPF Signal has changed.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214

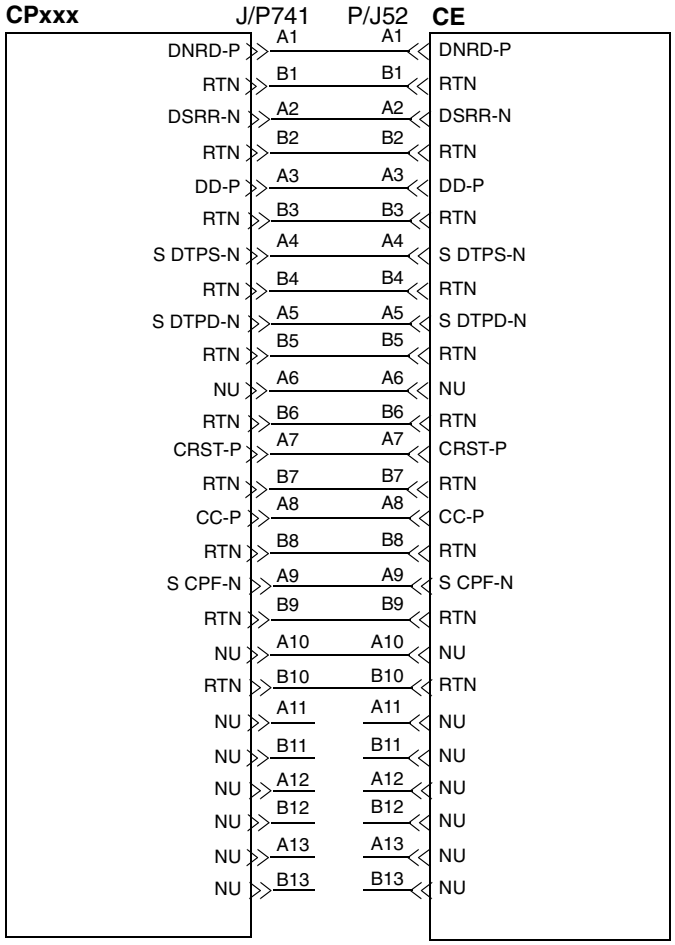


Figure 5-25. Error Code E25B

5.3.85. E25E LNB DT ERROR
E25F DLB DT ERROR

PRIMARY FACTOR;	E25E: An error occurs at LNB memory in the OC P/K. E25F: An error occurs at DLB memory in the OC P/K.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. PCB fault.	Replace: OCxxx Assembly CPxxx Assembly	7.1.5.1. (17), 7-218 7.1.5.1. (13), 7-214
	2. TH Drive Roller fault.	Replace: TH Unit Assembly	7.1.3.4. (1), 7-102
	3. The damage of TH Drive Roller bearing.	Replace: TH Unit Assembly	7.1.3.4. (1), 7-102
Refer to Figure 5-21.			

5.3.86. E270 HEATER LAMP OFF

PRIMARY FACTOR;	The heater lamp in the Fuser Unit does not light.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. Fuser Unit is incorrectly set.	Reset: Fuser Unit	
	2. Check the cable and connector.	Repair the connection or the cable. (P256-P531, P718-P531)	
	3. Fuser Unit fault. (1) The thermistor is faulty. (2) The Thermostat is blown out (3) The Heater Lamp is faulty.	Replace: Fuser Unit Replace: Fuser Unit Replace: Fuser Unit	7.1.3.1. (1), 7-68 7.1.3.1. (1), 7-68 7.1.3.1. (1), 7-68
	4. Control system fault.	Replace: CPxxx Assembly Replace: Fuser Unit Check: 200V power source	7.1.5.1. (13), 7-214 7.1.3.1. (1), 7-68 7.1.5.1. (16), 7-217
Refer to Figure 5-4.			

5.3.87. E271 THERMISTOR OFF

PRIMARY FACTOR;	Thermistor is blown out.		
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 P718-P531 or reset the connector in the correct position.	
	2. Thermistor fault.	Replace: Fuser Unit	7.1.3.1. (1), 7-68
	3. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
Refer to Figure 5-4.			

5.3.88. E272 HEATER OVER TEMP
E274 HEATER ON TIME OUT
E275 HEATER LOW TEMP

PRIMARY FACTOR;	E272: The Heat Roll is overheated.(210×C) E274: The temperature of the Heat Roll does not reach the specified 1 minute after. The heater - ON time out is too long. E275: The Heat Roll temperature is less than 160×C after in a heater ready condition. When a thermal error is detected, the 200V power source is turned off and the printing is stopped in emergency.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. Check the cable and connector.	Repair the connection or the cable. (P718-P531)	
	2. Fuser Unit fault. (1) The thermistor is faulty.	Replace: Fuser Unit	7.1.3.1. (1), 7-68
	3. Control system fault.	Replace: CPxxx Assembly Power Supply Check: 200V power source	7.1.5.1. (13), 7-214
Refer to Figure 5-4.			

5.3.89. E281 ERASE LAMP OFF ERROR

PRIMARY FACTOR;	The abnormal current is detected in the Erase Lamp.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. Erase Lamp fault.	Cleaning: Erase Lamp Replace: Erase Lamp (S310)	4.4.9, 4-25 7.1.2.7, 7-67
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable or reset the connector. Erase Lamp: P715-S310	
	3. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
Refer to Figure 5-10.			

5.3.90. E282 SENSOR ERROR 5

PRIMARY FACTOR;	The adjustment of the multi feed sensor did not complete.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This error occurs always during initializing process.	1. The sensor is dirty. - The surface of the double feed LED or photo-conductor is dirty with paper dust or so.	Cleaning: The double feed LED on the LDxxx Assembly and the photo-conductor on the PSxxx Assembly.	
	2. The disconnection of Connectors.	J/P791, J/P350, J/P353, J/P354	
	3. Sensor fault.	Replace: LDxxx Assembly PSxxx Assembly	7.1.3.2. (11), 7-84 7.1.3.3. (8), 7-101
	4. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214

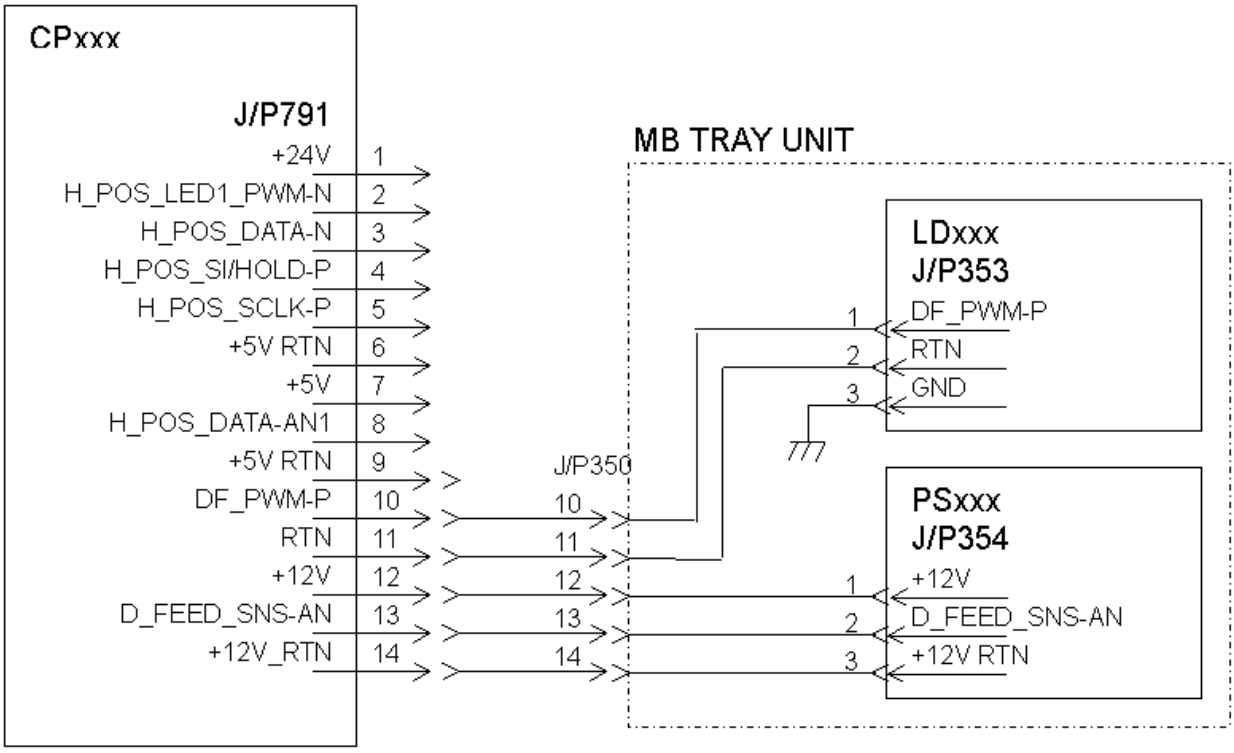


Figure 5-26. Error Code E282

5.3.91. E283 SENSOR ERROR 1

PRIMARY FACTOR;	The toner level adjustment has failed.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. No execution after supplying the developer.	Execute the toner level adjustment.	8.4.5.4, 8-20
2. This phenomenon occurs after adjustment of the toner level.	1. Toner Control Sensor fault.	Replace: Developer Unit	7.1.2.3. (1), 7-10
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable P719-S320 or reset the connector.	
	3. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
Refer to Figure 5-19.			

5.3.92. E284 to E286 SENSOR ERROR 2 to 4

PRIMARY FACTOR;	E284: The signal of the HP1 Size sensor is not specified. E285: The signal of the HP2 Size sensor is not specified. E286: The signal of the HP3 Size sensor is not specified. The combination of sensor signal is shown in 5.3.26, 5-45 (E090).		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. Sensor fault.	Replace: Sensor E284: HP1 Size Sensor E285: HP2 Size Sensor E286: HP3 Size Sensor	 7.1.4.3. (15), 7-193 7.1.4.3. (15), 7-193 7.1.4.3. (15), 7-193
	2. The sensor plate of the Hopper is faulty.	Replace: Hopper E284: Hopper 1 E285: Hopper 2 E286: Hopper 3	 7.1.4.2, 7-162 7.1.4.1, 7-161 7.1.4.1, 7-161
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable or reset the connector. E284: P407-S406 E285: P408-S412 E286: P409-S416	
	4. PCB fault.	Replace: HPxxx Assembly	7.1.4.3. (22), 7-200
Refer to Figure 5-2.			

5.3.93. E287 DEVELOPER ERROR 4

PRIMARY FACTOR;	The developer has no color information.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs when changing the Developer Unit.	1. Developer unit fault. The color data is nothing in the Developer unit.	Replace: Developer Unit	7.1.2.3. (1), 7-10
	2. Cable fault. Check the cable of the Developer unit.	Replace: If the cable is damaged, replace it. Check especially the damage of the pin of the drawer connector.	
	3. PCB fault.	Replace: CPxxx assembly of the rear engine.	7.1.5.1. (13), 7-214
2. This phenomenon occurs.	1. Cable fault. Check the Cable between the Developer unit and CPxxx assembly of the rear engine.	Replace: If the cable is damaged, replace it. Check especially the damage of the pin of the drawer connector. *Drawer connector: P320 - P720	
	2. Developer unit fault.	Replace: Developer Unit	7.1.2.3. (1), 7-10
	3. PCB fault.	Replace: CPxxx assembly of the rear engine.	7.1.5.1. (13), 7-214

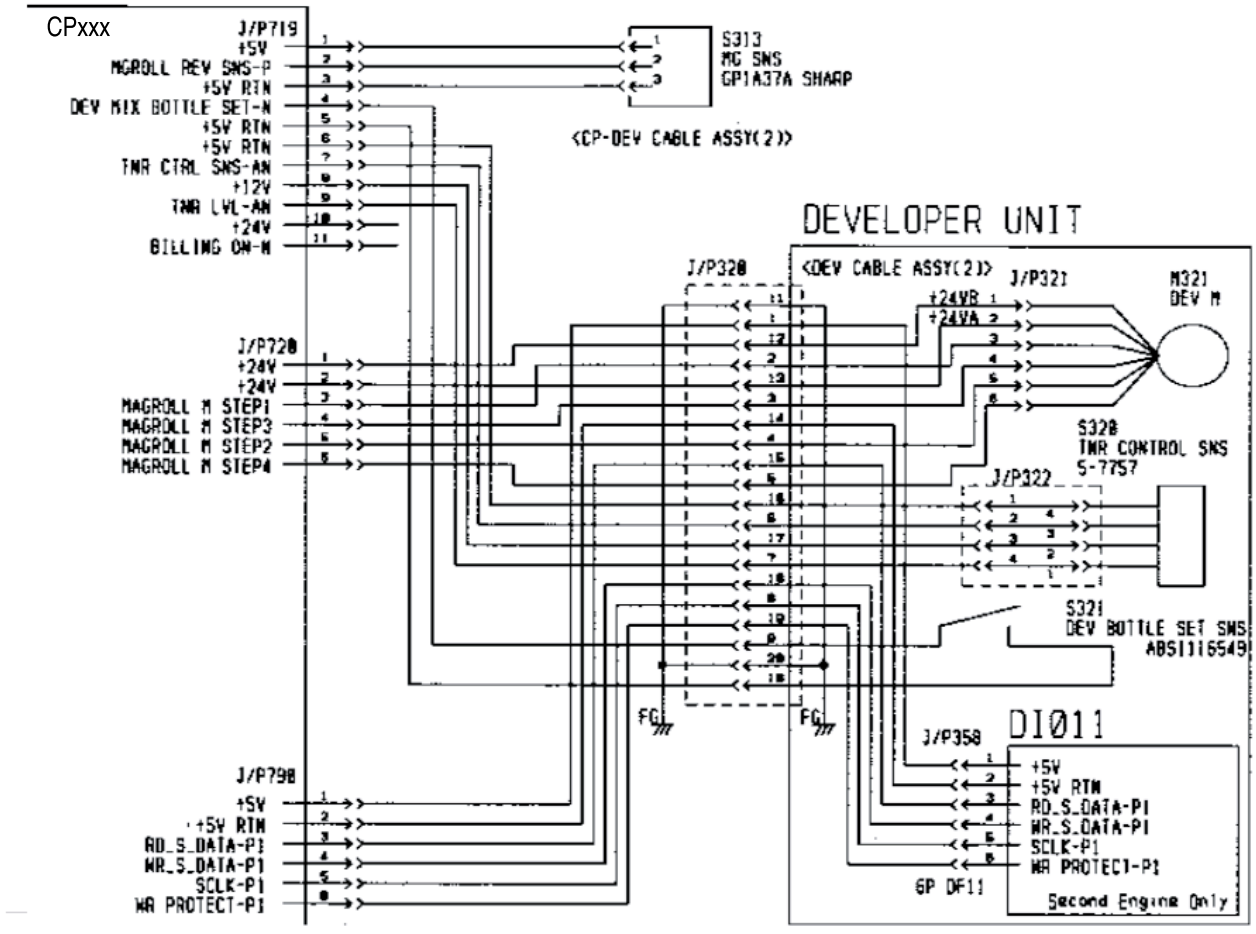


Figure 5-27. Error Code E287

5.3.94. E288 DEV REAR FAN ALARM

PRIMARY FACTOR;	The Developer rear cooling fan did not rotate normally.		
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 B321-P710 or reset the connector in the correct position.	
	2. Fan fault.	Replace: DEV Cooling Fan.	7.1.5.1. (6), 7-207
	3. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
Refer to Figure 5-29.			

5.3.95. E289 HR FAN 1 ALARM

PRIMARY FACTOR;	The HR cooling fan 1 (upper) did not rotate normally.		
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 B505-P715 or reset the connector in the correct position.	
	2. Fan fault.	Replace: DC Fan (Fuser).	7.1.5.1. (2), 7-203
	3. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
Refer to Figure 5-29.			

5.3.96. E28A HR FAN 2 ALARM

PRIMARY FACTOR;	The HR cooling fan 2 (lower) did not rotate normally.		
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 B508-P715 or reset the connector in the correct position.	
	2. Fan fault.	Replace: DC Fan (Fuser).	7.1.5.1. (2), 7-203
	3. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
Refer to Figure 5-29.			

5.3.97. E28B REAR FAN 1 ALARM

PRIMARY FACTOR;	The rear cooling fan 1 (right) did not rotate normally.		
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 B357-P368 / J367-P717 or reset the connector in the correct position.	
	2. Fan fault.	Replace: Rear Fan Assembly.	7.1.5.1. (24), 7-227
	3. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
Refer to Figure 5-29.			

5.3.98. E28C SB GATE POS. ON ERROR

PRIMARY FACTOR;	The SB Gate Sensor has been "on" more than the specified time.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. When the KPDG routine "5C" is executed the SB Gate Motor moves.	1. The SB Gate actuator alignment needs to be adjusted.	Check: Gate Link SB(M) Assembly	
	2. SB Gate Sensor fault	Replace: SB Gate Sensor (S521)	7.1.3.17, 7-158
	3. The breaking of cables.	Repair the cable P737-S521	
	4. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
2. When the KPDG routine "5C" is executed the SB Gate Motor does not move.	1. The breaking of cables.	Repair the cable M506-J737	
	2. Motor fault.	Replace: SB Gate Motor Assembly	7.1.3.16, 7-157
	3. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
Refer to Figure 5-28.			

5.3.99. E28D SB GATE POS. OFF ERROR

PRIMARY FACTOR;	The SB Gate Sensor has been "off" more than the specified time.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. When the KPDG routine "5C" is executed the SB Gate Motor moves.	1. The SB Gate actuator alignment needs to be adjusted.	Check: Gate Link SB(M) Assembly	
	2. SB Gate Sensor fault	Replace: SB Gate Sensor (S521)	7.1.3.17, 7-158
	3. The breaking of cables.	Repair the cable P737-S521	
	4. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
2. When the KPDG routine "5C" is executed the SB Gate Motor does not move.	1. The breaking of cables.	Repair the cable M506-J737	
	2. Motor fault.	Replace: SB Gate Motor Assembly	7.1.3.16, 7-157
	3. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
Refer to Figure 5-28.			

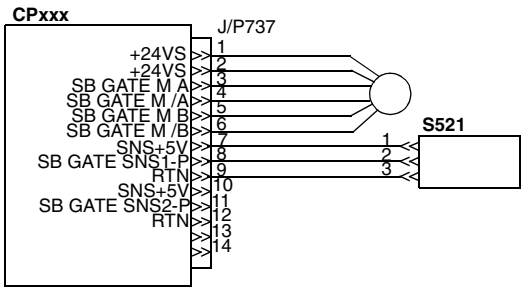


Figure 5-28. Error Code E28C & E28D

5.3.100. E28E REAR FAN 2 ALARM

PRIMARY FACTOR;	The rear cooling fan 2 (left) did not rotate normally.		
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 B358-P368 / J368-P717 or reset the connector in the correct position.	
	2. Fan fault.	Replace: Rear Fan Assembly.	7.1.5.1. (24), 7-227
	3. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214

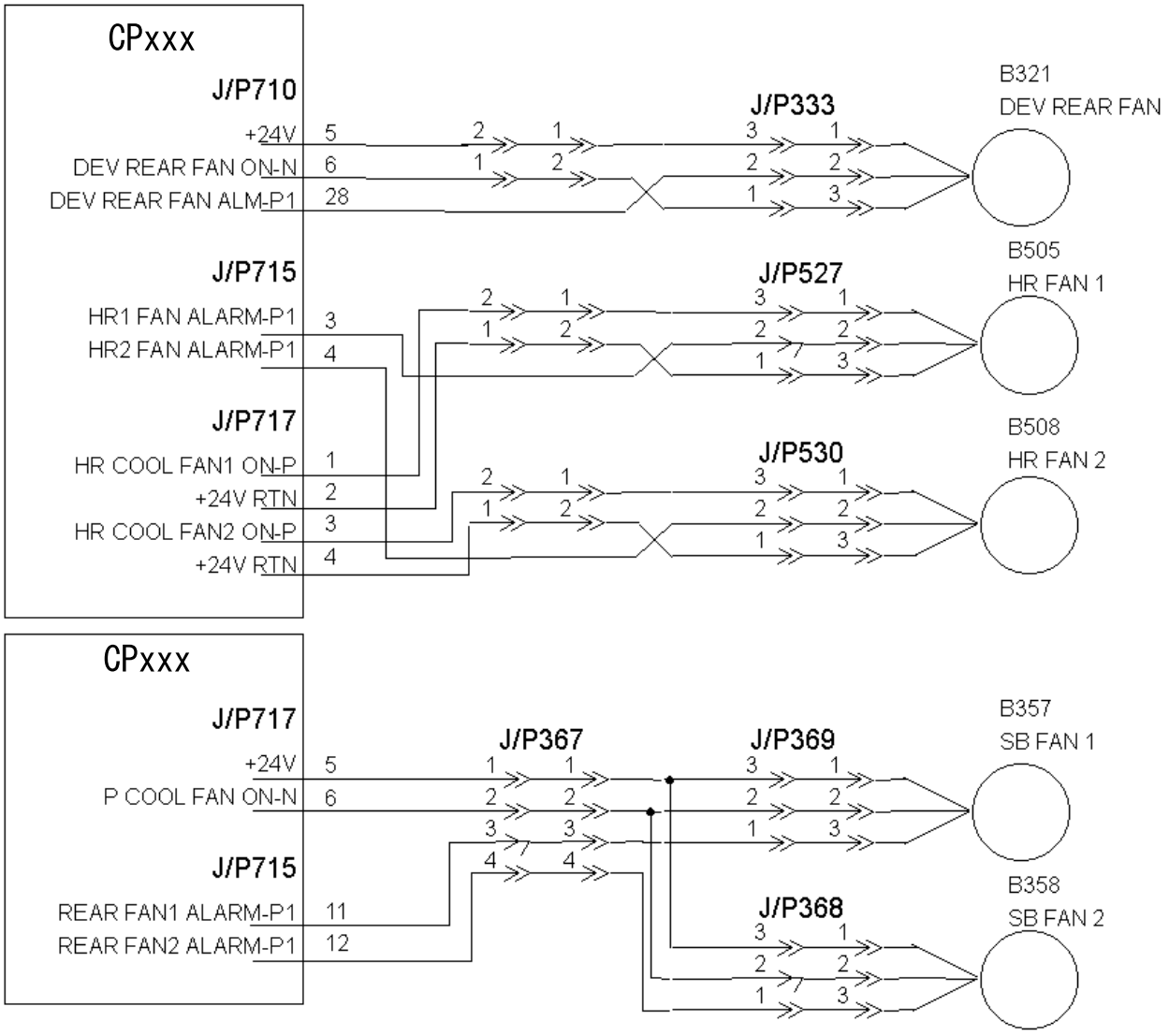


Figure 5-29. Error Code E288, E289, E28A, E28B, E28E

5.3.101. E28F SENSOR ERROR 2

PRIMARY FACTOR;	The adjustment of the horizontal position sensor did not complete correctly.		
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 J791-P350 or J351-J350 or reset the connector in the correct position.	
	2. PCB fault.	Replace: CPxxx Assembly ADxxx	7.1.5.1. (13), 7-214
	3. MB Tray Unit fault.	Replace: MB Tray Unit	
	4. Sensor fault.	Replace: Horizontal Position Sensor	7.1.3.2. (12), 7-85 7.1.3.2. (13), 7-87
2. This phenomenon occurs when performing the "95" routine.	1. Paper setting position is not correct.	Set the paper as covering the surface of H POS. sensor.	
	2. Preset paper is not suitable. (Preprint paper, color paper, etc.)	Set the specific white paper on H POS. sensor surface.	

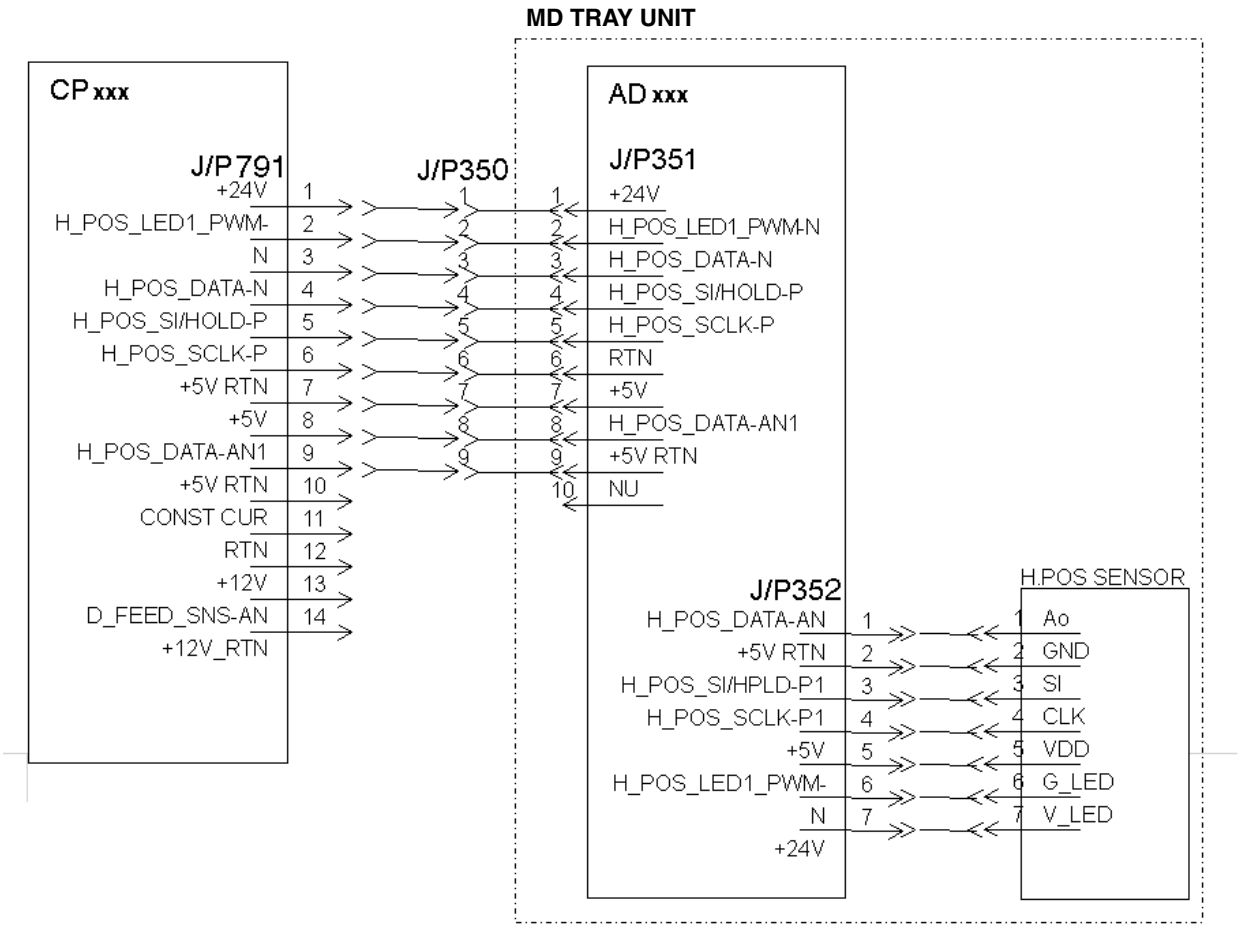


Figure 5-30. Error Code E28F

5.3.102. E291 BLOWER FAN ALARM

PRIMARY FACTOR;	The Ozone Blower detects a rotation error.		
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 P715-P348 or reset the connector in the correct position.	
	2. Fan fault.	Replace: Ozone Blower (B311)	7.1.5.1. (7), 7-208
	3. The duct of the Ozone Blower is blocked.	Remove: The substance which blocks the duct.	
	4. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214

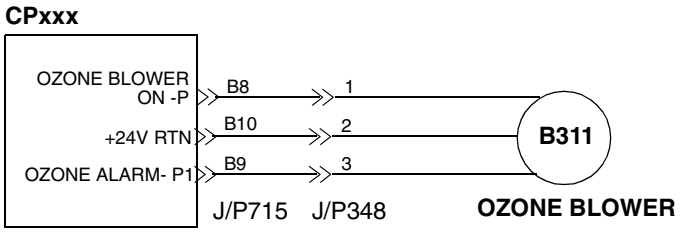


Figure 5-31. Error Code E291

5.3.103. E292 OC FAN ALARM

PRIMARY FACTOR;	The Mirror Cooling Fan has stopped.		
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 P117-B101 or reset the connector in the correct position.	
	2. Fan fault.	Replace: Fan Assembly (B101)	7.1.5.1. (1), 7-202
	3. PCB fault.	Replace: OCxxx Assembly	7.1.5.1. (17), 7-218
Refer to Figure 5-21.			

5.3.104. E2A2 HOPPER 1 TABLE TIMEOUT

PRIMARY FACTOR;	Even if the HP1 Table Motor is driven for 35 seconds, the HP1 Height Sensor is not turned on.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs because the Hopper Table does not operate.	1. Overload. (1) Gear fault. Check if the gear is not rotating correctly. (2) The breaking of the Table wire. (3) The mounting of the Hopper Table is faulty.	Check: Motor Gear Idler Gear Replace: Motor Gear Idler Gear Replace: Table wire Reset the Hopper Table in the correct position.	 7.1.4.3. (23), 7-201 7.1.4.3. (23), 7-201 7.1.4.2. (6), 7-170
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable P407-S407, P405-P431 or reset the connector in the correct position.	
	3. Sensor fault.	Replace: HP1 Height Sensor (S407)	7.1.4.3. (17), 7-195
	4. Motor fault.	Replace: HP1 Table Motor Assembly (M402)	7.1.4.3. (12), 7-190
	5. PCB fault.	Replace: HPxxx Assembly	7.1.4.3. (22), 7-200
2. Hopper Table does not move up completely to top. 5 to 10 sheets are on the table.	1. Hopper Table is bent down in center front.	Correct Table flatness. Make sure Table operates up and down smoothly.	
3. Table does not go up when loaded with ledger paper.	1. Gear Motor does not lift Table in time.	Replace: HP1 Table Motor Assembly (M402)	7.1.4.3. (12), 7-190
Refer to Figure 5-2.			

5.3.105. E2A6 HOPPER 2 TABLE TIMEOUT
E2AA HOPPER 3 TABLE TIMEOUT

PRIMARY FACTOR;	Even if the Table Motor of Hopper 2 or 3 is driven for 25 seconds, the Height Sensor is not turned on.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs because the Hopper Table does not operate.	1. Overload. (1) Gear fault. Check if the gear is not rotating correctly. (2) The mounting of the Table Hopper is faulty.	Check: Motor Gear Coupling Gear Replace: Motor Gear Coupling Gear Reset the Hopper Table in the correct position.	 7.1.4.3. (23), 7-201 7.1.4.3. (23), 7-201
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable or reset the connector in the correct position. (1) Hopper 2 P408-S413, P405-P403 (2) Hopper 3 P409-S417, P405-M404	
	3. Sensor fault.	Replace: HP2 Height Sensor (S413) Replace: HP3 Height Sensor (S417)	7.1.4.3. (17), 7-195 7.1.4.3. (17), 7-195
	4. Motor fault.	Replace: HP2 Table Motor (M403) Replace: HP3 Table Motor (M404)	7.1.4.3. (13), 7-191 7.1.4.3. (13), 7-191
	5. PCB fault.	Replace: HPxxx Assembly	7.1.4.3. (22), 7-200
Refer to Figure 5-2.			

5.3.106. E2AD HOPPER 5 TABLE OVER RUN 1

PRIMARY FACTOR;	During the Table of the High Capacity Hopper goes down, the table is lower than the specified position. This error is detected when the HP5 Over Run Sensor is turned on.		
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 P422-S432 or reset the connector in the correct position.	
	2. Sensor fault.	Replace: HP5 Over Run Sensor assembly (S432)	7.2.13, 7-244
	3. Motor fault.	Replace: HP5 Table Motor Assembly (M422)	7.2.18, 7-252
	4. PCB fault.	Replace: AHxxx Assembly	7.2.10, 7-241
Refer to Figure 5-11.			

5.3.107. E2AE HOPPER 5 TABLE TIMEOUT

PRIMARY FACTOR;	Even if the HP5 Table Motor is driven for 30 seconds, the HP5 Height Sensor is not turned on.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. Overload. (1) The breaking of the Table wire. (2) The mounting of the Hopper Table is faulty.	Replace: Table wire Reset the Hopper Table in the correct position.	7.2.19.1, 7-254 7.2.19.2, 7-258
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable P422-S424, P423-M422 or reset the connector in the correct position.	
	3. Sensor fault.	Replace: HP5 Height Sensor assembly (S424)	7.2.22, 7-266
	4. Motor fault.	Replace: HP5 Table Motor Assembly (M422)	7.2.18, 7-252
	5. PCB fault.	Replace: AHxxx Assembly	7.2.10, 7-241
Refer to Figure 5-11.			

5.3.108. E2AF HOPPER 5 TABLE OVER RUN 2

PRIMARY FACTOR;	During the Table of the High Capacity Hopper goes up, the Table is higher than the specified position. This error is detected by the combination of the HP5 Rest Sensor A, B, C.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. The sensor is contaminated. Check if the sensors are contaminated, etc.	Cleaning: HP5 Rest Sensors (S428, S429, S430) and its environs.	
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable P422-S428, S429, S430, P423-M422 or reset the connector in the correct position.	
	3. Sensor fault.	Replace: HP5 Rest Sensors assembly. (S428, S429, S430)	7.2.11, 7-242
	4. Motor fault.	Replace: HP5 Table Motor Assembly (M422)	7.2.18, 7-252
	5. PCB fault.	Replace: AHxxx Assembly	7.2.10, 7-241
Refer to Figure 5-11.			

The combination of the HP5 Rest Sensor A, B, C roughly shows the number of paper in the High Capacity Hopper (ON: The sensor is interrupted).

HP5 Rest Sensor			The number of paper or the Error detection.
A	B	C	
OFF	OFF	OFF	3000 sheets to 2250 sheets (100% to 75%)
ON	OFF	OFF	2250 sheets to 1500 sheets (75% to 50%)
ON	ON	OFF	1500 sheets to 750 sheets (50% to 25%)
ON	ON	ON	750 sheets to 0 sheets (25% to 0%)
OFF	ON	ON	"Hopper 5 Table Over Run 2" error is detected.

5.3.109. E2DE CP2 DRIVER 1

PRIMARY FACTOR;	The +24V error was occurred in the CP2 P/K.		
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-P701 or reset the connector in the correct position.	
	2. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
	3. Power Supply fault.	Replace: Power Supply	7.1.5.1. (16), 7-217
	4. The Drive line is faulty.	Check if the motor / solenoid, etc. drive line in the Rear Engine is exhausted.	
Refer to Figure 5-32.			

5.3.110. E2DF CP2 DRIVER 2

PRIMARY FACTOR;	The +24VS error was occurred in the CP2 P/K.		
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 P260-P701 or reset the connector in the correct position.	
	2. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
	3. Power Supply fault.	Replace: Power Supply	7.1.5.1. (16), 7-217
	4. The Drive line is faulty.	Check if the motor / solenoid, etc. drive line in the Rear Engine is exhausted.	
Refer to Figure 5-32.			

5.3.111. E2E0 CP DRIVER 1
E2E1 CP DRIVER 2

PRIMARY FACTOR;	E2E0: Detected that an error occurs in the power system of the CPxxx Assembly. (+24V) E2E1: Detected that an error occurs in the power system of the CPxxx Assembly. (+24VS)		
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 or reset the connector in the correct position. E2E0: P701-P231 E2E1: P701-P260	
	2. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
	3. Power Supply fault.	Replace: Power Supply	7.1.5.1. (16), 7-217
	4. The drive line is faulty. Check if the motor/solenoid etc. drive line is exhausted.	Repair or replace the exhausted points. Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
	5. Switch fault (E2E1)	Replace: Push Button Switch (S510)	3.11.1, 3-27

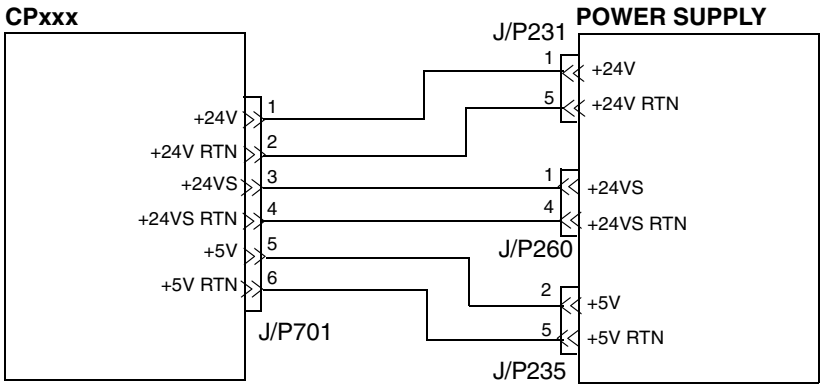


Figure 5-32. Error Codes E2DE, E2DF, E2E0 & E2E1

5.3.112. E2E2 HP DRIVER

PRIMARY FACTOR;	Detected that an error occurs in the power system of the HPxxxAssembly.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs because the Power Supply line is faulty.	1. The breaking of cables or the disconnecting of connectors.	Repair the cable P231-P401 or reset the connector in the correct position.	
	2. +24V load of HPxxx Assembly is faulty.	Check the Power Supply line.	
	3. PCB fault.	Replace: HPxxx Assembly	7.1.4.3. (22), 7-200
	4. Power Supply fault.	Replace: Power Supply	7.1.5.1. (16), 7-217
2. This phenomenon occurs because the Power Supply line is not faulty	1. PCB fault.	Replace: CPxxx Assembly HPxxx Assembly	7.1.5.1. (13), 7-214 7.1.4.3. (22), 7-200
	2. The Motor drive line from HPxxx is faulty.	Check the Motor line.	

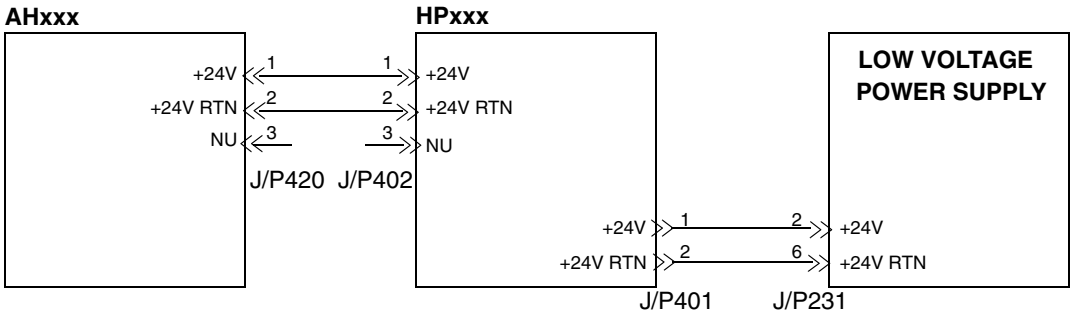


Figure 5-33. Error Code E2E2

5.3.113. E2E3 HP5 DRIVER

PRIMARY FACTOR;	Detected that an error occurs in the power system of the AHxxx Assembly.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs because the Power Supply line is faulty.	1. The breaking of cables or the disconnecting of connectors.	Repair the cable P402-P420 or reset the connector in the correct position.	
	2. PCB fault.	Replace: AHxxx Assembly HPxxx Assembly	7.2.10, 7-241 7.1.4.3. (22), 7-200
2. This phenomenon occurs because the Power Supply line is not faulty.	1. PCB fault.	Replace: HPxxx Assembly	7.1.4.3. (22), 7-200
	2. The Motor drive line from AHxxx is faulty.	Check the Motor line.	
Refer to Figure 5-33.			

5.3.114. E2F0 MASTER SUM CHECK ERROR
E2F1 SLAVE SUM CHECK ERROR
E2F2 MASTER ROM ERASE ERROR
E2F3 SLAVE ROM ERASE ERROR
E2F4 MASTER ROM WRITE ERROR
E2F5 SLAVE ROM WRITE ERROR
E2F6 FRAM/OVER RUN/PARITY ERROR

PRIMARY FACTOR;	E2F0: A sum check error occurs in the master rom when the power is on. E2F1: A sum check error occurs in the slave rom when the power is on. E2F2: An erase error is detected in the master rom during download. E2F3: An erase error is detected in the slave rom during download. E2F4: A write error is detected in the master rom during download. E2F5: A write error is detected in the slave rom during download. E2F5: An interface error is detected during download.		
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 P741-P52 or reset the connector in the correct position.	
	2. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
	3. Noise Check Check the noise when the E2F6 error occurs.		
Refer to Figure 5-25.			

5.3.115. E2FB SIGNAL TRANSLATION ERROR 9

PRIMARY FACTOR;	A sum check error of the CP2 P/K master ROM was detected.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. PCB fault.	Replace: CPxxx Assembly	7.1.5.1. (13), 7-214
	2. Noise check.		

5.3.116. E2FC SIGNAL TRANSLATION ERROR 10

PRIMARY FACTOR;	A sum check error of the CP2 P/K slave ROM was detected.		
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 P260-P701 or reset the connector in the correct position.	
	2. PCB fault.	Replace: CPxxx Assembly of the Rear Engine and that of the relay unit.	7.1.5.1. (13), 7-214 7.3.12, 7-300
	3. Noise Check.		

5.3.117. E2FD MASTER ROM ERROR 2

PRIMARY FACTOR;	An error occurred during erasing or writing the CP2 P/K Master ROM. (Note1.)		
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 P741-P13 or reset the connector in the correct position.	
	2. PCB fault.	Replace: CPxxx Assembly of the Rear Engine.	7.1.5.1. (13), 7-214
	3. Noise Check.		
Refer to Figure 5-34.			

5.3.118. E2FE SLAVE ROM ERROR 2

PRIMARY FACTOR;	An error occurred during erasing or writing the CP2 P/K Slave ROM. (Note1.)		
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 P741-P13 or reset the connector in the correct position.	
	2. PCB fault.	Replace: CPxxx Assembly of the Rear Engine.	7.1.5.1. (13), 7-214
	3. Noise Check.		
Refer to Figure 5-34.			

5.3.119. E2FF FRAME / OVER RUN/ PARITY ERROR 2

PRIMARY FACTOR;	Frame / Over Run / Parity Error was occurred in the CP P/K interface. (Note1.)		
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 P741-P13 or reset the connector in the correct position.	
	2. PCB fault.	Replace: CPxxx Assembly of the Rear Engine.	7.1.5.1. (13), 7-214
	3. Noise Check.		
Refer to Figure 5-34.			

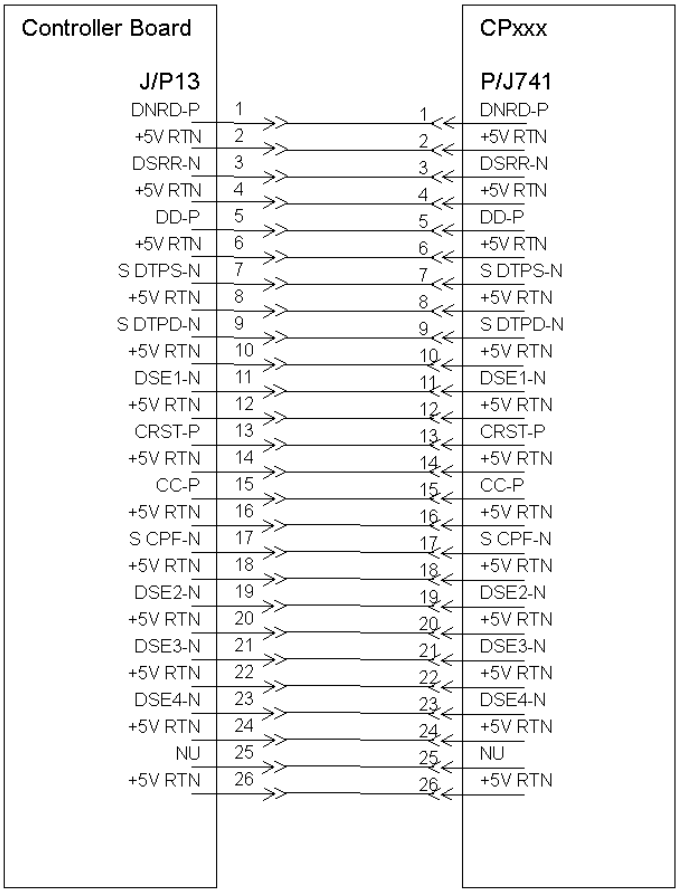
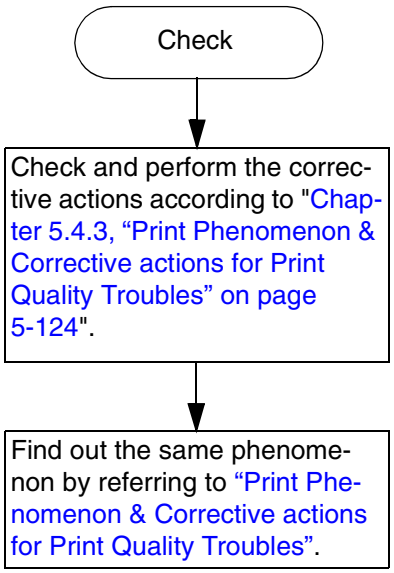


Figure 5-34. Error Code E2FD, E2FE, E2FF

5.4. Troubles in Print Quality

Inspection should be carried out in accordance with the following procedure.



5.4.1. Print Samples

Ascertain which sample of the print phenomenon is best suited to your print referring to and after the next page and then see item “Print Phenomenon & Corrective actions for Print Quality Troubles” on page 5-124. As these examples are produced from **“photocopying”** they may not necessarily be the same as the real ones.

5.4.2. Problems in Print Quality

NOTE:
Drum rotating cycle:The interaction between the OPC Drum rotating cycle and the paper.
HR rotating cycle:The interaction between the HR rotating cycle and the paper.
(There is a fluctuation by 3±mm from the paper leading edge.)

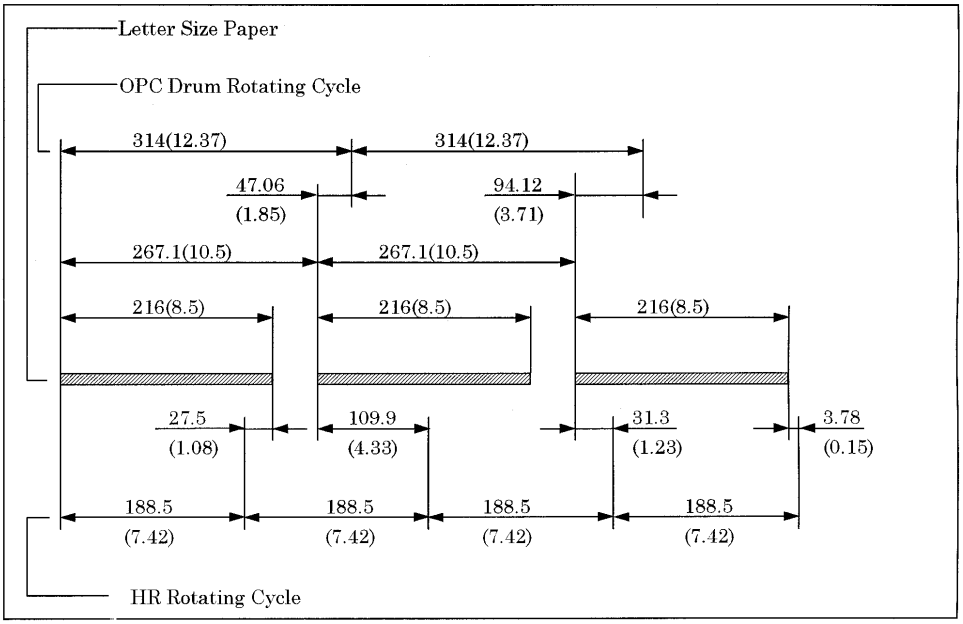


Figure 5-35. Relationship between letter Sized paper and the HR/OPC rotating cycle

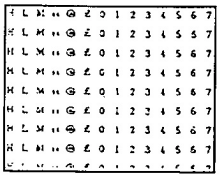
Table 5-1. List of Printing Quality Problems

Kinds of Phenomenon	Reference Phenomenon						G	H	I
	A	B	C	D	E	F			
Print contrast is too dark.	**1.** 5-124								
Print contrast is too light.	**2.** 5-125								
Background	**3.** 5-126								
Wavy Printing	**4.** 5-127 **5.** 5-127								
Poor Fusing	**6.** 5-127	**13.** 5-131				**25.** 5-137			
White Defect	**7.** 5-128 **36.** 5-142	**14.** 5-131 **15.** 5-132 **16.** 5-132		**19.** 5-134	**20.** 5-134 **21.** 5-135 **22.** 5-135		**31.** 5-140 **32.** 5-140 **33.** 5-141		**29.** 5-139
Black Streak		**17.** 5-133			**23.** 5-136	**26.** 5-137			
Offset					**24.** 5-136	**27.** 5-138			
Toner Defect	**8.** 5-128								
Wide Streak	**9.** 5-129		**18.** 5-133				**34.** 5-141 **35.** 5-142	**28.** 5-138	**30.** 5-139
Skew	**10.** 5-129								
Bleeding	**11.** 5-130								
Trailing Edge Too Light	**12.** 5-130								
Smudging								**37** 5-143	
Jitter								**38.** 5-143	

A: Covering the entire surface B: In the vertical direction C: Paper leading edge
D: Paper trailing edge E: Drum related phenomenon F: Heat Roll related phenomenon
G: Random phenomenon H: Other related phenomenon I: Paper feed direction

5.4.3. Print Phenomenon & Corrective actions for Print Quality Troubles

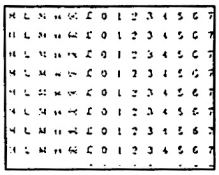
Phenomenon 1. - Print contrast is too dark (Too much toner consumed) (Covering the entire surface)



Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. Dark background exists. The contact point for bias voltage does not touch between the High Voltage Power Supply and the Developer Roller. Bias voltage is too high.	Check the contact point. Repair or change it. The contact may be loose. Bias voltage is high. Change the High Voltage Power Supply (1).	 7.1.5.1. (14), 7-215
2. The surface voltage of the drum is too high.	Clean or replace the Charger Unit. Clean or replace the Erase Lamp.	4.4.8, 4-23 7.1.2.2. (1), 7-6 4.4.9, 4-25 7.1.2.7, 7-67
3. The developer gap or the doctor gap do not satisfy the specified value. Refer to **Note** below.	Doctor gap - Replace the Developer Unit. Developer gap - Replace the Drum Unit and the Developer Unit.	7.1.2.3. (1), 7-10 7.1.2.1. (1), 7-4 7.1.2.3. (1), 7-10
4. Toner control is incorrect.	Replace the Developer mix.	3.2.2. (2), 3-5

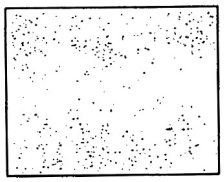
Note: Too narrow developer gap and too wide doctor gap has a tendency to cause dark print.

Phenomenon 2. - Print contrast is too light (Too little toner consumed) (Covering the entire surface)



	Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1.	Bias voltage is too low.	Bias voltage is low. Check the contact point. - The Developer Unit and the High Voltage Power Supply (1) Change the High Voltage Power Supply (1).	7.1.5.1. (14), 7-215
2.	The developer gap and the doctor gap do not satisfy the specified value.	Doctor gap - Replace the Developer Unit. Developer gap - Replace the Drum Unit and the Developer Unit.	7.1.2.3. (1), 7-10 7.1.2.1. (1), 7-4 7.1.2.3. (1), 7-10
3.	The Transfer Corona is stained.	Cleaning the Transfer Corona Wire. Replace the Nip Guide Plate W Assembly. Check Power Supply - Change the High Voltage Power Supply (2).	4.4.3, 4-17 7.1.3.4. (3), 7-104 7.1.5.1. (15), 7-216
4.	Contamination around Optical Window.	Clean the Optical Window.	4.4.11, 4-28
5.	The life of the developer mix is over.	Replace the Developer mix.	3.2.2. (2), 3-5
6.	The surface voltage is too low.	Clean or replace the Charger Unit.	4.4.8, 4-23 7.1.2.2. (1), 7-6
7.	The life of the OPC is over.	Replace the Drum Unit.	7.1.2.1. (1), 7-4
8.	Lack of the Developer mixture volume. The Developer mixture leaked out of the Developer Unit.	Replace the Developer Unit	7.1.2.3. (1), 7-10

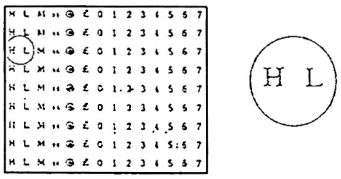
Phenomenon 3. - Background (Covering the entire surface)



Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. Outside light penetrates into the printer.	Operate the printer with all covers closed.	
2. The surface voltage of the drum does not satisfy with the specified value.	Clean or replace the Charger Unit Clean or replace the Erase Lamp	4.4.8, 4-23 7.1.2.2. (1), 7-6 4.4.9, 4-25 7.1.2.7, 7-67
3. The developer gap and the doctor gap do not satisfy the specified value.	Doctor gap - Replace the Developer Unit Developer gap - Replace the Drum Unit the Developer Unit, and the Drum Drive Unit.	7.1.2.3. (1), 7-10 7.1.2.1. (1), 7-4 7.1.2.3. (1), 7-10 7.1.2.5. (1), 7-47
4. Toner control is incorrect.	Replace the Developer mix.	3.2.2. (2), 3-5
5. The life of the developer mix is over.	Replace the Developer mix.	3.2.2. (2), 3-5
6. The drum is stained.	Replace the Drum Unit.	7.1.2.1. (1), 7-4
7. The life of the Cleaning Blade is over.	Replace the Drum Unit.	7.1.2.1. (1), 7-4
8. Print contrast is too dark. Refer to **Note** below.		
9. Heatroll temperature is not set correctly.	Replace the Fuser Unit.	7.1.3.1. (1), 7-68

Note: Too narrow a developer gap and too wide a doctor gap has a tendency to cause dark print.

Phenomenon 4. - Edge Roughness (Covering the entire surface)



Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The voltage of the BD sensor is incorrect.	Replace the Optical Unit.	7.1.1, 7-1
2. The life of the laser is over.	Replace the Optical Unit.	7.1.1, 7-1

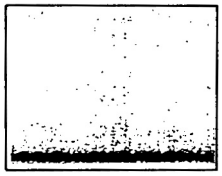
Phenomenon 5. - Wavy Printing (Covering the entire surface)

Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. Faulty Scanner operation.	Replace the Optical Unit.	7.1.1, 7-1

Phenomenon 6. - Poor Fusing (Covering the entire surface)

Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The nip width is incorrect.	Replace the Fuser Unit.	7.1.3.1. (1), 7-68
2. Paper absorbed too much water and became damp.	Improve the paper storage condition.	
3. The temperature of the Fuser Unit is low.	Faulty thermistor detection. Replace the Fuser Unit.	7.1.3.1. (1), 7-68

Phenomenon 7. - White Defect (Covering the entire surface)

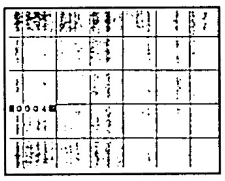


Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The Developer bias is low. The bias voltage supply is broken. Incorrect bias contact point.	Replace the High Voltage Power Supply (1) - Developer bias Replace the Developer Unit.	7.1.5.1. (14), 7-215 7.1.2.3. (1), 7-10
2. The Nip Guide Plate W Assembly is stained.	Clean or replace the Nip Guide Plate W Assembly	7.1.3.4. (3), 7-104
3. The doctor gap is too narrow.	Replace the Developer Unit.	7.1.2.3. (1), 7-10
4. The developer gap is too wide.	Replace the Drum Unit, the Developer Unit, and the Drum Drive Unit.	7.1.2.1. (1), 7-4 7.1.2.3. (1), 7-10 7.1.2.5. (1), 7-47
5. The developer mix needs replacement.	Replace the Developer mix.	3.2.2. (2), 3-5
6. Faulty Scanner operation	Replace the Optical Unit.	7.1.1, 7-1
7. The failure to ground the Drum Unit.	Replace the Drum Unit.	7.1.2.1. (1), 7-4
8. The printer installation area is incorrect. The printer inside air cannot flow to outside.	Check the printer installation area. Leave a specific area behind the printer. Replace the Ozone Filter	7.1.5.1. (8), 7-209 7.1.5.1. (9), 7-210 7.1.5.1. (10), 7-211

Phenomenon 8. - Toner Defect (Covering the entire surface)

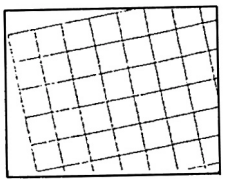
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The Transfer/Separating Corona wires are stained.	Cleaning or replace the Transfer/Separating Corona wires.	4.4.3, 4-17 7.1.3.4. (12), 7-113 7.1.3.4. (13), 7-114
2. The gap of the Nip Guide Plate W Assembly is incorrect.	Replace the Nip Guide Plate W Assembly.	7.1.3.4. (3), 7-104
3. The paper does not comply with the consumable specification.	Replace the paper.	

Phenomenon 9. - Wide Streak (Covering the entire surface)



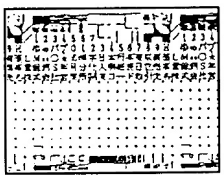
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The surface voltage is too low. The Charger Unit (grid, wire) is stained. The Charger wire's current is abnormal. Characteristics of the photoconductor get worse.	Clean or replace the Charger Unit. Replace the High Voltage Power Supply (1) -Charger Grid Replace the Drum Unit.	4.4.8, 4-23 7.1.2.2. (1), 7-6 7.1.5.1. (14), 7-215 7.1.2.2. (2), 7-7 7.1.2.1. (1), 7-4
2. The developer bias is not constant. Faulty developer bias voltage.	Replace the bias voltage power supply (1). Change the point of contact. Replace the Developer Unit. Replace the Drum Unit.	7.1.5.1. (14), 7-215 7.1.2.3. (1), 7-10 7.1.2.1. (1), 7-4
3. Heat Roll temperature is not set correctly.	Replace the Fuser Unit.	7.1.3.1. (1), 7-68

Phenomenon 10. - Skew (Covering the entire surface)



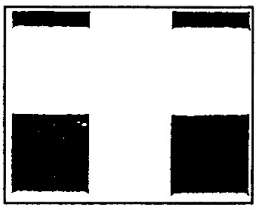
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. Paper has skewed. (Simplex side or Duplex side) (Front Engine or Rear Engine)	Paper has skewed from one of the hoppers. Replace the Pick Roller. 500 Sheet Hopper (Hopper 2 and 3) 2000 Sheet Hopper (Hopper 1) Multi-bypass Tray High Capacity Hopper (option) Check the Size Guide in the tray. Check the Paperweight setting from the OCP panel. Replace the paper. (Use recommended paper) Check the connection of each Engine and the Relay Unit. Replace the SB Gate. Replace the SB Paper Feed Roller Assembly. Adjust the SP Hook. Replace the Regist Roller and the Regist Pressure Roller.	7.1.4.3. (2), 7-180 7.1.3.2. (1), 7-71 7.2.2, 7-233 7.3.1, 7-284 7.1.3.5. (2), 7-121 7.1.3.5. (3), 7-123 7.1.3.5. (10), 7-131 7.1.3.3, 7-89

Phenomenon 11. - Bleeding (Covering the entire surface)



Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The toner control is incorrect.	Replace the Developer mix.	3.2.2. (2), 3-5
2. The surface voltage is too low. Charged characteristics of the photoconductor get worse.	Clean or replace the Charger Unit. Replace the Drum Unit.	4.4.8, 4-23 7.1.2.2. (1), 7-6 7.1.2.1. (1), 7-4
3. The developer bias is high.	Replace the High Voltage Power Supply (1) -Developer Bias	7.1.5.1. (14), 7-215
4. The developer gap is too narrow.	Replace the Developer Unit. Replace the Drum Unit. Replace the Drum Drive Unit.	7.1.2.3. (1), 7-10 7.1.2.1. (1), 7-4 7.1.2.5. (1), 7-47
5. The doctor gap is too wide.	Replace the Developer Unit.	7.1.2.3. (1), 7-10

Phenomenon 12. - Trailing Edge Too Light (Covering the entire surface)

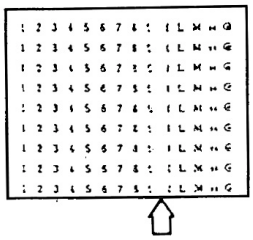


Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The surface voltage is too high. The Charger Unit (wire, grid) is stained. The Erase Lamp is stained. The input current of the Charger Unit is abnormally high.	 Clean or replace the Charger Unit. Replace the Charger Grid. Clean or replace the Erase Lamp. Replace the High Voltage Power Supply (1).	 4.4.8, 4-23 7.1.2.2. (1), 7-6 4.4.9, 4-25 7.1.2.7, 7-67 7.1.5.1. (14), 7-215 7.1.2.2. (2), 7-7
2. The Developer mix needs replenishing.	Replace the Developer mix.	3.2.2. (2), 3-5
3. The doctor gap is too narrow.	Replace the Developer Unit.	7.1.2.3. (1), 7-10
4. The developer gap is too wide.	Replace the Developer Unit. Replace the Drum Unit. Replace the Drum Drive Unit.	7.1.2.3. (1), 7-10 7.1.2.1. (1), 7-4 7.1.2.5. (1), 7-47
5. The developer bias voltage is low.	Replace the High Voltage Power Supply (1).	7.1.5.1. (14), 7-215

Phenomenon 13. - Poor Fusing (In the Vertical Direction)

Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The Heat Roll is damaged.	Replace the Fuser Unit.	7.1.3.1. (1), 7-68
2. The Backup Roll is worn out.	Replace the Fuser Unit.	7.1.3.1. (1), 7-68
3. Paper wrinkles exist. Paper absorbed too much water and thus became damp.	Improve the paper storage condition.	

Phenomenon 14. - White Streak (One Position - irregular) (In the Vertical Direction)

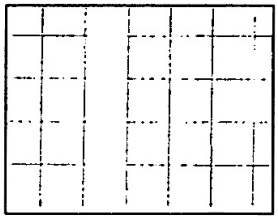


Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The Optical Unit's window is contaminated.	Clean the Optical Unit's window.	4.4.11, 4-28
2. The Transfer Corona is stained.	Clean or replace the Transfer Corona Wire. Clean the Conveyance Belt area. Clean the Machine inside. Clean or replace the TH Unit.	4.4.3, 4-17 7.1.3.4. (12), 7-113 4.4.4, 4-19 4.4.6, 4-21 7.1.3.4. (1), 7-102
3. The developer mix is incorrectly transferred.	Replace the Developer mix. Replace the Developer Unit.	3.2.2. (2), 3-5 7.1.2.3. (1), 7-10
4. Foreign substances entered the Developer Unit.	Replace the Developer mix. Replace the Developer Unit.	3.2.2. (2), 3-5 7.1.2.3. (1), 7-10
5. The drum is stained.	Replace the Drum Unit.	7.1.2.1. (1), 7-4
6. Faulty Scanner operation.	Replace the Optical Unit.	7.1.1, 7-1

Phenomenon 15. - Partial Poor Transferring or Developing (In the Vertical Direction)

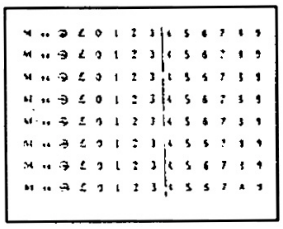
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The surface voltage is too high. The Charger Unit's grid's voltage is too abnormal. The Erase Lamp is stained.	Clean or replace the Charger Unit. Clean or replace the Erase Lamp.	4.4.8, 4-23 7.1.2.2. (1), 7-6 4.4.9, 4-25 7.1.2.7, 7-67
2. The toner control is incorrect.	Replace the Developer mix.	3.2.2. (2), 3-5
3. The Developer mix needs replenishing.	Replace the Developer mix.	3.2.2. (2), 3-5

Phenomenon 16. - White Streak (In the Vertical Direction)



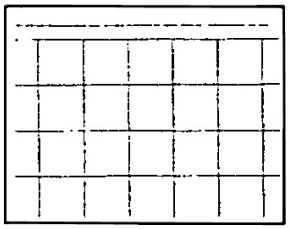
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. Foreign material attaches between the Developer Unit and the drum	Replace the Developer Unit. Replace the Drum Unit.	7.1.2.3. (1), 7-10 7.1.2.1. (1), 7-4

Phenomenon 17. - Black Streak (In the Vertical Direction)



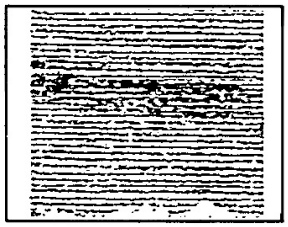
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The Charger Unit is stained.	Clean or replace the Charger Unit.	4.4.8, 4-23 7.1.2.2. (1), 7-6
2. The drum is damaged.	Replace the Drum Unit.	7.1.2.1. (1), 7-4
3. The charge surface voltage of the photoconductor is low.	Replace the Drum Unit.	7.1.2.1. (1), 7-4
4. The diffused reflection of the Optical Unit.	Replace the Optical Unit.	7.1.1, 7-1
5. The OPC surface in contact with foreign substances between the Charger Unit and the Developer Unit.	Clean or replace the foreign substances.	

Phenomenon 18. - Streak (Horizontal) (Paper Leading Edge)



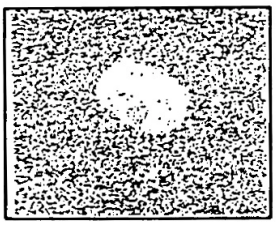
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. Paper curls up too much.	Use paper which complies with the Consumable Specification.	
2. Background on the drum is too high.	Clean or replace the Charger Unit. Clean the Erase Lamp. Replace the Drum Unit.	4.4.8, 4-23 7.1.2.2. (1), 7-6 4.4.9, 4-25 7.1.2.1. (1), 7-4

Phenomenon 19. - White Defect (Paper Trailing Edge)



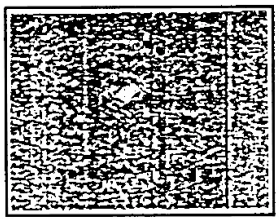
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The gap of the Nip Guide Plate W Assembly is incorrect.	Replace the Nip Guide Plate W Assembly.	7.1.3.4. (3), 7-104
2. Paper deformed too much.	Improve the paper storage condition. Use paper which complies with the Consumable Specification.	

Phenomenon 20. - Drum Contamination (Drum related Phenomenon)



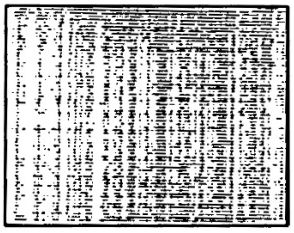
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The surface of the drum is contaminated.	Wipe the foreign material off with Lint-Free cloth. Replace the Drum Unit.	 7.1.2.1. (1), 7-4
2. Printer installation area is incorrect. The Printer inside air cannot flow to outside. The drum is damaged by ozone or dew drops.	Check the Printer installation area. Leave sufficient space behind the Printer. (Refer to the Printer Installation Specification for details.) Replace the Drum Unit. Replace the Ozone Filter.	 7.1.2.1. (1), 7-4 7.1.5.1. (8), 7-209 7.1.5.1. (9), 7-210 7.1.5.1. (10), 7-211

Phenomenon 21. - White Defect (Perfectly White) (Drum related Phenomenon)



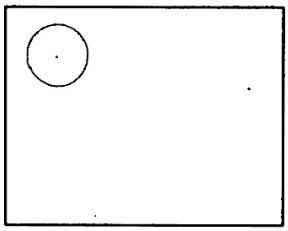
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The drum is partially damaged.	Replace the Drum unit.	7.1.2.1. (1), 7-4
2. Foreign material is on the drum.	Wipe the foreign material off with Lint-Free cloth. Replace the Drum Unit.	 7.1.2.1. (1), 7-4

Phenomenon 22. - Poor Developing (Drum related Phenomenon)



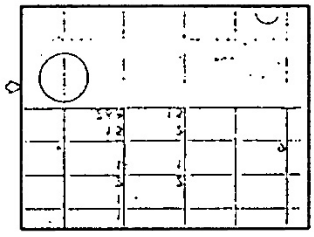
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The drum is partially damaged.	Replace the Drum unit.	7.1.2.1. (1), 7-4
2. The life of the drum is over.	Replace the Drum unit.	7.1.2.1. (1), 7-4

Phenomenon 23. - Black or Color Spot (Drum related Phenomenon)



Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The surface of the drum is contaminated. The drum is partially damaged.	Replace the Drum Unit.	7.1.2.1. (1), 7-4
2. Something occurred after replacing the Drum Unit.	Replace the Drum Unit.	7.1.2.1. (1), 7-4
3. Black or Color spot occurred. The surface voltage is too high. The Charger Unit is partially stained.	Clean or replace the Charger Unit. Clean or replace the Erase Lamp.	4.4.8, 4-23 7.1.2.2. (1), 7-6 4.4.9, 4-25 7.1.2.7, 7-67

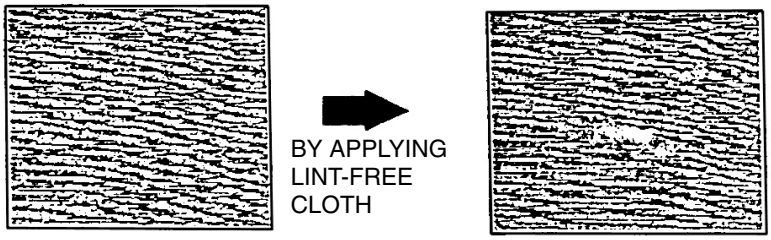
Phenomenon 24. - Offset (Drum related Phenomenon)



Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The Erase Lamp is stained.	Clean or replace the Erase Lamp.	4.4.9, 4-25 7.1.2.7, 7-67
2. The life of the OPC cleaner is over.	Replace the Drum Unit.	7.1.2.1. (1), 7-4
3. Toner control is incorrect.	Replace the Developer mix.	3.2.2. (2), 3-5
4. Too much toner (faulty transfer movement) The Developer gap and the doctor gap do not satisfy the specified value. Refer to **Note** below.	Doctor gap-Replace the Developer Unit. Developer gap-Replace the Drum Unit, and the Developer Unit.	7.1.2.3. (1), 7-10 7.1.2.1. (1), 7-4 7.1.2.3. (1), 7-10

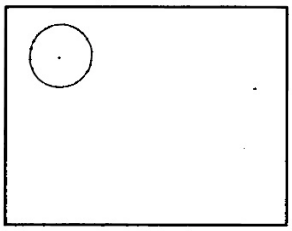
Note: Too narrow developer gap and too wide doctor gap has a tendency to cause dark print.

Phenomenon 25. - Partial Poor Fusing (Heat Roll related Phenomenon)



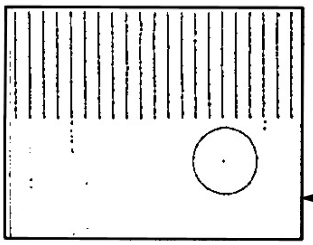
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The Heat Roll is damaged.	Replace the Fuser Unit.	7.1.3.1. (1), 7-68
2. The Backup Roll is damaged.	Replace the Fuser Unit.	7.1.3.1. (1), 7-68

Phenomenon 26. - Black or Color Spot (Heat Roll related Phenomenon)



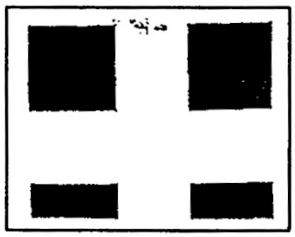
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. Attaching parts for the Heat Roll are stained.	Clean attaching parts or replace the Fuser Unit.	4.4.12, 4-29 7.1.3.1. (1), 7-68
2. Attaching parts for the Backup Roll are stained.	Clean BR Nails or replace the Fuser Unit.	4.4.12, 4-29 7.1.3.1. (1), 7-68

Phenomenon 27. - Offset (Heat Roll related Phenomenon)



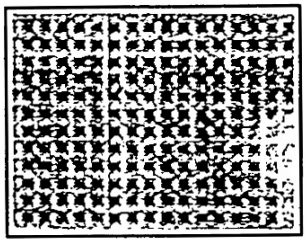
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. Paper absorbed too much water and thus became damp.	Improve the paper storage condition.	
2. The temperature of the Fuser Unit is incorrect.	Faulty thermistor-Replace the Fuser Unit.	7.1.3.1. (1), 7-68
3. Incorrect load at the nip position.	Replace the Fuser Unit.	7.1.3.1. (1), 7-68
4. Toner control is incorrect.	Replace the Developer mix.	3.2.2. (2), 3-5

Phenomenon 28. - Smudge (Contamination) (Other related Phenomenon)



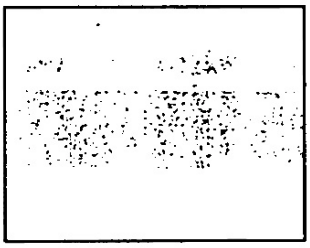
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The paper feeding roller is stained.	Replace the Pick Rollers in the Vertical Path Unit, and the Pick Rollers in the Multi-bypass Tray. Replace the Pick Rollers in the High Capacity Hopper Unit.	7.1.4.3. (2), 7-180 7.1.3.2. (2), 7-72 7.2.2, 7-233
2. The Registration is contaminated with toner.	Clean the paper path. Clean the Conveyance Belt area. Clean the Nip Guide Plate W Assembly. Clean the Machine inside.	4.4.4, 4-19 4.4.5, 4-20 4.4.6, 4-21

Phenomenon 29. - White Defect (Paper Feed Direction)



Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The gap of the Nip Guide Plate W Assembly is incorrect.	Replace the Nip Guide Plate W Assembly.	7.1.3.4. (3), 7-104

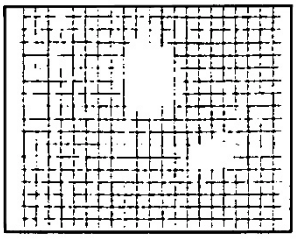
Phenomenon 30. - Smear (Simplex) (Paper Feed Direction) (Back side of paper contaminated in the case of Simplex.



Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. Toner Control is incorrect.	Replace the Developer mix.	3.2.2. (2), 3-5
2. The Nip Guide Plate W Assembly is contaminated.	Clean or replace the Nip Guide Plate W Assembly.	4.4.5, 4-20 7.1.3.4. (3), 7-104
3. The life of the Backup Roll or the Discharge Brush is over.	Replace the Fuser Unit.	7.1.3.1. (1), 7-68

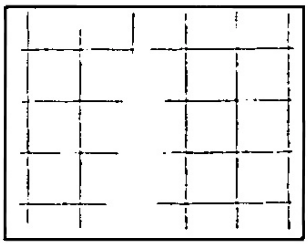
Note: Too much toner has a tendency to cause back side contamination.

Phenomenon 31. - White Spot (Large) (Random Phenomenon)



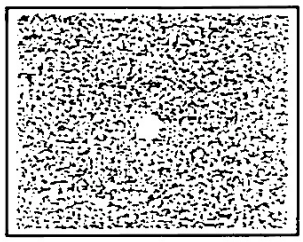
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The surface of the paper is not smooth. (The paper is damp.)	Improve the paper storage condition.	
2. Water drops are inside the paper feed mechanism. High humidity. Poor ventilation of the printer.	Improve the environmental condition. Check if the fans operate correctly.	

Phenomenon 32. - White Spot (Long) (Random Phenomenon)



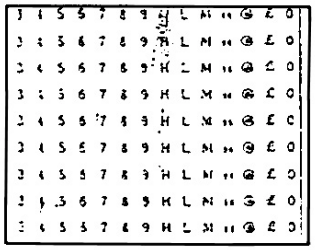
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The surface of the paper is not smooth. (The paper is damp.)	Improve the paper storage condition.	
2. Paper wrinkles exist.	Improve the paper storage condition.	
3. The gap of the Nip Guide Plate W Assembly is incorrect.	Replace the Nip Guide Plate W Assembly.	7.1.3.4. (3), 7-104

Phenomenon 33. - White Spot (B.C.O. - Bead Carrier Out) (Small) (Random Phenomenon)



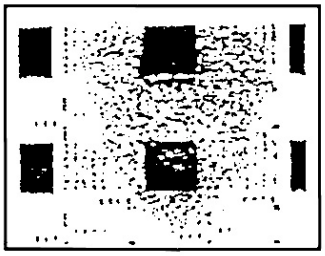
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. The surface voltage is too high.	Clean or replace the Charger Unit.	4.4.8, 4-23 7.1.2.2. (1), 7-6
2. The grid of the Charger Unit is stained.	Clean or replace the Charger Unit. Clean or replace the Erase Lamp.	4.4.8, 4-23 7.1.2.2. (1), 7-6 4.4.9, 4-25 7.1.2.7, 7-67
3. The toner control is incorrect.	Replace the Developer mix.	3.2.2. (2), 3-5

Phenomenon 34. - Smear Defect (Random Phenomenon)



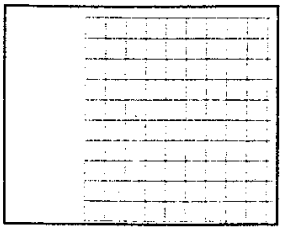
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. Paper jammed in the Drum Unit or the Charger Unit.	Remove the paper. Replace the Drum Wrap Sensor.	7.1.5.1. (12), 7-213
2. The temperature of the Heat Roll is low.	Replace the Fuser Unit.	7.1.3.1. (1), 7-68
3. The Backup Roll is stained.	Replace the Fuser Unit.	7.1.3.1. (1), 7-68
4. The Nip Guide Plate W Assembly is stained.	Clean or replace the Nip Guide Plate W Assembly.	4.4.5, 4-20 7.1.3.4. (3), 7-104

Phenomenon 35. - Smear Defect (Random Phenomenon)



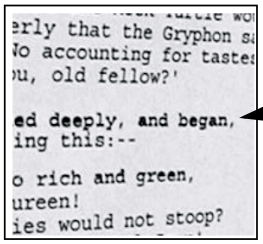
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. Foreign material such as chad is between the developer and the photoconductor. The carrier has dropped.	Remove the foreign material and clean the Developer Unit, the Drum Unit, and the paper path.	4.4.10, 4-26 4.4.12, 4-29
2. Faulty Drum Wrap Sensor.	Replace the Drum Wrap Sensor.	7.1.5.1. (12), 7-213

Phenomenon 36. - White Defect (Print area unmatch)



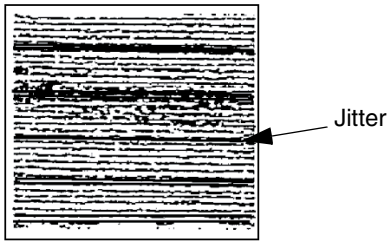
Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. Multi-bypass Tray setting is incorrect. (The printing area shifted to horizontal direction or unmatch).	Check the Multi-bypass Tray. Adjust the size guide on the Multi-bypass Tray according to the paper size. Input the paper size to the Control Panel.	
2. Faulty scanner operation.	Replace the Optical Unit.	7.1.1, 7-1

Phenomenon 37. - Smudging (Character or Half-tone) (Other related phenomenon)



Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. When generating with Thick paper.	The gap of a drum and a NIP Guide Plate W Assembly is extended.	7.1.3.4. (3), 7-104
2. When generation with long paper. (for example: Ledger paper)	Replace: the Registration Roller. Check: Interference with the Registration Roller and the Lower Paper Guide (A).	7.1.3.3. (1), 7-89

Phenomenon 38. - Jitter (Horizontal-line or Half-tone) (Other related phenomenon)



Cause and Inspection Area	Remedy	Maintenance Ref. + Page
1. Drum Motor is fault.	Replace: Drum Motor.	7.1.2.5. (7), 7-53
2. The tension of the Timing belt is loose.	Check: The tension of the Timing Belt.	7.1.2.5. (6), 7-52
3. Wear of the pulley.	Replace: Pulley (Drum) 40 or Pulley (Drum).	7.1.2.5. (10), 7-56 7.1.2.5. (11), 7-57

5.5. Troubles in Other Parts(Abnormal Noise, etc.,)

If any trouble other than “Troubles” on page 5-2 to “Troubles in Print Quality” on page 5-121 such as abnormal noise, rough movement of the operable parts and the like occurs, replace the abnormal part.

5.6. Countermeasures for Paper Jams

5.6.1. Corrective Actions for Paper Jams

Check the jammed paper. Check specially if the leading edge of the paper is damaged or not. If damaged, check if there is any fragment of paper or burr (small projection) in the paper feeding system at the corresponding portion of the damage. There are following two kinds of detail error codes of the printer;

1. The leading edge of paper does not reach the sensor.
2. The trailing edge of paper does not pass through the sensor.

Check the paper jamming condition according to the above information. If the paper jams again, check the paper jamming condition. Record the space between papers. If the vertical path cover is opened when paper jam occurs, the jammed paper automatically ejects from the printer. When checking the status of the remaining paper, open the front cover. This operation shuts down the +24V line and disables automatic paper ejection. then open the other covers.

(1) Paper jammed

  (a) Check if the jammed paper is damaged or not.

(2) Does the paper jam again?

  (a) If jammed, check the paper jamming condition.

(3) Paper jam in the Vertical Path Unit.

  (a) Is the pick roller worn out?

  (b) Is there too much paper dust or adhered to the roller?

  (c) Does the table tilt? Check the tilt when the table is rising.

  (d) Does the last paper jam? Check if the paper is damaged or not.

  (e) Does the paper jam occur right after papers are supplied?

(4) Paper jam in the Registration.

  (a) Check the space between the papers.

  (b) Check the transfer force of the roller in the Vertical Path Unit. When opening the Vertical Path Cover in the status of remaining paper, the roller starts to rotate and the transfer force can be checked.

(5) Skewed paper jams.

  (a) Does a paper jam occur in the specific hopper?

  (b) In which does the paper jam occur in simplex printing or duplex printing?

  (c) Does the paper skew at the Vertical Path Unit?

  (d) Where is the folded paper edge?

(6) Overlapped papers jam.

  (a) Is the Conveyance Belt contaminated?

  (b) Is the leading edge of the paper burred?

(7) Paper jam in the Fuser Unit.
Are there any scratches on the Heat Roll and the Backup Roll?

(a) Is the jammed paper still remaining in the Fuser Unit?

(b) Is the Fuser Unit set at the correct position?

(c) Is the lock lever of the Fuser Unit set at the correct position?

(d) Is there too much toner or paper dust on the separators of the Fuser Unit?

(8) Paper jam in the switch back part.

(a) Check if the paper is largely curled or not.

(b) Check if the paper edge is folded or not.

(c) Check the damaged portion of the paper.

(9) Paper jam in the DUPLEX path.

(a) Does the path gate move smoothly?

(b) Does the solenoid move smoothly in the DUPLEX path when moving it manually?

(c) Check if the edge of the gate is hidden by the metal plate when the path gate is in operation.

(d) Check the stop position of the paper.

(e) Check if the paper folded or not.

5.6.2. Corrective Actions for Dog-eared Paper

(1) Check which side of the paper is folded, back side or front side?

(2) Check which side of the paper is folded, the operator's side or the rear side?

(3) When the paper edge of the operator's side is folded, check if the hopper is inserted to the end or not.

(4) Is the paper edge folded before printing?
Is the paper edge folded before or after fusing?
Is the paper edge folded while DUPLEX transporting?

5.6.3. Corrective Actions for Wrinkled Paper

(1) Is the Fuser Unit set at the correct position?

(2) Are the heat roll and backup roll contaminated?

(3) Check which side of paper is wrinkled, front side or back side?

(4) Is the wrinkled paper type specific? Are long papers such as A3 and B4 sized papers wrinkled?

(5) Is the paper wrinkled only at the trailing edge of the paper?

(6) Is the paper edge folded before fusing or is the paper skewed?

5.6.4. Corrective Actions for Black Streak

(1) Scratching a paper after fusing.

(a) Is the paper scratched by the peeling pawl of the heat roll or backup roll? If scratched, the paper surface becomes uneven and the toner cannot melt evenly. (The image may not be sharp.)

(2) Paper is scratched only at the sample tray.

(a) Is the roller position at the exit of the sample tray lowered? Is the paper waved too much?

5.6.5. Corrective Actions When the Paper is Stained with Silicon Oil

Silicone oil sometimes adheres to the first several papers when printing wide papers(A4, A3 or Tabstock size) right after printing a large amount of narrow papers(B4 size).

5.6.6. Corrective Actions When the Reverse Side of the Paper is Stained at the Start of Printing

(1) Only the back of the first paper is contaminated and the following papers are not contaminated.

(a) Check the contamination on the surface of the Conveyance Belt. If the contamination still occurs even the surface of the Conveyance Belt is cleaned, replace the Conveyance Belt.

(2) The rear side of the first several papers are sometimes contaminated, when printing wide papers(A4, A3 or Tabstock size) right after printing a large amount of narrow papers(B4 size).

(a) Check if the guide for the Conveyance Belt or the guide before fusing is contaminated or not. If contaminated, clean it.

5.6.7. Corrective Actions for E156 Over Skew 7

(1) Investigation of situation in which E156 Over Skew is caused.

Observe whether the paper that stopped in the resist part of the Rear Engine is skewed, when the E156 is detected. If the paper is skewed, confirm whether which place of following a), b), c), and d) causes the skew.

(a) Before the Relay Unit.

(b) Between the entrance of the Relay Unit and before the Decurler Assembly of the Relay Unit.

(c) Around the Decurler Assembly of the Relay Unit.

(d) Between entrance of the Rear Engine and the Resist of the Rear Engine.

1. Remove the Top Cover, the four DC Fans, and the four Finger Guards of the Relay Unit. (Refer to item 7.3.6 on page 7-293)
2. Watch the skew the paper transported at the checkpoint from the direction of the arrow in the following figure and confirm whether which part of (a), (b), (c), and (d) mentioned above causes the skew.

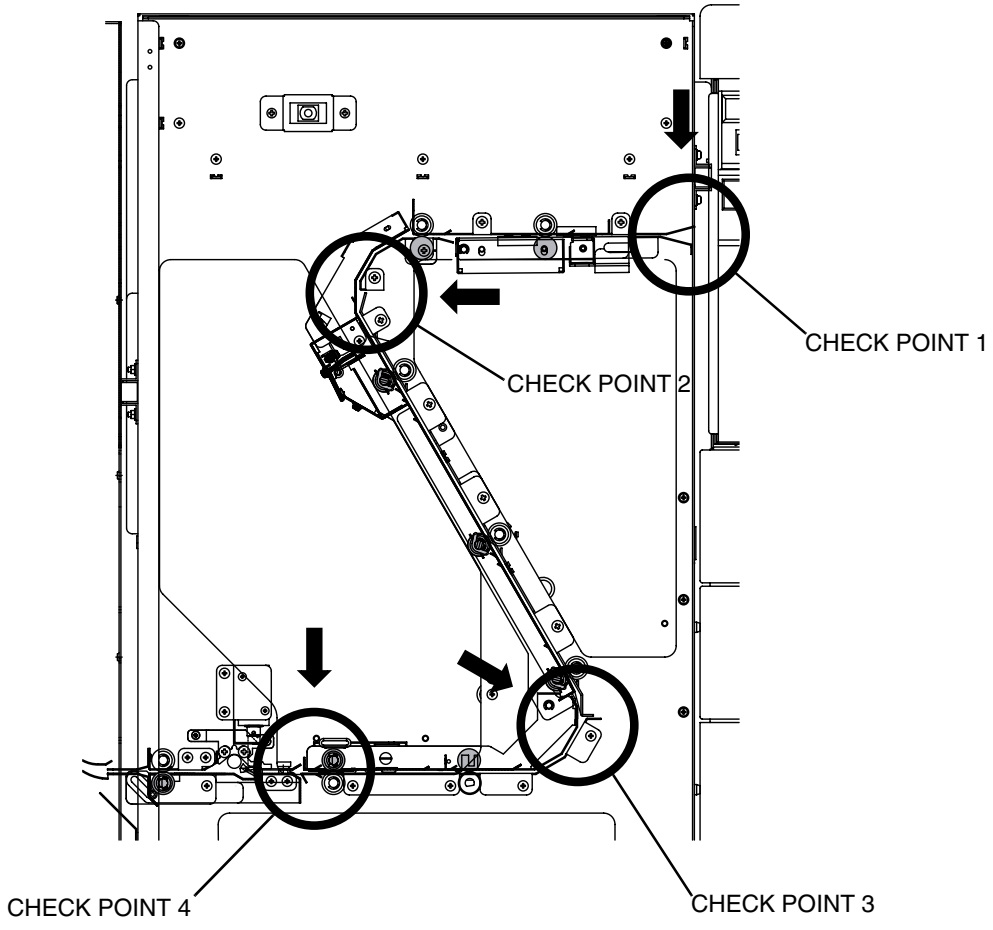


Figure 5-36. Corrective Actions against E156 Over Skew

(2) Corrective Actions against E156 Over Skew 7.

(a) In case the paper skew is caused before the Relay Unit.

1. If the Paper guide is not closed properly, close the paper guide properly.

2. Adjustment of Paper Size Guide of the Hopper
   The gap between the rear size guide and the papers in the Hopper#1 should be adjusted within 1mm.

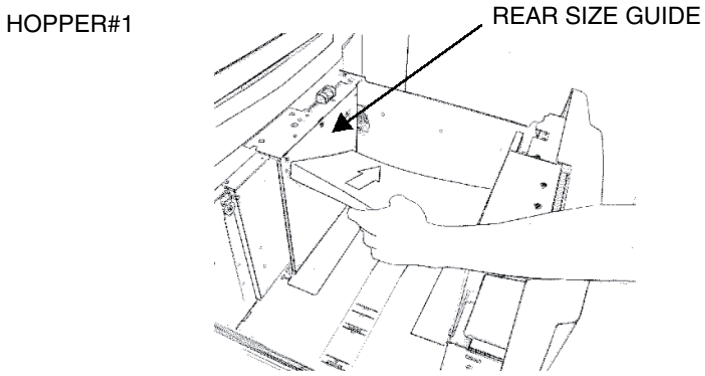


Figure 5-37. Corrective Actions against E156 Over Skew

The gap between the size guide and the papers in the Hopper#2/#3 should be adjusted within 1mm.

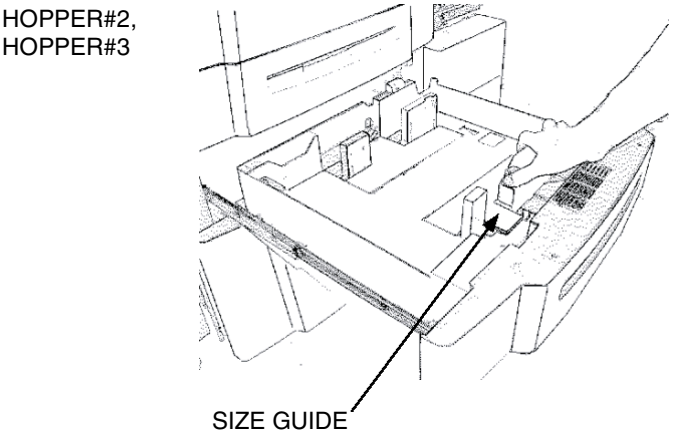


Figure 5-38. Corrective Actions against E156 Over Skew

3. Paper upside down in the Hopper or Paper Change
   When the papers have any curl, set the papers based on the followings or change the papers.

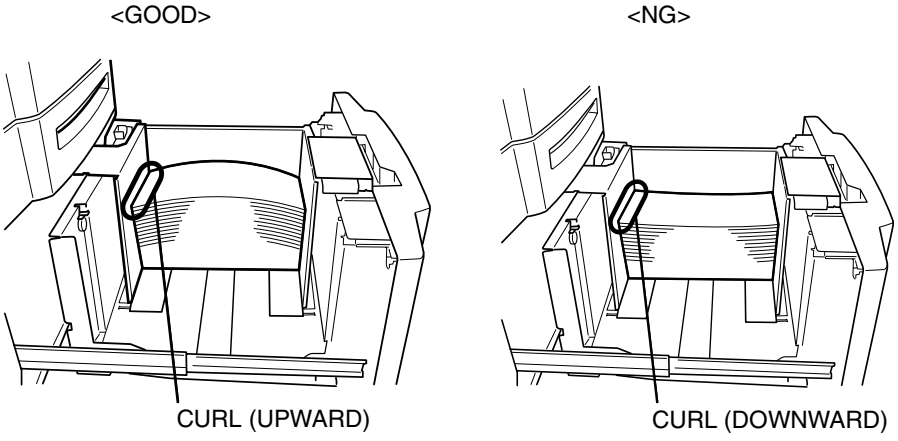


Figure 5-39. Corrective Actions against E156 Over Skew

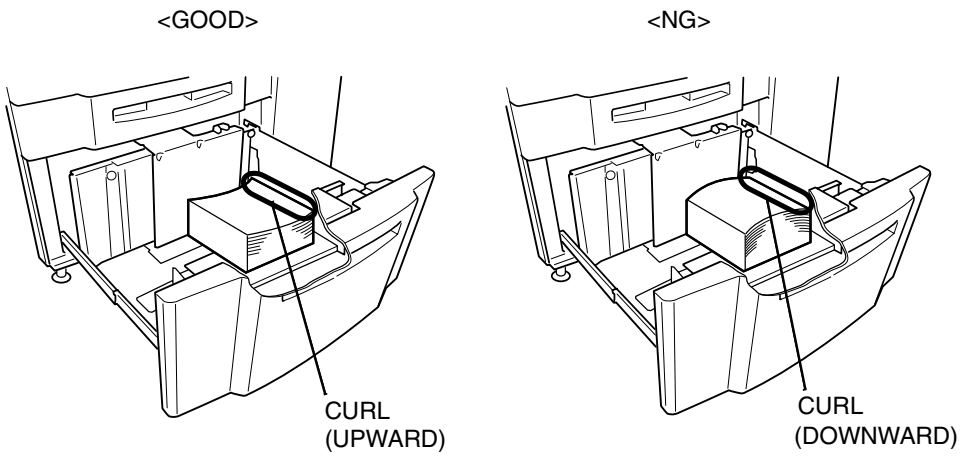
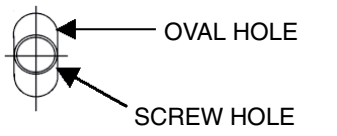


Figure 5-40. Corrective Actions against E156 Over Skew

4. Correction of Connection between Front Engine and Relay Unit
   Confirm the center of the screw hole and the oval hole are matching as shown in figure.

NOTE :	If the floor is soft material such as carpets, there is a possibility that height and the inclination between the engine and the relay unit shift after installation. In that case, there is a possibility to have to install again.



Make sure that the center of the screw hole and the oval hole are matching.

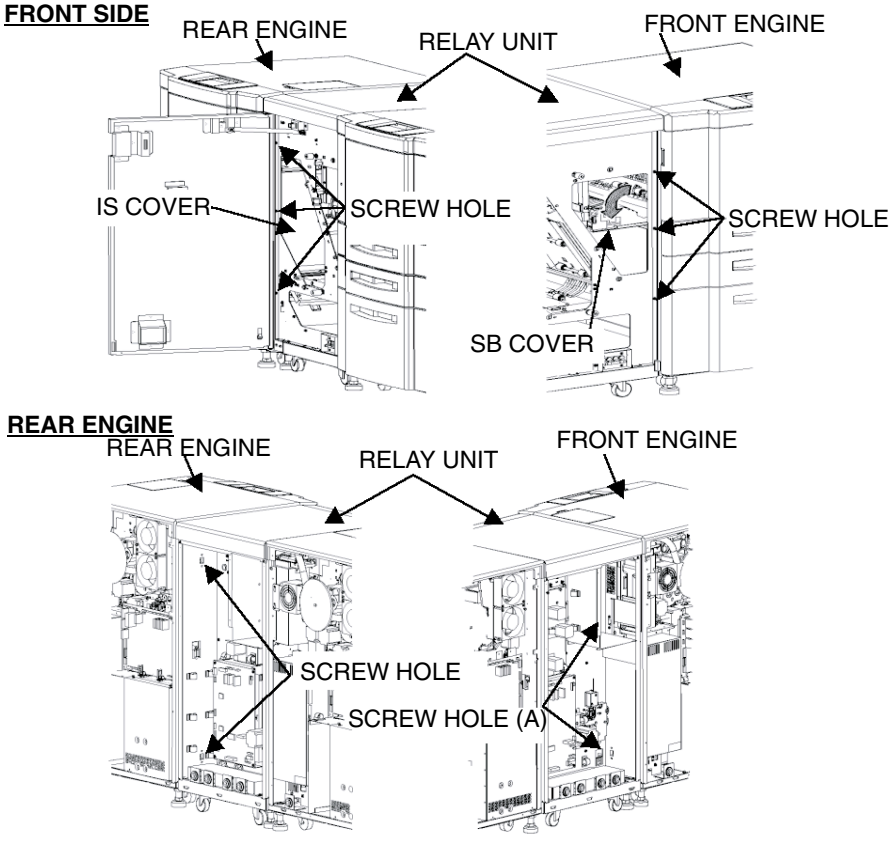


Figure 5-41. Corrective Actions against E156 Over Skew

Confirm the following distances according to the following figure.

i) The gap between the rear engine and the relay unit. (0.5mm or less)

ii) The gap between the relay unit and the front engine. (0.5mm or less)

iii) The gap between all caster and the floor. (1.0mm or more)

iv) The horizontal Inclination and posterior-anterior inclination of each Engine. (2.0mm or less)

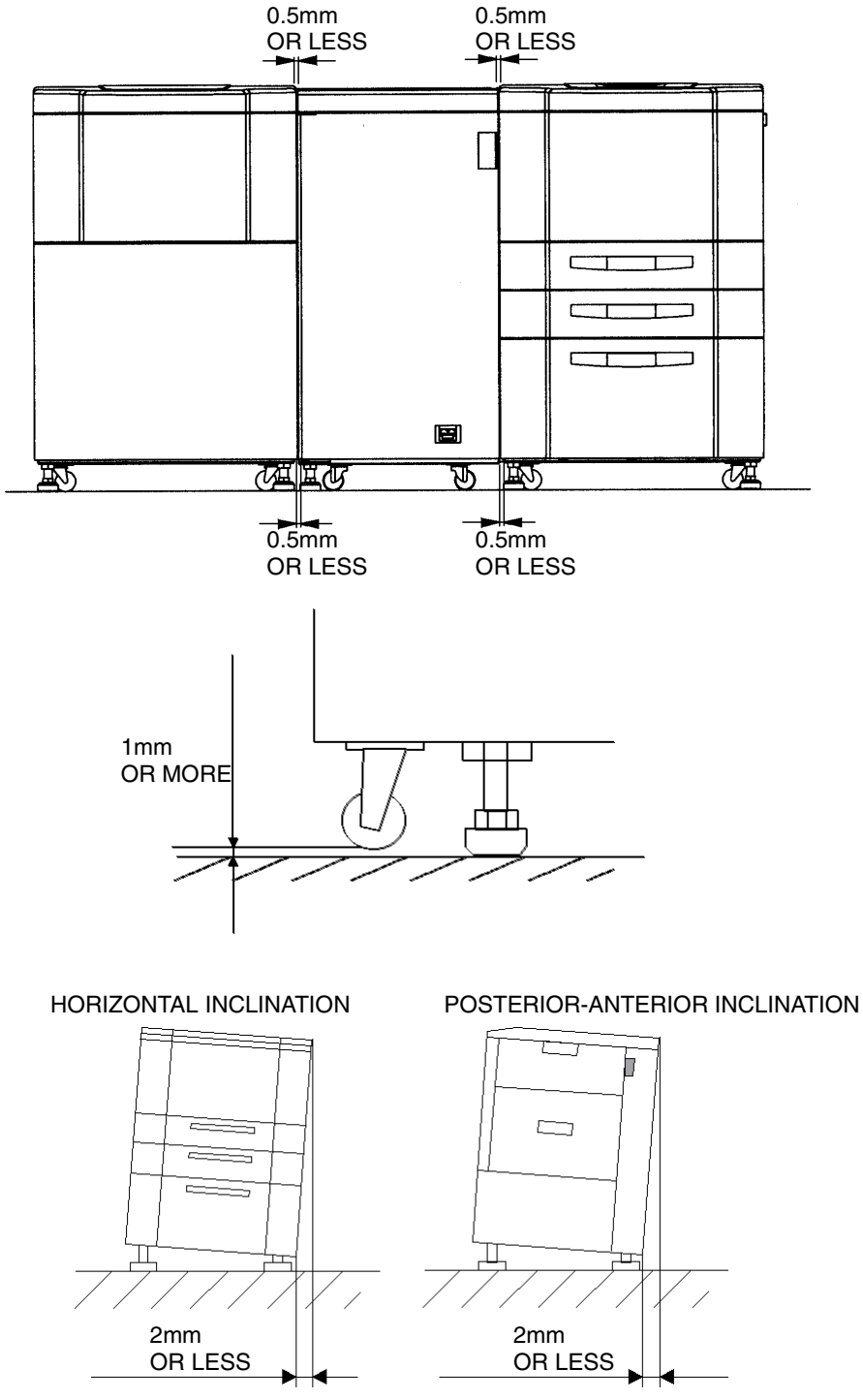


Figure 5-42. Corrective Actions against E156 Over Skew

5. If the ribs of the SB Gate are damaged, replace the SB Gate or the SB Gate Assembly.
   Open the SB Cover and loose a screw to remove the SB Gate. Replace the SB gate, if the ribs of SB gate are damaged. This implementation is effective only to 184 mode or color Duplex mode printing.

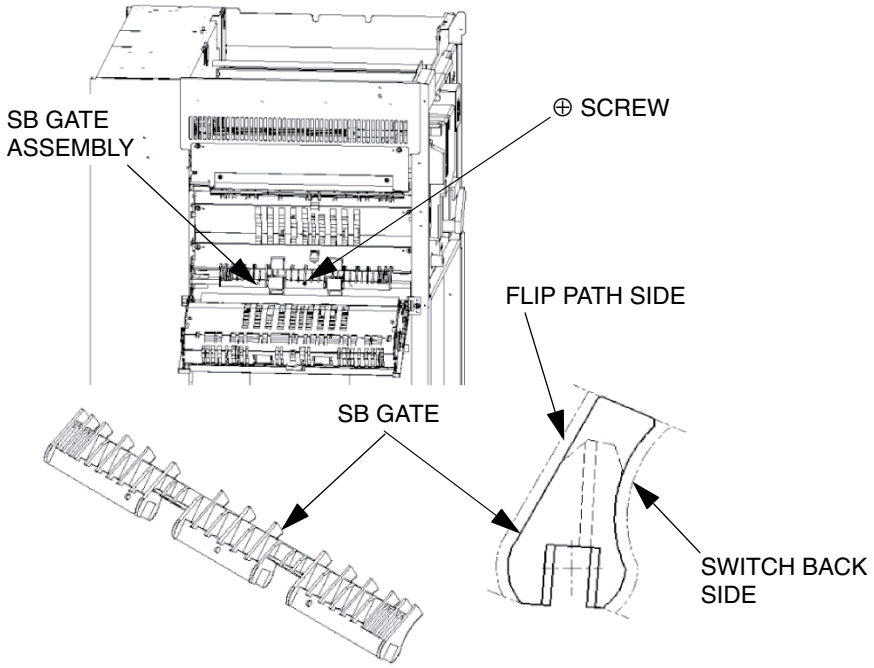


Figure 5-43. Corrective Actions against E156 Over Skew

6. In case the transfer force of the Flip Roller of Front Engine is unbalanced.
   In case the surface of the Pressure Roller is contaminated, clean or replace it.
   In case two rollers of the pressure rollers have some difference of pressure, add some grease according to the following. If much grease is added, the grease may put on the papers.
   Types of Grease : Shell Alvania Grease No.2 or Shell Alvania Grease S
   This implementation is effective only to 184 mode or color Duplex mode printing.

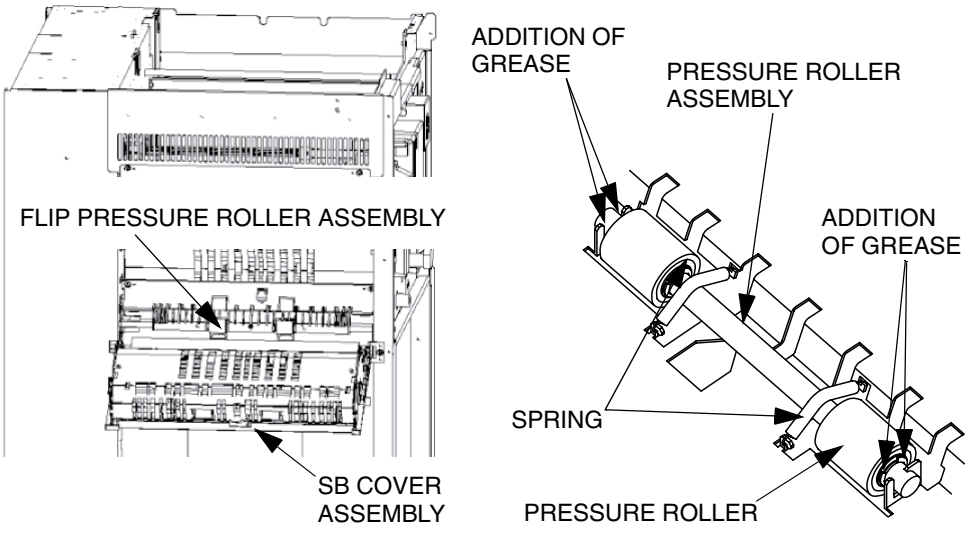


Figure 5-44. Corrective Actions against E156 Over Skew

7. TH Drive Shaft Assembly doesn't rotate normally because the rubber roller of the TH Drive Shaft Assembly touches the TH Belt Frame Assembly.
If the rubber roller touches the TH Belt Frame Assembly, replace the TH Drive Shaft Assembly or TH Unit Assembly (Refer to item 7.1.3.4. (5) on page 7-106) or cut down the both ends of the Rubber Roller by about 1mm.

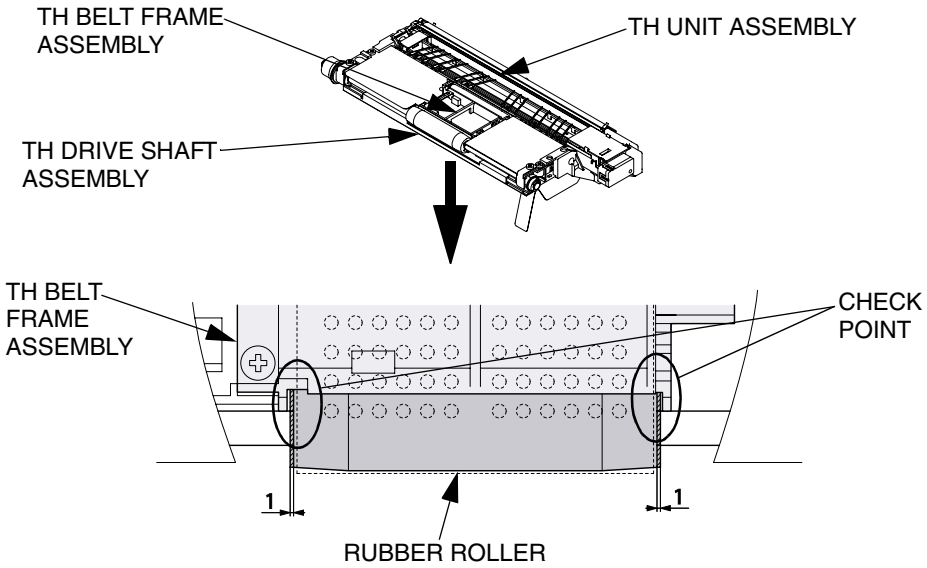


Figure 5-45. Corrective Actions against E156 Over Skew

8. The drum tends to be wrapped by the paper during printing.
If the Detach Voltage is not proper, adjust the Detach Voltage by OCP. (Refer to item 8.6.1 on page 8-110).

9. The Resist Pressure Roller of the Front Engine doesn't rotate correctly.
If the Resist Pressure Roller is worn out, replace it. (Refer to item 7.1.3.3. (1) on page 7-89)
If the Spring Holder (R) is faulty or the position of the Spring Holder (R) is not correct, clean, reset or replace it. (Refer to item 7.1.3.3. (3) on page 7-93).

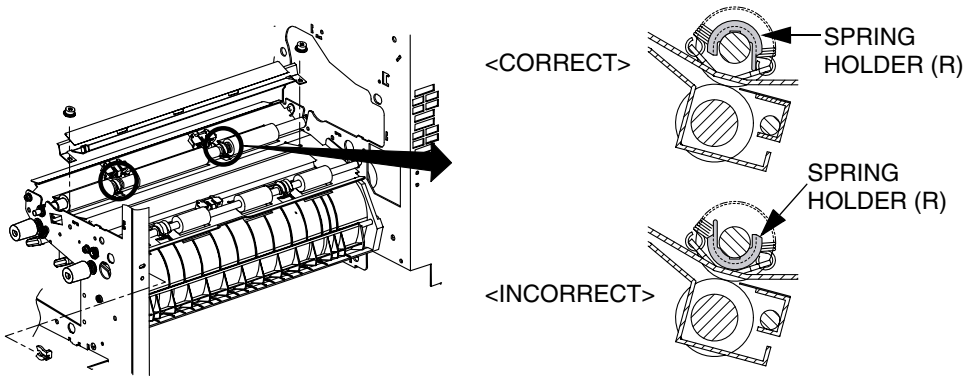


Figure 5-46. Corrective Actions against E156 Over Skew

10. The mounting of the Skew Sensor of Front Engine is faulty.Reset the Skew Sensor 1 (S301) and Skew Sensor 2 (S302). (Refer to item 7.1.3.3. (5) on page 7-96)

(b) In case the paper skew is caused between the entrance of the Relay Unit and before the Decurler Assembly of the Relay Unit.

1. Specify the Relay Unit's Pressure Roller Assembly that causes the paper skew.

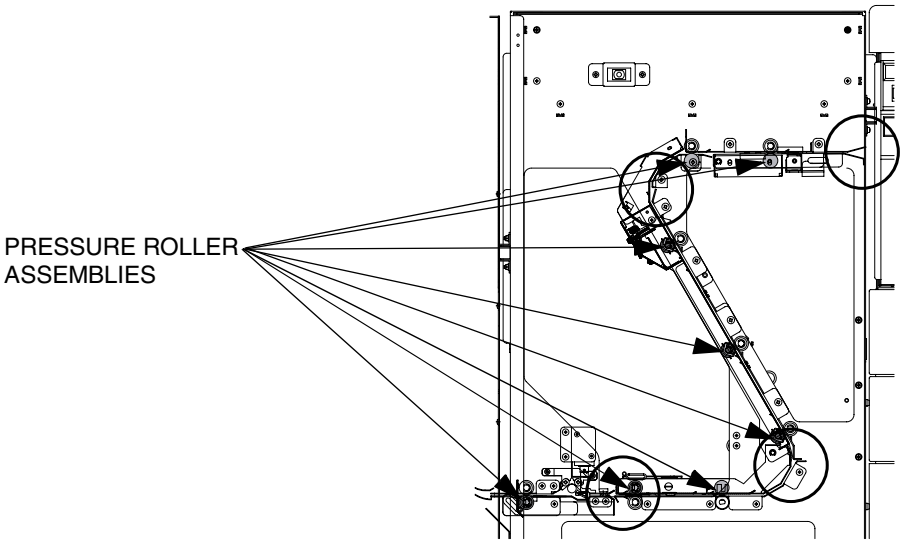


Figure 5-47. Corrective Actions against E156 Over Skew

In case two rollers of the pressure rollers used in the Relay Unit have some difference of pressure, add some grease according to the following. If much grease is added, the grease may put on the papers.

Types of Grease : Shell Alvania Grease No.2 or Shell Alvania Grease S.

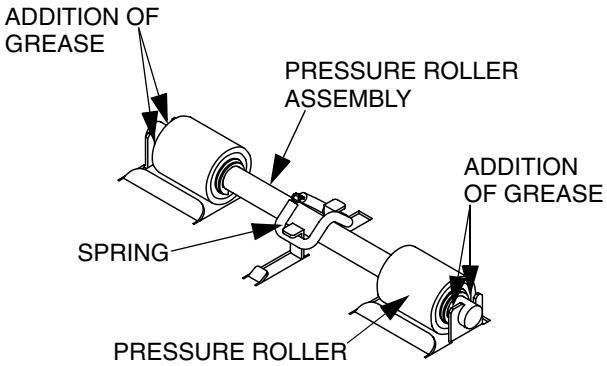


Figure 5-48. Corrective Actions against E156 Over Skew

In case the Paper Feed Roller does not touch the Pressure Roller (The Pressure Roller doesn't rotate when the Paper Feed Roller is turned by the hand), replace the Pressure Roller Assembly with the new type.

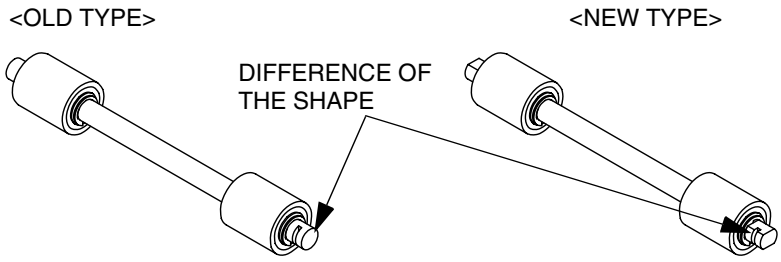


Figure 5-49. Corrective Actions against E156 Over Skew

(c) In case the paper skew is caused Around the Decurler Assembly of the Relay Unit.

1. Confirm whether the weight setting of the paper is correct.
   Please set it correctly by using OCP, if it is not correct..
2. Observe the curl direction of the paper before the Decurler Assembly of the relay unit.
   If the paper before the Decurler Assembly have a downward curl, the downward curl of the paper grows more and more with entering the Decurler Assembly and it might cause E156 jam in the resist part of the Rear Engine. If the paper have downward curl before the Decurler Assembly, change the setup for the Decurler Assembly of the Relay Unit from "Auto Select" to "Disable" by using OCP. (Refer to User's Guide, Chapter 2 Operator Control Panel on page 2-19) But, if the paper skew is not improved by the above-mentioned method, return it to "Auto select".

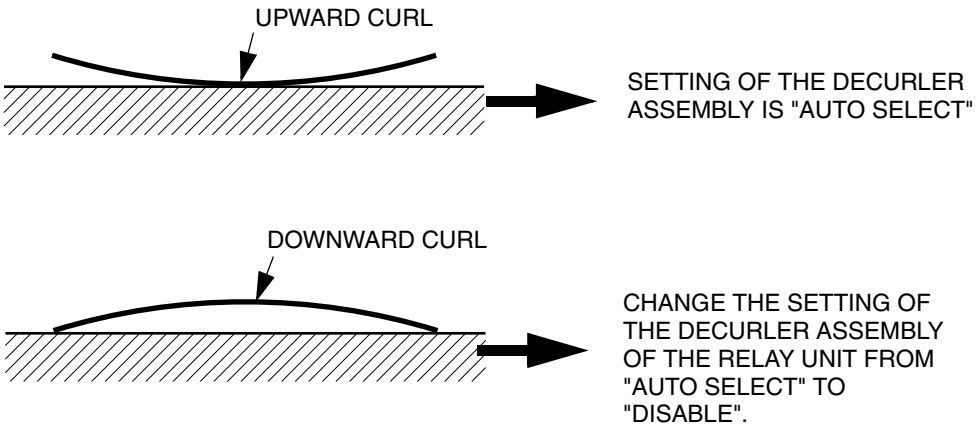


Figure 5-50. Corrective Actions against E156 Over Skew

3. The paper touches the tip of the Gate Assembly of the Decurler Assembly. Confirm whether the Gate Assembly touches Lower Paper Guide when the solenoid is on. When not touching replace the solenoid. (Refer to item 7.3.7 on page 7-294)

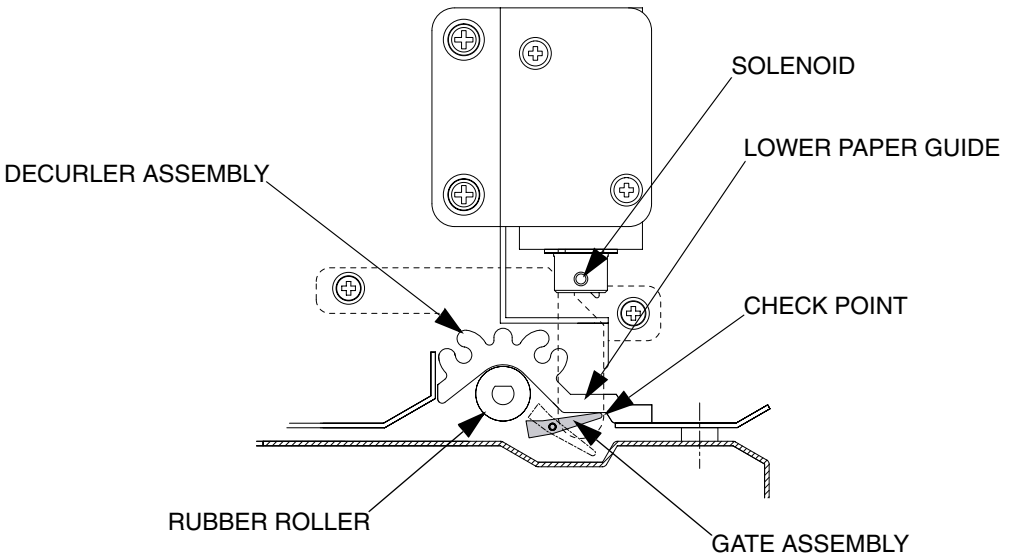


Figure 5-51. Corrective Actions against E156 Over Skew

4. Guide plate of Relay unit is incorrect

   Confirm the Upper and lower Guide plate are parallel and the gap of both Guide plates are 1mm or more.

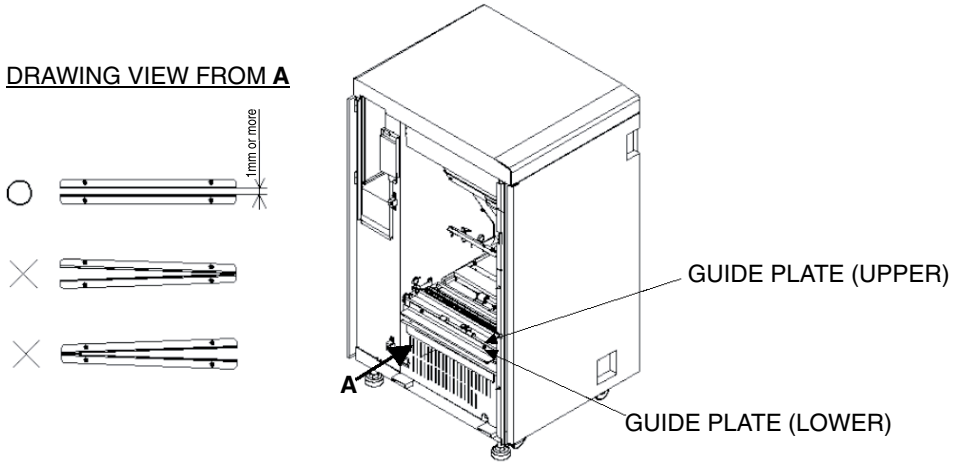


Figure 5-52. Corrective Actions against E156 Over Skew

5. The transfer force of the Pressure Roller Assembly of the Paper Guide (BL1) Assembly is unbalanced.

   In case two rollers of the pressure rollers used in the Relay Unit have some difference of pressure, add some grease according to the following. If much grease is added, the grease may put on the papers.

   Types of Grease : Shell Alvania Grease No.2 or Shell Alvania Grease S.

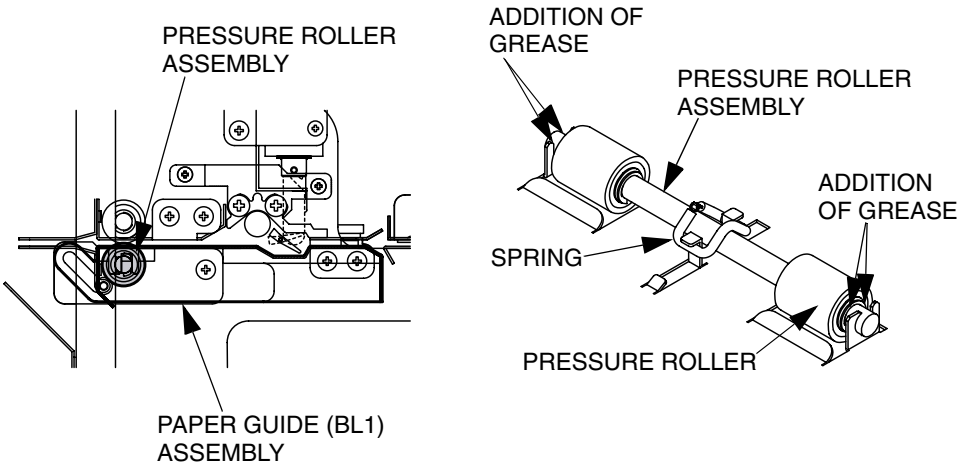


Figure 5-53. Corrective Actions against E156 Over Skew

In case the Paper Feed Roller does not touch the Pressure Roller (The Pressure Roller doesn't rotate when the Paper Feed Roller is turned by the hand), replace the Pressure Roller Assembly with the new type.

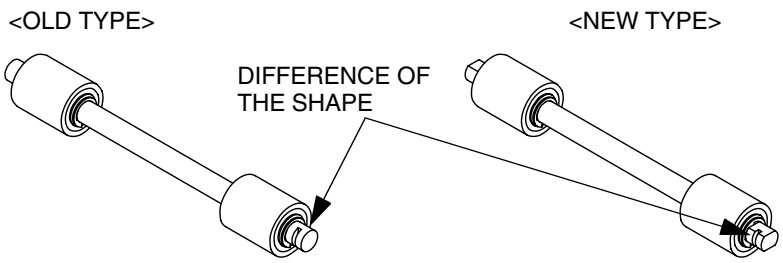


Figure 5-54. Corrective Actions against E156 Over Skew

(d) In case the paper skew is caused between entrance of the Rear Engine and the Resist of the Rear Engine.

1. Correction of Connection between Relay Unit and Rear Engine
   Confirm the center of the screw hole and the oval holes are matching. (Refer to (2) (a) 4.).
2. The transfer force of the Vertical path Unit of Rear Engine is unbalanced.
   Clean or replace or reset the Rubber Roll Shaft Assembly. (Refer to item 7.1.4.3. (6) on page 7-184)
3. The mounting of the IS Cover of Rear Engine is faulty.
   Reset the IS Cover.
4. The Resist Pressure Roller of the Rear Engine doesn't rotate correctly.
   If the Resist Pressure Roller is worn out, replace it. If the Spring Holder (R) is faulty, clean or replace it. (Refer to (2) (a) 9.)
5. The mounting of the Skew Sensor of Rear Engine is faulty.
   Reset the Skew Sensor 1 (S301) and Skew Sensor 2 (S302). (Refer to item 7.1.3.3. (5) on page 7-96)
6. Adjustment of the S Paper Guide Gap.
   If the gap between the S Paper Guide and the Resist Roller is out of the distance from 0.2mm to 0.4mm, adjust it. (Refer to item 7.1.3.3. (7) on page 7-99)

5.6.8. Corrective Actions for Skewed or Shifted Paper

(1) Specification of the skewed or shifted side

Print the cross pattern about 10 sheets by OCP, and confirm the skewed or shifted side.

(a) Front side of Front Engine.

(b) Back side of Front Engine.

(c) Front side of Rear Engine.

(d) Back side of Rear Engine.

(2) Corrective Actions for Skewed or Shifted Paper

(a) Front side of Front Engine.

1. Perform the item described in 5.6.7. (2) (a).
2. Confirm whether Paper Guide **B** or Paper Guide **C** of Vertical Path Unit has been worn out.
   If they have been worn out, replace them.

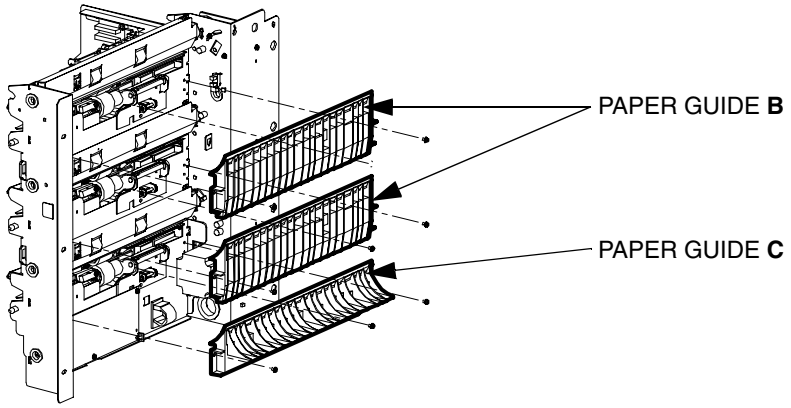


Figure 5-55. Corrective Actions against Paper Skewed or Shifted Paper

3. Confirm whether the Hopper Spacer Assembly for the 2000 Sheet Hopper sticks to the RH Plate and the LH Plate (2) as shown in the figure below.
   If the Hopper Spacer Assembly come off, stick it according to the following figure.

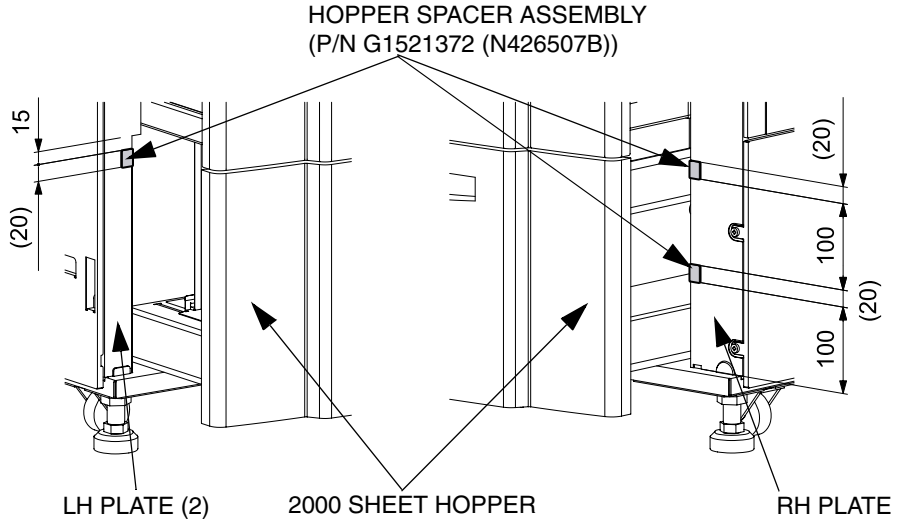


Figure 5-56. Corrective Actions against Paper Skewed or Shifted Paper

(b) Back side of Front Engine.

1. Perform the item described in 5.6.7. (2) (a).
2. Confirm whether the difference of the gap "A" and the gap "B" between U Paper Guide (R) Assembly and U Paper Guide (L) Assembly of the Front Engine is within in ±1mm.
   If the gap is out of the range, correct the gap by twisting U Paper Guide (R) Assembly in the direction of the arrow so that the difference of the gap is within in ±1mm.

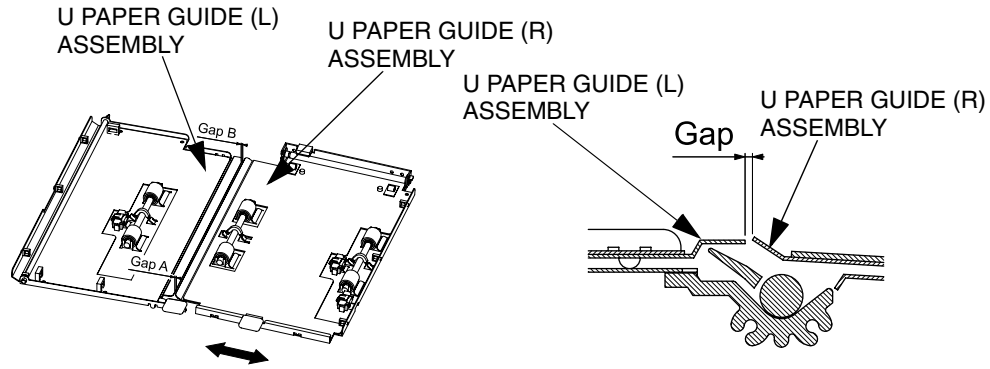


Figure 5-57. Corrective Actions against Paper Skewed or Shifted Paper

3. Adjustment of the SB Roller Spring Tension of the Front Engine
   In case the gap between printed line and the paper edge is narrow at the front side of the leading edge of the papers rather than the rear side, adjust the SP hook. (Refer to item 7.1.3.5. (10) on page 7-131)
   This adjustment is applied only to the color Duplex printing.

(c) Front side of Rear Engine.

1. Perform the item described in 5.6.7. (2) (a), (b), and (c)
   In case the Paper Feed Roller does not touch the Pressure Roller (The Pressure Roller doesn't rotate when the Paper Feed Roller is turned by hand), replace the Pressure Roller Assembly with the new type.

(d) Back side of Rear Engine.

1. Perform the item described in 5.6.7. (2) (d).
2. Confirm whether the difference of the gap "A" and the gap "B" between U Paper Guide (R) Assembly and U Paper Guide (L) Assembly of the Rear Engine is within in ±1mm.
   If the gap is out of the range, correct the gap by twisting U Paper Guide (R) Assembly in the direction of the arrow so that the difference of the gap is within in ±1mm.

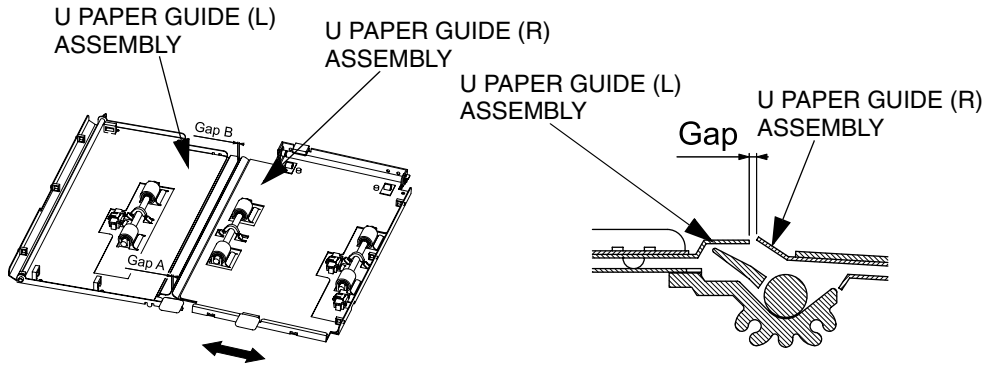


Figure 5-58. Corrective Actions against Paper Skewed or Shifted Paper

3. Adjustment of the SB Roller Spring Tension of the Rear Engine
   In case the gap between printed line and the paper edge is narrow at the front side of the leading edge of the papers rather than the rear side, adjust the SP hook. (Refer to item 7.1.3.5. (10) on page 7-131)
   This adjustment is applied only to the color Duplex printing.

5.7. Error Code Indication (Finisher SR5000)

Note: These error codes are concerning to the Finisher SR5000.
Finisher SR5000: Refer to Finisher SR5000 Users Guide or Supplement 8 for each measure.

Detail Error Code	Display Message	Error Name	Description	Page No.
E009	Elevator Tray Paper Full Remove Paper	Shift Tray Full 1	Shift Tray is full of paper.	Finisher SR5000 Users Guide
E082	Staple Trimmings Hopper Check Trimmings Hopper	Staple Trimmings Hopper Full / Non-set	Staple Trimmings Hopper is Full or not set.	
E00D	Upper Tray Paper Full Remove Paper	Proof Tray Full	Proof Tray is full.	
E01A	Low Staple (F)	Low Staple (F)	Detected no needle of stapler. (front)	
E03F	Finisher Front Cover Open Close Cover	Finisher Front Cover Open	The finisher front door is open.	
E04A	Transit Pass Unit Cover Open Close Cover	Transit Pass Front Cover Open	The transit pass front cover is open.	5-165
E060	Paper in Transit Pass Remove Paper	Paper On Paper Path 13 (Transit Pass Sensor)	Paper is detected on the transit pass sensor.	5-166
E064	Paper in Finisher Remove Paper	Paper On Paper Path 14 (Entrance Sensor)	Paper is detected on the entrance sensor.	Finisher SR5000 Users Guide
E065	Paper in Finisher Remove Paper	Paper On Paper Path 15 (Stapler Exit Sensor)	Paper is detected on the stapler exit sensor.	
E066	Paper in Finisher Remove Paper	Paper On Paper Path 16 (Jam Detection Sensor)	Paper is detected on the jam detection sensor.	
E067	Paper in Finisher Remove Paper	Paper On Paper Path 17 (Staple Tray Sensor)	Paper is detected on the staple tray sensor.	
E068	Paper in Finisher Remove Paper	Paper On Paper Path 18 (Upper Tray Exit Sensor)	Paper is detected on the upper tray exit sensor.	
E06E	Paper in Finisher Remove Paper	Paper On Paper Path 58 (Shift Exit Sensor)	Paper is detected on the shift exit sensor.	
E136	Paper Jam in Transit Pass Remove Paper	Transit Pass Unit Type DDP Jam 1	Paper did not arrive at transit pass sensor.	5-167
E137	Paper Jam in Transit Pass Remove Paper	Transit Pass Unit Type DDP Jam 2	Paper did not depart from transit pass sensor.	5-167
E1C1	Paper Jam Finisher Remove Paper	Drive Jam	Drive jam occurred.	Finisher SR5000 Users Guide
E1C2	Paper Jam Finisher Remove Paper	Shift Tray Lift Jam	Shift tray lift jam occurred.	
E1D0	Paper Jam Finisher Remove Paper	FNS Lead Jam 1	Paper did not arrive at entrance sensor.	
E1D1	Paper Jam Finisher Remove Paper	FNS Lead Jam 2	Paper did not arrive at shift tray exit sensor.	
E1D2	Paper Jam Finisher Remove Paper	FNS Lead Jam 3	Paper did not arrive at pre-stack sensor.	
E1D3	Paper Jam Finisher Remove Paper	FNS Lead Jam 4	Paper did not arrive at stapler tray sensor.	

Detail Error Code	Display Message	Error Name	Description	Page No.
E1D4	Paper Jam Finisher Remove Paper	FNS Trail Jam 1	Paper did not depart from entrance sensor.	Finisher SR5000 Users Guide
E1D5	Paper Jam Finisher Remove Paper	FNS Trail Jam 2	Paper did not depart from shift exit sensor.	
E1D6	Paper Jam Finisher Remove Paper	FNS Trail Jam 3	Paper did not depart from pre-stack paper sensor.	
E1D7	Paper Jam Finisher Remove Paper	FNS Trail Jam 4	Paper did not depart from stapler tray exit sensor.	
E1D8	Paper Jam Finisher Remove Paper	FNS Trail Jam 5	Paper did not arrive at upper tray exit sensor.	
E1D9	Paper Jam Finisher Remove Paper	FNS Trail Jam 5	Paper did not depart from upper tray exit sensor.	
E1DA	Paper Jam Finisher Remove Paper	FNS Trail Jam 6	Paper jam occurred in the stack feed-out.	
E1DB	Paper Jam Finisher Remove Paper	Jogger Jam	Jogger jam occurred.	
E1DC	Paper Jam Finisher Remove Paper	Shift Tray Jam	Shift tray jam occurred.	
E1DD	Paper Jam Finisher Remove Paper	Staple Jam	Staple jam occurred.	
E1DE	Paper Jam Finisher Remove Paper	Stack Feed-Out Jam	Stack feed-out jam occurred.	
E1DF	Paper Jam Finisher Remove Paper	Pre-Stack Jam	Pre-stack jam occurred.	
E260	Call for Service E260	Finisher 1 CPU Error	SR5000 did not respond to a command.	
E262	Call for Service E262	Finisher 1 Incorrect Command	SR5000 detected an interface error.	
E2C0	Call for Service E2C0	Upper Transport Motor	Abnormality was detected in the Upper Transport Motor.	Sup. 8 SC720
E2C1	Call for Service E2C1	Lower Transport Motor	Abnormality was detected in the Lower Transport Motor.	Sup. 8 SC730
E2C2	Call for Service E2C2	Staple Movement Motor	Abnormality was detected in the Staple Movement Motor.	Sup. 8 SC742
E2C3	Call for Service E2C3	Stapler Rotation Motor	Abnormality was detected in the Stapler Rotation Motor.	Sup. 8 SC741
E2C4	Call for Service E2C4	Stapler Hammer Motor	Abnormality was detected in the Stapler Hammer Motor.	Sup. 8 SC740
E2C5	Call for Service E2C5	Upper Tray Exit Motor	Abnormality was detected in the Upper Tray Exit Motor.	Sup. 8 SC731
E2C7	Call for Service E2C7	Shift Tray Exit Motor	Abnormality was detected in the Shift Tray Exit Motor.	Sup. 8 SC732
E2C8	Call for Service E2C8	Upper Tray Junction Gate Motor	Abnormality was detected in the Upper Tray Junction Gate Motor.	Sup. 8 SC734
E2C9	Call for Service E2C9	Pre-Stack Junction Gate Motor	Abnormality was detected in the Pre-Stack Junction Gate Motor.	Sup. 8 SC736

Detail Error Code	Display Message	Error Name	Description	Page No.
E2CA	Call for Service E2CA	Pre-Stack Transport Motor	Abnormality was detected in the Pre-Stack Transport Motor.	Sup. 8 SC737
E2CB	Call for Service E2CB	Pre-Stack Stopper Motor	Abnormality was detected in the Pre-Stack Stopper Motor.	Sup. 8 SC738
E2CC	Call for Service E2CC	Drag Roller Motor	Abnormality was detected in the Drag Roller Motor.	Sup. 8 SC754
E2CD	Call for Service E2CD	Drag Drive Motor	Abnormality was detected in the Drag Drive Motor.	Sup. 8 SC753
E2CE	Call for Service E2CE	Stack Plate Motor (Center)	Abnormality was detected in the Stack Plate Motor (Center).	Sup. 8 SC746
E2CF	Call for Service E2CF	Stack Plate Motor (Front)	Abnormality was detected in the Stack Plate Motor (Front).	Sup. 8 SC747
E2D0	Call for Service E2D0	ED089 PK Driver	Abnormality was detected on the ED089 PK driver in the Transit Pass Unit Type DDP.	5-168
E2D1	Call for Service E2D1	Stack Plate Motor (Rear)	Abnormality was detected in the Stack Plate Motor (Rear).	Sup. 8 SC748
E2D2	Call for Service E2D2	Jogger Motor	Abnormality was detected in the Jogger Motor.	Sup. 8 SC721
E2D3	Call for Service E2D3	Stack Feed-Out Belt Motor	Abnormality was detected in the Stack Feed-Out Belt Motor.	Sup. 8 SC745
E2D4	Call for Service E2D4	Top Fence Motor	Abnormality was detected in the Top Fence Motor.	Sup. 8 SC775
E2D5	Call for Service E2D5	Bottom Fence Motor	Abnormality was detected in the Bottom Fence Motor.	Sup. 8 SC776
E2D6	Call for Service E2D6	Exit Guide Motor	Abnormality was detected in the Exit Guide Motor.	Sup. 8 SC725
E2E7	Call for Service E2E7	Stapler Exit Motor	Abnormality was detected in the Stapler Exit Motor.	Sup. 8 SC733
E2E8	Call for Service E2E8	Stapler Junction Gate Motor	Abnormality was detected in the Stapler Junction Gate Motor.	Sup. 8 SC735
E2E9	Call for Service E2E9	Shift Motor	Abnormality was detected in the Shift Motor.	Sup. 8 SC755
E2EA	Call for Service E2EA	Positioning Roller Motor	Abnormality was detected in the Positioning Roller Motor.	Sup. 8 SC723
E2EB	Call for Service E2EB	Positioning Drive Motor	Abnormality was detected in the Positioning Drive Motor.	Sup. 8 SC724
E2EC	Call for Service E2EC	Stapler Tray Lift	Abnormality was detected in the Stapler Tray Lift.	Sup. 8 SC754
E2ED	Call for Service E2ED	Shift Tray Jogger Motor	Abnormality was detected in the Shift Tray Jogger Motor.	Sup. 8 SC726
E2EE	Call for Service E2EE	Shift Tray Jogger Retraction Motor	Abnormality was detected in the Shift Tray Jogger Retraction Motor.	Sup. 8 SC728

5.7.1. E04A TRANSIT PASS UNIT COVER OPEN

PRIMARY FACTOR;	Detected that the Push Button Switch is turned OFF. When the Front Cover is open during printing, this status is detected and is not canceled until the Reset Switch is pressed. If the cover is closed when the printer is not in operation, the status is automatically canceled.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. FRONT COVER OPEN is detected because the Front Cover is open.	1. Transit Pass Unit Type DDP Front Cover is open.	Close the Transit Pass Unit Type DDP Front Cover.	
2. FRONT COVER OPEN is detected though the Front Cover is closed.	1. The mounting of the Transit Pass Unit Type DDP Front Cover is faulty. Check points: The protuberance of the cover does not coincide with the hold of the switch. The switch is not pressed deeply enough at the protuberance of the cover.	Reset the Transit Pass Unit Type DDP Front Cover correctly.	
	2. The protuberance of the Transit Pass Unit Type DDP Front Cover is faulty.	Replace: Transit Pass Unit Type DDP Front Cover Assembly	
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable S802-J420 or reset the connector in the correct position.	
	4. Switch fault.	Replace: Push Button Switch (S802)	7.4.11, 7-325
	5. PCB fault.	Replace: EDxxx Assembly	7.4.7, 7-321

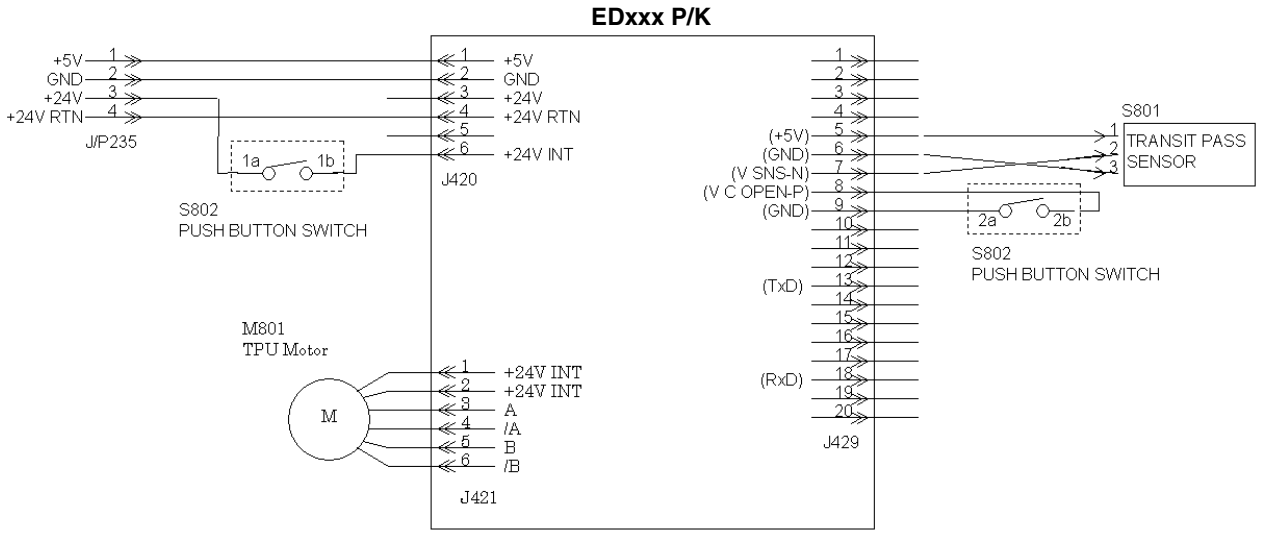


Figure 5-59. Error Code E04A

5.7.2. E060 PAPER ON PAPER PATH 13

PRIMARY FACTOR;	Detected that the sensor 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 (S801)	
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable or reset the connector in the correct position.	
	4. The mounting of the Sensor is faulty.	Reset the Sensor correctly.	
	5. Sensor fault.	Replace: Transit Pass Sensor (S801)	7.4.10, 7-324
	6. PCB fault.	Replace: EDxxx P/K	7.4.7, 7-321

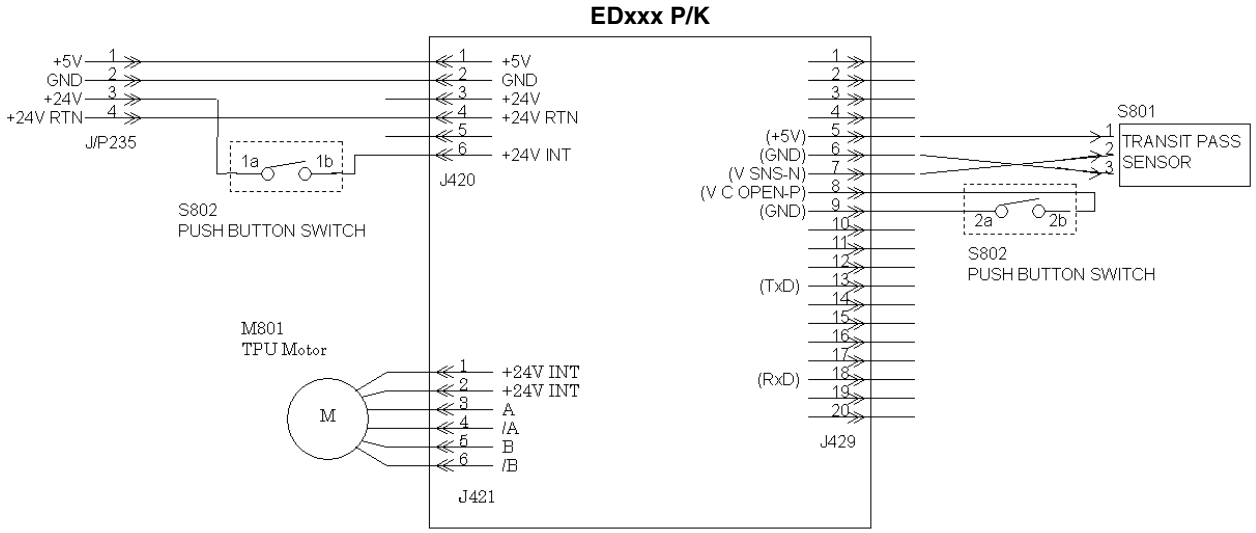


Figure 5-60. Error Code E060

5.7.3 E136 PAPER TRANSIT PASS UNIT JAM 1
E137 PAPER TRANSIT PASS UNIT JAM 2

PRIMARY FACTOR; E136: Paper did not arrive at the Transit Pass Sensor. E137: Paper did not depart from the Transit Pass Sensor.			
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Pag**
1. Paper jam occurs.	1. Paper is skewed.	Remove: Skewed paper	
	2. Foreign substance is on the paper path.	Remove: Foreign substance	
	3. Roller friction or insufficient pressure force of the Idler Roller.	Replace: Transit Pass Roller	7.4.6, 7-320
	4. The motor steps out due to overloading.	Check: Load of the TPU Motor (M801)	
	5. Motor fault	Replace: TPU Motor (M801)	7.4.4, 7-318
	6. PCB fault	Replace: CPxxx Assembly EDxxx Assembly	7.1.5.1. (13), 7-214 7.4.7, 7-321
	7. Paper guide is not closed properly.	Close the paper guide properly.	
	8. Transit Path Unit is not exactly connected with Engine.	Check connection of Engine and Transit Path Unit.	
	9. Setting of the DIP SW is faulty.	Set the DIP SW correctly.	
	10. Revision of Engine or /and Container Stacker firmware are faulty.	Download the Engine or/and Container Stacker firmware with SR5000 complient.	
2. The Transit Pass Sensor detected the jam though a jam does not occur.	1. The Sensor is contaminated.	Cleaning: Transit Pass Sensor (S801)	
	2. The breaking of cables, or the disconnecting of connectors.	Repair the cable P429-S801 or reset the connector in the correct position.	
	3. Sensor fault. Check if the E060 error occurs on initialization after masking of the Transit Pass Sensor window. Then Transit Pass Sensor is normal.	Replace: Transit Pass Sensor (S801)	7.4.10, 7-324

EDxxx P/K

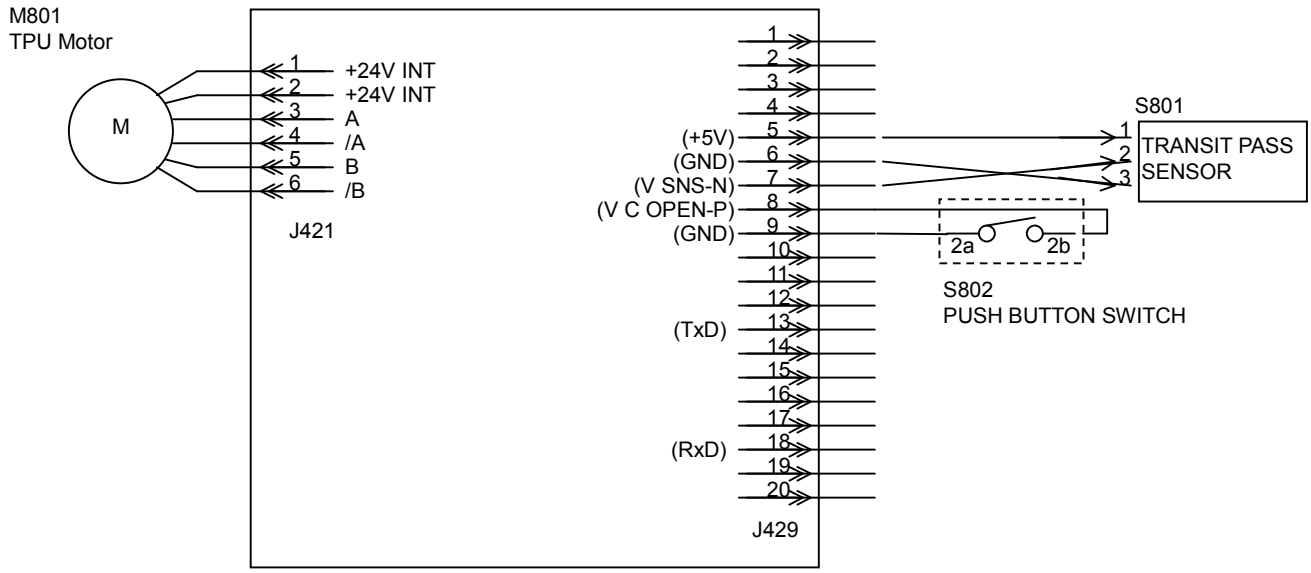


Figure 5-61 Error Codes E136, E137

5.7.4 E2D0 TRANSIT PASS UNIT DRIVER ERROR

PRIMARY FACTOR; Abnormal drive power supply is detected on the ED089 P/K of the Transit Pass Unit Type DDP.			
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Pag**
1. White pin of the +24V circuit breaker (CB1) on the EDxxx P/K is not protruded.	1. The breaking of cables, or the disconnecting of connectors.	Repair the cable or reset the connector in the correct position. Power supply (CN1)-RB301 P/K Power supply (CN2)-EDxxx P/K Power supply (CN2)-P820 Power supply (CN3)-EDxxx P/K P621-RB301 P/K	3.13, 3-38
	2. PCB fault	Replace: EDxxx Assembly RB301 Assembly	7.4.7, 7-321 7.4.8, 7-322
	3. Power Supply fault	Replace: Power supply	7.1.5.1. (16), 7-217
	4. Setting of the DIP SW is faulty.	Set the DIP SW correctly.	
	5. Revision of Engine or /and Container Stacker firmware are faulty.	Download the Engine or/and Container Stacker firmware with SR5000 complient.	
2. White pin of the +24V circuit breaker (CB1) on the EDxxx P/K is protruded.	1. +24V is over current because of short circuit of the load.	Load isolation from Power Supply. Power supply (CN2)-P822 J421-M801	3.13, 3-38
	2. Power supply circuit is unusual.	Replace: Power supply	7.1.5.1. (16), 7-217

Chapter 6. Maintenance Diagnostics

Subject to the controller.

Chapter 7. Disassembling, Assembling & Adjustment

7.1. Engine Parts

7.1.1. Removal of the Optical Unit

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

CAUTION:
When you remove the Optical Unit, only remove the parts mentioned in the procedure below. DO NOT remove any other parts, because this can damage the Optical Unit.

Applicable jigs and tools: ⊕ Screwdriver, ⊕ Screwdriver(Short).

[Disassembling Procedures]

1. Open the Front Cover. (Refer to item 3.3.1 on page 3-9)
2. Remove the Top Cover. (Only for the **Front** Engine) (Refer to item 3.3.2. (1) on page 3-12)
3. Open the Top Cover. (Only for the **Rear** Engine)
4. Unscrew the four ⊕ screws to remove the Arm Guide. (Only for the **Rear** Engine)
5. Unscrew the ⊕ screws to remove the Opt. Cover.
6. Unscrew the two ⊕ screws to remove the Panel Holder Assembly.
7. Pull the two Shaft Holders.
8. Disconnect the three connectors from the Optical Unit.
9. Hold up the right side of the Optical Unit on the Operator's side (on the opposite side of the Stacker) and remove the Optical Unit by sliding it to the right. (Perform the operation in the direction of arrow **A** and then in the direction of arrow **B**.).

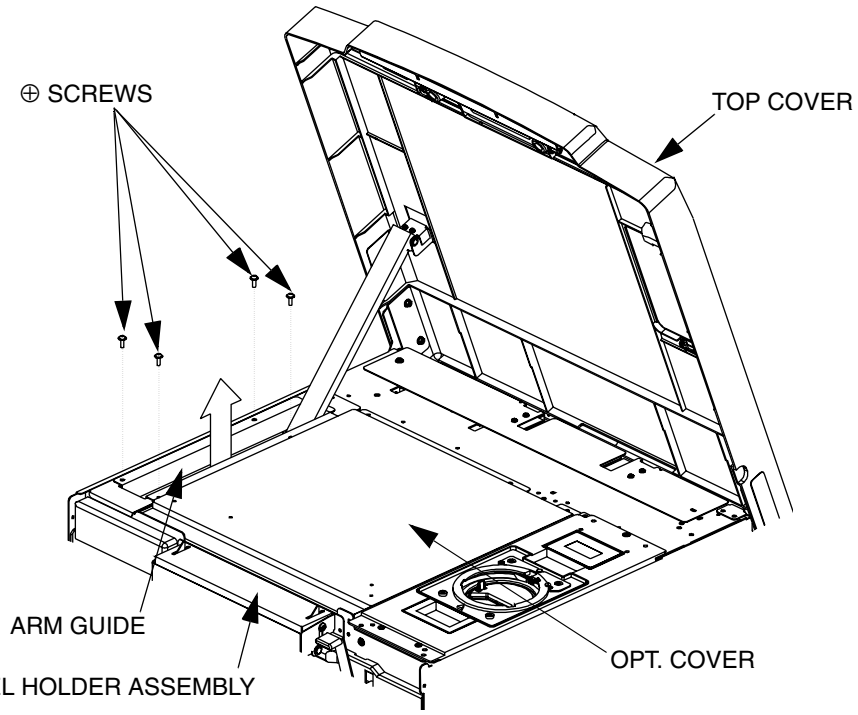


Figure 7-1. Removal of the Optical Unit

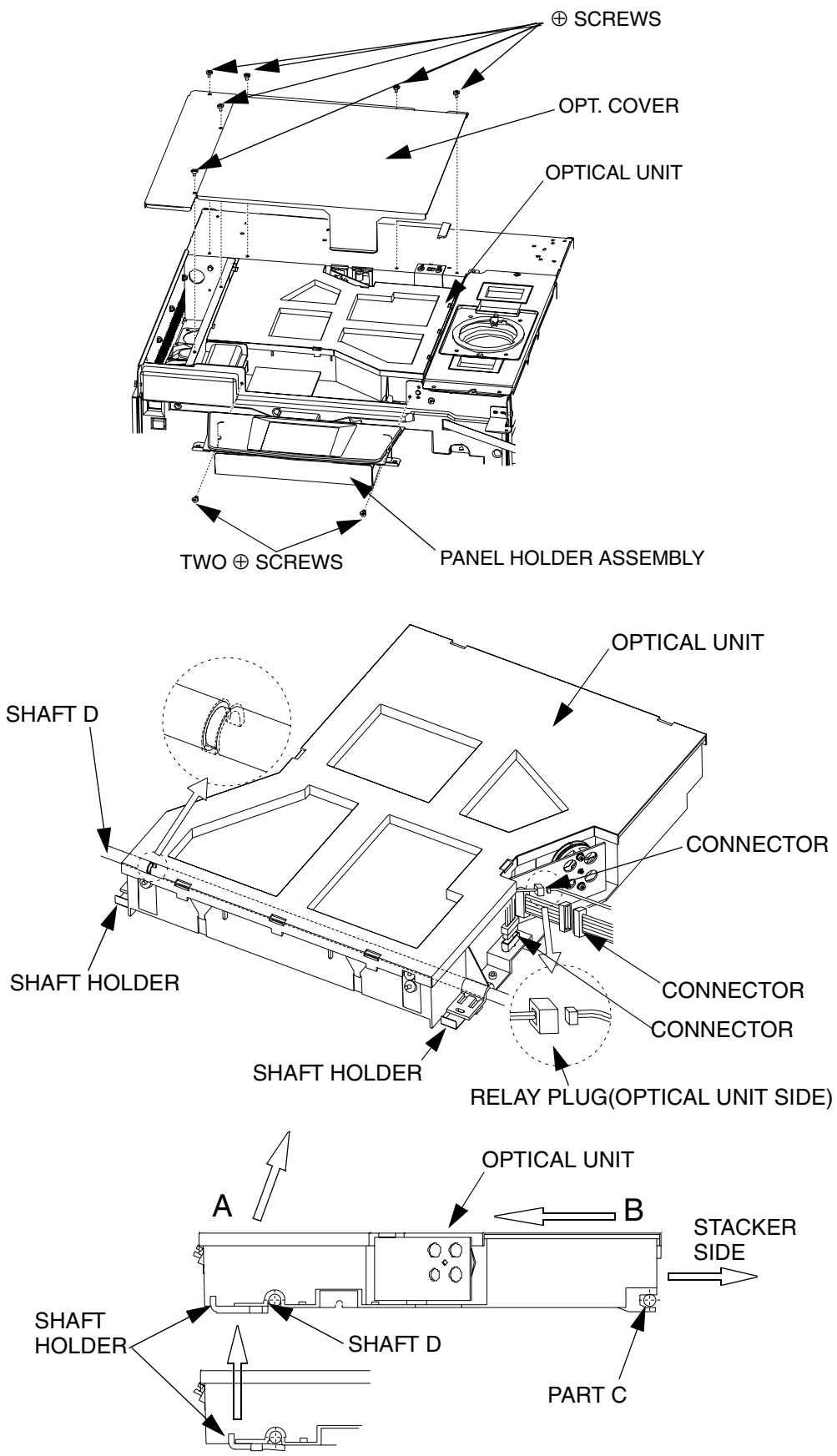


Figure 7-2. Removal of the Optical Unit

[Assembling Procedures]

1. Insert the mounting section C of the Optical Unit into the Shaft on the left (shaft on the Stacker side) as viewed from the front.
2. By holding up the right side of the Optical Unit (on the opposite side of the Stacker) a little, insert the Optical Unit in place by moving it in the longitudinal direction so that the position protrusion of the Optical unit fits into the ditch of Shaft D.
3. When the fitting position is determined, press in the Optical Unit until the mounting section of the Optical Unit securely fits into the Shaft D.
4. Insert the Shaft Holders until they stop.
5. Then, perform the disassembling procedures in the reverse order from 6.
6. Adjust the Laser Power to value of attached data. (Refer to item 8.4.5.1 on page 8-15)

(ATTACHMENT DATA SHEET)

After changing the laser unit, please input the value of Laser Power shown below with the maintenance panel, by using the diagnostic routine.

S/N of laser unit:

KPDG No.	8B	8C	90	91	92	93
Value	XX	XX	XX	XX	XX	XX

7.1.2. Removal of the EP Block

7.1.2.1. Removal of the Drum Unit Parts

7.1.2.1. (1) Removal of the Drum Unit

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

Applicable jigs and tools: ⊕ Screwdriver, Lint-Free Cloth.

[Disassembling Procedures]

1. Open the Front Cover.
2. Open the TH Unit.
3. Remove the Drum Center Lock.
   (Push the Tab and take the Drum Center Lock out.)

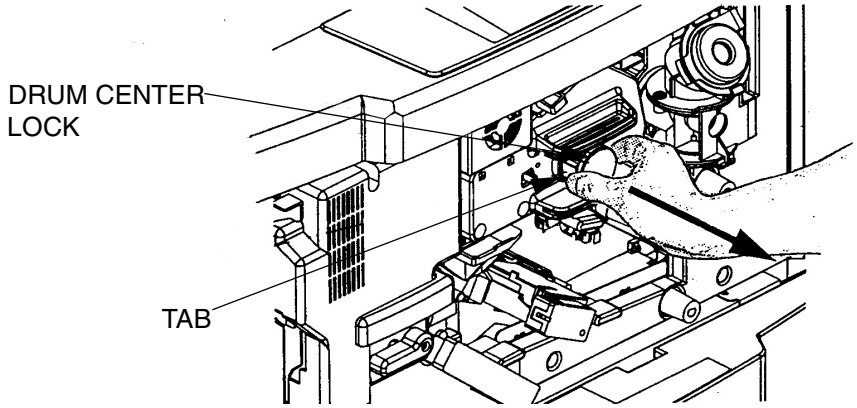


Figure 7-3. Removal of the Drum Unit

4. Draw out the Drum Unit, then hold the Handle and lift the Drum Unit to release the catch and take the Drum Unit out.

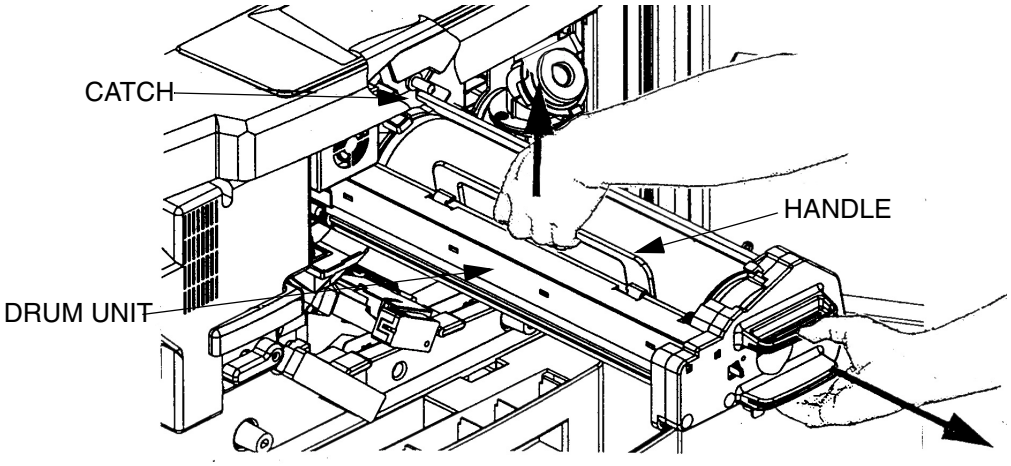


Figure 7-4. Removal of the Drum Unit

CAUTION:
When the Drum Unit is out, do not expose the drum surface to the sun and take care not to make any scratches on the drum surface.

[Assembling Procedures]

1. Align the groove on both sides of the Drum Unit onto the Drum Unit Front Guide located on the front side of the Console Frame.
2. Push the front grip of the Drum Unit until the Drum Unit is set in the proper position.
3. Perform the disassembling procedures in the reverse order.

Note: Make sure that the Drum Center Lock is latched on the Center Shaft properly.

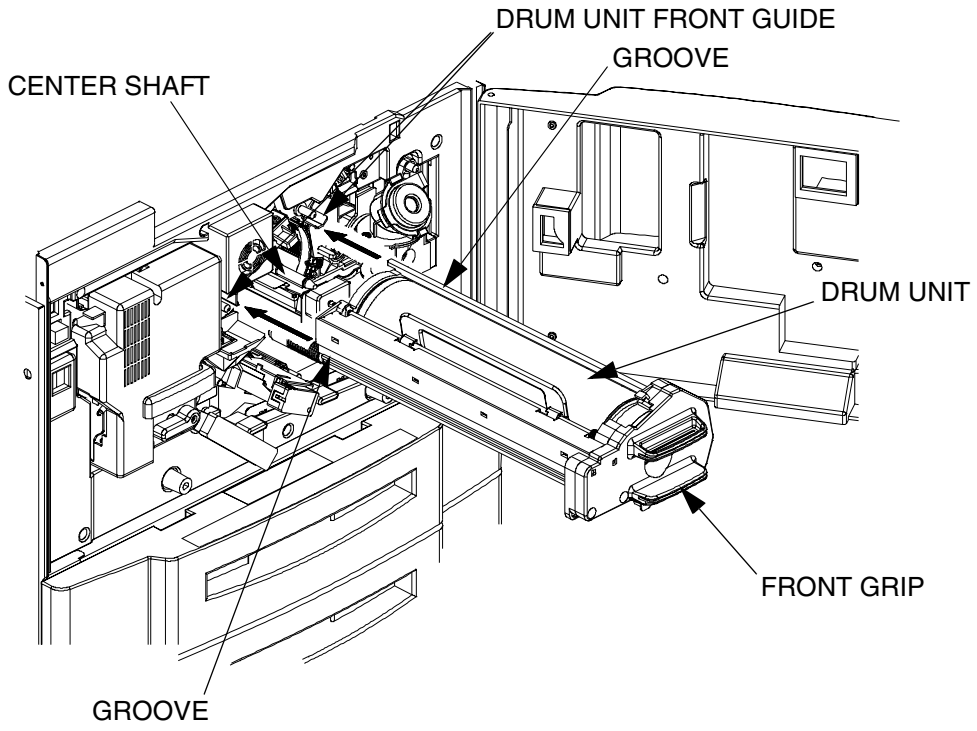


Figure 7-5. Removal of the Drum Unit

Note: Reset the Drum usage counter in caseDrum Unit is replaced in the procedure.

CAUTION:
Disposal of the Drum Unit is the customer's responsibilty.
Dispose of it in accordance with the state's industrial waste law.

WARNING:
Never attempt to burn the used Drum Unit. Risk of explosion if exposed to fire.

7.1.2.2. Removal of the Charger Unit Parts

7.1.2.2. (1) Removal of the Charger Unit

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

Applicable jigs and tools: ⊕ Screwdriver, Roller Divider.

[Disassembling Procedures]

1. Open the Front Cover.
2. Draw out the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Loosen the ⊕ screw. (In case of Front Engine)
4. Loosen the thumbscrew by using roller divider. (In case of Rear Engine)
5. Remove the Charger Stopper.
6. Draw out the Charger Unit.

Note: Keep the slit part of the Grid away from hands and objects to prevent it from fingerprints, scratches, and dust.

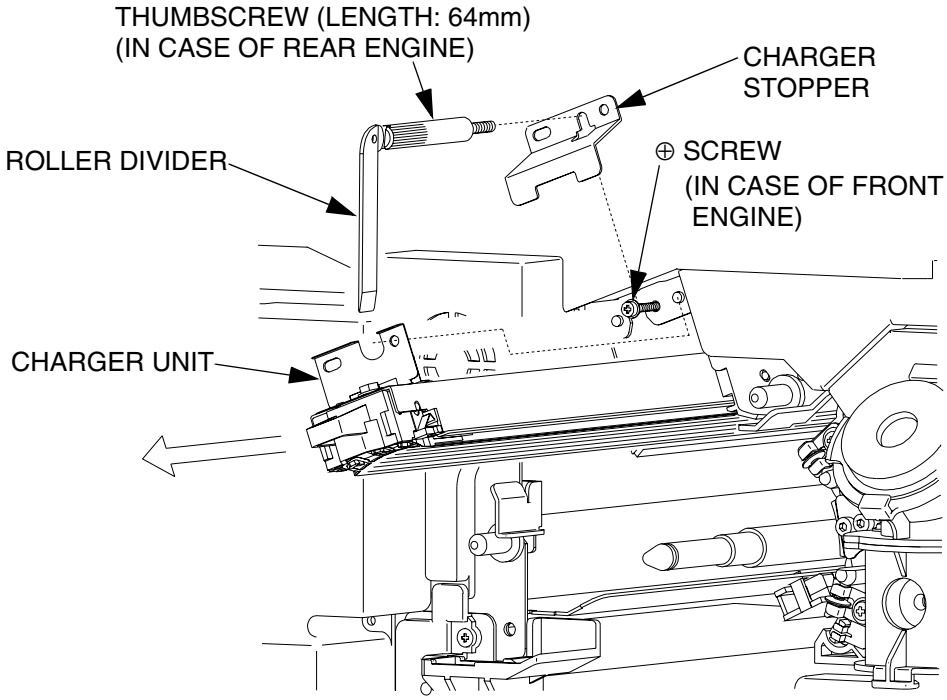


Figure 7-6. Removal of the Charger Unit

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

[Checks]

Make sure that the Holes of the Charger Unit are put into the half blank on the Frame.

7.1.2.2. (2) Removal of the Grid

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 Charger Unit. (Refer to item 7.1.2.2. (1) on page 7-6).
2. Unscrew the ⊕ screw to raise the Grid Tensioner Assembly.
3. Remove the Grid from the three hooks of the Grid Stand (F).
4. Remove the Grid from the three hooks of the Grid Tensioner Assembly.

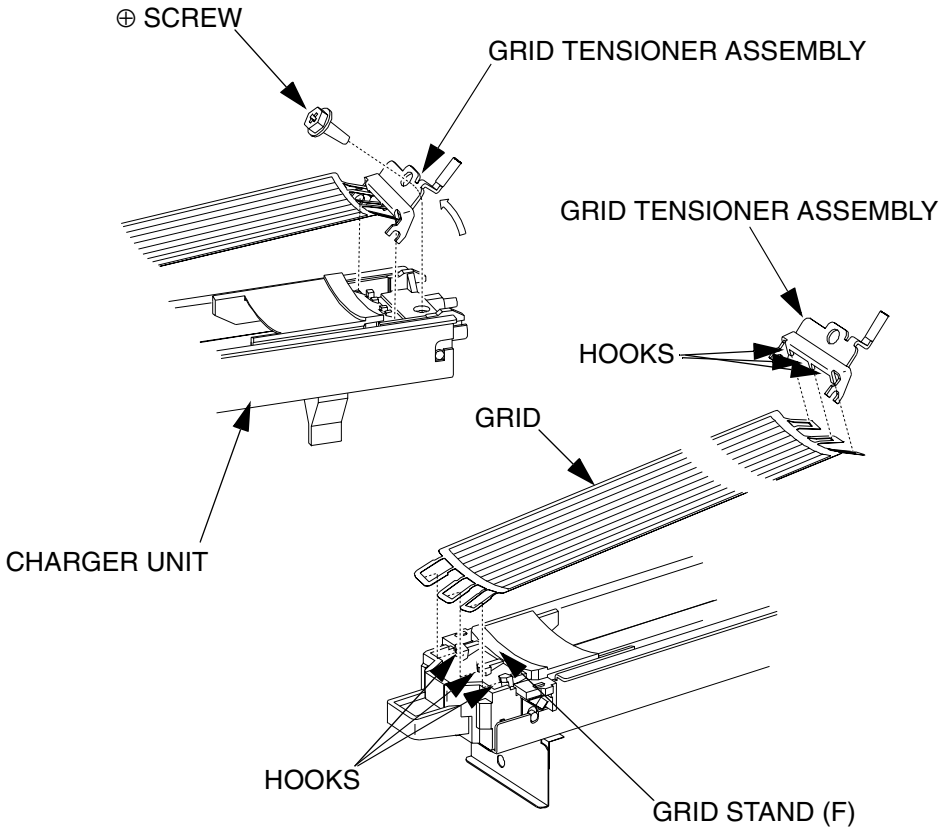


Figure 7-7. Removal of the Grid

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Keep the slit part of the Grid away from hands and objects to prevent it from fingerprints, scratches, and dust.

7.1.2.2. (3) Removal of the Corotron Wire

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

Applicable jigs and tools: ⊕ Screwdriver, Tweezers, Lint-Free Cloth.

[Disassembling Procedures]

1. Remove the Charger Unit. (Refer to item 7.1.2.2. (1) on page 7-6)
2. Remove the Grid. (Refer to item 7.1.2.2. (2) on page 7-7)
3. Remove the Grid Stand (R) and then unscrew the ⊕ screw to remove the Grid Stand (F).
4. Remove the two Dampers from the Corotron Wire.
5. Remove the Wire Tension Spring by using the tweezers and raise it with the Corotron Wire.
6. Remove the Corotron Wire from the Wire Contact Spring.
7. Remove the Wire Tension Spring from the Corotron Wire.
8. Clean the Shield Plate and Grid. (Refer to item 4.4.8 on page 4-23)

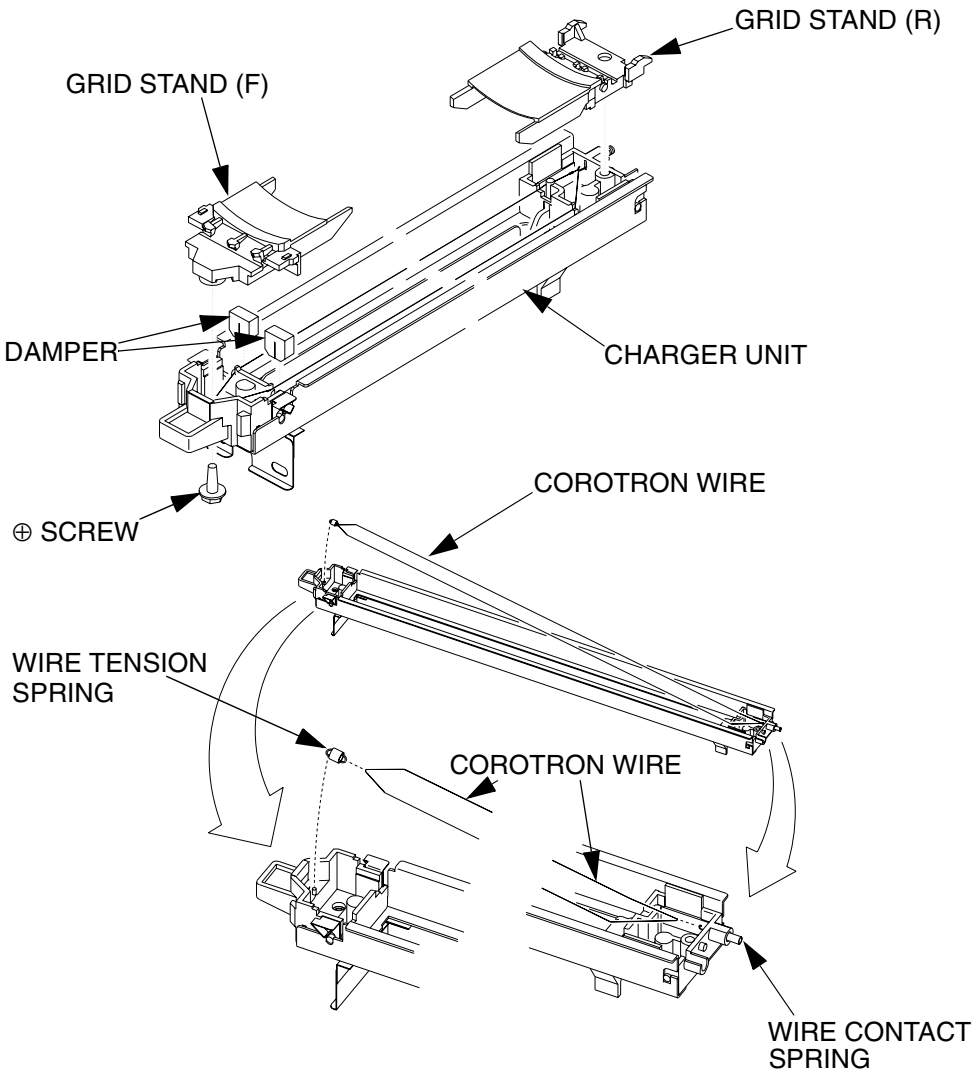


Figure 7-8. Removal of the Corotron Wire

[Assembling Procedures]

1. Perform the disassembling procedures in the reverse order Nos. 7-4.

Note:

- Locate the clamp of the Corotron Wire in the appointed location.
- Locate the Corotron Wire correctly in the appointed fillets of the Holder (R) and Holder (L).
- Do not touch the Corotron Wire within the area indicated in the figure below.
- If the Corotron Wire was touched, gently wipe the Corotron Wire with a clean, Lint-Free Cloth dampened with water. Wipe again with a clean, dry, Lint-Free Cloth. (Only the new Corotron Wire can be wiped. Never use alcohol instead of water.)
- Locate the two Dampers in the appointed location.

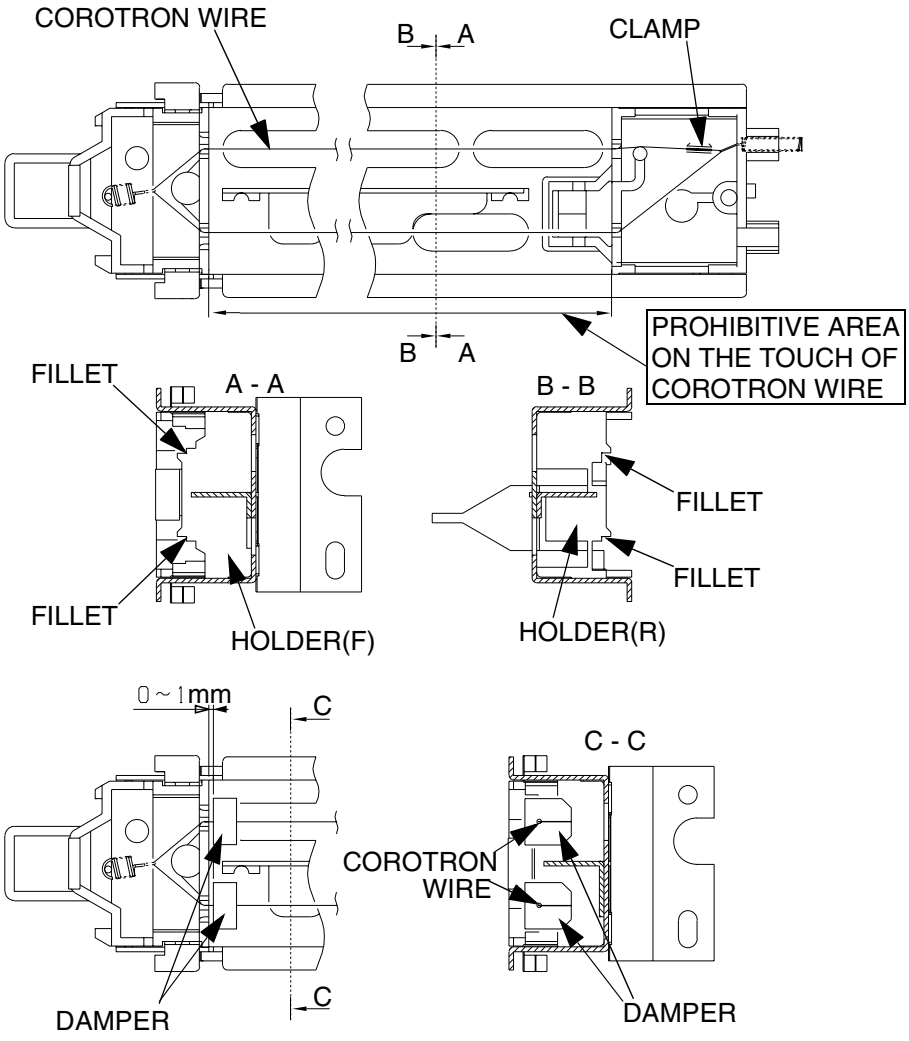


Figure 7-9. Assembling of the Corotron Wire

2. Perform the disassembling procedures in the reverse order Nos. 3-1.

Note: Keep the slit part of the Grid and Corotron Wire away from hands and objects to prevent them from fingerprints, scratches, and dust.

7.1.2.3. Removal of the Developer Unit Parts

7.1.2.3. (1) Removal of the Developer Unit

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. Draw out the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Unscrew the ⊕ screw to remove the Dev. Support Plate Assembly. (Only for the **Front** Engine)
4. Open the Top Cover. (Only for the **Rear** Engine)
5. Lift up the Lever. (Only for the **Rear** Engine).

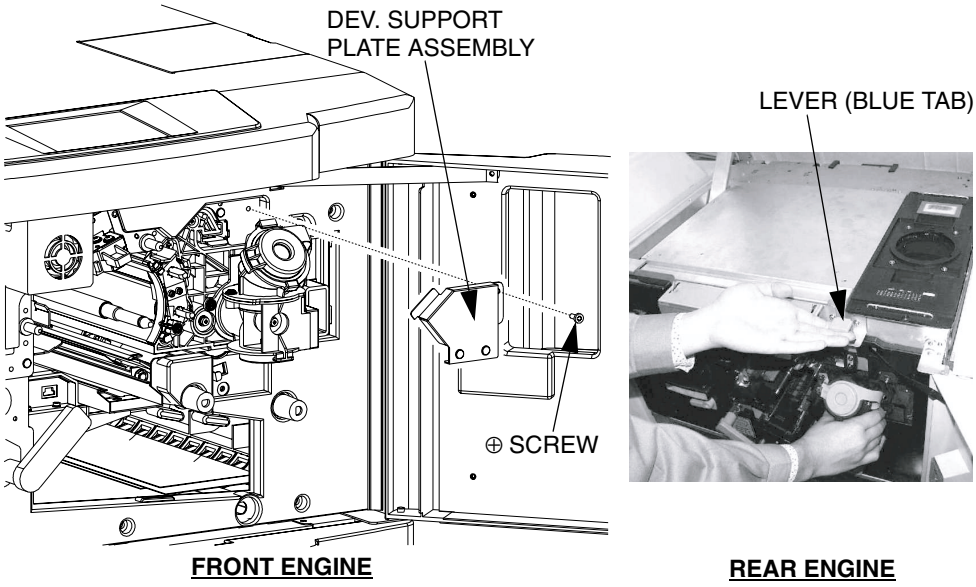


Figure 7-10. Removal of the Developer Unit

6. Draw out the Developer Unit.

Note: When the Developer unit is inclined, some developer mix may be spilled.

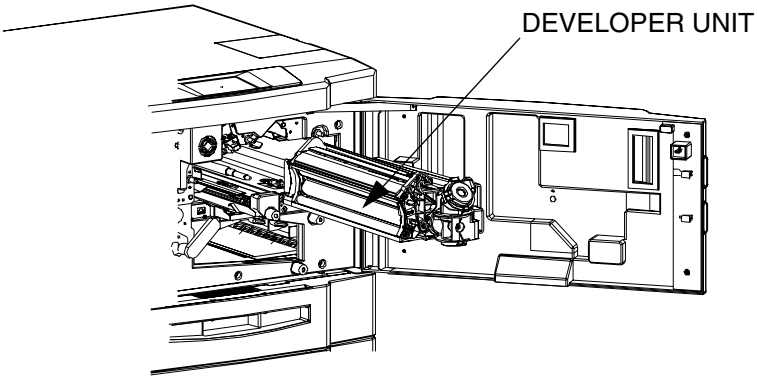


Figure 7-11. Removal of the Developer Unit

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

CAUTION:
Be sure to use the exclusive Developer Unit for each engine.
It becomes the cause of failure when the other Developer Unit is used.

Note: Insert the Dev. Support Plate Assembly behind the frame. (Only for the **Front** Engine) When exchanging for the Developer Unit for spare parts, Supply the Developer appended to the Developer Unit for spare parts to the Developer Unit (small bottle) before setting it to the Engine.

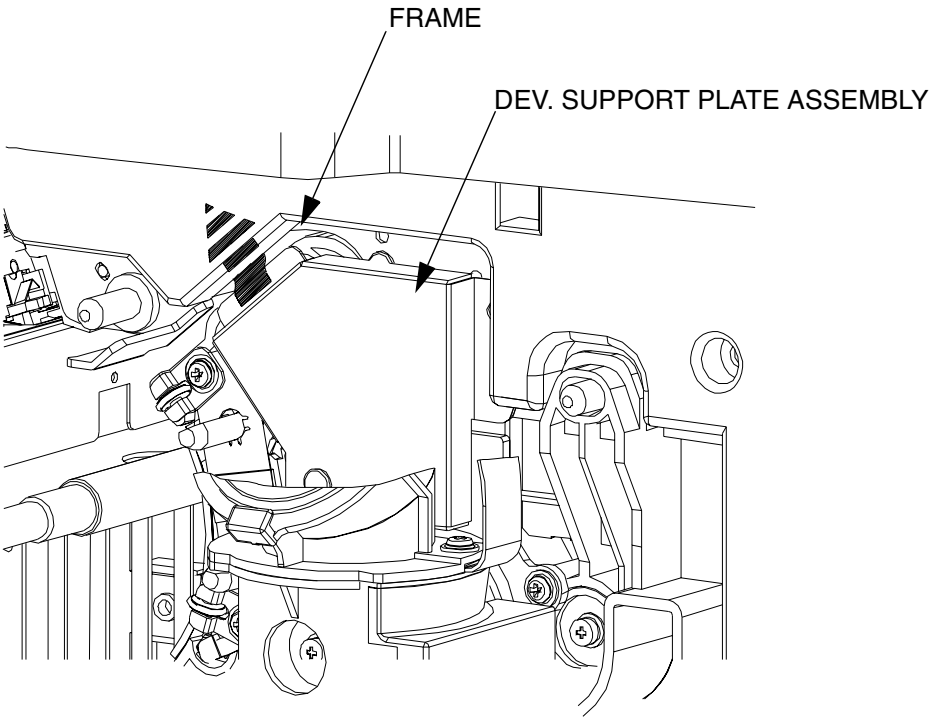


Figure 7-12. Removal of the Developer Unit

7.1.2.3. (2) Removal of the Bottle Set Sensor

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. Draw out the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Draw out the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Unscrew the two ⊕ screws to remove the Dev. Duct Assembly.
5. Remove the Dev. Duct SW Cover.
6. Remove the Faston terminal of the Dev. Cable to remove the Bottle Set Sensor.

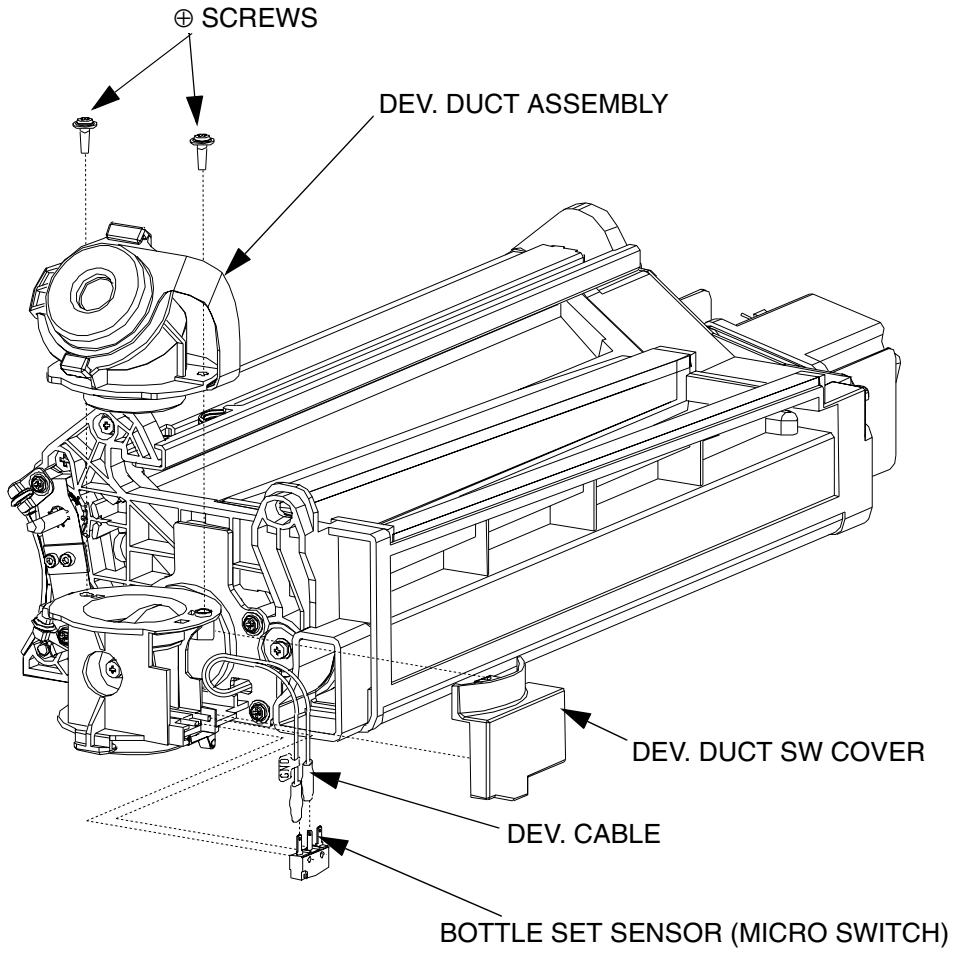


Figure 7-13. Removal of the Bottle Set Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

[Checks]

Make sure that the Faston terminal is correctly connected.

7.1.2.3. (3) Removal of the Dev. Motor Assembly

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. Draw out the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Draw out the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Disconnect the connector.
5. Unscrew the three ⊕ screws to remove the Dev. Motor Assembly.

Note: When removing the Dev. Motor Assembly, the Motor Shim and the Motor Cooling Plate come off.

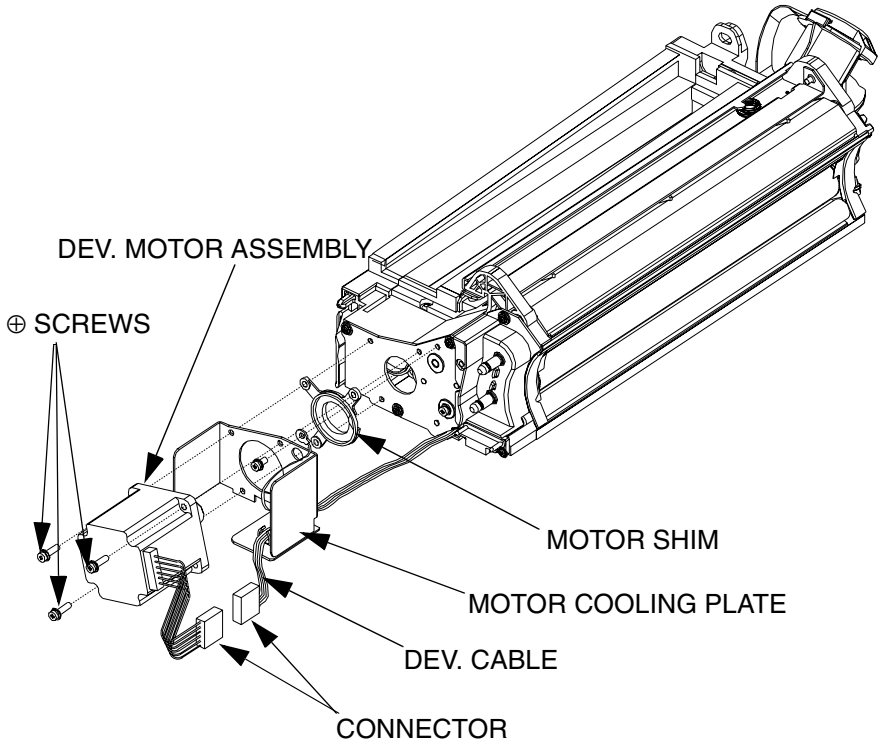


Figure 7-14. Removal of the Dev. Motor Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.3. (4) Removal of the O-ring

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

Applicable jigs and tools: ⊕ Screwdriver, Lint-Free Cloth.

[Disassembling Procedures]

1. Open the Front Cover.
2. Draw out the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Draw out the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Remove the two O-rings from the Magnet Roll Shaft.

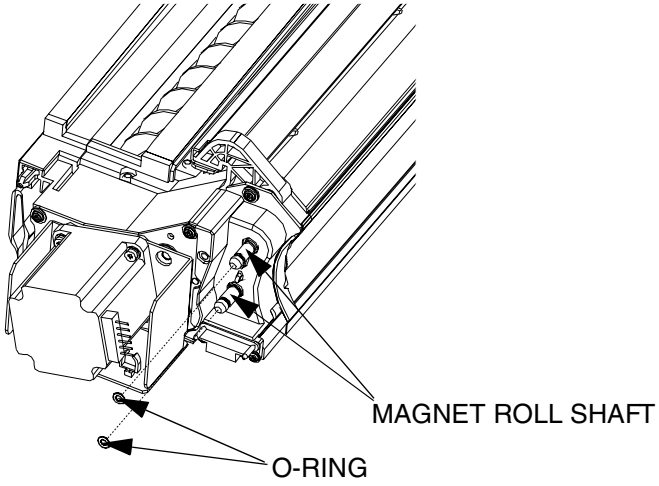


Figure 7-15. Removal of the O-ring

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Clean the O-rings with Lint-Free Cloth.

