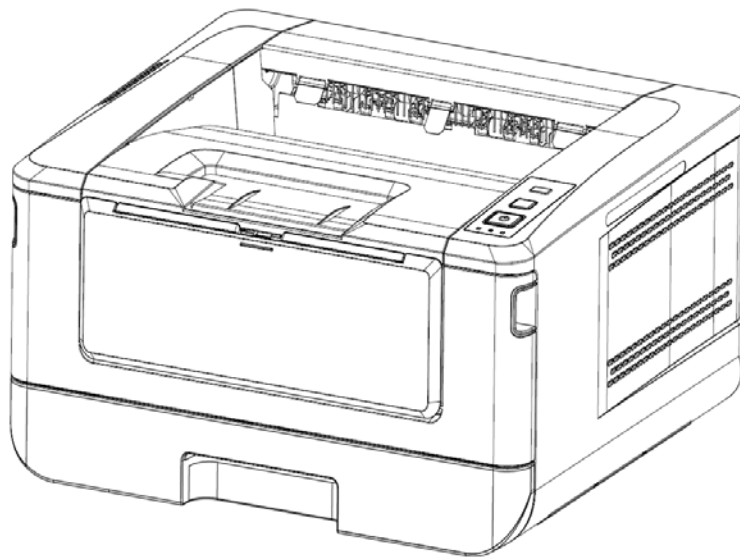


# Katusha P130

## Maintenance Manual v1.0

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Please read this manual carefully before performing maintenance.  
Keep this manual handy for quick reference at any time.

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## Levels of Maintenance

Level I	Level II	Level III
Cleaning and Maintenance	Check printing quality	Find log via AM3XTEST tool
Check network connection ports	<b>Advanced Disassembly</b>	Check printing quality
Install printer driver		Control panel assembly
Check printing quality		<b>Advanced Disassembly</b>
	Rear cover	Main board
<b>Basic Disassembly</b>	Rear cover fan	Power Supply Board
Drum unit	System fan	Fuser
Paper Tray	Main motor	IF98 board
Duplex unit	Paper-exit motor	LPH unit
Front cover	Pickup clutch	LSU unit
Left cover	Deskew clutch	Drum connection points
Right cover	Pickup clutch (manual tray)	
Top cover	Main tray rubber pad	
	Manual tray rubber pad	
	Paper output path	
	Paper-exit sensor	
	Registration sensor	
	Deskew sensor	
	Paper feeding sensor	
	Front cover open sensor	
	Rear cover open sensor	
	Paper-in sensor	
	Paper-in sensor lever	
	Manual tray feeding sensor	
	Duplex unit	
	Paper-empty sensor	
	IF99 board	

# Chapter 1 Theory of Operation and Product Structure

## 1.1 Product Overview

The pickup and feed System consists of several rollers that transport paper through the input trays, registration rollers, drum unit, fuser, and paper exit. The input trays include Main Tray, and Manual Tray. These rollers (including the drum unit, fuser, feeding, pickup, reverse, de-skew, and duplex rollers, etc.) are driven by the stepping motors or DC main motor, as shown in Figure 1-1.

Let's assume the lift-up operation has been performed (Refer to Paper Pickup Mechanism). After a print command is received, the main board sends a signal to the pickup motor. And then the pickup clutch is turned on, and transfers the driving force from the pickup motor to the pickup roller.

The transportation of a paper from an input tray begins at picking up a sheet of paper from the tray where the Paper Size, Paper Lift-up, and Paper-Empty sensors are used to detect the paper picking process.

Before the paper is then transported to the registration rollers, the de-skew clutch turns on to correct any paper skewing by adjusting power to the de-skew roller. The registration rollers continue to drive the paper into EP where the image is transferred from the drum to the paper by attaching magnetic toner particles onto the paper.

At this point the EP moves the paper to the fuser until the fuser firmly receives the paper detected by the Fuser sensor. In the fuser, the toner is heated and melts down to the paper to fabricate the permanent image that is based on the original. The fuser is now in charge of sending the paper after the fusing process.

The fuser eventually transports the paper to its final destination, Output Tray, or back to the duplex unit after the Fuser Out and Paper Exit sensors detect the final coated paper.

The following figure illustrates the path of paper in the duplex printing unit: (The path of single-sided printing is indicated by dotted lines. The path of double-sided printing is indicated by solid lines.)

### 1.1.1 Paper pickup and feeding system

#### ➤ Parts illustration:

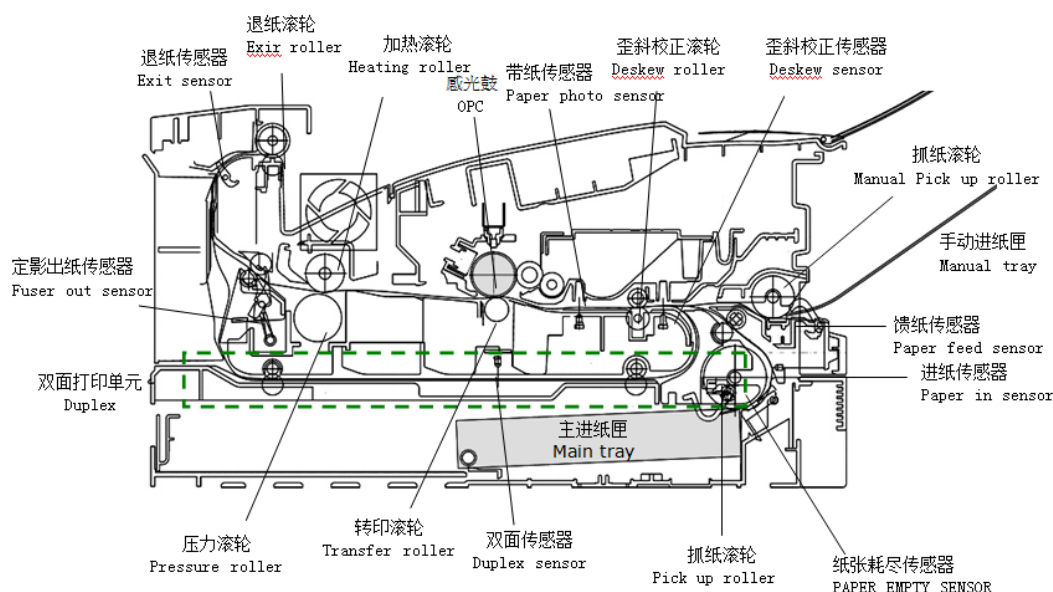


Fig. 1-1 Paper pickup and feeding system

### 1.1.2 Paper pickup and feeding system including 3 areas

1. Paper pickup/feeding areas (from paper pickup to the entrance of drum unit)
2. EP area (from drum unit to the entrance of fuser)
3. Fuser/Transporting area (from the entrance of fuser to the entrance of output tray)

➤ Paper pickup and feeding system illustration:

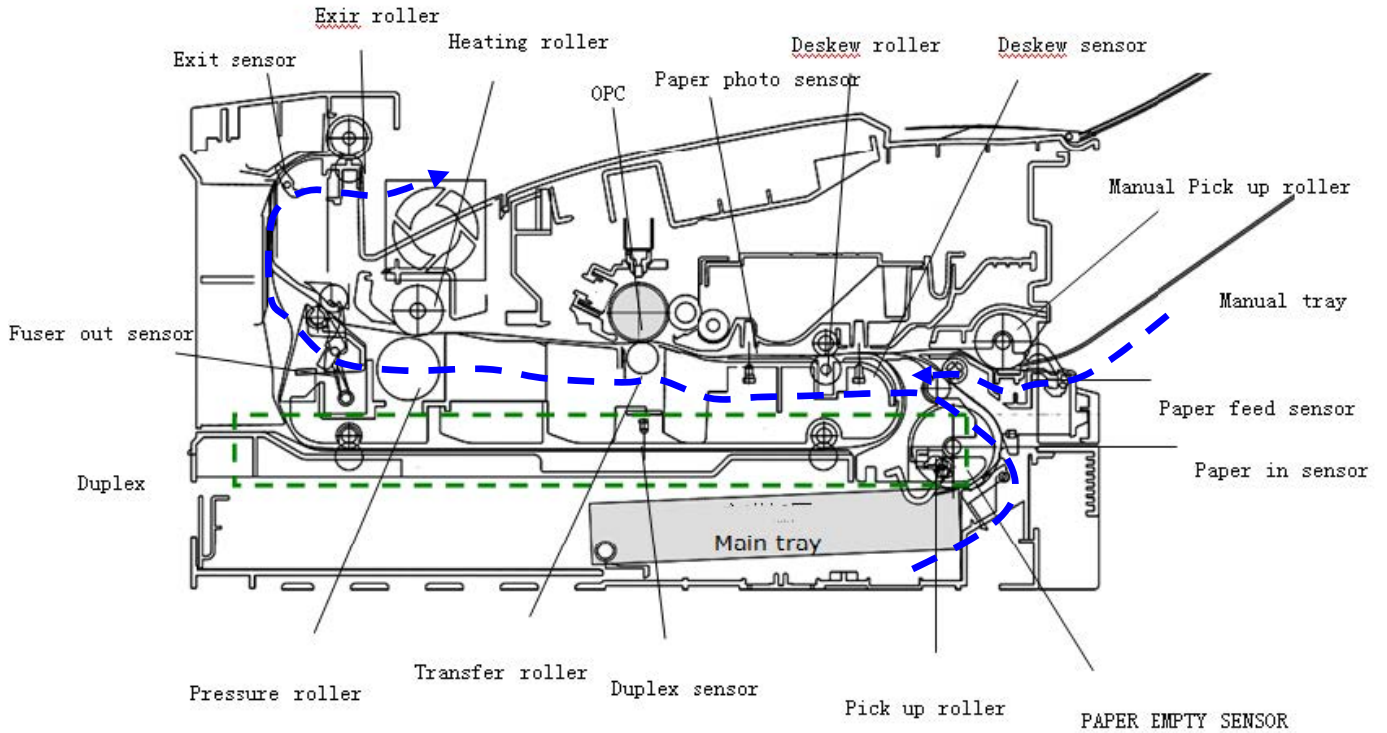


Fig. 1-2 Paper pickup and feeding system

### 1.1.3 Duplex Unit

1. Paper feeding path of the Duplex Unit:

- In duplex printing mode, when the printing of the first side is completed, the paper ejection sensor will be activated, and the paper ejection roller will suck the paper to the duplex printing unit by reversing the feeding direction of the paper. After the paper is guided into the duplex printing unit, printing on the other side of the paper begins.
- The following diagram illustrates the paper feeding path in the duplex unit:

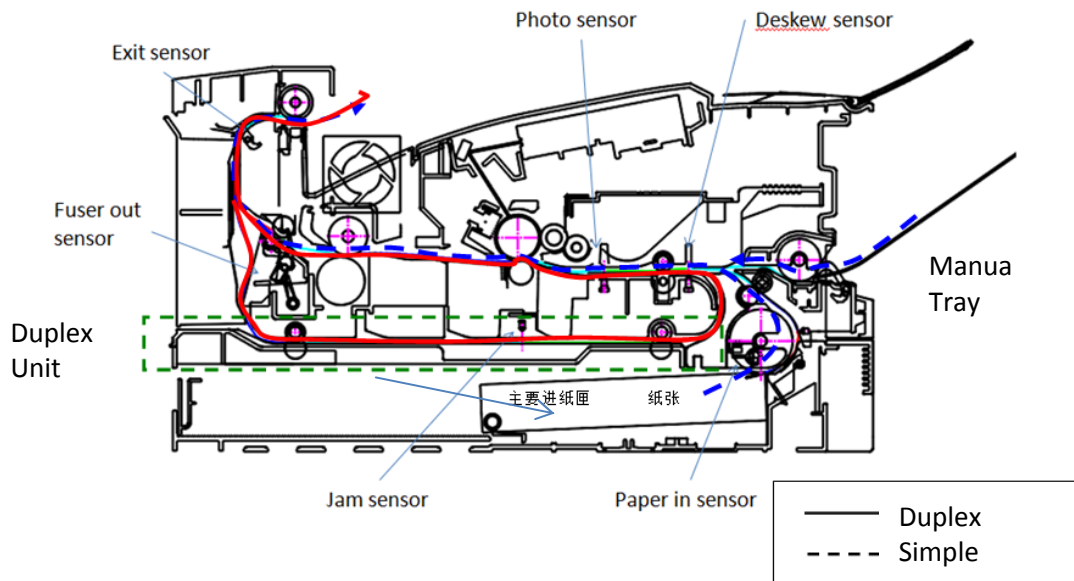
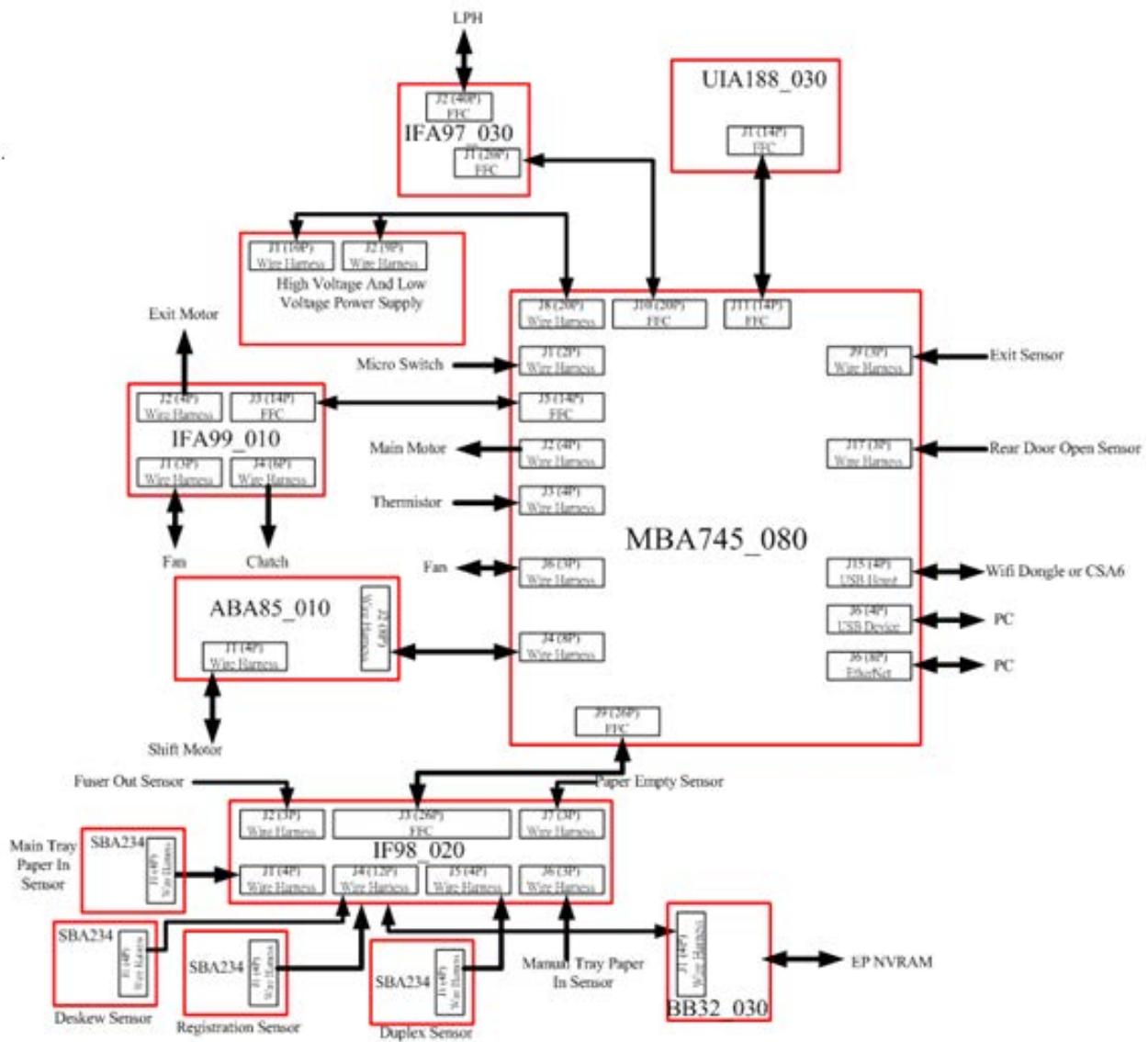


Fig. 1-3 Duplex printing path

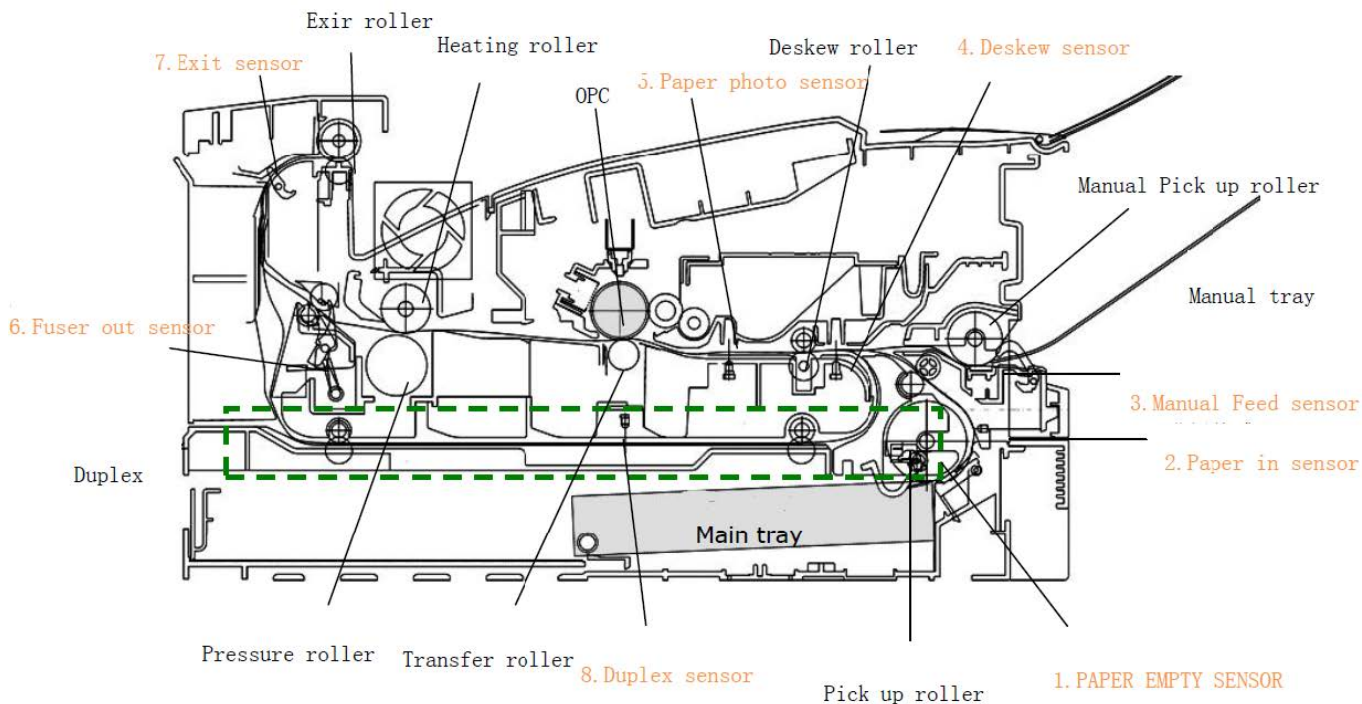
#### 1.1.4 Parts and its functions

Name of Parts	Function
Pickup clutch	Control the pick roller to pick up the paper.
Deskew sensor	Detect paper skew and paper spacing.
Paper empty sensor	Detect paper tray out of paper.
Deskew clutch	Control the skew-correction roller to correct paper skew.
Stepping motor	Drive the gear and rollers to drive the paper.
Registration sensor	Detect the paper gap (spacing) (leading edge).
Duplex sensor	Detect paper jam in duplex paper path.
Drum	Transfer the toner to paper.
Fuser roller	Heat the toner and press the toner to apply toner to paper.
Paper-out sensor	Detect if paper exits the fuser unit, and check if there is any paper jam.
Paper-exit sensor	Detect if the paper feeding to the exit end.
Manual tray clutch	Control paper feeding in the manual tray.
Manual tray sensor	Detect if no paper in the manual tray.

### 1.1.5 PCBA Connection Drawing



## 1.1.6 Location of Sensors

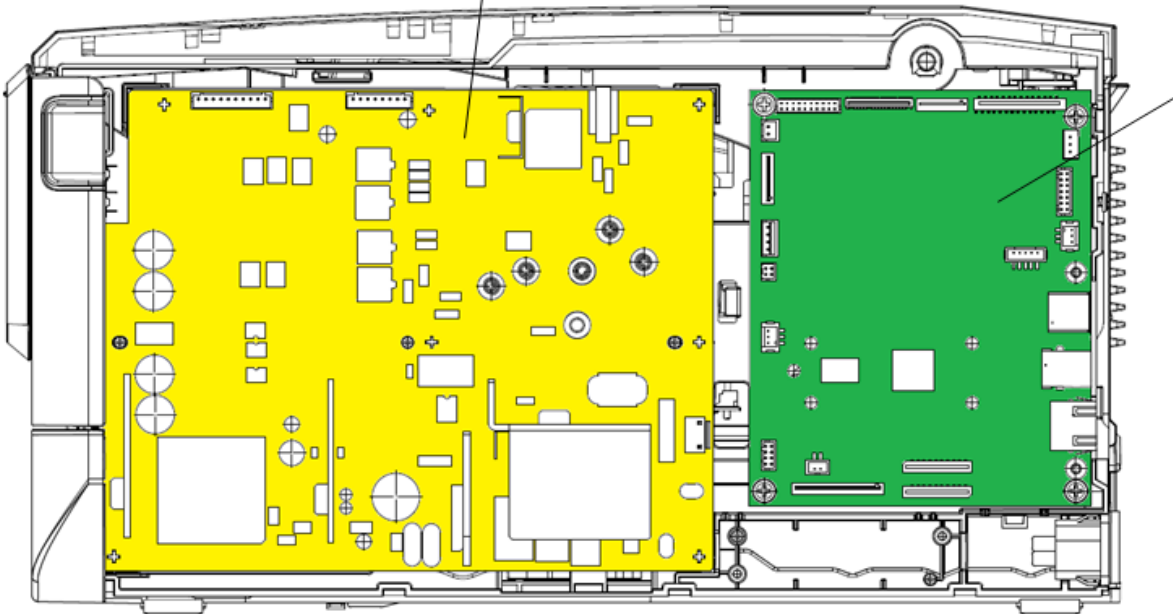


SENSOR (D1~D8)	Printed Circuit Board
1.Paper in Sensor(Main tray)	MBA745PRINTER
2.Paper Empty Sensor(Main tray)	UIA188
3.Manual Sensor(Manual tray)	IF98 board
4.Deskew Sensor	IFA99 board
5.Registation Sensor	ABA85 motor board
6.Fuser out Sensor	SBA234 IR board
7.Exit Sensor	BB32 NVRAM
8.Duplex Paper Sensor	HVPS (high voltage printed circuited board)
CULTCH (C1~C3)	
1.Cultch Deskew(Main)	
2.Cultch Pick Up (Main Tray)	
3.Cultch Manual(Manual Tray)	
MOTOR	
1.Sepping Motor(Main Tray)	
2.Sepping Motor(Exit roller)	
FAN	
FAN1(FUSER)	
FAN2	

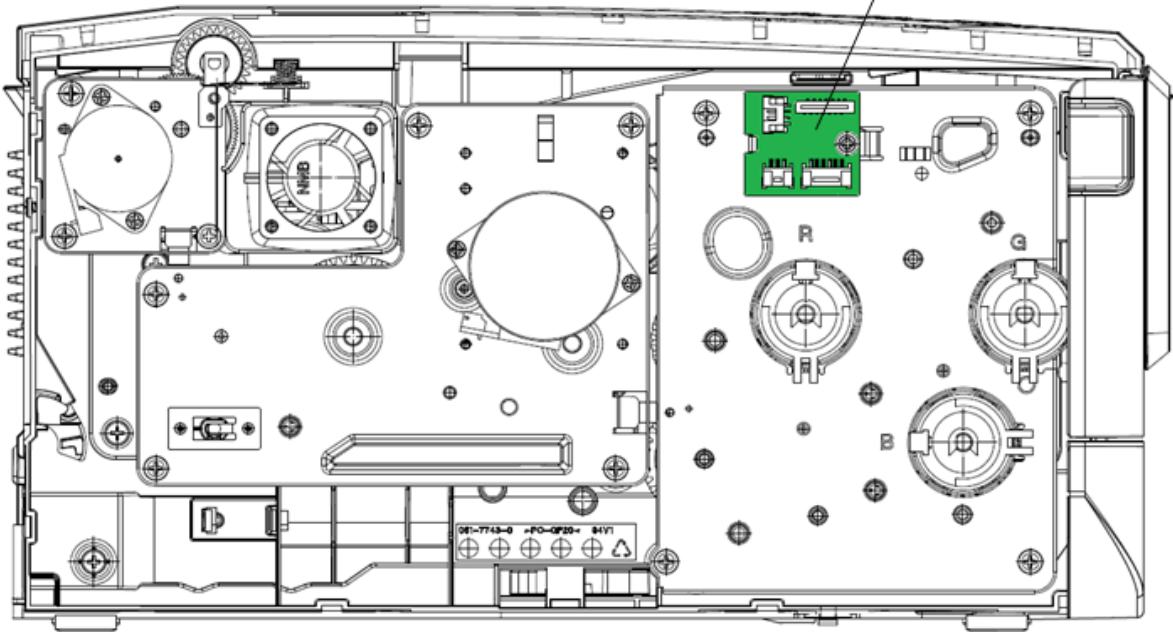
■ Location of PCBA

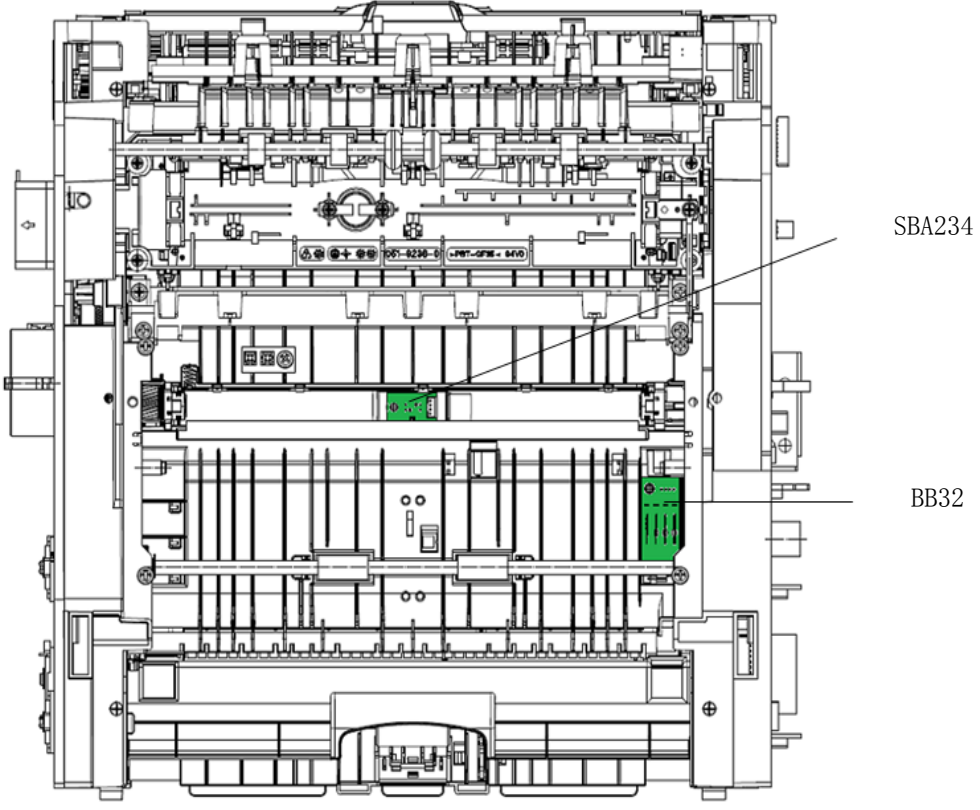
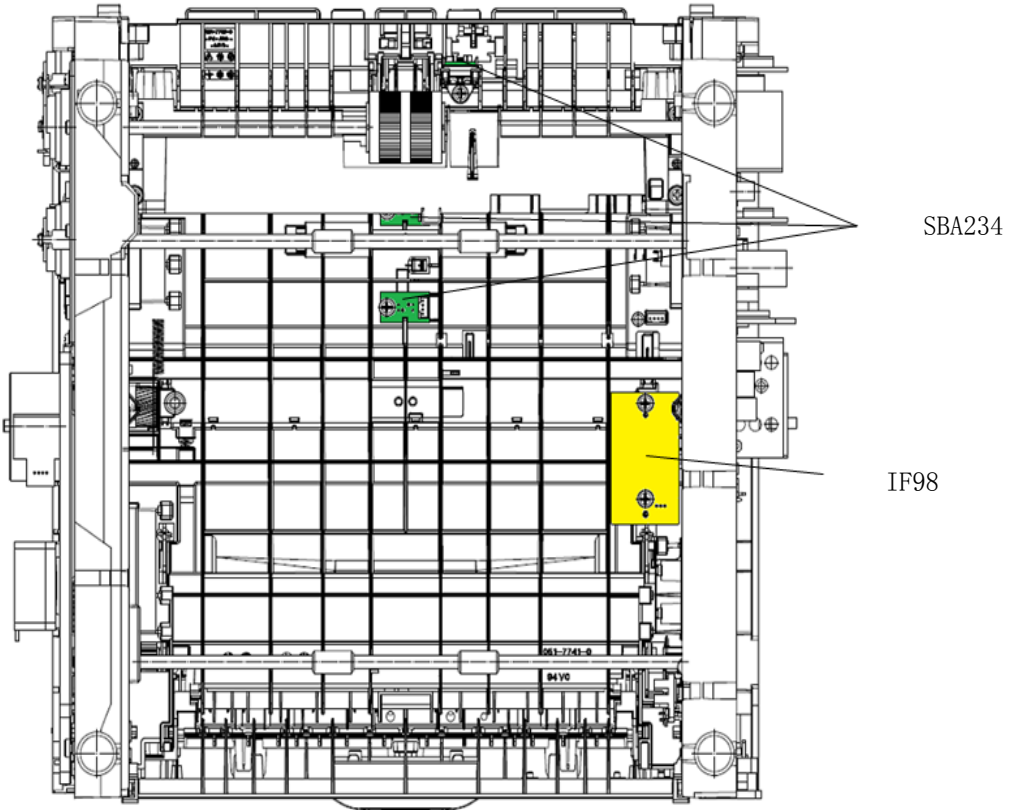
Power Supply Board

MBA745

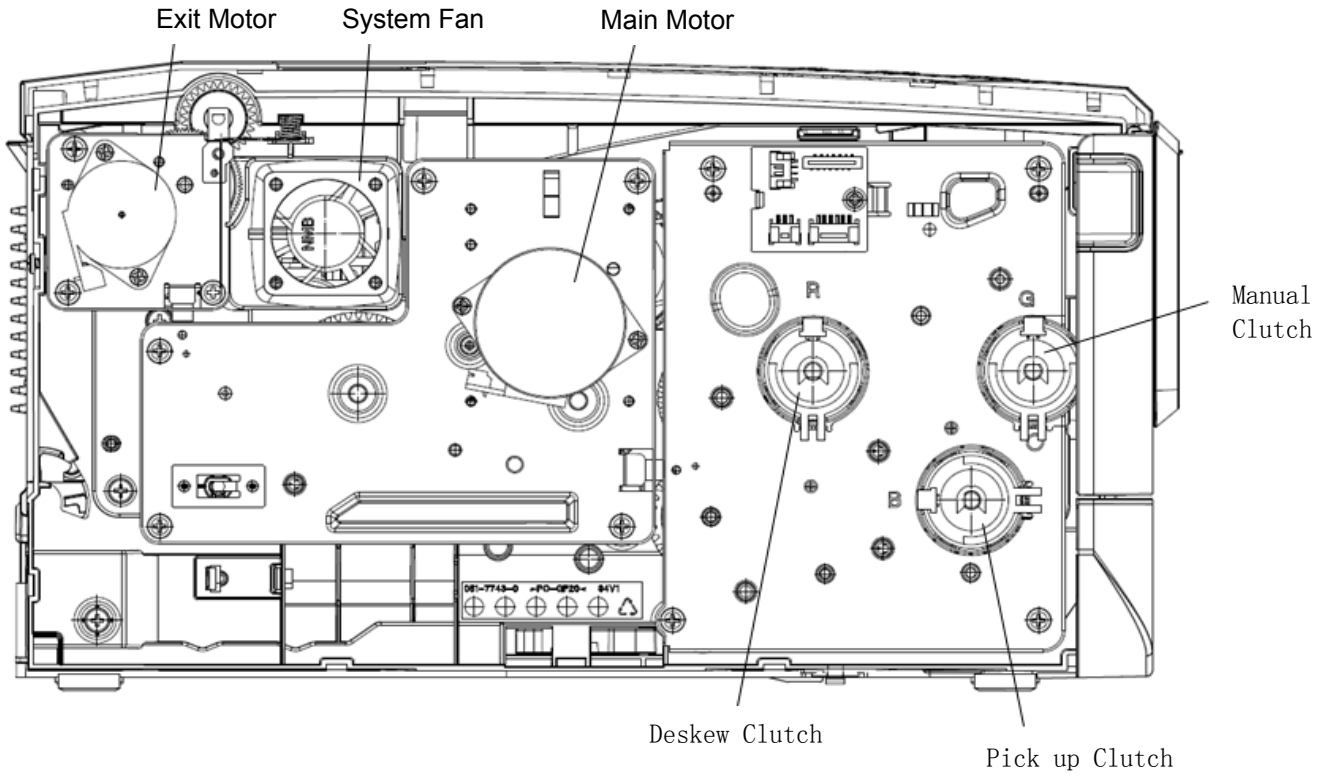


IFA99

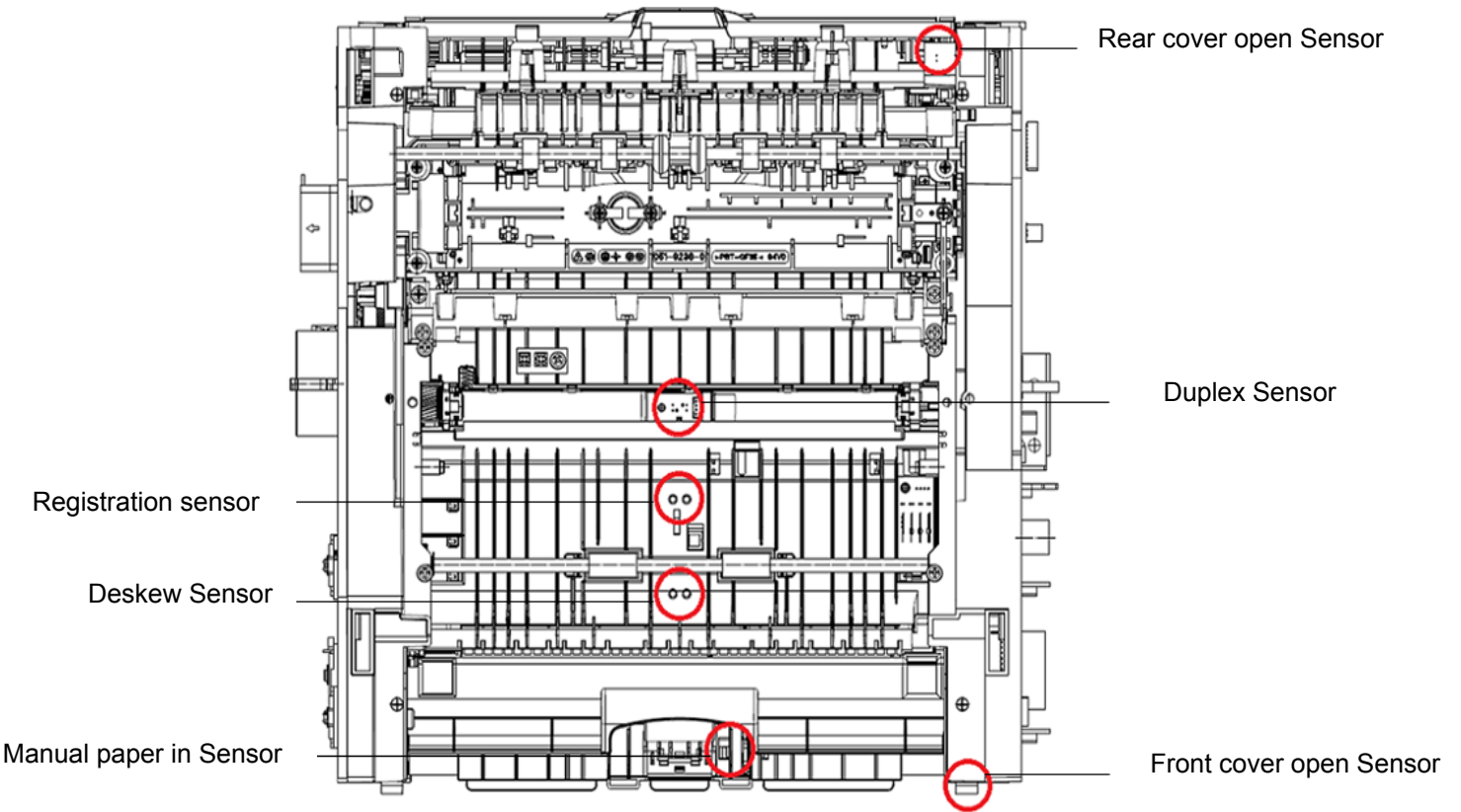


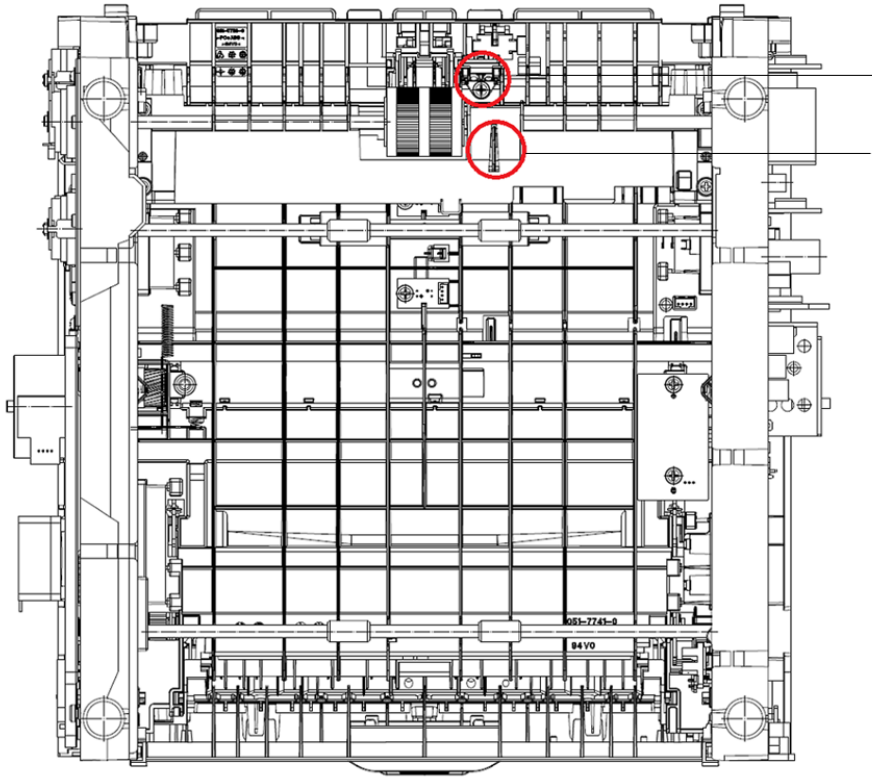


■ Location of Motor



■ Location of sensors

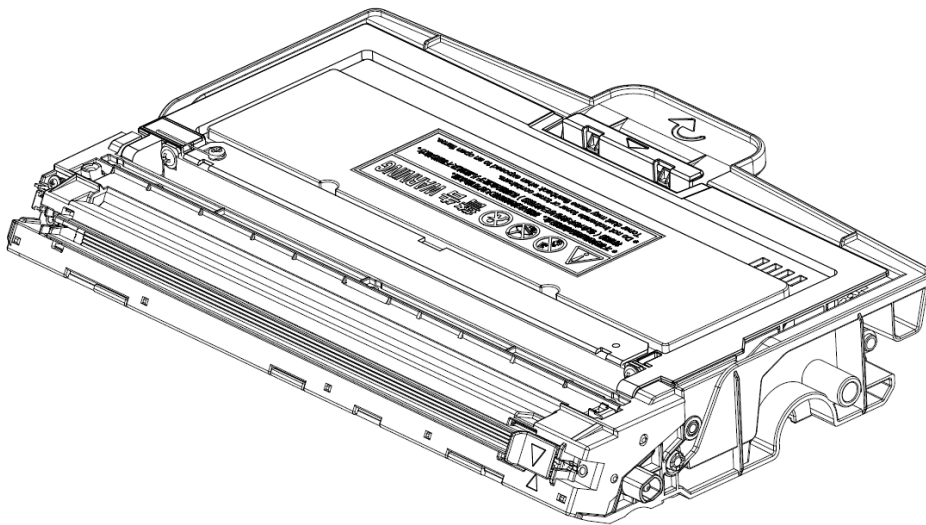


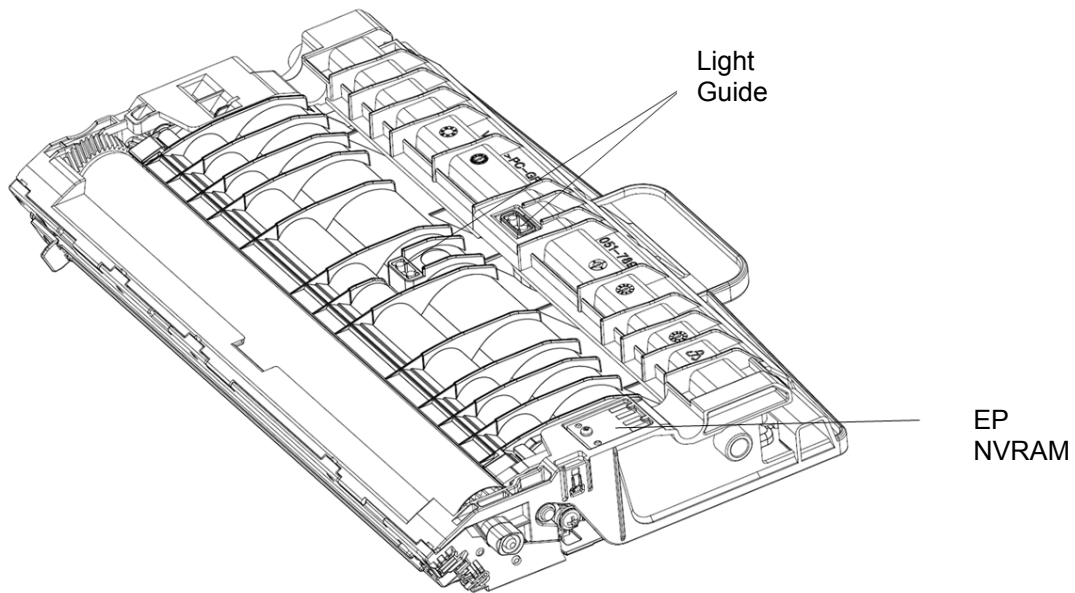


Main tray paper in Sensor

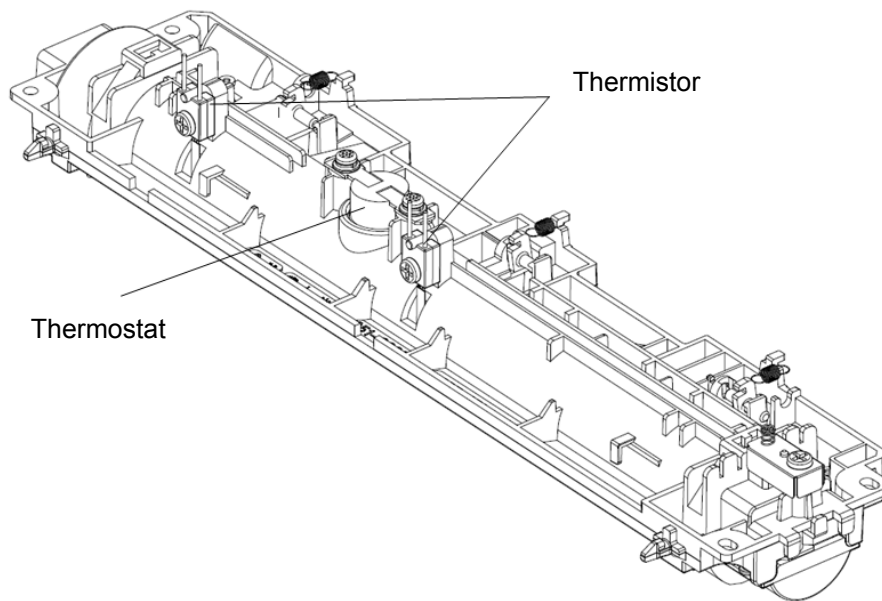
Main tray empty Sensor

■ Drum Unit





■ Fuser



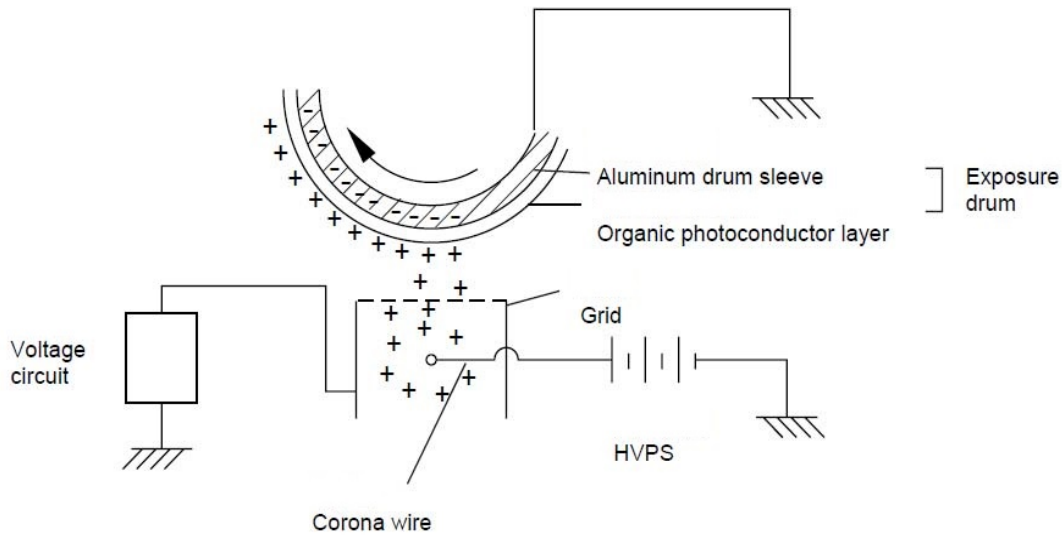
### 1.1.7 The Printing Process

1.Charging 2. Exposing 3. Developing 4. Transfer 5. Fusing

#### 1. Charging

The toner cartridge is charged to about 600V by the ionic charge formed by the primary charger. The charge is formed by the ionization of a corona wire with a high voltage DC bias, and the flow of the ionic charge is controlled by a grid to ensure an even distribution on the drum surface. The aluminum drum sleeve of the photosensitive drum is grounded.