7.1.2.3. (5) Removal of the Drum Guide Roller

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. Draw out the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Draw out the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Unscrew the two ⊕ screws to remove the two Drum Roller Holders and the two Drum Guide Roller.

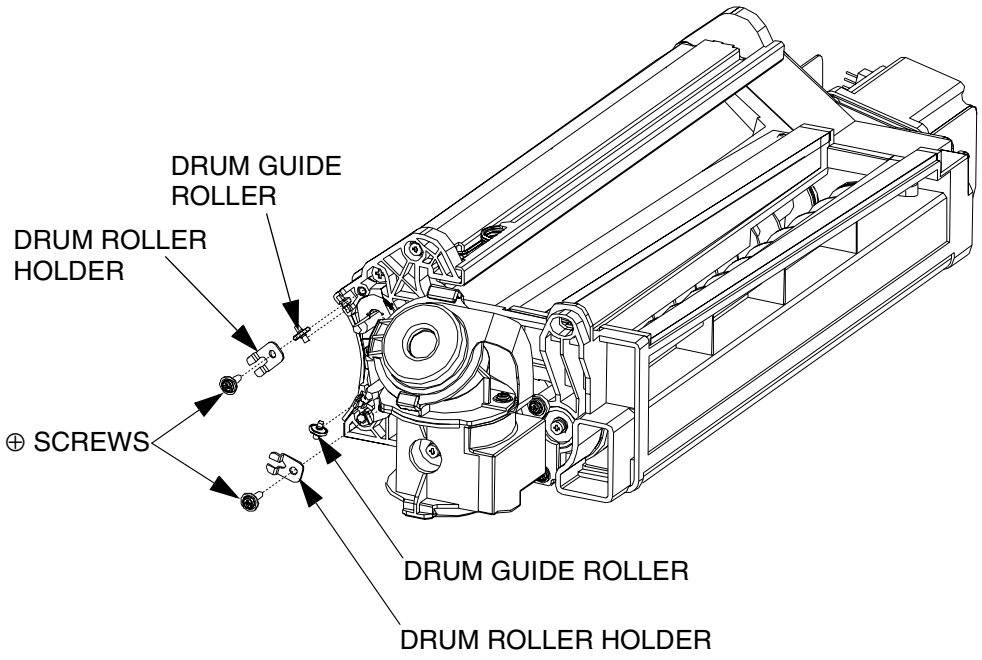


Figure 7-16. Removal of the Drum Guide Roller

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

[Checks]

Make sure that the two Drum Guide Roller Assemblies rotate smoothly.

7.1.2.3. (6) Removal of the Idler Gear (Z28) Assembly

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. Draw out the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Draw out the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Remove the Dev. Motor Assembly. (Refer to item 7.1.2.3. (3) on page 7-13)
5. Unscrew the ⊕ screw to remove the Ground Cable.
6. Remove the Motor Cooling Plate and the Motor Shim.

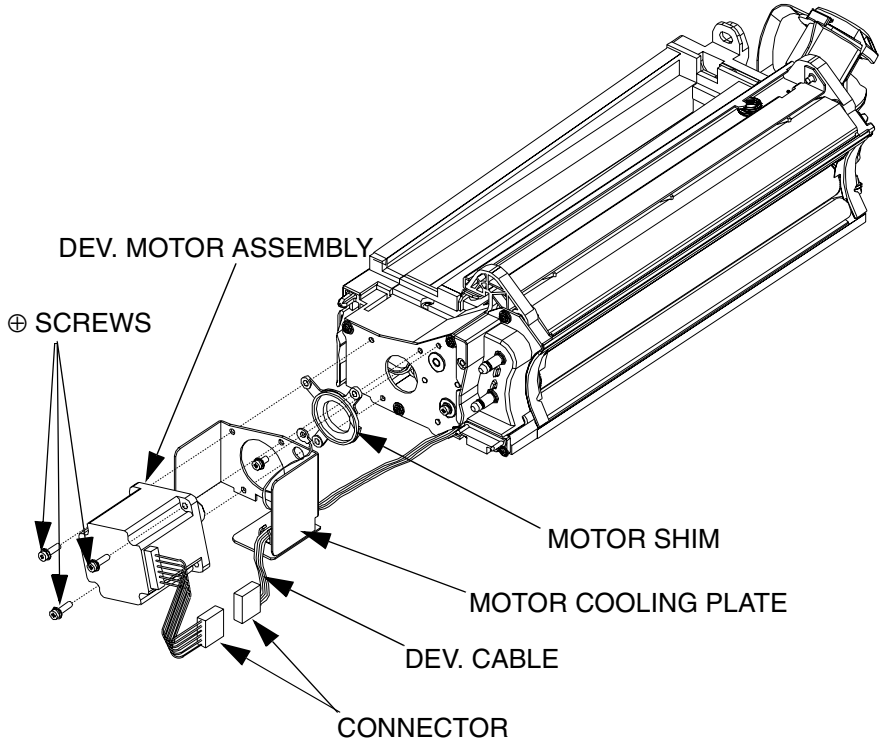


Figure 7-17. Removal of the Idler Gear (Z28) Assembly

7. Unscrew the ⊕ screw to remove the Dev. Gear Cover.

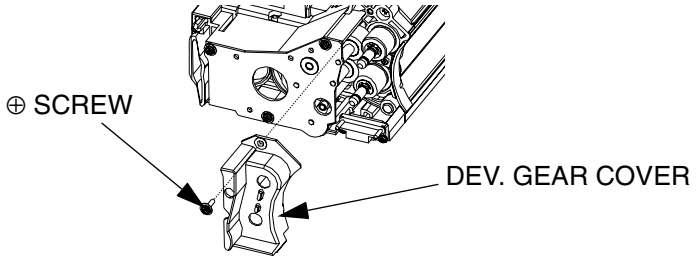


Figure 7-18. Removal of the Idler Gear (Z28) Assembly

8. Unscrew the three ⊕ screws to remove the Motor Plate Weld Assembly.
9. Remove the Snap Ring E to remove the Idler Gear (Z28) Assembly.

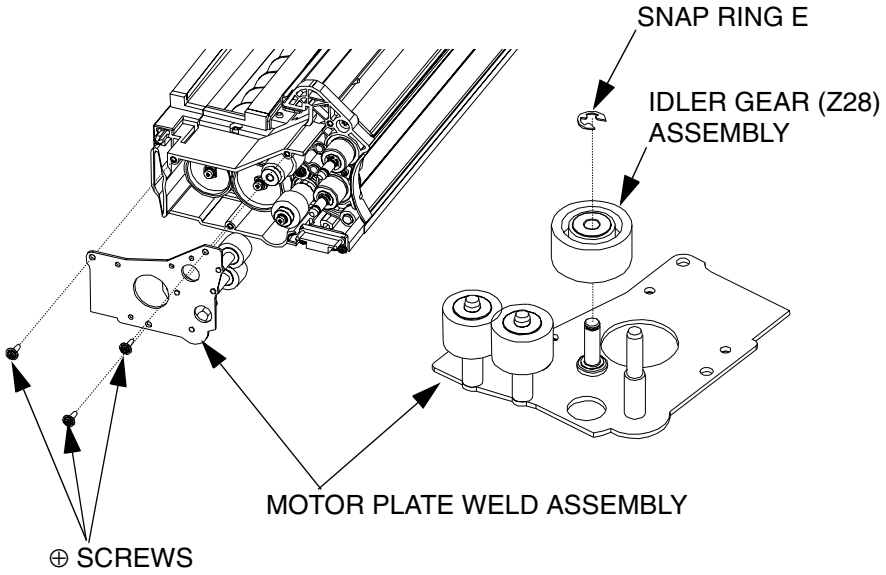


Figure 7-19. Removal of the Idler Gear (Z28) Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.3. (7) Removal of the Idler Gear (Z21) Assembly

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. Draw out the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Draw out the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Remove the Dev. Motor Assembly. (Refer to item 7.1.2.3. (3) on page 7-13)
5. Unscrew the ⊕ screw to remove the Ground Cable.
6. Remove the Motor Cooling Plate and the Motor Shim.

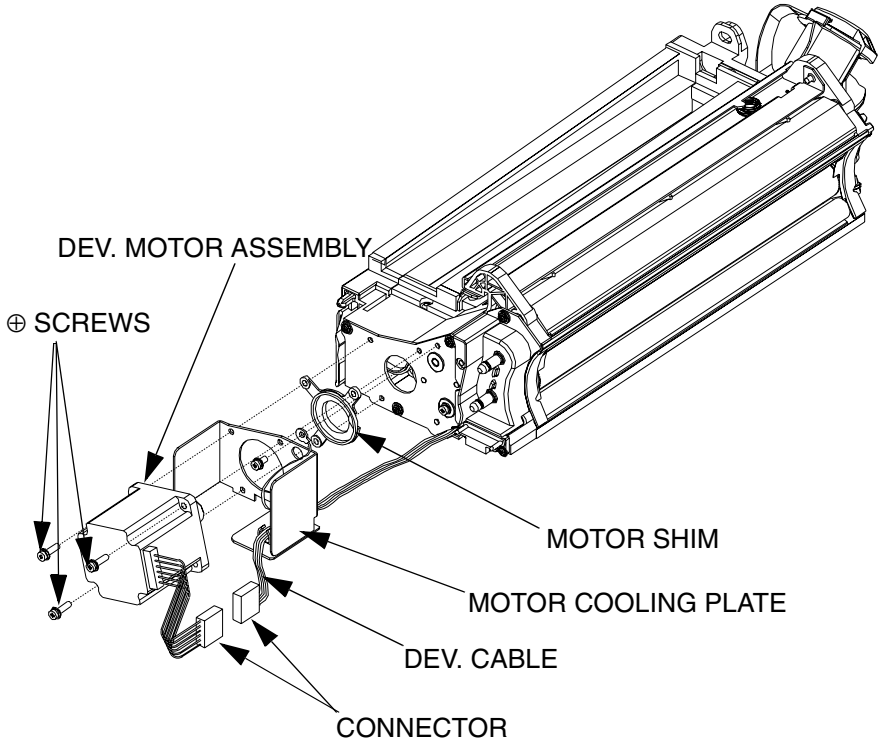


Figure 7-20. Removal of the Idler Gear (Z21) Assembly

7. Unscrew the ⊕ screw to remove the Dev. Gear Cover.

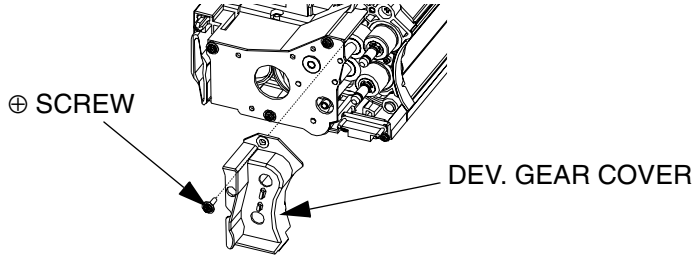


Figure 7-21. Removal of the Idler Gear (Z21) Assembly

8. Unscrew the three ⊕ screws to remove the Motor Plate Weld Assembly.
9. Draw out the Idler Gear (Z21) Assembly.

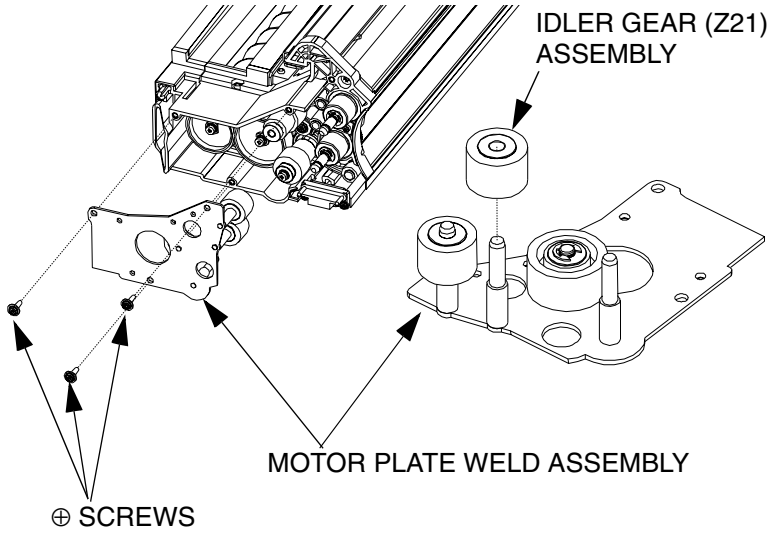


Figure 7-22. Removal of the Idler Gear (Z21) Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.3. (8) Removal of the Idler Gear (Z20-L) Assembly

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. Draw out the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Draw out the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Remove the Dev. Motor Assembly. (Refer to item 7.1.2.3. (3) on page 7-13)
5. Unscrew the ⊕ screw to remove the Ground Cable.
6. Remove the Motor Cooling Plate and the Motor Shim.

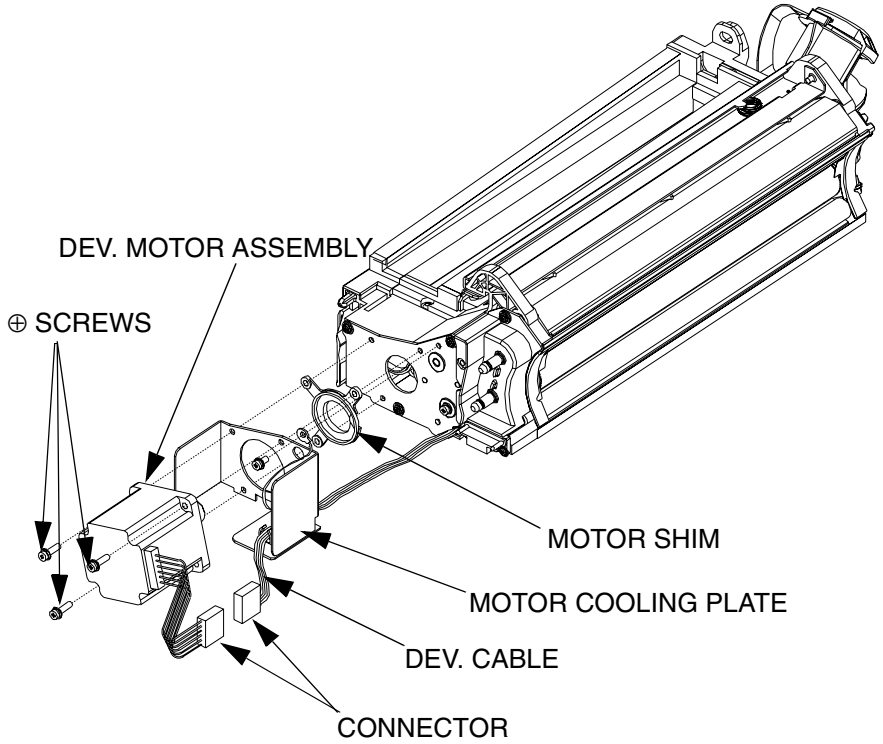


Figure 7-23. Removal of the Idler Gear (Z20-L) Assembly

7. Unscrew the ⊕ screw to remove the Dev. Gear Cover.

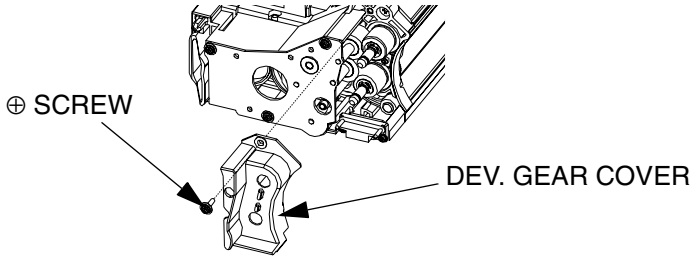


Figure 7-24. Removal of the Idler Gear (Z20-L) Assembly

8. Unscrew the three ⊕ screws to remove the Motor Plate Weld Assembly.
9. Draw out the Idler Gear (Z20-L) Assembly.

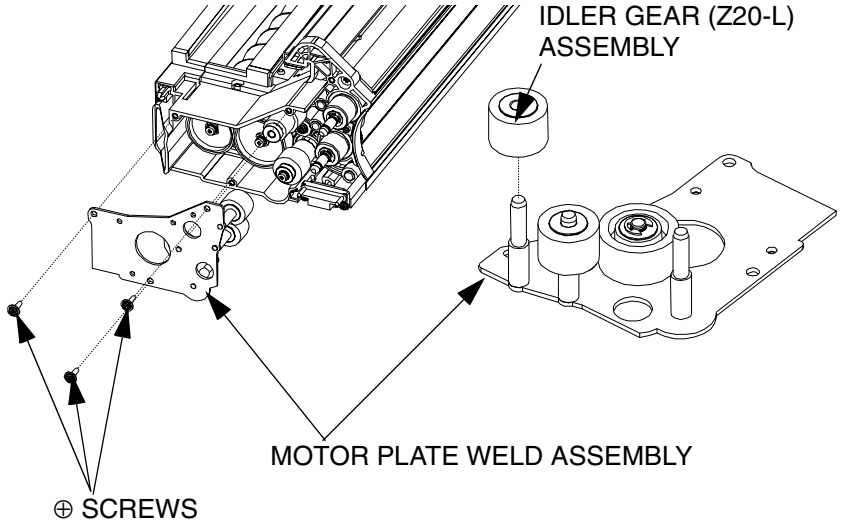


Figure 7-25. Removal of the Idler Gear (Z20-L) Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.3. (9) Removal of the Idler Gear (Z17/22) Assembly

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. Draw out the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Draw out the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Remove the Dev. Motor Assembly. (Refer to item 7.1.2.3. (3) on page 7-13)
5. Unscrew the ⊕ screw to remove the Ground Cable.
6. Remove the Motor Cooling Plate and the Motor Shim.

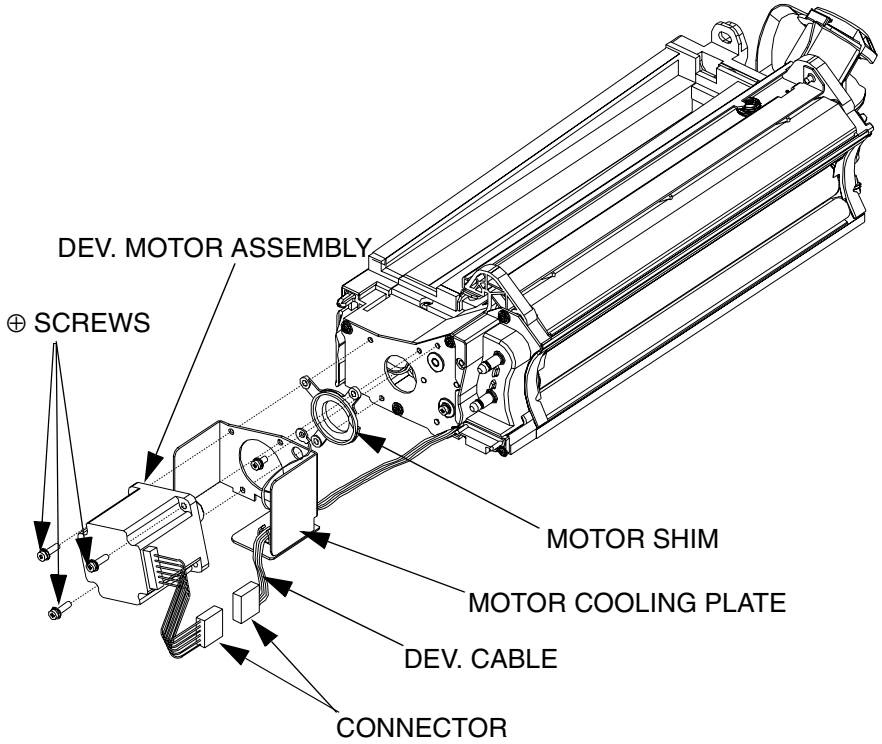


Figure 7-26. Removal of the Idler Gear (Z17/22) Assembly

7. Unscrew the ⊕ screw to remove the Dev. Gear Cover.

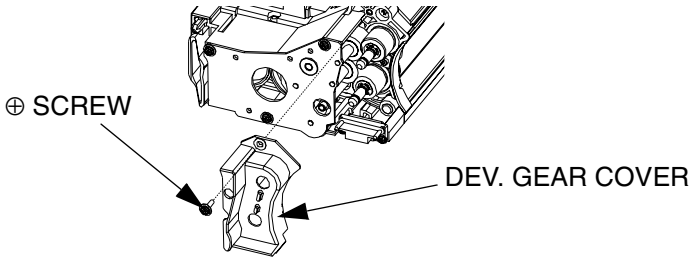


Figure 7-27. Removal of the Idler Gear (Z17/22) Assembly

8. Unscrew the three ⊕ screws to remove the Motor Plate Weld Assembly.

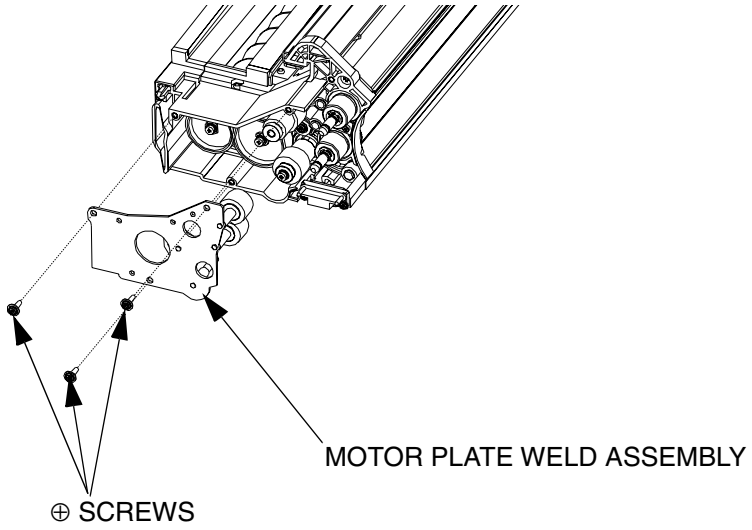


Figure 7-28. Removal of the Idler Gear (Z17/22) Assembly

9. Draw out the Idler Gear (Z17/22) Assembly.

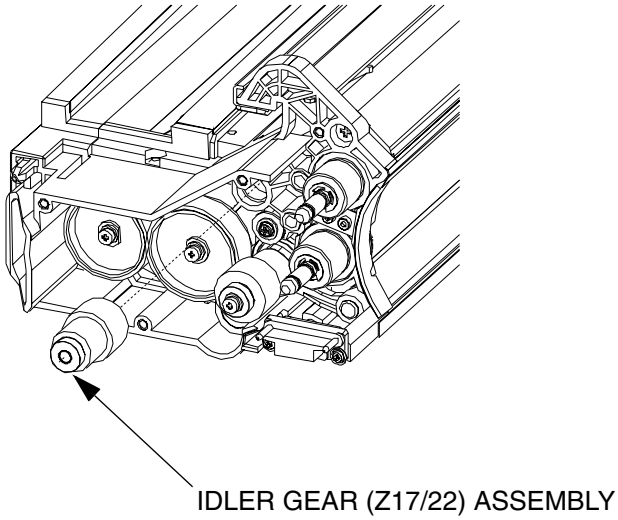


Figure 7-29. Removal of the Idler Gear (Z17/22) Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.3. (10) Removal of the TR Gear M

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. Draw out the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Draw out the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Remove the Dev. Motor Assembly. (Refer to item 7.1.2.3. (3) on page 7-13)
5. Unscrew the ⊕ screw to remove the Ground Cable.
6. Remove the Motor Cooling Plate and the Motor Shim.

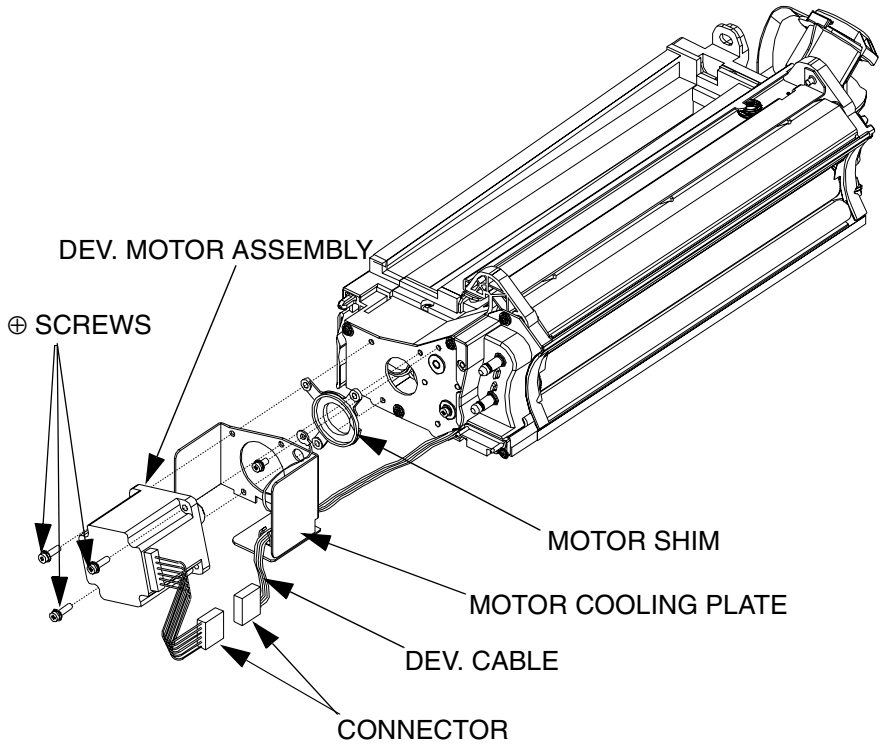


Figure 7-30. Removal of the TR Gear M

7. Unscrew the ⊕ screw to remove the Dev. Gear Cover.

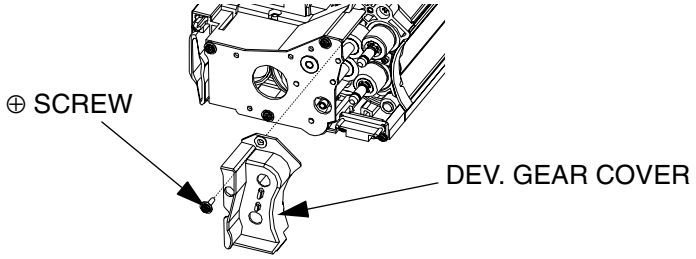


Figure 7-31. Removal of the TR Gear M

8. Unscrew the three ⊕ screws to remove the Motor Plate Weld Assembly.

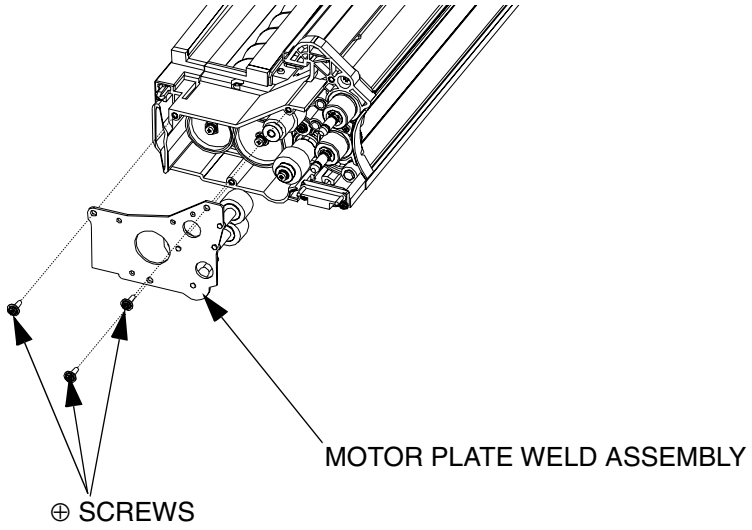


Figure 7-32. Removal of the TR Gear M

9. Unscrew the ⊕ screws to remove the B.B and the TR Gear M.

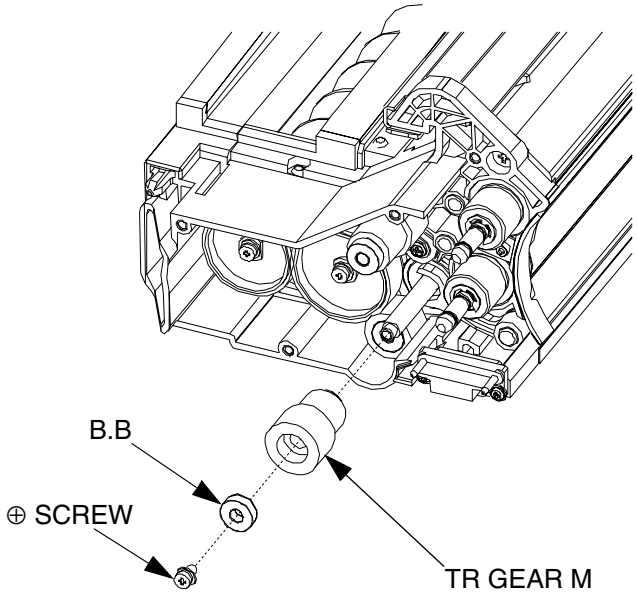


Figure 7-33. Removal of the TR Gear M

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.3. (11) Removal of the CR Clutch Arm

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. Draw out the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Draw out the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Remove the Dev. Motor Assembly. (Refer to item 7.1.2.3. (3) on page 7-13)
5. Unscrew the ⊕ screw to remove the Ground Cable.
6. Remove the Motor Cooling Plate and the Motor Shim.

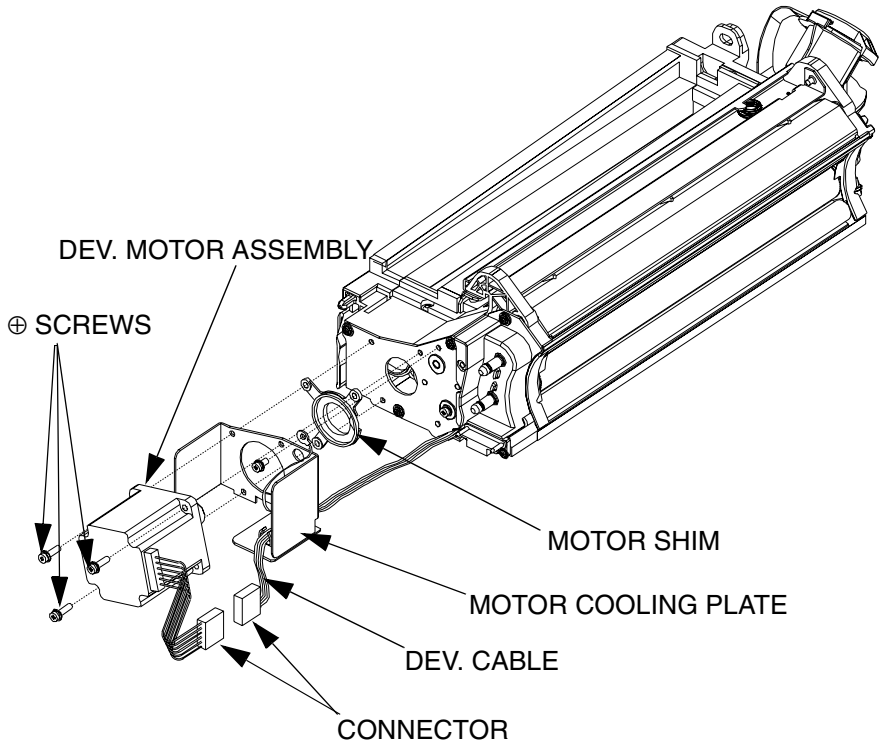


Figure 7-34. Removal of the CR Clutch Arm

7. Unscrew the ⊕ screw to remove the Dev. Gear Cover.

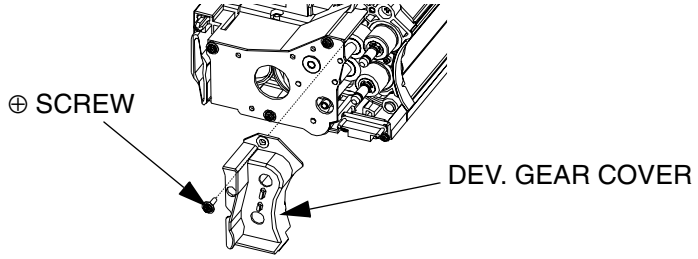


Figure 7-35. Removal of the CR Clutch Arm

8. Unscrew the three ⊕ screws to remove the Motor Plate Weld Assembly.

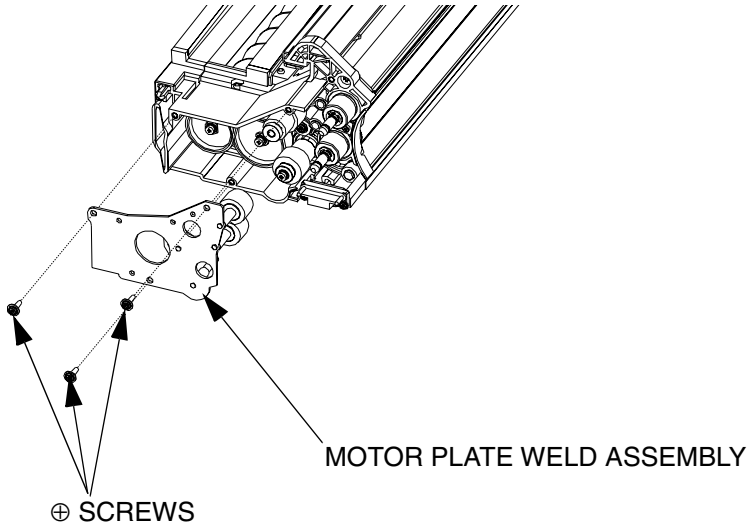


Figure 7-36. Removal of the CR Clutch Arm

9. Remove the TR Gear M. (Refer to item 7.1.2.3. (10) on page 7-24)
10. Remove the CR Clutch Arm.

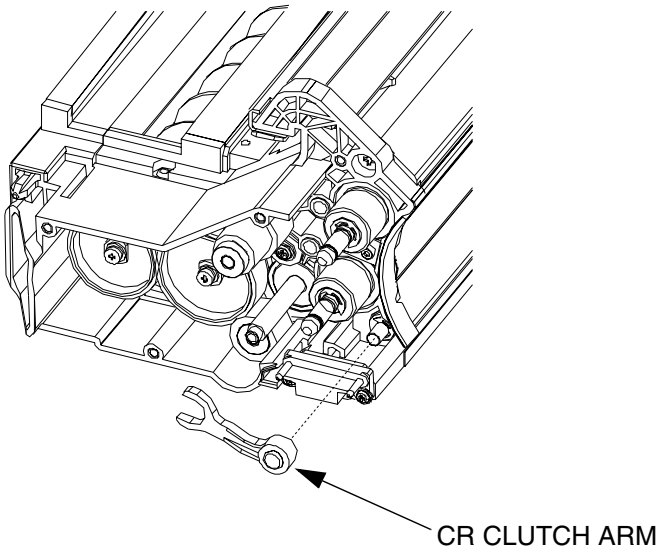


Figure 7-37. Removal of the CR Clutch Arm

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.3. (12) Removal of the Idler Gear (Z20) Assembly

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. Draw out the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Draw out the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Remove the Dev. Motor Assembly. (Refer to item 7.1.2.3. (3) on page 7-13)
5. Unscrew the ⊕ screw to remove the Ground Cable.
6. Remove the Motor Cooling Plate and the Motor Shim.

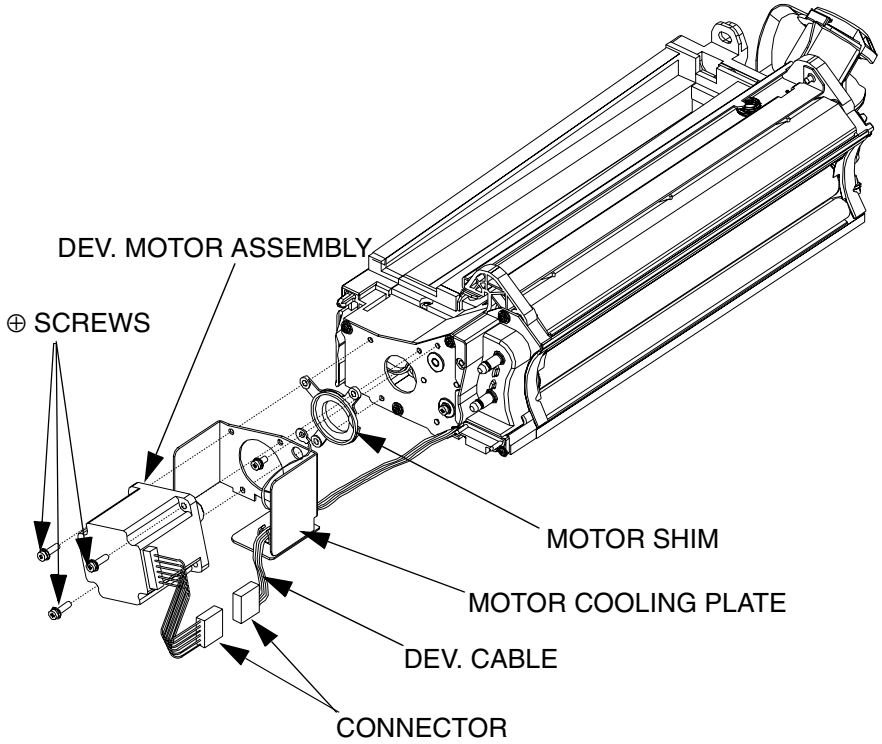


Figure 7-38. Removal of the Idler Gear (Z20) Assembly

7. Unscrew the ⊕ screw to remove the Dev. Gear Cover.

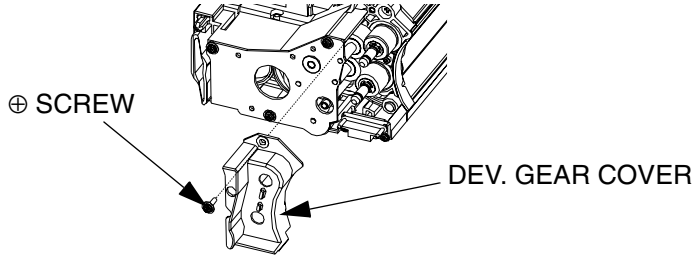


Figure 7-39. Removal of the Idler Gear (Z20) Assembly

8. Unscrew the three ⊕ screws to remove the Motor Plate Weld Assembly.

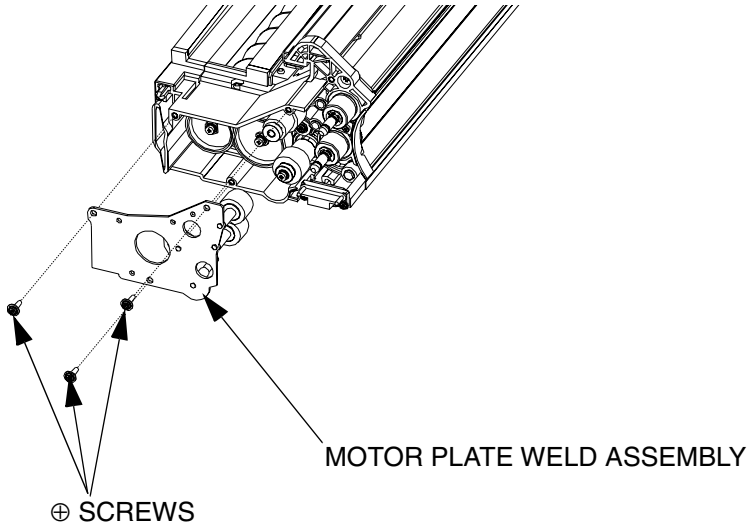


Figure 7-40. Removal of the Idler Gear (Z20) Assembly

9. Remove the TR Gear M. (Refer to item 7.1.2.3. (10) on page 7-24)
10. Remove the Idler Gear (Z20) Assembly.

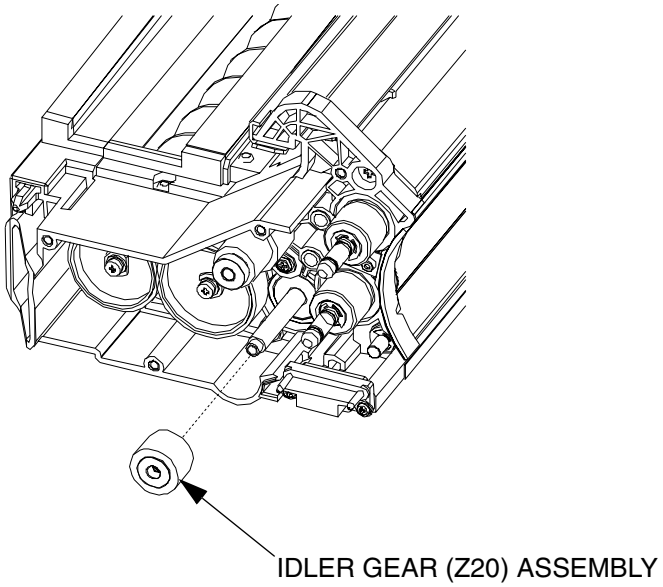


Figure 7-41. Removal of the Idler Gear (Z20) Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.3. (13) Removal of the Auger Gear (Z44)

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. Draw out the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Draw out the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Remove the Dev. Motor Assembly. (Refer to item 7.1.2.3. (3) on page 7-13)
5. Unscrew the ⊕ screw to remove the Ground Cable.
6. Remove the Motor Cooling Plate and the Motor Shim.

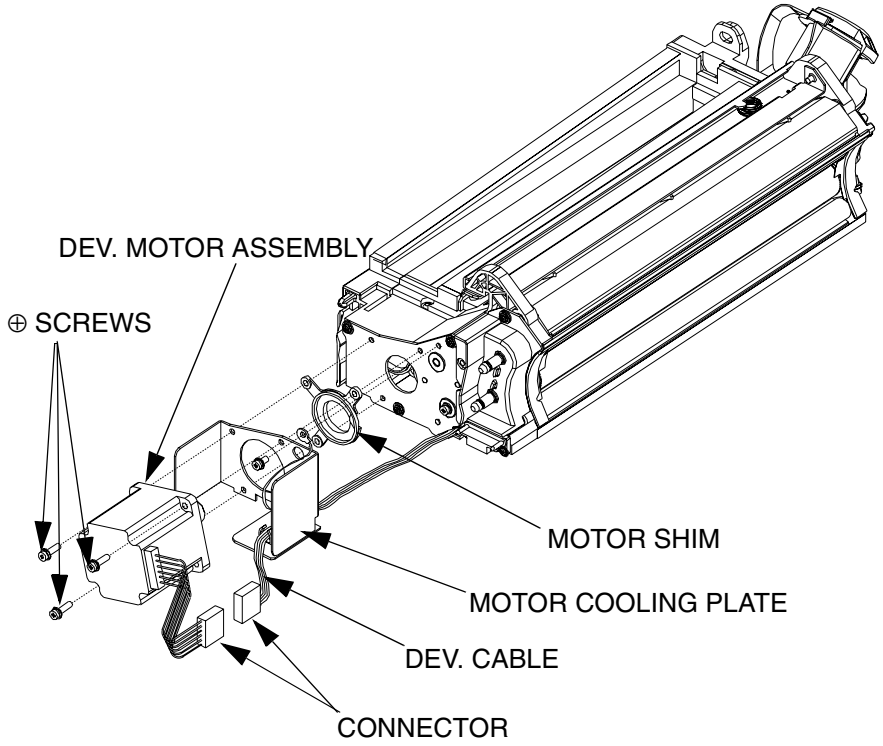


Figure 7-42. Removal of the Auger Gear (Z44)

7. Unscrew the ⊕ screw to remove the Dev. Gear Cover.

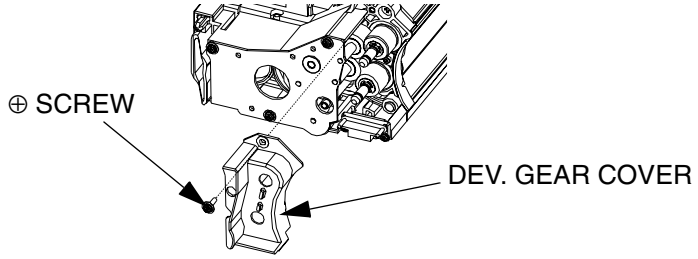


Figure 7-43. Removal of the Auger Gear (Z44)

8. Unscrew the three ⊕ screws to remove the Motor Plate Weld Assembly.

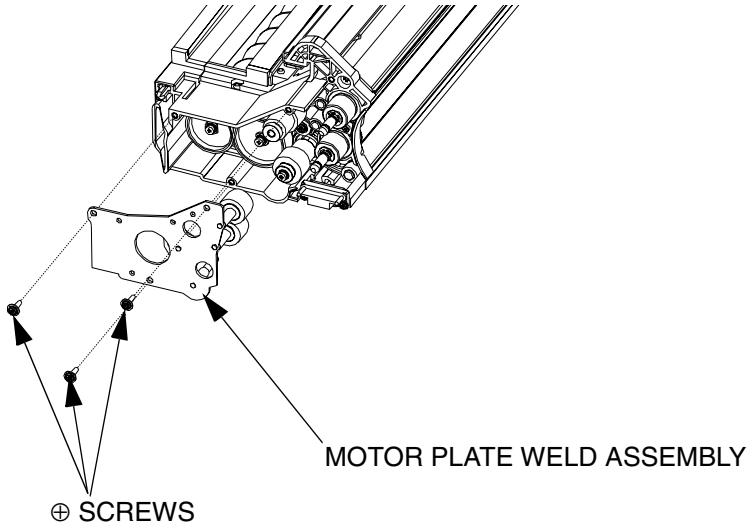


Figure 7-44. Removal of the Auger Gear (Z44)

9. Remove the TR Gear M. (Refer to item 7.1.2.3. (10) on page 7-24)
10. Unscrew the ⊕ screw to remove the Auger Gear (Z44).

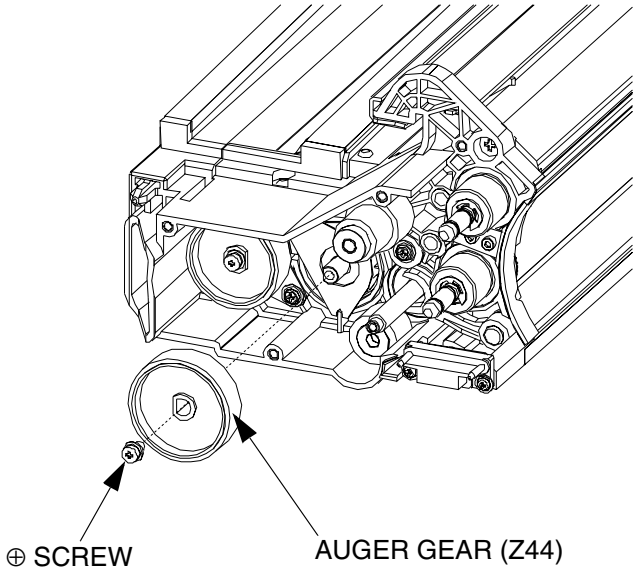


Figure 7-45. Removal of the Auger Gear (Z44)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.3. (14) Removal of the Auger Gear (Z40)

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. Draw out the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Draw out the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Remove the Dev. Motor Assembly. (Refer to item 7.1.2.3. (3) on page 7-13)
5. Unscrew the ⊕ screw to remove the Ground Cable.
6. Remove the Motor Cooling Plate and the Motor Shim.

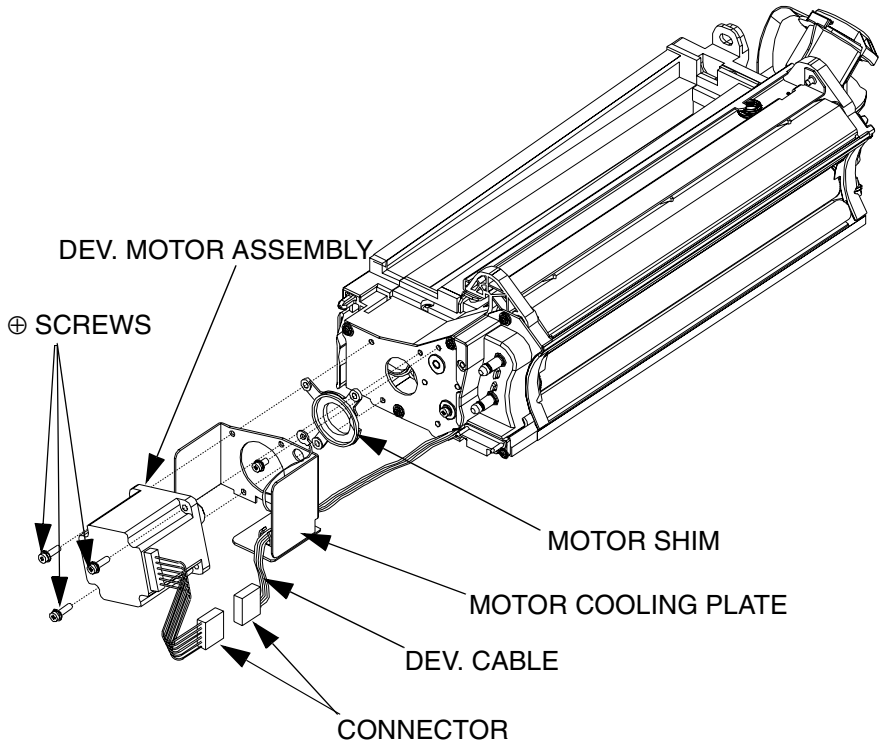


Figure 7-46. Removal of the Auger Gear (Z40)

7. Unscrew the ⊕ screw to remove the Dev. Gear Cover.

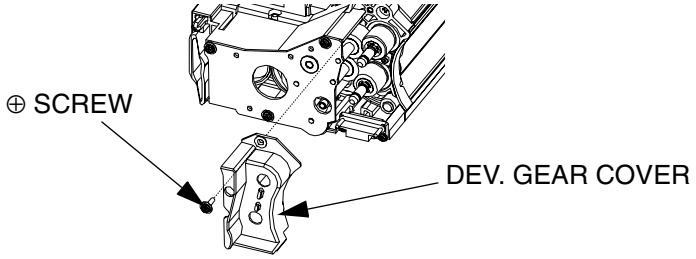


Figure 7-47. Removal of the Auger Gear (Z40)

8. Unscrew the three ⊕ screws to remove the Motor Plate Weld Assembly.

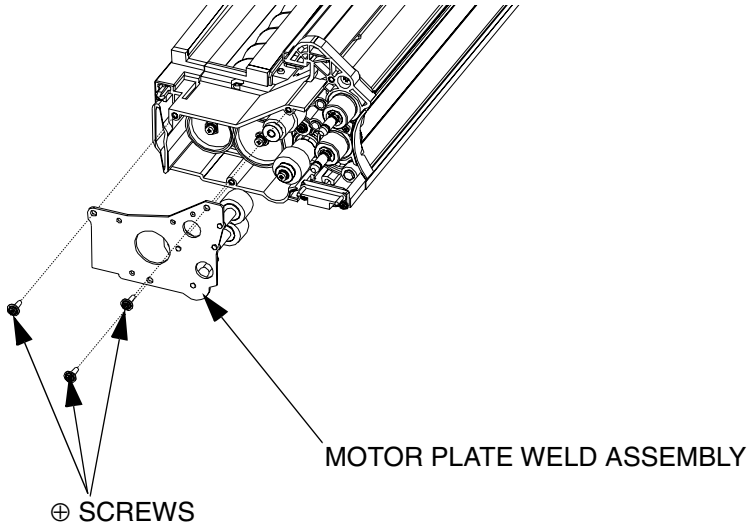


Figure 7-48. Removal of the Auger Gear (Z40)

9. Remove the TR Gear M. (Refer to item 7.1.2.3. (10) on page 7-24)
10. Unscrew the ⊕ screw to remove the Auger Gear (Z40).

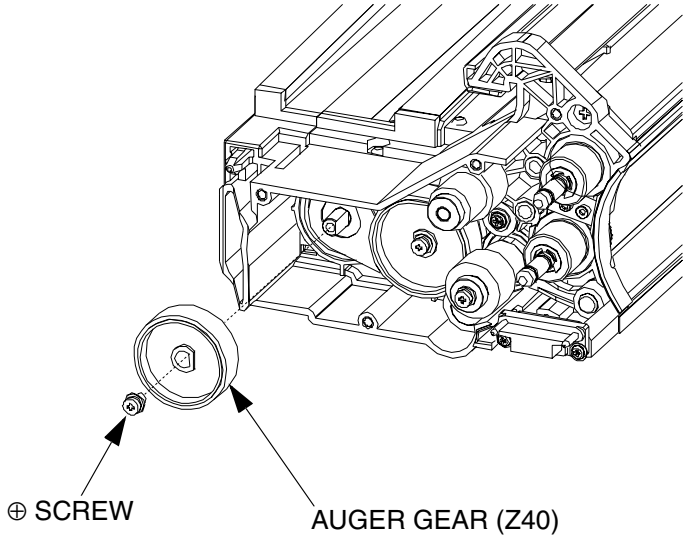


Figure 7-49. Removal of the Auger Gear (Z40)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.3. (15) Removal of the MGR Gear (P/N G1501703 (N335270A))

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. Draw out the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Draw out the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Unscrew the ⊕ screw to remove the Dev. Gear Cover.
5. Remove the Snap Ring E to remove the MGR Gear.

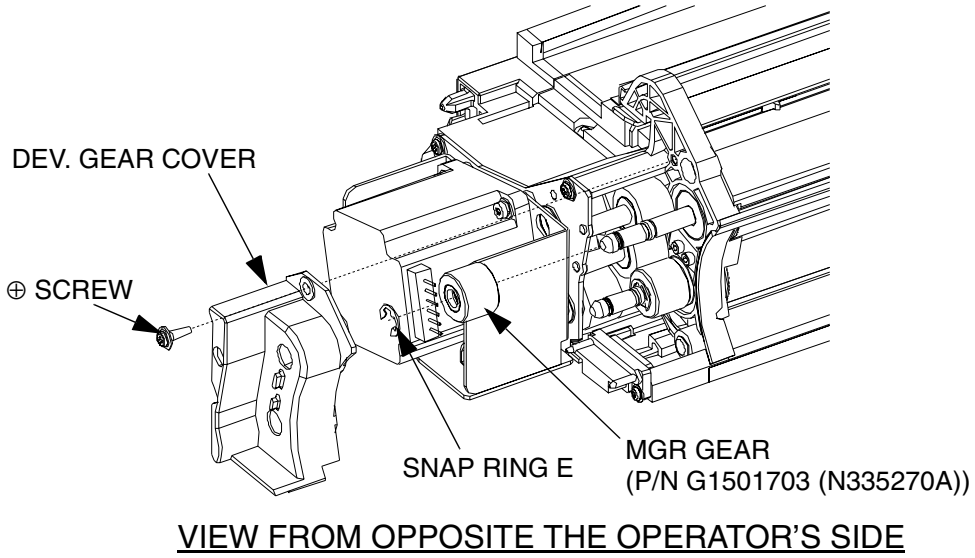


Figure 7-50. Removal of the MGR Gear (P/N G1501703 (N335270A))

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Make sure that the MGR Gear is stamped "1" or "•".
Confirm that the MGR Gear is able to rotate CW without rotation and rotate CCW with shaft from view of Motor side.

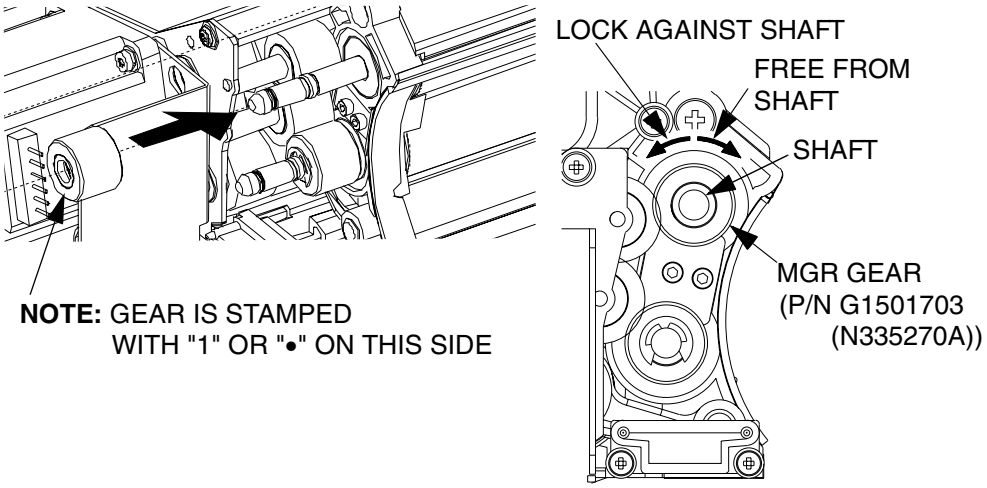


Figure 7-51. Removal of the MGR Gear (P/N G1501703 (N335270A))

7.1.2.3. (16) Removal of the MGR Gear (P/N G1501704 (N335270B))

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. Draw out the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Draw out the Deve loper Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Unscrew the ⊕ screw to remove the Dev. Gear Cover.
5. Remove the Snap Ring E to remove the MGR Gear.

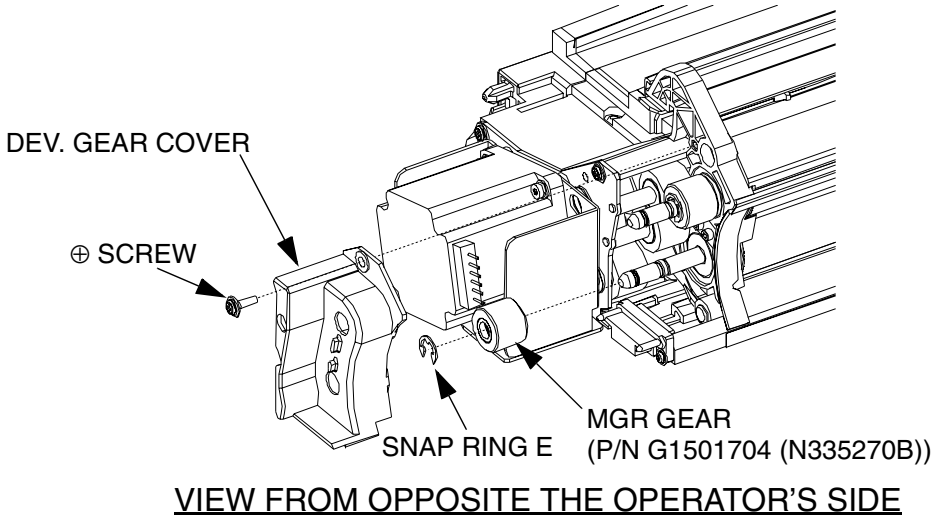


Figure 7-52. Removal of the MGR Gear (P/N G1501704 (N335270B))

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Make sure that the MGR Gear is stamped "2" or "••".
Confirm that the MGR Gear is able to rotate CCW without rotation and rotate CW with shaft from view of Motor side.

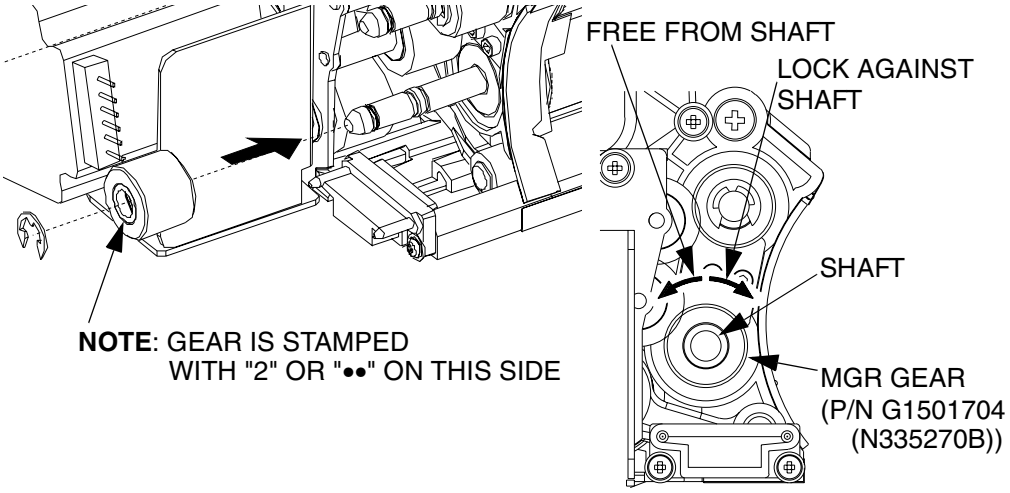


Figure 7-53. Removal of the MGR Gear (P/N G1501704 (N335270B))

7.1.2.4. Removal of the Toner Hopper Unit Parts

7.1.2.4. (1) Removal of the Toner Hopper Unit

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

Applicable jigs and tools: ⊕ Screwdriver, Vacuum cleaner, ⊕ Screwdriver (Short).

[Disassembling Procedures]
a. For the Front Engine

1. Remove the Rear Cover. (Refer to item 3.3.2. (1) on page 3-12)
2. Remove the Top Cover. (Refer to item 3.3.2. (1) on page 3-12)
3. Remove the Panel Cover.
4. Remove the four ⊕ screws (M4x10).
5. Lift the Toner Hopper Unit up till the Toner Hopper Sensor Cable Connector appears.
6. Disconnect the Toner Hopper Sensor Cable Connector P/J328.
7. Remove the Toner Hopper Unit.

Note: Put a sheet of plastic underneath the removed Toner Hopper Unit. Some Toner may be spilled.

CAUTION:
To avoid toner spilling, handle the Toner Hopper Unit with care and do not tilt it.

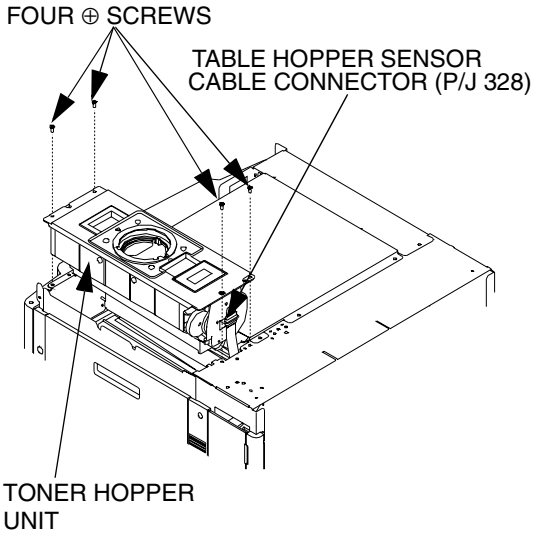


Figure 7-54. Removal of the Toner Hopper Unit

[Assembling Procedures]

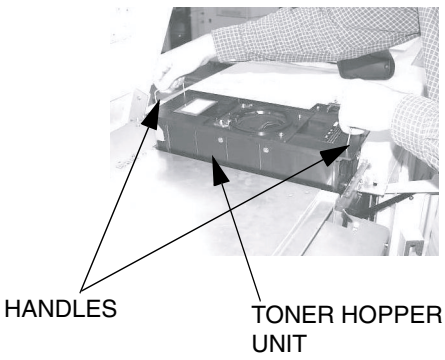
Perform the disassembling procedures in the reverse order.

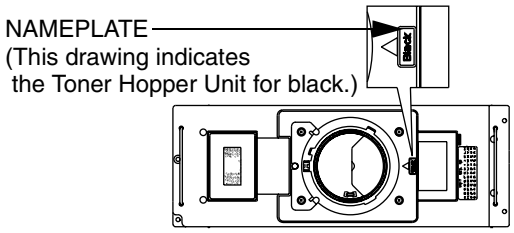
b. For the Rear Engine

1. Open the Top Cover.
2. Draw the Toner Hopper Unit with holding the two Handles.

Note:	Put a sheet of plastic underneath the removed Toner Hopper Unit. Some Toner may be spilled.

CAUTION:
To avoid toner spilling, handle the Toner Hopper Unit with care and do not tilt it.





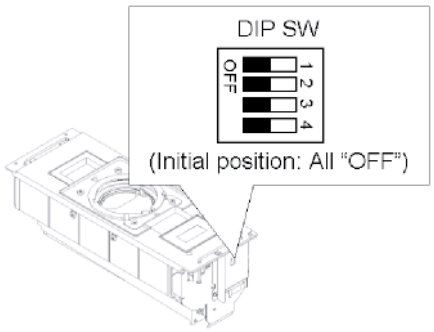


Table. Setting of DIP SW of the Toner Hopper Unit

Black	Blue	Red
OFF 1→on, 2, 3, 4	OFF 1, 2, 3→on, 4	OFF 1, 2→on, 3, 4
Green	**Cyan**	**Warm Red**
OFF 1→on, 2→on, 3, 4	OFF 1→on, 2, 3, 4→on	OFF 1→on, 2, 3→on, 4
Reflex Blue		
OFF 1, 2→on, 3→on, 4		

REAR ENGINE

Figure 7-55. Removal of the Toner Hopper Unit

[Assembling Procedures]

1. Stick the Nameplate on the New Toner Hopper Unit.
2. Set the DIP SW of the New Toner Hopper Unit.
3. Perform the disassembling procedures in the reverse order.

7.1.2.4. (2) Removal of the Toner Feed Motor

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

Applicable jigs and tools: ⊕ Magnetized Screwdriver, Vacuum cleaner.
[Disassembling Procedures]
a. For the Front Engine

1. Remove the Toner Hopper Unit. (Refer to item 7.1.2.4. (1) on page 7-36)
2. Remove the two ⊕ screws (M4x12).
3. Remove the Idler Gear Holder Assembly.
4. Remove the Idler Gear (A), Idler Gear (B), and the Idler Gear (C).
5. Disconnect the Motor Connector.
6. Remove the ⊕ screw (M4x12).
7. Remove the Feed Motor Holder.
8. Remove the Toner Feed Motor.

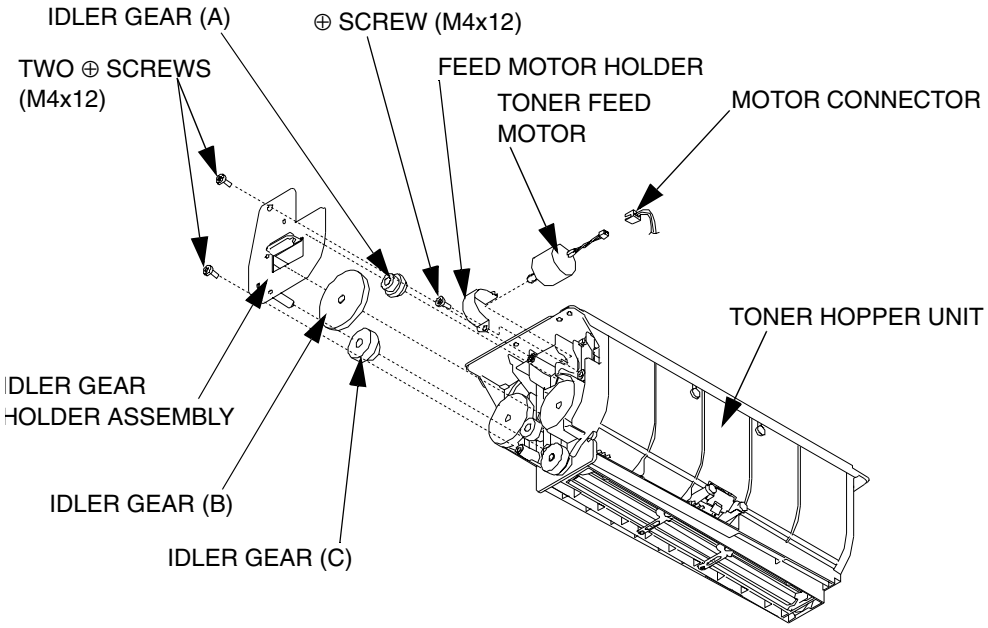


Figure 7-56. Removal of the Toner Feed Motor

b. For the Rear Engine

1. Remove the Toner Hopper Unit. (Refer to item 7.1.2.4. (1) on page 7-36)
2. Remove the two ⊕ screws (M4x12), the two ⊕ screws (M3x6), and the Washer.
3. Remove the PK Cover and the Idler Gear Holder Assembly.
4. Remove the Parts which are similar to those of Front Engine.

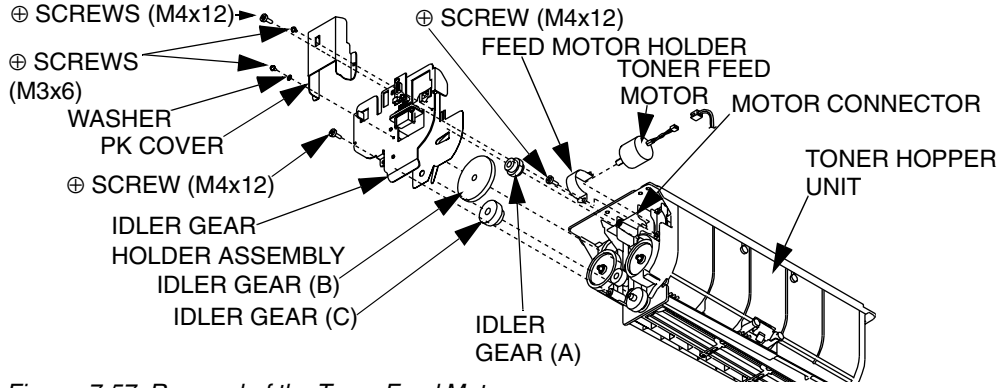


Figure 7-57. Removal of the Toner Feed Motor

[Assembling Procedures]

1. Remove the four ⊕ screws (M4x12)
2. Remove the Top Cover, and the Cap Holder.
3. Make sure that the Stir Plates face the same horizontal direction by turning the Stir Gears.
4. Perform the disassembling procedures in the reverse order.

Note: Be careful not to lose the O Ring behind the Cover when it is removed.
If the O Ring comes off, fit the O Ring to the Top Cover before assembling.

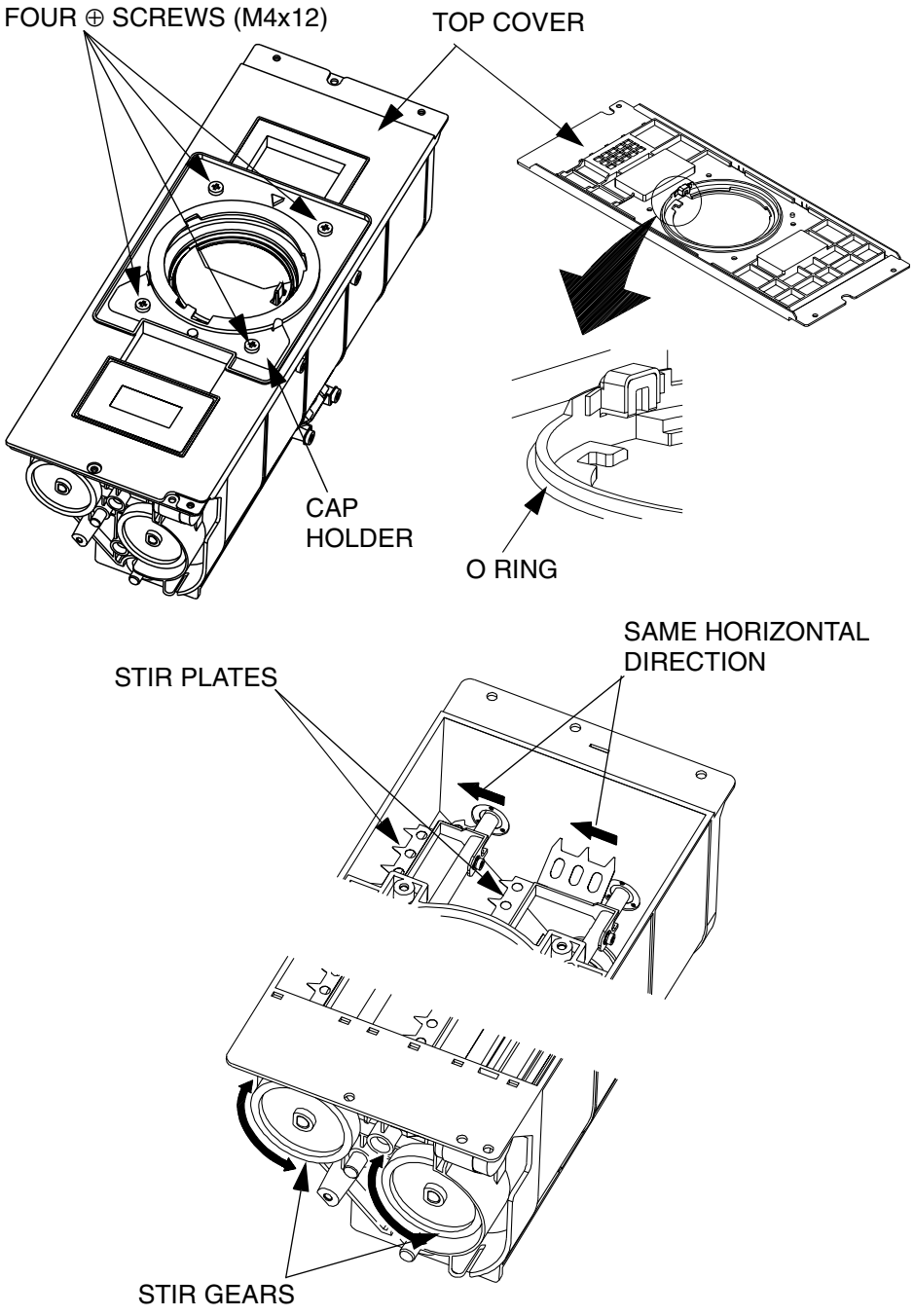


Figure 7-58. Removal of the Toner Feed Motor

7.1.2.4. (3) Removal of the Toner Sensor

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

CAUTION:
Pay attention since toner may be spilled. The Sensor Side must be facing up for this procedure.

Applicable jigs and tools: ⊕ Screwdriver, Vacuum cleaner.

[Disassembling Procedures]

1. Remove the Toner Hopper Unit. (Refer to item 7.1.2.4. (1) on page 7-36)
2. Remove the two ⊕ screws (M4x8).
3. Remove the Toner Empty Sensor Holder.
4. Disconnect the connector.
5. Remove the Toner Sensor.

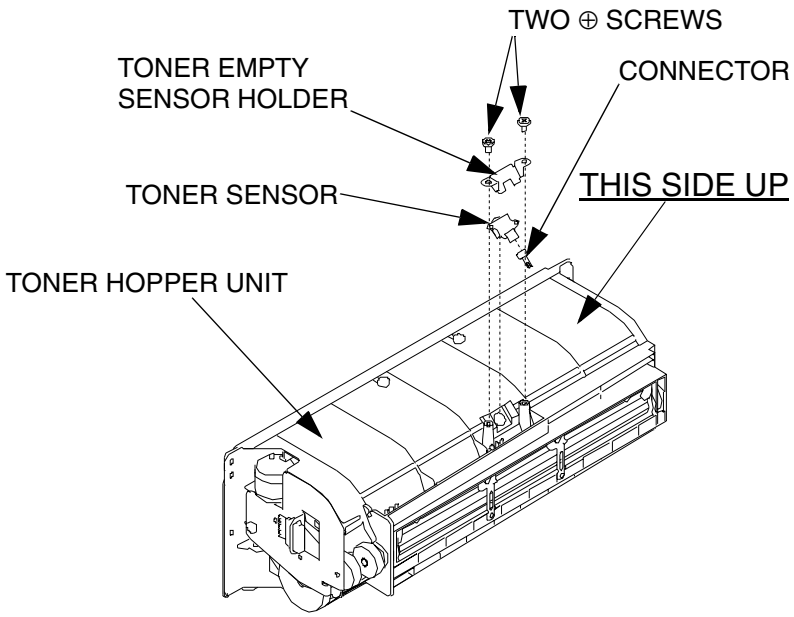


Figure 7-59. Removal of the Toner Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.4. (4) Removal of the Idler Gear (A)

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

Applicable jigs and tools: ⊕ Screwdriver, Vacuum cleaner.

[Disassembling Procedures]

1. Remove the Toner Hopper Unit. (Refer to item 7.1.2.4. (1) on page 7-36)
2. Remove the two ⊕ screws (M4x12).
3. Disconnect the Toner Hopper connector.
4. Remove the Idler Gear Holder Assembly (with Idler Gear (A), Idler Gear (B) and Idler Gear (C)).
5. Remove Idler Gear (A).

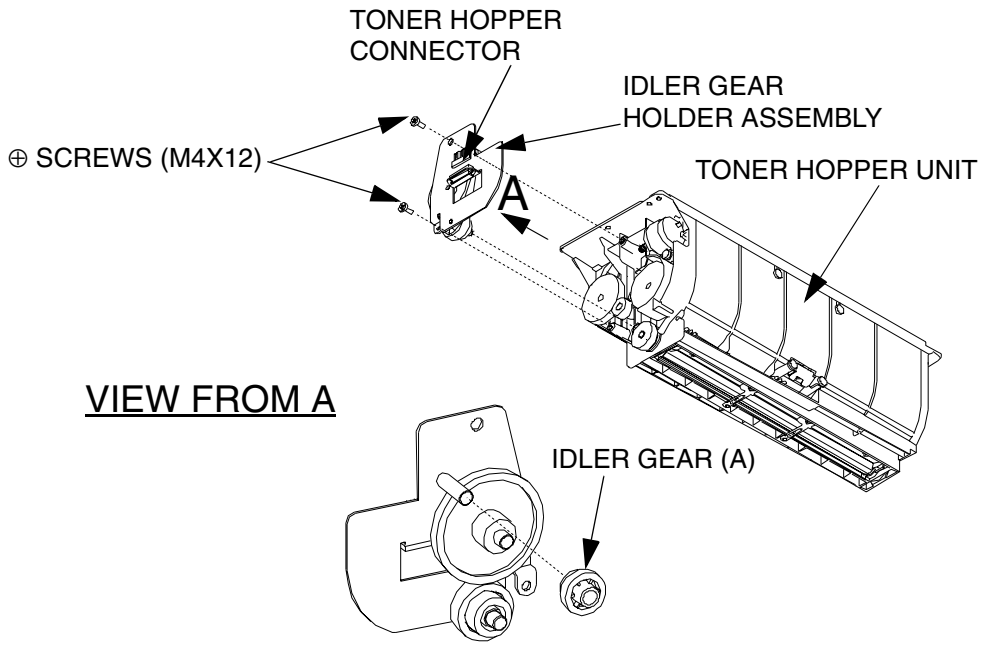


Figure 7-60. Removal of the Idler Gear (A)

[Assembling Procedures]

1. Make sure that the Stir Plates face the same horizontal direction by turning the Stir Gears. (Refer to item 7.1.2.4. (2) on page 7-38)
2. Perform the disassembling procedures in the reverse order.

7.1.2.4. (5) Removal of the Idler Gear (B)

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

Applicable jigs and tools: ⊕ Screwdriver, Vacuum cleaner.

[Disassembling Procedures]

1. Remove the Toner Hopper Unit. (Refer to item 7.1.2.4. (1) on page 7-36)
2. Remove the two ⊕ screws (M4x12).
3. Disconnect the Toner Hopper connector.
4. Remove the Idler Gear Holder Assembly (with Idler Gear (A), Idler Gear (B) and Idler Gear (C)).
5. Remove Idler Gear (A).
6. Remove Idler Gear (B).

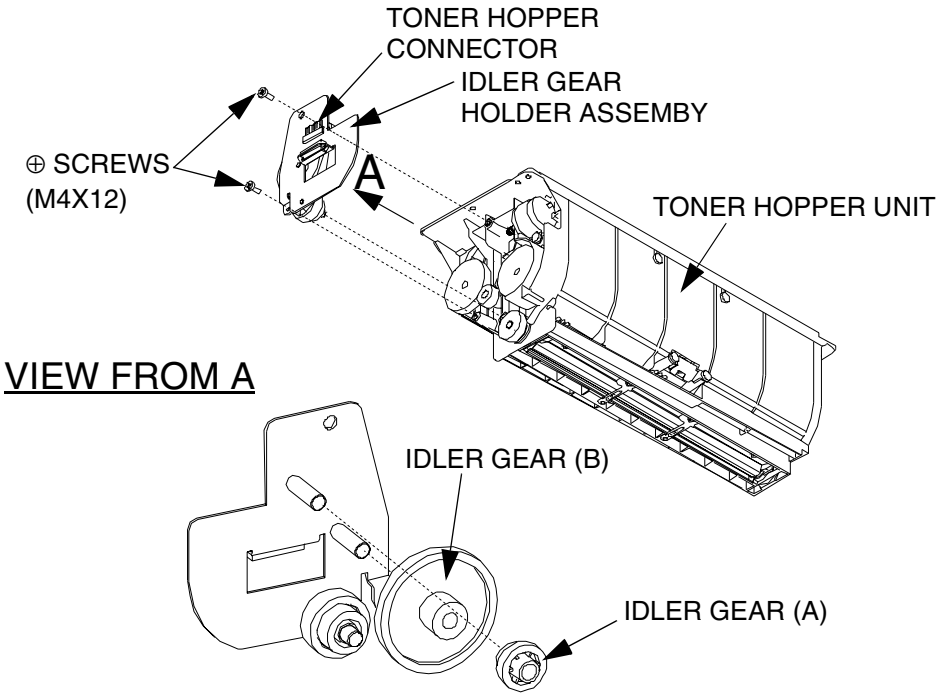


Figure 7-61. Removal of the Idler Gear (B)

[Assembling Procedures]

1. Make sure that the Stir Plates face the same horizontal direction by turning the Stir Gears. (Refer to item 7.1.2.4. (2) on page 7-38)
2. Perform the disassembling procedures in the reverse order.

7.1.2.4. (6) Removal of the Idler Gear (C)

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

Applicable jigs and tools: ⊕ Screwdriver, Vacuum cleaner.

[Disassembling Procedures]

1. Remove the Toner Hopper Unit. (Refer to item 7.1.2.4. (1) on page 7-36)
2. Remove the two ⊕ screws (M4x12).
3. Disconnect the Toner Hopper connector.
4. Remove the Idler Gear Holder Assembly (with Idler Gear (A), Idler Gear (B) and Idler Gear (C)).
5. Remove Idler Gear (C).

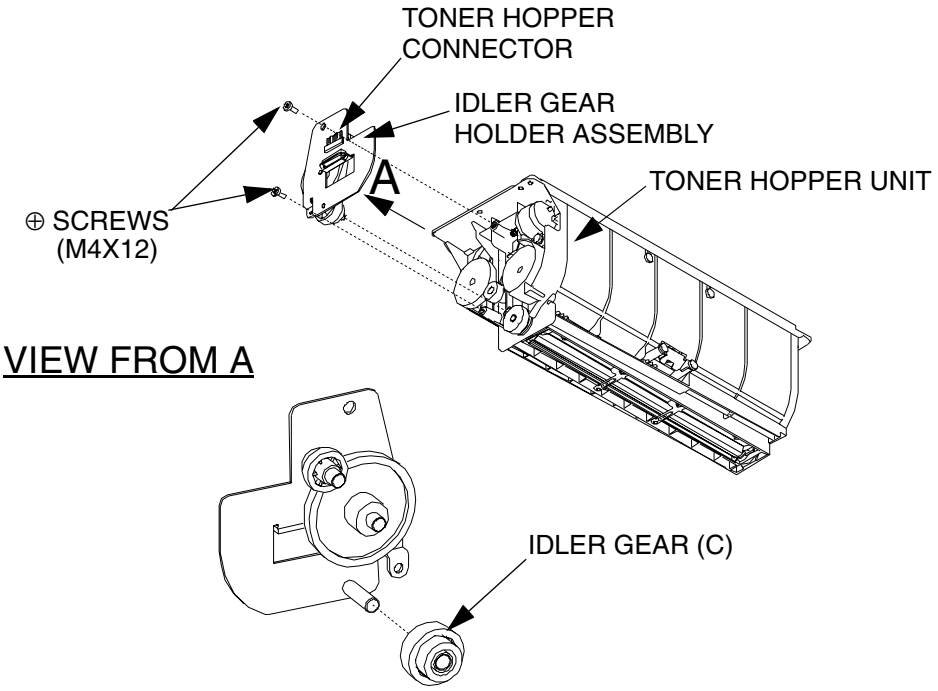


Figure 7-62. Removal of the Idler Gear (C)

[Assembling Procedures]

1. Make sure that the Stir Plates face the same horizontal direction by turning the Stir Gears. (Refer to item 7.1.2.4. (2) on page 7-38)
2. Perform the disassembling procedures in the reverse order.

7.1.2.4. (7) Removal of the Idler Gear (D)

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

Applicable jigs and tools: ⊕ Screwdriver, Vacuum cleaner.

[Disassembling Procedures]

1. Remove the Toner Hopper Unit. (Refer to item 7.1.2.4. (1) on page 7-36)
2. Remove the two ⊕ screws (M4x12).
3. Disconnect the Toner Hopper connector.
4. Remove the Idler Gear Holder Assembly (with Idler Gear (A), Idler Gear (B) and Idler Gear (C)).
5. Remove Idler Gear (D).

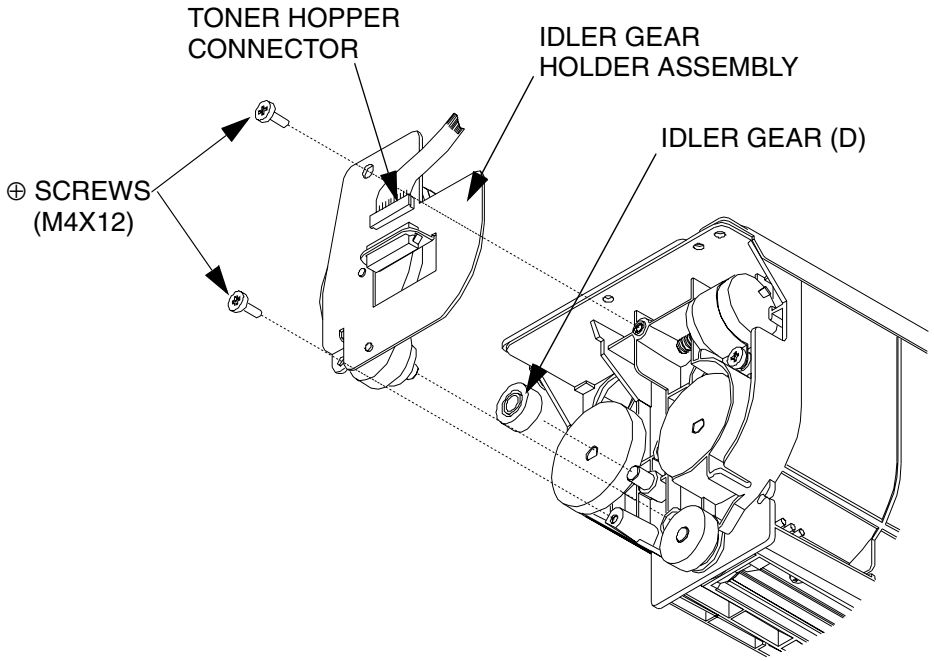


Figure 7-63. Removal of the Idler Gear (D)

[Assembling Procedures]

1. Make sure that the Stir Plates face the same horizontal direction by turning the Stir Gears. (Refer to item 7.1.2.4. (2) on page 7-38)
2. Perform the disassembling procedures in the reverse order.

7.1.2.4. (8) Removal of the Stir Gear

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

Applicable jigs and tools: ⊕ Screwdriver, Vacuum cleaner.

[Disassembling Procedures]

1. Remove the Toner Hopper Unit. (Refer to item 7.1.2.4. (1) on page 7-36)
2. Remove the two ⊕ screws (M4x12).
3. Disconnect the Toner Hopper connector.
4. Remove the Idler Gear Holder Assembly (with Idler Gear (A), Idler Gear (B) and Idler Gear (C)).
5. Remove the Stir Gears.

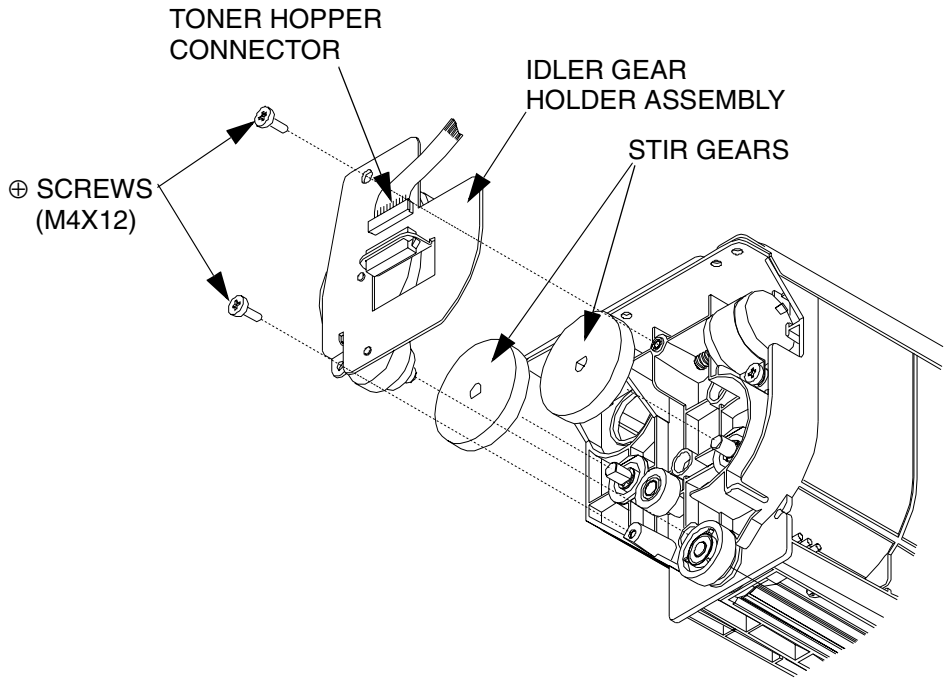


Figure 7-64. Removal of the Stir Gear

[Assembling Procedures]

1. Make sure that the Stir Plates face the same horizontal direction by turning the Stir Gears. (Refer to item 7.1.2.4. (2) on page 7-38)
2. Perform the disassembling procedures in the reverse order.

7.1.2.4. (9) Removal of the Feed Gear

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

Applicable jigs and tools: ⊕ Screwdriver, Vacuum cleaner.

[Disassembling Procedures]

1. Remove the Toner Hopper Unit. (Refer to item 7.1.2.4. (1) on page 7-36)
2. Remove the two ⊕ screws (M4x12).
3. Disconnect the Toner Hopper connector.
4. Remove the Idler Gear Holder Assembly (with Idler Gear (A), Idler Gear (B) and Idler Gear (C)).
5. Remove the Feed Gear by turning it clockwise.

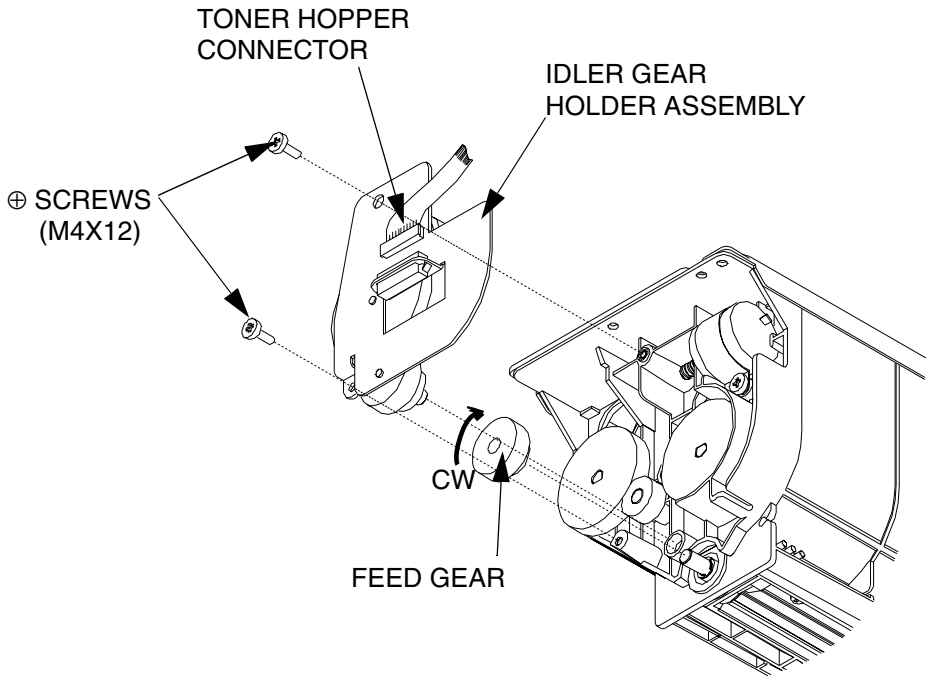


Figure 7-65. Removal of the Feed Gear

[Assembling Procedures]

1. Make sure that the Stir Plates face the same horizontal direction by turning the Stir Gears. (Refer to item 7.1.2.4. (2) on page 7-38)
2. Perform the disassembling procedures in the reverse order.

7.1.2.5. Removal of the Drum Drive Unit Parts

7.1.2.5. (1) Removal of the Drum Drive Unit

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

Applicable jigs and tools: ⊕ Screwdriver, Spanner (M6).

[Disassembling Procedures]

1. Open the Front Cover.
2. Remove the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Remove the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Remove the Charger Unit. (Refer to item 7.1.2.2. (1) on page 7-6)
5. Remove the Rear Cover. (Refer to item 3.3.2. (1) on page 3-12)
6. Remove the M6 Nut to remove the Fly Wheel.
7. Remove the Recycle Path Assembly. (Refer to item 7.1.2.6. (1) on page 7-60)
8. Disconnect the six connectors. (P/J719, 720, 728, 729, 736, MG Sensor and the Drum Sensor Connector.)
9. Remove the Ozone Chamber Assembly. (Refer to item 7.1.5.1. (7) on page 7-208) - Procedures 1 to 5.
10. Remove the four Faston Terminals.
11. Unscrew the four ⊕ screws to remove the Cooling Assembly (1). (Refer to item 7.1.5.1. (5) on page 7-206)
12. Unscrew the three ⊕ screws to remove the Drum Drive Unit.

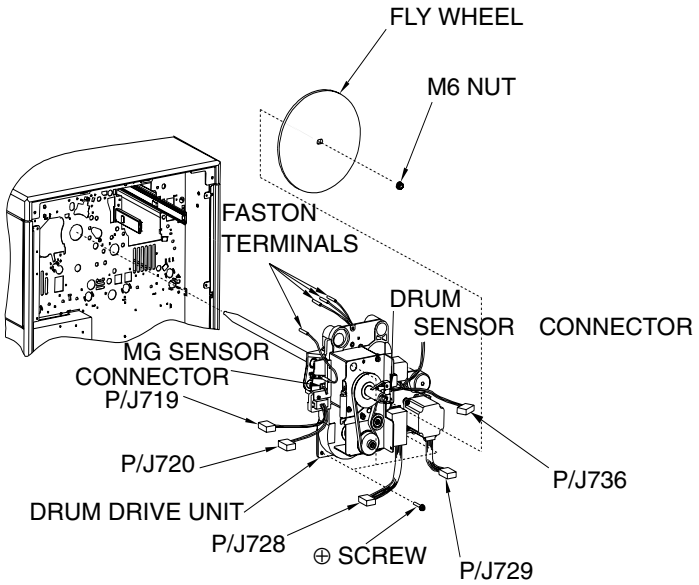


Figure 7-66. Removal of the Drum Drive Unit

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: For exchange of the Drum Drive Unit of non RoHS machine.
(1) In case the Drum Drive Unit(Spare parts) without Drum Motor.
Divert the Drum Motor and Drum Cable from the old unit.
(2) In case the Drum Drive Unit(Spare parts) with Drum Motor.
Confirm the Drum Motor type indicated on Drum Motor Rotor. When motor type is different between new and original Drum Drive Unit, exchange the Drum Motor of new Drum Drive Unit to original motor installed in original Drum Drive Unit.
(Refer to item 7.1.2.5. (7) on page 7-53)

7.1.2.5. (2) Removal of the Drum Drive Gears

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 Drum Drive Unit. (Refer to item 7.1.2.5. (1) on page 7-47)
2. Unscrew the ⊕ screw to remove the Shaft Hold Plate.
3. Remove the Gears.

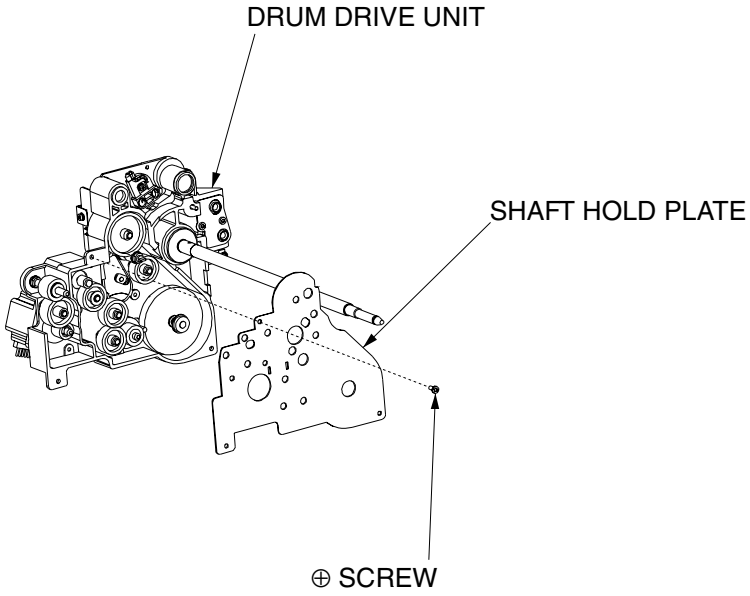


Figure 7-67. Removal of the Drum Drive Gears

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.5. (3) Removal of the Drum REV Sensor

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

Applicable jigs and tools: ⊕ Screwdriver, Spanner (M6).

[Disassembling Procedures]

1. Remove the Rear Cover Assembly. (Refer to item 3.3.2. (1) on page 3-12)
2. Remove the M6 Nut to remove the Fly Wheel.
3. Unscrew the ⊕ screw to remove the Drum GND Holder.
4. Disconnect the Connector from the Drum REV Sensor.
5. Remove the Drum REV Sensor from the Pulley Holder.

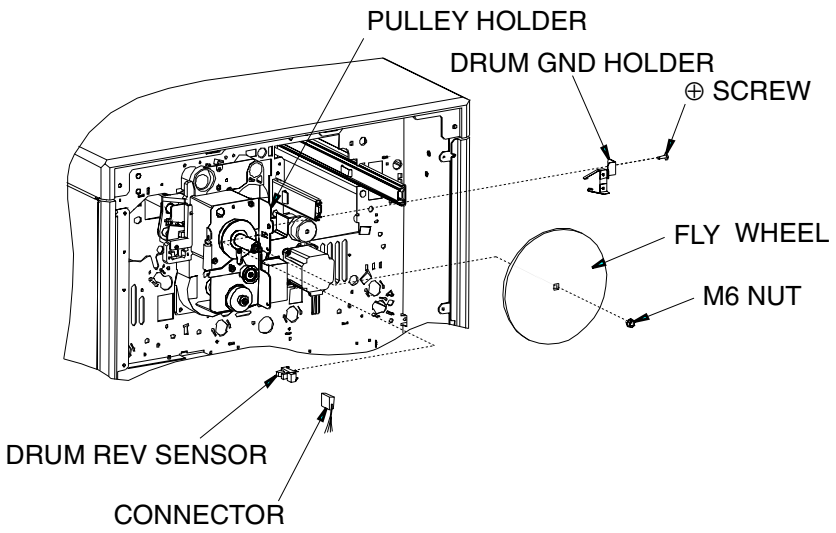


Figure 7-68. Removal of the Drum REV Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.5. (4) Removal of the MG Sensor

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

Applicable jigs and tools: ⊕ Screwdriver, Spanner (M6).

[Disassembling Procedures]

1. Remove the Rear Cover Assembly. (Refer to item 3.3.2. (1) on page 3-12)
2. Remove the M6 Nut to remove the Fly Wheel.
3. Unscrew the two ⊕ screws to remove the MG BIAS Terminal Assembly.
4. Disconnect the Connector from the MG Sensor.
5. Remove the MG Sensor from the Sensor Plate.

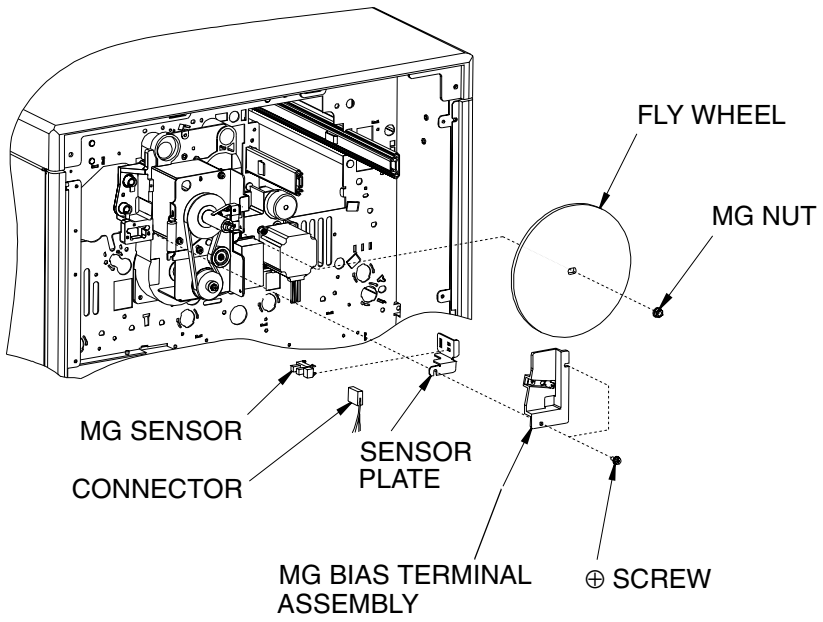


Figure 7-69. Removal of the MG Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.5. (5) Removal of the MG Insulator

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. Remove the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Remove the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Unscrew the two ⊕ screws to remove the MGINS Holder.
5. Remove the MG Insulator.

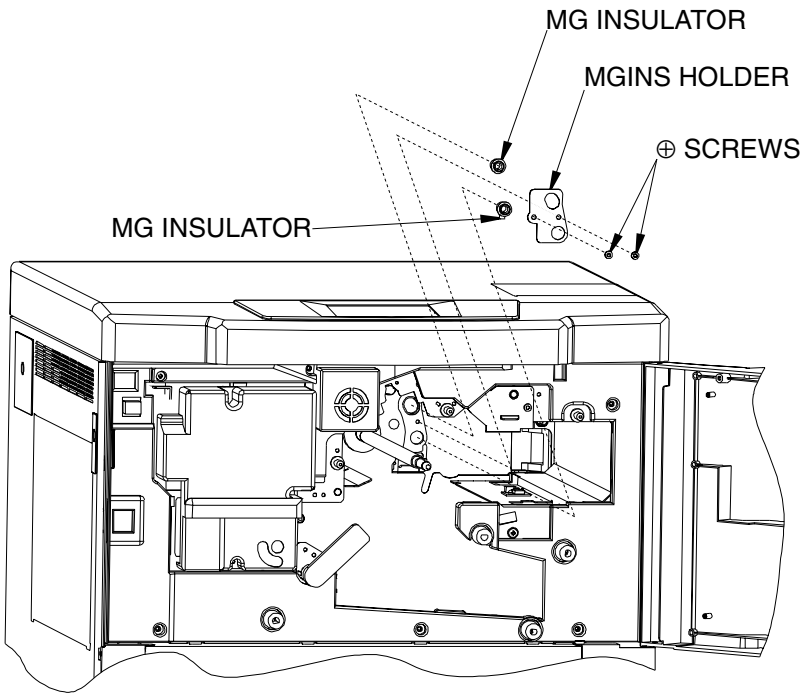


Figure 7-70. Removal of the MG Insulator

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.5. (6) Removal of the Timing Belt

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

Applicable jigs and tools: ⊕ Screwdriver, Spanner (M6).

[Disassembling Procedures]

1. Remove the Rear Cover. (Refer to item 3.3.2. (1) on page 3-12)
2. Remove the M6 Nut to remove the Fly Wheel.
3. Remove the Recycle Path Assembly. (Refer to item 7.1.2.6. (1) on page 7-60)
4. Unscrew the ⊕ screw to remove the Drum GND Holder.
5. Loosen the ⊕ screw of the Tension Roller Base Assembly.
6. Remove the Timing Belt.

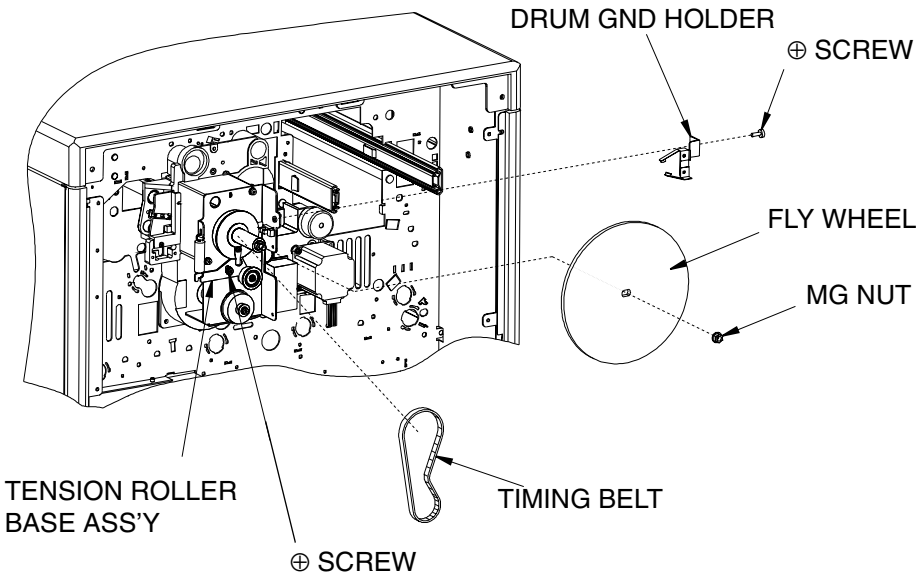


Figure 7-71. Removal of the Timing Belt

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Be sure to tighten the Timing Belt.

7.1.2.5. (7) Removal of the Drum Motor

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

Applicable jigs and tools: ⊕ Screwdriver, Spanner (M6).

[Disassembling Procedures]

1. Remove the Rear Cover Assembly. (Refer to item 3.3.2. (1) on page 3-12)
2. Remove the M6 Nut to remove the Fly Wheel.
3. Disconnect the connector.
4. Unscrew the three ⊕ screws to remove the Drum Motor.

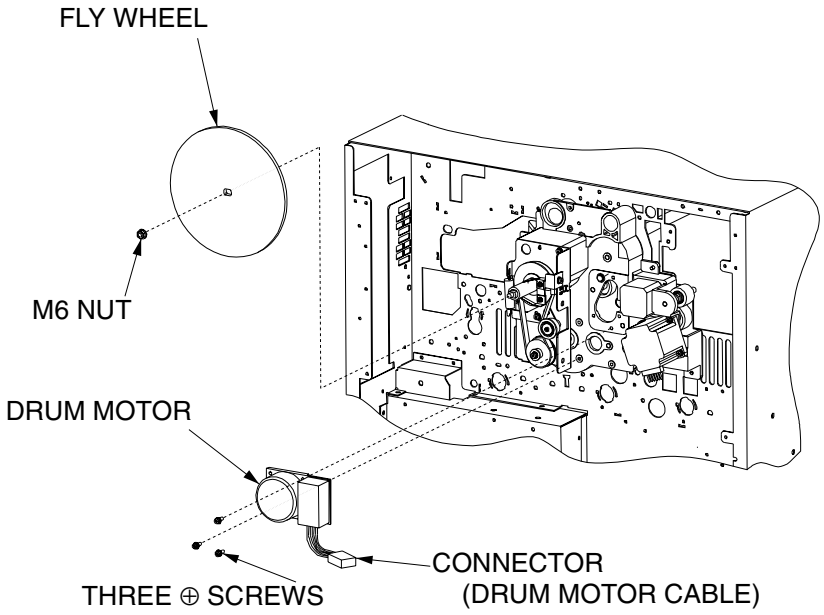


Figure 7-72. Removal of the Drum Motor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

CAUTION FOR DRUM MOTOR IN EXCHANGE

1. RoHS machine
   Exchange only the Drum Motor.

2. non RoHS machine
   Before conducting component replacement, check the Drum Motor name indicated on the rotor of the Drum Motor installed in the printer, and exchange according to the Drum Motor name as shown in the table below.
   1) DNQ18Axxxxxx
      It is necessary to also exchange an enclosed CP62X Assembly and Drum Motor Cable in the Drum Motor Kit together.
      Paint out "V" of Front Engine or "Z" of Rear Engine machine rev. label with the black marker.
   2) DR-6236-200 (Front engine machine rev. "V", Rear engine machine rev. "Z")
      Exchange only the Drum Motor.

7.1.2.5. (8) Removal of the HR 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 Assembly. (Refer to item 3.3.2. (1) on page 3-12)
2. Disconnect the connector.
3. Unscrew the three ⊕ screws to remove the HR Motor.

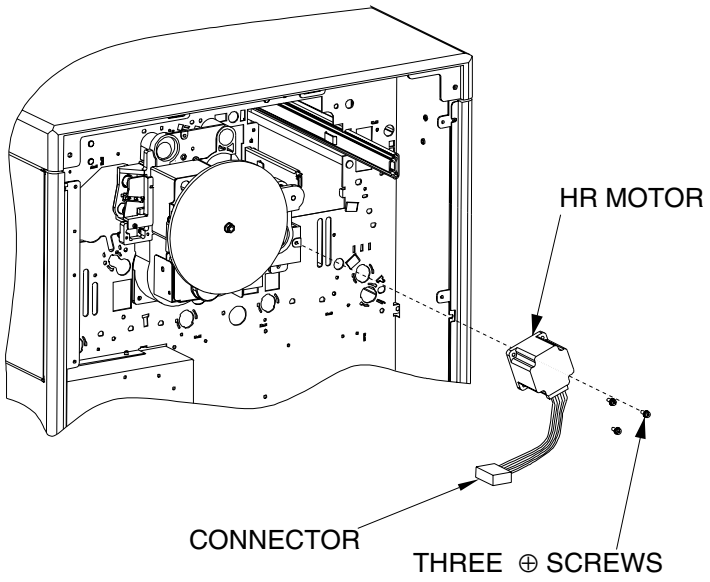


Figure 7-73. Removal of the HR Motor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.5. (9) Removal of the TH 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 Drum Drive Unit. (Refer to item 7.1.2.5. (1) on page 7-47)
2. Disconnect the connector.
3. Unscrew the three ⊕ screws to remove the TH Motor.

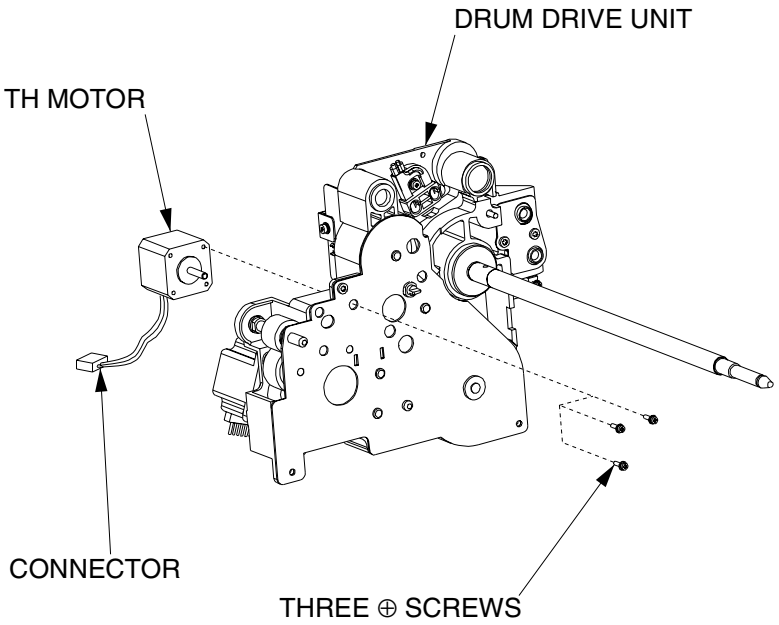


Figure 7-74. Removal of the TH Motor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.5. (10) Removal of the Pulley (Drum) 40

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

Applicable jigs and tools: ⊕ Screwdriver, Spanner (M6).

[Disassembling Procedures]

1. Remove the Rear Cover Assembly. (Refer to item 3.3.2. (1) on page 3-12)
2. Remove the Timing Belt. (Refer to item 7.1.2.5. (6) on page 7-52)
3. Unscrew the ⊕ screw to remove the Pulley (Drum) 40.

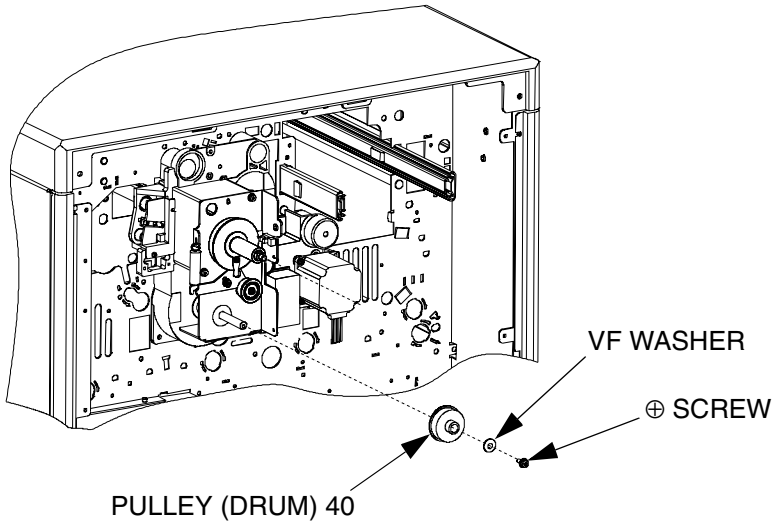


Figure 7-75. Removal of the Pulley (Drum) 40

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.5. (11) Removal of the Pulley (Drum)

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

Applicable jigs and tools: ⊕ Screwdriver, Spanner (M6).

[Disassembling Procedures]

1. Remove the Rear Cover Assembly. (Refer to item 3.3.2. (1) on page 3-12)
2. Remove the Timing Belt. (Refer to item 7.1.2.5. (6) on page 7-52)
3. Remove the FW Holder.
4. Remove the Pulley (Drum).

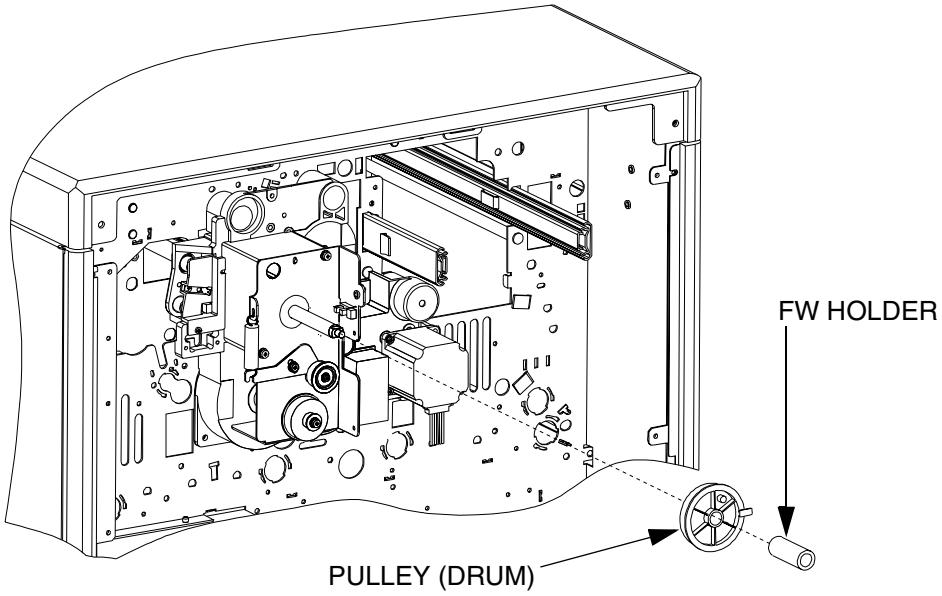


Figure 7-76. Removal of the Pulley (Drum)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.5. (12) Removal of the CP-DEV Cable Assembly

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 Drum Drive Unit. (Refer to item 7.1.2.5. (1) on page 7-47)
2. Unscrew the two ⊕ screws to remove the CP-DEV Cable Assembly.

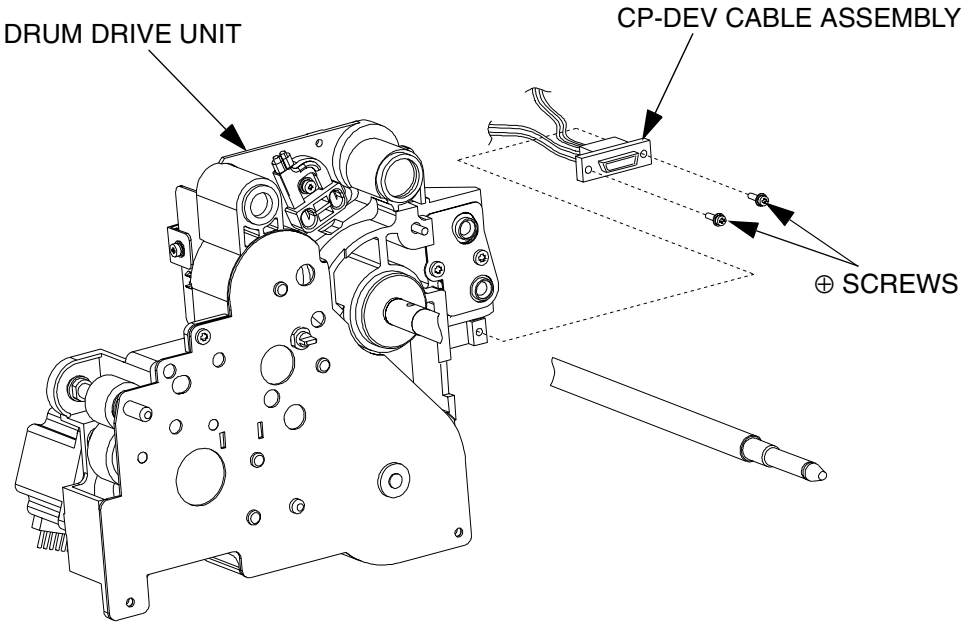


Figure 7-77. Removal of the CP-DEV Cable Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.5. (13) Removal of the DEV Bias Terminal

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 MG Bias Terminal Assembly. (Refer to item 7.1.2.5. (4) on page 7-50)
2. Remove the Rivet to remove the DEV Bias Terminal.

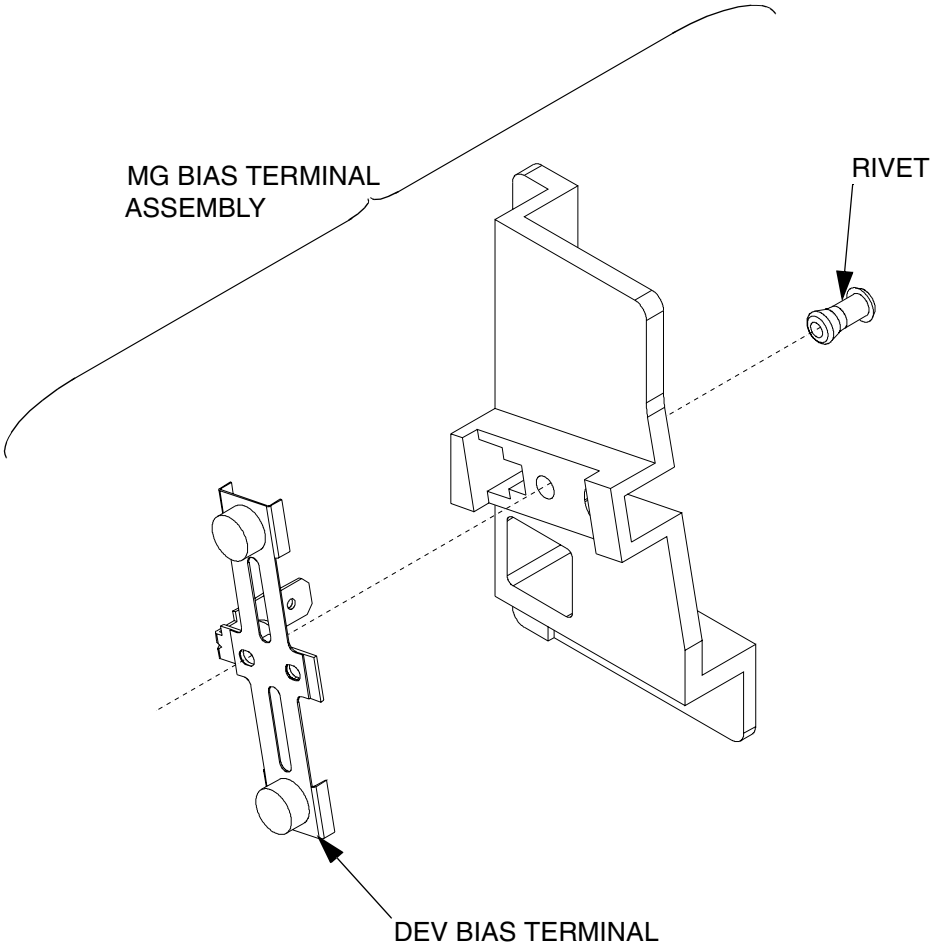


Figure 7-78. Removal of the DEV Bias Terminal

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.6. Removal of the Recycle Unit Parts

7.1.2.6. (1) Removal of the Recycle Path Assembly

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

Note: Take care to avoid spilling toner during the maintenance.

Applicable jigs and tools: ⊕ Screwdriver, - Jewel Screwdriver, M6 Spanner, Lint-Free Cloth, Vacuum Cleaner, ⊕ Screwdriver (Short).

[Disassembling Procedures]

1. Remove the Rear Cover.
2. Remove the Top Cover. (Only for the **Front** Engine) (Refer to item 3.3.2. (1) on page 3-12)
3. Open the Top Cover. (Only for the **Rear** Engine)
4. Loosen the two tap screws. (no need to remove them).
5. Disconnect the connector.
6. Slide up then unfix the Cooling (DEV) Ass'y.
7. Unscrew the M6 Nut and remove the Fly Wheel.
8. Tap the Recycle Tube about 30 times (use the grip of the screwdriver.

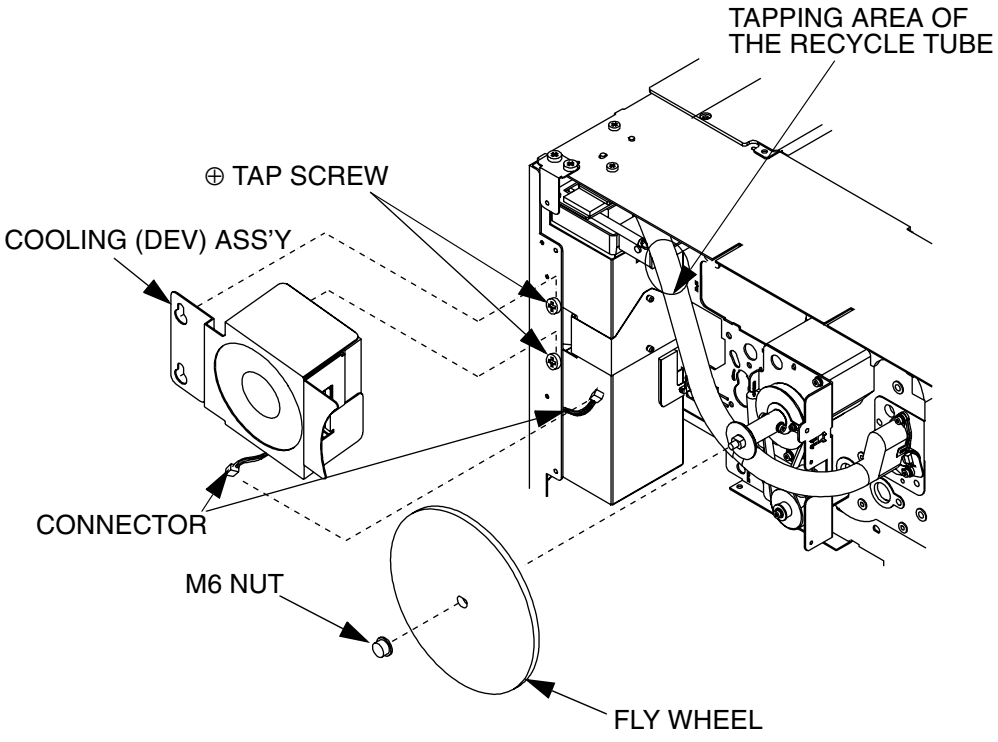


Figure 7-79. Removal of the Recycle Path Assembly

9. Open the Toner Collector Bottle Cover. (Refer to item 3.3.1 on page 3-9)
10. Open the Inner Cover and remove the Toner Collector Bottle.

Note: Take care to avoid spilling toner when the Bottle Shutter Assembly is removed.

11. Remove the Rivet, then the Bottle Shutter Spring and then the Bottle Shutter Assembly.
12. Remove the connector of the Photo Interrupter.
13. Remove the connector of the Toner Sensor.
14. Unscrew the three ⊕ screws.
15. Unscrew the two ⊕ tap screws.
16. Remove the Recycle Path Assembly.

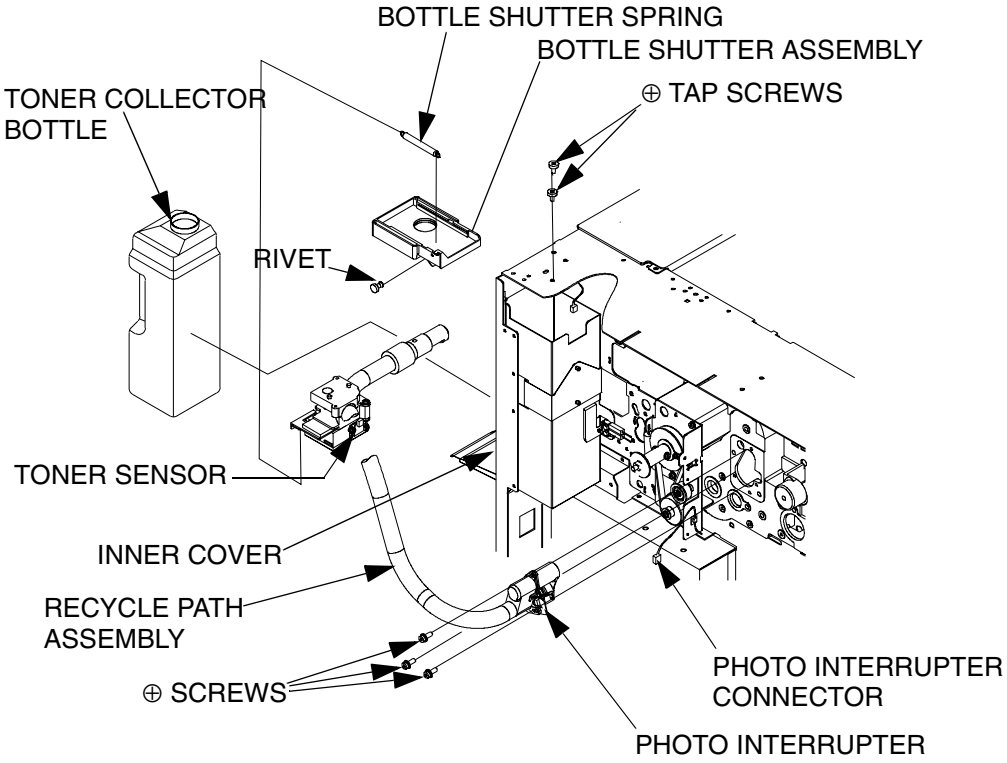


Figure 7-80. Removal of the Recycle Path Assembly

[Assembling Procedures]

Confirm the position of the Toner Shutter as follows:

The Dip Switch 1 is ON (Refer to Figure 7-81)
The position of the Toner Shutter should be as shown in Figure 7-81.

Note: The position of the Dip Switch and the Toner Shutter should be one-to-one correspondence with each other.

Perform the disassembling procedures in the reverse order.

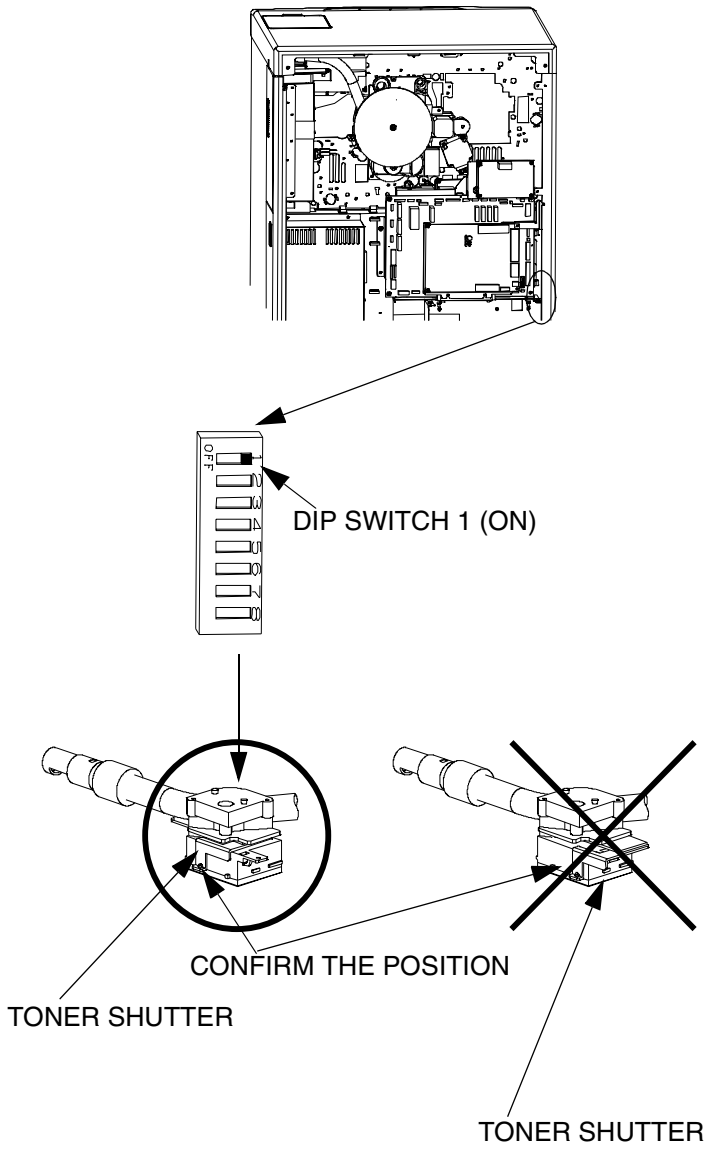


Figure 7-81. Removal of the Recycle Path Assembly

7.1.2.6. (2) Removal of the Toner Collector Bottle Set Sensor

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

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

[Disassembling Procedures]

1. Remove the Rear Cover. (Refer to item 3.3.2. (1) on page 3-12)
2. Remove the connector of the Toner Collector Bottle Set Sensor.
3. Unscrew the two ⊕ screws.
4. Remove the Toner Collector Bottle Set Sensor.

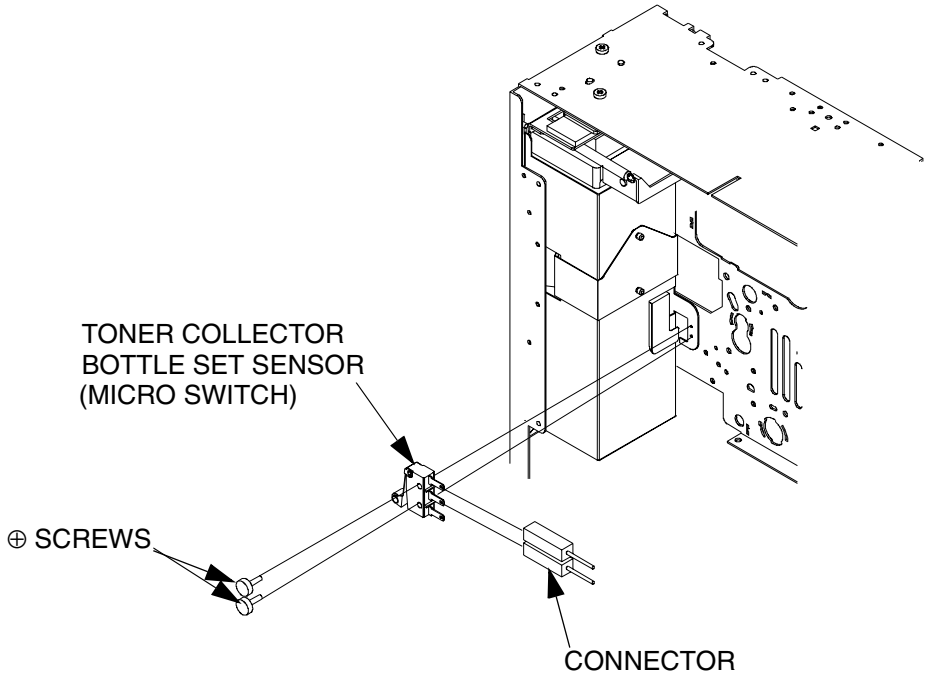


Figure 7-82. Removal of the Toner Collector Bottle Set Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.6. (3) Removal of the Bottle Box Assembly

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

Applicable jigs and tools: ⊕ Screwdriver, - Jewel Screwdriver, Lint-Free Cloth, Vacuum Cleaner.

[Disassembling Procedures]

1. Separate the Relay Unit from the **Rear** Engine. (Only for the **Rear** Engine) (Refer to item 7.3.1 on page 7-284)
2. Remove the Rear Cover. (Refer to item 3.3.2. (1) on page 3-12)
3. Remove the Top Cover. (Refer to item 3.3.2. (1) on page 3-12)
4. Remove the RH Rear Side Cover. (Only for the **Front** Engine) (Refer to item 3.3.2. (1) on page 3-12)
5. Remove the Air Filter (4), and then unscrew the ⊕ screw to remove the Filter Holder. (Only for the **Rear** Engine)

Note: Take care to avoid spilling toner when the Bottle Shutter Assembly is removed.

6. Tap the Recycle Tube about 30 times (use the grip of the screwdriver).
7. Open the Inner Cover and remove the Toner Collector Bottle.
8. Remove the Rivet, then the Bottle Shutter Spring and then the Bottle Shutter Assembly.
9. Remove the connector of the Toner Collector Bottle Set Sensor. (Refer to item 7.1.2.6. (2) on page 7-63)
10. Unscrew the two ⊕ screws and remove the Bottle Box Assembly.

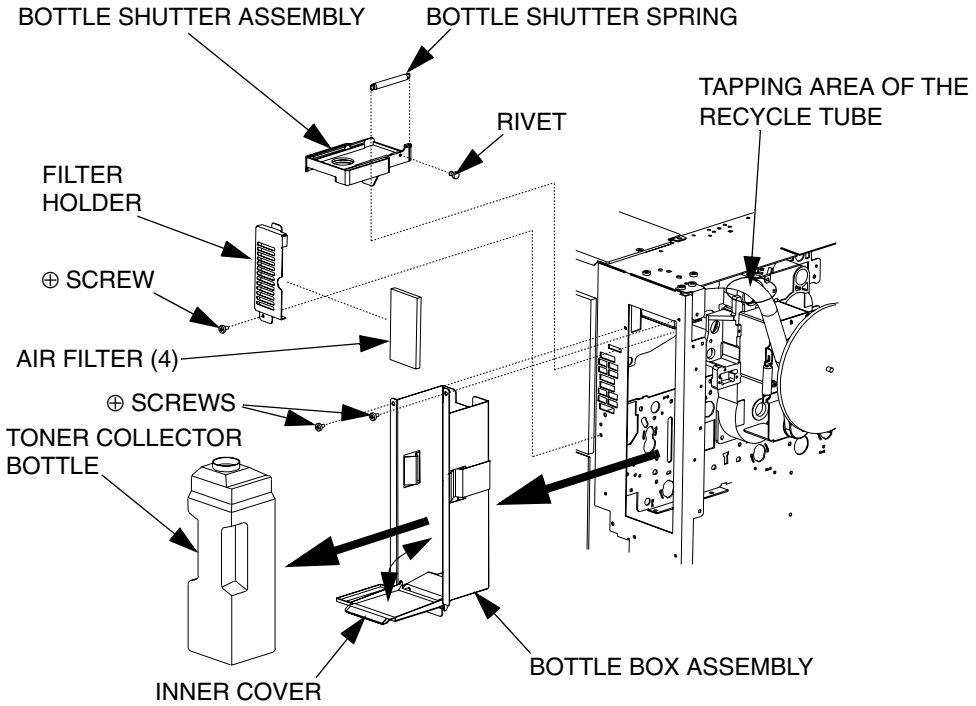


Figure 7-83. Removal of the Bottle Box Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.6. (4) Removal of the Photo Interrupter

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

Applicable jigs and tools: ⊕ Screwdriver, - Jewel Screwdriver, M6 Spanner, Lint-Free Cloth, Vacuum Cleaner.

[Disassembling Procedures]

1. Remove the Recycle Path Assembly. (Refer to item 7.1.2.6. (1) on page 7-60)
2. Clean up inside of the Recycle Path Assembly with a vacuum cleaner.
3. Unfasten the two snaps of the Recycle Joint (CL).
4. Remove the Sensor Holder.
5. Unfasten the four snaps.
6. Remove the Photo Interrupter.

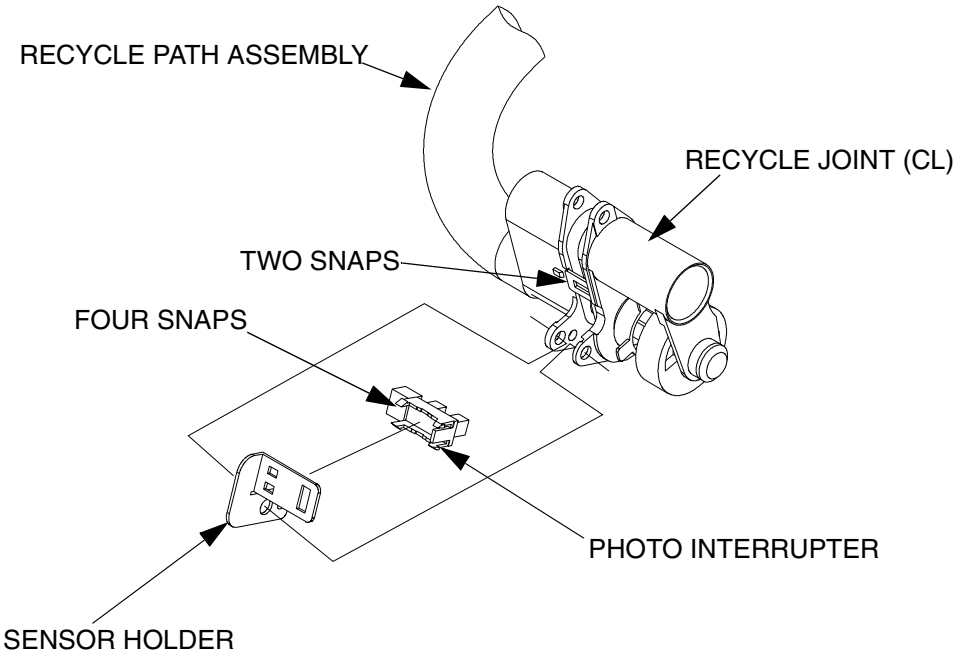


Figure 7-84. Removal of the Photo Interrupter

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.6. (5) Removal of the Toner Sensor

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

Note: Take care to avoid spilling toner during the maintenance.

Applicable jigs and tools: ⊕ Screwdriver, - Jewel Screwdriver, M6 Spanner, Lint-Free Cloth, Vacuum Cleaner.

[Disassembling Procedures]

1. Remove the Recycle Path Assembly. (Refer to item 7.1.2.6. (1) on page 7-60)
2. Clean up inside of the Recycle Path Assembly with a vacuum cleaner.
3. Unscrew the two ⊕ screws to remove the Toner Sensor.

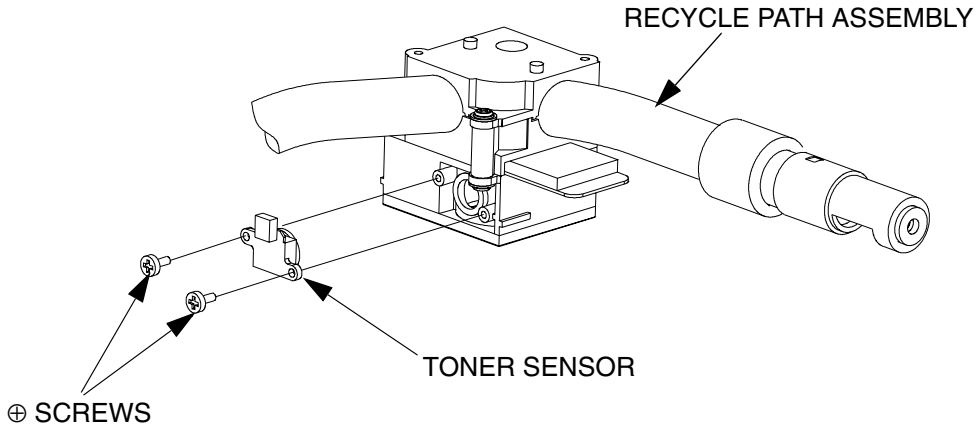


Figure 7-85. Removal of the Toner Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.2.7. Removal of the Erase Lamp

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. Draw out the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Draw out the Charger Unit. (Refer to item 7.1.2.2. (1) on page 7-6)
4. Disconnect the connector.
5. Draw out the Erase Lamp.

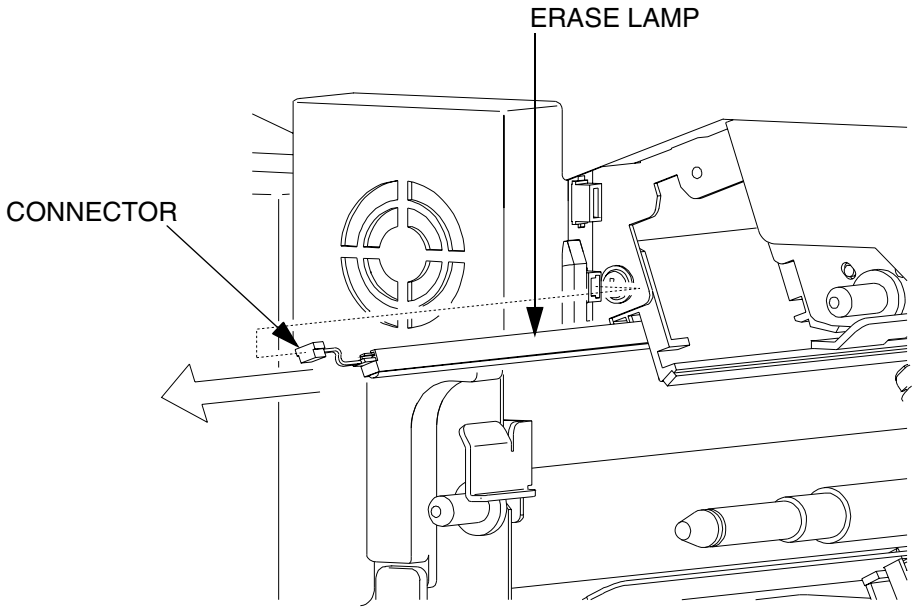


Figure 7-86. Removal of the Erase Lamp

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3. Removal of the Paper Feed Block

7.1.3.1. Removal of the Fuser Unit Parts

7.1.3.1. (1) Removal of the Fuser Unit

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

The Fuser Unit may be very hot. Turn the printer off and allow the Fuser Unit Assembly to cool for 30 minutes before attempting to remove it.

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Open the Front Cover. (Refer to item 3.3.1 on page 3-9)
2. Hold up the Fuser Latch, then pull forward the Fuser Unit in the direction of arrow **A**.
3. Unscrew the ⊕ screw to remove the Slide Rail.
4. Remove the Fuser Unit Assembly.

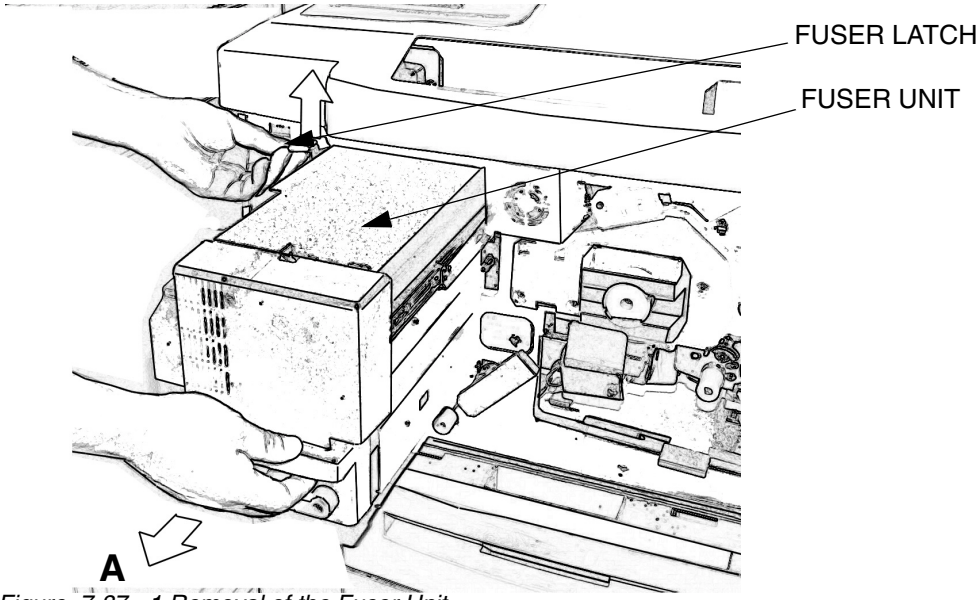


Figure 7-87. -1 Removal of the Fuser Unit

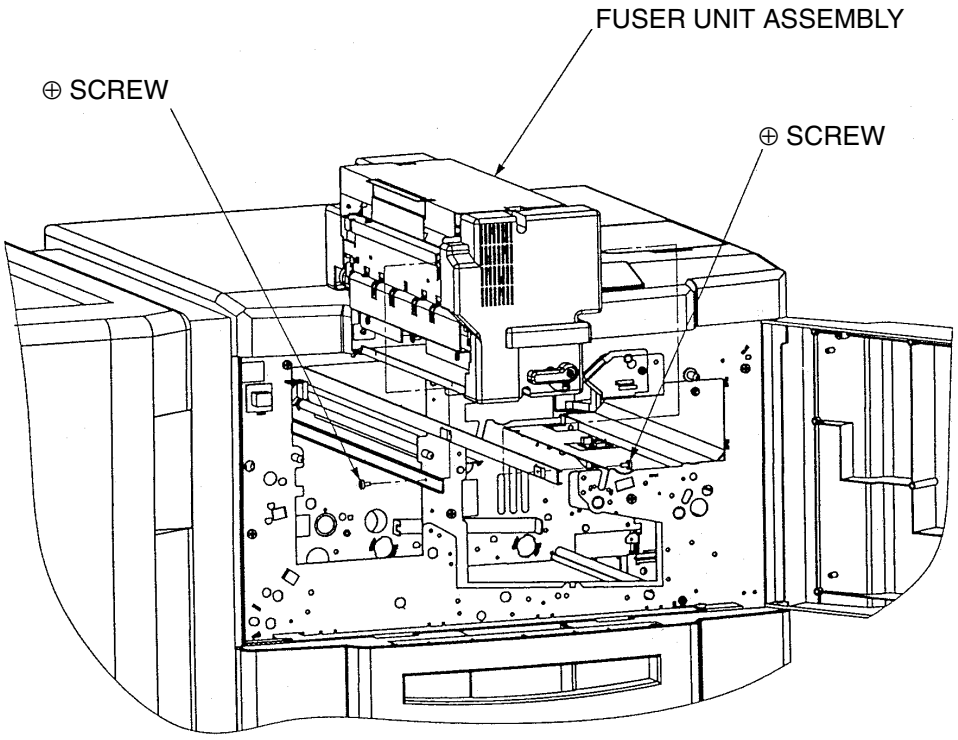


Figure 7-88. -2 Removal of the Fuser Unit

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.1. (2) Removal of the Fuser Cleaning Web

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

The Fuser Unit may be very hot. Turn the printer off and allow the Fuser Unit Assembly to cool for 30 minutes before attempting to remove it.

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Open the Front Cover. (Refer to item 3.3.1 on page 3-9)
2. Hold up the Fuser Latch, then pull forward the Fuser Unit in the direction of the arrow **A**.
3. Open the Web Holder Plate in the direction of the arrow **B**.
4. Turn the handle and lift the Fuser Cleaning Web upwards in the direction of the arrow **C**.

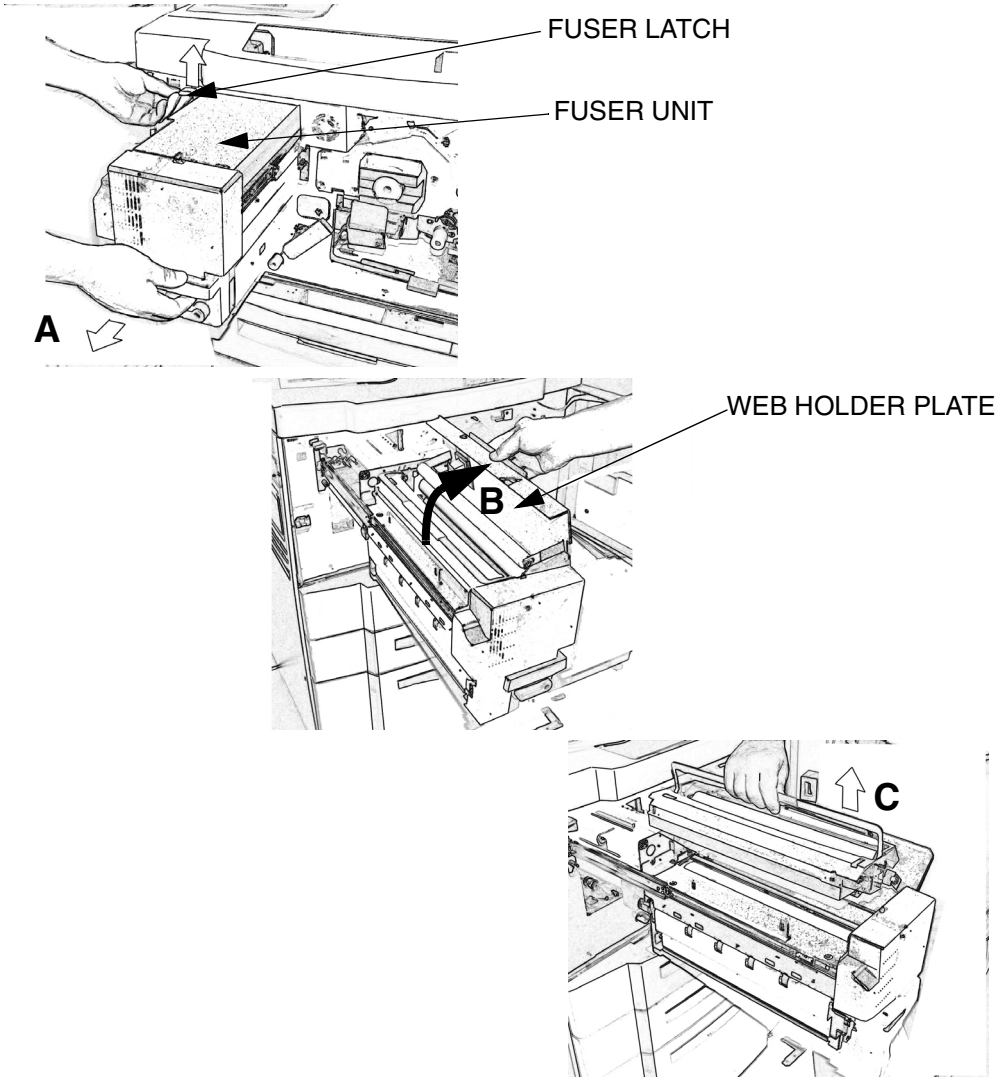


Figure 7-89. Removal of the Fuser Cleaning Web

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.2. Removal of the Multi-bypass Tray Unit Parts

7.1.3.2. (1) Removal of the Multi-bypass Tray Unit

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Separate the Relay Unit from the **Rear** Engine. (Only for **Rear** Engine) (Refer to item 7.3.1 on page 7-284)
2. Remove the RH Cover. (Only for **Front** Engine) (Refer to item 3.3.2. (1) on page 3-12)
3. Remove the L Front Stay. (Only for **Rear** Engine)
4. Open the Bottle Cover. (Only for **Front** Engine)
5. Unscrew the two ⊕ screws.
6. Open the IS Cover, turn the Multi-bypass Tray Unit in the direction of the arrow **A** and pull it off in the direction of arrow **B**.
7. Disconnect the connector.

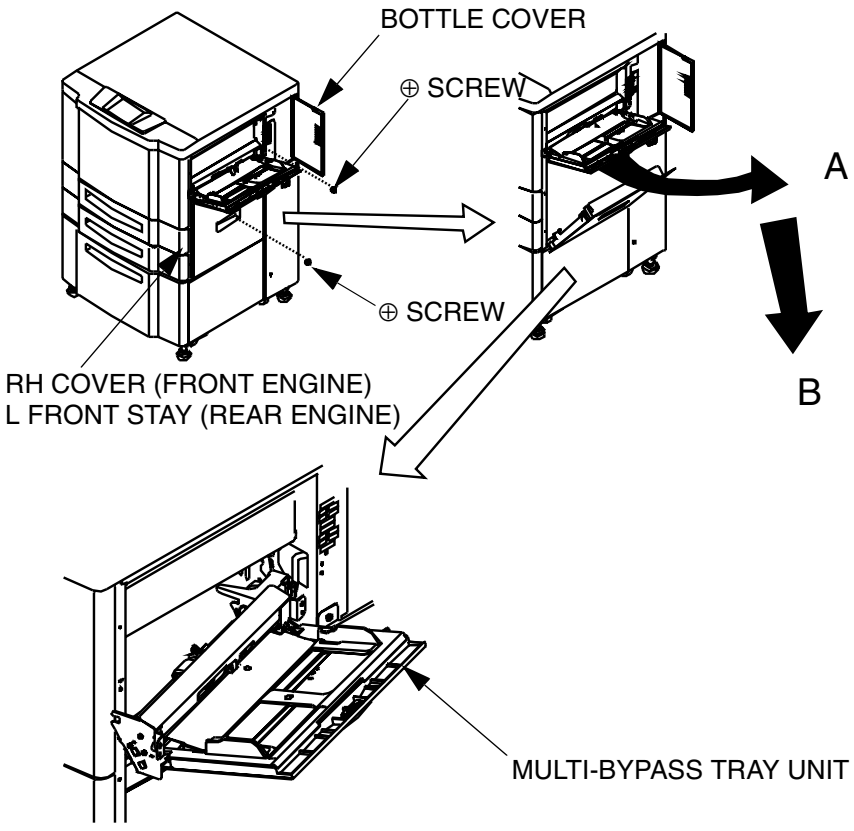


Figure 7-90. Removal of the Multi-bypass Tray Unit

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.2. (2) Removal of the Pick Rollers

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 Multi-bypass Tray Unit. (Refer to item 7.1.3.2. (1) on page 7-71)
2. Pull off the Pick Rollers in the direction of the arrow **A**.

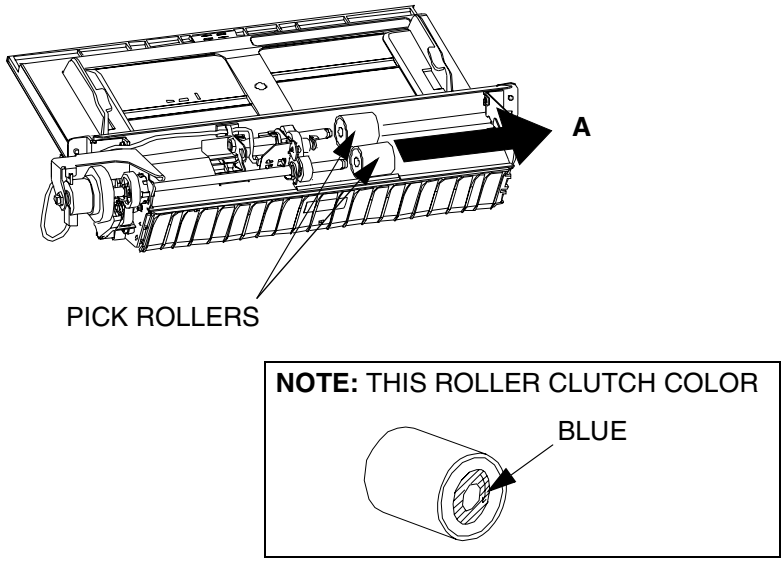


Figure 7-91. Removal of the Pick Rollers

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.2. (3) Removal of the Separator Roller

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 Multi-bypass Tray Unit. (Refer to item 7.1.3.2. (1) on page 7-71)
2. Unscrew the three ⊕ screws and remove the Outer Paper Guide Assembly.
3. Disconnect the 3 pin connector and the 7 pin connector.
4. Pull the Separation Holder in the direction of the arrow **B** and pull off the Separator Roller in the direction of the arrow **C**.

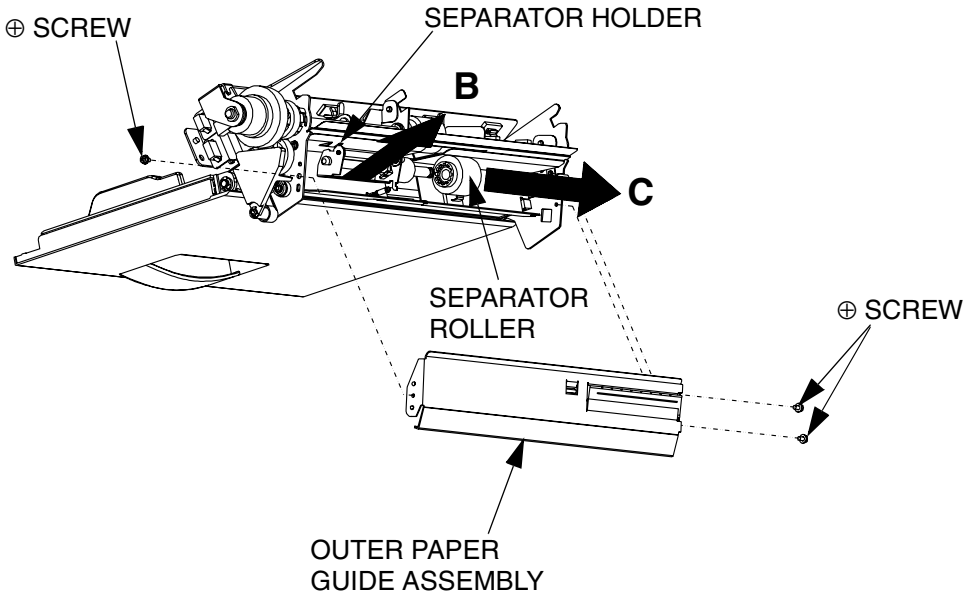


Figure 7-92. Removal of the Separator Roller

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

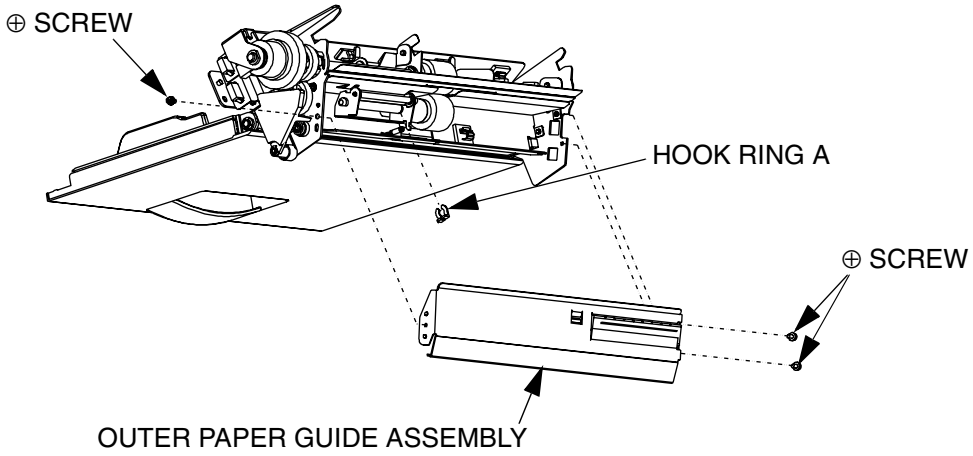
7.1.3.2. (4) Removal of the Torque Limiter

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 Multi-bypass Tray Unit. (Refer to item 7.1.3.2. (1) on page 7-71)
2. Unscrew the three ⊕ screws and remove the Outer Paper Guide Assembly.
3. Disconnect the 3 pin connector and the 7 pin connector.
4. Remove the Hook Ring A.
5. Pull the Separation Holder in the direction of the arrow **B** and pull off the Torque Limiter in the direction of the arrow **C**.
6. Pull off the Separator Roller in the direction of the arrow **D**.



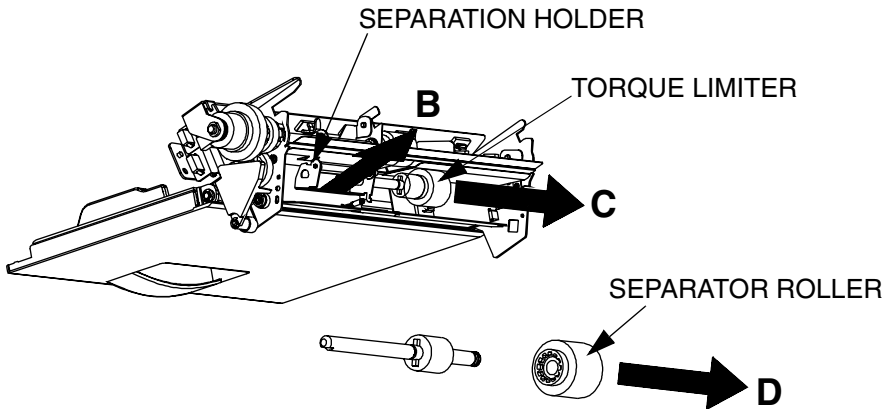


Figure 7-93. Removal of the Torque Limiter

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.2. (5) Removal of the Multi-bypass Tray Gear

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 Multi-bypass Tray Unit. (Refer to item 7.1.3.2. (1) on page 7-71)
2. Unscrew the two ⊕ screws.
3. Remove the Rack Holder and the Tray Gear.

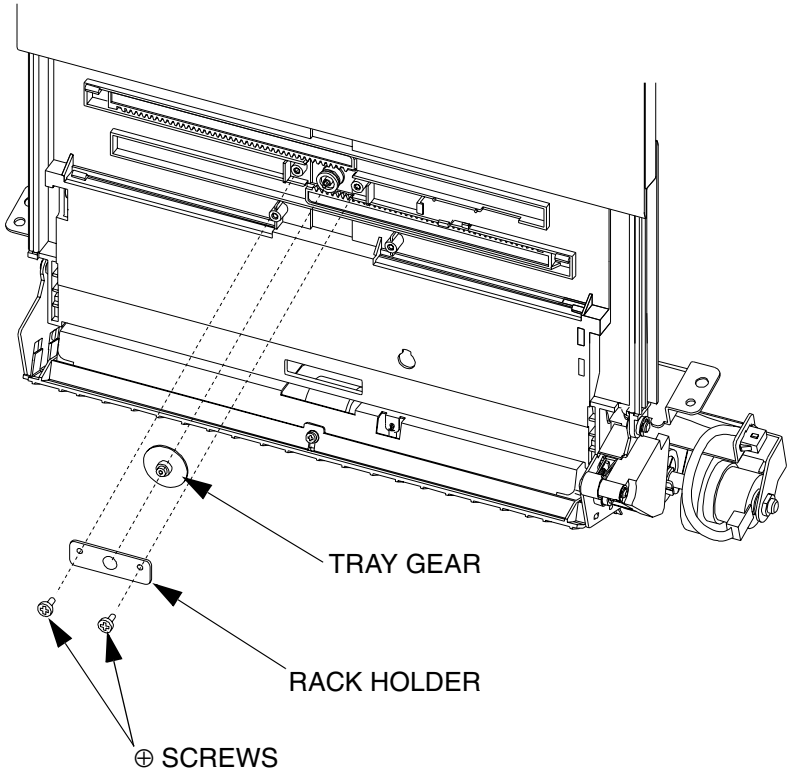


Figure 7-94. Removal of the Multi-bypass Tray Gear

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note:

1. Pull the Paper Guide L in the direction of the arrow **A** and pull the Paper Guide R in the direction of the arrow **B**.
2. Install the Tray Gear, the Rack Holder with ⊕ screws.

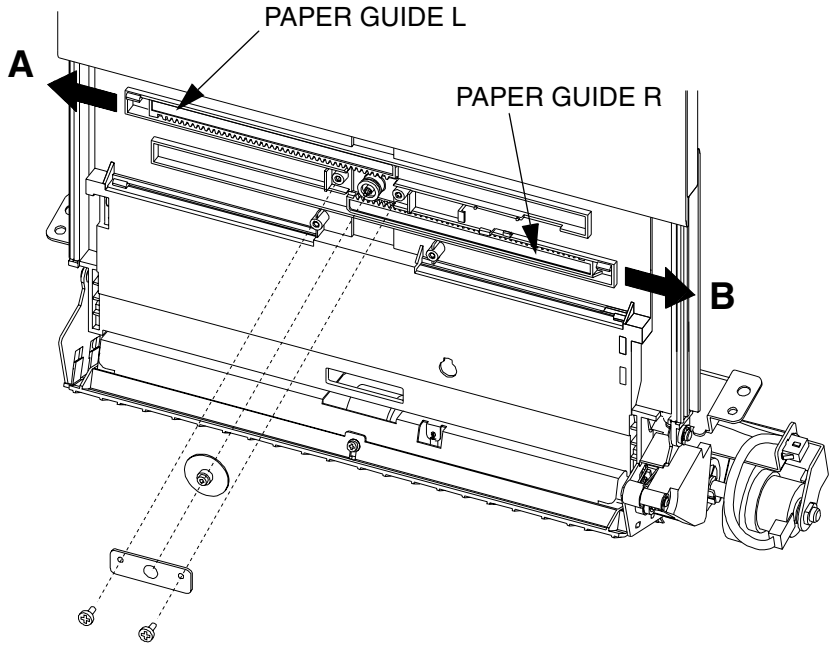


Figure 7-95. Removal of the Multi-bypass Tray Gear

7.1.3.2. (6) Removal of the Paper Empty Sensor

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 ⊕ screw.
2. Remove the Paper Empty Sensor with Bracket.
3. Disconnect the connector and remove the Paper Empty Sensor from the Bracket.

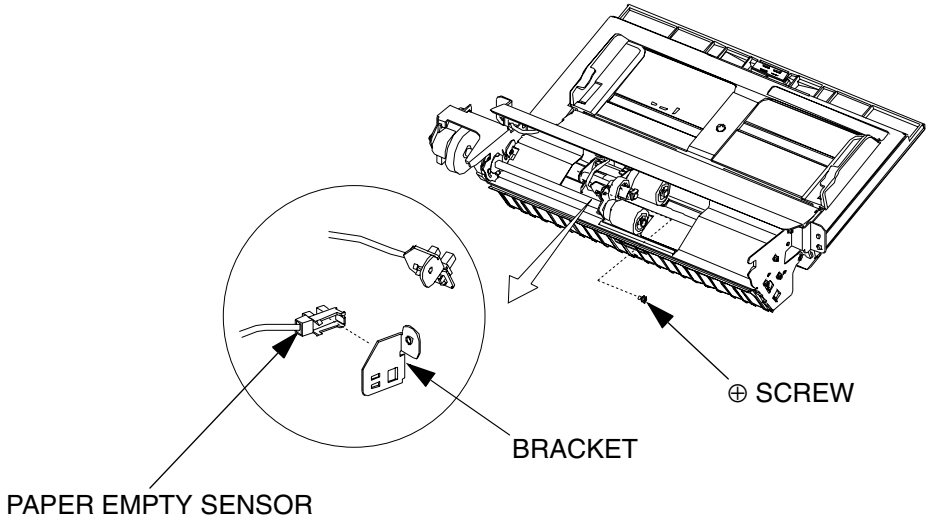


Figure 7-96. Removal of the Paper Empty Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Align the convex of the Bracket to the mortise of the Frame.

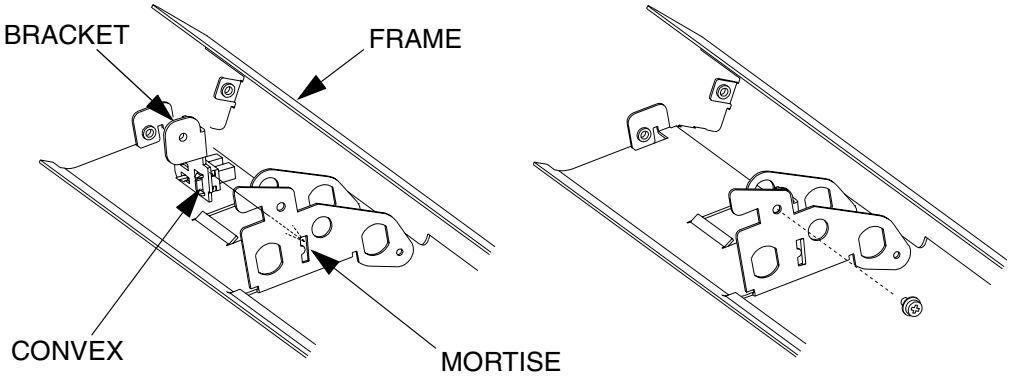


Figure 7-97. Removal of the Paper Empty Sensor

7.1.3.2. (7) Removal of the Pick Clutch

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

Applicable jigs and tools: None.

[Disassembling Procedures]

1. Remove the two Hook Ring A.
2. Pull the Gear in the direction of arrow **A** and remove the Pin.
3. Disconnect the connector.
4. Pull the Drive Shaft in the direction of the arrow **B** and remove the Pick Clutch.

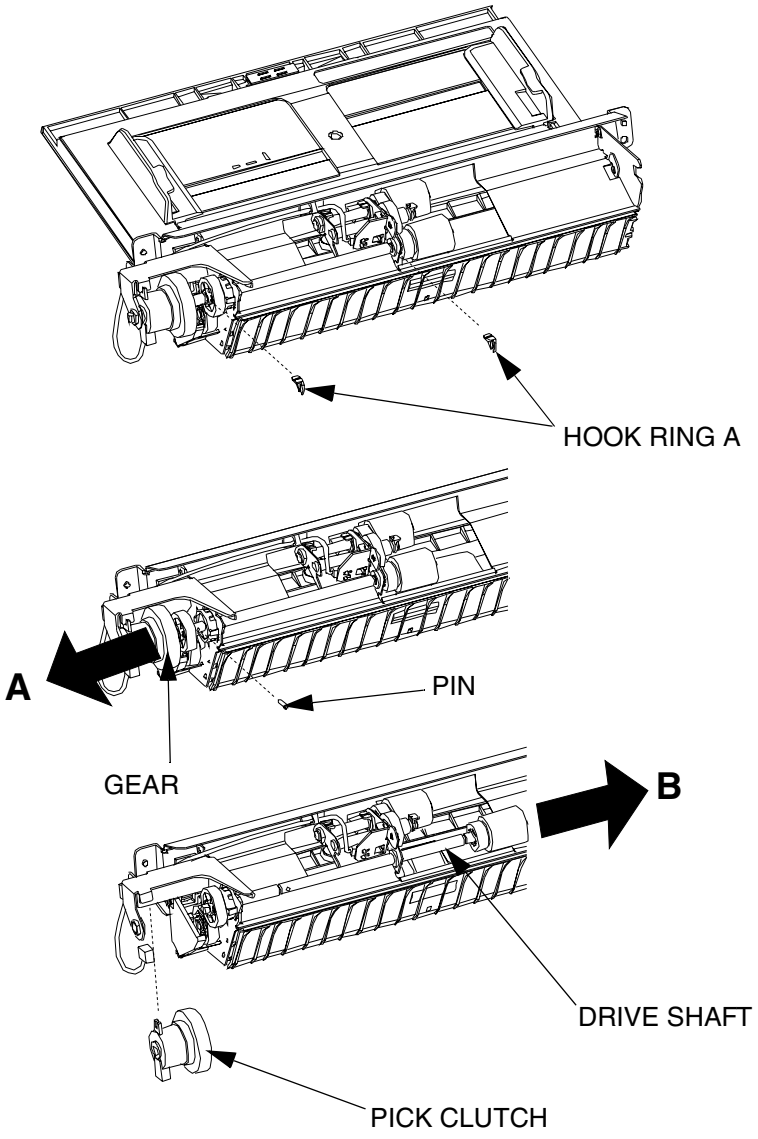


Figure 7-98. Removal of the Pick Clutch

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Align the dent of the Pick Clutch to the convex part of the Frame.

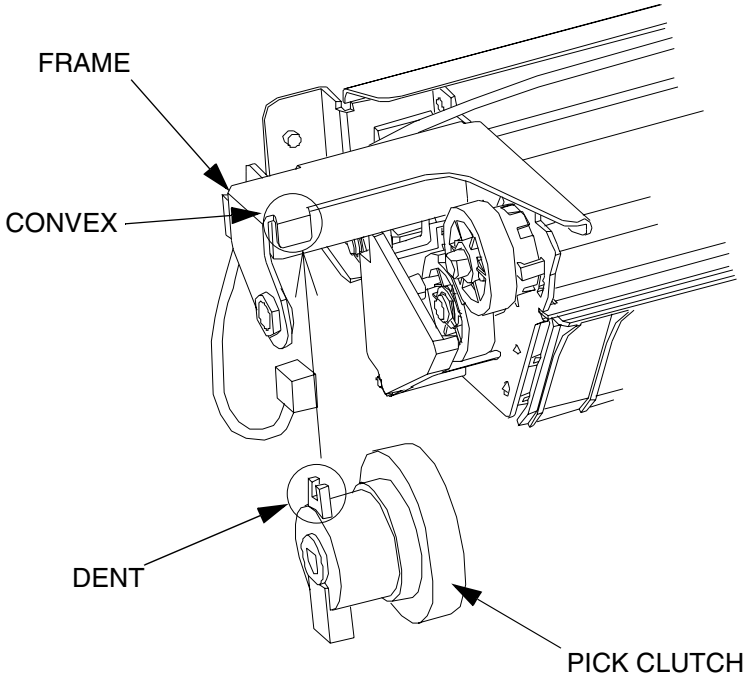


Figure 7-99. Removal of the Pick Clutch

7.1.3.2. (8) Removal of the Empty Sensor Actuator

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 Multi-bypass Tray Unit. (Refer to item 7.1.3.2. (1) on page 7-71)
2. Push the Paper Tray in the direction of the arrow **A**.
3. Pull off the Retaining Ring with a - Screwdriver.
4. Pull off the Shaft.
5. Pull off the Empty Sensor Actuator and the Coil Spring.

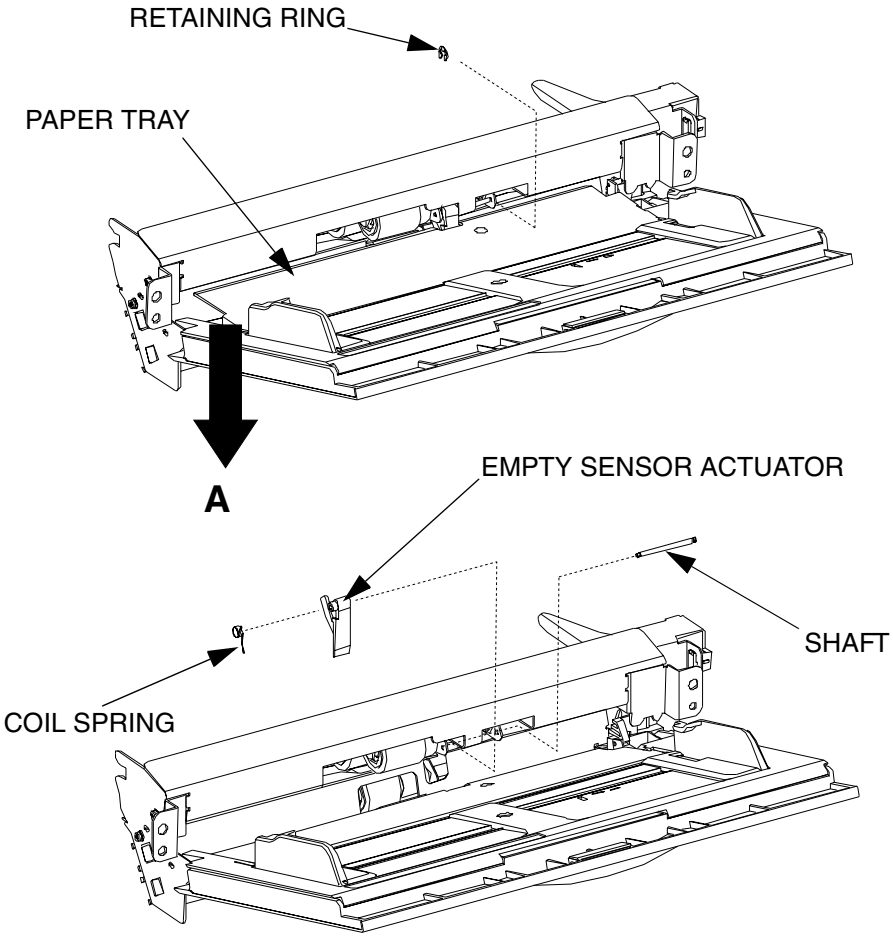


Figure 7-100. Removal of the Empty Sensor Actuator

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.2. (9) Removal of the Cam Gear

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 Multi-bypass Tray Unit. (Refer to item 7.1.3.2. (1) on page 7-71)
2. Pull off the Retaining Ring with a - Screwdriver
3. Pull off the Triangle Arm and the Coil Spring.
4. Pull off the Retaining Ring with the - Screwdriver.
5. Pull off the Cam Gear.

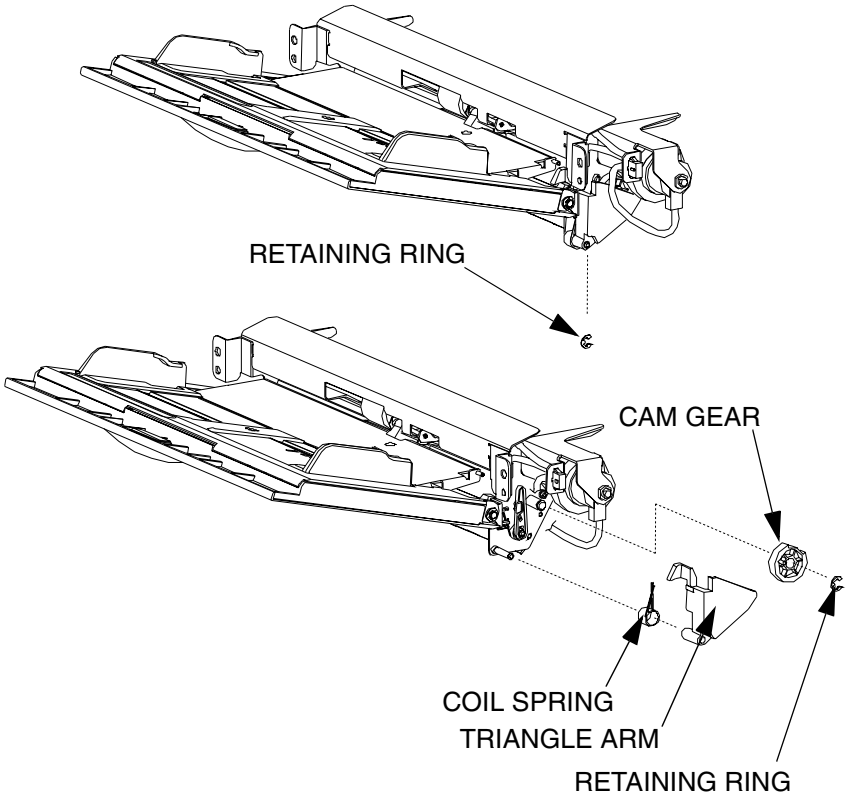


Figure 7-101. Removal of the Cam Gear

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.2. (10) Removal of the Gear A

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

Applicable jigs and tools: None.

[Disassembling Procedures]

1. Remove the two Hook Ring A.
2. Pull the Gear in the direction of arrow **A** and remove the Pin.
3. Disconnect the connector.
4. Pull the Drive Shaft in the direction of the arrow **B** and remove the Pick Clutch.
5. Pull the Gear A.

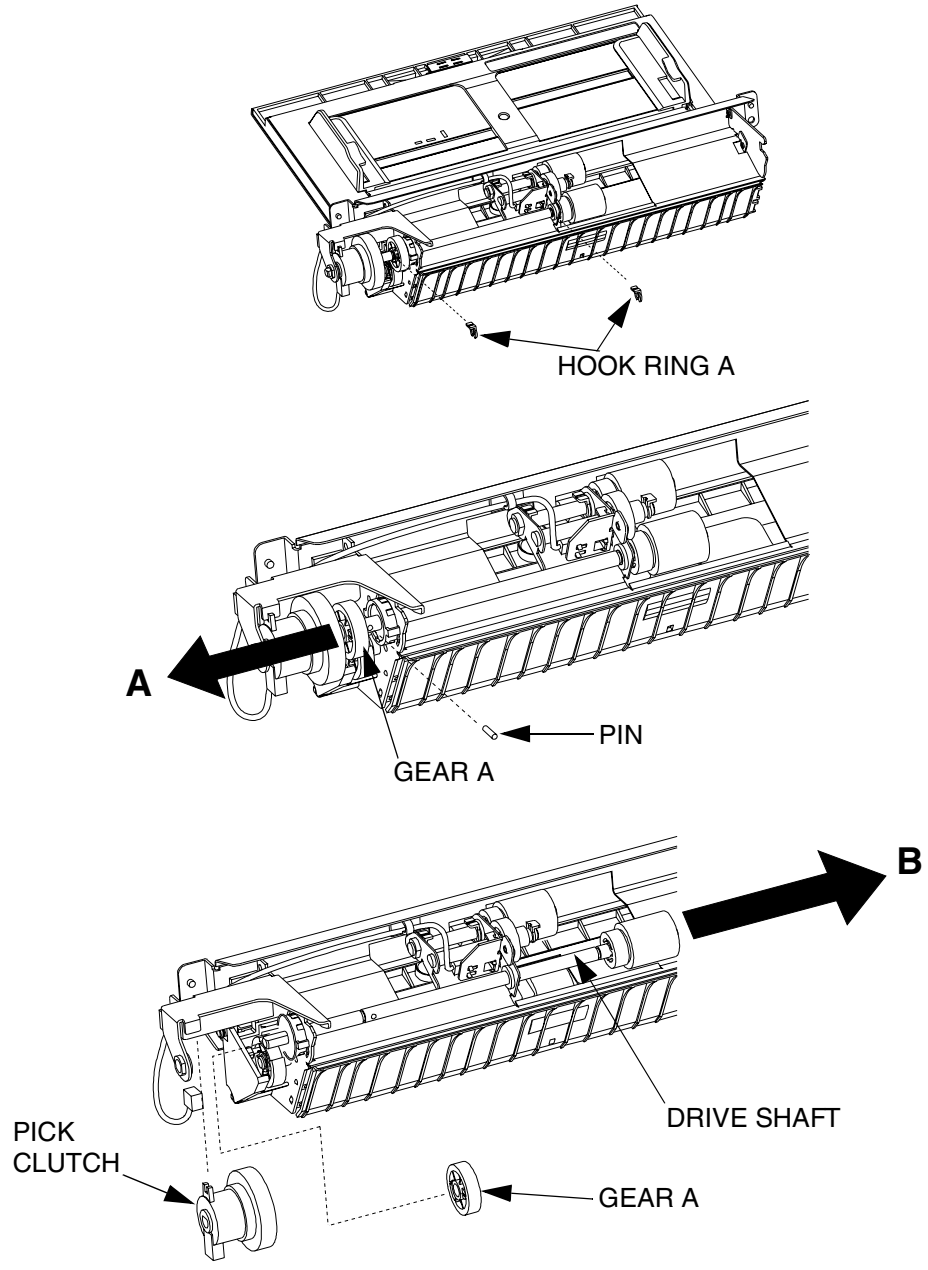


Figure 7-102. Removal of the Gear A

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Align the dent of the Pick Clutch to the convex part of the Frame.

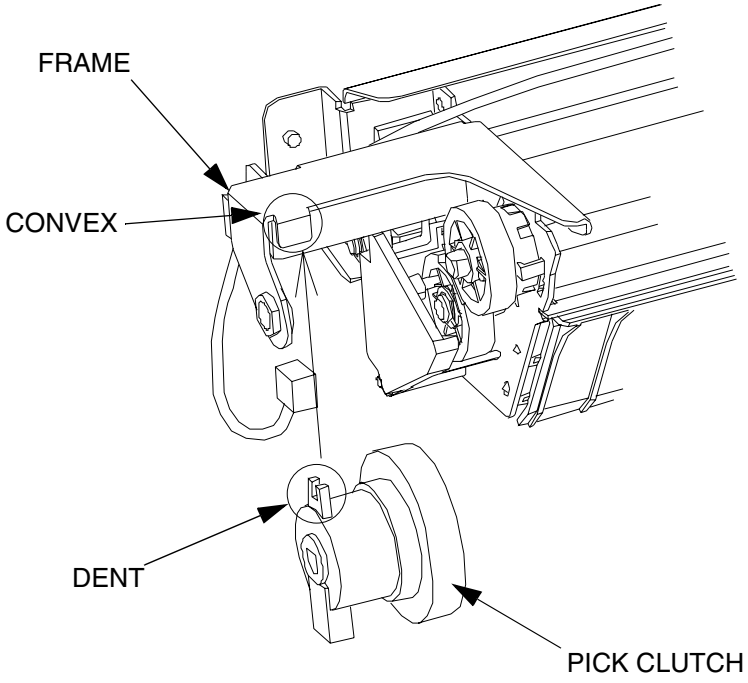


Figure 7-103. Removal of the Gear A

7.1.3.2. (11) Removal of the Multi Feed Sensor (PS131 Assembly)

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 Multi-bypass Tray Unit. (Refer to item 7.1.3.2. (1) on page 7-71)
2. Unscrew three ⊕ screws and remove the Outer Paper Guide Assembly.
3. Disconnect the 3 pin connector and the 7 pin connector.
4. Unscrew two ⊕ screws and remove the PS131 Assembly.

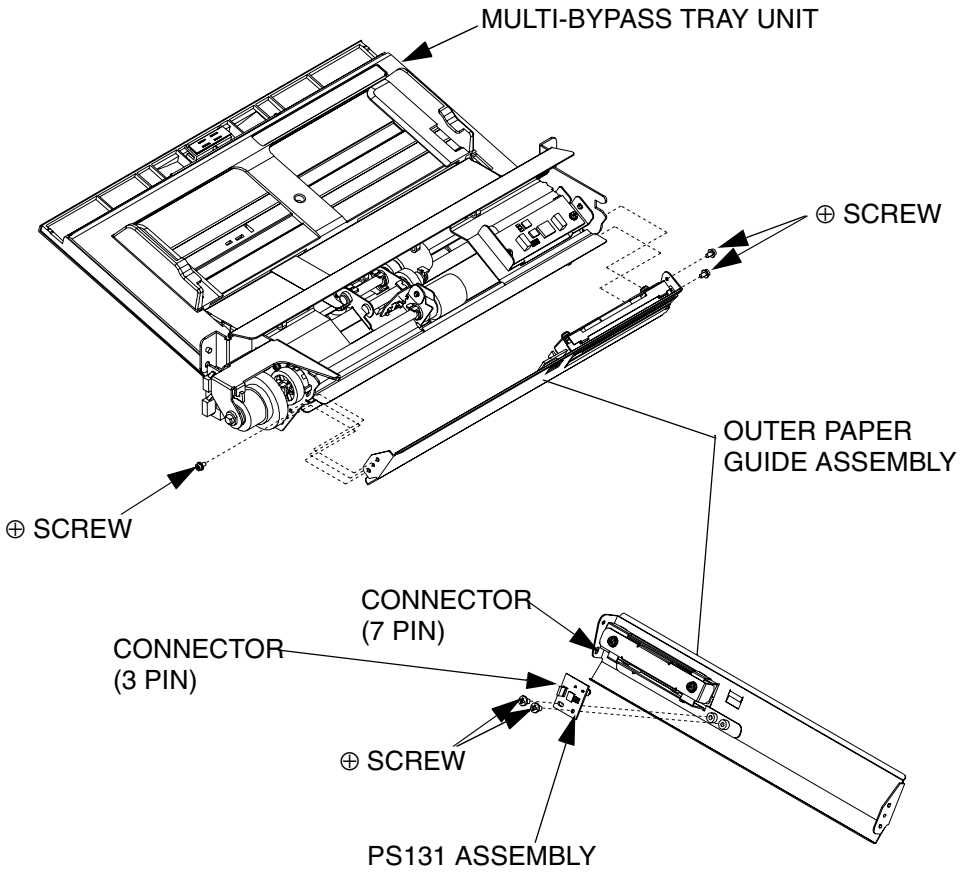


Figure 7-104. Removal of the Multi Feed Sensor (PS131 Assembly)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.2. (12) Removal of the H.POS. Sensor (Image Sensor Head) :For Front Engine

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 Multi-bypass Tray Unit. (Refer to item 7.1.3.2. (1) on page 7-71)
2. Unscrew three ⊕ screws and remove the Outer Paper Guide Assembly.
3. Disconnect the 3 pin connector and the 7 pin connector.
4. Unscrew two ⊕ screws and remove the HPS Cover.
5. Unscrew two ⊕ screws and remove the PS131 Assembly.
6. Remove the Image Sensor Head.

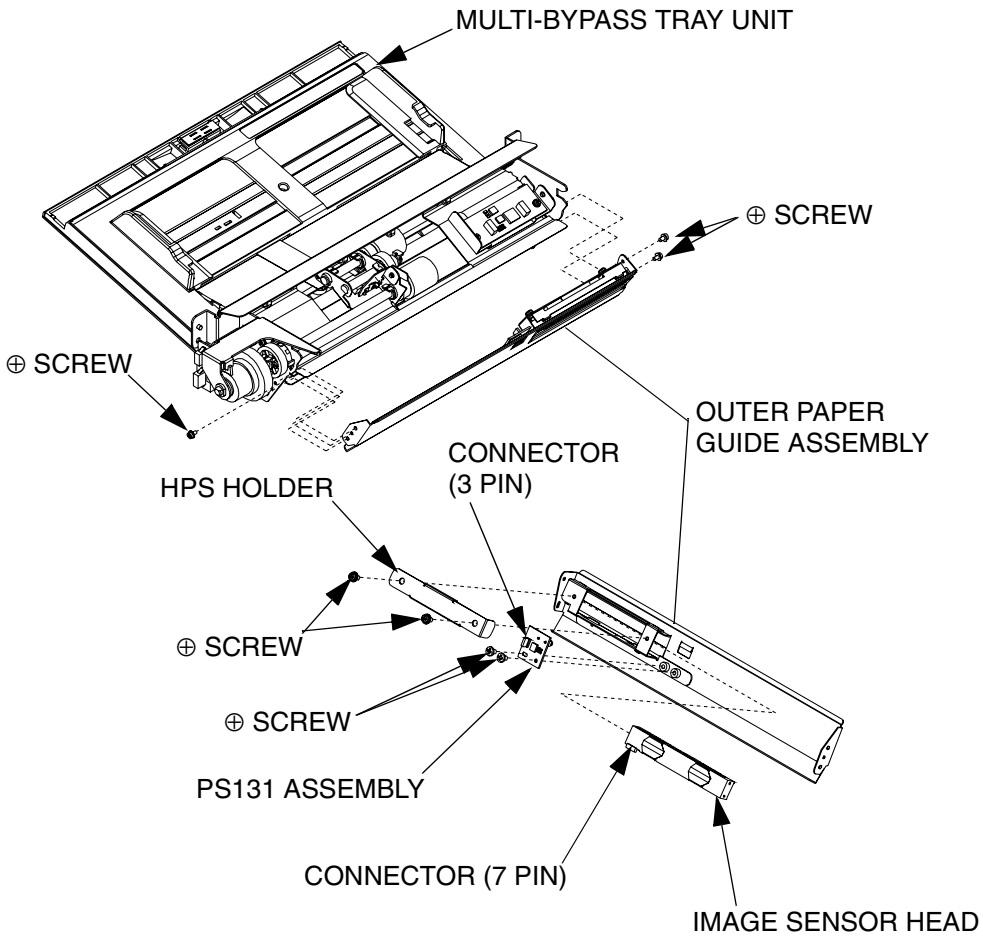


Figure 7-105. Removal of the H.POS. Sensor (Image Sensor Head) :For Front Engine

Note: When the Image Sensor Head is fixed, it dashes and fixes in the direction of **A** and **B**.