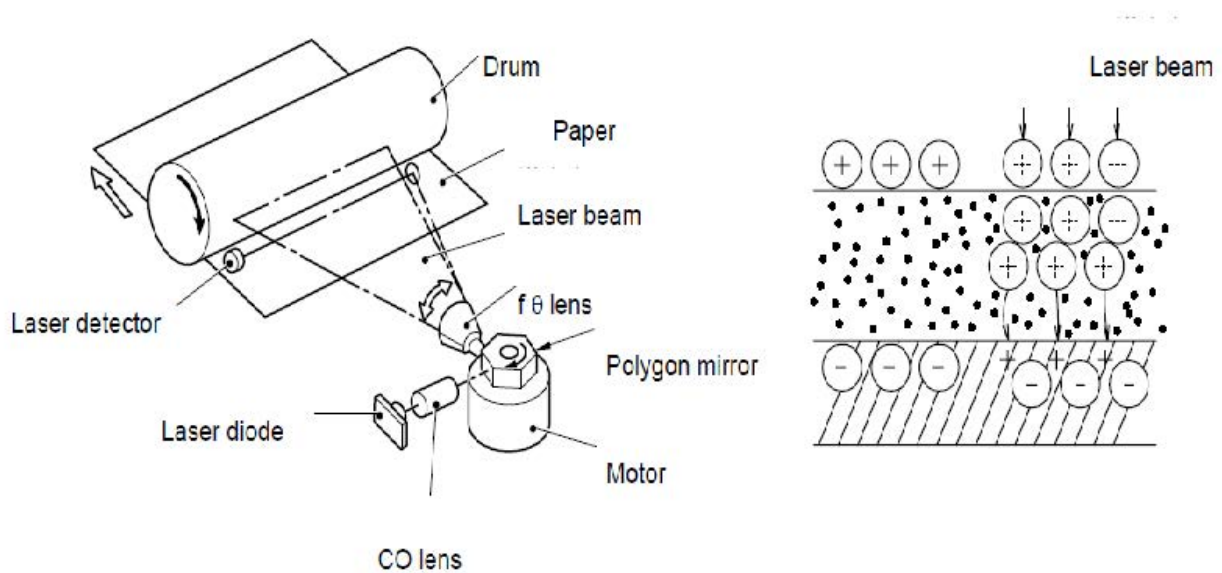
- (1) Corona Wire: Forms ions on the drum.
- (2) Grid: Distribute the ion charge evenly on the drum surface.



A corona wire is used for the primary charge, but since the drum is positively charged, only less than 1/10 of the usual amount of ozone is formed relative to the charged drum. So the amount of ozone emitted by the printer will not harm the human body and complies with safe use standards.

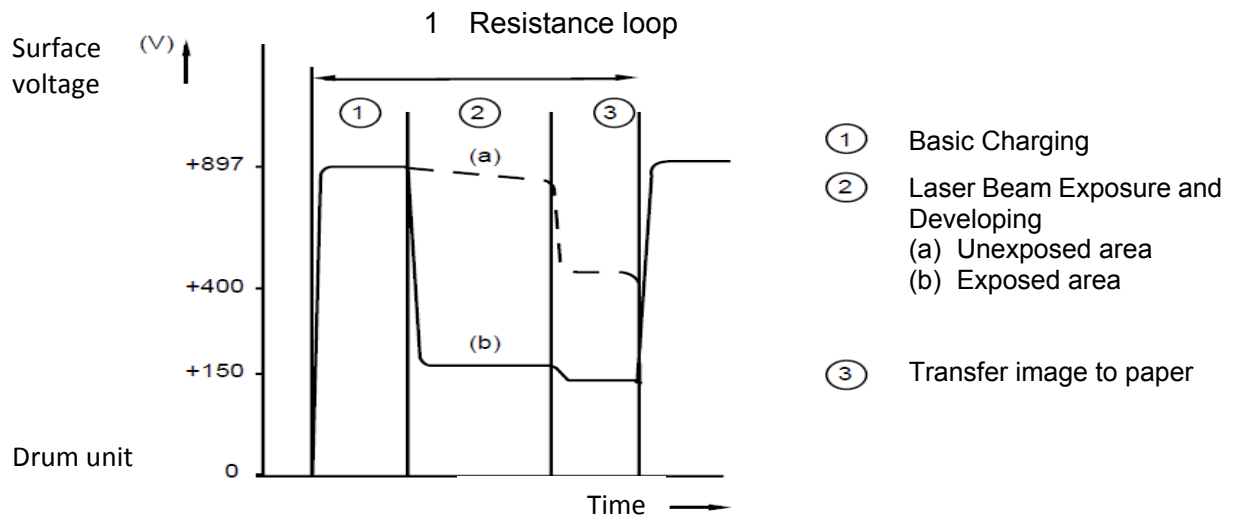
## 2 Exposing

After the toner cartridge is charged, it is exposed to the light projected by the laser unit.



<LSU>

1. The laser beam is radiated from 1 laser diode in the laser unit, and forms a fixed width through a slit on the CO lens. It is then reflected by a polygonal mirror that rotates at high speed.
  2. The laser beam is reflected by the polygon mirror. When the polygon mirror rotates, it is reflected by the  $\theta$  lens and passes from the right side of the mirror to the left end. At this time, the curvature of the laser beam blurred in the vertical direction of the polygon mirror is corrected by a CYL lens.
  3. The laser beam reflected by the mirror directly passes through the photosensitive drum below it, and then the photosensitive drum is exposed to the laser beam.
- The area exposed by the laser is the image to be printed. The surface voltage of the exposed area is reduced, resulting in an electro-statically printed image.

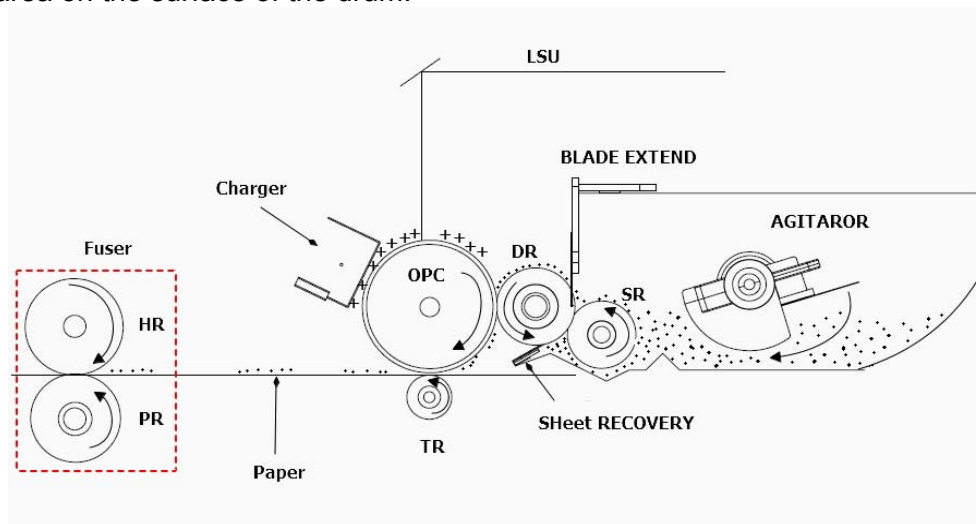


### 3. Developing

The developing process enables the toner to be attracted to the electrostatic image on the drum to form a visible image.

The developing unit contains non-magnetic toner. The developing roller is a conductive rubber, and the supply roller (also a conductive rubber) rotates toward each other. The toner is filled and transported from the supply roller to the developer roller. The toner adheres to the developing roller and is conveyed to the photosensitive drum with uniform thickness under the control of the blade. The toner is sandwiched between the developer roller and the drum and develops on the hidden image on the drum.

The electrostatic area between the drum and the developing roller is biased by the DC power supply, and the electrostatic voltage generated attracts the toner particles on the developing roller to the hidden image area on the surface of the drum.



### 4. Transfer

#### (1) The Transferring Process

After the drum unit is charged, exposed and received the developed image, the formed toner is transferred to the paper by the negative charge on the back of the paper. The negative charge on the paper causes the positively charged toner to leave the drum and stick to the paper. The result is a visible image on the paper.

#### (2) The Cleaning Process of the Transfer Roller

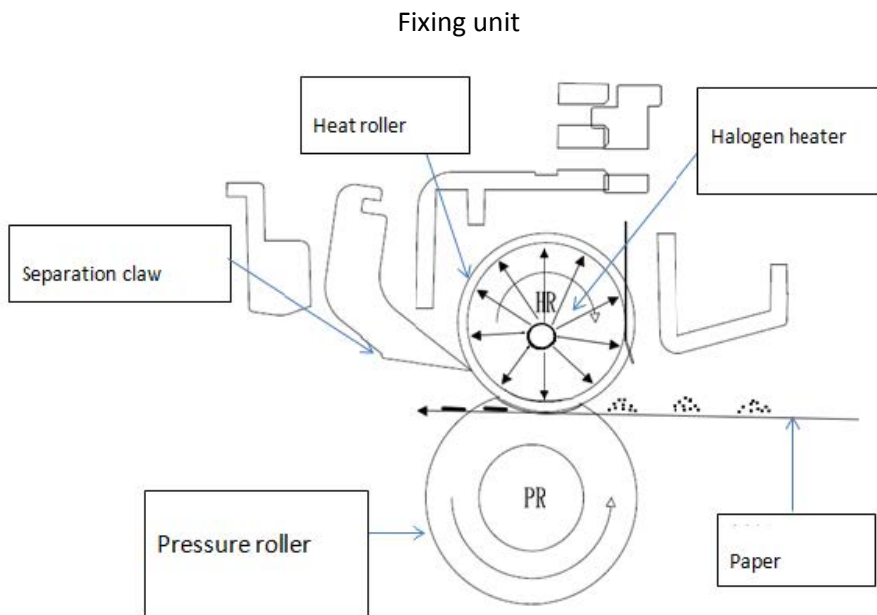
If the toner does not transfer well to the paper, the toner may be left on the toner cartridge and stuck to the transfer roller. The transfer voltage changes when the drum is not printing. Therefore, the transfer roller can be cleaned by returning the positively charged toner adhering to the transfer roller to the image-conducting drum.

#### (3) Elimination of electricity

Remove the residual electricity on the surface of the photosensitive drum.

## 5. The Fusing Process

The image electro-statically transferred to the paper is fixed by high temperature and pressure while passing through the heating roller and pressure roller of the fuser. The thermistor keeps the surface temperature stable by detecting the surface temperature of the heating roller and turning the halogen heater lamp on or off.



## 1.2 Troubleshooting of Error Codes

### 1.2.1 Preparation

Before repairing the equipment, check the following items.

Operating Temperature:

- (1) The equipment is placed in a flat and stable place.
- (2) Use the equipment in a clean environment with a temperature of 10°C to 32°C and a relative humidity between 20% and 80%.
- (3) The equipment is not exposed to direct sunlight, excessive heat, humidity, or dusty environment.
- (4) When moving the device, please grasp the handle at the bottom of the device and lift the device from the front.

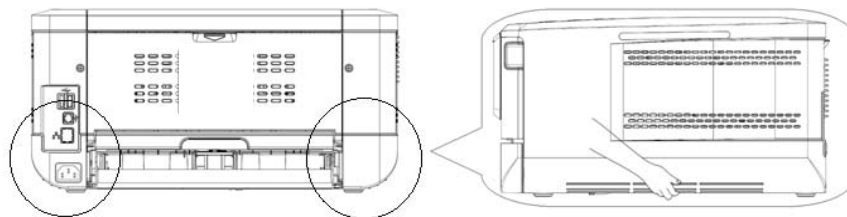


Figure 2-1

Power:

- (1) The power supply value meets the regulations on the equipment nameplate.
- (2) The power supply voltage fluctuation range is within  $\pm 10\%$  of the rated voltage.
- (3) The input AC power is within the specified value.
- (4) The cable and patch cord are connected correctly.
- (5) The fuse is not blown.

Paper:

- (1) Use recommended paper.
- (2) The paper is not damp.
- (3) No short grain or acid paper is used.

Consumables:

- (1) Drum Unit (including Toner Cartridge) installed correctly.

Other:

#### (1) Condensation

When the device moves from a cold place to a warm room, condensation may form inside the device, which may cause the following problems:

- When condensation occurs on the surface of optical components such as lenses, mirrors, and protective glass, the printed image may become lighter.
- If the temperature of the photosensitive drum is too low, the resistance of the photosensitive layer will increase, making it impossible to print with the correct print density.
- Condensation on the charging unit may cause corona charge leakage.
- Condensation on the bottom plate or separation pad may cause paper feeding problems.

If condensation has formed in the device, please leave the device for at least two hours until the device temperature rises to room temperature. If the drum unit is moved from a cold place to a warm room, the package is immediately opened, the condensation that may be generated

inside the unit can cause printing to fail. Please leave the drum unit for one to two hours until its temperature rises to room temperature before unpacking it.

**(2) Low temperature**

The drive may be overloaded in a low temperature environment and the motor cannot operate normally. In such cases, please increase the room temperature.

Cleaning:

Use a soft, lint-free cloth.

 **Warning**  
When cleaning the equipment, do not use any flammable sprays or those containing alcohol, light volatile oil, thin Solvents for flammable substances such as release agents. Do not use the above items near the equipment.

## 1.2.2 Error Causes and Solution

### ■ Error Code (205000)

Initial fail, system can not find printer within 30 seconds after turning on.

< User Check >

- (1) Turn off and then on the printer.

Step	Cause	Solution
1	Can not find the printer.	Restart the printer.
2	Main board malfunctioned.	Replace the main board..

### ■ Error Code (201610)

Restart the device. Error in LPH. LPH FFC cable may not install well or is damaged.

< User Check >

- (1)Restart printer.

Step	Cause	Solution
1	LPH activation abnormal	Reassemble LPH FFC or replace LPH FFC.

### ■ Error Code (205101)

eEngError\_HiVChargerError: Image error caused by abnormal charge of the drum unit.

< User Check >

- (1) Slide the green tab of the drum unit to and fro for 2 or 3 times to clean the corona wire.  
 (2) Clean several contact points of the drum unit.  
 (3) Replace a drum unit.

Step	Cause	Solution
1	Corona wire contaminated.	Clean corona wire.
2	Corona wire broken	Replace drum unit.
3	Power Supply Board hit by strong current	Replace the Power Supply Board.

### ■ Paper Jam Error (200301)

Printer Paper Jam(01): Load paper from manual tray but fails to pick paper.

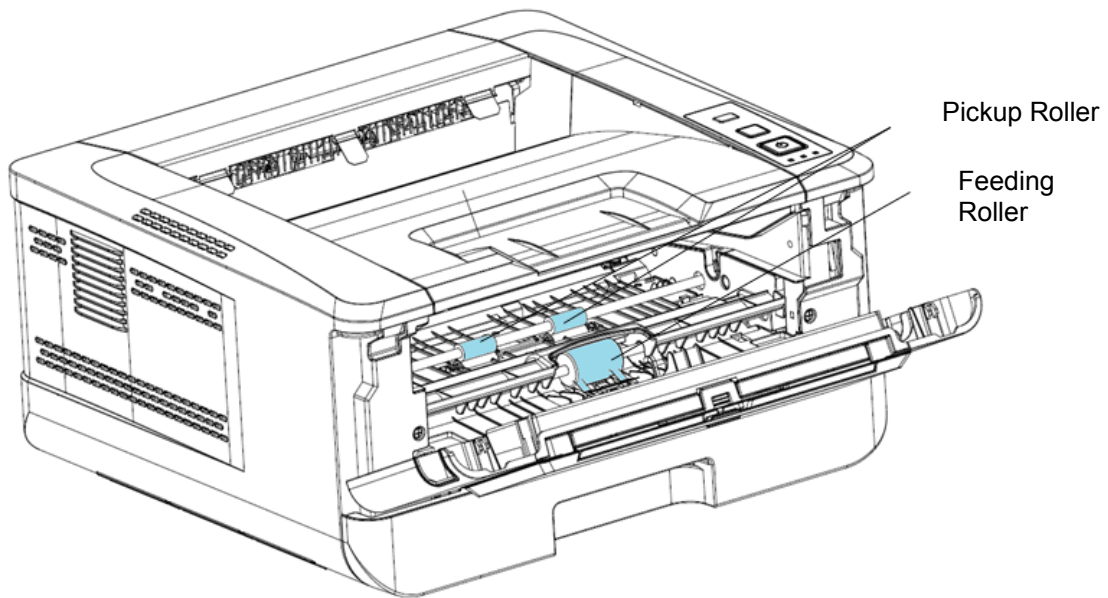
< User Check >

- (1) Check if paper is correctly loaded into the manual tray.  
 (2) Open front cover and remove the drum unit to remove paper.  
 (3) Check if the paper has been removed.

Step	Cause	Solution
1	Dirt on pickup roller	Clean the pickup roller. Refer to the drawing below.
2	Feeding rollers and separation pad contaminated.	Regularly clean pad and rollers.
3	IFA99 Cable not connect well	Connect IFA99 cable correctly.
4	Pickup roller clutch failed.	Replace clutch.
5	IF98 board defective	Replace the IF98 board.
6	Main board defective	Replace the main board..

- Pre-check: Check paper path and sensors (Refer to Sensor Setting information check).

- <Cleaning the pickup roller>



■ **Paper Jam Error(200302)**

Printer Paper Jam(02): Load paper from main tray but fails to pick paper. Paper stuck in paper tray.

< User Check >

- (1) Check if paper is correctly loaded into the paper tray.
- (2) Open front cover and remove the drum unit to remove paper.
- (3) Check if the paper has been removed.

Step	Cause	Solution
1	IFA99 & IF98 Cable not connect well.	Reconnect the cable.
2	SB237 Cable not connect well	Reconnect the cable.
3	Main motor cable looses.	Reconnect the cable.
4	Dirt on the pick up roller or Separation Pad.	Clean pickup roller and pad.
5	Pickup clutch failed.	Replace clutch.
6	Paper-in sensor failed.	Replace feeding sensor.
7	Pickup roller clutch failed.	Replace the clutch.
8	Main motor failed.	Replace main motor.
9	IF98 board defective	Replace the IF98 board.
10	Main board defective	Replace the main board..

➤ Pre-check: Check paper path and sensors (Refer to Sensor Setting information check).

■ **Paper Jam Error(200324)**

Printer Paper Jam(03) Load paper from main tray and paper jammed at feeding sensor.

< User Check >

- (1) Open front cover and remove the drum unit to remove the jammed paper.
- (2) Check paper path.
- (3) Check if the light guide of the drum unit is contaminated.

Step	Cause	Solution
1	Light guide of the drum contaminated.	Clean the light guide.
2	Deskew sensor cable loosen.	Re-plug the cable.
3	Deskew sensor board malfunctioned.	Replace deskew sensor board.
4	IF98 board cable loosed.	Re-plug the cable.

5	Main board malfunctioned.	Replace the main board..
---	---------------------------	--------------------------

➤ Check step: Check paper path and sensors (Refer to Sensor Setting information check).

■ **Paper Jam Error (200325)**

Printer Paper Jam(04) Load paper from the main tray and paper jammed between feeding sensor and deskew sensor.

< User Check >

- (1) Open front cover and remove the drum unit to remove the jammed paper.
- (2) Check paper path.

Step	Cause	Solution
1	Foreign objects on the paper path.	Clean the paper path.
2	IF98 board failed.	Replace the IF98 board.
3	Main board malfunctioned.	Replace the main board..

➤ Check step: Check paper path and sensors (Refer to Sensor Setting information check).

■ **Paper Jam Error (200326)**

Printer Paper Jam(05) Paper jammed near the deskew sensor.

< User Check >

- (1) Open front cover and remove the drum unit to remove the jammed paper.
- (2) Check paper path.

Step	Cause	Solution
1	Deskew roller clutch cable loose.	Reconnect the cable.
2	IFA99 & IF98 cable was loose.	Reconnect the cable.
3	Registration roller cable was loose.	Reconnect the cable.
4	Deskew roller clutch failed.	Replace deskew roller clutch.
5	Deskew sensor failed.	Replace SBA237 board.
6	IFA99 board failed.	Replace IFA99 board.
7	IF98 board failed.	Replace the IF98 board.
8	Main board malfunctioned.	Replace the main board..

➤ Check step: Check paper path and sensors (Refer to Sensor Setting information check).

■ **Paper Jam Error(200327)**

Printer Paper Jam(06). Paper jammed between deskew sensor and registration sensor.

< User Check >

- (1) Please open front cover and remove drum unit to remove the jammed paper.
- (2) Check paper path.

Step	Cause	Solution
1	Foreign objects on the paper path.	Clean the paper path.
2	IF98 board failed.	Replace the IF98 board.
3	Main board malfunctioned.	Replace the main board..

➤ Check step: Check paper path and sensors (Refer to Sensor Setting information check).

■ **Paper Jam Error (200328)**

Printer Paper Jam(07) Paper jammed near the registration sensor.

< User Check >

- (1) Open front cover and remove drum to remove the jammed paper.
- (2) Check if there is any foreign object on the paper path.

(3) Check if the light guide of the drum is contaminated.

Step	Cause	Solution
1	Registration sensor contaminated.	Clean the registration sensor.
2	Registration sensor failed.	Replace SBA237.
3	Exit sensor cable of the fuser loose.	Reconnect the cable.
4	Main board malfunctioned.	Replace the main board..
5	IF98 board failed.	Replace the IF98 board.

➤ Check step: Check paper path and sensors (Refer to Sensor Setting information check).

■ **Paper Jam Error (200329)**

Printer Paper Jam(08) Paper jammed between registration sensor and exit sensor of fuser.

< User Check >

- (1) Open front cover to remove the jammed paper.
- (2) Check paper path.

Step	Cause	Solution
1	Foreign objects on the paper path.	Clean the paper path.
2	Main board malfunctioned.	Replace the main board.
3	IF98 board failed.	Replace the IF98 board.

➤ Check step: Check paper path and sensors (Refer to Sensor Setting information check).

■ **Paper Jam Error(200330)**

Printer Paper Jam(09) Paper is jammed at the Exit Sensor of the Fuser.

< User Check >

- (1) Open front cover and remove the jammed paper.
- (2) Check paper path.

Step	Cause	Solution
1	Exit sensor of the fuser was loose.	Reconnect the cable.
2	Rear cover open sensor cable was loose.	Reconnect the cable.
3	Exit sensor of the fuser failed.	Replace the exit sensor.
4	Rear cover open sensor cable was loose.	Reconnect the cable.
5	Main board malfunctioned	Replace the main board..
6	IF98 board failed.	Replace the IF98 board.

➤ Check step: Check paper path and sensors (Refer to Sensor Setting information check).

■ **Paper Jam Error(200331)**

Printer Paper Jam(10) Paper is jammed between Exist Sensor of Fuser and Exit Sensor.

< User Check >

- (1). Open front cover and remove the jammed paper.
- (2). Check paper path.

Step	Cause	Solution
1	Foreign objects on the paper path.	Clean the paper path.
2	Main board malfunctioned.	Replace the main board..

➤ Check step: Check paper path and sensors (Refer to Sensor Setting information check)

■ **Paper Jam Error(200332)**

Printer Paper Jam(11) Paper is jammed at the Exit Sensor.

< User Check >

- (1) Open the rear cover to remove the jammed paper.
- (2) Check paper path.
- (3) Check the exit sensor.

Step	Cause	Solution
1	Foreign objects on the paper path.	Clean the paper path.
2	Exit sensor cable was loose.	Reconnect the cable.
3	Spring of the exit sensor failed due to foreign objects.	Replace exit sensor.
4	IF98 board failed.	Replace IF98
5	Main board malfunctioned.	Replace the main board..

➤ Check step: Check paper path and sensors (Refer to Sensor Setting information check)

#### ■ Paper Jam Error(200333)

Printer Paper Jam(12) Paper is jammed between Exit Sensor and Duplex sensor.

< User Check >

- (1) Open the rear cover to remove the jammed paper.
- (2) Check paper path.

Step	Cause	Solution
1	Foreign objects on the paper path.	Clean the paper path.
2	Main board malfunctioned.	Replace the main board..