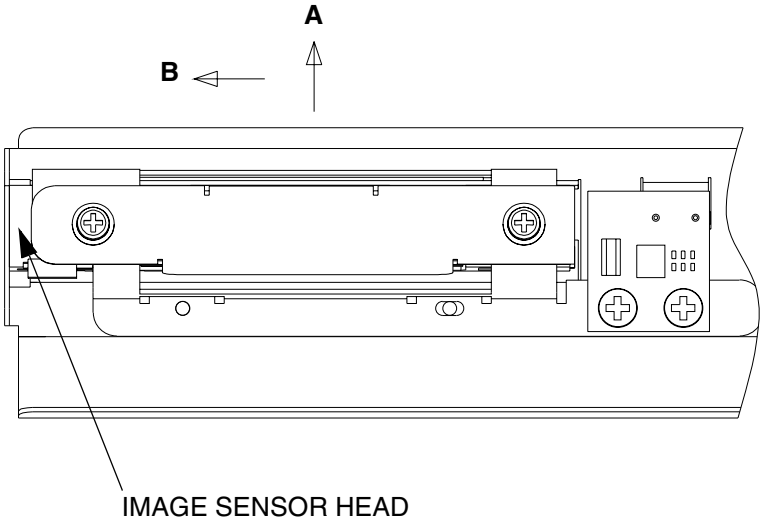


Figure 7-106. Removal of the H.POS. Sensor (Image Sensor Head) :For Front Engine

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.2. (13) Removal of the H.POS. Sensor (Image Sensor Head) :For Rear Engine

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Separate the Relay Unit from the **Rear** Engine. (Refer to item 7.3.1 on page 7-284)
2. Remove the Multi-bypass Tray Unit. (Refer to item 7.1.3.2. (1) on page 7-71)
3. Unscrew three ⊕ screws and remove the Outer Paper Guide Assembly.
4. Disconnect the 7 pin connector.
5. Unscrew two ⊕ screws and remove the HPS Cover.
6. Remove the Image Sensor Head.

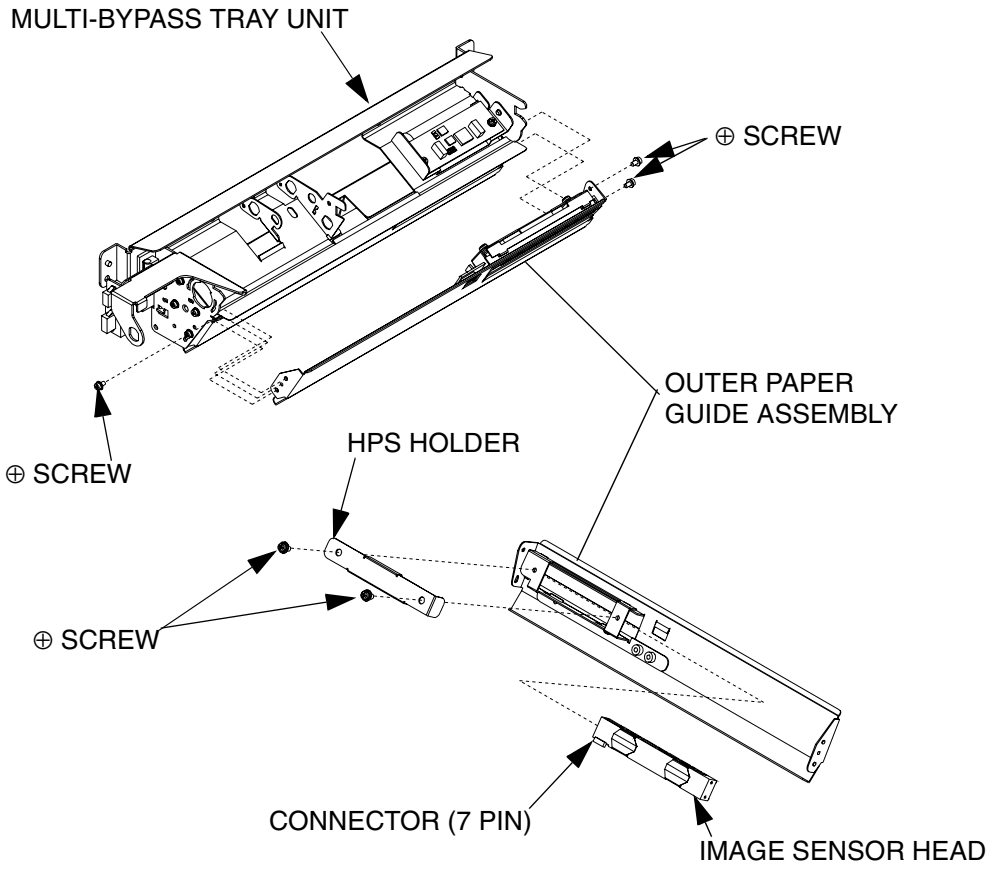


Figure 7-107. Removal of the H.POS. Sensor (Image Sensor Head) :For Rear Engine

Note: When the Image Sensor Head is fixed, it dashes and fixes in the direction of **A** and **B**.

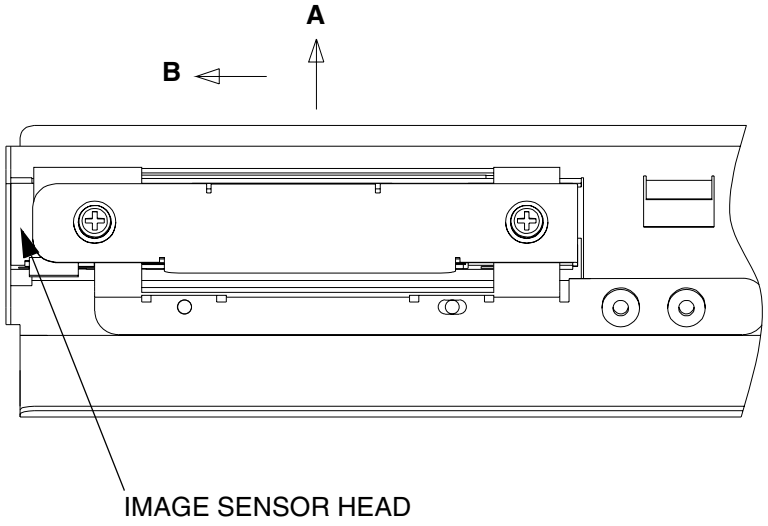


Figure 7-108. Removal of the H.POS. Sensor (Image Sensor Head) :For Rear Engine

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.3. Removal of the Registration Parts

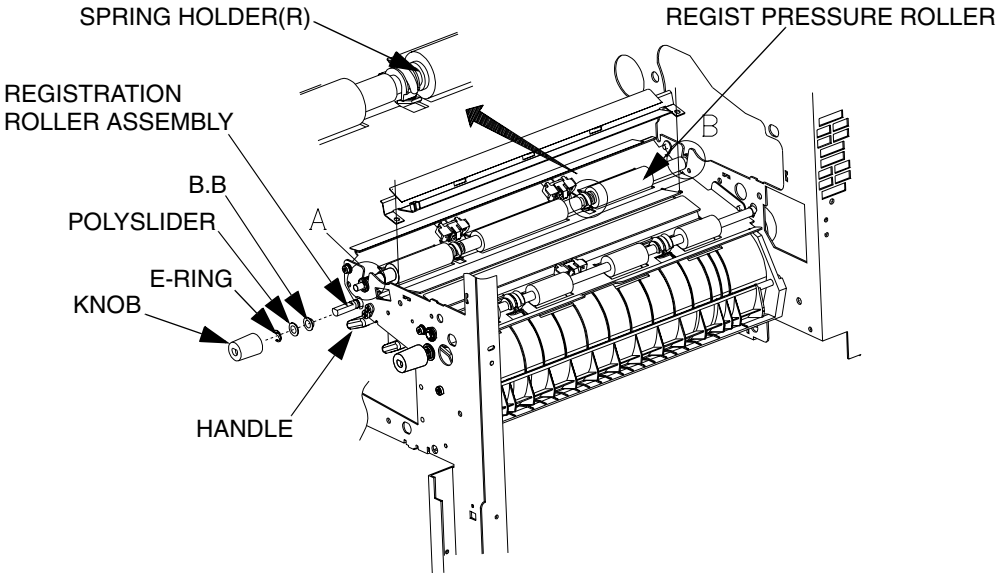
7.1.3.3. (1) Removal of the Registration Roller Assembly

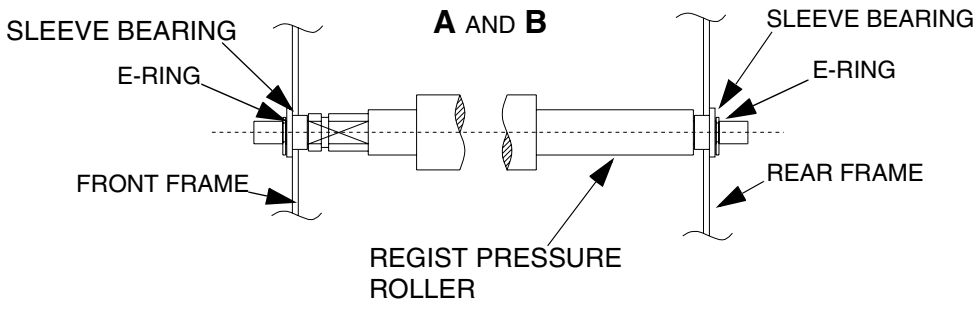
CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver, - Screwdriver.

[Disassembling Procedures]

1. Draw out the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
2. Draw out the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
3. Unscrew the seven ⊕ screws to remove the Inner Cover. (Refer to item 7.1.5.1. (19) on page 7-220)
4. Remove the PF Motor Assembly. (Refer to item 7.1.3.12 on page 7-153) - *Procedures 1 to 3.*
5. Remove the two Spring Holder (R). (Refer to item 7.1.3.3. (3) on page 7-93) - *Procedures 6 to 9.*
6. Remove the Regist Pressure Roller by lifting upward.
7. Remove the Drive Pulley.
8. Remove the Knob, the E-Ring, the Polyslider and the B.B.
9. Remove the B.B Holder by turning counterclockwise.
10. Remove the Registration Roller Assembly while lowering the Handle.





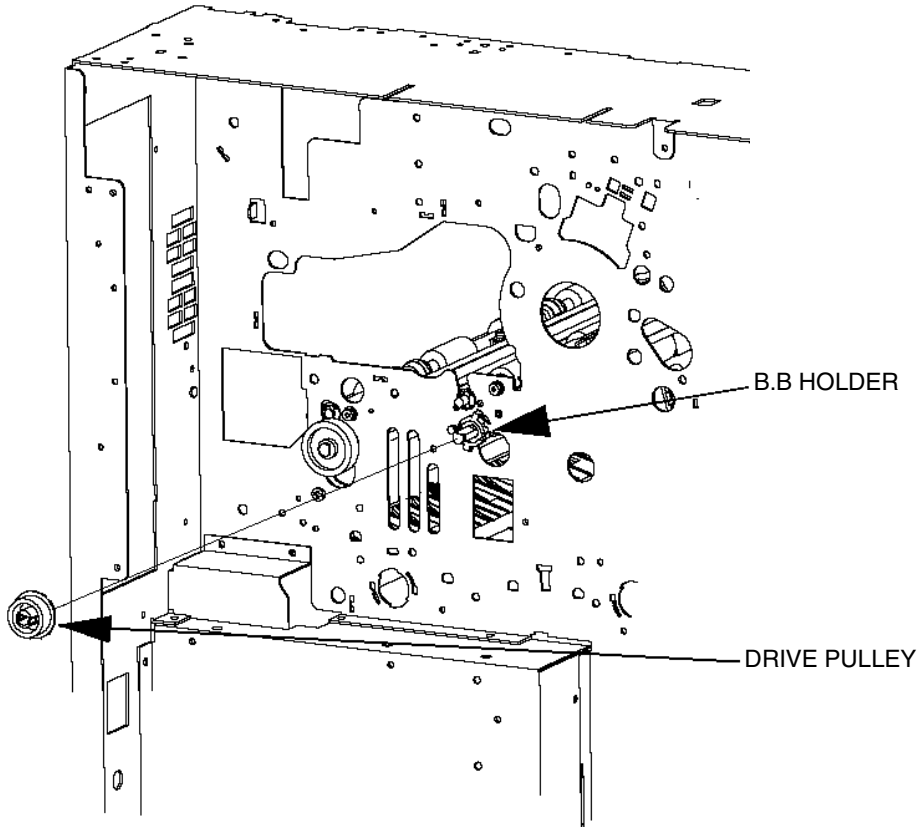


Figure 7-109. Removal of the Registration Roller Assembly

[Assembling Procedures]

Perform the disassembling procedures in reverse order.

7.1.3.3. (2) Removal of the Timing Drive Roller Assembly

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

Applicable jigs and tools: ⊕ Screwdriver, - Screwdriver.

[Disassembling Procedures]

1. Remove the PF Motor Assembly. (Refer to item 7.1.3.12 on page 7-153) - *Procedures 1 to 3.*
2. Remove the two Spring Holders (Refer to item 7.1.3.3. (3) on page 7-93) - *Procedures 1 to 5.*
3. Remove the two Spring.
4. Remove the two E-Ring and the two Sleeve Bearing.
5. Remove the Timing Pressure Roller by lifting upward.
6. Remove the E-Ring to remove the Drive Gear and the Washer.
7. Remove the Knob, the E-Ring, the Polyslider and the B.B.
8. Remove the B.B Holder by turning clockwise.
9. Remove the Timing Drive Roller Assembly.

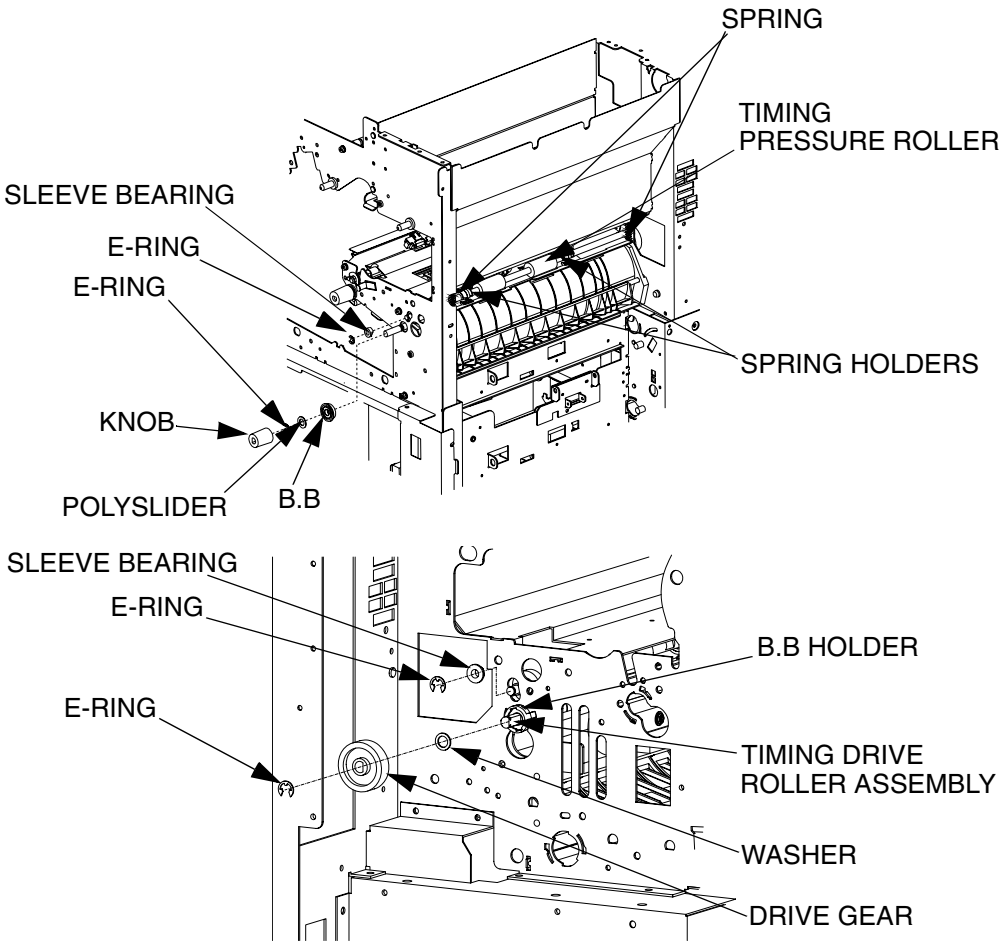


Figure 7-110. Removal of the Timing Drive Roller Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note:	Before assembling the Timing Drive Roller Assembly, confirm the TR CAM locks by turning to the direction as shown below.

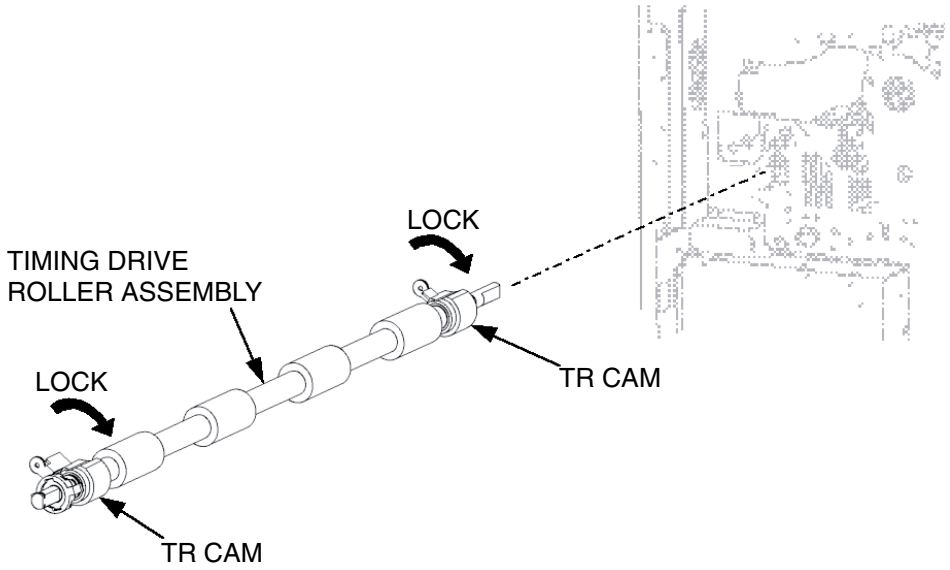


Figure 7-111. Assembling of the Timing Drive Roller Assembly

7.1.3.3. (3) Removal of the Spring Holder

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 Multi-bypass Tray Unit. (Refer to item 7.1.3.2. (1) on page 7-71)
2. Unscrew the seven ⊕ screws to remove the Inner Cover. (Refer to item 7.1.5.1. (19) on page 7-220)
3. Remove the Hook Ring and the Guide Shaft.
4. Remove the four Springs of the **A** and **B** parts.
5. Remove the two Spring Holders.
6. Remove the Cleaner Holder assembly.
7. Unscrew the two ⊕ screws to remove the Cleaner Holder Base assembly.
8. Remove the two Roller-Springs of the **C** and **D** parts.
9. Remove the two Spring Holders(R).

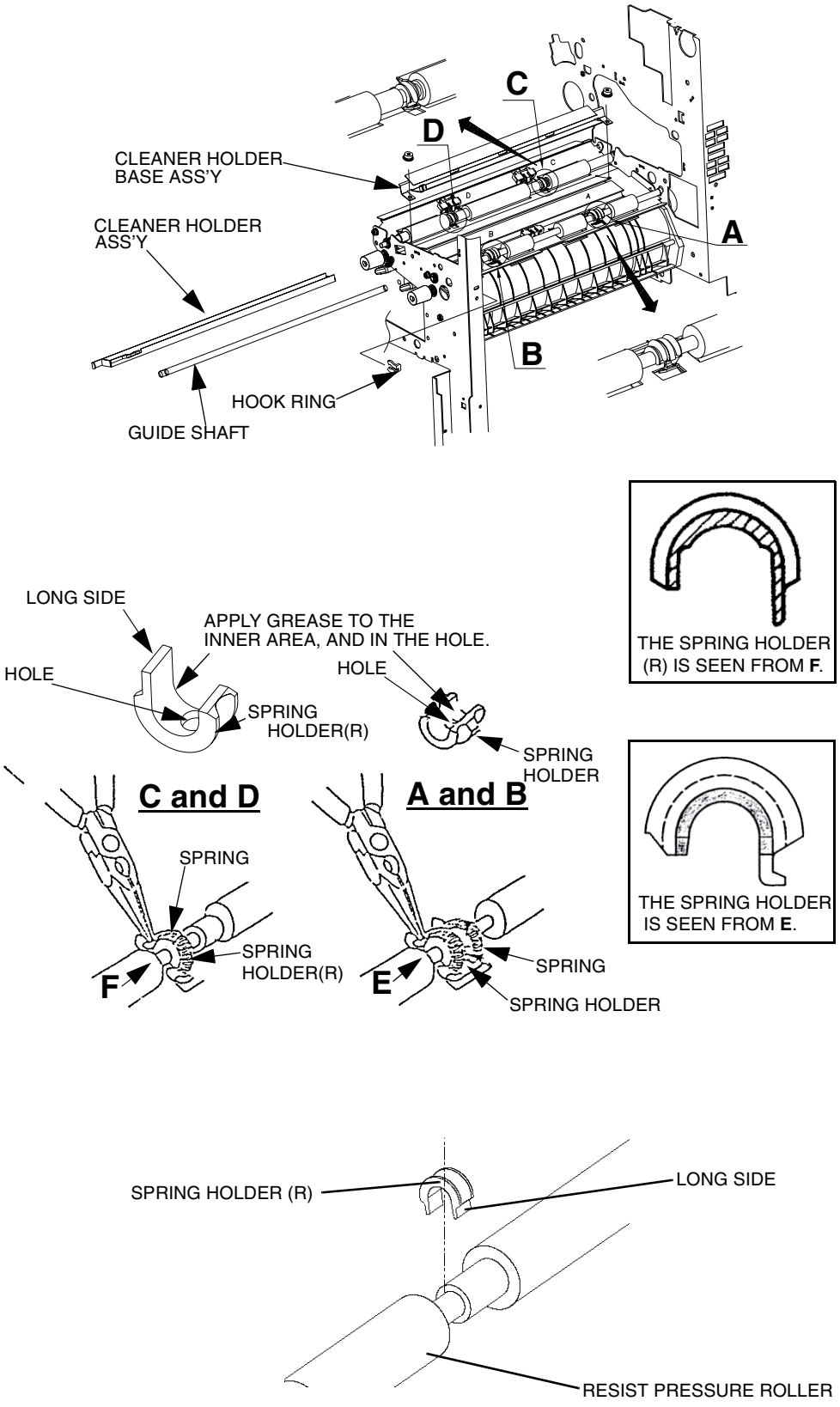


Figure 7-112. Removal of the Spring Holder

[Assembling Procedures]

1. Smear the Spring Holder with grease.
2. Perform the disassembling procedures in the reverse order.

7.1.3.3. (4) Removal of the Timing Sensor

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 Multi-bypass Tray Unit. (Refer to item 7.1.3.2. (1) on page 7-71)
2. Unscrew the seven ⊕ screws to remove the Inner Cover. (Refer to item 7.1.5.1. (19) on page 7-220)
3. Remove the Hook Ring and the Guide Shaft.
4. Remove the Timing Sensor (S303).
5. Remove the Sensor Holder from the Timing Sensor.
6. Disconnect the connector P/J.

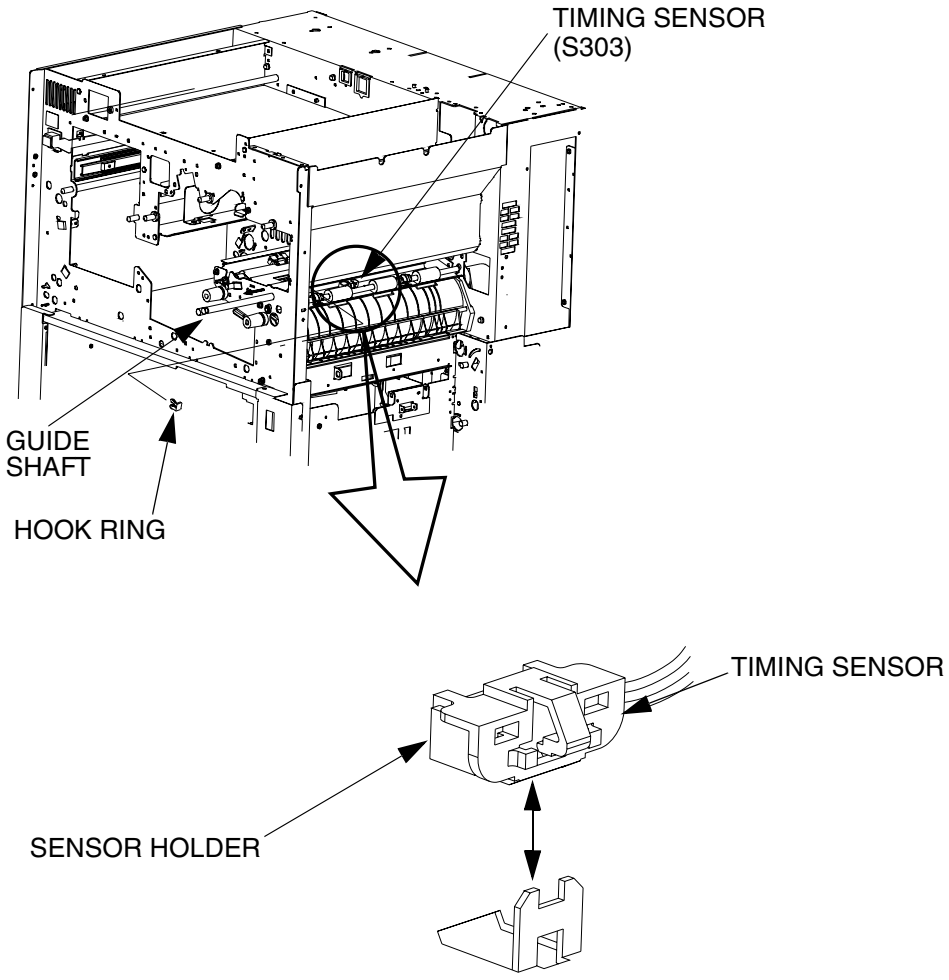


Figure 7-113. Removal of the Timing Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

[Checks]

Make sure that the Sensor Holder snap-fit parts are correctly fastened.

7.1.3.3. (5) Removal of the Skew Sensor

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. (Refer to item 3.3.1 on page 3-9)
2. Remove the Drum Drive Unit. (Refer to item 7.1.2.5. (1) on page 7-47)
3. Remove the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Remove the Skew Sensor 1 and 2 (S301 / S302).
5. Remove the Sensor Holder from the Skew Sensor.
6. Disconnect the connector P/J.

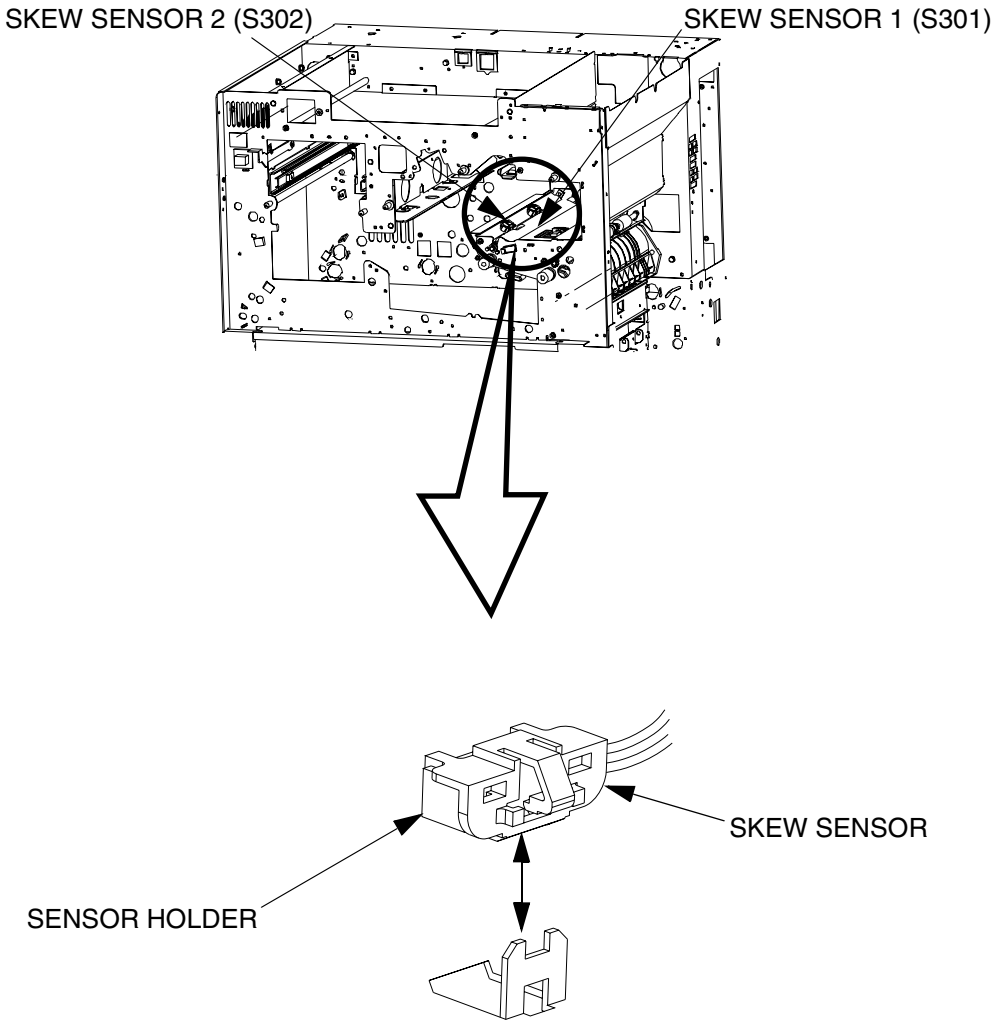


Figure 7-114. Removal of the Skew Sensor 1 and 2(S301 / S302)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

[Checks]

Make sure that the Sensor Holder snap-fit parts are correctly fastened.

7.1.3.3. (6) Removal of the S Paper Guide Assembly

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. Draw out the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Draw out the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Unscrew the seven ⊕ screws to remove the Inner Cover. (Refer to item 7.1.5.1. (19) on page 7-220)
5. Remove the two screws and the hinge plate.
6. Release the hook of the spring, slide the Lower Paper Guide (A) assembly to the direction of arrow A, pull out the one hinge shaft from the frame, pull the assembly in the direction of arrow B and remove it.
   (When removing the assembly, keep the Lower Paper Guide (1) open.).
7. Unscrew the two ⊕ screws and remove the S Paper Guide Assembly.

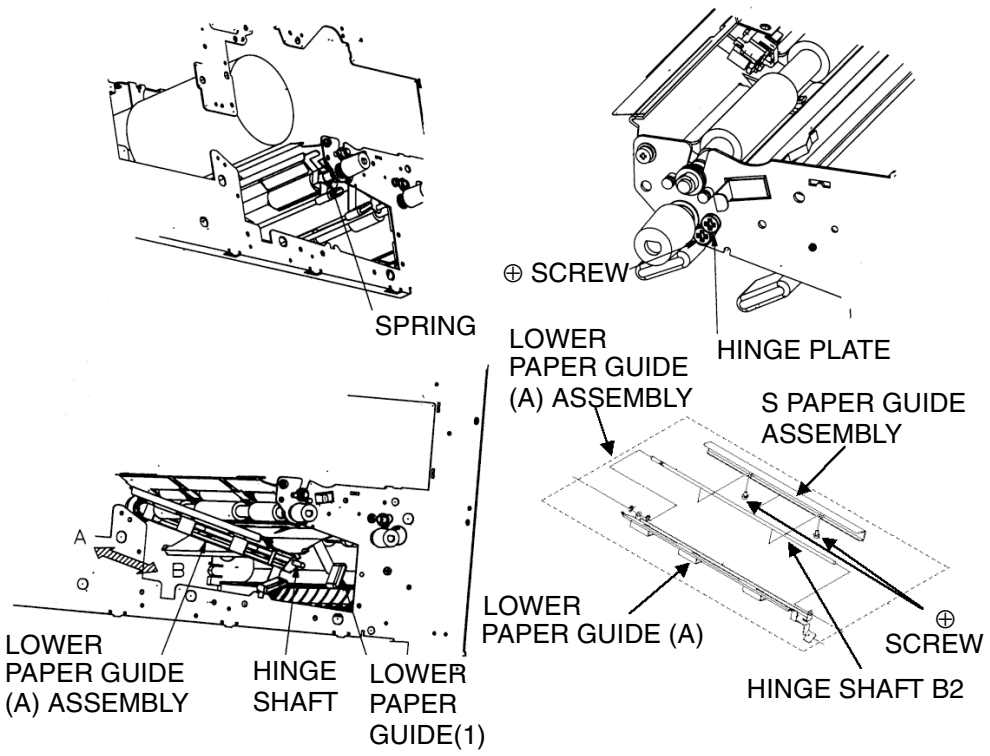


Figure 7-115. Removal of the S Paper Guide Assembly

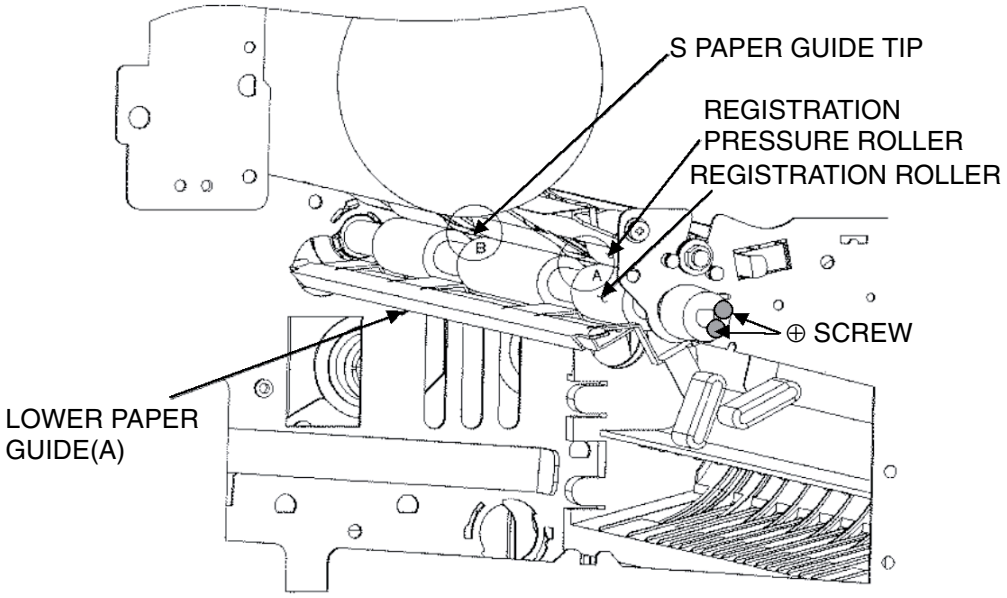


Figure 7-116. Removal of the S Paper Guide Assembly

[Assembling Procedures]

1. Perform the disassembling procedures in the reverse order Nos. 7-5.
2. Adjust the S Paper Guide Assembly. (Refer to item 7.1.3.3. (7) on page 7-99)
3. Perform the disassembling procedures in the reverse order Nos. 4-1.

7.1.3.3. (7) Adjustment of the S Paper Guide Assembly

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

Note: The objective of this adjustment is to set the S Paper Guide tip as close as possible to the registration drive roller without touching it. This will ensure that the paper will travel over the top of the S Paper Guide regardless of the paper travel direction.

Applicable jigs and tools: ⊕ **Screwdriver**.

[Disassembling Procedures]

1. Open the Front Cover.
2. Remove the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Remove the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Remove the Inner Cover. (Refer to item 7.1.5.1. (19) on page 7-220)

[Preparation]

1. Open the Lower Paper Guide (1) fully and tape it to the frame to keep it open.
2. Cut a piece of 20lb paper to a measurement of 2" x 11". Fold the paper in half lengthwise. Place the folded paper on a table and run a hard, flat object along the crease to completely flatten the folded edge. The goal is to achieve an even thickness of 2 sheets of 20lb paper.

[Adjustment]

1. Open the Lower Paper Guide (A) and use the Drum Lock Knob as a prop to hold the guide open.
2. Carefully sight the S Paper Guide tip edge position in relation to the Registration Drive Roller and adjust the hinge plate position to open the gap.

Note: Remove the registration roller knob, if necessary, to gain better clearance to the adjustment hinge plate.

3. From the drum side, carefully insert the folded paper into the registration roller approximately 1/16". While observing the S Paper Guide Tip, adjust the hinge plate until the S Paper Guide tip contacts the paper. Secure the hinge plate adjustment screw and remove the folded paper. Refer to “Adjustment of the S Paper Guide Assembly”, Figure 7-117.

CAUTION:
After adjustment is made, carefully rotate the registration roller knob clockwise and make sure the roller does not contact the S Paper Guide tip edge. If contact is made, the gap is set too close. Readjust the S Paper Guide hinge plate and double check the gap setting.

4. Double check the adjustment by inserting the folded paper into the registration roller NIP from the drum side. Rotate the Registration Drive Roller Knob clockwise while observing to ensure the paper travels over the top of the S Paper Guide.

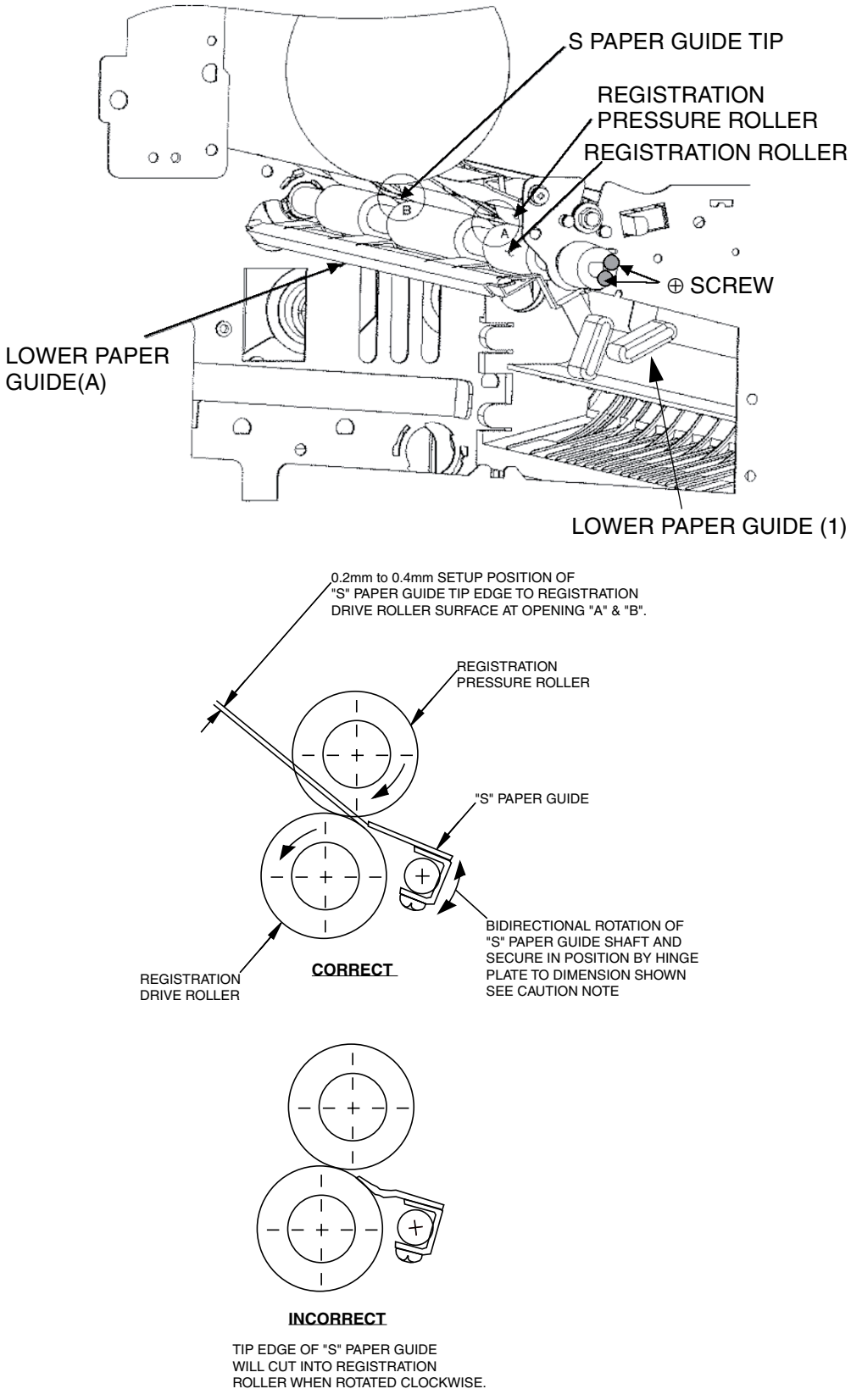


Figure 7-117. Adjustment of the S Paper Guide Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.3. (8) Removal of the Multi Feed Sensor (LD401 Assembly).

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 of the **Front** Engine.
2. Disconnect the connector(J353).
3. Unscrew two Tapping screws and remove the LED Holder.
4. Unscrew two ⊕ screws and remove the LD401 Assembly.

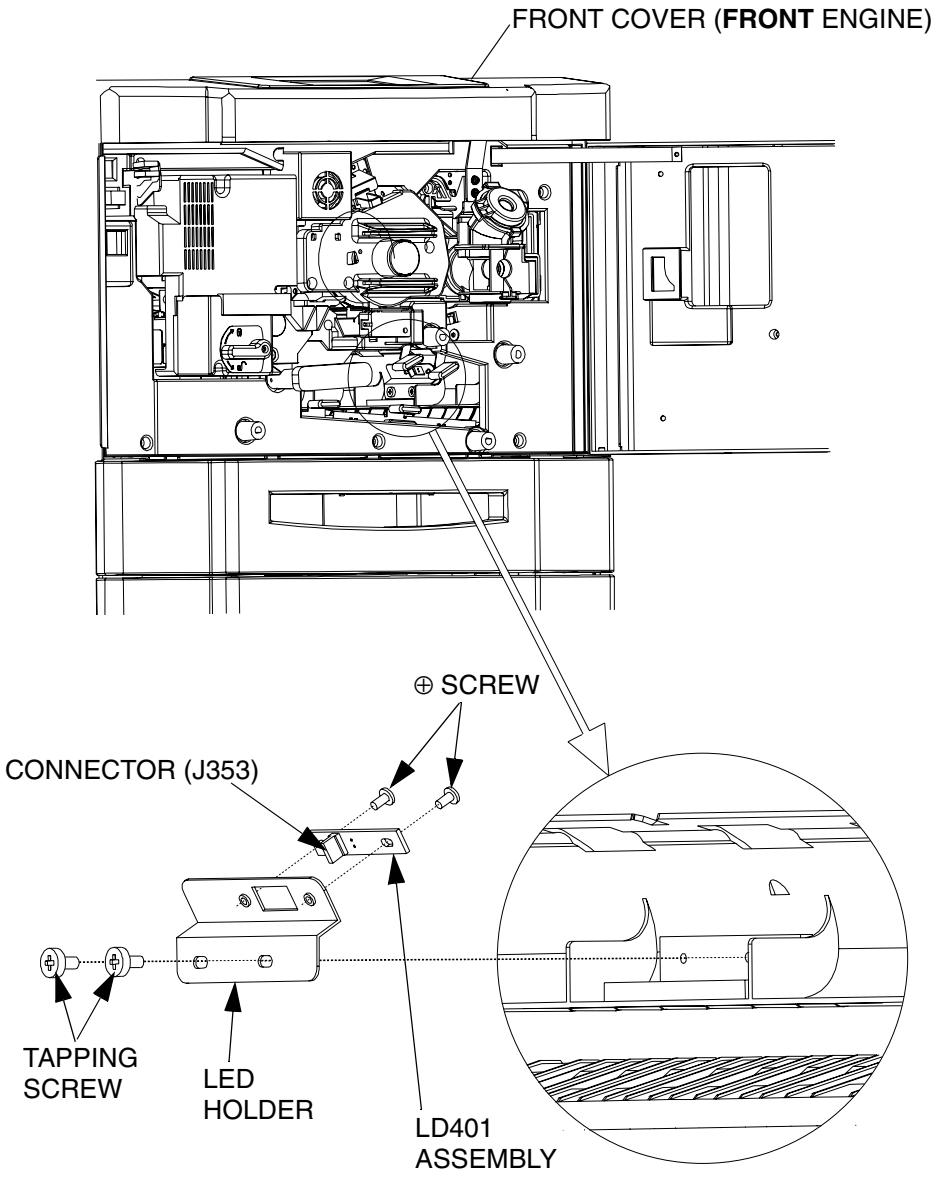


Figure 7-118. Removal of the Multi Feed Sensor (LD401 Assembly)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.4. Removal of the TH Unit Parts

7.1.3.4. (1) Removal of the TH Unit

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. (Refer to item 3.3.1 on page 3-9)
2. Open the Rear Cover. (Refer to item 3.3.1 on page 3-9)
3. Disconnect the two Faston Terminals from the High Voltage Power Supply (2). (Refer to item 7.1.5.1. (15) on page 7-216) - Procedures 1 to 4.
4. Unscrew the ⊕ screw and disconnect the TR Earth Cable Terminal.
5. Remove the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
6. Remove the Fuser Unit. (Refer to item 7.1.3.1. (1) on page 7-68)
7. Unscrew the two ⊕ screws to remove the TH Hinge Plate.
8. Remove the TH Unit.

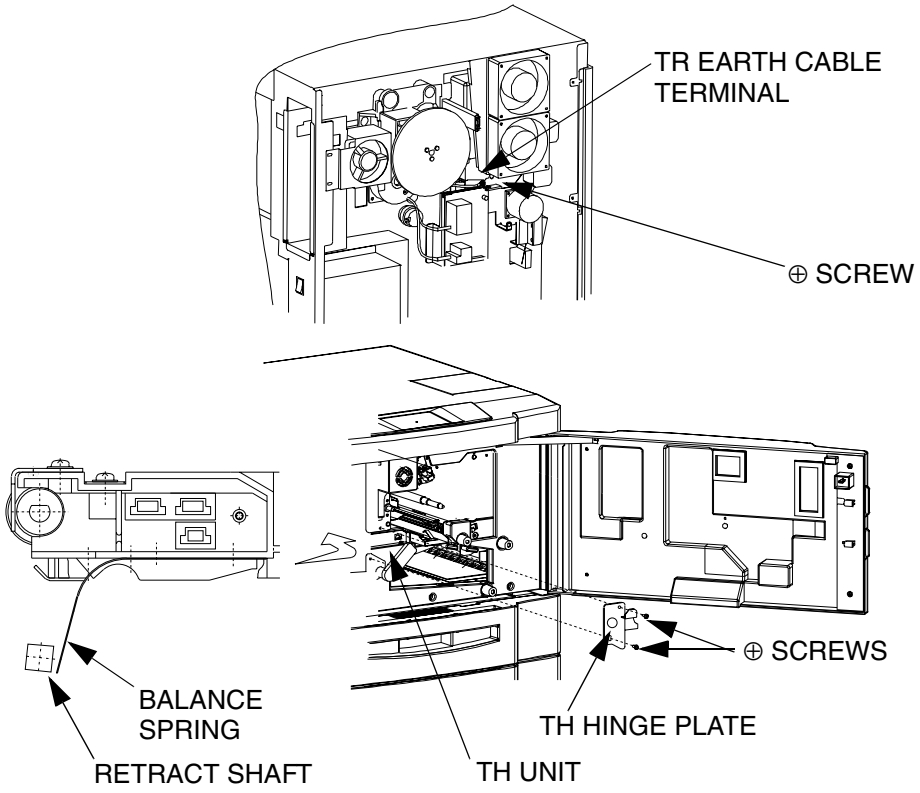


Figure 7-119. Removal of the TH Unit

Note: Balance Spring assemble after drawing location.

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.4. (2) Removal of the TR Guide

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

Applicable jigs and tools: ⊕ Screwdriver, Hex Wrench.

[Disassembling Procedures]

1. Remove the TH Unit. (Refer to item 7.1.3.4. (1) on page 7-102)
2. Unscrew the Hex Bolt to remove the TR Guide.

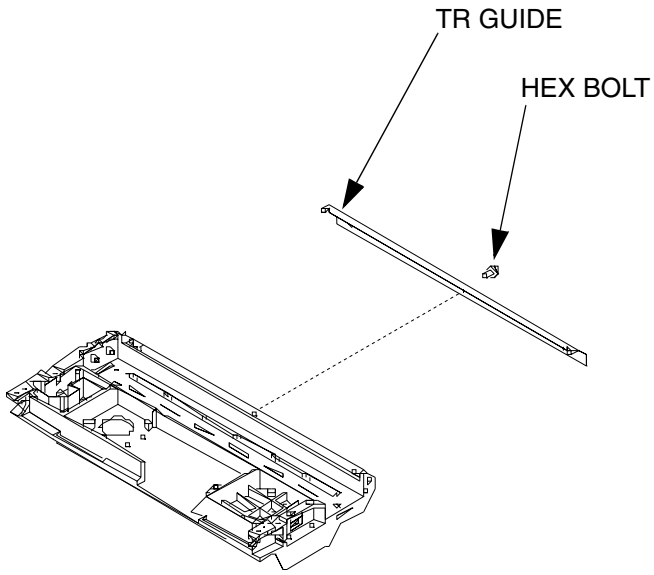


Figure 7-120. Removal of the TR Guide

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.4. (3) Removal of the Nip Guide Plate W Assembly

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

Applicable jigs and tools: ⊕ Screwdriver, - Precision Screwdriver.

[Disassembling Procedures]

1. Remove the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
2. Remove the TR Guide. (Refer to item 7.1.3.4. (2) on page 7-103)
3. Unscrew the two ⊕ screws, the two spring washers and the four washers to remove the Nip Guide Plate W Assembly.

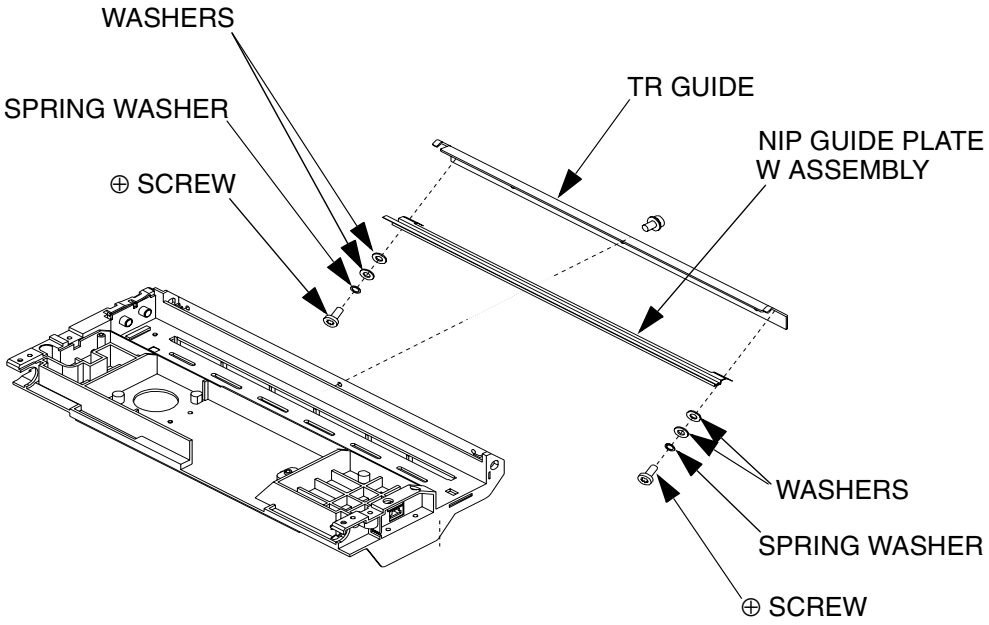


Figure 7-121. Removal of the Nip Guide Plate W Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.4. (4) Removal of the TH Drive Gear

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

Applicable jigs and tools: - Precision Screwdriver.

[Disassembling Procedures]

1. Remove the TH Unit. (Refer to item 7.1.3.4. (1) on page 7-102)
2. Remove the Snap Ring-E and the TH Drive Gear.

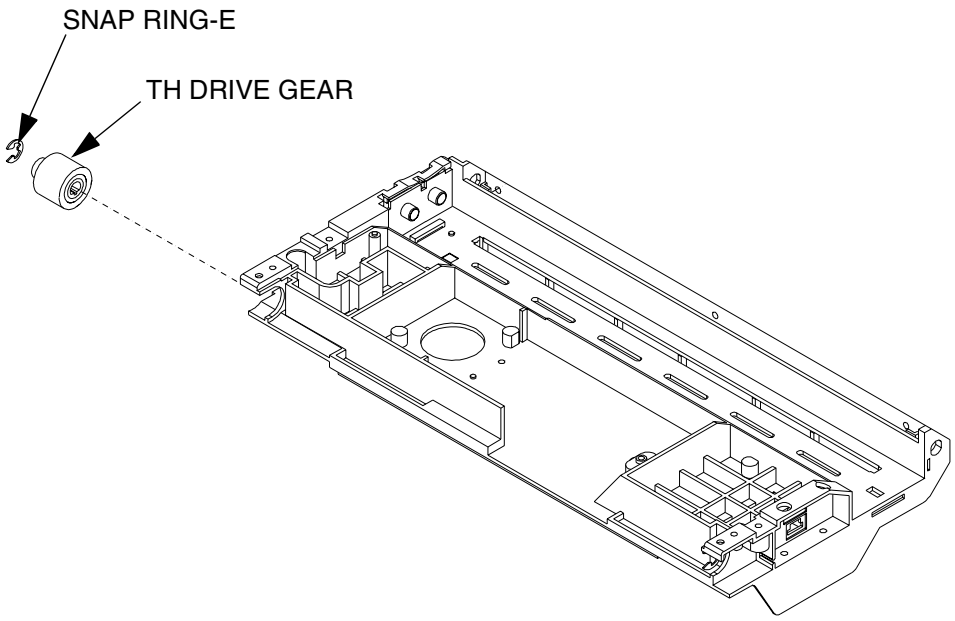


Figure 7-122. Removal of the TH Drive Gear

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.4. (5) Removal of the TH Belt Pulleys

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

Applicable jigs and tools: ⊕ Screwdriver, - Precision Screwdriver.

[Disassembling Procedures]

1. Remove the TH Unit. (Refer to item 7.1.3.4. (1) on page 7-102)
2. Unscrew the ⊕ screw to remove the Paper Guide (F).
3. Unscrew the ⊕ screw to remove the Paper Guide (R).
4. Unscrew the two ⊕ screws to remove the B.B Stopper.
5. Unscrew the three ⊕ screws to remove the TH Belt Frame with the TH Drive Shaft, the TH Belt and the Belt Pulley.
6. Remove the Belt Pulley by sliding the TH Belt.

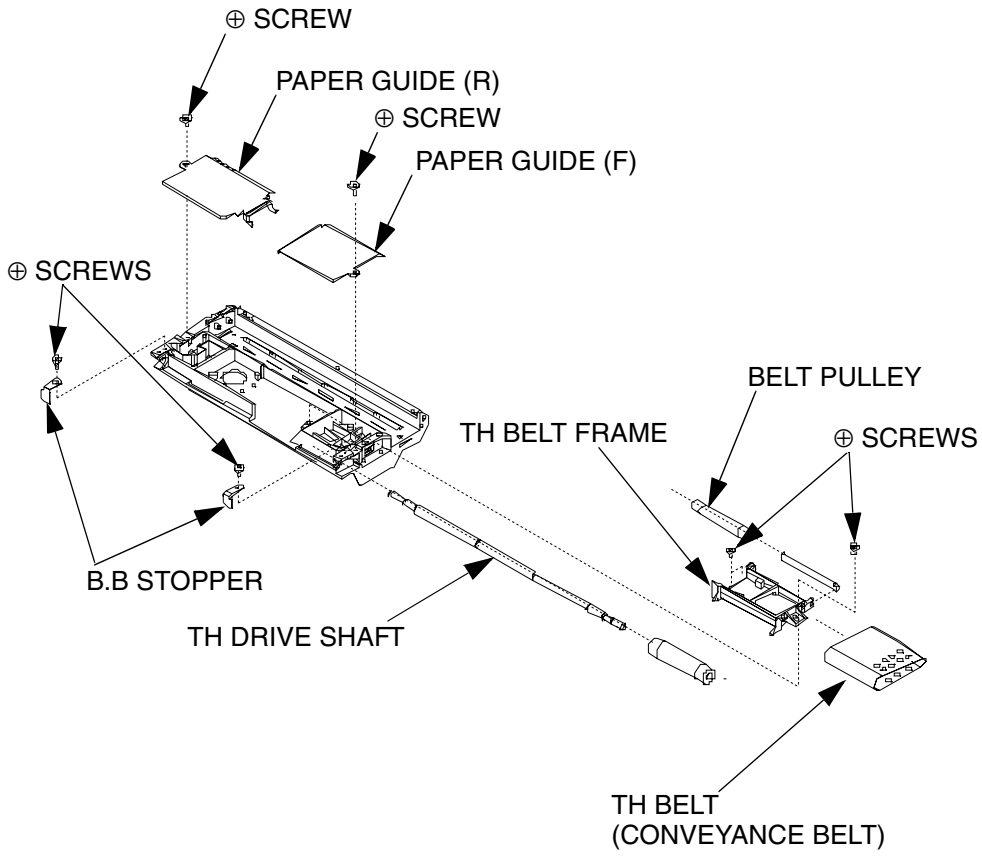


Figure 7-123. Removal of the TH Belt Pulleys

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.4. (6) Removal of the Conveyance Belt

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

Applicable jigs and tools: ⊕ Screwdriver, - Precision Screwdriver.

[Disassembling Procedures]

1. Remove the TH Unit. (Refer to item 7.1.3.4. (1) on page 7-102)
2. Remove the TH Belt Pulleys. (Refer to item 7.1.3.4. (5) on page 7-106)
3. Remove the Conveyance Belt.

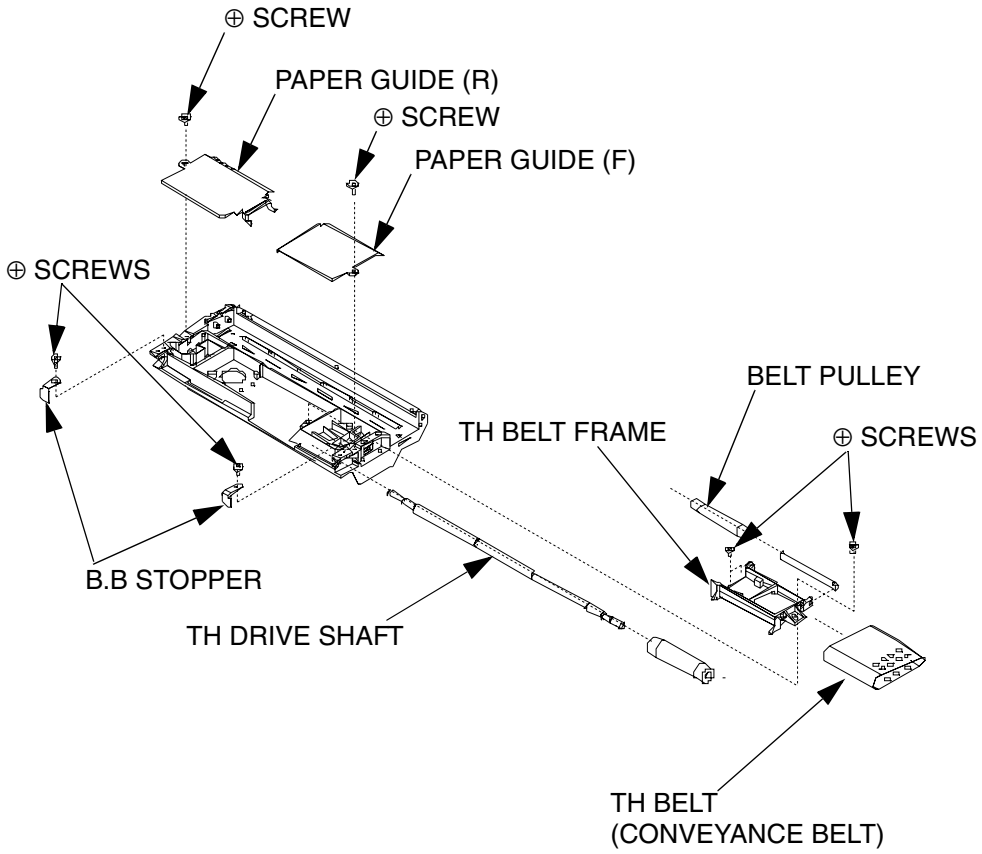


Figure 7-124. Removal of the Conveyance Belt

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.4. (7) Removal of the Temperature Humidity Sensor

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 TH Unit. (Refer to item 7.1.3.4. (1) on page 7-102)
2. Unscrew the two ⊕ screws to remove the Frame Support.
3. Remove the TH Duct Assembly. (Refer to item 7.1.3.4. (10) on page 7-111)
4. Unscrew the two ⊕ screws to remove the Fan Base.
5. Disconnect the connector from the TH Cable.
6. Unscrew the ⊕ screw to remove the Temperature Humidity Sensor.

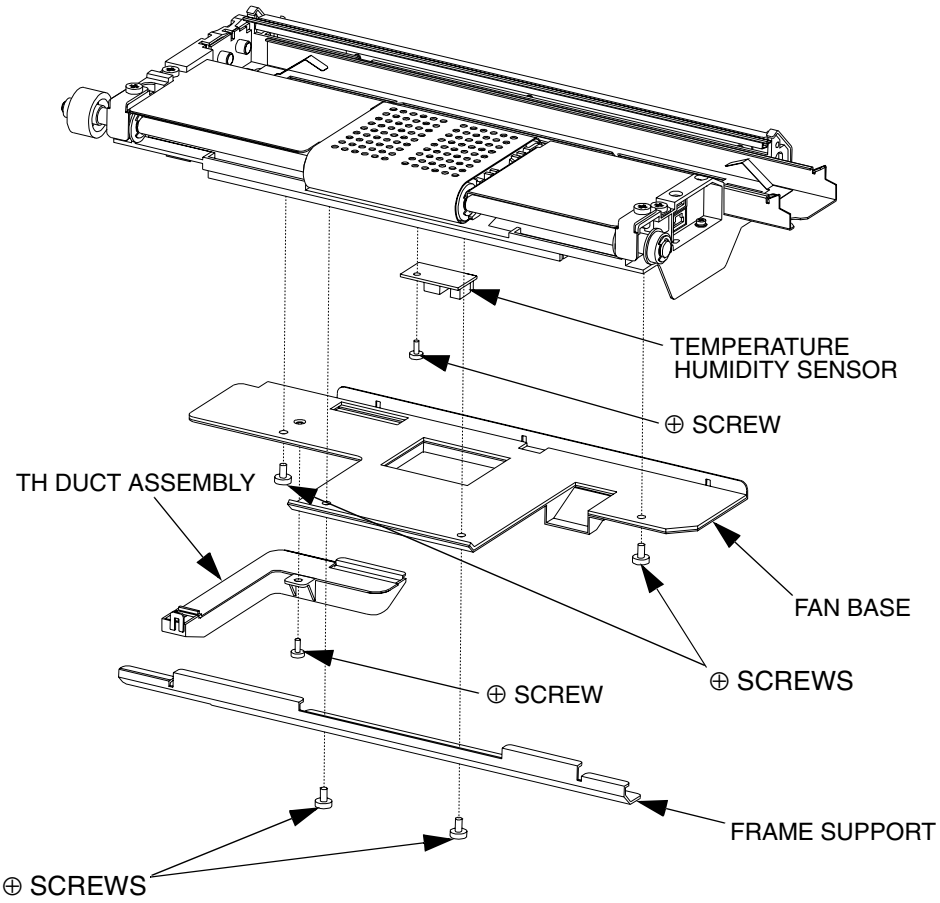


Figure 7-125. Removal of the Temperature Humidity sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.4. (8) Removal of the TH Fan Assembly (1)

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 TH Unit. (Refer to item 7.1.3.4. (1) on page 7-102)
2. Remove the Frame Support. (Refer to item 7.1.3.4. (7) on page 7-108)
3. Disconnect the connector from the TH Cable.
4. Unscrew the two ⊕ screws to remove the TH Fan Assembly (1).

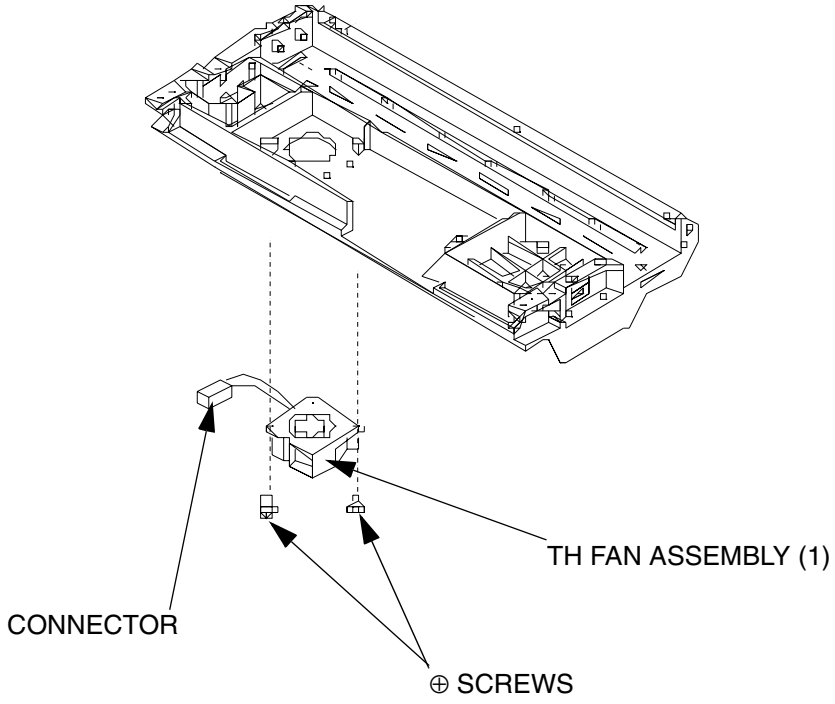


Figure 7-126. Removal of the TH Fan Assembly (1)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.4. (9) Removal of the TH Fan Assembly (2)

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 TH Unit. (Refer to item 7.1.3.4. (1) on page 7-102)
2. Remove the Frame Support. (Refer to item 7.1.3.4. (7) on page 7-108)
3. Disconnect the connector from the TH Cable.
4. Unscrew the two ⊕ screws to remove the TH Fan Assembly (2).

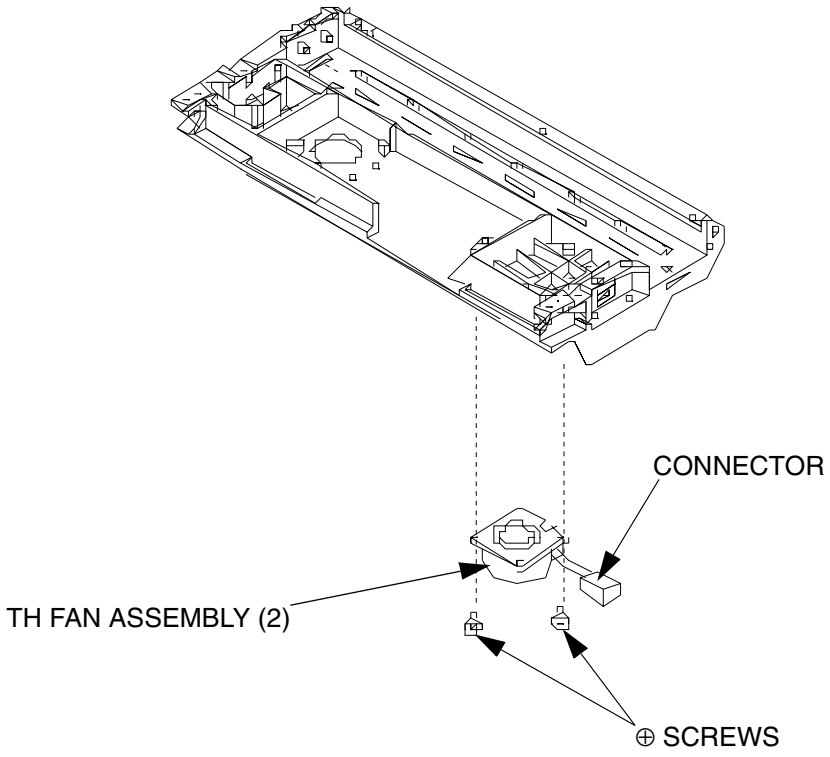


Figure 7-127. Removal of the TH Fan Assembly (2)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.4. (10) Removal of the TH Duct Assembly

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 TH Unit. (Refer to item 7.1.3.4. (1) on page 7-102)
2. Remove the Frame Support. (Refer to item 7.1.3.4. (7) on page 7-108)
3. Unfasten the snap-fit parts of the TH Duct Assembly.
4. Unscrew the ⊕ screw to remove the TH Duct Assembly.

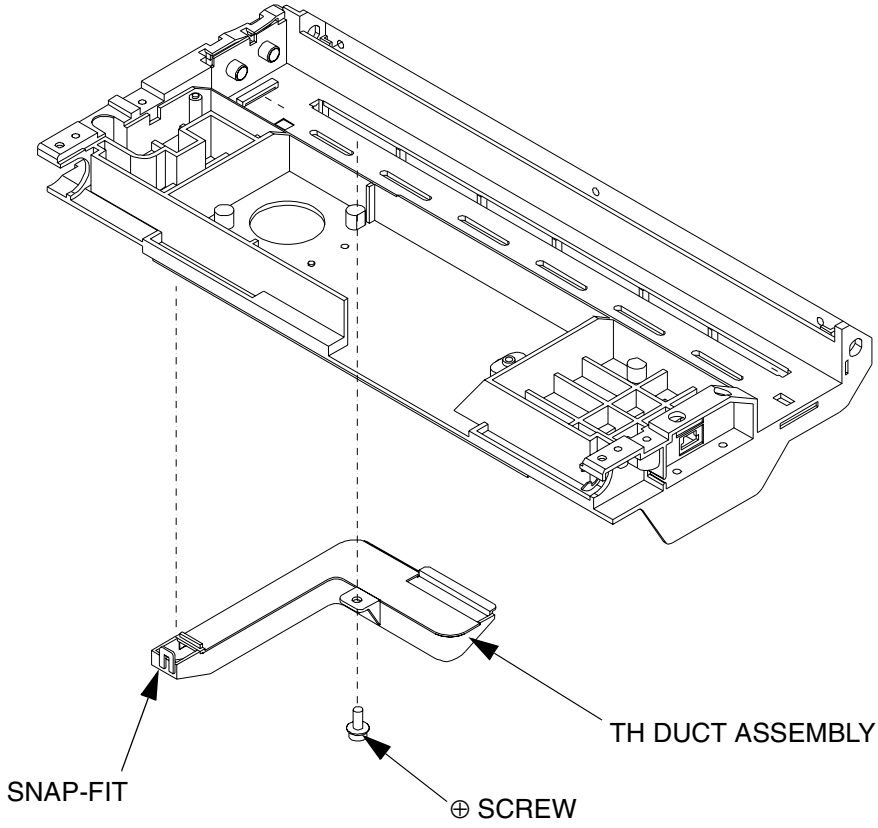


Figure 7-128. Removal of the TH Duct Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

[Checks]

Make sure that the snap-fit parts of the TH Duct Assembly are correctly fastened.

7.1.3.4. (11) Removal of the Corotron Assembly

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

Applicable jigs and tools: ⊕ Screwdriver, Roller Divider.

[Disassembling Procedures]

1. Open the Front Cover.
2. Retract the TH Unit by the TH handle.
3. Unscrew the two ⊕ screws to remove the TH Cable Cover from the TH Unit. (In case of Front Engine)
4. Unscrew the two thumbscrews by using roller divider to remove the TH Cable Cover from the TH Unit. (In case of Rear Engine)
5. Disconnect the Motor Cable and the Sensor Cable.
6. Draw out the Corotron Assembly from the TH Unit.

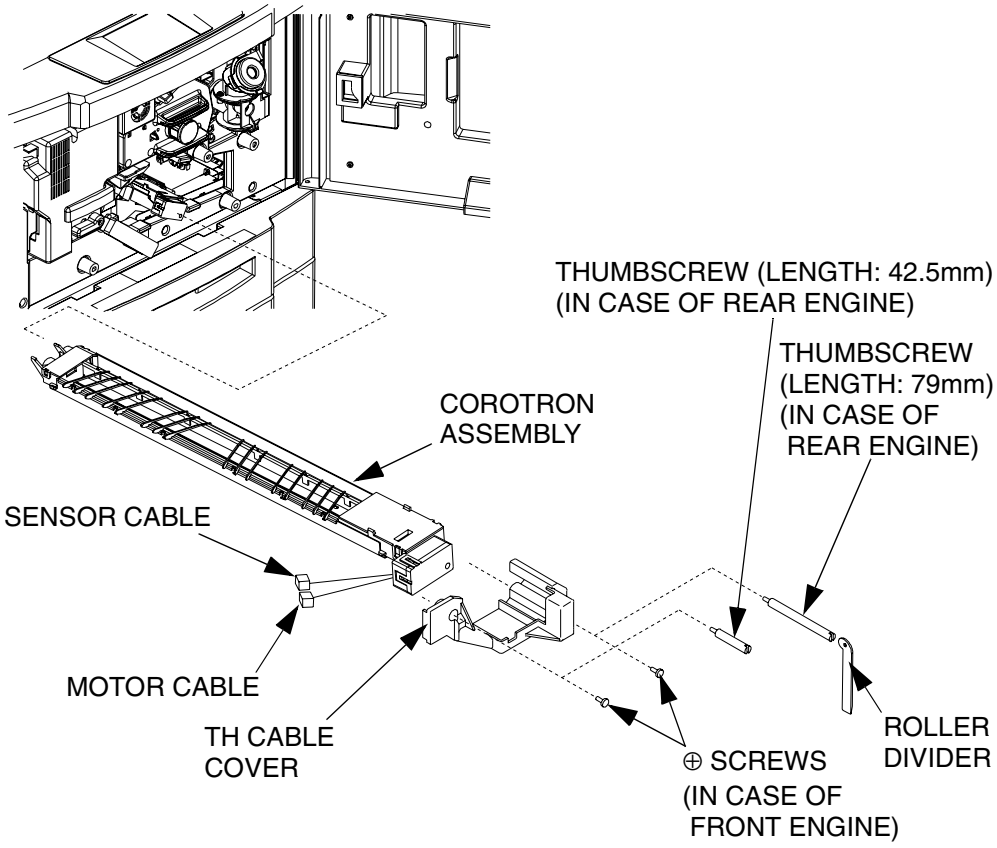


Figure 7-129. Removal of the Corotron Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

[Checks]

1. Make sure that the connectors are correctly connected.
2. Make sure that the Corotron Assembly projections are contacting to the Drum Housing correctly.
3. Make sure that the Drum projections are set to the hole of the Cover (F).

7.1.3.4. (12) Removal of the Transfer Corona Wire

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

Applicable jigs and tools: ⊕ Screwdriver, Minus Screwdriver.

[Disassembling Procedures]

1. Open the Front Cover.
2. Remove the Corotron Assembly from the TH Unit. (Refer to item 7.1.3.4. (11) on page 7-112)
3. Remove the Cover (F) and the Cover (R) from the Corotron Assembly.
4. Remove the T Corotron Spring from the Case (F).
5. Remove the Transfer Corona Wire from the Wire Contact Spring.

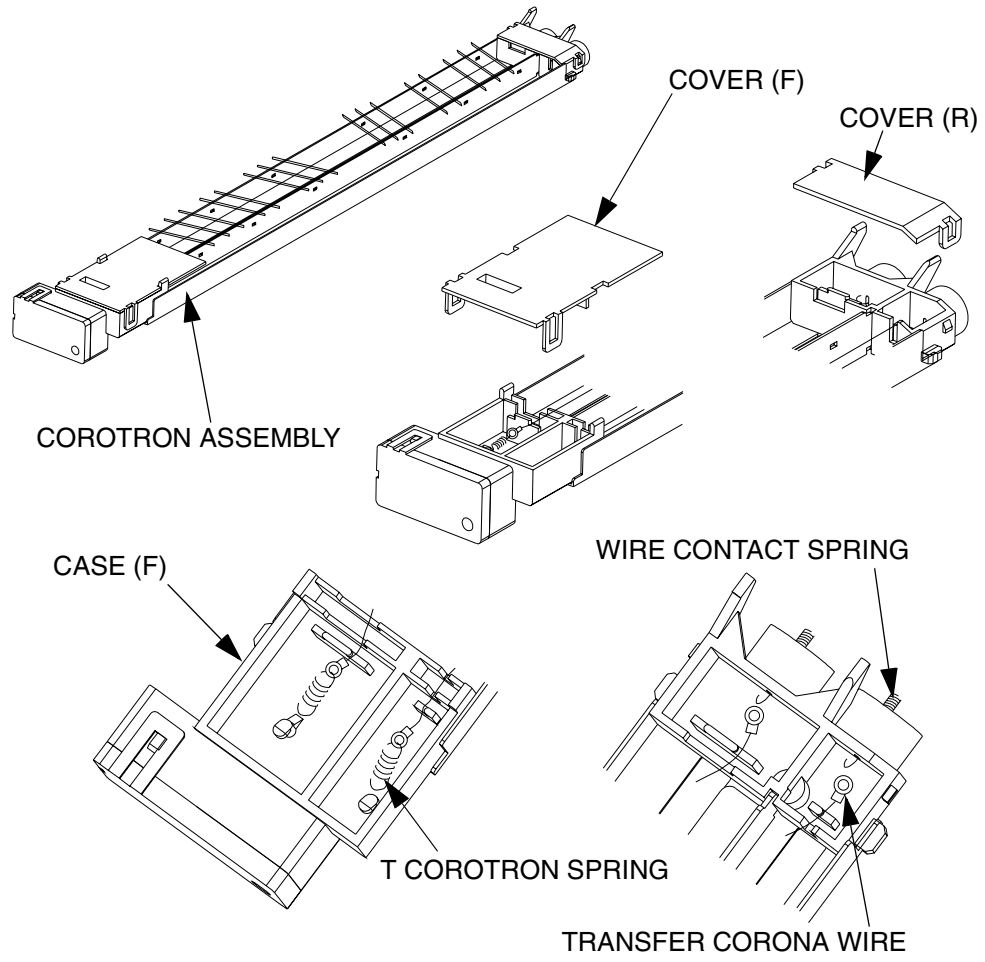


Figure 7-130. Removal of the Transfer Corona Wire

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.4. (13) Removal of the Separating Corona Wire

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

Applicable jigs and tools: ⊕ Screwdriver, Minus Screwdriver.

[Disassembling Procedures]

1. Open the Front Cover.
2. Remove the Corotron Assembly from the TH Unit. (Refer to item 7.1.3.4. (11) on page 7-112)
3. Remove the Cover (F) and the Cover (R) from the Corotron Assembly.
4. Remove the T Corotron Spring from the Case (F).
5. Remove the Separating Corona Wire from the Wire Contact Spring.

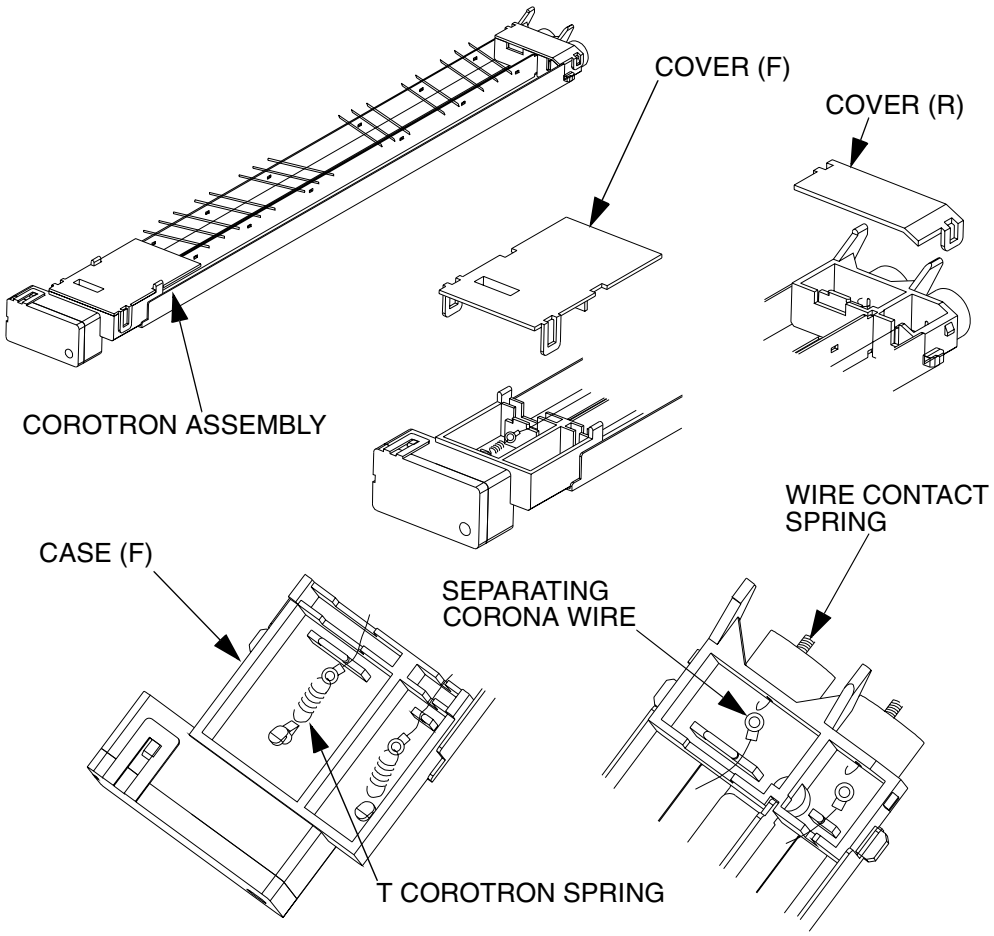


Figure 7-131. Removal of the Separating Corona Wire

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Locate the Corotron Wire correctly in the appointed fillets of the case (F) and case (R). (Refer to Figure 7-132 on page 7-115)

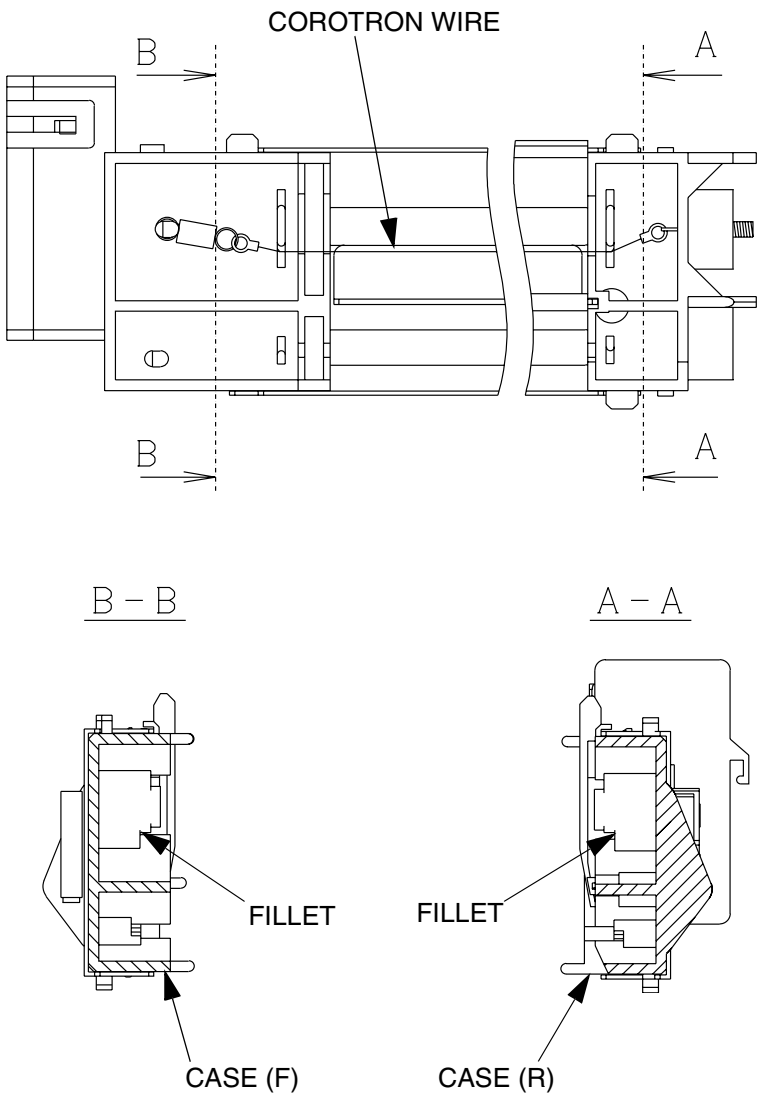


Figure 7-132. Assembling of the Separating Corona Wire

7.1.3.4. (14) Removal of the Corotron Cleaner Motor

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

Applicable jigs and tools: None.

[Disassembling Procedures]

1. Open the Front Cover.
2. Remove the Corotron Assembly from the TH Unit. (Refer to item 7.1.3.4. (11) on page 7-112)
3. Remove the Motor Cover from the Corotron Assembly.
4. Remove the Corotron Cleaner Motor from the Corotron Assembly.

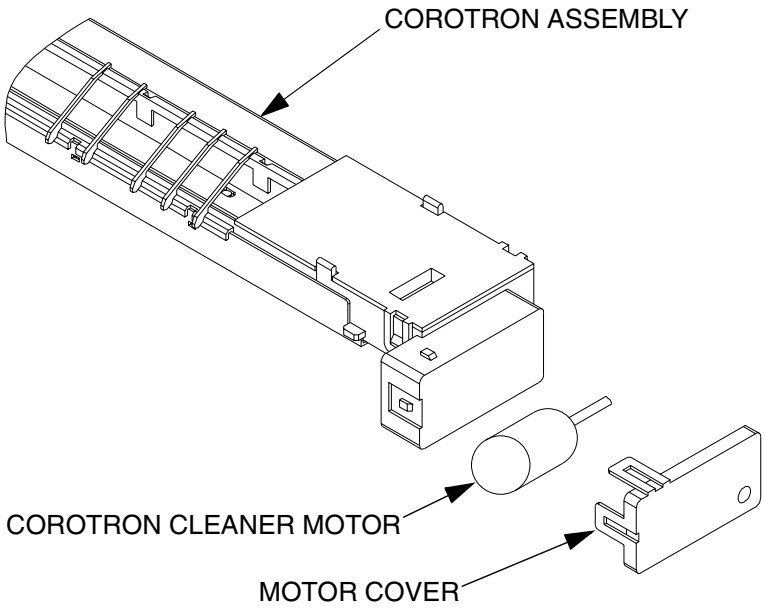


Figure 7-133. Removal of the Corotron Cleaner Motor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

[Checks]

1. Make sure that the Cleaner Motor is correctly in the Corotron Housing (F).
2. Make sure that the Corotron Assembly projections are contacting to the Drum Housing correctly.
3. Make sure that the Drum projections are set to the hole of the Cover (F).

7.1.3.4. (15) Removal of the Corotron Cleaner Position Sensor

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

Applicable jigs and tools: ⊕ Precision Screwdriver.

[Disassembling Procedures]

1. Open the Front Cover.
2. Draw out the Corotron Assembly from the TH Unit. (Refer to item 7.1.3.4. (11) on page 7-112)
3. Unscrew the ⊕ screw to remove the Cleaner Position Sensor and the Cleaner Plate A from the Corotron Assembly.

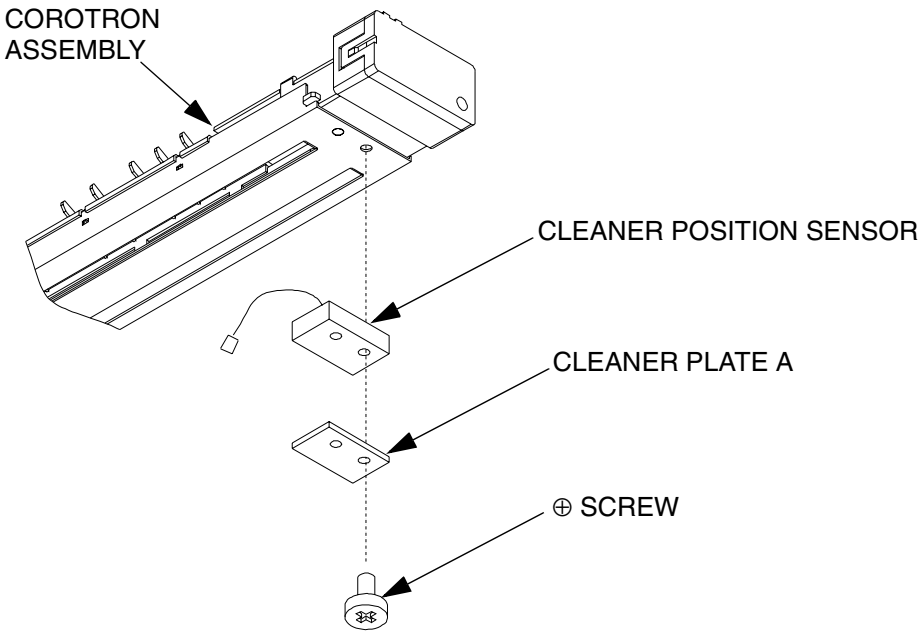


Figure 7-134. Removal of the Corotron Cleaner Position Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

[Checks]

1. Make sure that the Cleaner drives and stops at the home position correctly on "Power on".
2. Make sure that the Corotron Assembly projections are contacting to the Drum Housing correctly.
3. Make sure that the Drum projections are set to the hole of the Cover (F).

7.1.3.4. (16) Removal of the Transfer Corona Unit Cleaner

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

Applicable jigs and tools: Minus Precision Screwdriver.

[Disassembling Procedures]

1. Open the Front Cover.
2. Draw out the Corotron Assembly from the TH Unit. (Refer to item 7.1.3.4. (11) on page 7-112)
3. Remove the Transfer Corona Wire from the Corotron Assembly. (Refer to item 7.1.3.4. (12) on page 7-113)
4. Remove the Snap Ring-E from the Transfer Corona Unit Cleaner.
5. Remove the Transfer Corona Unit Cleaner from the Corotron Assembly.

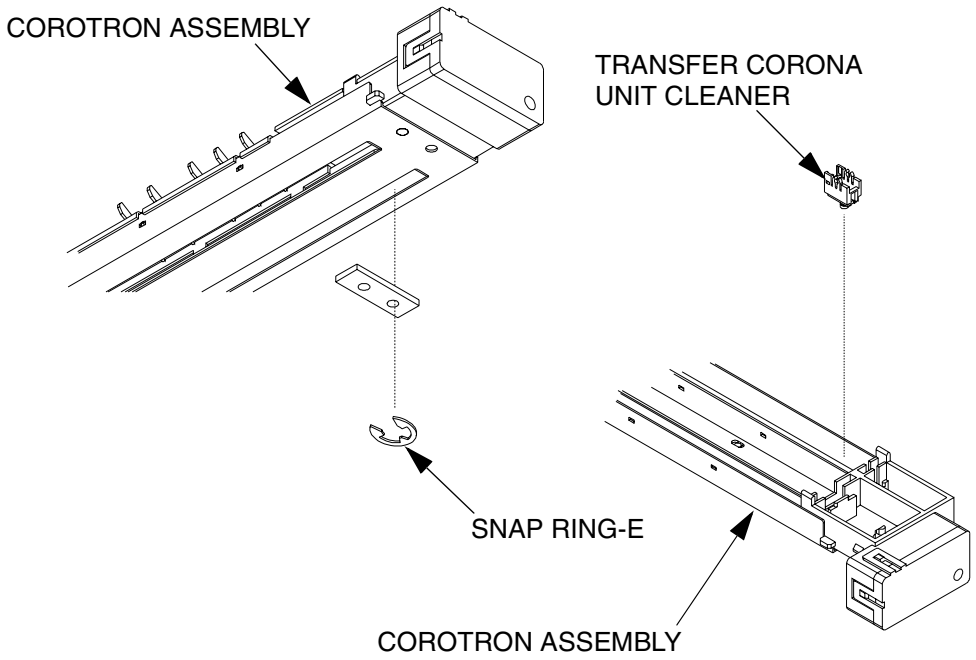


Figure 7-135. Removal of the Transfer Corona Unit Cleaner

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

[Checks]

1. Make sure that the Cleaner drives and stops at the home position correctly on "Power on".
2. Make sure that the Corotron Assembly projections are contacting to the Drum Housing correctly.
3. Make sure that the Drum projections are set to the hole of the Cover (F).

7.1.3.4. (17) Removal of the Separating Corona Unit Cleaner

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

Applicable jigs and tools: Minus Precision Screwdriver.

[Disassembling Procedures]

1. Open the Front Cover.
2. Draw out the Corotron Assembly from the TH Unit. (Refer to item 7.1.3.4. (11) on page 7-112)
3. Remove the Separating Corona Wire from the Corotron Assembly. (Refer to item 7.1.3.4. (13) on page 7-114)
4. Remove the Snap Ring-E from the Separating Corona Unit Cleaner.
5. Remove the Separating Corona Unit Cleaner from the Corotron Assembly.

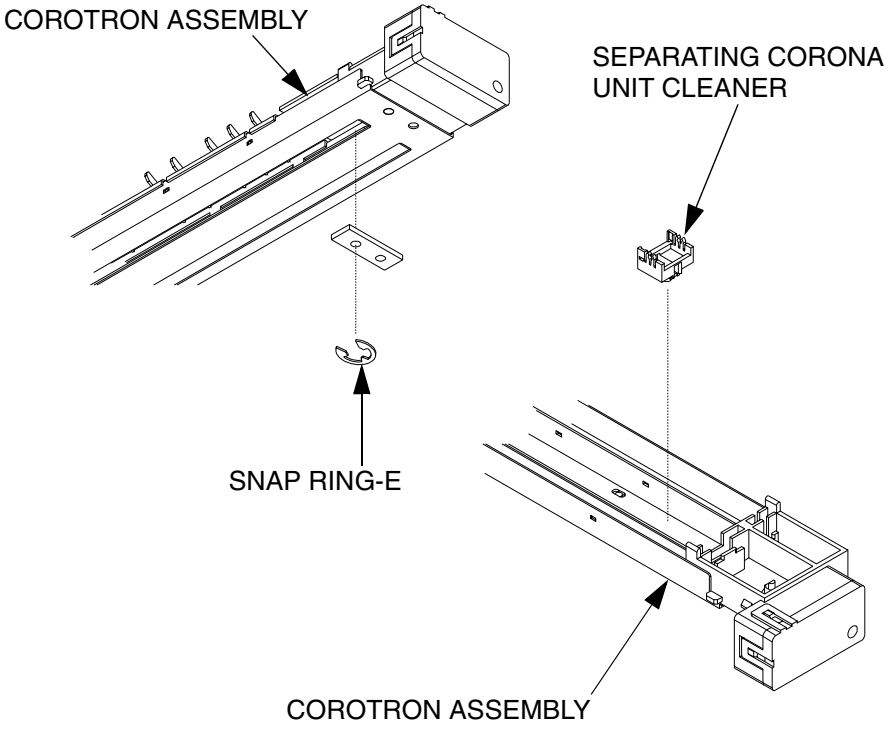


Figure 7-136. Removal of the Separating Corona Unit Cleaner

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

[Checks]

1. Make sure that the Cleaner drives and stops at the home position correctly on "Power on".
2. Make sure that the Corotron Assembly projections are contacting to the Drum Housing correctly.
3. Make sure that the Drum projections are set to the hole of the Cover (F).

7.1.3.5. Removal of the Switch Back Unit Parts

7.1.3.5. (1) Removal of the Switch Back Cover Assembly

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

Applicable jigs and tools: ⊕ Screwdriver, Radio Pincers.

[Disassembling Procedures]

1. Separate the Relay Unit from the Front Engine. (Only for **Front** Engine) (Refer to item 7.3.1 on page 7-284)
2. Remove the Rear Cover Assembly. (Refer to item 3.3.2. (1) on page 3-12)
3. Remove the LH Cover. (Only for **Rear** Engine) (Refer to item 3.3.2. (1) on page 3-12)
4. Remove the SB Cover Spring.
5. Unscrew the ⊕ screw.
6. Remove the SB Pin Holder and remove the Switch Back Cover Assembly.

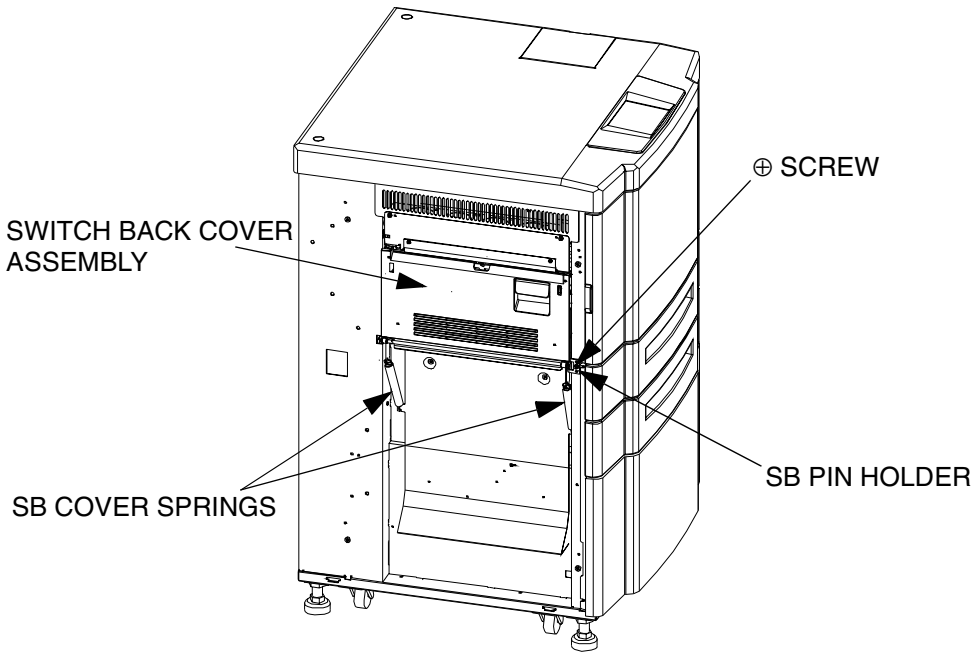


Figure 7-137. Removal of the Switch Back Cover Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.5. (2) Removal of the Flip Paper Feed Roller Assembly

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

Applicable jigs and tools: ⊕ Screwdriver, - Screwdriver, Radio Pincers.

[Disassembling Procedures]

1. Open the Front Cover.
2. Remove the Inner Cover. (Refer to item 7.1.5.1. (19) on page 7-220)
3. Remove the Rear Cover. (Refer to item 3.3.2. (1) on page 3-12)
4. Remove the DC Fan(Fuser). (Refer to item 7.1.5.1. (2) on page 7-203)
5. Remove the Switch Back Cover Assembly. (Refer to item 7.1.3.5. (1) on page 7-120)
6. Remove the Fuser Unit. (Refer to item 7.1.3.1. (1) on page 7-68)
7. Unscrew the ⊕ screw to remove the SB Gate.
8. Disconnect the connector.
9. Remove the SB Sensor Holder.
10. Unscrew the four screws to remove the SB Paper Guide (IN).
11. Remove the CPxxx Assembly. (Refer to item 7.1.5.1. (13) on page 7-214)
12. Unscrew the three ⊕ screws to remove the CP Holder.
13. Remove the two Springs.
14. Remove the Retaining Ring-E to remove the Link A.
15. Remove the Retaining Ring-E to remove the Link B.
16. Unscrew the three ⊕ screws to remove the SB Drive Holder (92).
17. Remove the Retaining Ring-E to remove the Drive Roller Gear(SB).
18. Remove the Retaining Ring-E to remove the Sleeve Bearing.
19. Remove the Flip Paper Feed Roller Assembly.

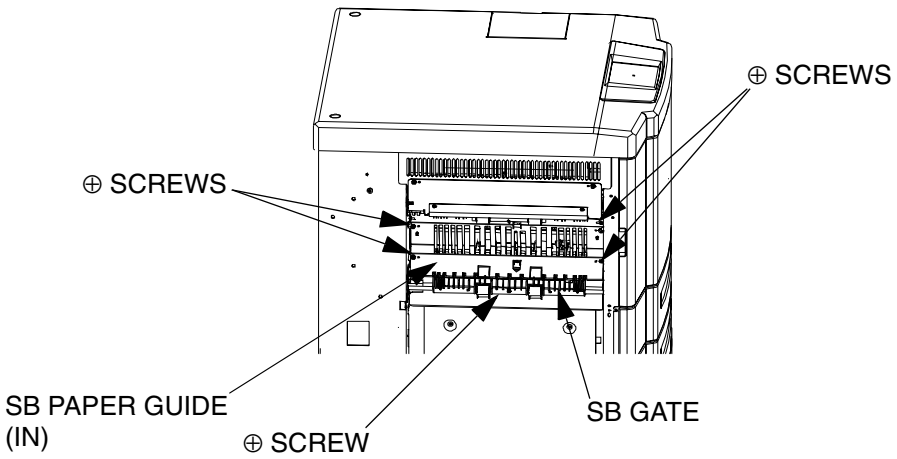


Figure 7-138. -1 Removal of the Flip Paper Feed Roller Assembly

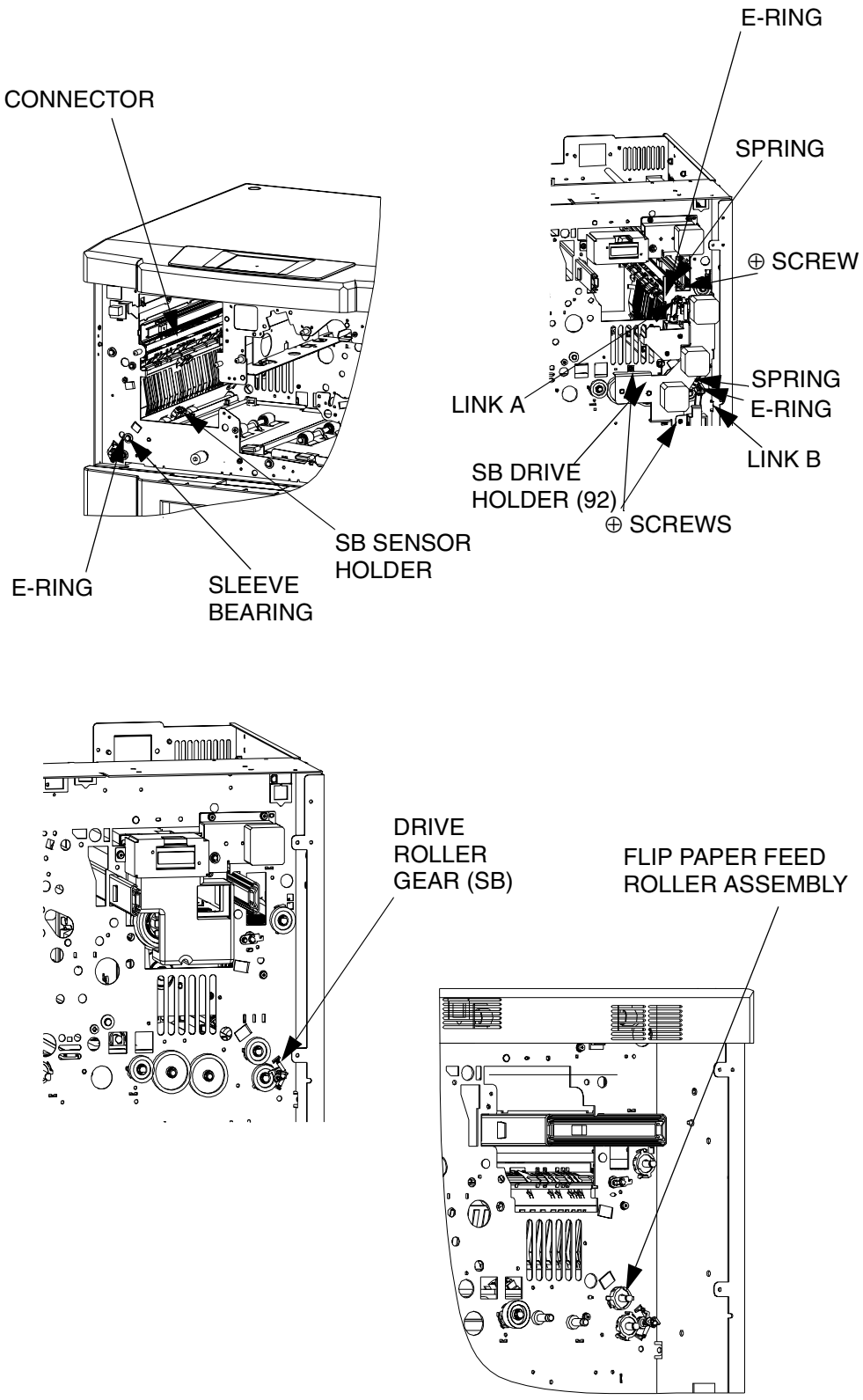


Figure 7-139. -2 Removal of the Flip Paper Feed Roller Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.5. (3) Removal of the SB Paper Feed Roller Assembly

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

Applicable jigs and tools: ⊕ Screwdriver, - Screwdriver, Radio Pincers.

[Disassembling Procedures]

1. Remove the SB Drive Holder (92) (Procedures 1 to 16). (Refer to item 7.1.3.5. (2) on page 7-121)
2. Remove the two Retaining Ring-E to remove the Idler Gear A.
3. Unscrew the four ⊕ screws to raise the DPX Low Paper Guide (1) slightly up.
4. Remove the Retaining Ring-E to remove the Drive Roller Gear (SB).
5. Remove the Retaining Ring-E to remove the Sleeve Bearing.
6. Remove the SB Paper Feed Roller Assembly.

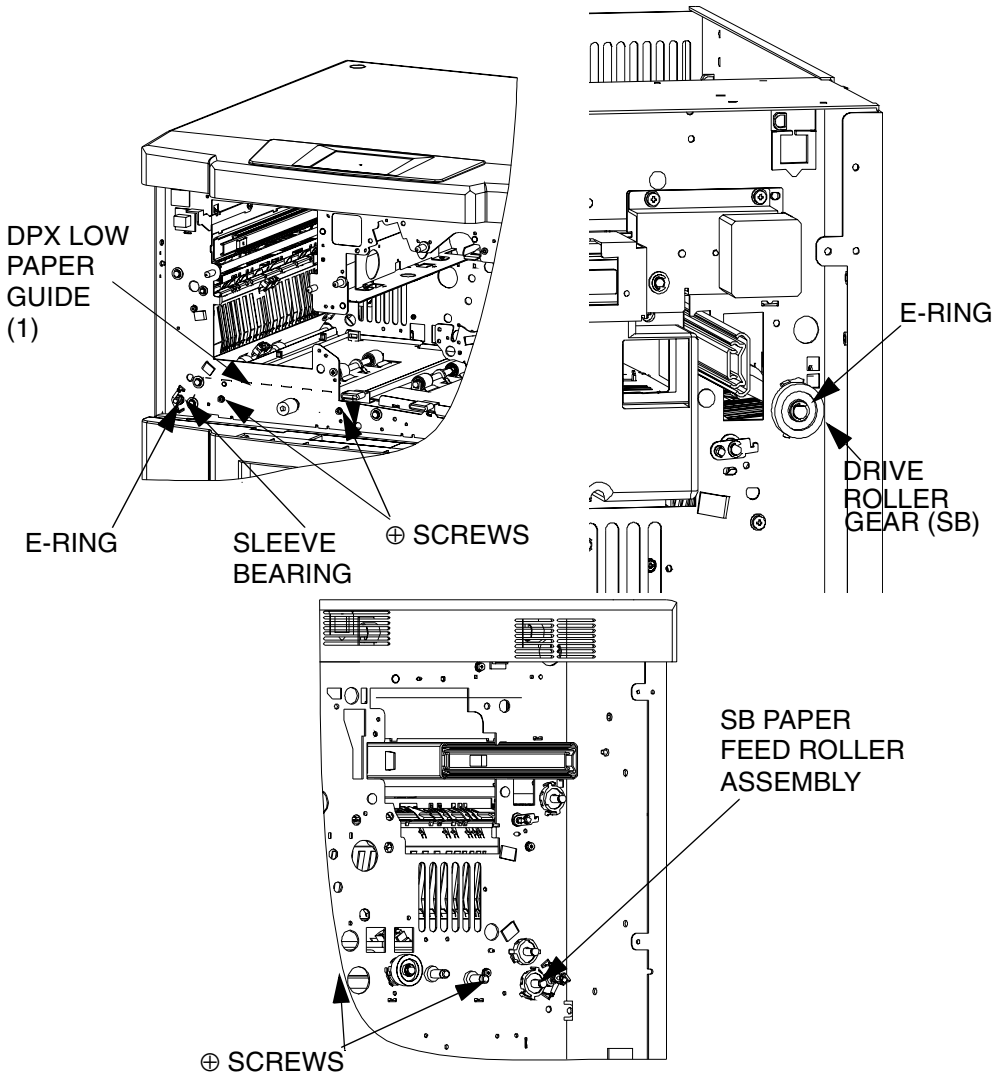


Figure 7-140. Removal of the SB Paper Feed Roller Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.5. (4) Removal of the PF Out Paper Feed Roller Assembly

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

Applicable jigs and tools: ⊕ Screwdriver, - Screwdriver, Radio Pincers.

[Disassembling Procedures]

1. Open the Front Cover. (Refer to item 3.3.1 on page 3-9)
2. Remove the Inner Cover. (Refer to item 7.1.5.1. (19) on page 7-220)
3. Remove the Rear Cover. (Refer to item 3.3.2. (1) on page 3-12)
4. Separate the Relay Unit from the **Front** Engine. (Only for **Front** Engine) (Refer to item 7.3.1 on page 7-284)
5. Remove the LH Cover. (Only for **Rear** Engine) (Refer to item 3.3.2. (1) on page 3-12)
6. Open the Switch Back Cover Assembly.
7. Unscrew the two ⊕ screws to move the Upper SB Paper Guide.
8. Disconnect the two connectors.
9. Remove the Upper SB Paper Guide.
10. Remove the DC Fan(Fuser). (Refer to item 7.1.5.1. (2) on page 7-203)
11. Remove the Fuser Unit. (Refer to item 7.1.3.1. (1) on page 7-68)
12. Remove the CPxxx Assembly. (Refer to item 7.1.5.1. (13) on page 7-214)
13. Unscrew the three ⊕ screws to remove the CP Holder.
14. Remove the two Springs.
15. Remove the Retaining Ring-E to remove the Link A.
16. Remove the Retaining Ring-E to remove the Link B.
17. Unscrew the three screws to remove the SB Drive Holder (92).
18. Remove the Retaining Ring-E to remove the Drive Roller Gear (SB).
19. Remove the Retaining Ring-E to remove the Sleeve Bearing.
20. Remove the PF Out Paper Feed Roller Assembly.

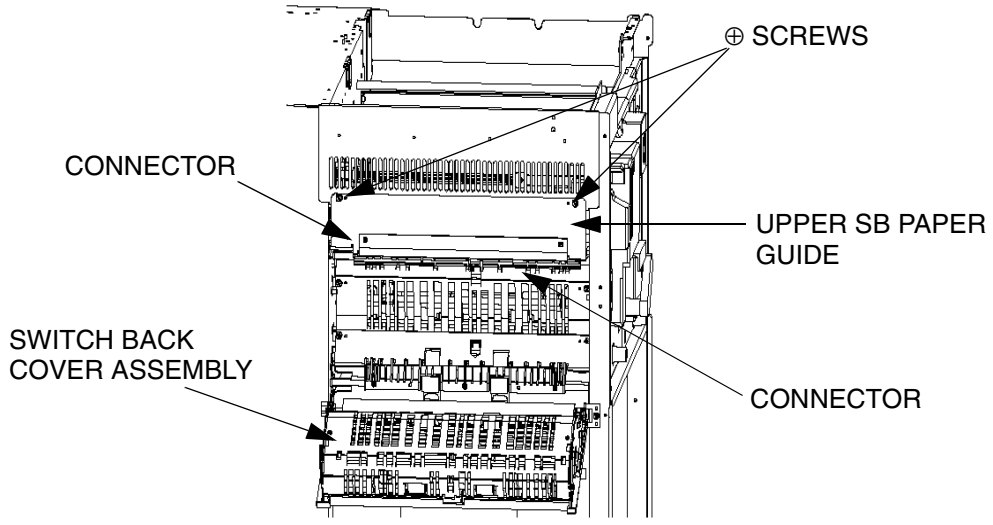


Figure 7-141. -1 Removal of the PF Out Paper Feed Roller Assembly

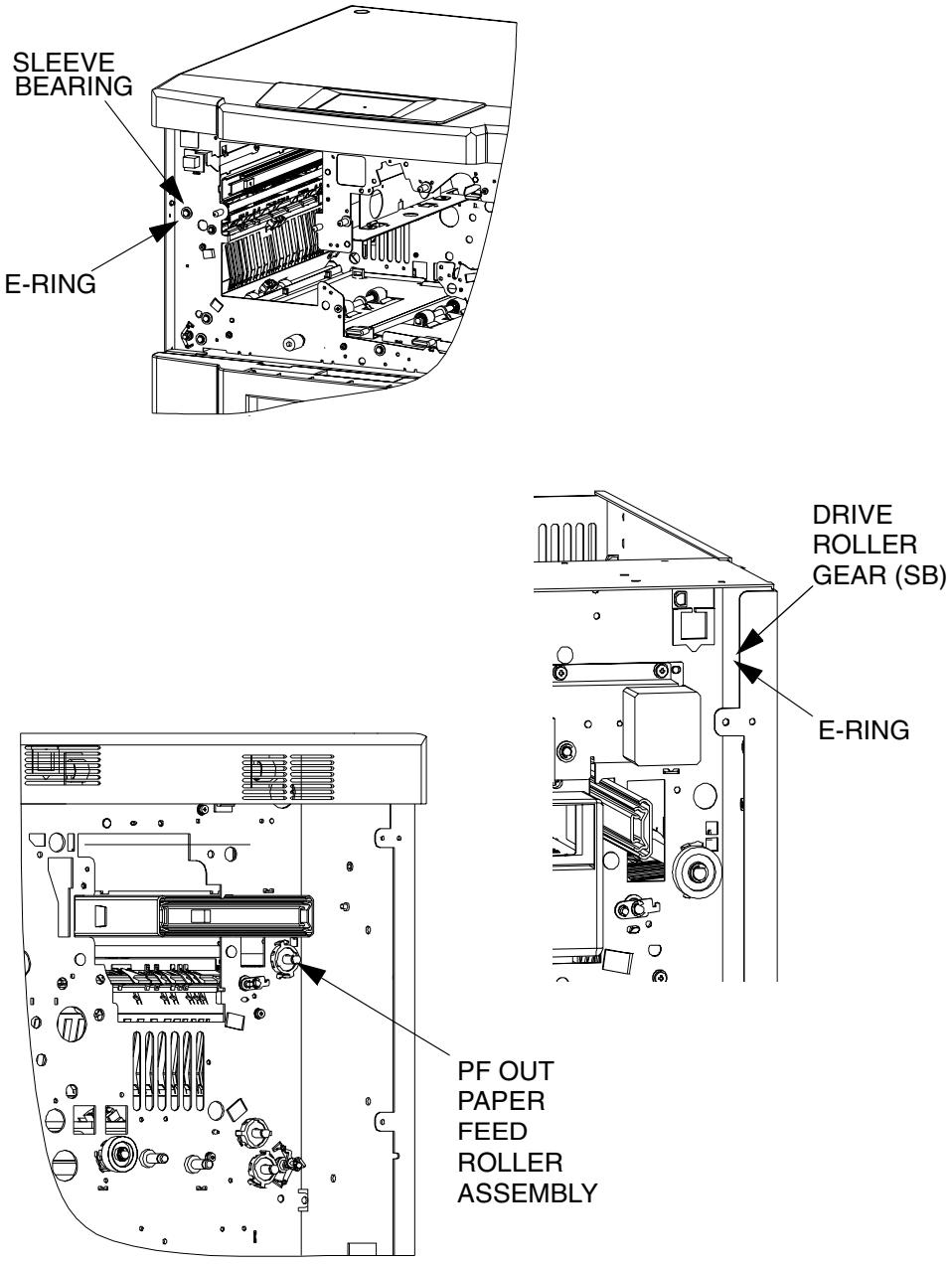


Figure 7-142. -2 Removal of the PF Out Paper Feed Roller Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.5. (5) Removal of the Flip Sensor

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. (Refer to item 3.3.1 on page 3-9)
2. Remove the Fuser Unit. (Refer to item 7.1.3.1. (1) on page 7-68)
3. Disconnect the connector.
4. Remove the Sensor Holder.
5. Remove the Flip Sensor.

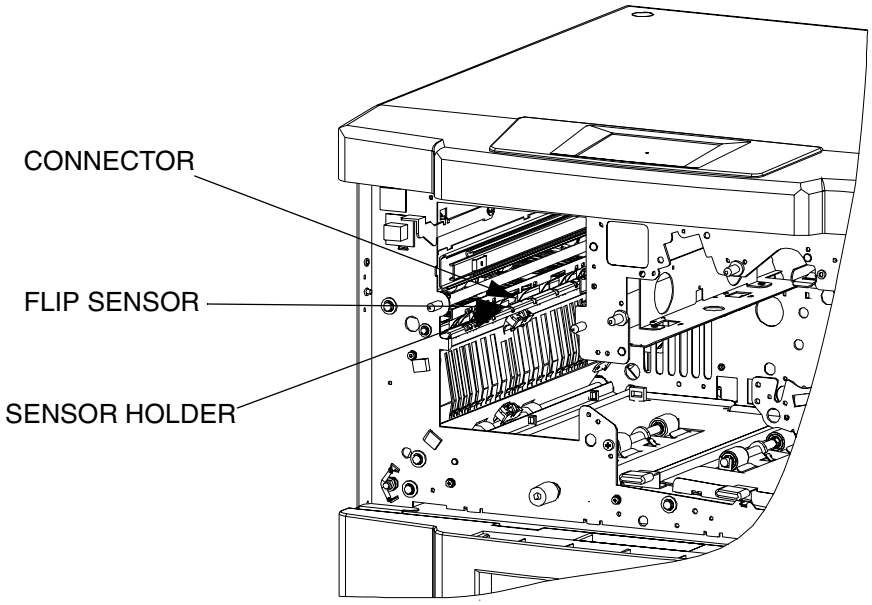


Figure 7-143. Removal of the Flip sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.5. (6) Removal of the SB Sensor

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. (Refer to item 3.3.1 on page 3-9)
2. Remove the Fuser Unit. (Refer to item 7.1.3.1. (1) on page 7-68)
3. Disconnect the connector.
4. Remove the Sensor Holder.
5. Remove the SB Sensor.

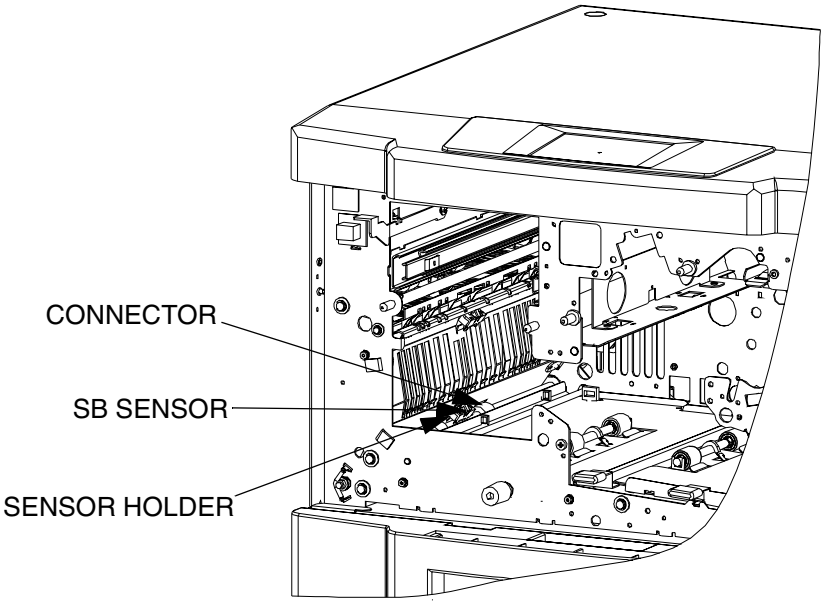


Figure 7-144. Removal of the SB Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.5. (7) Removal of the PF Out Sensor

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 Upper SB Paper Guide. (Refer to item 7.1.3.5. (4) on page 7-124) - Procedures 1 to 9.
2. Unscrew the ⊕ screw to remove the PF Out Sensor.

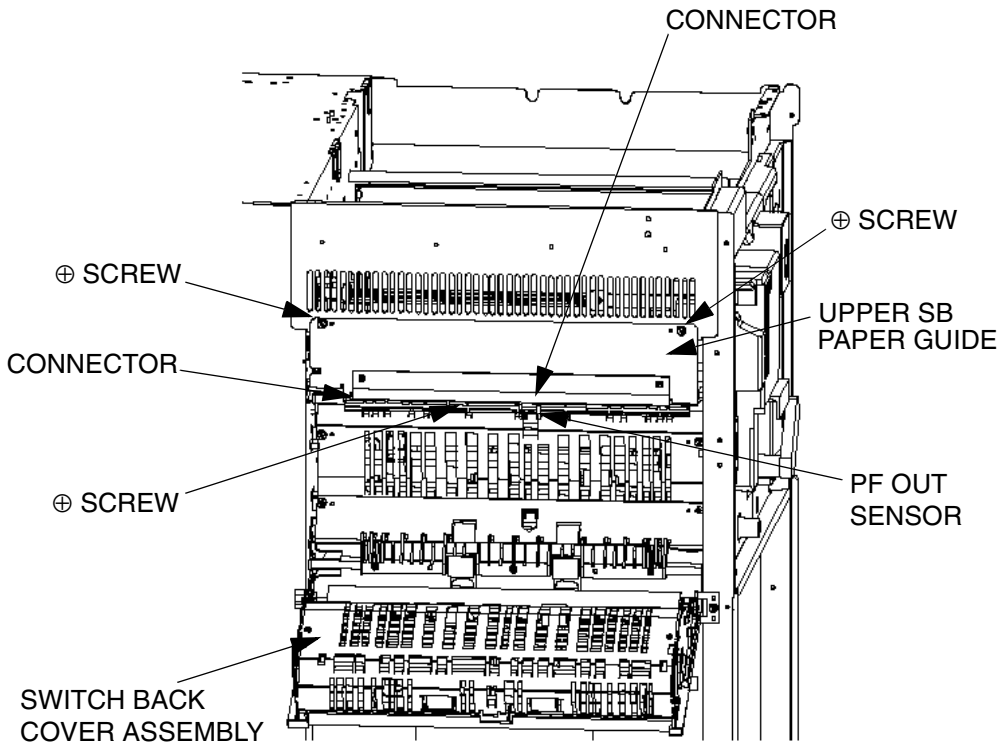


Figure 7-145. Removal of the PF Out Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.5. (8) Removal of the Drive Roller Gear (SB)

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

Applicable jigs and tools: ⊕ Screwdriver, - Screwdriver, Radio Pincers.

[Disassembling Procedures]

1. Remove the Rear Cover Assembly. (Refer to item 3.3.2. (1) on page 3-12)
2. Remove the DC Fan(Fuser). (Refer to item 7.1.5.1. (2) on page 7-203)
3. Remove the CPxxx Assembly. (Refer to item 7.1.5.1. (13) on page 7-214)
4. Unscrew the three ⊕ screws to remove the CP Holder.
5. Remove the two Springs.
6. Remove the Retaining Ring-E to remove the Link A.
7. Remove the Retaining Ring-E to remove the Link B.
8. Unscrew the three ⊕ screws to remove the SB Drive Holder (92).
9. Remove the Retaining Ring-E to remove the Drive Roller Gear (SB).

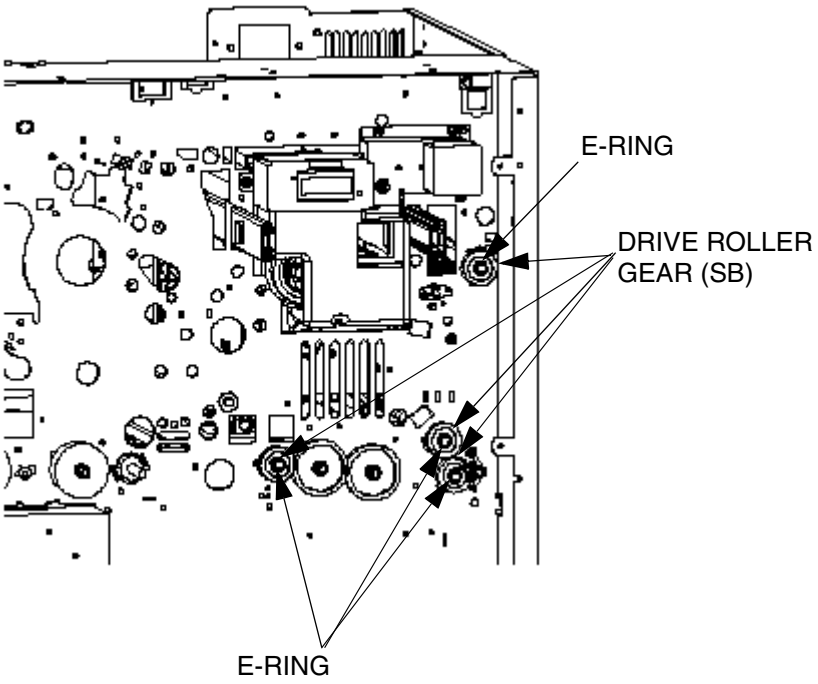


Figure 7-146. Removal of the Drive Roller Gear (SB)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.5. (9) Removal of the SB Cover Sensor

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 Upper SB Paper Guide. (Refer to item 7.1.3.5. (4) on page 7-124) Procedures 1 to 9.
2. Remove the SB Cover Sensor.

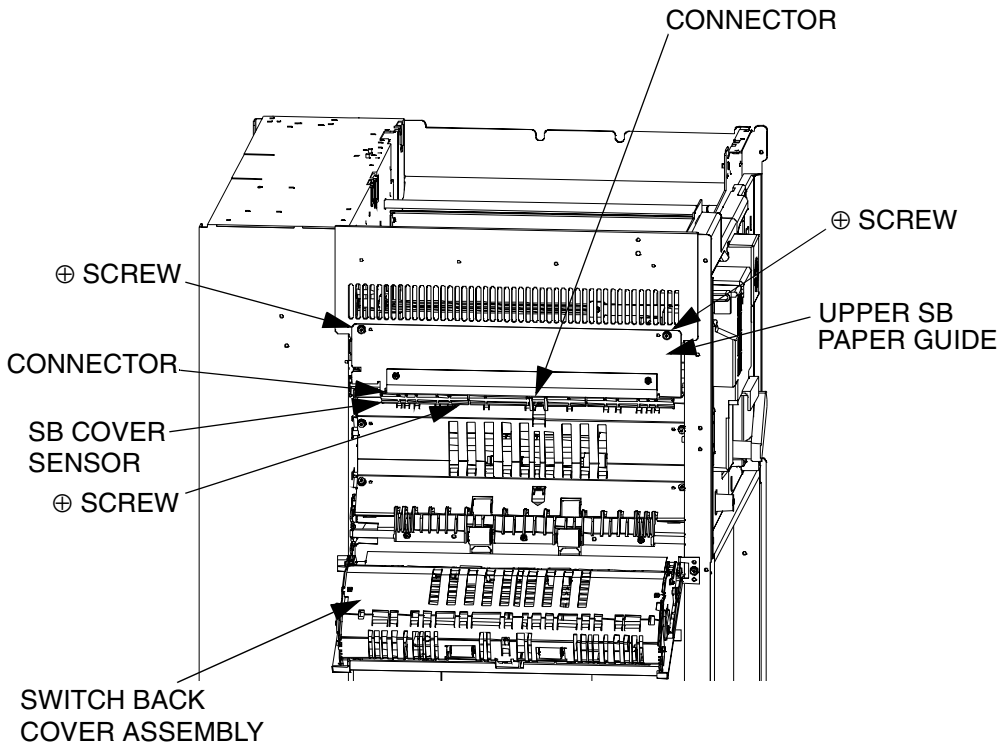


Figure 7-147. Removal of the SB Cover Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.5. (10) Adjustment of the SP Hook

Note:	The SP Hook is adjusted properly at the shipment. Don't touch the SP Hook except for the adjustment. This adjustment is applied only to the following situation.

[Confirmation]

1. Print the cross-pattern of the test print with color DPX mode first.
   Then, refer to the following figure, confirm the inclination (X<Y or X>Y) of the printing on the Dpx side of the paper.
2. Confirm whether the pressure of two pressure rollers of the SB gate is the same as to both.
3. If the pressure of the roller on the front side is low, or inclination is X<Y, perform the following adjustment steps.

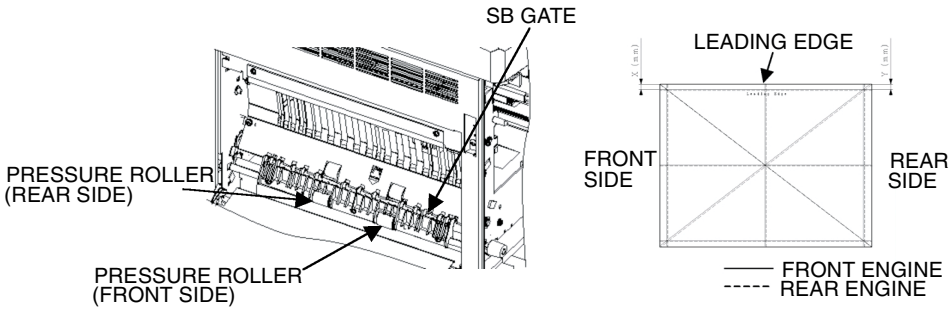


Figure 7-148. Adjustment of the SP Hook

Applicable jigs and tools: ⊕ Screwdriver

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

[Disassembling Procedures]

1. Open the Front Cover.
2. Remove the Inner Cover. (Refer to item 7.1.5.1. (19) on page 7-220)

[Adjustment]

1. Loosen the following two screws, and turn the SP hook in the direction of the arrow fully.
2. Perform the above confirmation steps again, and confirm the inclination is X=Y.
   If the paper skew doesn't improve after the adjustment, return the SP Hook to the initial position.
3. After adjustment is made, fix the two screws.

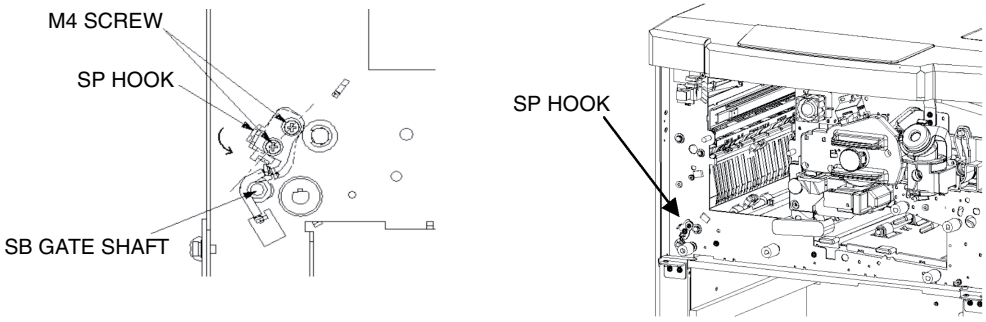


Figure 7-149. Adjustment of the SP Hook

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.6. Removal of the Duplex Path Parts

7.1.3.6. (1) Removal of the U Paper Guide (L) Assembly

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

Applicable jigs and tools: None.

[Disassembling Procedures]

1. Open the Front Cover.
2. Remove the Hook Ring B from the Hinge Shaft (L).
3. Disconnect the connector from the Locking Wire Saddle.
4. Remove the Cable from the frame.
5. Remove the Hinge Shaft (L) from the frame.
6. Remove the U Paper Guide (L) Assembly from the frame.

Note: Be careful not to cut the TH Cable, the TR Cable, the DT Cable and the TR Earth Cable.

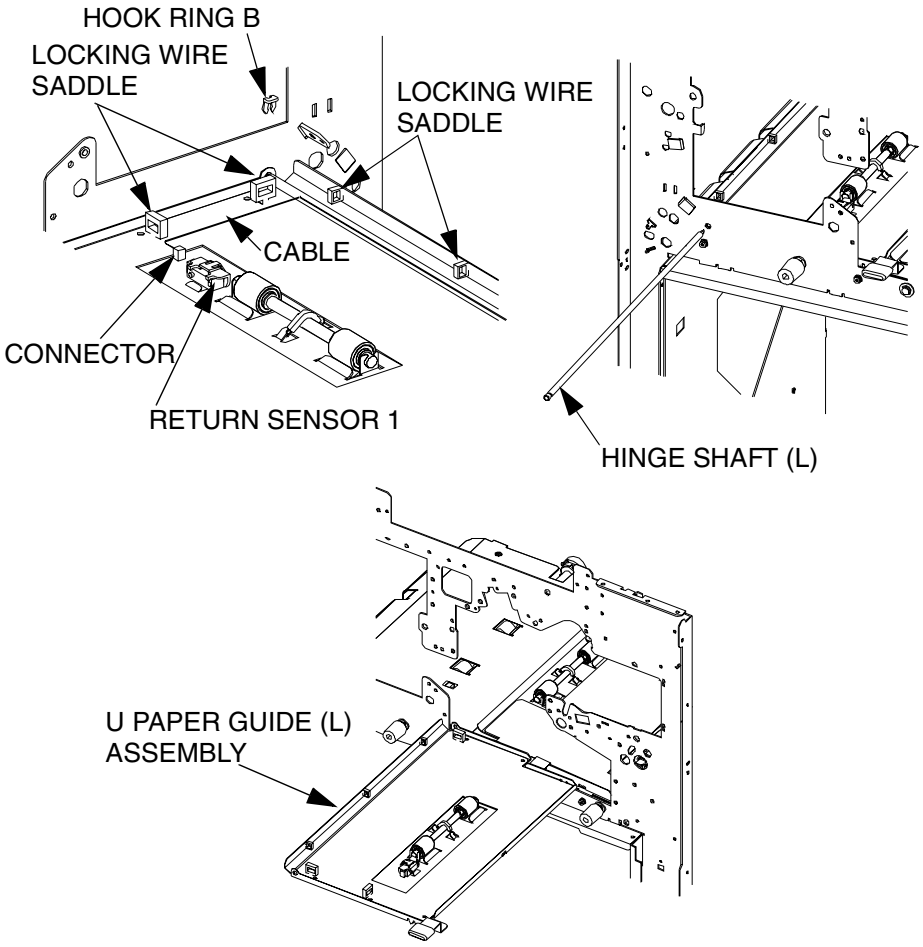


Figure 7-150. Removal of the U Paper Guide (L) Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.6. (2) Removal of the U Paper Guide (R) Assembly

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. Disconnect the Connector from the Printed Wiring Board.
3. Unscrew the two ⊕ screws to remove the U Paper Guide (R) Assembly.
4. Remove the U Paper Guide (R) Assembly from the frame.

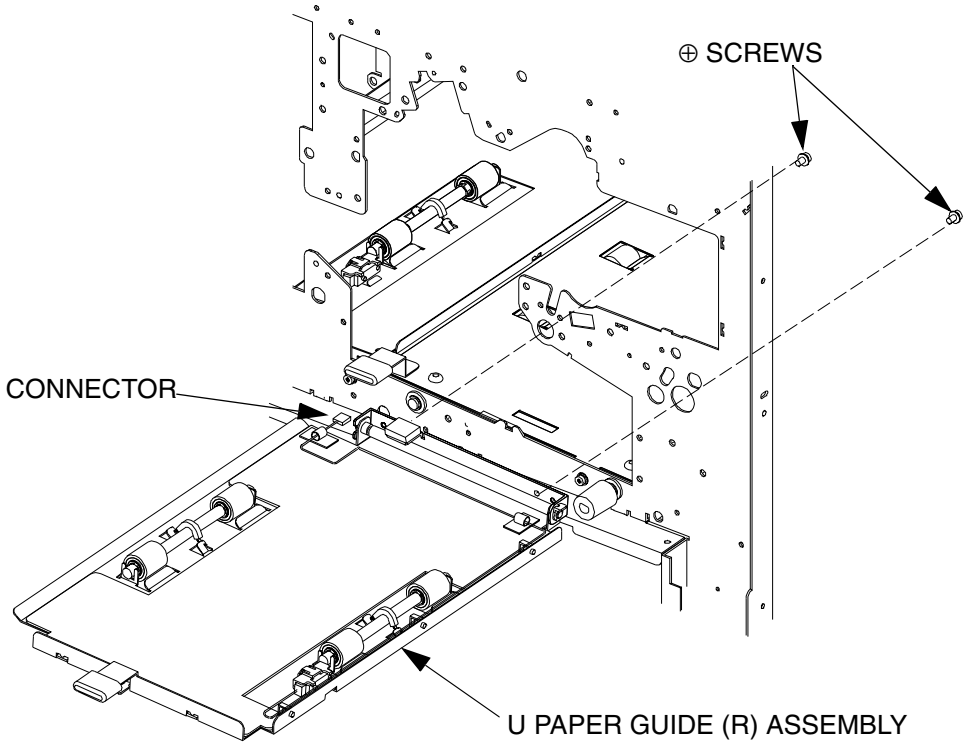


Figure 7-151. Removal of the U Paper Guide (R) Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

[Checks]

Determine location with half blank and make sure that the half blanks of the U Paper Guide (R) Assembly are correctly fastened.

7.1.3.6. (3) Removal of the Return Roller 1 Assembly

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. Remove the Feed Roller Knob, the Snap Ring E and the Sleeve Bearing.
3. Open the Rear Cover.
4. Remove the Snap Ring E to remove the Drive Roller Gear (SB).
5. Remove the B.B Housing by turning it clockwise, then remove the Return Roller 1 Assembly.

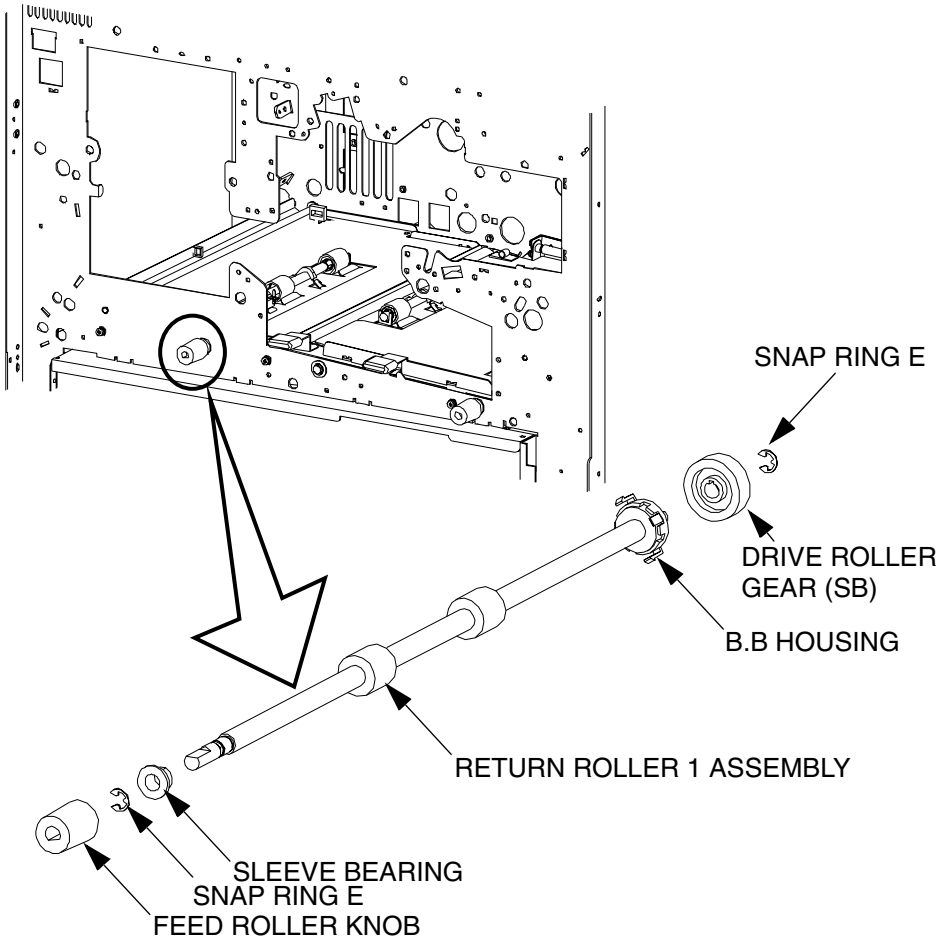


Figure 7-152. Removal of the Return Roller 1 Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.6. (4) Removal of the Return Roller 2 Assembly

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. Remove the Feed Roller Knob, the Snap Ring E and the Sleeve Bearing.
3. Open the Rear Cover.
4. Remove the Snap ring E to remove the Drive Roller Gear (DPX).
5. Remove the B. B Housing by turning it clockwise, then remove the Return Roller 2 Assembly.

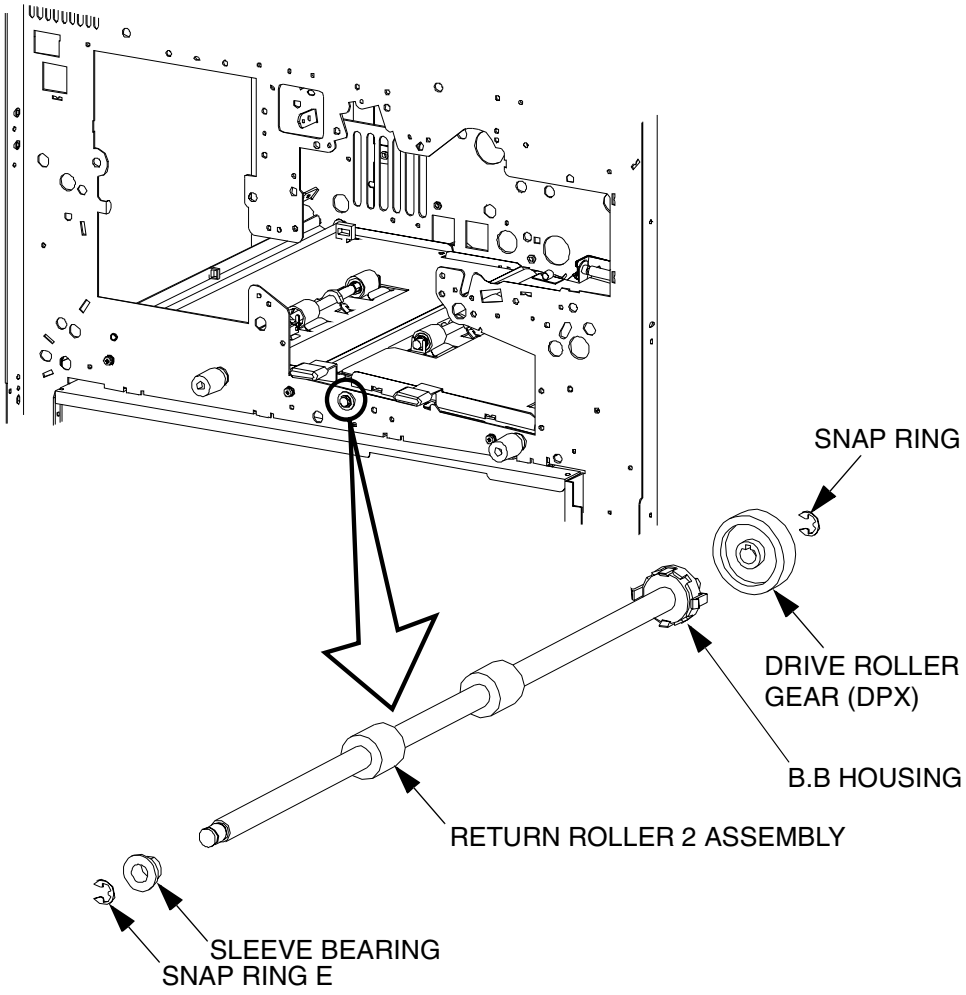


Figure 7-153. Removal of the Return Roller 2 Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.6. (5) Removal of the Return Roller 3 Assembly.

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. Remove the Feed Roller Knob, the Snap Ring E and the Sleeve Bearing.
3. Open the Rear Cover.
4. Remove the Snap ring E to remove the Drive Roller Gear (DPX).
5. Remove the B. B Housing by turning it clockwise, then remove the Return Roller 3 Assembly.

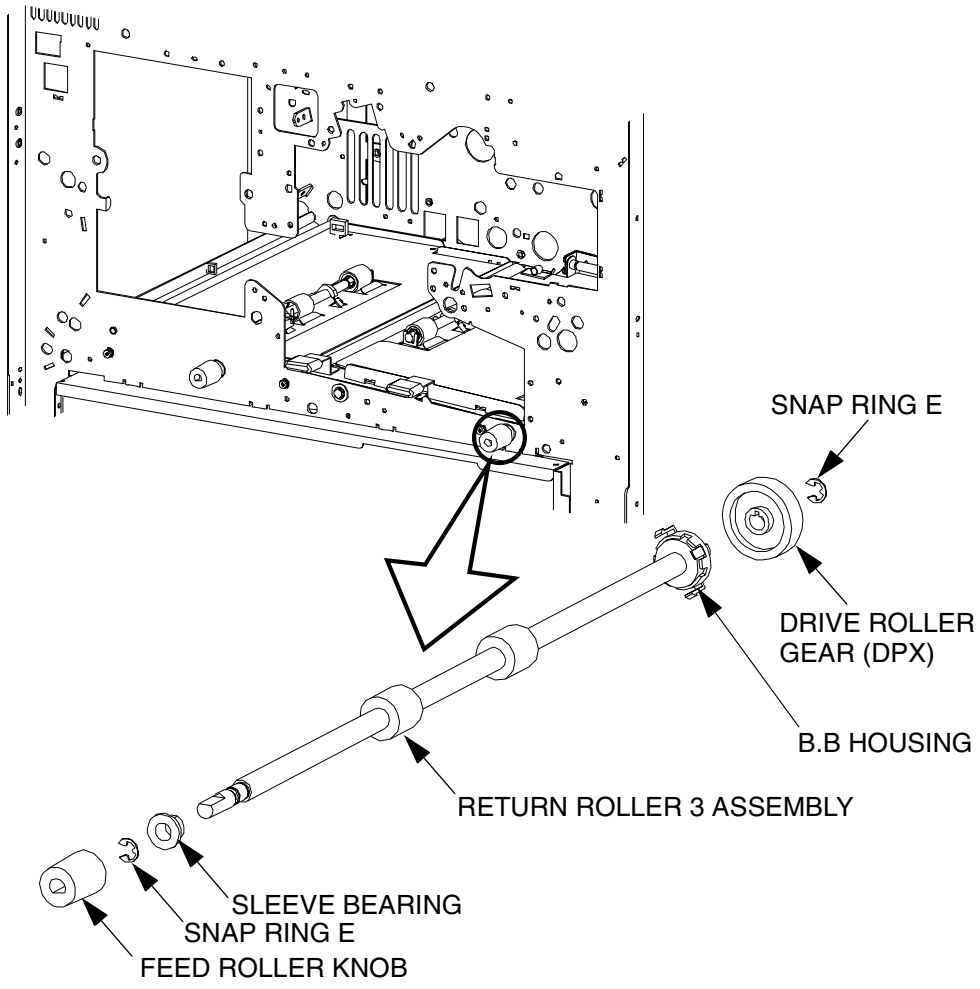


Figure 7-154. Removal of the Return Roller 3 Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.6. (6) Removal of the Return Sensor 1

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. Remove the Sensor Holder.
3. Disconnect the connector from the Return Sensor 1.
4. Remove the Return Sensor 1 from the Sensor Holder.

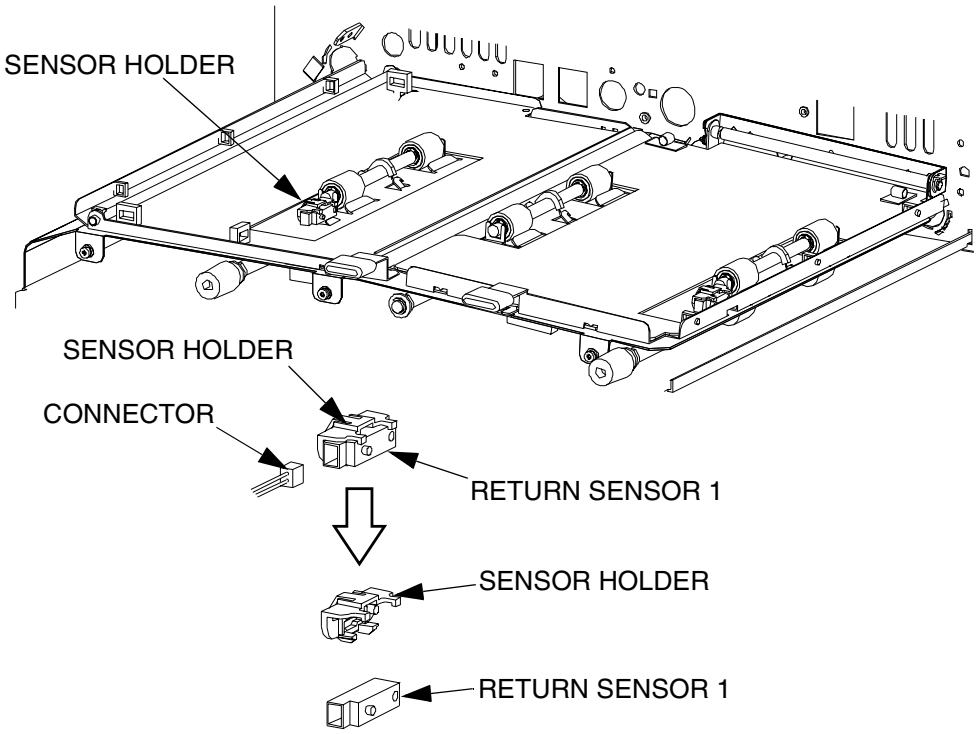


Figure 7-155. Removal of the Return Sensor 1

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

[Checks]

Make sure that the snap-fit parts of the Sensor Holder are correctly fastened.

7.1.3.6. (7) Removal of the Return Sensor 2

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. Remove the Sensor Holder.
3. Disconnect the connector from the Return Sensor 2.
4. Remove the Return Sensor 2 from the Sensor holder.

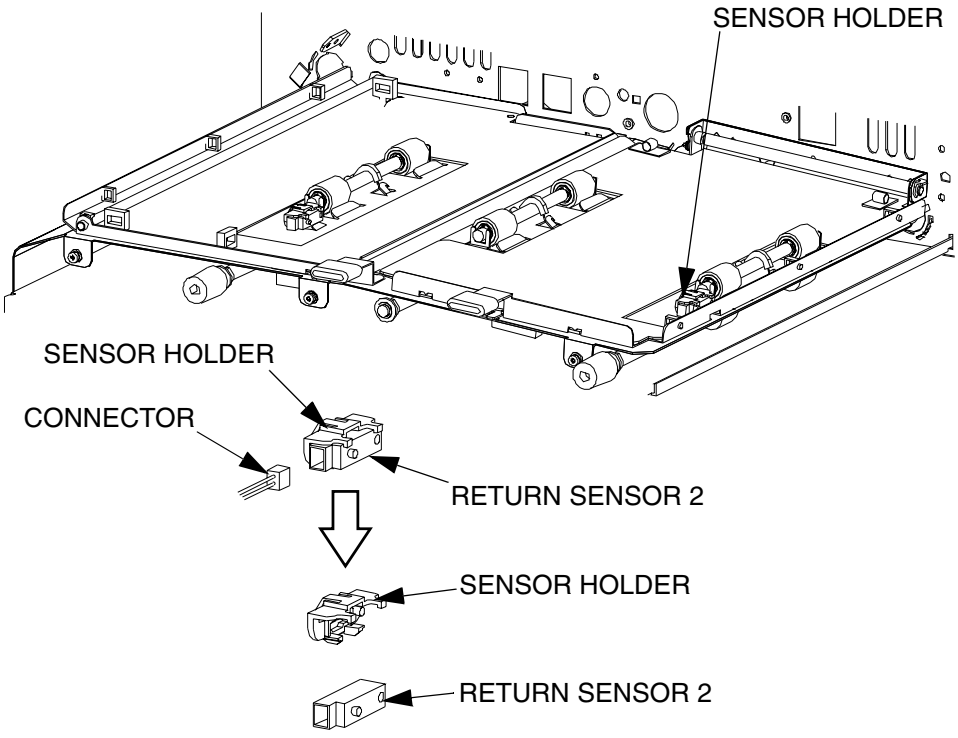


Figure 7-156. Removal of the Return Sensor 2

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

[Checks]

Make sure that the snap-fit parts of the Sensor Holder are correctly fastened.

7.1.3.6. (8) Removal of the Pressure Roller Assembly

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. Release the extension Spring to remove the Pressure Roller Assembly.

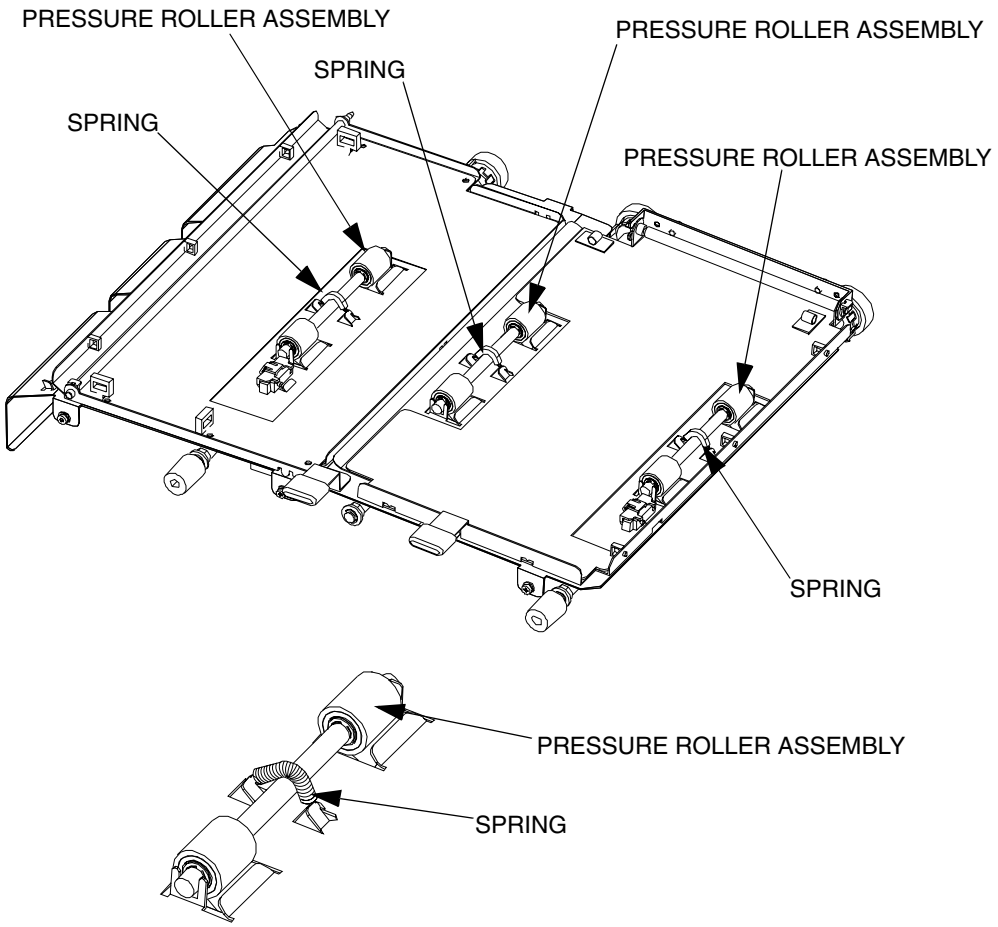


Figure 7-157. Removal of the Pressure Roller Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.6. (9) Removal of the Sleeve Bearing

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. Remove the Feed Roller Knob and the Snap Ring E.
3. Remove the Sleeve Bearing.

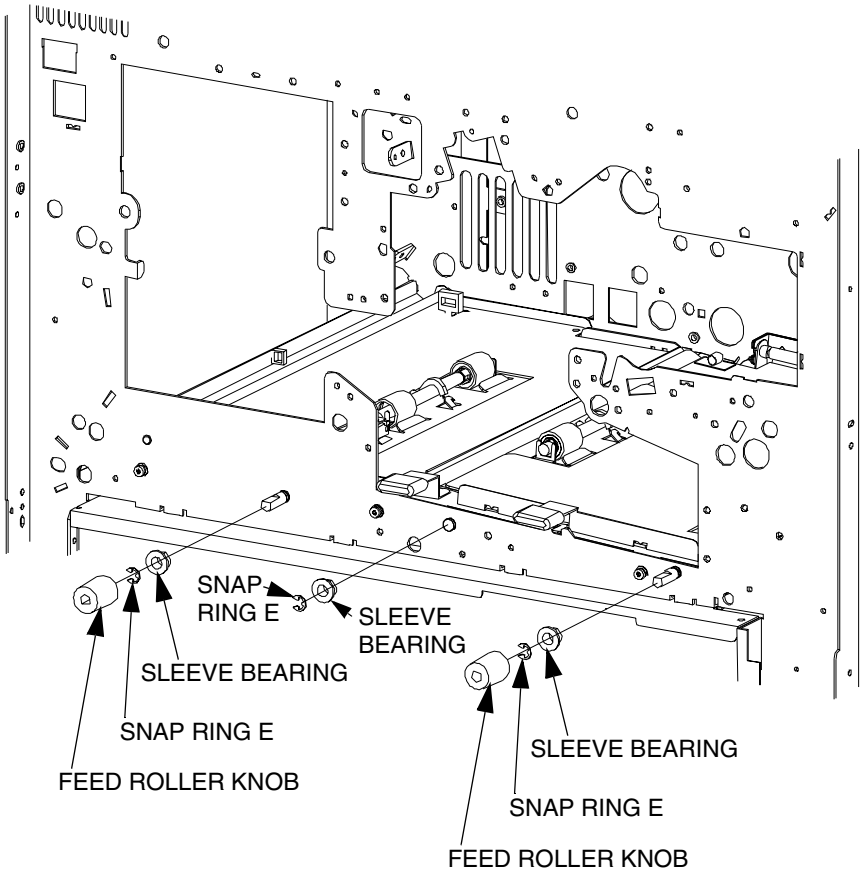


Figure 7-158. Removal of the Sleeve Bearing

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.6. (10) Removal of the Drive Roller Gear (DPX)

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

Applicable jigs and tools: ⊕ Screwdriver, - Screwdriver, Radio Pincers.

[Disassembling Procedures]

1. Remove the OCxxx Assembly. (Refer to item 7.1.5.1. (17) on page 7-218)
2. Remove the PF Motor Assembly. (Refer to item 7.1.3.12 on page 7-153)
3. Remove the CP PK Assembly. (Refer to item 7.1.3.6. (11) on page 7-142)
4. Remove the Retaining Ring-E to remove the Drive Roller Gear (DPX).

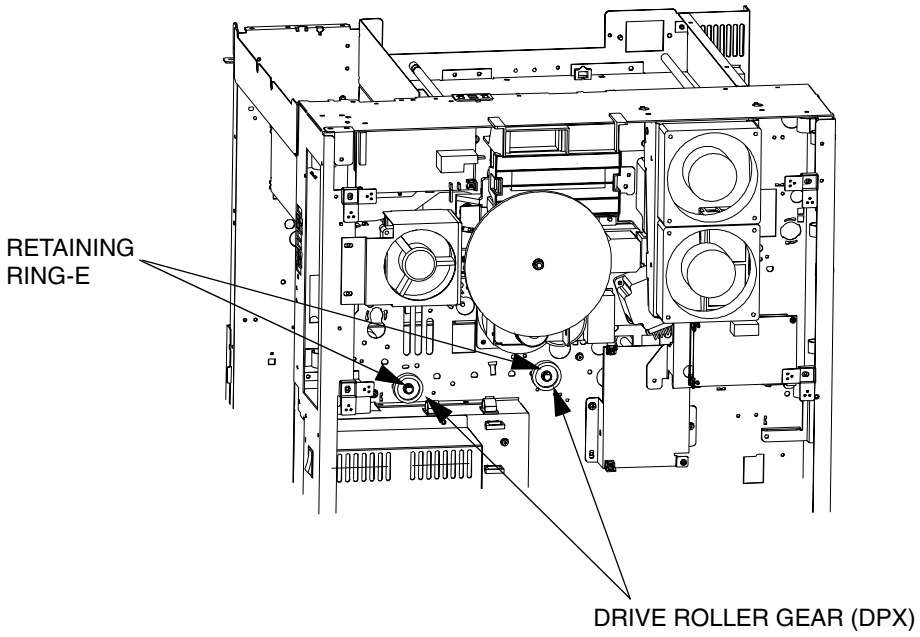


Figure 7-159. Removal of the Drive Roller Gear (DPX)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.6. (11) Removal of the Drive Roller Gear.

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

Applicable jigs and tools: ⊕ Screwdriver, - Screwdriver.

[Disassembling Procedures]

1. Remove the OCxxx Assembly. (Refer to item 7.1.5.1. (17) on page 7-218)
2. Remove the CP PK Assembly.
3. Pull off the Retaining Ring with the - Screwdriver and pull off the Driver Roller Gear.

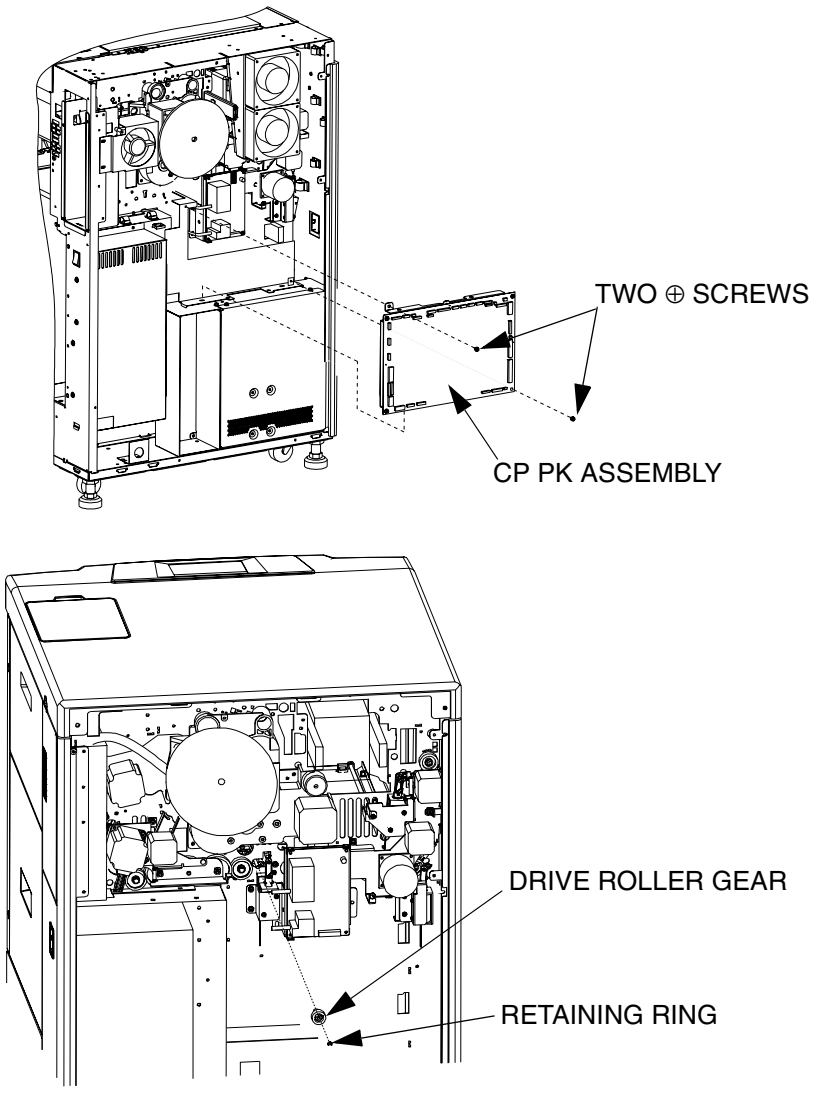


Figure 7-160. Removal of the Drive Roller Gear

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.6. (12) Removal of the Sleeve Bearing

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

Applicable jigs and tools: ⊕ Screwdriver, - Screwdriver.

[Disassembling Procedures]

1. Remove the Drive Roller Gear. (Refer to item 7.1.3.6. (11) on page 7-142)
2. Remove the Sleeve Bearing on the **Rear** side.
3. Open the Front Cover.
4. Remove the Inner Cover. (Refer to item 7.1.5.1. (19) on page 7-220)
5. Pull off the Retaining Ring and remove the Sleeve Bearing on the **Front** side.

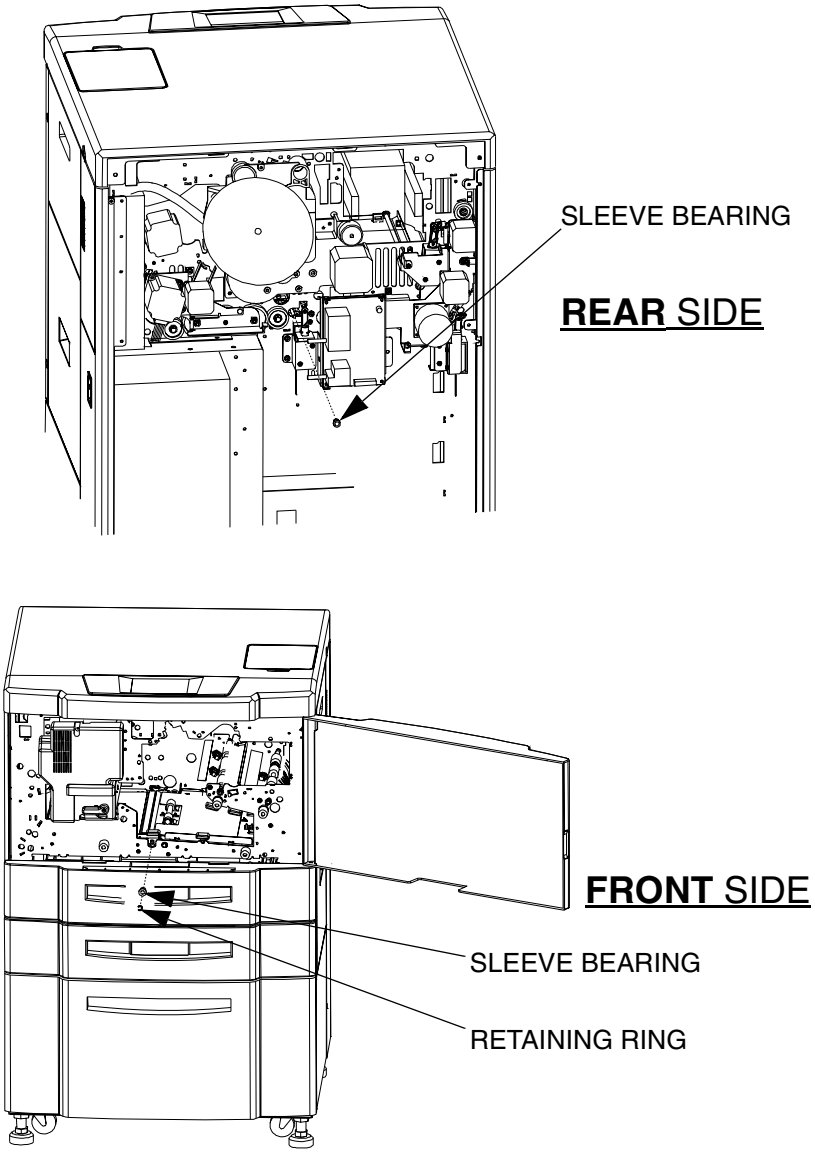


Figure 7-161. Removal of the Sleeve Bearing

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.6. (13) Removal of the Drive Roller Shaft

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

Applicable jigs and tools: ⊕ Screwdriver, - Screwdriver.

[Disassembling Procedures]

1. Remove the two Sleeve Bearings. (Refer to item 7.1.3.6. (12) on page 7-143)
2. Lift the Upper Paper Guide L and the Upper Paper Guide R in the direction of the arrow **A**.
3. Pull the Drive Roller Shaft in the direction of the arrow **B** at first and pull off in the direction of the arrow **C**.

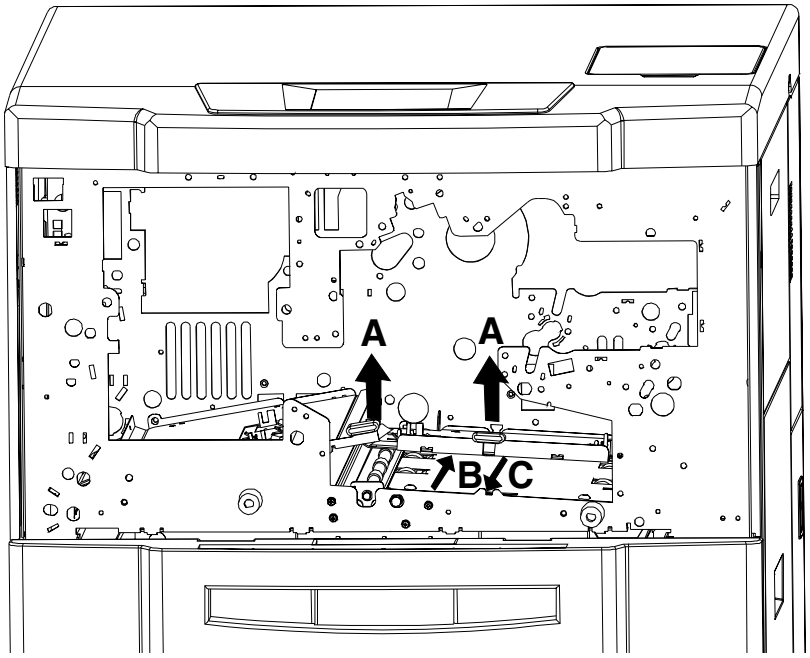


Figure 7-162. Removal of the Drive Roller Shaft

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.6. (14) Removal of the 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 OCxxx Assembly. (Refer to item 7.1.5.1. (17) on page 7-218)
2. Remove the CP PK Assembly. (Refer to item 7.1.3.6. (11) on page 7-142)
3. Unscrew the two ⊕ screws and remove the Solenoid Frame.
4. Pull the Gate Link in the direction of the arrow **A** and pull off the Solenoid Plunger in the direction of the arrow **B**.

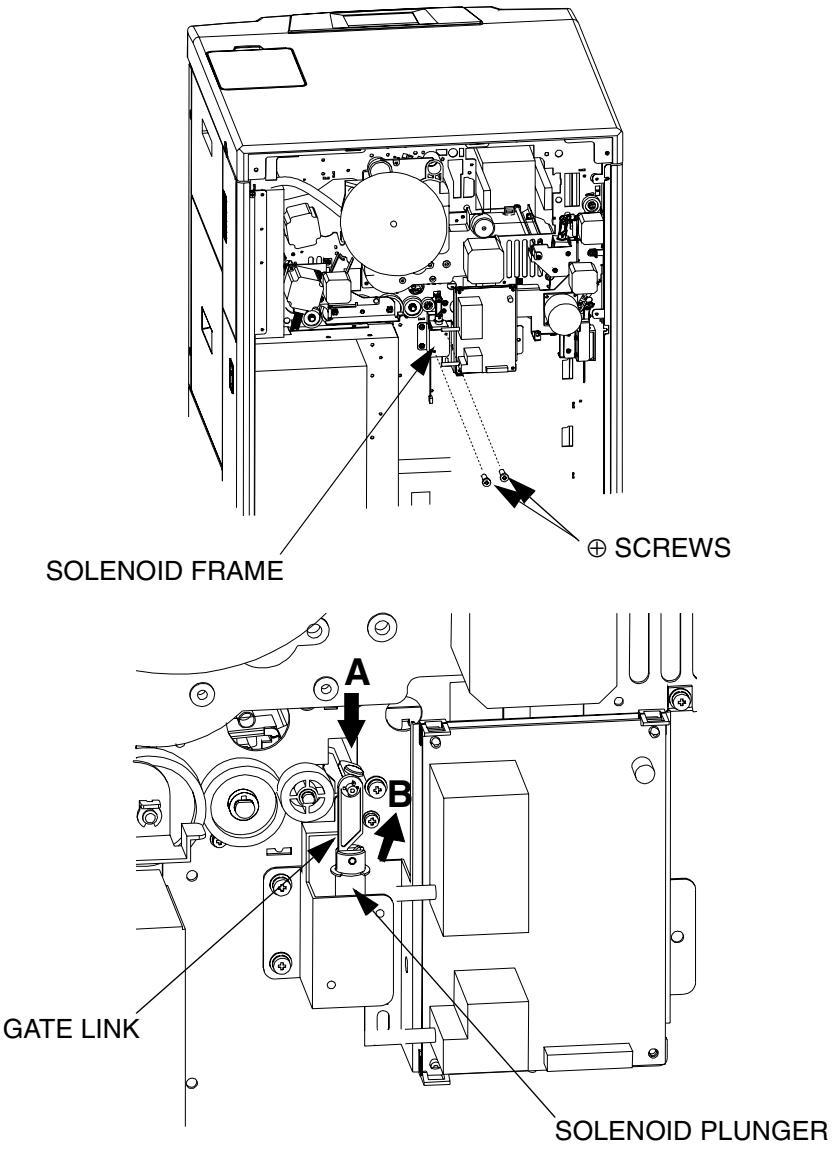


Figure 7-163. Removal of the Solenoid

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.6. (15) Removal of the Gate Link

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 Solenoid. (Refer to item 7.1.3.6. (14) on page 7-145)
2. Turn the Gate Link in the direction of the arrow **A** and pull off in the direction of the arrow **B**.

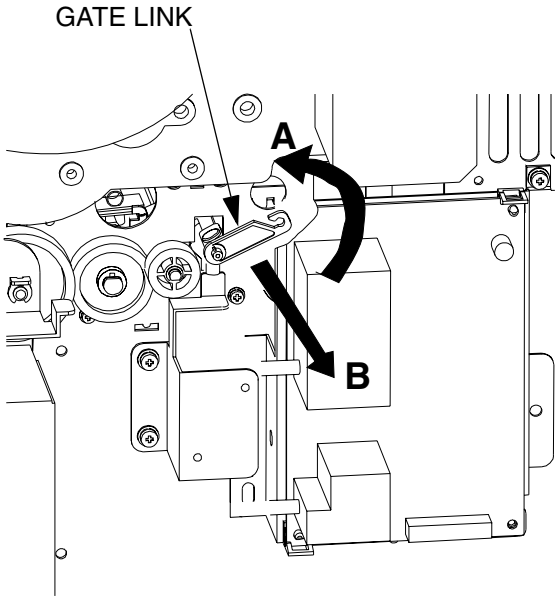


Figure 7-164. Removal of the Gate Link

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.6. (16) Removal of the Gate Actuator

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 Gate Link. (Refer to item 7.1.3.6. (15) on page 7-146)
2. Remove the Compression Spring and the Rivet.
3. Remove the Gate Actuator.

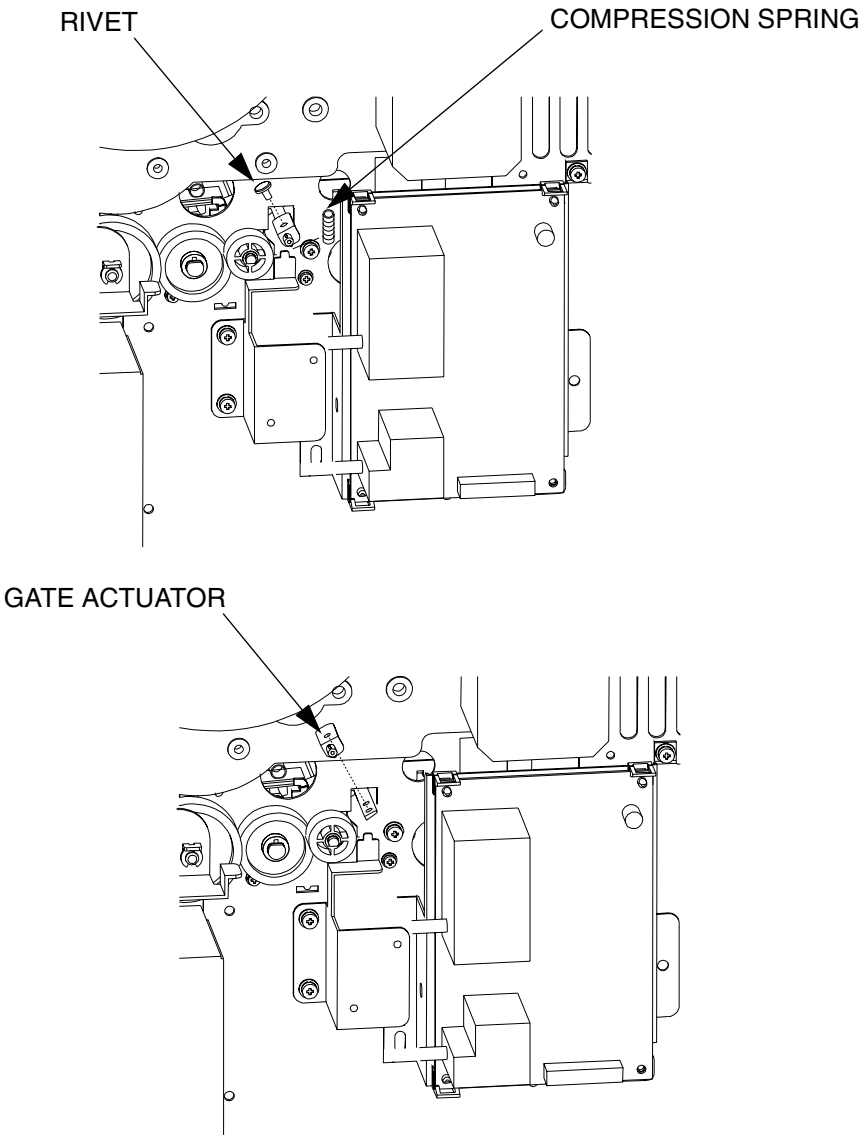


Figure 7-165. Removal of the Gate Actuator

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.7. Removal of the Flip Motor

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

Applicable jigs and tools: ⊕ Screwdriver, - Screwdriver, Radio Pincers.

[Disassembling Procedures]

1. Remove the SB Drive Holder (92) (Procedures 1 to 8). (Refer to item 7.1.3.5. (8) on page 7-129)
2. Remove the Motor Gear (SB).
3. Unscrew the two ⊕ screws to remove the Flip Motor.

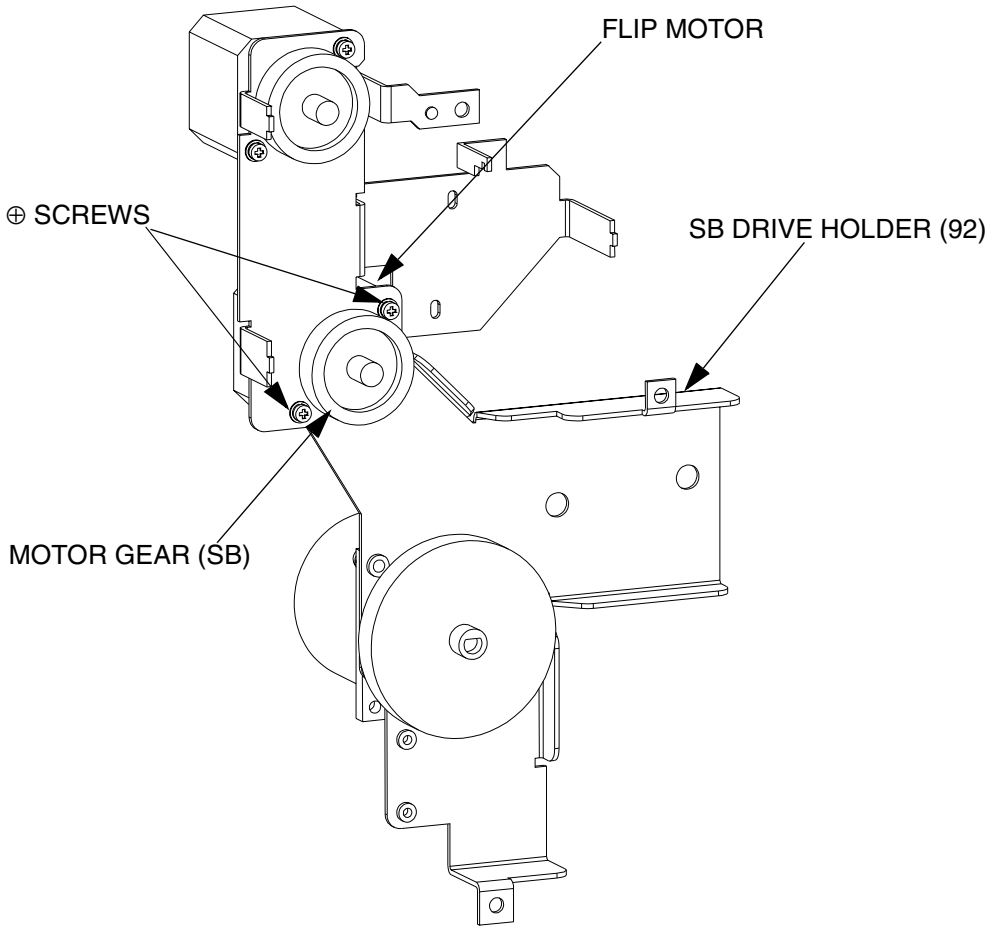


Figure 7-166. Removal of the Flip Motor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.8. Removal of the SB Motor

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

Applicable jigs and tools: ⊕ Screwdriver, - Screwdriver, Radio Pincers.

[Disassembling Procedures]

1. Remove the SB Drive Holder (92) (Procedures 1 to 8). (Refer to item 7.1.3.5. (8) on page 7-129)
2. Remove the Motor Gear (SB).
3. Unscrew the two ⊕ screws to remove the SB Motor.

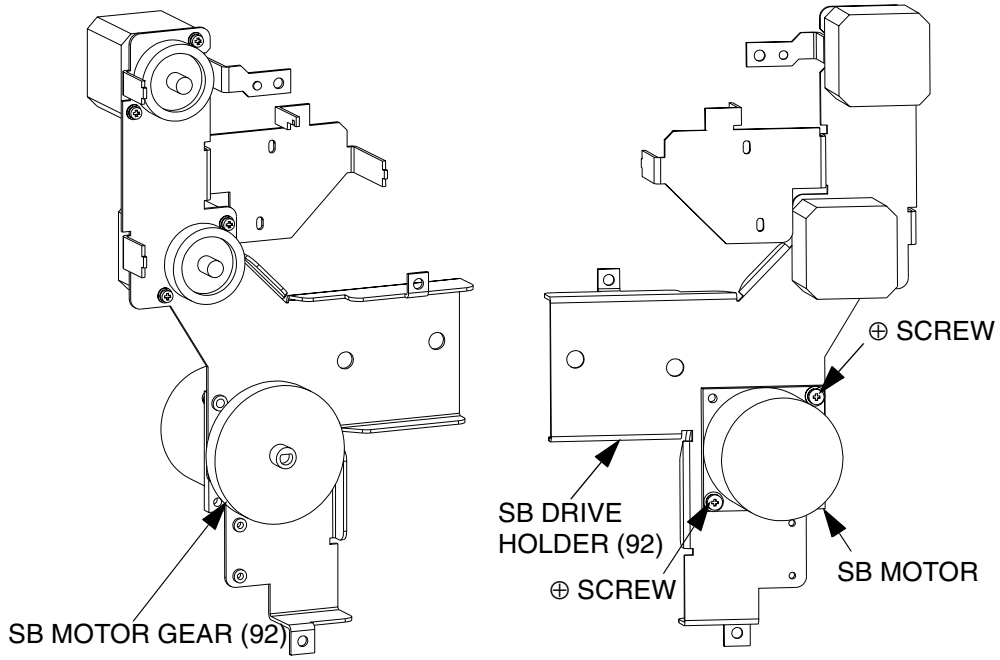


Figure 7-167. Removal of the SB Motor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.9. Removal of the PF Out Motor

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

Applicable jigs and tools: ⊕ Screwdriver, - Screwdriver, Radio Pincers.

[Disassembling Procedures]

1. Remove the SB Drive Holder (92) (Procedures 1 to 8). (Refer to item 7.1.3.5. (8) on page 7-129)
2. Remove the Motor Gear (SB).
3. Unscrew the two ⊕ screws to remove the PF Out Motor.

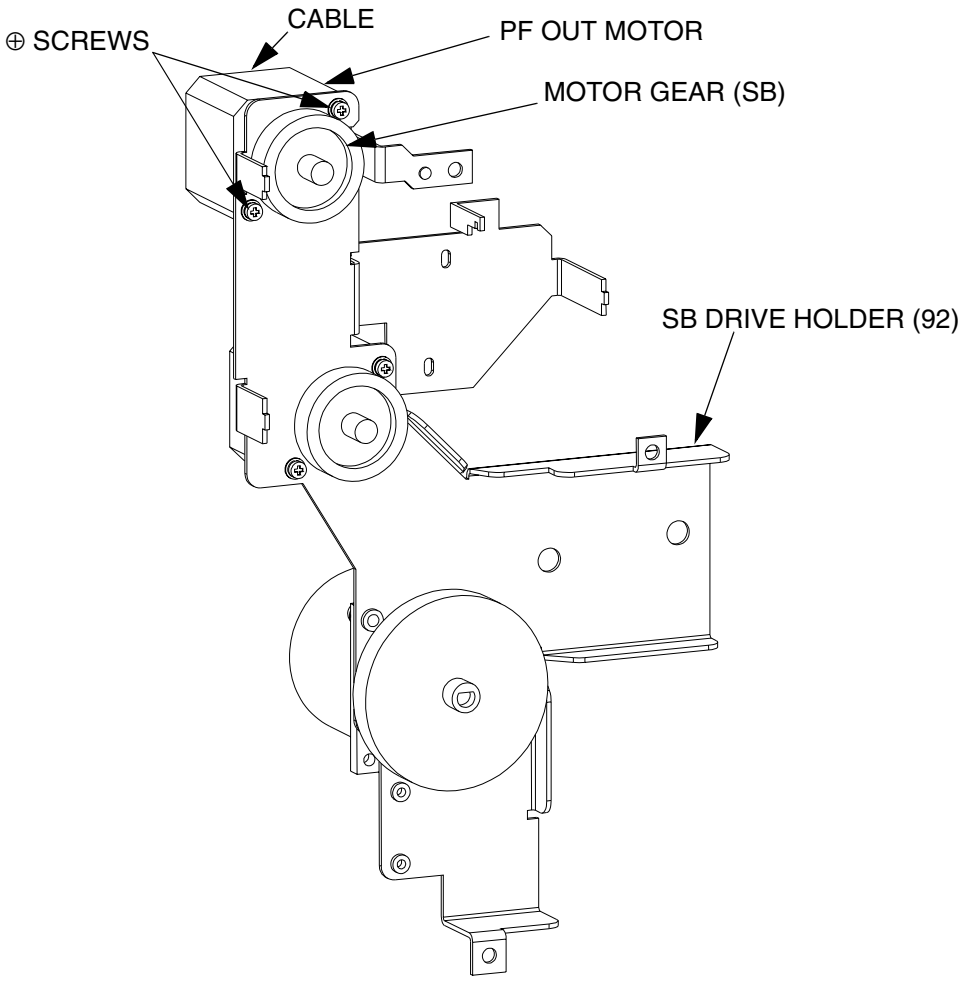


Figure 7-168. Removal of the PF Out Motor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Install the cable to turn up like the figure above in motor installation.

7.1.3.10. Removal of the Registration 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 3.3.2. (1) on page 3-12)
2. Loosen the ⊕ **screws** to loosen the Timing Belt.
3. Binding the Registration Motor by lifting upward.
4. Unscrew the two motor ⊕ screws to remove the Registration Motor.
5. Remove the Drive Pulley.

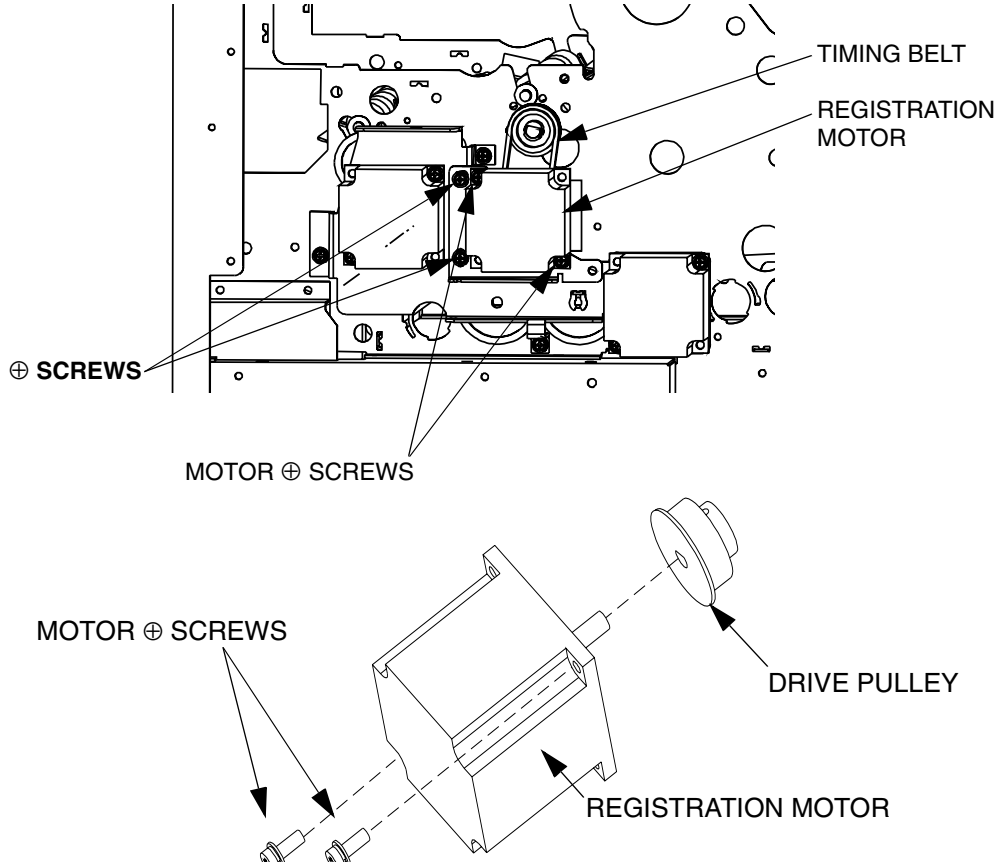


Figure 7-169. Removal of the Registration Motor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: On setting the Timing Belt, screw the ⊕ **screws** when the Timing Belt has a proper tension by the weight of the Registration Motor.

7.1.3.11. Removal of the Timing 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 3.3.2. (1) on page 3-12)
2. Unscrew the two motor ⊕ screws to remove the Timing Motor.
3. Remove the Drive Gear (92).

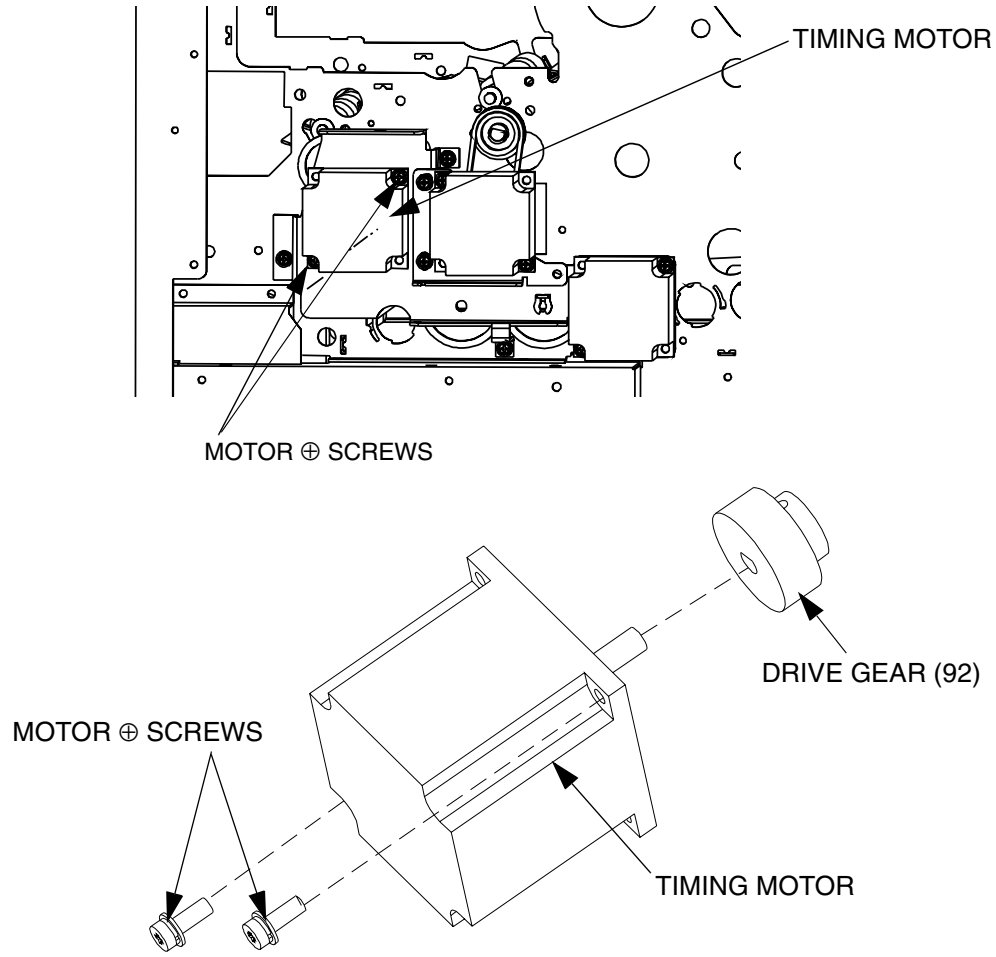


Figure 7-170. Removal of the Timing Motor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.12. Removal of the Return 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 Bottle Box Assembly. (Refer to item 7.1.2.6. (3) on page 7-64)
2. Remove the Hook Rings B and loosen the ⊕ screws.
3. Unscrew the two ⊕ screws to remove the PF Motor Assembly.
4. Remove the RTN Motor Gear.
5. Unscrew the two ⊕ screws to remove the Return Motor.

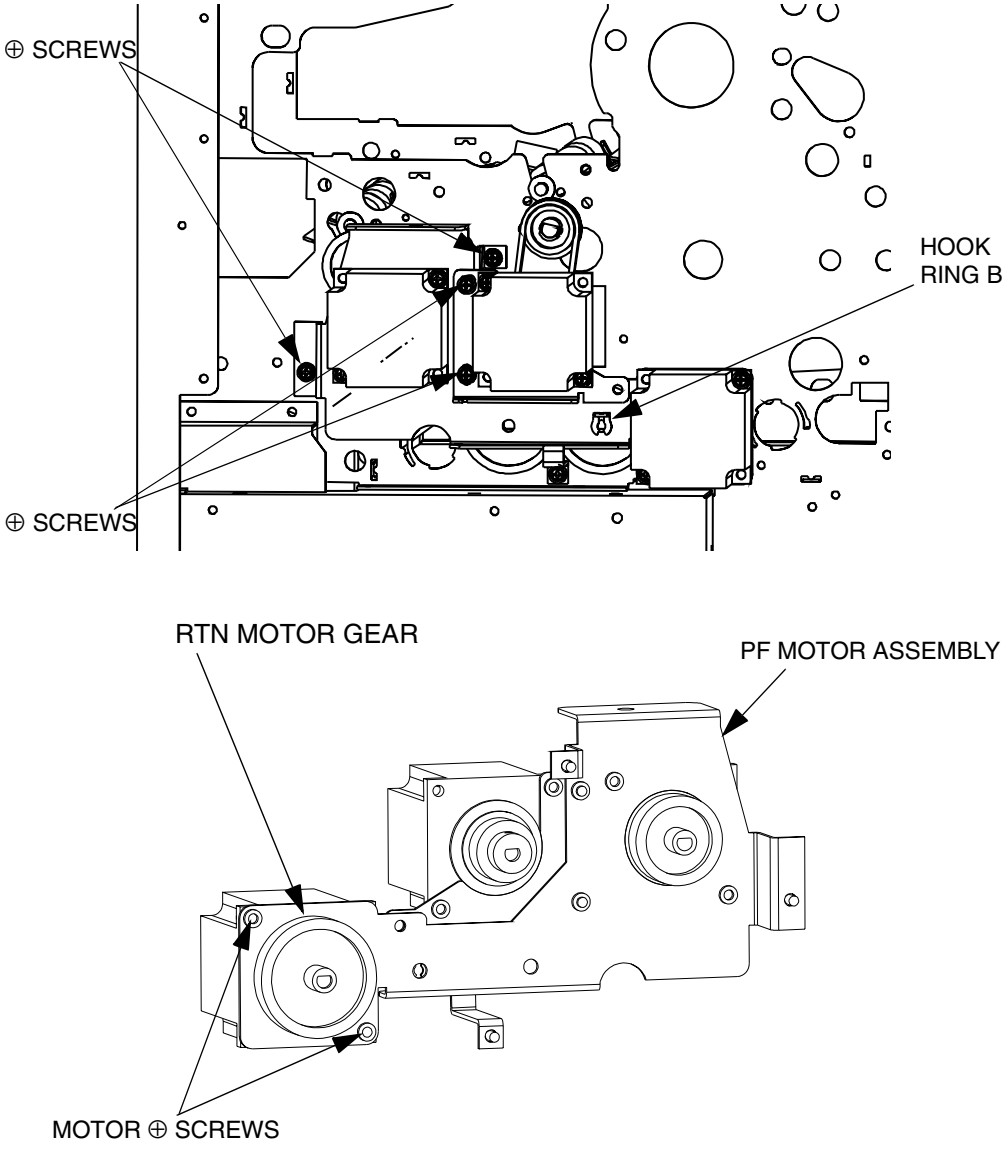


Figure 7-171. Removal of the Return Motor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.13. Removal of the CW Drive Unit Assembly

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 Cooling Assembly (1). (Refer to item 7.1.5.1. (2) on page 7-203)
2. Disconnect the Connector.
3. Unscrew the two ⊕ screws to remove the CW Drive Unit.
4. Unscrew the two ⊕ screws to remove the AC Cable Assembly.

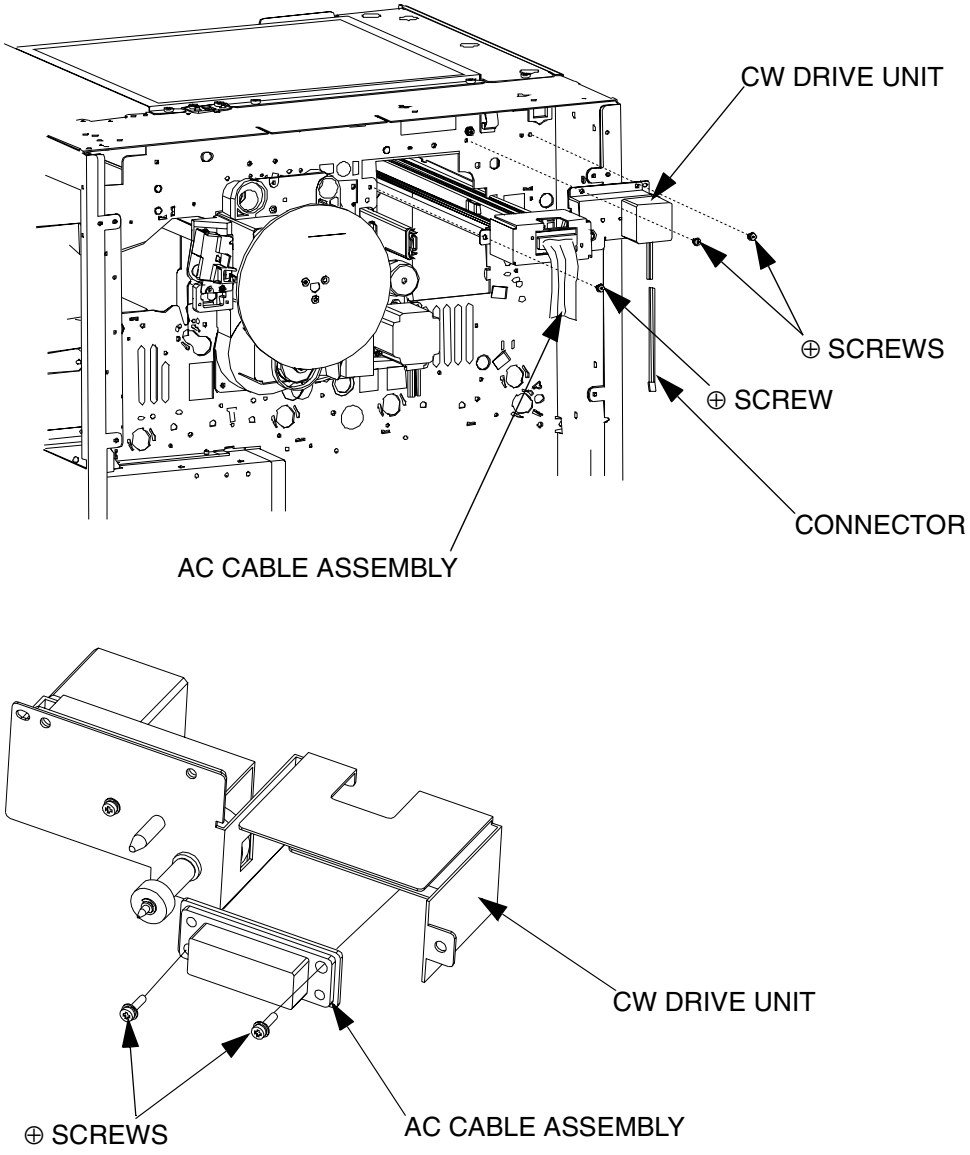


Figure 7-172. Removal of the CW Drive Unit Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.14. Removal of the CW Motor

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

Applicable jigs and tools: ⊕ Screwdriver, - Screwdriver.

[Disassembling Procedures]

1. Remove the CW Drive Unit Assembly. (Refer to item 7.1.3.13 on page 7-154)
2. Remove the two Retaining Ring to remove the CW Drive Gear 6, the Spring and the Sleeve Bearing.
3. Unscrew the screw to remove the CW Holder and the CW Drive Gear 1.
4. Unscrew the two ⊕ screws to remove the CW Motor.

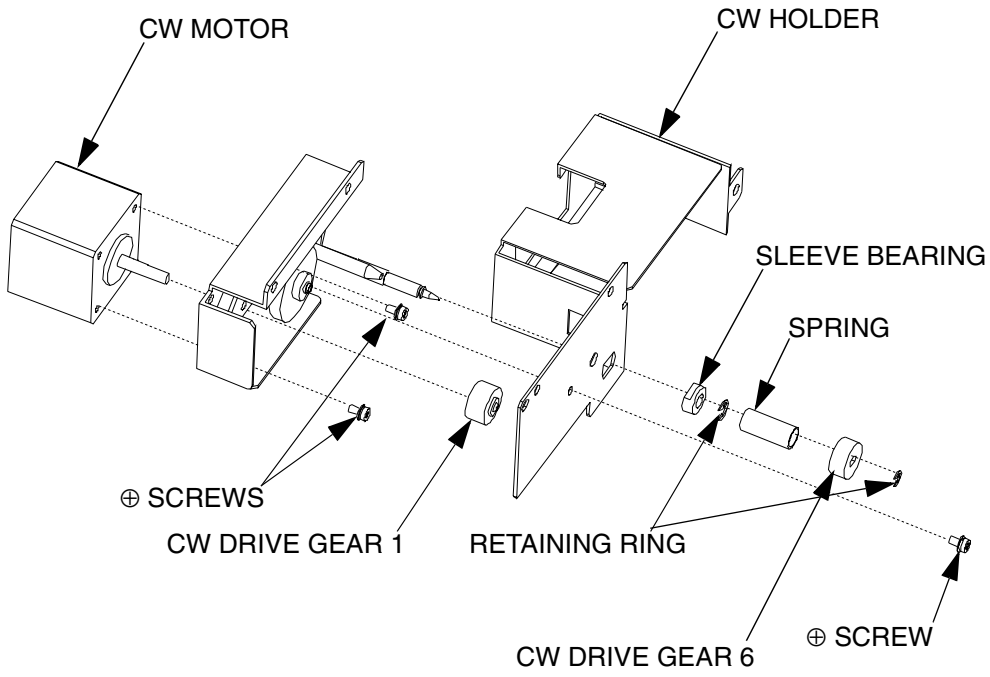


Figure 7-173. Removal of the CW Motor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.15. Removal of the Flip Solenoid Assembly

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

Applicable jigs and tools: ⊕ Screwdriver, - Screwdriver, Radio Pincers.

[Disassembling Procedures]

1. Remove the Rear Cover Assembly. (Refer to item 3.3.2. (1) on page 3-12)
2. Remove the DC Fan(Fuser). (Refer to item 7.1.5.1. (2) on page 7-203)
3. Remove the CPxxx Assembly. (Refer to item 7.1.5.1. (13) on page 7-214)
4. Unscrew the three ⊕ screws to remove the CP Holder.
5. Remove the Spring.
6. Remove the Retaining Ring-E to remove the Gate Link (FL).
7. Unscrew the two ⊕ screws to remove the Flip Solenoid Assembly.
8. Remove the Link B (FL).

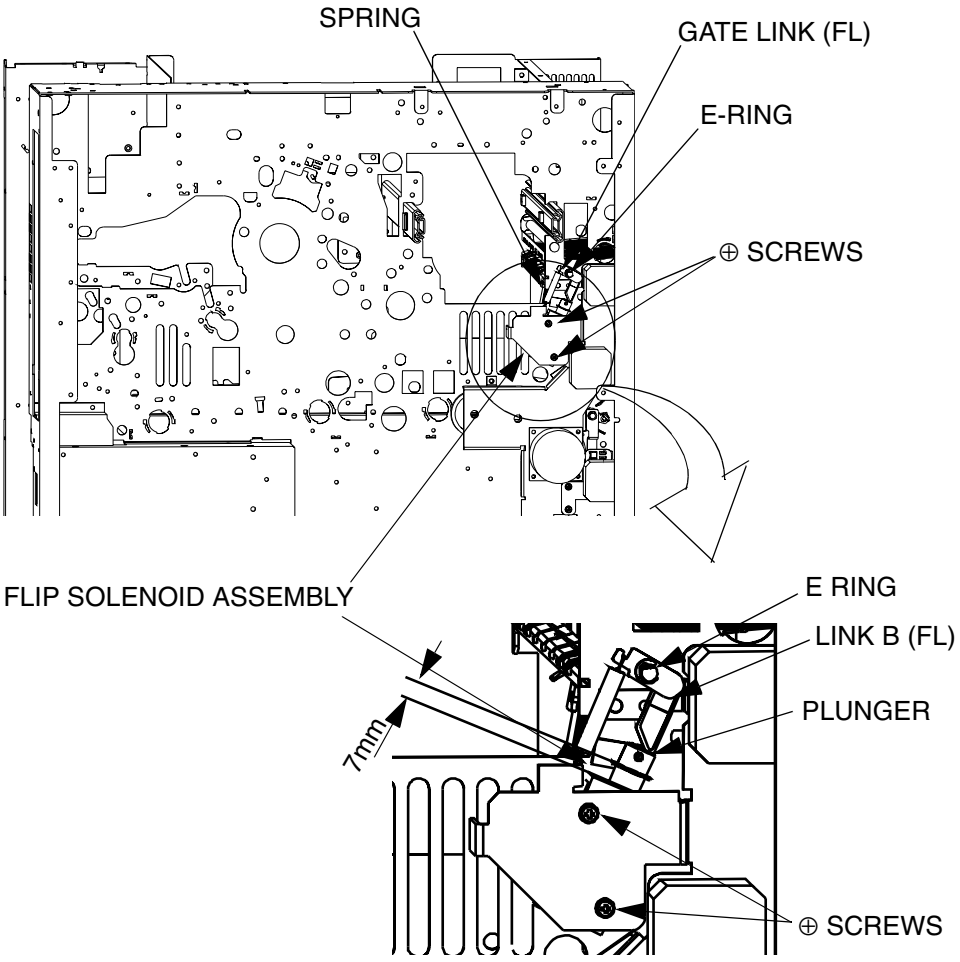


Figure 7-174. Removal of the Flip Solenoid Assembly

[Assembling Procedures]

1. Perform the disassembling procedures in the reverse order.
2. Loosen the two ⊕ screws and move the Flip Solenoid Assembly and adjust it to 7mm movement volume of the Plunger.

7.1.3.16. Removal of the SB Gate Motor

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

Applicable jigs and tools: ⊕ Screwdriver, - Screwdriver, Radio Pincers, Thickness Gauge.

[Disassembling Procedures]

1. Remove the Rear Cover Assembly. (Refer to item 3.3.2. (1) on page 3-12)
2. Remove the DC Fan(Fuser). (Refer to item 7.1.5.1. (2) on page 7-203)
3. Remove the CPxxx Assembly. (Refer to item 7.1.5.1. (13) on page 7-214)
4. Unscrew the three ⊕ screws to remove the CP Holder.
5. Remove the Retaining Ring-E and unscrew the two ⊕ screws to remove the SB Gate Motor Assembly.
6. Unscrew the M3 Hex. Socket Screw to remove the SB Gate Link(M) Ass'y with the SB Gate Link(M)B Assembly.
7. Unscrew the two ⊕ screws to remove the SB Gate Motor.

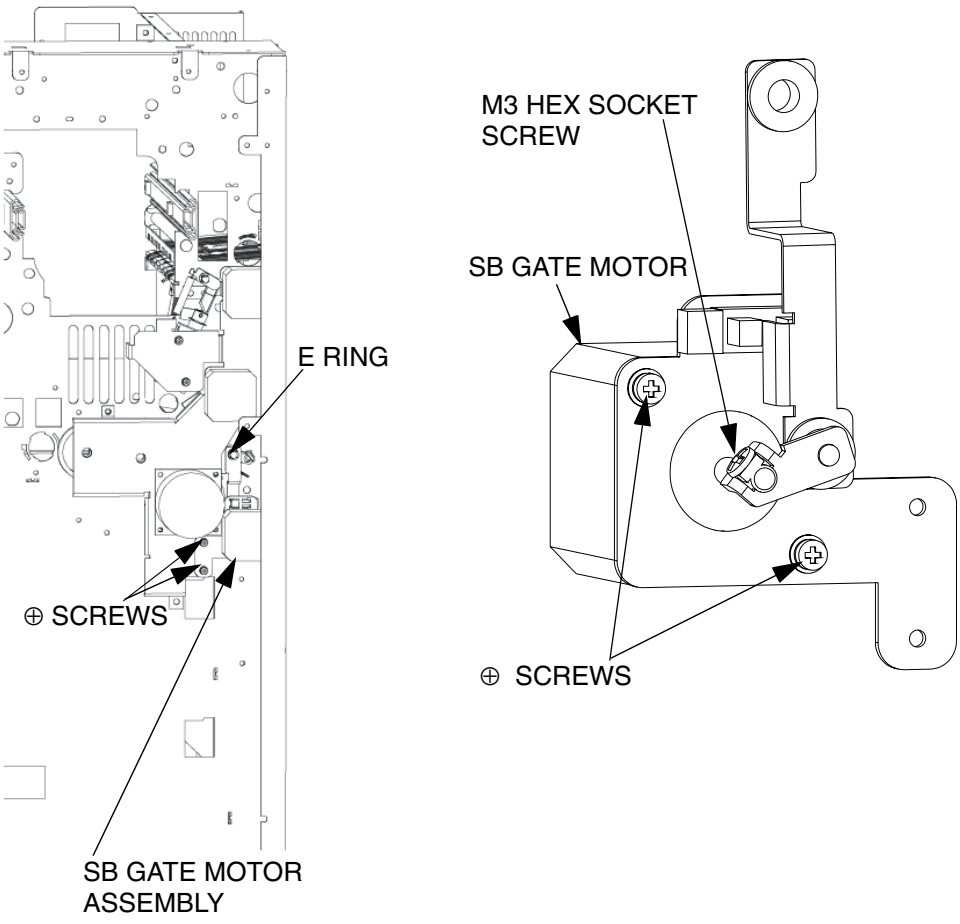


Figure 7-175. Removal of the SB Gate Motor

[Assembling Procedures]

1. Perform the disassembling procedures in the reverse order.

7.1.3.17. Removal of the SB Gate Sensor

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

Applicable jigs and tools: ⊕ Screwdriver, - Screwdriver, Radio Pincers, Thickness Gauge.

[Disassembling Procedures]

1. Remove the Rear Cover Assembly. (Refer to item 3.3.2. (1) on page 3-12)
2. Remove the DC Fan(Fuser). (Refer to item 7.1.5.1. (2) on page 7-203)
3. Remove the CPxxx Assembly. (Refer to item 7.1.5.1. (13) on page 7-214)
4. Unscrew the three ⊕ screws to remove the CP Holder.
5. Remove the Retaining Ring-E and unscrew the two ⊕ screws to remove the SB Gate Motor Assembly.
6. Remove the SB Gate Sensor.

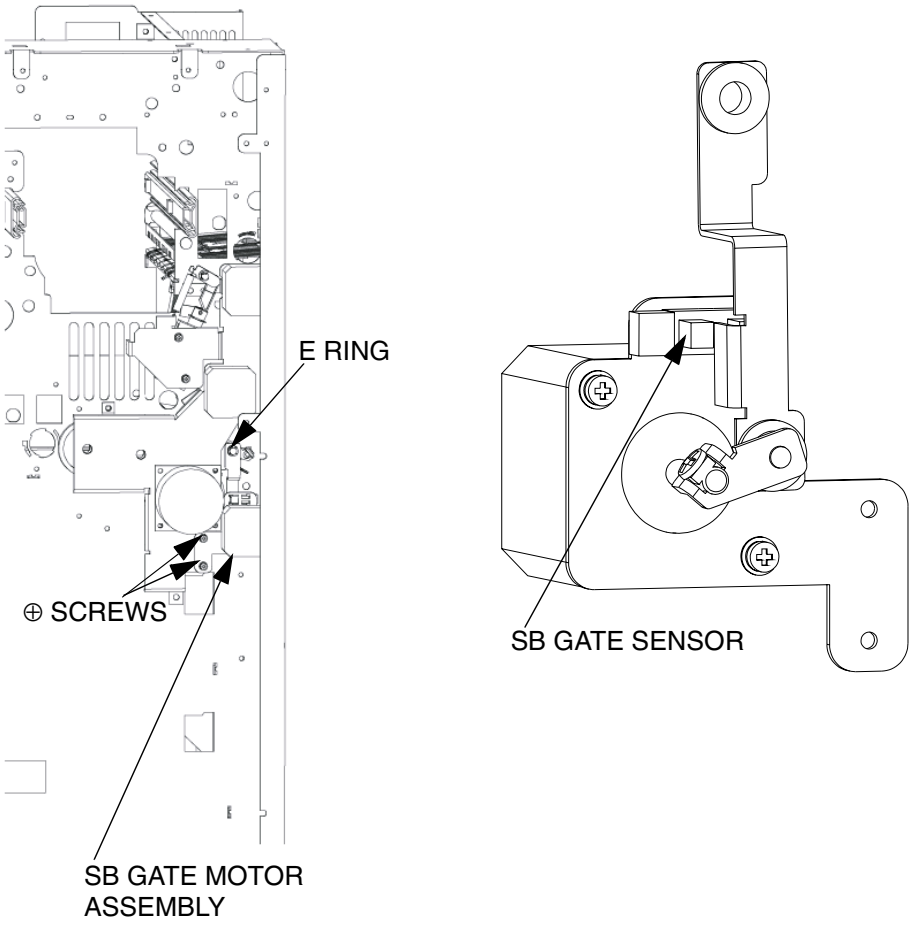


Figure 7-176. Removal of the SB Gate Sensor

[Assembling Procedures]

1. Perform the disassembling procedures in the reverse order.

7.1.3.18. Removal of the Separating Blower 1, 2, 3, 4

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. Remove the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Unscrew the two ⊕ screws to remove the Shield Plate Assembly.
4. Disconnect the connector.
5. Unscrew the two ⊕ screws to remove the Toner Guard Plate.
6. Unscrew the two ⊕ screws to remove the Fan Holder Assembly.
7. Unscrew the ⊕ screws to remove the Separating Blower 1, 2, 3, 4.

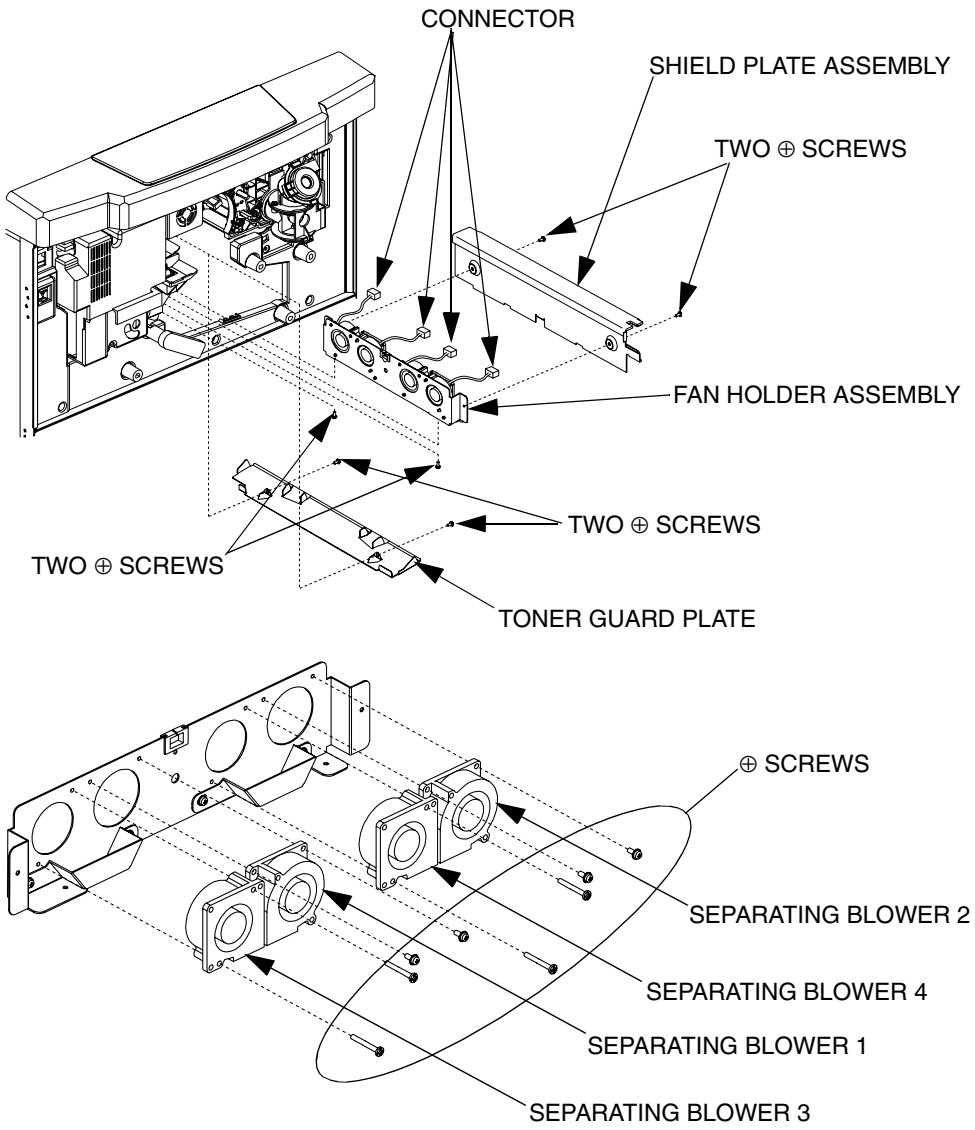


Figure 7-177. Removal of the Separating Blower 1, 2, 3, 4

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.3.19. Removal of the Detouch Duct Assembly

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. Remove the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Remove the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Unscrew the two ⊕ screws to remove the Toner Guard Plate.
5. Remove the Rivets to remove the Detouch Duct Assembly.

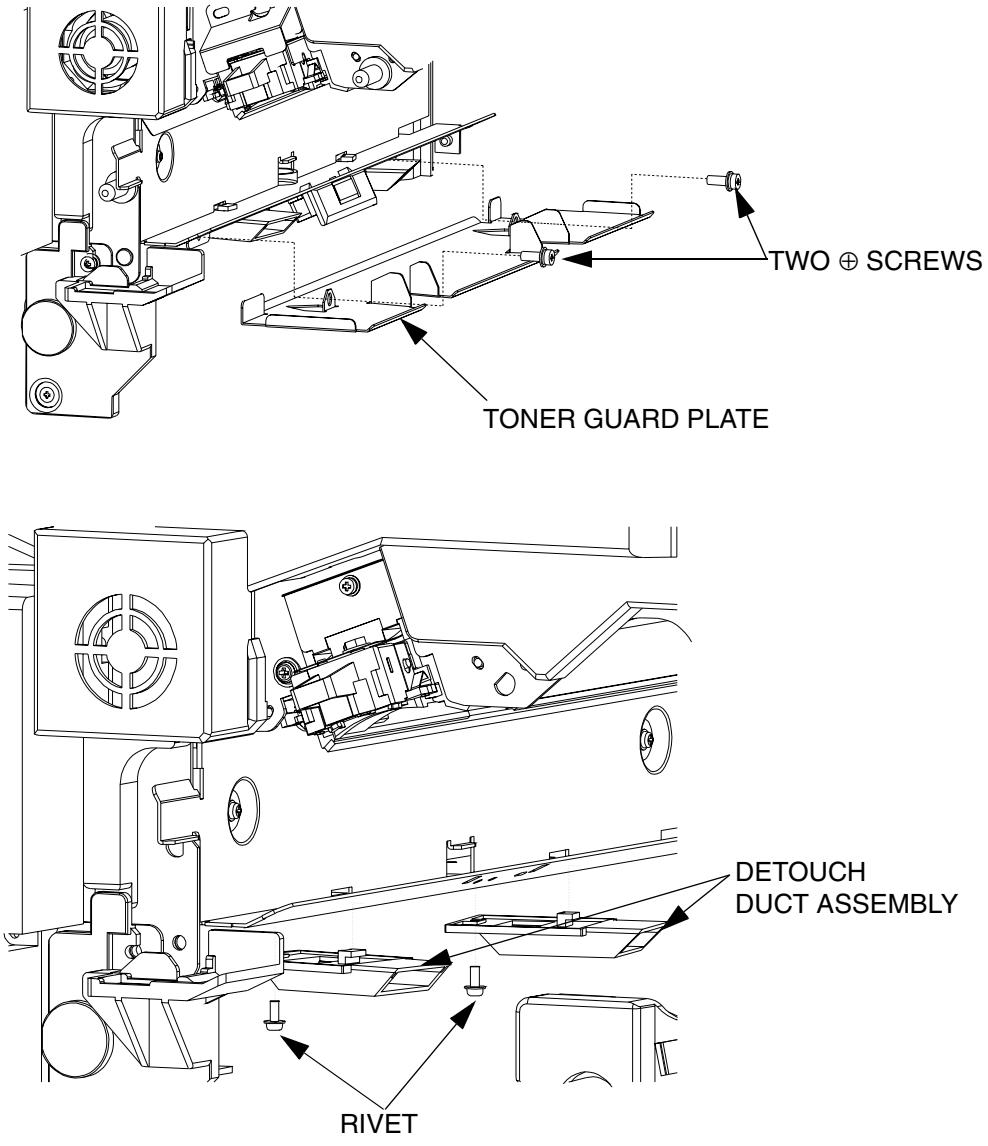


Figure 7-178. Removal of the Detouch Duct Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.4. Removal of the Paper Supply Block

7.1.4.1. Removal of the 500 Sheet Hopper(Hopper 2 & 3)

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 500 Sheet Hopper Unit.
2. Remove the 500 Sheet Hopper Unit in the direction of the arrow.

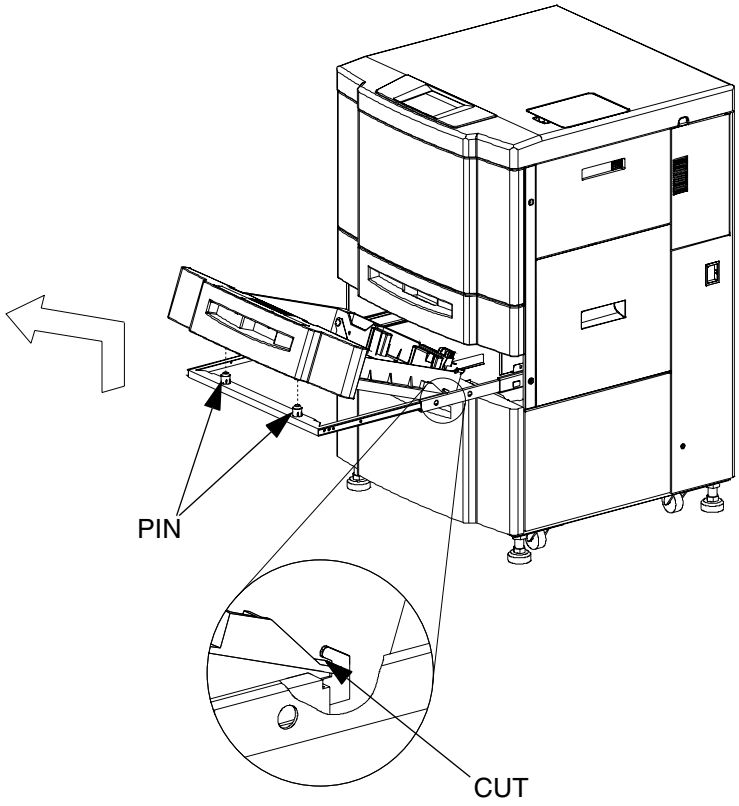


Figure 7-179. Removal of the 500 Sheet Hopper(Hopper 2 & 3)

[Assembling Procedures]

1. Insert the side plate edge of the Hopper Unit to the cut of the slide rail, holding the slide rail with a hand not to move it.
2. Set the Hopper Unit with installing the Pin on the slide rail to the hole of the Hopper Unit.

Perform the disassembling procedures in the reverse order.

7.1.4.2. Removal of the 2000 Sheet Hopper (Hopper 1) Parts

7.1.4.2. (1) Removal of the 2000 Sheet Hopper (Hopper 1)

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper Unit.
2. Unscrew the ⊕ screw and set the Paper Guide to the 8.5" position.
3. Lift and remove the entire assembly.

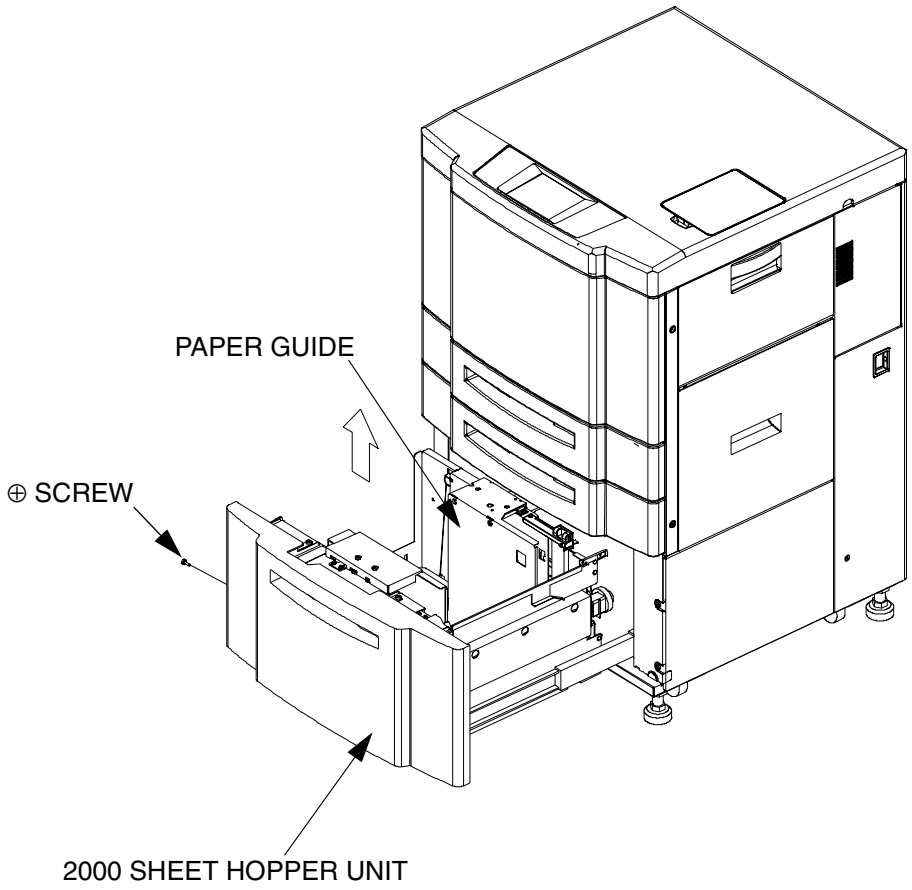


Figure 7-180. Removal of the 2000 Sheet Hopper (Hopper 1)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.4.2. (2) Removal of the Idler Gear

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 2000 Sheet Hopper. (Refer to item 7.1.4.2. (1) on page 7-162)
2. Unscrew the two ⊕ screws to remove the Idler Gear Plate.
3. Remove the E-Ring (1) and the Wire Roll Drum (1) with the Table Wire (1).
4. Remove the E-Ring (2) and the Idler Gear.

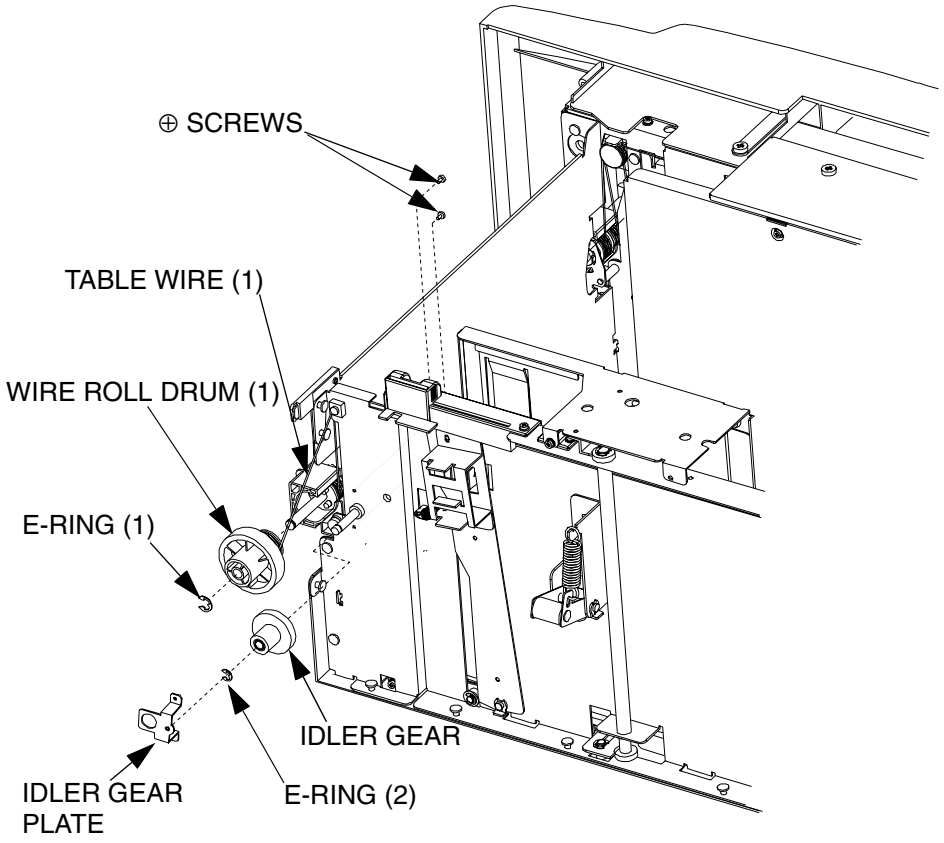


Figure 7-181. Removal of the Idler Gear

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Keep the gap between the Wire Roll Drum(1) and the Idler Gear Plate.

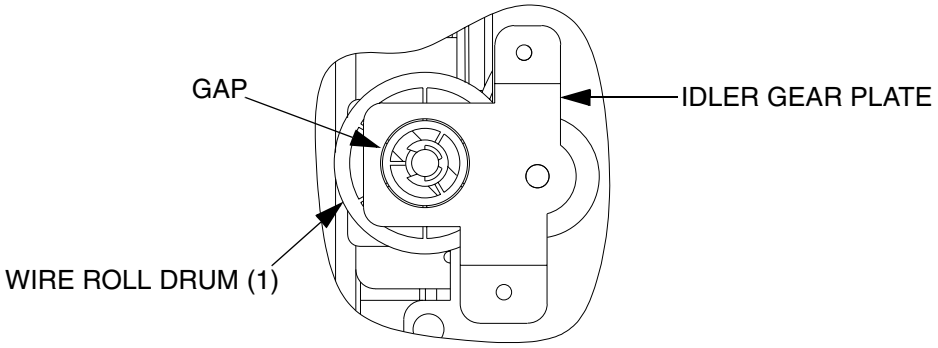


Figure 7-182. Removal of the Idler Gear

7.1.4.2. (3) Removal of the Damper Gear

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 2000 Sheet Hopper. (Refer to item 7.1.4.2. (1) on page 7-162)
2. Unscrew the four ⊕ screws to remove the Front Case.
3. Unscrew the ⊕ screw to remove the Shaft Holder and the Damper Gear.

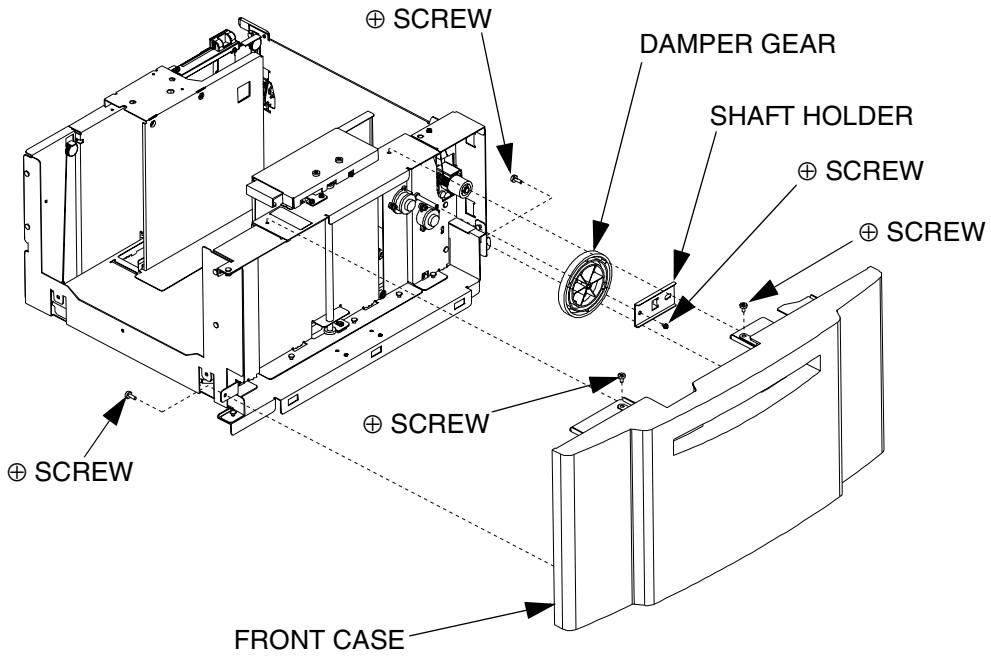


Figure 7-183. Removal of the Damper Gear

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Align the Circle Mark of the Damper Gear to the one of the Wire Roll Drum (2).

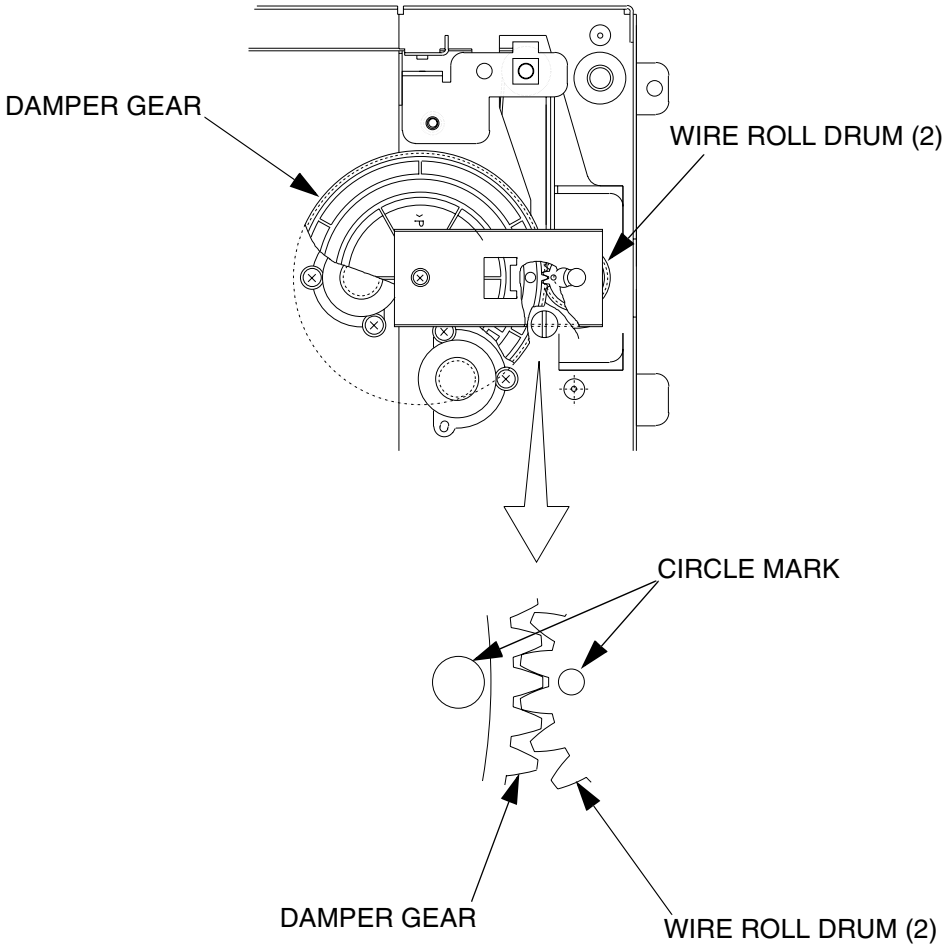


Figure 7-184. -2 Removal of the Damper Gear

7.1.4.2. (4) Removal of the Rotary Damper

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 Damper Gear. (Refer to item 7.1.4.2. (3) on page 7-164)
2. Unscrew the four ⊕ screws to remove the two Rotary Damper.

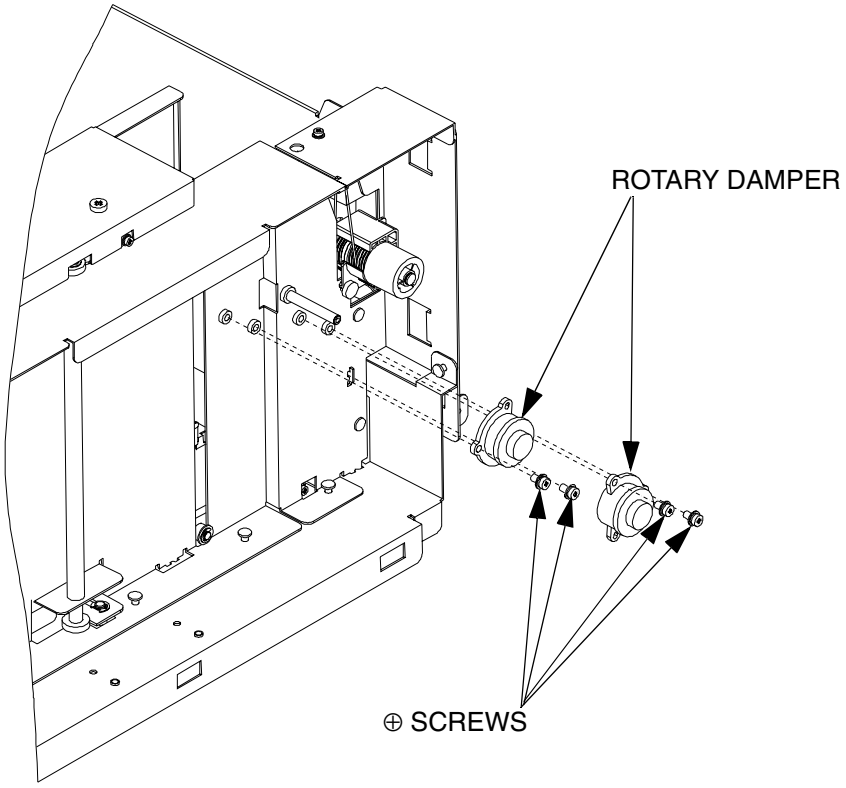


Figure 7-185. Removal of the Rotary Damper

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.4.2. (5) Removal of the Derlin Bearing

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

Applicable jigs and tools:⊕ Screwdriver, Spanner (M6), Shim (Thickness 0.2 to 0.6mm).

[Disassembling Procedures]

1. Remove the 2000 Sheet Hopper. (Refer to item 7.1.4.2. (1) on page 7-162)
2. Unscrew the four ⊕ screws to remove the Front Case.
3. Unscrew the four ⊕ screws of the Derlin Bearings to remove them and the two Nuts.

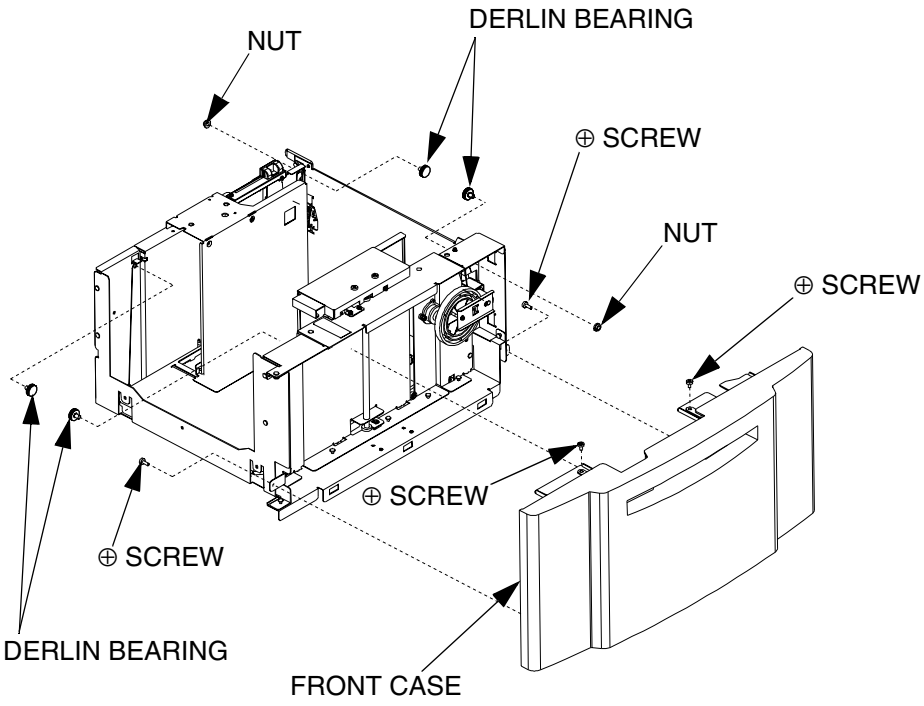


Figure 7-186. Removal of the Derlin Bearing

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Lead each Table Wire into the correct groove at each Derlin Bearing.

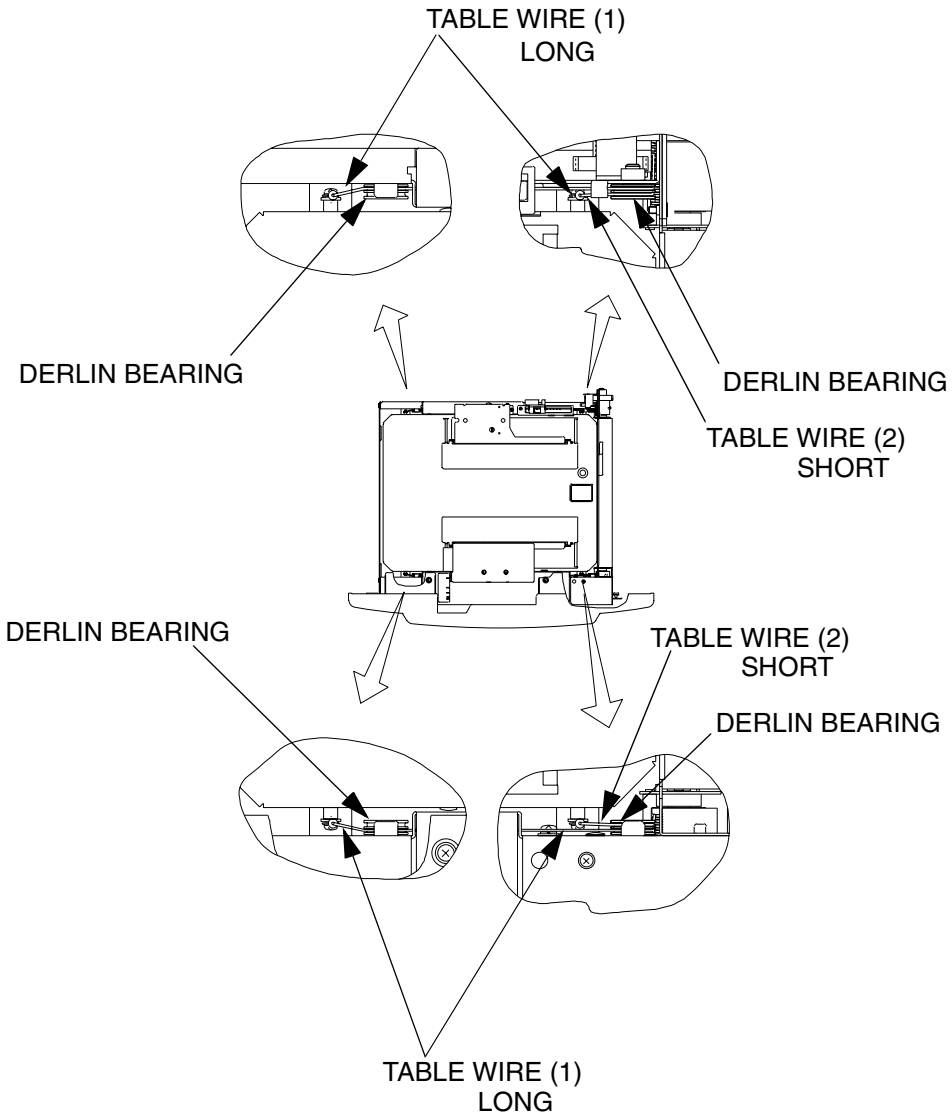


Figure 7-187. -2 Removal of the Derlin Bearing

Note: Adjust the distance between the Derlin Bearing and the Frame Inside to 0.2mm to 0.6mm.

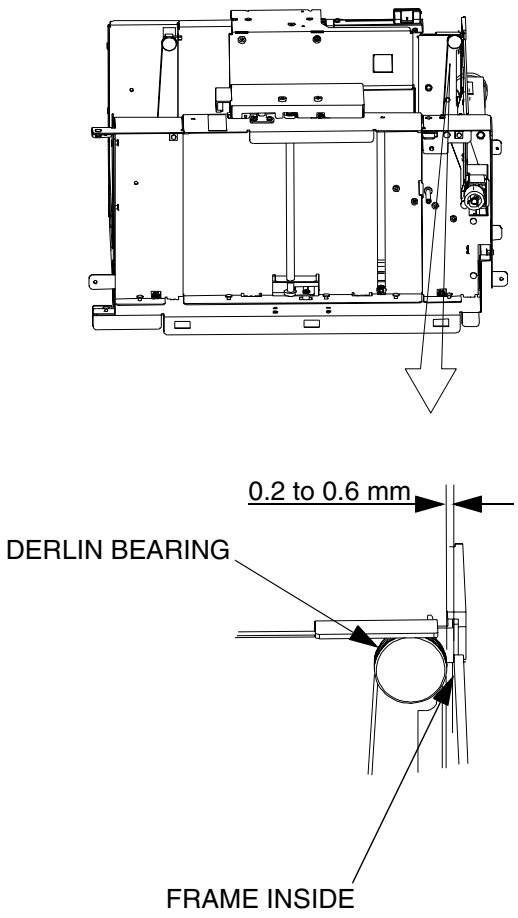


Figure 7-188. -3 Removal of the Derlin Bearing

7.1.4.2. (6) Removal of the Table Wire

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

Applicable jigs and tools:⊕ Screwdriver, - Screwdriver, Spanner (M6), Cloth or equivalent.

[Disassembling Procedures]

1. Remove the Damper Gear. (Refer to item 7.1.4.2. (3) on page 7-164)
2. Turn the Wire Roll Drum (1) or (2) to unroll the Table Wires confirming that those no not entwine.

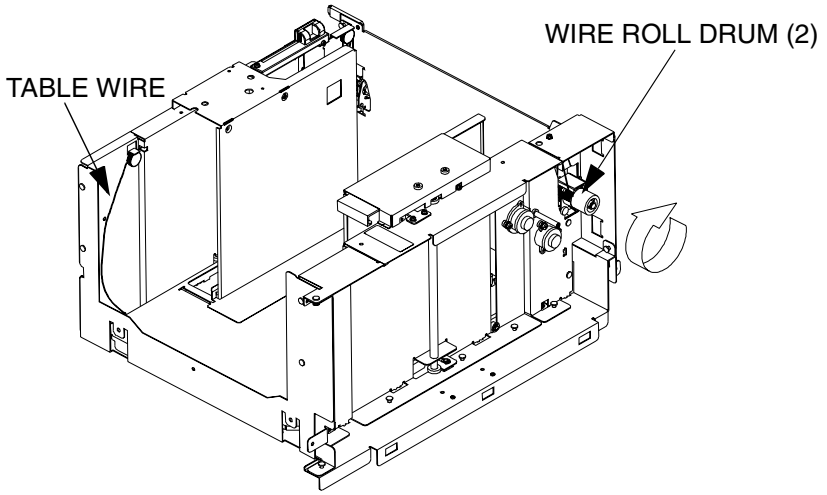


Figure 7-189. Removal of the Table Wire

3. Remove the Derlin Bearings. (Refer to item 7.1.4.2. (5) on page 7-167)
4. Unscrew the each ⊕ screw to remove the Hook on the edge of the Table Wire.

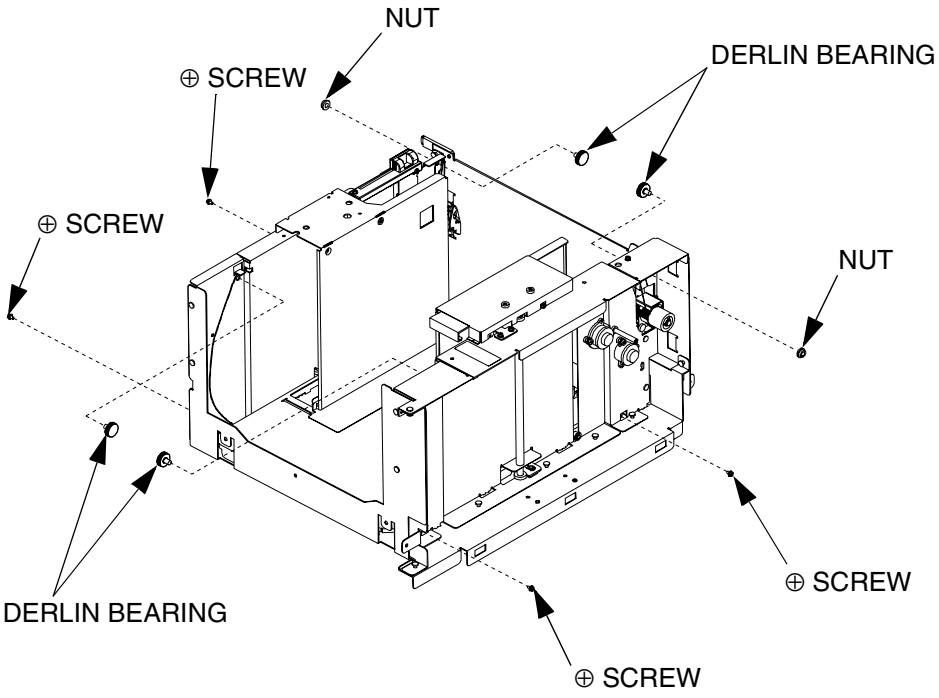


Figure 7-190. -2 Removal of the Table Wire

5. Unscrew the two ⊕ screws to remove the Idler Gear Plate.
6. Remove the E-Ring to remove the Wire Roll Drum (1) and the Table Wire (1).
7. Remove the Wire Roll Drum (2) to remove the Table Wire (1).
8. Unscrew the two - screws to remove the two Pulley Covers.
9. Remove the two Wire Roll Drums (3) to remove the two Table Wires (2).
10. Remove the two 3x14 Pins.

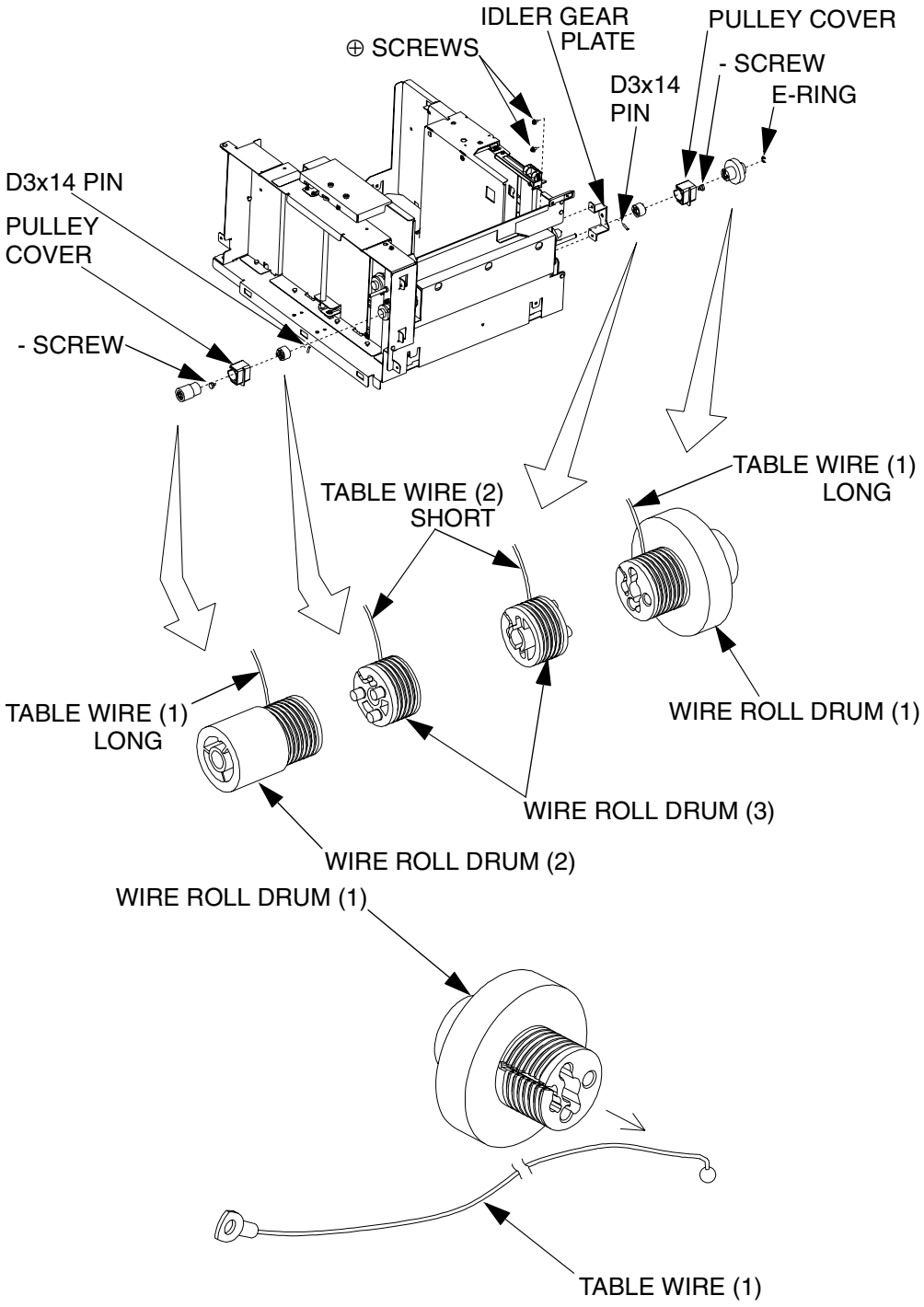


Figure 7-191. -3 Removal of the Table Wire

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Insert the steel ball on the edge of the Table Wire to the correct position and lead each wire out of the correct groove position.

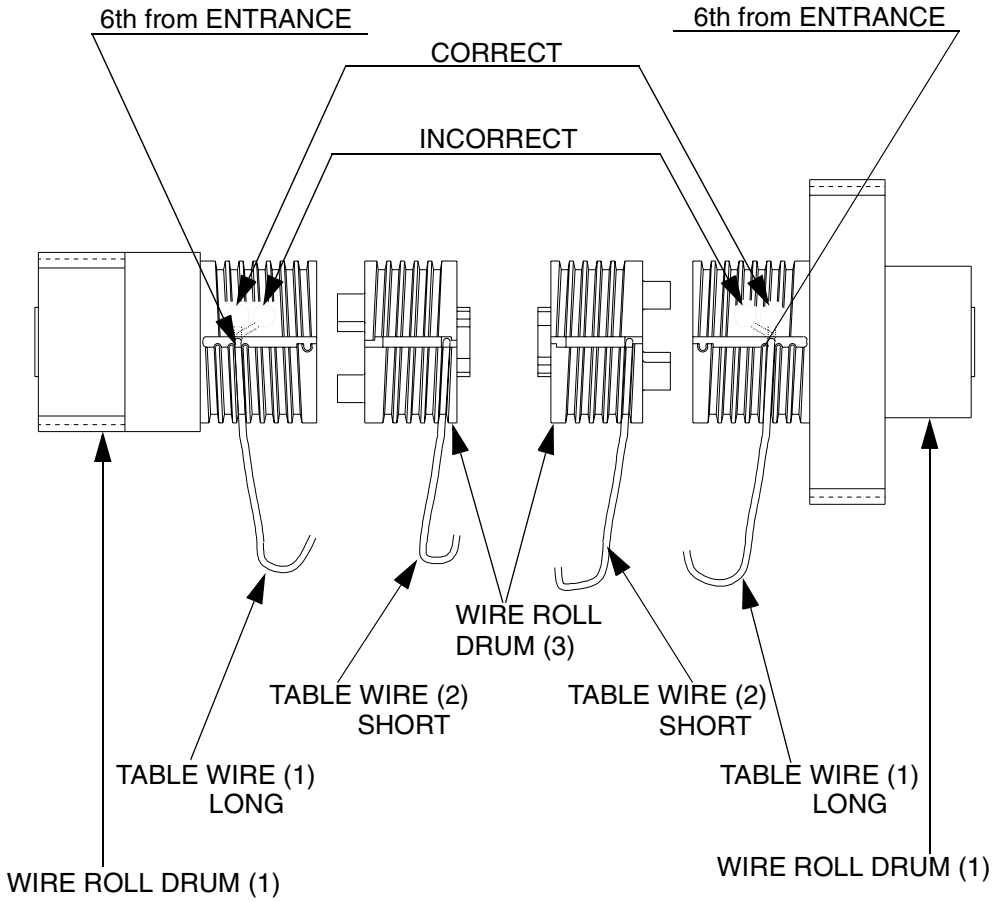


Figure 7-192. -4 Removal of the Table Wire

Note: Lead each Table Wire into the correct groove at each Derlin Bearing.
(Refer to item 7.1.4.2. (5) on page 7-167)

Note: When fixing the Wire Hook, do not mistake the direction.

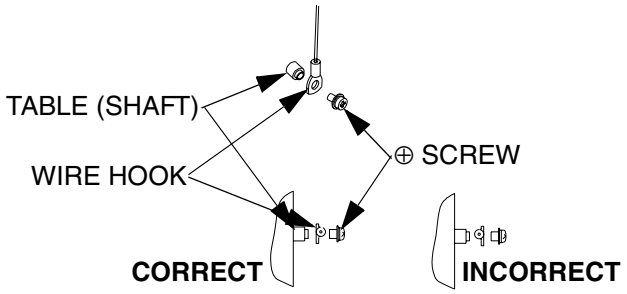


Figure 7-193. -5 Removal of the Table Wire

Note: Adjust the distance between the Derlin Bearing and the Frame Inside to 0.2mm to 0.6mm. (Refer to item 7.1.4.2. (5) on page 7-167)

Note: Turn the Wire Roll Drum (1) or (2) to roll the Table Wires confirming that they do not entwine, and are not off or out of the correct position.

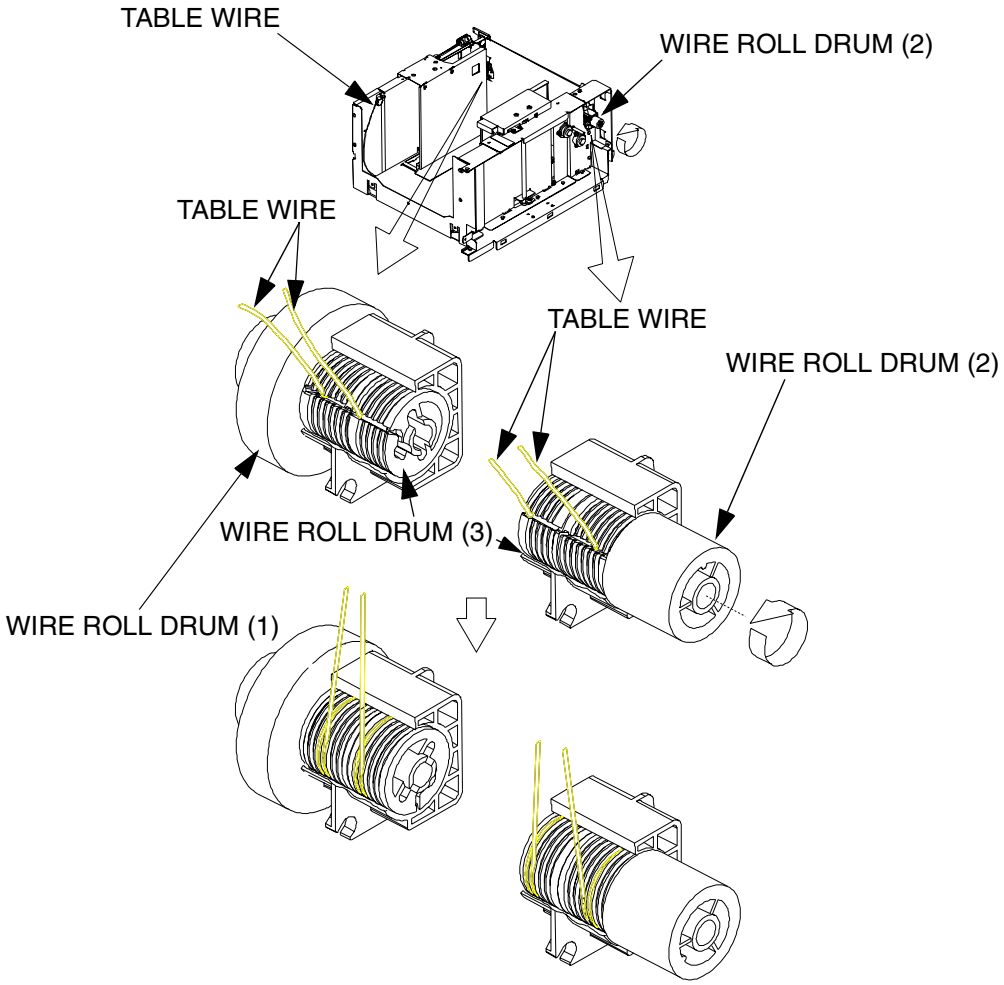


Figure 7-194. -6 Removal of the Table Wire

[Checks]

Turn the Wire Roll Drum (1) to confirm that the Table moves smoothly with a full stroke.

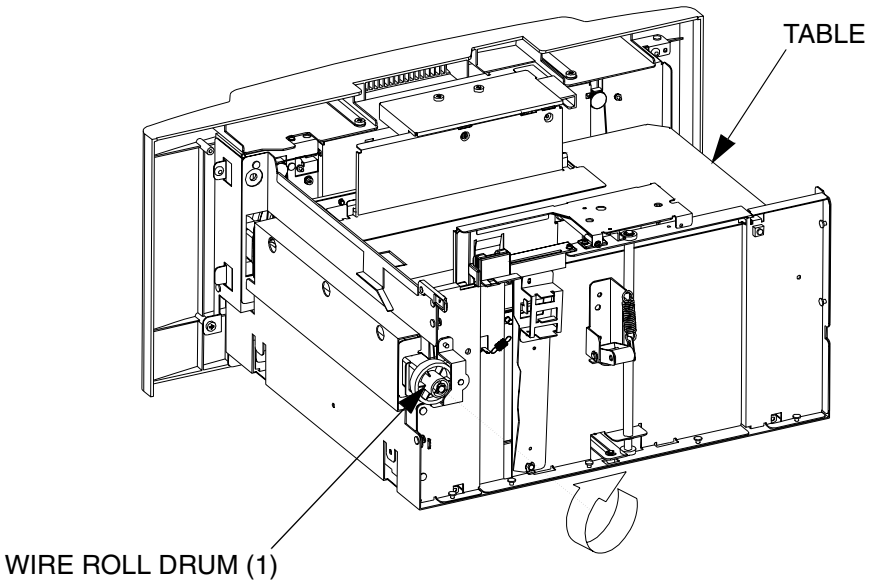


Figure 7-195. -7 Removal of the Table Wire

Turn the Wire Roll Drum (1) to raise the Table until it comes to the Frame Upper Edge and check that the Table is level to the Frame Upper Edge.
If not, lower the Table and loosen the ⊕ screw and raise and keep it by holding cloth or equivalent between the Wire Roll Drum (1) and the Idler Gear.
After removing, turn the ⊕ screw to adjust, take down the Table and fix the ⊕ screw and return the ⊕ screw to adjust.

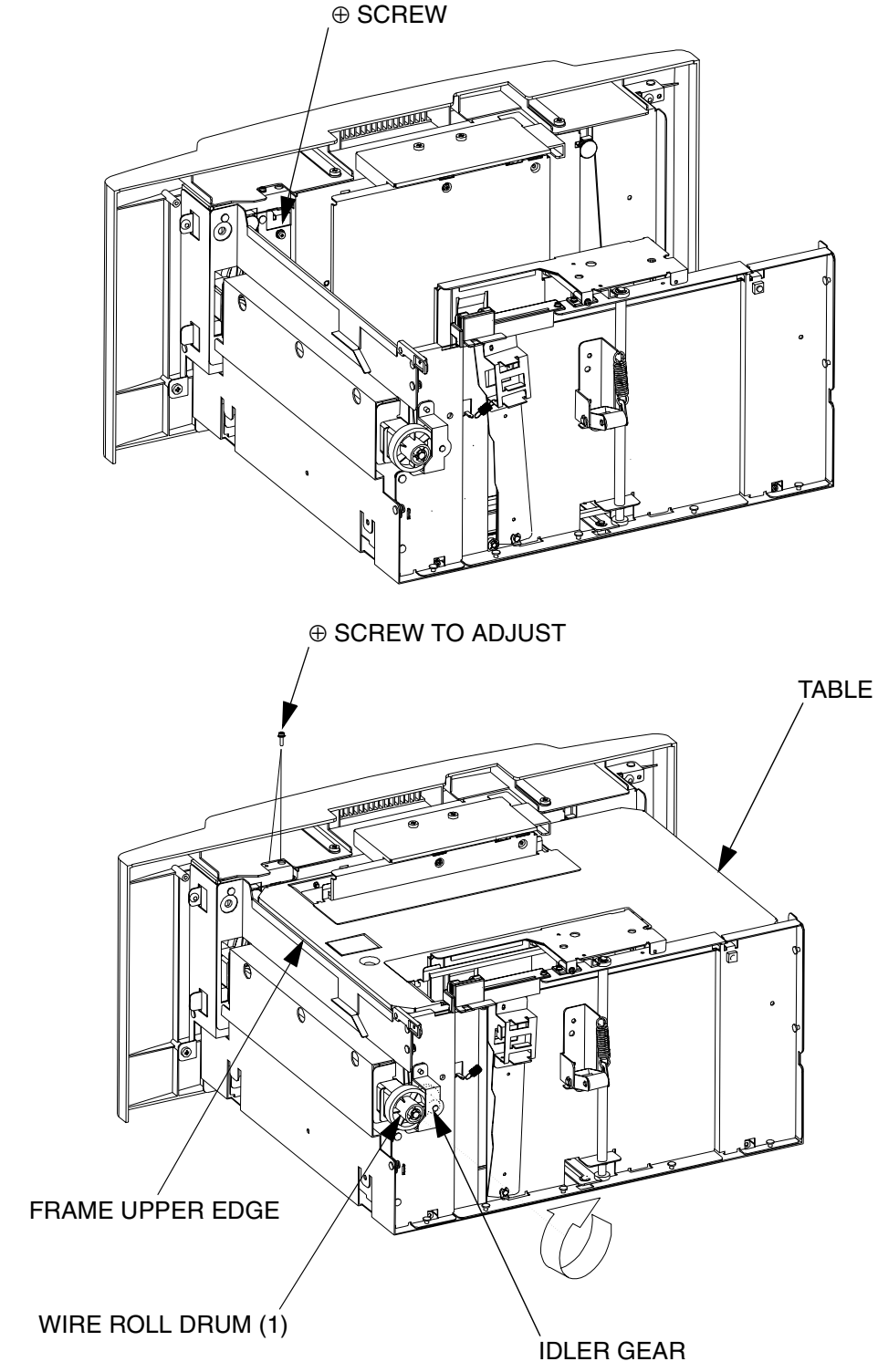


Figure 7-196. -8 Removal of the Table Wire

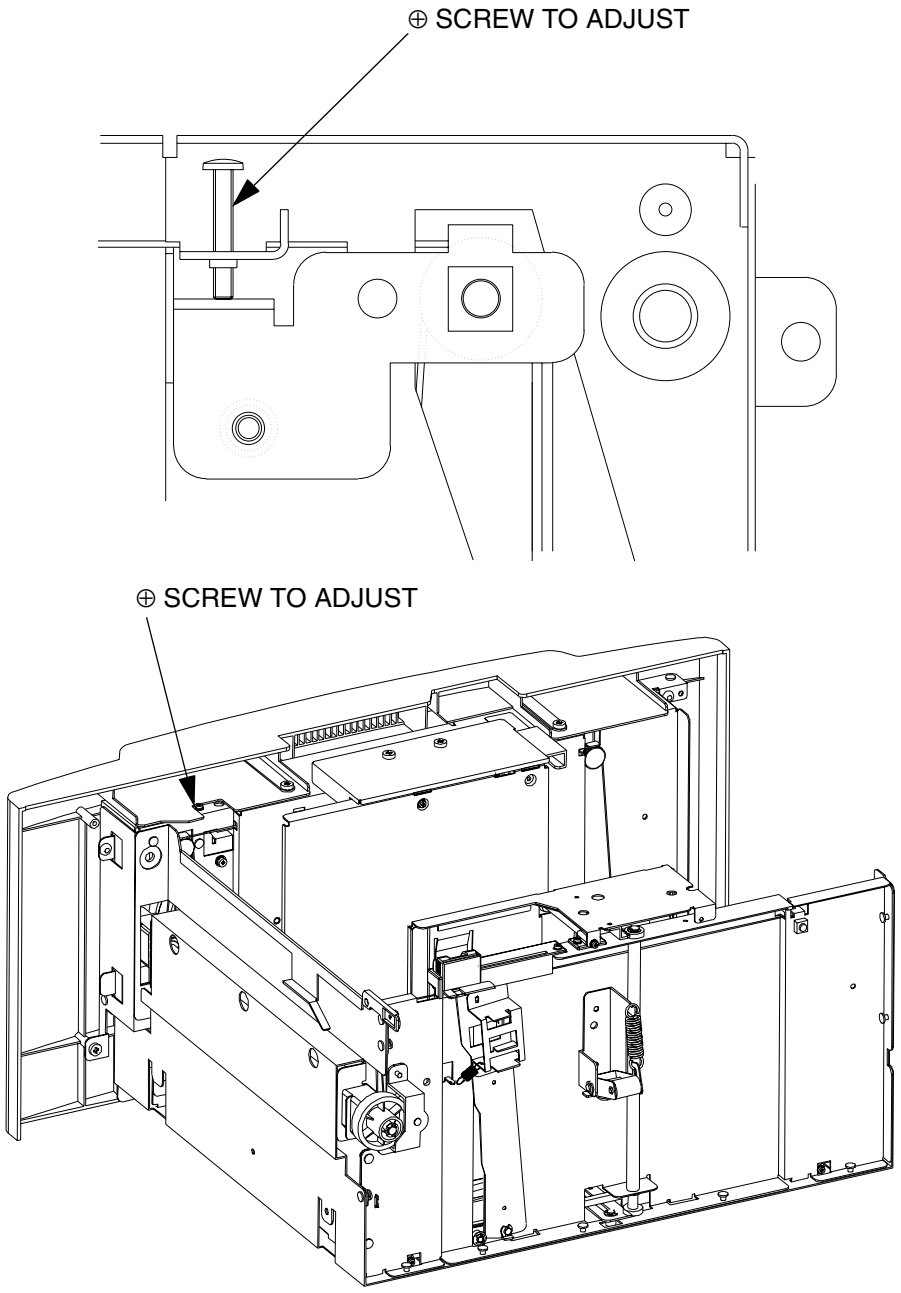


Figure 7-197. -9 Removal of the Table Wire

7.1.4.2. (7) Removal of the B.B Assembly

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

Applicable jigs and tools:⊕ Screwdriver, - Screwdriver, Spanner (M6), Cloth or equivalent.

[Disassembling Procedures]

1. Remove the Table Wire. (Refer to item 7.1.4.2. (6) on page 7-170)
   (There is no need to remove the Table Wire out of the Wire Roll Drum.)
2. Turn the B.B Assembly to pull it out.

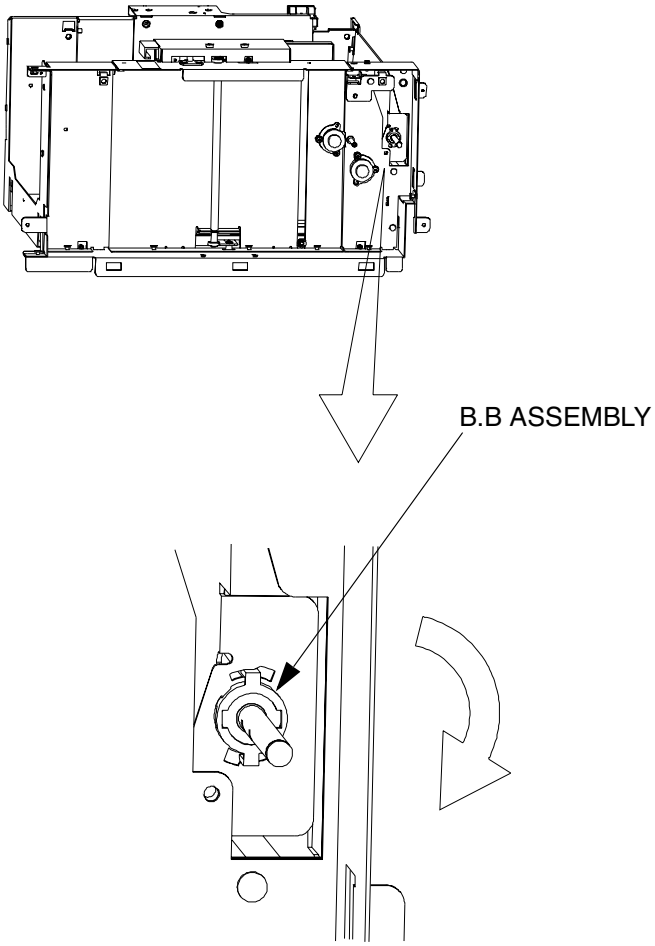


Figure 7-198. Removal of the B.B Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.4.3. Removal of the Vertical Path Unit Parts

7.1.4.3. (1) Removal of the Vertical Path Unit

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 RH Cover, the RH Rear Side Cover Assembly, the Rear Cover and the RH Side Lower Cover. (Refer to item 3.3.2. (1) on page 3-12)
2. When the Auxiliary Sheet Hopper is attached, remove it. (Refer to item 7.2.1 on page 7-232)
3. Remove the two 500 Sheet Hoppers. (Refer to item 7.1.4.1 on page 7-161)
4. Unscrew the four screws to remove the Hopper Hold Plate (1).
5. Pull out the 2000 Sheet Hopper.
6. Unscrew the two screws to remove the RH Plate.
7. Unscrew the three screws to remove the Joint Bracket.
8. Disconnect the Connectors P/J401, P/J403, and P/J430.
9. Unscrew the two screws and pull out the Vertical Path unit in the direction of the arrow. (Refer to Figure 7-200 on page 7-179)

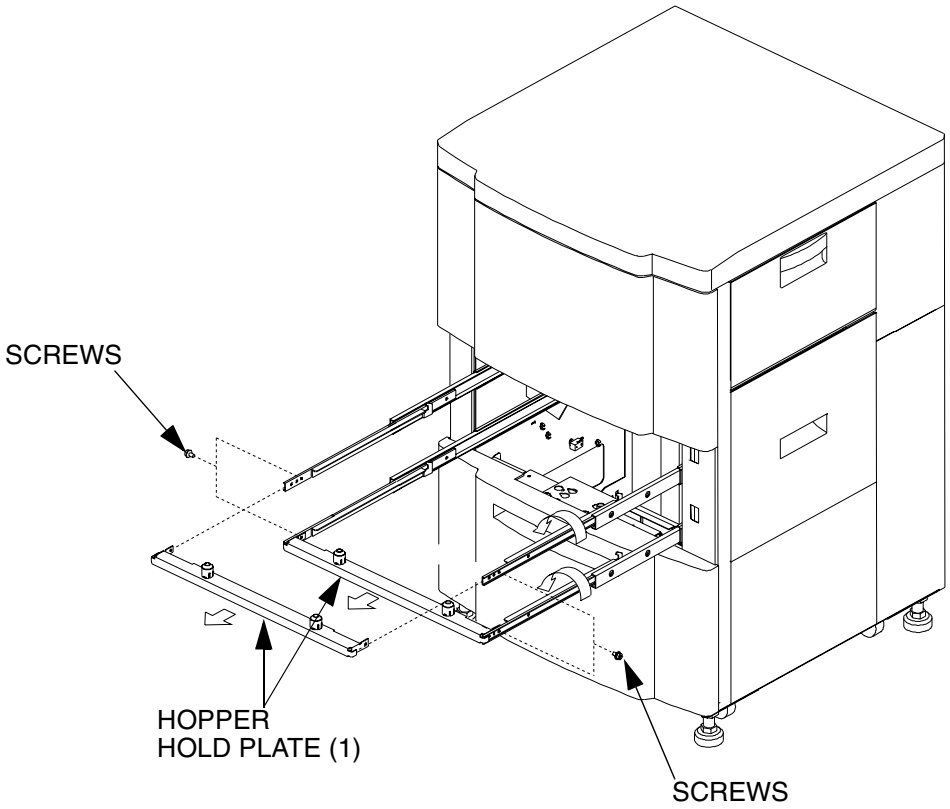


Figure 7-199. Removal of the Vertical Path Unit

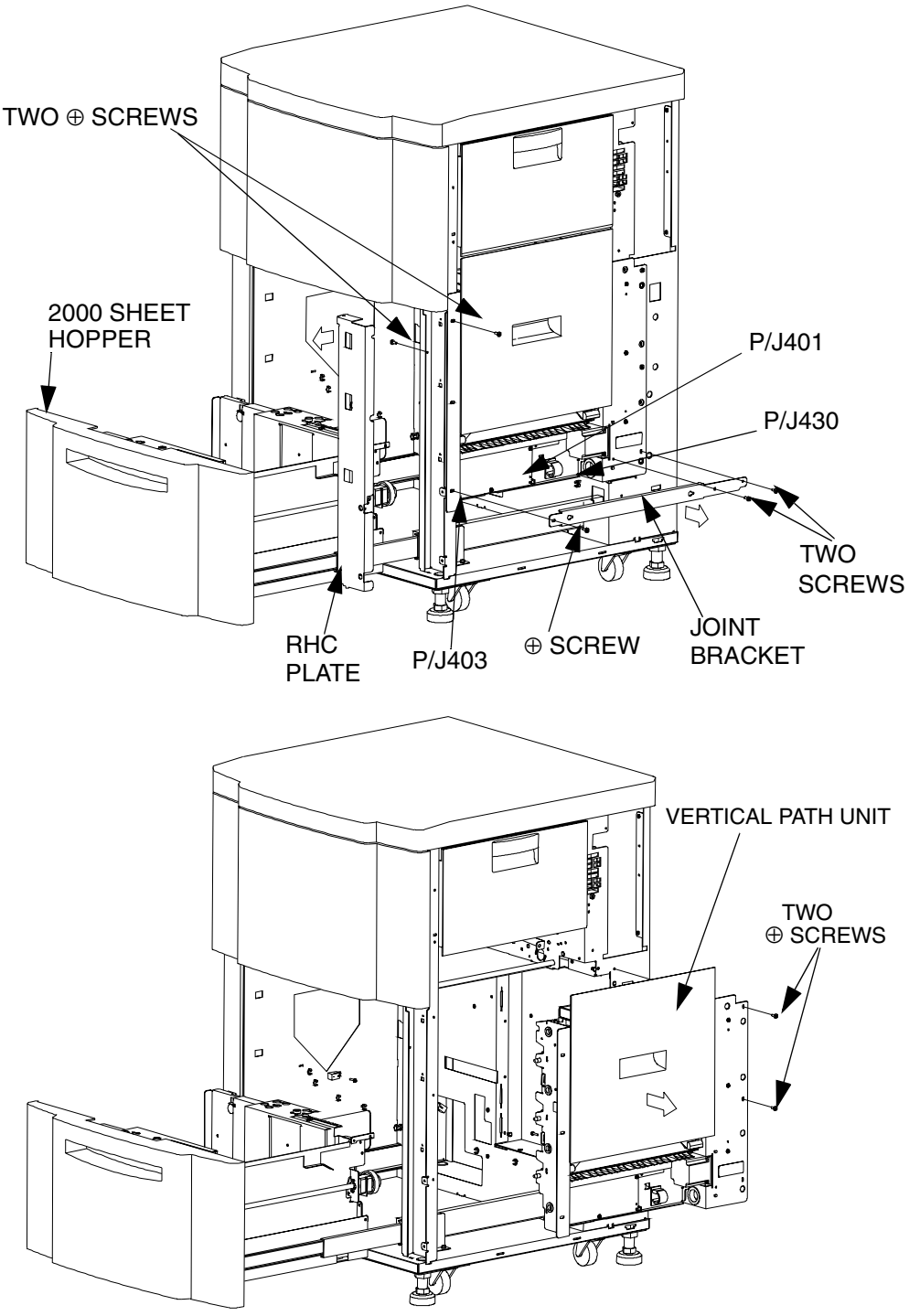


Figure 7-200. Removal of the Vertical Path Unit

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.4.3. (2) Removal of the Pick Roller

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

Applicable jigs and tools: None.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Remove the 500 Sheet Hopper.
3. Remove the Hook Ring A, pull off the Pick Roller in the direction of the arrow.

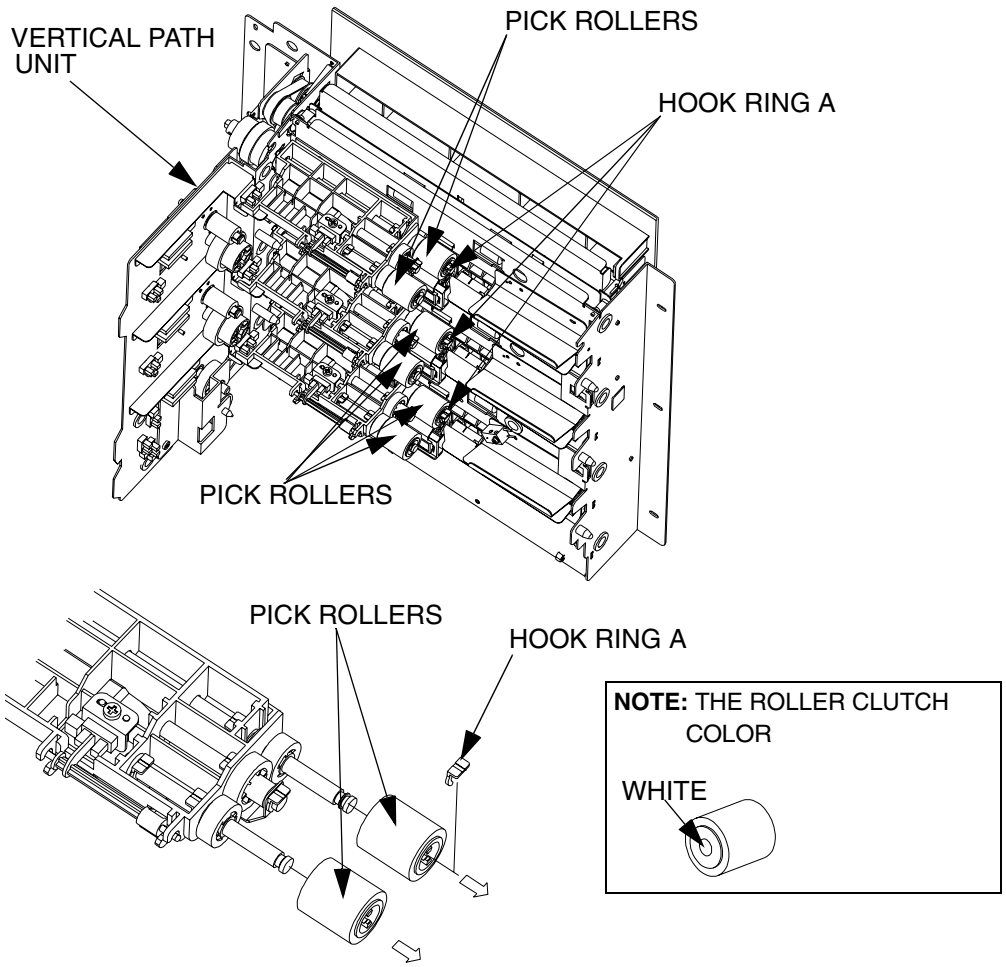


Figure 7-201. Removal of the Pick Roller

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.4.3. (3) Removal of the Separator Assembly

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

Applicable jigs and tools: None.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Remove the 500 Sheet Hoppers.
3. Remove the Separator Assembly.

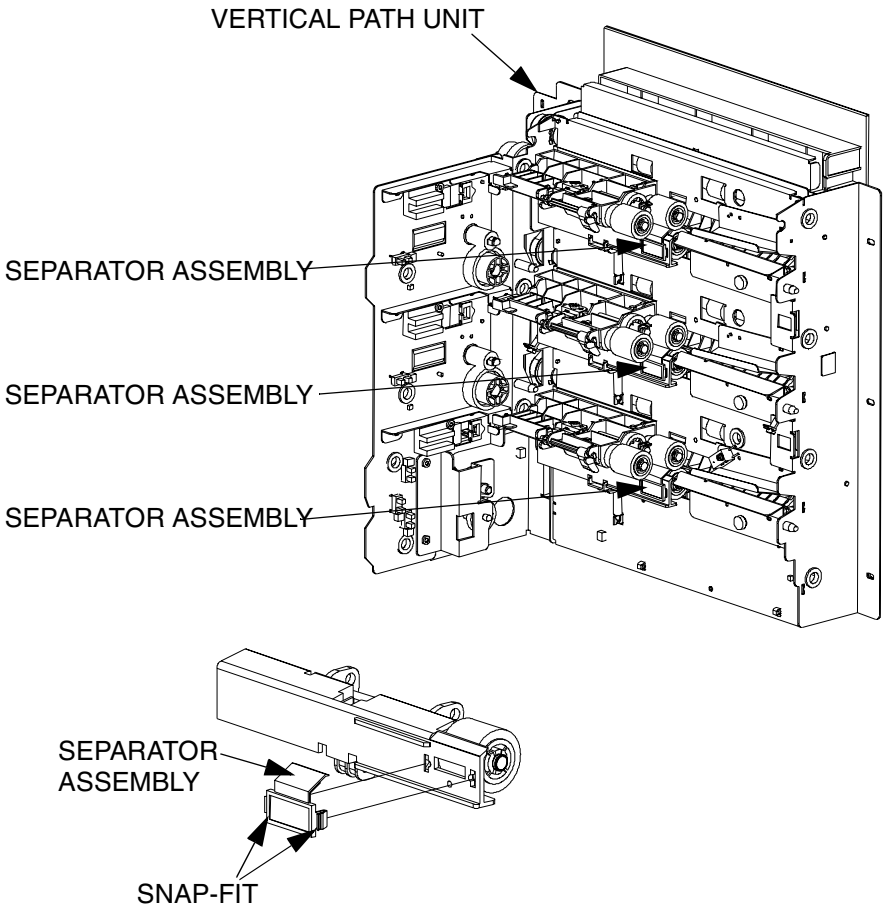


Figure 7-202. Removal of the Separator Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

[Checks]

Make sure that the snap-fit parts of the Separator Assembly are correctly fastened.

7.1.4.3. (4) Removal of the Separator Roller

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

Applicable jigs and tools: None.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Remove the 500 Sheet Hoppers.
3. Remove the Separator Assembly. (Refer to item 7.1.4.3. (3) on page 7-181)
4. Pull the Latch and remove the Guide Plate.
5. Pull off the Separator Roller in the direction of the arrow.

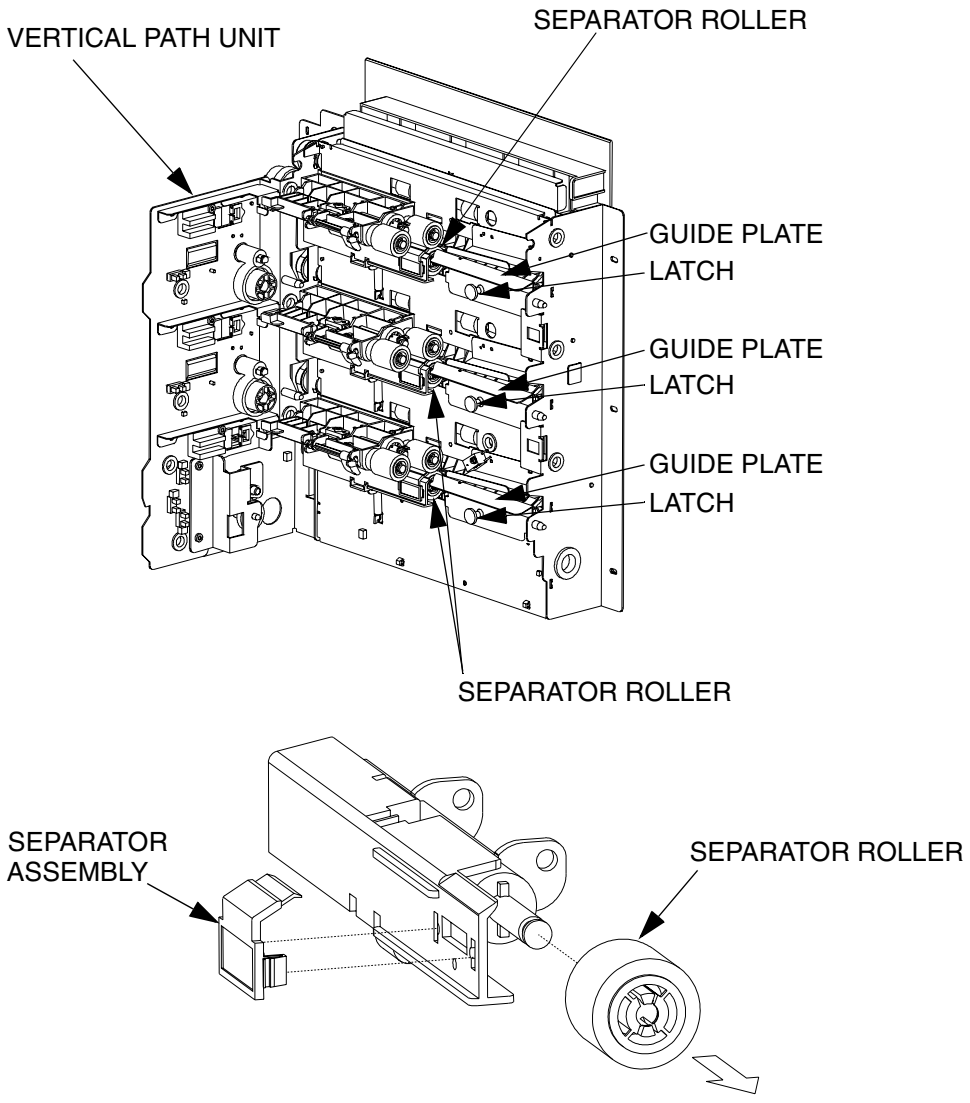


Figure 7-203. Removal of the Separator Roller

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.4.3. (5) Removal of the Timing Belt

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 Vertical Path Unit. (Refer to item 7.1.4.3. (1) on page 7-178)
2. Disconnect the Connectors P/J434, P/J435, and P/J436.
3. Unscrew the five ⊕ screws to remove the Back Plate.
4. Open the IS Cover, and unscrew the two ⊕ screws to loosen the Timing Belt.

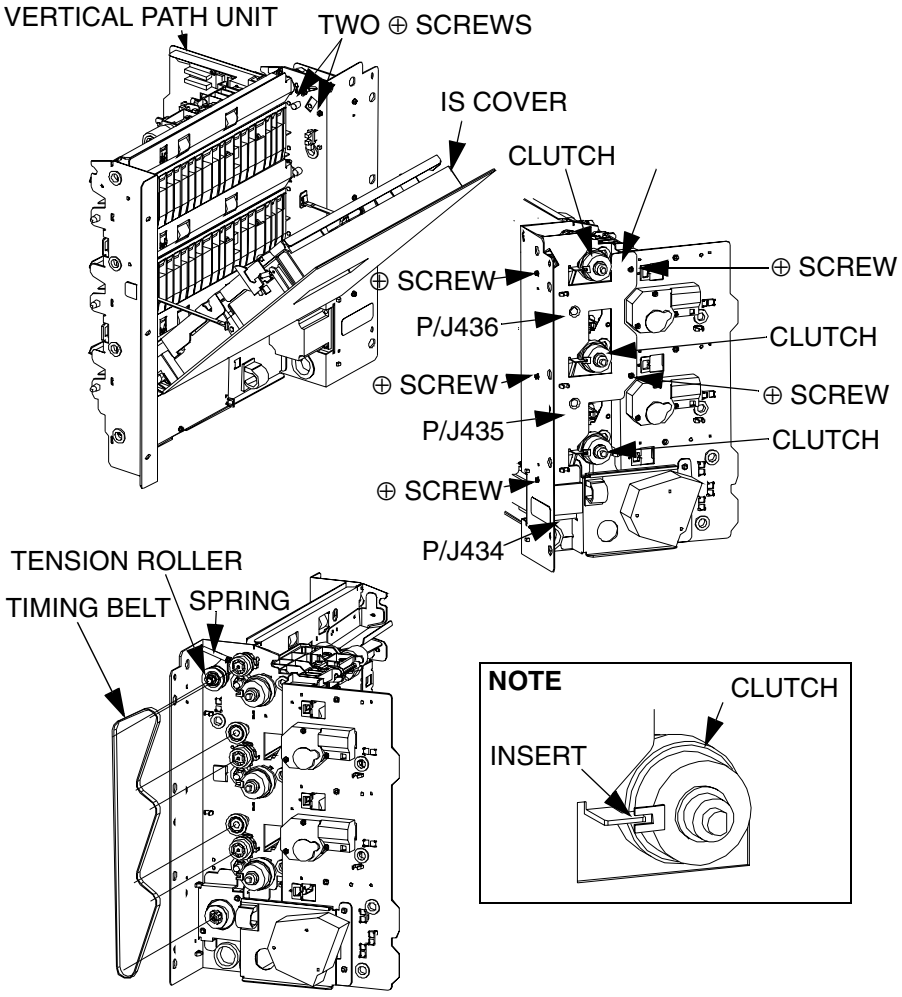


Figure 7-204. Removal of the Timing Belt

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: The tension of the Timing Belt is mechanically determined only by the spring force of the spring.
Therefore, when fixing the screw for the Tension Roller Assembly, do not apply force to the Tension Roller.

7.1.4.3. (6) Removal of the Rubber Roller Assembly

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 Vertical Path Unit. (Refer to item 7.1.4.3. (1) on page 7-178)
2. Open the IS Cover, remove the rivet to remove the IS Cover Assembly.
3. Unscrew the six ⊕ screws to open the Paper Guide A.
4. Remove the Back Plate, and Timing Belt. (Refer to item 7.1.4.3. (5) on page 7-183)
5. Remove the IS Drive Gear, and the IS Drive Pulley.
6. Remove the B.B. Housing to pull off the Rubber Roller Assembly in the direction of the arrow.

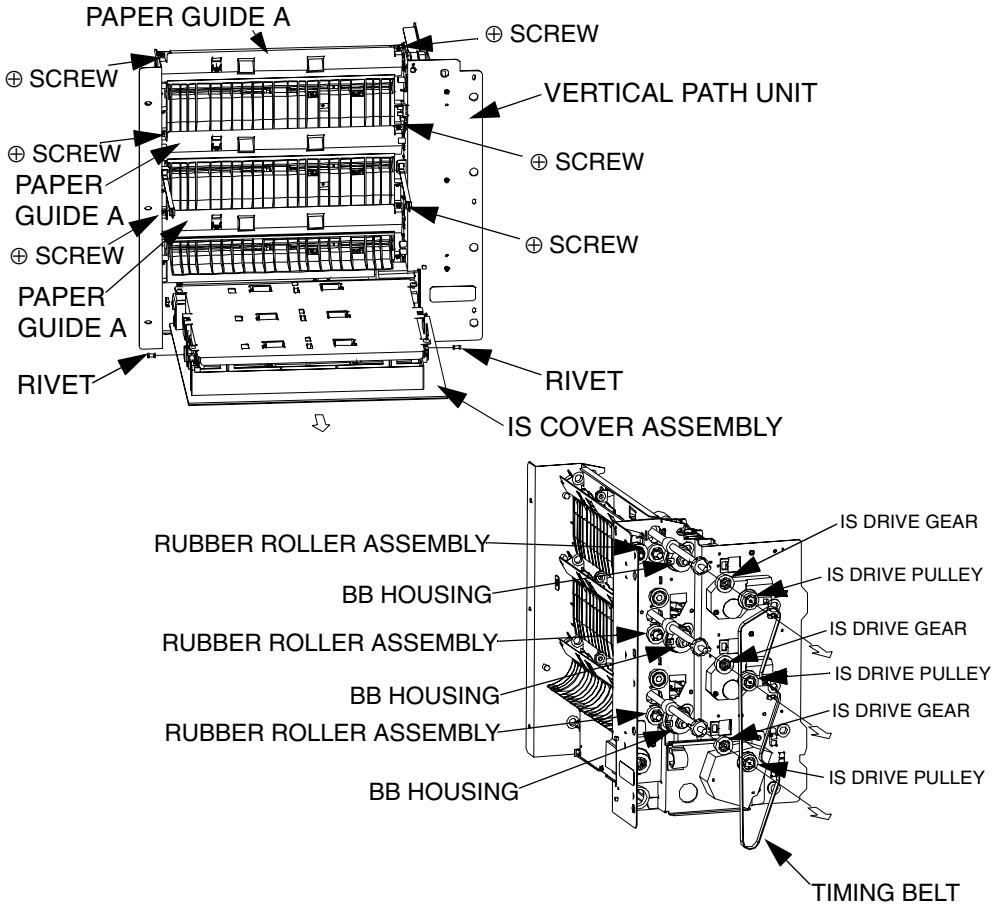


Figure 7-205. Removal of the Rubber Roller Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: The tension of the Timing Belt is mechanically determined only by the spring force of the spring.
Therefore, when fixing the screw for the Tension Roller Assembly, do not apply force to the Tension Roller.

7.1.4.3. (7) Removal of the Pick Drive Shaft Assembly

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 Vertical Path Unit. (Refer to item 7.1.4.3. (1) on page 7-178)
2. Remove the Back Plate. (Refer to item 7.1.4.3. (5) on page 7-183)
3. Remove the Pick Roller, the Pick Drive Gear, the Pin, the Hook Ring A, and the Retaining Ring-E.
4. Remove the B.B. Housing to pull off the Pick Drive Shaft Assembly in the direction of the arrow.

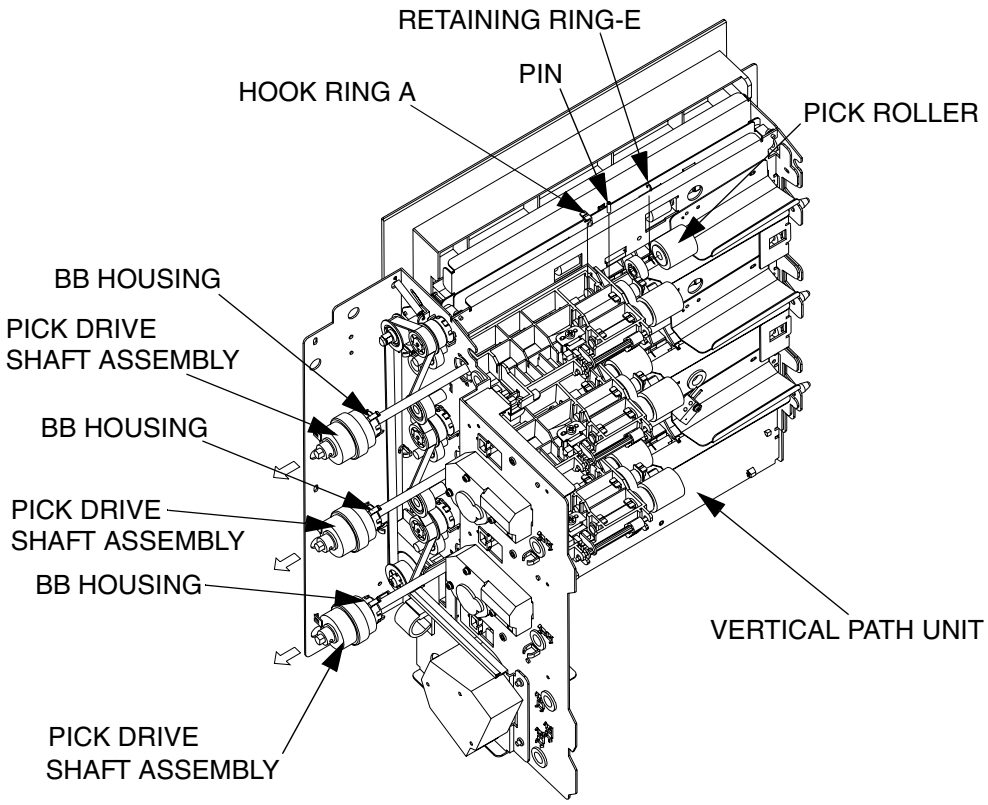


Figure 7-206. Removal of the Pick Drive Shaft Assembly

[Disassembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.4.3. (8) Removal of the Vertical Path Gears

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 Vertical Path Unit. (Refer to item 7.1.4.3. (1) on page 7-178)
2. Remove the Back Plate, and the Timing Belt. (Refer to item 7.1.4.3. (5) on page 7-183)
3. Remove the Pick Drive Shaft Assembly. (Refer to item 7.1.4.3. (7) on page 7-185)
4. Remove the IS Drive Gear, the IS Drive Pulley, the Pick Idler Gear, and the Motor Pulley Tension Roller.
5. Remove the Gear Stopper to remove the Tension Roller B.

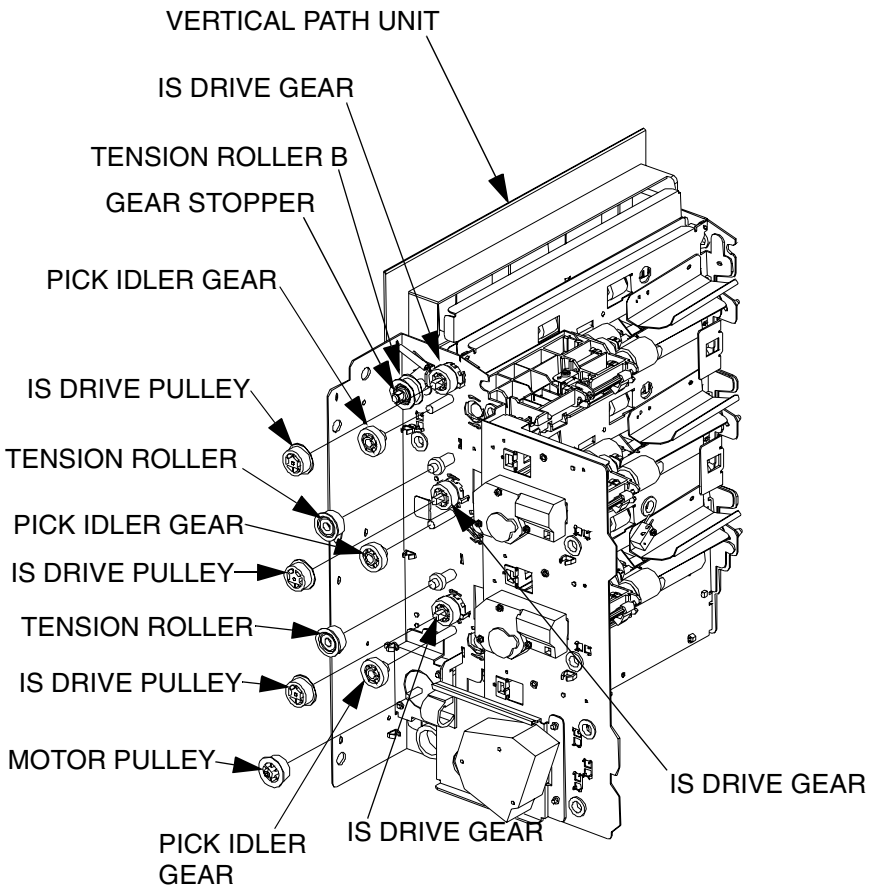


Figure 7-207. Removal of the Vertical Path Gears

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: The tension of the Timing Belt is mechanically determined only by the spring force of the spring.
Therefore, when fixing the screw for the Tension Roller Assembly, do not apply force to the Tension Roller.

7.1.4.3. (9) Removal of the Pressure Roller Assembly

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

Applicable jigs and tools: None.

[Disassembling Procedures]

1. Remove the RH Side Lower Cover. (Refer to item 3.3.2. (1) on page 3-12)
2. When the Auxiliary 3000 Sheet Hopper is attached, remove it. (Refer to item 7.2.1 on page 7-232)
3. Remove the IS Cover Assembly. (Refer to item 7.1.4.3. (6) on page 7-184)
4. Remove the hook of the A section, next B section, then remove the Pressure Roller Base Assembly in the direction of the arrow **C**.
5. Remove the Spring to remove the Pressure Roller Assembly.

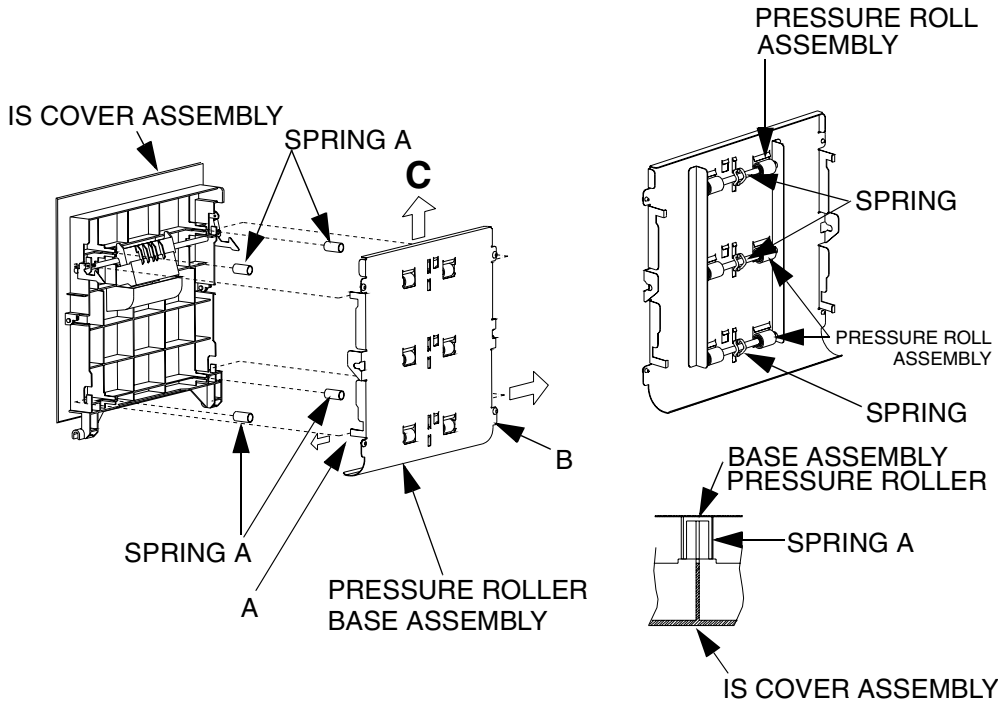


Figure 7-208. Removal of the Pressure Roller Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

[Check]

Make sure that the four Spring A are correctly fastened.

7.1.4.3. (10) Removal of the Torque Limiter

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 Vertical Path Unit. (Refer to item 7.1.4.3. (1) on page 7-178)
2. Remove the IS Cover Assembly. (Refer to item 7.1.4.3. (6) on page 7-184)
3. Unscrew the nine ⊕ screws to remove the Paper Guide B, and the Paper Guide C.
4. Remove the two Hook Ring B to remove the SRB Shaft.
5. Remove the Separate Roller Base Assembly.
6. Remove the Separator Roller, the Separator Assembly, and the Hook Ring A to remove the Torque Limiter.

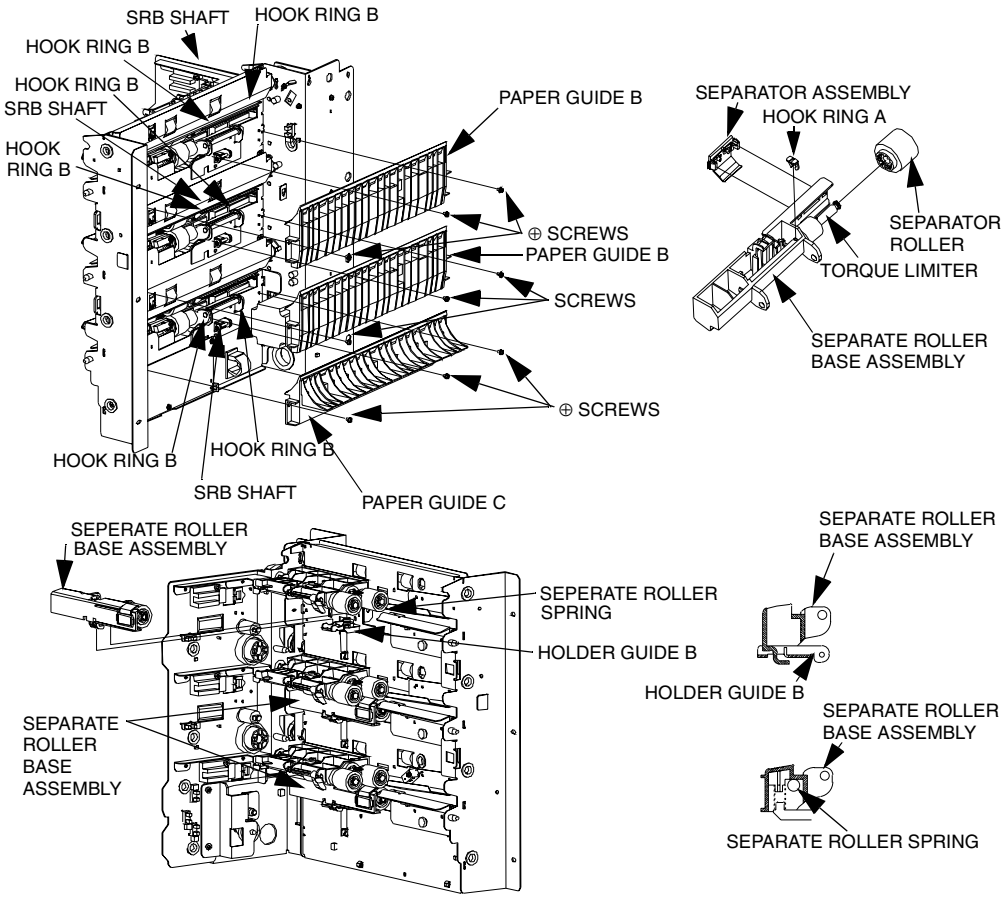


Figure 7-209. Removal of the Torque Limiter

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

[Checks]

Make sure that the Separate Roller Springs are correctly fastened.

Make sure that the Separate Roller Base Assembly is inserted in the hole of the Holder Guide B.

7.1.4.3. (11) Removal of the Hopper Feed 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 Vertical Path Unit. (Refer to item 7.1.4.3. (1) on page 7-178)
2. Remove the IS Cover Assembly. (Refer to item 7.1.4.3. (6) on page 7-184)
3. Remove the Back Plate, and the Timing Belt. (Refer to item 7.1.4.3. (5) on page 7-183)
4. Remove the Paper Guide C. (Refer to item 7.1.4.3. (10) on page 7-188)
5. Disconnect the connector P/J405.
6. Remove the Motor Pulley, and unscrew the two ⊕ screws to remove the Hopper Feed Motor M401.

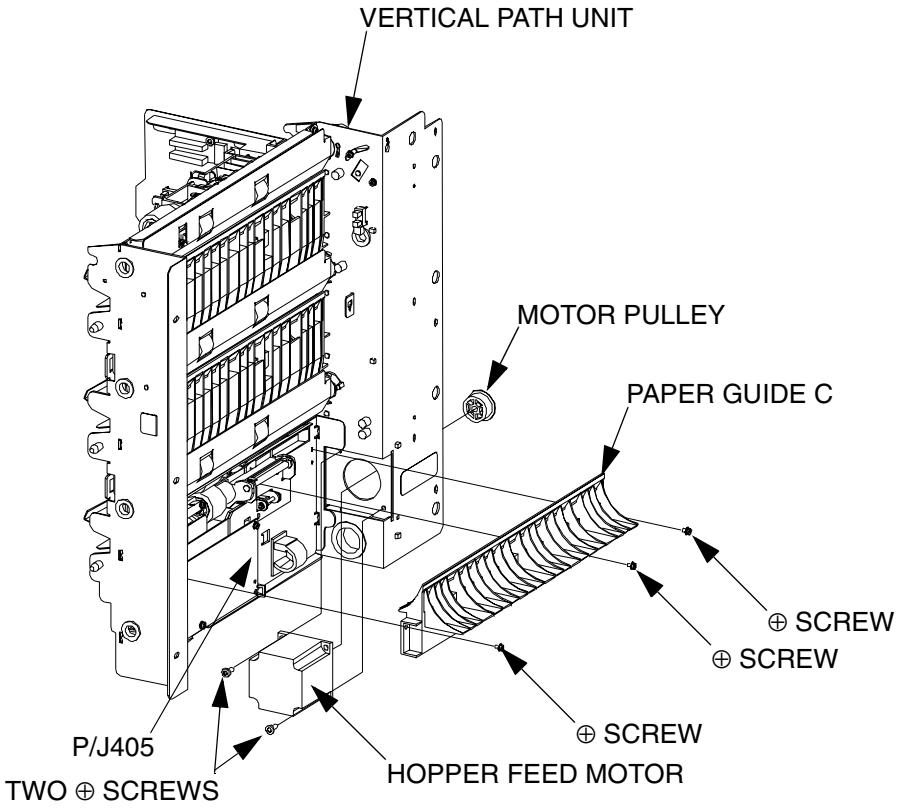


Figure 7-210. Removal of the Hopper Feed Motor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: The tension of the Timing Belt is mechanically determined only by the spring force of the spring.
Therefore, when fixing the screw for the Tension Roller Assembly, do not apply force to the Tension Roller.

7.1.4.3. (12) Removal of the Hopper 1 Table 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 Vertical Path Unit. (Refer to item 7.1.4.3. (1) on page 7-178)
2. Unscrew the two screws to remove the Shaft Holder.
3. Remove the Idler Gear, the Motor Gear and the Pin.
4. Disconnect the connector P/J431.
5. Unscrew the three ⊕ screws to remove the Hopper 1 Table Motor M402.

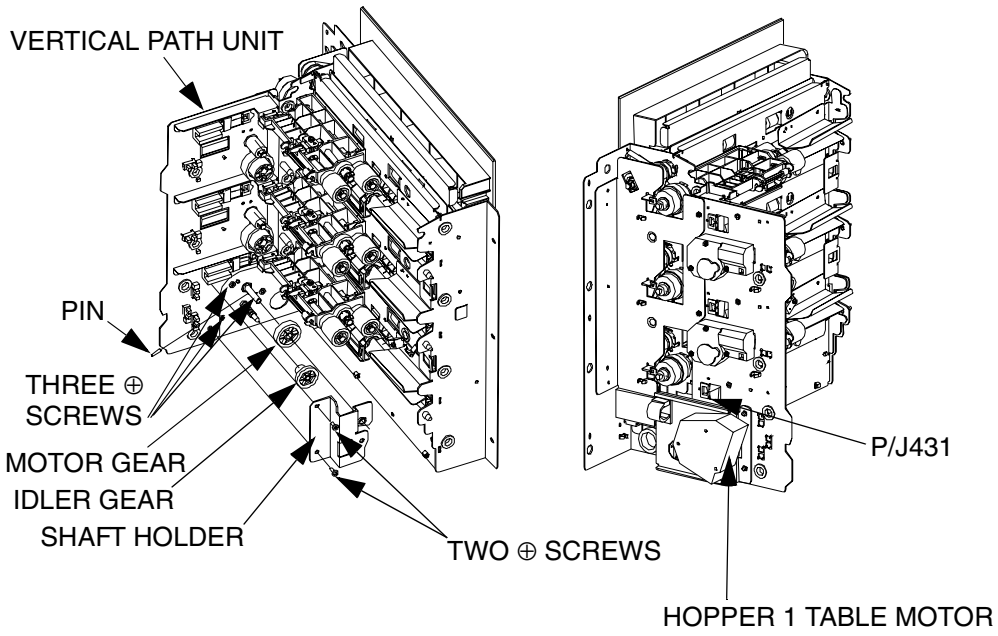


Figure 7-211. Removal of the Hopper 1 Table Motor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.4.3. (13) Removal of the Hopper 2/3 Table 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 Vertical Path Unit. (Refer to item 7.1.4.3. (1) on page 7-178)
2. Disconnect the connectors.
3. Unscrew the three ⊕ screws to remove the Hopper 2/3 Table Motor M403/M404.
4. Remove the Motor Gear.

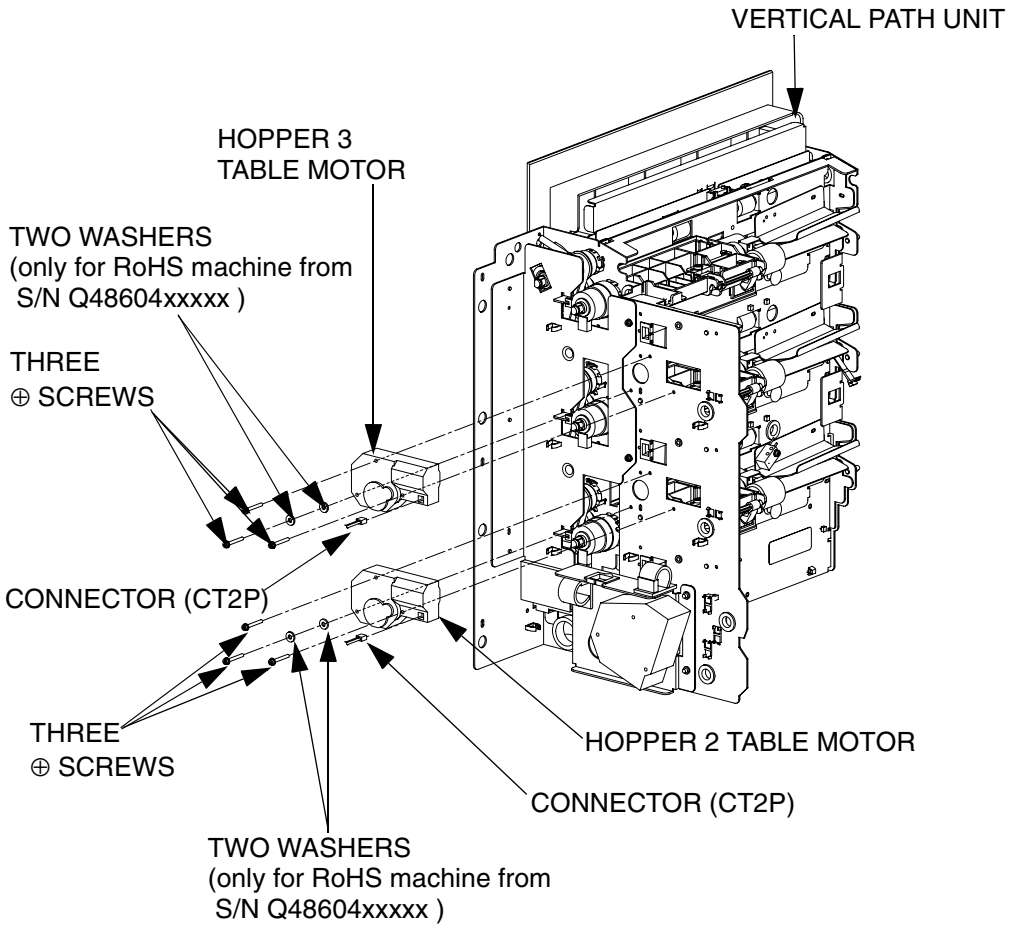


Figure 7-212. Removal of the Hopper 2/3 Table Motor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.4.3. (14) Removal of the Empty Sensor

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 Vertical Path Unit. (Refer to item 7.1.4.3. (1) on page 7-178)
2. Unscrew the ⊕ screw to remove the Sensor Plate.
3. Disconnect the connectors.
4. Remove the Empty Sensor.

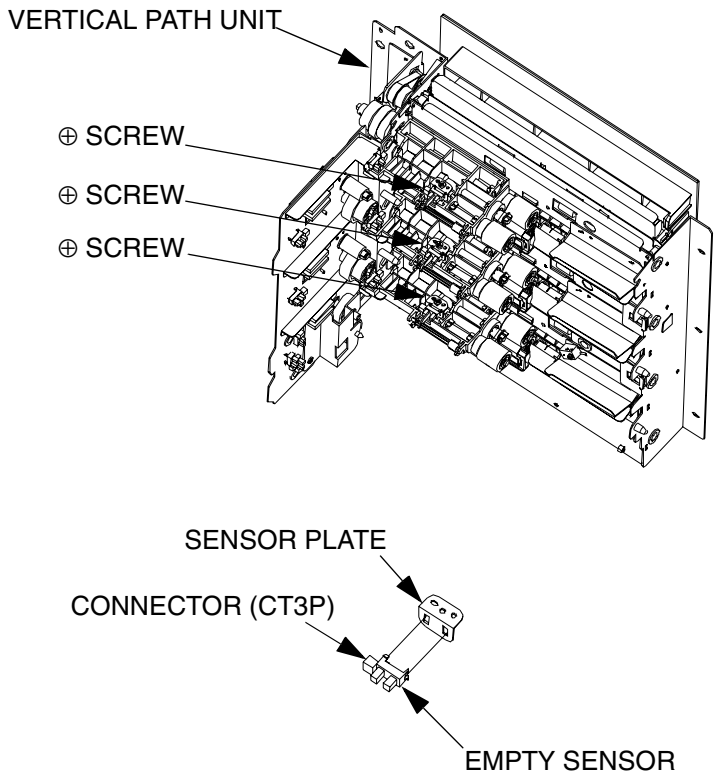


Figure 7-213. Removal of the Empty Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.4.3. (15) Removal of the Size Sensor

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 Vertical Path Unit. (Refer to item 7.1.4.3. (1) on page 7-178)
2. Disconnect the connectors.
3. Unscrew the ⊕ screw to remove the Size Sensor.

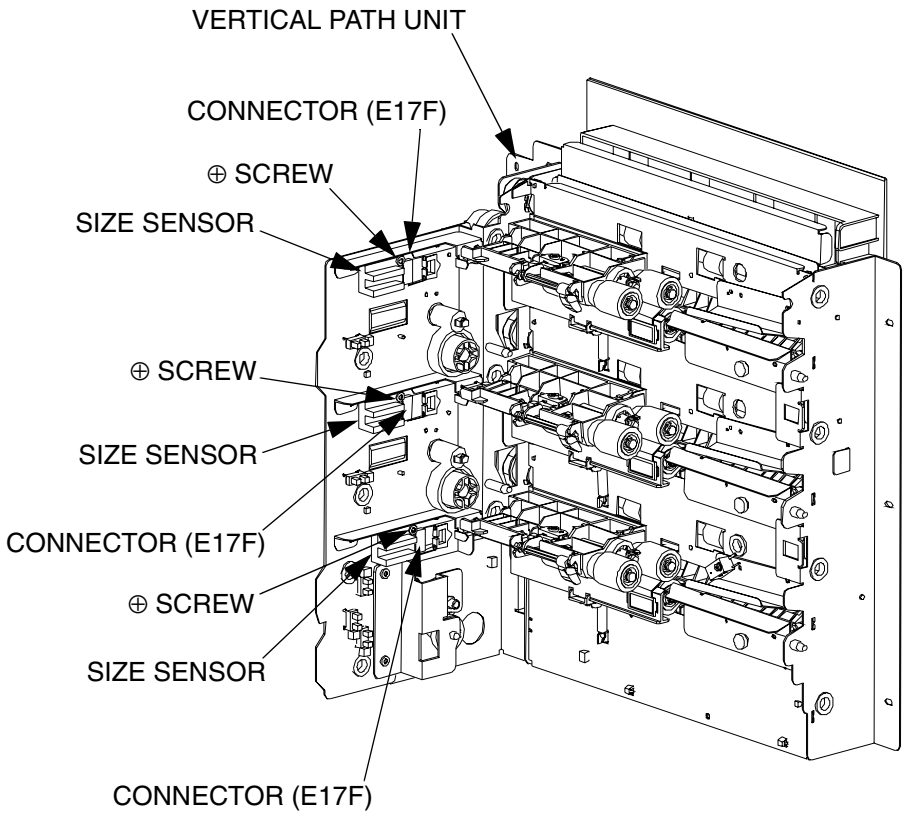


Figure 7-214. Removal of the Size Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.4.3. (16) Removal of the Upper Limit Sensor

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 RH Side Lower Cover. (Refer to item 3.3.2. (1) on page 3-12)
2. When the Auxiliary Sheet Hopper is attached, remove it. (Refer to item 7.2.1 on page 7-232)
3. Remove the IS Cover Assembly. (Refer to item 7.1.4.3. (6) on page 7-184)
4. Unscrew the two ⊕ screws to open the Paper Guide A
5. Disconnect the connector P/J438.
6. Pull out the 2000 Sheet Hopper and remove the two 500 Sheet Hoppers. (Refer to item 7.1.4.3. (4) on page 7-182)
7. Unscrew the ⊕ screw to remove the Upper Limit Sensor.

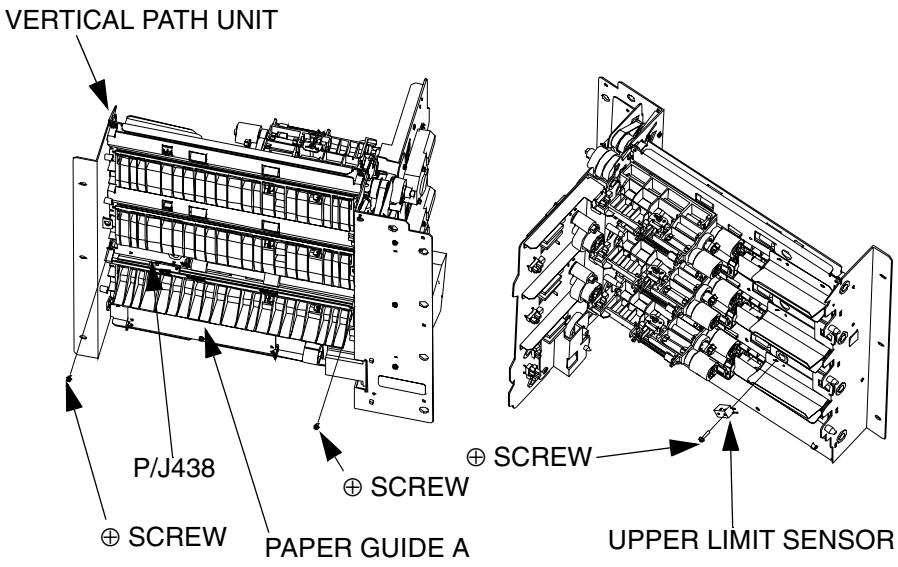


Figure 7-215. Removal of the Upper Limit Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Tighten the screw torque to a maximum of 3kg.

7.1.4.3. (17) Removal of the Height Sensor

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 Vertical Path Unit. (Refer to item 7.1.4.3. (1) on page 7-178)
2. Disconnect the connectors.
3. Remove the Height Sensor.

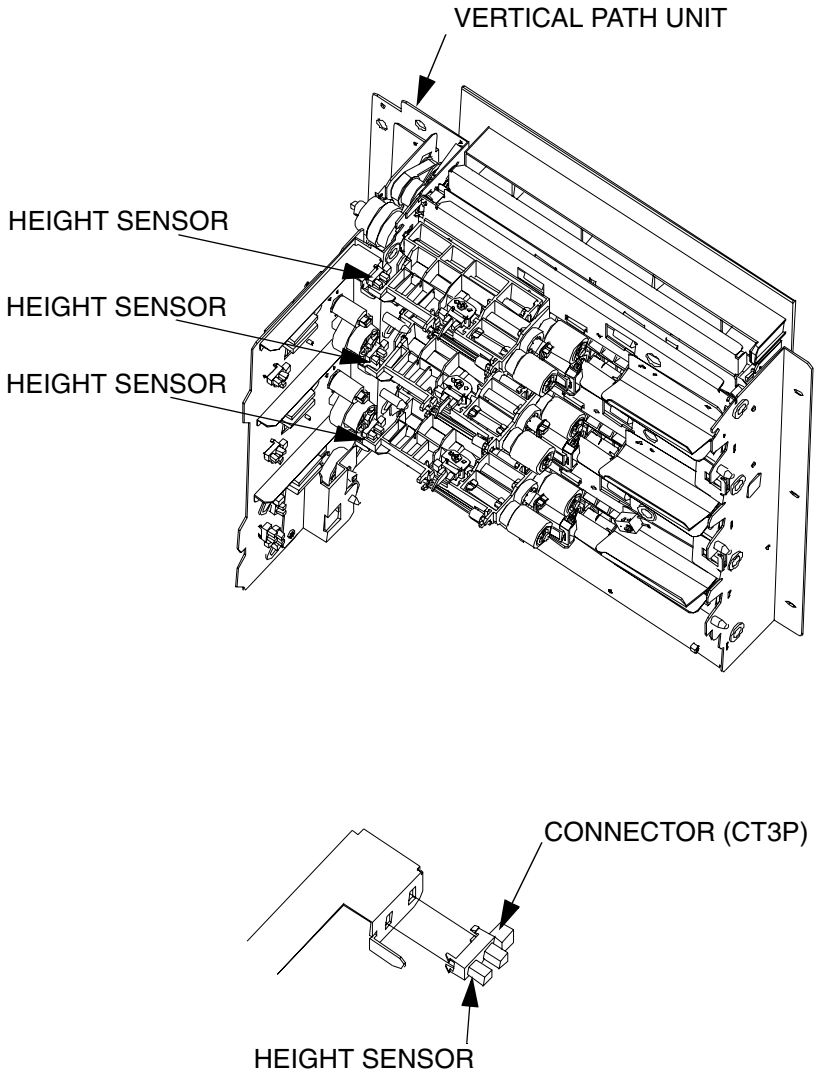


Figure 7-216. Removal of the Height Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.4.3. (18) Removal of the Pick Sensor

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper and remove the two 500 Sheet Hoppers. (Refer to item 7.1.4.3. (4) on page 7-182)
2. Remove the Guide Plate. (Refer to item 7.1.4.3. (4) on page 7-182)
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Pick Sensor.

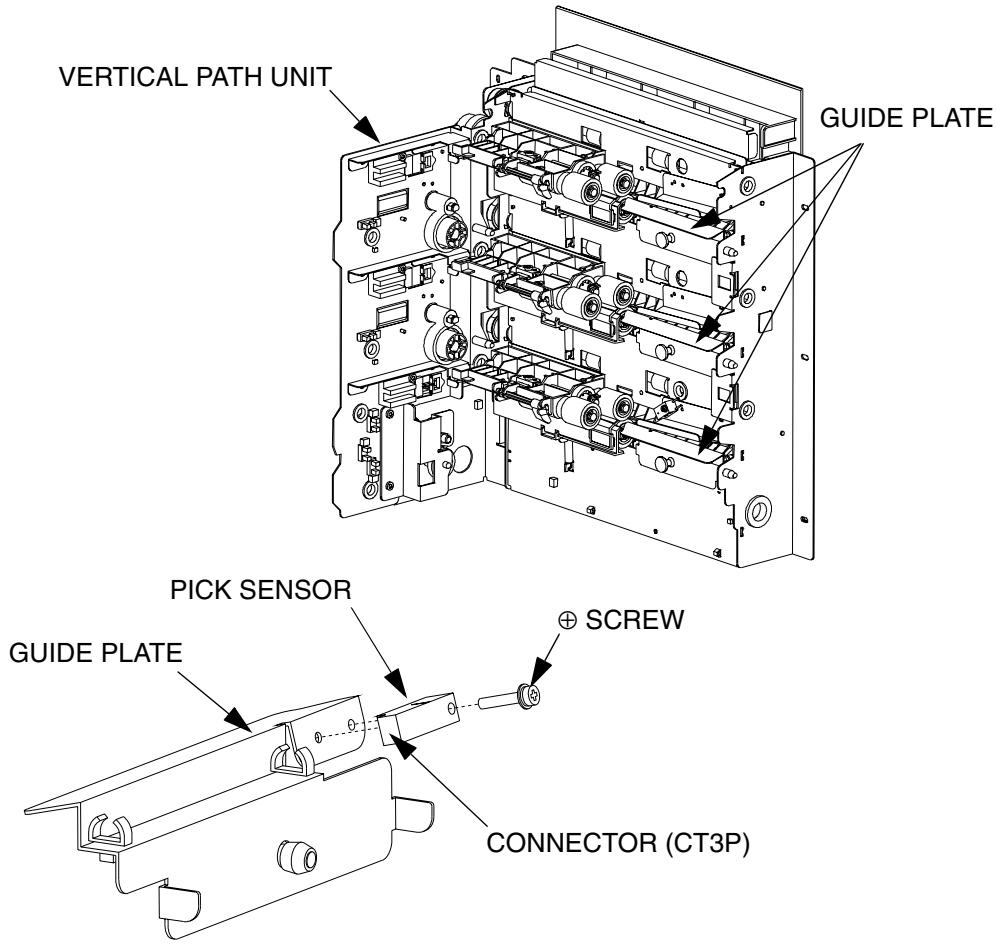


Figure 7-217. Removal of the Pick Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.4.3. (19) Removal of the Rest Sensor

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 Vertical Path Unit. (Refer to item 7.1.4.3. (1) on page 7-178)
2. Disconnect the connectors.
3. Remove the Rest Sensor.

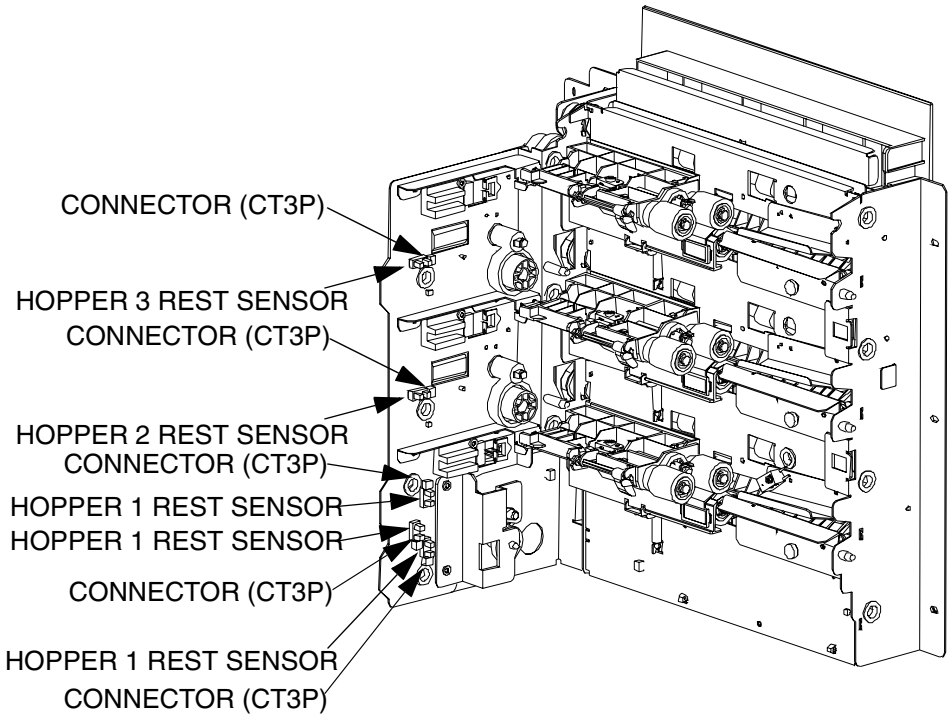


Figure 7-218. Removal of the Rest Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.4.3. (20) Removal of the Feed Sensor

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 RH Side Lower Cover. (Refer to item 3.3.2. (1) on page 3-12)
2. When the Auxiliary Sheet Hopper is attached, remove it. (Refer to item 7.2.1 on page 7-232)
3. Remove the IS Cover Assembly. (Refer to item 7.1.4.3. (6) on page 7-184)
4. Unscrew the six ⊕ screws to remove the Paper Guide A.
5. Disconnect the connectors.
6. Remove the Sensor Holder from the Paper Guide A.
7. Remove the Feed Sensor from the Sensor Holder.

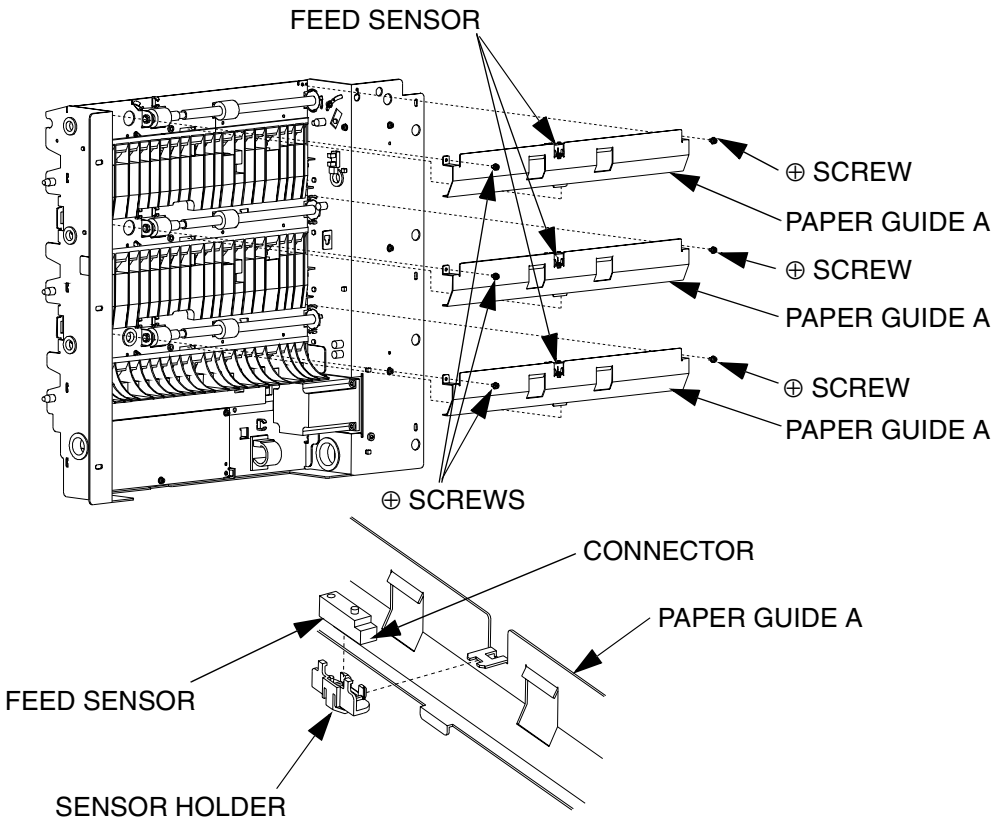


Figure 7-219. Removal of the Feed Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

[Checks]

Make sure that the snap-fit parts of the Sensor Holder are correctly fastened.

7.1.4.3. (21) Removal of the Cover Open Sensor

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

Applicable jigs and tools: None.

[Disassembling Procedures]

1. Open the IS Cover.
2. Disconnect the connector.
3. Remove the Cover Open Sensor.

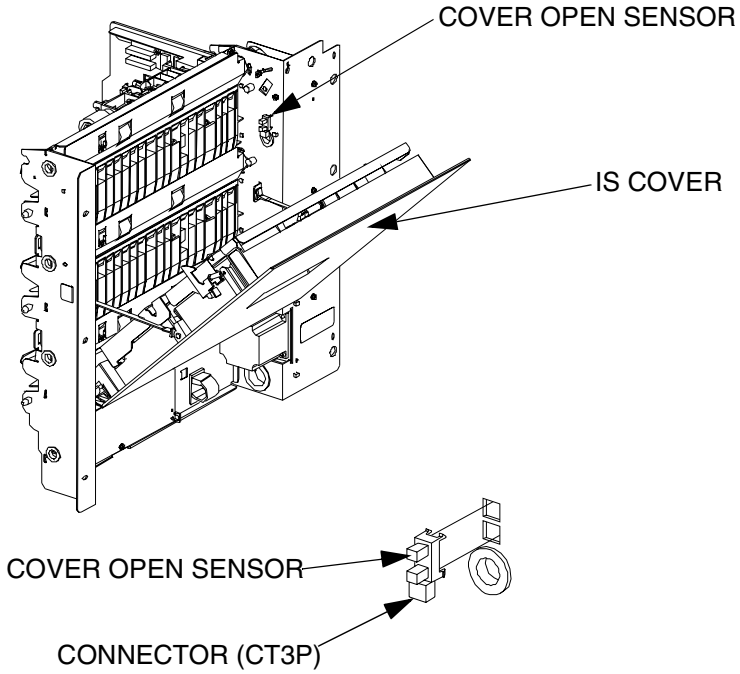


Figure 7-220. Removal of the Cover Open Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.4.3. (22) Removal of the HPxxx Assembly

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 RH Side Lower Cover. (Refer to item 3.3.2. (1) on page 3-12)
2. When the High Cpacity Hopper is attached, remove it. (Refer to item 7.2 on page 7-232)
3. Disconnect the connectors J/P401, J/P403, J/P404, J/P405, J/P406, J/P407, J/P408, J/P409.
4. Unscrew the two ⊕ screws and pull out the HPxxx Assembly.

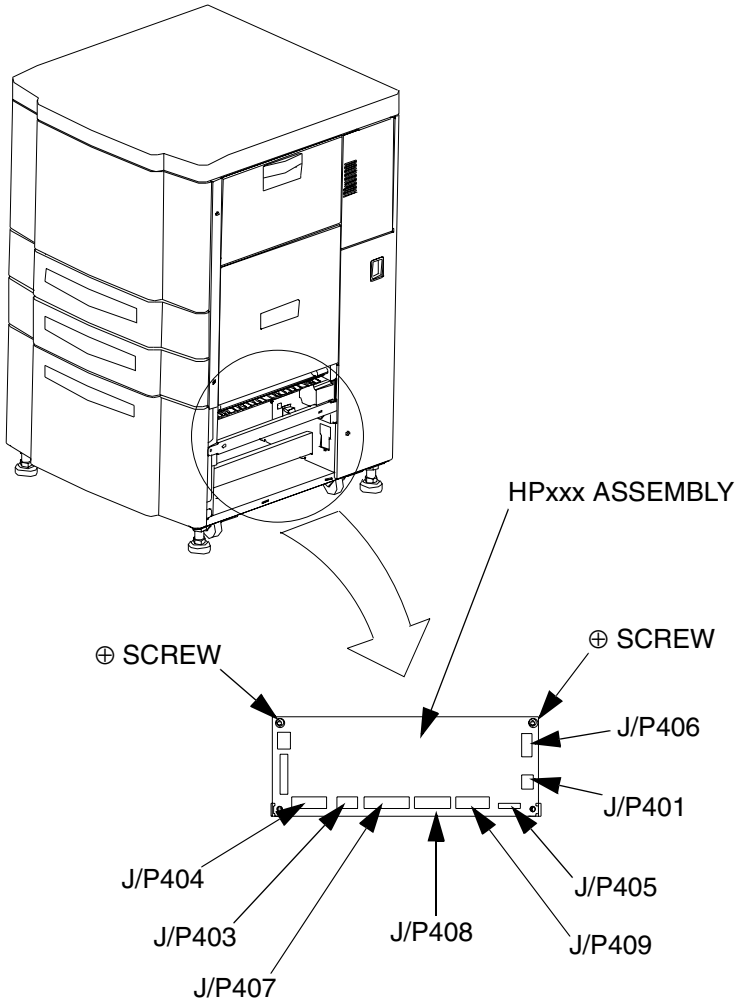


Figure 7-221. Removal of the HPxxx Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.4.3. (23) Removal of the Table Drive Gears

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

Applicable jigs and tools: ⊕ Screwdriver, - Precision Screwdriver.

[Disassembling Procedures]

1. Remove the Vertical Path Unit. (Refer to item 7.1.4.3. (1) on page 7-178)
2. Remove the Shaft Holder, the Idler Gear, and the Motor Gear. (Refer to item 7.1.4.3. (12) on page 7-190)
3. Remove the Retaining Ring-E and the Coupling Gear.
4. Pull out the Motor Gear 2.

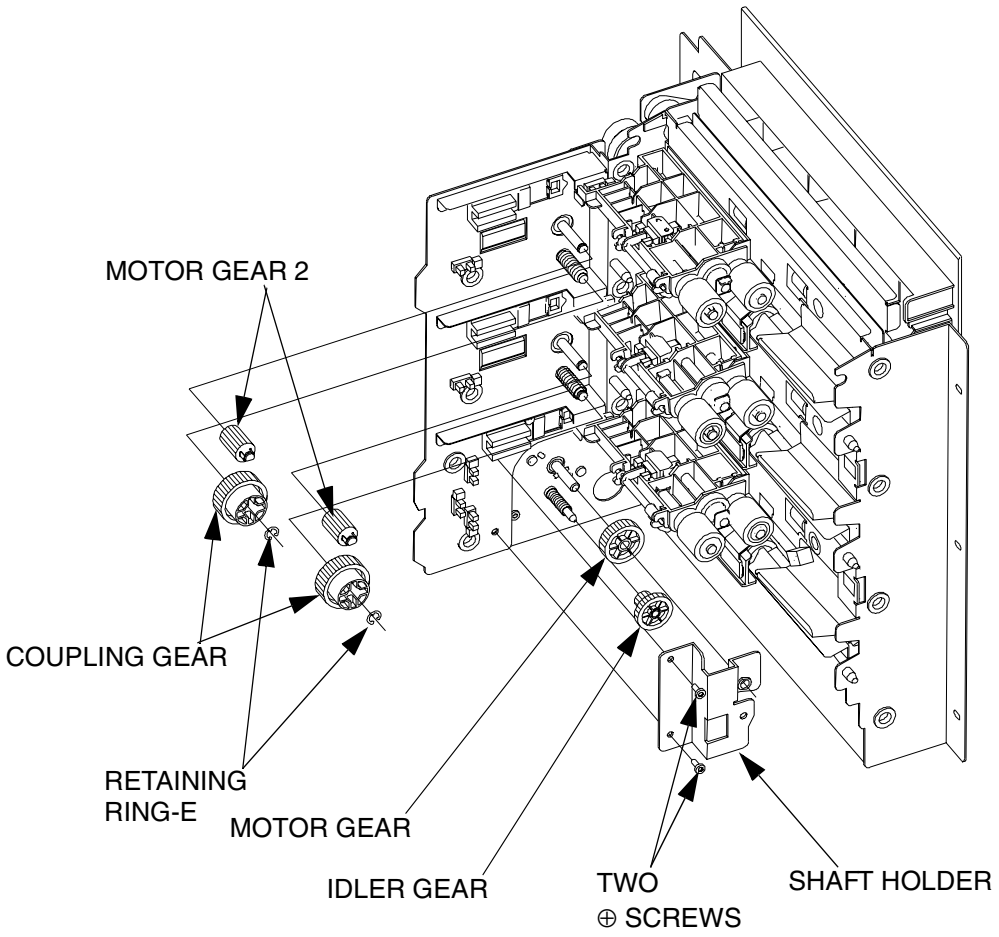


Figure 7-222. Removal of the Table Drive Gears

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.5. Removal of the Other Parts

7.1.5.1. Removal of the Engine Other Parts

7.1.5.1. (1) Removal of the Fan Assembly (1)

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

Applicable jigs and tools: ⊕ Screwdriver, ⊕ Screwdriver (Short).

[Disassembling Procedures]

1. Remove the Optical Unit. (Refer to item 7.1.1 on page 7-1)
2. Disconnect the Connector from the Fan Assembly (1).
3. Remove the Fan Assembly (1).

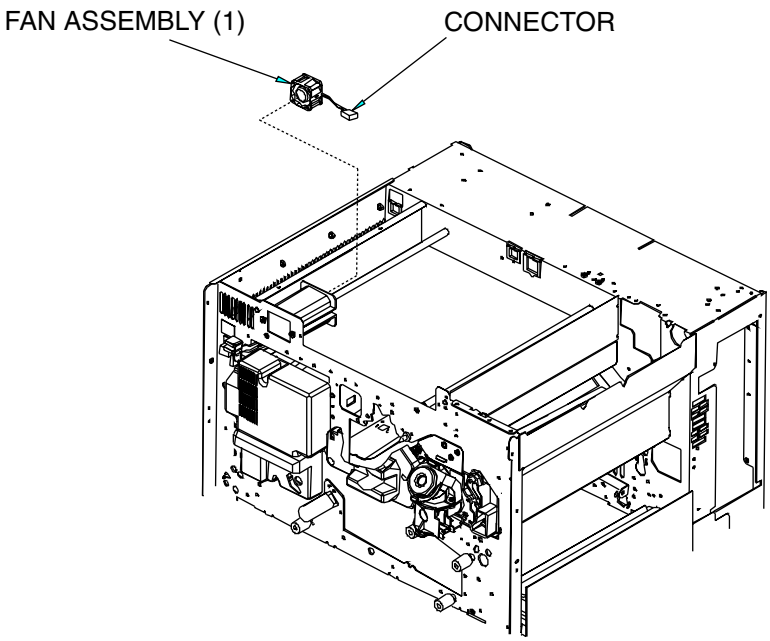


Figure 7-223. Removal of the Fan Assembly (1)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.5.1. (2) Removal of the HR Fan 1, 2

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 3.3.2. (1) on page 3-12)
2. Disconnect the Connector from the HR Fan 1, 2.
3. Unscrew the two ⊕ screws to remove the Cooling Assembly (1).
4. Remove the Ozone Filter R1 and the Air Filter (1).
5. Unscrew the four ⊕ screws to remove the HR Fan 1, 2.

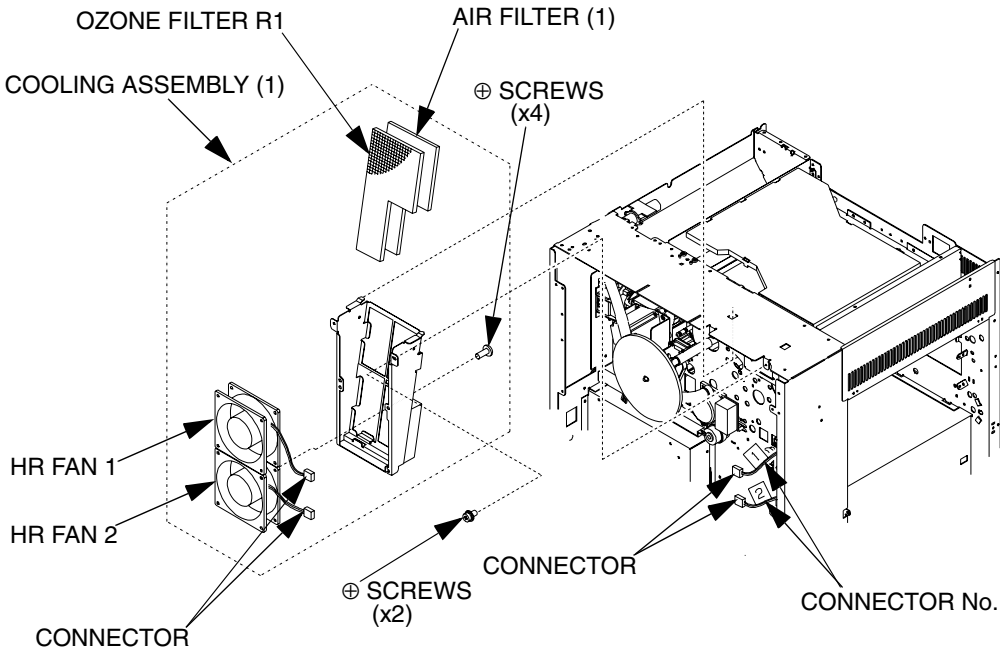


Figure 7-224. Removal of the HR Fan 1, 2

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Connect No. 1 to the HR Fan 1, and connect No. 2 to the HR Fan 2.

7.1.5.1. (3) Removal of the Fan Assembly (3)

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

Applicable jigs and tools: ⊕ Screwdriver, ⊕ Screwdriver (Short).

[Disassembling Procedures]

1. Remove the Inner Cover. (Refer to item 7.1.5.1. (19) on page 7-220)
2. Disconnect the Connector from the Fan Assembly (3).
3. Unscrew the two ⊕ screws to remove the Fan Assembly (3).

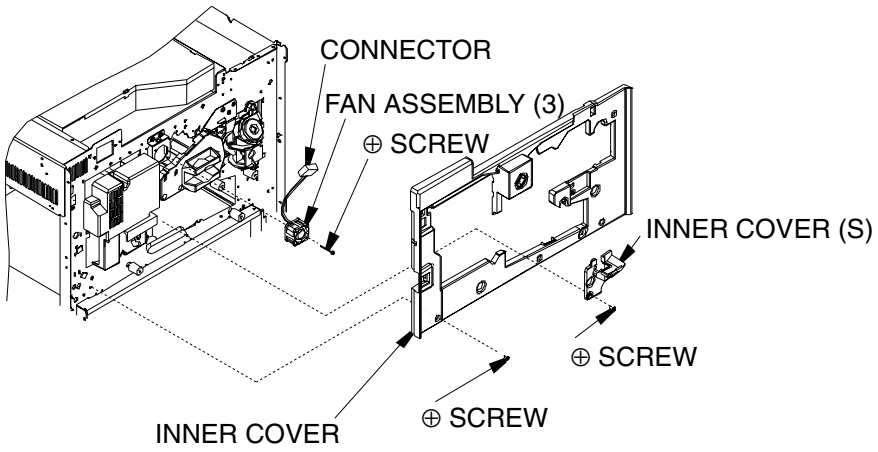


Figure 7-225. Removal of the Fan Assembly (3)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.5.1. (4) Removal of the DC Fan (Paper Out)

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. Remove the Rear Cover. (Refer to item 3.3.2. (1) on page 3-12)
3. Remove the Top Cover (Ony for the **Front** Engine). (Refer to item 3.3.2. (1) on page 3-12)
4. Unscrew the four ⊕ screws to remove the Arm Guide. (Only for the **Rear** Engine) (Refer to item 7.1.1 on page 7-1) - Procedures 3 and 4.
5. Unscrew the ⊕ screws to remove the Opt. Cover. (Refer to item 7.1.1 on page 7-1) - Procedure 5.
6. Unscrew the ⊕ screws.
7. Disconnect the Connector from the DC Fan (Paper Out).

Note: When changing the DC Fan of Rear Engine, remove and scrap the two DC Fans which are attached to both ends, if Rear Engine Rev "R" is not painted out.

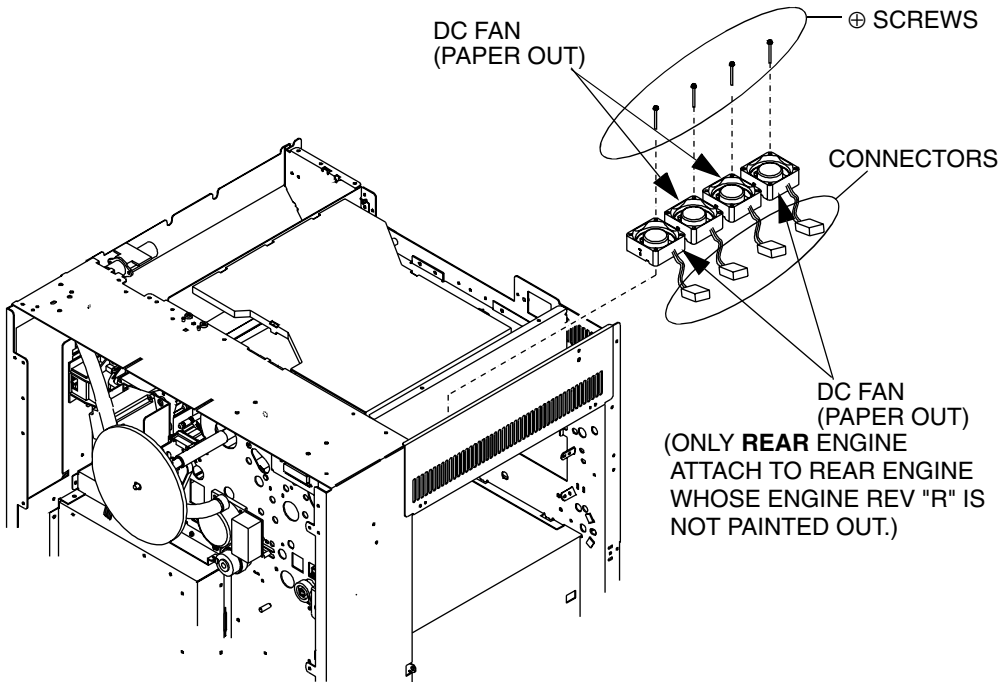


Figure 7-226. Removal of the DC Fan (Paper Out)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.5.1. (5) Removal of the DC Fan (DEV)

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 3.3.2. (1) on page 3-12)
2. Loosen the two ⊕ screws to remove the Cooling (DEV) Assembly.
3. Disconnect the Connector from the DC Fan (DEV).
4. Remove the DC Fan (DEV).

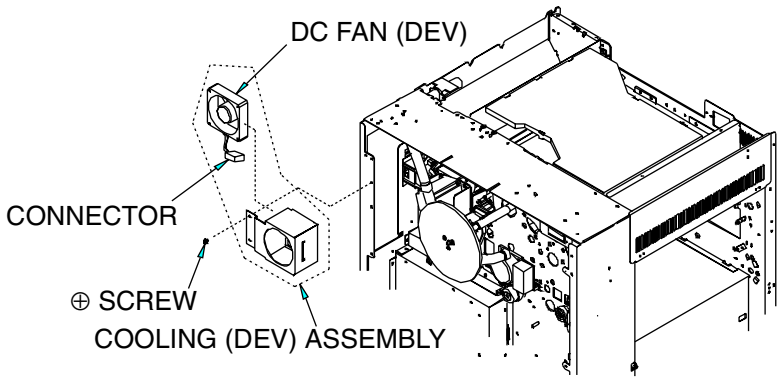


Figure 7-227. Removal of the DC Fan (DEV)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.5.1. (6) Removal of the DEV Cooling Fan

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 Bottle Box Assembly. (Refer to item 7.1.2.6. (3) on page 7-64)
2. Remove the Cooling (DEV) Assembly. (Refer to item 7.1.5.1. (5) on page 7-206) - Procedures 1 and 2.
3. Remove the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Unscrew the two ⊕ screws to remove the DEV Cooling Fan Duct Assembly.
5. Disconnect the Connector from the DEV Cooling Fan.
6. Remove the DEV Cooling Fan.

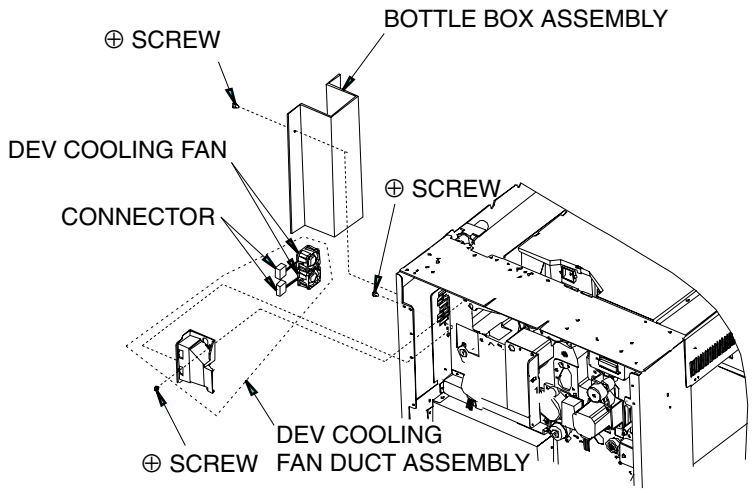


Figure 7-228. Removal of the DEV Cooling Fan

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.5.1. (7) Removal of the Ozone Blower

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

Applicable jigs and tools: ⊕ Screwdriver, ⊕ Screwdriver (Short).

[Disassembling Procedures]

1. Remove the Rear Cover. (Refer to item 3.3.2. (1) on page 3-12)
2. Remove the Top Cover. (Refer to item 3.3.2. (1) on page 3-12)
3. Remove the Fly Wheel. (Refer to item 7.1.2.5. (1) on page 7-47) - Procedure 6.
4. Remove the Ozone Chamber Lid Assembly.
5. Disconnect the Connector P/J348 from the Ozone Blower.
6. Unscrew the ⊕ screw to remove the Ozone Chamber Assembly.
7. Unscrew the three ⊕ screws to remove the Ozone Blower.

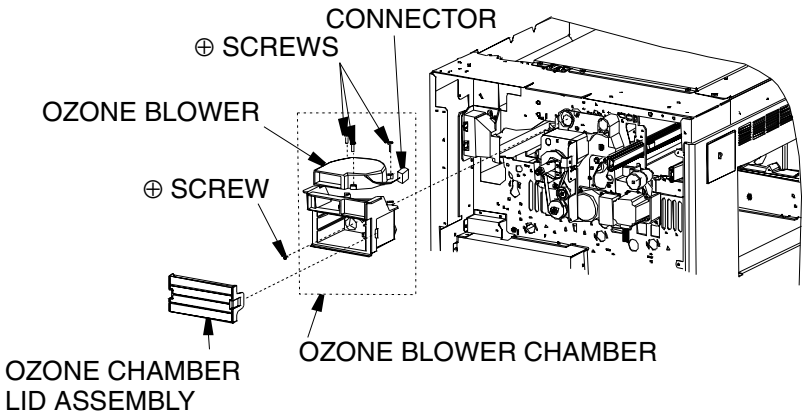


Figure 7-229. Removal of the Ozone Blower

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.5.1. (8) Removal of the Ozone Filter and Air Filter

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

Applicable jigs and tools: ⊕ Screwdriver, Spanner(M6).

[Disassembling Procedures]

1. Remove the Rear Cover Assembly. (Refer to item 3.3.2. (1) on page 3-12)
2. Remove the Ozone Chamber Lid Assembly.
3. Remove the Ozone Filter and Air Filter.

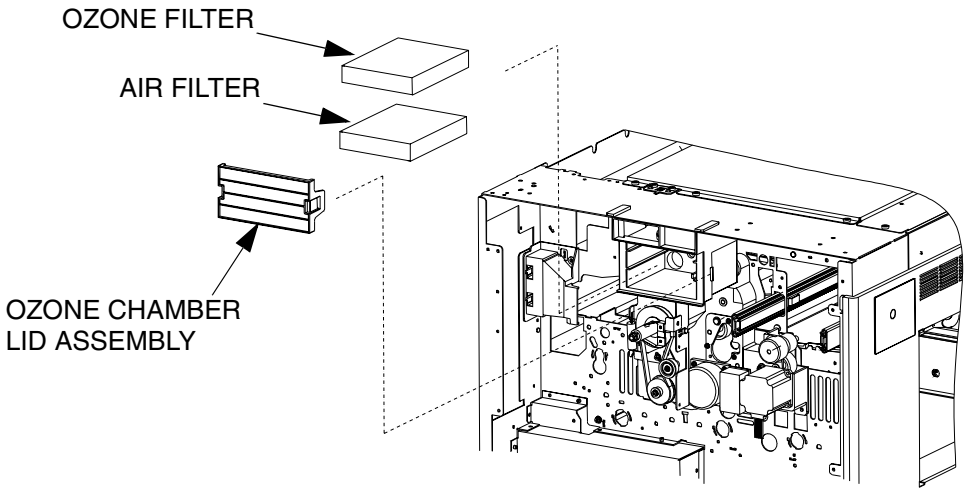


Figure 7-230. Removal of the Ozone Filter and Air Filter

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.5.1. (9) Removal of the Air Filter (1), (2), and Ozone Filter R1

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 Cooling Assembly (1). (Refer to item 7.1.5.1. (2) on page 7-203)
2. Remove the Air Filter (1), (2), and the Ozone Filter R1.

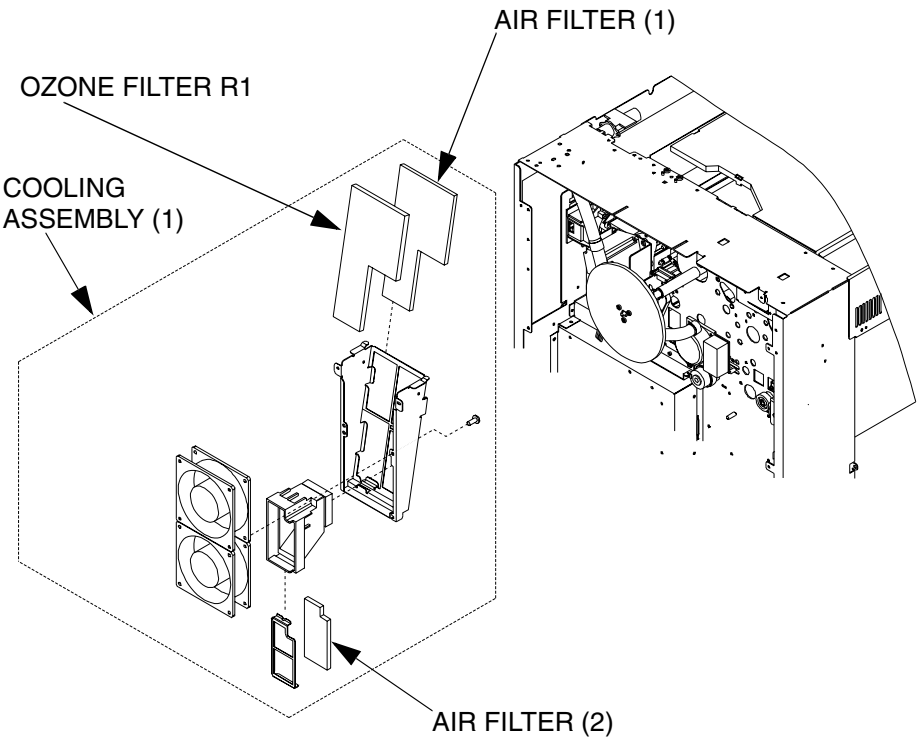


Figure 7-231. Removal of the Air Filter (1), (2), and Ozone Filter R1

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.5.1. (10) Removal of the Air Filter (3) and Ozone Filter R2

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 Cooling (DEV) Assembly. (Refer to item 7.1.5.1. (5) on page 7-206)
2. Remove the Air Filter (3) and the Ozone Filter R2.

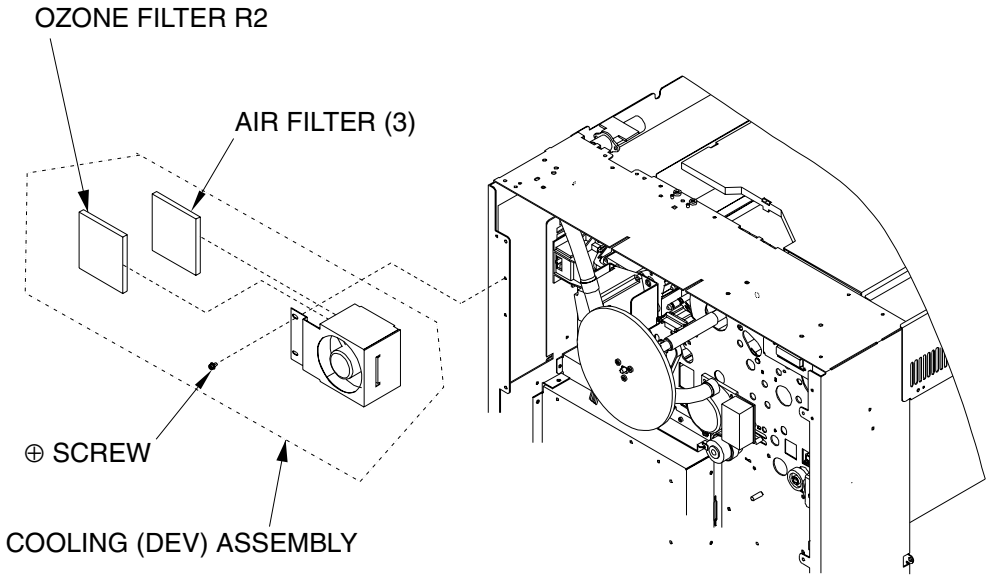


Figure 7-232. Removal of the Air Filter (3) and Ozone Filter R2

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

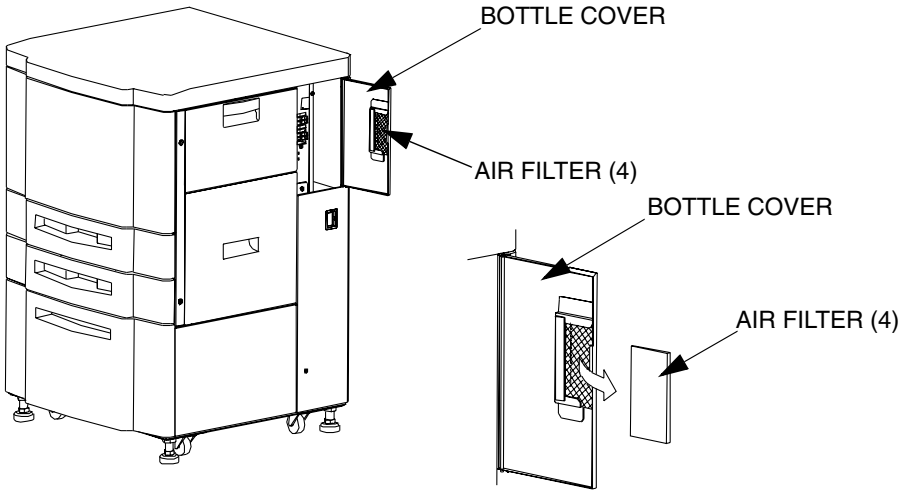
7.1.5.1. (11) Removal of the Air Filter (4)

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

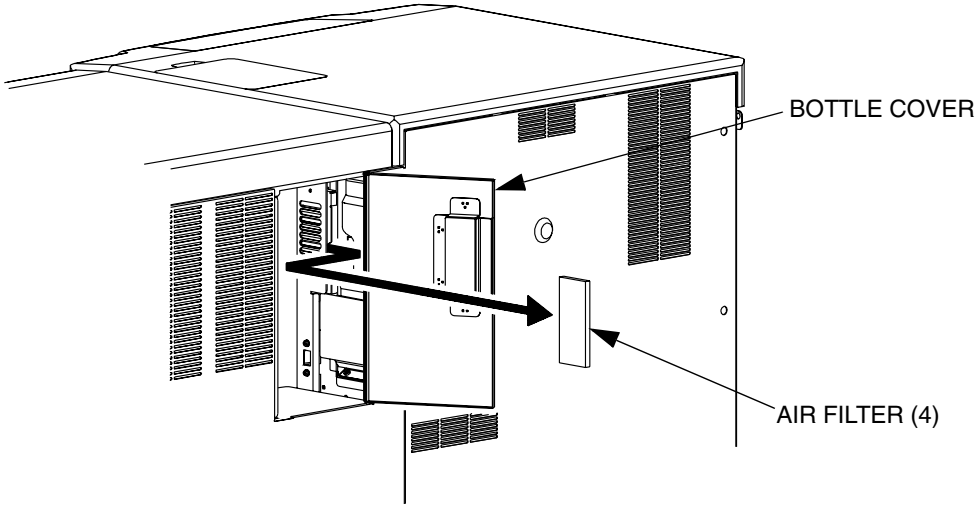
Applicable jigs and tools: None.

[Disassembling Procedures]

1. Open the Bottle Cover.
2. Remove the Air Filter (4).



FRONT ENGINE



REAR ENGINE

Figure 7-233. Removal of the Air Filter (4)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.5.1. (12) Removal of the Drum Wrap Sensor

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

Applicable jigs and tools: ⊕ Screwdriver, Lint-Free Cloth.

[Disassembling Procedures]

1. Open the Front Cover.
2. Remove the Drum Unit. (Refer to item 7.1.2.1. (1) on page 7-4)
3. Remove the Developer Unit. (Refer to item 7.1.2.3. (1) on page 7-10)
4. Unscrew the two ⊕ screws to remove the Toner Guard Plate.
5. Remove the Snaps by pushing in the directions of arrow **A** to release the Drum Wrap Sensor in the direction of arrow **B**.
6. Disconnect the connector in the direction of arrow **C**.

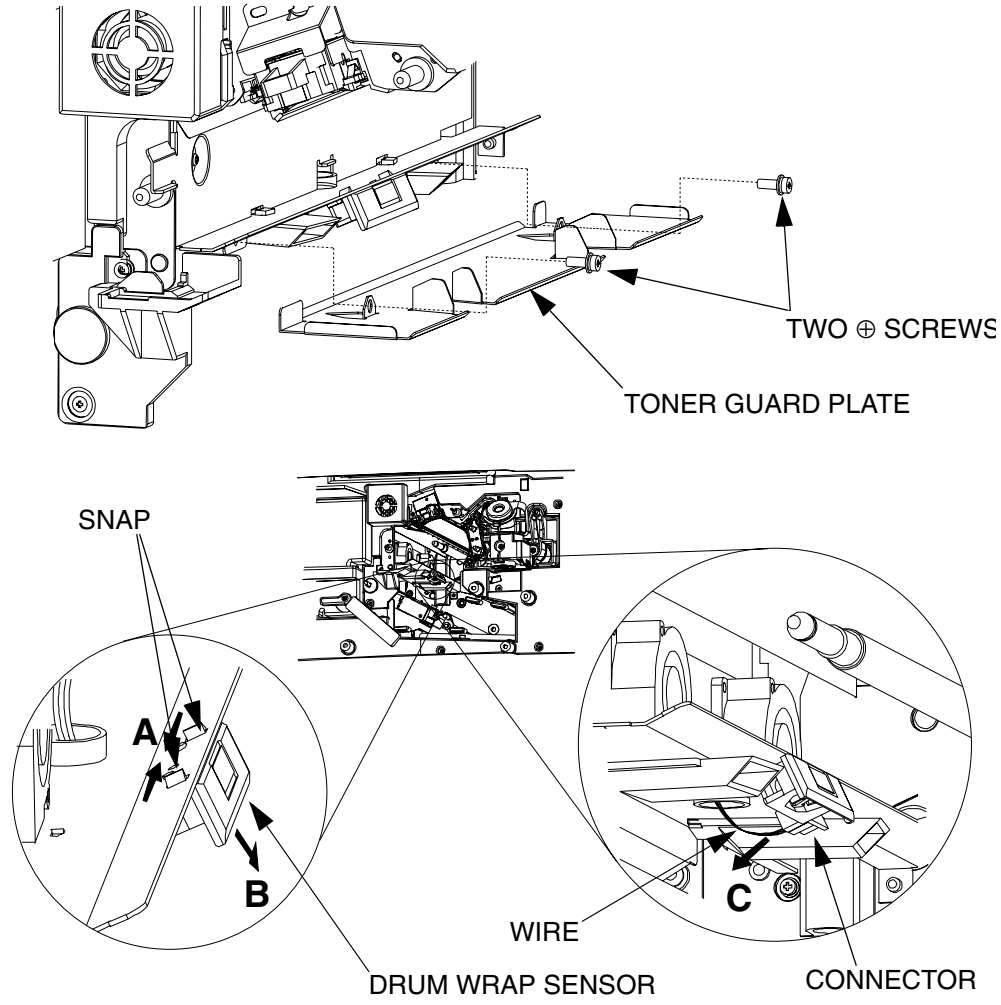


Figure 7-234. Removal of the Drum Wrap Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Make sure that the wire is tightened after reinstalling the Drum Wrap Sensor.

7.1.5.1. (13) Removal of the CPxxx Assembly

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 OCxxx Assembly. (Refer to item 7.1.5.1. (17) on page 7-218)
2. Disconnect the connector from the CPxxx Assembly.
3. Unscrew four ⊕ screws to remove the CPxxx Assembly.

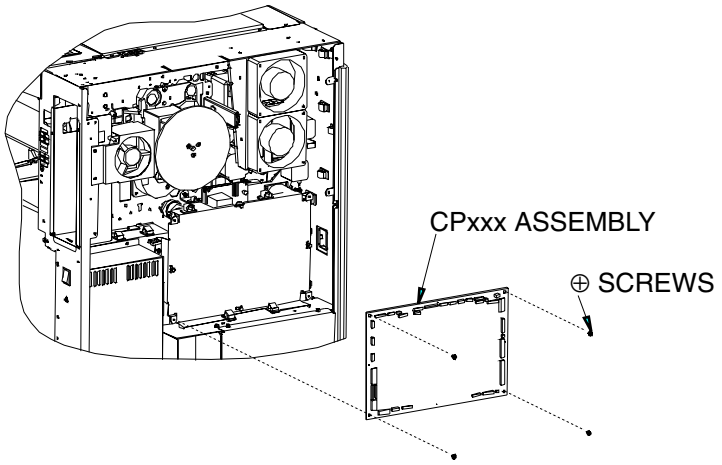


Figure 7-235. Removal of the CPxxx Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: When CPxxx Assembly are exchanged.
a. Restore the nvRAM data of the CPxxx Assembly backed up into the HDD to the nvRAM on the new CPxxx Assembly. (Refer to the Controller Maintenance Manual)
b. Set up the DIP SW. (Only for the **Front** Engine.) (Refer to item 3.13 on page 3-38)

7.1.5.1. (14) Removal of the High Voltage Power Supply (1)

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

Applicable jigs and tools: ⊕ Screwdriver, ⊕ Screwdriver (Short).

[Disassembling Procedures]

1. Remove the Cooling (DEV) Ass'y. (Refer to item 7.1.2.6. (1) on page 7-60) - Procedure 4 to 6.
2. Remove the Toner Collector Bottle. (Refer to item 7.1.2.6. (1) on page 7-60) - Procedure 9 and 10.
3. Disconnect the connector from the High Voltage Power Supply (1).
4. Remove the three Faston Terminals.
5. Unscrew the ⊕ screw through the screwdriver in the Hole of the Bottle Box Assembly.
6. Remove the High Voltage Power Supply (1).

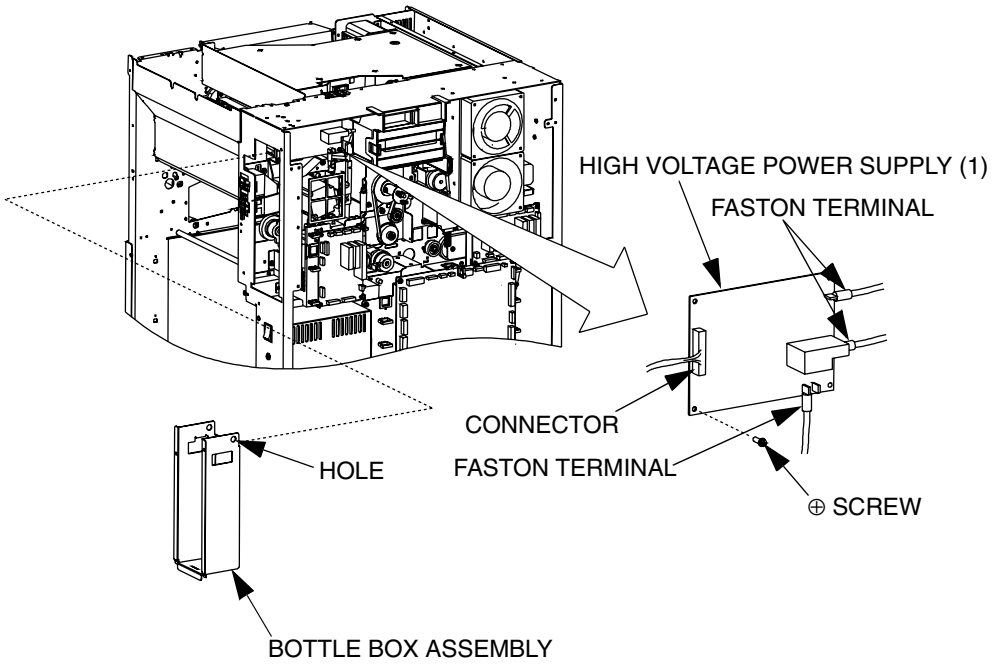


Figure 7-236. Removal of the High Voltage Power Supply (1)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.5.1. (15) Removal of the High Voltage Power Supply (2)

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

Note: When the High Voltage Power Supply (2) is exchanged, record the value of Detach AC Voltage before it is removed. And set the same value to installed another one. (Refer to item 8.6.2 on page 8-111)

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Remove the OCxxx Assembly. (Refer to item 7.1.5.1. (17) on page 7-218)
2. Disconnect the connector from the CPxxx Assembly.
3. Unscrew the two ⊕ screws to remove the CP PK Assembly.
4. Remove the two Faston Terminals.
5. Unscrew the ⊕ screws to remove the High Voltage Power Supply (2).

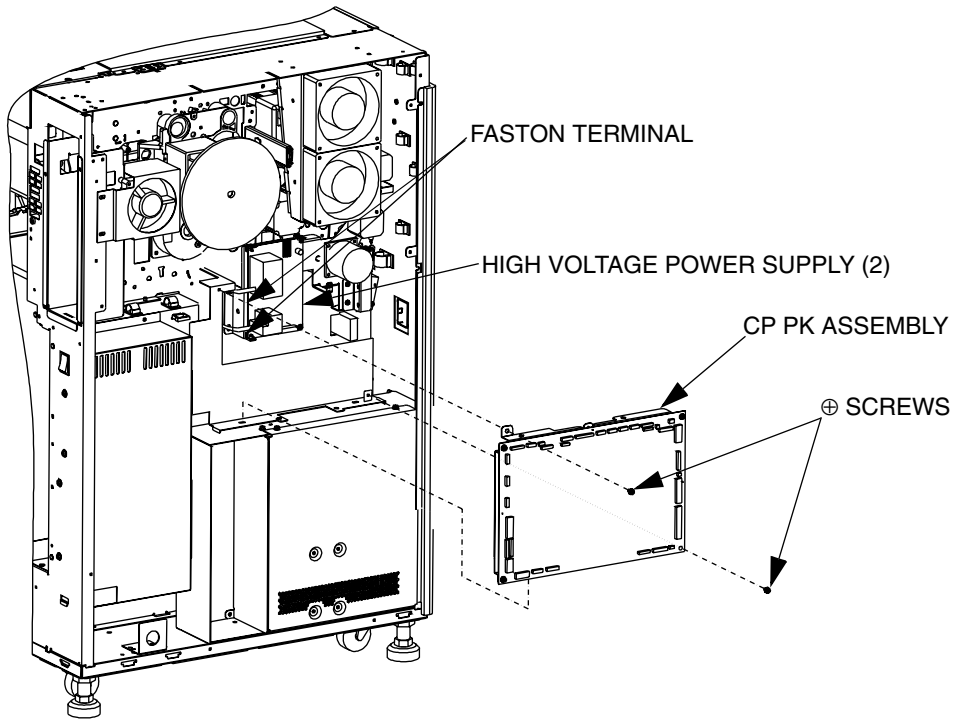


Figure 7-237. Removal of the High Voltage Power Supply (2)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.5.1. (16) Removal of the Power Supply

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Remove the Rear Cover Assembly. (Refer to item 3.3.2. (1) on page 3-12)
2. Remove the CE Box Assembly. (Refer to item 7.1.5.1. (20) on page 7-222) - *Procedures 1 to 5*.
3. Disconnect the connector from the Power Supply.
4. Unscrew the five ⊕ screws to remove the Power Cable.
5. Unscrew the three ⊕ screws to remove the Power Supply.