➤ Check step: Check paper path and sensors (Refer to Sensor Setting information check)

#### ■ Paper Jam Error(200334)

Printer Paper Jam (13). Paper is jammed in the Duplex Sensor.

< User Check >

- (1) Open the Duplex Unit to remove the jammed paper.
- (2) Check paper path.

Step	Cause	Solution
1	Foreign objects on the paper path.	Clean the paper path.
2	Duplex sensor is contaminated.	Clean duplex sensor.
3	Duplex roller failed.	Replace duplex unit.
4	Main board malfunctioned.	Replace the main board..

➤ Check step: Check paper path and sensors (Refer to Sensor Setting information check)

#### ■ Paper Jam Error(200335)

Printer Paper Jam (14). Paper is jammed between Duplex Sensor and Deskew Sensor.

< User Check >

- (1) Open the Duplex Unit to remove the jammed paper.
- (2) Check paper path.

Step	Cause	Solution
1	Foreign objects on the paper path.	Clean the paper path.
2	IF98 board failed.	Replace the IF98 board.
3	Main board malfunctioned.	Replace the main board..

➤ Check step: Check paper path and sensors (Refer to Sensor Setting information check)

■ **Fuser Error(201600)**

The temperature of the heating lamp exceeds max. degrees (210 degrees).

< User Check >

- (1) Turn off and on the printer.
- (2) Turn off the power.

Step	Cause	Solution
1	Thermistor malfunctioned.	Replace the fuser.
2	Main board malfunctioned.	Replace the main board..

■ **Fuser Error(201604)**

ADC Calibration Not Ready

< User Check >

- (1) Turn off and on the printer.
- (2) Turn off the power.

Step	Cause	Solution
1	Main board malfunctioned.	Replace the main board..

■ **Fuser Error(201605)**

ADC Not Ready: The ADC-value query for Side and Center Lamp failed every 100ms.

< User Check >

- (1) Turn off and on the printer.
- (2) Turn off the power.

Step	Cause	Solution
1	Main board malfunctioned.	Replace the main board..

■ **Fuser Error (201607)**

Temperature difference between the center and the two sides of the lamp over 40 degrees.

< User Check >

- (1) Turn off power and then turn on.
- (2) Turn off the power.

Step	Cause	Solution
1	Operating temperature too low.	Change the operating temperature and restart the printer.
2	Used voltage too low	Check power and avoid using overloaded electrical appliances on the same line.

■ **Fuser Error(201613)**

The temperature of the Center lamp is more than 20 degrees different from the last time.

< User Check >

- (1) Turn off and then on the power.
- (2) Turn off the power.

Step	Cause	Solution
1	main board malfunctioned	Replace the main board.组件

■ **Fuser Error(201615)**

The thermistor in the middle of the Fuser did not rise to the specified temperature within the specified time: From normal temperature to Ready state, the center thermistor did not heat up from -20 degrees to 0 degrees within 5.5 seconds.

< User Check >

- (1) Turn off and then on the power.
- (2) Turn off the power.

Step	Cause	Solution
1	Thermistor malfunctioned	Replace the fuser.
2	The main board malfunctioned.	Replace the main board.

#### ■ Fuser Error (201616)

Fuser heating from ready to printing exceeds 20 seconds.

< User Check >

- (1) Turn off power and then turn on.
- (2) Turn off the power.

Step	Cause	Solution
1	Used voltage too low	Check power and avoid using overloaded electrical appliances on the same line.
2	Thermistor failed.	Replace the fuser.
3	Main board malfunctioned	Replace the main board..

#### ■ Fuser Error (201617)

Fuser heating from ready to warming up exceeds 155 seconds.

< User Check >

- (1) Turn off power and then turn on.
- (2) Turn off the power.

Step	Cause	Solution
1	Used voltage too low.	Check power and avoid using overloaded electrical appliances on the same line.
2	Thermistor failed.	Replace the fuser.
	The fuse of the fuser broken, activate protection mechanism	Replace the fuse.
3	Main board malfunctioned	Replace the main board..
4	Power Supply Board malfunctioned.	Replace the Power Supply Board.

#### ■ Fuser Error(201618)

Fuser heating from prepare to ready status exceeds specified time error. (100secs))

< User Check >

- (1) Turn off and then on the power.
- (2) Turn off the power.

Step	Cause	Solution
1	Abnormal AC power supply voltage	Please check the power.
2	Thermistor malfunctioned.	Replace the fuser.
3	Main board malfunctioned.	Replace the main board.

#### ■ Fuser Error(201621)

The thermistor in the middle of the Fuser is not connected.

< User Check >

- (1) Turn off and then on the power.
- (2) Turn off the power.

Step	Cause	Solution
1	Thermistor malfunctioned.	Replace the Fuser.

2	Main board malfunctioned.	Replace the main board.
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■ **Fuser Error(201622)**

The thermistor outside the Fuser is not connected.

< User Check >

- (1) Turn off and then on the power.
- (2) Turn off the power.

Step	Cause	Solution
1	Thermistor malfunctioned.	Replace the Fuser.
2	Main board malfunctioned.	Replace the main board.

■ **Fuser Error(201623)**

Fuser's side thermistor did not rise to the specified temperature within the specified time:

From normal temperature to Ready state, the side thermistor did not heat up from -20 degrees to 0 degrees in 5.5 seconds.

< User Check >

- (1) Turn off and then on the power.
- (2) Replace the fuser.

Step	Cause	Solution
1	Thermistor malfunctioned.	Replace the Fuser.
2	Main board malfunctioned.	Replace the main board.

■ **Not install drum unit (200041)**

Please install the drum unit and then restart. (200041). No drum unit or printer can not detect drum unit.

< User Check >

- (1) If there is drum unit installed in the printer.
- (2) Check if the drum unit cable and that if the chip has been assembled in place.

Step	Cause	Solution
1	Drum cable was loose.	Reconnect the cable.
2	Drum cable connection port deformed.	Replace the drum connection port.
	IF98 FFC cable was loose.	Reconnect the cable.
	IF98 FFC cable damaged.	Replace the IF98 FFC cable.
3	IF98 board malfunctioned.	Replace the IF98.
4	main board malfunctioned.	Replace the main board.

■ **Drum unit lifetime end(200042)**

Please replace drum unit (200042). The printer detected the drum unit lifetime end.

< User Check >

- (1) Replace the drum unit.

Step	Cause	Solution
1	Drum unit lifetime end	Replace the drum unit.

■ **Drum unit near end of life(200043)**

Please replace drum unit (200043). When the printer detects the lifetime is lower than 10%.

< User Check >

- (1) Need to prepare a new drum unit.

Step	Cause	Solution
1	Drum unit near end of life	You can continue printing since the printing quality will not be affected.

■ **Invalid Drum Unit (200044)**

Please replace the drum unit from original maker (200044). The vendor name or S/N is incorrect.  
 < User Check >

Step	Cause	Solution
1	Not drum unit from original manufacturer.	Replace drum unit with original maker.

(1) Please replace the drum unit from the original manufacturer.

■ **Tone near end of life. Please replace the toner cartridge(200032)**

This indicates the toner remains is lower than 10%.  
 < User Check >

Step	Cause	Solution
1	Toner cartridge near end of life	You can continue printing since the printing quality will not be affected.
2		
3		

■ **Toner end of life. Please replace toner cartridge(200031)**

The printer detected the toner remain to be 0%.  
 < User Check >

Step	Cause	Solution
1	Toner cartridge end of life	Please replace the toner cartridge.

■ **Toner Cartridge Error. Please replace toner cartridge from original manufacturer. (200036)**

The printer detected the vendor name, S/N or code is incorrect.  
 < User Check >

Step	Cause	Solution
1	Toner cartridge not from original manufacturer.	Replace the toner cartridge from original manufacturer.

■ **No Toner Cartridge(200030)**

No toner cartridge installed or the printer can not detect the toner cartridge.  
 < User Check >

- (1).Check if the toner cartridge has been installed.
- (2).Check if the toner cartridge has been installed correctly.

Step	Cause	Solution
1	Drum unit's printed circuit board was loose.	Re-plug the connectors.
2	IF98 board cable was loose.	Re-plug the connectors.
3	Toner cartridge printed circuit board malfunctioned.	Replace the Toner Cartridge.
4	Drum unit printed circuit board malfunctioned.	Replace the drum unit.

5	Drum printed circuit board malfunctioned.	Replace the drum printed circuit board.
6	IF98 board malfunctioned.	Replace the IF98 board.
7	Main board malfunctioned.	Replace the main board.

■ **Front Cover opens(200051)**

Close Front Cover (200051) Printer Parts Error, When the Front Cover is opened.

< User Check >

(1)Close the Front Cover.

Step	Cause	Solution
1	The rib of Front Cover is broken	Replace the Front Cover.
2	Front cover open sensor poor installation	Reassemble Front Cover Open Sensor.
3	Front cover open sensor poor connection	Reconnect Front Cover Open Sensor.
4	Front Cover Open Sensor defective	Replace Front Cover Open Sensor.
5	Main board malfunctioned	Replace the main board..

- Check method:1. Prepare new sensor and connect to main board to check if conducting. 2. Prepare main board.

■ **Rear Cover opens(200054)**

Rear cover opens during printing.

This error occurs when opening the Rear Cover before performing duplex printing.

< User Check >

(1)(Close the Rear Cover)

Step	Cause	Solution
1	The rib of Rear Cover is broken	Replace the Rear Cover.
2	Rear cover open sensor poor installation	Reassemble Rear Cover Open Sensor.
3	Rear cover open sensor poor connection	Reconnect Rear Cover Open Sensor.
4	Rear Cover Open Sensor defective	Replace Rear Cover Open Sensor.
5	Main board malfunctioned	Replace the main board..

■ **Printer paper empty (manual tray) (200080)**

No paper on the specified tray. (manual tray)

< User Check >

(1)Check if there is paper in the manual tray.

Step	Cause	Solution
1	IF98 board cable was loose.	Reconnect the cable.
2	IF98 board failed.	Replace the IF98 board.
3	Main board malfunctioned	Replace the main board..
4		
5		

■ **Printer paper empty (Main Tray)(200081)**

No paper in the specified paper tray. (Main Tray)

< User Check >

(1) Check if there is paper in the main tray.

Step	Cause	Solution
1	Paper Exhaust sensor cable was	Reconnect the cable.

	loose.	
2	IF98 board cable was loose.	Reconnect the cable.
3	The Paper Exhaust Sensor failed.	Replace Paper Exhaust Sensor.
4	IF98 board failed.	Replace the IF98 board.
5	Main board malfunctioned	Replace the main board..

■ **Fan Error (200090)**

There are two fans in the printer. This error occurs when the fan stops or rotation speed abnormal.

< User Check >

- (1) Fan stops rotation.

Step	Cause	Solution
1	Fan cable was loose.	Reconnect fan cable.
2	Foreign objects in the fan.	Remove foreign objects.
3	Fan malfunctioned.	Replace the fan.
4	Main board malfunctioned	Replace the main board..

■ **Multi-Feed Error (200000)**

Open Side Door to remove the paper. This error occurs when multiple paper fed in the printer at the same time.

< User Check >

- (1) Check if paper in the tray exceeds capacity.  
 (2) Check if paper loaded into the tray correctly.  
 (3) Turn the paper upside down or turn it 180° and then reload to the tray.  
 (4) Fan the paper and then reload into paper tray.

Step	Cause	Solution
1	One of the feeding rollers worn out.	Replace the worn-out feeding roller.
2	Separation Pad failed.	Replace the Separation Pad.
3	The surface of the Separation pad contaminated.	Clean the surface of the Separation Pad.

■ **IP Conflict (500000)**

Check network settings (500000)

< User Check >

- (1) Check network settings

Step	Cause	Solution
1	IP Conflict	Reassign IP address

■ **Net Cable Unplug (500001)**

Plug the ethernet cable. (500001)

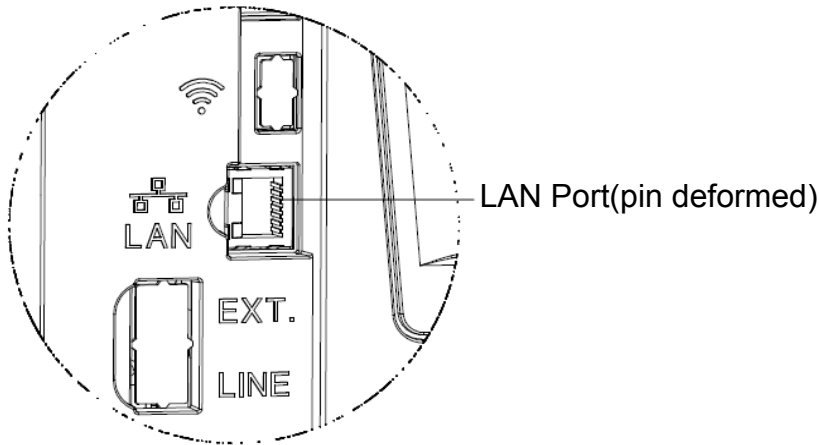
The machine detects no cable connected in the RJ-45 port.

< User Check >

- (1) Check network connection status.  
 (2) Reset network settings.  
 (3) Check LAN cable.

Step	Cause	Solution
1	LAN connection pin deformed.	Replace the main board..

- Check LAN port:



■ **DHCP no response (500002)**

Check network settings. (500002)

This error occurs when the printer requests information from the DHCP server and DHCP server does not respond.

Can not connect to network

< User Check >

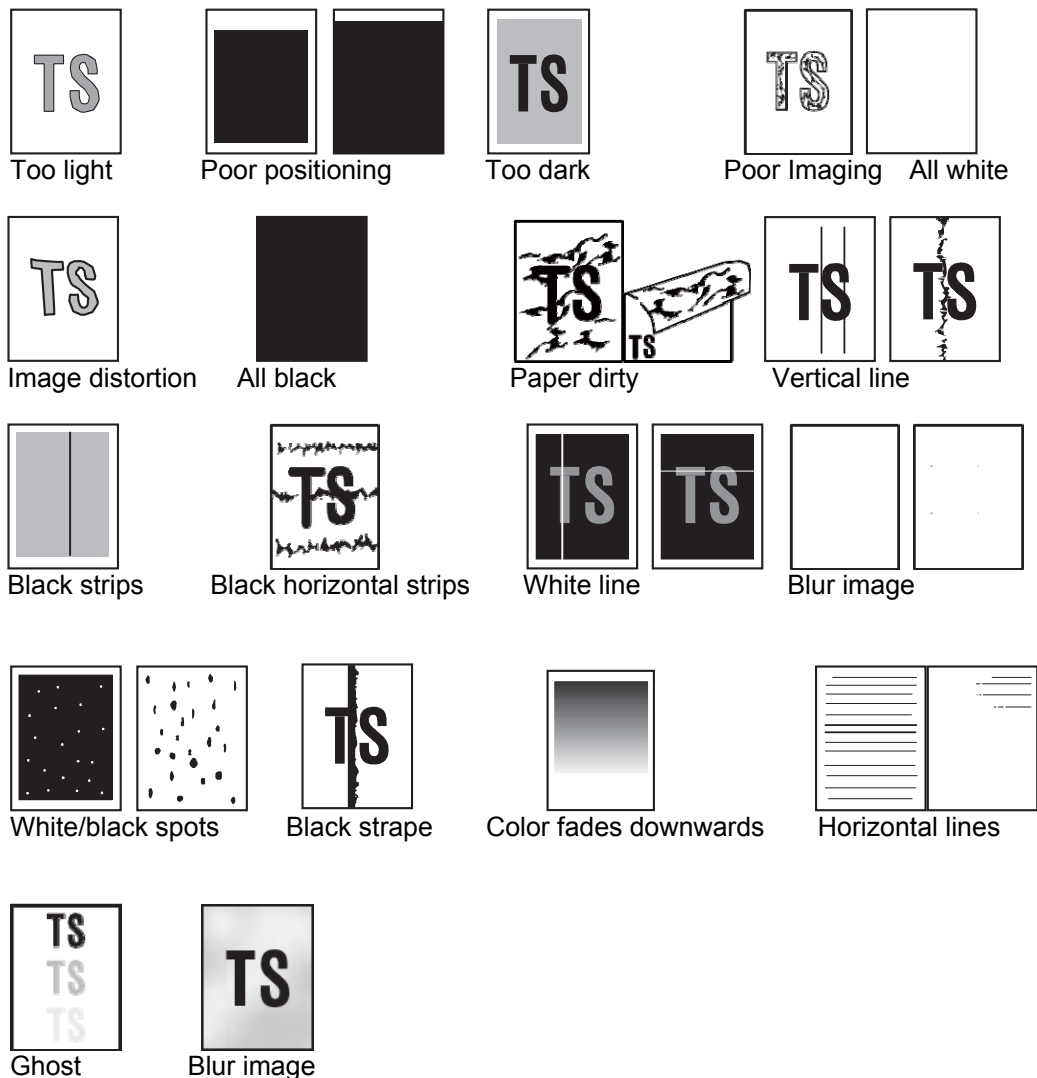
(1) Check network settings.

Step	Cause	Solution
1	Main board malfunctioned	Replace the main board..

➤ Check: Check network status and enter [Ipconfig] and ping the device's IP address.

## 1.3 Troubleshooting of Image Problems

### 1.3.1 Illustration of Image Problems



#### Roller Diameter

No.	Name of Roller	Diameter
1	Pickup Roller	Ø 33.0 mm (102.79 mm)
2	Transfer Roller(TR)	Ø 12.5 mm (39.25 mm)
3	Drum(OPC)	Ø 24.0 mm (75.4 mm)
4	Heating Roller(HR)	Ø 19.95 mm (63.58 mm)
6	Developing Roller (DR)	Ø 14.0 mm (33.1 mm)

### 1.3.2 Troubleshooting of Image Defect

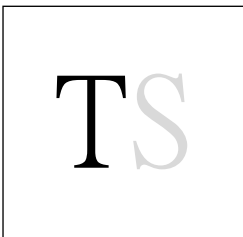
■ Too light



- ✓ User Check
- (1) Check the operating environment. High temperature and high humidity or low temperature and low humidity conditions can cause this problem.
- (2) Replaced the Toner Cartridge with a new one.

Step	Cause	Solution
1	Toner low.	Replace the toner cartridge.
2	Transfer roller worn out	Replace the transfer roller.
3	Power Supply Board malfunctioned.	Replace the Power Supply Board.
4	Main board malfunctioned.	Replace the main board..

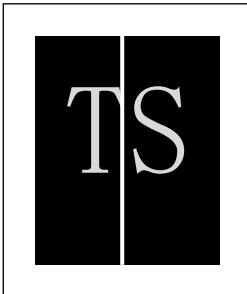
■ Too Light (partly)



- ✓ User Check
- (1) Check the operating environment. High temperature and high humidity or low temperature and low humidity conditions can cause this problem.
- (2) Toner cartridge may not have correctly installed.
- (3) Replaced the Toner Cartridge with a new one.

Step	Cause	Solution
1	Toner low.	Replace the toner cartridge.
2	Toner cartridge may not have correctly installed.	Reinstall Toner Cartridge correctly.

■ White Vertical Line



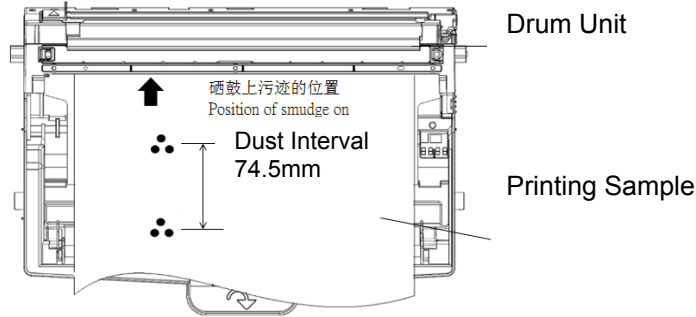
- ✓ User Check
- (1)Clean corona wire of the Drum Unit.
- (2)Clean LPH (Laser Printer Head) (for LPH model).
- (3)Clean the dust or powder on the roller of the Drum Unit. Refer to <Cleaning Method of the Drum Unit>.
- (4)Check if there is trace on Toner Cartridge Roller.

Step	Cause	Solution
1	Dust or powder on the charger.	Clean the charger of the Drum unit.
2	Accumulated dust on the Drum unit.	Clean the drum unit or replace the drum unit with a new one. Refer to <Cleaning Method of the Drum unit>
3	LSU CABLE malfunctioned.	Replace LSU CABLE.

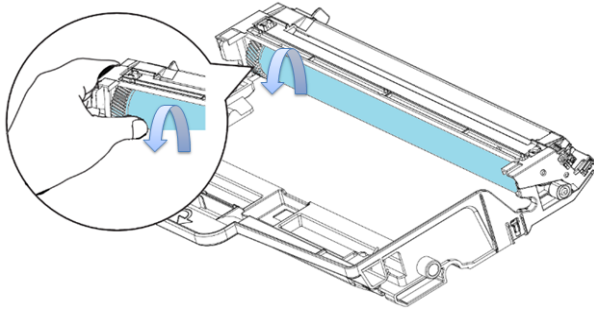
4	LSU malfunction.	Replace LSU.
5	Main board malfunctioned (Control Signal malfunction).	Replace the main board..

<Cleaning Method of the Drum Unit>(The actual drum unit used may be different from the one shown in the picture )

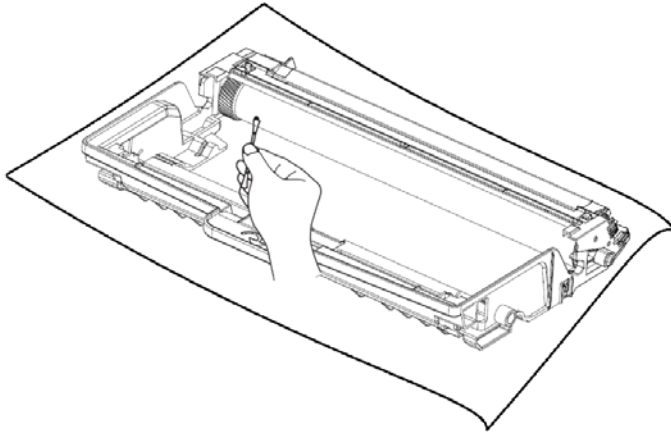
(1). Remove drum unit. Place the printing sample in front of the drum unit and find the location of the image defect.



(2). Use your hand to rotate the gear of the Drum Unit, turn the photosensitive side facing your.



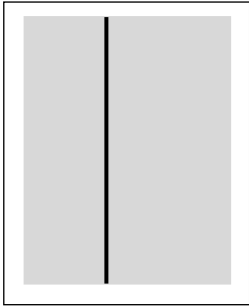
(3). If the position of the dirt on the drum is the same with the spot on the printed sample, please wipe off the dirt or paper dust on the photosensitive drum with a cotton swab.



**Important:**

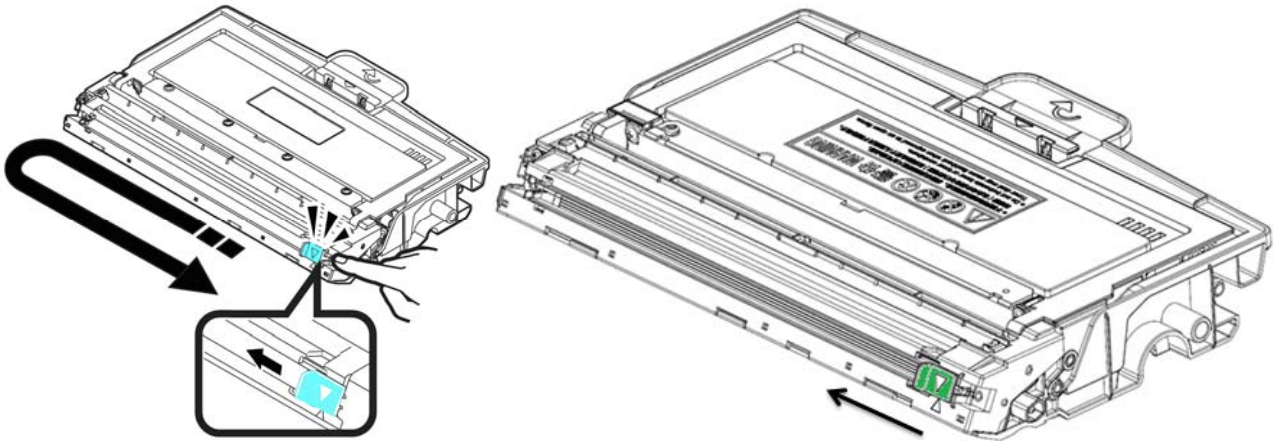
- Do not use pointed objects such as ballpoint pens to clean the surface of the photosensitive drum.
- Please clean with a mixture of ethanol and water (50%+50%).