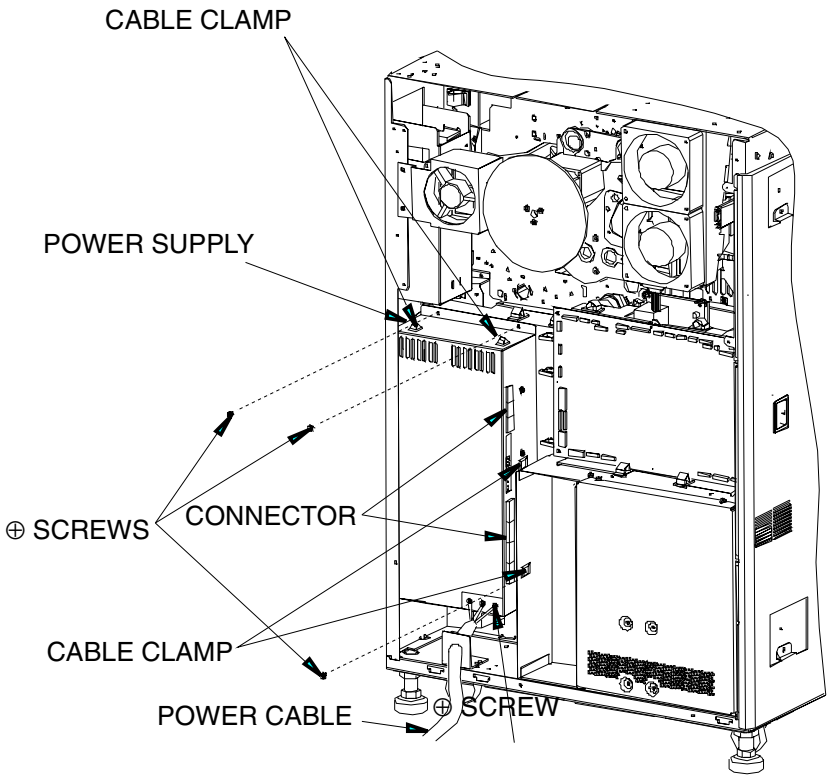


Figure 7-238. Removal of the Power Supply

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: When exchanging the power supply, attach four cable clamps in the new power supply after removing them from the old power supply.

7.1.5.1. (17) Removal of the OCxxx Assembly

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 Assembly. (Refer to item 3.3.2. (1) on page 3-12)
2. Disconnect the connector from the OCxxx Assembly.
3. Unscrew the two ⊕ screws to remove the OCxxx Assembly.

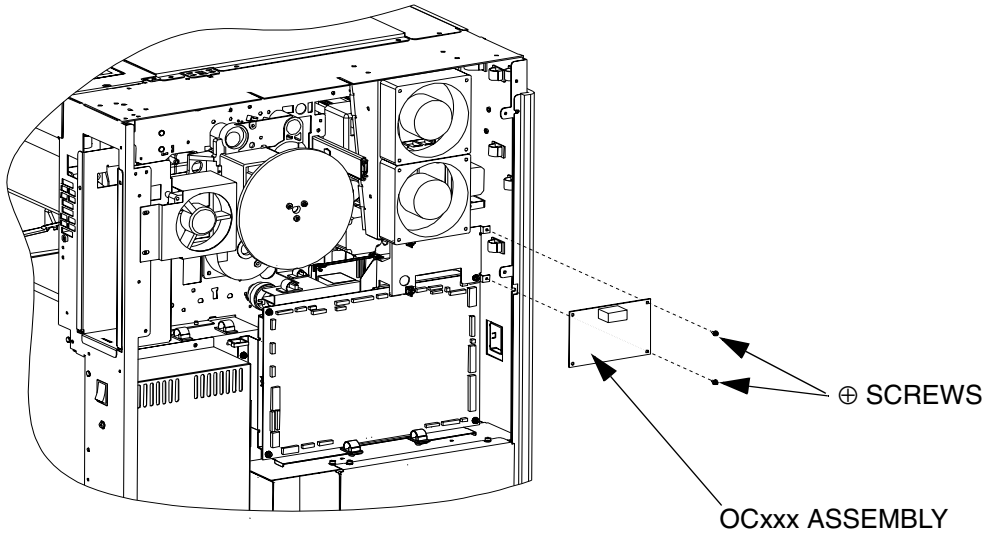


Figure 7-239. Removal of the OCxxx Assembly

[Assembling Procedures]

1. Perform the disassembling procedures in the reverse order.

7.1.5.1. (18) Removal of the Front Air Filter

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

Applicable jigs and tools: None.

[Disassembling Procedures]

1. Open the Front Cover. (Refer to item 3.2.1 on page 3-2)
2. Remove the Front Air Filter.

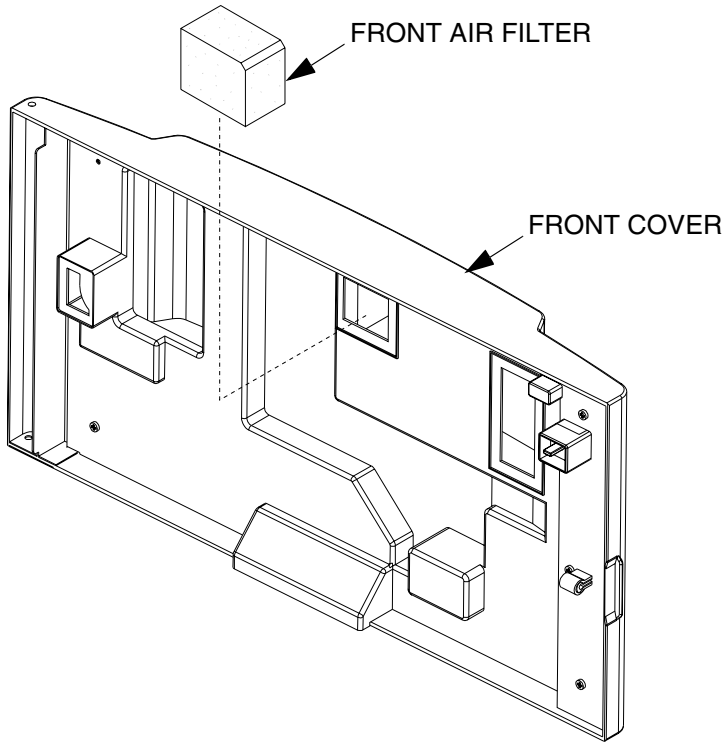


Figure 7-240. Removal of the Front Air Filter

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.5.1. (19) Removal of the Inner 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. Remove the Rear Cover and the Top Cover. (Only for the **Front** Engine) (Refer to item 3.3.2. (1) on page 3-12)
3. Open the Top Cover. (Only for the **Rear** Engine)
4. Remove the Panel Holder Assembly. (Only for the **Rear** Engine) (Refer to item 7.1.1 on page 7-1) - Procedure 6.
5. Unscrew the two ⊕ screws to remove the DEV Latch Handle Ass'y.
6. Open the Developer Duct Cap.
7. Unscrew the two ⊕ screws to remove the Inner Cover (S).
8. Unscrew the seven ⊕ screws to move the Inner Cover.
9. Unscrew the ⊕ screws of the FD Cover Band to remove the Inner Cover.

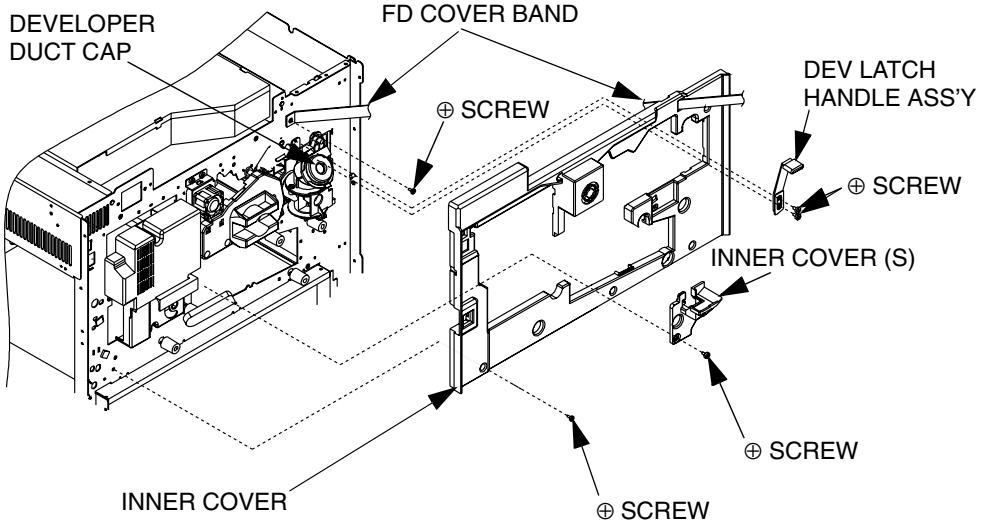


Figure 7-241. Removal of the Inner Cover

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Perform fixation of the DEV Latch Handle Ass'y in the following procedures.
1. Hook the DEV Latch to the Developer Unit.
2. Flush the upper part of the DEV Latch Handle Ass'y inside the Top Cover.
3. Tighten the two ⊕ screws.

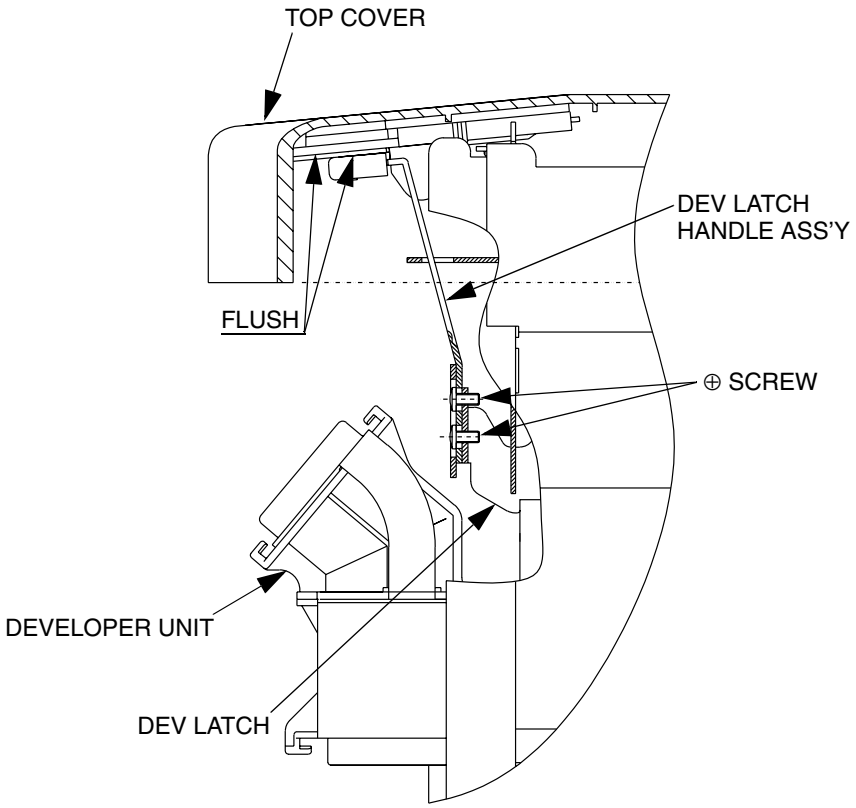


Figure 7-242. Fixation of the DEV Latch Handle Ass'y

7.1.5.1. (20) Removal of the Switching Regulator (5V, 12V)

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 Assembly. (Refer to item 3.3.2. (1) on page 3-12)
2. Disconnect the P/J236 Connector from the Power Supply.
3. Unscrew the four ⊕ screws (M4), and the four ⊕ screws(M3) to remove the CE Box Cover.
4. Unscrew the two ⊕ screws (M4) to remove the LV Plate.
5. Unscrew the seven ⊕ screws (M4) to remove the CE Box Assembly.
6. Unscrew the ten ⊕ screws to remove the Cables.
7. Unscrew the four ⊕ screws (M3) to remove the Switching Regulators.

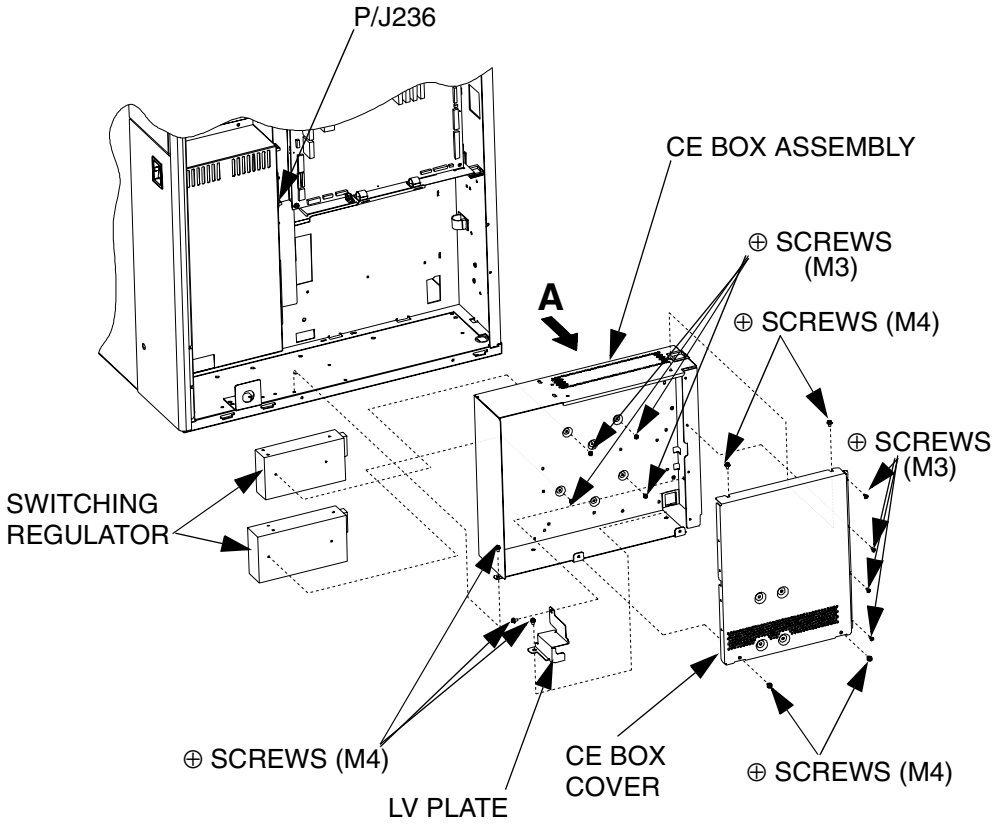


Figure 7-243. Removal of the Switching Regulator

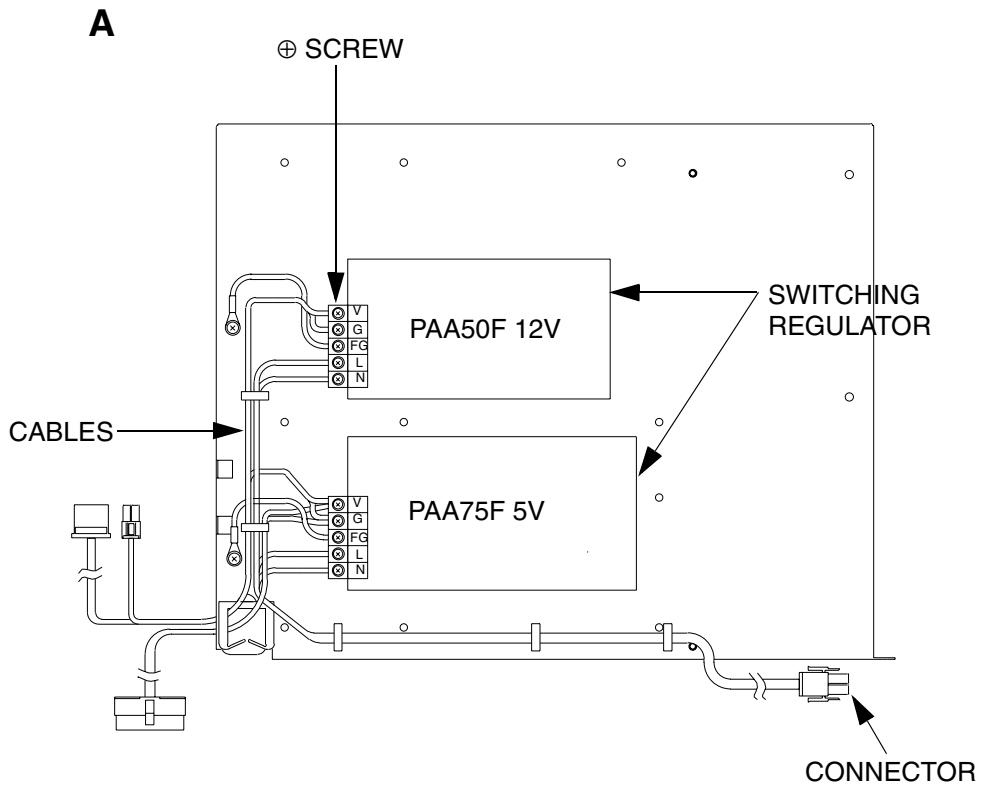


Figure 7-244. -2 Removal of the Switching Regulator

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.5.1. (21) Removal of the nvRAM on CPxxx Assembly

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

Applicable jigs and tools: ⊕ Screwdriver, an exclusive tool to pull RAMs.

[Disassembling Procedures]

1. Remove the CPxxx Assembly. (Refer to item 7.1.5.1. (13) on page 7-214)
2. Remove the nvRAM at "5D" with a pulling tool.

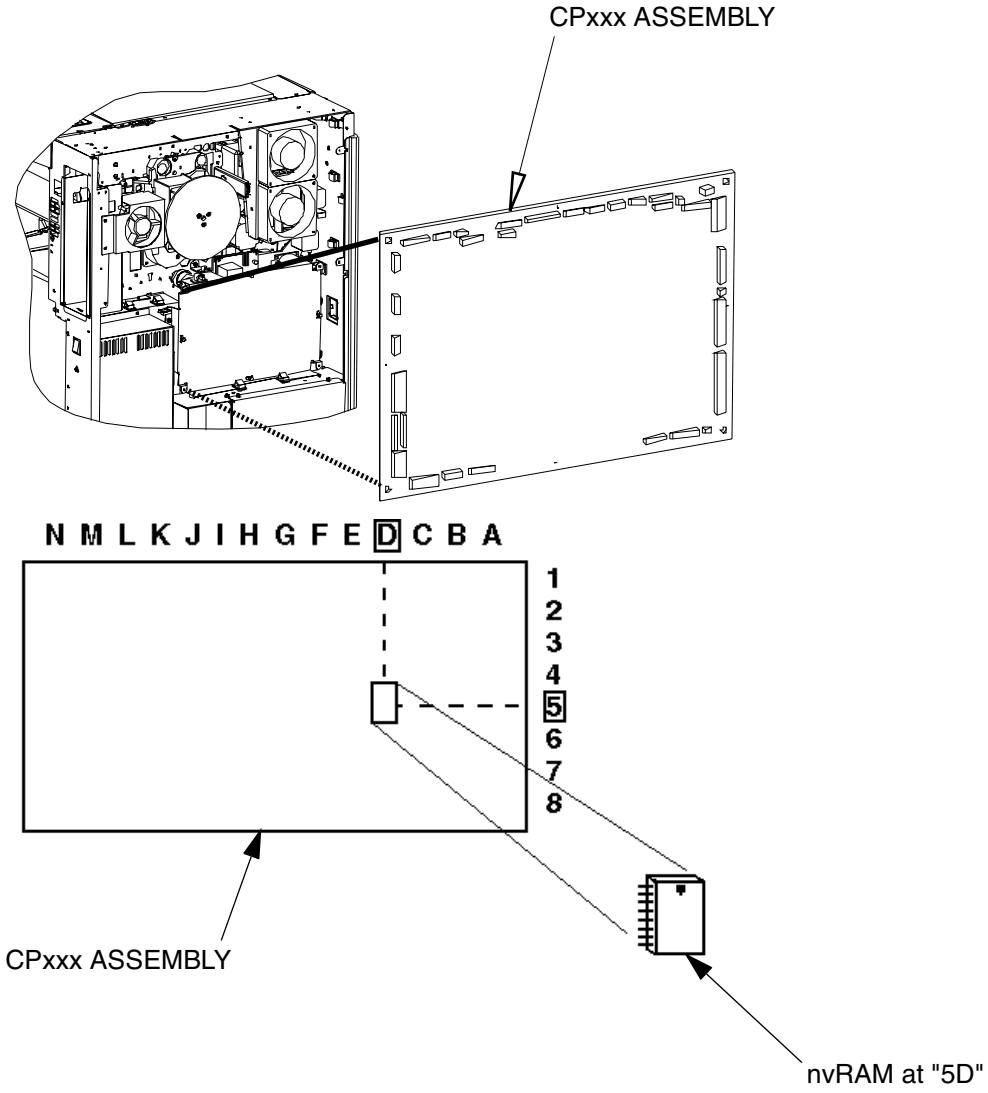


Figure 7-245. Removal of the nvRAM on CPxxx Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.5.1. (22) Removal of the AC011 Ass'y

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 Assembly. (Refer to item 3.3.2. (1) on page 3-12)
2. Remove the CE Box Assembly. (Refer to item 7.1.5.1. (20) on page 7-222) - Procedures 1 to 5.
3. Unscrew the two ⊕ screws (M3) to remove the AC Detect PK Holder.
4. Disconnect the two connectors of AC011 Ass'y.
5. Unhook the four holders to remove the AC011 Ass'y.

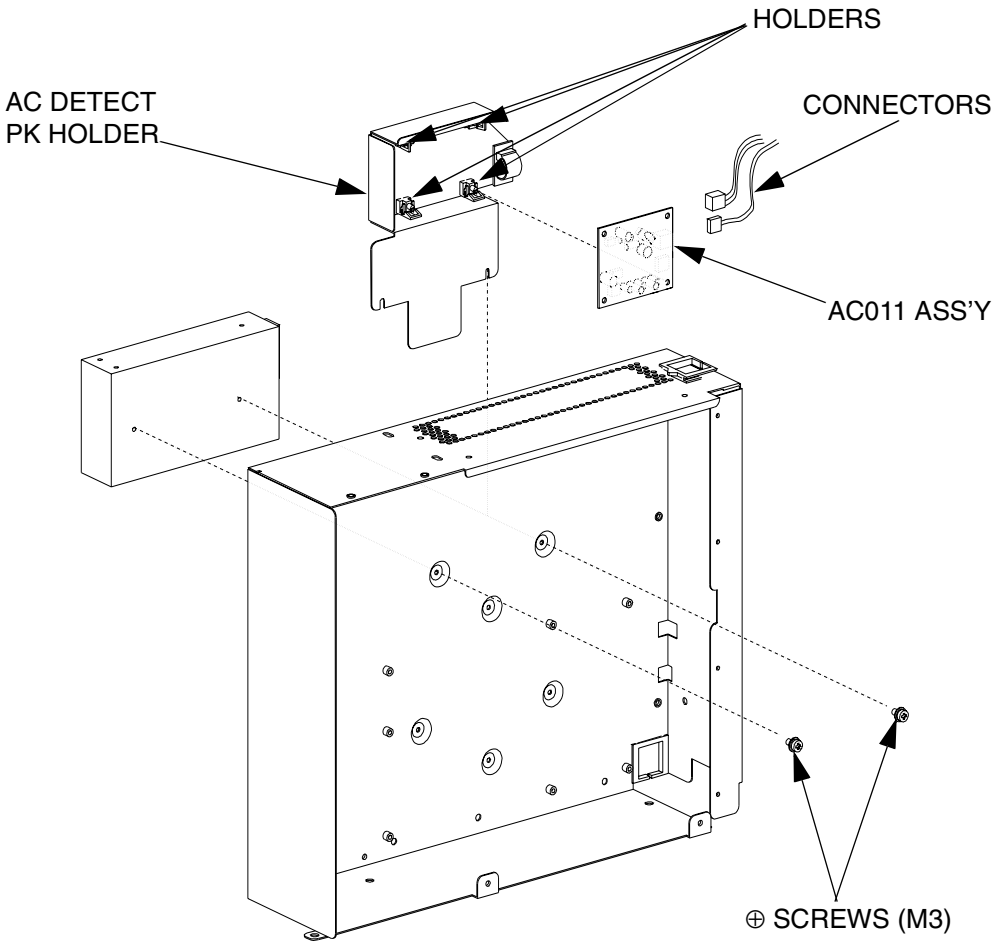


Figure 7-246. Removal of the AC011 Ass'y

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.5.1. (23) Removal of the Heater Driver

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 Assembly. (Refer to item 3.3.2. (1) on page 3-12)
2. Unscrew the two ⊕ screws (M4) to remove the Cord Lock Holder and PK Holder(1).
3. Unscrew the ⊕ screw (M3) to remove the PK Cover.
4. Disconnect the three connectors of the Heater Driver.
5. Unscrew the four ⊕ screws (M3) to remove the Heater Driver.

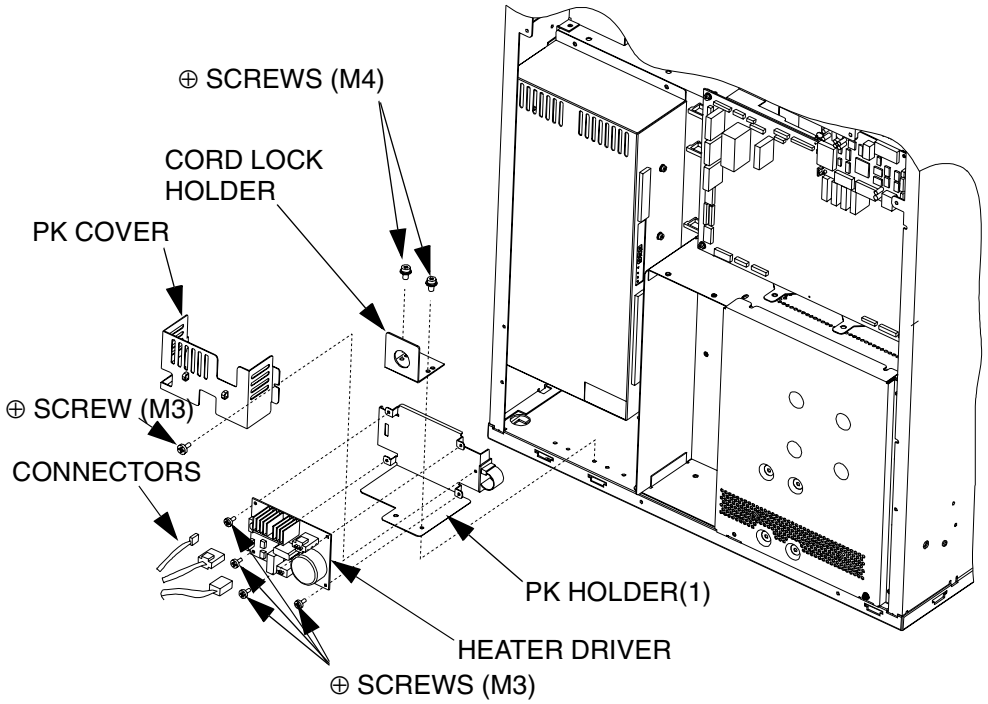


Figure 7-247. Removal of the Heater Driver

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.5.1. (24) Removal of the SB Fan and the Finisher Cooling Fan (Rear Engine)

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 from the Rear Engine. (Refer to item 3.3.2. (1) on page 3-12)
2. Separate the Finisher from the **Rear** Engine.
3. Disconnect the SB Fan connector.
4. Unscrew the ⊕ screw and remove the SB Fan Assembly in the direction of **A**.
5. Disconnect two connectors in the SB Fan Holder and unscrew the four ⊕ screws.
6. Remove the SB Fan.
7. Unscrew the two ⊕ screws and remove the Finisher Cooling Fan Holder.
8. Disconnect three connectors in the Finisher Cooling Fan Holder.
9. Remove the six Flange Nuts.
10. Remove the Finisher Cooling Fan.

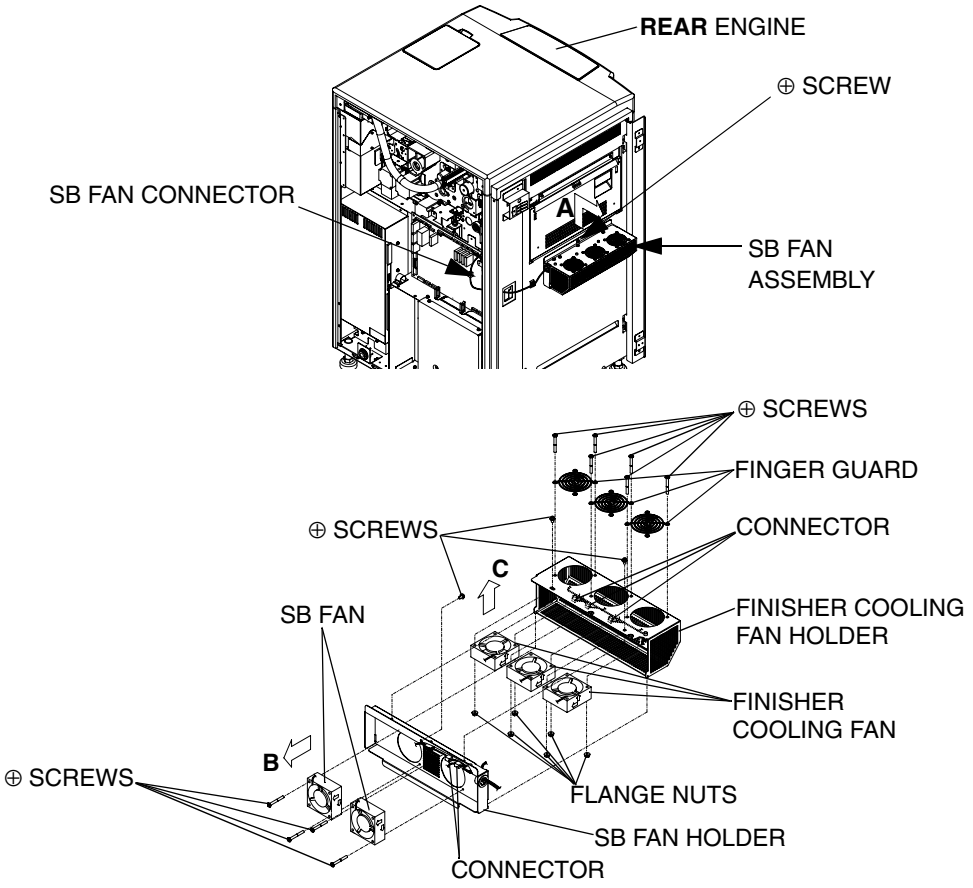


Figure 7-248. Removal of the SB Fan and the Finisher Cooling Fan (Rear Engine)

Note: When the SB Fan is fixed, the blow-off direction is turned in the direction of **B**.
When the Finisher Cooling Fan is fixed, the blow-off direction is turned in the direction of **C**.

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.5.1. (25) Removal of the Developer Set Sensor

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 Cooling (DEV) Assembly (**Rear** Engine). (Refer to item 7.1.5.1. (5) on page 7-206) - Procedures 1 to 3.
2. Remove the Connector of the Developer Set Sensor.
3. Unscrew the three ⊕ screws to remove the Developer Rear Cover Assembly.
4. Unscrew the two ⊕ screws to remove the Developer Set Sensor.

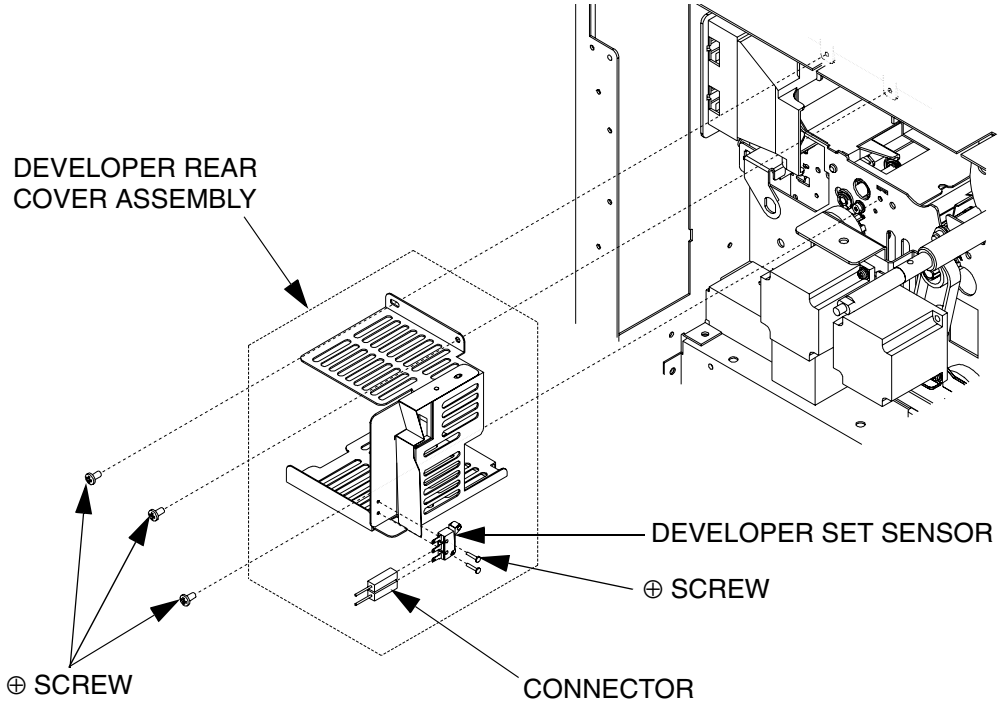


Figure 7-249. Removal of the Developer Set Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.5.1. (26) Removal of the Toner Hopper Set Sensor 1 and 2

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 Developer Rear Cover Assembly. (Refer to item 7.1.5.1. (25) on page 7-228) - Procedures 1 to 3.
2. Remove the Bottle Box Assembly. (Refer to item 7.1.2.6. (3) on page 7-64)
3. Disconnect the Connector.
4. Unscrew the two ⊕ screws and remove the Sensor Holder Assembly.
5. Unscrew the two ⊕ screws to remove the Toner Hopper Set Sensor 1 and 2.

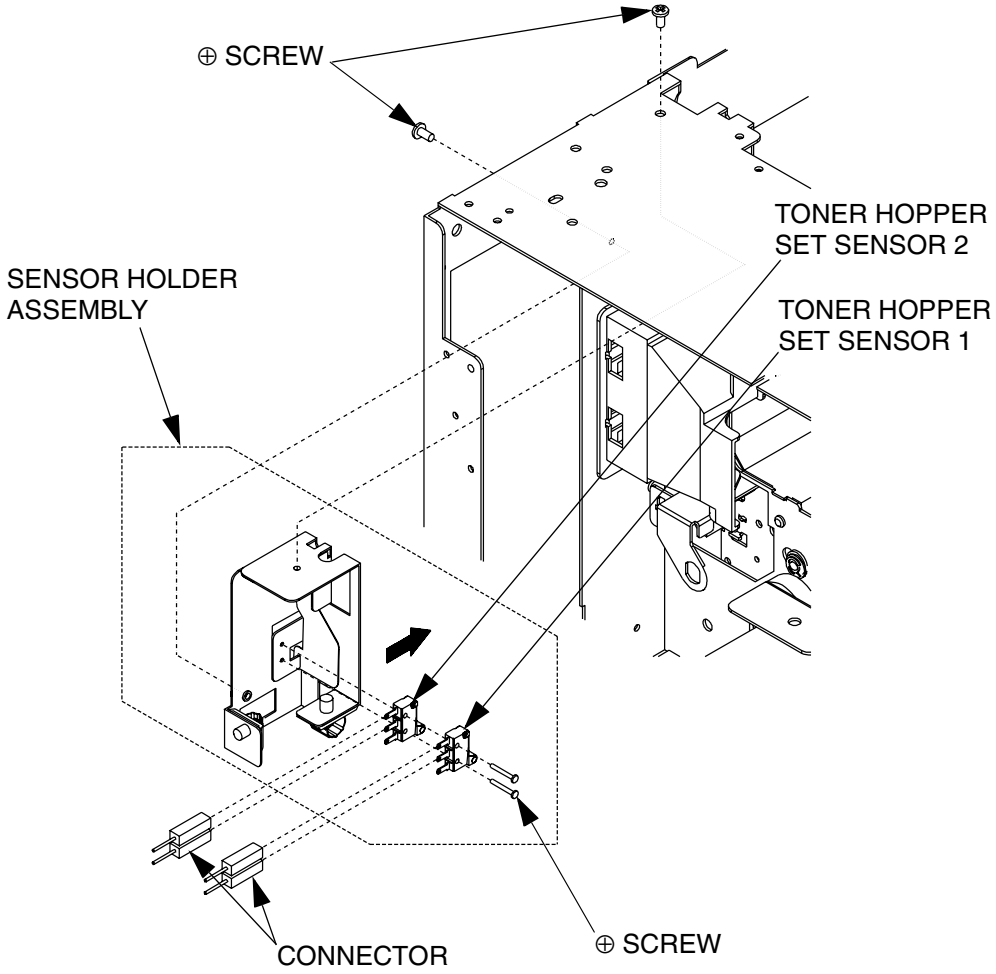


Figure 7-250. Removal of the Toner Hopper Set Sensor 1 and 2

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Lock with pushing Sensor in the direction of the arrow.

7.1.5.1. (27) Removal of the Top Cover Open Sensor

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 Top Cover.
2. Unscrew the two – screws and remove the Panel Holder Cover.
3. Disconnect the connector and remove the Top Cover Open Sensor.

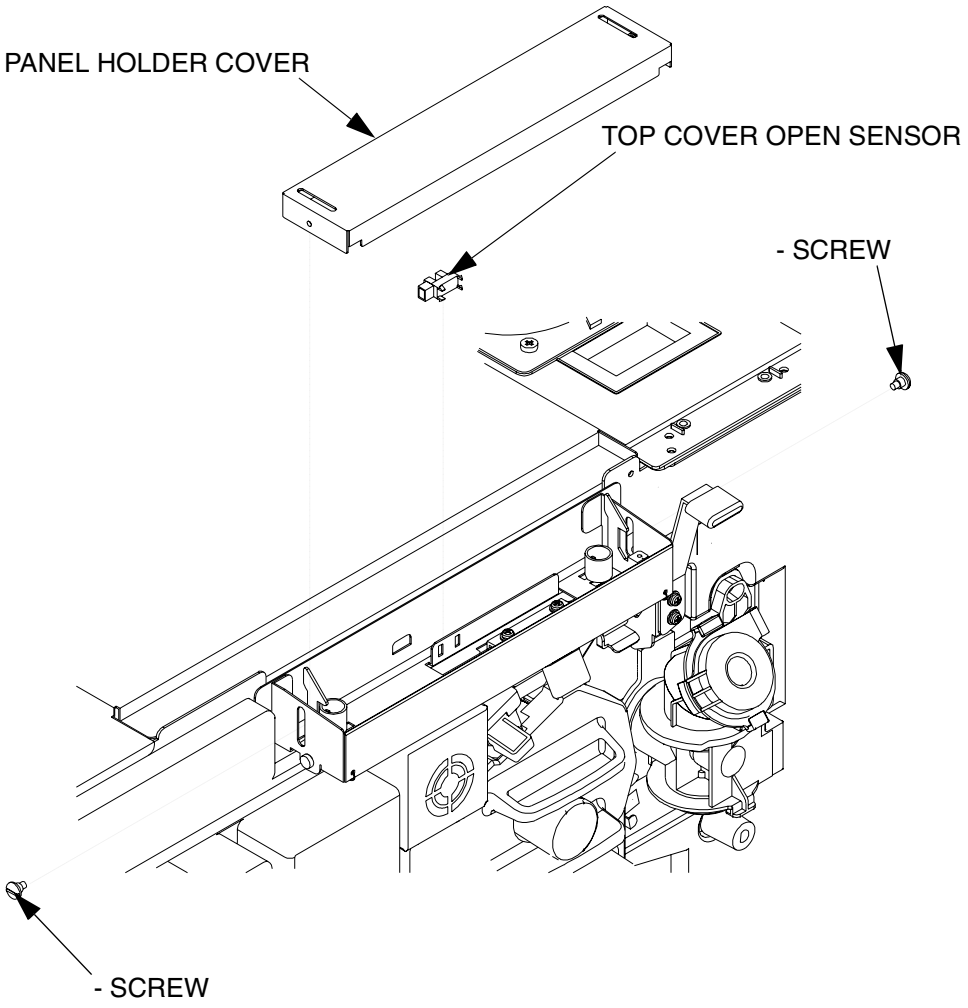


Figure 7-251. Removal of the Top Cover Open Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.1.5.1. (28) Removal of the Relay

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.
2. Unscrew the ⊕ screw and remove the Ground Cable.
3. Unscrew the two ⊕ screws and remove the Code Lock Holder.
4. Disconnect the connector from the Relay.
5. Unscrew the two ⊕ screws to remove the Relay.

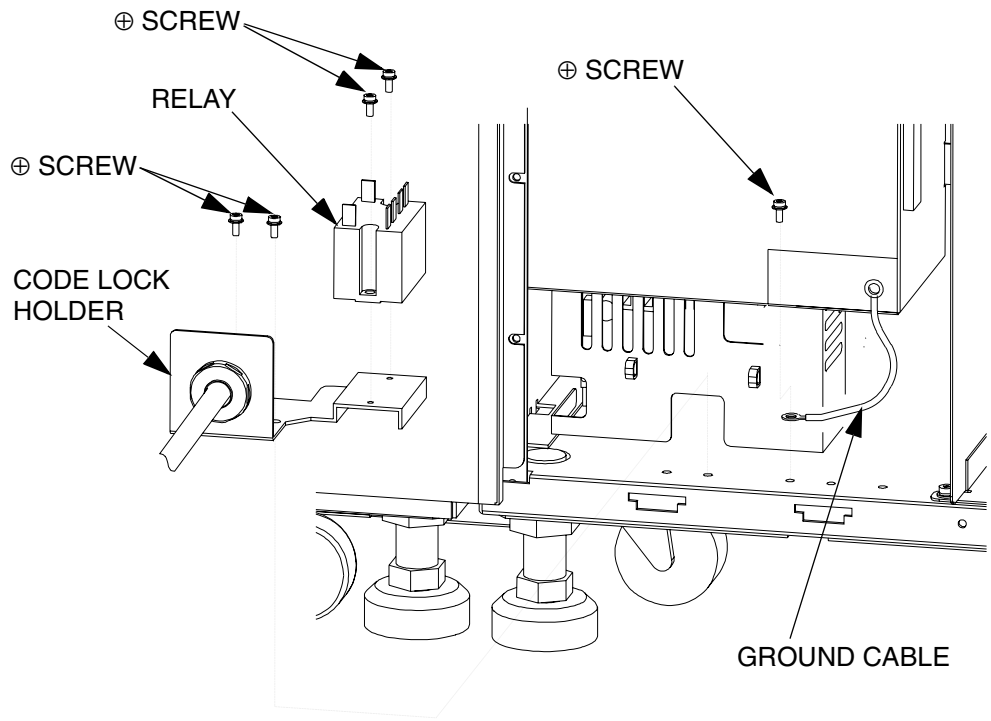


Figure 7-252. Removal of the Relay

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.2. High Capacity Hopper Parts

7.2.1. Removal of the Size Sensor

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 screw to remove the Door.
2. Unscrew the two ⊕ screws to remove the Paper Guide on both sides.
3. Disconnect the connector to remove the Size Sensor.

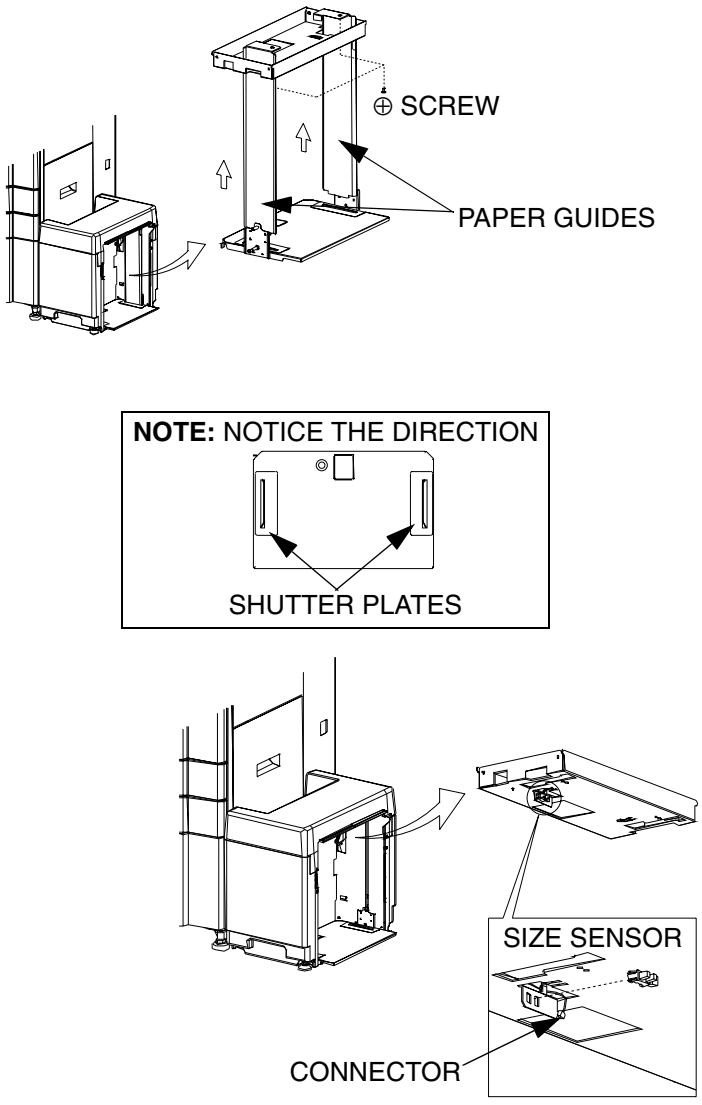


Figure 7-253. Removal of the Size Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.2.2. Removal of the Pick Roller

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 ⊕ screw to remove the Door.
2. Slide the Cover Latches in the directions of the arrow **A** and open the Cover F in the direction of arrow **B**.
3. Remove the Pick Roller.

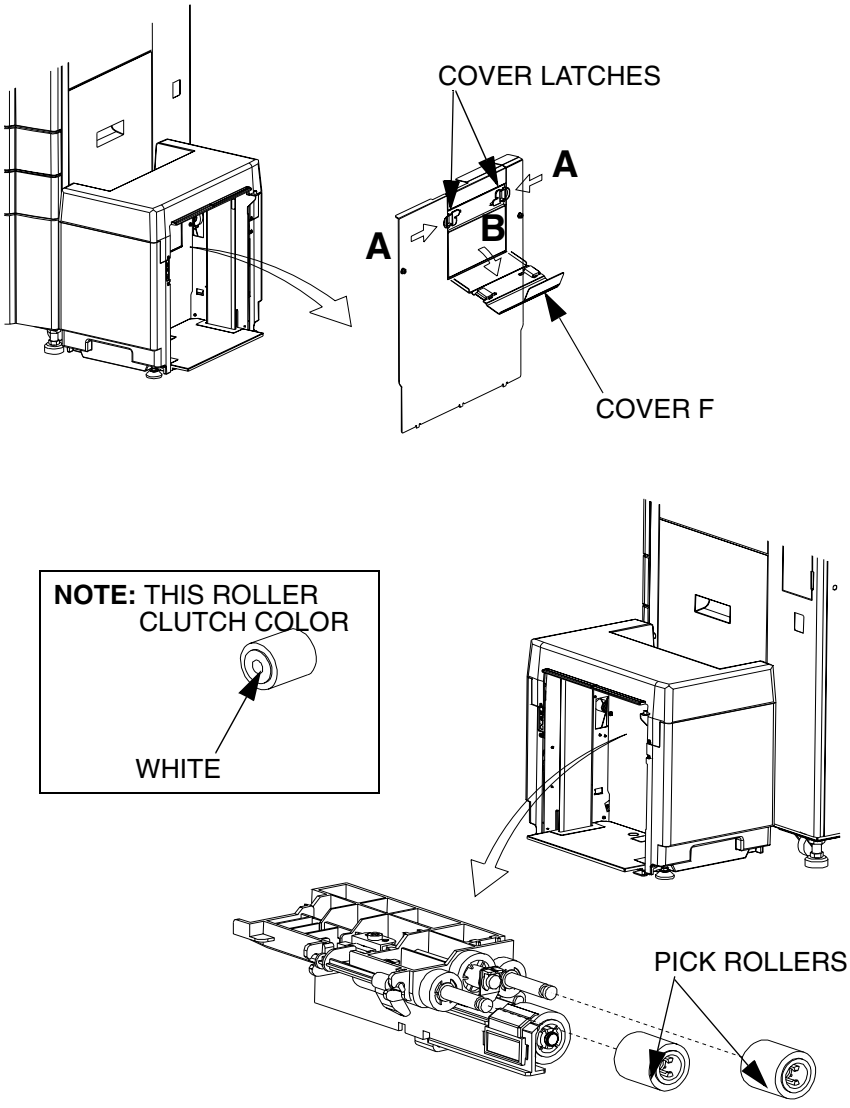


Figure 7-254. Removal of the Pick Roller

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.2.3. Removal of the Separator Assembly

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 ⊕ screw to remove the Door.
2. Open the Cover F. (Refer to item 7.2.2 on page 7-233)
3. Remove the Separator Assembly.

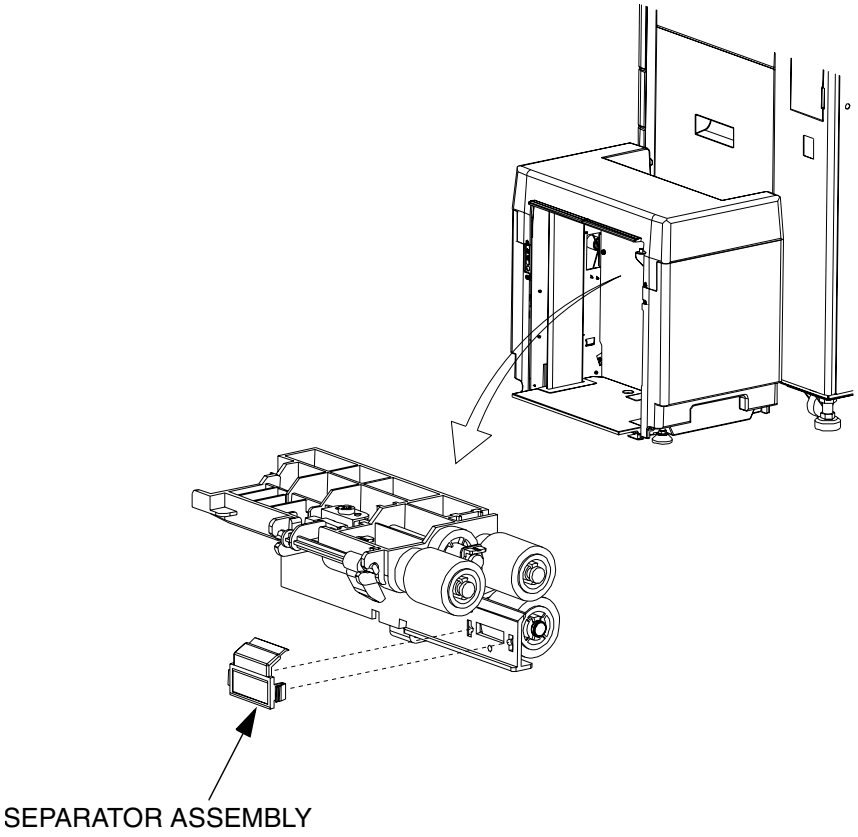


Figure 7-255. Removal of the Separator Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

[Checks]

Make sure that the snap-fit parts of the Separator Assembly are correctly fastened.

7.2.4. Removal of the Separator Roller

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 ⊕ screw to remove the Door.
2. Open the Cover F. (Refer to item 7.2.2 on page 7-233)
3. Remove the Separator Assembly. (Refer to item 7.2.3 on page 7-234)
4. Remove the Separator Roller.

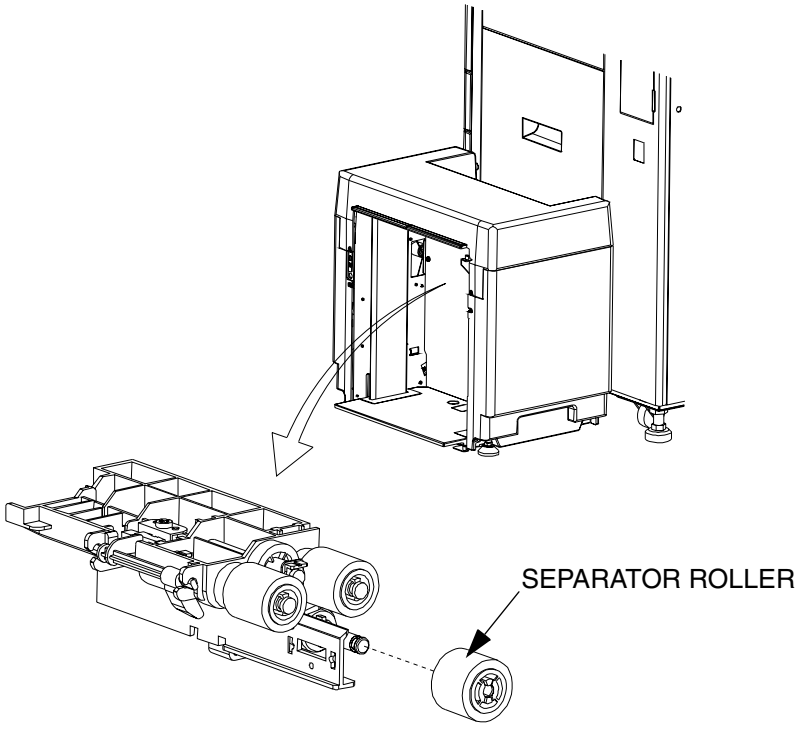


Figure 7-256. Removal of the Separator Roller

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.2.5. Removal of the High Capacity Hopper

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.

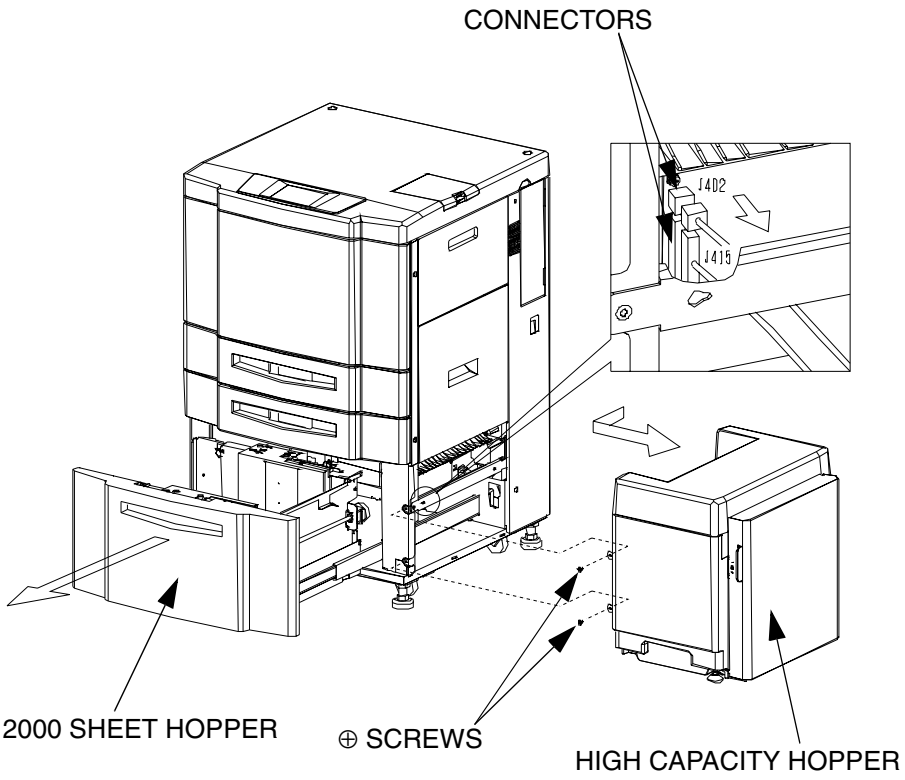


Figure 7-257. Removal of the High Capacity Hopper

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.2.6. Removal of the Pressure Roller Assembly

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Remove the spring to remove the Pressure Roller Assembly.

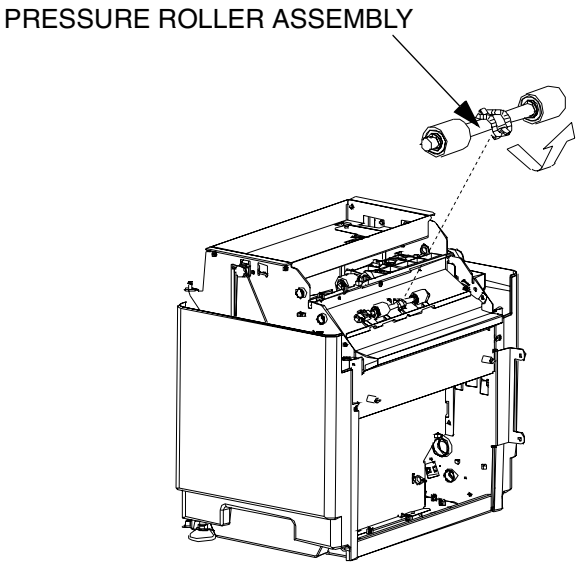


Figure 7-258. Removal of the Pressure Roller Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.2.7. Removal of the Sensor Holder

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper case.
7. Disconnect the connector.
8. Remove the Sensor Assembly to remove the Sensor Holder.

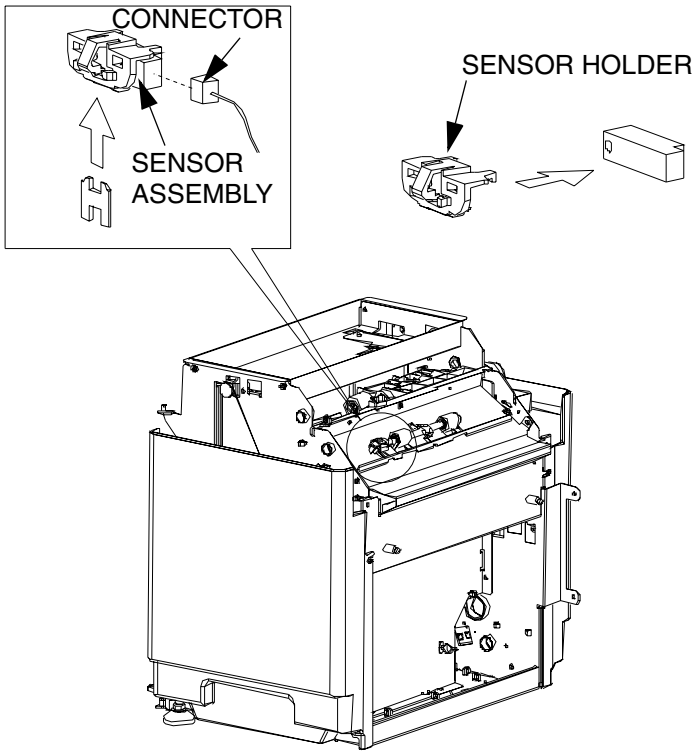


Figure 7-259. Removal of the Sensor Holder

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

[Checks]

Make sure that the snap-fit parts of the Sensor Holder are correctly fastened.

7.2.8. Removal of the Feed Sensor

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Disconnect the connector.
8. Remove the Sensor Assembly to remove the Feed Sensor.

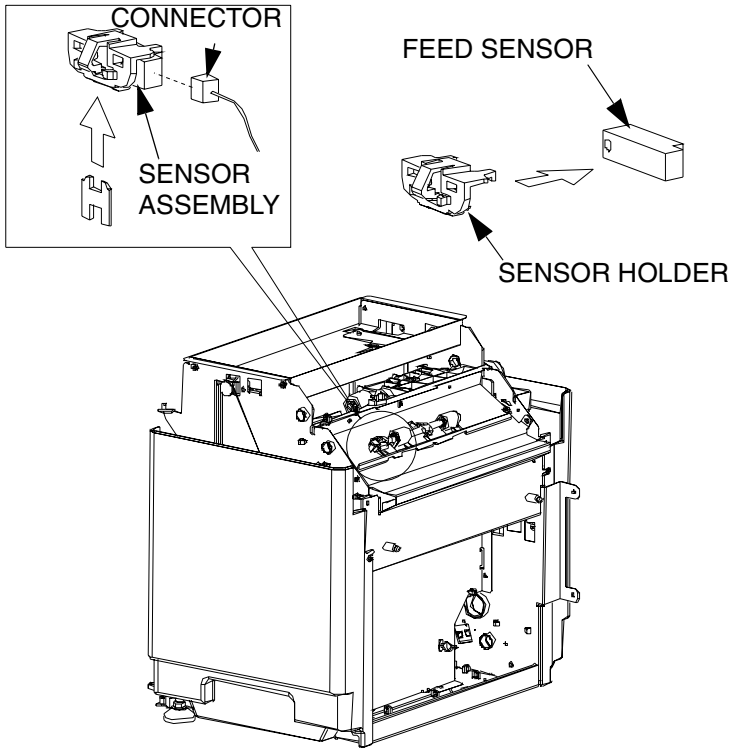


Figure 7-260. Removal of the Feed Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

[Checks]

Make sure that the snap-fit parts of the Sensor Holder are correctly fastened.

7.2.9. Removal of the Top Cover Sensor

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper case.
7. Disconnect the connector to remove the Top Cover Sensor.

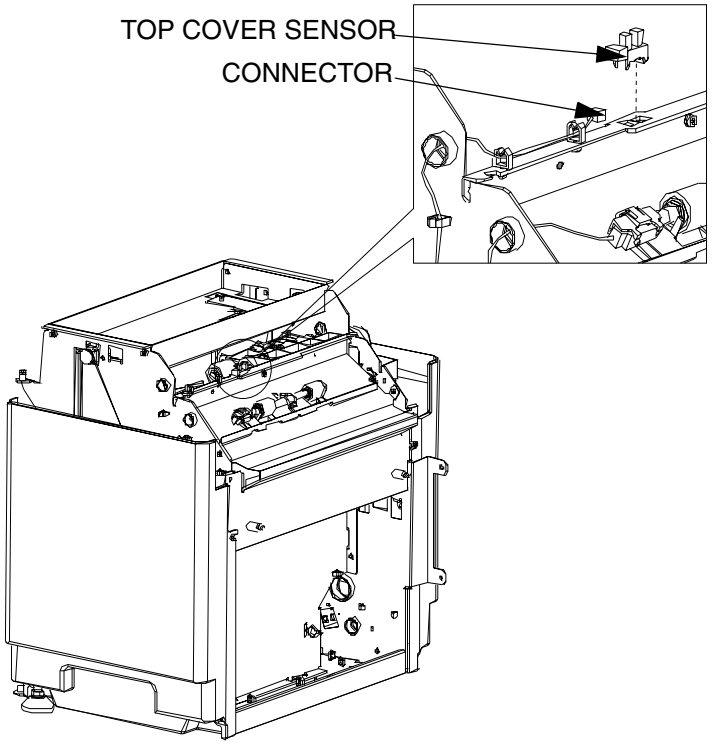


Figure 7-261. Removal of the Top Cover Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.2.10. Removal of the AHxxx Assembly

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the four ⊕ screws to remove the Side Case.
8. Disconnect the connectors.
9. Unscrew the two ⊕ screws to remove the AHxxx Assembly.

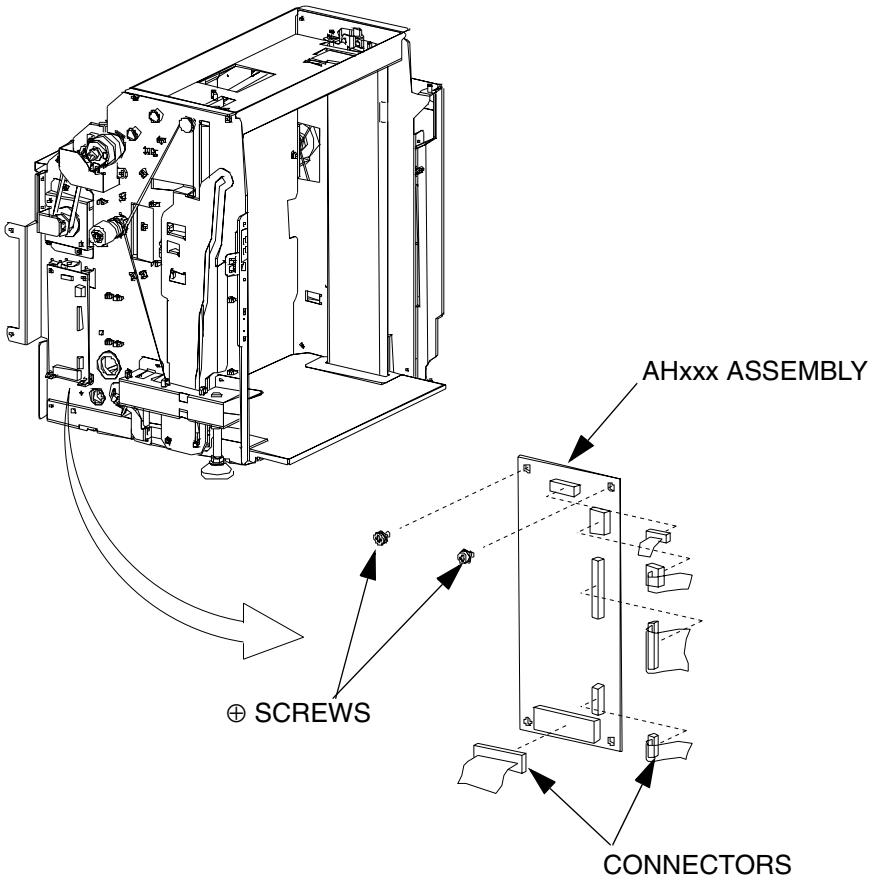


Figure 7-262. Removal of the AHxxx Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.2.11. Removal of the Rest Sensor

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the four ⊕ screws to remove the Side Case.
8. Remove the two E-Rings to remove the Position Arm.
9. Disconnect the connectors to remove the Rest Sensor.

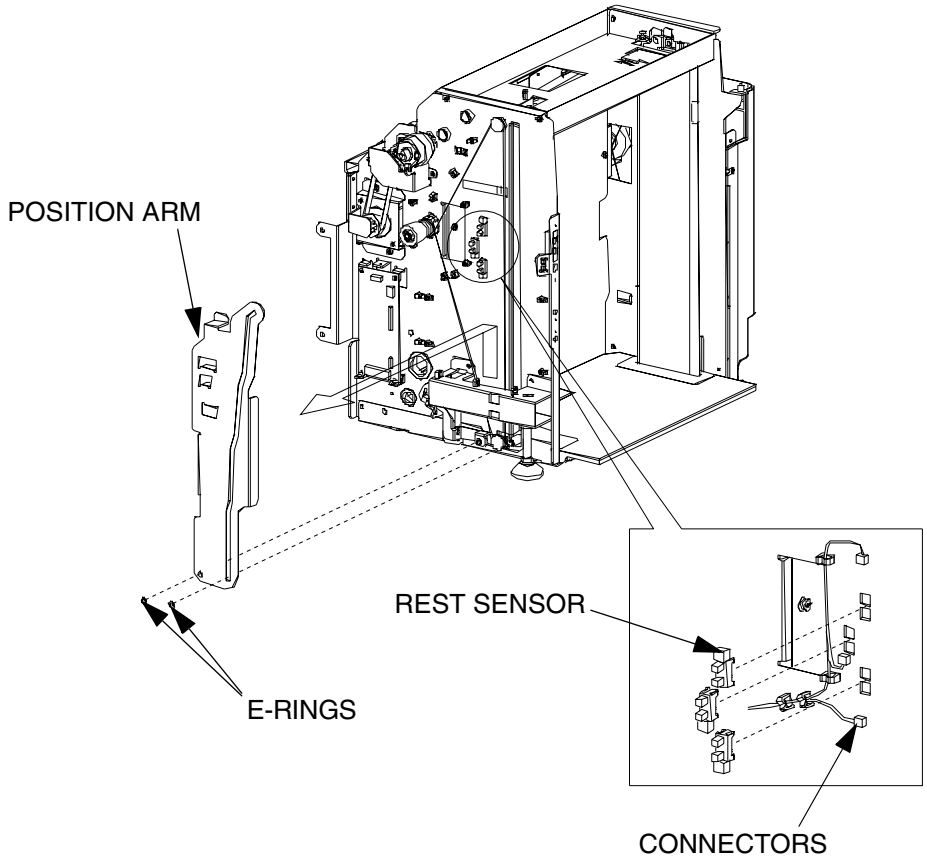


Figure 7-263. Removal of the Rest Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.2.12. Removal of the Door Sensor

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the four ⊕ screws to remove the Side Case.
8. Disconnect the connector to remove the Door Sensor.

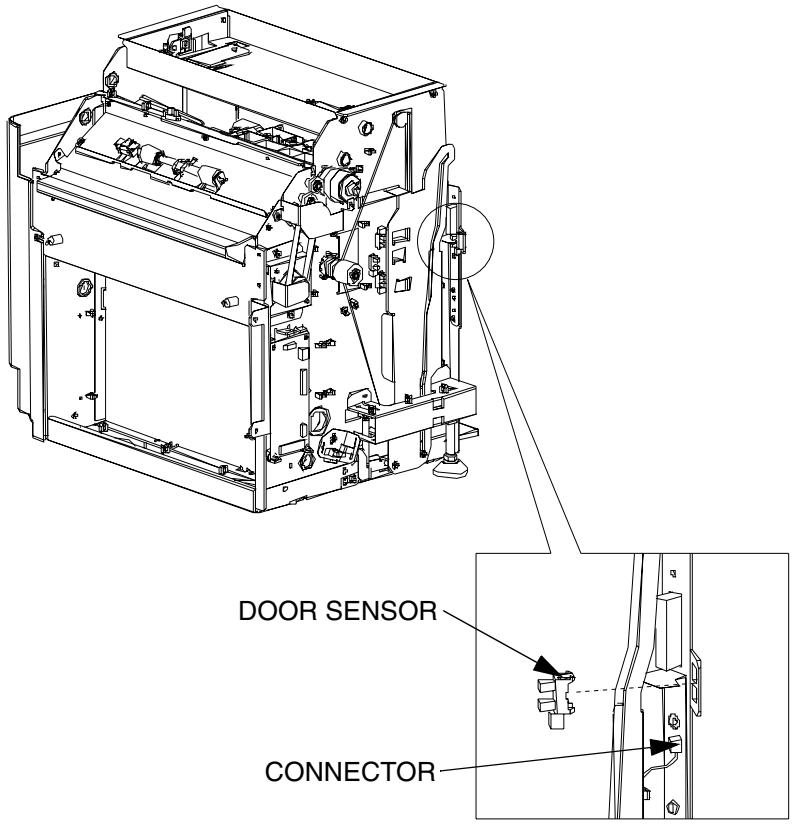


Figure 7-264. Removal of the Door Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.2.13. Removal of the Over Run Sensor

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the four ⊕ screws to remove the Side Case.
8. Disconnect the connector to remove the Over Run Sensor.

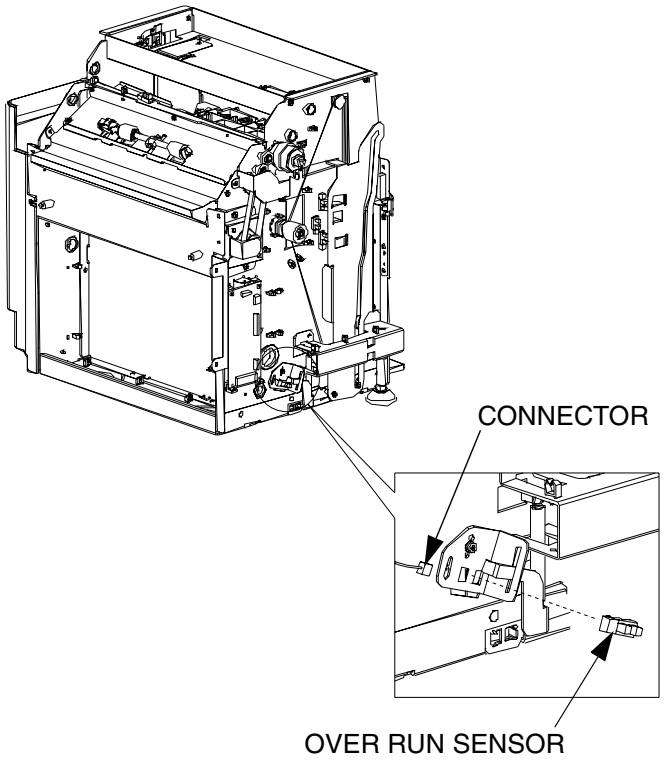


Figure 7-265. Removal of the Over Run Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.2.14. Removal of the Lower Limit Sensor

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 ⊕ screw to remove the Door.
2. Unscrew the two ⊕ screws to remove the Paper Guides on both sides. (Refer to item 7.2.1 on page 7-232)
3. Open the Cover F. (Refer to item 7.2.2 on page 7-233)
4. Remove the Spring F (on one side only) in the direction of arrow **A**.
5. Unscrew the four ⊕ screws to remove the Front Frame Assembly.
6. Assemble the Door.
7. Power on, and then power off when the Table goes up to the middle position.
8. Pull out the 2000 Sheet Hopper.
9. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
10. Disconnect the connectors.
11. Unscrew the ⊕ screw to remove the Door.
12. Remove the Top Cover.
13. Unscrew the four ⊕ screws to remove the Upper Case.
14. Unscrew the four ⊕ screws to remove the Side Case.
15. Disconnect the connectors to remove the Lower Limit Sensor.

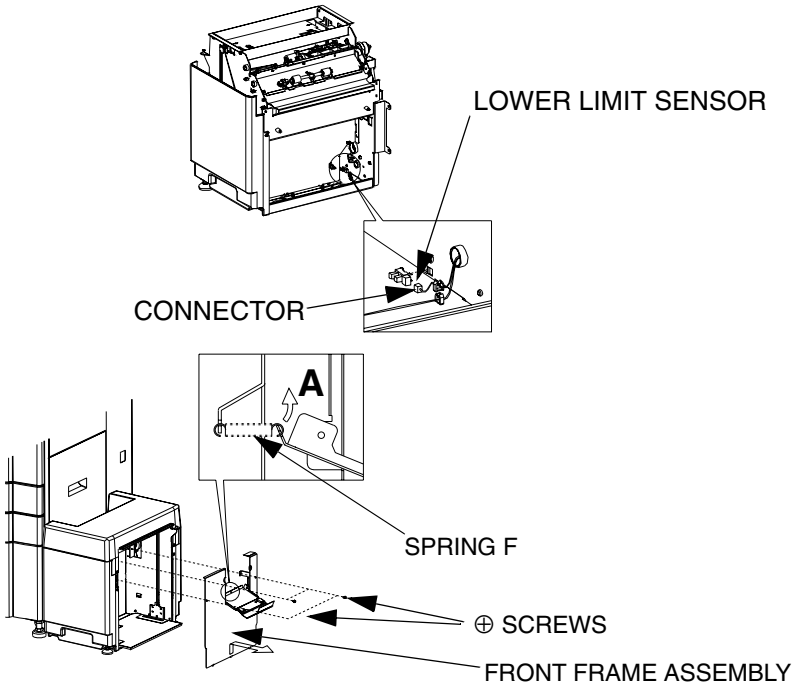


Figure 7-266. Removal of the Lower Limit Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.2.15. Removal of the Hopper Feed Motor

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connector.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the four ⊕ screws to remove the Side Case.
8. Unscrew the two ⊕ screws to remove the Side Cover.
9. Loosen the two ⊕ screws of the Motor Assembly.

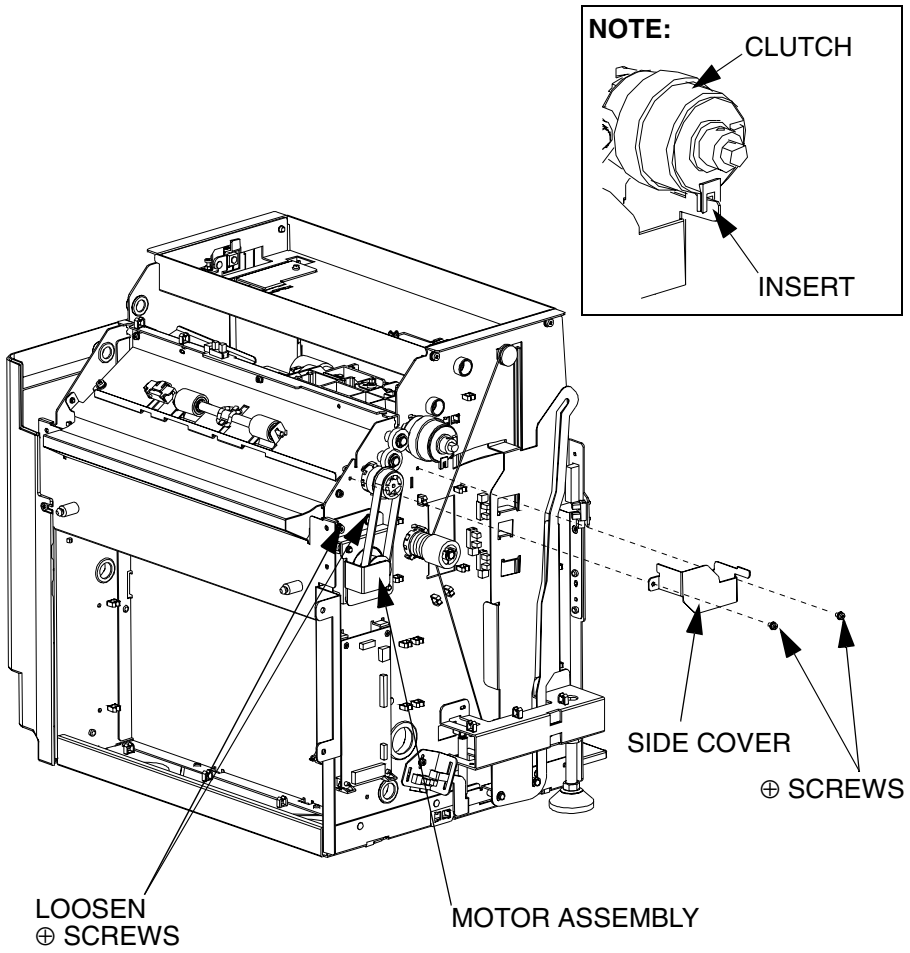


Figure 7-267. Removal of the Hopper Feed Motor

10. Disconnect the connector.
11. Remove the two ⊕ screws to remove the Motor Assembly.
12. Remove the two ⊕ screws to remove the Hopper Feed Motor.

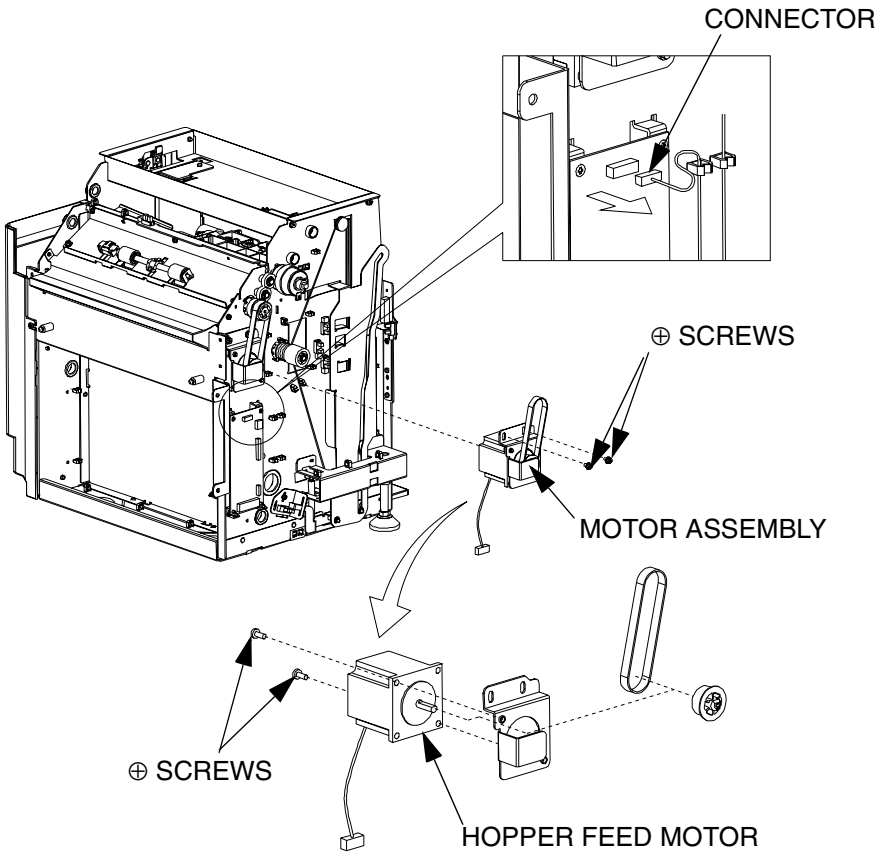


Figure 7-268. Removal of the Hopper Feed Motor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Adjust the Motor Assembly and fix it with ⊕ screws.
The tension of the Timing Belt is determined by self weight of the Motor Assembly.

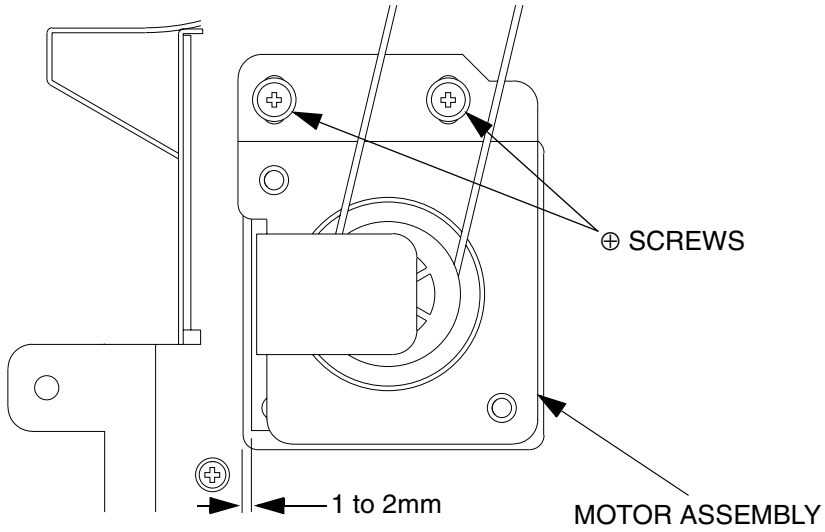


Figure 7-269. Adjustment of the Hopper Feed Motor

7.2.16. Removal of the Timing Belt

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connector.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the four ⊕ screws to remove the Side Case.
8. Unscrew the two ⊕ screws to remove the Side Cover. (Refer to item 7.2.15 on page 7-246)
9. Loosen the two ⊕ screws of the Motor Assembly. (Refer to item 7.2.15 on page 7-246)
10. Disconnect the connector. (Refer to item 7.2.15 on page 7-246)
11. Remove the two ⊕ screws to remove the Motor Assembly. (Refer to item 7.2.15 on page 7-246)
12. Remove the two ⊕ screws to remove the Timing Belt.

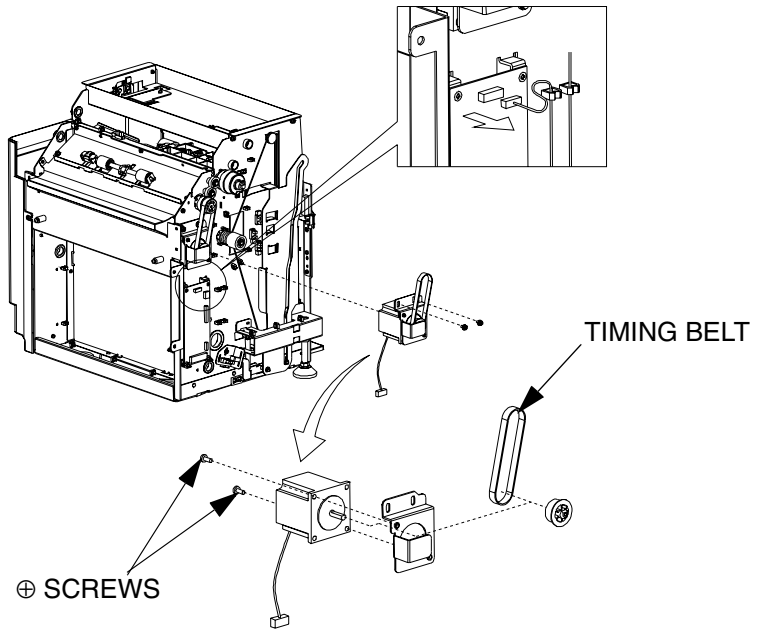


Figure 7-270. Removal of the Timing Belt

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Adjust the Motor Assembly and fix it with ⊕ screws. (Refer to item 7.2.15 on page 7-246)
The tension of the Timing Belt is determined by self weight of the Motor Assembly.

7.2.17. Removal of the Rubber Roller Assembly

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connector.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the four ⊕ screws to remove the Side Case.
8. Unscrew the two ⊕ screws to remove the Side Cover. (Refer to item 7.2.15 on page 7-246)
9. Loosen the two ⊕ screws of the Motor Assembly. (Refer to item 7.2.15 on page 7-246)
10. Remove the IS Drive Pulley and the IS Drive Gear.

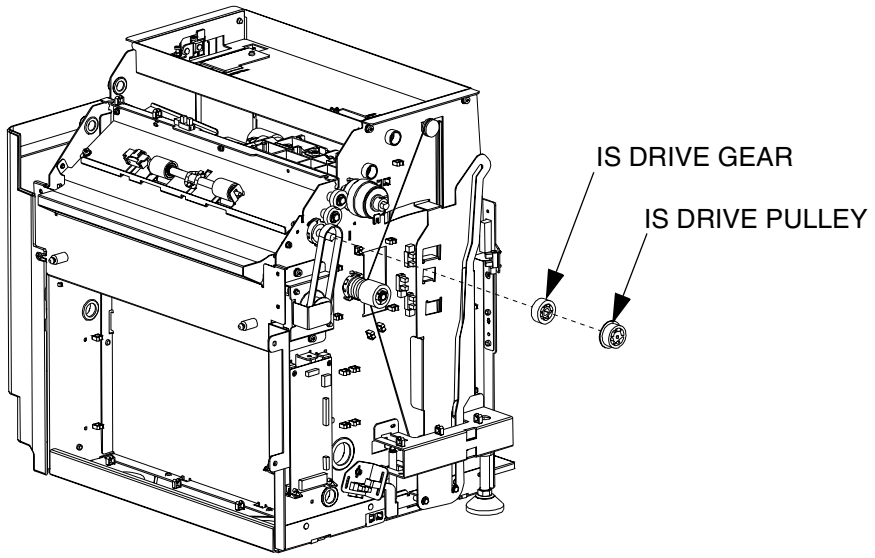


Figure 7-271. Removal of the Rubber Roller Assembly

11. Unscrew the four ⊕ screws to remove the Side Case.
12. Disconnect the connector.
13. Unscrew the four ⊕ screws to remove the Pressure Roller Base Assembly.
14. Unscrew the five ⊕ screws to remove the Rear Frame.

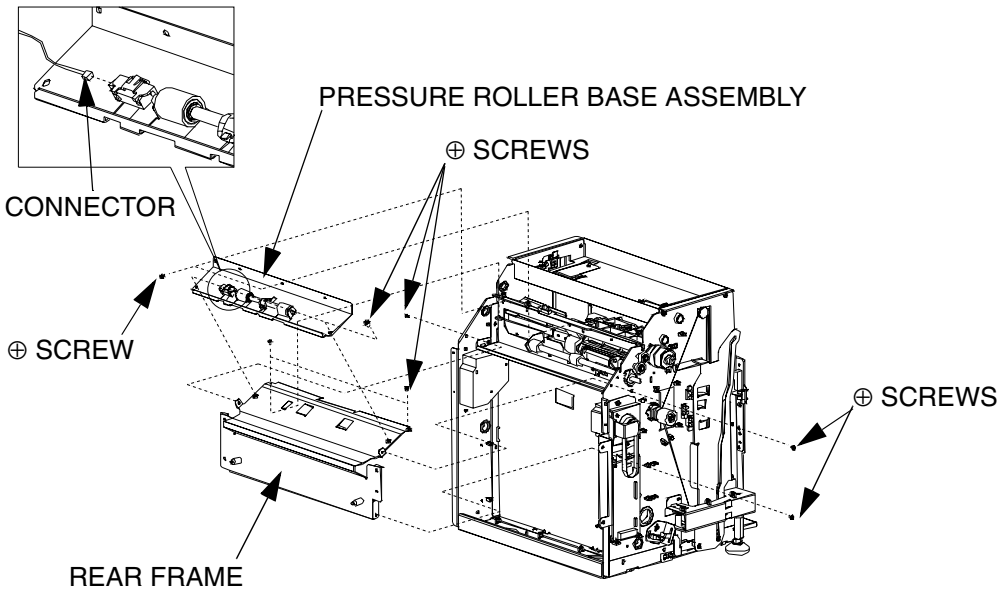


Figure 7-272. Removal of the Rubber Roller Assembly

15. Turn the B.B Housing to pull out the Rubber Roller Assembly.

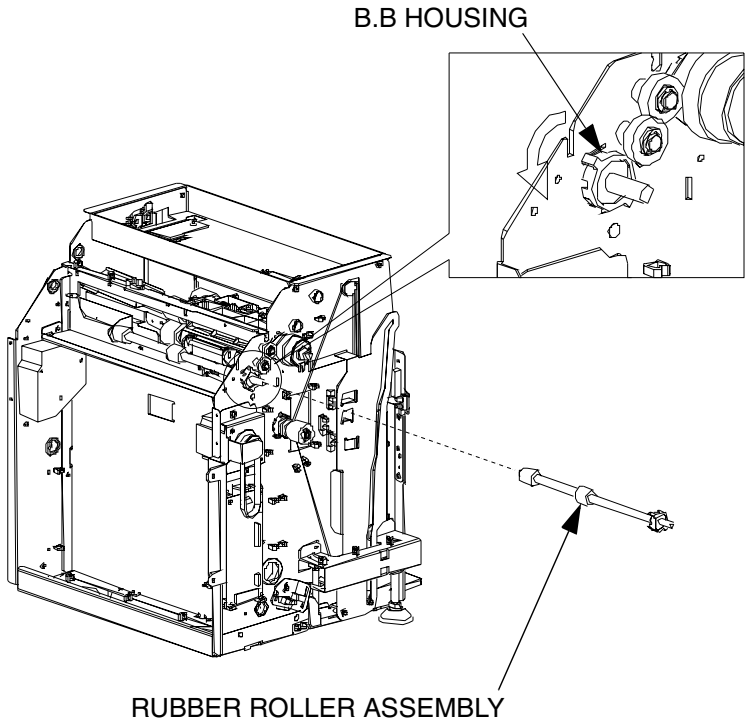


Figure 7-273. Removal of the Rubber Roller Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note:	Adjust the Motor Assembly and fix it with ⊕ screws. (Refer to item 7.2.15 on page 7-246) The tension of the Timing Belt is determined by self weight of the Motor Assembly.

7.2.18. Removal of the Hopper Table Motor

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connector.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the four ⊕ screws to remove the Side Case.
8. Unscrew the two screws to remove the T Motor Bracket, the two Sleeve Bearings, the Table Motor Gear and the 3x14 Pin.

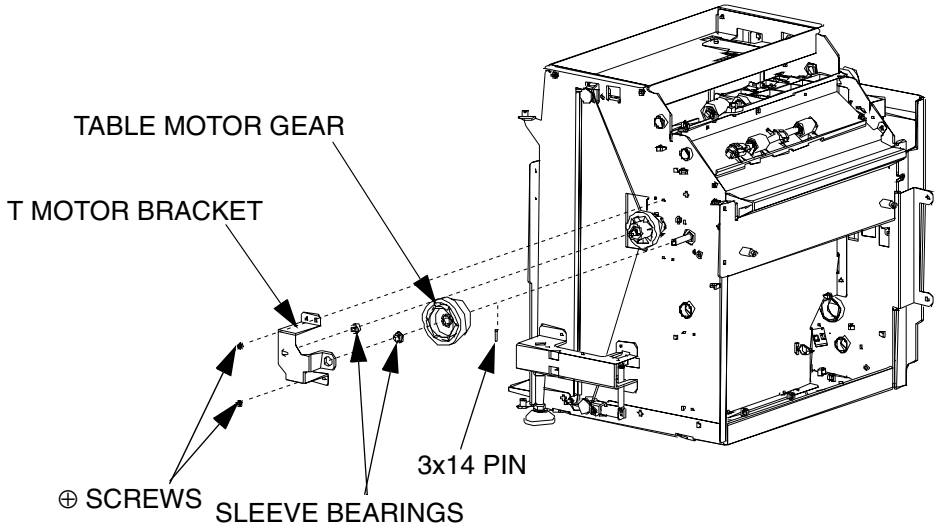


Figure 7-274. Removal of the Hopper Table Motor

9. Disconnect the connector.
10. Unscrew the three ⊕ screws to remove the Hopper Table Motor.

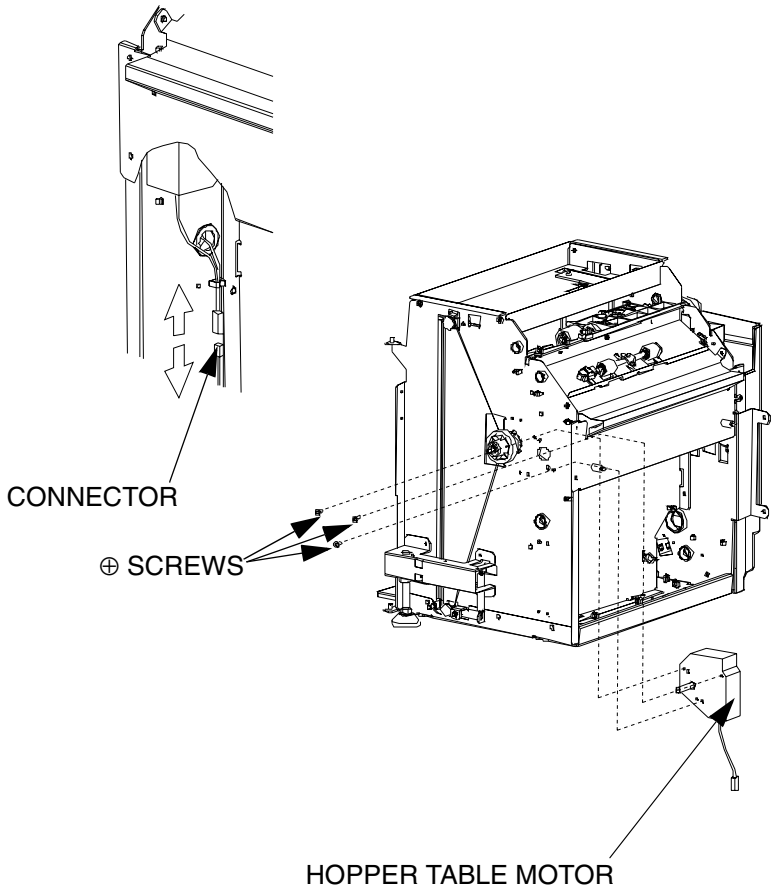


Figure 7-275. Removal of the Hopper Table Motor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.2.19. Removal of the Table Wires

7.2.19.1. Removal of the Table Wire (1)

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connector.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the four ⊕ screws to remove the Side Case.
8. Unscrew the two ⊕ screws to remove the Paper Guide.
9. Unscrew the two ⊕ screws.

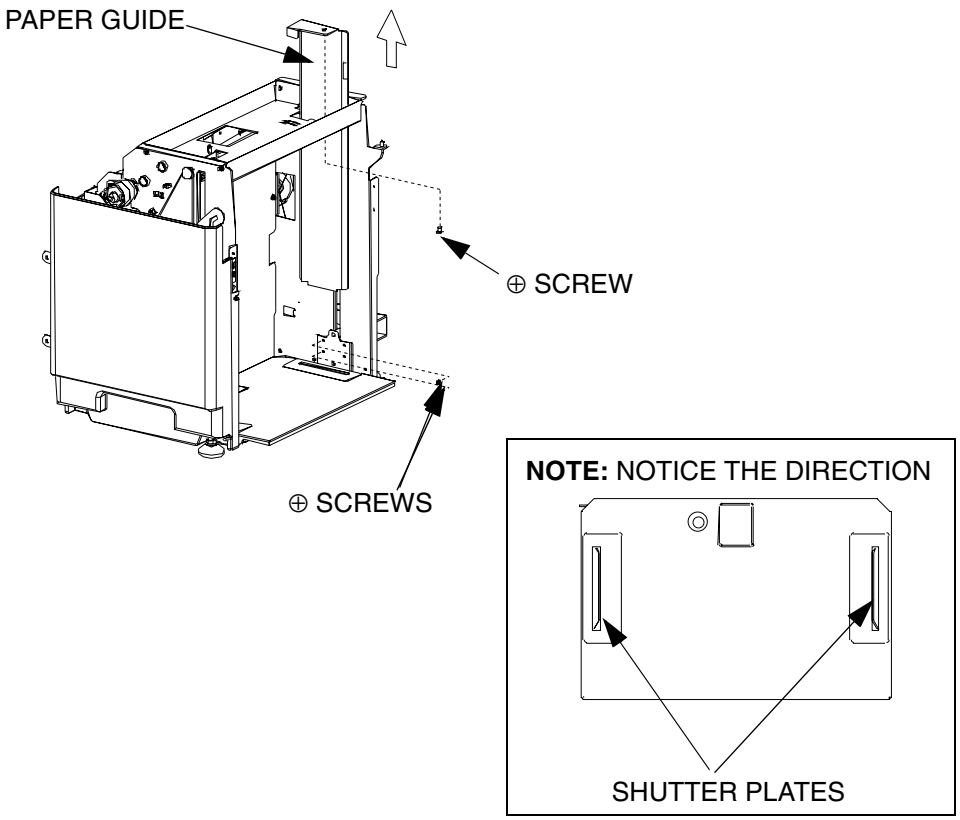


Figure 7-276. Removal of the Table Wire

10. Unscrew the two ⊕ screws to remove the T Motor Bracket, the two Sleeve Bearings, the Table Motor Gear, and the 3x14 Pin. (Refer to item 7.2.18 on page 7-252)
11. Unscrew the ⊕ screw to remove the Table Roller.

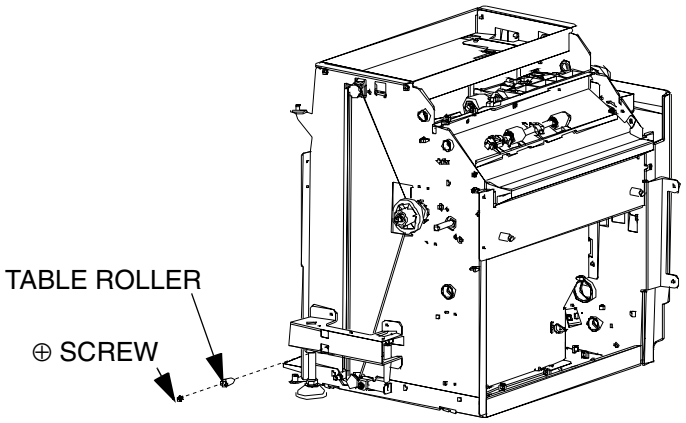


Figure 7-277. Removal of the Table Wire

12. Lower the Pulley Holder as shown in the figure below, remove the lower wire and then remove the upper wire.
13. Remove the E-Ring and the Wire Roll Drum (1) to remove the Table Wire (1).

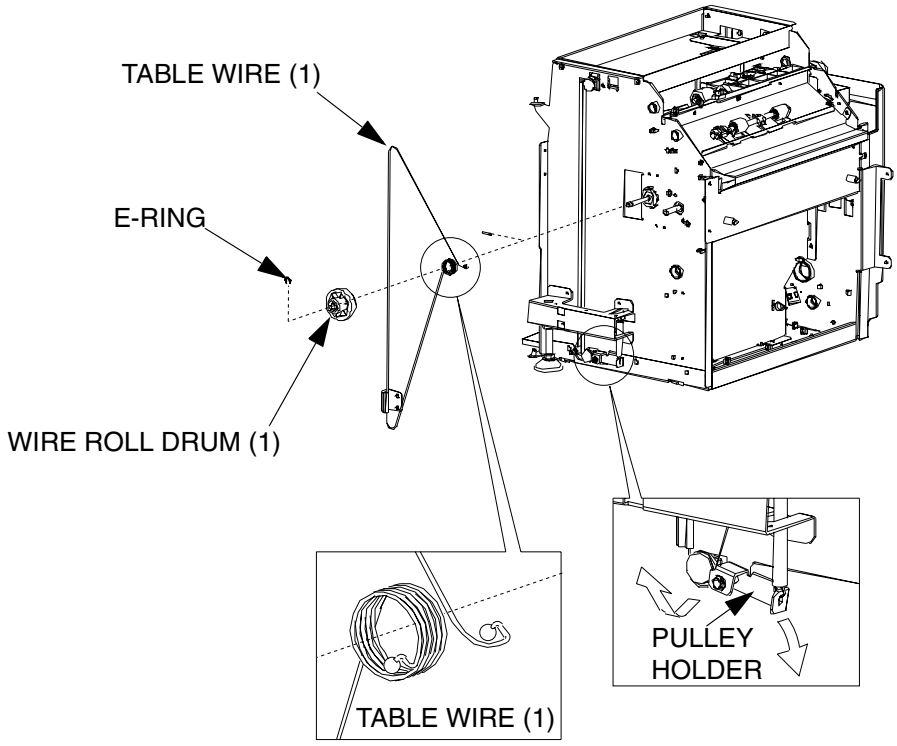


Figure 7-278. Removal of the Table Wire

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note:	Push the steel ball on the edge of the wire with 5 twists into the groove of the Wire Roll Drum and start rolling.

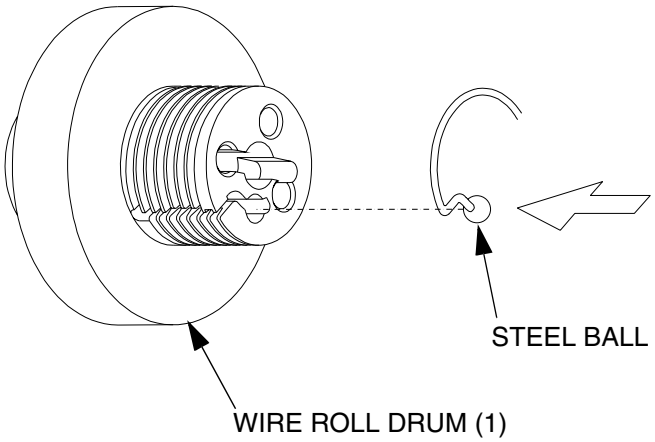


Figure 7-279. Removal of the Table Wire

[Checks]

Turn the Wire Roll Drum to confirm that the Table moves smoothly with a full stroke.

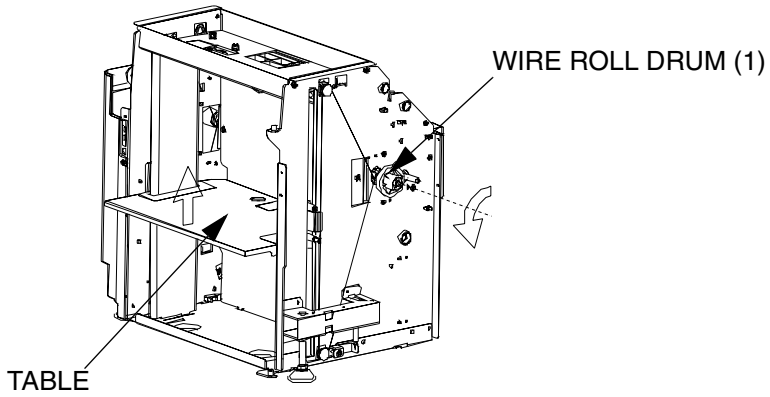


Figure 7-280. Removal of the Table Wire

Raise the Table until it comes to the Pick Roller and attach the 3x14 Pin, Table Motor Gear to fix the Table. Check that the Table is level. If not, loosen the nut and turn the screw to adjust. After adjustment tighten the nut.

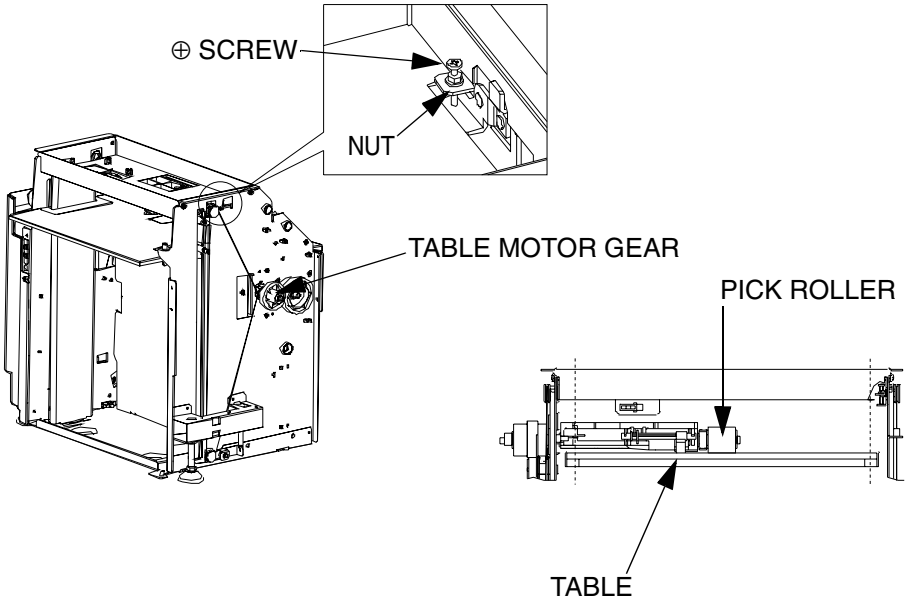


Figure 7-281. Removal of the Table Wire

7.2.19.2. Removal of the Table Wire (2)

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the eight ⊕ screws to remove the Side Case on both sides.
8. Unscrew the two ⊕ screws to remove the T Motor Bracket, the two Sleeve Bearings, the Table Motor Gear, and the 3x14 Pin. (Refer to item 7.2.18 on page 7-252)
9. Unscrew the ⊕ screw to remove the Paper Guide. (Refer to item 7.2.19.1 on page 7-254)
10. Unscrew the two ⊕ screws. (Refer to item 7.2.19.1 on page 7-254)
11. Unscrew the ⊕ screw to remove the Paper Guide.
12. Unscrew the two ⊕ screws.

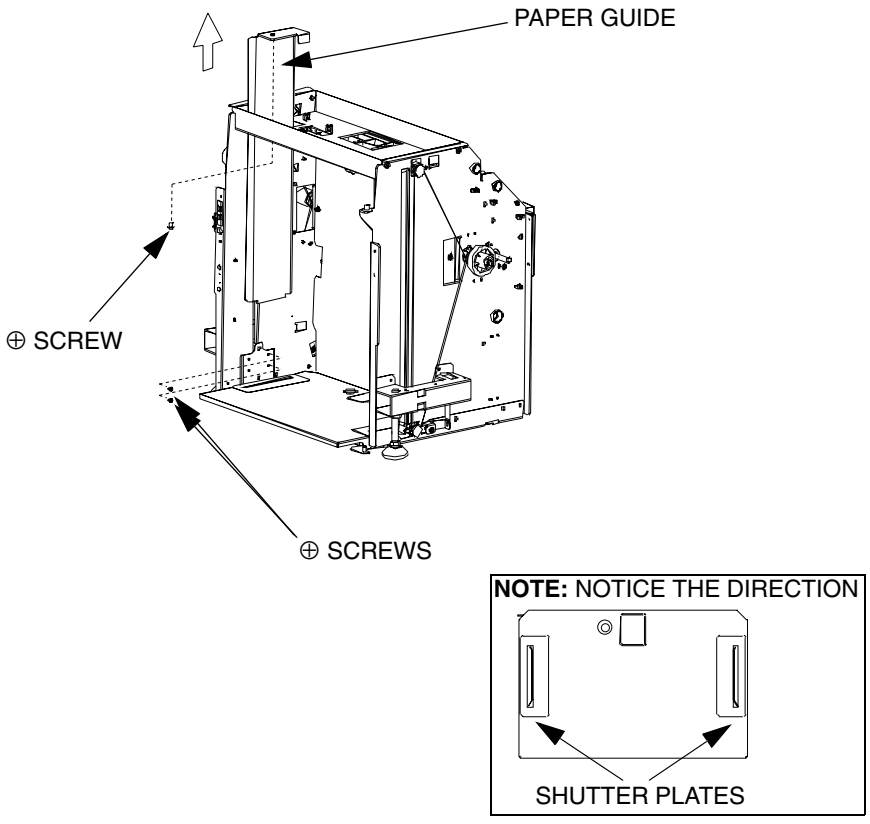


Figure 7-282. Removal of the Table Wire (2)

13. Remove the two E-Rings to remove the Position Arm. (Refer to item 7.2.11 on page 7-242)
14. Unscrew the ⊕ screw to remove the Table Roller.
15. Unscrew the ⊕ screw to remove the Sensor Holder.

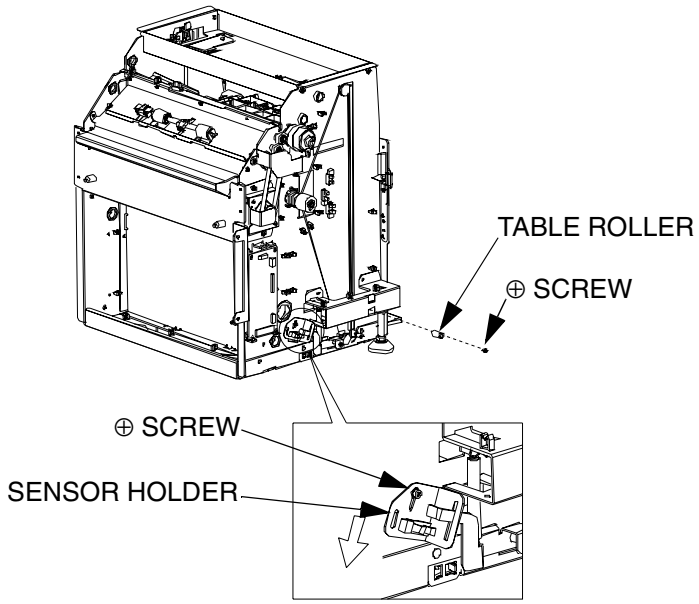


Figure 7-283. Removal of the Table Wire (2)

16. Remove the Lower Wire by pulling down the Pulley Holder as shown in the figure below and remove the Upper Wire.
17. Remove the E-Ring and the Wire Roll Drum (2) to remove the Table Wire (2).

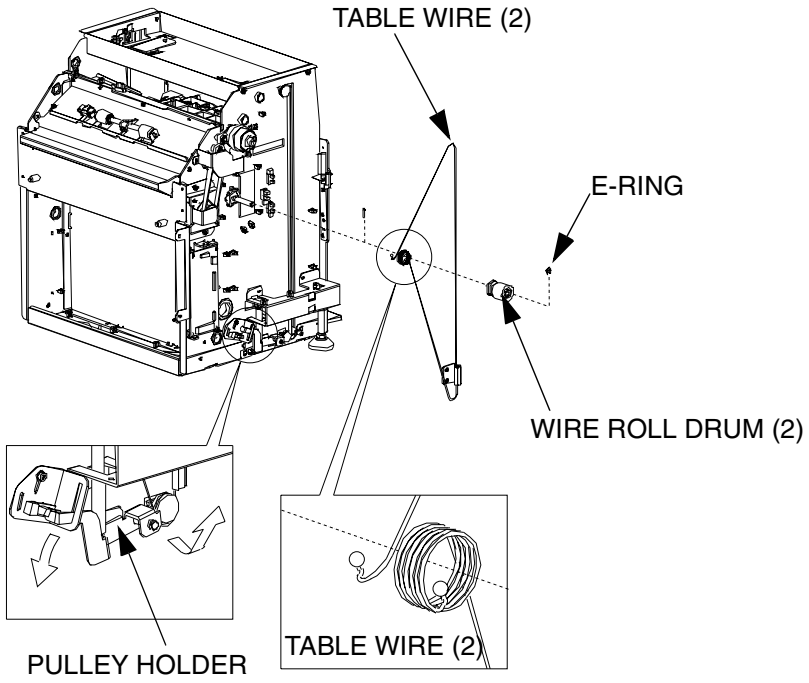


Figure 7-284. Removal of the Table Wire (2)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note:	Push the steel ball on the edge of the wire with 5 twists into the groove of the Wire Roll Drum and start rolling . Adjust the Over Run Sensor and fix it with a screw.

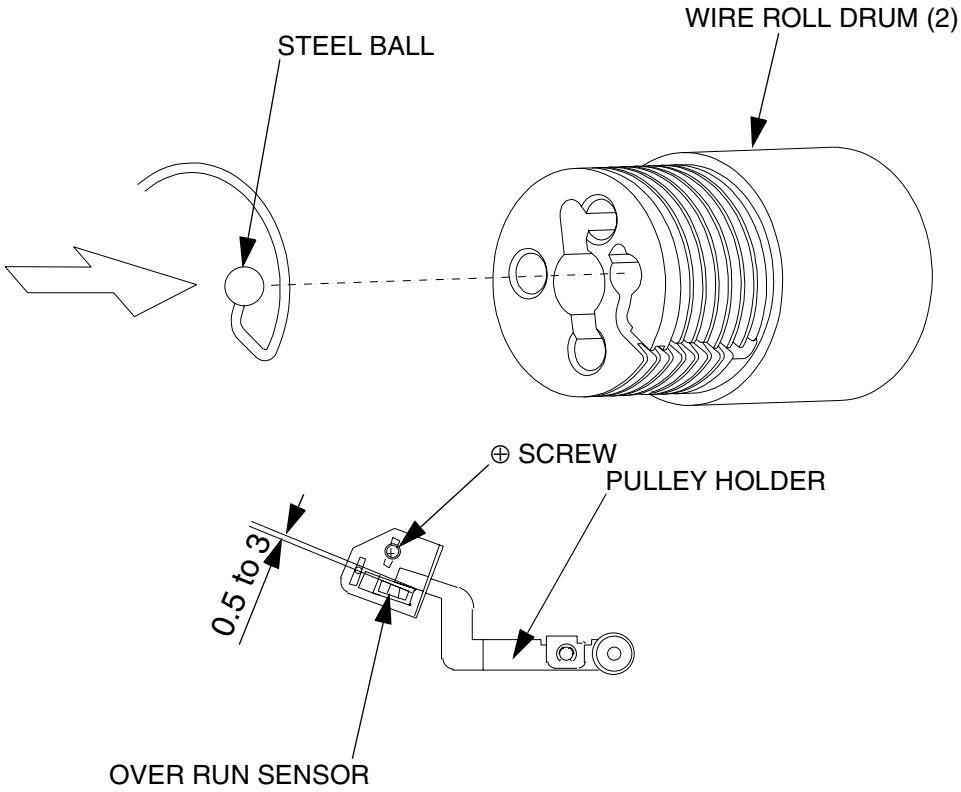


Figure 7-285. Removal of the Table Wire (2)

[Checks]

Turn the Wire Roll Drum to confirm that the Table moves smoothly with a full stroke (Refer to item 7.2.19.1 on page 7-254).

Raise the Table until it comes to the Pick Roller and attach the 3x14 Pin, Table Motor Gear to fix the Table. Check that the Table is level. If not, loosen the nut and turn the screw to adjust. After adjustment tighten the nut. (Refer to item 7.2.19.1 on page 7-254).

7.2.20. Removal of the Wire Roll Drums

7.2.20.1. Removal of the Wire Roll Drum (1)

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the four ⊕ screws to remove the Side Case.
8. Unscrew the two ⊕ screws to remove the T Motor Bracket, the two Sleeve Bearings, the Table Motor Gear, and the 3x14 Pin. (Refer to item 7.2.18 on page 7-252)
9. Remove the Lower Wire by pulling down the Pulley Holder as shown in the figure below and remove the Upper Wire. (Refer to item 7.2.19.1 on page 7-254)
10. Remove the E-Ring to remove the Wire Roll Drum (1). (Refer to item 7.2.19.1 on page 7-254)

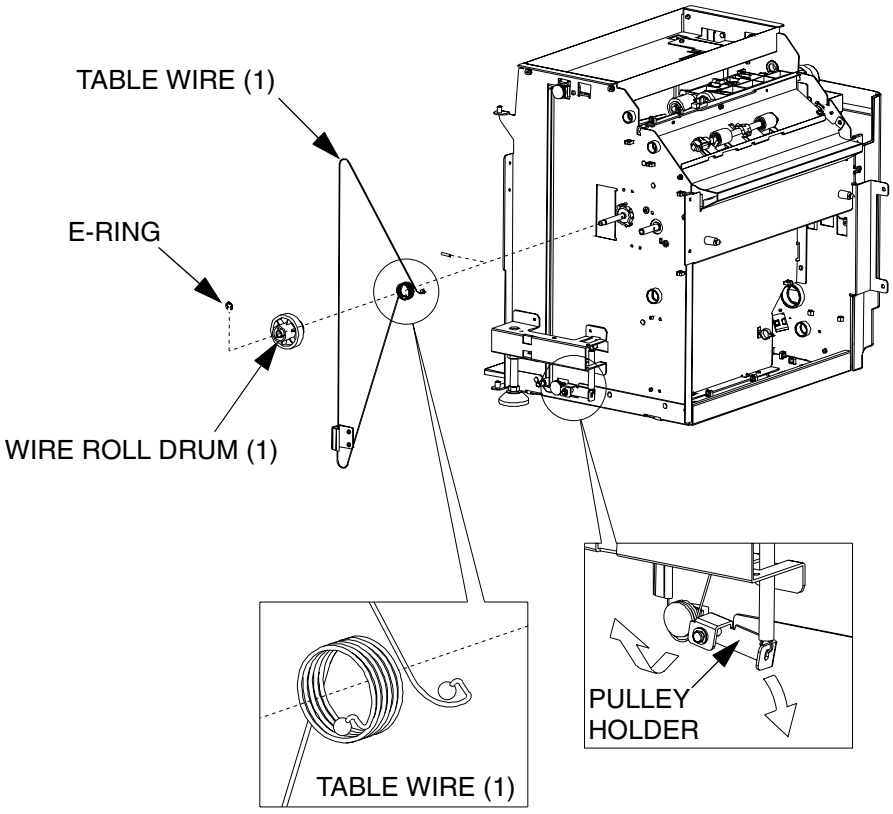


Figure 7-286. Removal of the Wire Roll Drum (1)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

> **Note:** Push the steel ball on the edge of the wire with 5 twists into the groove of the Wire Roll Drum and start rolling (Refer to item 7.2.19.1 on page 7-254).

[Checks]

Turn the Wire Roll Drum to confirm that the Table moves smoothly with a full stroke (Refer to item 7.2.19.1 on page 7-254).

Raise the Table until it comes to the Pick Roller and attach the 3x14 Pin, Table Motor Gear to fix the Table. Check that the Table is level. If not, loosen the nut and turn the screw to adjust. After adjustment tighten the nut. (Refer to item 7.2.19.1 on page 7-254).

7.2.20.2. Removal of the Wire Roll Drum (2)

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the four ⊕ screws to remove the Side Case.
8. Unscrew the two ⊕ screws to remove the T Motor Bracket, the two Sleeve Bearings, the Table Motor Gear, and the 3x14 Pin. (Refer to item 7.2.18 on page 7-252)
9. Remove the two E-Rings to remove the Position Arm. (Refer to item 7.2.11 on page 7-242)
10. Unscrew the ⊕ screw to remove the Sensor Holder. (Refer to item 7.2.19.2 on page 7-258)
11. Remove the Lower Wire by pulling down the Pulley Holder as shown in the figure below and remove the Upper Wire. (Refer to item 7.2.19.2 on page 7-258)
12. Remove the E-Ring to remove the Wire Roll Drum (2). (Refer to item 7.2.19.2 on page 7-258)

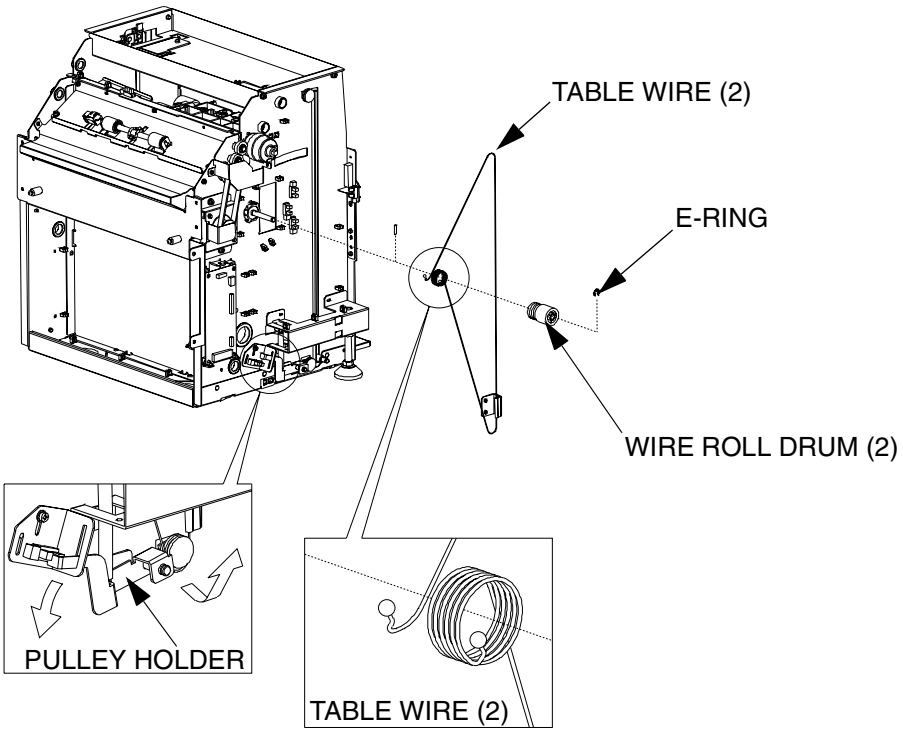


Figure 7-287. Removal of the Wire Roll Drum (2)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Push the steel ball on the edge of the wire with 5 twists into the groove of the Wire Roll Drum and start rolling (Refer to item 7.2.19.2 on page 7-258).
Adjust the Over Run Sensor and fix it with a screw.

[Checks]

Turn the Wire Roll Drum to confirm that the Table moves smoothly with a full stroke (Refer to item 7.2.19.1 on page 7-254).

Raise the Table until it comes to the Pick Roller and attach the 3x14 Pin, Table Motor Gear to fix the Table. Check that the Table is level. If not, loosen the nut and turn the screw to adjust. After adjustment tighten the nut. (Refer to item 7.2.19.1 on page 7-254).

7.2.21. Removal of the Empty Sensor

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the ⊕ screw to disconnect the connector.
8. Remove the Empty Sensor.

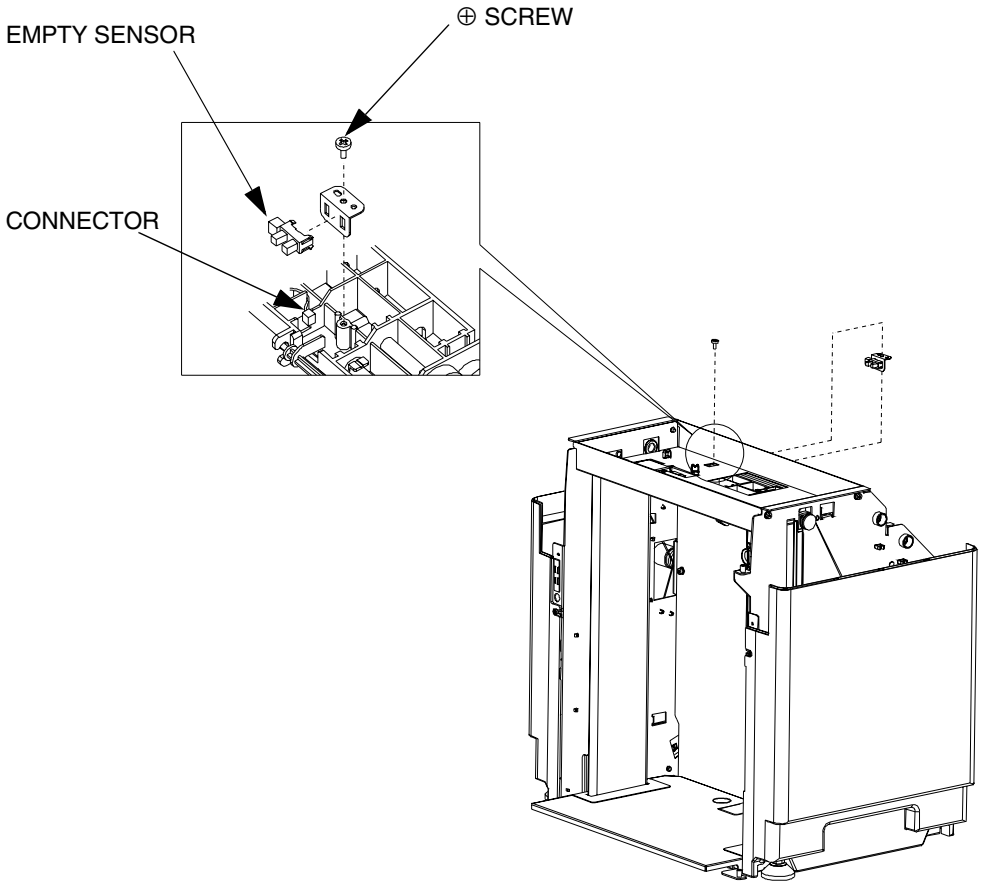


Figure 7-288. Removal of the Empty Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.2.22. Removal of the Height Sensor

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the two ⊕ screws to remove the Paper Guide on both sides. (Refer to item 7.2.1 on page 7-232)
8. Disconnect the connector.
9. Unscrew the four ⊕ screws to remove the Upper Frame Assembly.

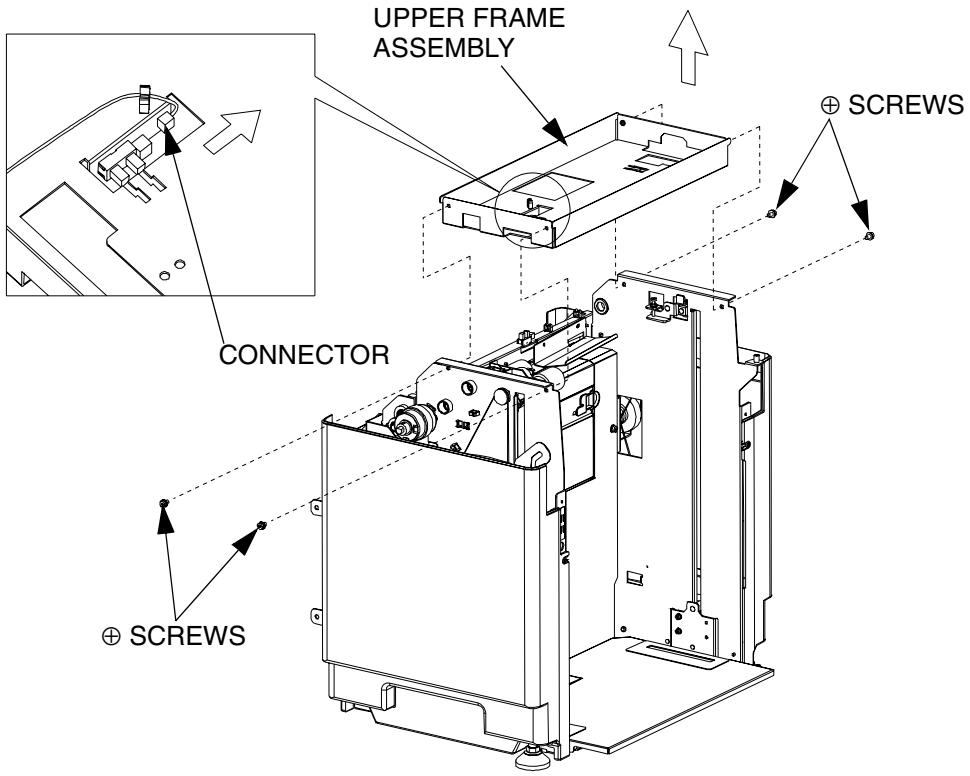


Figure 7-289. -1 Removal of the Height Sensor

10. Disconnect the connector to remove the Height Sensor.

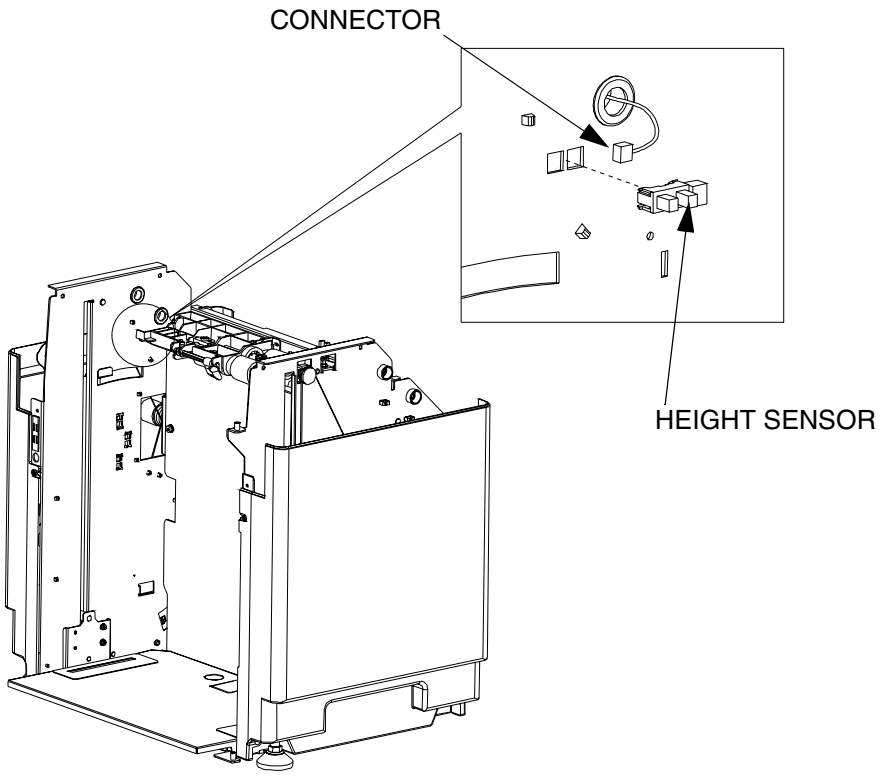


Figure 7-290. -2 Removal of the Height Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.2.23. Removal of the Pick Drive Shaft Assembly

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the four ⊕ screws to remove the Side Case.
8. Unscrew the two ⊕ screws to remove the Side Cover. (Refer to item 7.2.15 on page 7-246)
9. Remove the Pick Roller, the Pick Drive Gear, the 3x14 Pin and the Hook Ring A.

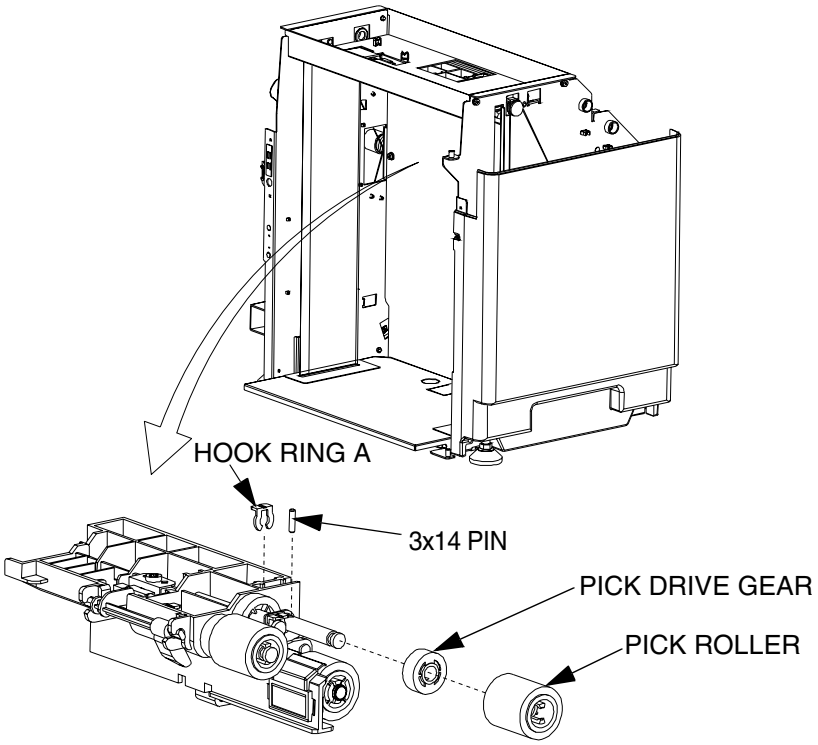


Figure 7-291. Removal of the Pick Drive Shaft Assembly

10. Disconnect the connector.
11. Turn the B.B Housing to pull out the Pick Drive Shaft Assembly.

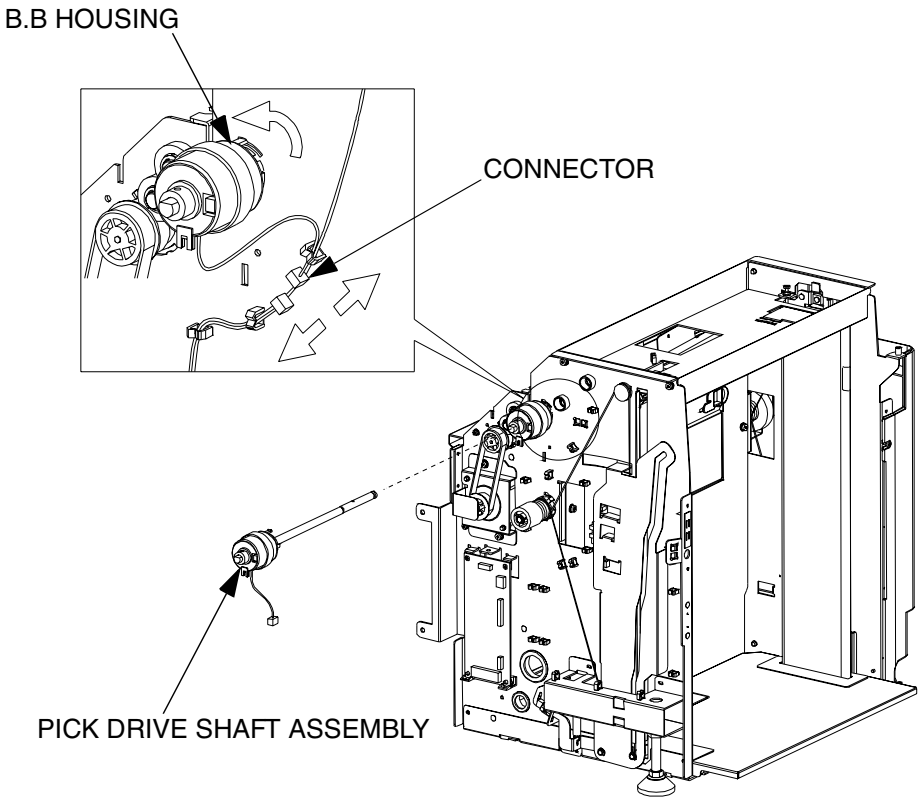


Figure 7-292. Removal of the Pick Drive Shaft Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.2.24. Removal of the Torque Limiter

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the eight ⊕ screws to remove the Side Case on both sides.
8. Unscrew the two ⊕ screws to remove the Paper Guide on both sides. (Refer to item 7.2.1 on page 7-232)
9. Open the Cover F. (Refer to item 7.2.2 on page 7-233)
10. Remove the Spring F on one side only. (Refer to item 7.2.14 on page 7-245)
11. Unscrew the four ⊕ screws to remove the Front Frame Assembly. (Refer to item 7.2.14 on page 7-245)
12. Disconnect the connector. (Refer to item 7.2.17 on page 7-249)
13. Unscrew the four ⊕ screws to remove the Pressure Roller Base Assembly. (Refer to item 7.2.17 on page 7-249)
14. Unscrew the five ⊕ screws to remove the Rear Frame. (Refer to item 7.2.17 on page 7-249)

15. Remove the two Hook Ring B to remove the SRB Shaft.
16. Remove the Separate Roller Base Assembly.
17. Remove the Separator Assembly, the Separator Roller (Refer to item 7.2.4 on page 7-235), the Hook Ring B to remove the Torque Limiter.

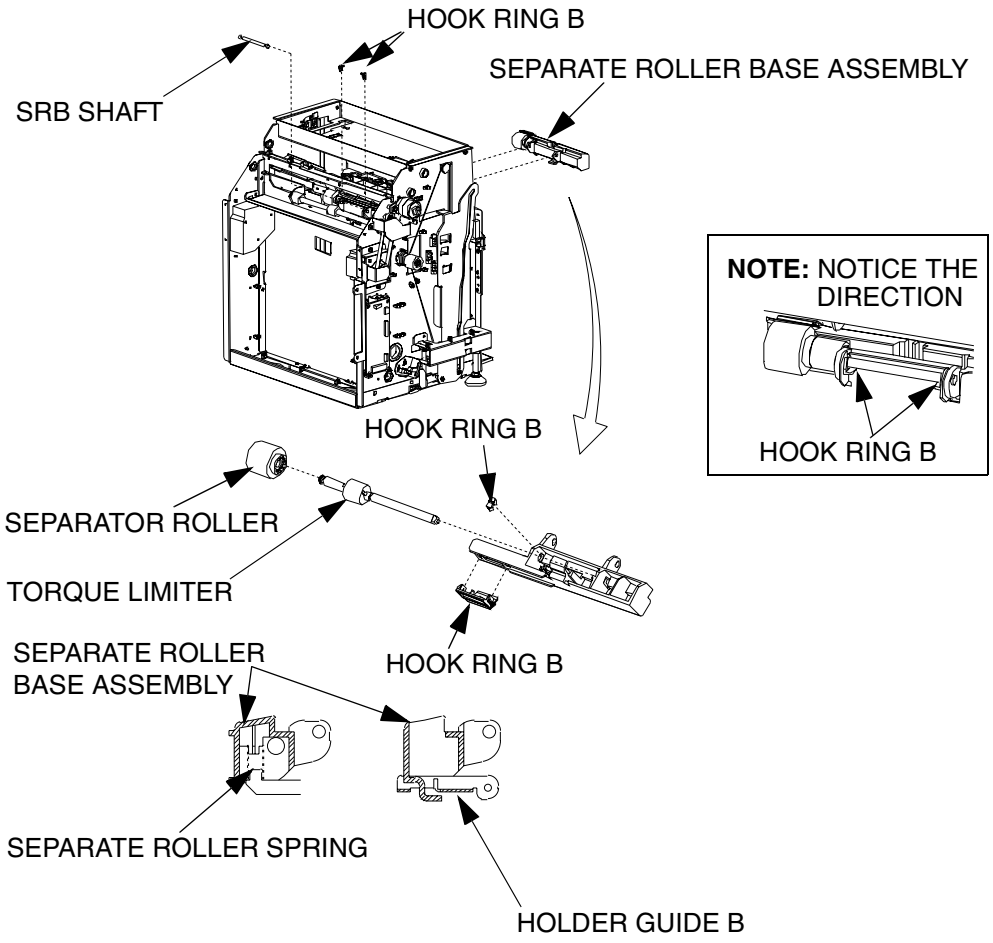


Figure 7-293. Removal of the Torque Limiter

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

[Checks]

Make sure that the Separate Roller Spring is correctly fastened.

Make sure that the Separate Roller Base Assembly is put in the hole of the Holder Guide B.

7.2.25. Removal of the Gears

7.2.25.1. Removal of the Motor Pulley

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the four ⊕ screws to remove the Side Case.
8. Loosen the two ⊕ screws of the Motor Assembly. (Refer to item 7.2.15 on page 7-246)
9. Disconnect the connector. (Refer to item 7.2.15 on page 7-246)
10. Remove the two ⊕ screws to remove the Motor Assembly. (Refer to item 7.2.15 on page 7-246)
11. Remove the two ⊕ screws to remove the Motor Pulley.

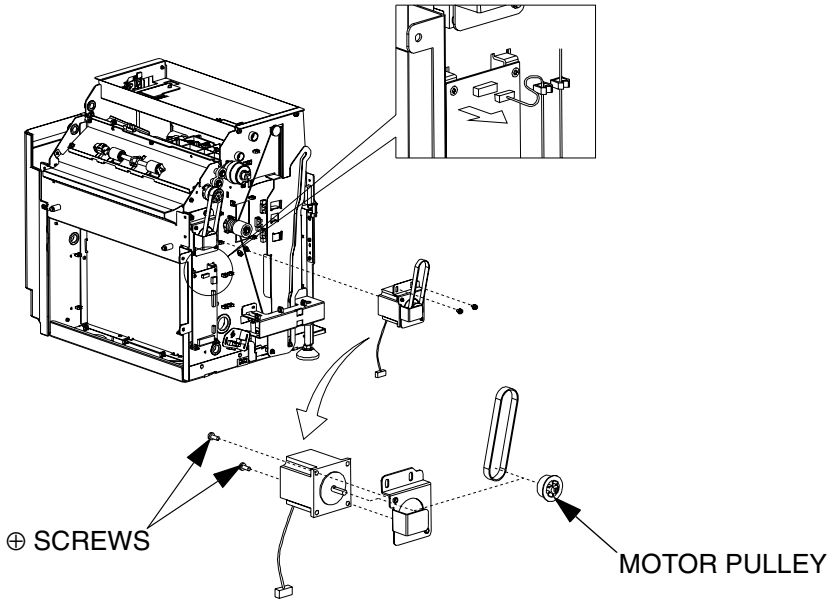


Figure 7-294. Removal of the Motor Pulley

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Adjust the Motor Assembly and fix it with ⊕ screws. (Refer to item 7.2.15 on page 7-246)
The tension of the Timing Belt is determined by self weight of the Motor Assembly.

7.2.25.2. Removal of the IS Drive Pulley

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the four ⊕ screws to remove the Side Case.
8. Unscrew the two ⊕ screws to remove the Side Cover. (Refer to item 7.2.15 on page 7-246)
9. Loosen the two ⊕ screws of the Motor Assembly. (Refer to item 7.2.15 on page 7-246)
10. Remove the IS Drive Pulley. (Refer to item 7.2.17 on page 7-249)

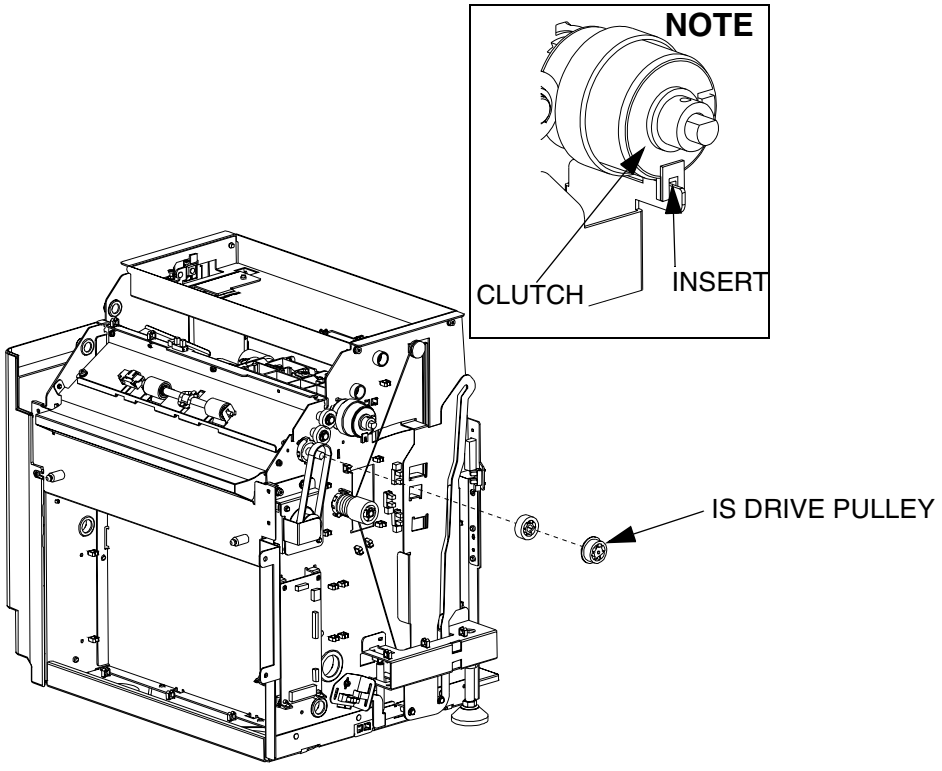


Figure 7-295. Removal of the IS Drive Pulley

[Assembling Procedures]
Perform the disassembling procedures in the reverse order.

Note: Adjust the Motor Assembly and fix it with ⊕ screws. (Refer to item 7.2.15 on page 7-246)
The tension of the Timing Belt is determined by self weight of the Motor Assembly.

7.2.25.3. Removal of the IS Drive Gear

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the four ⊕ screws to remove the Side Case.
8. Unscrew the two ⊕ screws to remove the Side Cover. (Refer to item 7.2.15 on page 7-246)
9. Loosen the two ⊕ screws of the Motor Assembly. (Refer to item 7.2.15 on page 7-246)
10. Remove the IS Drive Pulley to remove the IS Drive Gear. (Refer to item 7.2.17 on page 7-249)

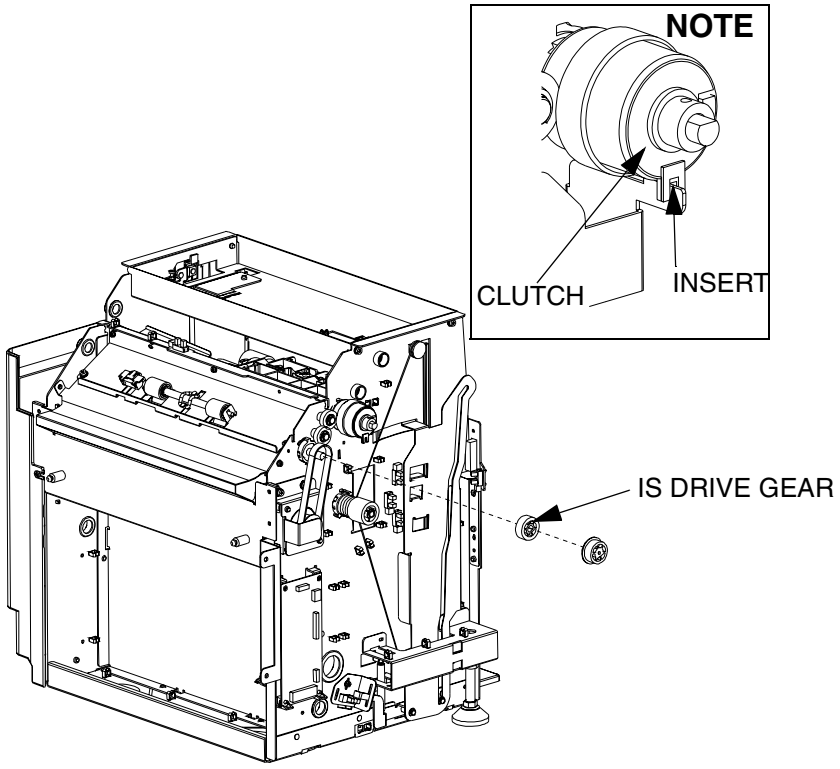


Figure 7-296. Removal of the IS Drive Gear

[Assembling Procedures]
Perform the disassembling procedures in the reverse order.

Note: Adjust the Motor Assembly and fix it with ⊕ screws. (Refer to item 7.2.15 on page 7-246)
The tension of the Timing Belt is determined by self weight of the Motor Assembly.

7.2.25.4. Removal of the Pick Drive Gear

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 ⊕ screw to remove the Door.
2. Open the Cover F. (Refer to item 7.2.2 on page 7-233)
3. Remove the two Pick Rollers to remove the Pick Drive Gear.

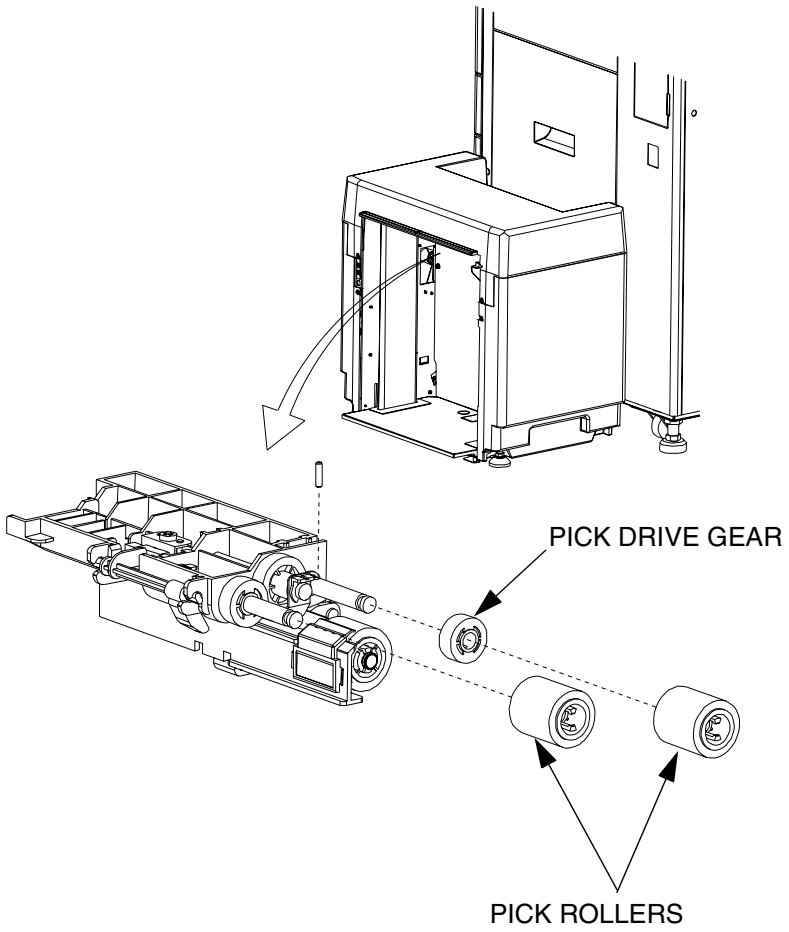


Figure 7-297. Removal of the Pick Drive Gear

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.2.25.5. Removal of the Pick Idler Gear

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 ⊕ screw to remove the Door.
2. Open the Cover F. (Refer to item 7.2.2 on page 7-233)
3. Remove the two Pick Rollers.
4. Remove the Hook Ring B, and the PF Guide to remove the Pick Idler Gear.

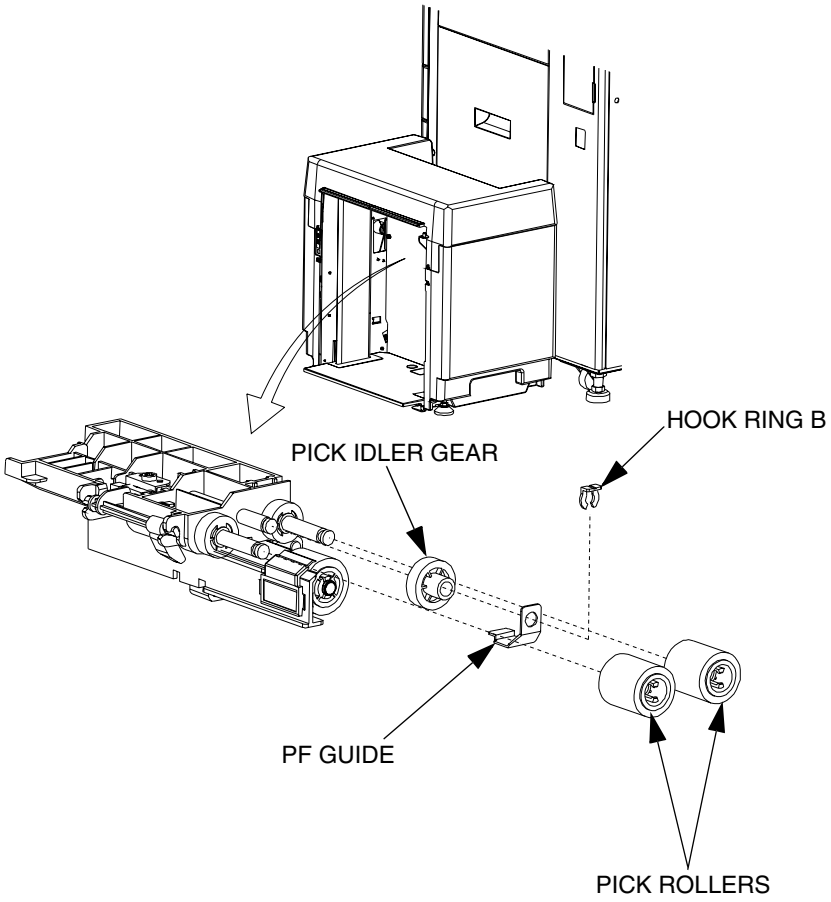


Figure 7-298. Removal of the Pick Idler Gear

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.2.25.6. Removal of the Pick Roller Gear

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 ⊕ screw to remove the Door.
2. Remove the Pick Roller to remove the Pick Roller Gear.

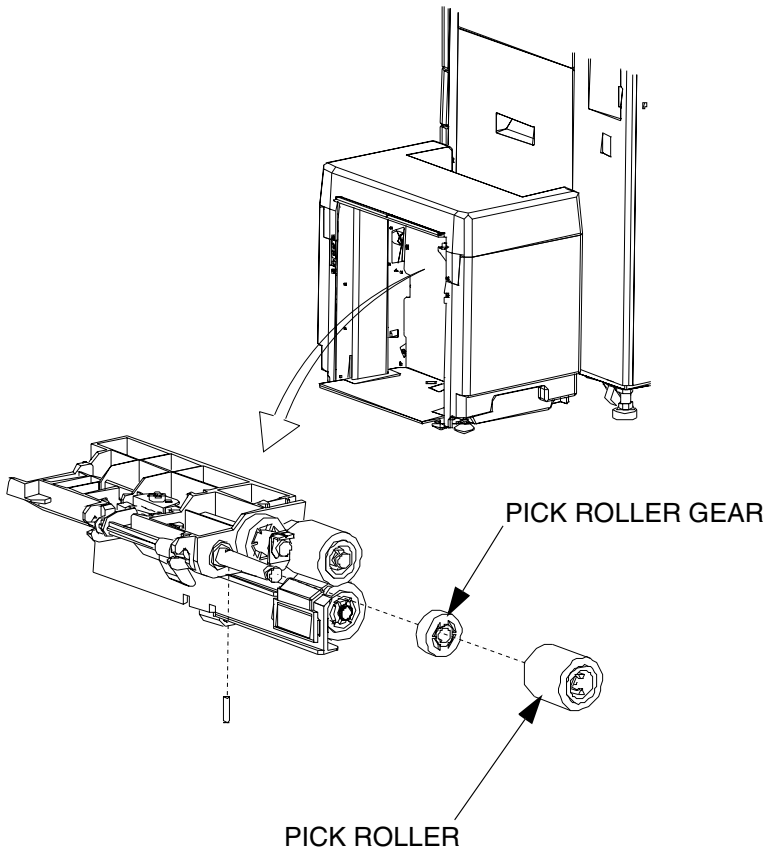


Figure 7-299. Removal of the Pick Roller Gear

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.2.25.7. Removal of the Table Motor Gear

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the four ⊕ screws to remove the Side Case.
8. Unscrew the two ⊕ screws to remove the T Motor Bracket, and the two Sleeve Bearings. (Refer to item 7.2.18 on page 7-252)
9. Remove the Table Motor Gear. (Refer to item 7.2.18 on page 7-252)

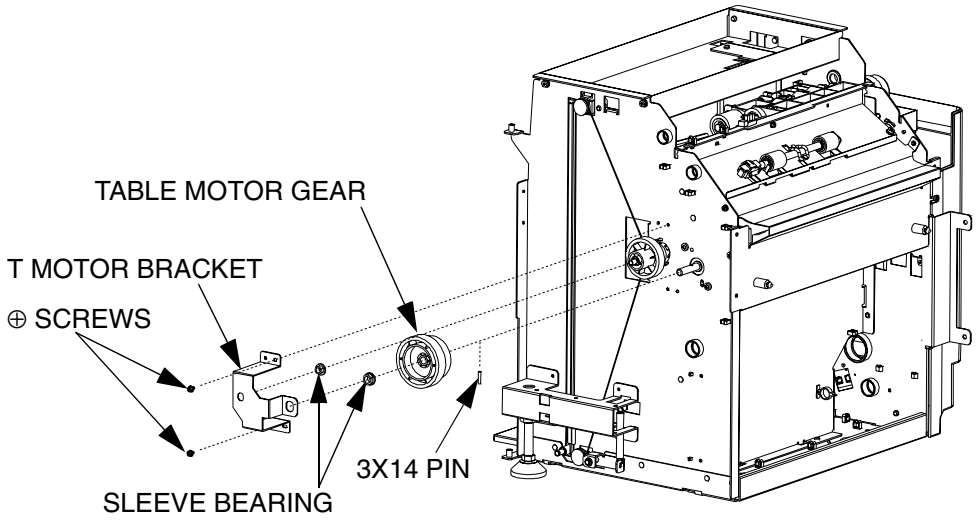


Figure 7-300. Removal of the Table Motor Gear

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.2.25.8. Removal of the Pick Idler Gear

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the four ⊕ screws to remove the Side Case. (Refer to item 7.2.15 on page 7-246)
8. Unscrew the two ⊕ screws to remove the Side Cover. (Refer to item 7.2.15 on page 7-246)
9. Remove the Pick Roller, the Pick Drive Gear, the 3x14 Pin, and the Hook Ring A. (Refer to item 7.2.23 on page 7-268)
10. Disconnect the connector. (Refer to item 7.2.23 on page 7-268)
11. Turn the B.B Housing to pull out the Pick Drive Shaft Assembly. (Refer to item 7.2.23 on page 7-268)
12. Loosen the two ⊕ screws of the Motor Assembly. (Refer to item 7.2.15 on page 7-246)
13. Remove the IS Drive Pulley, and the IS Drive Gear. (Refer to item 7.2.17 on page 7-249)
14. Remove the two E-Rings to remove the two Pick Idler Gears.

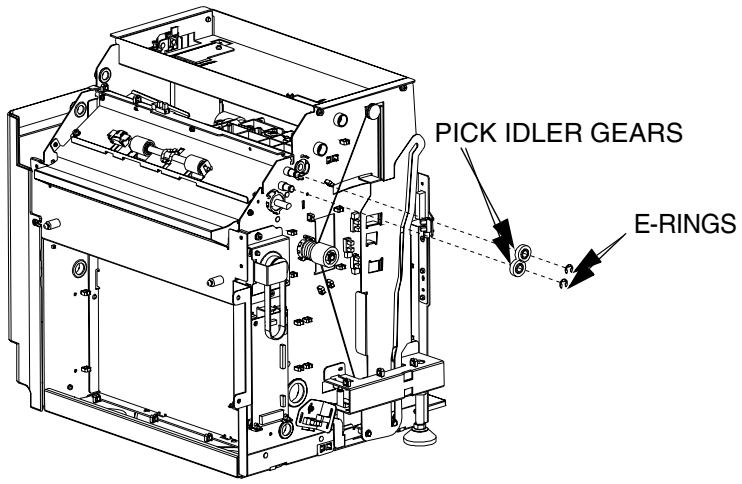


Figure 7-301. Removal of the Pick Idler Gear

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.2.25.9. Removal of the Change Gear 2

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the eight ⊕ screws to remove the Side Cases on both sides.
8. Unscrew the two ⊕ screws to remove the Paper Guides on both sides. (Refer to item 7.2.1 on page 7-232)
9. Open the Cover F. (Refer to item 7.2.2 on page 7-233)
10. Remove the Spring F on one side only. (Refer to item 7.2.14 on page 7-245)
11. Unscrew the four ⊕ screws to remove the Front Frame Assembly. (Refer to item 7.2.14 on page 7-245)
12. Disconnect the connector. (Refer to item 7.2.17 on page 7-249)
13. Unscrew the four ⊕ screws to remove the Pressure Roller Base Assembly. (Refer to item 7.2.17 on page 7-249)
14. Unscrew the five ⊕ screws to remove the Rear Frame. (Refer to item 7.2.17 on page 7-249)
15. Unscrew the ⊕ screw to remove the Idler Arm Assembly, and the Washer.
16. Remove the E-Ring, Idler Arm Shaft, and the Idler Arm HP to remove the Change Gear 2.

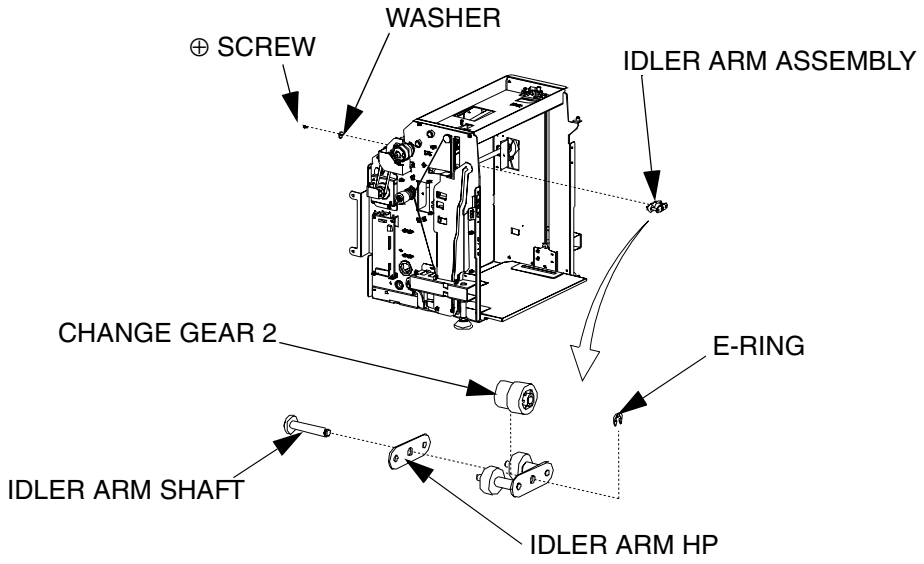


Figure 7-302. Removal of the Change Gear 2

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.2.25.10. Removal of the Loading Gear

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the eight ⊕ screws to remove the Side Cases on both sides.
8. Unscrew the two ⊕ screws to remove the Paper Guides on both sides. (Refer to item 7.2.1 on page 7-232)
9. Open the Cover F. (Refer to item 7.2.2 on page 7-233)
10. Remove the Spring F on one side only. (Refer to item 7.2.14 on page 7-245)
11. Unscrew the four ⊕ screws to remove the Front Frame Assembly. (Refer to item 7.2.14 on page 7-245)
12. Disconnect the connector. (Refer to item 7.2.17 on page 7-249)
13. Unscrew the four ⊕ screws to remove the Pressure Roller Base Assembly. (Refer to item 7.2.17 on page 7-249)
14. Unscrew the five ⊕ screws to remove the Rear Frame. (Refer to item 7.2.17 on page 7-249)
15. Unscrew the ⊕ screw to remove the Idler Arm Assembly, and the Washer. (Refer to item 7.2.25.9 on page 7-280)
16. Remove the E-Ring, Idler Arm Shaft, and the Idler Arm HP to remove the Change Gear 2. (Refer to item 7.2.25.9 on page 7-280)
17. Remove the E-Rings to remove the Loading Gears.

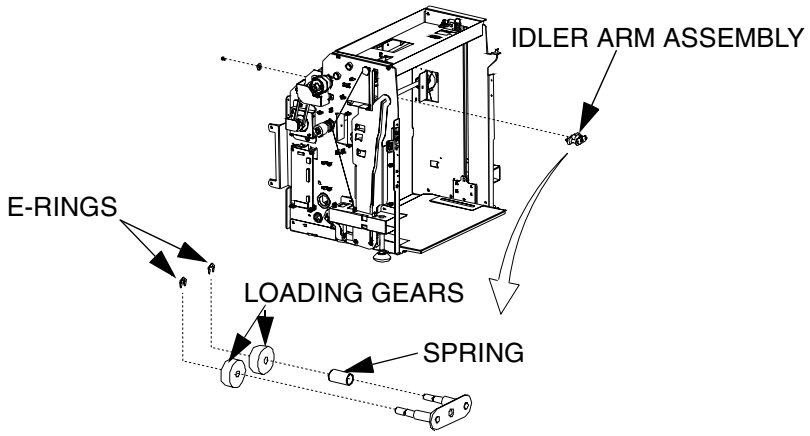


Figure 7-303. Removal of the Loading Gear

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.2.25.11. Removal of the Change Gear 1

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Pull out the 2000 Sheet Hopper.
2. Unscrew the two ⊕ screws to remove the High Capacity Hopper in the direction of the arrow.
3. Disconnect the connectors.
4. Unscrew the ⊕ screw to remove the Door.
5. Remove the Top Cover.
6. Unscrew the four ⊕ screws to remove the Upper Case.
7. Unscrew the eight ⊕ screws to remove the Side Cases on both sides.
8. Unscrew the two ⊕ screws to remove the T Motor Bracket, the two Sleeve Bearings, the Table Motor Gear, and the 3x14 Pin. (Refer to item 7.2.18 on page 7-252)
9. Unscrew the two ⊕ screws to remove the Paper Guides on both sides. (Refer to item 7.2.1 on page 7-232)
10. Open the Cover F. (Refer to item 7.2.2 on page 7-233)
11. Remove the Spring F on one side only. (Refer to item 7.2.14 on page 7-245)
12. Unscrew the two ⊕ screws to remove the Front Frame Assembly. (Refer to item 7.2.14 on page 7-245)
13. Remove the two E-Rings to remove the Position Arm. (Refer to item 7.2.11 on page 7-242)
14. Disconnect the connector. (Refer to item 7.2.17 on page 7-249)
15. Unscrew the four ⊕ screws to remove the Pressure Roller Base Assembly. (Refer to item 7.2.17 on page 7-249)
16. Unscrew the five ⊕ screws to remove the Rear Frame. (Refer to item 7.2.17 on page 7-249)
17. Unscrew the ⊕ screw to remove the Idler Arm Assembly, and the Washer. (Refer to item 7.2.25.9 on page 7-280)
18. Remove the two E-Rings to remove the Wire Roll Drum, and the D3x14 Pin on both sides. (Refer to item 7.2.20 on page 7-261)

19. Turn the B.B Housing to remove the B.B Housing, and the B.B.
20. Pull out the Drive Shaft Assembly.
21. Unscrew the ⊕ screw to remove the Change Gear 1.

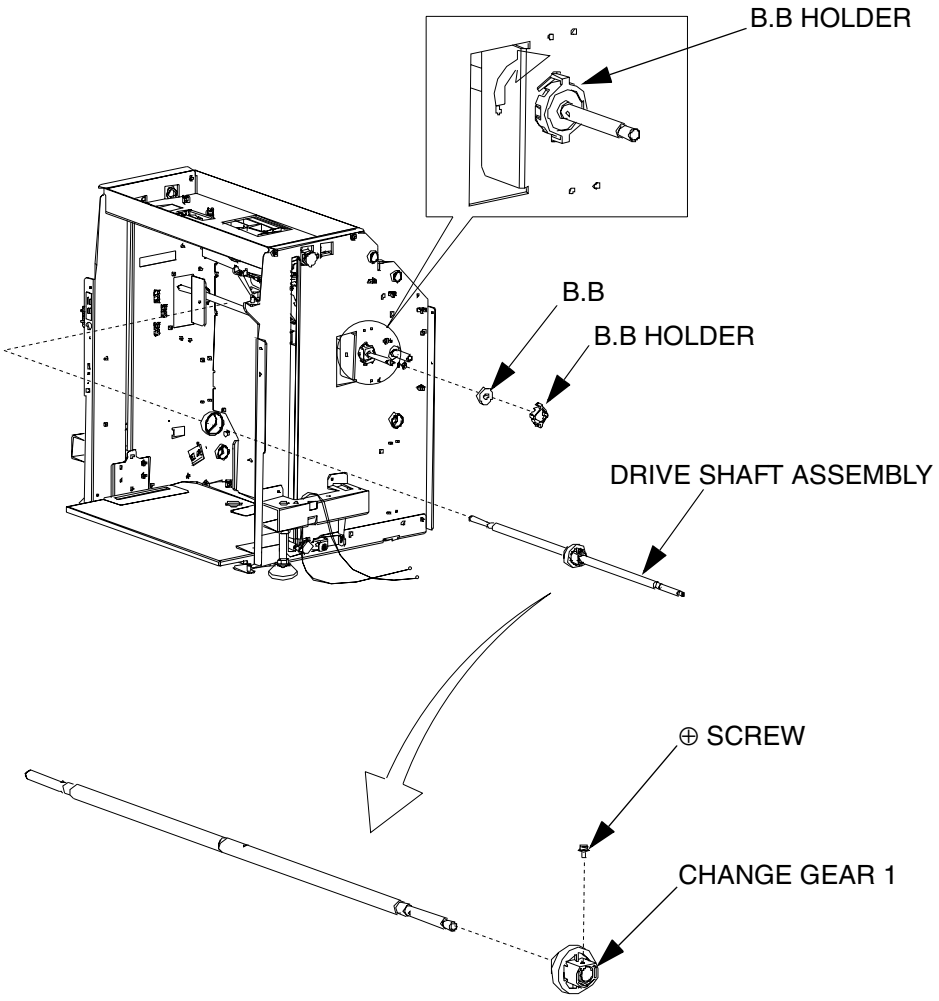


Figure 7-304. Removal of the Change Gear 1

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note:	Push the steel ball on the edge of the wire with 5 twists into the groove of the Wire Roll Drum and start rolling. (Refer to item 7.2.19.1 on page 7-254) and (Refer to item 7.2.19.2 on page 7-258) Adjust the Over Run Sensor and fix it with a ⊕ screw.

[Checks]

Turn the Wire Roll Drum to confirm that the Table moves smoothly with a full stroke. (Refer to item 7.2.19.1 on page 7-254)

Raise the Table until it comes to the Pick Roller and attach the 3x14 Pin, and the Table Motor Gear to fix the Table. Check that the Table is level. If not, loosen the nut and turn the ⊕ screw to adjust. (Refer to item 7.2.19.1 on page 7-254)

7.3. Relay Unit Parts

7.3.1. Removal of the Relay Unit

CAUTION:
1. **The voltage is constantly in unless the machine is unplugged and the Breaker Switch is OFF.**
2. **Unplug the Power Supply Cable prior to connecting the power supply source.**
3. **Be careful not to have other personnel plug in the power cable while performing the connecting.**

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Remove the Rear Cover of the Relay Unit. (Refer to item 3.3 on page 3-9)
2. Loosen the two ⊕ screws and the AC Cover.

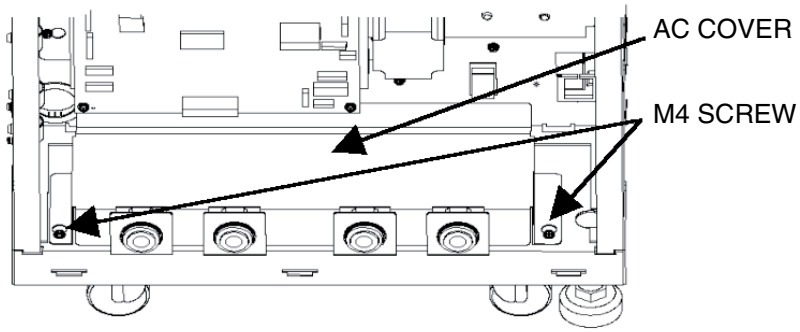


Figure 7-305. Removal of the Relay Unit

3. Disconnect the Power Supply Cables to Terminal Blocks of the Relay Unit.
   (1) Loosen the Power Supply Cable by the Cord Locks.
   (2) Disconnect the AC cable to the Terminal Block and chassis.
   Unscrew the "**L**" Terminal of AC cables from Terminal Blocks.
   Unscrew the "**N**" Terminal of AC cables from Terminal Blocks.
   Unscrew the "**FG**" Terminal of AC cables from frame ground of the Relay Unit.
   (3) Remove the Power Supply Cables for the **Front** Engine and **Rear** Engine and put it through the Cord Lock and pull it in front of the Terminal Block.

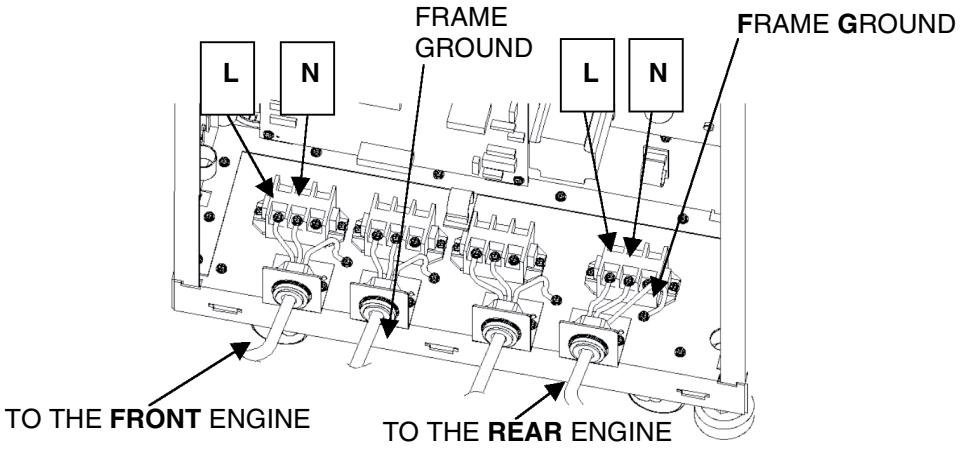


Figure 7-306. Removal of the Relay Unit

4. Remove the Front Lower Cover of the **Rear** Engine. (Refer to item 3.3 on page 3-9)
5. Disconnect the cables coming from the Relay Unit.

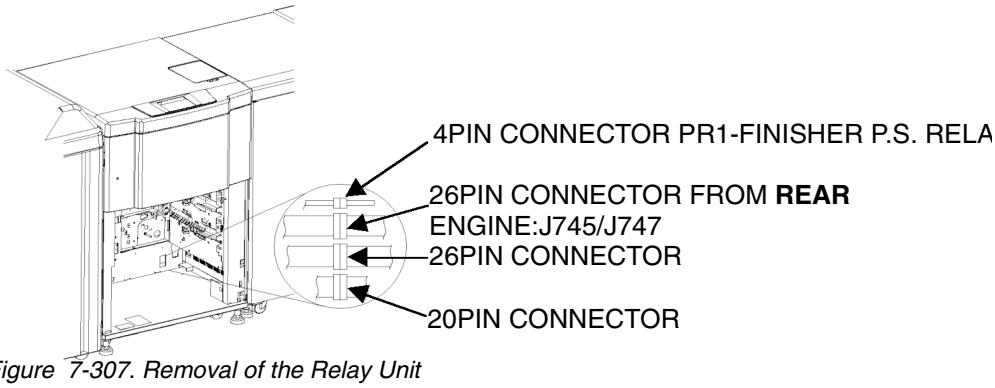


Figure 7-307. Removal of the Relay Unit

6. Disconnect the cable on the rear side of the Relay Unit.

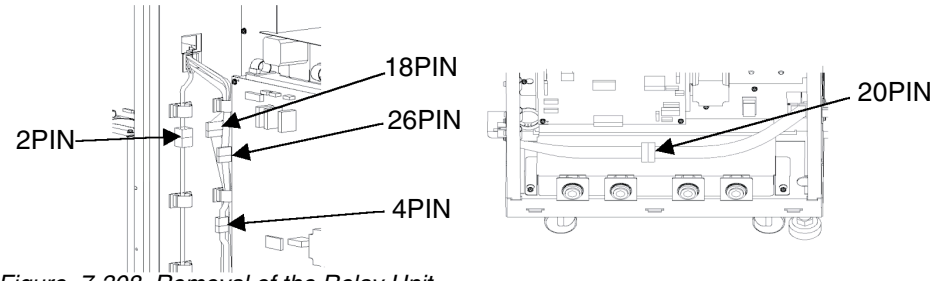


Figure 7-308. Removal of the Relay Unit

7. Loosen the ⊕ screws and jack down the Relay Unit, **Front** Engine and **Rear** Engine by rotating the Leveling Bolts. And Remove the **Rear** Engine, Relay Unit and **Front** Engine from each other.

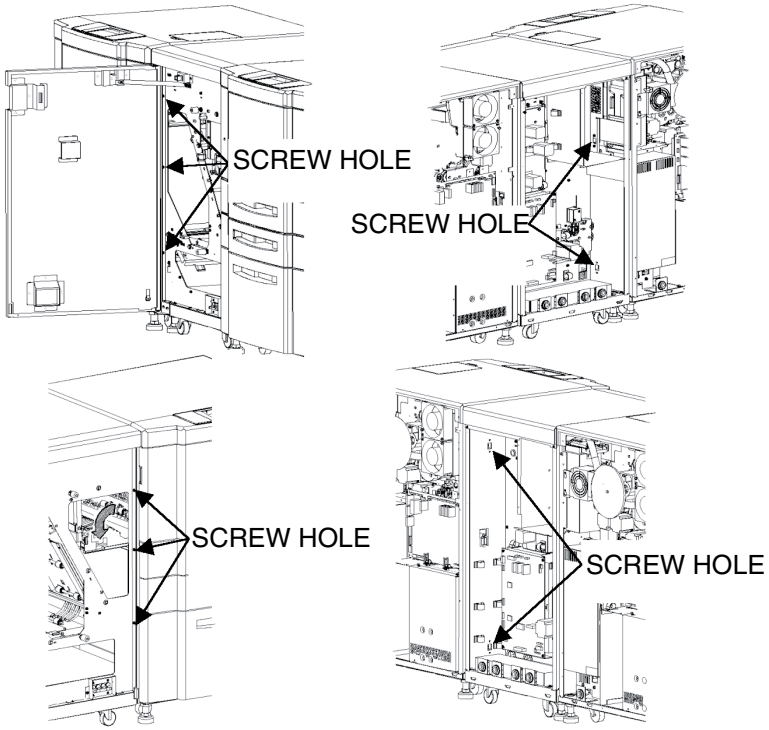


Figure 7-309. Removal of the Relay Unit

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

1. Jack up the **Front** Engine and put Stays of the Relay Unit on the **Front** Engine. (Stay lay on the Base Frame of the **Front** Engine).
2. Put the Stays of the Relay Unit on the **Rear** Engine and jack up the **Rear** Engine. (Stay lay on the Base Frame of the **Rear** Engine).

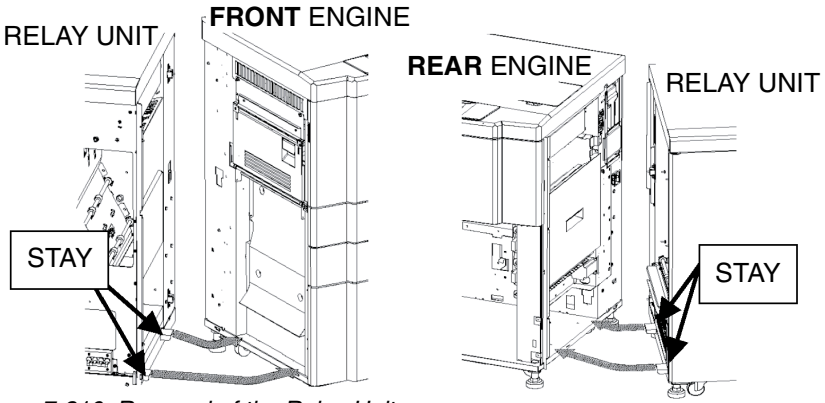
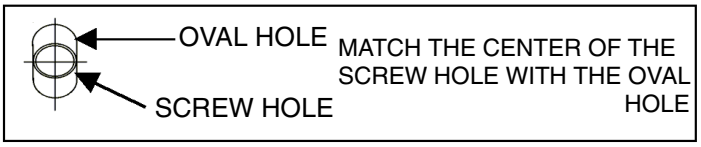


Figure 7-310. Removal of the Relay Unit

3. Adjust the leveling bolt of **Front** Engine to mach the center of screw holes and oval holes and to be no gap between the **Front** Engine the Relay Unit. Confirm to be able to open the SB Cover and IS Cover. (Refer to disassembling procedures item 7 for Oval Hole location).



4. Fix the Relay Unit and Engines with M4 Screws.

Note: Make sure that it's no gap between each units before fixing.

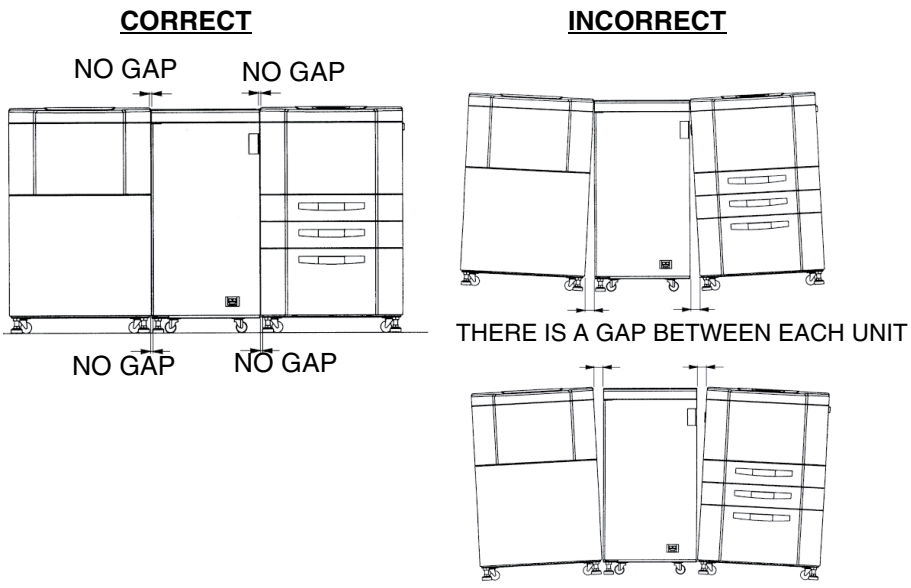


Figure 7-311. Removal of the Relay Unit

5. Connect the cables.
   Connect the five Cables.
   Perform the disassembling procedures item 5 and 6 in the reverse order.
6. Connect the Power Supply Cables to Terminal Blocks of Relay Unit.
   Perform the disassembling procedures item 3 in the reverse order.
7. Install the AC Cover, Rear Cover and Front Lower Cover.

7.3.2. Removal of the Relay Unit Feed Motor 1

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 3.3 on page 3-9)
2. Disconnect the Connector on the Motor Assembly.
3. Unscrew the five ⊕ screws and Remove the Motor Holder Assembly.
4. Remove the Motor Gear (SB).
5. Unscrew the two ⊕ screws to remove the Relay Unit Feed Motor 1.

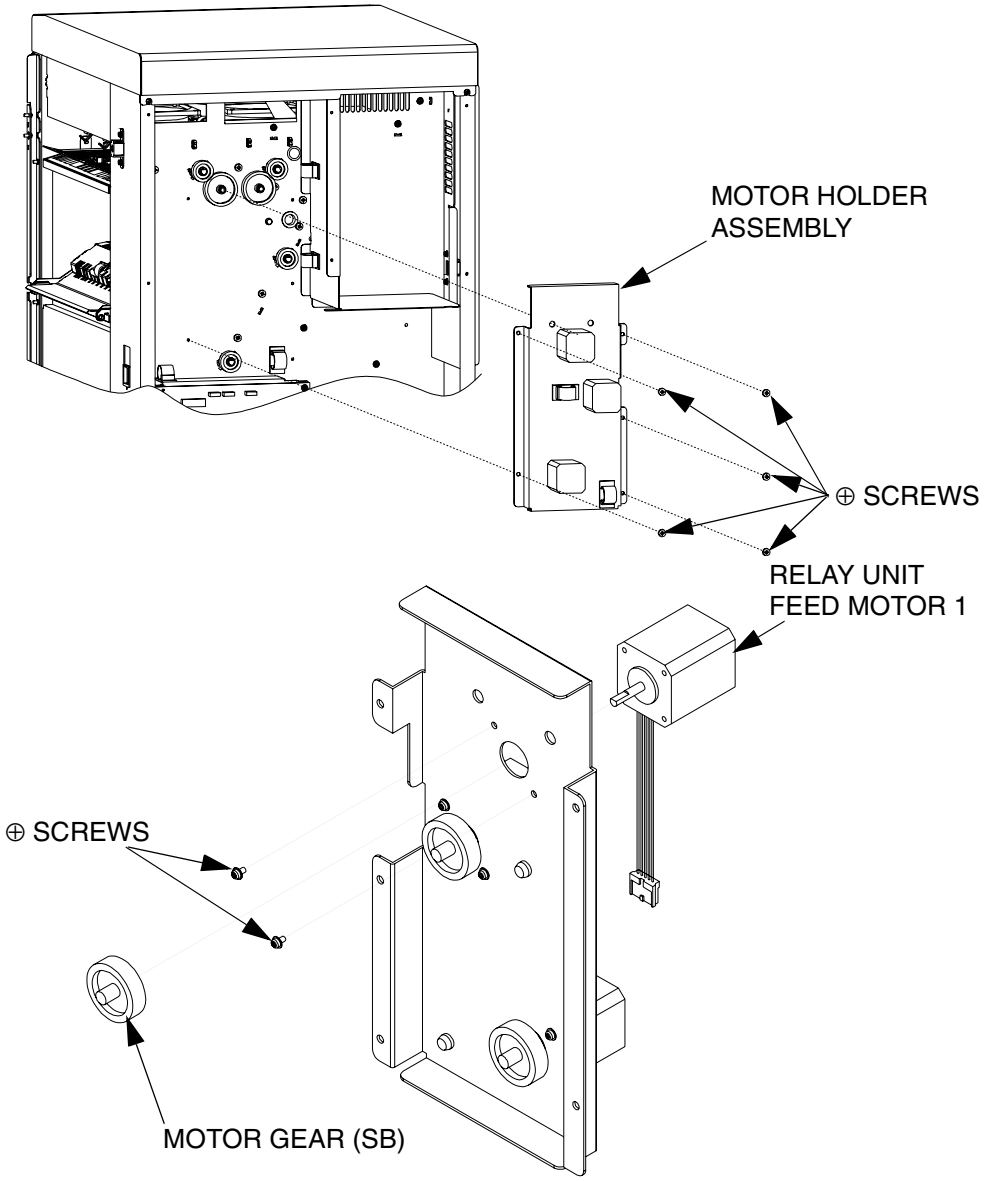


Figure 7-312. Removal of the Relay Unit Feed Motor 1

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.3.3. Removal of the Relay Unit Feed Motor 2

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 3.3 on page 3-9)
2. Remove the Motor Holder Assembly. (Refer to item 7.3.2 on page 7-288)
3. Remove the Motor Gear (SB).
4. Unscrew the two ⊕ screws to remove the Relay Unit Feed Motor 2.

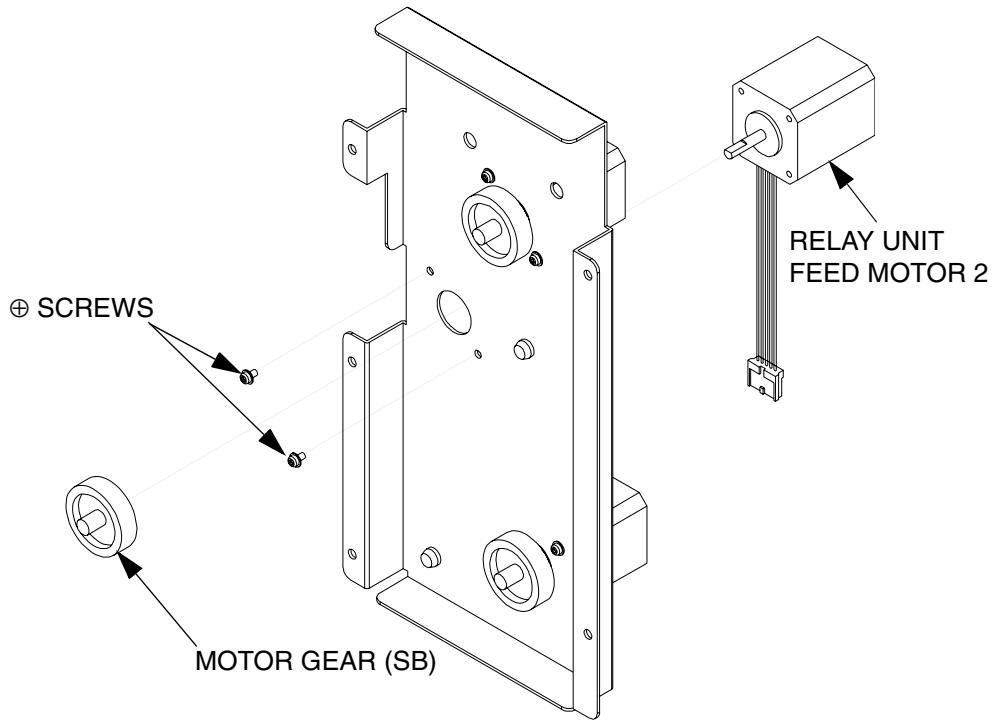


Figure 7-313. Removal of the Relay Unit Feed Motor 2

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.3.4. Removal of the Relay Unit Feed Motor 3

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 3.3 on page 3-9)
2. Remove the Motor Holder Assembly. (Refer to item 7.3.2 on page 7-288)
3. Remove the Motor Gear (SB).
4. Unscrew the two ⊕ screws to remove the Relay Unit Feed Motor 3.

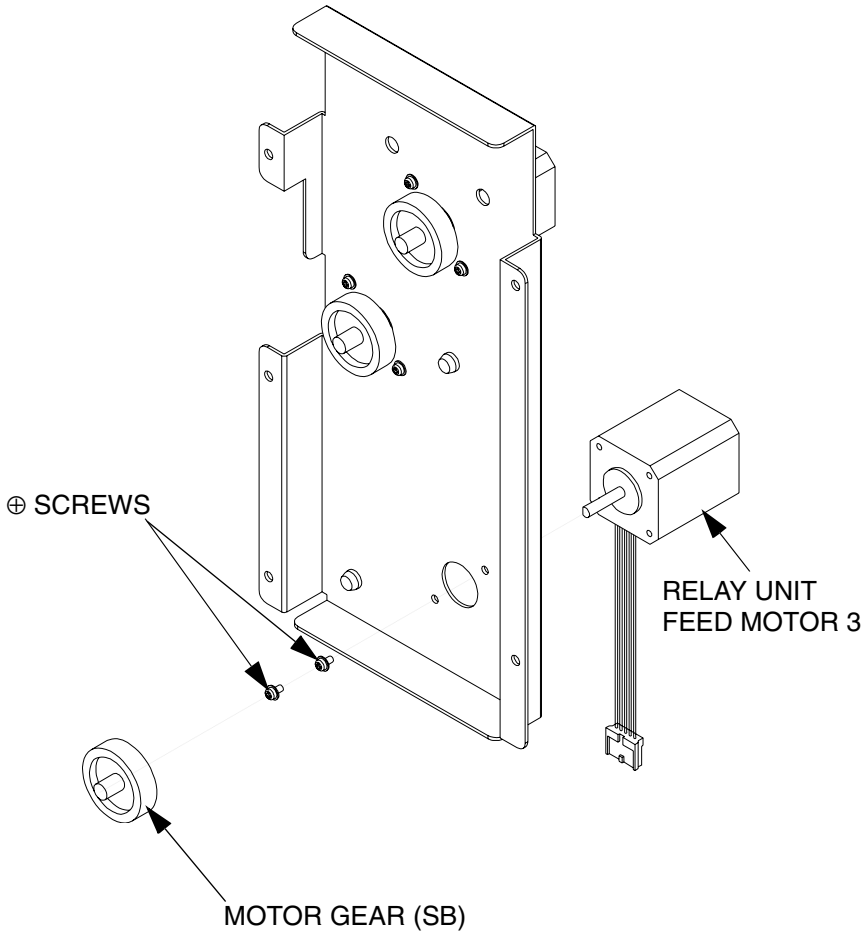


Figure 7-314. Removal of the Relay Unit Feed Motor 3

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.3.5. Removal of the Relay Unit Feed Motor 4

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 3.3 on page 3-9)
2. Loosen the four ⊕ screws to remove the CP5xx Assembly after disconnecting the connectors.
3. Unscrew the four ⊕ screws to remove the Motor Holder (L) Assembly.
4. Unscrew the two ⊕ screws to remove the Relay Unit Feed Motor 4.

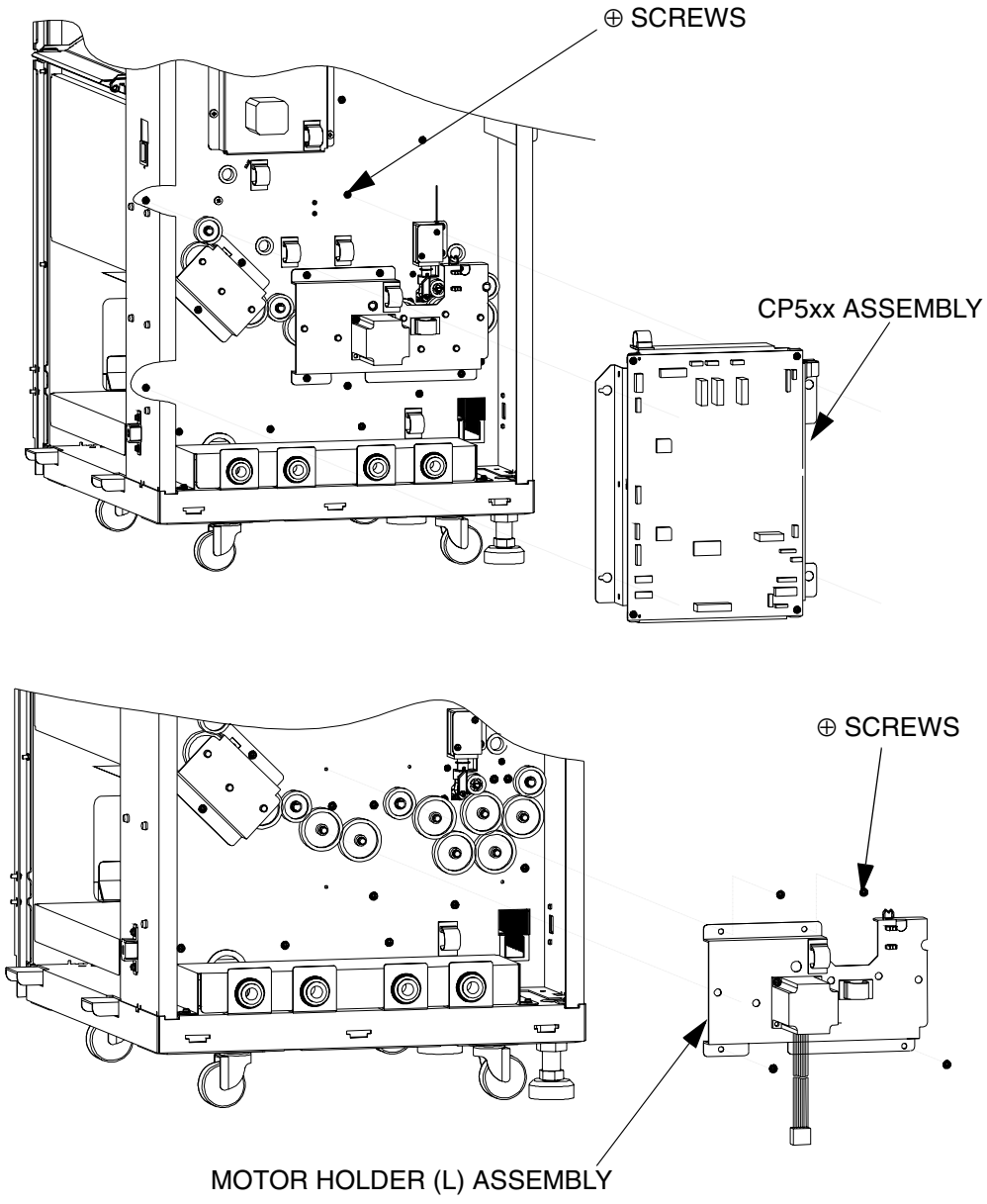


Figure 7-315. Removal of the Relay Unit Feed Motor 4

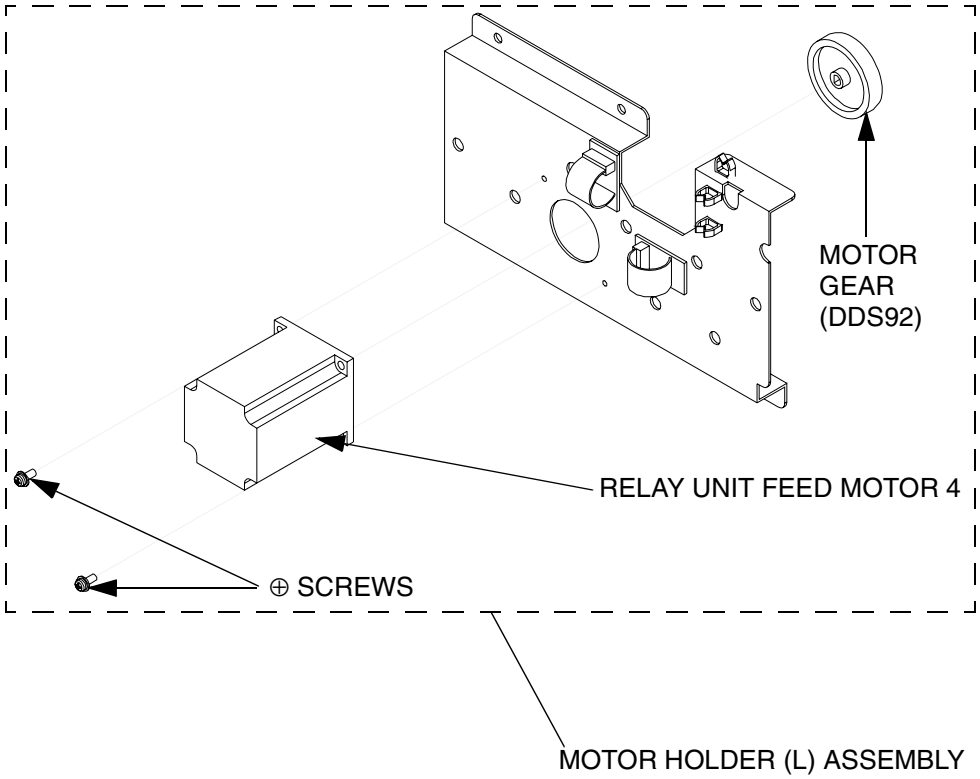


Figure 7-316. Removal of the Relay Unit Feed Motor 4

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.3.6. Removal of the Relay Unit Cooling Fan

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 Top Cover. (Refer to item 3.3 on page 3-9)
2. Disconnect the Connector of the Cooling Fan.
3. Unscrew the two ⊕ screws to remove the Cooling Fan.

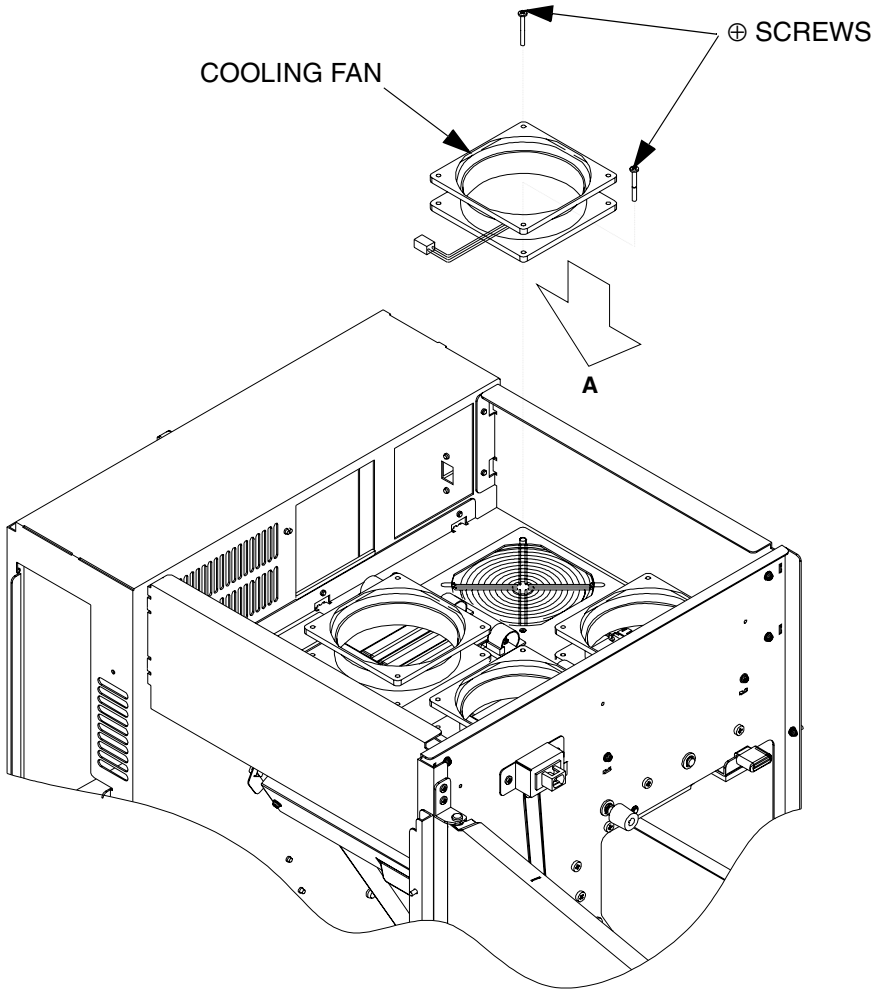


Figure 7-317. Removal of the Relay Unit Cooling Fan

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: When the Cooling Fan is fixed, the blow-off direction is turned in the direction of **A**.

7.3.7. Removal of the Relay Unit Solenoid (Decurler)

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 3.3 on page 3-9)
2. Disconnect the Connector of the Solenoid.
3. Unscrew the two ⊕ screws and remove the Solenoid Frame.
4. Pull the Gate Link in the direction of the arrow **A** and pull off the Solenoid Plunger in the direction of the arrow **B**.

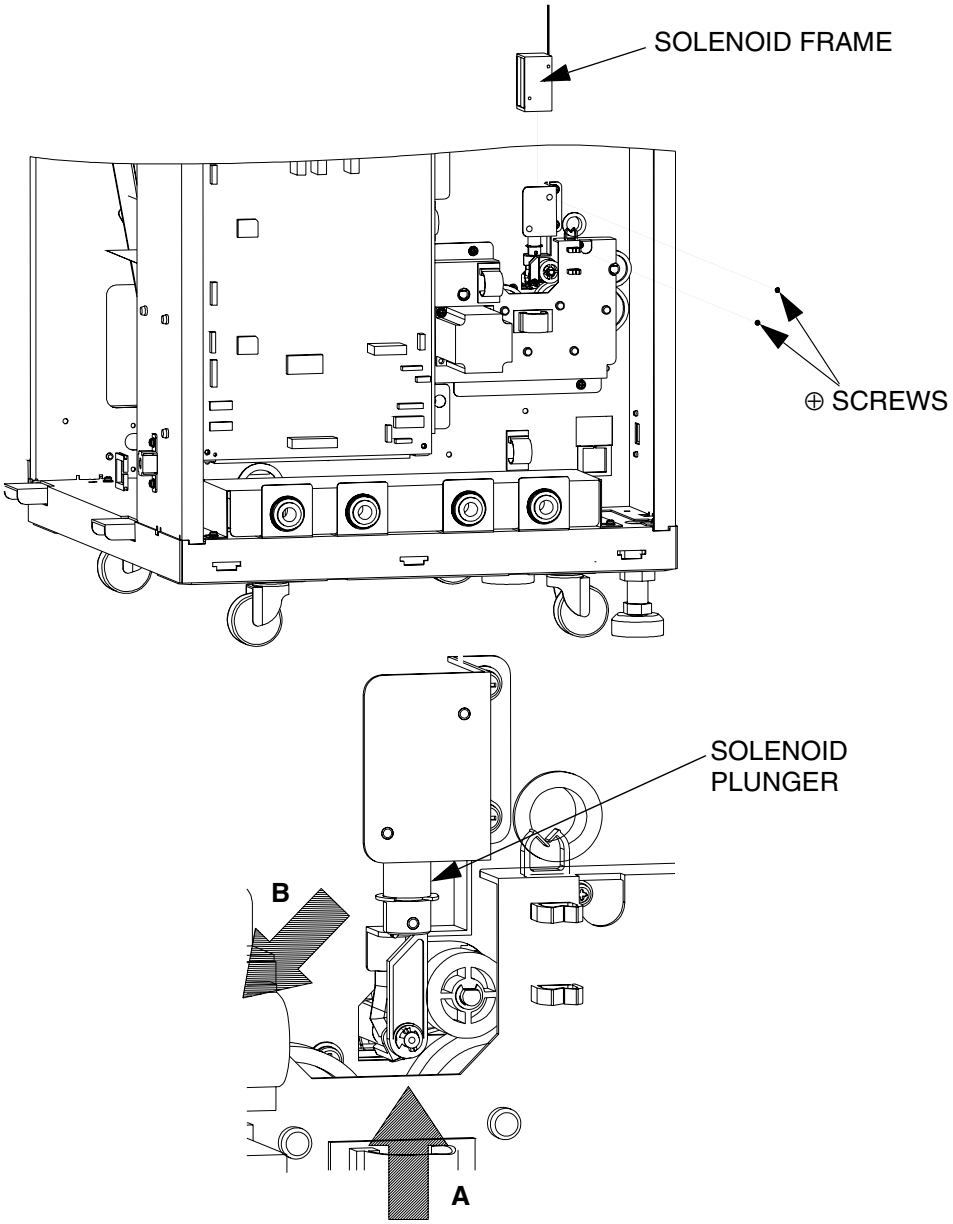


Figure 7-318. Removal of the Relay Unit Solenoid (Decurler)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.3.8. Removal of the Power Switch

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Disassemble the Standard Finisher and Relay Unit.
2. Unscrew four ⊕ screws and remove the Guide Plate (L2) and Side Cover (L).
3. Unscrew ten ⊕ screws and remove the DC Supply Cover.
4. Disconnect the connector.
5. Unscrew four ⊕ screws to remove the Power Switch.

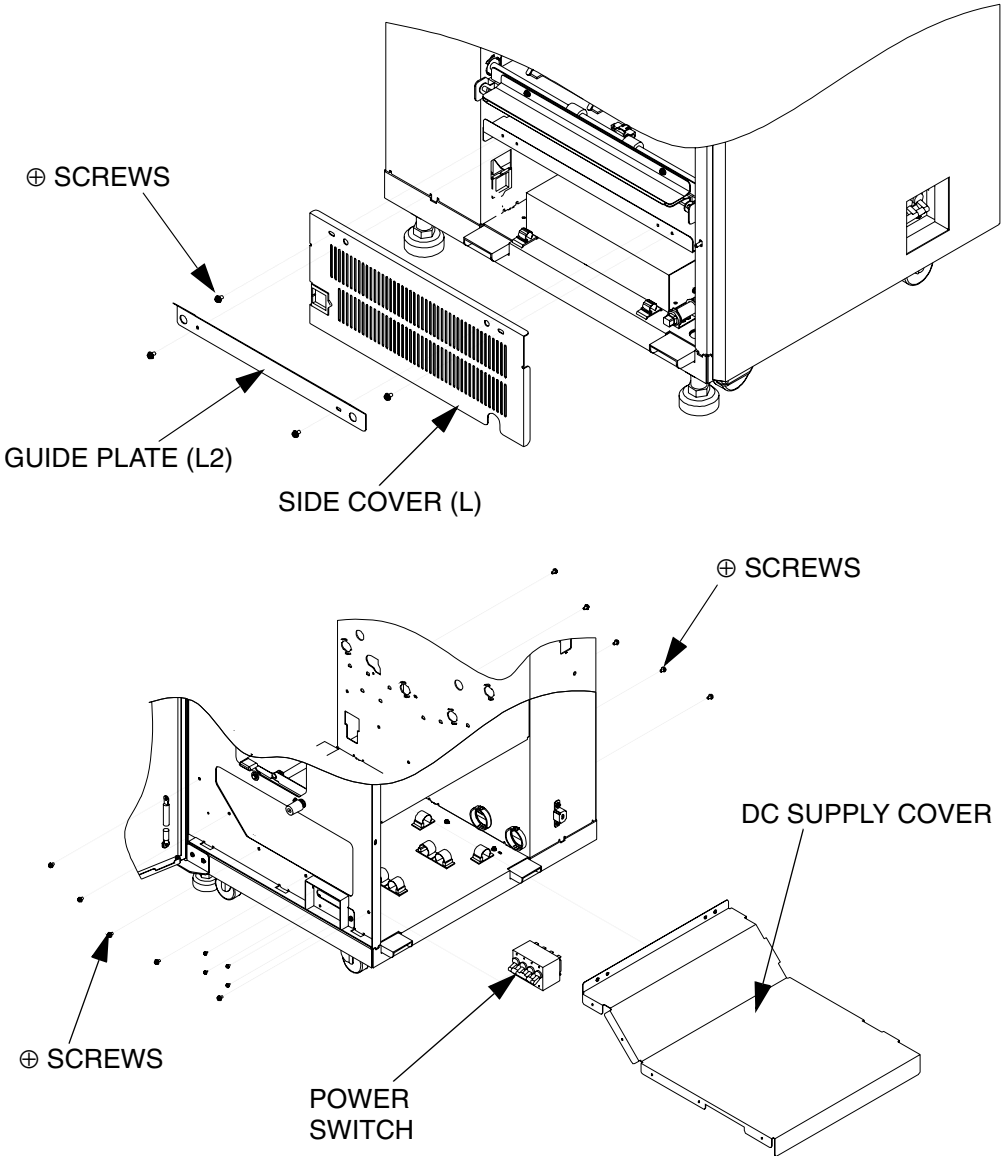


Figure 7-319. Removal of the Power Switch

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: Refer to the following figure for connection of the cable to the Power Switch.

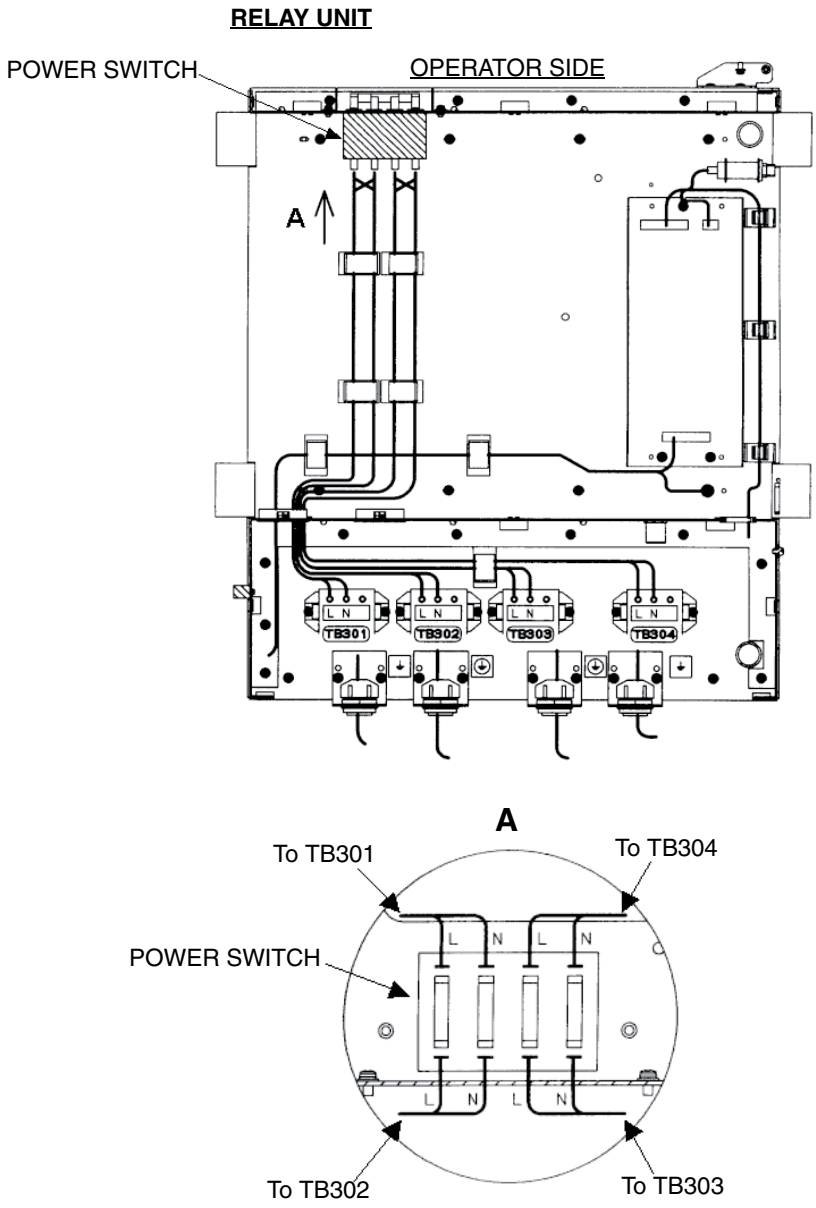


Figure 7-320. Connection of the cable to the Power Switch

7.3.9. Removal of the Relay Unit Feed Sensor 1

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

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Disassemble the Relay Unit.
2. Remove the Sensor Holder.
3. Disconnect the Connector from the Relay Unit Feed Sensor 1.
4. Remove the Relay Unit Feed Sensor 1 from the Sensor Holder.

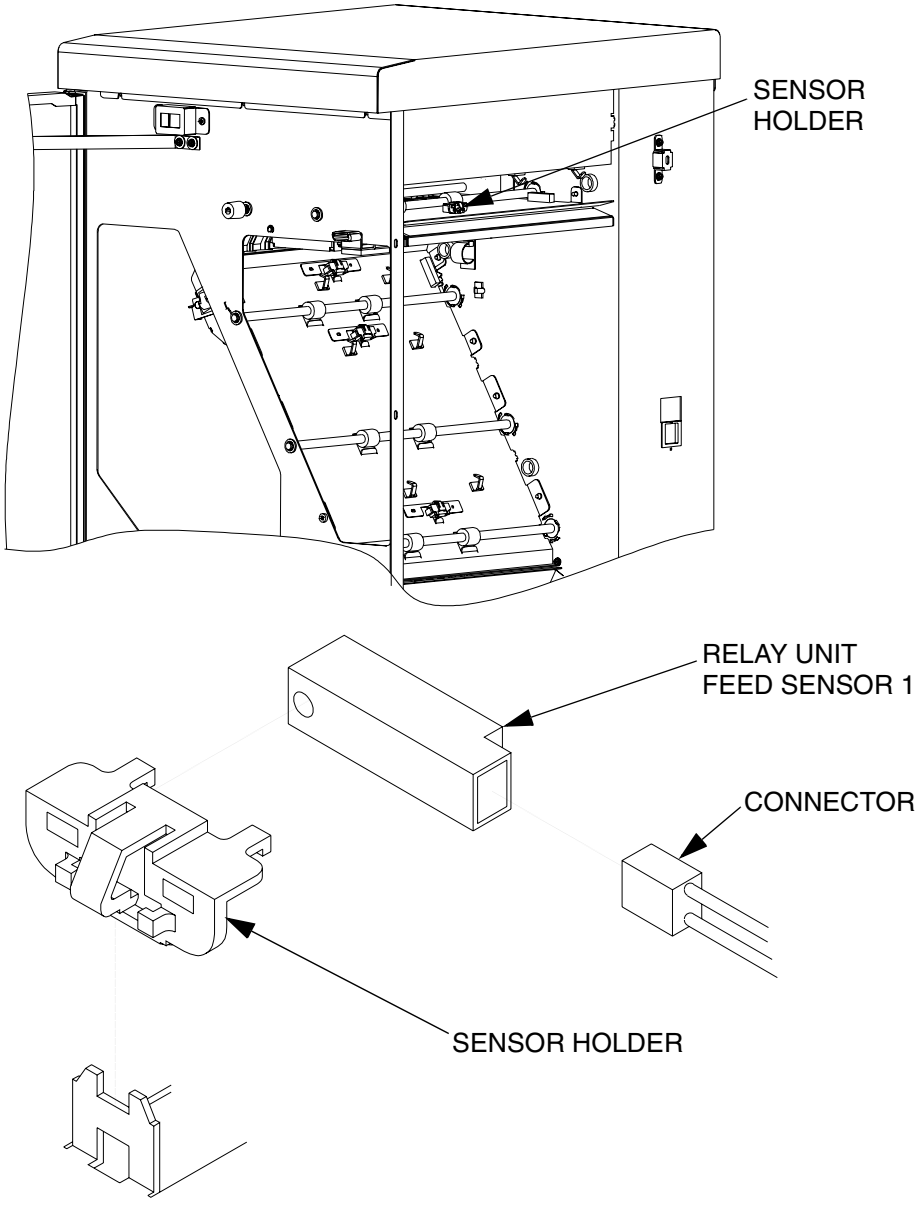


Figure 7-321. Removal of the Relay Unit Feed Sensor 1

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.3.10. Removal of the Relay Unit Feed Sensor 2, 3 and 4

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. Remove the Sensor Holders.
3. Disconnect the Connector from the Relay Unit Feed Sensor 2, 3 and 4.
4. Remove the Relay Unit Feed Sensor 2, 3 and 4 from the Sensor Holder.

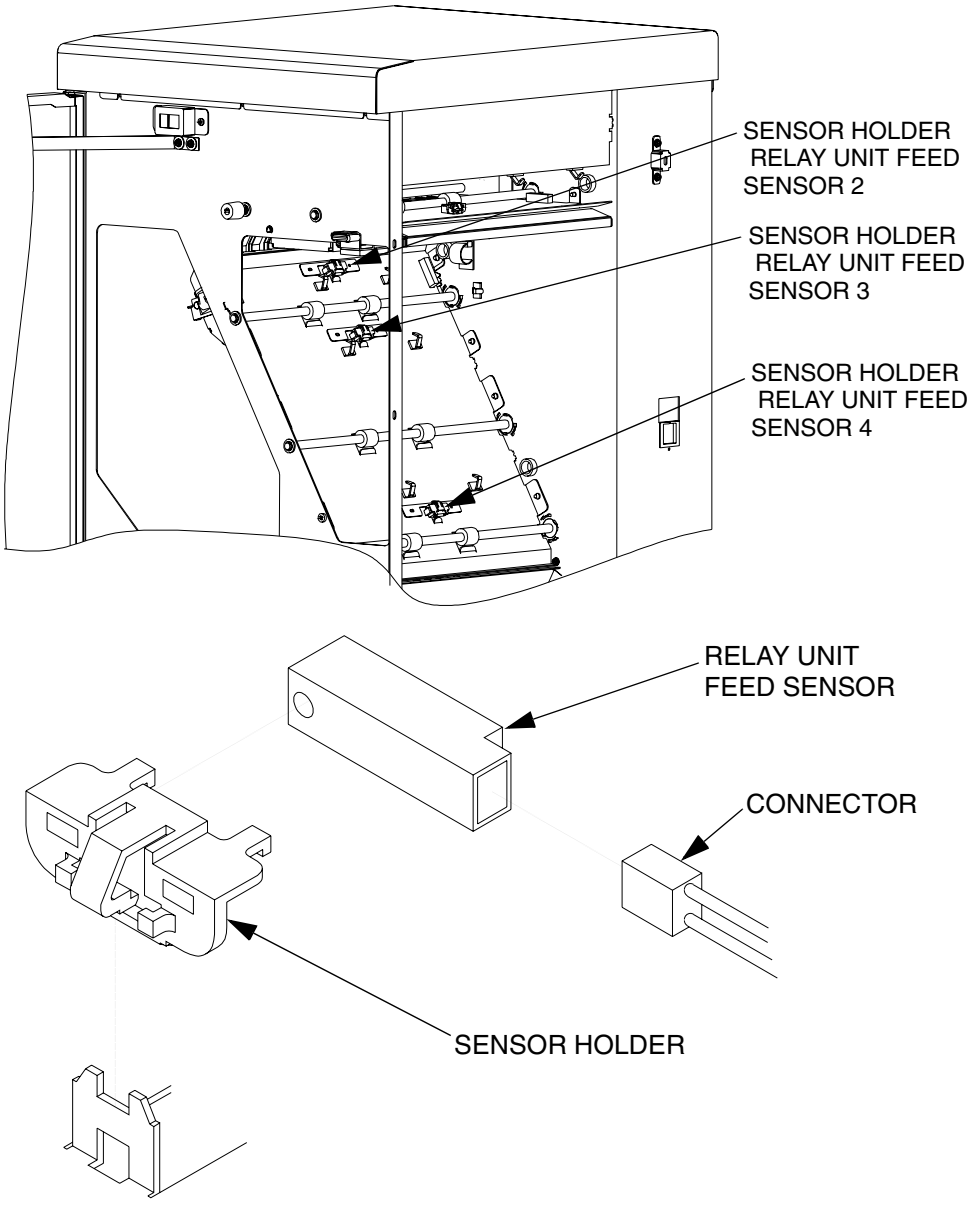


Figure 7-322. Removal of the Relay Unit Feed Sensor 2, 3 and 4

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.3.11. Removal of the Relay Unit Feed Sensor 5 and 6

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. Remove the Sensor Holders.
3. Disconnect the Connector from the Relay Unit Feed Sensor 5 and 6.
4. Remove the Relay Unit Feed Sensor 5 and 6 from the Sensor Holder.

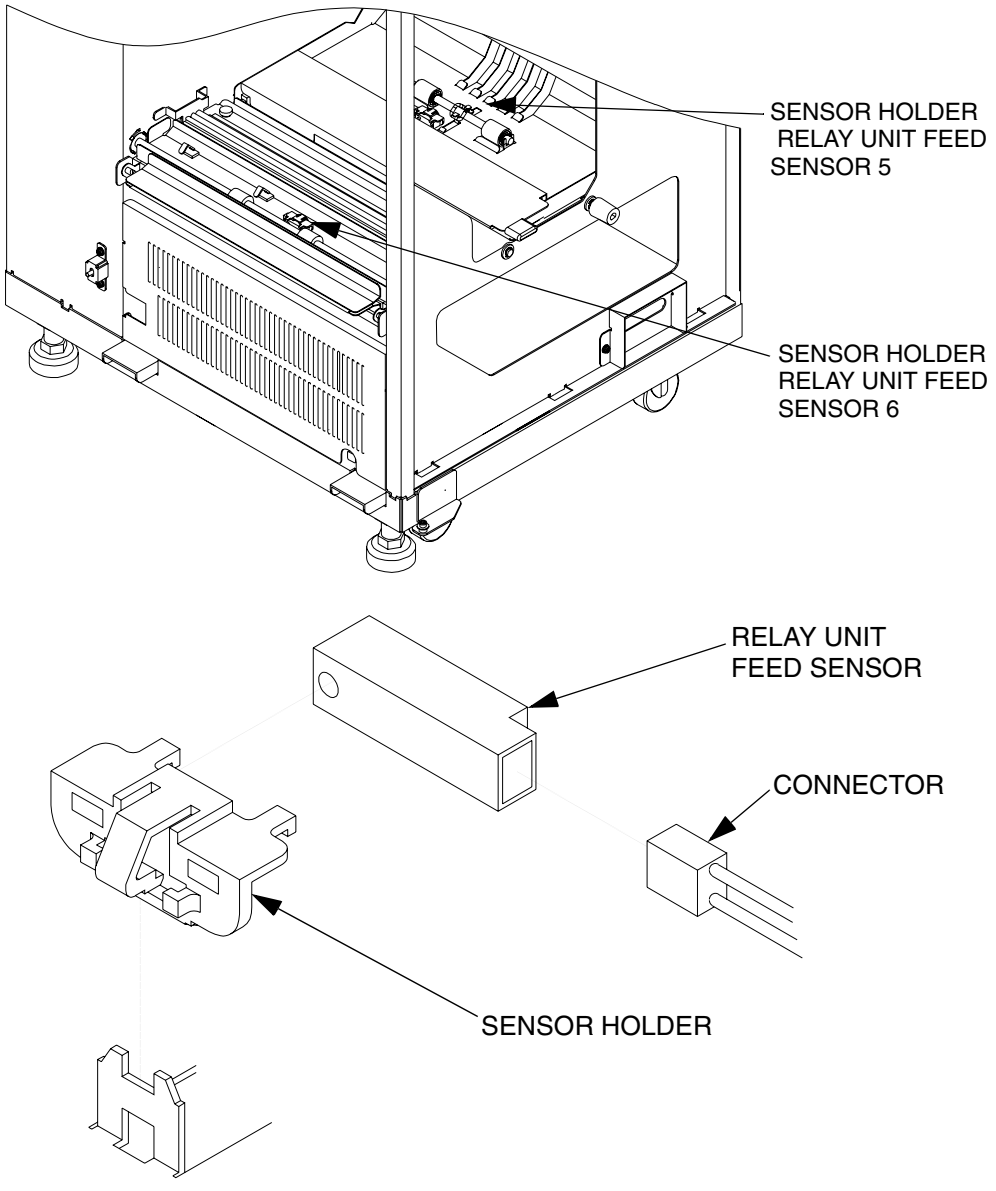


Figure 7-323. Removal of the Relay Unit Feed Sensor 5 and 6

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.3.12. Removal of the CPxxx Assembly

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

Applicable jigs and tools: ⊕ Screwdriver, an exclusive tool to pull RAMs.

[Disassembling Procedures]

1. Remove the Rear Cover. (Refer to item 3.3 on page 3-9)
2. Disconnect the Connector from the CPxxx Assembly.
3. Unscrew the four ⊕ screws to remove the CPxxx Assembly.

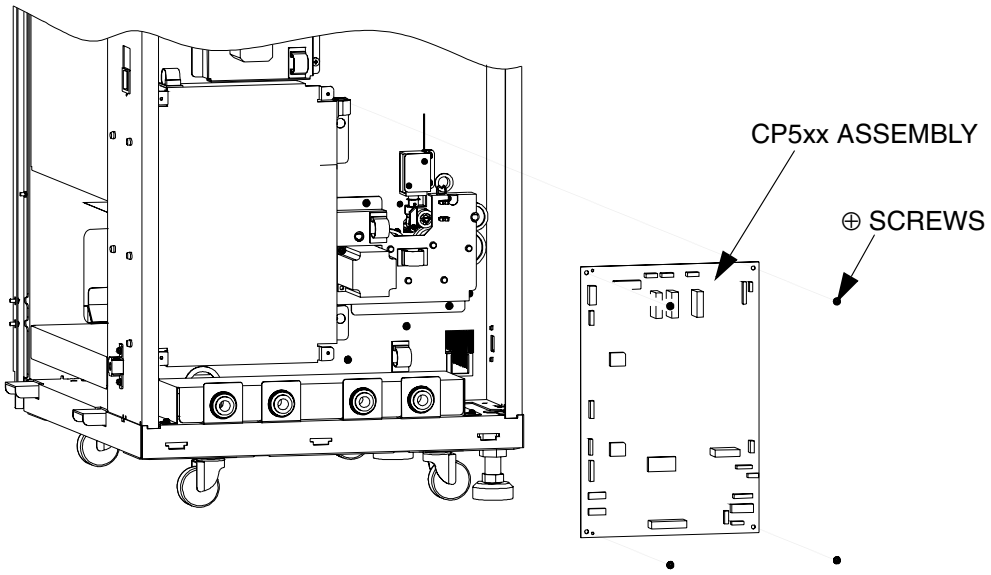


Figure 7-324. Removal of the CPxxx Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Note: When the CPxxx Assembly of the Relay Unit is exchanged, mount the nvRAM of the old CPxxx Assembly in the new CPxxx Assembly.

7.3.13. Removal of the Power Supply

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 Standard Finisher.
2. Unscrew four ⊕ screws and remove the Guide Plate (L2) and Side Cover (L).
3. Disconnect the Connector from the Power Supply.
4. Unscrew ⊕ screw of the Ground Cable to remove it from the Power Supply.
5. Unscrew three ⊕ screws to remove the Power Supply.

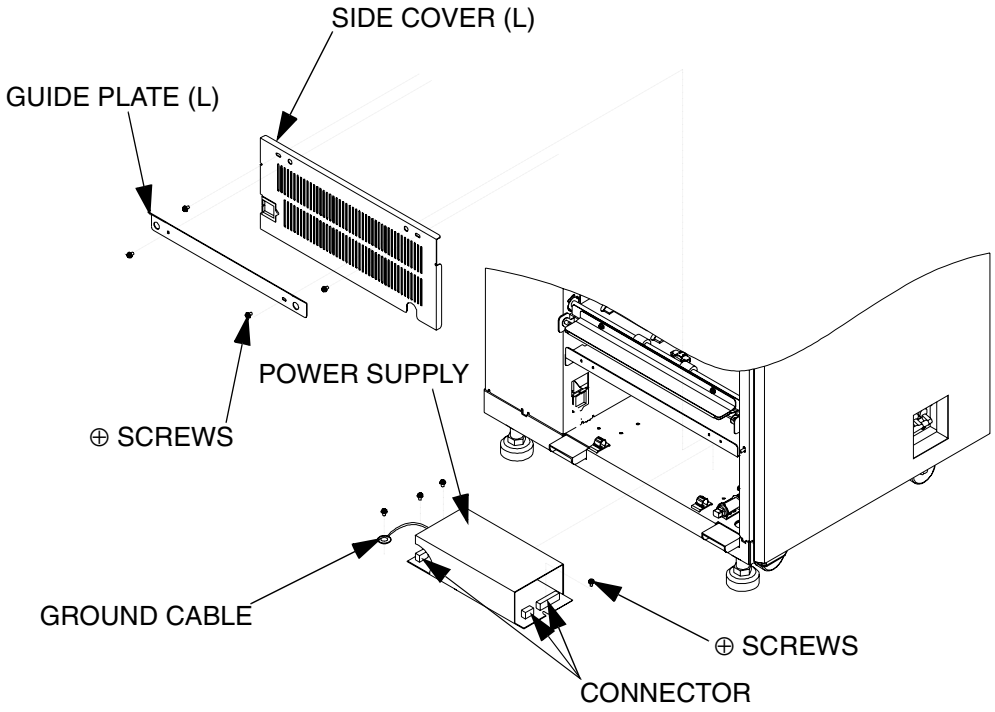


Figure 7-325. Removal of the Power Supply

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.3.14. Removal of the Paper Guide 4 Open Sensor

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 Top Cover. (Refer to item 3.3 on page 3-9)
2. Open the Front Cover.
3. Unscrew the ⊕ screw and remove the Sensor Bracket.
4. Remove the Paper Guide 4 Open Sensor form the Sensor Bracket.
5. Disconnect the connector from the Paper Guide 4 Open Sensor.

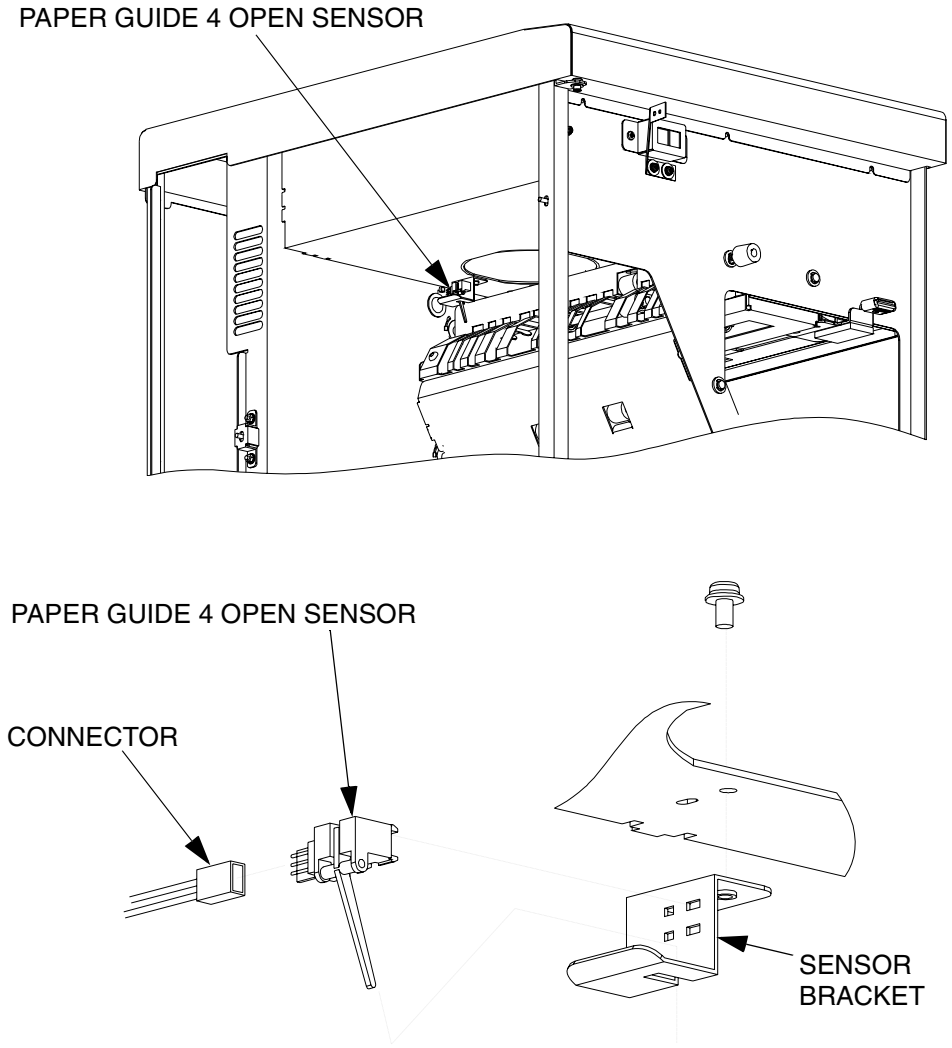


Figure 7-326. Removal of the Paper Guide 4 Open Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.3.15. Removal of the Motor Gear (SB)

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 3.3 on page 3-9)
2. Remove the Motor Holder Assembly. (Refer to item 7.3.2 on page 7-288)
3. Remove the Motor Gear (SB).

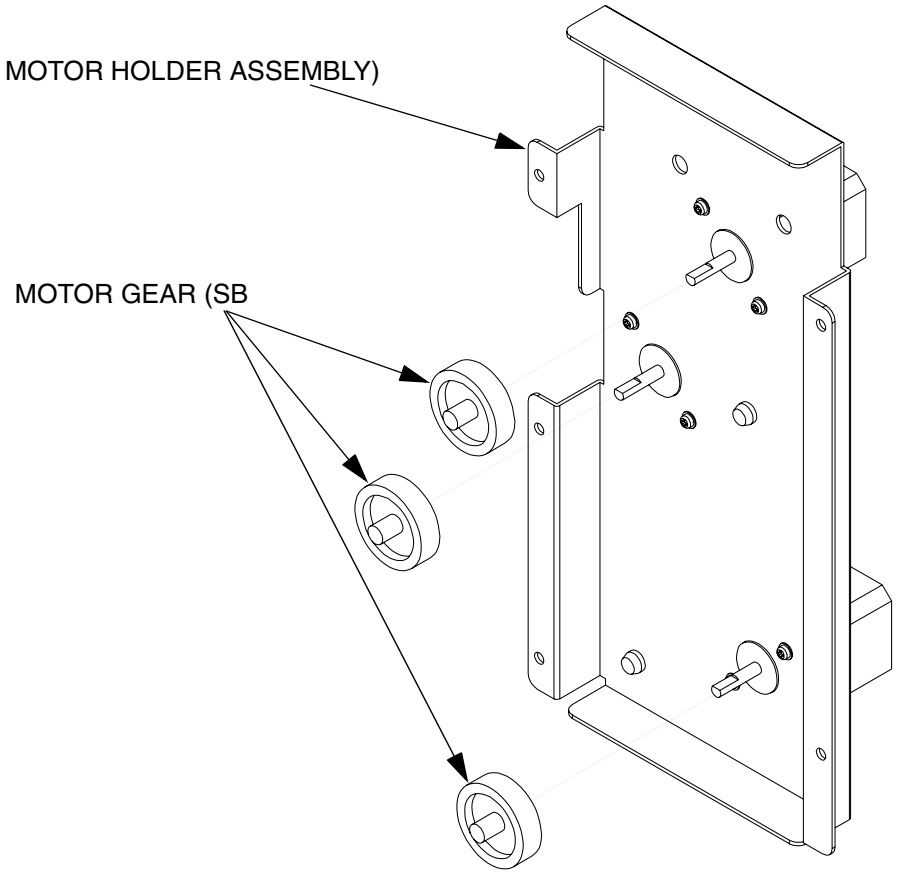


Figure 7-327. Removal of the Motor Gear (SB)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.3.16. Removal of the Motor Gear (DDS92)

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 3.3 on page 3-9)
2. Remove the CP5xx Assembly and the Motor Holder (L) Assembly. (Refer to item 7.3.5 on page 7-291)
3. Remove the Motor Gear (DDS92) from the Motor Holder (L) Assembly.

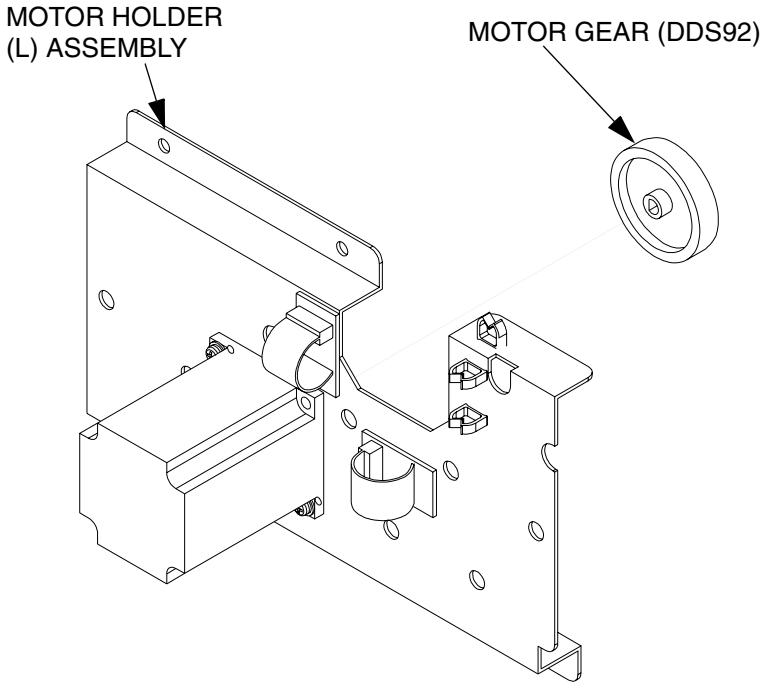


Figure 7-328. Removal of the Motor Gear (DDS92)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.3.17. Removal of the Idler Gear A

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 3.3 on page 3-9)
2. Remove the Motor Holder Assembly. (Refer to item 7.3.2 on page 7-288)
3. Unscrew the two ⊕ screws to remove the Motor Holder (L) Assembly. (Refer to item 7.3.5 on page 7-291)
4. Remove the Gear Holder (L).
5. Remove the Idler Gear A.

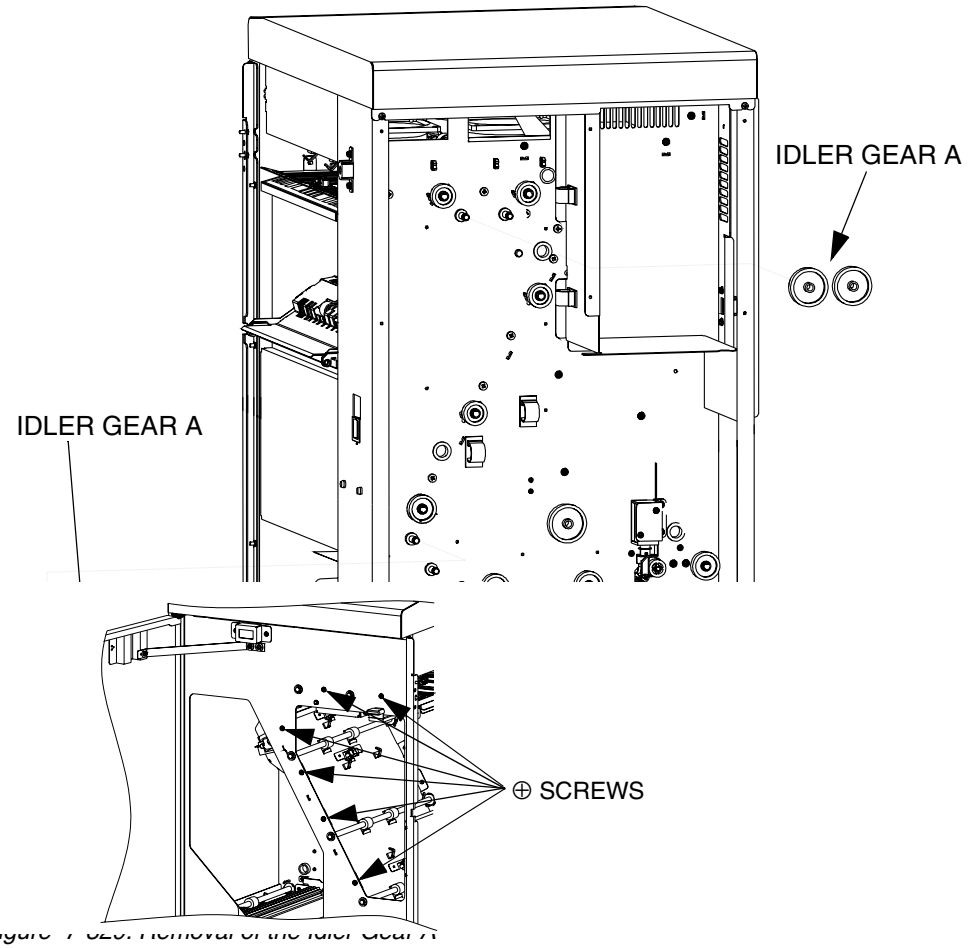


Figure 7-329. Removal of the Idler Gear A

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.3.18. Removal of the Drive Roller Gear (SB)

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

Applicable jigs and tools: ⊕ Screwdriver, - Precision Screwdriver, Radio Pliers.

[Disassembling Procedures]

1. Remove the Rear Cover. (Refer to item 3.3 on page 3-9)
2. Remove the Motor Holder Assembly. (Refer to item 7.3.2 on page 7-288)
3. Remove the E-Ring and the Driver Roller Gear (SB).

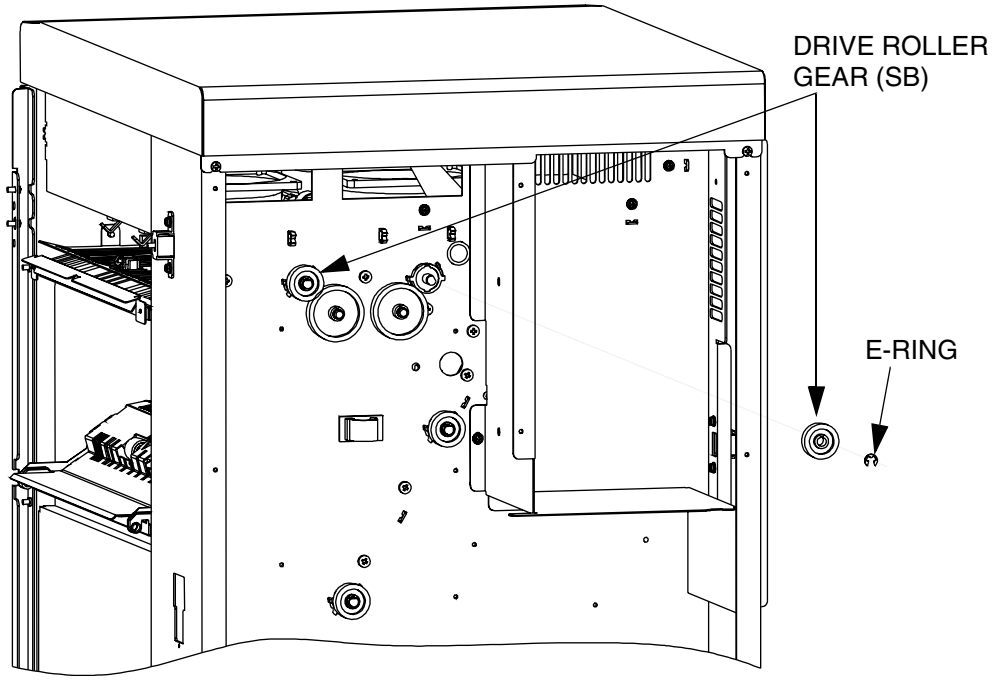


Figure 7-330. Removal of the Drive Roller Gear (SB)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.3.19. Removal of the Drive Roller Gear (DPX)

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

Applicable jigs and tools: ⊕ Screwdriver, - Precision Screwdriver, Radio Pliers.

[Disassembling Procedures]

1. Remove the Rear Cover. (Refer to item 3.3 on page 3-9)
2. Remove the CP5xx Assembly and Motor Holder (L) Assembly. (Refer to item 7.3.5 on page 7-291)
3. Remove the Gear Holder (L). (Refer to item 7.3.17 on page 7-305)
4. Remove the E-Ring and the Drive Roller Gear (DPX).

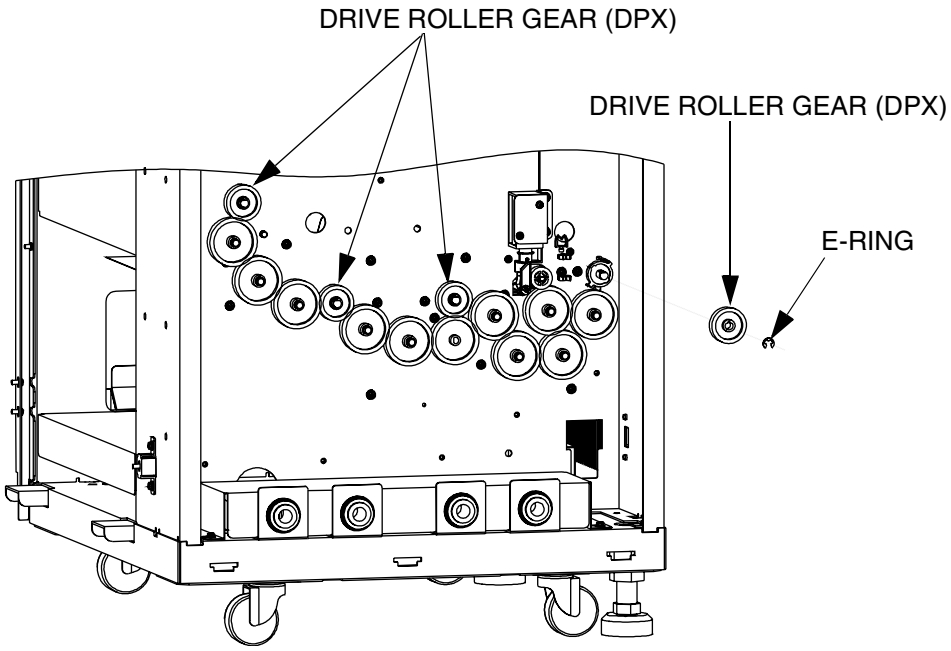


Figure 7-331. Removal of the Drive Roller Gear (DPX)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.3.20. Removal of the Sleeve Bearing

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

Applicable jigs and tools: ⊕ Screwdriver, - Precision Screwdriver, Radio Pliers.

[Disassembling Procedures]

1. Open the Front Cover.
2. Remove the Knob, E-Ring and the Sleeve Bearing. (Detail **A**).
3. Remove the E-Ring and the Sleeve Bearing. (Detail **B**).

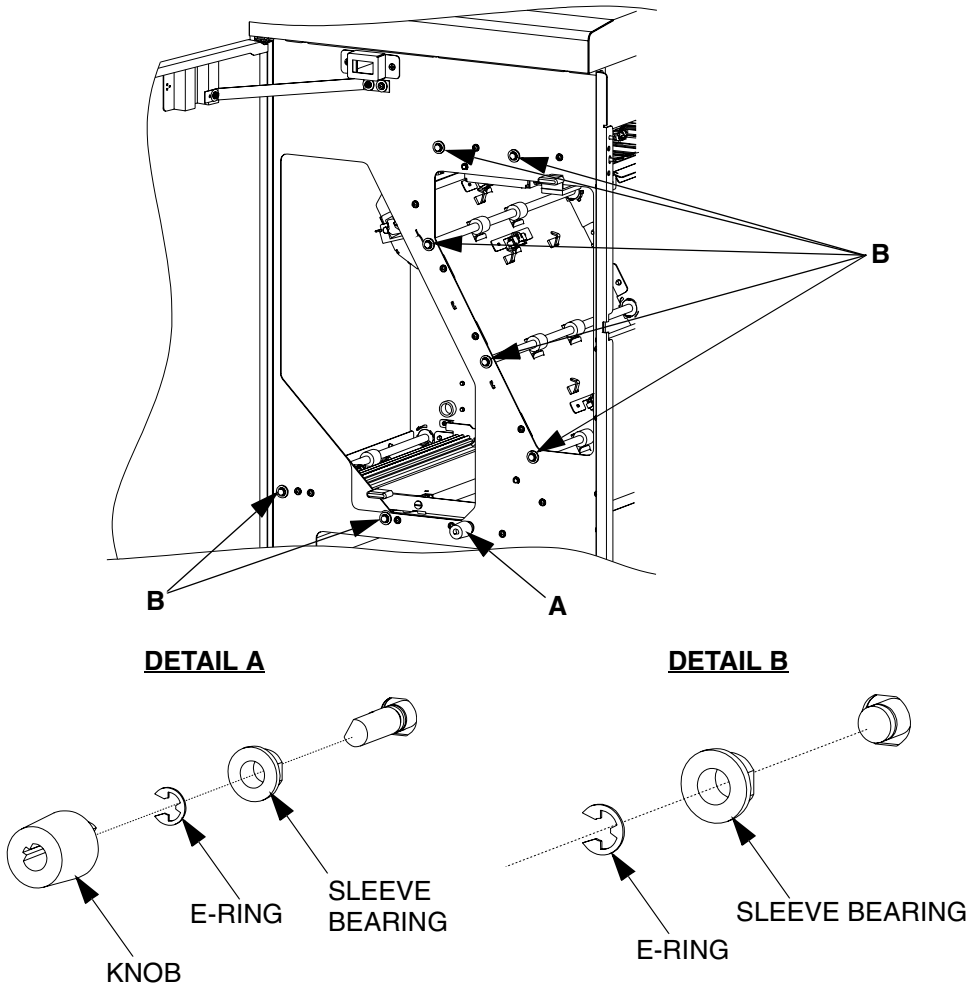


Figure 7-332. Removal of the Sleeve Bearing

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.3.21. Removal of the Feed Roller Assembly 1, 2, 3 and 4

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

Applicable jigs and tools: ⊕ Screwdriver, - Precision Screwdriver, Radio Pliers.

[Disassembling Procedures]

1. Remove the Rear Cover. (Refer to item 3.3 on page 3-9)
2. Remove the Motor Holder Assembly. (Refer to item 7.3.2 on page 7-288)
3. Remove the Idler Gear A. (Refer to item 7.3.17 on page 7-305)
4. Remove the Drive Roller Gear (SB). (Refer to item 7.3.18 on page 7-306)
5. Remove the Sleeve Bearings. (Refer to item 7.3.20 on page 7-308)
6. Unscrew the twelve ⊕ screws to displace the Paper Guide in the opposite direction of the Feed Roller Assembly.
7. Remove and the B.B Housing by turning it counterclockwise and pulling, then remove the Feed Roller Assembly.

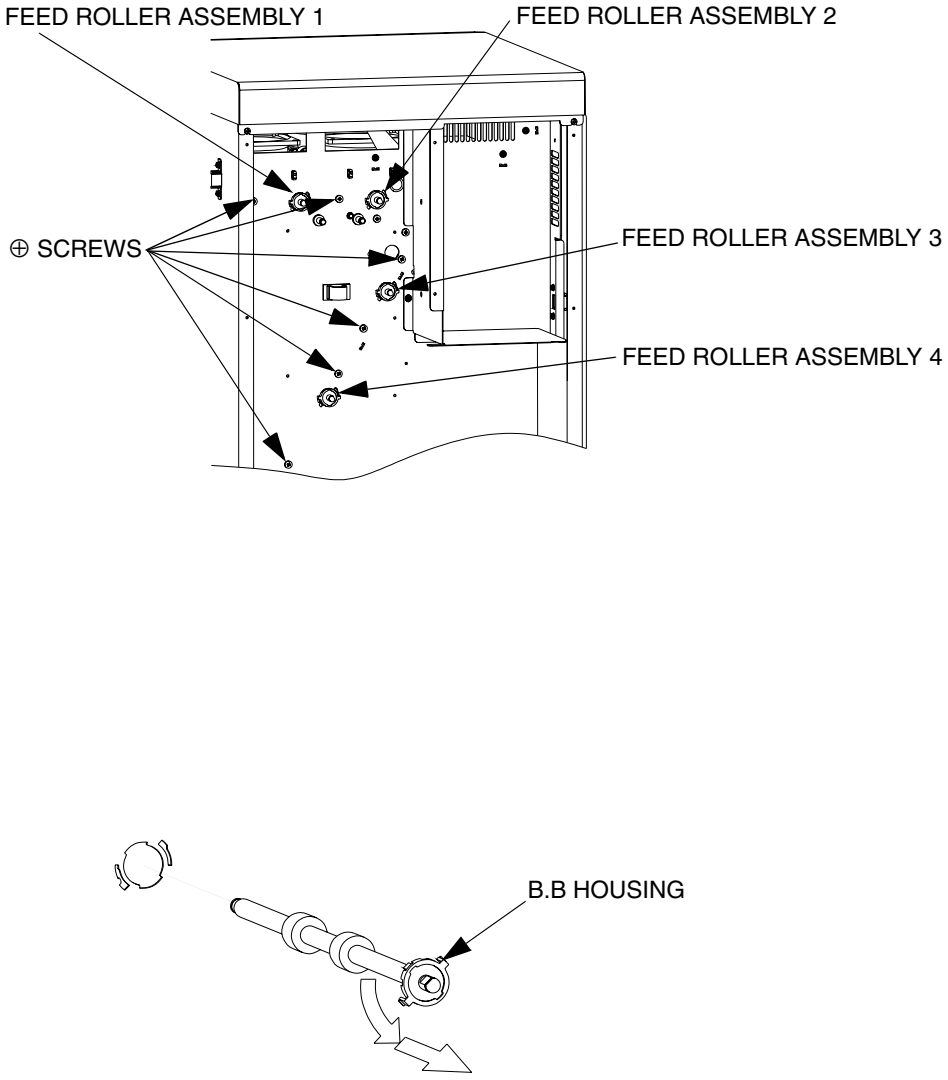


Figure 7-333. Removal of the Feed Roller Assembly 1, 2, 3 and 4

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.3.22. Removal of the Feed Roller Assembly 5, 6, 7 and 8

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

Applicable jigs and tools: ⊕ Screwdriver, - Precision Screwdriver, Radio Pliers.

[Disassembling Procedures]

1. Remove the Rear Cover. (Refer to item 3.3 on page 3-9)
2. Remove the CP5xx Assembly and Motor Holder (L) Assembly. (Refer to item 7.3.5 on page 7-291)
3. Remove the Idler Gear A. (Refer to item 7.3.17 on page 7-305)
4. Remove the Drive Roller Gear (DPX). (Refer to item 7.3.19 on page 7-307)
5. Remove the Sleeve Bearings. (Refer to item 7.3.20 on page 7-308)
6. Unscrew the twelve ⊕ screws to displace the Paper Guide in the opposite direction of the Feed Roller Assembly.
7. Remove and the B.B Housing by turning it counterclockwise and pulling, then remove the Feed Roller Assemblies.

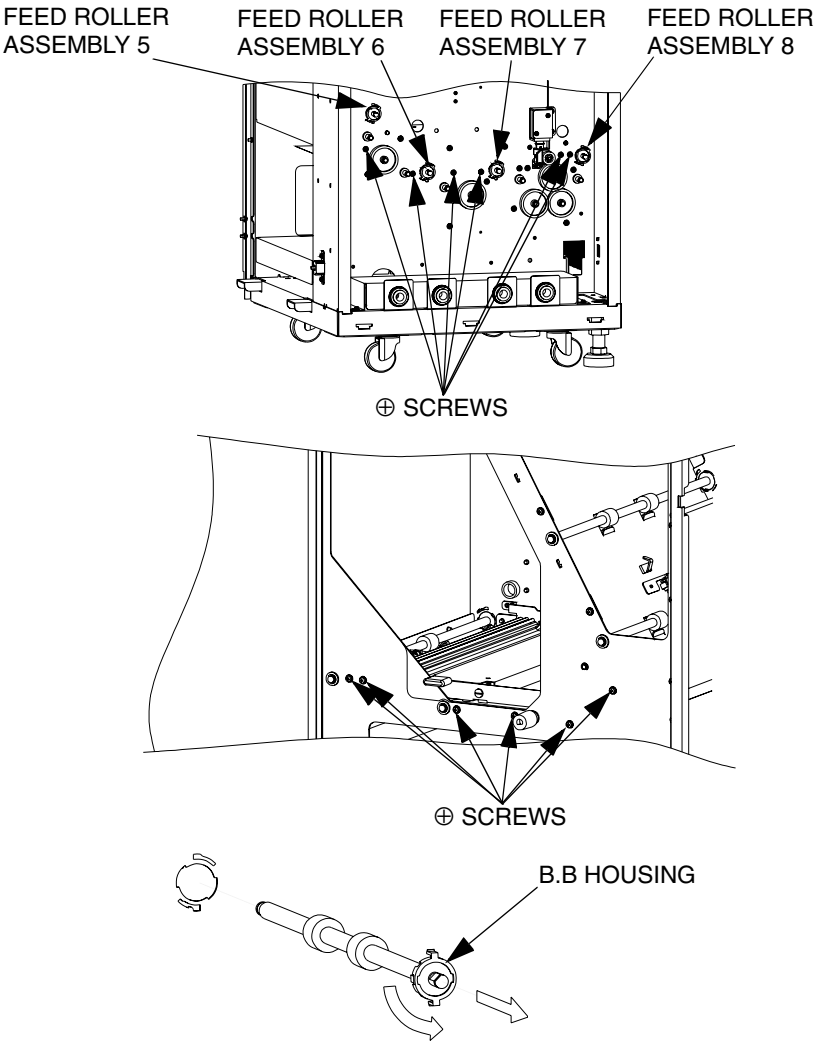


Figure 7-334. Removal of the Feed Roller Assembly 5, 6, 7 and 8

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.3.23. Removal of the De-Curler Assembly

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 Relay Unit Rear Cover.
2. Disconnect the Connector of the Solenoid.
3. Unscrew the four ⊕ screws.
   At that time, remove the screw **C** from the Access Hole.
4. Remove the Spring.
5. Pull the Gate Link in the direction of the arrow **A** and rotate in the direction of the arrow **B**, then remove the Gate Link and the Solenoid.

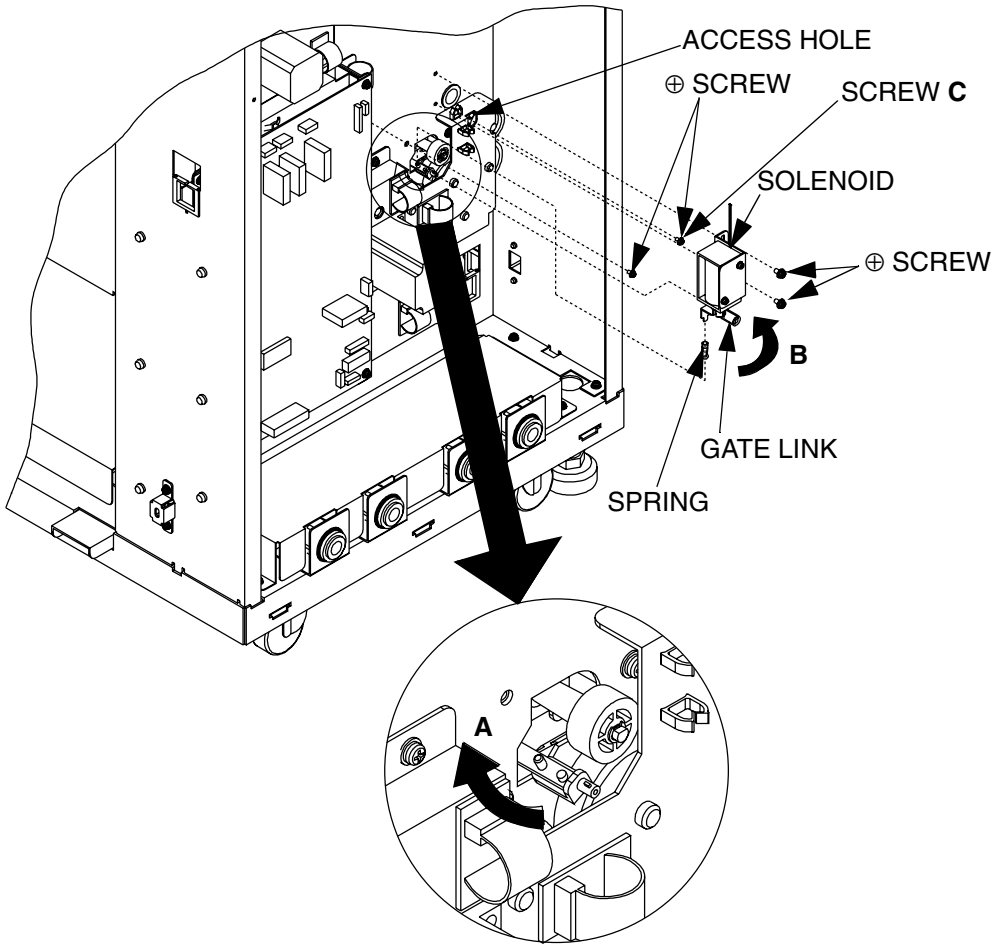


Figure 7-335. Removal of the De-Curler Assembly

6. Unscrew the two ⊕ screws.
7. Remove the De-Curler Assembly.

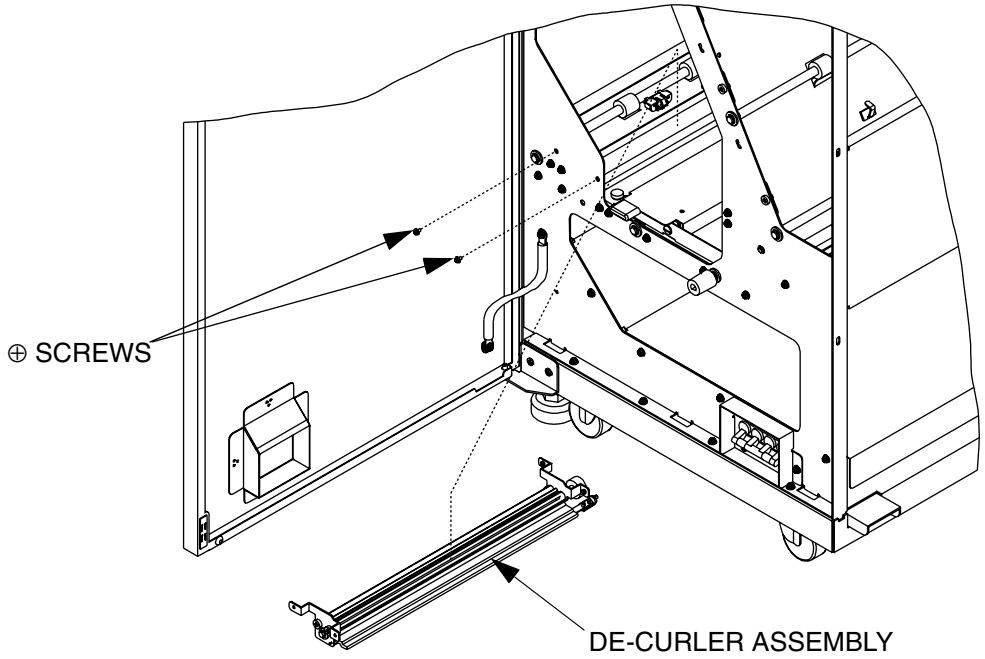


Figure 7-336. Removal of the De-Curler Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

After assembling, perform the following adjustment.

1) Engage the De-Curler Gear and the Idler Gear rotate smoothly.
2) Contact the Lower Gear and the Paper Guide A in parallel. (**C** Section)
3) The crevice between the Lower Guide and the Paper Guide B is made equal over full length. (**E** Section)
4) If 1), 2), and 3) are completed, tighten the two ⊕ screw **B**.
5) Slide the solenoid in the direction of **F** in the state where there is no crevice between the **D** Sections, and contact the Lower Guide and the Gate. (**G** Section).
6) If 5) are completed, tighten the two ⊕ screw **A**.

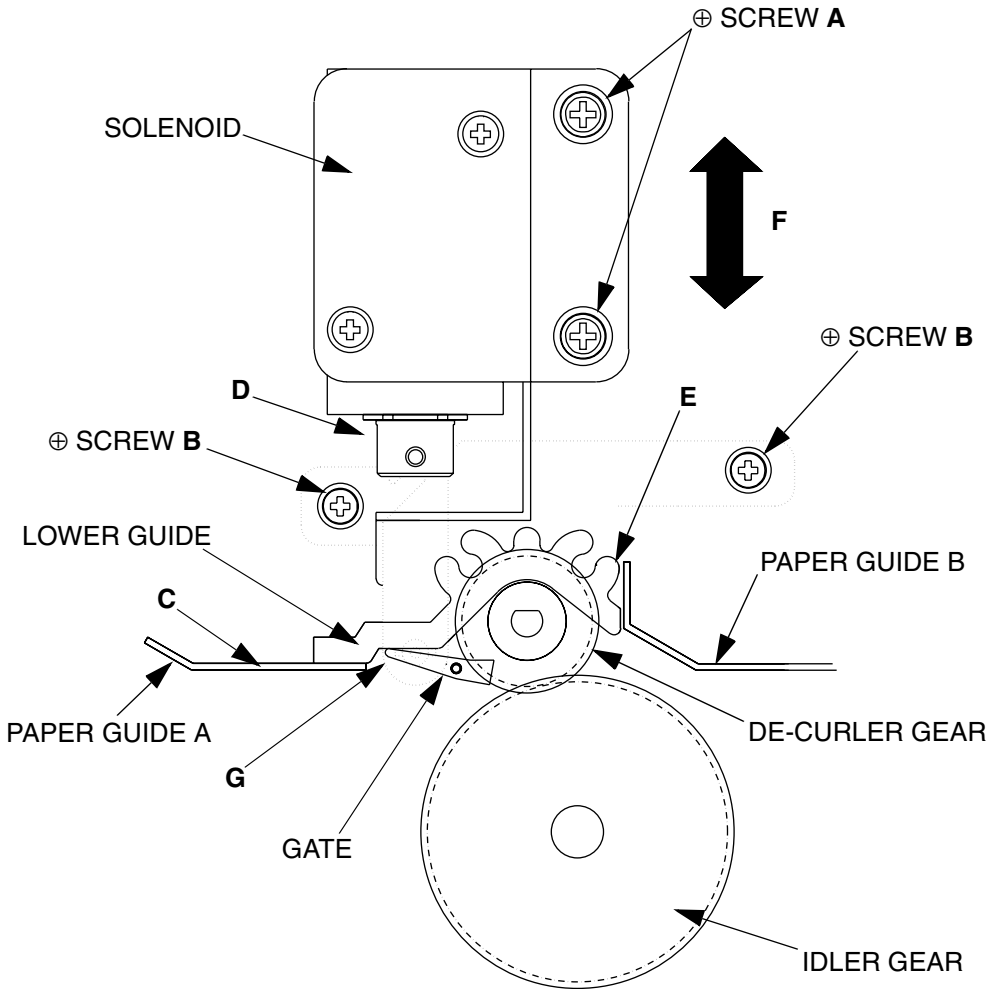


Figure 7-337. Adjustment of the De-Curler Assembly

7.3.24. Removal of the De-Curler Roller

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

Applicable jigs and tools:⊕ Screwdriver, - Precision Screwdriver, Radio Pincers.

[Disassembling Procedures]

1. Remove the De-Curler Assembly.
2. Remove the two Retaining Ring-E, De-Curler Gear, and the two Sleeve Bearing.
3. Remove the De-Curler Roller.

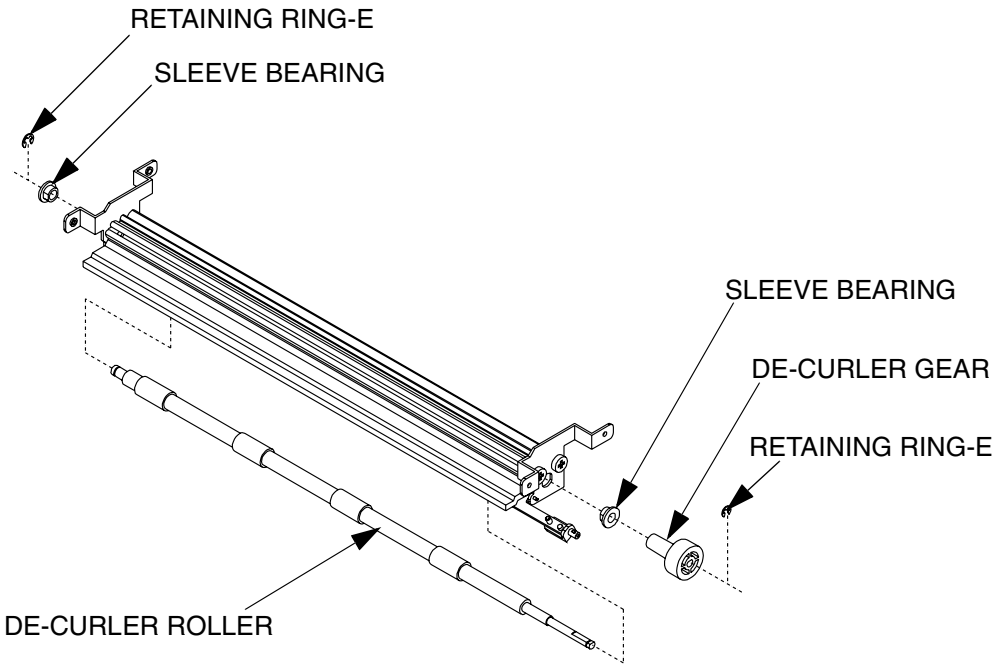


Figure 7-338. Removal of the De-Curler Roller

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.4. Transit Pass Unit Type DDP Parts

7.4.1. Removal of the Lower Paper Guide Assembly

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

Note: Disconnect the Finisher SR5000 from the Transit Pass Unit Type DDP before maintenance.

Applicable jigs and tools: ⊕ Screwdriver, Pliers.

[Disassembling Procedures]

1. Open the Front Cover. (Refer to item 3.3.1 on page 3-9)
2. Remove the Rear Cover. (Refer to item 3.3.2. (4) on page 3-16)
3. Unscrew the four ⊕ screws to remove the Window Shade Cover.
4. Unscrew the four ⊕ screws to remove the Lower Paper Guide Assembly.

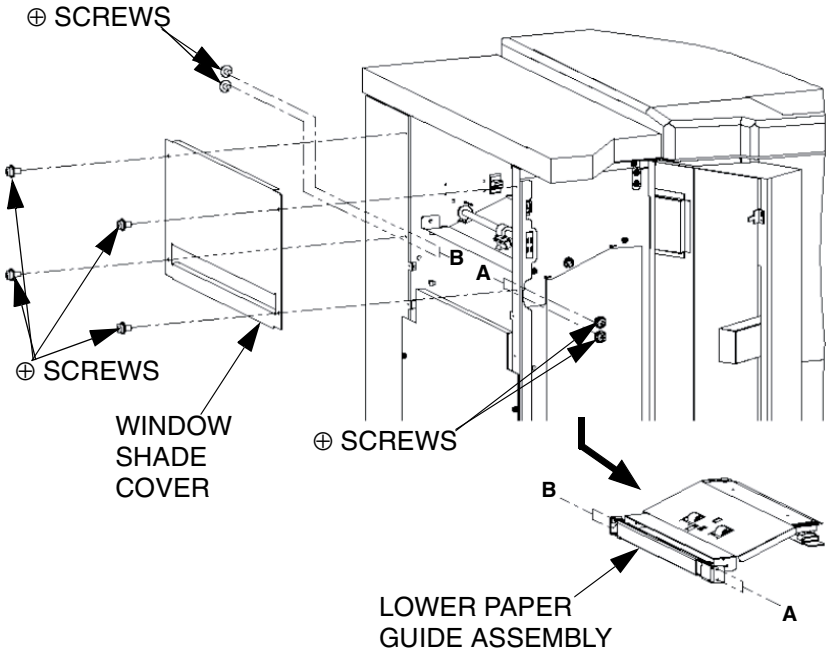


Figure 7-339. Removal of the Lower Paper Guide Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.4.2. Removal of the Pressure Roller Assembly

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

Applicable jigs and tools: - Screwdriver, Pliers.

[Disassembling Procedures]

1. Open the Front Cover. (Refer to item 3.3.1 on page 3-9)
2. Release the Extension Spring to remove the Pressure Roller Assembly.

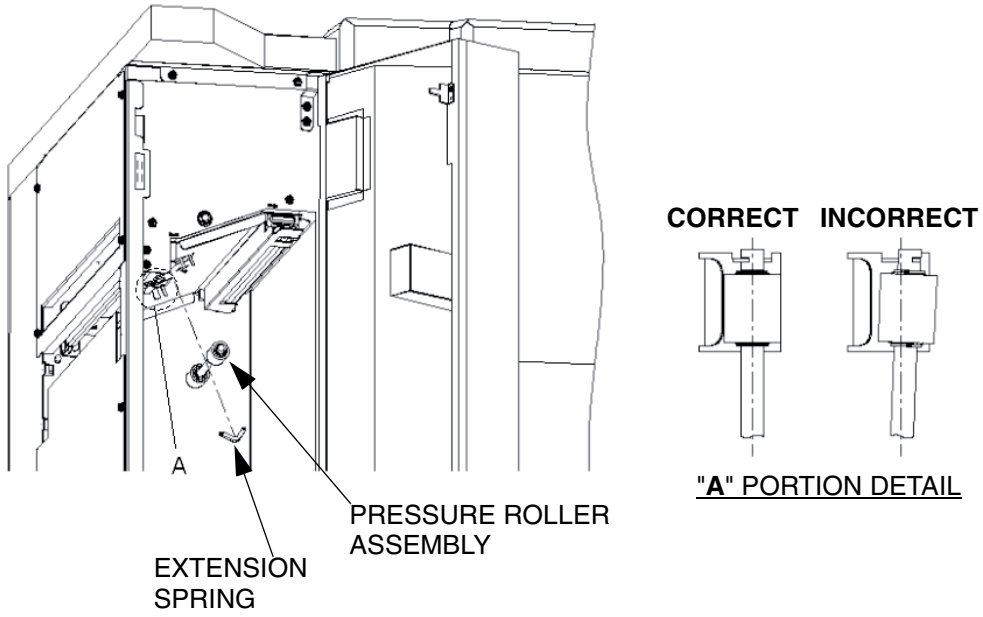


Figure 7-340. Removal of the Pressure Roller Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

See "**A**" portion detail for mounting the Pressure Roller Assembly.

7.4.3. Removal of the Sleeve Bearing

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

Applicable jigs and tools: - Screwdriver, Pliers.

[Disassembling Procedures]

1. Open the Front Cover. (Refer to item 3.3.1 on page 3-9)
2. Remove the Snap Ring E and Sleeve Bearing.

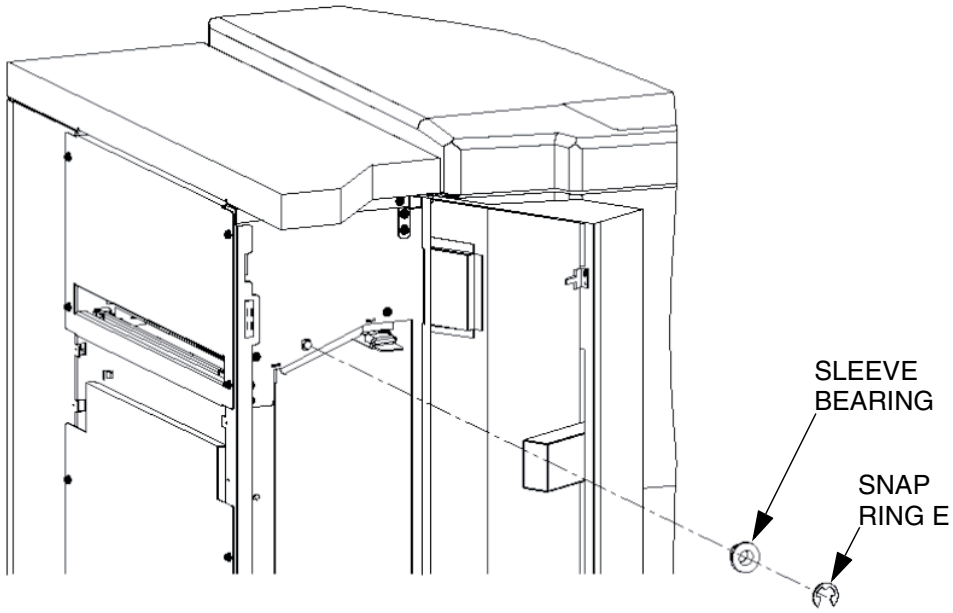


Figure 7-341. Removal of the Sleeve Bearing

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.4.4. Removal of the Transit 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 3.3.2. (4) on page 3-16)
2. Disconnect the connectors J/P421.
3. Unscrew the two ⊕ screws to remove the Motor Holder Assembly.
4. Unscrew the two ⊕ screws to remove the Transit Motor and Motor gear (SB).

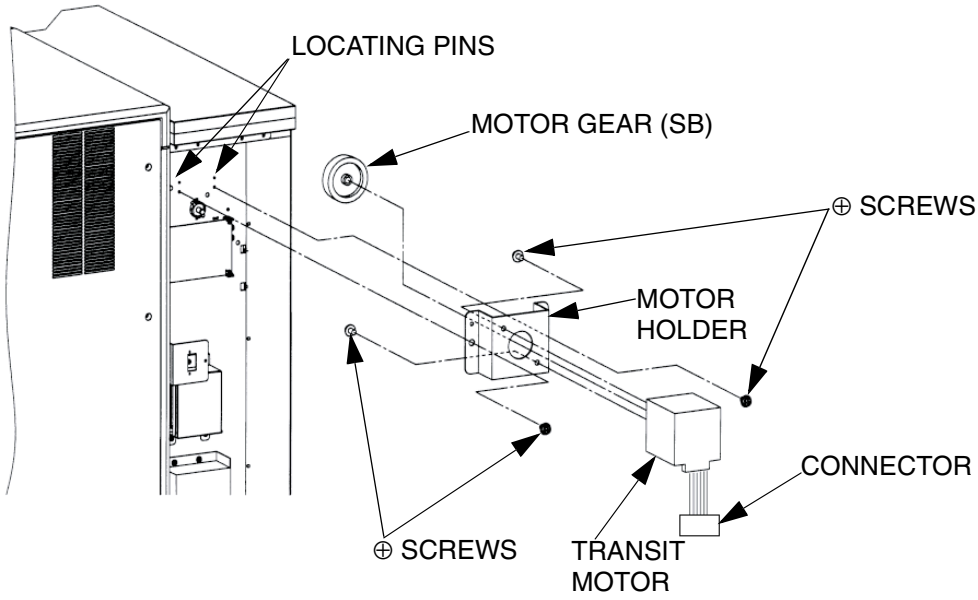


Figure 7-342. Removal of the Transit Motor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Match the set of the Motor Holder with the locating pins.

7.4.5. Removal of the Drive Roller Gear (SB)

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

Applicable jigs and tools: - S**crewdriver,** ⊕ **Screwdriver, Pliers.**

[Disassembling Procedures]

1. Remove the Transit Motor. (Refer to item 7.4.4 on page 7-318)
2. Remove the Snap Ring E to remove the Drive Roller Gear (SB).

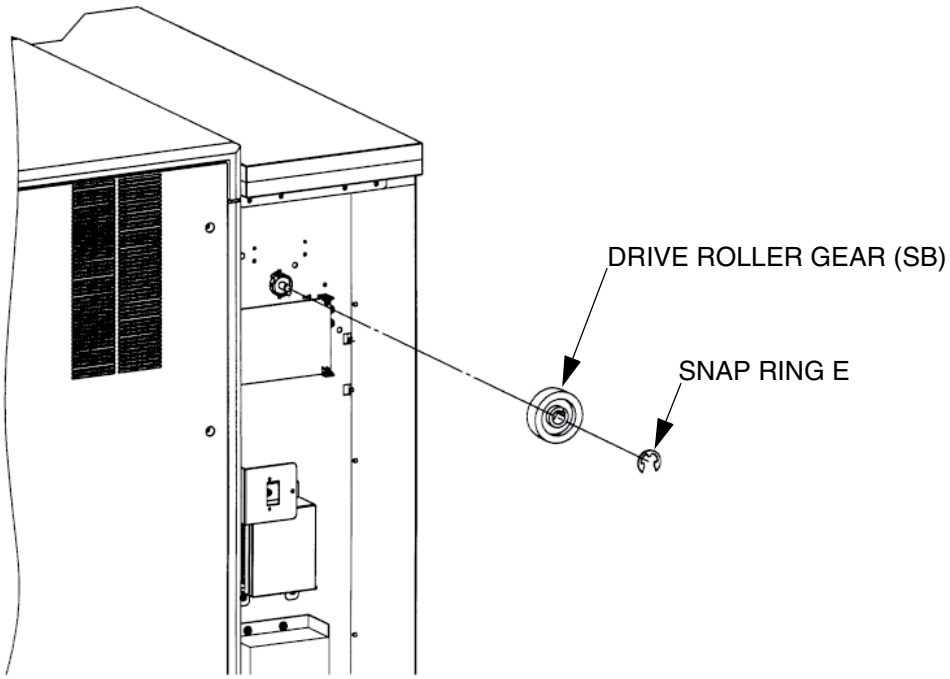


Figure 7-343. Removal of the Drive Roller Gear (SB)

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.4.6. Removal of the Transit Roller Assembly

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

Applicable jigs and tools: - S**crewdriver,** ⊕ **Screwdriver, Pliers.**

[Disassembling Procedures]

1. Remove the Sleeve Bearing. (Refer to item 7.4.3 on page 7-317)
2. Remove the Drive Roller Gear (SB). (Refer to item 7.4.5 on page 7-319)
3. Remove the B.B Housing by turning it clockwise, then remove the Transit Roller Assembly.

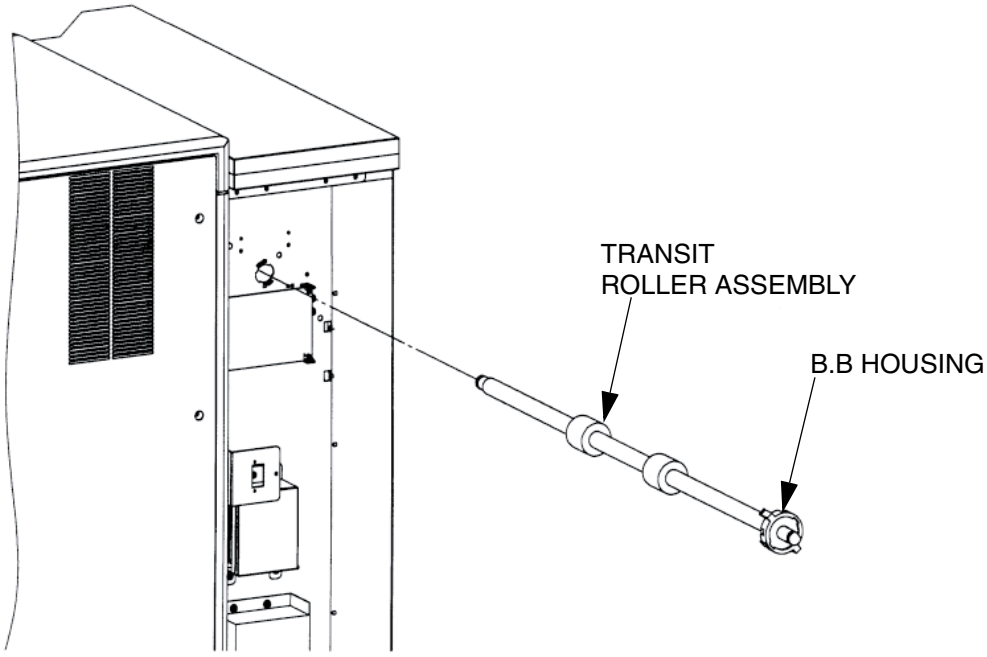


Figure 7-344. Removal of the Transit Roller Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.4.7. Removal of the ED089 Assembly

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 3.3.2. (4) on page 3-16)
2. Disconnect the connectors J/P427, J/P420, J/P438, J/P429, J/P421.
3. Unscrew the two ⊕ screws to remove the ED089 Assembly.

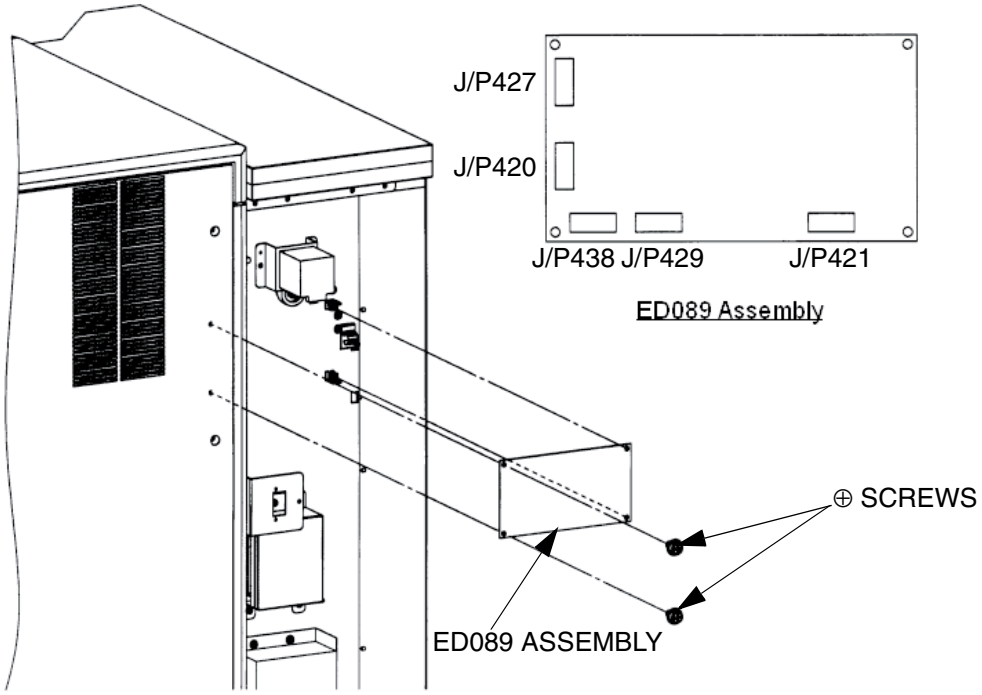


Figure 7-345. Removal of the ED089 Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.4.8. Removal of the RB301 Assembly

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 3.3.2. (4) on page 3-16)
2. Unscrew the three ⊕ screws to remove the RB Cover.
3. Disconnect the connectors J/P294, J/P291 to remove the RB301 Assembly.

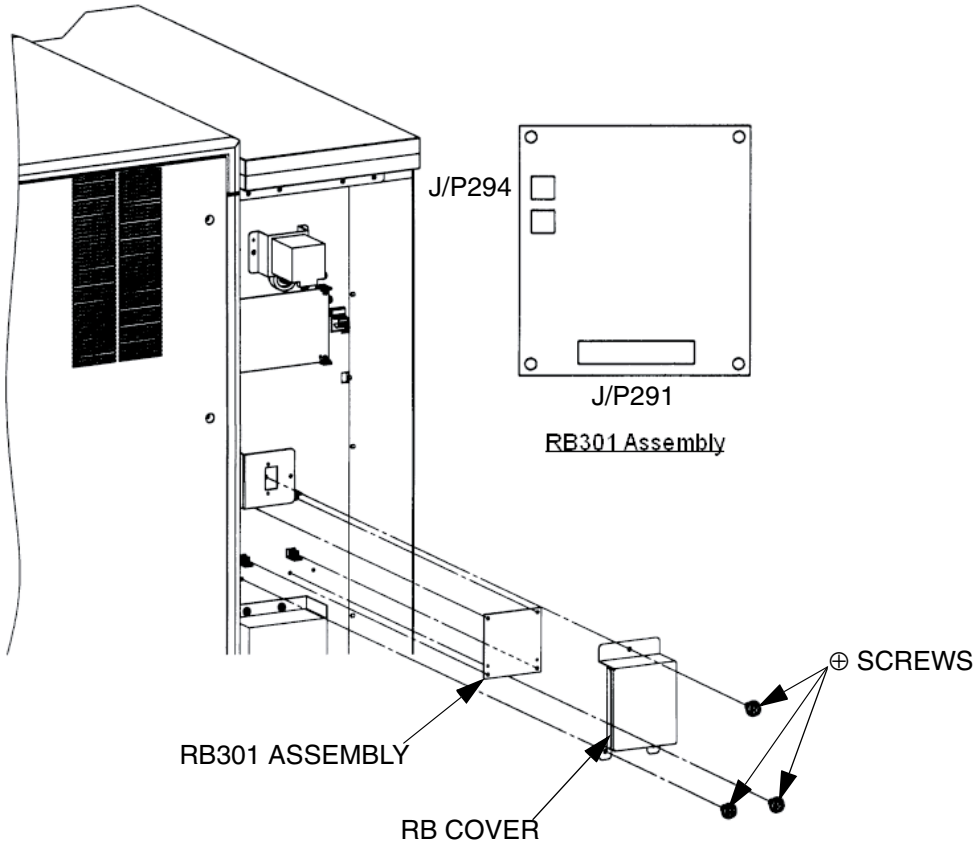


Figure 7-346. Removal of the RB301 Assembly

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.4.9. Removal of the Power Supply

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 3.3.2. (4) on page 3-16)
2. Disconnect the connectors CN1, CN2, and CN3.
3. Loosen the ⊕ screw (Lower side).
4. Unscrew the two ⊕ screws to remove the Power Supply and PS Cover.

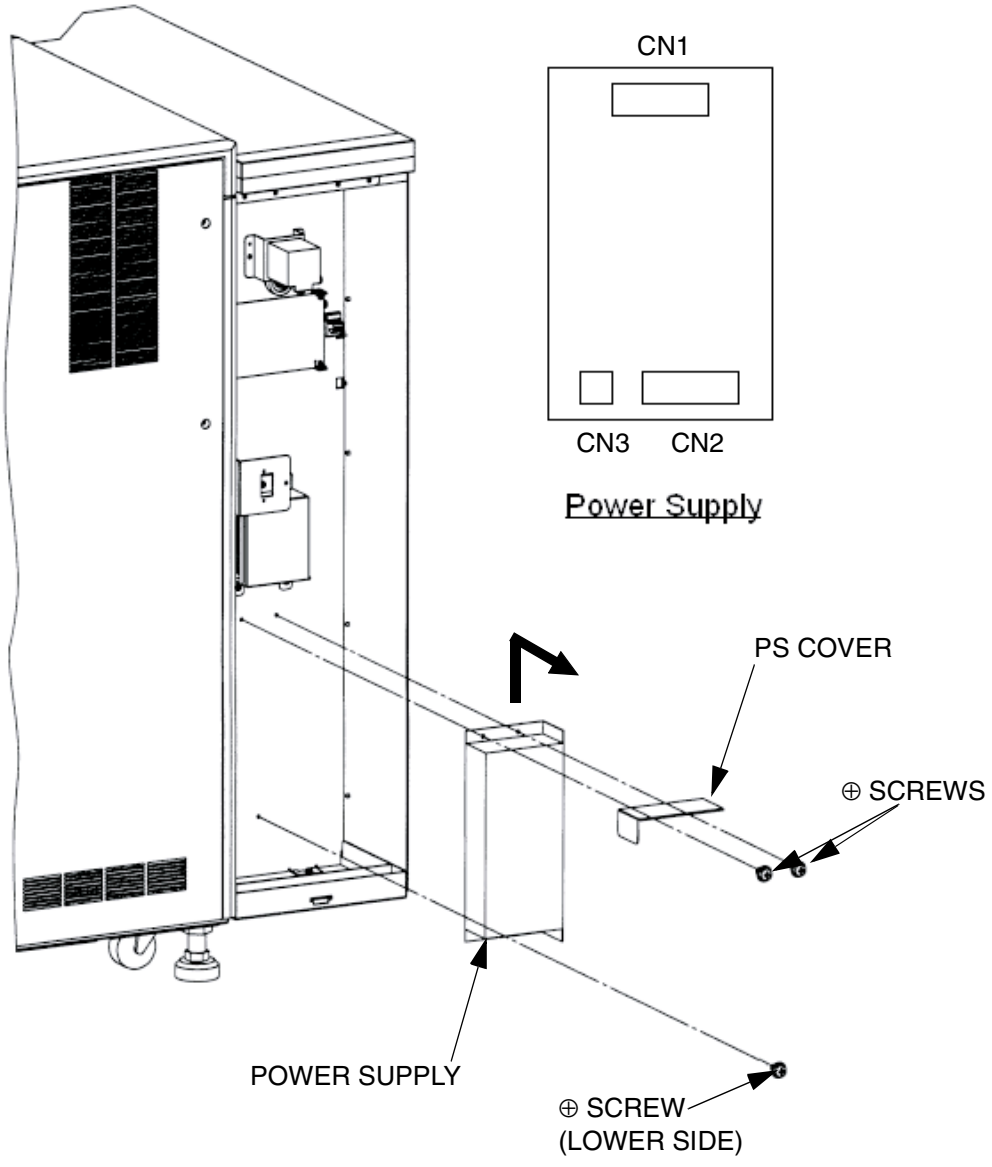


Figure 7-347. Removal of the Power Supply

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.4.10. Removal of the Transit Pass Sensor

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. (Refer to item 3.3.1 on page 3-9)
2. Remove the Rear Cover. (Refer to item 3.3.2. (4) on page 3-16)
3. Remove the Top Cover. (Refer to item 3.3.2. (4) on page 3-16)
4. Remove the Transit Pass Sensor (S801) and Sensor Holder.
5. Remove the Transit Pass Sensor (S801) from the Sensor Holder.
6. Disconnect the connector P/J.

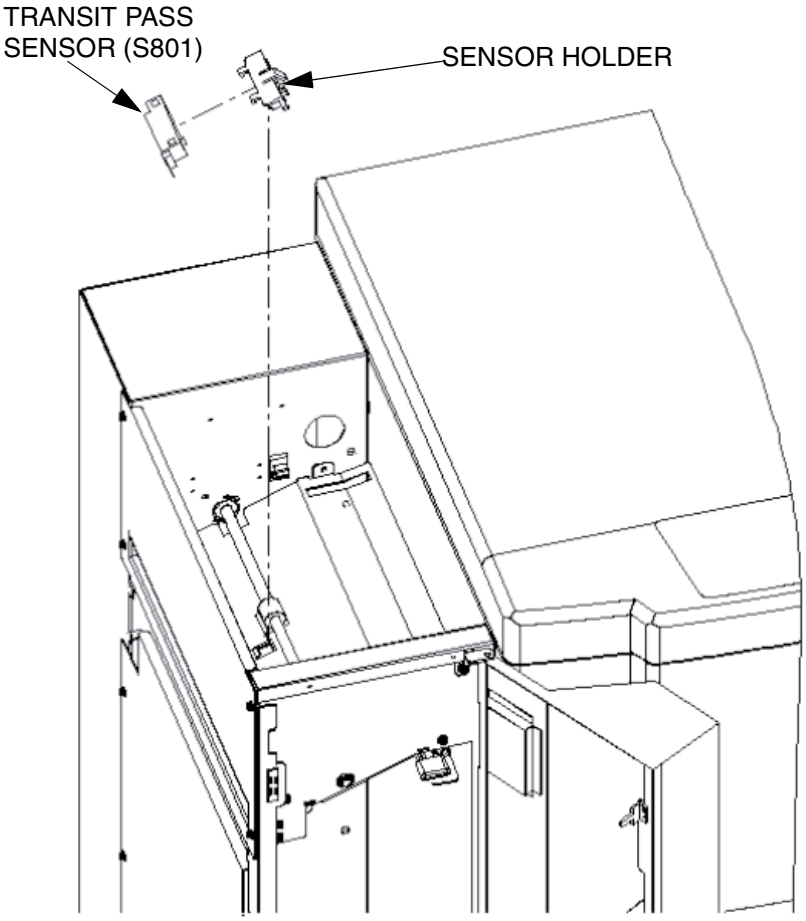


Figure 7-348. Removal of the Transit Pass Sensor

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

7.4.11. Removal of the Front Cover Switch

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. (Refer to item 3.3.1 on page 3-9)
2. Remove the Rear Cover. (Refer to item 3.3.2. (4) on page 3-16)
3. Remove the Top Cover. (Refer to item 3.3.2. (4) on page 3-16)
4. Disconnect the connectors 1A, 1B, 2A, and 2B.
5. Remove the Front Cover Switch from the frame.

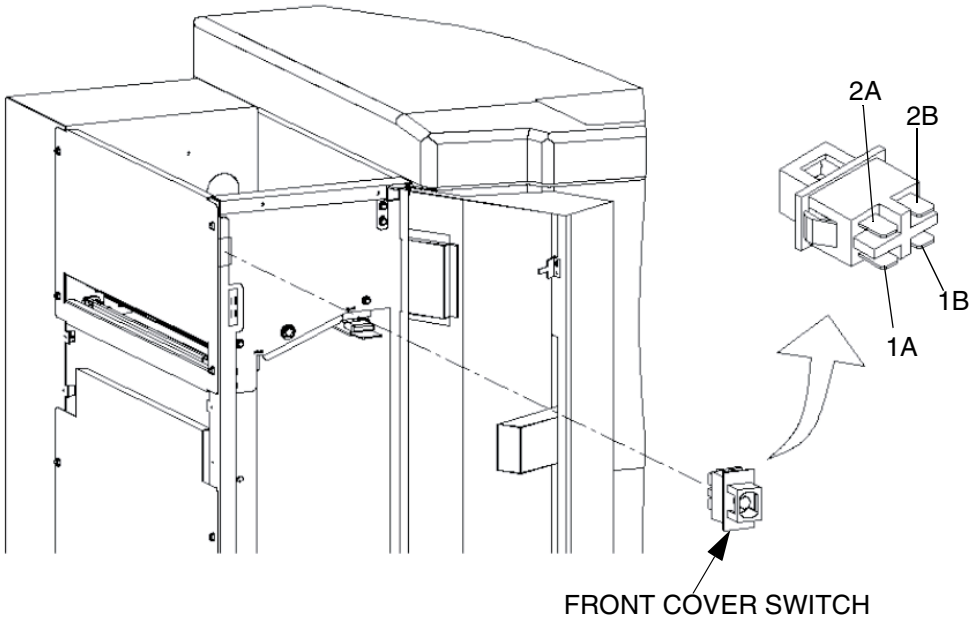


Figure 7-349. Removal of the Front Cover Switch

[Assembling Procedures]

Perform the disassembling procedures in the reverse order.

Chapter 8. Handling of Maintenance Panel

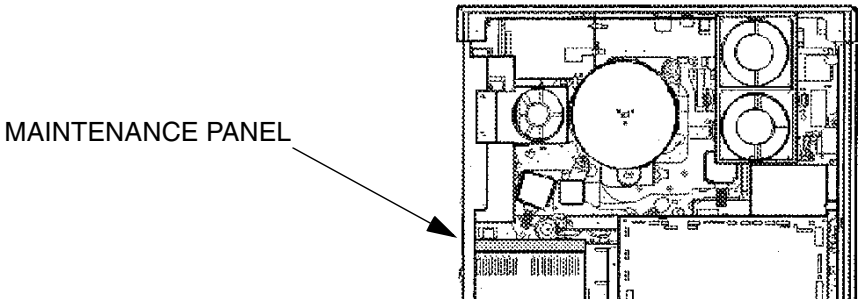
8.1. Outline

This printer has functions that carries out the presence of abnormality, and diagnostics of abnormality place by driving a logic circuit and motor in a single body. Furthermore this printer has a function that is grasped the operating situation, exchange time of fixed period exchange component to accumulate the use situation of the printer, the use situation of fixed period exchange component, and the occurrence situation of error. These functions are called by a popular name KPDG(Kanji Printer DiaGnostics).

8.2. Installation Position and Functions of Maintenance Panel

8.2.1. Installation Position of Maintenance Panel

There is a maintenance panel on the power supply when the rear cover is removed.



The Maintenance Panels are installed in the Front engine and the Rear engine. The installed position and function of each Maintenance Panel are shown in the following table.

Table 8-1. Installation Position

No.	installed position	function
1	Front Engine	1) KPDG of Front engine 1) KPDG of Finisher *1 1) KPDG of Container Stacker *1
2	Rear Engine	1) KPDG of Rear engine 2) KPDG of Relay unit

*1 with option unit(s)

Note : In addition, in the publication of this chapter, Bit 7 expressed as 2^7(MSB), Bit 0 expressed as 2^0(LSB)

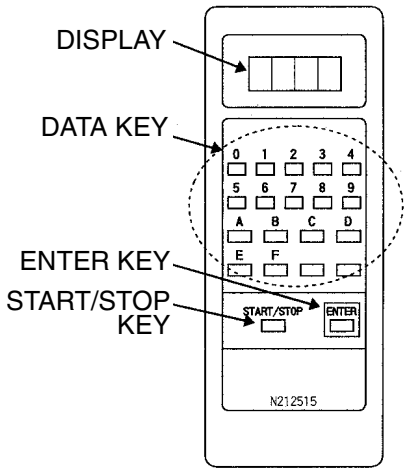
8.2.2. Functions of Maintenance Panel

DISPLAY
Indicate state of printer, data input from data key, and diagnostics information.

DATA KEY
These keys ("0" to "F") carry out the input of data.

START/STOP KEY
This key carries out function selection, start/stop of each function.

ENTER KEY
This key carries out decision and action of each function.



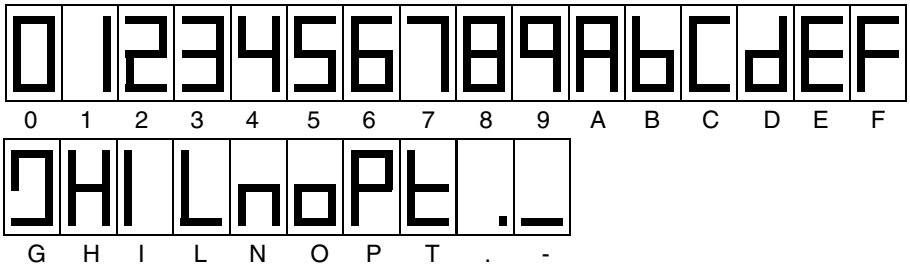


Figure 8-1. Example of Display Indication

8.3. Indication of Maintenance Panel

Indication according to a printer state.

No.	State of Printer	Indication of Display	Remarks
1	INITIALIZE	"6000"	-
2	DORMANT	"2000"	-
3	ACTIVATE	"0000"	-
4	PRINT	"0200"	-
5	ERROR	Following Error Code Indication	“Error Code Indication,” on page 5-10
6	DIAGNOSTICS	Following Diagnostics	“Diagnostics,” on page 8-3

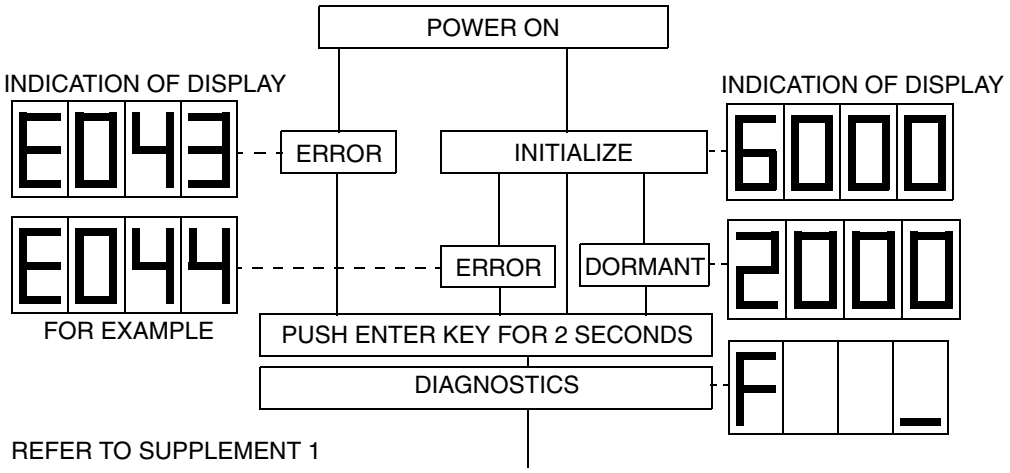
8.4. Diagnostics

8.4.1. Outline of Diagnostics

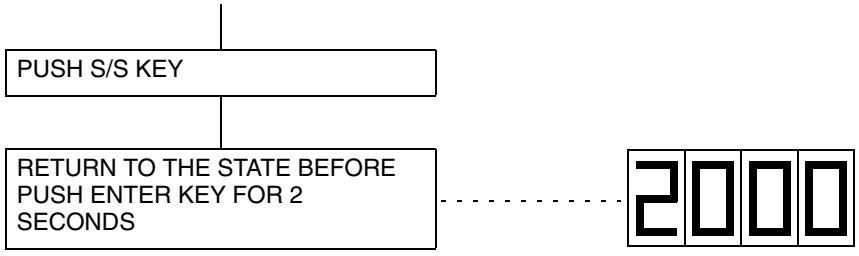
At the time of obstacle outbreak or component exchange, this routine carries out gesture check of motor and sensor.

8.4.2. Operation Procedure

Operation procedure of maintenance panel according to the flow chart.



Item	Routine No.	Contents	Remarks
Sensor Test	"00 to 4F"	Read a state of sensor and indicate it.	Refer to “Sensor Test,” on page 8-4.
Driver Test	"50 to 8F"	Drive a motor and perform rotation check.	Refer to “Driver Test,” on page 8-9.
Adjustment	"90 to 9F"	Perform adjustment of system department.	Refer to “Adjustment,” on page 8-15.
Assistance / Maintenance	"A0 to AF"	Carry out assistance / maintenance of device use states.	Refer to “Assistance / Maintenance,” on page 8-25.
Diagnostics of Finisher	"F1"	Sensor test and driver test of Finisher.	Refer to “Diagnostics of Finisher,” on page 8-39.

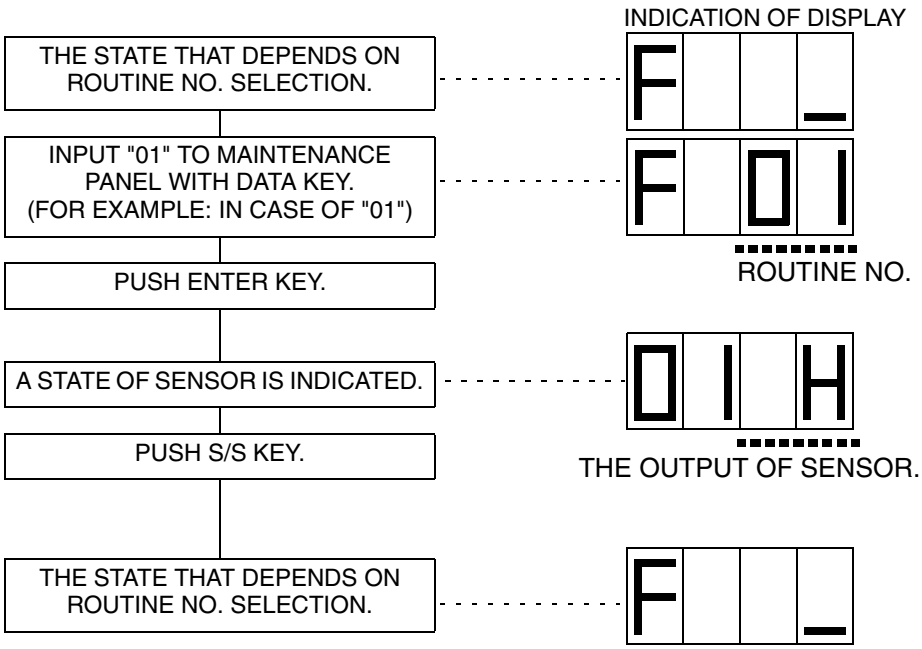


8.4.3. Sensor Test

8.4.3.1. Sensor Test 1

Routine No. : "01" to "0D", "10" to "17", "1B" to "1C", "1E" to "1F", "20" to "2F", "31" to "33", "36" to "37", "39" to "3C".
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)

These routines are used, when you confirm whether the operation of selected sensor is normal or abnormal.

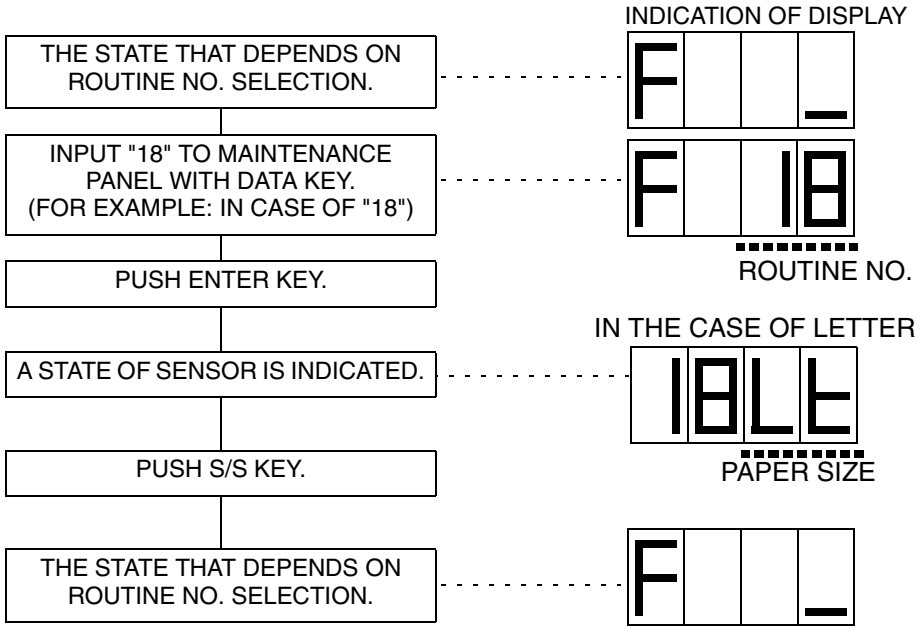


EXPLANATION OF DETAILS

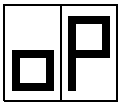
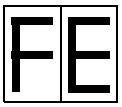
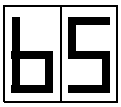
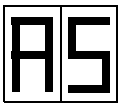
Routine No.	Indication Contents	Display
"01" to "0D" "10" to "17" "1B" to "1C" "1E" to "1F" "20" to "2F" "30" to "33" "36" to "37" "39" to "3C"	The output of sensor indicates "H" or "L". Refer to SUPPLEMENT 2 - Details of Sensor Test on page -1 about polarity of each sensor.	01H 01L

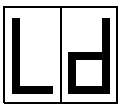
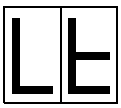
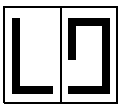
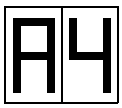
8.4.3.2. Sensor Test 2

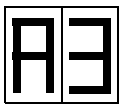
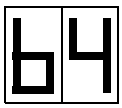
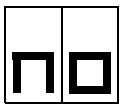
Routine No. : "18" to "1A" (Hopper Size Sensor)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)
These routines are used, when you confirm whether the operation of selected sensor is normal or abnormal.

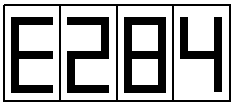
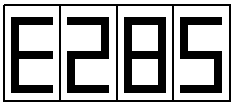
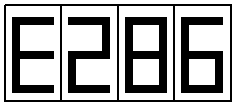


EXPLANATION OF DETAILS

Size	Unset	FREE	B5	A5
Indication of Display				

Size	Ledger	Letter	Legal	A4
Indication of Display				

Size	A3	B4	NO
Indication of Display			

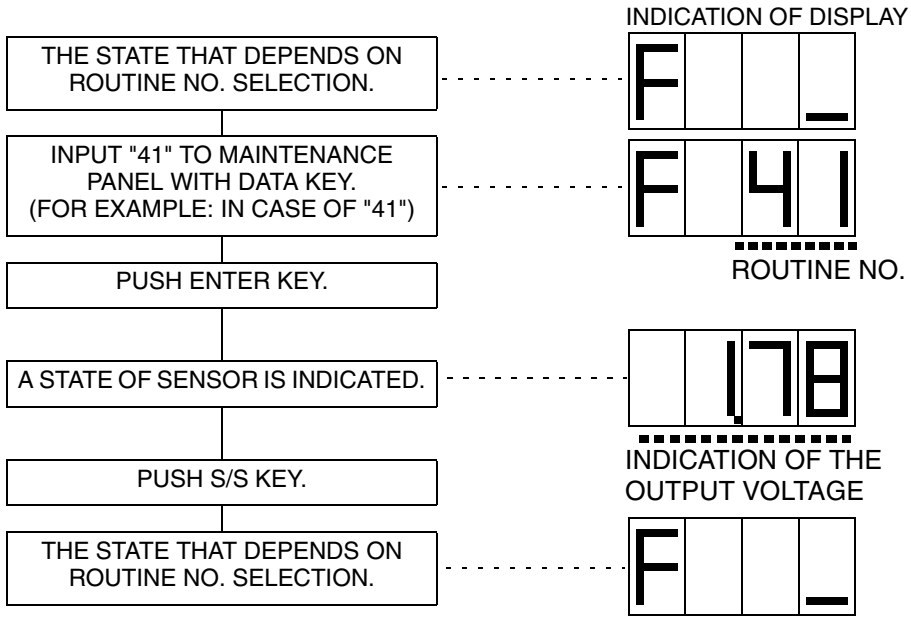
Size	Hopper 1 (Error)	Hopper 2 (Error)	Hopper 3 (Error)
Indication of Display (Error)			

Paper size is detected by a combination of 5 light sensors.
If all 5 light sensors are shaded, "E284", "E285" or "E286" is indicated.
If all 5 light sensors are impossible combination, "no" is indicated.
There are not settings of "A5" to Hopper 1.

8.4.3.3. Sensor Test 3

Routine No. : "41", "43" to "48" (Analogue Sensor)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)

These routines are used, when you confirm whether the operation of selected sensor is normal or abnormal.



EXPLANATION OF DETAILS

"41" THERMAL SENSOR
Convert Heatroll temperature into the voltage and indicate it.
REFER TO SUPPLEMENT 3 - Temperature of Heat Roll and Output voltage.

"43" TONER LEVEL
Indicate the voltage input into the Toner Control Sensor.
Usually indicates about 1 to 4V, the other case is PCB fault.

"44" TONER CONTROL
This routine checks the abnormality of the Toner Control Sensor
When you push Enter Key, the voltage which was input into the Toner Control Sensor falls down for 1 second.
At that time if indicated voltage drops, the Toner Control Sensor is normal.
The indicated voltage becomes various kinds of values by state of the Developer Mix.

"45" TEMPERATURE SENSOR
This is called Environmental Sensor and arranged inside of the TH Unit.
REFER TO SUPPLEMENT 4 - Air Temperature / Humidity and Output voltage.

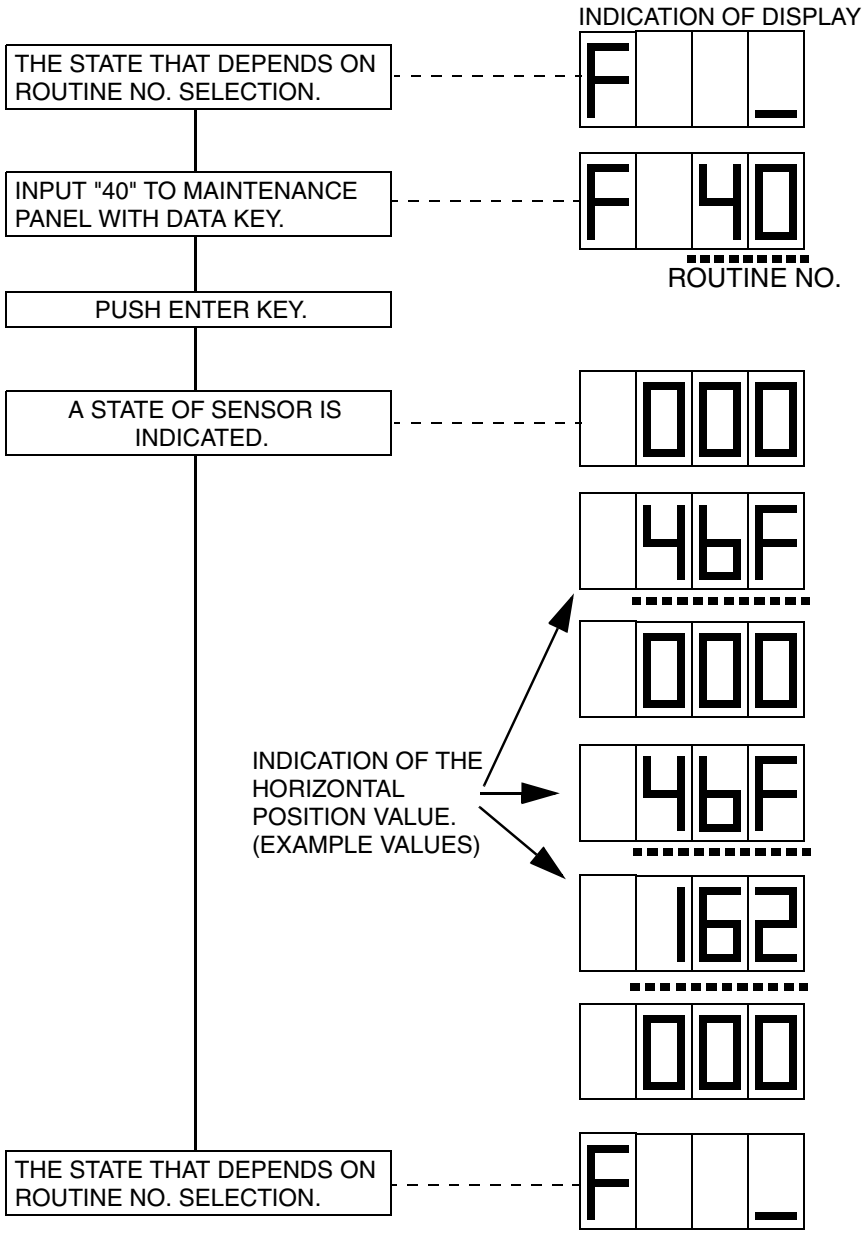
"46" HUMIDITY SENSOR
This is called Environmental Sensor and arranged under the Developer.
REFER TO SUPPLEMENT 4 - Air Temperature / Humidity and Output voltage.

"48" DRUM WRAP2 (diffuse reflected light)
This routine checks the abnormality of the Drum Wrap Sensor.
When you push Enter Key, the voltage which was input into the Drum Wrap Sensor rises for 1 second interval.
At that time if indicated voltage rises, the Drum Wrap Sensor is normal.
The indicated voltage becomes various kinds of values by state of the Drum surface.

8.4.3.4. Sensor Test 4

Routine No. : "40" (H.POS. Sensor)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)

This routine is used, when you confirm whether the operation is normal or abnormal.



EXPLANATION OF DETAILS

Above value "4BF, 162" is the horizontal position value detected by H.POS. Sensor. During this routine, PWM duty of H.POS.Sensor LED is changed from 66.7% to 3.9% and the detected horizontal position value of each duty is indicated one-by-one.

The detected value is variable by PWM duty of H.POS. Sensor LED. And the detected value depends on the paper set condition. ---Refer to "Adjustment 7," on page 8-23.

In case the PWM duty is sufficient to detect horizontal position, the indicated value is correct. In case the PWM duty is deficient, the indicated value is not correct. But in case the PWM duty is excessive and particles of paper attach to paper path that face to H.POS.Sensor, the indicated value is not correct.

Following table is the rough target of horizontal position value in each paper set position.

Table 8-2. Paper Set Position

Paper Size (Paper Set Position)	Horizontal position value(Hex)	Remarks
A5 Short edge	00A8	
12"x18"	0443	
B5 Long edge	0329	
LT Short edge	0236	
LT Long edge	03AD	
B4 Short edge	0329	
A4 Short edge	0213	
A4 Long edge	0415	
A3 Short edge	0415	
8.5"x12.4"	0236	
Legal Short edge	0236	
Ledger Short edge	03AD	

NOTE:

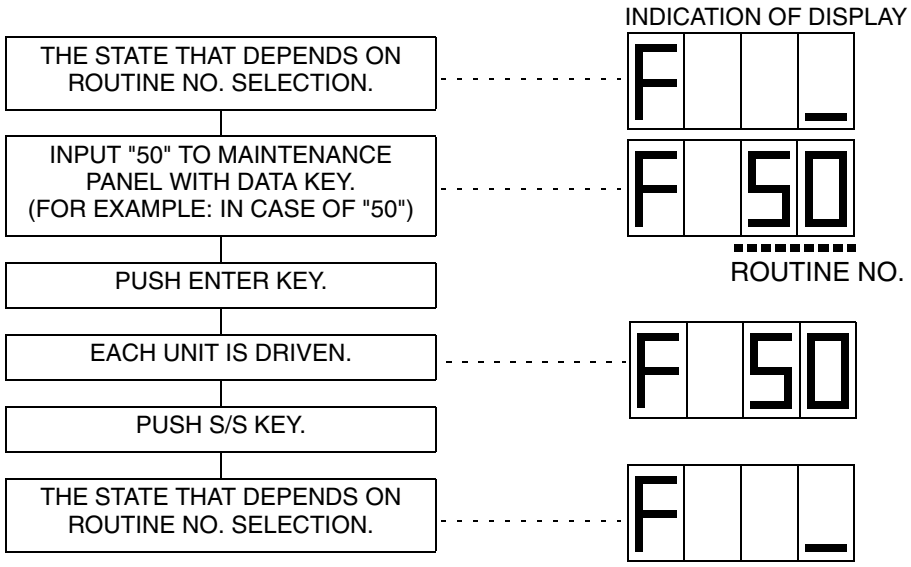
1. Usually perform this routine on the condition that plain paper is placed at paper path of registration station. In case indicated value does not change at all, some kind of failure occurs.
2. If performing this routine on +24V off condition, [24] / [OFF] are indicated alternately on maintenance panel. In this case, restore the 24V output and perform this routine again.

8.4.4. Driver Test

8.4.4.1. Driver Test 1

Routine No. :"50" to "65", "6B", "6E" to "6F", "70" to "71", "73" to "76", "7B" to "7D", "80" to "83"
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)

These routines are used, when you confirm whether the operation of the selected motor, fan or high voltage supply is normal or abnormal.



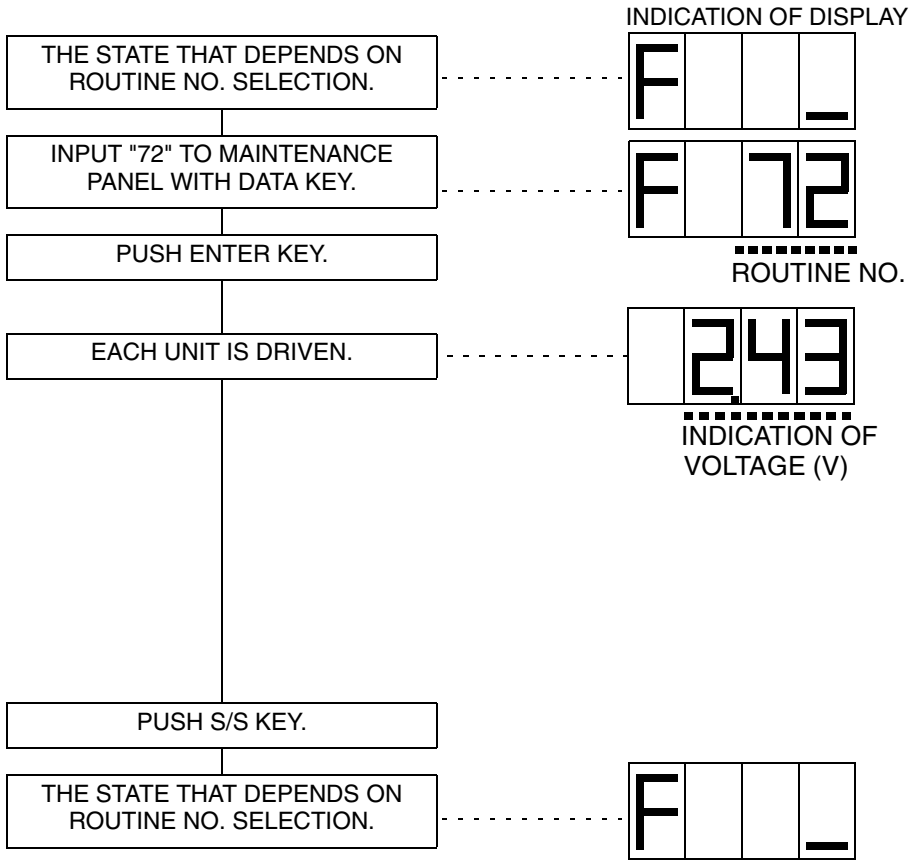
Routine No.	Continuous Drive Mode	Automatic Stop Mode
"50" to "53" "56" to "5A" "60", "64", "6B" "6E" to "6D" "70" to "71" "74" to "75" "7C", "7E"	Each unit is driven continually after you push enter key till you push S/S key.	Each unit is driven after you push enter key. And each unit stops in 10 seconds later automatically.
"54", "65" "61" to "63"	After you push enter key, relational motor is driven and clutch is turned on, off in uniformity interval.	After you push enter key, repeat a gesture shown left 10 times and stops automatically.
"55", "5E", "5F"	After you push enter key, solenoid is turned on, off in uniformity interval.	After you push enter key, repeat a gesture shown left 10 times and stops automatically.
"5B", to "5D"	After you push enter key, each motor repeats cw ccw in uniformity interval.	After you push enter key, repeat a gesture shown left 5 or 10 times and stops automatically.
"71", "73" "80" to "83"	Each unit is driven continually after you push enter key till you push S/S key.	Each unit is driven after you push enter key. And each unit stops in 1 second later automatically.
"6E"		Transfer Corona Unit is cleaned automatically after you push enter key. If you push S/S key, cleaning comes to an end.
"6F"		Cleaning departments materials come back to an original position after you push enter key. If you push S/S key, cleaning comes to an end.

Note: "Continuous Drive Mode" and "Automatic Stop Mode" are explained in "Assistance / Maintenance 1," on page 8-25.

8.4.4.2. Driver Test 2

Routine No. : "72" (Dev Motor CW)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)

This routine is used, when you confirm whether the operation of the Dev Motor is normal or abnormal. And the output voltage of the Toner Control Sensor is indicated.



EXPLANATION OF DETAILS

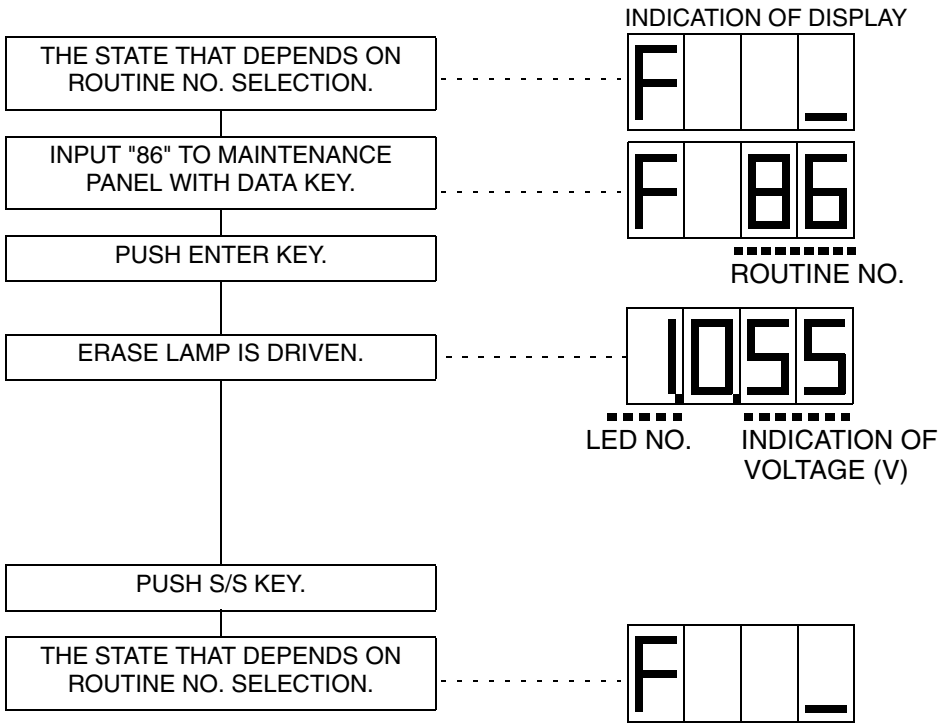
Routine No.	Continuous Drive Mode	Automatic Stop Mode
"72"	Dev Motor is driven continually after you push enter key till you push S/S key. The output voltage of the Toner Control Sensor is indicated.	After you push enter key, repeat a gesture shown left 10 seconds and stops automatically.
	Sample the output voltage of the Toner Control Sensor for 1 second and indicated the average. This value is about 2.5V and doesn't slip off more than 0.3V.	

Note: "Continuous Drive Mode" and "Automatic Stop Mode" are explained in "Assistance / Maintenance 1," on page 8-25.

8.4.4.3. Driver Test 3

Routine No. : "86" (Erase Lamp)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)

This routine is used, when you confirm whether the operation of the Erase Lamp is normal or abnormal.
Convert an electric current spreading in the Erase Lamp into the voltage and it is indicated.



EXPLANATION OF DETAILS

Routine No.	Continuous Drive Mode	Automatic Stop Mode
"86"	Led eraser is driven continually after you push enter key till you push S/S key. The voltage of LED 1 is indicated. LED1: Erase Lamp	Led eraser is driven after you push enter key. Erase Lamp stops in 10 seconds later automatically.
	Refer to "SUPPLEMENT 5 - Current of LED Eraser and Output" about the relation between the current and voltage.	

Note: "Continuous Drive Mode" and "Automatic Stop Mode" are explained in “Assistance / Maintenance 1,” on page 8-25.

8.4.4.4. Driver Test 4

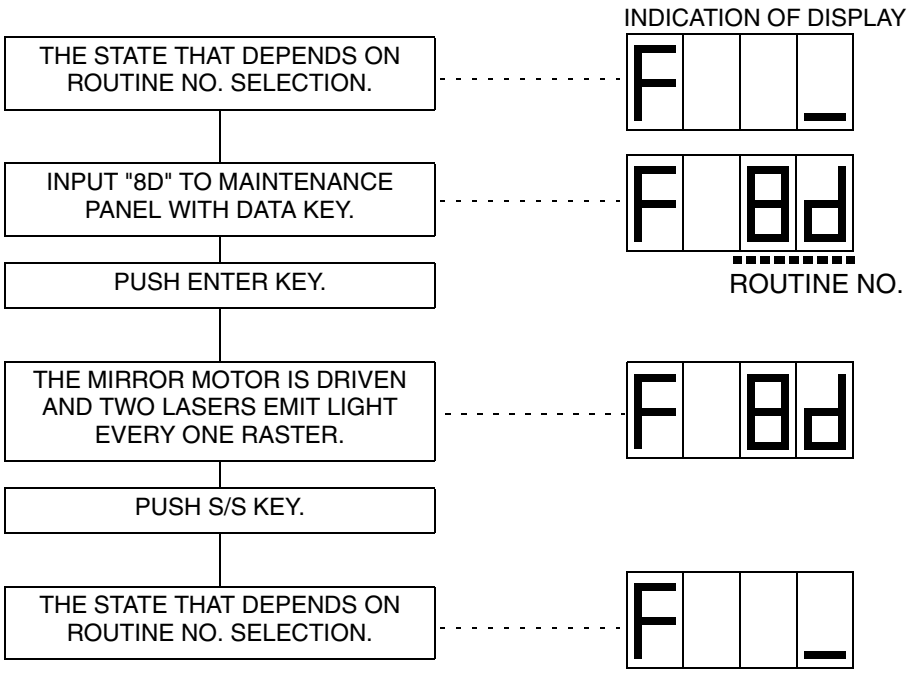
Routine No. : "8B", "8C" (Laser power)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)

These routines are used for adjustment of laser power in the factory. Refer to “Adjustment 1,” on page 8-15.

8.4.4.5. Driver Test 5

Routine No. : "8D" (Laser 1.2)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)

This routine is used, when you confirm whether the operation of the 2 Lasers are normal or abnormal.
And this routine is used for the confirmation of BD search in the factory.



EXPLANATION OF DETAILS

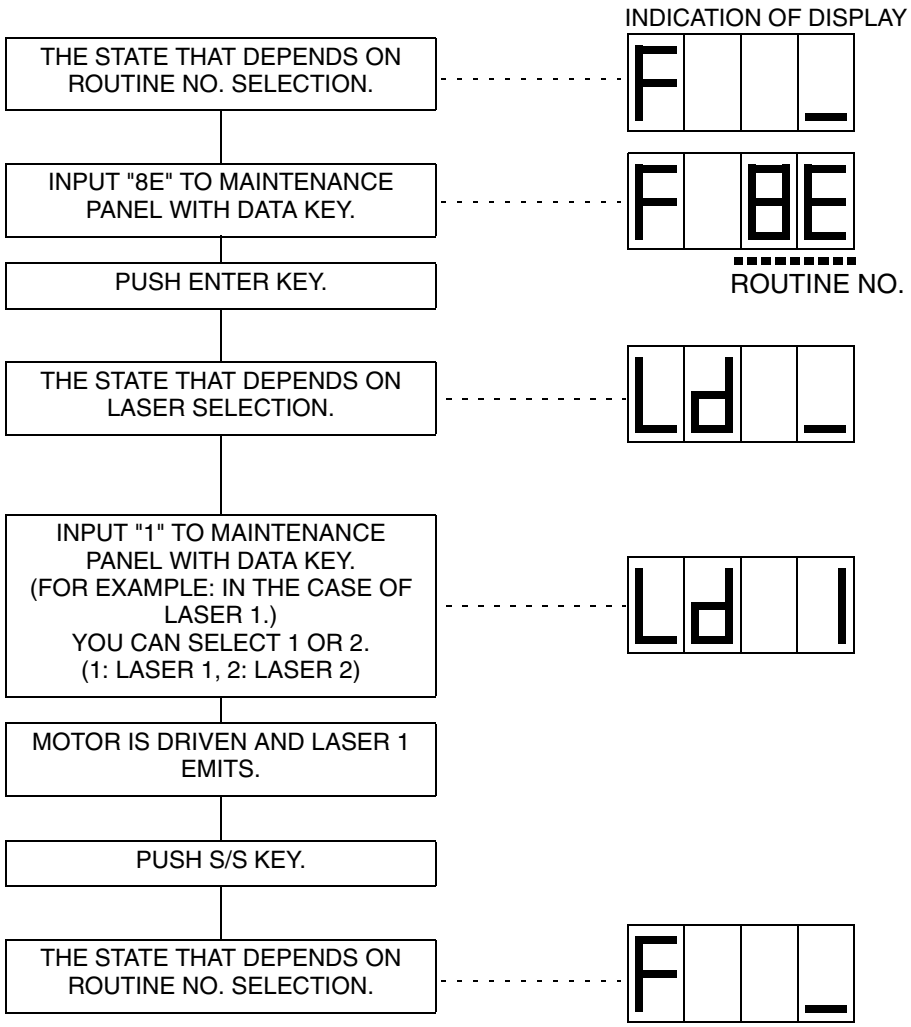
Routine No.	Continuous Drive Mode	Automatic Stop Mode
"8D"	Mirror motor is driven and the two lasers emit light every one raster after you push enter key.	After you push enter key, repeat a gesture shown left. And mirror motor and laser stop in 60 seconds later automatically.

Note: "Continuous Drive Mode" and "Automatic Stop Mode" are explained in “Assistance / Maintenance 1,” on page 8-25.

8.4.4.6. Driver Test 6

Routine No. : "8E" (Optical Unit)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)

This routine is used, when you confirm whether the operation of the selected Laser is normal or abnormal.
And this routine is used for the confirmation of BD search in the factory.



EXPLANATION OF DETAILS

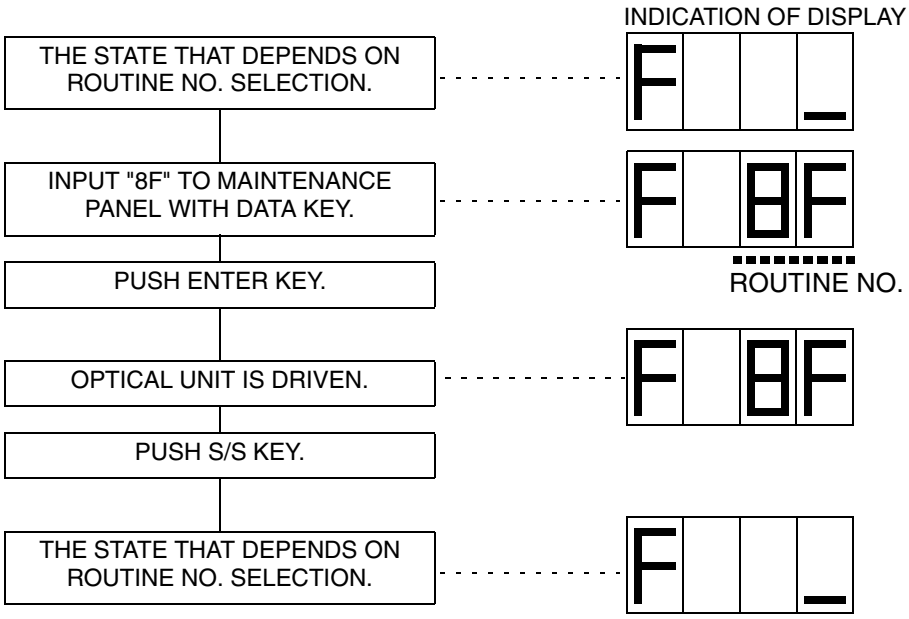
Routine No.	Continuous Drive Mode	Automatic Stop Mode
"8E"	Mirror motor is driven and a laser selected emits after you push enter key till you push S/S key.	Mirror motor is driven and a laser selected emits after you push enter key. And the Mirror motor and laser stop in 30 seconds later automatically.

Note: "Continuous Drive Mode" and "Automatic Stop Mode" are explained in "Assistance / Maintenance 1," on page 8-25.

8.4.4.7. Driver Test 7

Routine No. : "8F" (Optical Unit)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)

This routine is used, when you confirm whether the operation of the Optical Unit is normal or abnormal.



EXPLANATION OF DETAILS

Routine No.	Continuous Drive Mode	Automatic Stop Mode
"8F"	Optical unit is driven continually after you push enter key till you push S/S key.	Optical unit is driven after you push enter key. Optical unit stops in 30 seconds later automatically.
	This function is the same gesture of print sequence. So this function is used for confirmation of the Optical Unit. Furthermore if "E238" or "E239" is detected during print and is not detected during "8F". There may be a possibility of incorrect action by electric noise.	

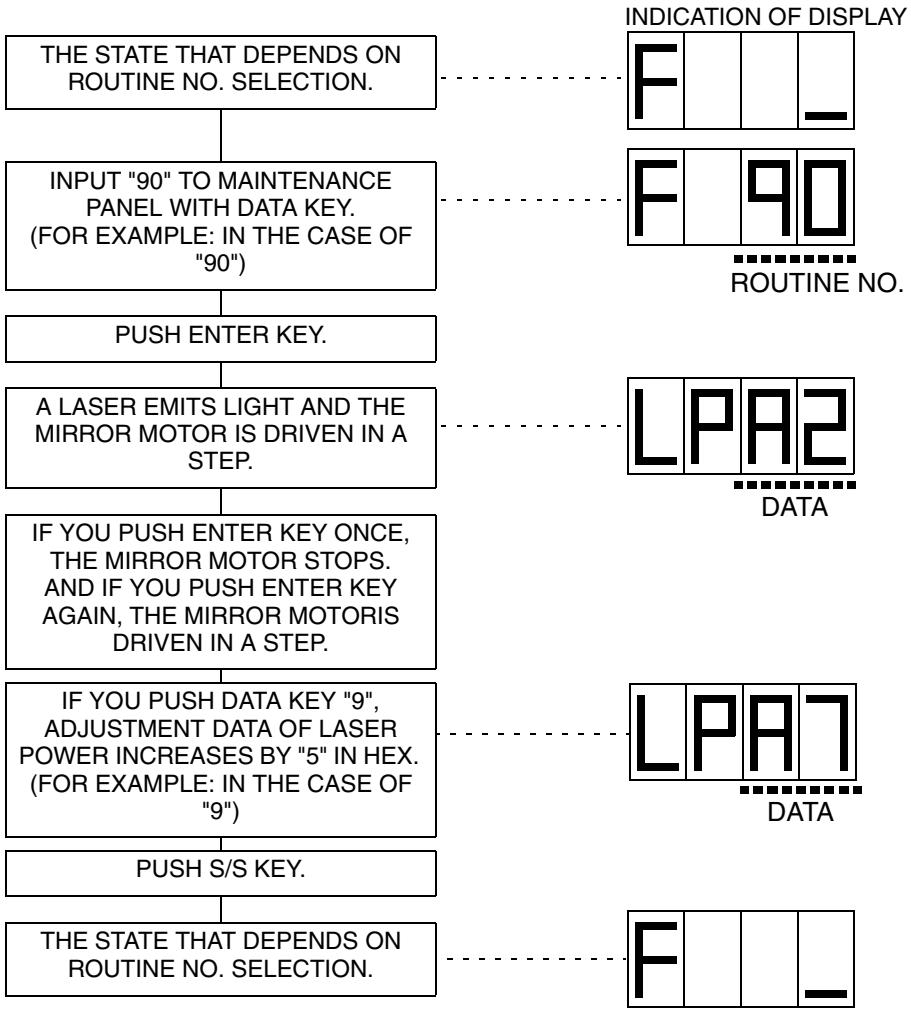
Note: "Continuous Drive Mode" and "Automatic Stop Mode" are explained in “Assistance / Maintenance 1,” on page 8-25.

8.4.5. Adjustment

8.4.5.1. Adjustment 1

Routine No. : "8B", "8C", "90" to "93" (Laser Power)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)

These routines are used for adjustment of laser power in the factory.

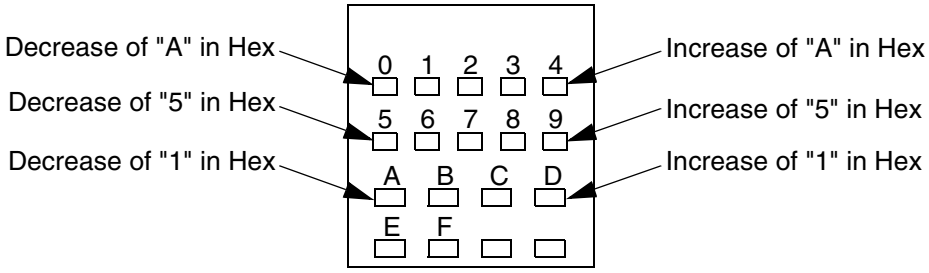


EXPLANATION OF DETAILS
Routine No. 8B: This routine is used for adjustment of laser 1 High power when the laser control is not selected.
Routine No. 8C: This routine is used for adjustment of laser 2 High power when the laser control is not selected.
Routine No. 90: This routine is used for adjustment of laser 1 power when the laser control is not selected.
Routine No. 91: This routine is used for adjustment of laser 2 power when the laser control is not selected.
Routine No. 92: This routine is used for adjustment of laser 1 Low power when the laser control is selected.
Routine No. 93: This routine is used for adjustment of laser 2 Low power when the laser control is selected.

Relation between Data key and input data.

You can input data from "00" to "E9".

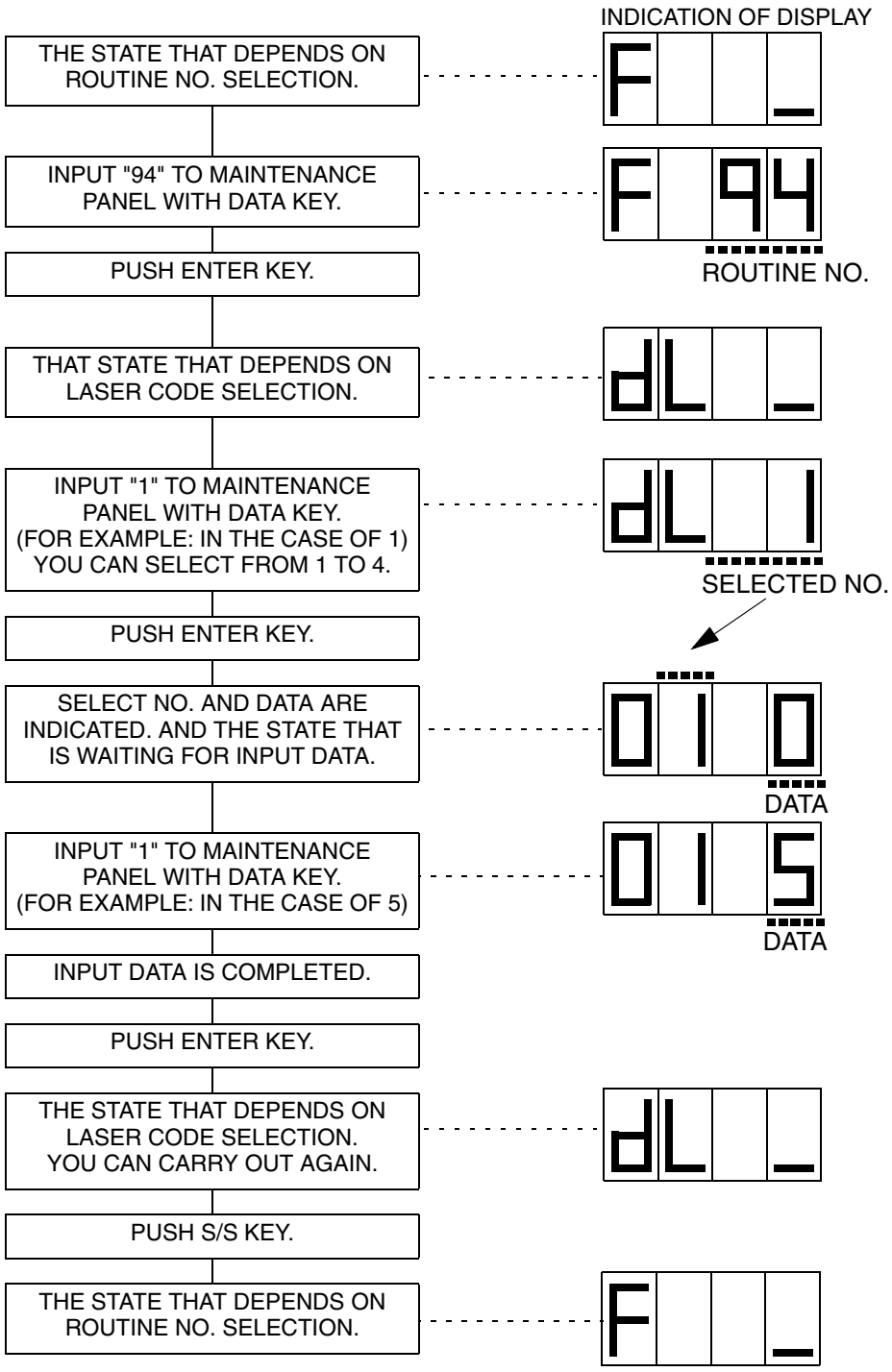
Note: If you input a larger number than "E9", "E9" is set automatically.



8.4.5.2. Adjustment 2

Routine No. : "94" (Laser Delay Data)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)

The routines are used for making compensation for laser phase among laser1 high, laser1 low, laser2 high, laser2 low, in the factory when the laser control is selected.



EXPLANATION OF DETAILS

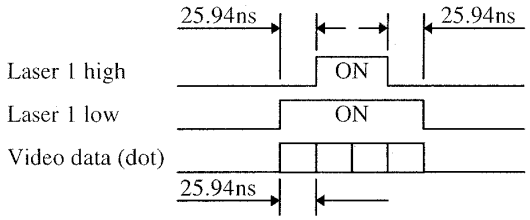
This routine makes compensation for laser phase among laser1 high, laser1 low, laser2 high and laser2 low,
This function delays each laser drive signal on the basis of input data.
If you carry out this routine, you observe laser drive signals by an oscilloscope or an exclusive tester.

Relationship between Data and laser phase.
Delay time of laser drive signal = 2.0(ns) x Data (Dec)

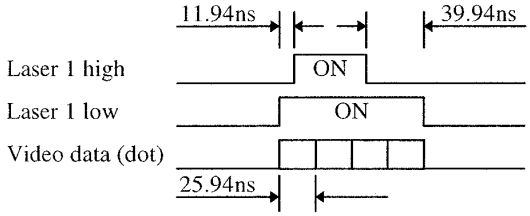
For Example:

Show a good relation of signals and a bad relation of signals to the right.
Laser 1 high signal in bad relation of signals is faster than laser 1 high signals in good relation of signals.

Its difference is
25.94(ns) - 11.94(ns) = 14.00(ns)
Therefore
14.00(ns) = 2.0(ns) x Data(Dec)
Data(Dec) = 14.00(ns) / 2.0(ns)
Data(Dec) = 7
Convert this value (7) into Hex Data
If you input "7" in Hex, Laser 1 high signal is delayed for 14.00(ns)
Bad relation of signals is improved.



Good relation of signals

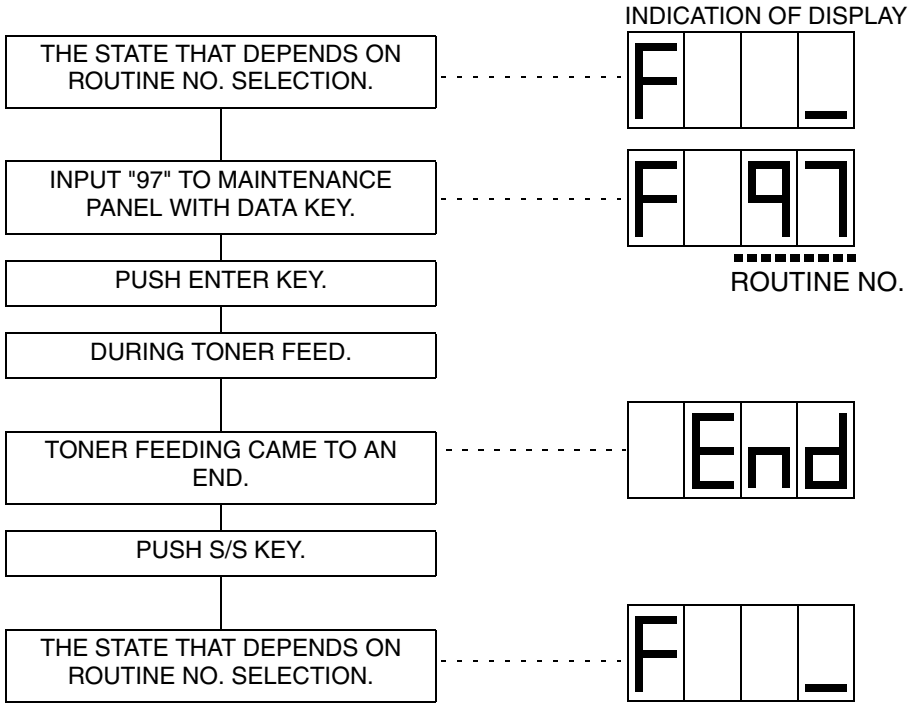


Bad relation of signals

8.4.5.3. Adjustment 3

Routine No. : "97" (Toner Supply)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)

You have to use this routine when lack of toner (E22B). If you carry out this routine toner in the Toner Hopper is supplied to the Developer Mix until the best concentration and stop to supply toner automatically.

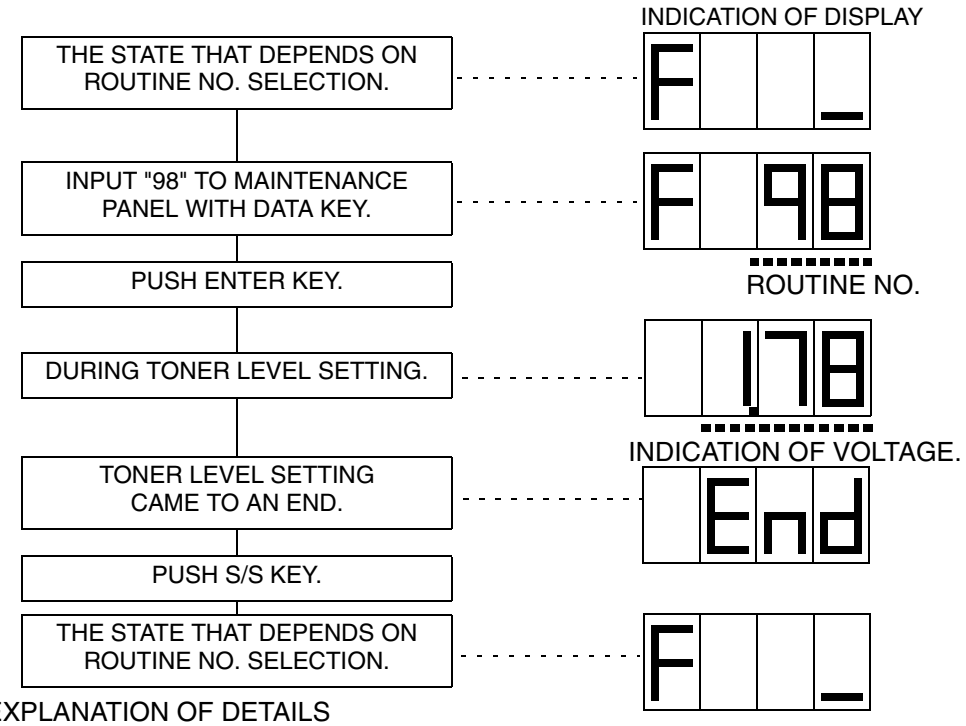


8.4.5.4. Adjustment 4

Routine No. : "98" (Toner Control Level)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)

This routine is used in the case of the following.

1. Toner concentration data in the memory was erased by mistake of maintenance.
2. Developer Mix was charged Developer directly without using Developer Mix charge command ("99").



EXPLANATION OF DETAILS

Refer to "Relation between control voltage and output of the sensor", Figure 8-2.

This function adjusts the control voltage (the voltage which is input to the Toner Control Sensor) and set output of the Toner Control Sensor to V_{out} (2.5V) when good toner concentration of the Developer Mix is in the Developer. If good toner concentration of the Developer Mix is in the Developer, this routine comes to an end soon and "END" is indicated. But if the wrong toner concentration of the Developer Mix is in the Developer or the Toner Control Sensor is faulty, this routine does not come to an end in about 160 seconds later and "E283" is indicated.

And when you do not know whether good or wrong Developer Mix is in the Developer, you should not carry out this routine. Because when toner concentration of the Developer Mix is a little low or high, "E283" is not detected and adjustment is carried out in the state of the Developer Mix.

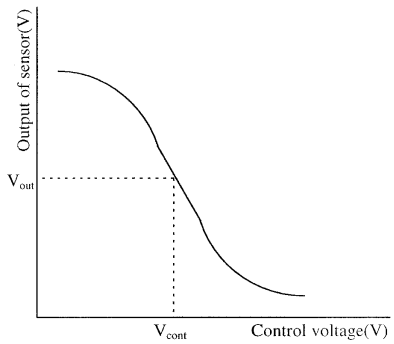
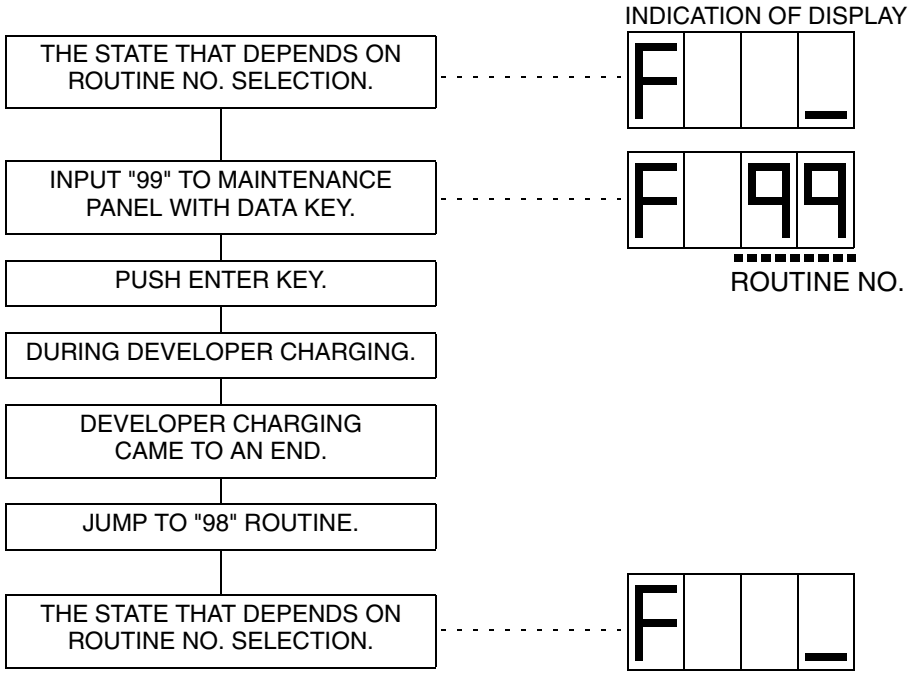


Figure 8-2. Relation between control voltage and output of the sensor

8.4.5.5. Adjustment 5

Routine No. : "99" (Developer Charging)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)

This routine is used when you charge the Developer with the Developer Mix.
If this routine is carried out, adjustment of the toner control voltage is carried out automatically too.



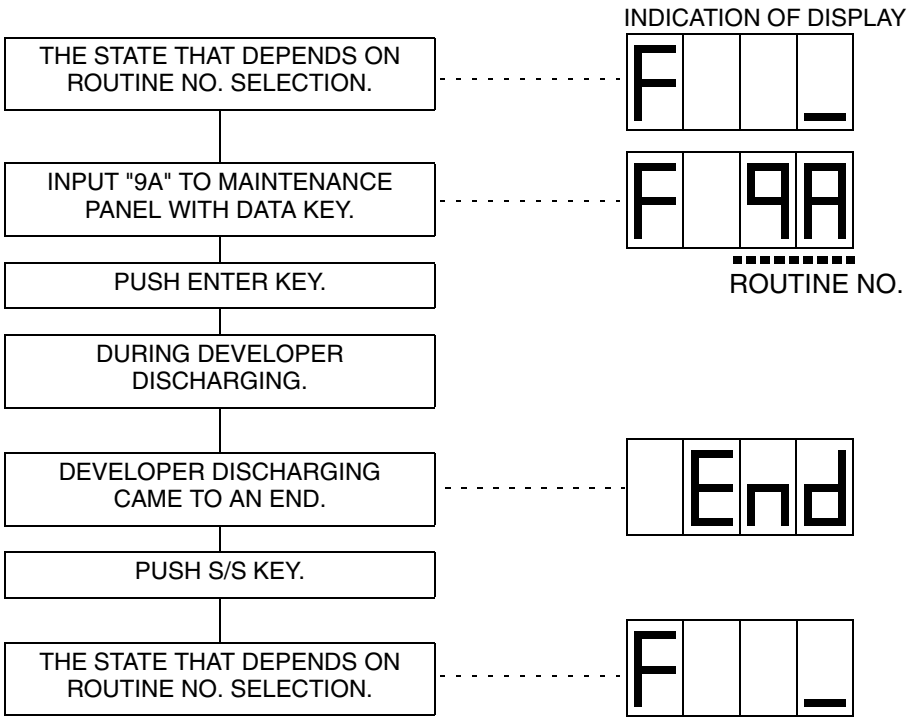
EXPLANATION OF DETAILS

First this routine confirms whether there is Developer Mix in the Developer or not by the output voltage of the Toner Control Sensor. If Developer mix is in the Developer, "E048" is detected.
If Developer Mix is not in the Developer, begin to charge the Developer Mix and continue for 80 seconds. And confirms whether there is Developer Mix in the Developer or not by the output voltage of the Toner Control Sensor. If Developer mix is not in the Developer, "E047" is detected. If the Developer Mix is in the Developer, jump to "98" routine.

8.4.5.6. Adjustment 6

Routine No. : "9A" (Developer Discharging)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)

This routine is used when you discharge the Developer Mix from the Developer.



EXPLANATION OF DETAILS

First this routine confirms whether the Developer Bottle is set or not by the Developer Bottle Set Sensor.

If the Developer Bottle is not set, "E01E" is detected.
If the Developer Bottle is set, begins to discharge the Developer Mix.

"E01E" is detected in the case of removing of the Developer Bottle during the discharging of the Developer Mix.
This routine confirms whether the Developer Mix in the Developer or not by output of voltage of the Toner Control Sensor during discharge of the Developer Mix.
And if the Developer Mix is not in the Developer, this routine comes to an end.
To confirm whether there is Developer Mix in the Developer or not continues for a maximum of 170 seconds. Nevertheless if Developer Mix is in the Developer, "E047" is detected.

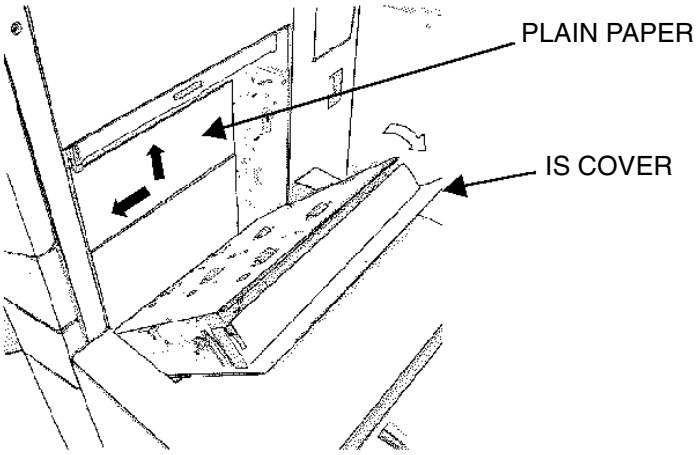
8.4.5.7. Adjustment 7

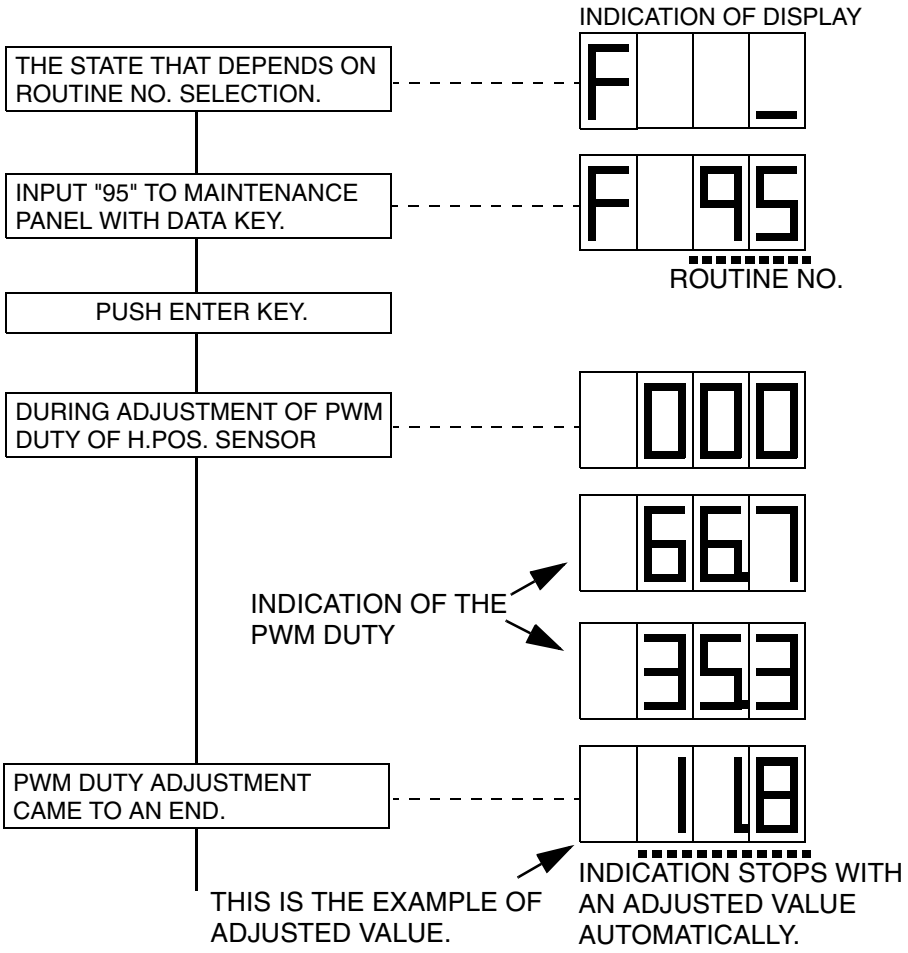
Routine No. : "95" (Adjustment of H.POS. Sensor)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)

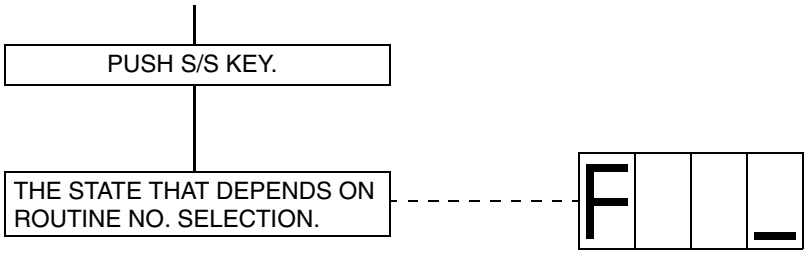
This routine is used when you exchange the H.POS. Sensor.

Before conducting this routine, set a plain white paper (17lbs, 64g/m^2, 55kg or equivalent) at paper path of registration station after opening the IS cover.

Note: Set the paper against to OP side and paper feed direction.
If the paper does not cover full of the H.POS. Sensor, it may cause E28F error during this routine.







EXPLANATION OF DETAILS

By performing this routine, PWM duty of H.POS Sensor LED is adjusted appropriately. If not performing this routine, it may cause E28F error or abnormal horizontal print registration between front engine and rear engine.

NOTE:

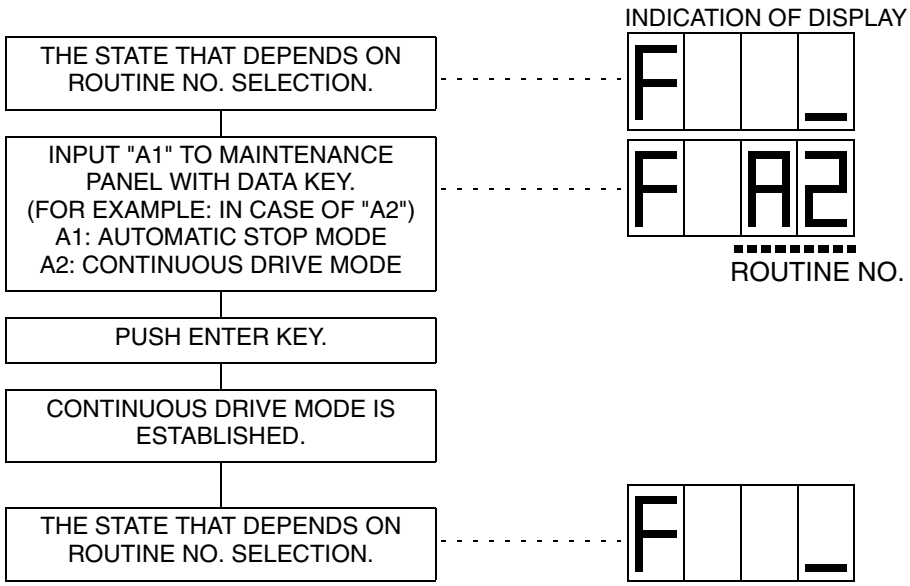
1. If performing this routine on +24V off condition, [24] / [OFF] are indicated alternately on maintenance panel. In this case, restore the 24V output and perform this routine again.
2. If placed paper drops during this routine, E28F error occur. In this case, replace the paper at appropriate position and perform this routine again.

8.4.6. Assistance / Maintenance

8.4.6.1. Assistance / Maintenance 1

Routine No. : "A1", "A2"
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)

These routines are used when you change "Automatic Stop Mode" and "Continuous Drive Mode".

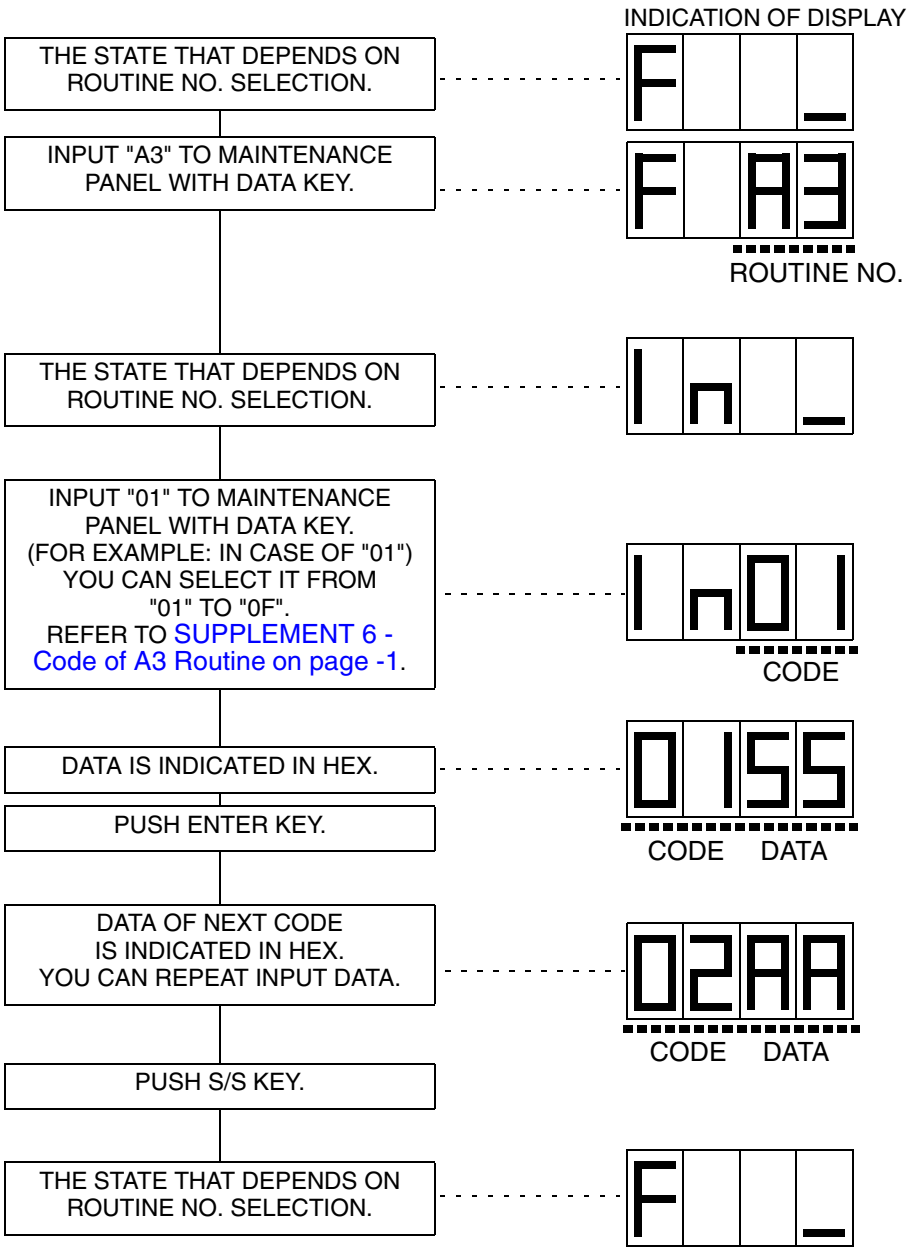


EXPLANATION OF DETAILS
The initial state is "Automatic Stop Mode".
When you turn off and on the power supply even if you set "Continuous Drive Mode" previously, it becomes "Automatic Stop Mode" automatically

8.4.6.2. Assistance / Maintenance 2

Routine No. : "A3" (In Port Read)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)

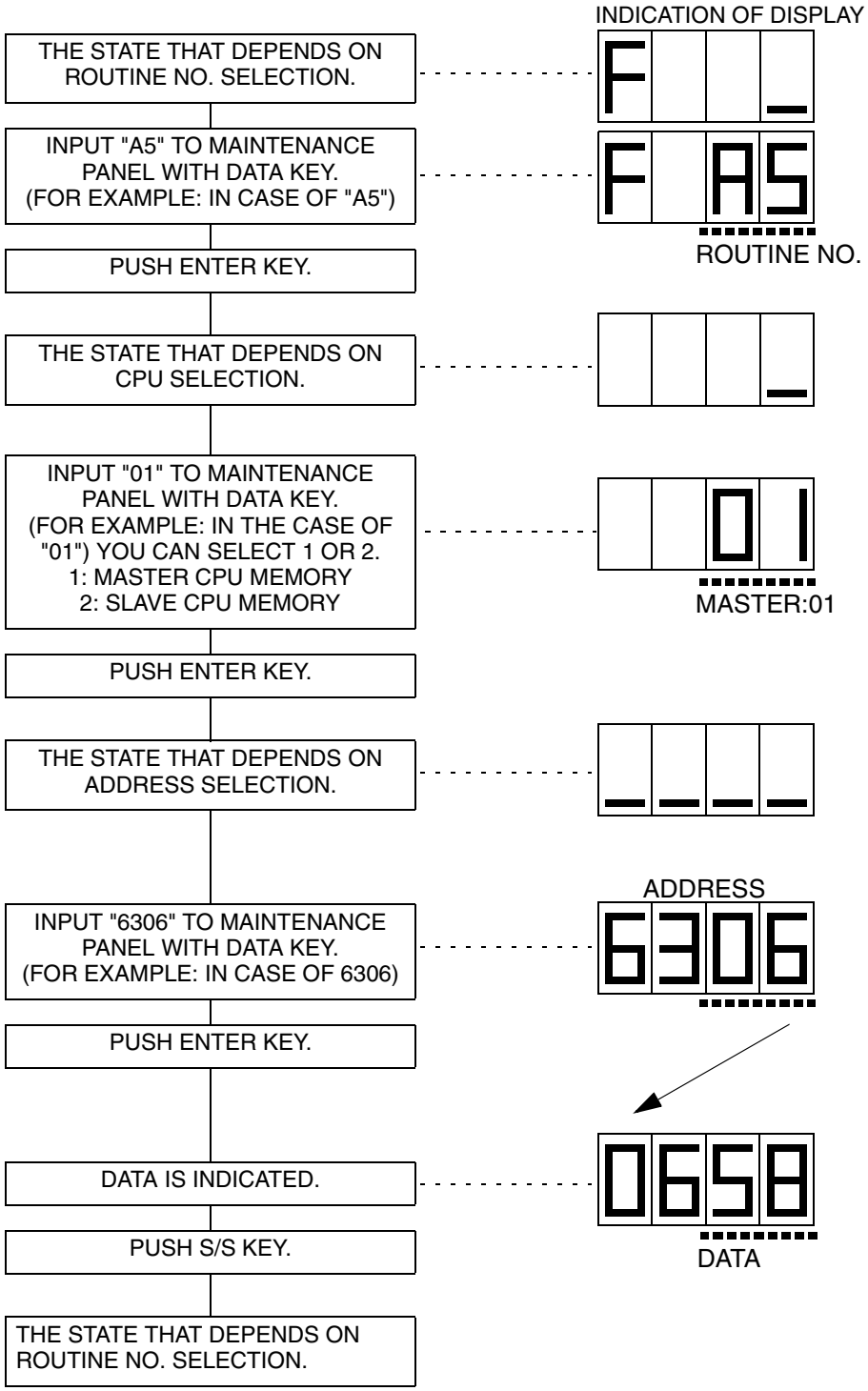
This routine is used when you confirm In-Port of the control board.
Data of In-Port is indicated by 1 byte in hex.



8.4.6.3. Assistance / Maintenance 3

Routine No. : "A5" (Memory Read)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)
(FOR DETAILS REFER TO UC Data on page 8-48.)

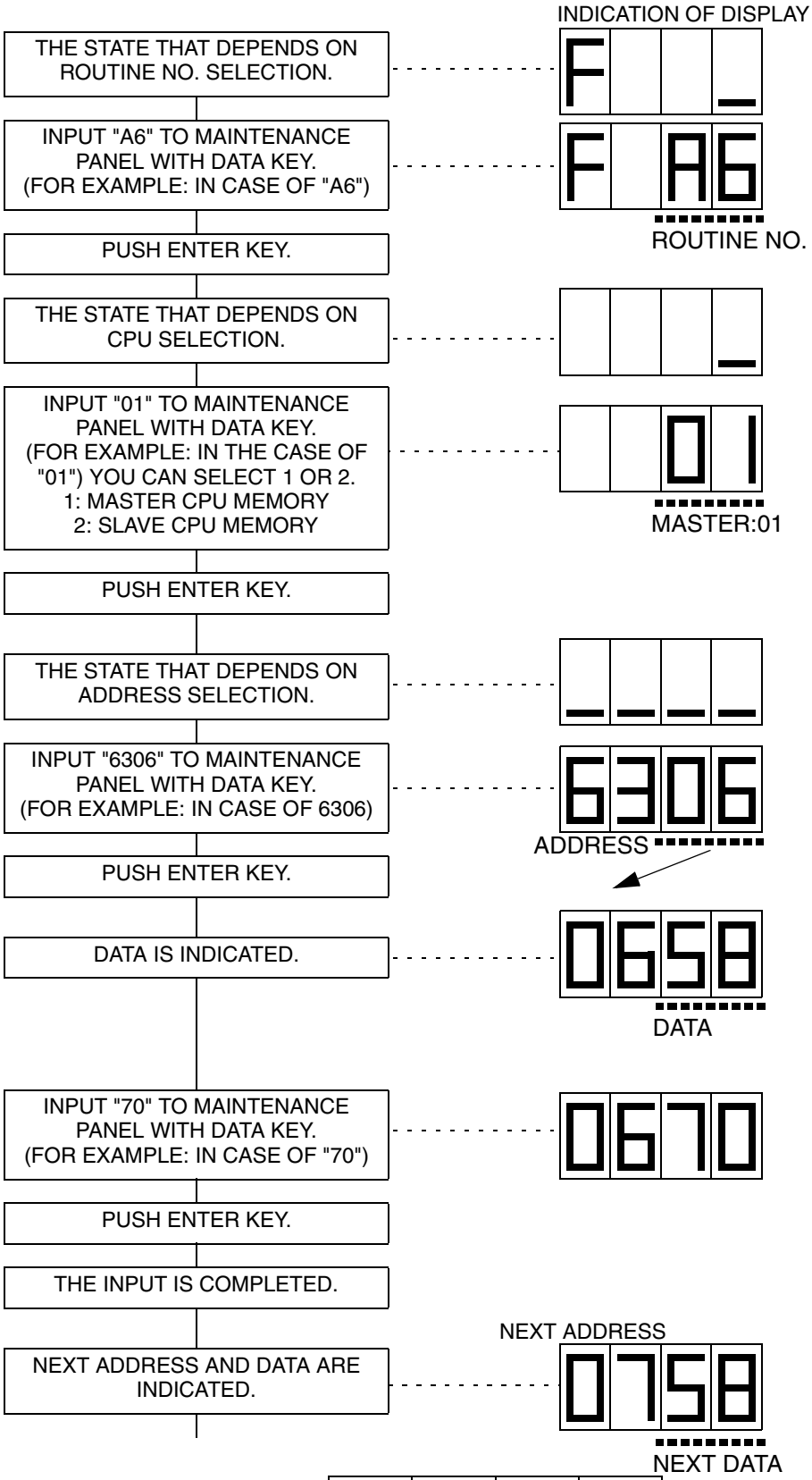
This routine is used when you read data in memory of the Engine.
Data of address selected is indicated by 1 byte in hex.

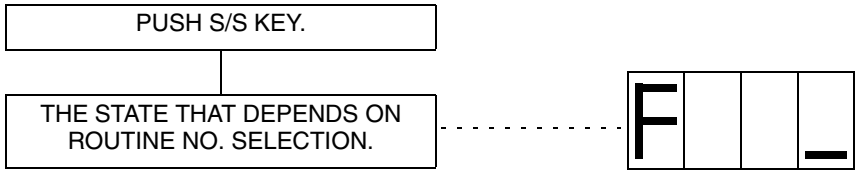


8.4.6.4. Assistance / Maintenance 4

Routine No. : "A6" (Memory Write)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)
(FOR DETAILS REFER TO UC Data on page 8-48.)

This routine is used when you write data in memory of the Engine.
Data of address selected is indicated by 1 byte in hex.

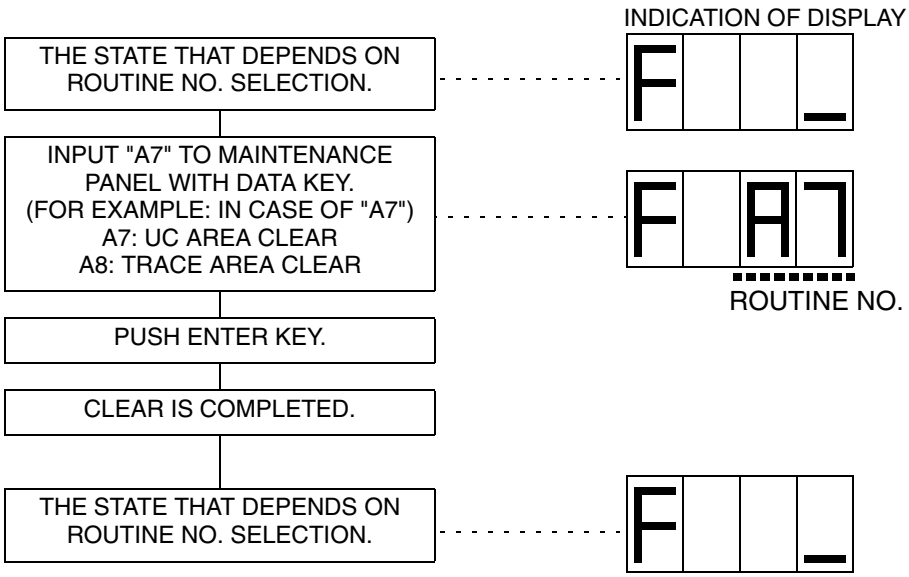



PUSH S/S KEY.
THE STATE THAT DEPENDS ON ROUTINE NO. SELECTION.
F

8.4.6.5. Assistance / Maintenance 5

Routine No. : "A7", "A8" (UC, Trace Area Clear)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)

These routines are used when you clear the UC Area or Trace Area.



EXPLANATION OF DETAILS

ROUTINE NO.: "A7"

This command carries out 0 clear of the following items.

1	The count value and of consumables.			
	Developer Mix	Fuser cleaning web	Drum module	Fuser unit

ROUTINE NO.: "A8"

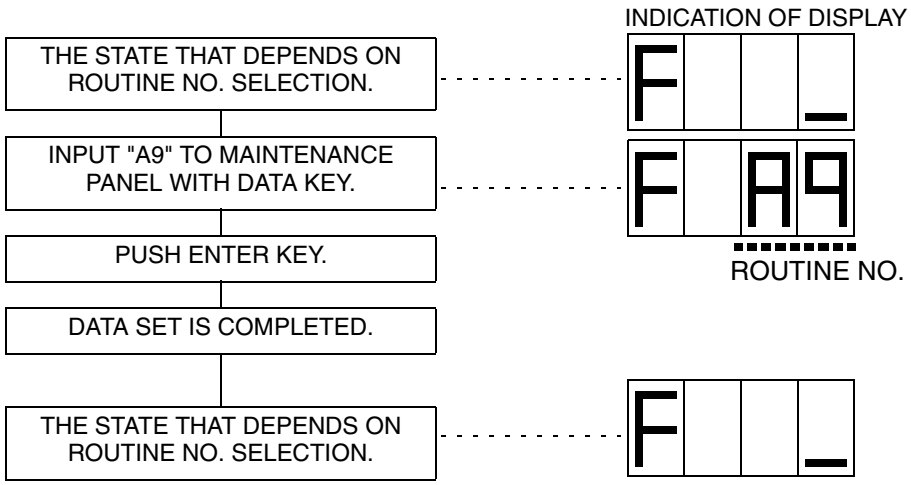
This command carries out 0 clear of the following items.

1	Control command trace area.
2	Error count area.
3	Finisher command trace area.

8.4.6.6. Assistance / Maintenance 6

Routine No. : "A9" (UC value Set)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)

This routine is used when you set the UC Standard value.



EXPLANATION OF DETAILS

This command carries out set of the following items.