■ Black Vertical Line



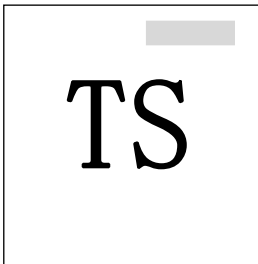
- ✓ User Check
- (1) Clean the corona wire or the power grid of the drum unit.
- (2) Refer to <Cleaning Method of the Drum Unit>, use a cotton swab to clear the dust on the drum unit.
- (3) Replace a new drum unit.

Step	Cause	Solution
1	Corona wire has not been slid to the end during cleaning.	Repositioning.
2	Dust or powder on the charger unit.	Clean the charger of the drum unit. Refer to the following <u>Cleaning Method of the Corona Wire</u> .
3	Fuser unit malfunction(heating rollers scratch)	Replace fuser unit.



<Cleaning Method of Colona Wire>, Slide the corona wire to the end and then back to the original place. Repeat this for at least 3 times.

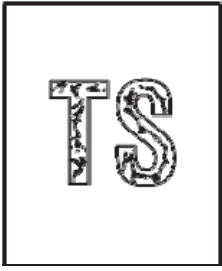
■ Gray background



- ✓ User Check
- (1) Clean the corona wire or the power grid of the drum unit.
- (2) Refer to <Cleaning Method of the Drum Unit>, use a cotton swab to clear the dust on the drum unit.
- (3) Drum unit may be worn out.
- (4) Replace a new drum unit.

Step	Cause	Solution
1	OPC of Drum worn out.	Replace drum unit.
2	Toner cartridge near end of life.	Replace the toner cartridge.
3	Voltage of Transfer roller incorrect.	Replace the fuser.

■ Poor Image



✓ User Check

- (1) Check the operating environment. High temperature and high humidity or low temperature and low humidity conditions can cause this problem.
- (2) Check if the text background is dirty.
- (3) Check if AC power output is 198~264V.
- (4) Check if the paper is damp.
- (5) Replace the fuser.

Step	Cause	Solution
1	Fuser is malfunctioned.	Replace the fuser.

■ Dirty Background



✓ User Check

- (1) The problem may disappear after printing a few pages.
- (2) The drum unit may be damaged. Install a new one.
- (3) There is dirt on the paper path. Wipe off the dirt.

Step	Cause	Solution
1	There is dirt on the paper path.	Wipe off the dirt. Refer to < The Spacing of Various Rollers in the Image >Table
2	There is dirt on the heating roller of the fuser.	Replace the fuser unit.
3	There is dirt on the surface of the OPC or the drum is damaged.	Replace the drum unit.
4	Toner cartridge near end of life.	Replace the toner cartridge.

Refer to < The Spacing of Various Rollers in the Image >Table

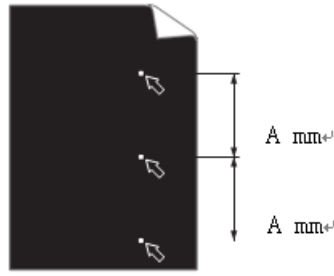
**Important:**

Periodic image defects may be caused by defects of various rollers. Please refer to the table below to determine the cause of the defect based on the diameter of various rollers or the spacing in the image.

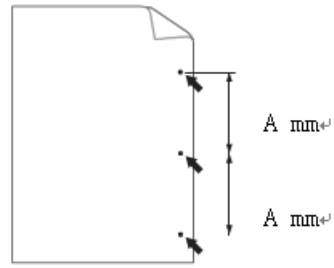
<The Spacing of Various Rollers in the Image >

Component name	Spacing in the Image
Developing Roller(DR)	33mm
Drum Unit(OPC)	75mm
Heating Roller(HR)	63.5mm

<Example of Image Defects> , Value of A: Refer to < The Spacing of Various Rollers in the Image >Table

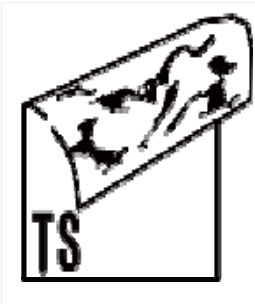


Periodical white spots in A mm interval  
On a black page



Periodical black spots in A mm interval  
on a white page

■ Dirt on the rear side



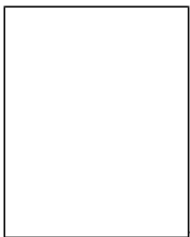
- ✓ User Check
- (1) This problem may be solved after printing a few pages.
- (2) There is dirt on the paper path. Wipe off the dirt.

Step	Cause	Solution
1	There is dirt on the paper path.	Wipe off the dirt. Refer to < The Spacing of Various Rollers in the Image >Table
2	Dirt on the Transfer Roller	Wipe off the dirt. Refer to < The Spacing of Various Rollers in the Image >Table
3	Dirt on the Pressure Roller (PR)	Replace the fuser.

Refer to < The Spacing of Various Rollers in the Image >Table  
<The Spacing of Various Rollers in the Image >

Component name	Spacing in the Image
Developing Roller(DR)	33mm
Drum Unit(OPC)	75mm
Heating Roller(HR)	63.5mm

■ Blank Page



- ✓ User Check
- (1) Replace the developing unit.
- (2) Replace the drum unit.

Step	Cause	Solution
1	There is dirt on the electrode contacting the drum unit.	Clean the device and the electrode contacting the drum unit.
2	LPH malfunction.	Replace LPH unit.
3	Main board malfunction	Replace the main board..

4	Not conducting between the device and OPC in the drum unit.	Replace the Power Supply Board.
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➤ <Step 1>,<Step 2>, use a three-purpose meter to check:

Possible Cause	Step	Check	Result	Action
Drum unit poor grounding	1	If it conducting between the drum unit and the high voltage	Yes	Replace the drum unit.
	2	If it conducting between the drum unit and the high voltage	No	Replace the Power Supply Board.

■ A Black Image



- ✓ User Check  
 (1) If the charger unit is correctly installed.  
 (2) Replace the charger unit.

Step	Cause	Solution
1	Charger malfunctioned or corona wire broken.	Replace the drum unit.
2	Dirt on the electrode between the corona wire and the Power Supply Board.	Clean the electrode between the corona wire and Power Supply Board.
3	HVPS malfunctioned.	Replace the Power Supply Board.
4	Main board malfunctioned.	Replace the main board..

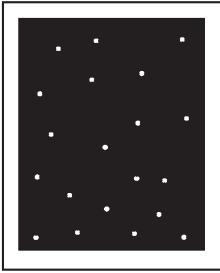
■ A Blur Image



- ✓ User Check  
 (1) If the printer has been evenly positioned.  
 (2) Clean the LPH unit.  
 (3) Reinstalled the drum unit.  
 (4) Replace the drum unit.

Step	Cause	Solution
1	Drum unit positioning point is broken	Replace drum unit.

■ White Spots



- ✓ User Check
- (1) Check if the paper path is dirty. If so, remove dirt.
- (2) Refer to <Cleaning Method of the Drum Unit>, use a cotton swab to clear the dust on the drum unit.
- (3) Replace the drum unit.
- (4) Replace the fuser.

Step	Cause	Solution
1	There is dirt or scratch on the fuser.	Replace the fuser.
2	There is dirt or scratch on the drum unit.	Replace the drum.

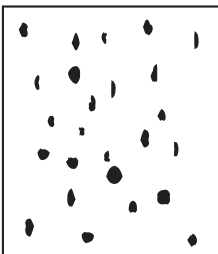
**Important:**

Periodic image defects may be caused by defects of various rollers. Please refer to the table below to determine the cause of the defect based on the diameter of various rollers or the spacing in the image.

Refer to < The Spacing of Various Rollers in the Image >Table  
<The Spacing of Various Rollers in the Image >

Component name	Spacing in the Image
Developing Roller(DR)	33mm
Drum Unit(OPC)	75mm
Heating Roller(HR)	63.5mm

■ Black Spots



- ✓ User Check
- (1) There is dirt on the paper path. Wipe off the dirt.
- (2) Refer to <Cleaning Method of the Drum Unit> , use a cotton swab to clear the dust on the drum unit.

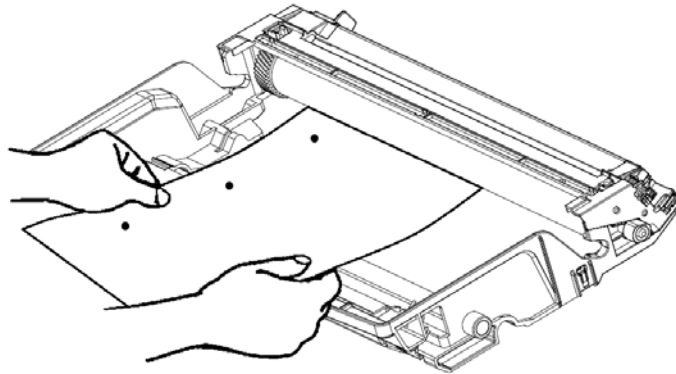
Step	Cause	Solution
1	Toner cartridge near end of life.	Replace the toner cartridge.

Refer to < The Spacing of Various Rollers in the Image >Table  
<The Spacing of Various Rollers in the Image >

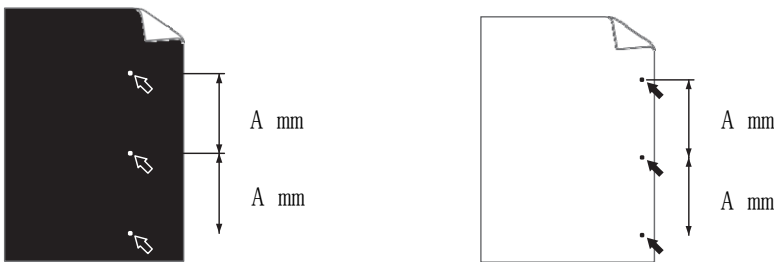
Component name	Spacing in the Image
Developing Roller(DR)	33mm
Drum Unit(OPC)	75mm
Heating Roller(HR)	63.5mm

<Drum unit cleaning method>:

- Take the toner cartridge out of the drum unit. Place a print sample in front of the drum unit to locate image defects.



<Example of Image Defects>, A. Refer to > The Spacing of Various Rollers in the Image >Table



White specks with A mm length appear in all black pages.  
 Black specks with A mm length appear in all white pages.

Notice:

- Do not use pointed objects such as ballpoint pens to clean the surface of the roller.
- Clean with a half-mixed solution of ethanol and pure water.

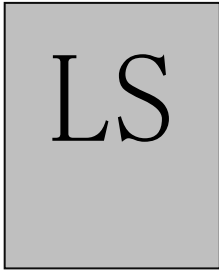
■ A White Horizontal Line



- ✓ User Check
- (1) The problem could be disappeared after printing a few pages.
- (2) Replace a new drum unit.

Step	Cause	Solution
1	The ground spring of the Drum unit defective.	Replace the drum unit.
2	Developing unit has been stored for a long time.	The problem may be disappeared after printing a few pages or try to clean the surface of the OPC of the drum unit.

■ Too Dark(Gray background)



- ✓ User Check
- (1) Check the environment. High or low temperature/humidity may cause the problem.
- (2) Replace developing unit.
- (3) Replace the toner cartridge.
- (4) Replace drum unit.

Step	Cause	Solution
1	Use wrong toner cartridge (wrong model, or not from original manufacturer.)	Replace drum unit and toner cartridge.
2	Drum unit near end of life.	Replace the toner cartridge.
3	Power Supply Board defective (GRID voltage too low)	Replace high-voltage board.

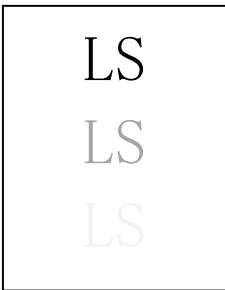
■ Color fades downwards



- ✓ User Check
- (1) Replace the toner cartridge.

Step	Cause	Solution
1	Toner cartridge near end of life	Replace the toner cartridge.

■ Ghost (1)

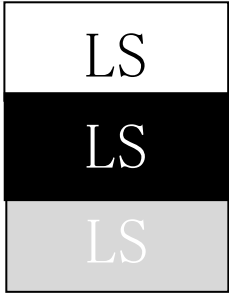


- ✓ User Check
- (1) Check the environment. High or low temperature/humidity may cause the problem.
- (2) Replace the toner cartridge.
- (3) Replace drum unit.

Step	Cause	Solution
1	Dirt or scratch on fuser.	Replace fuser.
2	Drum unit near end of life	Replace drum unit.
3	Poor contact of toner cartridge	Replace the toner cartridge.
4	Power Supply Board malfunctioned.	Replace the Power Supply Board.

5	Transfer roller did not rotate well.	Replace the transfer roller.
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■ Ghost (2)



- ✓ User Check
  - (1) Check the environment. High or low temperature/humidity may cause the problem.
  - (2) Replace drum unit.

Step	Cause	Solution
1	Poor contact of toner cartridge	Replace the toner cartridge.
2	Power Supply Board malfunctioned.	Replace the Power Supply Board.
3	Transfer roller did not rotate well.	Replace the transfer roller.

**Important:**

Periodic image defects may be caused by defects of various rollers. Please refer to the table below to determine the cause of the defect based on the diameter of various rollers or the spacing in the image.

Refer to < The Spacing of Various Rollers in the Image >Table  
<The Spacing of Various Rollers in the Image >

Component name	Spacing in the Image
Developing Roller(DR)	33mm
Drum Unit(OPC)	75mm
Heating Roller(HR)	63.5mm

■ Poor Positioning



- ✓ User Check
  - (1) Check if proper paper type has been selected in printer driver.

Step	Cause	Solution
1	Registration sensor jumped.	Replace the registration sensor.
2	Main board malfunctioned (NVRAM data error)	Replace the main board.

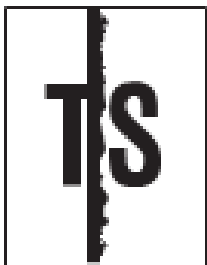
■ Black Horizontal Lines



- ✓ User Check
- (1) Clean the corona wire on the drum unit.
- (2) This problem will disappear after printing for a few pages.
- (3) Wipe off the dirt on the drum unit with a cotton swab, refer to <Cleaning Method of the Drum Unit>
- (4) Replace the drum unit.

Step	Cause	Solution
1	Scratches or dirt on the fuser.	Replace the fuser.
2	Scratches or dirt on the drum unit.	Replace the drum unit or clean the surface of the drum unit.
3	Power Supply Board malfunctioned(charger and grid output not stable)	Replace the Power Supply Board.

■ Black Strape



- ✓ User Check
- (1) Clean the corona wire on the drum unit.
- (2) Slide the corona wire back to the position marked "▲".
- (3) This problem will disappear after printing for a few pages.
- (4) Wipe off the dirt on the drum unit with a cotton swab, refer to <Cleaning Method of the Drum Unit>.
- (5) Replace the drum unit.
- (6) Clean the paper path.

Step	Cause	Solution
1	Dirt on the charger.	Clean the drum unit.
2	Drum unit deformed.	Replace the drum unit.
3	Developing unit bad scraper	Replace the toner cartridge.
4	Toner remains on the paper path.	Clean the paper path.

■ Horizontal lines



- ✓ User Check
- (1) Clean the corona wire on the drum unit.
- (2) Slide the corona wire back to the position marked "▲".
- (3) This problem will disappear after printing for a few pages.
- (4) Wipe off the dirt on the drum unit with a cotton swab, refer to <Cleaning Method of the Drum Unit>.
- (5) Replace the drum unit.

Step	Cause	Solution
1	Dirt on the charger.	Clean the drum unit.
2	Poor discharge of charger	Replace the drum unit.
3	Poor grounding of the drum unit.	Replace the drum unit.

4	Poor grounding of the fuser.	Replace the fuser.
5	Power Supply Board malfunctioned.	Replace the Power Supply Board.

■ Vertical Lines



- ✓ User Check
- (1). Clean the corona wire on the drum unit.
  - (2). Slide the corona wire back to the position marked "▲".
  - (3). This problem will disappear after printing for a few pages.
  - (4). Wipe off the dirt on the drum unit with a cotton swab, refer to <Cleaning Method of the Drum Unit>.
  - (5). Replace the drum unit.

Step	Cause	Solution
1	Dirt on the paper path.	Wipe off the dirt.
2	Dirt on the charger.	Clean the charger of the drum unit.
3	Scratches or dirt on the fuser.	Replace the fuser.
4	Toner Cartridge lifetime ends	Replace the toner cartridge.
5	LPH or LSU malfunctioned.	Replace LPH or LSU.

■ Blur Image



- ✓ User Check
- (1) Check the environment. High or low temperature/humidity may cause the problem.
  - (2) Check if the paper is damp.
  - (3) Replace the toner cartridge.

Step	Cause	Solution
1	Toner remains low	Replace the toner cartridge.
2	Poor positioning of LPH/LSU	Check if LPH/LSU is working OK, arrange the LPH ground cables; or replace drum if drum is damaged.
	Power Supply Board malfunctioned.	Replace the Power Supply Board.

■ Image Distortion (For LSU model only)

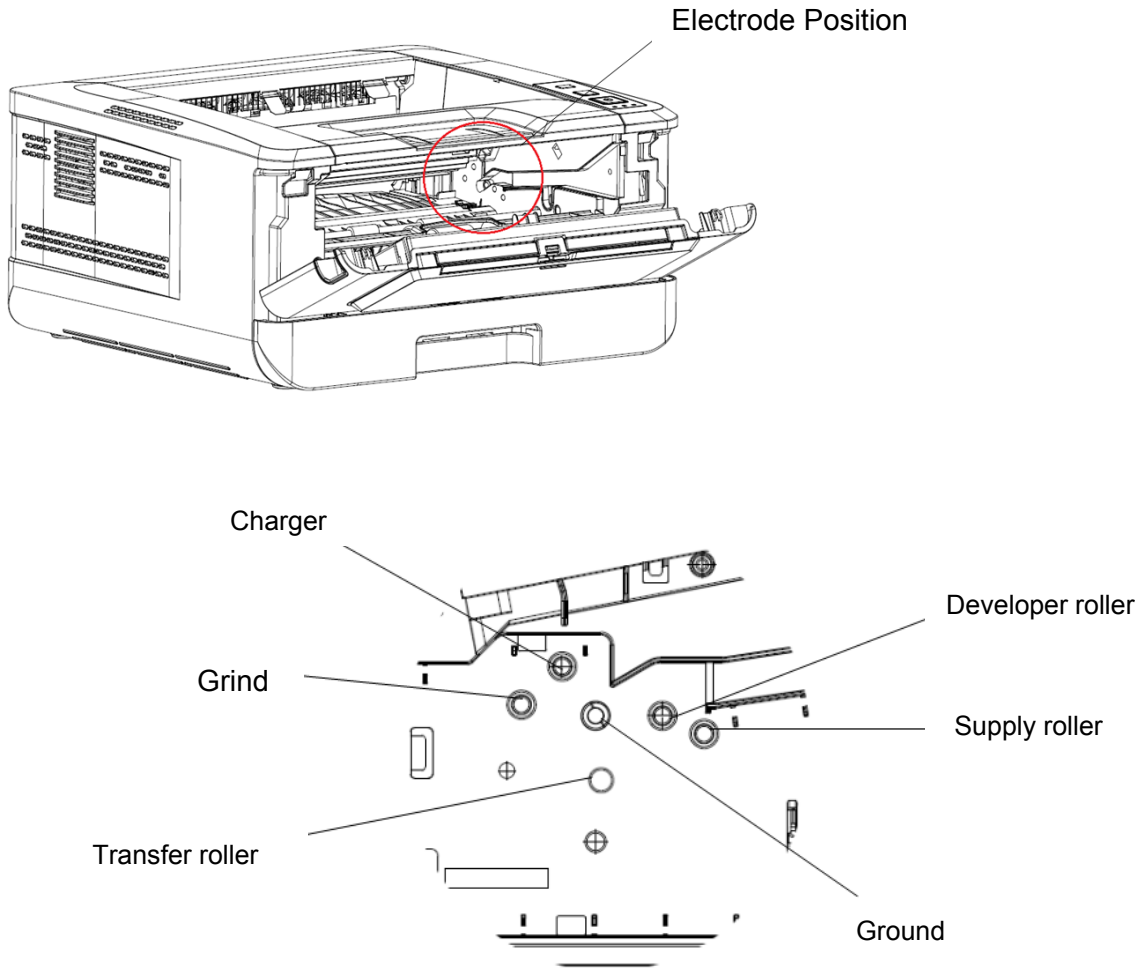


- ✓ User Check
- (1) Check if the LSU has been installed well.
  - (2) Check if the LSU is functioned well.
  - (3) Replace the LSU.

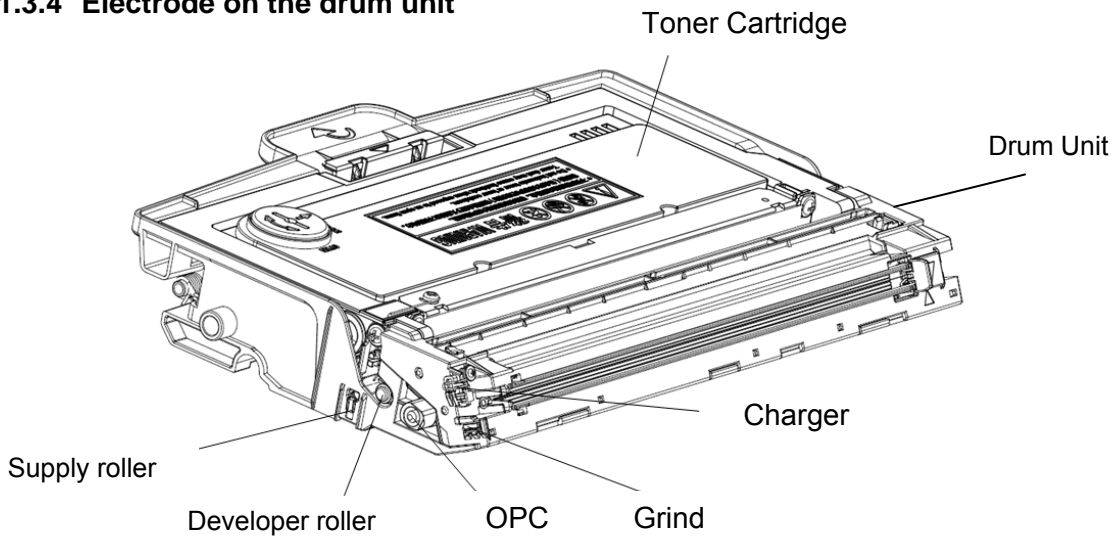
Step	Cause	Solution
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1	LSU did not install well.	Reinstall the LSU.
2	LSU malfunctioned.	Replace LSU.
3	Main board malfunctioned.	Replace the main board.

### 1.3.3 Electrode on the Device



### 1.3.4 Electrode on the drum unit



## Chapter 2 Disassembling and Reassembling

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### 2.1 Preparation

#### Notice Before Performing Maintenance Operation:

In order to avoid secondary malfunction due to incorrect operation, the following warnings and precautions must be observed during the disassembly and reassembling of the equipment.