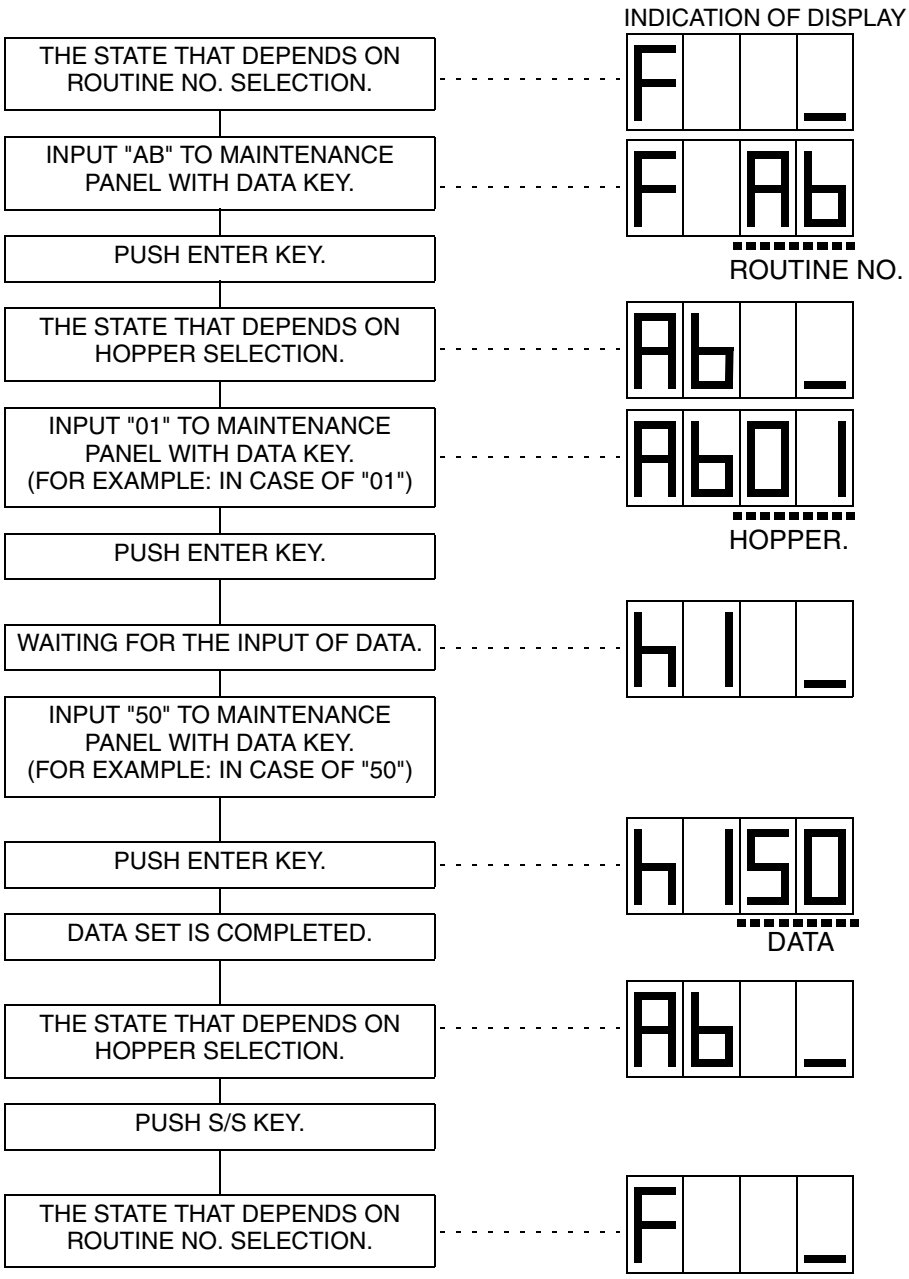
1	Standard value of consumables.			
	Developer Mix	Fuser cleaning web	Drum module	Fuser unit
2	Standard value of preventive maintenance parts.			
	Transfer Corona Wire / Separating Corona Wire	Transfer / Separating Corona Unit Cleaner	Conveyance Belt	Charger Corona Wire and Grid
	Paper Pick Ass'y	Ozone Filter	Air Filter	-
	Finisher Tray Up-Down Motor	Finisher Staple Unit Rear	Finisher Staple Unit Front	Finisher Paper Exit Roller
	Finisher Sponge Roller	Finisher Middle Sponge Roller	Finisher Conveyance Roller	Finisher Conveyance Motor 1
	Finisher Conveyance Motor 7	Finisher Grip Solenoid	Finisher Opening Solenoid	-

3	Standard value of H and V position.				
	Hopper 1 Simplex	Hopper 2 Simplex	Hopper 3 Simplex	MPT Simplex	Hopper 5 Simplex
	Hopper 1 Duplex	Hopper 2 Duplex	Hopper 3 Duplex	MPT Duplex	Hopper 5 Duplex

8.4.6.7. Assistance / Maintenance 7

Routine No. : "AB" (Horizontal Data)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)

This command is used when you adjust the Horizontal position of the printable area.



EXPLANATION OF DETAILS

This command is to adjust the horizontal position of the printable area to revise the mechanical error of optics.
And the printer informs the controller the Horizontal standard print start position.
This data should be read after issuing the ACTIVATE command.

Relation between Data and the Horizontal standard print start position.
Revise value = 0.085(mm) x Data (Dec)

For example:

When you input "50" in Hex. H is 4.50mm
Correct H is 5.00mm.
5.00 (mm) - 4.50 (mm) = 0.50 (mm)
0.50 (mm) = 0.085 (mm) x Data
Data = 0.50 (mm) / 0.085 (mm) = 5.88
Convert this value (5.88) into Hex Data
And add Hex Data to first input Data ("50")
6 (Hex) + 50 (Hex) = 56 (Hex)
If you input "56" in Hex, H becomes 5.00mm.

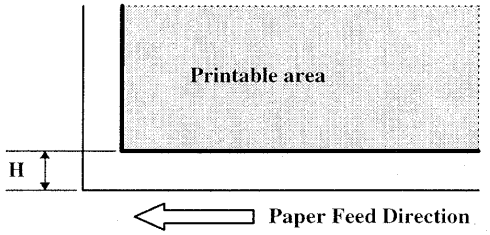


Figure 8-3. Adjustment of the Horizontal Position

Explanation of details:

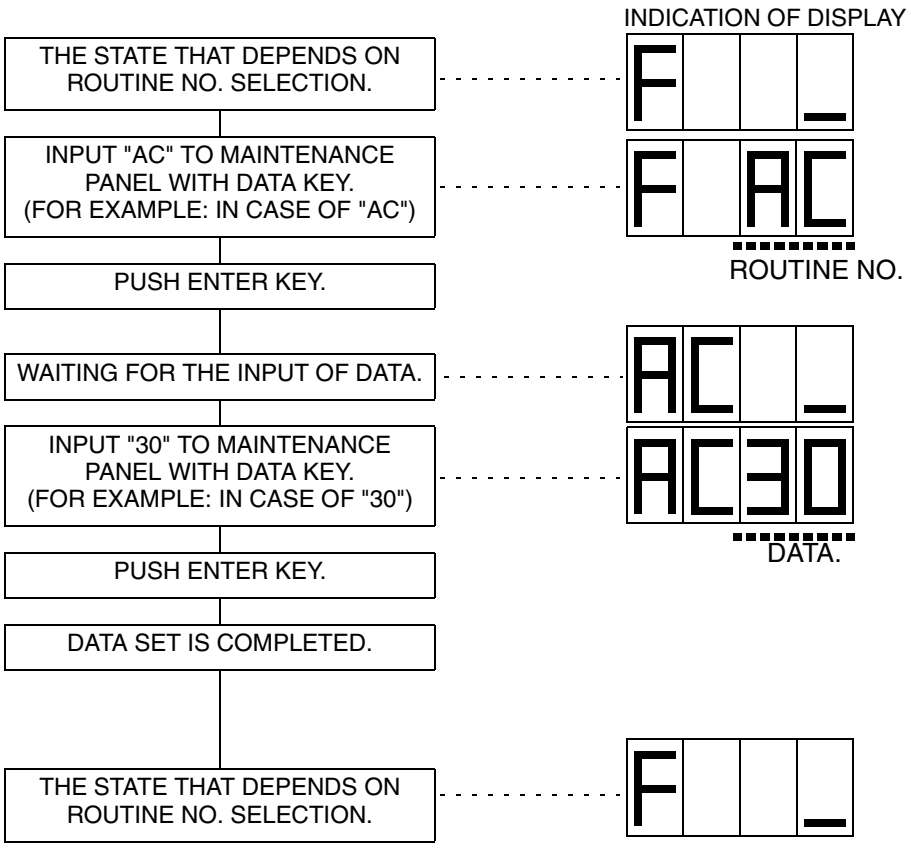
Item	Selection Mode of Hopper	Upper Limit of Data
Hopper 1 (Simplex)	"01"	"6A"
Hopper 2 (Simplex)	"02"	"6A"
Hopper 3 (Simplex)	"03"	"6A"
Hopper 5 (Simplex)	"04"	"6A"
MB Tray (Simplex)	"05"	"6A"
Hopper 1 (Duplex)	"06"	"6A"
Hopper 2 (Duplex)	"07"	"6A"
Hopper 3 (Duplex)	"08"	"6A"
Hopper 5 (Duplex)	"09"	"6A"
MB Tray (Duplex)	"0A"	"6A"

Note: If you input a larger number than the Upper Limit of Data, "6A" is set automatically.

8.4.6.8. Assistance / Maintenance 8

Routine No. : "AC" (Vertical Data)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)

This command is used when you adjust the Vertical position of the printable area.



EXPLANATION OF DETAILS

This command is to adjust the vertical position of the printable area to revise the mechanical error of optics.
And the printer informs the controller the Vertical standard print start position.
This data should be read after issuing the ACTIVATE command.

Relation between Data and the Vertical standard print start position.
Revise value = 0.085(mm) x Data (Dec)

For example:

When you input "30" in Hex. V is 4.50mm
Correct V is 5.00mm.
5.00 (mm) - 4.50 (mm) = 0.50 (mm)
0.50 (mm) = 0.085 (mm) x Data
Data = 0.50 (mm) / 0.085 (mm) = 5.88
Convert this value (5.88) into Hex Data
And add Hex Data to first input Data ("50")
6 (Hex) + 30 (Hex) = 36 (Hex)
If you input "36" in Hex, V becomes 5.00mm.

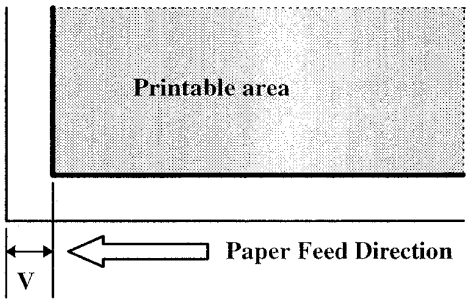


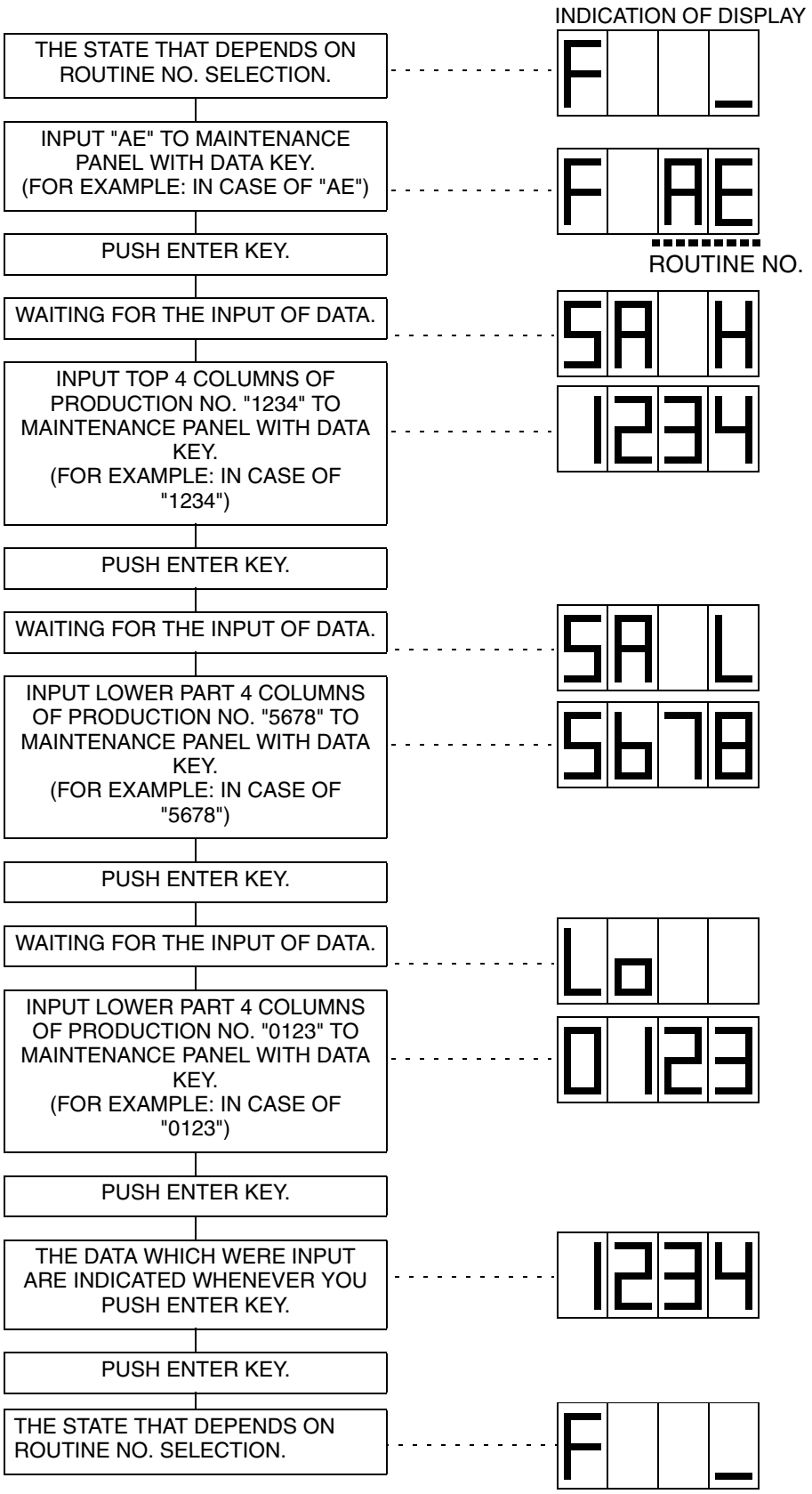
Figure 8-4. Adjustment of the Vertical Position

The Upper Limit of Data is "48".

Note: If you input a larger number than the Upper Limit of Data, "48" is set automatically.

8.4.6.9. Assistance / Maintenance 9

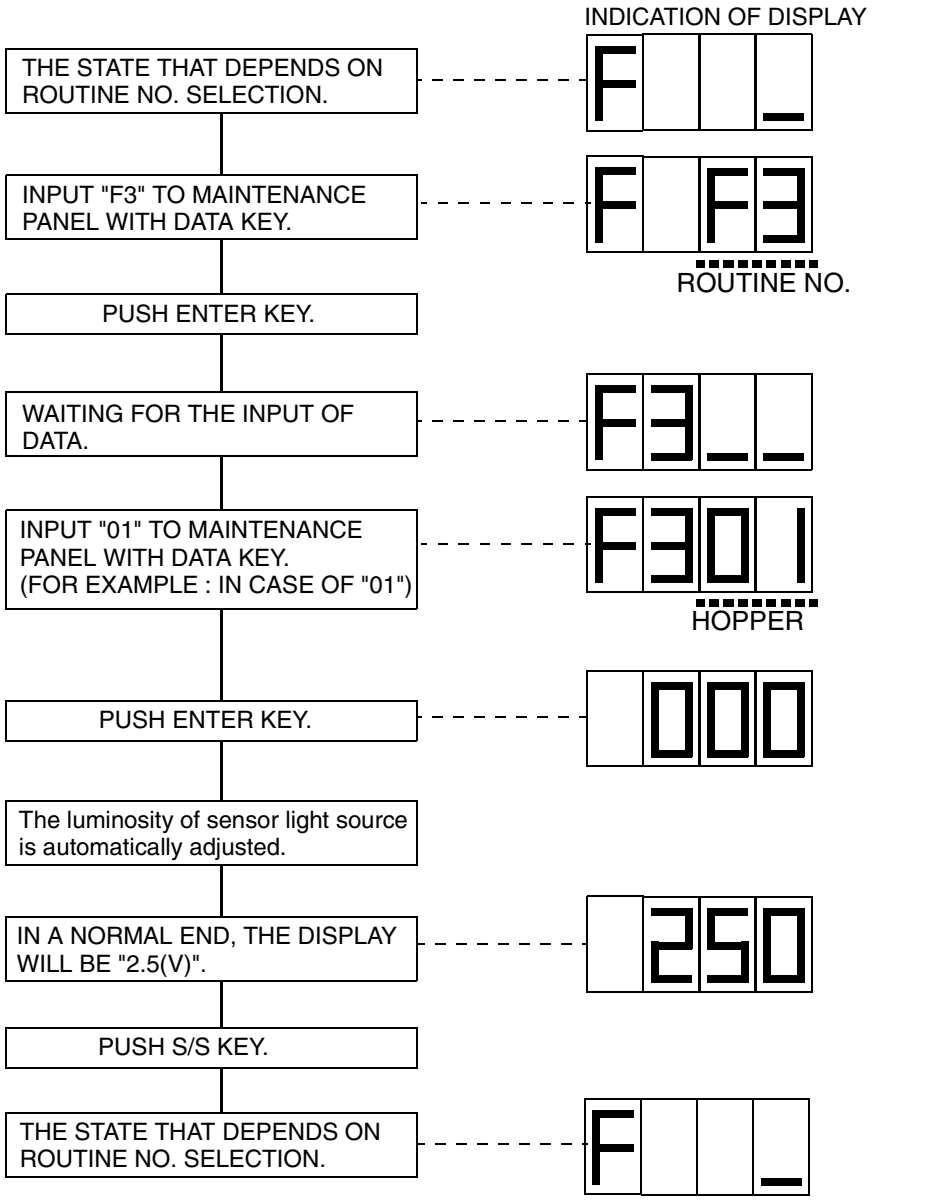
Routine No. : "AE" (Lot Number Set)
(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine on page -1.)
This routine is used for the setting Lot Number in the factory.



8.4.6.10. Assistance / Maintenance 10

Routine No. : "F3 - 01 (HP1)", "F3"-"02" (HP2),"F3"-"03" (HP3), "F3"-"05"(HCF) :
The engine with Double Feed Sensor rectifies the amount of exposure of sensor light source according to a paper, this diagnostic function is used.

Open IS cover before this adjustment, insert the paper in the registration path, and remove after adjustment. Adjustment is possible while an indication of "E043" was given.

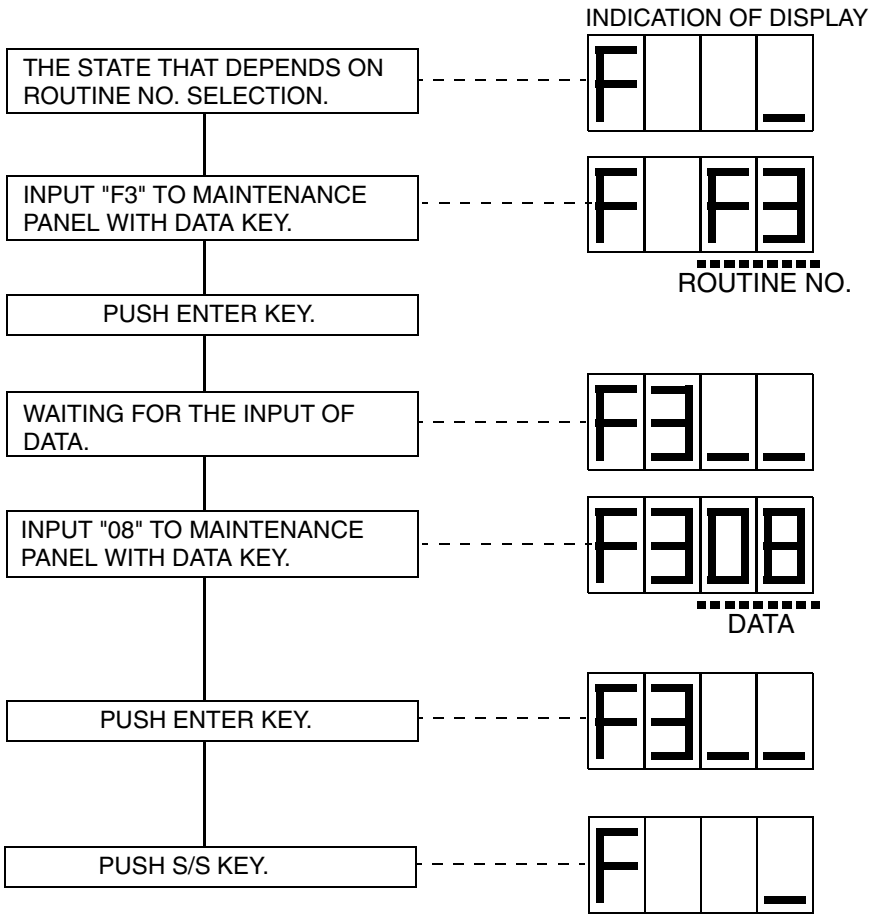


*1 : When the display will not be "2.50", abnormal are in the sensor.

8.4.6.11. Assistance / Maintenance 11

Routine No. : "F3" - "08" : The standard data for adjusting luminous intensity according to the dirt of the sensor surface is set up.

Perform "08" in the state where there is no paper. Adjustment is possible while an indication of "E043" was given.



1) This adjustment sets up the standard data for adjusting luminous intensity according to the dirt of the sensor surface.
2) Perform this adjustment only after Double Feed sensor exchange and sensor cleaning.
3) Since the standard data will be reset if this adjustment is usually sometimes performed, the right adjustment of luminous intensity becomes impossible.

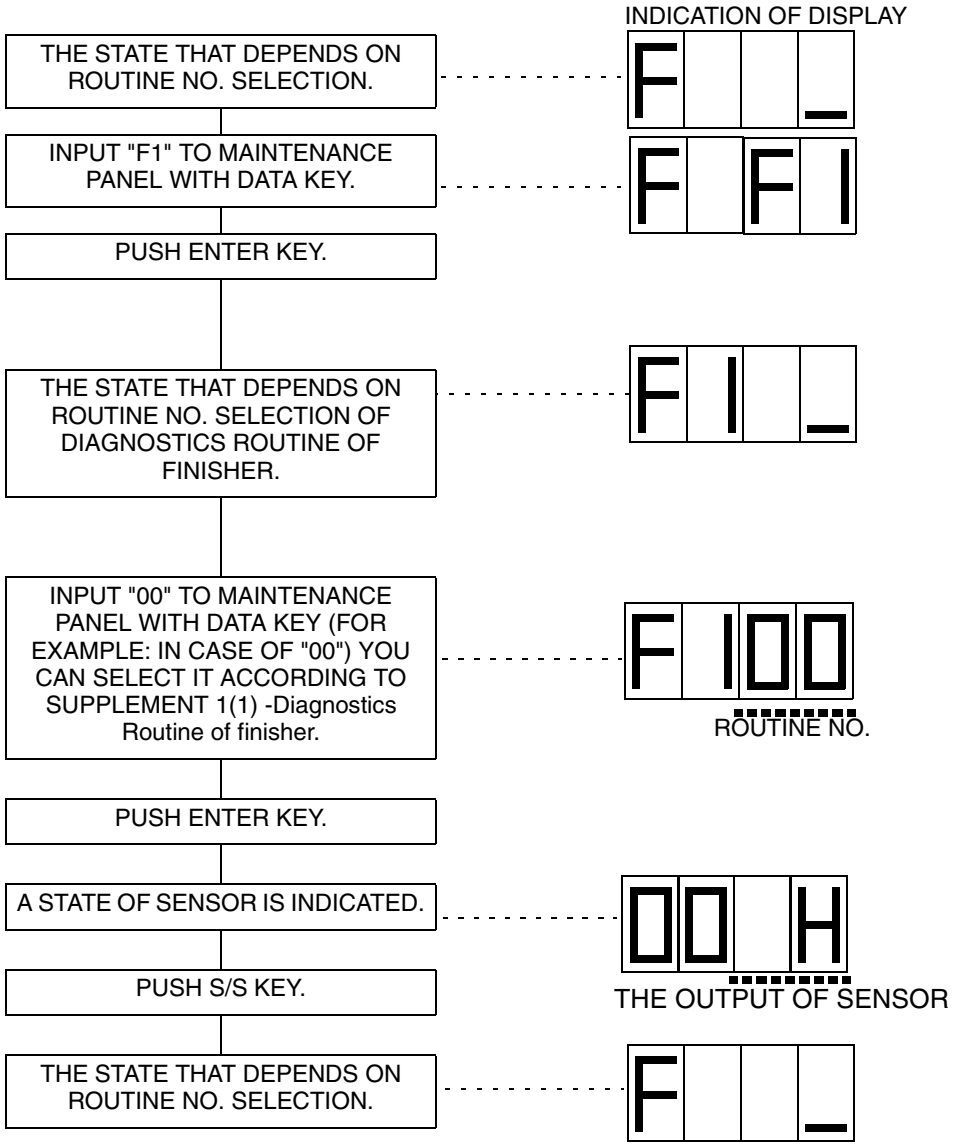
8.4.7. Diagnostics of Finisher

8.4.7.1. Diagnostics of Finisher 1

Routine No. : "00" to "07", "09" to "0C", "0F", "10" to "19", "1B" to "1C", "20" to "21", "25" to "2F", (Finisher Sensor Test)

(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine of Finisher (FS - 108R) on page -2.)

These routines are used when you confirm whether the operation of the Finisher's selected sensor is normal or abnormal.



EXPLANATION OF DETAILS

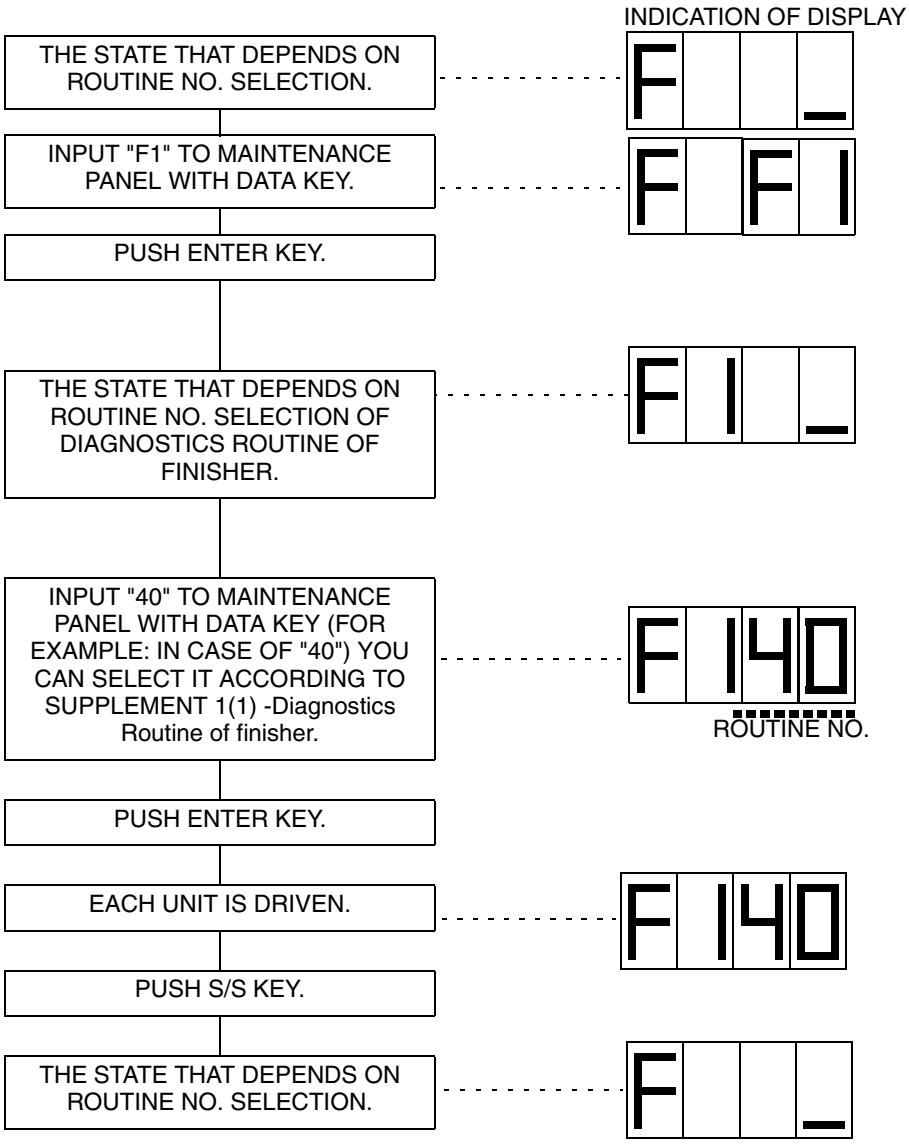
Routine No.	Indication Contents	Display
"00" to "07" "09" to "0C" "0F" "10" to "19" "1B" to "1C" "20" to "21" "25" to "2F"	The output of sensor indicates "H" or "L". Refer to SUPPLEMENT 7 - Diagnostics of Finisher 1 .	00 H 00 L

8.4.7.2. Diagnostics of Finisher 2

Routine No. : "40" to "64" (Finisher Driver Test 1)

(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine of Finisher (FS - 108R) on page -2.)

These routines are used when you confirm whether the operation of the Finisher's selected sensor is normal or abnormal.



Turn OFF/ON the Main Power Switch before printing because the motor which is moved by driver test is not at the home position.

Routine No.	Continuous Drive Mode	Automatic Stop Mode
"40"	M1 FNS Conveyance motor is driven continually after you push enter key till you push S/S key.	M1 FNS Conveyance motor is driven after you push enter key. And the motor stops in 10 seconds later automatically.
"41"	-	After you push enter key. the Shift Unit moves to home position once.
"42"	-	After you push enter key. the Shift Unit moves to the shift position once.
"43"	-	After you push enter key. the Shift Unit moves to the shift position and returns to the home position once.
"44"	-	Main Tray goes up, after you push enter key. And Main Tray stops, when it gets to the upper limit.
"45"	-	Main Tray goes down, after you push enter key. And Main Tray stops, when it gets to the lower limit.
"46"	-	After you push enter key, Main Tray operates like a stapled booklet is delivered to the Main Tray.
"47"	-	After you push enter key, the Alignment Plate/Upper moves to the home position once.
"48"	Paper Exit Roller motor is CW driven continually after you push enter key till you push S/S key.	Paper Exit Roller motor is CW driven after you push enter key. And the motor stops in 10 seconds later automatically.
"49"	Paper Exit Roller motor is CCW driven continually after you push enter key till you push S/S key.	Paper Exit Roller motor is CCW driven after you push enter key. And the motor stops in 10 seconds later automatically.
"4A"	-	After you push enter key. the Paper Exit Opening shuts once.
"4B"	-	After you push enter key. the Paper Exit Opening opens once.
"4C" *1	-	After you push enter key, the Stapler Motor-R(rear side) returns to the home position.
"4D" *2	-	After you push enter key, the Stapler Motor-R(rear side) is driven once.
"4E" *1	-	After you push enter key, the Stapler Motor-F(front side) returns to the home position.
"4F" *2	-	After you push enter key, the Stapler Motor-F(front side) is driven once.

Routine No.	Continuous Drive Mode	Automatic Stop Mode
"50"	-	After you push enter key. The Staplers move to the 2 staple position once.
"51"	-	After you push enter key. The Staplers move to the rear 1 staple position once.
"52"	Stacker Entrance motor is driven continually after you push enter key till you push S/S key.	Stacker Entrance motor is driven after you push enter key. And the motor stops in 10 seconds later automatically.
"53" (Fold unit)	-	After you push enter key, the Stapling and Folding Stopper moves to the home position once.
"54" (Fold unit)	-	After you push enter key, the Alignment Plate/Lower moves to the home position once.
"55" (Fold unit)	-	After you push enter key, the Folding Stopper moves to the home position once.
"56" (Fold unit)	-	After you push enter key, the Folding Knife moves to the home position once.
"57" (Fold unit)	Folding Conveyance motor is driven continually after you push enter key till you push S/S key.	Folding Conveyance motor is driven after you push enter key. And the motor stops in 10 seconds later automatically.
"58" (Fold unit)	-	After you push enter key, the Stapling & Folding Stopper Release motor moves to the home position once.
"59" (Fold unit)	-	After you push enter key, the Stapling & Folding Stopper Release motor moves to the release position once.
"5A" (Fold unit)	-	After you push enter key, the Stapling & Folding Stopper Release motor moves to the set position once.
"5B"	-	After you push enter key, the Alignment Plate/Upper opens from the position of the A4 paper once.
"5C"	-	After you push enter key, the Alignment Plate/Upper closes from the position of the A4 paper once.
"5D"	-	After you push enter key, the Alignment Plate/Upper operates like it aligns the A4 paper once.
"5E" (Fold unit)	-	After you push enter key, the Alignment Plate/Lower opens from the position of the A4 paper once.

Routine No.	Continuous Drive Mode	Automatic Stop Mode
"5F" (Fold unit)	-	After you push enter key, the Alignment Plate/Lower closes from the position of the A4 paper once.
"60" (Fold unit)	-	After you push enter key, the Alignment Plate/Lower operates like it aligns the A4 paper once.
"61" (Fold unit)	-	After you push enter key, Stapling & Folding Stopper moves to the position where A4_SEF paper is stapled once.
"62" (Fold unit)	-	After you push enter key, Folding Stopper moves to the position where A4_SEF paper is folded once.
"63" (Cover sheet feeder) *3	-	Sheet Tray goes up, after you push enter key. And Sheet Tray stops, when it gets to the upper limit.
"64" (Cover sheet feeder)	-	Sheet Tray goes down, after you push enter key. And Sheet Tray stops, when it gets to the lower limit.

Note: "Continuous Drive Mode" and "Automatic Stop Mode" are explained in “Assistance / Maintenance 1,” on page 8-25.

*1 : Stapler Motor R/F does not operate if the motor is at home position.

*2 : Execute this routine after inserting paper in the Stapler which is driven.

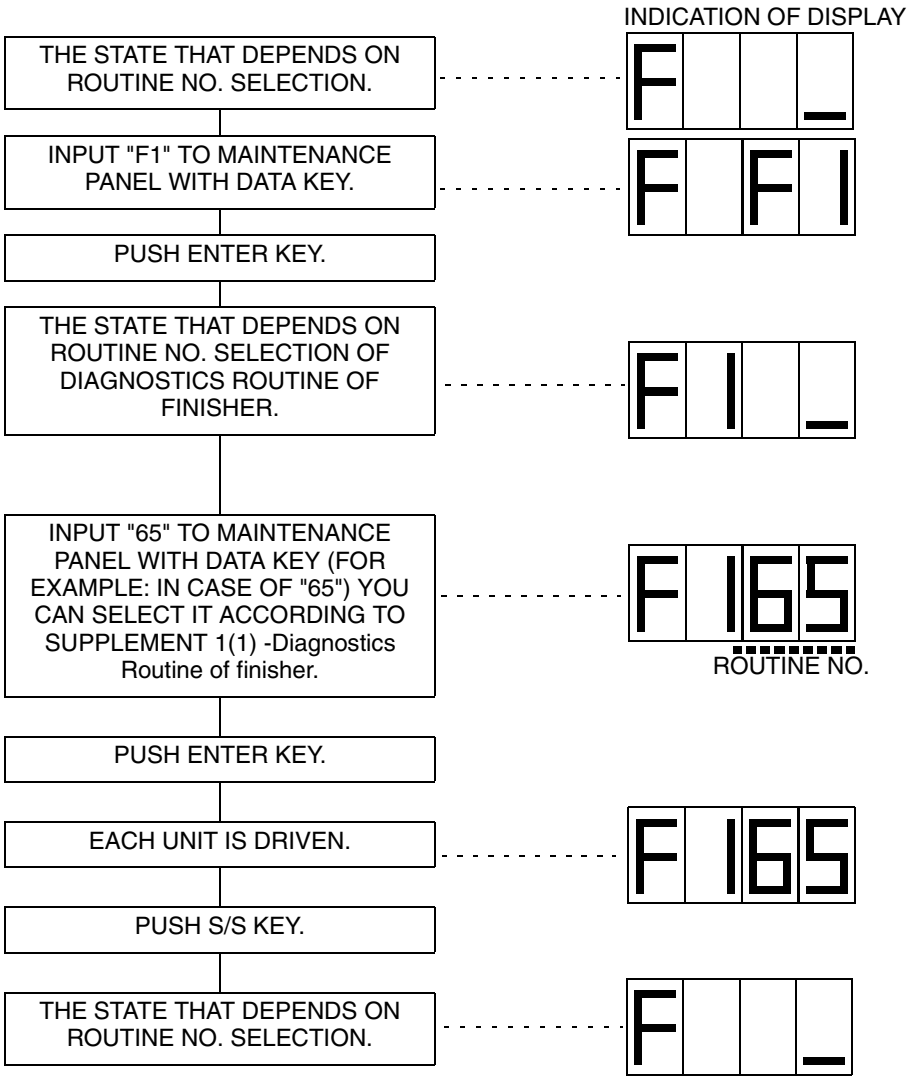
*3 : When there is no paper on the tray of Cover Sheet Feeder, the tray goes down to the lower limit position after it reaches the upper limit position.

8.4.7.3. Diagnostics of Finisher 3

Routine No. : "65" to "6C" (Finisher Driver Test 2)

(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine of Finisher (FS - 108R) on page -2.)

These routines are used when you confirm whether the operation of the Finisher's selected sensor is normal or abnormal.



Turn OFF/ON the Main Power Switch before printing because the motor which is moved by driver test is not at the home position.

Routine No.	Continuous Drive Mode	Automatic Stop Mode
"65" to "69"	After you push enter key, the solenoid is turned on till you push S/S key.	After you push enter key, repeat a gesture shown left 10 times and stops automatically.
"6A" (Cover sheet feeder)	After you push enter key, the clutch is turned on till you push S/S key.	After you push enter key, repeat a gesture shown left 10 times and stops automatically.
"6B" (Cover sheet feeder)	After you push enter key, the solenoid is turned on till you push S/S key.	After you push enter key, repeat a gesture shown left 10 times and stops automatically.
"6C" (Fold unit)	The Finisher operates continuously like it makes booklet.	-

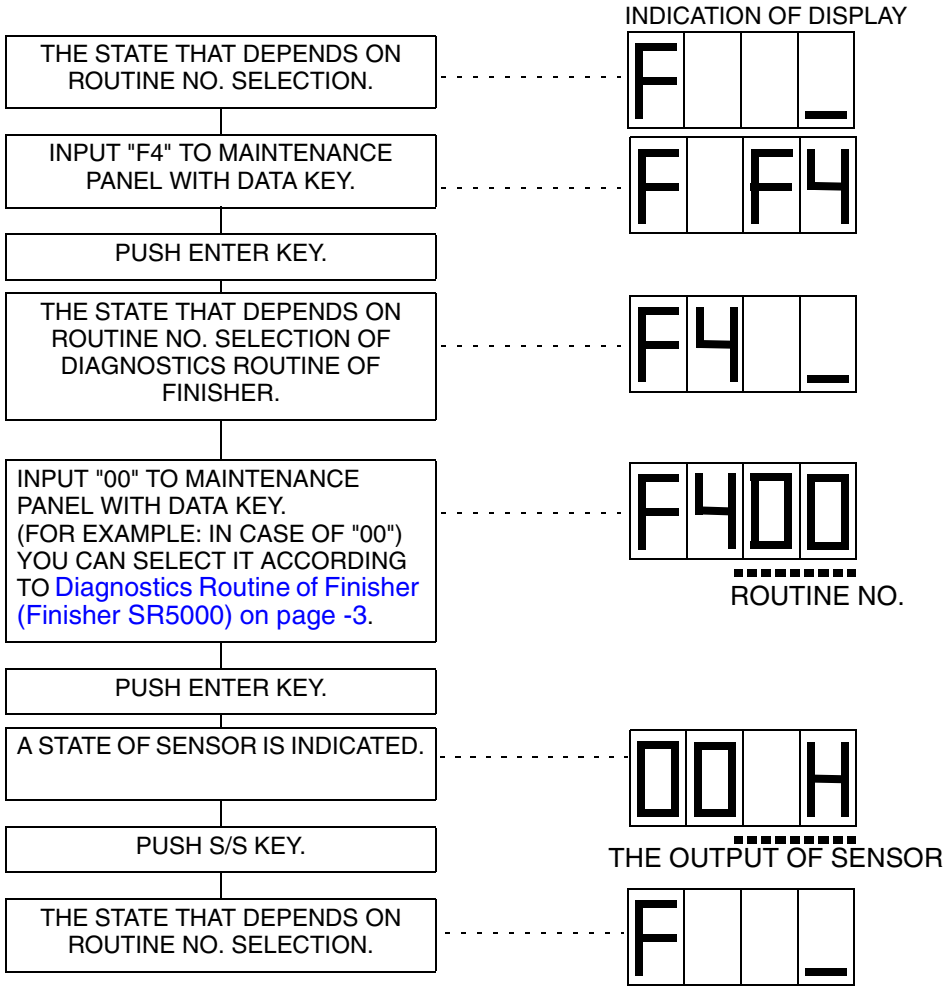
Note: "Continuous Drive Mode" and "Automatic Stop Mode" are explained in "Assistance / Maintenance 1," on page 8-25.

8.4.7.4. Diagnostics of Finisher 1 (Finisher SR5000)

Routine No. : "00" to "0C", "11" to "21", "23" to "28", "2A" to "31", (Finisher Sensor Test)

(FOR DETAILS REFER TO SUPPLEMENT 1 - Diagnostics Routine of Finisher (Finisher SR5000) on page -3.)

These routines are used when you confirm whether the operation of the Finisher's selected sensor is normal or abnormal.



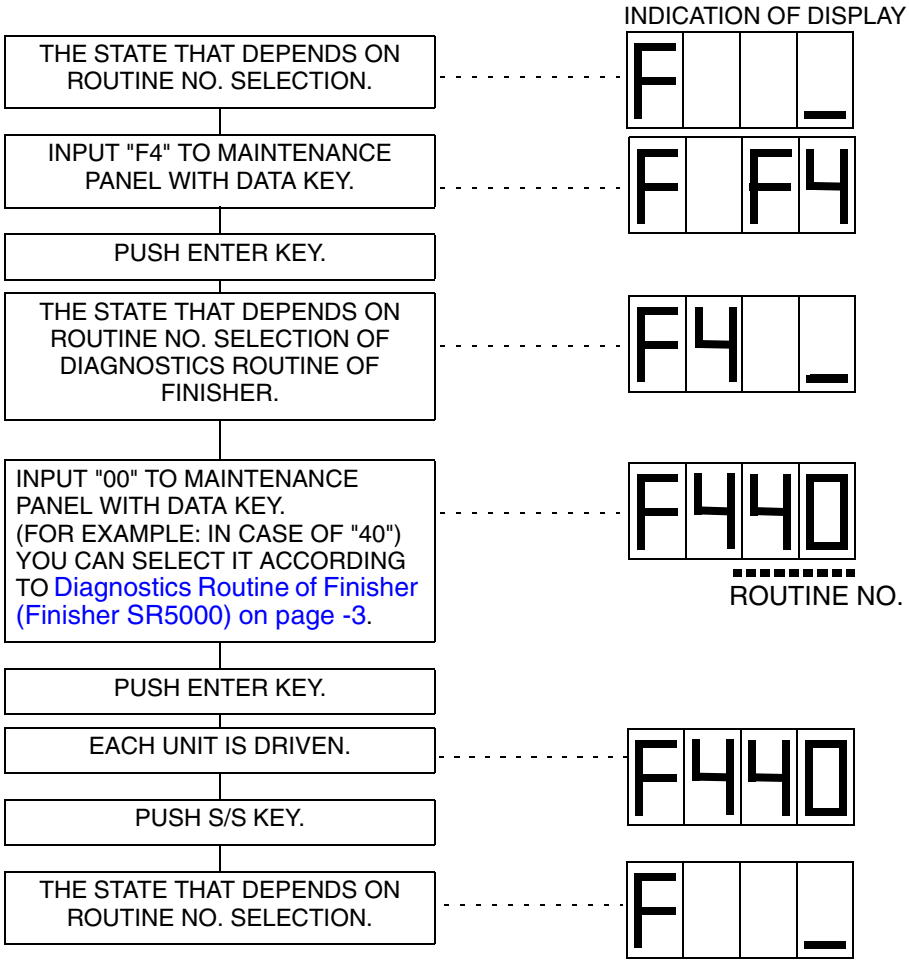
EXPLANATION OF DETAILS

Routine No.	Indication Contents	Display
"00" to "0C" "11" to "21" "23" to "28" "2A" to "31"	The output of sensor indicates "H" or "L". Refer to Diagnostics Routine of Finisher (Finisher SR5000) on page -3.	00 H 00 L

8.4.7.5. Diagnostics of Finisher 2 (Finisher SR5000)

Routine No. : "41" to "47", "49" to "5F", (Finisher Driver Test 1)
(FOR DETAILS REFER TO Diagnostics Routine of Finisher (Finisher SR5000) on page -3.)

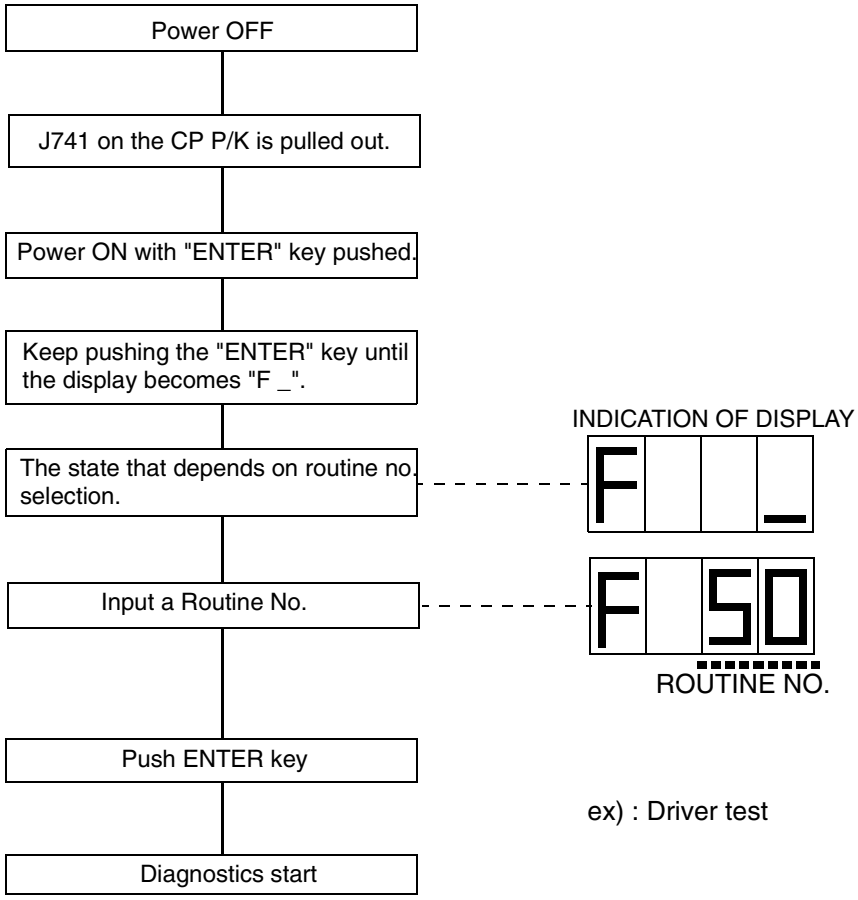
These routines are used when you confirm whether the operation of the Finisher's selected sensor is normal or abnormal.



Turn OFF/ON the Main Power Switch before printing because the motor which is moved by driver test is not at the home position.

8.4.8. Power On Diagnostics Function

When the Printer does not change the DORMANT status due to the some trouble, the Sensor test and the Driver test can not executed. Under such a condition, the Sensor test and the Driver test can execute by using the Power On Diagnostics Function.



End procedure of Power On Diagnostics

To end Power On Diagnostic function, the power supply of the Engine is turned off. At this time, reconnect connector J741 on the CP P/K.

Note: In the state of the Power On Diagnostics, the Engine is not initialized. And the Maintenance Panel keeps displaying "F _", and OPC keeps displaying "EC#24". When the Front cover of the Engine is open, the Maintenance Panel and OCP displays "E043".
Power on Diagnostics Function can execute the function similar to the diagnostics of the Sensor test (8.4.3 on page 8-4), Driver test (8.4.4 on page 8-9), Adjustment (8.4.5 on page 8-15), Assistance / Maintenance (8.4.6 on page 8-25), and Diagnostics of Finisher (8.4.7 on page 8-39).

8.5. UC Data

This printer memorizes various data in the memory on the CP P/K.

Note: Hopper 5 means High Capacity Hopper
MB-Tray means Multi-bypass Tray

Address	Purpose	Maintenance Ref. + Page
8000H I 801FH	The count value and the standard value for Usage Charge Parts.	8.5.1 on page 8-50
8020H I 807FH	The count value and the standard value for Preventive Maintenance parts.	8.5.2 on page 8-51
8080H I 80EFH	The information of the UC and PM Parts.	8.5.3 on page 8-53
80F0H I 80F7H	The paper information.	8.5.4 on page 8-56
80F8H I 813FH	The information of the UC and PM Parts.	8.5.3 on page 8-53
8140H I 82CDH	The paper information.	8.5.4 on page 8-56
82CEH I 82DBH	Controller spare area.	
82DCH I 82EFH	The paper information.	8.5.4 on page 8-56
82F0H I 83FFH	Adjustment value.	8.5.5 on page 8-67
8400H I 87FFH	Controller - Engine command trace.	8.5.6.1 on page 8-76
8800H I 8AFFH	The count value of the failures.	8.5.6.2 on page 8-76
8B00H I 8DFFH	The failure logging area.	8.5.6.3 on page 8-77
8E00H I 8FFFH	The sense information (not used).	8.5.6.4 on page 8-77
9000H I 90FFH	H.Pos sensor logging information (1).	8.5.6.5 on page 8-77
9100H I 9157H	Front Engine : Multi Feed sensor logging information (2)(3)(4)(5). Rear Engine : Spare area.	

Address	Purpose	Maintenance Ref. + Page
9160H I 917FH	Front Engine : Multi Feed sensor logging information. Rear Engine : Spare area	8.5.6.8 on page 8-77
9180H I 91BFH	Spare area.	
91C0H I 91FFH	H.Pos sensor skew detection logging information (2)(3)(4)(5).	
9200H I 92FFH	H.Pos sensor skew detection logging information(1).	8.5.6.7 on page 8-77
9300H I 94FFH	Front Engine : Finisher command logging area. Rear Engine : Relay Unit command logging area.	8.5.6.6 on page 8-77
9500H I 978FH	Spare area.	8.5.2 on page 8-51 8.5.3 on page 8-53 8.5.7 on page 8-78
9790H I 97AFH	Controller - Engine invalid error logging.	
97B0H I 97FBH	Front Engine : Spare area. Rear Engine : Color control value.	8.5.7 on page 8-78 8.5.5 on page 8-67
97FCH I 97FFH	Memory check data.	
9800H I 98FFH	Front Engine : Spare area. Rear Engine : Color control value.	8.5.7 on page 8-78 8.5.5 on page 8-67
9900H I 99FFH	H.Pos sensor logging information (9).	
9A00H I 9A0FH	Spare area	
9A10H I 9ADFH	H.Pos sensor logging information (2)(3)(4)(5)(6)(7)(8).	
9AE0H I 9BEFH	Spare area.	8.5.7 on page 8-78
9BF0H I 9BFFH	Rom Rev. and Serial/ Lot No. information.	8.5.8 on page 8-108
9C00H I 9FFFH	Spare area for Controller.	

8.5.1. The count value and the standard value for Usage Charge Parts

"1" is set at "The over count flag (8001H)", when "The count value (8002H-800BH)" is beyond "The standard value (8012H-801BH)".

Note: When count value is stored in two addresses, higher two digits for count value are stored in higher address, and lower two digits are stored in lower address. e.g. 8002H=12, 8003H=34, count value is 3412.

Address	Purpose	Remarks
8000H	The top address (UC)	
8001H	The over count flag of UC	hexadecimal number of 2 digits
	bit7 : Fuser Unit	
	bit6 : Drum Unit	
	bit5 : Fuser Cleaning Web	
	bit4 : (reserved)	
	bit3 : Developer Mixture	
	bit2 : (reserved)	
	bit1 : (reserved)	
	bit0 : (reserved)	
8002H 8003H	The count value of UC parts (Fuser Unit)	1000 pages/count (decimal/4 digits)
8004H 8005H	The count value of UC parts (Drum Unit)	1000 cycles/count (decimal/4 digits)
8006H 8007H	The count value of UC parts (Fuser Cleaning Web)	1000 pages/count (decimal/4 digits)
8008H 8009H	(reserved)	
800AH 800BH	The count value of UC parts (Developer Mixture)	1000 cycles/count (decimal/4 digits)
800CH 800DH	(reserved)	
800EH 800FH	(reserved)	
8010H 8011H	(reserved)	
8012H 8013H	The standard value of UC counter (Fuser Unit)	Value: 1600 (Kpage) (decimal/4 digits)
8014H 8015H	The standard value of UC counter (Drum Unit)	Value: 500 (Kcycle) (decimal/4 digits)
8016H 8017H	The standard value of UC counter (Fuser Cleaning Web)	Value: 320 (Kpage) (decimal/4 digits)
8018H 8019H	(reserved)	
801AH 801BH	The standard value of UC counter (Developer Mixture)	Value: 600 (Kcycle) (decimal/4 digits)
801CH 801DH	(reserved)	
801EH 801FH	(reserved)	

8.5.2. The count value and the standard value for Preventive Maintenance Parts

8.5.2.1. The count value of the PM parts (1000page counter)

These data are shown by a decimal number of 4 digits.

Address	Purpose	Remarks
8020H 8021H	The count value of PM counter (Nip Guide Plate)	1000 pages/count
8022H 8023H	The count value of PM counter (Charger Wire)	1000 pages/count
8024H 8025H	The count value of PM counter (Corotron Assembly)	1000 pages/count
8026H 8027H	The count value of PM counter (Transfer / Separating Wire)	1000 pages/count
8028H 8029H	The count value of PM counter (Ozone Filter R1)	1000 pages/count
802AH 802BH	The count value of the PM counter (Air Filter (1))	1000 pages/count
802CH 802DH	The count value of the PM counter (TH belt)	1000 pages/count
802EH 802FH	The count value of PM counter (Idler Gear Z28 Assembly)	1000 pages/count
8030H 8031H	The count value of PM counter (Hopper 1 Separater Assembly)	1000 pages/count
8032H 8033H	The count value of PM counter (Hopper 2 Separater Assembly)	1000 pages/count
8034H 8035H	The count value of PM counter (Hopper 3 Separater Assembly)	1000 pages/count
8036H 8037H	The count value of PM counter (MB Tray Separater Assembly)	1000 pages/count
8038H 8039H	The count value of PM counter (Hopper 5 Separater Assembly)	1000 pages/count
803AH | 804FH	(reserved)	
8100H 8101H	The count value of PM counter (Paper Exit Roller A)	1000 pages/count
8102H 8103H	The count value of PM counter (Stapler Front Side)	1000 pages/count
8104H 8105H	The count value of PM counter (Stapler Rear Side)	1000 pages/count
8106H 8107H	The count value of PM counter (Paper Exit Solenoid)	1000 pages/count
8108H 8109H	The count value of PM counter (Middle Sponge Roller)	1000 pages/count
810AH 810BH	The count value of PM counter (Tray Motor)	1000 pages/count
810CH | 811FH	(reserved)	

8.5.2.2. The PM interval for the PM counter

These data are shown by a decimal number of 4 digits.

Address	Purpose	Remarks
8050H 8051H	The PM interval for the PM counter (Nip Guide Plate)	Value: 7200
8052H 8053H	The PM interval for the PM counter (Charger Wire)	Value: 1200
8054H 8055H	The PM interval for the PM counter (Corotron Assembly)	Value: 1200
8056H 8057H	The PM interval for the PM counter (Transfer Corona Wire/ Separating Corona Wire)	Value: 1200
8058H 8059H	The PM interval for the PM counter (Ozone Filter R1)	Value: 1800
805AH 805BH	The PM interval for the PM counter (Air Filter (1))	Value: 1800
805CH 805DH	The PM interval for the PM counter (TH-Belt)	Value: 7200
805EH 805FH	The PM interval for the PM counter (Idler Gear Z28 Assembly)	Value: 9600
8060H 8061H	The PM interval for the PM counter (Hopper 1 Separater Assembly)	Value: 600
8062H 8033H	The PM interval for the PM counter (Hopper 2 Separater Assembly)	Value: 600
8064H 8065H	The PM interval for the PM counter (Hopper 3 Separater Assembly)	Value: 600
8066H 8067H	The PM interval for the PM counter (MB Tray Separater Assembly)	Value: 600
8068H 8069H	The PM interval for the PM counter (Hopper 5 Separater Assembly)	Value: 600
806AH | 807FH	(reserved)	
80E0H 80E1H	The PM interval for the PM counter (Paper Exit Roller A)	Value: 800
80E2H 80E3H	The PM interval for the PM counter (Stapler Front Side)	Value: 200
80E4H 80E5H	The PM interval for the PM counter (Stapler Rear Side)	Value: 200
80E6H 80E7H	The PM interval for the PM counter (Paper Exit Solenoid)	Value: 9999
80E8H 80E9H	The PM interval for the PM counter (Middle Sponge Roller)	Value: 800
80EAH 80EBH	The PM interval for the PM counter (Tray Motor)	Value: 4800
80ECH | 80FFH	(reserved)	

8.5.3. The information for UC and PM parts

(1) The count value beyond the standard value of UC counter
After "The count value of the UC parts in on page 8-50" is beyond "The standard value of UC counter in on page 8-50", the succession of the counter is done in this area.
These counters are shown by a decimal number of 4 digits.

Address	Purpose	Remarks
8080H 8081H	The count value beyond the standard value (Fuser Unit)	1000 pages/count
8082H 8083H	The count value beyond the standard value (Drum Unit)	1000 pages/count
8084H 8085H	The count value beyond the standard value (Fuser Cleaning Web)	1000 pages/count
8086H 8087H	The count value beyond the standard value (Developer Mixure)	1000 pages/count

(2) The count limit beyond the standard value of UC counter
It is possible to use the UC parts up to the following value after "The count value of the UC parts in on page 8-50" is beyond "The standard value of UC counter in on page 8-50".
These counters are shown by a decimal number of 4 digits.

Address	Purpose	Remarks
8088H 8089H	The count limit beyond the standard value (Fuser Unit)	value:50 (50Kpage)
808AH 808BH	The count limit beyond the standard value (Drum Unit)	value:30 (30Kcycle)
808CH 808DH	The count limit beyond the standard value (Fuser Cleaning Web)	value:10 (10Kpage)
808EH 808FH	The count limit beyond the standard value (Developer Mixure)	value:10 (10Kcycle)
8090H 8091H	The report opportunity beyond the standard value (Fuser Unit)	value:01H (1Kpage)
8092H 8093H	The report opportunity beyond the standard value (Drum Unit)	value:01H (1Kpage)
8094H 8095H	The report opportunity beyond the standard value (Fuser Cleaning Web)	value:01H (1Kpage)
8096H 8097H	The report opportunity beyond the standard value (Developer Mixture)	value:01H (1Kpage)
8098H 8099H	The check counter beyond the standard value (Fuser Unit)	1000 pages/count
809AH 809BH	The check counter beyond the standard value (Drum Unit)	1000 cycles/count
809CH 809DH	The check counter beyond the standard value (Fuser Cleaning Web)	1000 pages/count
809EH 809FH	The check counter beyond the standard value (Developer Mixture)	1000 cycles/count

(3) The count value of the UC parts beyond the standard value (under 1,000)
After "The count value of the UC parts in on page 8-50" is beyond "The standard value of UC counter in on page 8-50", the succession of the counter is done in this area.
These counters are shown by a hexadecimal number of 4 digits.

When a counter reaches 1,000, this value is cleared and "The count value beyond the standard value of UC counter in 8.5.3 (1)" is counted up.

Address	Purpose	Remarks
80A0H 80A1H	The count value beyond the standard value (Fuser Unit)	(1 to 10) 100pages/count
80A2H 80A3H	The count value beyond the standard value (Drum Unit)	(1 to 999) 1cycles/count
80A4H 80A5H	The count value beyond the standard value (Fuser Cleaning Web)	(1 to 10) 100pages/count
80A6H 80A7H	The count value beyond the standard value (Developer Mixure)	(1 to 999) 1cycles/count

(4) The count value of the UC parts (under 1,000)
These counters are shown by a hexadecimal number of 4 digits.
When a counter reaches 1,000, this counter is cleared and "The count value of UC parts (8002H-800BH) in on page 8-50" is counted up.

Address	Purpose	Remarks
80A8H 80A9H	The count value of UC parts (Fuser Unit)	(1 to 10) 100pages/count
80AAH 80ABH	The count value of UC parts (Drum Unit)	(1 to 999) 1cycles/count
80ACH 80ADH	The count value of UC parts (Fuser Cleaning Web)	(1 to 10) 100pages/count
80AEH 80AFH	The count value of UC parts (Developer Mixure)	(1 to 999) 1cycles/count

(5) The count value of the PM parts (under 1,000)
These counters are shown by a hexadecimal number of 4 digits.
When a counter reaches 1,000, this counter is cleared and "The count value of PM parts (1000 page counter) in on page 8-51" is counted up.

Address	Purpose	Remarks
80B0H 80B1H	The count value of PM counter (CH Wire)	(1 to 10) 100 pages/count
80B2H 80B3H	The count value of PM counter (Corotron Assembly)	(1 to 10) 100 pages/count
80B4H 80B5H	The count value of PM counter (Transfer / Separating Wire)	(1 to 10) 100 pages/count
80B6H 80B7H	The count value of PM counter (Ozone Filter)	(1 to 10) 100 pages/count
80B8H 80B9H	The count value of PM counter (Air Filter (1))	(1 to 10) 100 pages/count
80BAH 80BBH	The count value of PM counter (TH Belt)	(1 to 10) 100 pages/count
80BCH 80BDH	The count value of PM counter (Hopper 1 Separater Assembly)	(1 to 999) 1 page/count
80BEH 80BFH	The count value of PM counter (Hopper 2 Separater Assembly)	(1 to 999) 1 page/count
80C0H 80C1H	The count value of PM counter (Hopper 3 Separater Assembly)	(1 to 999) 1 page/count
80C2H 80C3H	The count value of PM counter (MB Tray Separater Assembly)	(1 to 999) 1 page/count

Address	Purpose	Remarks
80C4H | 80DBH	(reserved)	
80DCH 80DDH	The PM interval for the PM counter (Idler Gear Z28 Assembly)	(1 to 10) 100 pages/count
80DEH 80DFH	The PM interval for the PM counter (Nip Guide Plate)	(1 to 999) 1 sheet/count
80E0H 80E1H	The PM interval for the PM counter (Model 2 Paper Exit Roller)	Value = 800
80E2H 80E3H	The PM interval for the PM counter (Model 2 Stapler Unit Front)	Value = 250
80E4H 80E5H	The PM interval for the PM counter (Model 2 Stapler Unit Rear)	Value = 250
80E6H 80E7H	The PM interval for the PM counter (Model 2 Paper Exit Solenoid)	Value = 7200
80E8H 80E9H	The PM interval for the PM counter (Model 2 Middle Sponge Roller)	Value = 400
80EAH 80EBH	The PM interval for the PM counter (Model 2 Tray Up-Down Motor)	Value = 4800
80ECH 80EDH		
80EEH 80EFH		
80F0H 80F1H		
80F2H 80F3H	total page counter count value in use Black toner	
80F4H 80F5H	Front Engine:Total page counter count value in use Mica toner Rear Engine:Total page counter count value in use color toner	1page/count hex/8 digits
80F6H 80F7H		
80F8H 80F9H		
80FAH 80FBH	The count value of PM interval (Charger Unit)	valuer:400 1000 pages/count
80FCH 80FDH	The count value of PM interval (Charger Unit)	Max 9999KP 1000 pages/count
80FEH 80FFH	The total count value of PM counter (Charger Unit)	(1 to 10) 100 pages/count
8100H 8101H	The count value of PM counter (Model 2 Paper Exit Roller)	1000 pages/count Max 9999
8102H 8103H	The count value of PM counter (Model 2 Stapler Unit Front)	1000 staples/count Max 9999
8104H 8105H	The count value of PM counter (Model 2 Stapler Unit Rear)	1000 staples/count Max 9999
8106H 8107H	The count value of PM counter (Model 2 Paper Exit Solenoid)	1000pages/count Max 9999

Address	Purpose	Remarks
8108H 8109H	The count value of PM counter (Model 2 Middle Sponge Roller)	1000pages/count Max 9999
810AH 810BH	The count value of PM counter (Model 2 Tray Up-Down Motor)	1000pages/count Max 9999
810CH 810DH		
810EH 810FH		
8110H 8111H		
8112H 8113H		
8114H 8115H		
8116H 8117H		
8118H 8119H		
811AH 811BH		
811CH 811DH		
811EH 811FH		
8120H 8121H	The count value of PM counter (Paper Exit Roller A)	(1 to 10) 100 pages/count
8122H 8123H	The count value of PM counter (Stapler Front Side)	(1 to 999) 1 pages/count
8124H 8125H	The count value of PM counter (Stapler Rear Side)	(1 to 999) 1 pages/count
8126H 8127H	The count value of PM counter (Paper Exit Solenoid)	(1 to 999) 1 pages/count
8128H 8129H	The count value of PM counter (Middle Sponge Roller)	(1 to 999) 1 pages/count
812AH 812BH	The count value of PM counter (Tray Motor)	(1 to 999) 1 pages/count
812CH | 813FH	(reserved)	

8.5.4. The paper information

(1) Total page count (1000 page counter)
These counters are counted up when the number of paper corresponding to the following counter reaches 1,000, except "The count value of total page counter". These counters are shown by a decimal number of 4 digits.

Address	Purpose	Remarks
8140H | 8143H	The count value of total page counter	1page/count hexadecimal/8 digits
8144H 8145H	The count value of total 1-side counter	1000pages/count
8146H 8147H	The count value of total 2-side counter	1000pages/count
8148H 8149H	The count value of total A4 (LEF) counter	1000picks/count
814AH 814BH	The count value of total A4 (SEF) counter	1000picks/count
814CH 814DH	The count value of total B4 (SEF) counter	1000picks/count
814EH 814FH	The count value of total A3 (SEF) counter	1000picks/count
8150H 8151H	The count value of total Letter (LEF) counter	1000picks/count
8152H 8153H	The count value of total Letter (SEF) counter	1000picks/count
8154H 8155H	The count value of total Tabstock (LEF) counter	1000picks/count
8156H 8157H	The count value of total 8.5"x12.4" (SEF) counter	1000picks/count
8158H 8159H	The count value of total Legal 13" (SEF) counter	1000picks/count
815AH 815BH	The count value of total Legal 14" (SEF) counter	1000picks/count
815CH 815DH	The count value of total Ledger (SEF) counter	1000picks/count
815EH 815FH	The count value of total B5 (LEF) counter	1000picks/count
8160H 8161H	The count value of total 12"x18" (SEF) counter	1000picks/count
8162H 8163H	The count value of total A5 (SEF) counter	1000picks/count
8164H 8165H	The count value of A4 tabstock	1000pages/count
8166H 8167H	The count value of Special size 1	1000pages/count
8168H 8169H	The count value of Special size 2	1000pages/count
816AH 816BH	The count value of Special size 3	1000pages/count
816CH 816DH 816EH 816FH	Click charge total page counter count value for Black toner	1page/count

(2) Pick counter of Hopper 1 (1000 pick counter)
These counters are counted up every time the "Pick counter of Hopper 1 (1 pick

counter) in (7)" reaches 1,000.
These counters are shown by a decimal number of 4 digits.

Address	Purpose	Remarks
8170H 8171H	The count value of 1-side counter (Hopper 1)	1000picks/count
8172H 8173H	The count value of 2-side counter (Hopper 1)	1000picks/count
8174H 8175H	The count value of A4 (LEF) counter (Hopper 1)	1000picks/count
8176H 8177H	The count value of A4 (SEF) counter (Hopper 1)	1000picks/count
8178H 8179H	The count value of B4 (SEF) counter (Hopper 1)	1000picks/count
817AH 817BH	The count value of A3 (SEF) counter (Hopper 1)	1000picks/count
817CH 817DH	The count value of Letter (LEF) counter (Hopper 1)	1000picks/count
817EH 817FH	The count value of Letter (SEF) counter (Hopper 1)	1000picks/count
8180H 8181H	The count value of 8.5"x12.4" (SEF) counter (Hopper 1)	1000picks/count
8182H 8183H	The count value of B5 (LEF) counter (Hopper 1)	1000picks/count
8184H 8185H	The count value of Legal 14" (SEF) counter (Hopper 1)	1000picks/count
8186H 8187H	The count value of Ledger (SEF) counter (Hopper 1)	1000picks/count
8188H 8189H	The count value of 12"x18" (SEF) counter (Hopper 1)	1000picks/count
818AH 818BH	The count value of Legal "13" (SEF) counter (Hopper 1)	1000picks/count
818CH 818DH	The count value of Tabstock (LEF) counter (Hopper 1)	1000picks/count
818EH 818FH	(reserved)	

(3) Pick counter of Hopper 2 (1000 pick counter)
These counters are counted up every time the "Pick counter of Hopper 2 (1 pick counter) in (8)" reaches 1,000.
These counters are shown by a decimal number of 4 digits.

Address	Purpose	Remarks
8190H 8191H	The count value of 1-side counter (Hopper 2)	1000picks/count
8192H 8193H	The count value of 2-side counter (Hopper 2)	1000picks/count
8194H 8195H	The count value of A4 (LEF) counter (Hopper 2)	1000picks/count
8196H 8197H	The count value of A4 (SEF) counter (Hopper 2)	1000picks/count
8198H 8199H	The count value of B4 (SEF) counter (Hopper 2)	1000picks/count

Address	Purpose	Remarks
819AH 819BH	The count value of A3 (SEF) counter (Hopper 2)	1000picks/count
819CH 819DH	The count value of Letter (LEF) counter (Hopper 2)	1000picks/count
819EH 819FH	The count value of Letter (SEF) counter (Hopper 2)	1000picks/count
81A0H 81A1H	The count value of A5 (SEF) counter (Hopper 2)	1000picks/count
81A2H 81A3H	The count value of B5 (LEF) counter (Hopper 2)	1000picks/count
81A4H 81A5H	The count value of Legal 14" (SEF) counter (Hopper 2)	1000picks/count
81A6H 81A7H	The count value of Ledger (SEF) counter (Hopper 2)	1000picks/count
81A8H 81A9H	The count value of 12"x18" (SEF) counter (Hopper 2)	1000picks/count
81AAH 81ABH	The count value of 8.5"x12.4" (LEF) counter (Hopper 2)	1000picks/count
81ACH 81ADH	The count value of Legal "13" (SEF) counter (Hopper 2)	1000picks/count
81AEH 81AFH	The count value of Tabstock (LEF) counter (Hopper 2)	1000picks/count

(4) Pick counter of Hopper 3 (1000 pick counter)
These counters are counted up every time the "Pick counter of Hopper 3 (1 pick counter) in (9)" reaches 1,000.
These counters are shown by a decimal number of 4 digits.

Address	Purpose	Remarks
81B0H 81B1H	The count value of 1-side counter (Hopper 3)	1000picks/count
81B2H 81B3H	The count value of 2-side counter (Hopper 3)	1000picks/count
81B4H 81B5H	The count value of A4 (LEF) counter (Hopper 3)	1000picks/count
81B6H 81B7H	The count value of A4 (SEF) counter (Hopper 3)	1000picks/count
81B8H 81B9H	The count value of B4 (SEF) counter (Hopper 3)	1000picks/count
81BAH 81BBH	The count value of A3 (SEF) counter (Hopper 3)	1000picks/count
81BCH 81BDH	The count value of Letter (LEF) counter (Hopper 3)	1000picks/count
81BEH 81BFH	The count value of Letter (SEF) counter (Hopper 3)	1000picks/count
81C0H 81C1H	The count value of A5 (SEF) counter (Hopper 3)	1000picks/count
81C2H 81C3H	The count value of B5 (LEF) counter (Hopper 3)	1000picks/count
81C4H 81C5H	The count value of Legal 14" (SEF) counter (Hopper 3)	1000picks/count

Address	Purpose	Remarks
81C6H 81C7H	The count value of Ledger (SEF) counter (Hopper 3)	1000picks/count
81C8H 81C9H	The count value of 12"x18" (SEF) counter (Hopper 3)	1000picks/count
81CAH 81CBH	The count value of 8.5"x12.4" (LEF) counter (Hopper 3)	1000picks/count
81CCH 81CDH	The count value of Legal "13" (SEF) counter (Hopper 3)	1000picks/count
81CEH 81CFH	The count value of Tabstock (LEF) counter (Hopper 3)	1000picks/count

(5) Pick counter of Multi-bypass Tray (1000 pick counter)
These counters are counted up every time the "Pick counter of Multi-bypass Tray (1 pick counter) in (10) " reaches 1,000.
These counters are shown by a decimal number of 4 digits.

Address	Purpose	Remarks
81D0H 81D1H	The count value of 1-side counter (MB Tray)	1000picks/count
81D2H 81D3H	The count value of 2-side counter (MB Tray)	1000picks/count
81D4H 81D5H	The count value of A4 (LEF) counter (MB Tray)	1000picks/count
81D6H 81D7H	The count value of A4 (SEF) counter (MB Tray)	1000picks/count
81D8H 81D9H	The count value of B4 (SEF) counter (MB Tray)	1000picks/count
81DAH 81DBH	The count value of A3 (SEF) counter (MB Tray)	1000picks/count
81DCH 81DDH	The count value of Letter (LEF) counter (MB Tray)	1000picks/count
81DEH 81DFH	The count value of Letter (SEF) counter (MB Tray)	1000picks/count
81E0H 81E1H	The count value of Tabstock (SEF) counter (MB Tray)	1000picks/count
81E2H 81E3H	The count value of 8.5"x12.4" (SEF) counter (MB Tray)	1000picks/count
81E4H 81E5H	The count value of Legal 13" (SEF) counter (MB Tray)	1000picks/count
81E6H 81E7H	The count value of Legal 14" (SEF) counter (MB Tray)	1000picks/count
81E8H 81E9H	The count value of Ledger (SEF) counter (MB Tray)	1000picks/count
81EAH 81EBH	The count value of B5 (LEF) counter (MB Tray)	1000picks/count
81ECH 81EDH	The count value of 12"x18" (SEF) counter (MB Tray)	1000picks/count
81EEH 81EFH	The count value of A5 (SEF) counter (MB Tray)	1000picks/count

(6) Pick counter of High Capacity Hopper (1000 pick counter)
These counters are counted up every time the "Pick counter of High Capacity

Hopper (1 pick counter) in (11)" reaches 1,000.
These counters are shown by a decimal number of 4 digits.

Address	Purpose	Remarks
81F0H 81F1H	The count value of 1-side counter (Hopper 5)	1000picks/count
	The count value of 2-side counter (Hopper 5)	1000picks/count
	The count value of A4 (LEF) counter (Hopper 5)	1000picks/count
81F6H 81F7H	The count value of Letter (LEF) counter (Hopper 5)	1000picks/count
81F8H 81FFH	(reserved)	

(7) Pick counter of Hopper 1 (1 pick counter)
These counters show the number of paper picked from Hopper 1 from 1 to 999. Every time the Printer picks a number of paper from Hopper 1, the counter corresponded to the paper size is counted up.
These counters are shown by a hexadecimal number of 4 digits.
When a counter exceeds 3E7H(equal to 999), this number is cleared and "Pick counter of Hopper 1 (1000 pick counter) in (2) " is counted up.
If the Printer picks a number of Letter (LEF) paper on simplex mode, "The count value of 1-side counter(8200 to 8201)" and "The count value of Letter (LEF) counter (820C to 820D)" is counted up.

Address	Purpose	Remarks
8200H 8201H	The count value of 1-side counter (Hopper 1)	(1 to 999) 1 pick/count
8202H 8203H	The count value of 2-side counter (Hopper 1)	(1 to 999) 1 pick/count
8204H 8205H	The count value of A4 (LEF) counter (Hopper 1)	(1 to 999) 1 pick/count
8206H 8207H	The count value of A4 (SEF) counter (Hopper 1)	(1 to 999) 1 pick/count
8208H 8209H	The count value of B4 (SEF) counter (Hopper 1)	(1 to 999) 1 pick/count
820AH 820BH	The count value of A3 (SEF) counter (Hopper 1)	(1 to 999) 1 pick/count
820CH 820DH	The count value of Letter (LEF) counter (Hopper 1)	(1 to 999) 1 pick/count
820EH 820FH	The count value of Letter (SEF) counter (Hopper 1)	(1 to 999) 1 pick/count
8210H 8211H	The count value of 8.5"x12.4" (SEF) counter (Hopper 1)	(1 to 999) 1 pick/count
8212H 8213H	The count value of B5 (LEF) counter (Hopper 1)	(1 to 999) 1 pick/count
8214H 8215H	The count value of Legal 14" (SEF) counter (Hopper 1)	(1 to 999) 1 pick/count
8216H 8217H	The count value of Ledger (SEF) counter (Hopper 1)	(1 to 999) 1 pick/count
8218H 8219H	The count value of 12"x18" (SEF) counter (Hopper 1)	(1 to 999) 1 pick/count

Address	Purpose	Remarks
821AH 821BH	The count value of Legal 13" (SEF) counter (Hopper 1)	(1 to 999) 1 pick/count
821CH 821DH	The count value of Tabstock (LEF) counter (Hopper 1)	(1 to 999) 1 pick/count
821EH 821FH	(reserved)	

(8) Pick counter of Hopper 2 (1 pick counter)
These counters show the number of paper picked from Hopper 2 from 1 to 999. Every time the Printer picks a number of paper from Hopper 2, the counter corresponded to the paper size is counted up.
These counters are shown by a hexadecimal number of 4 digits.
When a counter exceeds 3E7H(equal to 999), this number is cleared and "Pick counter of Hopper 2 (1000 pick counter) in (3) " is counted up.

Address	Purpose	Remarks
8220H 8221H	The count value of 1-side counter (Hopper 2)	(1 to 999) 1 pick/count
8222H 8223H	The count value of 2-side counter (Hopper 2)	(1 to 999) 1 pick/count
8224H 8225H	The count value of A4 (LEF) counter (Hopper 2)	(1 to 999) 1 pick/count
8226H 8227H	The count value of A4 (SEF) counter (Hopper 2)	(1 to 999) 1 pick/count
8228H 8229H	The count value of B4 (SEF) counter (Hopper 2)	(1 to 999) 1 pick/count
822AH 822BH	The count value of A3 (SEF) counter (Hopper 2)	(1 to 999) 1 pick/count
822CH 822DH	The count value of Letter (LEF) counter (Hopper 2)	(1 to 999) 1 pick/count
822EH 822FH	The count value of Letter (SEF) counter (Hopper 2)	(1 to 999) 1 pick/count
8230H 8231H	The count value of A5 (SEF) counter (Hopper 2)	(1 to 999) 1 pick/count
8232H 8233H	The count value of B5 (LEF) counter (Hopper 2)	(1 to 999) 1 pick/count
8234H 8235H	The count value of Legal 14" (SEF) counter (Hopper 2)	(1 to 999) 1 pick/count
8236H 8237H	The count value of Ledger (SEF) counter (Hopper 2)	(1 to 999) 1 pick/count
8238H 8239H	The count value of 12"x18" (SEF) counter (Hopper 2)	(1 to 999) 1 pick/count
823AH 823BH	The count value of 8.5"x12.4" (LEF) counter (Hopper 2)	(1 to 999) 1 pick/count
823CH 823DH	The count value of Legal 13" (SEF) counter (Hopper 2)	(1 to 999) 1 pick/count
823EH 823FH	The count value of Tabstock (LEF) counter (Hopper 2)	(1 to 999) 1 pick/count

(9) Pick counter of Hopper 3 (1 pick counter)
These counters show the number of paper picked from Hopper 3 from 1 to 999. Every time the Printer picks a number of paper from Hopper 3, the counter corre-

sponded to the paper size is counted up.
These counters are shown by a hexadecimal number of 4 digits.
When a counter exceeds 3E7H(equal to 999), this number is cleared and "Pick counter of Hopper 3 (1000 pick counter) in (4) " is counted up.

Address	Purpose	Remarks
8240H 8241H	The count value of 1-side counter (Hopper 3)	(1 to 999) 1 pick/count
8242H 8243H	The count value of 2-side counter (Hopper 3)	(1 to 999) 1 pick/count
8244H 8245H	The count value of A4 (LEF) counter (Hopper 3)	(1 to 999) 1 pick/count
8246H 8247H	The count value of A4 (SEF) counter (Hopper 3)	(1 to 999) 1 pick/count
8248H 8249H	The count value of B4 (SEF) counter (Hopper 3)	(1 to 999) 1 pick/count
824AH 824BH	The count value of A3 (SEF) counter (Hopper 3)	(1 to 999) 1 pick/count
824CH 824DH	The count value of Letter (LEF) counter (Hopper 3)	(1 to 999) 1 pick/count
824EH 824FH	The count value of Letter (SEF) counter (Hopper 3)	(1 to 999) 1 pick/count
8250H 8251H	The count value of A5 (SEF) counter (Hopper 3)	(1 to 999) 1 pick/count
8252H 8253H	The count value of B5 (LEF) counter (Hopper 3)	(1 to 999) 1 pick/count
8254H 8255H	The count value of Legal 14" (SEF) counter (Hopper 3)	(1 to 999) 1 pick/count
8256H 8257H	The count value of Ledger (SEF) counter (Hopper 3)	(1 to 999) 1 pick/count
8258H 8259H	The count value of 12"x18" (SEF) counter (Hopper 3)	(1 to 999) 1 pick/count
825AH 825BH	The count value of 8.5"x12.4" (LEF) counter (Hopper 3)	(1 to 999) 1 pick/count
825CH 825DH	The count value of Legal 13" (SEF) counter (Hopper 3)	(1 to 999) 1 pick/count
825EH 825FH	The count value of Tabstock (LEF) counter (Hopper 3)	(1 to 999) 1 pick/count

(10)Pick counter of Multi-bypass Tray (1 pick counter)
These counters show the number of paper picked from Multi-bypass Tray from 1 to 999.
Every time the Printer picks a number of paper from Multi-bypass Tray, the counter corresponded to the paper size is counted up.
These counters are shown by a hexadecimal number of 4 digits.
When a counter exceeds 3E7H(equal to 999), this number is cleared and "Pick counter of Multi-bypass Tray (1000 pick counter) in (5) " is counted up.

Address	Purpose	Remarks
8260H 8261H	The count value of 1-side counter (MB Tray)	(1 to 999) 1 pick/count
8262H 8263H	The count value of 2-side counter (MB Tray)	(1 to 999) 1 pick/count

Address	Purpose	Remarks
8264H 8265H	The count value of A4 (LEF) counter (MB Tray)	(1 to 999) 1 pick/count
8266H 8267H	The count value of A4 (SEF) counter (MB Tray)	(1 to 999) 1 pick/count
8268H 8269H	The count value of B4 (SEF) counter (MB Tray)	(1 to 999) 1 pick/count
826AH 826BH	The count value of A3 (SEF) counter (MB Tray)	(1 to 999) 1 pick/count
826CH 826DH	The count value of Letter (LEF) counter (MB Tray)	(1 to 999) 1 pick/count
826EH 826FH	The count value of Letter (SEF) counter (MB Tray)	(1 to 999) 1 pick/count
8270H 8271H	The count value of Tabstock (LEF) counter (MB Tray)	(1 to 999) 1 pick/count
8272H 8273H	The count value of 8.5"x12.4" (LEF) counter (MB Tray)	(1 to 999) 1 pick/count
8274H 8275H	The count value of Legal 13" (SEF) counter (MB Tray)	(1 to 999) 1 pick/count
8276H 8277H	The count value of Legal 14" (SEF) counter (MB Tray)	(1 to 999) 1 pick/count
8278H 8279H	The count value of Ledger (LEF) counter (MB Tray)	(1 to 999) 1 pick/count
827AH 827BH	The count value of B5 (LEF) counter (MB Tray)	(1 to 999) 1 pick/count
827CH 827DH	The count value of 12"x18" (SEF) counter (MB Tray)	(1 to 999) 1 pick/count
827EH 827FH	The count value of A5 (SEF) counter (MB Tray)	(1 to 999) 1 pick/count

(11) Pick counter of High Capacity Hopper (1 pick counter)

These counters show the number of paper picked from High Capacity Hopper from 1 to 999.

Every time the Printer picks a number of paper from High Capacity Hopper, the counter corresponded to the paper size is counted up.

These counters are shown by a hexadecimal number of 4 digits.

When a counter exceeds 3E7H(equal to 999), this number is cleared and "Pick counter of High Capacity Hopper (1000 pick counter) in (6) " is counted up.

Address	Purpose	Remarks
8280H 8281H	The count value of 1-side counter (Hopper 5)	(1 to 999) 1 pick/count
8282H 8283H	The count value of 2-side counter (Hopper 5)	(1 to 999) 1 pick/count
8284H 8285H	The count value of A4 (LEF) counter (Hopper 5)	(1 to 999) 1 pick/count
8286H 8287H	The count value of Letter (LEF) counter (Hopper 5)	(1 to 999) 1 pick/count
8288H I 828FH	(reserved)	

Address	Purpose	Remarks
8290H 8291H	The count value of A4 tabstock (Hopper1)	1000pages/count
8292H 8293H	The count value of A4 tabstock (Hopper2)	1000pages/count
8294H 8295H	The count value of A4 tabstock (Hopper3)	1000pages/count
8296H 8297H	The count value of A4 tabstock (MB Tray)	1000pages/count
8298H 8299H	The count value of A4 tabstock (Hopper1)	(1 to 9) 1 pages/count
829AH 829BH	The count value of A4 tabstock (Hopper2)	(1 to 9) 1 pages/count
829CH 829DH	The count value of A4 tabstock (Hopper3)	(1 to 9) 1 pages/count
829EH 829FH	The count value of A4 tabstock (MB Tray)	(1 to 9) 1 pages/count
82A0H 82A1H	The count value of Special size 1	(1 to 9) 1 pages/count
82A2H 82A3H	The count value of Special size 2	(1 to 9) 1 pages/count
82A4H 82A5H	The count value of Special size 3	(1 to 9) 1 pages/count
82A6H 82A7H	The count value of A4 long	1000pages/count
82A8H 82A9H	The count value of A3 long	1000pages/count
82AAH 82ABH	The count value of B5 long	1000pages/count
82ACH 82ADH	The count value of B4 long	1000pages/count
82AEH 82AFH	The count value of A4 long	(1 to 9) 1 pages/count
82B0H 82B1H	The count value of A3 long	(1 to 9) 1 pages/count
82B2H 82B3H	The count value of B5 long	(1 to 9) 1 pages/count
82B4H 82B5H	The count value of B4 long	(1 to 9) 1 pages/count
82B6H | 82BFH	(reserved)	
82D8H 82D9H 82DAH 82DBH 82DCH 82DDH 82DEH 82DFH		
82E0H 82E1H	The total count value of PM counter (PC Drum)	Max 9999KC 1000 cycles/count

Address	Purpose	Remarks
82E2H 82E3H 82E4H 82E5H		
82E6H	The custom-made selection flag of a hopper 5 (00:Normal FF:Custom-made)	
82E7H	Size Data of a hopper 5 Set area (03:B5_LEF, 05:LET_LEF, 09:A4_LEF, 10:Custom-made)	
82E8H 82E9H	(unused)	
82EAH 82EBH	The count value of the page counter (LET LEF standard)	1000 pages/count
82ECH	Letter 100P counter: for mecanical counter)	100 pages/count
82EDH	(Reserved)	
82EEH	Letter 80P counter: for fuser web)	80 pages/count
82EFH	(Reserved)	
82F0H	Indication setting the UC interval	"01" = set
82F1H	Indication setting the UC adjustment value	"01" = set

8.5.5. Adjustment value

(1) The condition of the default value

Address	Purpose	Remarks
82F0H	Indication setting the UC interval	already set=01H
82F1H	Indication setting the UC adjustment value	already set=01H

(2) Detection Mask Control

Address	Purpose	Remarks
82F2H	Failures Prohibition	Main CPU "0" = enable "1" = disable default=00H
	BIT0: Charger / Grid HV Failure (E225)	
	BIT1: Bias HV Failure (E224)	
	BIT2: Transfer HV Failure (E226)	
	BIT3: Detach HV Failure (E227)	
	BIT4: Toner Control Operation on printing	
	BIT5: Magroll Revolution Failure (E228)	
	BIT6: Toner Feed Motor Error (E22F)	
	BIT7: BD Error (E239)	
82F3H	Failures Prohibition	Slave CPU "0" = enable "1" = disable default=28H
	BIT0: Drum Wrap Jam (diffusion)	
	BIT1: Drum Wrap Jam (reflection)	
	BIT2: The transfer wire cleaning	
	BIT3: The Nip Unit cleaning	
	BIT4: HR rotation ("0" = normal, "1" = reverse)	
	BIT5: TH motor ("0" = solenoid, "1" = motor)	
	BIT6: NIP selection ("0" = solenoid, "1" = motor)	
	BIT7: Regist correction	
82F4H	Failures Prohibition	Slave CPU "0" = enable "1" = disable default=E2H
	BIT0: Toner Control Operation (Initialize)	
	BIT1: Toner Feed Operation (Initialize)	
	BIT2: Toner re-cycle rotation error (E231)	
	BIT3: Felt End check (E014)	
	BIT4: Magroll Revolution Failure (Initialize)	
	BIT5: Over Toner Failure (Initialize)	
	BIT6: Lack Toner Failure (Initialize)	
	BIT7: Toner Empty Failure (Initialize)	
82F5H	Failures Prohibition	"0" = enable "1" = disable default=00H
	BIT0: VD OPEN Error (E23F, E240)	
	BIT1: BD TIMEOUT Error (E238)	
	BIT2: CVD Clock Error (E241, E242)	
	BIT3: CVD Clock Error (E243, E244)	
	BIT4: LNB Data Error (E25E)	
	BIT5: DLB Data Error (E25F)	
	BIT6: (reserved)	
	BIT7: Checking broken wires of thermostat	

(3) Paper Slack Value at Registration

Address	Purpose	Remarks
82F6H	Regist sag ("00" = 3.3mm, "01" = 5.3mm, "02" = 7.4mm, "03" = 9.5mm)	default=01H

(4) Control of Temperature and Humidity

Address	Purpose	Remarks
82F7H	Failures Prohibition	default=00H
	BIT0: Temperature and humidity of DTC ("0" = variable, "1" = fixed)	
	BIT1: Checking the sensor of temperature and humidity ("0" = enable, "1" = disenable)	
	BIT2: (reserved)	
	BIT3: (reserved)	
	BIT4: (reserved)	
	BIT5: (reserved)	
	BIT6: (reserved)	
	BIT7: (reserved)	

(5) Toner Control Value

Address	Purpose	Remarks
82F8H 82F9H	The voltage for the toner control sensor	
82FAH 82FBH	(reserved)	
82FCH 82FDH	The PWM value of toner control sensor	
82FEH	The specified value of the toner control operation	default = 80H
82FFH	Skew Jam Check Data	default = 04

(6) Print position (horizontal / vertical)

Address	Purpose	Remarks
8300H	Hopper 1 horizontal position data (simplex)	default = 52H
8301H	Hopper 2 horizontal position data (simplex)	default = 52H
8302H	Hopper 3 horizontal position data (simplex)	default = 52H
8303H	MB Tray horizontal position data (simplex)	default = 52H
8304H	Hopper 5 horizontal position data (simplex)	default = 52H
8305H	The vertical print position data	default = 24H
8306H	Hopper 1 horizontal position data (duplex)	default = 52H
8307H	Hopper 2 horizontal position data (duplex)	default = 52H
8308H	Hopper 3 horizontal position data (duplex)	default = 52H
8309H	MB Tray horizontal position data (duplex)	default = 52H

Address	Purpose	Remarks
830AH	Hopper 5 horizontal position data (duplex)	default = 52H
830BH I 830FH	(reserved)	

(7) HV Voltage value

Address	Purpose	Remarks
8310H	The Detach HV voltage 1 (1-sided)	default = 90H
8311H	The Detach HV voltage 2 (1-sided)	default = 90H
8312H	The Detach HV voltage 1 (2-sided)	default = 90H
8313H	The Detach HV voltage 2 (2-sided)	default = 90H
8314H	The Transfer HV voltage (higher)	default = CCH
8315H	The Transfer HV voltage (lower)	default = CCH
8316H	The Bias HV voltage	default = 66H
8317H	The Grid HV voltage	default = 33H
8318H	The Detach HV voltage (in diagnostics mode)	value = 33H
8319H	The Transfer HV voltage (in diagnostics mode)	value = 33H
831AH I 831FH	(reserved)	

(8) Transfer / Detach ON / OFF Timer (Master CPU)

Address	Purpose	Remarks
8320H	Detachment on 1 timer count value	value = 08H
8321H	Detachment on 2 timer count value	value = 02H
8322H	Detachment on 3 timer count value	value = 13H
8323H	Transfer on 1 timer count value	value = 08H
8324H	Transfer on 2 timer count value	value = 02H
8325H	The Nip on timing data or the Transfer off timing data(180ms)	value = 18H
8326H	The Nip on timing data or the Transfer off timing data(60ms)	value = 06H
8327H	LD1 low drive control adjustment ±value (bit0 to 3: -adjustment, bit4 to 7: +adjustment)	default = 00H
8328H	LD2 low drive control adjustment ±value (bit0 to 3: -adjustment, bit4 to 7: +adjustment)	default = 00H
8329H	The number of Toner empty error can not be reset	default = 06H(6 times)
832AH	The number of Toner empty error can not be stop printing	default = 04H(4 times)
832BH	Toner empty detecting counter	default = 06H
832CH	Toner detecting time	default = 3CH(60s)
832DH	Toner detecting counter	default = 00H
832EH	Toner empty detecting time	default = 0FH(15s)
832FH	Toner empty detecting counter	(1s/count)

(9) Developer / Drum Control

Address	Purpose	Remarks
8330H 8331H	The time of the toner feed operation (The first time)	value = 01H (1s)
8332H 8333H	The wait time for the toner sensing operation (The first time)	value = 02H (2s)
8334H 8335H	The time of the toner feed operation (Continuous)	value = 02H (2s)
8336H 8337H	The wait time of the toner sensing operation (Continuous)	value = 01H (1s)
8338H 8339H		
833AH 833BH	The wait time for Drum reverse rotation	value = 0032H (500ms)
833CH 833DH	The time form Charger/Grid off to Drum stop	value = 000AH (100ms)
833EH	(reserved)	
833FH	The number of toner supply to detect Toner Collector Bottle Full	value=03H (3 times)
8340H		
8341H	The count value to supply toner for "E010"	1times/count
8342H		(unused)
8343H	Toner check flag Bit0: The flag that printer detects the toner for 3 sec. Bit1 to Bit7: (reserved)	
8344H	The count value of the toner reverse feed driving	
8345H		
8346H	Toner Empty Flag	
8347H		
8348H 8349H	The sampling time for the A/D converter	value = 0001H (1s)
834AH 834BH	The time value for the Magroll rotation Failure	value = 001AH (420ms)
834CH 834DH	The voltage for the Over Toner Failure	value = 0066H (2.0V)
834EH 834FH	The voltage for the Lack Toner Failure	value = 0099H (3.0V)
8350H 8351H	The number of times of the retry for the Over Toner Operation	value = 1EH (1s to 30s)
8352H 8353H	The number of times of the retry for the Lack Toner Operation	value = 03H (1s to 3s)
8354H 8355H		
8356H	Voltage of Developer Mixture input start	value = 4CH(1.48V)
8357H	Voltage of Developer Mixture input end	value = 4CH(1.48V)
8358H	Voltage of Developer Mixture output start	value = 33H(1.0V)
8359H	Voltage of Developer Mixture output end	value = 4CH(1.48V)

Address	Purpose	Remarks
835AH 835BH	The wait time of Developer Mixture supply operating	value = 1EDCH (79s)
835CH 835DH	The sampling retry time of Developer Mixture supply operating	value = 0384H (9s)
835EH	The number of retry of Developer Mixture input end check	value = 03H (3 times)
835FH	The flag of changing the Developer Mix.	changing="01"

(10) Heater Control

Address	Purpose	Remarks
8360H 8361H	The time value (soft start on to heater on)	value = 000AH (100ms)
8362H 8363H	Heater line break check time	value = 1194H (45s)
8364H 8365H	The specified temperature (Heater Over Temperature failure)	value = 00E5H (210 degrees)
8366H 8367H	The specified temperature (Heater Low Temperature failure)	value = 00B8H (160 degrees)
8368H 8369H	Heater temperature gradient check interval	value = 0FA0H (40s)
836AH 836BH	Heater temperature gradient check interval AD value	value = 0003H (3 degrees)
836CH 836DH	Pre-dormant mode change data	value = 7530H (300s)
836EH	Pre-dormant mode control temperature	value = B8H(160°C)
836FH	Heater low temperature 2	value = 99H(140°C)
8370H 8371H	Heater on control time 1	value = 1194H (45s)
8372H 8373H	Heater off control time	value = 0BB8H (30s)
8374H 8375H	Heater on control time 2	value = 4650H (180s)
8376H 8377H	Heater on time in dormant	value = 0BB8H (30s)
8378H 8379H	Heater on time in printing (not used)	value = 1770H
837AH 837BH	Pre-dormant mode 2 data (not used)	value = 00H
837CH 837DH	Pre-dormant mode 3 data (not used)	value = 00H
837EH 837FH	On time length of Pre-dormant mode HR motor drive (not used)	value = 00C8H
8380H 8381H	On time length of Dormant mode HR motor drive	value = 0258H (6s)
8382H 8383H	Off time length of Pre-dormant and Dormant mode HR motor drive	value = 1770H (60s)
8384H 8385H	Heater soft start time (first time)	value = 000AH (4s)

Address	Purpose	Remarks
8386H 8387H	Heater soft start time (after first time)	value = 0002H (400ms)
8388H	Flag of heater relation error generation	value = 01H(on error)
838AH 838BH	Temperature standard average value of themistor break after Heater relation error	value = 00DBH (0°)
838CH 838DH	Standared value of thermistor break after Heater reration error	value = 0015H (-2°)
838FH	Flag of set thermistor break detecting standard value	value = 01H(set done)

(11) Heater Control Data

Address	Purpose	Remarks
8390H	The snapping temperature (40 degrees)	value = 0AH
8391H	The snapping starting temperature (80 degrees)	value = 2CH
8392H	HR motor driving start temperature (120 degrees)	value = 73H
8393H	Heater standard temperature (180 desgrees)	value = CFH
8394H	Heater standard Lower temperature (170 desgrees)	value = CFH
8395H	Heater standard Normal temperature (180 desgrees)	value = DAH
8396H	Heater standard High temperature (190 desgrees)	value = DFH
8397H	Heater control band (-3 to +3 degrees)	value = 02H
8398H	Heater2 on temperature (180 degrees)	value = CFH
8399H	Heater2 off temperature (196 degrees)	value = DCH
839AH	Heater low power mode temperature (120 degrees)	value = 73H
839BH		
839CH	EX Fan control temperature (140 degrees)	value = 99H
839DH		
839EH		

(12)Hopper Control Timer

Address	Purpose	Remarks
83A0H 83A1H	The Table timeout data of the Hp1 for the Dormant	value = 0DACH (35s)
83A2H 83A3H	The Table timeout data of the Hp2 for the Dormant	value = 0FA0H (40s)
83A4H 83A5H	The Table timeout data of the Hp3 for the Dormant	value = 0FA0H (40s)
83A6H 83A7H	The Table timeout data of the Hp5 for the Dormant	value = 1194H (45s)

(13) Fuser cleaning web control

Address	Purpose	Remarks
83A8H	The wind timing of the Cleaning Web	value = 38H

(14) Wrap sensor control

Address	Purpose	Remarks
83A9H	The PWM set data of the PC Drum wrap Led	value = 4BH
83AAH	The standard voltage of the PC Drum wrap Led check	default = 0000H
83ABH		

(15) Transfer / NIP Cleaning Data

Address	Purpose	Remarks
83AFH	Tr Home Position sensor	value = 00H
83B0H 83B1H	Transfer Unit Cleaner retry time (13s,16s)	default = 0514H
83B2H 83B3H	Transfer Unit drive check time1 (20s,18s,30s)	default = 07D0H
83B4H 83B5H	Transfer Unit drive check time2 (22s,18s,30s)	default = 0898H
83B6H 83B7H	Lock current driving value (300mA)	value= 0050H
83B8H 83B9H	Nip Cleaner Unit retry time (13s,16s)	default = 0514H
83BAH 83BBH	Nip Cleaner Init drive check time1 (20s,18s,30s)	default = 07D0H
83BCH 83BDH	Nip Cleaner Init drive check time2 (22s,18s,30s)	default = 0898H
83BEH 83BFH	Lock current driving value(Nip Cleaner Unit) (300mA)	value = 0050H
83C0H	Nip Motor drive counter	value = 06H
83C1H	UC change counter	

(16) BD/VD Error Retry Data

Address	Purpose	Remarks
83C2H	The value of retry checking BD error of E239	
83C3H	The value of retry checking VD-open error of E23F/E240	

(17) Finisher Alarm Setting

Address	Purpose	Remarks
83C4H	A control flag to send alarm-set commands of the Finisher	value = 00H
83C5H	Alarm-set data 1 of the Finisher	value = 00H
83C6H	Alarm-set data 2 of the Finisher	value = 11H
83C7H	Alarm-set data 3 of the Finisher	value = 22H
83C8H	(reserved)	
83C9H	Offset ON/OFF change flag	
83CAH	Finsher error mask flag Bit7:Finisher pick cancel command	
83CBH	Finisher adjustment data1	value = 00H
83CCH	Finisher adjustment data2	value = 00H

Address	Purpose	Remarks
83CDH	Finisher adjustment data3	value = 20H

(18) Print Density Data

Address	Purpose	Remarks
83CFH	A flag to set a table number which determines value of print density	value = 00H
83D0H	Light print density	value = 00H
83D1H	Semi-light print density	value = 05H
83D2H	Middle print density	value = 0AH
83D3H	Semi-dark print density	value = 0FH
83D4H	Dark print density	value = 14H
83D5H	A flag to select commands about print density	"01"= occurred
83D6H	Additional heater temperature during cardboard printing	
83D7H		
83D8H	Laser 1 power value(high drive)	default = 70H
83D9H	Laser 2 power value(high drive)	default = 70H
83DAH	Laser 1 power value (Standard control)	default = 60H
83DBH	Laser 2 power value (Standard control)	default = 60H
83DCH	Laser 1 power value (low drive)	default = 50H
83DDH	Laser 2 power value (low drive)	default = 50H
83DEH	Laser 1 delay time Bit0 to Bit3: High power Bit4 to Bit7: Lower power	
83DFH	Laser 2 delay time Bit0 to Bit3: High power Bit4 to Bit7: Lower power	

(19) Temperature / Humidity A/D Sampling Data

Address	Purpose	Remarks
83E0H	A flag to set sampling data of temperature and humidity with A/D converter	value = 01H
83E1H	Time counter for the first loop (the temperature-humidity)	default = 05H
83E2H 83E3H	Time counter for the second loop (the temperature-humidity)	default = 0AH
83E4H 83E5H	Sampling time counter1 of the temperature-humidity	(1s)
83E6H 83E7H	Sampling time counter2 of the temperature-humidity	(300s)
83E8H	The table select flag of the temperature-humidity data	
83E9H	The pulse data of the Laser1	
83EAH	The pulse data of the Laser2	

Address	Purpose	Remarks
83EBH	The enable flag of the Grid Voltage control (PC Drum life) disable:FFH enable:00H-FEH	default = 00H(enable)
83ECH	The Back up data of the PC Drum life for the Grid Voltage control	

(20) PWM Timer Specified value (Master CPU)

Address	Purpose	Remarks
83F0H | 83F3H	(reserved)	
83F4H 83F5H	The standard value of Detach HV 1 (1-side) (Set up data = 40H ~ A0H)	default = 70H
83F6H 83F7H	The standard value of Detach HV 2 (1-side) (Set up data = 40H ~ A0H)	default = 70H
83F8H 83F9H	The standard value of Detach HV 3 (2-side) (Set up data = 40H ~ A0H)	default = 70H
83FAH 83FBH	The standard value of Detach HV 4 (2-side) (Set up data = 40H ~ A0H)	default = 70H
83FCH	Print mode 1 (DD Table X(39))back up data	default = 80H
83FDH	Print mode 2 (DD Table X(3C))back up data	default = 22H
83FEH		
83FFH	Back up data set flag	"01" = occurred
8400H 8401H	Next trace address set area (CE - PR I/F Command)	
8402H | 87FFH	Trace data set area	

8.5.6. Trace Area

8.5.6.1. Controller-Engine Command Trace

The command trace between the Controller and the Engine is logged in the following area.

8400 to 8401: Trace start address
8402 to 87FF: Trace area

The Engine indicates the trace start address where the next command is logged. When the Engine receives a command and replies a status, the Engine logs its command at an address indicated by the trace start address and its status at the next address. The Engine continues this operation whenever it receives a command.

Note: Engine does not log the status read command etc. and its reply.
Engine logs "7F" when received C-Reset signal.
Engine logs "7E" when received CPF signal for Simplex paper.
Engine logs "7D" when received CPF signal for Duplex paper.

Example:
If the Engine logged the trace to 8500 address, the next address (8501) is indicated in 8400 to 8401 address. (8400 = "01", 8401 = "85")

8.5.6.2. The Count Value of the Failures

The Engine logs the number of error in this area.
If an error occurs, the Engine counts up the value of the address corresponded to its error code by a hexadecimal number.
The correspondence between an error code and an address is shown below.
If the number of error exceeds "FF", the number becomes "00".

Address	Error Code
8800H	The top address
8801H	E001 (Hopper 1 Paper Empty)
8802H	E002 (Hopper 2 Paper Empty)
S	
8AFFH	E2FF (It is not assigned to an error code)
8B00H 8B01H	Next trace address set area (The failure logging area)
8B02H | 8B0FH	8B02H~8B0FH = unused
8B10H	Error Code Higher Byte (at powering on X'FF')
8B11H	Error Code Lower Byte (at powering on X'FF')
8B12H	Total Page Counter (Highest Byte)
8B13H	Total Page Counter (Higher Byte)
8B14H	Total Page Counter (Lower Byte)
8B15H	Total Page Counter (Lowest Byte)
8B16H	Pick Data (1st Byte)
8B17H	Pick Data (2nd Byte)
8B18H	Pick Data (3rd Byte)
8B19H	Pick Data (4th Byte)
8B1AH	Pick Data (5th Byte)
8B1BH	Pick Data (6th Byte)

Address	Error Code
8B1CH	Print mode 1 (Device Data Table 1 X'39')
8B1DH	Print mode 2 (Device Data Table 1 X'3C')
8B1EH	Paper Length (Device Data Table 2 X'03')
8B1FH	Paper Width (Device Data Table 2 X'02')
8B20H | 8DFFH	Trace area
8E00H | 8FFFH	Sense information (unused)

Example
If "E001" error occurs, the Engine counts up the value of "8801" address.

8.5.6.3. The Failure logging Area

This area is not used in the current version

8.5.6.4. Sense Information

This area is not used in the current version.

8.5.6.5. Paper Feed Information

This area is not used in the current version.

8.5.6.6. Engine-Finisher Command Trace

The command trace between the Engine and the Finisher is logged in the following area.

9300 to 9301: Trace start address
9302 to 94FF: Trace area

The Engine indicates the trace start address where the next command is logged. If the Engine logged the trace to 9400 address, the next address (9401) is indicated 9300 to 9301 address. (9300="01", 9301="04")

When the Engine issues a command and receives a status, the Engine logs its command at a certain address and its status at the next address. The Engine continues this operation whenever it issues a command.

Note: Engine does not log the status read command etc. and its reply.

8.5.6.7. H Pos. sensor skew detecting logging information

H Pos. sensor skew detecting information is stored for every hopper in following area.

9848H to 9849H : logging start Address
9200H to 92FFH : logging area

The Engine records as many as 64 pieces one by one in order of skew standard value(2Byte) and skew comparison value(2Byte) at each paper.

8.5.6.8. Double feed sensor logging information

Double feed sensor information is stored for every hopper in following area.

9AE8H to 9AE9H : logging start address
9160H to 917FH : logging area

Address	Purpose	Remarks
9160H	Tray information	A sheet of information.
9161H	1st feed paper detection information	
9162H	Last feed paper thickness information	
9163H	Just feed paper thickness information	
9164H	Tray information	A sheet of information.
9165H	1st feed paper detection information	
9166H	Last feed paper thickness information	
9167H	Just feed paper thickness information	
9168H	Tray information	A sheet of information.
9169H	1st feed paper detection information	
916AH	Last feed paper thickness information	
916BH	Just feed paper thickness information	
916CH	Tray information	A sheet of information.
916DH	1st feed paper detection information	
916EH	Last feed paper thickness information	
916FH	Just feed paper thickness information	
9170H	Tray information	A sheet of information.
9171H	1st feed paper detection information	
9172H	Last feed paper thickness information	
9173H	Just feed paper thickness information	
9174H	Tray information	A sheet of information.
9175H	1st feed paper detection information	
9176H	Last feed paper thickness information	
9177H	Just feed paper thickness information	
9178H	Tray information	A sheet of information.
9179H	1st feed paper detection information	
917AH	Last feed paper thickness information	
917BH	Just feed paper thickness information	
917CH	Tray information	A sheet of information.
917DH	1st feed paper detection information	
917EH	Last feed paper thickness information	
917FH	Just feed paper thickness information	

8.5.7. Spare Area

Address	Purpose	Remarks
9000H 9001H	Max.output value in a page of Simplex face (A5 size H Pos.sensor logging information)	
9002H 9003H	Min.output value in a page of Simplex face (A5 size H Pos.sensor logging information)	

Address	Purpose	Remarks
9004H 9005H	Ave.output value in a page of Simplex face (A5 size H Pos.sensor logging information)	
9006H 9007H	Adjustment output value in a page of Simplex face (A5 size H Pos.sensor logging information)	
9008H 9009H	Max.output value in a page of Duplex face (A5 size H Pos.sensor logging information)	
900AH 900BH	Min.output value in a page of Duplex face (A5 size H Pos.sensor logging information)	
900CH 900DH	Ave.output value in a page of Duplex face (A5 size H Pos.sensor logging information)	
900EH 900FH	Adjustment output value in a page of Duplex face (A5 size H Pos.sensor logging information)	
9010H I 901FH	12-in x 18-in size H Pos.sensor logging information Details about logging data(refer to 9000H-900FH)	
9020H I 902FH	B5 size H Pos.sensor logging information Details about logging data(refer to 9000H-900FH)	
9030H I 903FH	LET SEF size H Pos.sensor logging information Details about logging data(refer to 9000H-900FH)	
9040H I 904FH	LET LEF size H Pos.sensor logging information Details about logging data(refer to 9000H-900FH)	
9050H I 905FH	B4 size H Pos.sensor logging information Details about logging data(refer to 9000H-900FH)	
9060H I 906FH	A4 SEF size H Pos.sensor logging information Details about logging data(refer to 9000H-900FH)	
9070H I 907FH	A4 LEF size H Pos.sensor logging information Details about logging data(refer to 9000H-900FH)	
9080H I 908FH	A3 size H Pos.sensor logging information Details about logging data(refer to 9000H-900FH)	
9090H I 909FH	8.5-in x 12.4-in size H Pos.sensor logging information Details about logging data(refer to 9000H-900FH)	
90A0H I 90AFH	8.5-in x 13-in SEF size H Pos.sensor logging information Details about logging data(refer to 9000H-900FH)	
90B0H I 90BFH	8.5-in x 14-in SEF size H Pos.sensor logging information Details about logging data(refer to 9000H-900FH)	
90C0H I 90CFH	LED SEF size H Pos.sensor logging information Details about logging data(refer to 9000H-900FH)	
90D0H I 90DFH	Special 1 size H Pos.sensor logging information Details about logging data(refer to 9000H-900FH)	

Address	Purpose	Remarks
90E0H | 90EFH	Special 2 size H Pos.sensor logging information Details about logging data(refer to 9000H-900FH)	
90F0H | 90FFH	Special 3 size H Pos.sensor logging information Details about logging data(refer to 9000H-900FH)	
9160H	Tray information (Double feed sensor logging information1)	
9161H	1st feed paper detection information (Double feed sensor logging information1)	
9162H	Last feed paper thickness information (Double feed sensor logging information1)	
9163H	Just feed paper thickness information (Double feed sensor logging information1)	
9164H | 9167H	Double feed sensor logging information Details about logging data(refer to 9160H-9163H)	
9168H | 916BH	Double feed sensor logging information Details about logging data(refer to 9160H-9163H)	
916CH | 916FH	Double feed sensor logging information Details about logging data(refer to 9160H-9163H)	
9170H | 9173H	Double feed sensor logging information Details about logging data(refer to 9160H-9163H)	
9174H | 9177H	Double feed sensor logging information Details about logging data(refer to 9160H-9163H)	
9178H | 917BH	Double feed sensor logging information Details about logging data(refer to 9160H-9163H)	
917CH | 917FH	Double feed sensor logging information Details about logging data(refer to 9160H-9163H)	
9300H 9301H	Next trace address set area (PR - Finisher I/F Command)	
9302H | 94FFH	Trace data set area	

(1) Master PWM Timer

Address	Purpose	Remarks
9500H | 954FH	Area to set DTC Duty count (for temperature-humidity control)	70Byte (9500H-9546H)

(2) Paper data area

Address	Purpose	Remarks
9550H		
9551H	Special size paper length	DD2(03H)
9552H		

Address	Purpose	Remarks
9553H	PSI Feeder Connect flag	
9554H		
9555H		
9556H	HR motor control value (TOP PPS)	value = 0408H(1302pps)
9557H		more than 24lbs paper
9558H	Last special size paper length	DD2(02H)
9559H	Special size paper width	
955AH	Last special size paper width	
955BH		
955CH		
955DH		
955EH	Dormant Request data save area	DD1(38H)
955FH	Finisher alarm data set flag	
9560H	A5 paper handling	value = FFH(able)
9561H	Bit0: adaptable for laser power control = 0 Bit1 to Bit7: (reserved)	0=valid/1=invalid, "0" = selection
9562H	Paper weight change HP information	
9563H	Paper weight information	
9564H	Tray 1 paper weight information	
9565H	Tray 2 paper weight information	
9566H	Tray 3 paper weight information	
9567H	MB Tray paper weight information	
9568H	Tray 5 paper weight information	
9569H	Last paper weight change HP information	
956AH	Last paper weight information	
956BH	Flip mode	value = FFH(able)
956CH	The counter of the billing control	
956DH	Tray 1 size information	DD2 (0AH)
956EH	Tray 2 size information	DD2 (0BH)
956FH	Tray 3 size information	DD2 (0CH)
9570H	MB Tray size information	DD2 (0DH)
9571H	Inserter size information	DD2 (16H)
9572H	The configureation data of the Finisher108 (DD Table2 X(31))	
9573H	Container Stacker 5 mode	DD4 (01H)
9574H	Container Stacker 6 mode	DD4 (03H)
9575H	Container Stacker 7 mode	DD4 (05H)
9576H	Container Stacker 8 mode	DD4 (07H)

Address	Purpose	Remarks
9577H	Finisher option information bit7 : inserter bit6 : bookletray bit5 to 0 : reserved	
9578H	(Reserved)	
9579H	Container Stacker cover latch off information bit7 to 4 : latch off information of STK8 to STK5 bit3 to 0 : latch off wait information STK8 to STK5	
957AH	Normal parameter set flag	
957BH	Mica parameter set flag	
957CH	Developer information	DDT1(1EH) save
957DH	Relay Unit information	DDT1(1EH) save
957EH	bit 0: Double Feed sensor: Front Engine bit 0: Top cover open(E042): Rear Engine bit 1: Dev unit non set error(E037) bit 2: Toner hopper 4 bit(=1): Rear Enginebit 3: PID control : Rear Engine bit 4: Toner hopper non set error (E036) bit 5: Paper feed control delay bit 6: H Pos.skew errorbit 7: H Pos.skew check control bit 7: Drum motor check(DDP70)	default = 81H 1=valid/0=invalid 0=valid/1=invalid 0=valid/1=invalid 1=valid/0=invalid 1=valid/0=invalid 0=valid/1=invalid 0=valid/1=invalid 0=valid/1=invalid 1=valid/0=invalid 1=valid/0=invalid
957FH	bit 0: Timing roller NIP mechanism bit 1: H direction adjustment control bit 2: V direction adjustment control bit 3: CCD control bit 4: paper shrinkage control bit 5: Fan alarm control bit 6: Double Feed sensor control bit 7: sensor dirty detecting information logging	default = 00 1=valid/0=invalid 1=valid/0=invalid 1=valid/0=invalid 1=valid/0=invalid 1=valid/0=invalid 1=valid/0=invalid 1=valid/0=invalid 1=valid/0=invalid
9580H	Stapling position adjustment value (Letter_SEF) (Set up data = 00H ~ FFH)	0.1 mm/count (-12.8 ~ +12.7mm)
9581H	Stapling position adjustment value (B4_SEF) (Set up data = 00H ~ FFH)	0.1 mm/count (-12.8 ~ +12.7mm)
9582H	Stapling position adjustment value (A4_SEF) (Set up data = 00H ~ FFH)	0.1 mm/count (-12.8 ~ +12.7mm)
9583H	Stapling position adjustment value (A3_SEF) (Set up data = 00H ~ FFH)	0.1 mm/count (-12.8 ~ +12.7mm)
9584H	Stapling position adjustment value (Legal14_SEF) (Set up data = 00H ~ FFH)	0.1 mm/count (-12.8 ~ +12.7mm)
9585H	Stapling position adjustment value (Ledger_SEF) (Set up data = 00H ~ FFH)	0.1 mm/count (-12.8 ~ +12.7mm)
9586H	Stapling position adjustment value (others) (Set up data = 00H ~ FFH)	0.1 mm/count (-12.8 ~ +12.7mm)
9587H		
9588H	Folding position adjustment value (Letter_SEF) (Set up data = 00H ~ FFH)	0.1 mm/count (-12.8 ~ +12.7mm)
9589H	Folding position adjustment value (B4_SEF) (Set up data = 00H ~ FFH)	0.1 mm/count (-12.8 ~ +12.7mm)

Address	Purpose	Remarks
958AH	Folding position adjustment value (A4_SEF) (Set up data = 00H ~ FFH)	0.1 mm/count (-12.8 ~ +12.7mm)
958BH	Folding position adjustment value (A3_SEF) (Set up data = 00H ~ FFH)	0.1 mm/count (-12.8 ~ +12.7mm)
958CH	Folding position adjustment value (Legal14_SEF) (Set up data = 00H ~ FFH)	0.1 mm/count (-12.8 ~ +12.7mm)
958DH	Folding position adjustment value (Ledger_SEF) (Set up data = 00H ~ FFH)	0.1 mm/count (-12.8 ~ +12.7mm)
958EH	Folding position adjustment value (others) (Set up data = 00H ~ FFH)	0.1 mm/count (-12.8 ~ +12.7mm)
958FH		
9590H	Stapling position adjustment value (Set up data = 6AH ~ 96H)	0.5 mm/count (-10.1 ~ +10.1mm)
9591H	Folding position adjustment value (Set up data = 67H ~ 99H)	0.4 mm/count (-10.2 ~ +10.2mm)
9592H	Trimming length adjustment value (Set up data = 79H ~ AAH)	0.4 mm/count (0.2 ~ 20.1mm)
95A0H	Container Stacker Unit 1 Upper Basket F Jogger position adjustment value (Set up data = 74H ~ 8CH)	0.25 mm/count (-3.0 ~ +3.0mm)
95A1H	Container Stacker Unit 1 Upper Basket R Jogger position adjustment value (Set up data = 74H ~ 8CH)	0.25 mm/count (-3.0 ~ +3.0mm)
95A2H	Container Stacker Unit 1 Upper Basket Stopper position adjustment value (Set up data = 74H ~ 8CH)	0.25 mm/count (-3.0 ~ +3.0mm)
95A3H		
95A4H	Container Stacker Unit 1 Lower Basket F Jogger position adjustment value (Set up data = 74H ~ 8CH)	0.25 mm/count (-3.0 ~ +3.0mm)
95A5H	Container Stacker Unit 1 Lower Basket R Jogger position adjustment value (Set up data = 74H ~ 8CH)	0.25 mm/count (-3.0 ~ +3.0mm)
95A6H	Container Stacker Unit 1 Lower Basket Stopper position adjustment value (Set up data = 74H ~ 8CH)	0.25 mm/count (-3.0 ~ +3.0mm)
95A7H		
95A8H	Container Stacker Unit 2 Upper Basket F Jogger position adjustment value (Set up data = 74H ~ 8CH)	0.25 mm/count (-3.0 ~ +3.0mm)
95A9H	Container Stacker Unit 2 Upper Basket R Jogger position adjustment value (Set up data = 74H ~ 8CH)	0.25 mm/count (-3.0 ~ +3.0mm)
95AAH	Container Stacker Unit 2 Upper Basket Stopper position adjustment value (Set up data = 74H ~ 8CH)	0.25 mm/count (-3.0 ~ +3.0mm)
95ABH		
95ACH	Container Stacker Unit 2 Lower Basket F Jogger position adjustment value (Set up data = 74H ~ 8CH)	0.25 mm/count (-3.0 ~ +3.0mm)

Address	Purpose	Remarks
95ADH	Container Stacker Unit 2 Lower Basket R Jogger position adjustment value (Set up data = 74H ~ 8CH)	0.25 mm/count (-3.0 ~ +3.0mm)
95AEH	Container Stacker Unit 2 Lower Basket Stopper position adjustment value (Set up data = 74H ~ 8CH)	0.25 mm/count (-3.0 ~ +3.0mm)
95AFH		
95B0H 95B1H	The PM interval for the PM counter Unit 1 Upper Basket Paper Exit Paddle 1	Value = 9600 1000 pages/count
95B2H 95B3H	The PM interval for the PM counter Unit 1 Upper Basket Paper Exit Paddle 2	Value = 9600 1000 pages/count
95B4H 95B5H	The PM interval for the PM counter Unit 1 Upper Basket Paper Exit Paddle 1	1000 pages/count Max 9999
95B6H 95B7H	The PM interval for the PM counter Unit 1 Upper Basket Paper Exit Paddle 2	1000 pages/count Max 9999
95B8H 95B9H	The PM interval for the PM counter Unit 1 Upper Basket Paper Exit Paddle 1	(1 to 999) 1 page/count
95BAH 95BBH	The PM interval for the PM counter Unit 1 Upper Basket Paper Exit Paddle 2	(1 to 999) 1 page/count
95BCH 95BDH	The PM interval for the PM counter Unit 1 Lower Basket Paper Exit Paddle 1	Value = 9600 1000 pages/count
95BEH 95BFH	The PM interval for the PM counter Unit 1 Lower Basket Paper Exit Paddle 2	Value = 9600 1000 pages/count
95C0H 95C1H	The PM interval for the PM counter Unit 1 Lower Basket Paper Exit Paddle 1	1000 pages/count Max 9999
95C2H 95C3H	The PM interval for the PM counter Unit 1 Lower Basket Paper Exit Paddle 2	1000 pages/count Max 9999
95C4H 95C5H	The PM interval for the PM counter Unit 1 Lower Basket Paper Exit Paddle 1	(1 to 999) 1 page/count
95C6H 95C7H	The PM interval for the PM counter Unit 1 Lower Basket Paper Exit Paddle 2	(1 to 999) 1 page/count
95C8H 95C9H	The PM interval for the PM counter Unit 2 Upper Basket Paper Exit Paddle 1	Value = 9600 1000 pages/count
95CAH 95CBH	The PM interval for the PM counter Unit 2 Upper Basket Paper Exit Paddle 2	Value = 9600 1000 pages/count
95CCH 95CDH	The PM interval for the PM counter Unit 2 Upper Basket Paper Exit Paddle 1	1000 pages/count Max 9999
95CEH 95CFH	The PM interval for the PM counter Unit 2 Upper Basket Paper Exit Paddle 2	1000 pages/count Max 9999
95D0H 95D1H	The PM interval for the PM counter Unit 2 Upper Basket Paper Exit Paddle 1	(1 to 999) 1 page/count
95D2H 95D3H	The PM interval for the PM counter Unit 2 Upper Basket Paper Exit Paddle 2	(1 to 999) 1 page/count
95D4H 95D5H	The PM interval for the PM counter Unit 2 Lower Basket Paper Exit Paddle 1	Value = 9600 1000 pages/count
95D6H 95D7H	The PM interval for the PM counter Unit 2 Lower Basket Paper Exit Paddle 2	Value = 9600 1000 pages/count
95D8H 95D9H	The PM interval for the PM counter Unit 2 Lower Basket Paper Exit Paddle 1	1000 pages/count Max 9999

Address	Purpose	Remarks
95DAH 95DBH	The PM interval for the PM counter Unit 2 Lower Basket Paper Exit Paddle 2	1000 pages/count Max 9999
95DCH 95DDH	The PM interval for the PM counter Unit 2 Lower Basket Paper Exit Paddle 1	(1 to 999) 1 page/count
95DEH 95DFH	The PM interval for the PM counter Unit 2 Lower Basket Paper Exit Paddle 2	(1 to 999) 1 page/count
9600H 9601H	The PM interval for the PM counter Publishing Finisher Trimming Blade	Value = 200 1000 times/count
9602H 9603H	The PM interval for the PM counter Publishing Finisher Stapler	Value = 500 1000 staples/count
9604H 9605H	The PM interval for the PM counter Publishing Finisher Air Blower	Value = 450 1000 picks/count
9606H 9607H		
9610H 9611H	The count value of PM counter Publishing Finisher Trimming Blade	1000 times/count Max 9999
9612H 9613H	The count value of PM counter Publishing Finisher Stapler	1000 staples/count Max 9999
9614H 9615H	The count value of PM counter Publishing Finisher Air Blower	1000 picks/count Max 9999
9616H 9617H		
9620H 9621H	The count value of PM counter Publishing Finisher Trimming Blade	(1 to 999) 1 time/count
9622H 9623H	The count value of PM counter Publishing Finisher Stapler	(1 to 999) 1 staple/count
9624H 9625H	The count value of PM counter Publishing Finisher Air Blower	(1 to 999) 1 pick/count
9626H 9627H		
9630H 9631H	The PM interval for the PM counter Unit 1 Upper Basket Paper Exit Idler Roller	Value = 9600 1000 pages/count
9632H 9633H	The PM interval for the PM counter Unit 1 Lower Basket Paper Exit Idler Roller	Value = 9600 1000 pages/count
9634H 9635H	The PM interval for the PM counter Unit 1 Upper Basket Paper Exit Idler Roller	1000 pages/count Max 9999
9636H 9637H	The PM interval for the PM counter Unit 1 Lower Basket Paper Exit Idler Roller	1000 pages/count Max 9999
9638H 9639H	The PM interval for the PM counter Unit 1 Upper Basket Paper Exit Idler Roller	(1 to 999) 1 page/count
963AH 963BH	The PM interval for the PM counter Unit 1 Lower Basket Paper Exit Idler Roller	(1 to 999) 1 page/count
963CH 963DH		

Address	Purpose	Remarks
963EH 963FH		
9640H 9641H	The PM interval for the PM counter Unit 2 Upper Basket Paper Exit Idler Roller	Value = 9600 1000 pages/count
9642H 9643H	The PM interval for the PM counter Unit 2 Lower Basket Paper Exit Idler Roller	Value = 9600 1000 pages/count
9644H 9645H	The PM interval for the PM counter Unit 2 Upper Basket Paper Exit Idler Roller	1000 pages/count Max 9999
9646H 9647H	The PM interval for the PM counter Unit 2 Lower Basket Paper Exit Idler Roller	1000 pages/count Max 9999
9648H 9649H	The PM interval for the PM counter Unit 2 Upper Basket Paper Exit Idler Roller	(1 to 999) 1 page/count
964AH 964BH	The PM interval for the PM counter Unit 2 Lower Basket Paper Exit Idler Roller	(1 to 999) 1 page/count
964CH 964DH		
964EH 964FH		
9650H	Container Stacker 5 paper size information	DD4 (09H)
9651H	Container Stacker 5 special paper length information	DD4 (0AH)
9652H	Container Stacker 5 special paper width information	DD4 (0BH)
9653H	Container Stacker 6 paper size information	DD4 (0CH)
9654H	Container Stacker 6 special paper length information	DD4 (0DH)
9655H	Container Stacker 6 special paper width information	DD4 (0EH)
9656H	Container Stacker 7 paper size information	DD4 (0FH)
9657H	Container Stacker 7 special paper length information	DD4 (10H)
9658H	Container Stacker 7 special paper width information	DD4 (11H)
9659H	Container Stacker 8 paper size information	DD4 (12H)
965AH	Container Stacker 8 special paper length information	DD4 (13H)
965BH	Container Stacker 8 special paper width information	DD4 (14H)
965CH	Container Stacker decurler mode	DD4 (17H)
965DH	Container Stacker table down band(thick paper)	value = 1EH(30mm)
965EH	Container Stacker table down band(thin paper)	value = 32H(50mm)
965FH	E253(INVALID CONFIGULATION) error detail information	
9660H	Drum life related print density LIGHT mode (1 to 5) At less than 50kP drum life	value = 19H (430V)
9661H	At less than 100kP drum life	value = 1CH (436V)
9662H	At less than 200kP drum life	value = 1FH (442V)
9663H	At less than 300kP drum life	value = 22H (448V)
9664H	At less than 400kP drum life	value = 25H (454V)
9665H	At less than 500kP drum life	value = 28H (460V)

Address	Purpose	Remarks
9666H	Drum life related print density semi-LIGHT mode (1 to 5) At less than 50kP drum life	value = 23H (450V)
9667H	At less than 100kP drum life	value = 26H (456V)
9668H	At less than 200kP drum life	value = 29H (462V)
9669H	At less than 300kP drum life	value = 2CH (468V)
966AH	At less than 400kP drum life	value = 2FH (474V)
966BH	At less than 500kP drum life	value = 32H (480V)
966CH	Drum life related print density MIDDLE mode (1 to 5) At less than 50kP drum life	value = 32H (480V)
966DH	At less than 100kP drum life	value = 35H (486V)
966EH	At less than 200kP drum life	value = 38H (492V)
966FH	At less than 300kP drum life	value = 3BH (498V)
9670H	At less than 400kP drum life	value = 3EH (504V)
9671H	At less than 500kP drum life	value = 41H (510V)
9672H	Drum life related print density semi-DARK mode (1 to 5) At less than 50kP drum life	value = 4BH (530V)
9673H	At less than 100kP drum life	value = 4EH (536V)
9674H	At less than 200kP drum life	value = 51H (542V)
9675H	At less than 300kP drum life	value = 54H (548V)
9676H	At less than 400kP drum life	value = 57H (554V)
9677H	At less than 500kP drum life	value = 5AH (540V)
9678H	Drum life related print density DARK mode (1 to 5) At less than 50kP drum life	value = 64H (580V)
9679H	At less than 100kP drum life	value = 67H (586V)
967AH	At less than 200kP drum life	value = 6AH (592V)
967BH	At less than 300kP drum life	value = 6DH (598V)
967CH	At less than 400kP drum life	value = 70H (604V)
967DH	At less than 500kP drum life	value = 73H (610V)
967EH	Drum life related print density LIGHT mode (6 to 10) At less than 600kP drum life	value = 2BH (466V)
967FH	At less than 700kP drum life	value = 1CH (472V)
9680H	At less than 800kP drum life	value = 1CH (478V)
9681H	At less than 900kP drum life	value = 1CH (484V)
9682H	At more than 900kP drum life	value = 37H (490V)
9683H	Drum life related print density semi-LIGHT mode (6 to 10) At less than 600kP drum life	value = 35H (486V)
9684H	At less than 700kP drum life	value = 38H (492V)
9685H	At less than 800kP drum life	value = 3BH (498V)
9686H	At less than 900kP drum life	value = 3EH (504V)
9687H	At more than 900kP drum life	value = 41H (510V)

Address	Purpose	Remarks
9688H	Drum life related print density MIDDLE mode (6 to 10) At less than 600kP drum life	value = 44H (516V)
9689H	At less than 700kP drum life	value = 47H (522V)
968AH	At less than 800kP drum life	value = 4AH (528V)
968BH	At less than 900kP drum life	value = 4DH (534V)
968CH	At more than 900kP drum life	value = 50H (540V)
968DH	Drum life related print density semi-DARK mode (6 to 10) At less than 600kP drum life	value = 5DH (566V)
968EH	At less than 700kP drum life	value = 60H (572V)
968FH	At less than 800kP drum life	value = 63H (578V)
9690H	At less than 900kP drum life	value = 66H (584V)
9691H	At more than 900kP drum life	value = 69H (590V)
9692H	Drum life related print density DARK mode (6 to 10) At less than 600kP drum life	value = 76H (616V)
9693H	At less than 700kP drum life	value = 79H (622V)
9694H	At less than 800kP drum life	value = 7CH (628V)
9695H	At less than 900kP drum life	value = 7FH (634V)
9696H	At more than 900kP drum life	value = 82H (640V)
96A0H	Vertical Reduction Rate(Hop1, Front Engine, Back-side, 2-Sided)	
96A1H	Vertical Reduction Rate(Hop2, Front Engine, Back-side, 2-Sided)	
96A2H	Vertical Reduction Rate(Hop3, Front Engine, Back-side, 2-Sided)	
96A3H	Vertical Reduction Rate(Hop5, Front Engine, Back-side, 2-Sided)	
96A4H	Vertical Reduction Rate(Hop1, Rear Engine, Face-side, 2-Sided)	
96A5H	Vertical Reduction Rate(Hop2, Rear Engine, Face-side, 2-Sided)	
96A6H	Vertical Reduction Rate(Hop3, Rear Engine, Face-side, 2-Sided)	
96A7H	Vertical Reduction Rate(Hop5, Rear Engine, Face-side, 2-Sided)	
96A8H	Vertical Reduction Rate(Hop1, Rear Engine, Back-side, 2 1-Sided)	
96A9H	Vertical Reduction Rate(Hop2, Rear Engine, Back-side, 2 1-Sided)	
96AAH	Vertical Reduction Rate(Hop3, Rear Engine, Back-side, 2 1-Sided)	
96ABH	Vertical Reduction Rate(Hop5, Rear Engine, Back-side, 2 1-Sided)	
96ACH	Vertical Reduction Rate(Hop1, Rear Engine, Back-side, 1-Sided)	

Address	Purpose	Remarks
96ADH	Vertical Reduction Rate(Hop2, Rear Engine, Back-side, 1-Sided)	
96AEH	Vertical Reduction Rate(Hop3, Rear Engine, Back-side, 1-Sided)	
96AFH	Vertical Reduction Rate(Hop5, Rear Engine, Back-side, 1-Sided)	
96B0H	Vertical Reduction Rate(Hop1, Front Engine, Face-side, 2-Sided)	
96B1H	Vertical Reduction Rate(Hop2, Front Engine, Face-side, 2-Sided)	
96B2H	Vertical Reduction Rate(Hop3, Front Engine, Face-side, 2-Sided)	
96B3H	Vertical Reduction Rate(Hop5, Front Engine, Face-side, 2-Sided)	
96C0H	Tray 1 H direction position data (Simplex)	
96C1H	Tray 2 H direction position data (Simplex)	
96C2H	Tray 3 H direction position data (Simplex)	
96C3H	MB Tray H direction position data (Simplex)	
96C4H	Tray 5 H direction position data (Simplex)	
96C5H	Tray 1 H direction position data (Duplex)	
96C6H	Tray 2 H direction position data (Duplex)	
96C7H	Tray 3 H direction position data (Duplex)	
96C8H	MB Tray H direction position data (Duplex)	not used
96C9H	Tray 5 H direction position data (Duplex)	
96CAH	Tray 1 H direction position data (Simplex side in Rear Engine in Duplex printing)	not used
96CBH	Tray 2H direction position data (Simplex side in Rear Engine in Duplex printing)	not used
96CCH	Tray 3 H direction position data (Simplex side in Rear Engine in Duplex printing)	not used
96CDH	MB Tray H direction position data (Simplex side in Rear Engine in Duplex printing)	not used
96CEH	Tray 5 H direction position data (Simplex side in Rear Engine in Duplex printing)	not used
96D0H	Simplex H direction offset value (+)	not used
96D1H	Simplex H direction offset value (-)	not used
96D2H	Duplex S-side H direction offset value (+)	not used
96D3H	Duplex S-side H direction offset value (-)	not used
96D4H	Duplex D-side H direction offset value (+)	not used
96D5H	Duplex D-side H direction offset value (-)	not used
96D6H	H direction offset value (+)	not used
96D7H	H direction offset value (-)	not used
96D8H	LED PWM Duty value in dirty detecting control	value = 0DH(+5%)

Address	Purpose	Remarks
96D9H	H.Pos sensor error detecting bit 1: sensor output break in printing(E28F) bit 2: 4BF value detecting in printing(E28F) bit 4: sensor dirty detecting in initialize(E28F) bit 5: sensor dirty detecting in activate(E28F) bit 6: adjustment limit detecting in printing(E28F) bit 7: sensor dirty detecting information logging	default = D7H: Front Engine, 9FH: Rear Engine 0=valid/1=invalid 0=valid/1=invalid 0=valid/1=invalid 0=valid/1=invalid 0=valid/1=invalid 0=valid/1=invalid
96DAH	The number of retry of dirty detecting	value = 05H
96DBH	Standard LED PWM Duty value	
96DCH	Tray 1 LED PWM Duty value	value = 80H
96DDH	Tray 2 LED PWM Duty value	value = 80H
96DEH	Tray 3 LED PWM Duty value	value = 80H
96DFH	Tray 5 LED PWM Duty value	value = 80H
96E0H	First toner feed time	value = 01H(1s)
96E1H	First wait time	value = 02H(2s)
96E2H	The number of first cycle	value = 04H(4 times)
96E3H	Second toner feed time	value = 02H(2s)
96E4H	Second wait time	value = 01H(1s)
96E5H	The number of second cycle	value = 04H(4 times)
96F0H	CCD serial No.4 save	
96F1H	CCD serial No.3 save	
96F2H	CCD serial No.2 save	
96F3H	CCD serial No.1 save	
96F4H	(Reserved)	
96F5H	Developer Mixture change flag	
96F6H	CCD back up timing flag	
96F8H	CCD back up timing counter	
9706H 9707H	Developer Mixture input time for Mica	value = 7C9CH (319s)
9708H	Retry counter for Mica	value = 08H (8 times)
970AH	Tray 1 OC data upper limit value	value = FCH
970BH	Tray 2 OC data upper limit value	value = FCH
970CH	Tray 3 OC data upper limit value	value = FCH
970DH	MB Tray OC data upper limit valu	value = FCH
970EH	Tray 5 OC data upper limit value	value = FCH
970FH	OC data debug mode fixed value	value = 3AH
9710H 9711H	H Pos. sensor logging information (2) save register Address	
9712H 9713H	H Pos. sensor logging information (3) save register Address	
9714H 9715H	H Pos. sensor logging information (4) save register Addres	

Address	Purpose	Remarks
9716H 9717H	H Pos. sensor logging information (5) save register Address	
9718H 9719H	H Pos. sensor logging information (6) save register Address	
971AH 971BH	H Pos. sensor logging information (7) save register Address	
971CH 971DH	H Pos. sensor logging information (1) save register Address	
971EH 971FH	H Pos. sensor logging information (8) save register Address	
9720H	LED PWM Duty value	
9721H	LED PWM on time (1)	value = 14H(20ms)
9722H	LED PWM on time (2)	value = 16H(22ms)
9723H	SI/HOLD ON/OFF change time	value = 02H(2ms)
9724H 9725H	Length from center of paper path to first pixel	value = 065EH (1630mm)
972AH	The number of 1 image sampling	value = 05H
972BH	OC data debug mode for each HP H adjustment data adding	value = 00H
972DH	LED PWM Duty value	not used
972EH	The number of 1 image sampling	value = 05H
972FH	1 image sampling cycle	value = 0AH(10ms)
9750H	Sensitivity adjustment for paper thickness detecting	value = 28H(28lbs)
9751H	Tray 1 Double Feed error (E157,E158) Tray 2 Double Feed error (E159,E15A) Tray 3 Double Feed error (E15B,E15C) Tray 5 Double Feed error (E15D,E15E)	00 = valid, FF = invalid
9752H	Noise mask	value = 02H(lower 2bit)
9753H	Sensitivity adjustment for detector	value = 00H
9754H	LED drive method change setting	value = 81H(fixed)
9755H	bit 6: each HP separating control selection bit7: Front Engine dormant control temperature Low/Normal/High	1=valid/0=invalid, "1" = selection
9756H	Separating blower control selection	value = 01H
9757H	On time duty	value = FFH
975EH	Each tray H Pos. Sensor control selection bit 0 : Tray 1 H Pos. sensor control bit 1 : Tray 2 H Pos. sensor control bit 2 : Tray 3 H Pos. sensor control bit 3 : Tray 5 H Pos. sensor control	default = 00H 0=valid/1=invalid 0=valid/1=invalid 0=valid/1=invalid 0=valid/1=invalid

Address	Purpose	Remarks
975FH	bit 0: intermittent control (1) selection bit 1: intermittent control (2) selection bit 2: intermittent control (3) selection bit 3: intermittent control (4) selection bit 4: intermittent control (5) selection bit 5: 120°C control selection bit 6: Heater 2 control (1) selection bit 7: Heater 2 control (2) selection	value = 0EH "0" = no selection "1" = selection "1" = selection "1" = selection "0" = no selection "0" = no selection "0" = no selection "0" = no selection
9760H	Intermittent control (1) gradient check A/D value	value = 05H
9761H	Intermittent control (1) gradient check time	value = 08H(3.2s)
9762H	Intermittent control (1) on time	value = 08H(3.2s)
9763H	Intermittent control (1) off time	value = 08H(3.2s)
9764H	Intermittent control (1) start temperature	value = 17H(160°C)
9765H	Intermittent control (1) end temperature	value = D0H(181°C)
9766H	Intermittent control (2) gradient check A/D value	value = 05H
9767H	Intermittent control (2) gradient check time	value = 08H(3.2s)
9768H	Intermittent control (2) on time	value = 08H(3.2s)
9769H	Intermittent control (2) off time	value = 08H(3.2s)
976AH	Intermittent control (2) start temperature	value = 06H(174°C)
976BH	Intermittent control (2) end temperature	value = D0H(181°C)
976CH	Intermittent control (3) gradient check A/D value	value = 04H
976DH	Intermittent control (3) gradient check time	value = 08H(3.2s)
976EH	Intermittent control (3) on time	value = 08H(3.2s)
976FH	Intermittent control (3) off time	value = 08H(3.2s)
9770H	Intermittent control (3) start temperature	value = 06H(174°C)
9771H	Intermittent control (3) end temperature	value = D0H(181°C)
9772H	Intermittent control (4) gradient check A/D value	value = 04H
9773H	Intermittent control (4) gradient check time	value = 08H(3.2s)
9774H	Intermittent control (4) on time	value = 08H(3.2s)
9775H	Intermittent control (4) off time	value = 08H(3.2s)
9776H	Intermittent control (4) start temperature	not used
9777H	Intermittent control (4) end temperature	value = 02H
9778H	Front Engine: (Reserved) Thin paper Duplex Heater temperature in Heater control LOW mode	Rear Engine: value = 0AH
9779H	Front Engine: (Reserved) Thin paper Duplex Heater temperature in Heater control NORMAL mode	Rear Engine: value = 0DH
977AH	Front Engine: (Reserved) Thin paper Duplex Heater temperature in Heater control HIGH mode	Rear Engine: value = 07H
977BH	Heater temperature added value in Heater control LOW and thick paper printing	value = 0DH
977CH	Heater temperature added value in Heater control NORMAL and thick paper printing	value = 07H

Address	Purpose	Remarks
977DH	Heater temperature added value in Heater control HIGH and thick paper printing	value = 00H
97B0H	Color code No.2: Toner control page step 1	value = 32H(500page)
97B1H	Color code No.2: Toner control page step 2	value = 64H(1000page)
97B2H	Color code No.3: Toner control page step 1	value = 32H(500page)
97B3H	Color code No.3: Toner control page step 2	value = 64H(1000page)
97B4H	Color code No.4: Toner control page step 1	value = 00H(0page)
97B5H	Color code No.4: Toner control page step 2	value = 00H(0page)
97B6H	Color code No.5: Toner control page step 1	value = 00H(0page)
97B7H	Color code No.5: Toner control page step 2	value = 00H(0page)
97B8H	Color code No.6: Toner control page step 1	value = 00H(0page)
97B9H	Color code No.6: Toner control page step 2	value = 00H(0page)
97BAH	Color code No.7: Toner control page step 1	value = 00H(0page)
97BBH	Color code No.7: Toner control page step 2	value = 00H(0page)
97BCH	Color code No.8: Toner control page step 1	value = 00H(0page)
97BDH	Color code No.8: Toner control page step 2	value = 00H(0page)
97BEH	Color code No.9: Toner control page step 1	value = 00H(0page)
97BFH	Color code No.9: Toner control page step 2	value = 00H(0page)
97C0H	Color code No.A: Toner control page step 1	value = 00H(0page)
97C1H	Color code No.A: Toner control page step 2	value = 00H(0page)
97C2H	Color code No.B: Toner control page step 1	value = 00H(0page)
97C3H	Color code No.B: Toner control page step 2	value = 00H(0page)
97C4H	Color code No.C: Toner control page step 1	value = 00H(0page)
97C5H	Color code No.C: Toner control page step 2	value = 00H(0page)
97C6H	Color code No.D: Toner control page step 1	value = 00H(0page)
97C7H	Color code No.D: Toner control page step 2	value = 00H(0page)
97C8H	Color code No.E: Toner control page step 1	value = 00H(0page)
97C9H	Color code No.E: Toner control page step 2	value = 00H(0page)
97CAH	Color code No.F: Toner control page step 1	value = 00H(0page)
97CBH	Color code No.F: Toner control page step 2	value = 00H(0page)
97CCH	Color code No.2: Toner control voltage step 1	value = 05H(0.1V)
97CDH	Color code No.2: Toner control voltage step 2	value = 05H(0.1V)
97CEH	Color code No.3: Toner control voltage step 1	value = 05H(0.1V)
97CFH	Color code No.3: Toner control voltage step 2	value = 05H(0.1V)
97D0H	Color code No.4: Toner control voltage step 1	value = 00H(0.0V)
97D1H	Color code No.4: Toner control voltage step 2	value = 00H(0.0V)
97D2H	Color code No.5: Toner control voltage step 1	value = 00H(0.0V)
97D3H	Color code No.5: Toner control voltage step 2	value = 00H(0.0V)
97D4H	Color code No.6: Toner control voltage step 1	value = 00H(0.0V)

Address	Purpose	Remarks
97D5H	Color code No.6: Toner control voltage step 2	value = 00H(0.0V)
97D6H	Color code No.7: Toner control voltage step 1	value = 00H(0.0V)
97D7H	Color code No.7: Toner control voltage step 2	value = 00H(0.0V)
97D8H	Color code No.8: Toner control voltage step 1	value = 00H(0.0V)
97D9H	Color code No.8: Toner control voltage step 2	value = 00H(0.0V)
97DAH	Color code No.9: Toner control voltage step 1	value = 00H(0.0V)
97DBH	Color code No.9: Toner control voltage step 2	value = 00H(0.0V)
97DCH	Color code No.A: Toner control voltage step 1	value = 00H(0.0V)
97DDH	Color code No.A: Toner control voltage step 2	value = 00H(0.0V)
97DEH	Color code No.B: Toner control voltage step 1	value = 00H(0.0V)
97DFH	Color code No.B: Toner control voltage step 2	value = 00H(0.0V)
97E0H	Color code No.C: Toner control voltage step 1	value = 00H(0.0V)
97E1H	Color code No.C: Toner control voltage step 2	value = 00H(0.0V)
97E2H	Color code No.D: Toner control voltage step 1	value = 00H(0.0V)
97E3H	Color code No.D: Toner control voltage step 2	value = 00H(0.0V)
97E4H	Color code No.E: Toner control voltage step 1	value = 00H(0.0V)
97E5H	Color code No.E: Toner control voltage step 2	value = 00H(0.0V)
97E6H	Color code No.F: Toner control voltage step 1	value = 00H(0.0V)
97E7H	Color code No.F: Toner control voltage step 2	value = 00H(0.0V)
97E8H	Print page check counter	
97E9H		
97EAH		
97EBH		
97ECH	CCD serial No.4 for comparing	
97EDH	CCD serial No.3 for comparing	
97EEH	CCD serial No.2 for comparing	
97EFH	CCD serial No.1 for comparing	

(3) Others

Address	Purpose	Remarks
97FCH 97FDH	FRAM check data 1 (X'AA55')	
97FEH 97FFH	FRAM check data 2 (X'AA55')	
9800H | 98FFH	Trace data set area (Toner control data)	
9800H	(Reserved)	
9801H	Color code No.1 : printing setting No.	value=00H(No.0)
9802H	Color code No.2 : printing setting No.	value=02H(No.2)
9803H	Color code No.3 : printing setting No.	value=01H(No.1)
9804H	Color code No.4 : printing setting No.	value=02H(No.2)

Address	Purpose	Remarks
9805H	Color code No.5 : printing setting No.	value=02H(No.2)
9806H	Color code No.6 : printing setting No.	value=02H(No.2)
9807H	Color code No.7 : printing setting No.	value=02H(No.2)
9808H	Color code No.8 : printing setting No.	value=02H(No.2)
9809H	Color code No.9 : printing setting No.	value=02H(No.2)
980AH	Color code No.A : printing setting No.	value=02H(No.2)
980BH	Color code No.B : printing setting No.	value=02H(No.2)
980CH	Color code No.C : printing setting No.	value=02H(No.2)
980DH	Color code No.D : printing setting No.	value=00H(No.0)
980EH	Color code No.E : printing setting No.	value=00H(No.0)
980FH	Color code No.F : printing setting No.	value=00H(No.0)
9810H	(Reserved)	
9811H	Color code No.1 : toner feed cycle	value=64H(1.0s)
9812H	Color code No.2 : toner feed cycle	value=32H(0.5s)
9813H	Color code No.3 : toner feed cycle	value=32H(0.5s)
9814H	Color code No.4 : toner feed cycle	value=32H(0.5s)
9815H	Color code No.5 : toner feed cycle	value=32H(0.5s)
9816H	Color code No.6 : toner feed cycle	value=32H(0.5s)
9817H	Color code No.7 : toner feed cycle	value=32H(0.5s)
9818H	Color code No.8 : toner feed cycle	value=32H(0.5s)
9819H	Color code No.9 : toner feed cycle	value=32H(0.5s)
981AH	Color code No.A : toner feed cycle	value=32H(0.5s)
981BH	Color code No.B : toner feed cycle	value=32H(0.5s)
981CH	Color code No.C : toner feed cycle	value=32H(0.5s)
981DH	Color code No.D : toner feed cycle	value=32H(0.5s)
981EH	Color code No.E : toner feed cycle	value=32H(0.5s)
981FH	Color code No.F : toner feed cycle	value=32H(0.5s)
9820H	Printing setting No.1: print density LIGHT : BIAS	value=05H(300V)
9821H	Printing setting No.1: print density SEMI-LIGHT : BIAS	value=0AH(350V)
9822H	Printing setting No.1: print density MIDDLE: BIAS	value=0FH(400V)
9823H	Printing setting No.1: print density SEMI-DARK : BIAS	value=14H(450V)
9824H	Printing setting No.1: print density DARK : BIAS	value=19H(500V)
9825H	Printing setting No.2: print density LIGHT : BIAS	value=05H(300V)
9826H	Printing setting No.2: print density SEMI-LIGHT : BIAS	value=07H(300V)
9827H	Printing setting No.2: print density MIDDLE: BIAS	value=0AH(350V)
9828H	Printing setting No.2: print density SEMI-DARK : BIAS	value=0FH(400V)
9829H	Printing setting No.2: print density DARK : BIAS	value=14H(450V)

Address	Purpose	Remarks
982AH	(Reserved)	
982BH	(Reserved)	
982CH	(Reserved)	
982DH	(Reserved)	
982EH	(Reserved)	
982FH	(Reserved)	
9830H	BIAS, GRID potential difference setting	value=82H(130V)
9831H	Drum life GRID adding value	value=06H(6V)
9832H	(Reserved)	
9833H	(Reserved)	
9834H	(Reserved)	
9835H	Print setting No.0: The number of count of Developer Mixture output retry	value=00H(0 time)
9836H 9837H	Print setting No.1: No check time of Developer Mixture input	value=1EDCH(79s)
9838H	Print setting No.1: The number of count of Developer Mixture output retry	value=00H(0 time)
983AH 983BH	Print setting No.2: No check time of Developer Mixture input	value=1EDCH(79s)
983CH	Print setting No.2: The number of count of Developer Mixture output retry	value=00H(0 time)
9840H 9841H	H Pos. sensor skew detecting logging information (2) save register Address	
9842H 9843H	H Pos. sensor skew detecting logging information (3) save register Address	
9844H 9845H	H Pos. sensor skew detecting logging information (4) save register Address	
9846H 9847H	H Pos. sensor skew detecting logging information (5) save register Address	
9848H 9849H	H Pos. sensor skew detecting logging information (1) save register Address	
9852H	Skew detecting data	value = 12H(1.5mm)
9853H	LED PWM on time (1)	not used

Address	Purpose	Remarks
9854H	Color parameter control flag bit0: laser power color control bit1: toner control color control bit2: BIAS color control bit3: BIAS adjustment color control bit4 to 7 : (Reserved)	value = 00H 0=valid/1=invalid 0=valid/1=invalid 0=valid/1=invalid 0=valid/1=invalid
9855H	Developer Mixture flag	
9856H	(Reserved)	
9858H	Skew detecting comparing position +offset	value = 00H
9859H	Skew detecting comparing position -offset	value = 00H
985AH	LED PWM on time (2)	not used
985BH		
985CH	HR warm up operation time	value = 55H (85s)
985DH		
9860H	Color Laser setting No.0: LD1 high drive adjustment value	value = 7BH
9861H	Color Laser setting No.0: LD2 high drive adjustment value	value = 7BH
9862H	Color Laser setting No.0: LD1 low drive adjustment value	value = 49H
9863H	Color Laser setting No.0: LD2 low drive adjustment value	value = 49H
9864H	Color Laser setting No.1: LD1 high drive adjustment value	value = 7BH
9865H	Color Laser setting No.1: LD2 high drive adjustment value	value = 7BH
9866H	Color Laser setting No.1: LD1 low drive adjustment value	value = 49H
9867H	Color Laser setting No.1: LD2 low drive adjustment value	value = 49H
9868H	Color Laser setting No.2: LD1 high drive adjustment value	value = 7BH
9869H	Color Laser setting No.2: LD2 high drive adjustment value	value = 7BH
986AH	Color Laser setting No.2: LD1 low drive adjustment value	value = 49H
986BH	Color Laser setting No.2: LD2 low drive adjustment value	value = 49H
986CH	Color drum wrap detecting setting	value = 0FH(0.3V)
9870H 9871H	Color code No.2 bias step 1	value = 0020H(20kC)
9872H 9873H	Color code No.2 bias step 2	value = 0040H(40kC)

Address	Purpose	Remarks
9874H 9875H	Color code No.3 bias step 1	value = 0100H(100kC)
9876H 9877H	Color code No.3 bias step 2	value = 0150H(150kC)
9878H 9879H	Color code No.4 bias step 1	value = 0020H(20kC)
987AH 987BH	Color code No.4 bias step 2	value = 0080H(80kC)
987CH 987DH	Color code No.5 bias step 1	value = 0000H(0kC)
987EH 987FH	Color code No.5 bias step 2	value = 0000H(0kC)
9880H 9881H	Color code No.6 bias step 1	value = 0000H(0kC)
9882H 9883H	Color code No.6 bias step 2	value = 0000H(0kC)
9884H 9885H	Color code No.7 bias step 1	value = 0000H(0kC)
9886H 9887H	Color code No.7 bias step 2	value = 0000H(0kC)
9888H 9889H	Color code No.8 bias step 1	value = 0000H(0kC)
988AH 988BH	Color code No.8 bias step 2	value = 0000H(0kC)
988CH 988DH	Color code No.9 bias step 1	value = 0000H(0kC)
988EH 988FH	Color code No.9 bias step 2	value = 0000H(0kC)
9890H 9891H	Color code No.A bias step 1	value = 0000H(0kC)
9892H 9893H	Color code No.A bias step 2	value = 0000H(0kC)
9894H 9895H	Color code No.B bias step 1	value = 0000H(0kC)
9896H 9897H	Color code No.B bias step 2	value = 0000H(0kC)
9898H 9899H	Color code No.C bias step 1	value = 0000H(0kC)
989AH 989BH	Color code No.C bias step 2	value = 0000H(0kC)
989CH 989DH	Color code No.D bias step 1	value = 0000H(0kC)
989EH 989FH	Color code No.D bias step 2	value = 0000H(0kC)
98A0H 98A1H	Color code No.E bias step 1	value = 0000H(0kC)
98A2H 98A3H	Color code No.E bias step 2	value = 0000H(0kC)

Address	Purpose	Remarks
98A4H 98A5H	Color code No.F bias step 1	value = 0000H(0kC)
98A6H 98A7H	Color code No.F bias step 2	value = 0000H(0kC)
98A8H 98A9H	Color code No.2 toner control step 1	value = 0150H (150kC)
98AAH 98ABH	Color code No.2 toner control step 2	value = 0200H (200kC)
98ACH 98ADH	Color code No.3 toner control step 1	value = 0150H (150kC)
98AEH 98AFH	Color code No.3 toner control step 2	value = 0200H (200kC)
98B0H 98B1H	Color code No.4 toner control step 1	value = 0000H (0kC)
98B2H 98B3H	Color code No.4 toner control step 2	value = 0000H (0kC)
98B4H 98B5H	Color code No.5 toner control step 1	value = 0000H (0kC)
98B6H 98B7H	Color code No.5 toner control step 2	value = 0000H (0kC)
98B8H 98B9H	Color code No.6 toner control step 1	value = 0000H (0kC)
98BAH 98BBH	Color code No.6 toner control step 2	value = 0000H (0kC)
98BCH 98BDH	Color code No.7 toner control step 1	value = 0000H (0kC)
98BEH 98BFH	Color code No.7 toner control step 2	value = 0000H (0kC)
98C0H 98C1H	Color code No.8 toner control step 1	value = 0000H (0kC)
98C2H 98C3H	Color code No.8 toner control step 2	value = 0000H (0kC)
98C4H 98C5H	Color code No.9 toner control step 1	value = 0000H (0kC)
98C6H 98C7H	Color code No.9 toner control step 2	value = 0000H (0kC)
98C8H 98C9H	Color code No.A toner control step 1	value = 0000H (0kC)
98CAH 98CBH	Color code No.A toner control step 2	value = 0000H (0kC)
98CCH 98CDH	Color code No.B toner control step 1	value = 0000H (0kC)
98CEH 98CFH	Color code No.B toner control step 2	value = 0000H (0kC)
98D0H 98D1H	Color code No.C toner control step 1	value = 0000H (0kC)
98D2H 98D3H	Color code No.C toner control step 2	value = 0000H (0kC)

Address	Purpose	Remarks
98D4H 98D5H	Color code No.D toner control step 1	value = 0000H (0kC)
98D6H 98D7H	Color code No.D toner control step 2	value = 0000H (0kC)
98D8H 98D9H	Color code No.E toner control step 1	value = 0000H (0kC)
98DAH 98DBH	Color code No.E toner control step 2	value = 0000H (0kC)
98DCH 98DDH	Color code No.F toner control step 1	value = 0000H (0kC)
98DEH 98DFH	Color code No.F toner control step 2	value = 0000H (0kC)
98F3H	Transfer cleaner return control selection	value = 00H (return control)
98F4H 98F5H 98F6H 98F7H	Total page counter of last H Pos. sensor dirty check	
98F8H	LED PWM Duty value at H Pos. sensor dirty detecting	
98F9H	LED PWM Duty value of last H Pos. sensor dirty detecting	
9900H I 99FFH	Trace data set area (Memory write address) DDP70, DDP92	
9900H 9901H	H Pos. sensor logging information (9) save register Address	
9A00H I 9AEFH	Trace data set area 2 DDP70, DDP92	
9AE0H 9AE1H	Double Feed detecting sensor logging information (2) save register Address	
9AE2H 9AE3H	Double Feed detecting sensor logging information (3) save register Address	
9AE4H 9AE5H	Double Feed detecting sensor logging information (4) save register Address	
9AE6H 9AE7H	Double Feed detecting sensor logging information (5) save register Address	
9AE8H 9AE9H	Double Feed detecting sensor logging information (1) save register Address	
9AF0H 9AF1H	RAM W/R check flag	value = 19AFH
9AF4H I 9AF7H	NVSRAM READ/WRITE CHECK WORK	

Address	Purpose	Remarks
9AFEH 9AFFH	default set flag	value = 0801H
9B00H I 9BDFH	(reserved)	
9B30H	Tray 1 Detach HV 1 standard value (Simplex)	default = 90H
9B31H	Tray 1 Detach HV 2 standard value (Simplex)	default = 90H
9B32H	Tray 1 Detach HV 3 standard value (Duplex)	default = 90H
9B33H	Tray 1 Detach HV 4 standard value (Duplex)	default = 90H
9B34H	Tray 2 Detach HV 1 standard value (Simplex)	default = 90H
9B35H	Tray 2 Detach HV 2 standard value (Simplex)	default = 90H
9B36H	Tray 2 Detach HV 3 standard value (Duplex)	default = 90H
9B37H	Tray 2 Detach HV 4 standard value (Duplex)	default = 90H
9B38H	Tray 3 Detach HV 1 standard value (Simplex)	default = 90H
9B39H	Tray 3 Detach HV 2 standard value (Simplex)	default = 90H
9B3AH	Tray 3 Detach HV 3 standard value (Duplex)	default = 90H
9B3BH	Tray 3 Detach HV 4 standard value (Duplex)	default = 90H
9B3CH	Tray 5 Detach HV 1 standard value (Simplex)	default = 90H
9B3DH	Tray 5 Detach HV 2 standard value (Simplex)	default = 90H
9B3EH	Tray 5 Detach HV 3 standard value (Duplex)	default = 90H
9B3FH	Tray 5 Detach HV 4 standard value (Duplex)	default = 90H
9B40H	MB Tray Detach HV 1 standard value (Simplex)	default = 90H
9B41H	MB Tray Detach HV 2 standard value (Simplex)	default = 90H
9B42H	MB Tray Detach HV 3 standard value (Duplex)	not used
9B43H	MB Tray Detach HV 4 standard value (Duplex)	not used
9B44H 9B45H	Color code No.2 bias step 3	value = 0080H(80kC)
9B46H 9B47H	Color code No.2 bias step 4	value = 0250H(250kC)
9B48H 9B49H	Color code No.2 bias step 5	value = 0350H(350kC)
9B4AH 9B4BH	Color code No.3 bias step 3	value = 0250H(250kC)
9B4CH 9B4DH	Color code No.3 bias step 4	value = 0350H(350kC)
9B4EH 9B4FH	Color code No.3 bias step 5	value = 0450H(450kC)
	9B50H-9B5CH : Staple position adjustment value for Finisher SR5000 adjustment range: -2mm ~ +2mm resolution: 0.5mm/1digit * The MSB 2^7 means the direction of adjustment. MSB= "0" --> front side, MSB="1" --> rear side	

Address	Purpose	Remarks
9B50H 9B51H 9B52H 9B53H 9B54H 9B55H 9B56H 9B57H 9B58H 9B59H 9B5AH 9B5BH 9B5CH	(nu) (nu) B5_LEF Letter-SEF(8.5" x 11") Letter-LEF(8.5" x 11") B4-SEF A4-SEF A4-LEF A3-SEF Executive Legal13"-SEF(8.5" x 13", Folio) Legal14"-SEF(8.5" x 14") Ledger-SEF(11" x 17")	 default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H
9B50H 9B51H	Color code No.4 bias step 3	value = 0120H(120kC)
9B52H 9B53H	Color code No.4 bias step 4	value = 0000H(0kC)
9B54H 9B55H	Color code No.4 bias step 5	value = 0000H(0kC)
9B56H 9B57H	Color code No.5 bias step 3	value = 0000H(0kC)
9B58H 9B59H	Color code No.5 bias step 4	value = 0000H(0kC)
9B5AH 9B5BH	Color code No.5 bias step 5	value = 0000H(0kC)
9B5CH 9B5DH	Color code No.6 bias step 3	value = 0000H(0kC)
9B5EH 9B5FH	Color code No.6 bias step 4	value = 0000H(0kC)
	9B60H-9B6CH : Jogger position adjustment value for Finisher SR5000 adjustment range: -2mm ~ +1.5mm resolution: 0.5mm/1digit * The MSB 2^7 means the direction of adjustment. MSB= "0" --> narrow, MSB= "1" --> wide	
9B60H 9B61H 9B62H 9B63H 9B64H 9B65H 9B66H 9B67H 9B68H 9B69H 9B6AH 9B6BH 9B6CH	(nu) (nu) B5_LEF Letter-SEF(8.5" x 11") Letter-LEF(8.5" x 11") B4-SEF A4-SEF A4-LEF A3-SEF Executive Legal13"-SEF(8.5" x 13", Folio) Legal14"-SEF(8.5" x 14") Ledger-SEF(11" x 17")	 default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H
9B60H 9B61H	Color code No.6 bias step 5	value = 0000H(0kC)
9B62H 9B63H	Color code No.7 bias step 3	value = 0000H(0kC)
9B64H 9B65H	Color code No.7 bias step 4	value = 0000H(0kC)

Address	Purpose	Remarks
9B66H 9B67H	Color code No.7 bias step 5	value = 0000H(0kC)
9B68H 9B69H	Color code No.8 bias step 3	value = 0000H(0kC)
9B6AH 9B6BH	Color code No.8 bias step 4	value = 0000H(0kC)
9B6CH 9B6DH	Color code No.8 bias step 5	value = 0000H(0kC)
9B6EH 9B6FH	Color code No.9 bias step 3	value = 0000H(0kC)

Address	Purpose	Remarks
	9B70H-9B7DH : Shift Jogger position adjustment value for Finisher SR5000 adjustment range: -3mm ~ +3mm resolution: 0.1mm/1digit * The MSB 2^7 means the direction of adjustment. MSB= "0" --> narrow, MSB= "1" --> wide	
9B70H 9B71H 9B72H 9B73H 9B74H 9B75H 9B76H 9B77H 9B78H 9B79H 9B7AH 9B7BH 9B7CH 9B7DH 9B7EH	A5 Special 12" x 18" B5_LEF Letter-SEF(8.5" x 11") Letter-LEF(11" x 8.5")/Letter-TAB(11" x 9") B4-SEF A4-SEF A4-LEF/A4 TAB A3-SEF Executive Legal13"-SEF(8.5" x 13", Folio) Legal14"-SEF(8.5" x 14") Ledger-SEF(11" x 17") Statement	default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H
9B70H 9B71H	Color code No.9 bias step 4	value = 0000H(0kC)
9B72H 9B73H	Color code No.9 bias step 5	value = 0000H(0kC)
9B74H 9B75H	Color code No.A bias step 3	value = 0000H(0kC)
9B76H 9B77H	Color code No.A bias step 4	value = 0000H(0kC)
9B78H 9B79H	Color code No.A bias step 5	value = 0000H(0kC)
9B7AH 9B7BH	Color code No.B bias step 3	value = 0000H(0kC)
9B7CH 9B7DH	Color code No.B bias step 4	value = 0000H(0kC)
9B7EH 9B7FH	Color code No.B bias step 5	value = 0000H(0kC)
	9B80H-9B8CH : Top Fence position adjustment value for Finisher SR5000 adjustment range: -5mm ~ +10mm resolution: 0.1mm/1digit * The MSB 2^7 means the direction of adjustment. MSB= "0" --> decrease, MSB= "1" --> increasing	
9B80H 9B81H 9B82H 9B83H 9B84H 9B85H 9B86H 9B87H 9B88H 9B89H 9B8AH 9B8BH 9B8CH	(nu) (nu) B5_LEF Letter-SEF(8.5" x 11") Letter-LEF(8.5" x 11") B4-SEF A4-SEF A4-LEF A3-SEF Executive Legal13"-SEF(8.5" x 13", Folio) Legal14"-SEF(8.5" x 14") Ledger-SEF(11" x 17")	 default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H default = 00H

Address	Purpose	Remarks
9B80H 9B81H	Color code No.C bias step 3	value = 0000H (0kC)
9B82H 9B83H	Color code No.C bias step 4	value = 0000H (0kC)
9B84H 9B85H	Color code No.C bias step 5	value = 0000H (0kC)
9B86H 9B87H	Color code No.D bias step 3	value = 0000H (0kC)
9B88H 9B89H	Color code No.D bias step 4	value = 0000H (0kC)
9B8AH 9B8BH	Color code No.D bias step 5	value = 0000H (0kC)
9B8CH 9B8DH	Color code No.E bias step 3	value = 0000H (0kC)
9B8EH 9B8FH	Color code No.E bias step 4	value = 0000H (0kC)
9B90H 9B91H	The PM interval for the PM counter Alignment Brush Roller of Finisher SR5000	Value = 2500 1000 pages/count
9B92H 9B93H	The PM interval for the PM counter Stapler of Finisher SR5000	Value = 5000 1000 pages/count
9B94H 9B95H	The PM interval for the PM counter Positioning Roller (Staple Tray) of Finisher SR5000	Value = 2500 1000 pages/count
9B96H 9B97H	The PM interval for the PM counter Drag Roller of Finisher SR5000	Value = 300 1000 pages/count
9B98H 9B99H	The PM interval for the PM counter Alignment Brush Roller of Finisher SR5000	1000 pages/count Max 9999
9B9AH 9B9BH	The PM interval for the PM counter Stapler of Finisher SR5000	1000 pages/count Max 9999
9B9CH 9B9DH	The PM interval for the PM counter Positioning Roller (Staple Tray) of Finisher SR5000	1000 pages/count Max 9999
9B9EH 9B9FH	The PM interval for the PM counter Drag Roller of Finisher SR5000	1000 pages/count Max 9999
9B90H 9B91H	Color code No.E bias step 5	value = 0000H (0kC)
9B92H 9B93H	Color code No.F bias step 3	value = 0000H (0kC)
9B94H 9B95H	Color code No.F bias step 4	value = 0000H (0kC)
9B96H 9B97H	Color code No.F bias step 5	value = 0000H (0kC)
9B98H 9B99H	Color code No.2 toner control step 3	value = 0300H (300kC)
9B9AH 9B9BH	Color code No.2 toner control step 4	value = 0400H (400kC)
9B9CH 9B9DH	Color code No.3 toner control step 3	value = 0300H (300kC)
9B9EH 9B9FH	Color code No.3 toner control step 4	value = 0400H (400kC)

Address	Purpose	Remarks
9BA0H 9BA1H	The count value of PM counter Alignment Brush Roller of Finisher SR5000	(1 to 999) 1 page/count
9BA2H 9BA3H	The count value of PM counter Stapler of Finisher SR5000	(1 to 999) 1 page/count
9BA4H 9BA5H	The count value of PM counter Positioning Roller (Staple Tray) of Finisher SR5000	(1 to 999) 1 page/count
9BA6H 9BA7H	The count value of PM counter Drag Roller of Finisher SR5000	(1 to 999) 1 page/count
9BA0H 9BA1H	Color code No.4 toner control step 3	value = 0000H (0kC)
9BA2H 9BA3H	Color code No.4 toner control step 4	value = 0000H (0kC)
9BA4H 9BA5H	Color code No.5 toner control step 3	value = 0000H (0kC)
9BA6H 9BA7H	Color code No.5 toner control step 4	value = 0000H (0kC)
9BA8H 9BA9H	Color code No.6 toner control step 3	value = 0000H (0kC)
9BAAH 9BABH	Color code No.6 toner control step 4	value = 0000H (0kC)
9BACH 9BADH	Color code No.7 toner control step 3	value = 0000H (0kC)
9BAEH 9BAFH	Color code No.7 toner control step 4	value = 0000H (0kC)
	Indicates the program version of Finisher SR5000 firmware: "N2N3.N5N6" + "N7", boot area "N9N10"	
9BB0H	Finisher SR5000 Program version N2(bit 7~4), N3(bit 3~0)	Binary-coded decimal
9BB1H	Finisher SR5000 Program version N5(bit 7~4), N6(bit 3~0)	Binary-coded decimal
9BB2H	Finisher SR5000 Program version N7 suffix, 40 and 41~5AH, ASCII code	ASCII code
9BB3H	Finisher SR5000 Boot Area Program version N9/N10 N9(bit 7~4), N10(bit 3~0)	Binary-coded decimal
9BB4H	Jogger mode of Finisher SR5000 (00 = enable)	default = 00H
9BB5H	Prestack mode of Finisher SR5000 (02 = 2page prestack mode)	default = 02H
9BB0H 9BB1H	Color code No.8 toner control step 3	value = 0000H (0kC)
9BB2H 9BB3H	Color code No.8 toner control step 4	value = 0000H (0kC)
9BB4H 9BB5H	Color code No.9 toner control step 3	value = 0000H (0kC)
9BB6H 9BB7H	Color code No.9 toner control step 4	value = 0000H (0kC)
9BB8H 9BB9H	Color code No.A toner control step 3	value = 0000H (0kC)

Address	Purpose	Remarks
9BBAH 9BBBH	Color code No.A toner control step 4	value = 0000H (0kC)
9BBCH 9BBDH	Color code No.B toner control step 3	value = 0000H (0kC)
9BBEH 9BBFH	Color code No.B toner control step 4	value = 0000H (0kC)
9BC0H 9BC1H	Color code No.C toner control step 3	value = 0000H (0kC)
9BC2H 9BC3H	Color code No.C toner control step 4	value = 0000H (0kC)
9BC4H 9BC5H	Color code No.D toner control step 3	value = 0000H (0kC)
9BC6H 9BC7H	Color code No.D toner control step 4	value = 0000H (0kC)
9BC8H 9BC9H	Color code No.E toner control step 3	value = 0000H (0kC)
9BCAH 9BCBH	Color code No.E toner control step 4	value = 0000H (0kC)
9BCCH 9BCDH	Color code No.F toner control step 3	value = 0000H (0kC)
9BCEH 9BCFH	Color code No.F toner control step 4	value = 0000H (0kC)
9BD0H	Color code No.2 bias page step	value = 05H (50v)
9BD1H	Color code No.3 bias page step	value = 05H (50v)
9BD2H	Color code No.4 bias page step	value = 00H (0v)
9BD3H	Color code No.5 bias page step	value = 00H (0v)
9BD4H	Color code No.6 bias page step	value = 00H (0v)
9BD5H	Color code No.7 bias page step	value = 00H (0v)
9BD6H	Color code No.8 bias page step	value = 00H (0v)
9BD7H	Color code No.9 bias page step	value = 00H (0v)
9BD8H	Color code No.A bias page step	value = 00H (0v)
9BD9H	Color code No.B bias page step	value = 00H (0v)
9BDAH	Color code No.C bias page step	value = 00H (0v)
9BDBH	Color code No.D bias page step	value = 00H (0v)
9BDCH	Color code No.E bias page step	value = 00H (0v)
9BDDH	Color code No.F bias page step	value = 00H (0v)
9BDEH	Color page check control selection bit 0: color No.2 bit 1: color No.3 bit 2: color No.4 bit 3: color No.5 bit 4: color No.6 bit 5: color No.7	default = 00H 0=valid/1=invalid 0=valid/1=invalid 0=valid/1=invalid 0=valid/1=invalid 0=valid/1=invalid 0=valid/1=invalid

Address	Purpose	Remarks
9BDFH	Color page check control selection bit 0: color No.A bit 1: color No.B bit 2: color No.C bit 3: color No.D bit 4: color No.E bit 5: color No.F	default = 00H 0=valid/1=invalid 0=valid/1=invalid 0=valid/1=invalid 0=valid/1=invalid 0=valid/1=invalid 0=valid/1=invalid
9BE0H	memory write routine control flag	00H=limited FFH=no limited
9BE1H	Heater temperature indication control flag	00H=limited FFH=no limited
9BF0H 9BF1H	Master ROM Revision	
9BF2H 9BF3H	Slave ROM Revision	
9BF4H 9BF5H		
9BF6H	Printer lot number4	
9BF7H	Printer lot number3	
9BF8H	Printer lot number2	
9BF9H	Printer lot number1	
9BFAH 9BFBH	Lot No.	
9BFCH 9BFDH 9BFEH 9BFFH		
9BE0H	A control flag of Memory-Writing routine	"00": limited, "FF": free
9BE1H	A control flag to display temperature of the Heater	"00": disable, "FF": enable
9BE2H | 9BEFH	(reserved)	

8.5.8. Rom Rev. and Serial/Lot No. information

Address	Purpose	Remarks
9BF0H 9BF1H	Master ROM Rev.	
9BF2H 9BF3H	Slave ROM Rev.	
9BF4H	(Reserved)	
9BF5H	(Reserved)	
9BF6H	Printer Lot No. 4	
9BF7H	Printer Lot No. 3	
9BF8H	Printer Lot No. 2	
9BF9H	Printer Lot No. 1	
9BFAH 9BFBH	Lot No.	2 Byte data

Address	Purpose	Remarks
9BFCH	(Reserved)	
9BFDH	(Reserved)	
9BFEH	(Reserved)	
9BFFH	(Reserved)	

8.6. Detach Voltage Adjustment

8.6.1. Setting the Detach Voltage

The Detach Voltage is sensitive to elevation, humidity, and paper type. The default setting is "144"; however, it may be necessary to adjust the setting based on the conditions at the installation site. E128, E134, E118, or E119 errors are an indication that an adjustment is necessary. If so, use the following procedure to adjust the Detach Voltage Settings:

1. Select ***Printer / Options />> / Detach Voltage / Front Engine or Rear Engine / Tray # or All Trays.***

Note:	When All Trays is selected, any adjustment you make is common to all trays without having to select each tray.

Press the Default button to make the setting "144" for both the front and back pages.

2. Select ***Printer / Test Print / Print Quality / Text File 4%*** and select the paper input tray, output tray, print mode and copies.
3. Observe whether all pages are output without an error and record observations.
4. Repeat Step 1 and set all four detach settings lower by an increment of "8".
5. Repeat Steps 2 and 3, recording observations.
6. Continue repeating Steps 1, 2 and 3, reducing the setting in increments of "8" (128, 120, 112, 104, 96, 88, 80) recording observations at each setting.
7. Repeat Step 1 and set all four detach settings to "152".
8. Repeat Steps 2 and 3.
9. Continue repeating Steps 1, 2 and 3, increasing in increments of "8" (160, 168, 176, 184, 192, 200, 208) recording observations at each setting.
10. From the observations made in Steps 6 and 9 determine the range of acceptable output (no errors). Make the final setting at the midpoint. For example, if errors occurred at settings of 104 and below and also at settings of 160 and above, make the final setting at 132 (midway between 104 and 160).

8.6.2. Detach Voltage Adjustment of the High Voltage Power Supply (2)

Note: When the High Voltage Power Supply (2) is exchanged, record the value of Detach AC Voltage before it is removed. And set the same value to installed another one.

Applicable jigs and tools: ⊕ Screwdriver, Digital Multimeter.

[Adjustment]

1. Input "A2" to the maintenance panel, and it switches to "Continuous drive mode". (Refer to item 8.4.6.1 on page 8-25)
2. Input "83" to the maintenance panel, comfirm and record the output value from the test point (TPG_DTC, TP_DTC) of the CP P/K Assembly.
3. While seeing the displayed value on the digital multimeter, turn the trimmer(VR3) shown in figure. And adjust the voltage.
4. When the adjustment is completed, push S/S Key twice, and return to the state before.

Note: Permitted voltage range for adjustment: from 4.55 to 5.00 VAC . When the voltage was stepped up over the permitted voltage range, it may cause high voltage error.

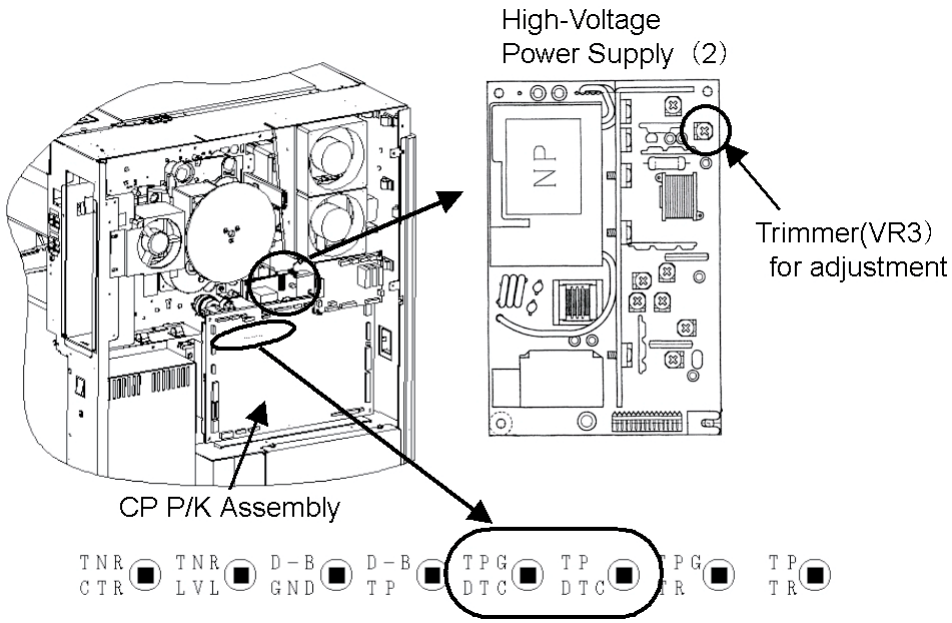


Figure 8-5. Detach Voltage Adjustment of the High Voltage Power Supply (2)

CAUTION:
Do not touch the High Voltage Power Supply (2) except the trimmer (VR3) for the adjustment because the High Voltage Power Supply (2) may cause break.

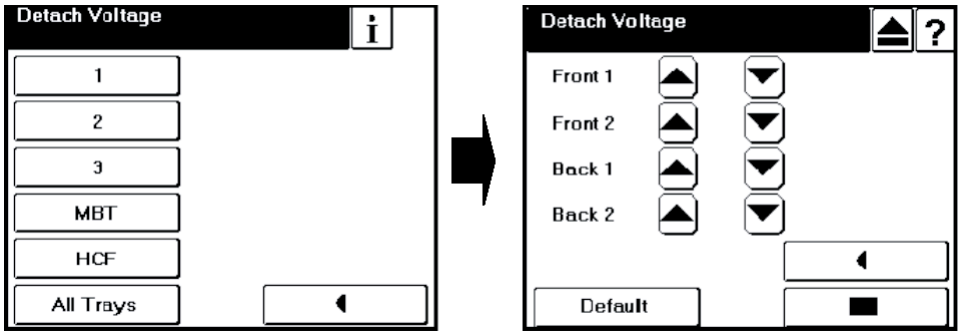
8.6.3. Detach Voltage Setting according to the Altitude

The Detach Voltage is sensitive to elevation, humidity, and paper type. Therefore, when the installation site is 1300ft or more, it is necessary to be set appropriately according to altitude of installation site.

The procedure for adjusting the Detach Voltage will depend on the Controller Version of the printer. Performing the following steps, set the Detach Voltage.

Select ***Printer / Options / >>/ Detach Voltage / Front Engine or Rear Engine***

The following screen will be displayed.



Select ***All trays***

Figure 8-6. Detach Voltage Setting according to the Altitude

Set the Detach Voltage value by using "▲" and "▼" buttons, according to the altitude as shown in Table 8-3. At that time, make the setting of both the front and back pages the same.

Table 8-3. Detach Voltage Setting according to the Altitude

	Default	0ft<altitude<1,300ft	1,300ft<altitude<3,800	3,800ft<altitude<7,000
DTC_PWM	144	144	128	112

SUPPLIMENT 1 – Diagnostics Routine

Select the routine, and input the row No., column No. that order. e.g. Sensor Test for “HP1 Height Sensor” is routine No. “01”.

Item	No	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Sensor Test	0		HP1 Height Sensor	HP2 Height Sensor	HP3 Height Sensor	Height Sensor	HP1 Upper Limit Sensor	HP1 Empty Sensor	HP2 Empty Sensor	HP3 Empty Sensor	Empty Sensor	MB Tray Empty Sensor	Lower Limit Sensor	SB Cover Sensor	IS Cover Open Sensor		Transit Pass Unit Cover Open *12
	1	HP1 Rest Sensor A	HP1 Rest Sensor B	HP1 Rest Sensor C	HP2 Rest Sensor	HP3 Rest Sensor	HP5 Rest Sensor A	HP5 Rest Sensor B	HP5 Rest Sensor C	HP1 Size Sensor	HP2 Size Sensor	HP3 Size Sensor	HP5 Size Sensor	HP5 Top Cover Sensor		HP5 Door Sensor	HP5 Over Run Sensor
	2	IS Feed Sensor 1	IS Feed Sensor 2	IS Feed Sensor 3	HP5 Feed Sensor	Timing Sensor	Skew Sensor 1	Skew Sensor 2	HR Out Sensor	Flip Sensor	SB Sensor	Retuen 1 Sensor	Return 2 Sensor	PF Out Sensor	HP1 Pick Sensor	HP2 Pick Sensor	HP3 Pick Sensor
	3	MG Sensor	Drum REV Sensor	Toner Empty Sensor *1	Toner Bag Set Sensor *2			Toner Bag Full Sensor *3	Dev Bottle Set Sensor		Recycle REV Sensor	Felt End Sensor	TR Cleaner Position Sensor *4	S/B Gate Sensor	Center Path Cover Open *8	Center Path Guide Open *8	Transit Pass Unit Sensor *11
	4		Thermal Sensor (A/D)		Toner Leve (A/D)	Toner Control (A/D)	Temp. Sensor (A/D)	Humidity Sensor (A/D)		Drum Wrap 2 (A/D)	Center Path Path Sensor 1 *8	Center Path Path Sensor 2 *8	Center Path Path Sensor 3 *8	Center Path Path Sensor 4 *8	Center Path Path Sensor 5 *8	Center Path Path Sensor 6 *8	
Driver Test	5	Timing Motor CW Drive	Timing Motor CCW Drive	Return Motor CW Drive	Return Motor CCW Drive	MB Cluch Drive		HR Motor Drive	Registration Motor CW Drive	Registration Motor CCW Drive	PF Out Motor Drive	TH Motor Drive	SB Motor CW/CCW Drive	S/B Gate Motor Drive	Flip Motor CW/CCW Drive	Flip Solenoid Drive	Decurler Solenoid Drive
	6	IS Feed Motor Drive	Hopper 1 Cluch Drive	Hopper 2 Cluch Drive	Hopper 3 Cluch Drive	Hopper 5 Motor Drive	Hopper 5 Clutch Drive	Center Path Path 1 Motor Drive *8	Center Path Path 2 Motor Drive *8	Center Path Path 3 Motor Drive *8	Center Path Path 4 Motor Drive *8	Center Path Solenoid Drive *8	Transit Pass Motor *11			TR Cleaner CW/CCW Drive	TR Cleaner CCW Drive
	7	Drum Motor CW Drive	Drum Motor CCW Drive	Dev Motor CW Drive	Dev Motor CCW Drive	Toner Feed Motor CW Drive	Toner Feed Motor CCW Drive	Felt CCW/CW Drive					TH Fan Drive	Dev Cooling Fan Drive	Separating Blowers Drive		
	8	Charger Grid HV	Bias HV	Transfer HV	Detach HV			Erase Lamp Drive					Laser 1 High Drive	Laser 2 High Drive	Laser 1/2 Drive	Mirror & Laser Drive	Optical Unit Drive
Adjustment	9	Laser 1 Drive	Laser 2 Drive	Laser 1 Low Drive	Laser 2 Low Drive	Laser Delay Data Set			Toner Supply	Toner Control Level Adjustment	Developer Charge	Developer Discharge					
Maintenance	A		Auto Stop Mode	Continuous Mode	Inport Read		Memory Read	Memory Write	UC Area Clear	Trace Area Clear	UC Value Set		H Data Set	V Data Set		Printer Lot No. Set	
	B																
	C																
	D																
	E																
Option	F		Finisher Diag. *6	Container Stacker Diag. *10	Multi-Feed Sensor Adjustment *9	Finisher Diag. *7											

You can carry out these commands in the case of the state that each hopper is opened. If you don’t act so, paper is picked.

*1 Toner Empty Sensor corresponds to Toner Sensor (Toner Hopper).
*2 Toner Bag Set Sensor corresponds to Toner Collector Bottle Set Sensor.
*3 Toner Bag Full Sensor corresponds to Toner Sensor (Recycle Unit).
*4 TR Cleaner Position Sensor corresponds to Transfer Cleaner Position Sensor.
*5 TR Cleaner corresponds to Corotron Cleaner Motor.
*6 Refer to SUPPLEMENT 1 (1) “Diagnostics Routine of Finisher (FS - 108R)” on page 2.
*7 Refer to SUPPLEMENT 1 (2) “Diagnostics Routine of Finisher (Finisher SR5000)” on page 3.
*8 Device mounted on the Relay Unit. Diagnostic is performed from Maintenance Panel of the Rear Engine.
*9 Front Engine only is valid;
01:Hopper 1, 02: Hopper 2, 03: Hopper 3, 05: Hopper 5, 08: Standard value setting.
*10 Refer to Diagnostics of the Container Stacker in "Container Stacker Maintenance Manual".
*11 Diagnostic is performed from Maintenance Panel of the Rear Engine.
*12 This Sensor Test is supported without Container Stacker.

(1) Diagnostics Routine of Finisher (FS - 108R)

Item	No	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Finisher Sensor Test	0	Interlock	P Exit Cover PS	Tray Upper Limit PS	Tray Lower Limit PS	Staple Paper Exit Upper Limit PS	Sub Tray Full PS	Folding Full Up PS	Tray No Paper Detect PS		Sheet Tray Upper Limit PS	Sheet Tray Lower Limit PS	Pre No Paper PS	Sheet Set PS			No Sheet PS
	1	FIN Entrance Passage PS	Paper Exit 2 PS	Paper Exit 1 PS	Stacker Conveyance Passage PS	Sub Tray Paper Exit PS	Folding Passage PS/2	Folding Passage PS/1	Folding P Exit PS	Sheet Passage PS	Stacker No Paper Detect PS		Cartridge Detect SW/F	Staple Detect SW/F			
	2	Cartridge Detect SW/R	Staple Detect SW/R				Stapler Movement HP PS	Stapler Rotation HP PS	Alignment Plate/UP HP PS	Roller Shift HP PS	Paper Exit Belt HP PS	Paper Exit Opening PS	Folding Stopper HP PS	Alignment Plate/LOW HP PS	Stpl&Fold Stopper HP PS	Folding Knife HP PS	Stpl&Fold Stopper Release M HP PS
	3																
Finisher Driver Test	4	Conveyance Motor Drive	Shift HP Search	Shift Drive	Shift Rotate	Main Tray Up	Main Tray Down	Main Tray Staple Operation	Alignment Plate/UP Drive	Paper Exit Roller Motor CW Drive	Paper Exit Roller Motor CCW Drive	Paper Exit Opening Close	Paper Exit Opening Open	Stapler R Initialize	Stapler R Staple	Stapler F Initialize	Stapler F Staple
	5	Stapler HP Search	Stapler 1 Position Drive	Stacker Entrance Motor Drive	Stpl&Fold Stopper M A4(SEF) Position	Alignment Plate/LOW Drive	Folding Stopper HP Search	Folding Knife HP Search	Folding Conveyance Motor Drive	Stpl&Fold Stopper Release M HP Search	Stpl&Fold Stopper Release M HP Release	Stpl&Fold Stopper Release M HP Set	Alignment Plate/UP Open	Alignment Plate/UP Close	Alignment Plate/UP Open/Close	Alignment Plate/LOW Open	Alignment Plate/LOW Close
	6	Alignment Plate/LOW Open/Close	Stpl&Fold Stopper M A4(SEF) Position	Folding Stopper A4(SEF) Position	Sheet Tray Motor Up	Sheet Tray Motor Down	Gate Solenoid Drive	Sub-Tray Paper Exit solenoid Drive	Sub-Tray Solenoid Drive	By-Pass Solenoid Drive	Paper Exit Solenoid Drive	Paper Feed Clutch Drive	Paper Feed Solenoid Drive	Running			

(2) Diagnostics Routine of Finisher (Finisher SR5000)

Item	No	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Finisher Sensor Test	0	Entrance Sensor	Upper Tray Exit Sensor	Shift Tray Exit Sensor 1	Staple Tray Exit Sensor	Shift Tray Full Sensor	Shift Tray Near-Full Sensor	Stack Feed-Out Belt HP Sensor	Jogger HP Sensor	Shift HP1 Sensor	Staple HP Sensor (Front/Rear)	Staple Change HP Sensor	Needle Full Detect Sensor	Staple Tray Space Sensor			
	1		Staple Space Sensor	Shift Space Sensor	Jam Detection Sensor	Upper Tray Full Sensor	Stapler Rotation Sensor 1	Staple Trimming Hopper Full Sensor	Pre-Stack Tray Paper Sensor	Stack Plate HP Sensor (Center)	Exit Guide HP Sensor	Stapler Rotation Sensor 2	Release HP Sensor	Stack Plate HP Sensor (Front)	Stack Plate HP Sensor (Rear)	Drag Drive HP Sensor	Positioning Roller HP Sensor
	2	Paper Height Sensor Standby Mode	Shift Tray Full Sensor (Large paper)		Shift Jogger Sensor	Shift Tray Jogger HP Sensor	Shift Tray Jogger Retraction HP Sensor	Emergency Stop Switch	Top Fence HP Switch	Bottom Fence HP Switch		Shift Tray Exit Sensor 2	Upper Tray Junction Gate HP Sensor	Stapler Junction Gate HP Sensor	Pre-Stack Junction Gate HP Sensor	Pre-Stack Sensor	Pre-Stack Cancellation HP Sensor
	3																
Finisher Driver Test	4		Upper Transport Motor	Shift Tray Exit Motor	Upper Tray Junction Motor	Shift Tray Lift Motor	Jogger Motor	Stapler Movement Motor	Stapler Hammer Motor		Stapler Junction Gate Motor	Drag Drive Motor	Stack Feed-On Belt Motor	Shift Motor	Stapler Rotation Motor	Stapler Exit Motor	Exit Guide Motor
	5	Stack Plate Motor (Center)	Pre-Stack Junction Gate Motor		Stack Plate Motor (Front)	Stack Plate Motor (Rear)	Positioning Drive Motor	Positioning Roller Motor	Shift Tray Jogger Motor	Shift Tray Junction Gate Motor	Top Fence Motor	Bottom Fence Motor	Lower Transport Motor	Upper Tray Exit Motor	Drag Roller Motor		
	6																
	7																

SUPPLEMENT 2 - Details of Sensor Test

Routine No.	Sensor Name	Description
00	-	-
01	HP1 Height Sensor	This signal is “H“, when the paper in Hopper 1 or table of Hopper 1 reaches the top of Hopper 1.
02	HP2 Height Sensor	This signal is “H“, when the paper in Hopper 2 or table of Hopper 2 reaches the top of Hopper 2.
03	HP3 Height Sensor	This signal is “H“, when the paper in Hopper 3 or table of Hopper 3 reaches the top of Hopper 3.
04	HP5 Height Sensor	This signal is “H“, when the paper in High Capacity Hopper or table of High Capacity Hopper reaches the top of High Capacity Hopper.
05	HP1 Upper Limit Sensor	This signal is “H“, when the paper in Hopper 1 is set incorrect.
06	HP1 Empty Sensor	This signal is “H“, when there is no paper in Hopper 1.
07	HP2 Empty Sensor	This signal is “H“, when there is no paper in Hopper 2.
08	HP3 Empty Sensor	This signal is “H“, when there is no paper in Hopper 3.
09	HP5 Empty Sensor	This signal is “H“, when there is no paper in High Capacity Hopper.
0A	MBT Empty Sensor	This signal is “H“, when there is no paper in MB Tray.
0B	HP5 Lower Limit Sensor	This signal is “H“, when the table of High Capacity Hopper reaches bottom of High Capacity Hopper.
0C	SB Cover Open	This signal is “H“, when the SB Cover opened.
0D	IS Cover Open Sensor	This signal is “H“, when the IS Cover opened.
0E	-	-
0F	-	-
10	HP1 Rest Sensor A	The quantity of paper is detected by a combination of Rest Sensor A, B and C. When the quantity of paper is 0% to 25%, Rest Sensor A, B and C are “H“. When the quantity of paper is 25% to 50%, Rest Sensor A and C are “H“. When the quantity of paper is 50% to 75%, Rest Sensor C is “H“. When the quantity of paper is 75% to 100%, no Rest Sensor is “H“.
11	HP1 Rest Sensor B	
12	HP1 Rest Sensor C	
13	HP2 Rest Sensor	This signal is “H“, when the quantity of paper in Hopper 2 is 50% or less.
14	HP3 Rest Sensor	This signal is “H“, when the quantity of paper in Hopper 3 is 50% or less.
15	HP5 Rest Sensor A	The quantity of paper is detected by a combination of Rest Sensors A, B and C. When the quantity of paper is 0% to 25%, Rest Sensor A, B and C are “H“. When the quantity of paper is 25% to 50%, Rest Sensor A and B are “H“. When the quantity of paper is 50% to 75%, Rest Sensor A is “H“. When the quantity of paper is 75% to 100%, no Rest Sensor is “H“
16	HP5 Rest Sensor B	
17	HP5 Rest Sensor C	
18	HP1 Size Sensor	Paper size is indicated.
19	HP2 Size Sensor	Paper size is indicated.
1A	HP3 Size Sensor	Paper size is indicated.
1B	HP5 Size Sensor	This signal is “H“, when the letter size is in High Capacity Hopper.

Routine No.	Sensor Name	Description
1C	HP5 Top Cover Sensor	This signal is “H“, when the Top Cover of the High Capacity Hopper is opened.
1D	-	-
1E	HP5 Door Sensor	This signal is “H“, when the Door of the High Capacity Hopper is opened.
1F	HP5 Over Run Sensor	This signal is “L“, when abnormality was detected during table of High Capacity Hopper operation.
20	IS Feed Sensor 1	This signal is “L“, when there is a paper on IS Feed Sensor 1.
21	IS Feed Sensor 2	This signal is “L“, when there is a paper on IS Feed Sensor 2.
22	IS Feed Sensor 3	This signal is “L“, when there is a paper on IS Feed Sensor 3.
23	HP5 Feed Sensor	This signal is “L“, when there is a paper on HP5 Feed Sensor.
24	Timing Sensor	This signal is “L“, when there is a paper on Timing Sensor.
25	Skew Sensor 1	This signal is “L“, when there is a paper on Skew Sensor 1.
26	Skew Sensor 2	This signal is “L“, when there is a paper on Skew Sensor 2.
27	HR Out Sensor	This signal is “H“, when there is paper on HR Out Sensor.
28	Flip Sensor	This signal is “L“, when there is a paper on Flip Sensor.
29	SB Sensor	This signal is “L“, when there is a paper on SB Sensor.
2A	Return Sensor 1	This signal is “L“, when there is a paper on Return Sensor 1.
2B	Return Sensor 2	This signal is “L“, when there is a paper on Return Sensor 2.
2C	PF Out Sensor	This signal is “L“, when there is a paper on PF Out Sensor.
2D	HP1 Pick Sensor	This signal is “L“, when there is a paper on HP1 Pick Sensor.
2E	HP2 Pick Sensor	This signal is “L“, when there is a paper on HP2 Pick Sensor.
2F	HP3 Pick Sensor	This signal is “L“, when there is a paper on HP3 Pick Sensor.
30	MG Sensor	This signal repeats "H" and "L" while MG Motor is driven.
31	Drum REV Sensor	This signal repeats “H“ and “L“, while Drum Motor is driven. "H" state when the sensor is shaded by the actuator.
32	Toner Sensor (Toner Hopper)	“L“ is indicated, when there is no toner in the Toner Hopper.
33	Toner Collector Bottle Set Sensor	“L“ is indicated, when the Toner Collector Bottle is set.
34	-	-
35	-	-
36	Toner Sensor (Recycle Unit)	“H“ is indicated, when the Toner Collector Bottle is full of toner.
37	Dev Bottle Set Sensor	“L“ is indicated, when the Dev Bottle is set.
38	-	-
39	Recycle REV Sensor	This signal repeats “H“ and “L“, while Drum Motor is driven. "H" state when the sensor is shaded by the actuator.
3A	Felt End Sensor	This signal is “H“, when there is no Felt in the Fuser Unit.

Routine No.	Sensor Name	Description
3B	Transfer Cleaner Position Sensor	“L“ is indicated, when the Transfer Cleaner is at home position.
3C	SB Gate Sensor	This signal repeats "H" and "L" while SB Gate Motor is driven. "H" state when the sensor is shaded by the actuator.
3D	-	-
3E	-	-
3F	-	-
40	-	-
41	Thermal Sensor (A/D)	Output voltage of the Thermal Sensor in the Fuser is indicated. Refer to SUPPLEMENT 3 - Temperature of Heat Roll and Output voltage
42	-	-
43	Toner Level (A/D)	The voltage input into the Toner Control Sensor is indicated.
44	Control Level (A/D)	Output voltage of the Toner Control Sensor is indicated.
45	Temperature Sensor (A/D)	Output voltage of the Temperature Sensor (Environmental Sensor) is indicated. Refer to SUPPLEMENT 4 - Air Temperature / Humidity and Output voltage
46	Humidity Sensor (A/D)	Output voltage of the Humidity Sensor (Environmental Sensor) is indicated. Refer to SUPPLEMENT 4 - Air Temperature / Humidity and Output voltage
47	Drum Wrap 1 (A/D)	Output voltage by original reflected light of the Drum Wrap Sensor is indicated.
48	Drum Wrap 2 (A/D)	Output voltage by diffusive reflected light of the Drum Wrap Sensor is indicated.
49	-	-
4A	-	-
4B	-	-
4C	-	-
4D	-	-
4E	-	-
4F	-	-

SUPPLEMENT 3 - Temperature of Heat Roll and Output voltage

Temperature of Heat Roll (×C)	Output voltage (V)	Data (Hex)
20	0.07	03
25	0.10	04
30	0.12	06
35	0.15	07
40	0.19	09
45	0.24	0C
50	0.29	0F
55	0.36	12
60	0.44	16
65	0.52	1A
70	0.62	1F
75	0.74	25
80	0.87	2C
85	1.01	33
90	1.16	3B
95	1.32	43
100	1.50	4C
105	1.68	55
110	1.87	5F
115	2.06	69
120	2.25	73
125	2.44	7C
130	2.63	86
135	2.81	8F
140	2.98	98
145	3.15	A1
150	3.31	A9
155	3.46	B1
160	3.59	B8
161	3.62	B9
162	3.65	BA
163	3.67	BC
164	3.70	BD
165	3.72	BE
166	3.75	BF
167	3.77	C1
168	3.79	C2
169	3.82	C3
170	3.84	C4
171	3.86	C5
172	3.88	C6
173	3.90	C7
174	3.93	C9
175	3.95	CA
176	3.97	CB
177	3.98	CC
178	4.01	CD
179	4.02	CD
180	4.04	CF
181	4.06	D0
182	4.08	D0
183	4.10	D1
184	4.12	D2
185	4.13	D3
186	4.15	D4
187	4.17	D5
188	4.18	D6
189	4.20	D7
190	4.22	D7
191	4.23	D8
192	4.25	D9
193	4.26	DA
194	4.27	DA
195	4.29	DB
196	4.30	DC
197	4.32	DC
198	4.33	DD
199	4.34	DE
200	4.35	DE
201	4.37	DF
202	4.38	E0
203	4.39	E0
204	4.40	E1
205	4.41	E2
206	4.43	E2
207	4.44	E3
208	4.45	E3
209	4.46	E4
210	4.47	E4
215	4.52	E7
220	4.55	E8
225	4.60	EB
230	4.64	ED
235	4.67	EF
240	4.70	F0
245	4.72	F1
250	4.75	F3
255	4.77	F4
260	4.79	F5
265	4.81	F6

SUPPLEMENT 4 - Air Temperature / Humidity and Output voltage

Air temperature (×C)	Output voltage (V)	Data (HEX)
-10	4.50	E6
-5	4.36	DF
-4	4.33	DD
-3	4.30	DB
-2	4.26	DA
-1	4.23	D8
0	4.19	D6
5	3.96	CA
10	3.79	C1
11	3.74	BF
12	3.69	BC
13	3.64	BA
14	3.59	B8
15	3.54	B5
16	3.49	B2
17	3.44	B0
18	3.39	AD
19	3.34	AA
20	3.28	A8
21	3.23	A5
22	3.18	A2
23	3.12	9F
24	3.07	9D
25	3.01	9A
26	2.96	97
27	2.90	94
28	2.85	91
29	2.79	8E
30	2.73	8B
31	2.68	89
32	2.62	86
33	2.57	83
34	2.51	80
35	2.46	7D
36	2.40	7B
37	2.35	78
38	2.29	75
39	2.24	72
40	2.19	70
41	2.14	6D
42	2.09	6A
43	2.03	68
44	1.98	65
45	1.93	63
46	1.89	60
47	1.84	5E
48	1.79	5B
49	1.74	59
50	1.70	56
51	1.65	54
52	1.61	52
53	1.57	50
54	1.52	4D
55	1.48	4B
60	1.29	41

Humidity (5°C)

Humidity (%)	Output voltage (V)	Data (HEX)
10	1.12	39
15	1.14	3A
20	1.20	3D
25	1.34	44
30	1.52	4D
35	1.70	56
40	1.86	5F
50	2.11	6B
60	2.31	76
70	2.48	7F
80	2.64	87
90	2.78	8E

Humidity (15°C)

Humidity (%)	Output voltage (V)	Data (HEX)
10	0.98	32
15	1.06	36
20	1.18	3C
25	1.37	46
30	1.55	4F
35	1.71	57
40	1.86	5F
50	2.10	6B
60	2.29	75
70	2.46	7D
85	2.60	85
90	2.74	8C

Humidity (25°C)

Humidity (%)	Output voltage (V)	Data (HEX)
10	0.84	2B
15	0.99	32
20	1.16	3B
25	1.36	45
30	1.58	50
35	1.74	59
40	1.88	60
50	2.12	6C
60	2.30	75
70	2.45	7D
80	2.59	84
90	2.74	8C

Humidity (35°C)

Humidity (%)	Output voltage (V)	Data (HEX)
10	0.75	26
15	0.99	32
20	1.21	3D
25	1.42	48
30	1.62	52
35	1.77	5A
40	1.90	61
50	2.13	6D
60	2.31	76
70	2.46	7D
80	2.61	85
90	2.75	8C

Humidity (45°C)

Humidity (%)	Output voltage (V)	Data (HEX)
10	0.84	2A
15	1.09	37
20	1.31	42
25	1.49	4C
30	1.66	54
35	1.80	5C
40	1.93	62
50	2.11	6B
60	2.27	74
70	2.42	7B
80	2.56	82
90	2.69	89

SUPPLEMENT 5 - Current of LED Eraser and Output

The relation between current of LED Eraser and Output.

Current of LED Eraser (mA)	Output voltage (V)	Remarks
0	0.00	
1	0.02	
2	0.04	
3	0.06	
4	0.08	
5	0.10	
6	0.12	
7	0.14	
8	0.16	LED Erase non set (E080) occurs in the case of less than this value.
9	0.18	
10	0.20	
15	0.30	
20	0.40	
25	0.50	
30	0.60	
35	0.70	Value of this neighborhood is indicated under normal conditions.
40	0.80	
45	0.90	
50	1.00	
55	1.10	
60	1.20	
65	1.30	
70	1.40	
75	1.50	
80	1.60	
85	1.70	
90	1.80	
95	1.90	
100	2.00	
105	2.10	
110	2.20	
115	2.30	
120	2.40	
125	2.50	
130	2.60	LED Eraser over current (E281) occurs in the case of more than this
135	2.70	
140	2.80	
145	2.90	
150	3.00	
155	3.10	
160	3.20	
165	3.30	
170	3.40	
175	3.50	
180	3.60	
185	3.70	
190	3.80	
195	3.90	
200	4.00	
205	4.10	
210	4.20	
215	4.30	
220	4.40	
225	4.50	
230	4.60	
235	4.70	
240	4.80	
245	4.90	
250	5.00	

SUPPLEMENT 6 - Code of A3 Routine

CODE	BIT	Signal Name	Description
00	7	Charger/Grid Alarm	This signal is “1“ at the time of error. (When the Charger/Grid does not work, this signal is”1” too.)
	6	Bias Alarm	This signal is “1“ at the time of error. (When the Bias does not work, this signal is”1” too.)
	5	Transfer Alarm	This signal is “1“ at the time of error. (When the Transfer does not work, this signal is”1” too.)
	4	Detach Alarm	This signal is “1“ at the time of error. (When the Detach does not work, this signal is”1” too.)
	3	-	-
	2	Blower Fan Alarm	This signal is “1“ at the time of error. (When the Blower Fan does not work, this signal is”1” too.)
	1	Toner Feed Motor Lock	This signal is “0“ at the time of error. (When the Toner Feed Motor is not driven, this signal is”0” too.)
	0	Drum Motor Lock	This signal is “1“ at the time of error. (When the Drum Motor is not driven, this signal is”1” too.)
01	7	Transfer Cleaner Position Sensor	This signal is “0“, when the Transfer Cleaner is home position.
	6	-	-
	5	+24V Off	This signal is “1“, when +24V of the CPxxx Assembly is provided.
	4	+24VS Off	This signal is “1“, when +24VS of the CPxxx Assembly is provided.
	3	-	-
	2	Toner Sensor (Recycle Unit)	This signal is “1“, when the Toner Collector Bottle is full of toner.
	1	Toner Collector Bottle Set Sensor	This signal is “0“, when the Toner Collector Bottle is set.
	0	Dev Bottle Set Sensor	This signal is “0“, when the Dev Bottle is set.
02	7	Dip Switch 1	This signal is “0“, when the Toner Recycle Mode is selected.
	6	Dip Switch 2	
	5	Dip Switch 3	
	4	Dip Switch 4	
	3	Dip Switch 5	This signal is “0“, when the High Capacity Hopper is connected.
	2	Dip Switch 6	
	1	Dip Switch 7	
	0	Dip Switch 8	This signal is “0“, when the Standard Finisher is connected.

CODE	BIT	Signal Name	Description
03	7	Drum REV Sensor	This signal repeats “1“ and “0“, when the Drum Motor is driven.
	6	Magroll Revolution Sensor	This signal repeats “1“ and “0“, when the Magroll Motor is driven.
	5	Recycle REV Sensor	This signal repeats “1“ and “0“, when the Drum Motor is driven.
	4	-	-
	3	-	-
	2	Front Cover Sensor	This signal is “0“, when the Front Cover is opened.
	1	Toner Sensor (Toner Hopper)	This signal is “0“, when there is no toner in the Toner Hopper.
	0	-	-
04	7	Video RDY 2	This signal becomes “2“, when Video Data 2 has not been sent from the Controller during print. And this signal is latched till reset is carried out.
	6	Video RDY 1	This signal becomes “1“, when Video Data 1 has not been sent from the Controller during print. And this signal is latched till reset is carried out.
	5	Video Open 2	This signal becomes “2“, when Connector of the Video Cable falls out. And this signal is latched till reset is carried out.
	4	Video Open 1	This signal becomes “1“, when Connector of the Video Cable falls out. And this signal is latched till reset is carried out.
	3	-	-
	2	-	-
	1	Mirror Motor Alarm	This signal is “0“ at the time of error. (When the Mirror Motor is not driven, this signal is “0“ too.)
	0	OC Fan Alarm	This signal is “1“ at the time of error. (When the OC Fan does not work, this signal is “1“ too.)
05	7	Timing Sensor	This signal is “0“, when there is a paper on the Timing Sensor.
	6	Skew Sensor 1	This signal is “0“, when there is a paper on the Skew Sensor 1.
	5	Skew Sensor 2	This signal is “0“, when there is a paper on the Skew Sensor 2.
	4	Flip Sensor	This signal is “0“, when there is a paper on the Flip Sensor.
	3	SB Sensor	This signal is “0“, when there is a paper on the SB Sensor.
	2	PF Out Sensor	This signal is “0“, when there is a paper on the PF Out Sensor.
	1	Return Sensor 1	This signal is “0“, when there is a paper on the Return Sensor 1.
	0	Return Sensor 2	This signal is “0“, when there is a paper on the Return Sensor 2.

CODE	BIT	Signal Name	Description
06	7	SB Cover Sensor	This signal is “1“, when the SB Cover is opened.
	6	MBF Empty Sensor	This signal is “1“, when there is no paper in the MB Tray.
	5	Felt End Sensor	This signal is “1“, when there no Felt in the Fuser Unit.
	4	HR Out Sensor	This signal is “1“, when there is paper on the HR Out Sensor.
	3	-	-
	2	-	-
	1	-	-
	0	-	-
07	7	-	-
	6	-	-
	5	-	-
	4	-	-
	3	-	-
	2	-	-
	1	-	-
	0	-	-
08	7	HP3 Pick Sensor	This signal is “0“, when there is a paper on the HP3 Pick Sensor.
	6	IS Feed Sensor 3	This signal is “0“, when there is a paper on the IS Feed Sensor 3.
	5	IS Feed Sensor 2	This signal is “0“, when there is a paper on the IS Feed Sensor 2.
	4	IS Feed Sensor 1	This signal is “0“, when there is a paper on the IS Feed Sensor 1.
	3	IS Cover Sensor	This signal is “1“, when the IS Cover is opened.
	2	HP2 Pick Sensor	This signal is “0“, when there is a paper on the HP2 Pick Sensor.
	1	HP +24V Off	This signal is “1“, when +24V of the HPxxx Assembly is provided.
	0	HP1 Pick Sensor	This signal is “0“, when there is a paper on the HP1 Pick Sensor.

CODE	BIT	Signal Name	Description
09	7	Feed Sensor	This signal is “0“, when there is a paper on the Return Sensor 2.
	6	HP5 +24VS Off	This signal is “1“, when +24V of the AHxxx Assembly is provided.
	5	-	-
	4	-	-
	3	-	-
	2	-	-
	1	-	-
	0	-	-
0A	7	HP3 Height Sensor	This signal is “1“, when the paper in Hopper 3 or the table of Hopper 3 reaches the top of Hopper 3.
	6	HP3 Empty Sensor	This signal is “1“, when there is no paper in Hopper 3.
	5	HP3 Rest Sensor	This signal is “1“, when the quantity of paper in Hopper 3 is 20% or less.
	4	-	-
	3	HP2 Height Sensor	This signal is “1“, when the paper in Hopper 2 or the table of Hopper 2 reaches the top of Hopper 2.
	2	HP2 Empty Sensor	This signal is “1“, when there is no paper in Hopper 2.
	1	HP2 Rest Sensor	This signal is “1“, when the quantity of paper in Hopper 2 is 20% or less.
	0	-	-
0B	7	HP1 Height Sensor	This signal is “1“, when the paper in Hopper 1 or the table of Hopper 1 reaches the top of Hopper 1.
	6	HP1 Empty Sensor	This signal is “1“, when there is no paper in Hopper 1.
	5	HP1 Upper Limit Sensor	This signal is “1“, when there is no paper in Hopper 1.
	4	HP1 Rest Sensor C	The quantity of paper is detected by a combination of Rest Sensors A, B and C. When the quantity of paper is 0% to 25%, Rest Sensor A, B and C are “1“. When the quantity of paper is 25% to 50%, Rest Sensor A and C are “1“. When the quantity of paper is 50% to 75%, Rest Sensor C is “1“. When the quantity of paper is 75% to 100%, no Rest Sensor is “1“.
	3	HP1 Rest Sensor B	
	2	HP1 Rest Sensor A	
	1	-	-
	0	-	-

CODE	BIT	Signal Name	Description
0C	7	-	-
	6	-	-
	5	-	-
	4	HP1 Size Sensor 5	Paper size is detected by a combination of signal of five sensors. No Size Sensor is “1“ : Hopper is opened. Size Sensor 1 is “1“ : Free Size. Size Sensor 2 is “1” : B5 size. Size Sensor 1 and 3 are “1” : A5 size. Size Sensor 1, 2 and 4 are “1” : Ledger size. Size Sensor 1, 2, 3 and 4 are “1” : Letter size. Size Sensor 5 is “1” : A4 SEF size. Size Sensor 1, 2, 3 and 5 are “1” : Legal size. Size Sensor 4 and 5 are “1” : A4 LEF size. Size Sensor 3, 4 and 5 are “1” : A3 size. Size Sensor 2, 3, 4 and 5 are “1” : B4 size. Size Sensor 1, 2, 3, 4 and 5 are “1” : Error.
	3	HP1 Size Sensor 4	
	2	HP1 Size Sensor 3	
	1	HP1 Size Sensor 2	
	0	HP1 Size Sensor 1	
0D	7	-	-
	6	-	-
	5	-	-
	4	HP2 Size Sensor 5	Paper size is detected by a combination of signal of five sensors. No Size Sensor is “1“ : Hopper is opened. Size Sensor 1 is “1“ : Free Size. Size Sensor 2 is “1” : B5 size. Size Sensor 1 and 3 are “1” : A5 size. Size Sensor 1, 2 and 4 are “1” : Ledger size. Size Sensor 1, 2, 3 and 4 are “1” : Letter size. Size Sensor 5 is “1” : A4 SEF size. Size Sensor 1, 2, 3 and 5 are “1” : Legal size. Size Sensor 4 and 5 are “1” : A4 LEF size. Size Sensor 3, 4 and 5 are “1” : A3 size. Size Sensor 2, 3, 4 and 5 are “1” : B4 size. Size Sensor 1, 2, 3, 4 and 5 are “1” : Error.
	3	HP2 Size Sensor 4	
	2	HP2 Size Sensor 3	
	1	HP2 Size Sensor 2	
	0	HP2 Size Sensor 1	
0E	7	-	-
	6	-	-
	5	-	-
	4	HP3 Size Sensor 5	Paper size is detected by a combination of signal of five sensors. No Size Sensor is “1“ : Hopper is opened. Size Sensor 1 is “1“ : Free Size. Size Sensor 2 is “1” : B5 size. Size Sensor 1 and 3 are “1” : A5 size. Size Sensor 1, 2 and 4 are “1” : Ledger size. Size Sensor 1, 2, 3 and 4 are “1” : Letter size. Size Sensor 5 is “1” : A4 SEF size. Size Sensor 1, 2, 3 and 5 are “1” : Legal size. Size Sensor 4 and 5 are “1” : A4 LEF size. Size Sensor 3, 4 and 5 are “1” : A3 size. Size Sensor 2, 3, 4 and 5 are “1” : B4 size. Size Sensor 1, 2, 3, 4 and 5 are “1” : Error.
	3	HP3 Size Sensor 4	
	2	HP3 Size Sensor 3	
	1	HP3 Size Sensor 2	
	0	HP3 Size Sensor 1	

CODE	BIT	Signal Name	Description
0F	7	Height Sensor	This signal is “1”, when there is paper in High Capacity Hopper or table of High Capacity Hopper reaches top of High Capacity Hopper.
	6	Empty Sensor	This signal is “1”, when there is no paper in High Capacity Hopper.
	5	Lower Limit Sensor	This signal is “1”, when table of High Capacity Hopper reaches bottom of High Capacity Hopper.
	4	Rest Sensor (C)	The quantity of paper is detected by a combination of Rest Sensors A, B and C. When the quantity of paper is 0% to 25%, Rest Sensor A, B and C are “1“. When the quantity of paper is 25% to 50%, Rest Sensor A and B are “1“. When the quantity of paper is 50% to 75%, Rest Sensor A is “1“. When the quantity of paper is 75% to 100%, no Rest Sensor is “1“
	3	Rest Sensor (B)	
	2	Rest Sensor (A)	
	1	Door Sensor	This signal is “1”, when the Door of the High Capacity Hopper is opened.
	0	Over Run Sensor	This signal is “1“, when abnormality was detected during table of the High Capacity Hopper operation.

SUPPLEMENT 7 - Diagnostics of Finisher 1

CODE	Signal Name	Description
00	Interlock	The signal is "H", when the Finisher Front Cover opened.
01	Paper Exit-Cover Open/Close Detection PS	The signal is "H", when the Paper Exit-Cover opened.
02	Tray Upper-Limit PS	The signal is "L", when the Main Tray reaches the upper limit position.
03	Tray Lower-Limit PS	The signal is "L", when the Main Tray reaches the bottom position.
04	Staple Paper Exit Upper-Limit PS	The signal is "H", when the Main Tray reaches the waiting position.
05	Sub-Tray Full PS	The signal is "H", when the paper on the Sub Tray becomes full.
06	Folding Full Up PS	The signal is "H", when the Booklet in the Booklet Tray becomes full.
07	Tray No-Paper Detection PS	The signal is "L", when the condition of paper on the Main Tray becomes near empty.
08		
09	Sheet-Tray Upper-Limit PS	The signal is "L", when the Sheet-Tray reaches the top position.
0A	Sheet-Tray Lower-Limit PS	The signal is "L", when the Sheet-Tray reaches the bottom position.
0B	Pre No-Paper PS	The signal is "H", when the paper reaches the pre position of the Cover Sheet Feeder.
0C	Sheet Set PS	The signal is "L", when the paper is set on the tray of the Cover Sheet Feeder.
0D		
0E		
0F	No-Sheet PS	The signal is "H", when there is no paper on the tray of the Cover Sheet Feeder.
10	FIN Entrance Passage PS	The signal is "L", when there is paper.
11	Paper Exit-2 PS	The signal is "L", when there is paper.
12	Paper Exit-1 PS	The signal is "L", when there is paper.
13	Stacker Conveyance Passage PS	The signal is "L", when there is paper.
14	Sub-Tray Paper Exit PS	The signal is "L", when there is paper.
15	Folding Passage PS/2	The signal is "L", when there is paper.
16	Folding Passage PS/1	The signal is "L", when there is paper.
17	Folding Paper-Exit PS	The signal is "H", when there is paper.

CODE	Signal Name	Description
18	Sheet Passage PS	The signal is "L", when there is paper.
19	Stacker No-Paper Detection PS	The signal is "L", when there is paper.
1A		
1B	Cartridge Detection SW/F	The signal is "*H*", when there is no cartridge housing in the Stapler unit of the front side.
1C	Staple Detection SW/F	The signal is "*H*", when there is no staple in the Stapler unit of the front side.
1D		
1E		
1F		
20	Cartridge Detection SW/R	The signal is "*H*", when there is no cartridge housing in the Stapler unit of the rear side.
21	Staple Detection SW/R	The signal is "*H*", when there is no staple in the Stapler unit of the rear side.
22		
23		
24		
25	Staple-Movement HP PS	The signal is "L", when the horizontal position of the Staplers is at the home position.
26	Stapler-Rotation HP PS	The signal is "L", when the rotation position of the Staplers is at the home position.
27	Alignment-Plate/Upper HP PS	The signal is "L", when the Alignment Plate is at the home position.
28	Roller-Shift HP PS	The signal is "H", when the Shift Unit is at the home position.
29	Paper Exit-Belt HP PS	The signal is "H", when the Paper Exit Belt is at the home position.
2A	Paper Exit-Opening PS	The signal is "L", when the Paper Exit Opening closed.
2B	Folding Stopper HP PS	The signal is "L", when the Folding Stopper is at the home position.
2C	Alignment-Plate/Lower HP PS	The signal is "L", when the Staple Side Guide is at the home position.
2D	Stapling and Folding stopper HP PS	The signal is "L", when the Staple Stopper is at the home position.
2E	Folding-Knife HP PS	The signal is "H", when the Folding Knife is at the home position.
2F	Stapling and Folding stopper-Release-Motor HP PS	The signal is "H", when the Stapling Stopper is at the home position(release position).

SUPPLEMENT 8 - Information about Skew sensor jam check setting

If small value is set at 82FFH (ex. X'03'), skew error will be detected strictly. And if large value is set (ex. X'05'), skew error will be detedcted loosely. Refer to following jam check time and skew detection value. (These are calculated values. And actual values might be different from these values.)

Address	Setting Value	Jam check time and skew detection value	Remarks
82FFH	X'01'	1ms = min. 0.63 mm skew will be detected.	8.5.5. (6), 8-68 5.3.49, 5-67 5.3.50, 5-70
	X'02'	2ms = min. 1.26 mm skew will be detected.	
	X'03'	3ms = min. 1.88 mm skew will be detected.	
	X'04' (Default)	4ms = min. 2.51 mm skew will be detected.	
	X'05'	5ms = min. 3.14 mm skew will be detected.	

Chapter 9. Theory of Operation

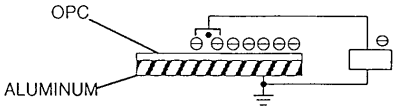
9.1. Principle of Printing - Outline of Electrophotographic Process

Outline of Electrophotographic Process

This section describes the outline of the electrophotographic process of this printer. The photoconductor(Organic photoconductor . . . OPC) used by this printer is created by a thin film over the aluminum support.
The film provides photoconductivity(in dark places, it is an insulating material that holds electric charge at the surface. When it is exposed to light, the electric resistance decreases and the surface charge is quickly released).

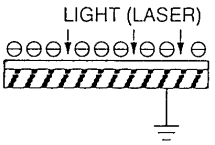
Charging

The OPC is exposed to negative (-) corona in a dark room to give uniformed negative (-) electric charge on the OPC.



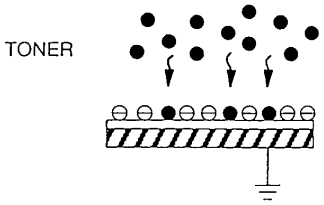
Exposure

The OPC is exposed to light(laser) in a dark room. The electric charge of the exposed OPC section which is exposed to light disappears and a latent electrostatic image is formed.



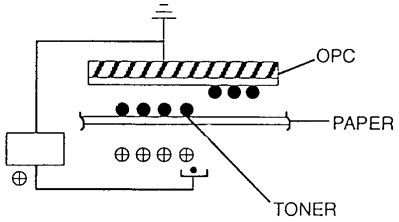
Developing

The OPC is contacted with toner that has negative (-) electric charge. The toner attaches to the section that lost electric charge during exposure process and the latent electrostatic image becomes visible on the OPC.



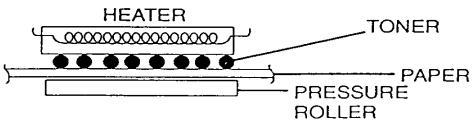
Transfer

A sheet of paper is placed under the photoconductor and a positive (+) electric charge is applied by the corona emission. Consequently the toner on the OPC is attracted to the paper.



Fusing

The paper with toner is heated to fuse the toner to the paper.



Cleaning

The OPC is cleaned for the next charge process.

9.2. Principle of Printing - Outline of Print Operation

This section describes the outline of the print operation. The figure below shows the print operation of this printer.

1. Upon start of printing, the OPC begins to rotate in one direction at a fixed peripheral speed. It consists of an aluminium pipe with a OPC film on the surface and rotates until printing is completed.

2. When the rotating speed of the OPC becomes constant, a high negative voltage is applied uniformly to provide electric charge to the surface of the OPC. **(Charging)**

3. The mirror motor starts rotating immediately when the power to the printer is switched on. It continues to rotate at a fixed speed so long as the power is on. The polygon mirror has 8 facets

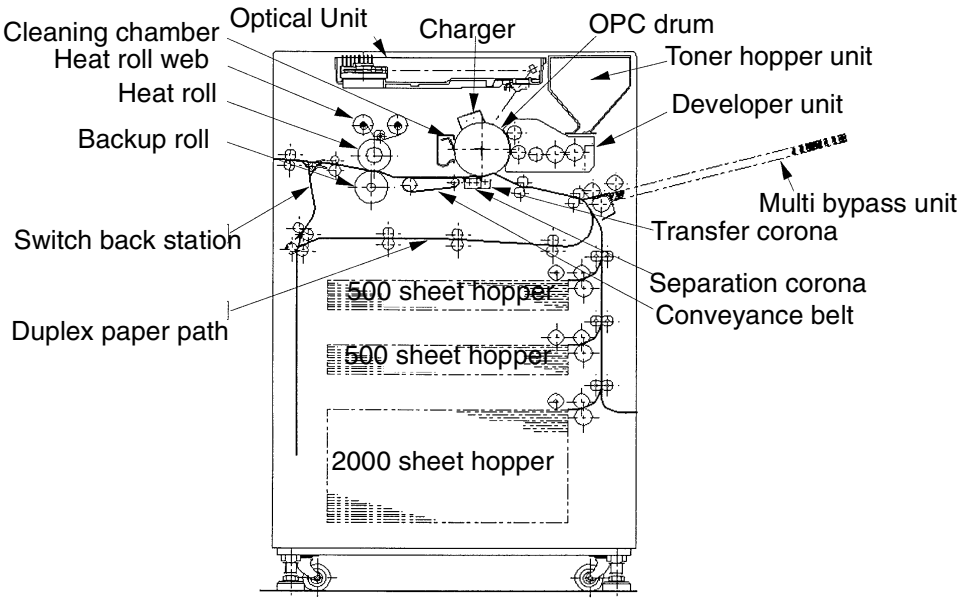


Figure 9-1. Outline of Printing

4. The OPC is exposed to the laser beam in the following manner. (Exposure)

   The laser beam is intermittently scanned over the charge surface of the OPC. Because the charges at the portions exposed to the laser beam are eliminated, a character or graphic can be formed on the surface of the OPC while controlling the continuance and dis-continuance of the laser beam. Such a character or graphic is called a latent electrostatic image. It is not visible to the eyes.

   According to the signal sent from the controller, the laser beam from the laser diode is turned on and off.

   The FTH lens(composed of two lenses) compensates for the distortion of the laser beam due to the rotating angle of the polygon mirror, and it makes the radiating speed of the laser beam equivalent to the spot diameter over the entire area of the OPC.

5. When the OPC exposed to the laser beam passes the developer unit, the toner is electrostatically attached to the exposed portion. **(Developing)**

6. When the paper sent from the hopper unit passes the transfer station, a high voltage is applied by the corona emission of the transfer corona to give positive charge to the back side of the paper to transfer the toner image from the OPC. **(Transfer)**

7. When the paper reaches the fuser unit, it is heated and pressed by the heat roll and backup roll so that the toner adheres to the paper. **(Fusing)**

8. Toner remaining on the OPC after transfer is removed by the cleaner and the OPC becomes ready for the next cycle.

9. When printing has been completed, the paper is sent to the output tray or the Finisher(option).

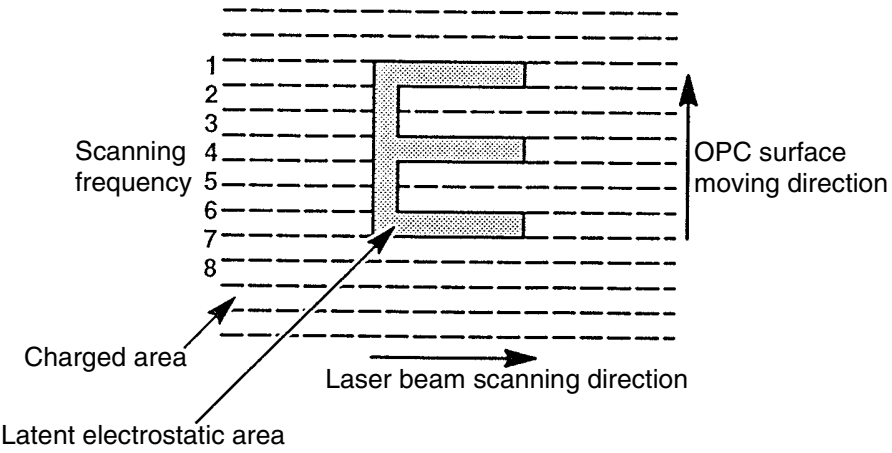


Figure 9-2. Electrophotographic Process - Latent image

9.3. Printing System - Outline of Printing Mechanism

1. The OPC surface is charged to about -650V due to corona emission performed by the corona charger. **(Charging)**

2. The laser beam is exposed to the OPC surface by the video (character) signal, and the surface voltage of the exposed section drops to about -70V. **(Exposure)**

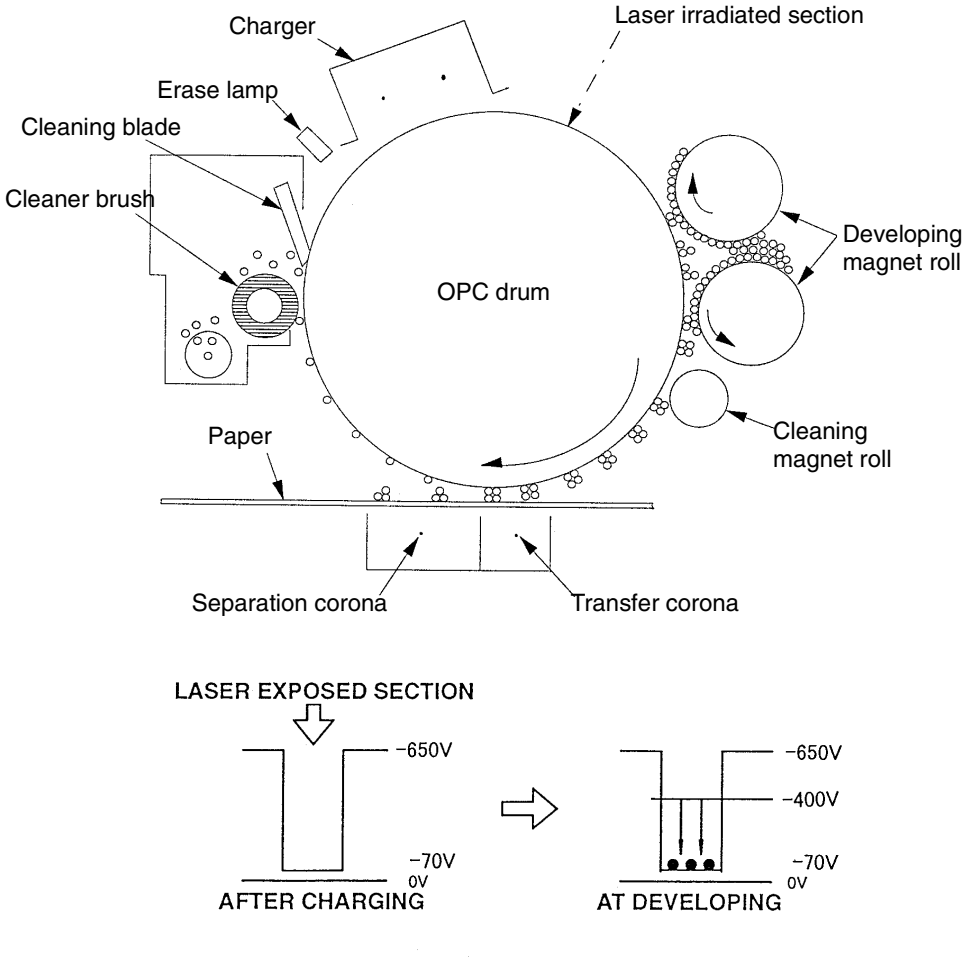


Figure 9-3. Outline of Printing System

3. The carrier and toner are mixed by the rotation of the 2 auger rolls, toner charged with electrostatic charge and carrier is charged with electrostatic charge. Toner clings to carrier by electrostatic force. The carrier with toner is absorbed by the magnet roll and sent to the surface of the OPC. The electric potential of the magnet roll is a value about -400V. As a result, the toner with electrostatic charge clings only to section that has the lower surface electrostatic potential. In other words, the toner between the magnet roll and the OPC has a stronger electrostatic force than carrier, so toner is attracted to the OPC. **(Developing)**

4. The toner with an electrostatic charge on the OPC is drawn to the paper by the electrostatic charge generated by the corona emission of the transfer corona.

5. About 85% of the toner is drawn from the OPC to the paper and the remaining toner is left on the OPC as residual toner.

6. The residual toner is scattered by the cleaner brush to make cleaning easier and the residual toner is scraped by the cleaning blade.
   In case of toner recycle setting, the toner collected into the cleaner chamber is transported to the toner hopper by an auger screw. In case of no toner recycle setting, the toner collected into the cleaner chamber is transported to the toner bag by the auger screw.

7. The entire surface voltage of the OPC is lowered to -70V by illuminating the erase lamp.

9.4. Printing System - Construction of the Developer unit

The developer unit consists of two developing magnet rolls which rotate in a clockwise and counterclockwise direction while the transfer toner to the OPC. Developer mixture is 1.6 kg.

1. Developing magnet rolls for developing: They feed the developer mixture to adhere the toner to the latent image formed on the surface of the OPC.

2. Cleaning magnet roll: It removes faulty carrier attached on the OPC by image force and bias voltage.

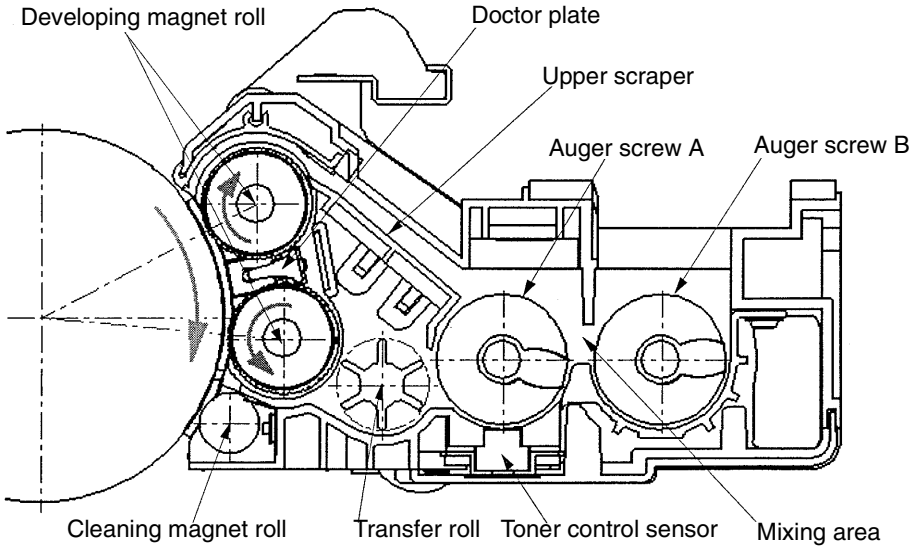


Figure 9-4. Construction of the Developer unit

3. Doctor plate: It provides the most suitable amount of developer mixture to the developing magnet rolls.

4. Upper scraper: It guides the developer mixture used for developing to the mixing area.

5. Auger screw: It agitates and mixes the developer mixture.

6. Transfer roll: It transfers developer mixture from the mixing area to the developing magnet rolls.

7. Toner control sensor: It detects the toner concentration.

9.5. Optical System - Parts names and explanation

9.5. (1) Optical System Parts

This section describes the Optical System of this printer. The Optical System used by this printer uses a diode laser.

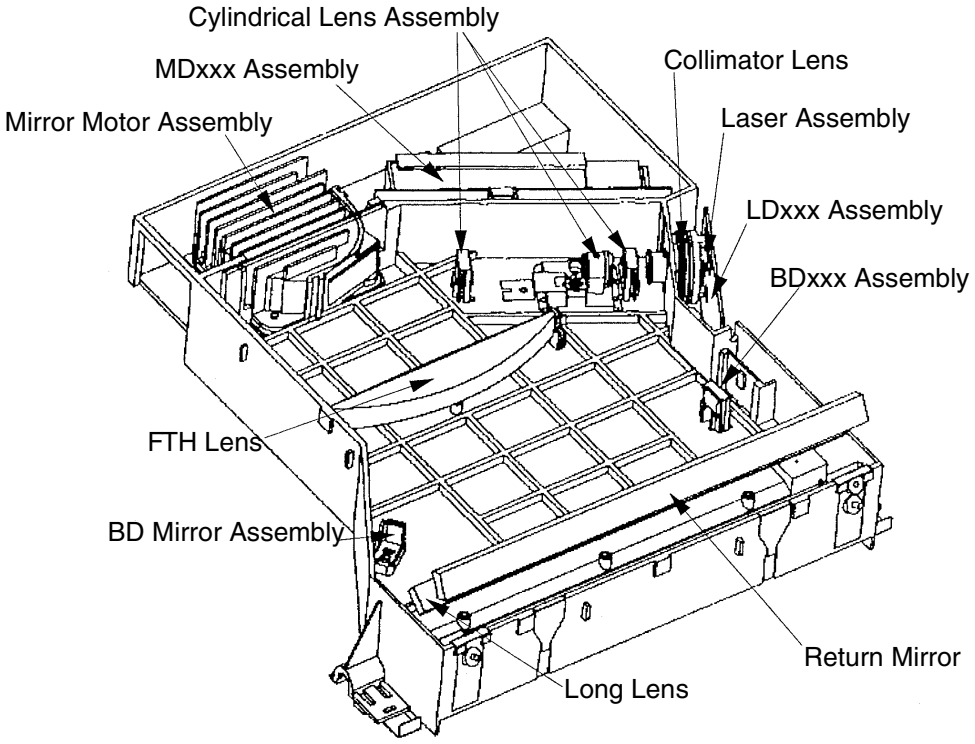


Figure 9-5. Construction of the Optical unit

1. **Laser Assembly**

   Laser Diode: The wavelength is 680 nm(invisible).
   LDxxx Assembly: This drives the laser diode and amplifies the monitor current from the laser diode for power control.
   Collimator Lens: This lens gathers the laser beam and makes it a parallel beam.

2. **Cylindrical Lens Assembly**

   Cylindrical Lens: It makes the appropriate beam shape and size.

3. **Mirror Motor Assembly**

   As the polygon mirror rotates, the laser beam is horizontally scanned to draw rasters on the OPC repeatedly.

4. **FTH Lens**

   It fixes the scan speed of the laser beam on the OPC which was scanned by the polygon mirror. And also it eliminates the scan pitch errors caused by the tilt of the polygon mirror facets.

5. **Return Mirror**

   It reflects the laser beam passed through the FTH lens to the OPC.

6. **Long Lens**

   It corrects the skew of the laser beam against the OPC drum.

7. **BD Mirror Assembly**

   BD Mirror: It reflects the laser beam from the FTH lens and radiates the laser beam to the BD sensor in the BD181 Assembly.

8. **BDxxx Assembly**

   It senses the laser beam from the BD mirror and generates the BD signal.

9. **MDxxx Assembly**

   This assembly drives the mirror motor.

9.5. (2) Horizontal Synchronization

The operation in which one surface of the polygon mirror scans the laser beam to the OPC once is call a raster. Sending one raster to the control electronics is called to get the horizontal synchronization. The horizontal synchronization signal is called the beam detect signal (DBD signal). During printing, the DBD signal is detected by the BD sensor and sent to the control electronics every time one raster is completed.

The optical unit has two laser light sources. The printer engine issues two DBD detect signals to each laser light source at certain timings to make two DBD signals.

After detecting the two DBD signals, the control electronics transmit each CVD signal at the proper timing.

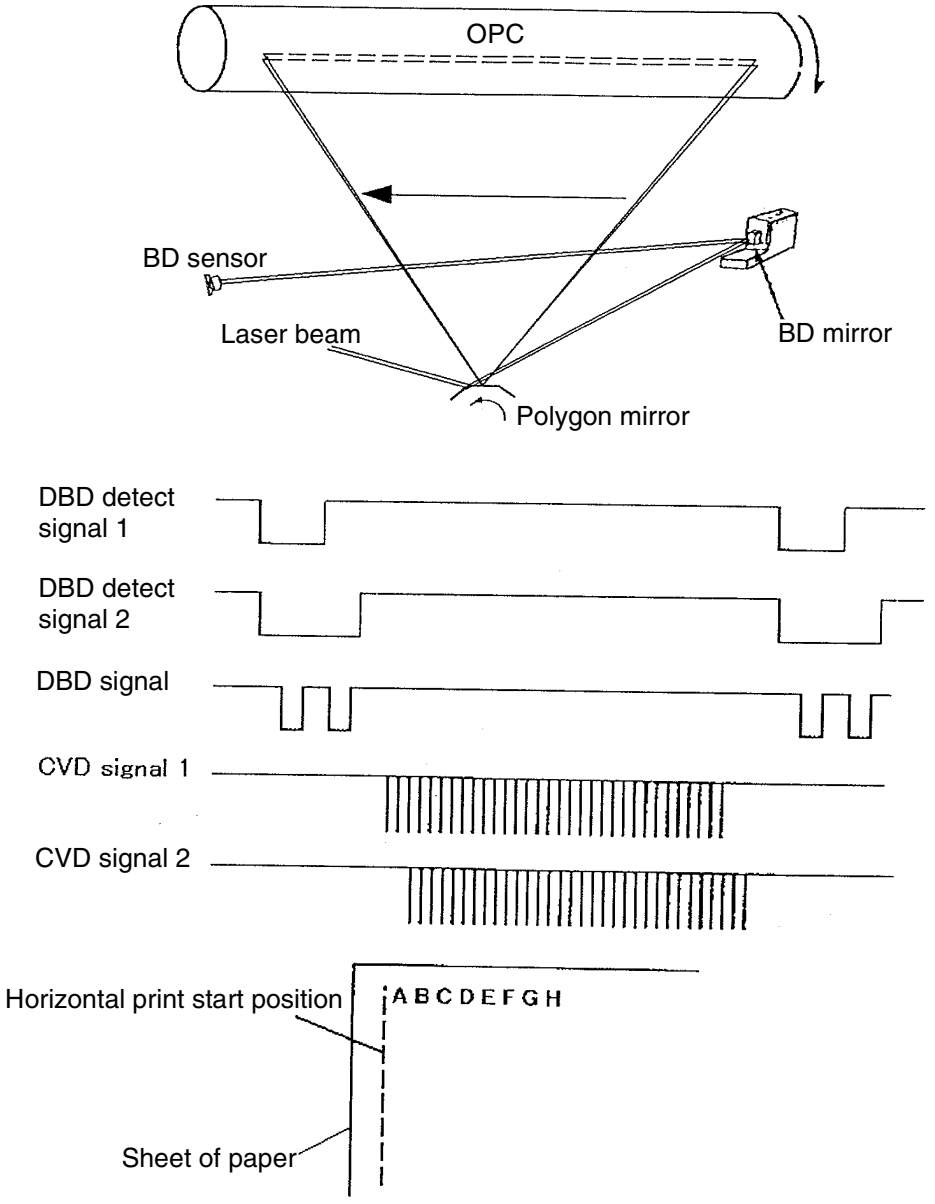


Figure 9-6. Horizontal Synchronization

9.5. (3) Vertical Synchronization

To let the control electronics know the printing start position on each page is called to get vertical synchronization. The vertical synchronization signal is called DTP signal. After receiving the pick command from the control electronics and picking a sheet, the printer sends the DTP signal to the controller. While the DTP signal is true, the controller sends the CPF signal to start printing.

The CVD signal from the control electronics utilizes the DTP signal as reference. That is, the DTP signal determines the vertical printing start position.

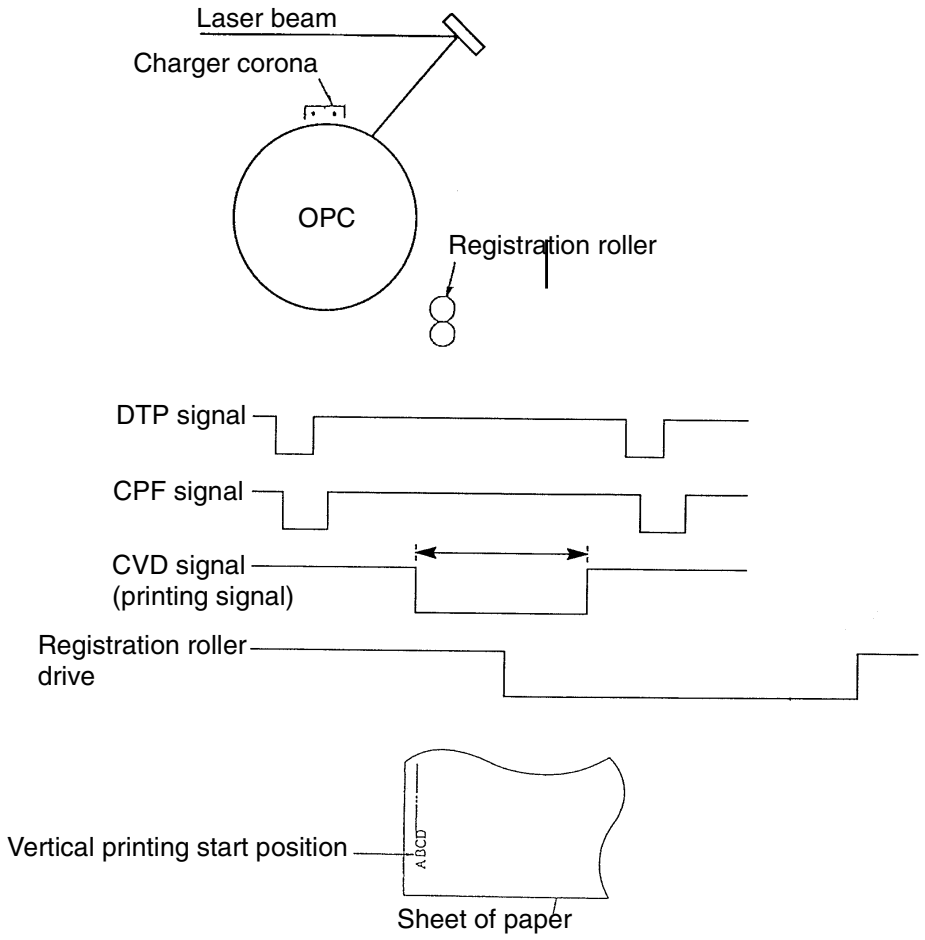


Figure 9-7. Vertical Synchronization

9.6. Paper Movement Process - Color Simplex Printing

This section describes Outline of paper movement on color simplex printing.

From one of the hoppers (Front engine)
When the clutch is on, the pick roller picks a sheet of paper from one of the hoppers. The paper travels through the vertical path by rollers to the registration station.

Registration station (Front and Rear engine)
For the registration and skew correction, the lead edge of paper is fed until it attaches to all registration rollers. The rollers rotate in a forward direction according to the "CPF (control paper feed)" signal and the paper is consequently fed.

Separation corona (Front and Rear engine)
After the transfer, a high (-) voltage and a high alternative voltage are applied by the corona emission of the separation corona to discharge an electrostatic charge between the paper and the OPC drum.

Conveyance belt (Front and Rear engine)
After the separation corona separates the paper from the OPC drum, the conveyance belt that has a suction mechanism feeds the paper to the fuser unit.

Fuser unit (Front and Rear engine)
The fuser unit fuses the toner on the paper by heat and pressure and feeds the paper to the switch back station.

Switch back station (Front engine)
The paper is directly fed to the relay unit without flipping over.

Switch back station (Rear engine)
In case of face up mode, the paper is directly fed to the output tray without flipping over. In case of face down mode, the paper is flipped over and fed to the output tray.

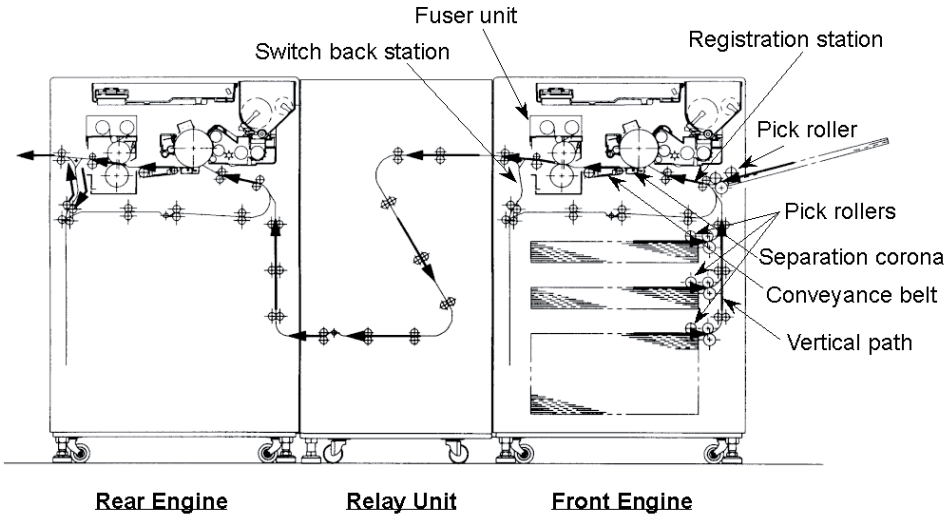


Figure 9-8. Paper movement process - Color Simplex printing

9.7. Paper Movement Process - Color Duplex Printing

This section describes Outline of paper movement on color duplex printing.

Color duplex printing is the same paper movement as color simplex printing except paper movement at the switch back station.

Switch back station (Front engine)
The paper changes direction at the switch back gate to go through the duplex path so as to print to the reverse side of the paper. The paper then is flipped over and fed to the relay unit.

Switch back station (Rear engine)
The paper changes direction at the switch back gate to go through the duplex path so as to print to the reverse side of the paper. And then, In case of face up mode, the paper is directly fed to the output tray without flipping over. In case of face down mode, the paper is flipped over and fed to the output tray.

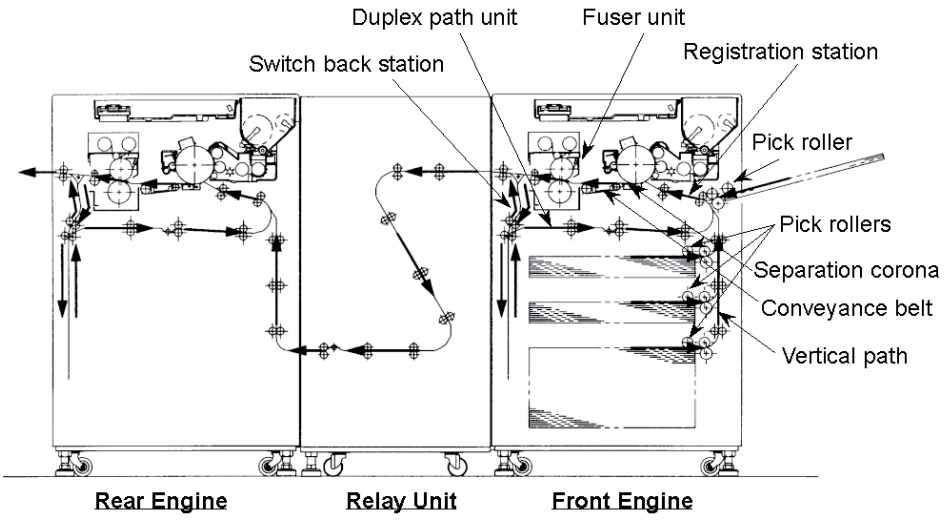


Figure 9-9. Paper movement process - Color Duplex printing

9.8. Paper Movement Process - 184 mode Printing

This section describes Outline of paper movement on 184 mode printing.

184 mode printing is the same paper movement as color simplex printing except paper movement at the switch back station of the front engine.

Switch back station (Front engine)
The paper is flipped over and fed to the relay unit.

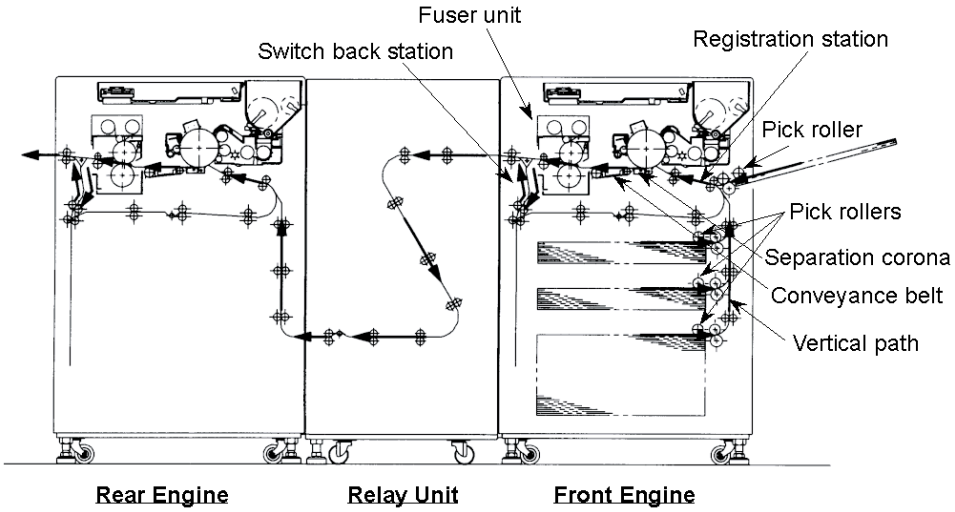


Figure 9-10. Paper movement process - 184 mode printing

9.9. Paper Movement Process - Paper Feed Mechanism

9.9. (1) Pick and Separate Mechanism

The left side shows the paper feed mechanism with one sheet being picked by the rubber pick rollers. The separate roller has a torque limiter and rotates when friction is charged over a certain level. When one sheet is picked, force is applied to the separator roller so it turns. When two sheets are picked by the pick roller the separate roller stops and only one sheet is fed.

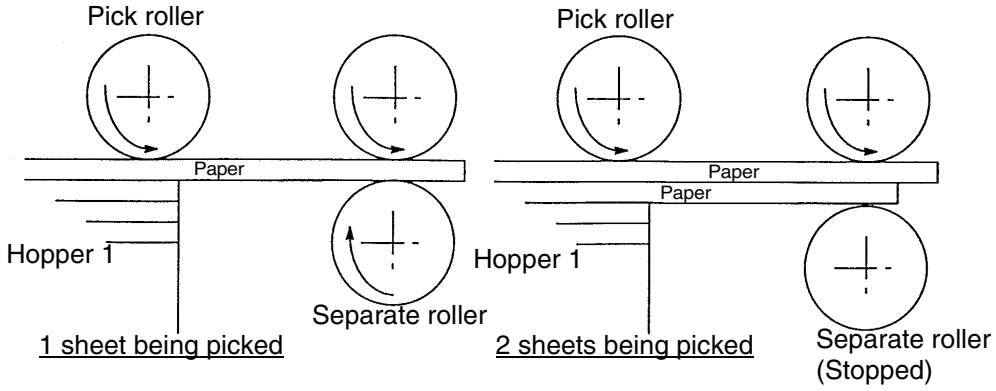
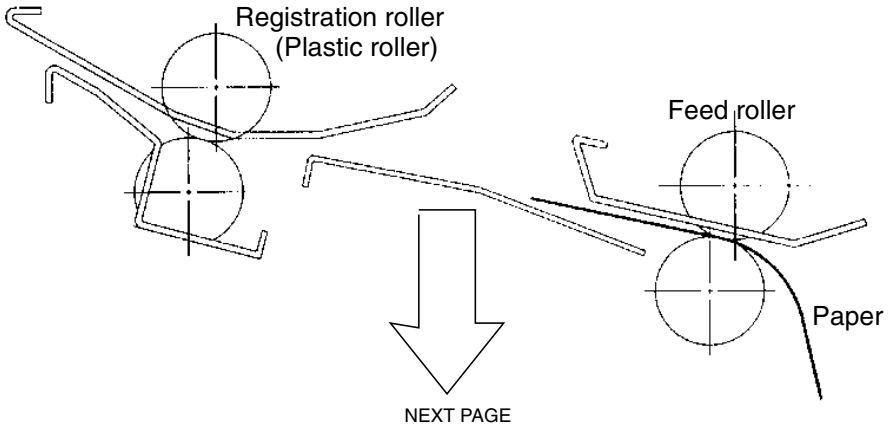


Figure 9-11. Paper movement - Pick/Separation Roller Mechanism

9.9. (2) Registration Station

Automatic registration is achieved by the skew sensor which measures the time difference between the start of the "CPF" signal to the detection of the top edge of the paper. The roller's velocity(registration roller) feeds the paper back to compensate for the difference between the designed time(time till the exposed position on the OPC reaches to the transfer point) and the actual measured time.



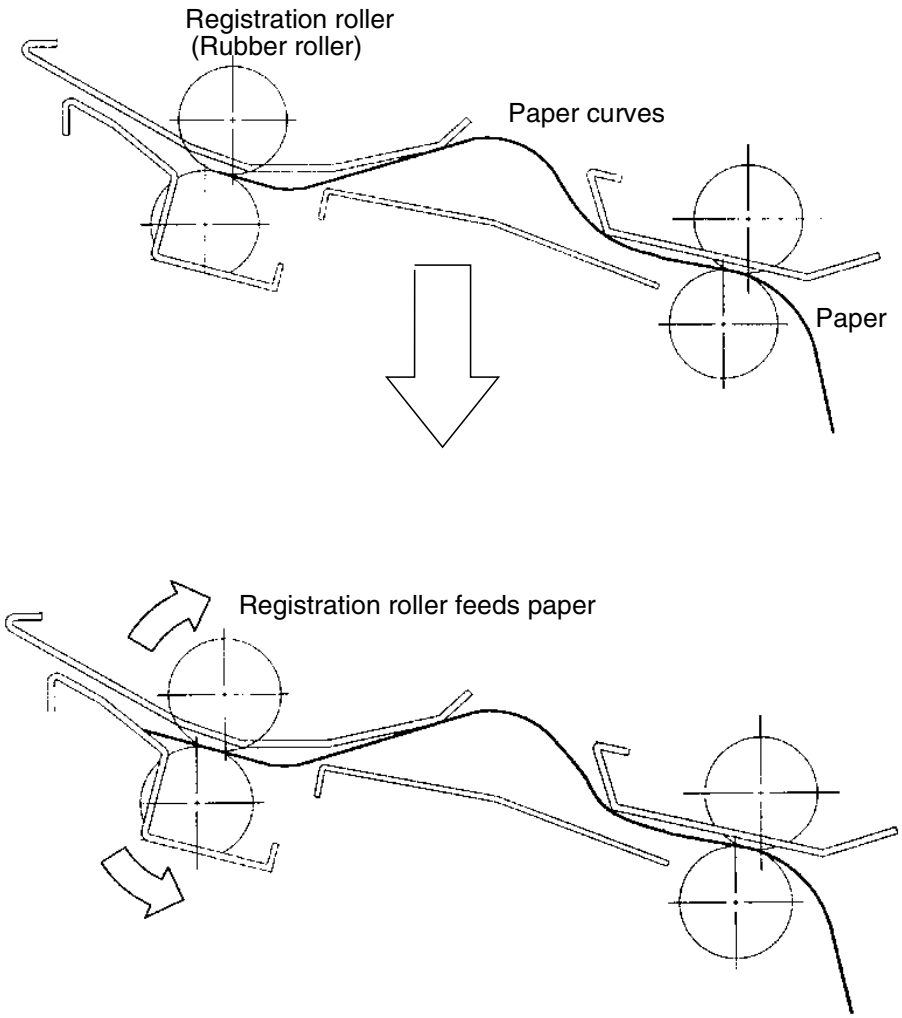


Figure 9-12. Paper movement - Pick/Separation Roller Mechanism

9.9. (3) Switch Back Station

Face up mode for simplex printing

The flip gate moves downward and a sheet of paper travels to the output tray.

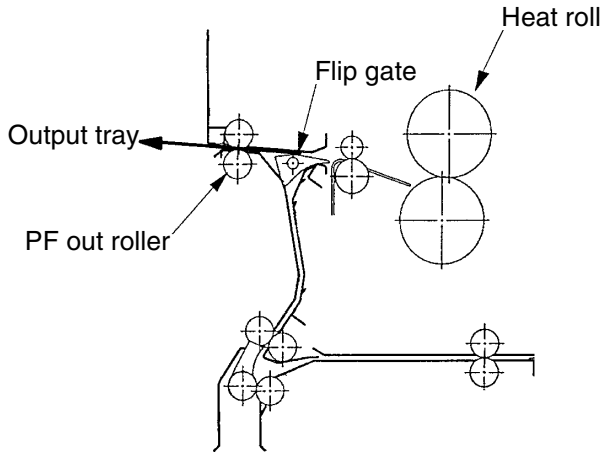


Figure 9-13. Face up mode for simplex printing

Face down mode

The flip gate moves upward to feed a sheet of paper to the switch back station. The flip roller feeds the paper downward and stops for a moment. Then the flip roller reverses and the paper travels to the output tray.

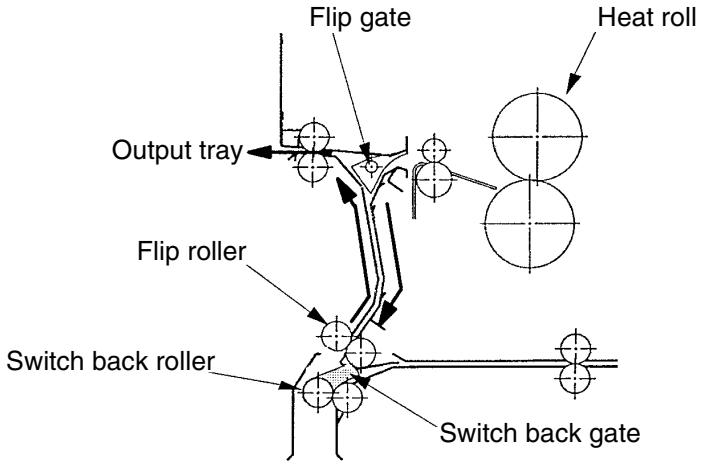


Figure 9-14. Face down mode

Switch back for duplex printing

The flip gate moves upward to feed a sheet of paper to the switch back station. When the trailing edge of the paper approaches the switch back roller, the switch back roller stops for a moment.

The switch back gate moves downwards and the switch back roller starts reversing. Then the paper travels to the duplex paper path.

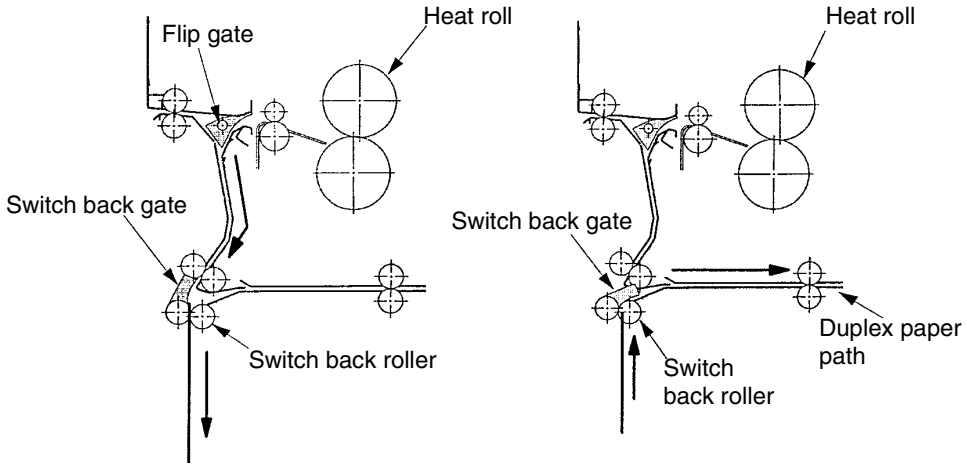


Figure 9-15. Switch back for duplex printing

9.10. Power Supplies

9.10. (1) Printer Power Supply

The input voltage of the printer is 200-240V AC. The power supply section protects the printer against individual abnormalities such as over-voltage, abnormal rise of temperatures, etc., in addition to its original function of AC and DC power to the printer.

Table 9-1. Output type of AC and DC and the major use and purpose

Output Type	Major Use and Purpose
200-240 AC (single phase)	Heater Lamp(Front / Rear Engine), Power Source of the controller power supplies (Front / Rear Engine), Power Source of the Relay Unit power supply(Relay Unit), Power Source of the container stacker power supply(option)
+5V DC	Logic Control, Paper Sensors, Cover Sensors, Thermistor of the Heatroll(Front / Rear Engine), and Toner Empty Sensor (Front / Rear Engine)
+24V DC / +24VS DC	Motors, Fans, Solenoids, Clutches(Front / Rear Engine), and High Voltage Power Supplies(Front / Rear Engine)

AC Block Diagram

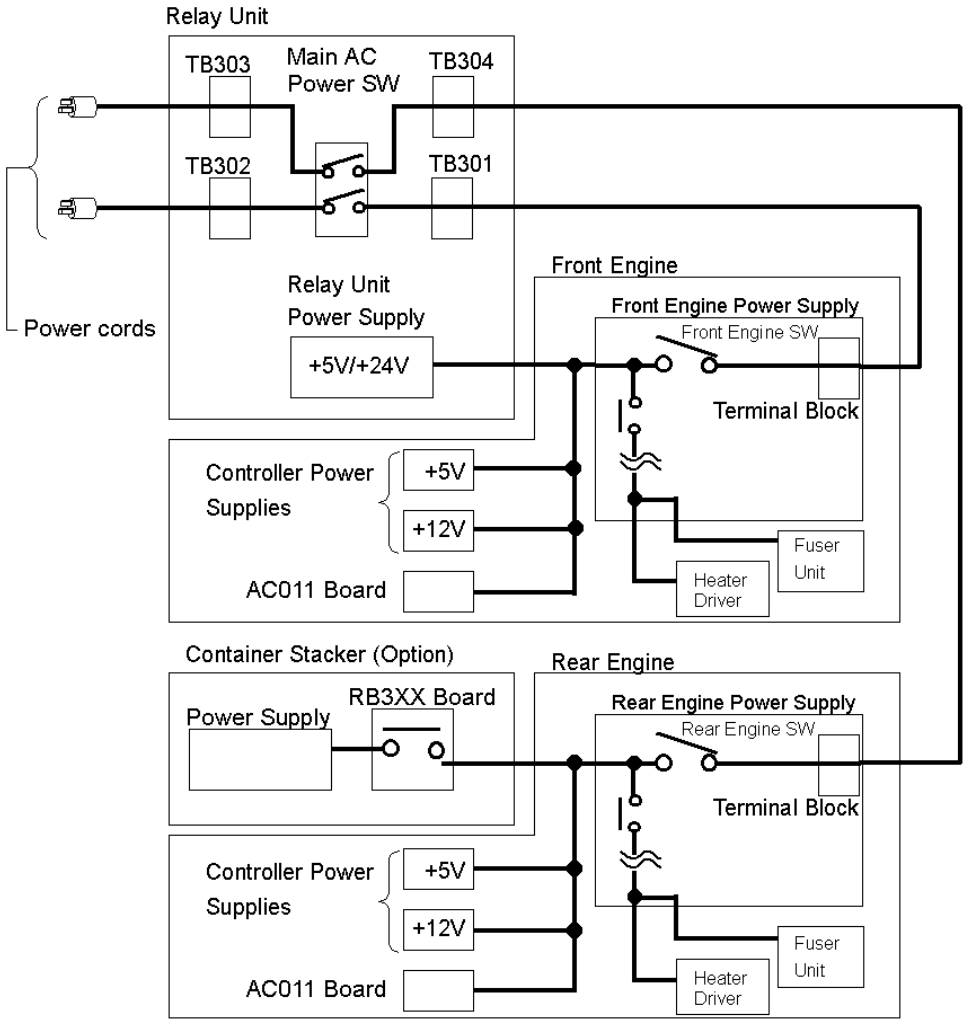


Figure 9-16. Printer Power Supply

CAUTION:
1. Even if turning off the Power switch at the front side or Relay Unit, AC line voltage is energized to TB302 and TB303.
But AC line voltage to Front/Rear Engine(TB301 and TB304) is shut off.
2. Even if turning off the Front/Rear Engine switches, AC line voltage is still energized to TB301-TB304.

*** See above connection carefully.**
*** (Refer to item 3.14 on page 3-39) for detailed AC Circuit Diagram.**

9.10. (2) Controller Power Supply

The input voltage of the printer is 200-240V AC. The power supply section protects the printer against individual abnormalities such as over-voltage, abnormal rise of temperatures, etc., in addition to its original function of AC and DC power to the Controller.

Table 9-2. Output type of AC and DC and the major use and purpose

Output Type	Major Use and Purpose
+5V DC	Logic Control
+12V DC	HDD

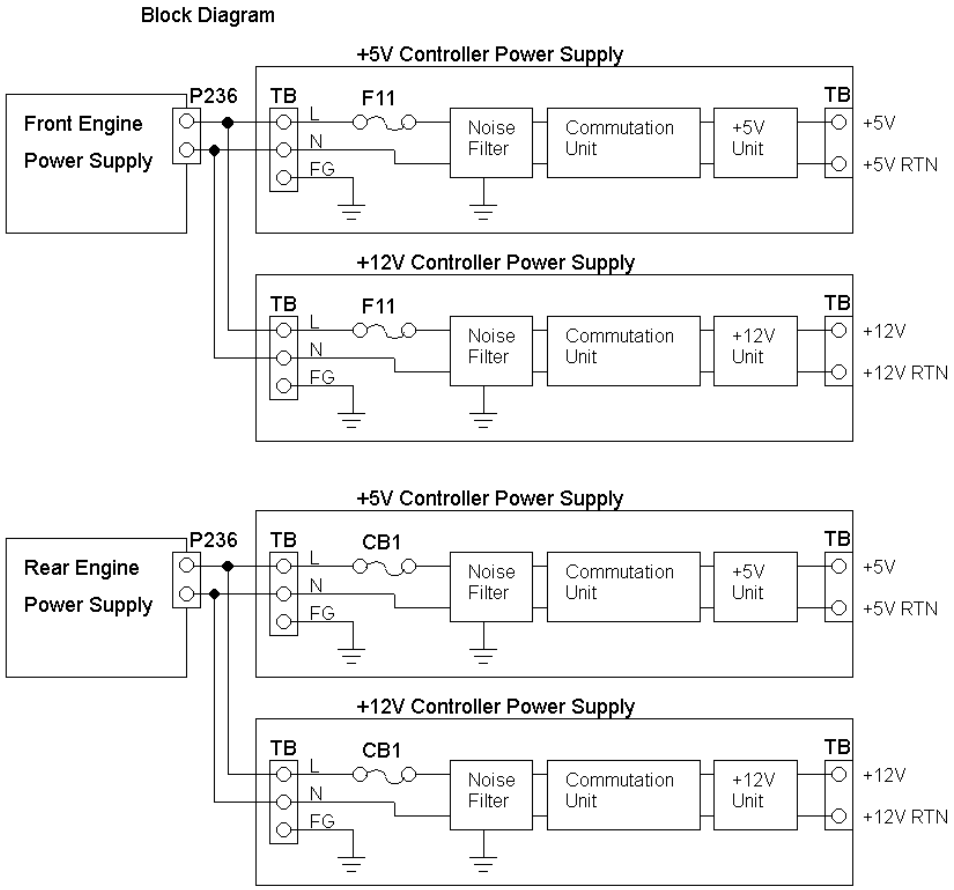


Figure 9-17. Controller Power Supply

9.10. (3) High Voltage Power Supply

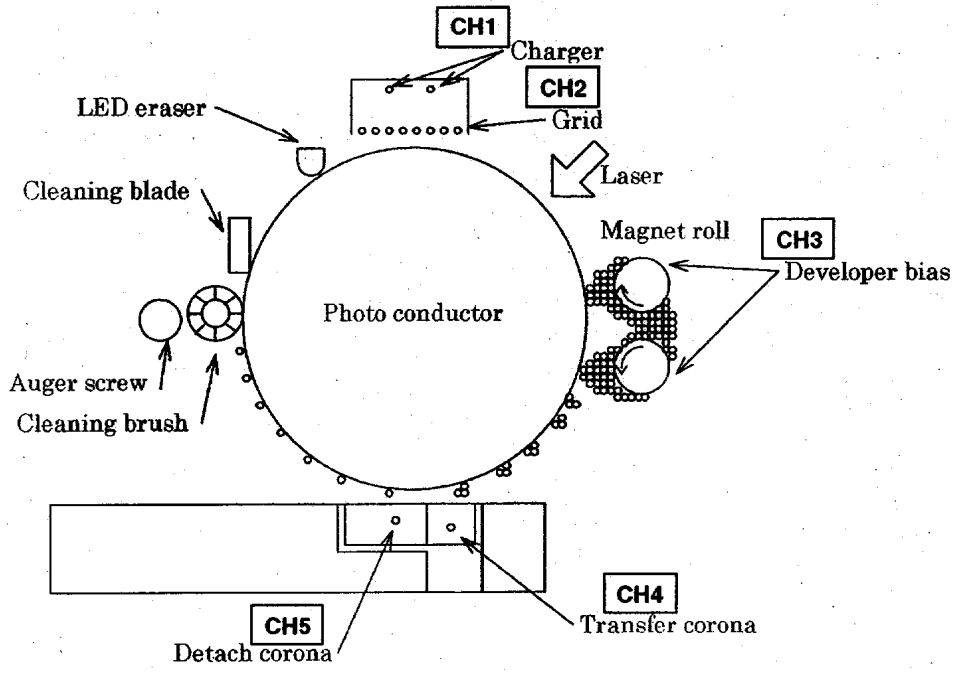


Figure 9-18. High Voltage Power Supply

9.11. DE (Device Electronics)

The DE consists of the main control print board which has two CPUs and mainly three driver print boards. The names together with their functions are described below.

CPxxx (Front Engine / Rear Engine)

This contains two CPUs which control the entire printer, a driver of motors for the greater part of the printer, and contains the controller interface logic.

It also accommodates circuits for receiving commands from the controller and control signals, circuit for reporting the status of the printer interior(device data) to the controller, etc.

The functions of this P/K are described below:

- Paper feed control
- Paper skew detection
- Timing transfer control
- Heater temperature control
- High voltage power supply control
- Toner density control

OCxxx

This contains the circuits for the optical unit which is composed of receiver circuits for various sensors and I/O ports for the mirror motor control signals.

The functions of this P/K are described below:

- Video signal control
- Laser control
- Beam detect control
- Mirror motor drive control

HPxxx

This contains two kinds of standard hopper P/Ks with extension hoppers available.

The functions of this P/K are described below:

- Paper pick control for each hopper
- Paper feed control
- Search of quantity of remaining paper

CPxxx (Relay Unit)

This contains two CPUs which control the Relay Unit.

The functions of this P/K are described below:

- Paper feed control
- Decurler gate open/close control
- Fan drive control

9.12. Printer Control System Diagram

9.12. (1) Front Engine / Rear Engine

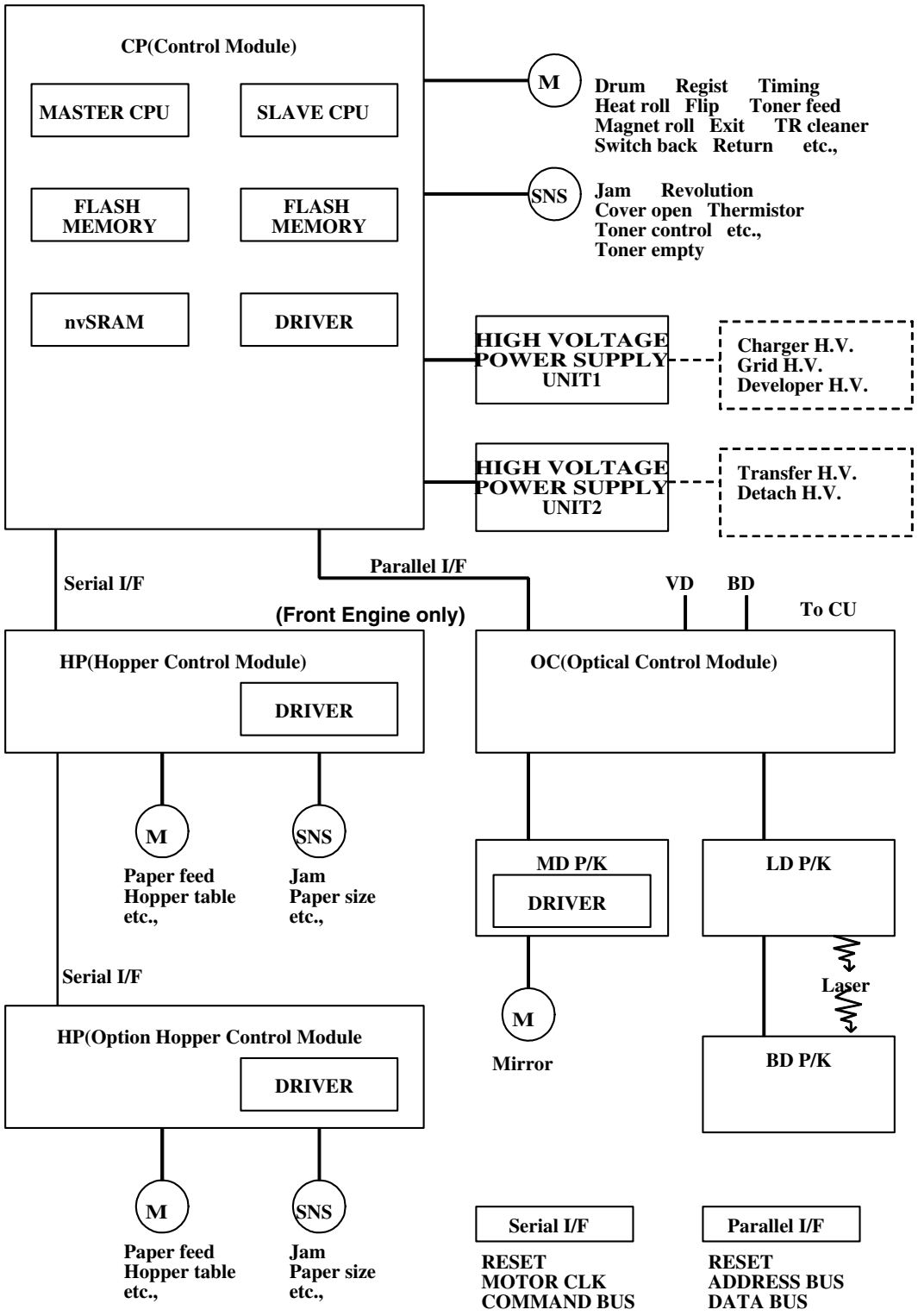


Figure 9-19. Printer Control System Diagram - Front Engine / Rear Engine

9.12. (2) Relay Unit

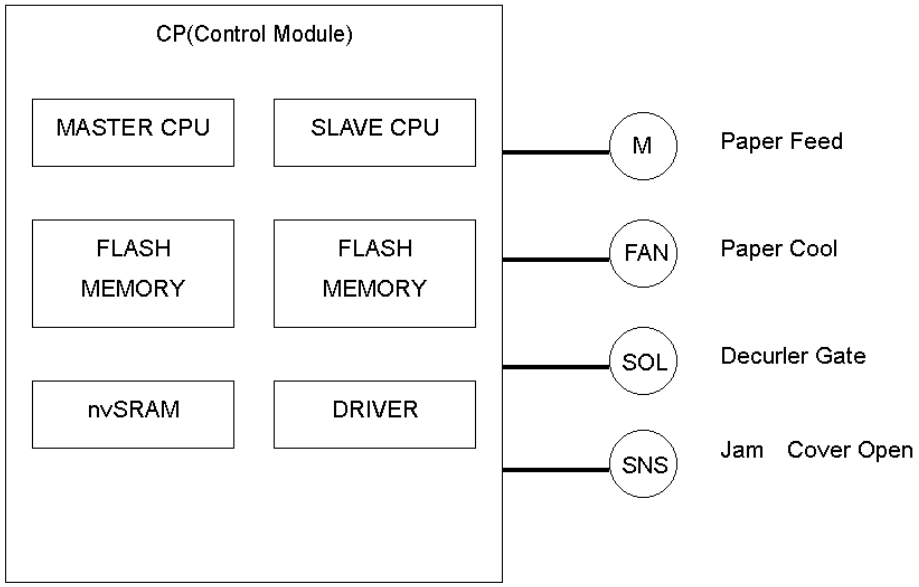


Figure 9-20. Printer Control System Diagram - Relay Unit

9.13. Secondary Circuit Connection

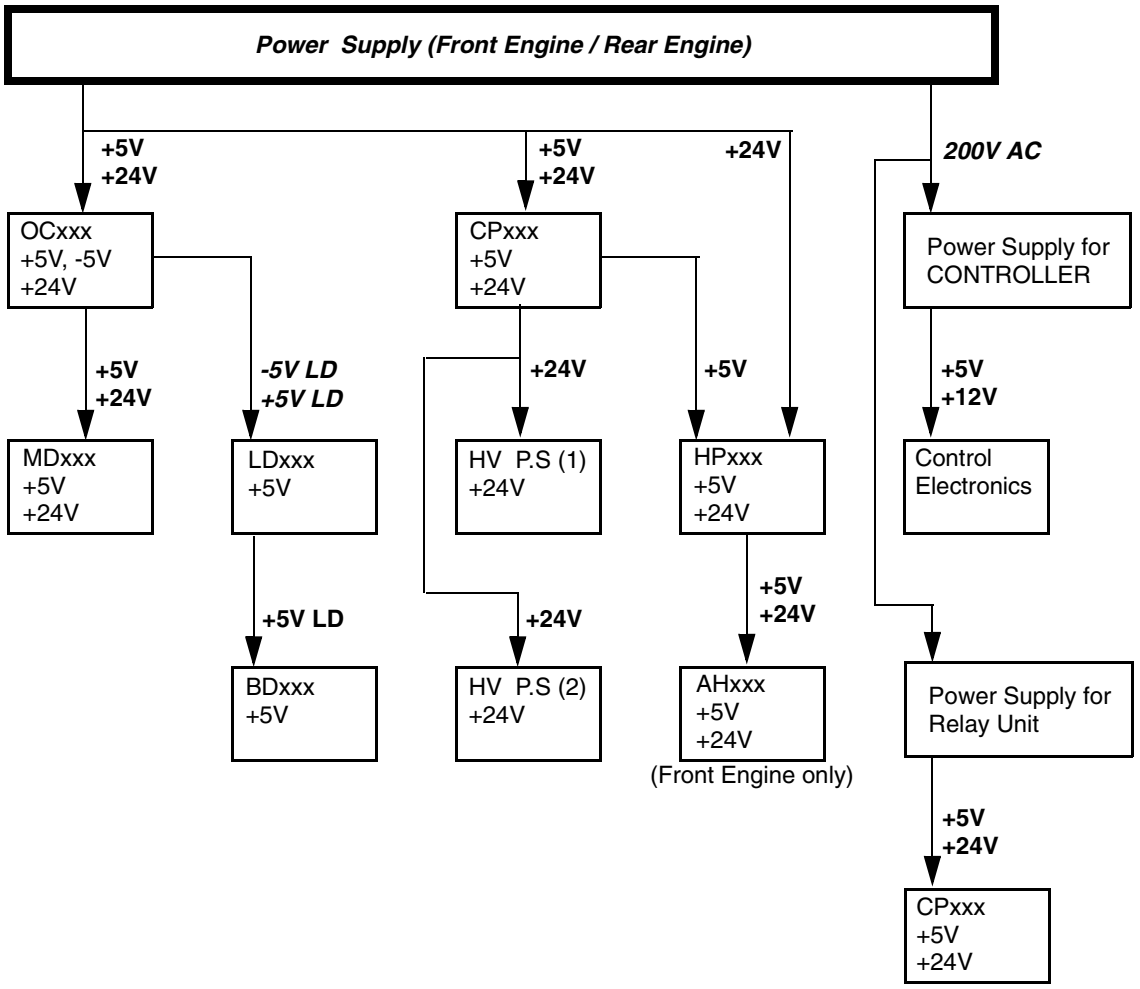


Figure 9-21. Secondary Circuit Connection

Abbreviations:

CP: Control Process OC: Optical Control MD: Mirror Motor Driver
LD: Laser Driver BD: Beam Detect HP: Hopper Driver
HV P.S: High Voltage Power Supply AH: High Capacity Hopper Driver

9.14. Finisher SR5000 Power Supply

The input voltage of the Power Supply for Finisher SR5000 is 200-240V AC. This power supply section protects the Finisher SR5000 against individual abnormalities such as over-voltage, abnormal rise of temperatures, etc., in addition to its original function of AC and DC power to the Finisher SR5000.

Table 9-3. Output type and the major use and purpose

Output type	Major use and purpose
+24V DC	Finisher control board, Finisher devices

Block Diagram

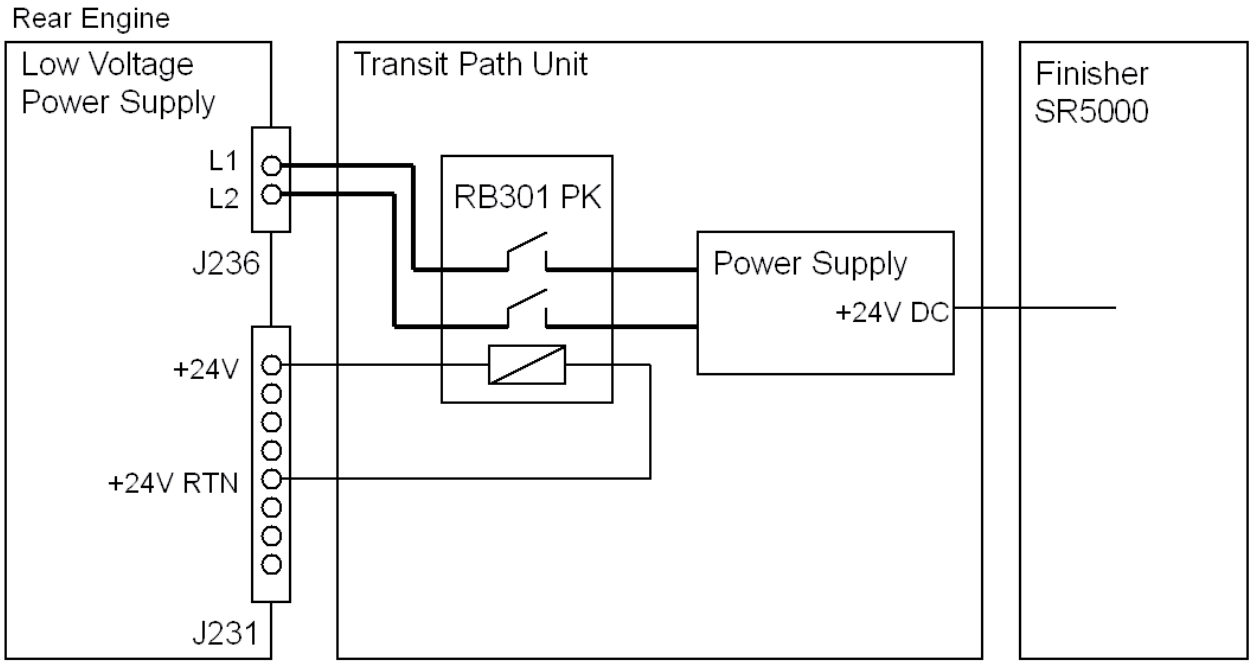


Figure 9-22. Finisher SR5000 Power Supply

4. TROUBLESHOOTING

4.1 PROGRAM DOWNLOAD

4.1.1 OVERVIEW

Here are some important points to keep in mind when downloading software:

- If an error interrupts download processing, the machine cannot operate normally with the program software only partially downloaded.
- When download processing execution starts, “Downloading…” is displayed and when downloading has completed successfully, the message is cleared.
- If the download is interrupted when the “Downloading …” message is displayed, the machine does not attempt a re-try.
- The program that downloads firmware from an SD card is part of the GW controller software. If downloading this software is interrupted, the program stored in the machine may be corrupted. Because of this, it may not be possible to restart the downloading program. (In addition, if the GW controller software cannot be downloaded, other software on other SD cards cannot be downloaded.) However, it may be possible to restart the program without replacing the board by setting DIP SW 1 on the controller to ON, and re-starting.

4.1.2 RECOVERY METHODS

When an error occurs during downloading, an error code is displayed on the operation panel.

- If the download procedure can be re-started, re-start the download procedure.
- If the download procedure cannot be downloaded for other than the GW controller, replace the board where the downloaded program is stored.
- If the download procedure cannot be downloaded for the GW controller, set DIP SW 1 to ON. Power the machine off and on to start the downloading program. After downloading has completed, set the DIP SW to OFF then power the machine off and on again.

4.1.3 DOWNLOAD ERROR CODES

	Display	Details	Recovery
01	Reboot after card insert E01 ↕ Module ID Card No. xx/xx	Controller ROM update error 1 When the update break data is stored in NVRAM, the break module information and the decompression module capable of writing do not match.	• Use the correct card
02	Download Error E02 Power off/on	Controller ROM update error 2. Error occurs during ROM update program initialization.	• Cycle the machine off/on to rewrite
03	Download Error E03 Power off/on	Controller ROM update error 3 The ROM for the write operation does not exist.	• Cycle the machine off/on • Install the missing ROM DIMM
04	Download Error E04 Power off/on	Controller ROM update error 4 GZIP data confirmation fails. (CRC value check)	• Cycle the machine off/on • Set DIP SW 1 to ON and retry • Replace RAM DIMM • Replace controller board
05	Download Error E05 Power off/on	Controller ROM update error 5 Error occurs when writing to the device.	• Cycle the machine off/on • Set DIP SW 1 to ON and retry • Replace RAM DIMM • Replace controller board
06	Download Error E06 Power off/on	Controller ROM update error 6 CPU clock error.	• Turn the machine power off/on. • Set controller DIPSW-1 to ON to force the machine to write to ROM. • If you cannot force the machine to write, replace the controller board.
19	Download Error E19 Power off/on	Controller ROM update error 7 Schedule data is unclear.	• Software defective
20	Down Error E20 Power Off/On	System error 1 (+SC991) The physical address cannot be mapped. Software/hardware is defective	• Cycle the machine off/on and re-try • Replace controller board
21	Download Error E21 Power Off/On	System error 2 (+SC991) There is not sufficient memory to download.	• Cycle the machine off/on and re-try. • Replace RAM • Replace the controller board

	Display	Details	Recovery
22	Download Error E22 Module ID Card No xx/xx	System error 3 (+SC991) Data fails to decompress. Card defective.	• Cycle the machine off/on and re-try. • Replace card • Replace controller board
	SC991	System error 4 "Selfupdate" does not execute. Software defective.	• Cycle the machine off/on and re-try • Set DIP SW 1 to ON and re-try • Replace the controller board
23	Download Error E24 Power Off/On	System error 5 Card read/write error. Software or card defective.	• Cycle the machine off/on and re-try • Replace the card • Replace the controller board
30	No Valid Data E30	Download dysfunction 1 Print download is not possible. Cannot download to HDD because HDD not installed or defective.	• HDD defective • HDD harness disconnected, defective
31	Reboot After Card Insert E31 Module ID Card No. xx/xx	Download dysfunction 2 Download continuity error with more than one card. The second or later card is not compatible.	• Set the correct cards in the correct order
32	Reboot After Card Insert E32 Module ID Card No. xx/xx	Download dysfunction 3 Download interrupted because card is not correct, or power failure interrupted download.	• Use the correct card • If power failure caused the failure, remove the card and insert another.
33	No Valid Data E33	Download dysfunction 4 Card version error. Attempted to download program using a card with the wrong version number.	• Use the correct card
34	No Valid Data E34	Download dysfunction 5 Specification error. DOM card set in EXP machine, or vice versa.	• Use the correct card
35	No Valid Data E35	Download dysfunction 6 Wrong model. The inserted card is for another model.	• Use the correct card
36	No Valid Data E36	Download dysfunction 7 Module error. The program that you are attempting to download does not exist on the machine, or the contact points at the card and the machine slot are not connected.	• Use the correct card, inserted correctly • Install a ROM DIMM if none is installed
37	No Valid Data E37	Download dysfunction 8 Edit option card error. You attempted to employ a used card.	• Use an unused card
40	Download Error E40 Module ID Card No. xx/xx	Download result failure 1 Engine download failure.	• Cycle the machine off/on and re-try
41	Download Error E41 Module ID Card No. xx/xx	Download result failure 2 Fax download failure.	• Cycle the machine off/on and re-try

	Display	Details	Recovery
42	Download Error E42 Module ID Card No. xx/xx	Download result failure 3 Operation panel or language download failed. For this error, sometimes the message may not be displayed.	• Cycle the machine off/on and re-try
43	Download Error E43 Module ID Card No. xx/xx	Download result failure 4 Print download failed.	• Cycle the machine off/on and re-try
44	Download Error E44 Module ID Card No.	Download result failure 5 The data targeted for the write operation could not be accessed.	• Turn the machine power off/on. • Replace the SD card with the start-up SD card that has the source data. • Set controller DIPSW-1 to ON to force the machine to write • If you cannot force the machine to write, replace the controller board.
50	No Valid Data E50	Download invalid The source data for the update could not be authenticated.	• Use the correct SD card.
51	(no display)	Remote ROM update failure 1 The source data for the ROM update is corrupted because the machine is operating and an SC code has been issued.	• Turn the machine power off/on and try again.
52	(no display)	Remote ROM update failure 2 The source data received for the ROM update is corrupted; it failed a SUM check due to its abnormal length.	• Try again with the correct data.
53	(no display)	Download result failure 6 The previous download in progress was cancelled.	• Do the download procedure again.

4.1.4 PAPER JAM CODES

When a jam occurs, a graphic illustration of the main machine, finisher, booklet finisher, Z-fold unit, cover interposer tray, LCT, and bypass tray appears on the operation panel screen.

The location of the jammed paper becomes lit (does not flash) in the graphic illustration.

A jam code is displayed on the operation panel to indicate the cause and location of the jam. For more details, please refer to the tables on the following pages.

Note concerning the tables

- Late: Paper should be at the sensor, but it is not
- Lag: There should be no paper at the sensor, but paper is present

Copier B234/B235/B236

Display	No.	Jam Cause
A	3	1st Paper Feed Sensor – Late
A3	4	2nd Paper Feed Sensor – Late
A2	5	3rd Paper Feed Sensor – Late
U2	6	4th Paper Feed Sensor – Late
U4	7	5th Paper Feed Sensor – Late
U5	8	6th Paper Feed Sensor – Late
V	9	7th Paper Feed Sensor – Late
B1	10	1st Transport Sensor - Late
B1	11	2nd Transport Sensor - Late
B1	12	3r d Transport Sensor - Late
U	13	4th Transport Sensor - Late
U	14	5th Transport Sensor - Late
U	15	6th Transport Sensor - Late
U	16	7th Transport Sensor - Late
B4	17	LCT Relay Sensor - Late
B4	18	LCT Exit Sensor - Late
B1	19	Upper Relay Sensor - Late
C	20	Registration Sensor - Late
D	21	Job Time Sensor – Late
D	22	Exit Sensor - Late
Z1	23	Duplex Entrance Sensor - Late
Z4	24	Duplex Transport Sensor 1 – Late
Z4	25	Duplex Transport Sensor 2 – Late
Z4	26	Duplex Transport Sensor 3 – Late
Z1	27	Duplex Inverter Sensor - Late
Z1	28	Duplex Inverter Relay Sensor - Late
A	53	1st Paper Feed Sensor – Lag
A3	54	2nd Paper Feed Sensor – Lag
A2	55	3rd Paper Feed Sensor – Lag
U2	56	4th Paper Feed Sensor – Lag
U4	57	5th Paper Feed Sensor – Lag
U5	58	6th Paper Feed Sensor – Lag
V	59	7th Paper Feed Sensor – Lag
U	60	1st Transport Sensor - Lag
U	61	2nd Transport Sensor - Lag
U	62	3r d Transport Sensor - Lag
U	63	4th Transport Sensor - Lag
U	64	5th Transport Sensor - Lag
U	65	6th Transport Sensor - Lag
U	66	7th Transport Sensor - Lag
B4	67	LCT Relay Sensor – Lag
U	68	LCT Exit Sensor - Lag
B1	69	Upper Relay Sensor - Lag
C	70	Registration Sensor - Lag
D	71	Job Time Sensor – Lag
D	72	Exit Sensor - Lag
Z1	73	Duplex Entrance Sensor - Lag
Z4	74	Duplex Transport Sensor 1 – Lag
Z4	75	Duplex Transport Sensor 2 – Lag
Z4	76	Duplex Transport Sensor 3 – Lag
Z1	77	Duplex Inverter Sensor - Lag
Z1	78	Duplex Inverter Relay Sensor - Lag
B1	99	Double-Feed Sensor

Paper Jam Locations – Finisher B830

Display	No.	Jam Cause
R1~3	101	Entrance Sensoor - Late
R1~3	102	Entrance Sensor – Lag
R1~3	103	Upper Tray Exit Sensor – Late
R1~3	104	Upper Tray Exit Sensor – Lag
R1~3	105	Shift Tray Exit Sensor – Late
R1~3	106	Shift Tray Exit Sensor – Lag
R4~8	107	Staple Tray Exit Sensor – Late
R4~8	108	Staple Tray Exit Sensor – Lag
R4~8	109	Pre-Stack Paper Sensor - Late
R4~8	110	Pre-Stack Paper Sensor – Lag
R4~8	111	Stack Feed-Out Belt HP Sensor
R1~3	112	Transport Motors
R1~3	113	Shift Tray Lift Motor
R4~8	114	Jogger Motor
R1~3	115	Shift Motor
R4~8	116	Staple Motor
R4~8	117	Stack Feed-Out Belt Motor
R1~3	118	Punch Motor
R4~8	119	
R4~8	120	Pre-Stack Transport Motor
R1~3	121	

Cover Interposer Tray B835

Display	No.	Jam Cause
Q1	130	1st Paper Feed Sensor – Late
Q1	131	1st Paper Feed Sensor – Lag
Q2	132	2nd Paper Feed Sensor – Late
Q2	133	2nd Paper Feed Sensor – Lag
Q3~4	134	1st Transport Sensor – Late
Q3~4	135	1st Transport Sensor – Lag
Q3~4	136	2nd Transport Sensor – Late
Q3~4	137	2nd Transport Sensor – Lag
Q3~4	138	1st Vertical Transport Sensor - Late
Q3~4	139	1st Vertical Transport Sensor - Lag
Q3~4	140	2nd Vertical Transport Sensor - Late
Q3~4	141	2nd Vertical Transport Sensor - Lag
Q3~4	142	Vertical Exit Sensor – Late
Q3~4	143	Vertical Exit Sensor - Lag
Q3~4	144	Entrance Sensor – Late
Q3~4	145	Entrance Sensor – Lag
Q3~4	146	Exit Sensor – Late
Q3~4	147	Exit Sensor – Lag
Q1	148	1st Lift Motor
Q2	149	2nd Lift Motor
Q1	150	1st Pick-Up Motor
Q2	151	2nd Pick-Up Motor

Booklet Finisher B836

Display	No.	Jam Cause
M1~M3	160	Entrance Sensor – Late
M1~M3	161	Entrance Sensor – Lag
M4~M6	162	Stapling Tray Paper Sensor – Late
M4~M6	163	Stapling Tray Paper Sensor – Lag
M7~11	164	Stack Present Sensor – Late
M7~11	165	Stack Present Sensor – Lag
M7~11	166	Fold Unit Entrance Sensor – Late
M7~11	167	Fold Unit Entrance Sensor – Lag
M7~11	168	Fold Unit Exit Sensor – Late
M7~11	169	Fold Unit Exit Sensor – Lag
M7~11	170	Exit Sensor – Late
M7~11	171	Exit Sensor – Lag
M7~11	174	Jogger Fence
M7~11	175	Stack Feed-Out Belt
M7~11	176	Booklet Stapler – Front
M7~11	177	Booklet Stapler – Rear
M7~11	178	Stack Junction Gate Motor
M7~11	179	Clamp Roller Retraction Motor
M7~11	180	Bottom Fence Lift Motor
M7~11	181	Fold Plate Motor

Paper Jam Locations – Z-Fold Unit B660

Display	No.	Jam Cause
N1	200	Feed Sensor – Late
N1	201	Feed Sensor – Lag
N2~N3	202	Fold Timing Sensor – Late
N2~N3	203	Fold Timing Sensor – Lag
N2~N3	204	Leading Edge Sensor – Late
N2~N3	205	Leading Edge Sensor – Lag
N2~N3	206	Upper Stopper HP Sensor – Late
N2~N3	207	Upper Stopper HP Sensor – Lag
N1	208	Upper Exit Sensor 1 – Late
N1	209	Upper Exit Sensor 1- Lag
N2~N3	210	
N2~N3	211	
N2~N3	212	Lower Exit Sensor 2 – Late
N2~N3	213	Lower Exit Sensor 2 – Lag
N1	214	Feed Motor
N2~N3	215	Lower Stopper Motor
N2~N3	216	Upper Stopper Motor
N2~N3	217	Fan Motor

4.2 SERVICE CALL CONDITIONS

4.2.1 SERVICE MODE LOCK/UNLOCK

At locations where the machine contains sensitive data, the customer engineer cannot operate the machine until the Administrator turns the service mode lock off. This function makes sure that work on the machine is always done with the permission of the Administrator.

1. If you cannot go into the SP mode, ask the Administrator to log in with the Operator Tool and then set “Service Mode Lock” to OFF. After he or she logs in:

   Operator Tools > System Settings > Administrator Tools > Service Mode Lock > OFF

   - This unlocks the machine and lets you get access to all the SP codes.
   - The CE can do servicing on the machine and turn the machine off and on. It is not necessary to ask the Administrator to log in again each time the machine is turned on.
2. If you must use the printer bit switches, go into the SP mode and set **SP 5169** to “**1**”.
3. After machine servicing is completed:
   - Change **SP 5169** from “1” to “0”.
   - Turn the machine off and on. Tell the administrator that you completed servicing the machine.
   - The Administrator will then set the “Service Mode Lock” to ON.

4.2.2 SERIES SERVICE CALL CONDITIONS

There are 4 levels of service call conditions.

Level	Definition	Reset Procedure
A	Fusing unit SCs displayed on the operation panel. The machine is disabled. The operator cannot reset the SC.	Enter SP mode, then turn the main power switch off and on.
B	SCs that disable only the features that use the defective item. These SCs are not shown to the operator under normal conditions. They are displayed on the operation panel only when the defective feature is selected.	Turn the main power switch off and on.
C	SCs that are not shown on the operation panel. They are internally logged.	Logging only
D	Turning the operation switch (or main power switch) off then on resets these SCs. These SCs are displayed on the operation panel and displayed again if the error reoccurs.	Turn the operation switch (or main power switch) off and on.

4.2.3 SC CODE DESCRIPTIONS

Important

- If a problem concerns a circuit board, disconnect and reconnect the connectors and then test the machine. Often a loose or disconnected harness is the cause of the problem. Always do this before you decide to replace the PCB.
- If a motor lock error occurs, check the mechanical load before you decide to replace the motor or sensors.
- When a Level “A” or “B” SC occurs while in an SP mode, the machine cannot display the SC number. If this occurs, check the SC number after leaving the SP mode.
- If you set SP 5875 to ‘on’, the machine reboots automatically when the machine issues a Level “B&D” SC code. This is done for Level “D” SC codes only.

⚠CAUTION

Never turn off the main power switch when the power LED is lit or flashing. To avoid damaging the hard disk or memory, press the operation switch to switch the power off, wait for the power LED to go off, and then switch the main power switch off.

NOTE: The main power LED (☀) lights or flashes while the platen cover or ARDF is open, while the main machine is communicating with a facsimile or the network server, or while the machine is accessing the hard disk or memory for reading or writing data.

SC Code Group Designations

Group	SC	System
Scanning	100	Lamp Control
	120	Scanning
	140	Magnification
	160	Filter Processing
	190	Other
Image Creation	300	Charge
	320	Image Writing (Exposure)
	340	Development
	360	Image Memory
	400	Transfer
	410	Separation
	420	Cleaning
	430	Quenching
	440	Drum
	490	Other
Feed, Transport, Duplexing, Fusing	500	Feed, Transport
	520	Duplexing
	540	Fusing
	590	Other
Communication	600	Internal Communication
	620	External Communication
	690	Other
Peripheral Devices	700	ADF
	720	Finishers
	790	Other
Other	900	Counters
	920	Memory
	990	Other

4.2.4 SC CODE DESCRIPTIONS

SC101	**B**	Exposure Lamp Error	
		The standard white level was not detected properly when scanning the white plate.	• Exposure lamp defective • Lamp stabilizer defective • Exposure lamp connector defective • Scanner motor control unit (MCU board) defective • SBU board defective • Dirty standard white plate • Dirty scanner mirror or scanner mirror or lens block out of position

SC120	**B**	Scanner Home Position Error 1	
		The scanner home position sensor does not detect the OFF condition during initialization or copying	• Scanner home position sensor defective • Poor connection between HP sensor and MCU board • Scanner motor control unit (MCU board) defective • Scanner wire, timing belt, pulleys, or carriage out of position • Scanner motor defective • Poor connection or defective harness between MCU board and scanner motor

SC121	**B**	Scanner Home Position Error 2	
		Scanner home position sensor does not detect ON.	• Scanner home position sensor defective • Poor connection between MCU board and scanner home position sensor • Harness between MCU board and sensor defective • MCU board defective • Scanner wire, timing belt, pulleys, or carriage out of position • Scanner drive motor defective • Harness between MCU board and scanner motor disconnected

SC124	**B**	Encoder Signal Error	
		The scanner motor encoder connector is not set correctly, or the encoder signal was not input.	• Scanner motor encoder connector disconnected • Scanner motor lead connector disconnected • Scanner motor defective • MCU board defective (scanner motor control unit) • Scanner wire, timing belt, pulleys, or carriage installation incorrect • Power supply connector disconnected (+38V ±24V) • Power supply unit (PSU-E board) defective

SC125	**B**	Scanner Motor Error 1	
		Scanner motor stopped before feedback from scanner HP sensor detected, or motor speed too slow when detected at scanner HP sensor.	• Scanner motor defective (high torque) • Overload on scanner drive mechanism • MCU board defective (scanner motor unit control)

SC126	**B**	Scanner Motor Error 2	
		The scanner motor does not stop within 15 mm after the scanner home position sensor turns on when the scanner returns.	• Scanner motor defective (low torque) • Overload on scanner drive mechanism • MCU board defective (scanner motor control unit)

SC127	**B**	Scanner Motor Error 3	
		The scanner motor rotates in the opposite direction to the signal from the MCU board.	• Scanner motor defective (motor lead connected incorrectly) • MCU board defective (scanner motor control unit)

SC128	**C**	Scanner Motor Error 4	
		The scanner motor speed does not reach the target speed by the time the scanning start point is reached.	• Scanner motor defective • Overload on scanner mechanism • PSU-Eb board defective • MCU board defective (scanner motor control unit)

SC129	C	Scanner Motor Error 5	
		The scanner motor speed is abnormal. The machine will not stop scanning even after the machine detects that motor speed is abnormal.	• Scanner motor defective • Scanner drive mechanism defective • PSU-Eb board defective • MCU board defective (scanner motor control unit)

SC141	B	Black level detection error	
		When the scanner was turned on, AGC (automatic gain control) failed to achieve the target value of 10 ±3.	• SBU←→ IPU harnesses defective • BCU ←→ IPU harnesses defective • SBU defective • IPU defective • BCU defective

SC142	B	White level detection error	
		When the scanner was turned on, the second sampling by AGC (automatic gain control) failed to achieve a value within the range –7 to 0 of the target value 128.	• Standard white plate defective, dirty • Moisture inside the scanner unit • SBU←→ IPU harnesses defective • BCU ←→ IPU harnesses defective • SBU defective • IPU defective • BCU defective

SC143	C	SBU Error 1	
		When the scanner was turned on, the SBU (Sensor Board Unit) level adjustment, black level check, and final SBU white level check failed.	• SBU defective • IPU defective • BCU defective • Harness between the SBU and IPU defective • Harness between the BCU-IPU defective • Standard white plate not installed correctly, or is dirty • Scanner mirrors and/or lenses are dirty or installed incorrectly

SC144	B	SBU Error 2	
		At power on: • The SYDI terminal signal did not go HIGH within 1 s • The specified SBU (Sensor Board Unit) ID (GASBUP and LM98513) could not be read after 3 tries	• SBU defective • BCU defective • Harness between SBU and IPU defective

SC161	B	IPU Error	
		At power on, or when the machine returns from an energy save mode, the self-diagnostic program returned an IPU error.	• IPU defective • Connection between SBU and IPU is loose, broken, or defective

SC165	A	Illegal Copy Data Security Error	
		The "Data Security for Copying Feature" in the User Tools is set to "ON" without the ICIB-2 installed.	• Copy Data Security Unit option board is not installed • Copy Data Security Unit board is defective **Note**: • The "Data Security for Copying" feature in the User Tools must be set to "OFF" before the ICIB-2 is removed. • To switch this feature off/on: [User Tools]> System Settings> Administrator Tools> Next.> Data Security for Copying> Select Off/On.

SC180	B	Scanner Unit Fan Error: Scanner Intake Fan	
		The MCU issued a lock signal fro the scanner intake fan (rear, right).	• Fan, MCU, SIB harnesses loose or defective • Scanner intake fan motor defective • MCU defective • SIB defective

SC181	B	Scanner Unit Fan Error: Lamp Regulator Fan (Right)	
		The MCU issued a lock signal for the lamp regulator fan (front, right).	• Fan, MCU harness loose, defective • Lamp regulator (right) fan motor defective • MCU defective • SIB defective

SC182	B	Scanner Unit Fan Error: SBU Cooling Fan	
		The MCU issued a motor lock signal for the SBU cooling fan in the scanner unit	• Scanner unit harness loose, defective • Fan, MCU harness loose, defective • SBU Fan motor defective • MCU defective • SIB defective

SC183	B	Scanner Unit Fan Error: Lamp Regulator Fan (Left)	
		The MCU issued a lock signal for the lamp regulator fan (front, left).	• Scanner unit harness loose, defective • Fan, MCU harness loose, defective • Lamp regulator (left) fan motor defective • MCU defective • SIB defective

SC185	B	Exposure Lamp 1 Lamp Regulator (Right) Error	
		The MCU detected a defect in the lamp regulator (right) when the 1st exposure lamp lit. .	• 1st exposure lamp defective • 1st lamp FFC (flat film cable) loose or defective • MCU ←→ lamp regulator (left) harness defective • Lamp regulator (left) is defective • MCU defective • SIB defective

SC186	B	Exposure Lamp 2 Lamp Regulator (Left) Error	
		The MCU detected a defect in the lamp regulator (left) when the 2nd exposure lamp lit. .	• 2nd exposure lamp defective • 2nd lamp FFC (flat film cable) loose or defective • MCU ←→ lamp regulator (left) harness defective • Lamp regulator (left) is defective • MCU defective • SIB defective

SC187	B	Scanner Unit Fan Error: Scanner Unit Exhaust Fan	
		The MCU issued a lock signal for the the scanner unit exhaust fan (rear, left).	• Scanner unit harness loose, defective • Fan, MCU harness loose, defective • Scanner unit exhaust fan motor defective • MCU defective • SIB defective

SC188	B	Scanner Unit Fan Error: Scanner Motor Cooling Fan	
		The MCU issued a lock signal for the scanner motor cooling fan.	• Scanner unit harness loose, defective • Fan, MCU harness loose, defective • Scanner unit exhaust fan motor defective • MCU defective • SIB defective

SC202	B	Polygon Motor Error 1: ON Timeout	
		The polygon mirror motor did not reach its operating speed within 20 s after the polygon motor switched on.	• Connection between the polygon mirror motor control board and the motor is loose, broken, or defective • Polygon mirror motor defective • Polygon mirror motor control board defective • IPU defective • BCU defective

SC203	B	Polygon Motor Error 2: OFF Timeout	
		The polygon mirror motor did not go off within 3 s after the motor was switched off.	• Connection between the polygon mirror motor control board and the motor is loose, broken, or defective • Polygon mirror motor defective • Polygon mirror motor control board defective • IPU defective • BCU defective

SC204	B	Polygon Motor Error 3: XSCRDY Signal Error	
		The machine detected that the polygon mirror motor XSCRDY signal went inactive : • While an image was being created • During the output of a synchronous laser detection signal	• Switch the machine off/on (problem was probably due to electronic noise) • Replace the harness if cycling the machine off/on does not solve the problem • Polygon motor defective • Polygon mirror motor control board defective • IPU defective • BCU defective

SC205	B	Polygon Motor Error 4: Unstable Timeout	
		The machine detected that the polygon mirror motor signal went inactive at some time other than: • While an image was being created • During the output of a synchronous laser detection signal	• Switch the machine off/on (problem was probably due to electronic noise) • Replace the harness if cycling the machine off/on does not solve the problem • Polygon motor defective • Polygon mirror motor control board defective • IPU defective

SC220	B	Synchronization Detector Error 1: LD0	
		When LD0 fired with the polygon mirror motor rotating at normal speed, an synchronous detection signal was not output within 250 ms.	• Cycle the machine off/on • Harness connector of the laser synchronization detector board is loose, broken, defective • Laser synchronization detection board defective or installed improperly • LD unit defective • IPU defective • BCU defective

SC221	B	Synchronization Detection Error 2: Other Than LD0	
		When a laser diode (other than LD0) fired with the polygon mirror motor rotating at normal speed, an synchronous detection signal was not output within 250 ms.	• Cycle the machine off/on • Harness connector of the laser synchronization detector board is loose, broken, defective • Laser synchronization detection board defective or installed improperly • LD unit defective • IPU defective • BCU defective

SC230	B	FGATE Error 1: Signal Failed to Turn On	
		The FGATE signal did not switch on within 1 s of when the lasers were supposed to start writing the image.	• Cycle the machine off/on • Check the harnesses, connectors of the IPU, Controller, BCU • GAVD on the IPU board defective • Controller defective • BCU defective

SC231	B	FGATE Error 2: Signal Failed to Turn Off	
		The FGATE signal did not switch off within 7 s of when the lasers started writing the image, or remained off at the beginning of the next job.	• Cycle the machine off/on • Check the harnesses, connectors of the IPU, Controller, BCU • GAVD on the IPU board defective • Controller defective • BCU defective

SC240	B	LD Error	
		The LD error terminal of the LDB asserted an error.	• Cycle the machine off/on • LDB harness connectors loose, broken, defective • LDB defective • IPU defective • BCU defective

SC300	B	Charge Corona Error 1: Charge Leak	
		A abnormal detection signal (H) was detected for more than 60 ms. Also, during this time, the detected voltage remained below –4V for more than 50 ms.)	• Cycle the machine off/on • CGB power pack harness connectors loose, broken, defective • Corona wire caps loose, missing • CGB power pack defective • Charge corona unit connectors loose, broken, defective

SC304	B	Charge Corona Error 2: Grid Leak	
		A high feedback voltage (H) for the charge corona 60 ms. Also, during this time, the voltage of the charge grid remained less than –400V	• Cycle the machine off/on • Charge unit set incorrectly (not locked in place) • Charge unit connector loose, broken, defective

SC305	C	Charge Corona Wire Cleaner Error 1	
		One of these occurred after the charge corona cleaner motor was switched on: • The charge corona wire cleaner motor remained locked within 10 sec after the motor switched on. • The charge corona wire cleaner motor failed to lock within 45 s after the start of cleaning.	• Cycle the machine off/on • Charge corona wire cleaner motor defective

SC306	D	Charge Corona Wire Cleaner Error 2	
		The cleaning pad of the charge corona wire cleaner mechanism failed to return to its home position.	• Connectors between motor and IOB loose, broken, defective • Charge wire dirty, defective, broken • Wire cleaning pad defective • Motor or motor board in motor unit defective

SC312	C	Pre-Charge Output Error 1: Leak	
		An abnormal signal (H) was detected continuously for 60 ms. During this time the pre-charge unit voltage remained less than –3 kV for more than 50 ms.	• Pre-charge unit set incorrectly. • Pre-charge unit contact is broken or defective.

SC313	C	Pre-Charge Output Error 1: Grid Output	
		An abnormal signal (H) was detected continuously for 60 ms. During this time the pre-charge grid voltage remained less than –400V for more than 50 ms.	• Pre-charge unit set incorrectly • Pre-charge unit contact is broken or defective

SC320	B	Development Bias Error	
		An abnormal detection signal (H) was detected continuously for 60 ms. During this time the voltage exceeded –90μA for more than 50 ms.	• Development power pack connectors loose, broken, defective • Development unit connectors loose, broken, defective • Development power pack defective

SC344	C	Development Unit Set Error	
		The development is not installed, or it is installed incorrectly. The development unit set switch is checked every time the machine is turned on and when the front doors are closed.	1. Pull out the development unit. 2. Install it again. 3. Close the front doors 4. Cycle the machine off/on

SC360	C	TD Sensor Output Error 1: Vt Above Upper Limit	
		The result of the check of the TD sensor output (Vt) after every copy for 10 continuous copies was Vt ≥ 4.0V (out of range).	• TD sensor dirty or defective • TD sensor connector to BCU loose, broken, defective • IOB defective • BCU defective

SC364	C	TD Sensor Output Error 2: Vt Below Lower Limit	
		The result of the check of the TD sensor output (Vt) after every copy for 10 continuous copies was Vt ≤ 0.5V (out of range).	• TD sensor dirty or defective • TD sensor connector to BCU loose, broken, defective • IOB defective • BCU defective

SC368	B	TD Sensor Adjustment Error 1	
		The value for Vref could not be set because: • The target voltage could not reach 2.5V with maximum PWM (255) application • The target voltage exceeded 2.5V with minimum PWM (0) application.	• TD sensor connector or harness to the IOB loose, broken, defective • TD sensor defective • IOB defective • BCU defective

SC372	B	TD Sensor Adjustment Error 2	
		The TD sensor output voltage is not adjusted to 2.5 ± 0.1 V within 60 s during initialization of the TD sensor with SP2801. **Note**: When an abnormal condition occurs, "0" is displayed for **SP2906** (Vcont Manual Setting).	• TD sensor connector, harness loose, broken, defective • TD sensor defective • IOB defective

SC396	B	Drum Motor Error	
		The drum motor lock signal is longer than 2 s while the drum motor is on.	• Drum motor connector, harness loose, broken, defective • Drum motor defective • Mechanical problem with the drum unit, transfer belt, toner collection unit

SC400	C	ID Sensor Error 1: Background Adjustment Error	
		One of the following ID sensor output voltages was detected for Vsg (the reading of the bare drum surface) at ID sensor initialization. • The reading was less than 4V at PWM=255 (Maximum PWM). • The reading was over 4V at PWM=0 (Minimum PWM)	• ID sensor harness, connector was loose, broken, defective • ID sensor dirty • ID sensor defective • IOB defective • BCU defective • LD unit defective • CGB/PPG power pack defective

NOTE

- The most recent correct PWM value is used for control.
- The value displayed by **SP3103** (ID Sensor Output Display) is the actual, incorrect value.

SC401	C	ID Sensor Error 2: Background Output Error	
		One of the following conditions were detected when checking the ID sensor pattern: • Vsg $\leq$ 2.5 V • Vsg= 0 V • The ID sensor output voltage = 5.0 V and PWM signal input to ID sensor = 0 Note: Vsg is the ID sensor output after checking the bare drum surface in the ID sensor pattern.	• ID sensor harness, connector is loose, broken, or defective • ID sensor dirty • ID sensor defective • IOB defective • LD Unit defective • BCU defective • CGB/PPG power pack defective

NOTE

- The SC code is not displayed; only the logging data is incremented.
- When this SC is issued, only the toner density sensor output (Vt) (even for jobs less than 10 copies) and Vref is not updated.
- After an abnormal condition is detected, **SP3103** (ID Sensor Output Display) shows "Vsp = Vsg = 0" (or "5.0V").
- If the next ID sensor pattern check is normal, this restores normal operation.

SC402	C	ID Sensor Error 3: ID Sensor Pattern Error	
		One of the following ID sensor output voltages was detected when checking the covered are of the ID sensor pattern: • Vsp $\geq$ 2.5 V • Vsp = 0 V	• ID sensor harness, connector is loose, broken, or defective • ID sensor dirty • ID sensor defective • IOB defective • LD Unit defective • BCU defective • Development power pack defective

NOTE

- The SC code is not displayed; only the logging data is incremented.
- When this SC is issued, only the toner density sensor output (Vt) (even for jobs less than 10 copies) and Vref is not updated.
- After an abnormal condition is detected, **SP3103** (ID Sensor Output Display) shows "Vsp = Vsg = 0" (or "5.0V").
- If the next ID sensor pattern check is normal, this restores normal operation.

SC406	C	ID Sensor Error 4: ID Sensor Pattern Not Detected	
		At the ID sensor pattern check of the covered area of the ID sensor pattern, the value of the edge voltage was not 2.5 V for 1.5 seconds.	• ID sensor harness, connector is loose, broken, or defective • ID sensor dirty • ID sensor defective • IOB defective • LD Unit defective • BCU defective • Development power pack defective

NOTE

- The SC code is not displayed; only the logging data is incremented.
- When this SC is issued, only the toner density sensor output (Vt) (even for jobs less than 10 copies) and Vref is not updated.
- After an abnormal condition is detected, **SP3103** (ID Sensor Output Display) shows "Vsp = Vsg = 0" (or "5.0V").
- If the next ID sensor pattern check is normal, this restores normal operation.

SC420	C	Drum Potential Sensor Error 1: Vd Adjustment Error	
		When Vd (drum potential of the latent ID sensor pattern before exposure) was adjusted during auto process control: After 5 adjustments by Vg (voltage output of the charge corona unit) Vd failed to attain the value of SP2001 006 (total corona voltage for Photo Mode at normal speed) or Vd failed to attain the value of SP2001 012 for the CPM down mode (but not Photo Mode).	• Drum potential sensor harness, connector is loose, broken, defective • Drum potential sensor dirty • Drum potential sensor defective • Drum connector, harness loose, broken, defective • Development power pack defective • BCU defective

SC424	**C**	Drum Potential Sensor Error 2: Vl Error	
		At auto process control initialization, the VL detected after creation of the ID sensor pattern is greater than 400. **Note**: Vl is the drum potential after maximum laser exposure, determined by reading the white patches of the potential sensor pattern. To change Vl, the machine adjusts the input current of the laser diodes.	• Drum worn • LD unit dirty • Poor drum ground connection

SC428	**C**	Drum Potential Sensor Error 3: Vh Adjustment Error	
		The correct value for Vh (standard drum potential for halftones) could not be detected after 45 consecutive adjustments of LD power: • The value for **SP3904 001** could not be attained for normal speed, or the value of **SP3904 002** could not be attained for low speed mode. • The LD power adjustments exceeded the upper and lower limits (+185 and –70).	• Drum potential sensor harness, connector is loose, broken, defective • Drum potential sensor dirty • Drum potential sensor defective • Drum unit connector, harness loose, broken, defective • Poor drum ground connection • LD unit defective • BCU defective

SC435	**C**	PCU Set Error	
		The PCU is not installed, or it is installed incorrectly. The PCU unit set switch is checked every time the machine is turned on and when the front doors are closed.	1. Pull out the PCU unit. 2. Install it again. 3. Close the front doors 4. Cycle the machine off/on

SC437	**C**	Drum Potential Sensor Error 4: Vd Detection Error	
		During execution of auto process control for normal speed and CPM down mode when VD was detected VG= -900V	• Do SP3902 001 to determine if auto process control has been turned off. If this SP is off, turn it on.

SC438	B	Drum Potential Sensor Error 5: ID Sensor Pattern Potential	
		When the ID sensor potential (Vp) was measured after a cold start, or at the end of a job, the total of this reading and the value of the setting of SP2201 004 did not exceed 800V (development unit power pack output) after 10 continuous samplings.	• Drum potential sensor defective • BCU defective • IOB defective • Poor drum unit connection or connectors defective • Poor drum ground connection • LD defective • Poor drum cleaning ground connection • Drum worn • Dirty laser optics

SC439		Drum Potential Sensor Error 6: Vh Abnormal	
		When the LD power was adjusted during auto process control, the first value detected for the Vh pattern (used to set standard drum potential for halftones) exceeded -730V.	• Drum potential sensor harness, connector loose, broken, defective • Drum potential sensor defective • LD unit defective (pattern could not be created)

SC440	B	Transfer Output Error	
		One of the following conditions was detected for 17 counts (about 100 ms) when the transfer voltage was applied with the main motor operating: • The value for the transfer current was set for 70uA, but the feedback voltage was less than 0.75V (less than 1.5 KV). • When the feedback current was less than 0.16V (10uA), the feedback voltage was less than 0.15V (less than 300V) due to a poor input connection. • When the feedback current was less than 0.16V (10uA), the feedback voltage was less than 3.05V (over 6.1 KV) due to a poor output connection.	• Transfer power pack harness, connectors loose or broken • Transfer power pack harness or connectors have short circuited • Transfer power pack is defective

SC441	B	Development Motor Lock	
		While the motor is operating, the motor lock signal remained LOW for 2 s	• Development motor lock due to overload • IOB defective

SC487	B	Toner Collection Unit Lock	
		The toner collection coil rotation sensor did not detect rotation of the coil within 5 s after the drum motor turned on due to toner clumping in the collection unit.	• Cycle the machine off/on • Empty or replace the toner collection bottle.

NOTE:

- The drive gear that drives the cleaning and toner transport mechanism is equipped with a torque limiter. If the rotation of the toner collection coil becomes overloaded, the torque limiter disengages the drive gear.
- The sensor (a photo interrupter) detects the change in the position of the gear triggers the error.
- After this SC is issued the machine will stop.

SC488	C	2nd Cleaning Blade Operation Error	
		The push-switch signal from the cleaning blade solenoid was incorrect. The signal is detected 1 sec. after the solenoid operates.	• 2nd blade solenoid connector loose, broken defective • 2nd blade solenoid defective • Release mechanism defective

SC489	C	Drum Cleaning Unit Set Error	
		The drum cleaning unit is not set properly. The drum cleaning unit set switch is set every time the machine is turned on and when the front doors are closed.	1. Remove the drum cleaning unit 2. Install it again. 3. Close the front doors 4. Cycle the machine off/on

SC491	B	Polygonal Mirror Motor Cooling Fan Motor Lock	
		The polygonal mirror motor cooling fan motor lock signal remains HIGH for 5 s while the polygonal mirror motor cooling fan motor is on.	• Drive mechanism overload • Obstruction has stopped the fan • Fan connector loose, broken, defective

SC492	B	Development Unit Suction Motor Lock	
		While the development unit toner suction motor is operating, the lock sensor output did not change for 1 s An electrical overload in the PCB inside the motor unit has caused the motor to malfunction.	• Replace the motor.

SC494	**B**	Toner Transport Unit Error	
		One of the following has occurred during toner transport from the toner bank to the toner supply cylinder: • An obstruction (clumped toner, other foreign material) is blocking the toner supply coil • The coil torque limiter is broken • Toner bottle end sensor is broken	• Cycle the machine off/on • Clean the toner transport coil, tubing, toner supply clutch, torque limiter • Defective toner supply coil • Defective toner supply tube • Defective toner supply clutch • Defective torque limiter

SC495	**B**	Toner Bottle Unit Error	
		During toner transport from the toner supply cylinder to the toner hopper, the toner hopper sensor cannot detect toner even after the toner supply pump switches on for 2 s and switches off 10 times during copying.	• Toner supply pump motor harness, connector loose, broken, defective • Toner supply pump motor defective • Blockage in the toner supply tube • Toner supply tube disconnected • Blockage in the toner supply cylinder • Toner-end sensor in the toner supply cylinder defective • Agitator in the toner supply cylinder defective • Toner supply cylinder agitator motor defective

SC496	**B**	Toner Collection Bottle Error	
		The toner collection bottle sensor set sensor remained off for 3 s.	• Used toner collection bottle is set incorrectly • Used toner collection bottle harness, connector loose, broken, defective

SC497	**B**	Development Unit Toner Suction Bottle Error	
		During machine operation, the development unit toner suction bottle set sensor goes off for 3 s.	• Toner suction bottle is not installed • Toner suction bottle set sensor connector is loose, broken, defective

SC501	**D**	1st Tray Lift Mechanism	
		One of the following conditions is detected in the 1st tray (tandem tray) of the main machine: • The 1st tray lift sensor is not activated for 10 s after the 1st tray lift motor turned on. • Upper limit is not detected within 10 s while the paper tray is lifting during paper feed. • The 1st tray lift sensor is already activated when the 1st tray is placed in the machine.	• Poor 1st tray lift motor connection • Remaining paper or another obstruction has stopped the tray and motor • 1st pick-up solenoid connector is loose • 1st pick-up solenoid is blocked by an obstruction

SC502	**D**	2nd Tray Lift Malfunction	
		One of the following conditions is detected in the 2nd tray of the main machine: • The 2nd tray lift sensor is not activated for 10 s after the 2nd tray lift motor turned on. • Upper limit is not detected within 10 s while the paper tray is lifting during paper feed. • The 2nd tray lift sensor is already activated when the 2nd tray is placed in the machine.	• Poor 2nd tray lift motor connection • Remaining paper or another obstruction has stopped the tray and motor • 2nd pick-up solenoid connector is loose • 2nd pick-up solenoid is blocked by an obstruction

SC503	**D**	3rd Tray Lift Malfunction	
		One of the following conditions is detected in the 3rd tray of the main machine: • The 3rd tray lift sensor is not activated for 10 s after the 3rd tray lift motor turned on. • Upper limit is not detected within 10 s while the paper tray is lifting during paper feed. • The 3rd tray lift sensor is already activated when the 3rd tray is placed in the machine	• Poor 3rd tray lift motor connection • Remaining paper or another obstruction has stopped the tray and motor • 3rd pick-up solenoid connector is loose • 3rd pick-up solenoid is blocked by an obstruction

SC504	**D**	4th Tray (LCT Tray 1) Lift Malfunction	
		One of the following conditions is detected in the 4th tray: • The LCT 1st lift sensor is not activated for 10 s after the LCT 1st tray lift motor turned on. • Upper limit is not detected within 10 s while the paper tray is lifting during paper feed. • The LCT 1st lift sensor is already activated when the LCT 1st tray is placed in the machine.	• Poor LCT 1st tray lift motor connection • Remaining paper or another obstruction has stopped the tray and motor • LCT 1st pick-up solenoid connector is loose • LCT 1st pick-up solenoid is blocked by an obstruction

SC505	**D**	5th Tray (LCT Tray 2) Lift Malfunction	
		One of the following conditions is detected in the 5th tray: • The LCT 2nd lift sensor is not activated for 10 s after the LCT 2nd tray lift motor turned on. • Upper limit is not detected within 10 s while the paper tray is lifting during paper feed. • The LCT 2nd lift sensor is already activated when the LCT 2nd tray is placed in the machine.	• Poor LCT 2nd tray lift motor connection • Remaining paper or another obstruction has stopped the tray and motor • LCT 2nd pick-up solenoid connector is loose • LCT 2nd pick-up solenoid is blocked by an obstruction

SC506	**D**	6th Tray (LCT Tray 3) Lift Malfunction	
		One of the following conditions is detected in the 6th tray. • The LCT 3rd lift sensor is not activated for 20 s after the LCT 3rd tray lift motor turned on. • Upper limit is not detected within 20 s while the paper tray is lifting during paper feed. • The LCT 3rd lift sensor is already activated when the LCT 3rd tray is placed in the machine.	• Poor LCT 3rd tray lift motor connection • Remaining paper or another obstruction has stopped the tray and motor • LCT 3rd pick-up solenoid connector is loose • LCT 3rd pick-up solenoid is blocked by an obstruction

SC507	**D**	7th Tray (Bypass Tray) Lift Mechanism	
		One of the following conditions is detected in the optional bypass tray. • The bypass tray lift sensor is not activated for 10 s after the tray lift motor turned on. • Upper limit is not detected within 10 s while the paper tray is lifting during paper feed. • The bypass tray lift sensor is already activated paper is placed in the 7th tray.	• Poor bypass tray lift motor connection • Remaining paper or another obstruction has stopped the tray and motor • Bypass tray pick-up solenoid connector is loose • Bypass tray pick-up solenoid is blocked by an obstruction

SC529	**C**	Exit Junction Gate HP Sensor Error	
		The exit junction gate did not return to its home position.	• Cycle the machine off/on

SC531	**B**	Fusing Motor Lock	
		A fusing motor lock signal is detected for more than 2 s during operation due to an electrical overload in the motor driver board.	• Motor driver board defective. Replace motor.

SC541	**A**	Fusing Thermister Open	
		The fusing temperature detected by the thermistor was below 7°C for 15 s.	• Fusing thermistor defective or out of position • Poor thermistor terminal connection

SC542	**A**	Fusing Temperature Warm-up Error	
		One of the following occurred: • **B234/B235**: Hot roller did not reach target operation temperature within 360 sec. after the machine was powered or 360 sec. minutes after the doors were closed. • **B236**: Hot roller did not reach target operation temperature within 465 sec. after the machine was powered or 465 sec. minutes after the doors were closed. • Fusing temperature rose only 5°C toward the fusing temperature within 20 s after the machine was powered on, or after the doors were closed. • Fusing temperature rose only 5°C toward the fusing temperature within 20 s after thermistor started monitoring hot roller temperature. (The thermistors starts monitoring 25 s after the hot roller starts rotating.)	• Fusing lamp(s) disconnected • Thermistor out of position

SC543	**A**	Fusing Overheat Error 1: Software	
		A fusing temperature of over 210°C is detected for 5 s by the fusing thermistor. This prevents the fusing lamps from switching on without a fusing lamp trigger signal.	• AC drive board defective (TRIAC short) • BCU defective • BCU firmware defective

SC544	**A**	Fusing Overheat Error 2: Hardware	
		The fusing temperature monitoring circuit detects abnormal fusing temperature.	• AC drive board defective (TRIAC short) • BCU defective • BCU firmware defective

SC545	**A**	Fusing Overheat Error 3: Continuous Lamp On	
		After warm-up and while the hot roller is not rotating, the fusing lamps remain on at full power for 45 s (B234/B235) 90 s (B236).	• Fusing thermistor out of position • One or more fusing lamp is disconnected

SC547	**A**	Zero-Cross Signal Not Detected	
		The applied bandwidth is detected above 66 Hz or below 45 Hz, and no zero-cross signal detected for 5 s with the power relay ON.	• Noise on the ac power line • Cycle the machine off/on • If the problem continues, install a noise filter

SC557	**C**	Zero-Cross Signal Over	
		Noise was detected on the power supply line.	• Cycle the machine off/on • If the problem continues, install a noise filter

SC559	**A**	Fusing Unit Jam Error	
		The paper cooling job time sensor detected paper late for 3 counts. This SC only occurs if SP1159 is on, and a jam occurred in the fusing unit for three consecutive sheets of paper.	• Remove the paper that is jammed in the fusing unit. Then make sure that the fusing unit is clean and has no obstacles in the paper feed path.

SC585	**C**	Double-Feed LED Adjustment Error	
		The calibration of the double-feed LED for the paper type failed reach the target voltage. The print job completed without the double-feed detection operating. The target voltages are: • Normal paper 3.0V±1% • Translucent paper: 3.8V±2% • OHP: 4.0V±2%	• Double-feed sensor/LED dirty • Sensor/LED connector loose, broken, defective

SC592	**B**	Toner Bank Motor Error	
		An abnormal signal was received from the toner bank motor.	• Toner bank motor defective • Bank motor connector loose • Mechanical overload on the drive mechanism

SC593	**B**	Toner Suction Motor Replace Alert	
		The total operation time of the motor exceeded 600 hours. Note: A near-end message appears on the operation panel when the service life of the motor exceeds 570 hours.	• The toner suction motor has reached the end of its service life.

SC601	B	Communication Error Between BCU and MCU	
		One or more of the following occurred: • The BCU cannot communicate with the MCU within 100 ms after power on after 3 tries. • A BREAK signal was detected after connection between the BCU and MCU. • After a communication error, three tries to communicate with the MCU failed.	• Poor connection between BCU and MCU • BCU defective • MCU defective

SC620	B	Communication Error Between BCU and ADF 1	
		There was no response from the ADF 100 ms after the ACK signal was sent to the ADF. Three attempts to resend the data failed.	• Poor connection between the BCU board and the ADF main board • Interference from external noise on the harness between the BCU and ADF

SC621	B	Communication Error Between BCU and ADF 2	
		The machine detected a break signal (LOW) from the line connection between the BCU and ADF.	• Serial line connection unstable • Harness, connectors between ADF and BCU loose, broken, defective

SC622	B	Communication Error Between BCU and ADF 3	
		Software error after improper user operation.	• Software error • Cycle the machine off/on

SC625	B	Communication Error Between BCU and Finisher	
		The BCU cannot communicate with the finisher properly. here was no response from the ADF 100 ms after the ACK signal was sent to the ADF. Three attempts to resend the data failed.	• Poor connection between the BCU board and the finisher main board

SC626	B	Communication Error Between BCU and Finisher	
		A break signal (LOW) was detected.	• Poor connection between the BCU board and the finisher main board • Finisher main board defective • BCU board defective • External electrical noise on the interface cable caused the serial line to become unstable

SC630	**B**	CSS Communication	
		Japan Only	

SC632	**B**	Charge Unit Device Error 1	
		Japan Only	

SC633	**B**	Charge Unit Device Error 2	
		Japan Only	

SC650	**D**	NRS Modem Communication Error	
		One of the following factors could be the cause of this error: • In the User Tools, check the settings for the dial-up user name and dial up password. • Modem has been disconnected. • Modem board disconnected.	Check the following for a machine that is using Cumin (NRS modem): • An error was returned during the dialup connection • A network was detected at startup • At startup the machine detected that the NIB was disabled, or did not detect a modem board

NOTE: For more details about this SC code error, execute **SP5990** to print an SMC report so you can read the error code. The error code is not displayed on the operation panel. Here is a list of error codes:

Error	Problem	Solution
1	Failure to certify dial-up	In the User Tools, check the dial-up user and dial-up password settings
4	Illegal modem setting	Check the setting of **SP5816 160** to determine whether the setting for the AT command is correct. If this SP setting is correct, then the problem is a bug in the software.
5	Poor connection due to low power supply on the line.	The problem is on the external power supply line, so there is no corrective action on the machine.
11	Data in the NVRAM became corrupted when the network enable switch and Cumin-M were enabled at the same time.	Use **SP5985 1** and set the NIC to "0" (Disable) to disable the network board.
12	The modem board could not enable the NIB.	Replace the modem board.

SC651	**C**	Illegal Remote Service Dial-up	
		An expected error occurred when Cumin-M dialed up the NRS Center.	• Software bug • No action is required because only the count is logged

SC670	**B**	Engine Startup Error	
		At power on or after the machine leaves the energy conservation mode: • ENGRDY signal does not assert • IPURDY signal does not assert After power on and the prescribed time has elapsed: • No EC response from the engine • No PC response from the engine • No SC response from the engine During machine operation mode: • Write to Rapi drive failure (could not locate destination on the PCI) • After the /ENGRDY signal asserts with no effect.	• BCU ←→ Controller Board disconnected • BCU board defective • Controller board defective • Mother board defective • Software error; switch off/on, if that fails, change the engine firmware • PSU-E or PSU-C defective

SC672	**B**	Controller Startup Error	
		The line between the controller board and the operation panel does not open correctly when the machine is powered on, or after the machine was powered on communication between the controller and operation panel is suspended. The controller board and operation panel could not exchange the handshake (FDH) and acknowledge (FEH) signals within 15 s of the operation panel reset after power on, or after 2 retries there was no response to the transmission line confirmation command issued every 30 s from the operation panel to the controller board.	• Controller board defective • Controller board installed incorrectly • Operation panel harness connection loose or incorrect

SC701	**B**	ADF Pickup Roller Release Malfunction	
		The pick-up roller HP sensor does not activate or de-activate when the pick-up motor turns on.	• HP sensor connector, harness loose, broken, defective • Pick-up motor connector, harness loose, broken defective • Pick-up roller HP sensor defective • Pick-up motor defective • ADF main control board defective

SC702	**B**	ADF Feed-In Motor Error	
		While the feed motor is operating, the encoder pulse signal is not received within the specified time, or the paper size length encoder signal cannot be detected within the specified time (the encoder is built into the feed-in motor).	• Feed-in motor connector, harness loose, broken, defective • Paper length sensor connector, harness loose, broken, defective • Feed-in motor defective • Paper length sensor or encoder is defective • ADF main control board defective

SC703	B	ADF Transport Belt Motor Error	
		While the motor is operating, the encoder pulse signal is not received within the specified time and the transport belt motor does not turn properly.	• Transport belt motor defective • Poor connection between the transport motor and ADF main board • ADF main board defective

SC704	B	ADF Feed-Out Motor Error	
		While the feed-out motor is operating, the encoder pulse signal is not received within the specified time, and the feed-out motor does not turn properly	• Feed-out motor defective • Poor connection between the feed-out motor and ADF main board • ADF main control board defective

SC705	B	ADF Original Table Lift Malfunction	
		One of the following conditions was detected. • The bottom plate position sensor does not activate when the bottom plate motor lifts the original table. • The bottom plate HP sensor does not activate when the bottom plate motor lowers the original table.	• The harnesses, connectors of the bottom plate position sensor, bottom plate HP sensor, bottom plate motor loose, broken, defective • Bottom plate position sensor defective • Bottom plate HP sensor defective • Bottom plate motor defective • ADF main control board defective

SC720	B	Finisher Upper Transport Motor Error	
		The encoder pulse signal of the upper transport motor in the 3000-Sheet Finisher B830 did not change within the specified time. The upper transport motor did not rotate properly.	• Motor harness, connector loose, broken, defective • Motor overloaded • Motor defective • Finisher main control board defective

SC721	B	Finisher Lower Transport Motor Error	
		The encoder pulse signal of the lower transport motor in the 3000-Sheet Finisher B830 did not change within the specified time. The lower transport motor did not rotate properly.	• Motor harness, connector loose, broken, defective • Motor overloaded • Motor defective • Finisher main control board disconnected, defective

SC723	D	Positioning Roller Motor Error (3K Finisher B830)	
		The positioning roller motor of the 3K Finisher is not operating correctly.	• Cycle the machine off/on • Motor harness loose, defective • Motor defective • Finisher main control board disconnected, defective • MCU defective

SC724	D	Finisher Staple Hammer Motor Error	
		Stapling does not finish within the specified time (450 ms) after the staple hammer motor turned on.	• Positioning roller HP sensor loose, broken, defective • Positioning mechanism overloaded • Positioning roller motor overloaded due to obstruction • Main control board connectors loose, broken, defective • Main control board defective

SC725	D	Finisher Stack Feed-Out Motor Error	
		The stack feed-out belt HP sensor does not activate within the specified time after the stack feed-out belt motor turned on.	• Positioning roller HP sensor loose, broken, defective • Positioning mechanism overloaded • Positioning roller motor overloaded due to obstruction • Main control board connectors loose, broken, defective • Main control board defective

SC726	D	Finisher Shift Motor Error: 3K Finisher B830	
		The state of the shift tray half-turn sensor status did not change after the shift motor turns on.	• Positioning roller HP sensor loose, broken, defective • Positioning mechanism overloaded • Positioning roller motor overloaded due to obstruction • Main control board connectors loose, broken, defective • Main control board defective

SC728	D	Shift Jogger Retraction Motor Error: 3K Finisher B830	

		The side fences do arrive at the home position within the specified time.
		-or-
		The side fences did not leave the home position within the specified time.
		Note: The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.
			• If the motor is rotating, positioning roller HP sensor loose, broken, defective
			• If the motor is not rotating:
			  • Positioning mechanism overloaded
			  • Positioning roller motor overloaded due to obstruction
			  • Positioning roller motor disconnected, defective
			  • Main control board connectors loose, broken, defective
			  • Main control board defective

SC730	D	Lower Transport Motor Error: 3K Finisher B830	
		No encoder pulse signal is detected for the lower transport motor within 600 ms. The 1st failure issues an original jam message, and the 2nd failure issues this SC code.	• Lower transport motor disconnected, defective • Finisher connection to lower transport motor loose, defective • Lower transport motor blocked by an obstruction • Lower transport motor defective • Finisher main board defective

SC731	B	Upper Transport Motor Error (Proof Tray): 3K Finisher B830	
		No encoder pulse signal is detected for the upper transport motor within 600 ms. The 1st failure issues this SC code.	• Upper transport motor disconnected, defective • Finisher connection to upper transport motor loose, defective • Upper transport motor blocked by an obstruction • Upper transport motor defective • Finisher main board defective

SC732	D	Shift Tray Exit Motor: 3K Finisher B830	
		The shift tray exit motor is not operating.	• Motor harness loose, broken, defective • Motor is blocked by an obstruction • Motor defective • Finisher main control board defective

SC733	D	Stapler Exit Motor: 3K Finisher B830	
		The stapler exit motor is not operating.	• Motor harness loose, broken, defective • Motor is blocked by an obstruction • Motor defective • Finisher main control board defective

SC734	B	Upper Tray Junction Gate Motor: 3K Finisher B830	
		The upper tray junction gate HP sensor did not detect the gate at the home position within 200 ms after two attempts. -or- The HP sensor twice detected the gate at the home position for more than 200 ms after it was supposed to open.	• Junction gate did not arrive at the home position within the specified time • Junction gate did not leave the home position within the specified time

SC735	B	Staple Junction Gate Motor Error: 3K Finisher B830	
		The staple tray junction gate HP sensor did not detect the gate at the home position within 200 ms after two attempts. -or- The HP sensor twice detected the gate at the home position for more than 200 ms after it was supposed to open.	• Junction gate did not arrive at the home position within the specified time • Junction gate did not leave the home position within the specified time

SC736	D	Pre-Stack Junction Gate Motor Error: 3K Finisher B830	
		The pre-stack junction gate HP sensor did not detect the gate at the home position for within 200 ms after two attempts. -or- The HP sensor twice detected the gate at the home position for more than 200 ms after it was supposed to open.	• Junction gate did not arrive at the home position within the specified time • Junction gate did not leave the home position within the specified time

SC737	D	Pre-Stack Transport Motor Error: 3K Finisher B830	
		The pre-stack transport motor is not operating.	• Motor harness loose, broken, defective • Motor is blocked by an obstruction • Motor defective • Finisher main control board defective

SC738	D	Pre-Stack Junction Gate Release Motor Error: 3K Finisher B830	
		The pre-stack junction gate release HP sensor did not detect the gate at the home position within 200 ms after two attempts. -or- The HP sensor twice detected the gate at the home position for more than 200 ms after it was supposed to open.	• Junction gate did not arrive at the home position within the specified time • Junction gate did not leave the home position within the specified time

SC740	D	Finisher Corner Stapler Motor Error: 3K Finisher B830	
		The stapler motor did not switch off within 600 ms after operating. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.	• Number of sheets in the stack exceeded the limit for stapling • If error occurred during stapling, stapler rotation sensor 1 defective (replace stapler) • If error did not occur during stapling: staple jam: 1 Motor blocked by an obstruction 2 Stapler motor harness loose, broken, defective 3 Corner stapler motor defective 4 Main control board defective

SC741	D	Finisher Corner Stapler Rotation Motor Error: 3K Finisher B830	
		The stapler did not return to its home position within the specified time after stapling. -or- The stapler failed to leave the home position within the specified time. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.	• If the motor is running, 1 Stapler rotation home position sensor harnesses are broken, loose, or defective 2 Stapler rotation home position sensors are defective • If the motor is not running: 1 Motor is blocked by an obstruction 2 Motor harness is loose, broken, defective 3 Motor is defective

SC742	D	Finisher Stapler Movement Motor Error: 3K Finisher B830	
		The stapler did not return to its home position within the specified time after stapling. -or- The stapler failed to leave the home position within the specified time The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.	• If the motor is running, 1 Stapler home position sensor harness is broken, loose, or defective 2 Stapler home position sensor is defective • If the motor is not running: 1 Motor is blocked by an obstruction 2 Motor harness is loose, broken, defective 3 Motor is defective

SC743	D	Booklet Stapler Motor Error 1: Front Motor (Booklet Finisher)	
		The front stapler unit saddle-stitch motor does not start operation within 600 ms. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.	• Front motor harness loose, broken, defective • Front motor overloaded due to obstruction • Front motor defective • Booklet finisher control board defective

Trouble-shooting

SC744	D	Booklet Stapler Motor Error 2: Rear Motor (Booklet Finisher)	
		The rear stapler unit saddle-stitch motor does not start operation within 500 ms. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.	• Rear motor harness loose, broken, defective • Rear motor overloaded due to obstruction • Rear motor defective • Booklet finisher control board defective

SC745	D	Feed-Out Belt Motor Error (Booklet Finisher)	
		The stack feed-out belt HP sensor does not activate within the specified time after the stack feed-out belt motor turns on. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.	• If the motor is operating 1 Stack feed-out HP sensor harness loose, broken, defective 2 Stack feed-out HP sensor defective • If the motor is not operating: 1 Feed-out motor blocked by an obstruction 2 Feed-out motor harness loose, broken, defective 3 Feed-out motor defective 4 Booklet finisher main board defective

SC746	D	Stack Plate Motor Error 1: Front Motor (3K Finisher B830)	
		The stack plate HP sensor (front) does not activate within 500 ms after the motor turns on. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.	• If the motor is operating 1 Front stack plate HP sensor harness loose, broken, defective 2 Front stack plate HP sensor defective • If the motor is not operating: 1 Motor blocked by an obstruction 2 Motor harness loose, broken, defective 3 Motor defective 4 Booklet finisher main board defective

SC747	D	Stack Plate Motor Error 2: Center Motor (3K Finisher B830)	
		The stack plate HP sensor (center) does not activate within 500 ms after the motor turns on. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.	• If the motor is operating 1 Center stack plate HP sensor harness loose, broken, defective 2 Center stack plate HP sensor defective • If the motor is not operating: 1 Motor blocked by an obstruction 2 Motor harness loose, broken, defective 3 Motor defective 4 Booklet finisher main board defective

SC748	D	Stack Plate Motor Error 3: Rear Motor (3K Finisher B830)	
		The stack plate HP sensor (rear) does not activate within 500 ms after the motor turns on. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.	• If the motor is operating 1 Rear stack plate HP sensor harness loose, broken, defective 2 Rear stack plate HP sensor defective • If the motor is not operating: 1 Motor blocked by an obstruction 2 Motor harness loose, broken, defective 3 Motor defective 4 Booklet finisher main board defective

SC750	D	Tray 1 (Upper Tray Lift) Motor Error: 3K Finisher B830	
		The upper tray paper height sensor does not change its status within 20 sec. after the tray raises or lowers. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.	• Tray lift motor disconnected, defective • Upper tray paper height sensor disconnected, defective • Finisher main board connection to motor loose • Finisher main board defective

SC753	D	Stacking Roller Motor Error: 3K Finisher B830	
		The return drive HP sensor did not detect the stacking roller at the HP sensor within 1 sec. -or- The stacking roller did not leave the home position at the specified time.	• If the motor is operating 1 Return drive HP sensor harness loose, broken, defective 2 Return drive HP sensor defective • If the motor is not operating: 1 Motor blocked by an obstruction 2 Motor harness loose, broken, defective 3 Motor defective 4 Finisher main board defective

SC754	D	Stacking Roller Drag Motor Error: 3K Finisher B830	
		The stacking roller drag motor did not turn on.	• Motor harness loose, broken, defective • Motor defective • Finisher control board defective

SC755	D	Shift Motor Error: 3K Finisher B830	
		The shift tray half-turn sensors: Failed twice to detect the shift tray at the home position at the specified time. -or- Failed twice to detect that the shift tray had left the home position.	• If the motor is operating 1 Half-turn sensor 1, 2 harnesses loose, broken, defective 2 One of the half-turn sensors defective • If the motor is not operating: 1 Motor blocked by an obstruction 2 Motor harness loose, broken, defective 3 Motor defective 4 Finisher main board defective

SC760	B	Punch Motor Error: 3K Finisher B830	
		The punch HP sensor is not activated within the specified time after the punch motor turned on. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.	• If the motor is operating: 1 Punch HP sensor loose, broken, defective 2 Punch HP sensor defective • If the motor is not operating: 1 Motor blocked by an obstruction 2 Motor harness loose, broken, defective 3 Motor defective 4 Finisher main board defective

SC761	D	Fold Plate Motor Error: Booklet Finisher	
		The fold plate moves but: The fold plate HP sensor did not detect it at the home position within the specified time. -or- The plate remained at the home position longer than the specified time. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.	• If the motor is operating: 1 Punch HP sensor loose, broken, defective 2 Punch HP sensor defective • If the motor is not operating: 1 Motor blocked by an obstruction 2 Motor harness loose, broken, defective 3 Motor defective 4 Finisher main board defective

SC765	D	Fold Unit Bottom Fence Lift Motor Error	
		The fold unit bottom fence did not return to the home position within the specified time.	• Fold bottom fence mechanism overloaded due to an obstruction • Fold bottom fence HP sensor connector loose, broken, defective • Fold bottom fence HP sensor defective • Fold bottom fence lift motor connector loose, broken, defective • Fold bottom fence lift motor defective • Main control board defective

SC766	D	Clamp Roller Retraction Motor	
		The clamp roller did not return to the home position within the specified time.	• Clamp roller mechanism overloaded due to an obstruction • Clamp roller HP sensor connector loose, broken, defective • Clamp roller HP sensor defective • Clamp roller retraction motor connector loose, broken, defective • Clamp roller retraction motor defective • Main control board defective

SC767	D	Stack Junction Gate Motor	
		The stack junction gate did not return to the home position within the specified time.	• Stack junction mechanism overloaded due to an obstruction • Stack junction gate HP sensor connector loose, broken, defective • Stack junction gate HP sensor defective • Stack junction gate motor connector loose, broken, defective • Stack junction gate motor defective • Main control board defective

SC770	D	Cover Interposer Lift Motor 1 Error	
		In the first tray: • The upper limit sensor did not detect the bottom plate within the specified time after the lift motor switched on to lift the bottom plate. • The lower limit sensor did not direct the bottom plate within the specified time after the lift motor switched on to lower the bottom plate. **Note**: In both cases, 1 error count indicates a jam, 2 error counts issue this SC code.	• Lift motor, upper limit sensor, lower limit sensor harnesses, connectors loose, broken, defective • Lift motor defective • Upper limit sensor defective • Lower limit sensor defective

SC771	D	Cover Interposer Lift Motor 2 Error	
		In the second tray: • The upper limit sensor did not detect the bottom plate within the specified time after the lift motor switched on to lift the bottom plate. • The lower limit sensor did not direct the bottom plate within the specified time after the lift motor switched on to lower the bottom plate. **Note**: In both cases, 1 error count indicates a jam, 2 error counts issue this SC code.	• Lift motor, upper limit sensor, lower limit sensor harnesses, connectors loose, broken, defective • Lift motor defective • Upper limit sensor defective • Lower limit sensor defective

SC772	**D**	Cover Interposer Pickup Motor 1 Error	
		In the first tray: • While the pick-up roller motor was on, the pick-up roller HP sensor did not detect the pick-up roller at the home position within the specified number of pulses. • While the pick-up roller motor was on, the pick-up roller HP sensor did not detect the pick-up roller at the home position above the specified number of pulses. **Note**: In both cases, 1 error count indicates a jam, 2 error counts issue this SC code.	• The pick-up motor, pick-up roller HP sensor harnesses, connectors were loose, broken, defective • Pick-up motor overload due to an obstruction • Pick-up motor defective • Pick-up roller HP sensor defective

SC773	**D**	Cover Interposer Pickup Motor 2 Error	
		In the second tray: • While the pick-up roller motor was on, the pick-up roller HP sensor did not detect the pick-up roller at the home position within the specified number of pulses. • While the pick-up roller motor was on, the pick-up roller HP sensor did not detect the pick-up roller at the home position above the specified number of pulses. **Note**: In both cases, 1 error count indicates a jam, 2 error counts issue this SC code.	• The pick-up motor, pick-up roller HP sensor harnesses, connectors were loose, broken, defective • Pick-up motor overload due to an obstruction • Pick-up motor defective • Pick-up roller HP sensor defective

SC775	**D**	Jogger Top Fence Motor: 3K Finisher B830	
		The top fence HP sensor detected that: The top fence did not arrive at the home position within the specified number of pulses. -or- The top fence failed to leave the home position within the specified number of pulses.	• If the jogger top fence motor is operating: 1 Top fence HP sensor harness loose, broken, defective 2 Top fence HP sensor defective • If the jogger top fence motor is not operating: 1 Motor blocked by an obstruction 2 Motor harness loose, broken, defective 3 Motor defective 4 Finisher main board defective

SC776	D	Jogger Bottom Fence Motor: 3K Finisher B830	
		The bottom fence HP sensor detected that: The bottom fence did not arrive at the home position at the specified time. -or- The bottom fence failed to leave the home position at the specified time.	• If the jogger bottom fence motor is operating: 1 Bottom fence HP sensor harness loose, broken, defective 2 Bottom fence HP sensor defective • If the jogger bottom fence motor is not operating: 1 Motor blocked by an obstruction 2 Motor harness loose, broken, defective 3 Motor defective 4 Finisher main board defective

SC780	D	Z-Fold Feed Motor Error	
		The feed motor that drives the feed rollers and exit rollers in the Z-fold unit is not operating. The 1st alert signals a jam, the 2nd alert triggers this SC.	• Motor harness loose, broken, defective • Motor blocked by an obstruction • Motor defective

SC781	D	Z-Fold Lower Stopper Motor Error	
		The lower stopper failed to leave the home position with the specified number of motor pulses. **Note**: The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.	• Lower stopper motor disconnected, defective • Lower stopper motor overloaded due to obstruction • Lower stopper HP sensor disconnected, defective

SC782	D	Z-fold Upper Stopper Motor	
		The upper stopper failed to leave the home position with the specified number of motor pulses. **Note**: The 1st detection failure issues a jam error, and the 2nd failure issues this SC code.	• Upper stopper motor disconnected, defective • Upper stopper motor overloaded due to obstruction • Upper stopper HP sensor disconnected, defective

SC784	D	Z-Fold Timing Sensor Adjustment Error 1	
		The output voltage light emitted from the sensor changed, but the return input was not sufficient to attain V0.	• Sensor, mirror dirty from paper dust, other particles • Harness loose, broken, defective • Mirror out of position

SC785	D	Z-Fold Timing Sensor Adjustment Error 2	
		The output voltage light emitted from the sensor changed, but the return input was not sufficient to attain V0.	• Sensor, mirror dirty from paper dust, other particles • Harness loose, broken, defective • Mirror out of position

SC786	D	Z-Fold Memory Error	
		Several attempts to write to the Z-fold memory failed.	• Cycle the machine off/on • EEPROM defective

SC790	D	Booklet Stapler Jogger Motor Error	
		The jogger fence HP sensor failed to detect the jogger fence at the home position within the specified time.	• If the booklet stapler jogger motor is operating: 1 Jogger fence HP sensor harness loose, broken, defective 2 Jogger fence HP sensor defective • If the jogger bottom fence motor is not operating: 1 Motor blocked by an obstruction 2 Motor harness loose, broken, defective 3 Motor defective 4 Finisher main board defective

SC791	D	Booklet Stapler Output Motor	
		The stack feed out belt HP sensor failed to detect the feed out belt at the home position within the specified time.	• If the booklet stapler output motor is operating: 1 Stack feed out belt HP sensor harness loose, broken, defective 2 Stack feed out belt HP sensor defective • If the booklet stapler output motor is not operating: 1 Motor blocked by an obstruction 2 Motor harness loose, broken, defective 3 Motor defective 4 Finisher main board defective

SC817	**D**	Monitor Error	
		This is a file detection and electronic file signature check error when the boot loader attempts to read the self-diagnostic module, system kernel, or root system files from the OS Flash ROM, or the items on the SD card in the controller slot are false or corrupted.	• OS Flash ROM data defective; change the controller firmware • SD card data defective; use another SD card

Error Codes

Code	Meaning
0x0000 0000	BIOS boot error
0x0000 0001	Primary boot start load error
0x0000 0002	Secondary boot load error (Boot3.Elf)
0x0000 0003	Self-diagnostic module error (Diag.Elf
0x0000 0004	Kernel start error (Netbsd)
0x0000 0005	Root file system file read error (Rootfs)
0xffff ffff	Other error

Example: Data in the self-diagnostic module, system kernel, or root system files are corrupted or do not exist in OS flash ROM or on the SD card
Files in the self-diagnostic module, kernel, or root file system on the SD card have been falsified or altered

- Before discarding the SD card, try to update the data on the card. If the error occurs again, the card may be defective.
- Be sure to use an SD card that contains the correct electronic signature.

SC833		Self-Diagnostic Error 7: Engine I/F ASIC	
	C	A read/write verify error done on the resident RAM on the mother board (Engine I/F board failed).	• Replace RAM DIMM on the mother board. • Replace mother board

NOTE: For more details about this SC code error, execute **SP5990** to print an SMC report so you can read the error code. The error code is not displayed on the operation panel.

SC851	**D**	IEEE 1394 I/F Error	
		Driver setting incorrect and cannot be used by the 1394 I/F.	• NIB (PHY), LINK module defective; change the Interface Board • Controller board defective

SC853	**D**	Wireless LAN Error 1	
		The board that holds the wireless LAN card can be accessed, but the wireless LAN card (802.11b/Bluetooth) itself could not be accessed while the machine was starting up.	• Wireless LAN card has been removed

SC854	**D**	Wireless LAN Error 2	
		The board that holds the wireless LAN card can be accessed, but the wireless LAN card (802.11b/Bluetooth) itself cannot be could not be accessed while the machine was operating.	• Wireless LAN card has been removed

SC855	**D**	Wireless LAN Error 3	
		An error is detected for the wireless LAN card (802.11b or Bluetooth).	• Wireless LAN card defective • Wireless card connection not tight

SC856	**D**	Wireless LAN Error 4	
		An error is detected for the wireless LAN board (802.11b or Bluetooth).	• Wireless LAN card board defective • PCI connector loose (External controller interface board)

SC857	**D**	USB I/F Error 1	
		The USB driver is unstable and generated an error. The USB I/F cannot be used.	• USB board or controller board defective

SC860	**D**	HDD Error 1	
		The driver could not acquire the status of the hard disks within 30 s, or the HDD is connected, but the driver detected one of the following errors:	• Hard disks are not formatted • Hard disk corrupted; reformat the disks with SP mode
		SS_NOT_READY	One or both HDDs are not ready.
		SS_BAD_LABEL	Partition types are different
		SS_READ_ERROR	Error returned during label read or label check
		SS_WRITE_ERROR	Error returned during label write or label check
		SS_FS_ERROR	File system repair failed
		SS_MOUNT_ERROR	File system mount failed
		SS_COMMAND_ERROR	Drive does not answer the command
		SS_KERNEL_ERROR	Kernel internal error
		SS_SIZE_ERROR	Driver size is too small
		SS_NO_PARTITION	Specified partition does not exist
		SS_NO_FILE	Device files do not exist

SC861	**B**	HDD Error b2: HDD Startup	
		The hard disks were detected at power on, but the disks were not detected within 30 s after recovery from the energy conservation mode.	• Cable between the hard disks and controller board disconnected or loose • Hard disk power connector loose • One of the hard disks is defective • Controller or mother board defective

SC862	**A**	HDD Error 3: Bad Sectors	
		The number of bad sectors on the HDD in the area for storing images exceeds 101.	• Too many bad sectors accumulated on the HDDs. • Execute SP5832 002 (HDD Formatting – IMH) to format the HDD and replace the bad sectors; copy the stamp data after doing this (use SP 5853). • HDD replacement is recommended because an HDD unit that generates bad sectors is probably of poor quality and performs poorly.

SC863	**B**	HDD Error 4: HDD Read Error	
		The system cannot read the data written on the hard disks.	• Sectors on the disks have become corrupted during operation; replace the hard disks

SC864	**B**	HDD Error 5: Data CRC Error	
		During HDD operation, the HDD could not respond to a CRC error query.	• Mother board defective

SC865	**B**	HDD Error 6: Access Error	
		HDD responded to an error during operation for a condition other than those for SC863, SC864.	• HDD defective

SC866	**B**	SD Card Error 1: Confirmation	
		The machine detects an electronic license error in the application on the SD card inserted in the controller slot when the machine is powered on. The program stored on the SD card contains electronic confirmation license data. If the program does not contain this license data, or if the result of the check reveals the license data in the program on the SD card is incorrect, then the checked program cannot execute and this SC code is displayed.	• Required program missing or incorrect • Download the correct program for this machine onto the SD card.

SC867	**B**	SD Card Error 2: SD Card Removal	
		The SD card inserted in the system slot when the machine was powered on was removed while the machine was still switched on.	• SD card removed from boot slot on the controller • Cycle the machine off/on

SC868	**B**	SD Card Error 3: SD Card Access	
		An error is returned during an operation using an SD card. Debug console acquires more detailed information about the error.	• SD card not inserted completely • SD card defective • Controller board defective **Note**: If this SC code is displayed again after cycling the machine off and on, use another SD card. If this does not solve the problem, replace the controller board.

SC870	**B**	Address Book Data Error	
		Address book data stored on the hard disk was detected as abnormal when it was accessed from either the operation panel or the network. The address book data cannot be read from the HDD or SD card where it is stored, or the data read from the media is defective.	• Software defective; switch off/on, and change the controller firmware if the problem is not solved • HDD defective
		Recommended Recovery • Execute SP5846 050 (UCS Settings – Initialize all Directory Info.) to initialize all address book data. • Initialize the user information with SP5832 006 (HDD Formatting– User Information 1) and SP5832 007 (HDD Formatting – User Information 2). • Replace the HDDs. • Boot the machine from the SD card.	

SC876	**D**	Log Data Error	
		The log data has been corrupted at power on, while the machine was operating, or when the machine was powered off during a print or copy cycle. The machine should never be switched off while it is printing or copying.	
SC876-1		Log data file was corrupted at power on or while the machine was operating.	• Format the HDD with SP5832-004.
SC876-2		The log was set for encryption without the encryption module installed: • At power on • While the machine was operating • When the log encryption setting was changed.	• Install or replace and set the encryption module. • Enable the log encryption setting.
SC876-3		At power on the log encryption key was disabled, causing an NVRAM malfunction.	• Format the disk with SP5832-004.
SC876-4		At power on the machine attempted log data encryption with the log encryption setting disabled (NVRAM malfunction). -or- At power on log encryption was attempted with the log encryption setting disabled (NVRAM malfunction).	• Format the disk with SP5832-004.
SC876-5		Error occurred at power on. Only the NVRAM was replaced with an NVRAM from another machine. -or- Only the HDD was replaced with an HDD unit from another machine.	• Replace NVRAM with original NVRAM. • Replace HDD with original HDD. • If the error persists, format the HDD with SP5832-004.
SC876-99		Cause unknown. The error occurred at power on or while the machine was operating.	• Contact Ricoh design section.

SC876: More

If the error persists after doing the procedure described in the table above, do this procedure.

1. Switch the machine off, remove the HDD, then switch the machine on.
2. Do SP5801-019 then switch the machine off.
3. Install the HDD again and switch the machine on.
4. Do SP5832-004.
5. Cycle the machine off/on.
6. Do SP9730-002 and set to "1" (ON).
7. Do SP9730-003 and set to "1" (ON).
8. Do SP9730-004 and set to "1" (ON).
9. Cycle the machine off/on.

SC880	**D**	Media Link Board Error	
		A request for access to the Media Link Board was not answered within the specified time.	• Media Link Board defective

SC900	**C**	Electrical Total Counter Error	
		The total counter contains data that is not a number.	• NVRAM disturbed unexpectedly • NVRAM defective • NVRAM data corrupted

SC901	**B**	Mechanical Total Counter Error	
		The mechanical total counter is disconnected.	• User removed the counter while it was operating • Poor connection • Mechanical total counter defective

SC910	**D**	External Controller Error 1	
SC911	**D**	External Controller Error 2	
SC912	**D**	External Controller Error 3	
SC913	**D**	External Controller Error 4	
SC914	**D**	External Controller Error 5	
		The external controller alerted the machine about an error.	• Please refer to the instructions for the external controller.

SC919	B	External Controller Error 6	
		While EAC (External Application Converter), the conversion module, was operating normally, the receipt of a power line interrupt signal from the FLUTE serial driver was detected, or BREAK signal from the other station was detected.	• Power outage at the EFI controller • EFI controller was rebooted • Connection to EFI controller loose

SC920	D	Printer Error 1	
		An internal application error was detected and operation cannot continue.	• Software defective; switch off/on, or change the controller firmware if the problem is not solved • Insufficient memory

SC921	D	Printer Error 2	
		When the printer application started, the font to use could not be found on the SD card.	• The font is not on the SD card

SC925	B	NetFile Function Error	
		• The NetFile file management on the HDD cannot be used, or a NetFile management file is corrupted and operation cannot continue. • The HDDs are defective and they cannot be debugged or partitioned, so the Scan Router functions (delivery of received faxes, document capture, etc.), Fabric services, and other network functions cannot be used.(HDD status codes displayed on the debug console are described below.)	• HDD defective • Power supply to machine cut occurred while writing data to HDD • Software error • Please refer to the detailed descriptions below for recovery procedures.

HDD Status Codes Displayed on Debug Console

Display	Meaning
(-1)	HDD not connected
(-2)	HDD not ready
(-3)	No level
(-4)	Partition type incorrect
(-5)	Error returned during level read or check
(-6)	Error returned during level read or check
(-7)	“filesystem” repair failed
(-8)	“filesystem” mount failed
(-9)	Drive does not answer command
(-10)	Internal kernel error
(-11)	Size of drive is too small
(-12)	Specified partition does not exist
(-13)	Device file does not exist

Recovery Procedure 1

If the machine returns SC codes for HDD errors (SC860 ~ SC865), please follow the recovery procedures described for these SC codes.

Recovery Procedure 2

If the machine does not return one of the five HDD errors (SC860 ~ SC865), cycle the machine off and on. If this does not solve the problem, then initialize the NetFile partition on the HDD with **SP5832 011** (HDD Formatting – Ridoc I/F).

NetFiles: Jobs printed from the document server using a PC and DeskTopBinder

Before initializing the NetFile partition on the HDD please inform the client that:

1. Received faxes on the delivery server will be lost
2. All captured documents will be lost
3. DeskTopBinder/Print Job Manager/Desk Top Editor job history will be cleared
4. Documents stored on the document server, included scanned documents, will not be lost.
5. The first time the network accesses the machine, the management information must be reconfigured (this will require a significant amount of time).

Before initializing the Netfile partition with **SP5823 011**, do the following:

6. Enter the User Tools mode and execute “Delivery Settings” to print all received fax documents scheduled for delivery and delete them.
7. In the User Tools mode, execute Document Management> Batch Delete Transfer Documents.
8. Execute **SP5832 011** then cycle the machine off and on.

Recovery Procedure 3

If “Procedure 2” does not solve the problem, execute **SP5832 001** (HDD Formatting – All), then cycle the machine off and on.

Executing **SP5832 001** erases all document and address book data stored on the hard disks. Be sure to consult with the customer before executing this SP code.

Recovery Procedure 4

If “Recovery Procedures 1 to 3” fail to correct the problem, replace the HDD.

SC951	**B**	F-Gate Signal Error	
		When the IPU has already received the F-GATE signal (laser writing start trigger signal), the IPU receives another F-GATE signal.	• Firmware defective • Update the BCU firmware. • BCU defective

SC953	**B**	Scanner Image Setting Error	
		The settings required for image processing using the scanner are not sent from the IPU.	• Check the harnesses, connectors between the MCU and BCU • Update the BCU, MCU firmware • MCU defective • BCU defective • IPU defective

SC954	**B**	Printer Image Setting Error	
		The settings that are required for image processing using the printer controller are not sent from the IPU.	• Check the harnesses, connectors to the LDB and IPU • Check the harnesses, connectors between IPU/LDB, LDB/Polygon Mirror Motor PCB • Update the BCU firmware • LD defective • IPU defective • Polygon mirror motor or polygon mirror motor PCB defective

SC955	**B**	Memory Setting Error	
		The settings that are required for image processing using the memory are not sent from the IPU.	• Software bug • Hard disk unit defective • Controller defective • MCU defective • IPU defective

SC964	**B**	Scanner Start Error	
		During scanned image processing, another command to start scanning was received.	• Software bug

SC965	**B**	Print Start Error	
		During print processing, another command to start printing was received.	• Software bug

SC966	**B**	Polygon Mirror Motor Ready Error	
		The polygon mirror motor does not reach ready status within 15 s after the copy paper is detected by the registration sensor. (15 s after the write request was issued for the IPU, the F-GATE signal remained LOW.)	• Polygon mirror motor harness, connections to BCU loose, broken, defective • Polygon mirror motor drive board harness, connector to BCU loose, broken, defective • Polygon mirror motor defective • Polygon mirror motor drive board defective • BCU defective

SC970	**B**	Scanner Ready Error	
		The scan ready signal is not generated by the MCU for more than 10 s after the read start signal is sent to the MCU.	• Software bugSoftware bugny 6 • Harnesses, connectors to the MCU loose, broken, defective • MCU defective • BCU defective

SC990	**B**	Software Performance Error 1	
		An unexpected operation was encountered by the software.	• Software crash; reboot the machine
		Procedure 1 If the HDDs have just been replaced, be sure to download the stamp data (SP 5853). **Procedure 2** With SP5990 004 (SMC Report – Logging Data), print the most recent information for SC990. The SC990 information displays the file name, line number, and value. Report this information to your technical supervisor. For example: **`Function.c LINE: 123 VAL:0`**	

SC991	**C**	Software Error	
		The software performs an unexpected function and the program cannot continue. Recovery processing allows the program to continue.	• Software defective, re-boot [*1]

[*1]: In order to get more details about SC991:

1) Execute **SP7403** or print an SMC Report (**SP5990**) to read the history of the 10 most recent logged errors.
2) If you press the zero key on the operation panel with the SP selection menu displayed, you will see detailed information about the recently logged SC991, including the software file name, line number, and so on. Of these two methods "1)" is the recommended method, because another SC could write over the information for the previous SC.

SC994	**C**	Operation Panel Management Records Exceeded	
		An error occurred because the number of records exceeded the limit for images managed in the service layer of the firmware. This can occur if there if there are too many application screens open on the operation panel.	• No action required because this SC does not interfere with operation of the machine.

SC997	**B**	Application Selection Error	
		An application did not start after pressing the appropriate key on the operation panel.	• Software bug; change the firmware for the application that failed • A RAM or DIMM option required by the application is not installed or not installed correctly.

SC998	**B**	Application Start Error	
		Register processing does not execute for any application within 60 s after the machine is powered on. No application starts correctly, and all end abnormally.	• Software defective; change the firmware for the application that failed • A RAM or DIMM option required by the application is not installed or not installed correctly.

SC999	**B**	Program Download Error	
		The program download from the SD card does not execute normally. This SC is not logged.	• Card installed incorrectly • BCU defective • SD card defective • Controller board defective • Power down during program downloading • Wrong type of card inserted (see Section 5 “Service Tables” for downloading procedures)

4.2.5 PSU PROTECTION CIRCUITS

Overview

The diagram above shows the outputs of each converter listed in Table 1.

PSU-C and PSU-E comprise the PSU. PSU-E consists of two PCBs: PCB A and PCB B. There is a total of five converters:

- PSU-C contains the energy save converter.
- PCB A of PSU-E contains the 1st and 2nd converter.
- PCB B of PSU-E contains the 3rd and 4th converter.

The PSU contains several protective circuits that will cut power to prevent damage to the machine and dangerous fire hazards that could be caused by harness short circuits or damage to the PSU circuits due an accidental power overload. These protective circuits are provided at three locations:

- AC input
- Converter control points
- Output points

Even if one or more of these protective circuits should fail, the others will act as backup to cut power to the machine if a problem occurs,

The output points are provided with electronic interrupt circuits, so fuses are not required at these locations.

Table 1: PSU Converters and Output System

Converter	Output Name	Output Volatge	Output Connector
Energy Save	VccE	5.1V	CN733-1p~5p
	VcaE	12.0V	CN734-1p~3p
1st	VccL	5.1V	CN711-1p~3
	Vcc	5.1V	CN12-1p~3p
2nd	Vaa1	24.0V	CN713-1p~2p
	Vaa2	24.0V	CN713-3p~6p
	Vaa3	24.0V	CN714-1p~6p
3rd	Vaa4	24V.0	CN715-1p~2p
	Vaa5	24.0V	CN7153p~4p
4th	Vmm1	38.0V	CN716-1p
	Vmm2	38.0V	CN716-2p

AC Input Module

The AC input module has the following 5 fuses.

Input Fuse	Rating
FU1	3.15A/250V
FU3	4A/250V
FU001	3.15A/250V
FU002	6.3A/250V
FU101	6.3A/250V

The AC input area of the PSU has fuses to cut AC power to the board in case of damage to the PSU board or one or more short circuits in the output area.

The location of the board where output is interrupted is different, depending on which fuse blows. Table 2 shows which areas of the PSU are affected by each fuse.

As shown in Table 2, FU1 cuts all circuits if damage or short circuits occur at PSU-C, which operates independently of the other circuits while the machine is in the sleep (energy conservation) mode. A short circuit in an input harness or other problem on PSU-C will also cause FU3 to blow and will cut all power output from the PSU.

Table 2: PSU Fuses and Related Power Output Interrupts

Converter	Output Name	FU1	FU3	FU001	FU002	FU101
Energy Save	VccE	O	O			
	VcaE	O	O			
1st	VccL	O	O	O		
	Vcc	O	O	O		
2nd	Vaa1	O	O	O	O	
	Vaa2	O	O	O	O	
	Vaa3	O	O	O	O	
3rd	Vaa4	O	O	O	O	O
	Vaa5	O	O	O	O	O
4th	Vmm1	O	O	O	O	O
	Vmm2	O	O	O	O	O

If there is damage or a short circuit inside the 1st converter of the control system in PSU-E, FU001 blows and power is interrupted in the output of the 1st, 2nd, 3rd, and 4th converters.

If there is damage or a short circuit inside the 2nd converter of the control system in PSU-E, FU002 blows and power is interrupted in the output of the 2nd, 3rd, and 4th converters.

If there is damage or a short circuit inside the 3rd or 4th converter of the control system in PSU-E, FU101 blows and power is interrupted in the output of the 3rd and 4th converters.

Converter Control Module

The following devices provide primary protection against current surges:

- Energy save converter
- 1st Converter
- 2nd Converter
- 3rd Converter
- 4th Converter

Each converter generates the dc currents that are used by the CPU, motor drive boards, and other parts of the mainframe. Each converter is provided with a protection circuit to detect power surges.

As shown in Table 3, the power supply to the mainframe that is interrupted depends on which protection circuit is opened as a result of a power surge:

- The protection circuit of the energy save converter cuts all power if a problem occurs in the energy save converter.
- If the problem occurs in the 1st converter, power to the 1st, 2nd, 3rd, and 4th converters is interrupted.
- If the problem occurs in the 2nd converter, power to the 2nd, 3rd, and 4th converters is interrupted.
- If the problem occurs in the 3rd converter, power to only the 3rd converter is interrupted.
- If the problem occurs in the 4th converter, power to only the 4th converter is interrupted.

Table 3: Converter Protection Circuits and Related Output Power Interrupts

Converter	Output Name	Energy Save	1st	2nd	3rd	4th
Energy Save	VccE	O				
	VcaE	O				
1st	VccL	O	O			
	Vcc	O	O			
2nd	Vaa1	O	O	O		
	Vaa2	O	O	O		
	Vaa3	O	O	O		
3rd	Vaa4	O	O	O	O	
	Vaa5	O	O	O	O	
4th	Vmm1	O	O	O		O
	Vmm2	O	O	O		O

Important!

To reset the machine after a protection circuit has opened:

1. Switch off the operation switch.
2. Switch off the main power switch.
3. Allow the machine to remain off for at least 5 minutes.
4. Turn on the main power switch.

Output Module

The PSU output module is provided with the following interrupt devices:

- Control system electronic interrupt: 5.1V, 12V
- Drive system electronic interrupt: 24V, 38V

The output fuses of previous models have been replaced by electronic interrupt circuits. These electronic interrupt circuits hav protect the machine from excessive current, excessive voltages, and overheating.

- Excessive current can be caused by a short at the power supply.
- Excessive voltage can be caused by damage to the PSU board, short circuits in external harnesses, or an unexpected surge in the external power supply.
- Overheating occurs when the temperature level of the elements in the control circuits of the converters becomes too high due to the failure of the PSU cooling fan, for example.

Table 4 shows how the electronic interrupt circuits react to these three problems.

Table 4: Electronic Interrupt Detection Locations

Converter	Output Name	Over Current	Over Voltage	Over Heating
Energy Save	VccE	O	O	O
	VcaE	O	O	O
1st	VccL	O	O	
	Vcc	O	O	
2nd	Vaa1	O	O	O
	Vaa2	O	O	O
	Vaa3	O	O	O
3rd	Vaa4	O	O	O
	Vaa5	O	O	O
4th	Vmm1	O	O	O
	Vmm2	O	O	O

Important!

To reset the machine after a protection circuit has opened:

1. Switch off the operation switch.
2. Switch off the main power switch.
3. Allow the machine to remain off for at least 5 minutes.
4. Turn on the main power switch.

PSU LED Display

Four converters are built into PSU-E. Each converter is provided with one LED that lights when the converter is activated.

PSU-E Converter LEDs

Converter	LED Name
1st Converter	5V
2nd Converter	24V
3rd Converter	24VINT
4th Converter	38V

With the PSU box door open:

- LED 5V (1st Converter) and LED 24V (2nd Converter) are on PCB A on the right.
- LED 24VINT (3rd Converter) and LED 38V (4th Converter) are on PCB B on the left.

You can see which system is operating abnormally by checking whether these LEDs are on or off. If an LED is off, the converter for that LED is defective (see the above table).

The table below shows what will interrupt the output from a converter.

Converter On/Off States According to Mode

Converter	Output Name	Copy	Standby	Door Open	Energy Saver	Low Power	Off/ Sleep
Energy Save	VccE	ON	ON	ON	ON	ON	ON
	VcaE	ON	ON	ON	ON	ON	ON
1st	VccL	ON	ON	ON	ON	ON	OFF
	Vcc	ON	ON	ON	ON	OFF	OFF
2nd	Vaa1	ON	ON	ON	ON	OFF	OFF
	Vaa2	ON	ON	ON	ON	OFF	OFF
	Vaa3	ON	ON	ON	ON	OFF	OFF
3rd	Vaa4	ON	ON	OFF	OFF	OFF	OFF
	Vaa5	ON	ON	OFF	OFF	OFF	OFF
4th	Vmm1	ON	ON	ON	OFF	OFF	OFF
	Vmm2	ON	ON	ON	OFF	OFF	OFF

PSU-E Replacement

Before replacing any part of the PSU (especially PCB A, PCB B):

- Switch the machine off.
- Disconnect it from the power source.
- Allow the machine to stand at least 10 minutes before you open the PSU box door.

PCB-A and PCB B of the PSU-E are both provided with a large capacity electrolytic condenser.

Such large condensers store a large residual charge that can cause electrical shock if a board is handled too soon after the machine is turned off.