 **Warning**

After using the printer for a while, the temperature inside the printer is very high! When opening the Side Door or the Rear Cover to repair components, do not touch the areas shown in the high temperature mark.

- Be careful not to lose the removed screws, washers and other parts.
- Be sure to apply grease to the parts specified in this chapter.
- When using an electric soldering iron or other heating tools, please be careful not to damage the wires, circuit boards, casings and other components made of synthetic resin.
- The static electricity charged by the human body may damage electronic components. Therefore, when transporting the circuit board, be sure to wrap the circuit board with conductive foil.
- When replacing circuit boards and all other parts with circuit boards, please wear a wrist strap for discharging static electricity and operate on an anti-static mat. In addition, please be careful not to touch the flat cable and the electrode conductor part of the wire.
- After unplugging the flat cable, be sure to check that the flat cable plug is in good condition and that the flat cable is not short-circuited.
- When inserting the flat cable, be sure to insert it straight, and check that the cable is not crooked after inserting it.
- When connecting or disconnecting the patch cord, do not hold the cable part but the connector part. If there is a lock on the connector, be sure to unlock the lock first.
- After repairing, please pay attention not only to check the repaired part, but also to check the connection of the patch cord. In addition, you need to check if other related parts are working properly.
- Do not close the front cover forcibly before installing the toner cartridge and drum unit, otherwise the machine may be damaged.
- After installation, it is recommended to conduct an insulation withstand voltage test and a conductivity test.
- Be careful not to damage the insulating sheet.
- When replacing the circuit board, be sure to check if there is any foreign matter on the component surface and soldering surface of the circuit board.

## 2.2 Disassembling Tools

### 2.2.1 Maintenance Tool List

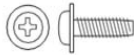

Table 3.1 The Maintenance Tool

No.	Tool Type	Quantity	Description
1.	Flat screwdriver(Small)	1	For disassembling
2.	Philips screwdriver(Small)	1	For removing M2 screw
3.	Philips screwdriver	1	For removing M3、 M4 screws
4.	Philips screwdriver (Small Head)	1	For removing high-voltage board M3 screws
5.	ERING E-type tool holder	1	For installing no. 3 screw
6.	ERING E-type tool holder	1	For installing no. 4 screw
7.	ERING E-type tool holder	1	For installing no. 5 screw
8.	Needle nose pliers	1	For clamp
9.	Diagonal pliers	1	For cutting cable ties
10.	Tweezers	1	For picking up component
11.	Cleaning Kit(blowing ball, brush, wipe cloth, alcohol cotton)	1	For cleaning
12.	Latex Gloves	1	Anti-Static
13.	Utility Knife	1	For unpacking
14.	Digital meter	1	With 0.01 volt
15.	Headlamp	1	For illumination
16.	White Glue:076-0019-0	1	For sticking
17.	Grease(MS54)	1	For gears
18.	Grease(VG501)	1	For high-temperature gears
19.	Component Kits(ERING、 Screw、 Cable Tie)	1	For reassembling



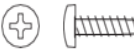
Table 1.1 Maintenance Tool

#### ■ Screw Category

##### Screw (Mechanical teeth)



Screw(Mechanical teeth) M3X9	
Screw(Mechanical teeth) M3X6	
Screw(Mechanical teeth) M3X4	

##### Screw (Self-tapping)

Screw(Self-tapping) M3X8	
Screw(Self-tapping) M3X8	
Screw(Self-tapping) M3X10	

##### Screw (Mechanical teeth)(W/SPRING-W)




Screw(Mechanical teeth) M3X6	
---------------------------------	--

Screw(Mechanical teeth) M3X6	
Screw(Mechanical teeth) M4X10	

**Screw (Mechanical teeth) (φ8 HEAD)**

Screw(Mechanical teeth) M4X8	
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**E-RING**

E-RING ) D5	
E-RING D4	
E-RING D3	

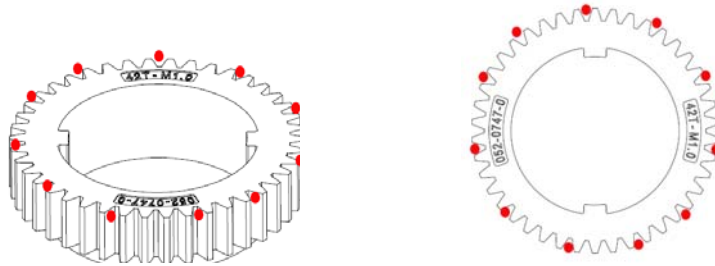
**2.2.2 Tighting torque List**

Screw Location	Screw Type	Quantity	Torque (kgf-cm)
Right cover	Screw M3X8	2	6±0.5kgf.cm
Left cover	Screw M3X8	2	6±0.5kgf.cm
Top cover	Screw M3X8	2	6±0.5kgf.cm
Gear	Screw TS3X8	12	6±0.5kgf.cm
Motor	Screw M3X5	4	6±0.5kgf.cm
Fan	Screw M3X15	4	6±0.5kgf.cm
IFA99 board	Screw M3x5	1	6±0.5kgf.cm
LPH&LSU HOLDER	Screw TS3X8	4	6±0.5kgf.cm
LPH	Screw M2x4	2	1.5±0.5kgf.cm
Fuser	Screw M3x8	4	6±0.5kgf.cm
(Fuse)		2	6±0.5kgf.cm
(Ground cable)		1	6±0.5kgf.cm
Exit Path	Screw TS3X8	4	6±0.5kgf.cm
(Paper-out roller)	Screw TS3X11	2	6±0.5kgf.cm
SBA234 Sensor	Screw TS3X8	3	6±0.5kgf.cm
Insulation cover	Screw TS3X8	2	6±0.5kgf.cm
Manual Path	Screw TS3X8	2	6±0.5kgf.cm
Main frame	Screw M4X10	10	8±0.5kgf.cm
IF98 board	Screw TS3X8	2	6±0.5kgf.cm
High voltage ground plate	Screw TS3X6	1	6±0.5kgf.cm
Power Supply Board	Screw TS3X8	7	6±0.5kgf.cm
Main board	ScrewTS3X8	2	6±0.5kgf.cm
(Ground cable)	Screw TS3X10	2	6±0.5kgf.cm

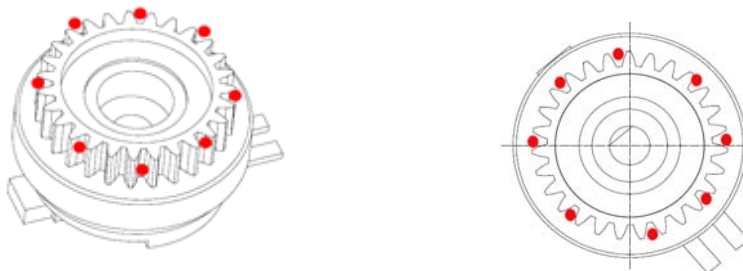
### 2.2.3 Lubricants

Type of Lubricant ( Manufacturer name)	Lubricating Position		Lubricating amount/each time
Lubricant VG501	Fuser gear G35T	11 drops	1.5 to 2.0 mm diameter drop
Lubricant SF420	Clutch 27T	8 drops	1.5 to 2.0 mm diameter drop

■ Fuser Gear G35T



■ CLUTCH 27T



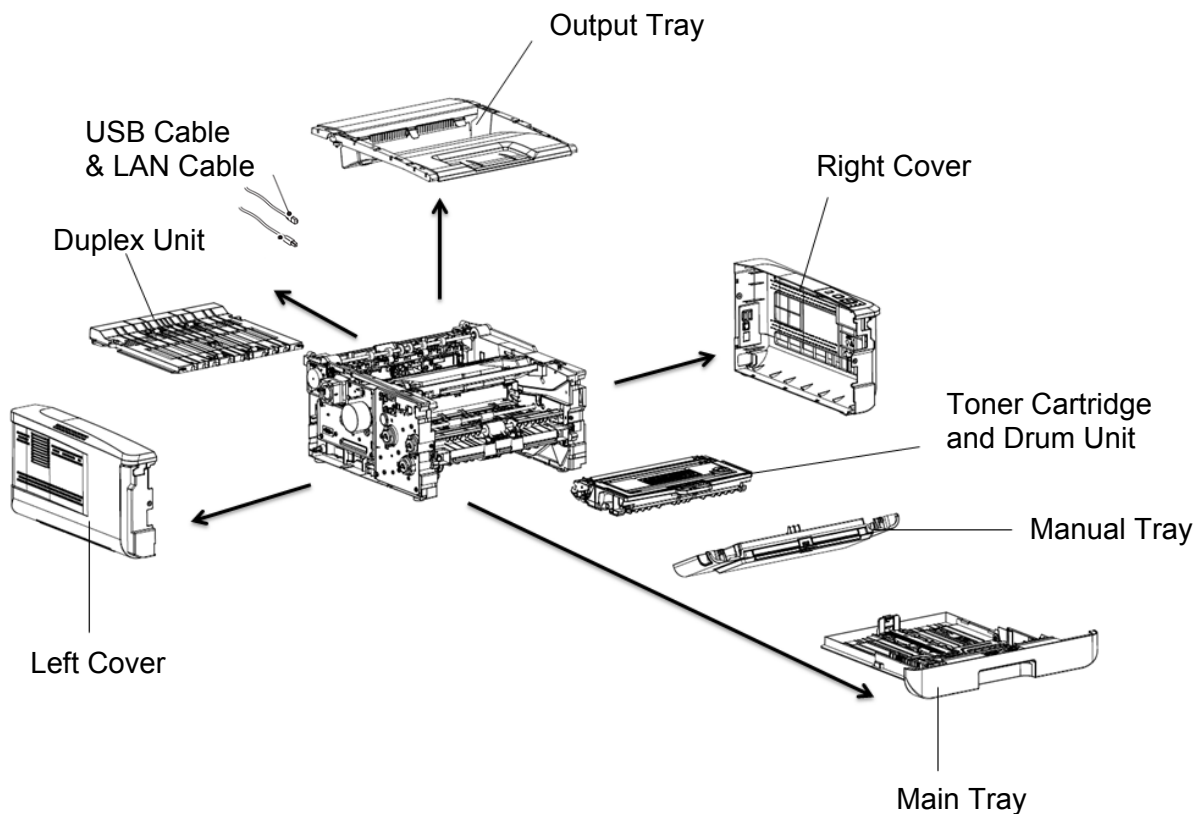
## 2.3 Disconnecting Cables Before Disassembling

Disconnect the following cables:

- USB cable
- LAN cable
- POWER cable

Remove the following parts:

- Paper Tray
- Toner Cartridge and Drum Unit



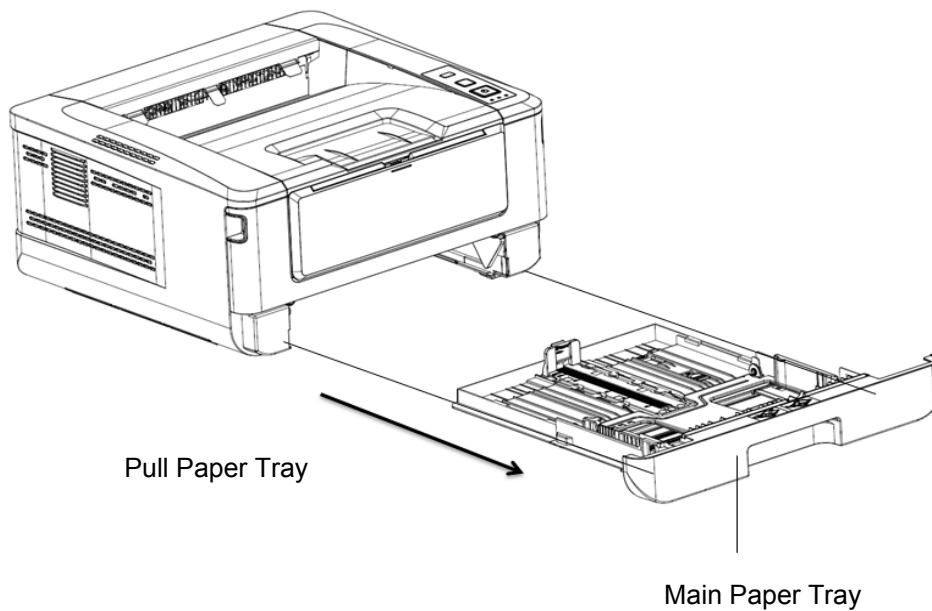
Disassembling Notices:

- (1) Clean the removal and assembly location.
- (2) Please unplug the power cord and remove the AC power plug before disassembly and assembly.
- (3) Please follow the disassembly and assembly procedures. Do not loosen the non-removable screws.
- (4) Please store the disassembled parts in a clean place to avoid loss.
- (5) After replacing the parts, please check the contact position and the base of the parts.
- (6) Please assemble the parts in the reverse order of the disassembly procedure.

## 2.4 Basic Disassembling

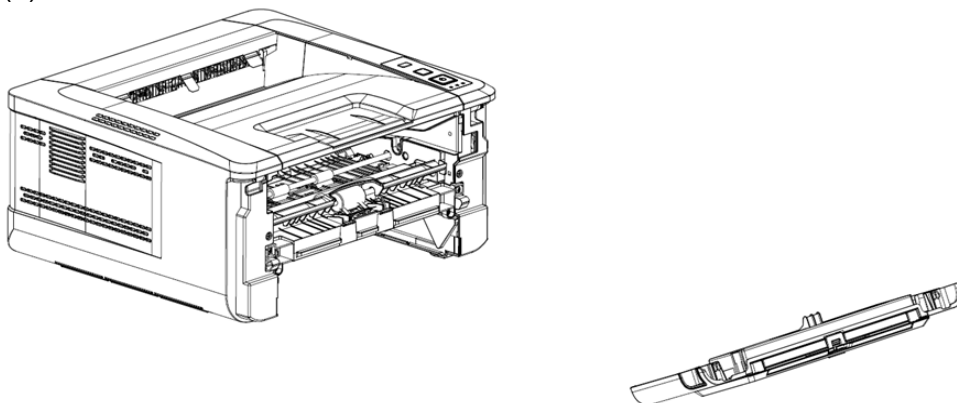
### 2.4.1 Paper Tray

(1). Pull out the Main Paper Tray to remove it.

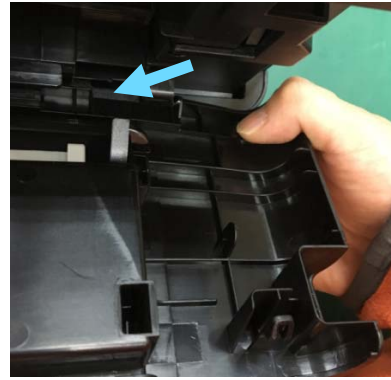


### 2.4.2 Front Cover

- (1). Remove the drum unit.
- (2). Remove Main Paper Tray.
- (3). Remove Front Cover.



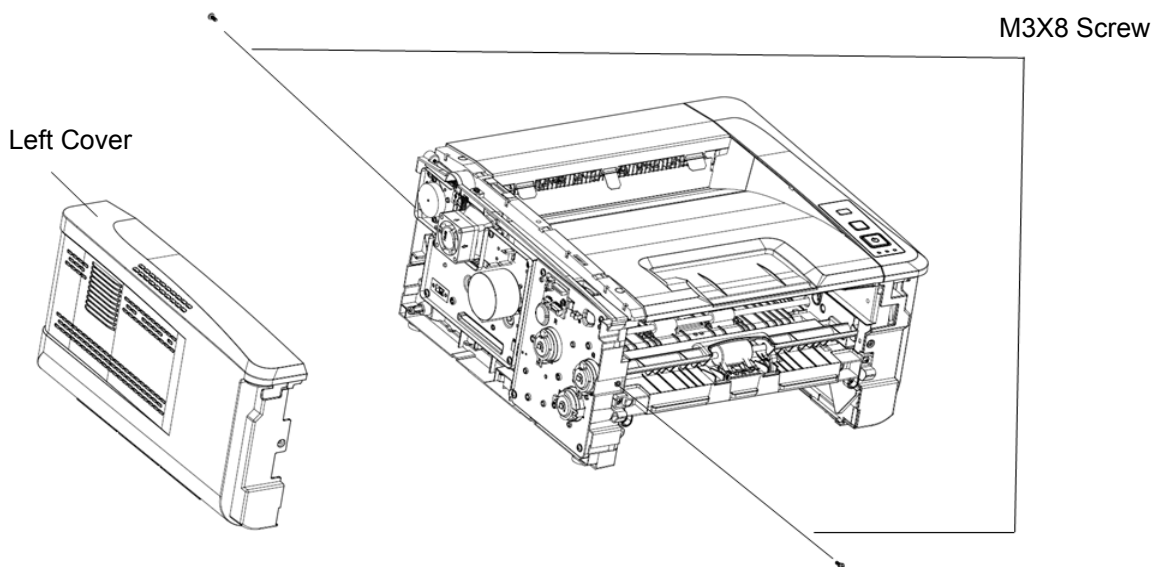
**Tip:** Open the Front Cover. Hold the Front Cover with your left hand and use your right hand to remove the hook from the slot as illustrated.



### 2.4.3 Left Cover

Tool Preparation: No. 1、3(Refer to Maintenance Tool List)

- (1). Remove Front Cover、Main Paper Tray、and Drum Unit.
- (2). Remove 2 fixing screws (M3X8) to remove the Left Cover.



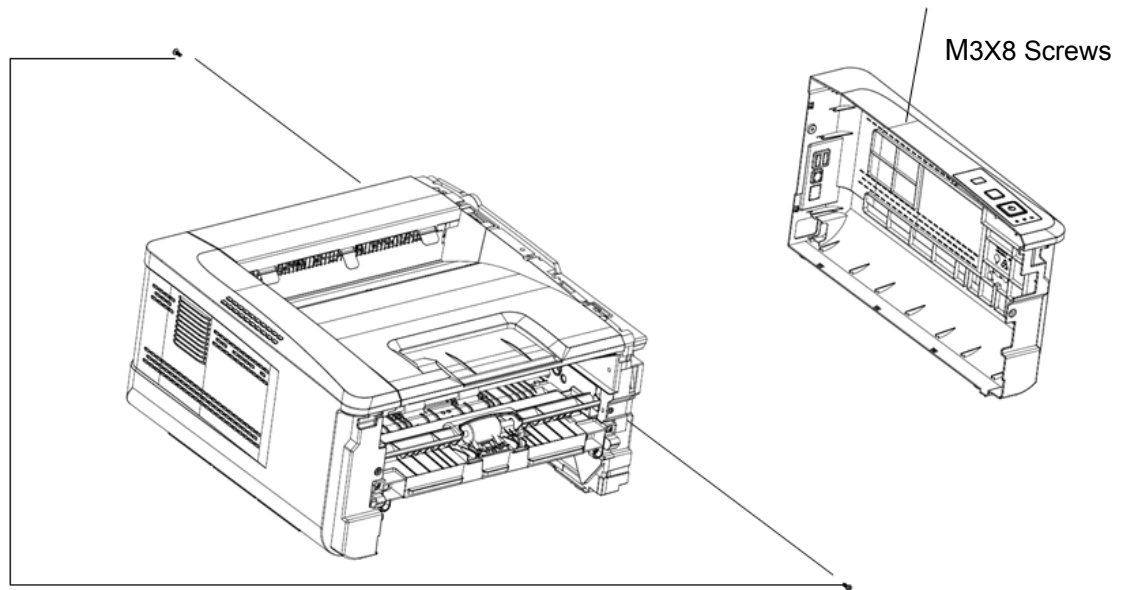
**Tip:** Let the machine stand on its right side as shown, use your left hand to hold the bottom of the machine. And then use your right hand to pry two sides of the Left Cover with a flat screwdriver.



## 2.4.4 Right Cover

Tool Preparation: No. 1、3 (Refer to Maintenance Tool List)

- (1). Remove Front Cover、Main Paper Tray、and Drum Unit.
- (2). Remove 2 fixing screws (M3X8) to remove the Right Cover.



**Tip:** Make the machine stand on the left side, and hold the bottom with your left hand. Use your right hand to pry two sides of the Right Cover with a flat screwdriver.

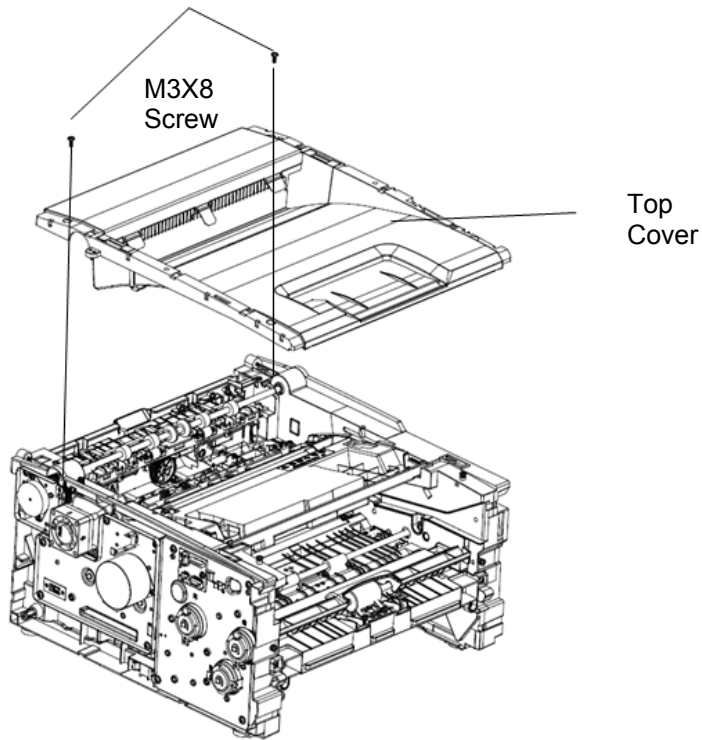
**Attention:** Since there are main board and Power Supply Boards on the inside of the Right Cover, be careful not to damage the electronic boards when reassembling the machine. When reassembling the Right Cover, you need to first observe if the FFC cable has a raised pin on the UI board, and do not install the FFC cable reversely.



## 2.4.5 Top Cover

Tool Preparation: No.3(Refer to Maintenance Tool List)

- (1). Remove Front Cover、Main Paper Tray、and Drum Unit.
- (2). Remove 2 fixing screws (M3X8) to remove the Left Cover.

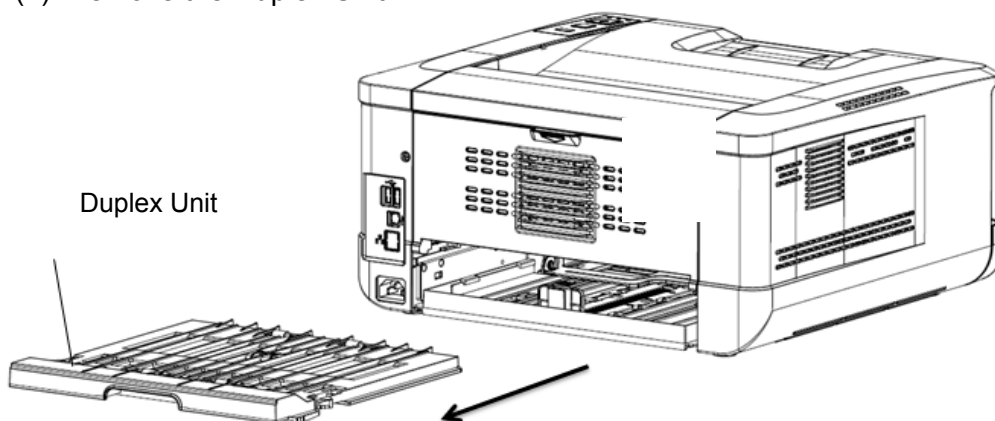


Reassembling Note: Before reassembling the Top Cover, please first insert the positioning post into the static conducting spring and then install the Top Cover.



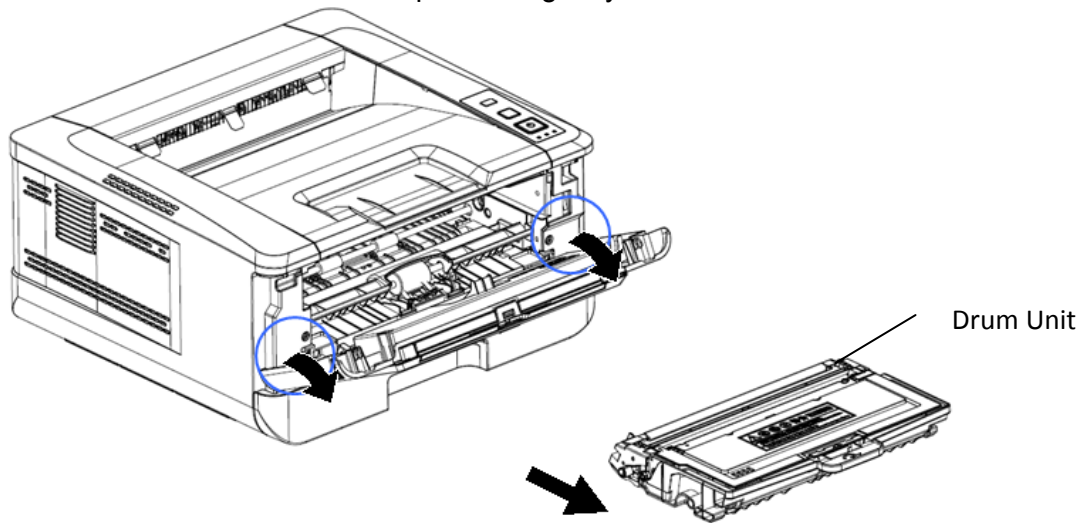
## 2.4.6 Duplex Unit

(1). Remove the Duplex Unit.



## 2.4.7 Drum Unit

- (1). Remove the Front Cover.
- (2). Lift the handle of the Drum Unit and then pull it out gently.

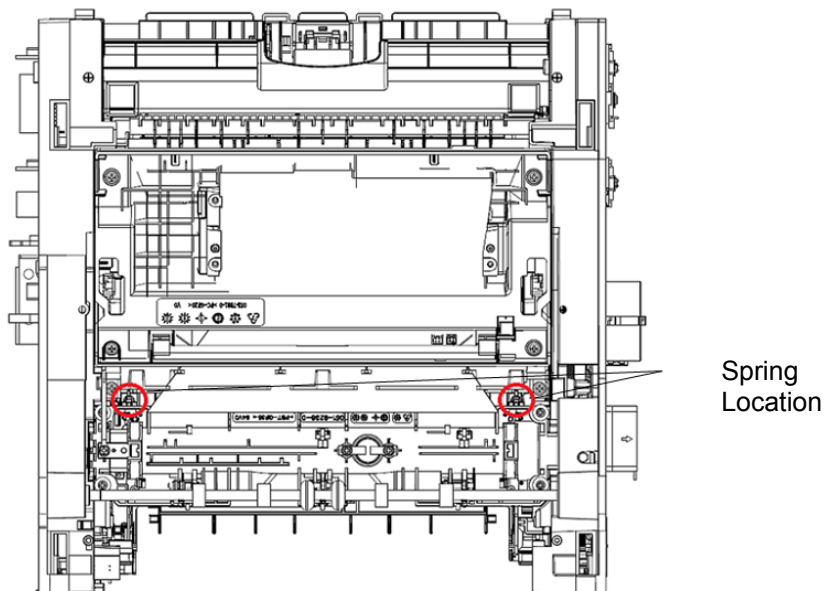


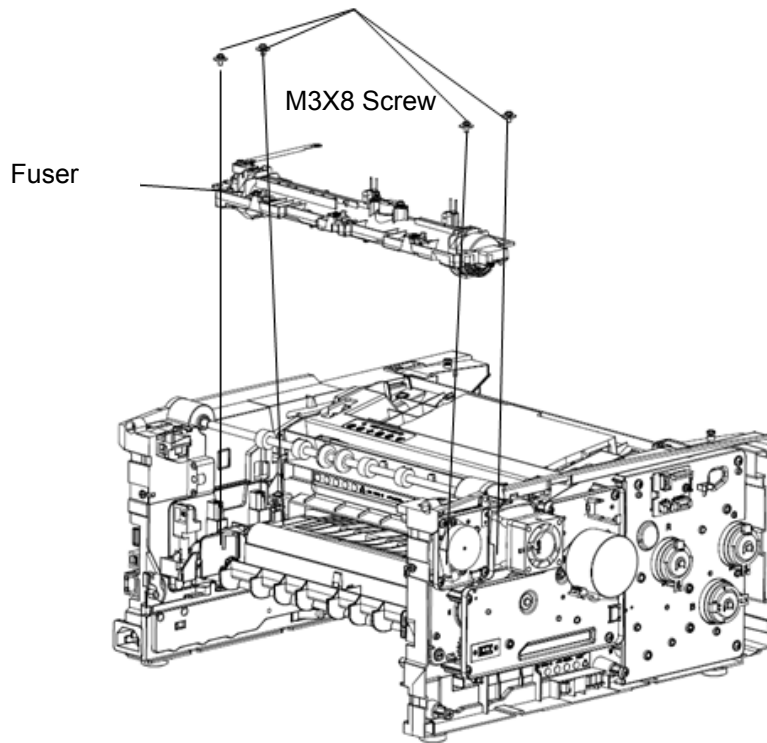
## 2.5 Advanced Disassembling

### 2.5.1 Fuser

Tool Preparation: No. 3、8 (Refer to Maintenance Tool List)

- (1). Remove Front Cover, Paper Tray, Drum Unit, Right/Left Cover, Duplex Unit, Exit Path)。
- (2). Remove the Rear Cover.
- (3). Use the spring hook (see below) to loosen the pressure spring. Remove M3X8 screws x 4 pcs to remove the fuser.





- Tip:**
- Please first loosen the pressure spring before removing the fixing screws.
  - The green arms as shown need to be pulled up while disassembling the pressure spring. Or the pressure spring will be deformed.



- The sprint hook used to release the pressure spring, see below.



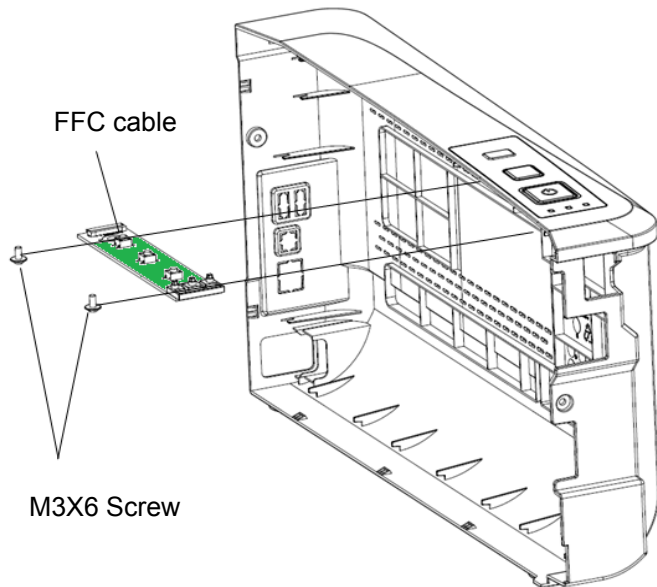
## 2.5.2 Control Panel

Tool Preparation: No. 3(Refer to Maintenance Tool List)

- (1) Remove Front Cover, Paper Tray, Drum Unit, and the Right Cover.
- (2) Remove M3X6 fixing screws x 2, and also remove the FFC cable.

**Note :**

- After unplugging the flat cable, be sure to check that the connectors of the flat cable are intact and that the flat cable is not short-circuited.
- When inserting the flat cable, be sure to insert it straight and make sure that it is not crooked.



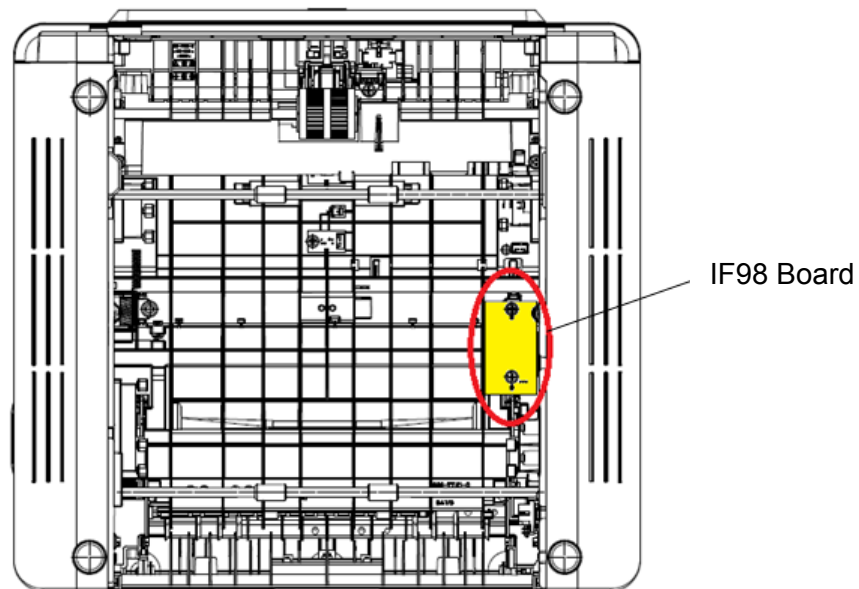
### 2.5.3 IF98 Board

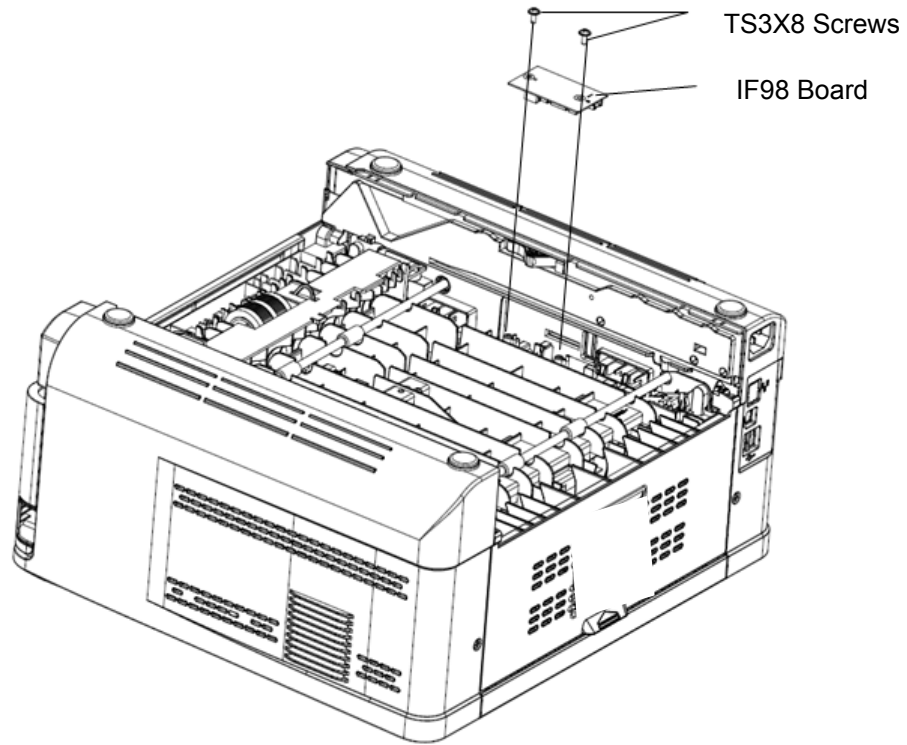
Tool Preparation: No. 3(Refer to Maintenance Tool List)

- (1). Remove the Front Cover, and Drum Unit.
- (2). Remove the Duplex Unit, and Paper Tray.
- (3). Turn the machine over to reveal the bottom.
- (4). Remove TS3X8 fixing screws x 2 and remove all cables including the FFC cable.

**Note :**

- After unplugging the flat cable, be sure to check that the connectors of the flat cable are intact and that the flat cable is not short-circuited.
- When inserting the flat cable, be sure to insert it straight and make sure that it is not crooked.





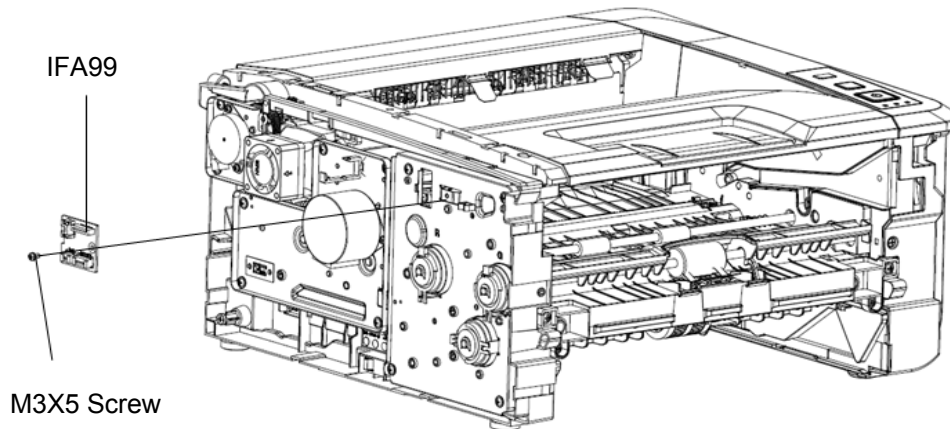
## 2.5.4 IFA99 Board

Tool Preparation: No. 3(Refer to Maintenance Tool List)

- (1). Remove the Front Cover, and Drum Unit, Paper Tray, Left Cover, and Duplex Unit.
- (2). Remove M3x5 screw x 1, and disconnect all cables including FFC cable to remove IFA99 board.

### Note :

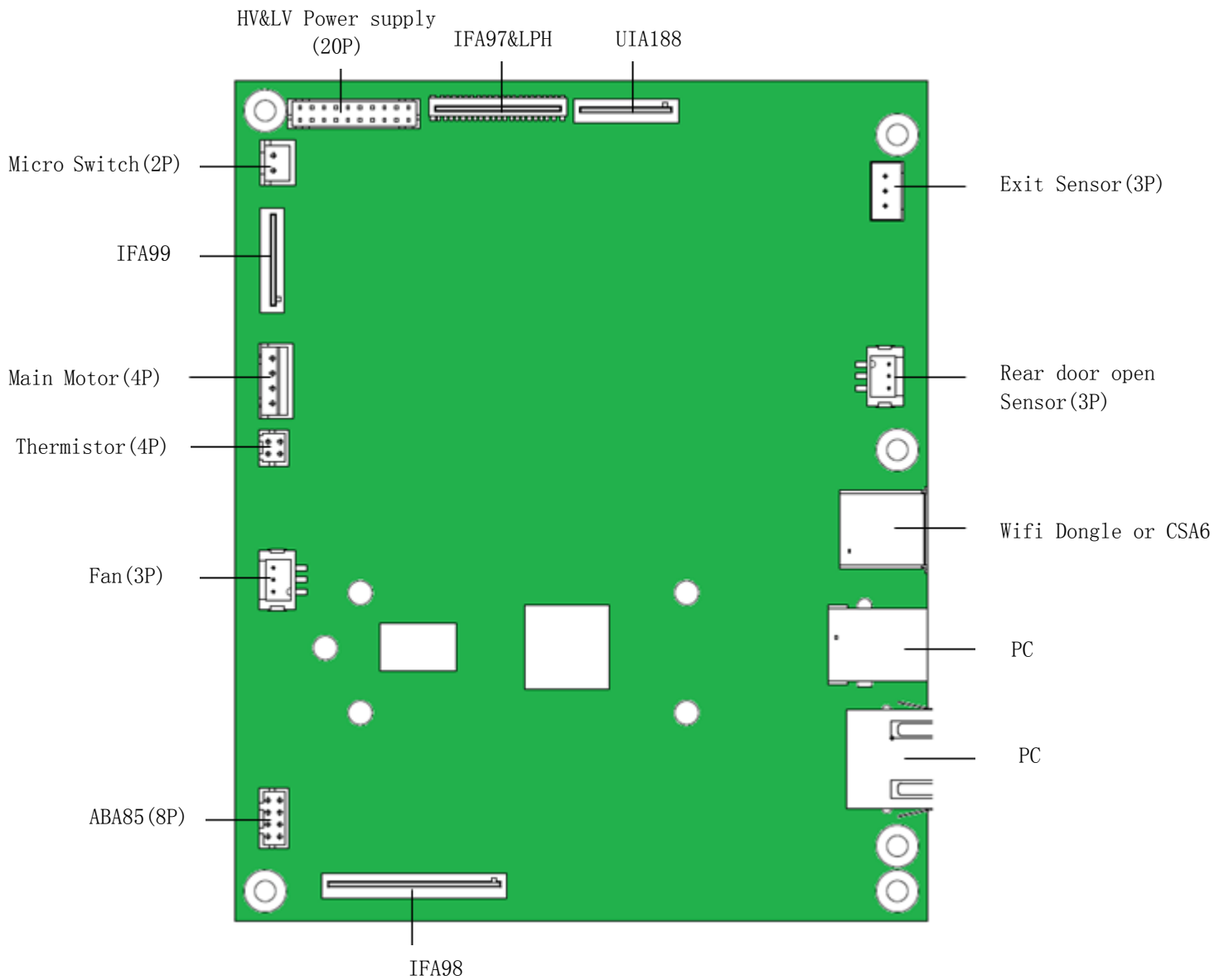
- After unplugging the flat cable, be sure to check that the connectors of the flat cable are intact and that the flat cable is not short-circuited.
- When inserting the flat cable, be sure to insert it straight and make sure that it is not crooked.

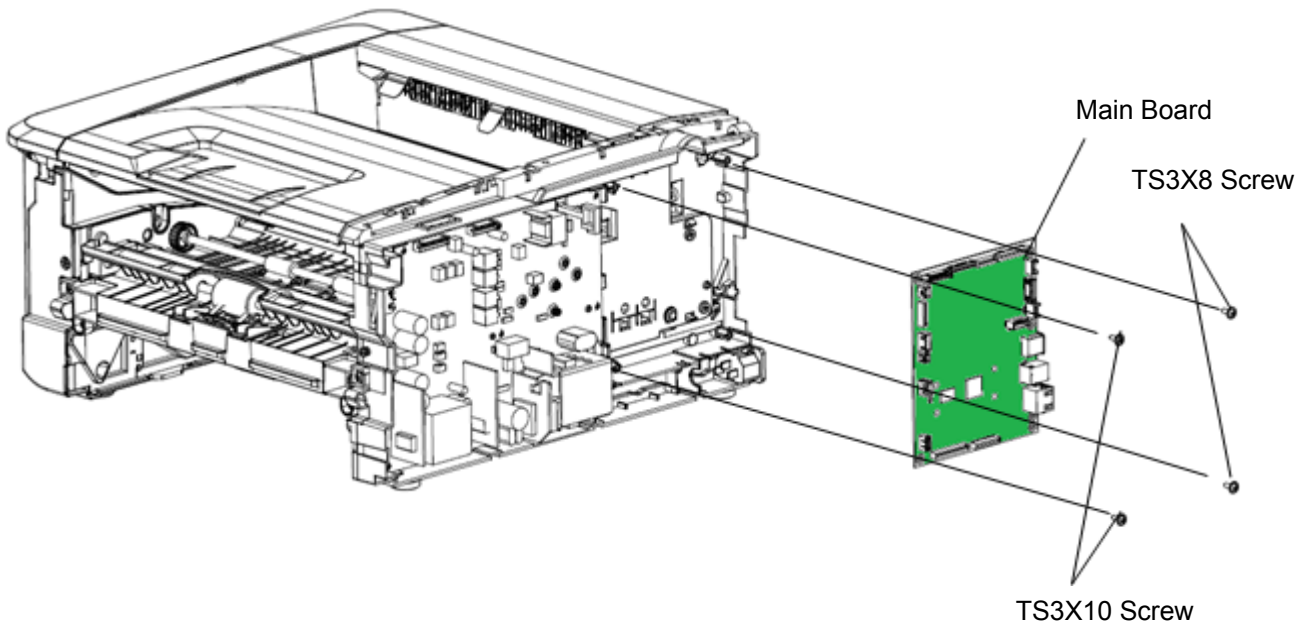


### 2.5.5 Main Board

Tool Preparation: No. 3(Refer to Maintenance Tool List)

- (1). Remove the Front Cover, and Drum Unit, Paper Tray, Right Cover.
- (2). Remove all cables including the FFC cables (total: 12).
- (4). Remove TS3X8 screws x 2 and TS3X10 x 2 to remove the main board.





**Note :**

- After unplugging the flat cable, be sure to check that the connectors of the flat cable are intact and that the flat cable is not short-circuited.
- When inserting the flat cable, be sure to insert it straight and make sure that it is not crooked.

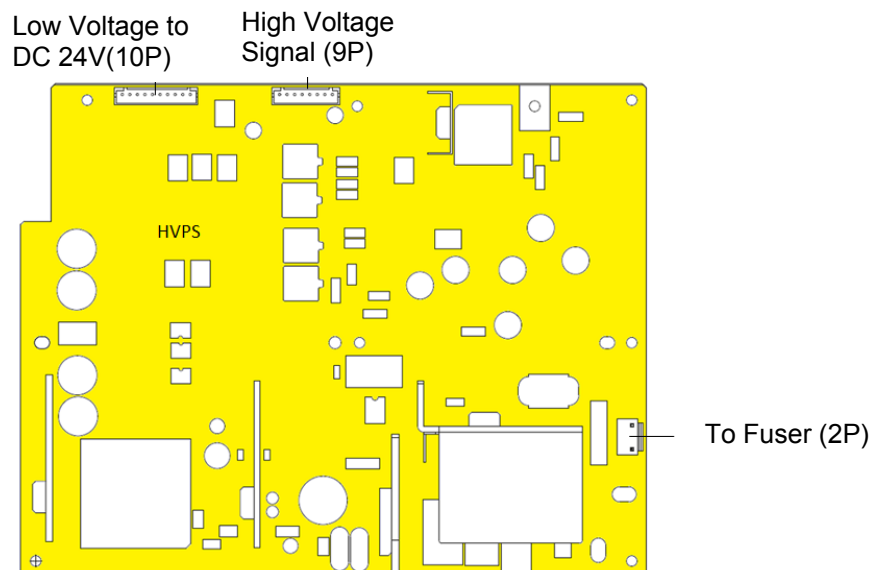
**2.5.6 Power Supply Board**

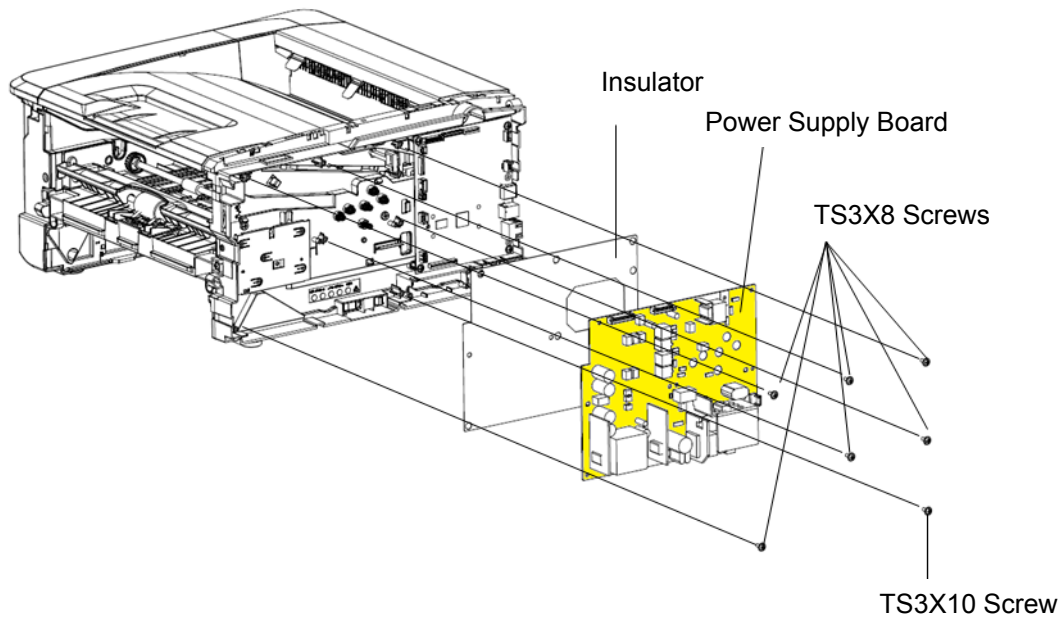
Tool Preparation: No. 3(Refer to Maintenance Tool List)

- (1). Remove Front Cover, Paper Tray, Drum Unit, and the Right Cover.
- (2). Remove all cables (3pcs) connecting to the Power Supply Board.
- (3). Remove TS3X8 screws x 6 pcs, and TS3X10 ground screw x 1 to remove the Power Supply Board.

**Note :**

- After the high-voltage board is removed, some components will still be conductive. Please wear latex gloves to work. Do not touch the welding surface of the high-voltage board without gloves.
- After the high-voltage board is disassembled, it should be placed on a insulating surface to avoid damage to the high-voltage board due to power jump.

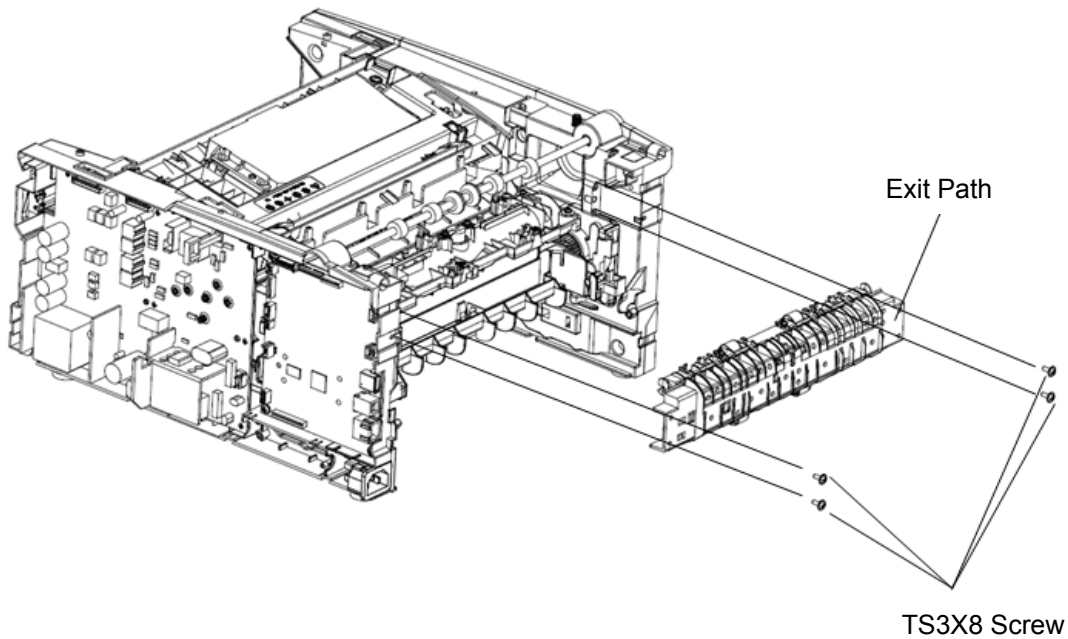




### 2.5.7 Exit Path

Tool Preparation: No. 3(Refer to Maintenance Tool List)

- (1). Remove Front Cover, Paper Tray, Drum Unit, Right/Left Cover, Top Cover, Duplex Unit, and Fuser.
- (2). Remove the cable connecting to the main board.
- (3). Remove TS3x8 screws for 4 pcs to remove the Exit Path.

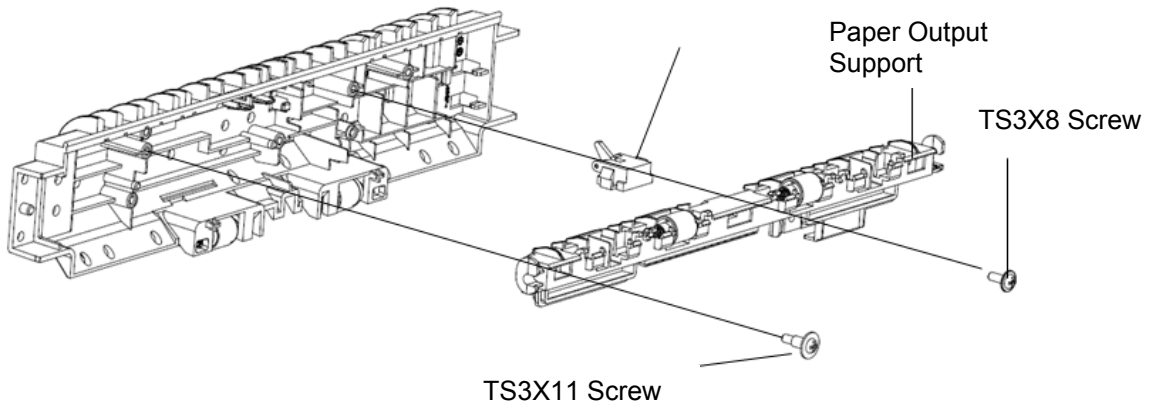


### 2.5.8 Exit Sensor

Tool Preparation: No. 3(Refer to Maintenance Tool List)

- (1). Remove Exit path as described in the preceding section.
- (2). Remove the fixing screw TS3x11 for one piece and TS3x8 screw for one piece.
- (3). Remove Paper Output Support.
- (4). Remove exit sensor.

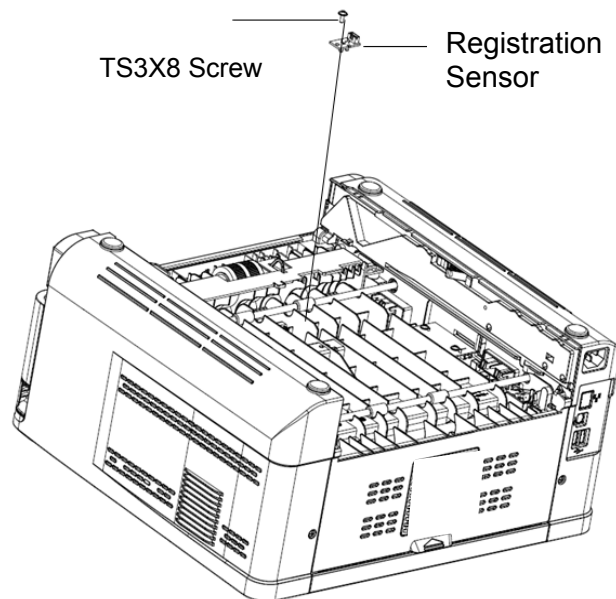
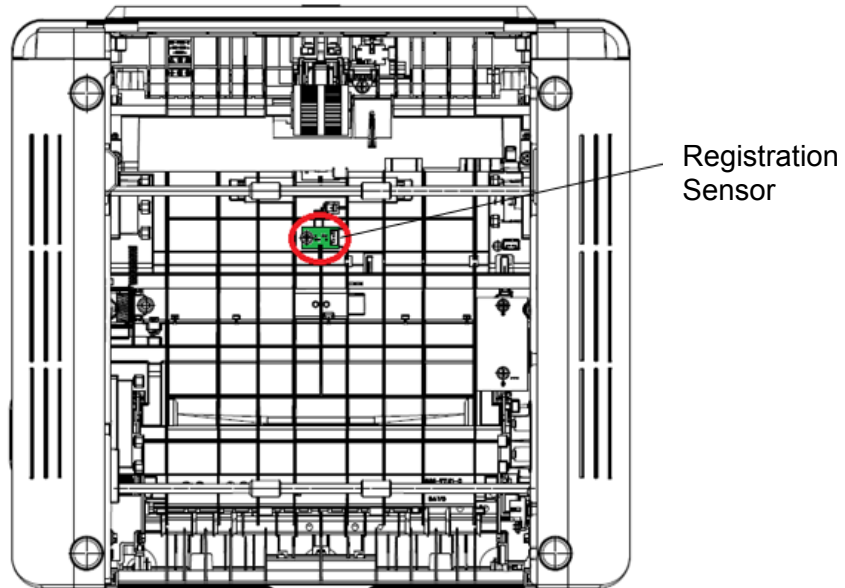
Exit Sensor



### 2.5.9 Registration Sensor

Tool Preparation: No. 3 (Refer to Maintenance Tool List)

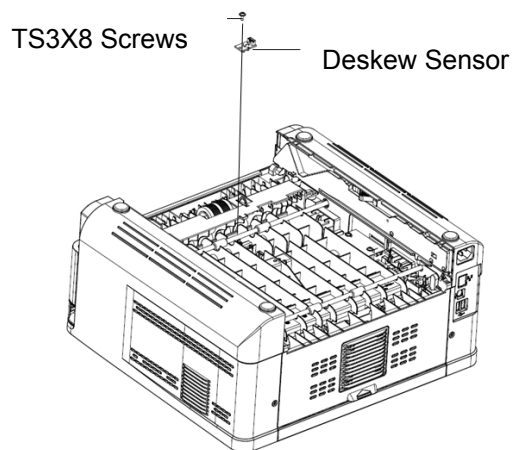
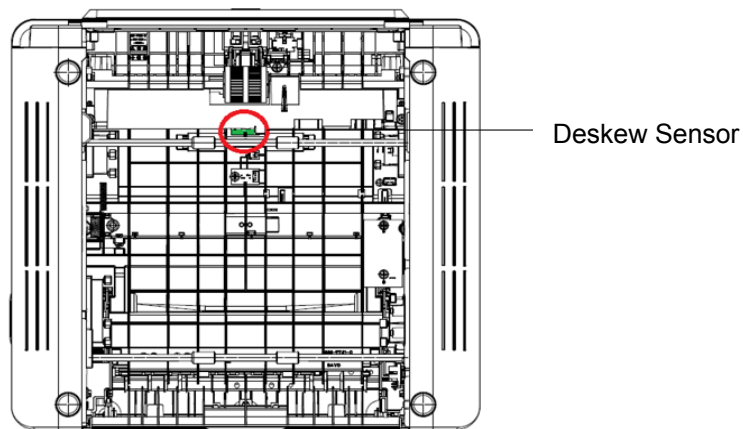
- (1). Remove the Front Cover and the Drum Unit.
- (2). Remove the Duplex Unit and the Paper Tray.
- (3). Turn the printer over to reveal the bottom.
- (4). Remove TS3X8 screw x 1 pcs and disconnect all cables to remove the sensor.



### 2.5.10 Deskew Sensor

Tool Preparation: No. 3 (Refer to Maintenance Tool List)

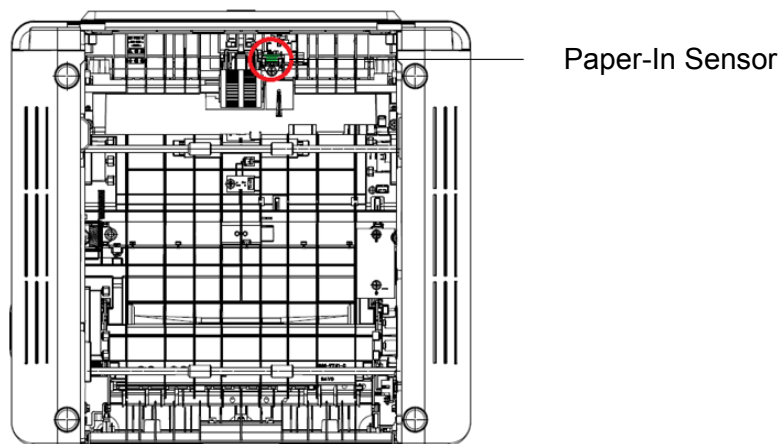
- (1). Remove Front Cover and Drum Unit.
- (2). Remove Duplex Unit, and Paper Tray.
- (3). Turn the printer over to reveal the bottom.
- (4). Remove TS3X8 x 1 pc and disconnect all cables to remove the sensor.

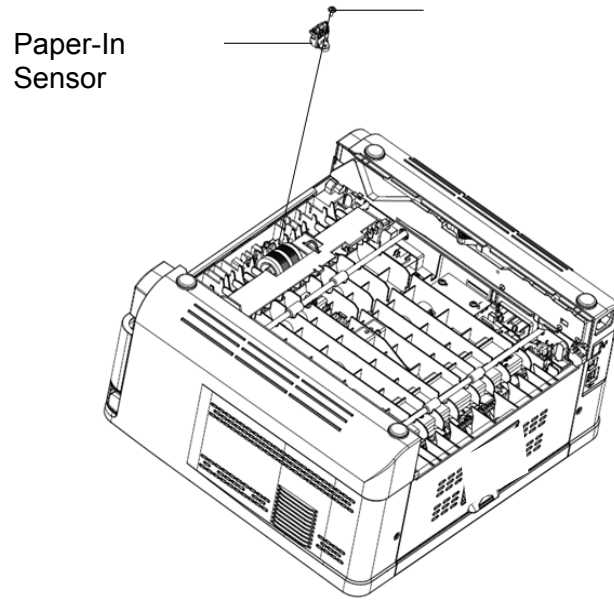


### 2.5.11 Paper-in Sensor

Tool Preparation: No. 3 (Refer to Maintenance Tool List)

- (1). Remove Front Cover and Drum Unit.
- (2). Remove Duplex Unit, and Paper Tray.
- (3). Turn the printer over to reveal the bottom.
- (4). Remove TS3X8 x 1 pc and disconnect all cables to remove the sensor.

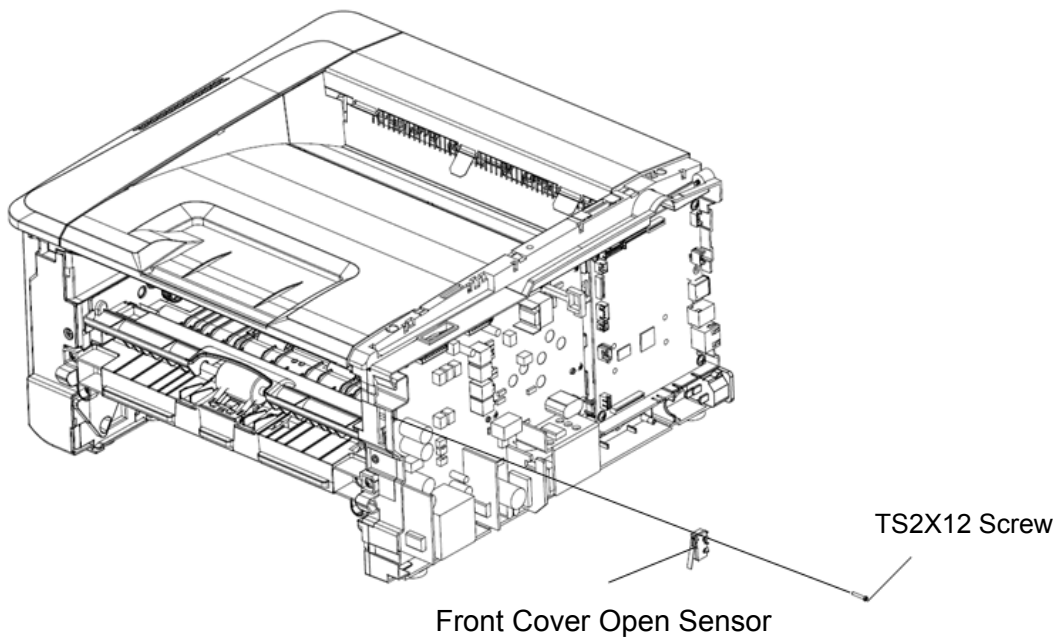




### 2.5.12 Front Cover Open Sensor

Tool Preparation: No. 1、3 (Refer to Maintenance Tool List)

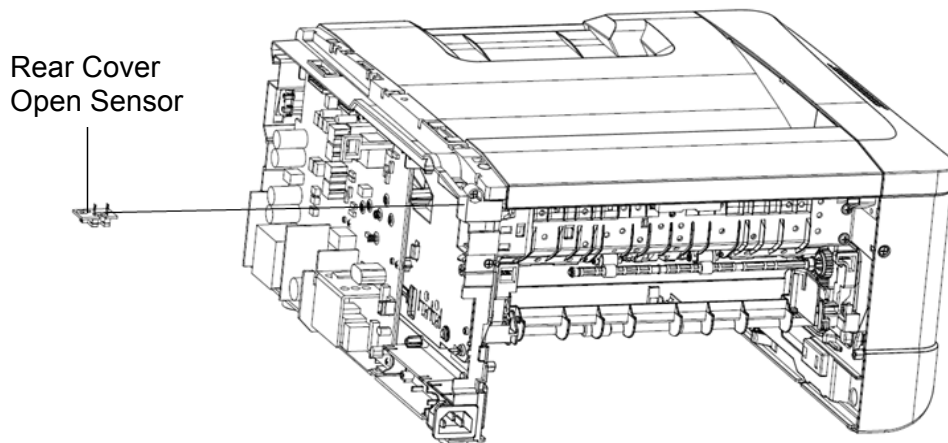
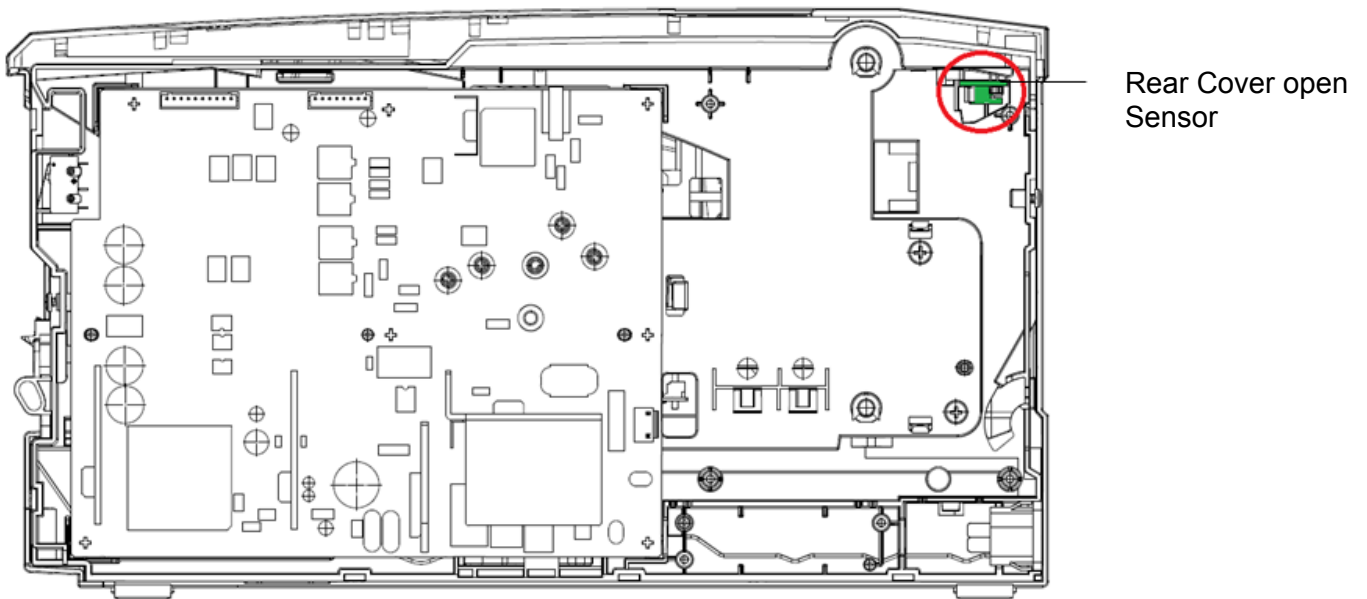
- (1). Remove Front Cover, Paper Tray, Drum Unit, Right Cove and Duplex Unit.
- (2). Unplug the cord attached to it and release the cable tie.
- (3). Remove the fixing screw TS2x12 and then remove the Front Cover Open Sensor.



### 2.5.13 Rear Cover Open Sensor

Tool Preparation: No. 1、3 (Refer to Maintenance Tool List)

- (1). Remove Front Cover, Paper Tray, Drum unit, Right Cover and the main board.
- (2). Remove Duplex Unit, and Paper Tray.



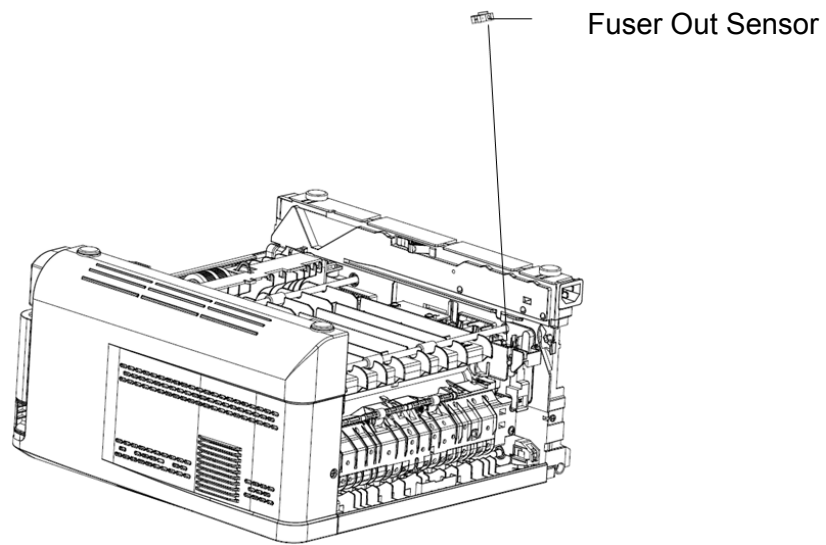
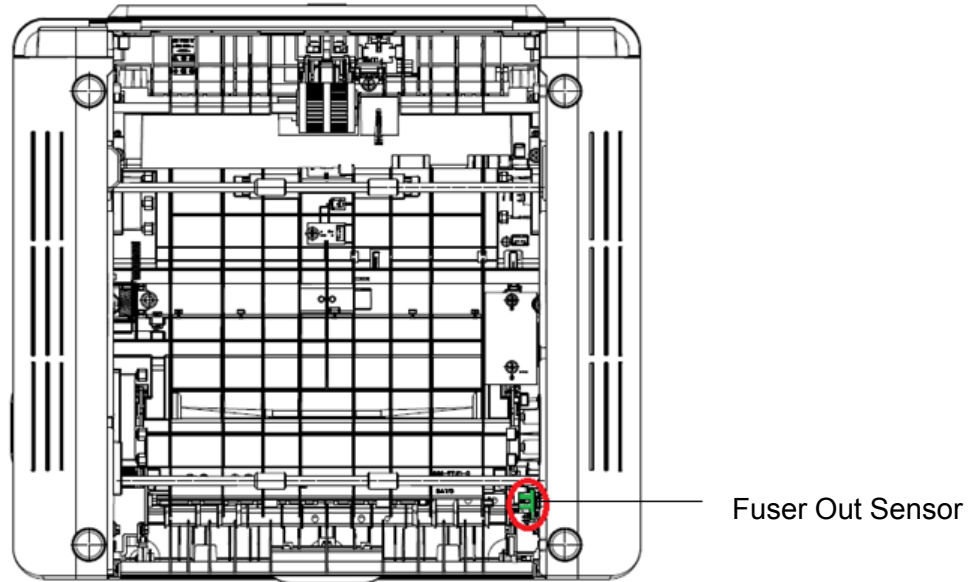
### 2.5.14 Fuser Out Sensor

Tool Preparation: No. 1 (Refer to Maintenance Tool List)

(1). Remove the Duplex unit, the Drum unit, and the Paper Tray.

(2). Turn the machine over to reveal the bottom.

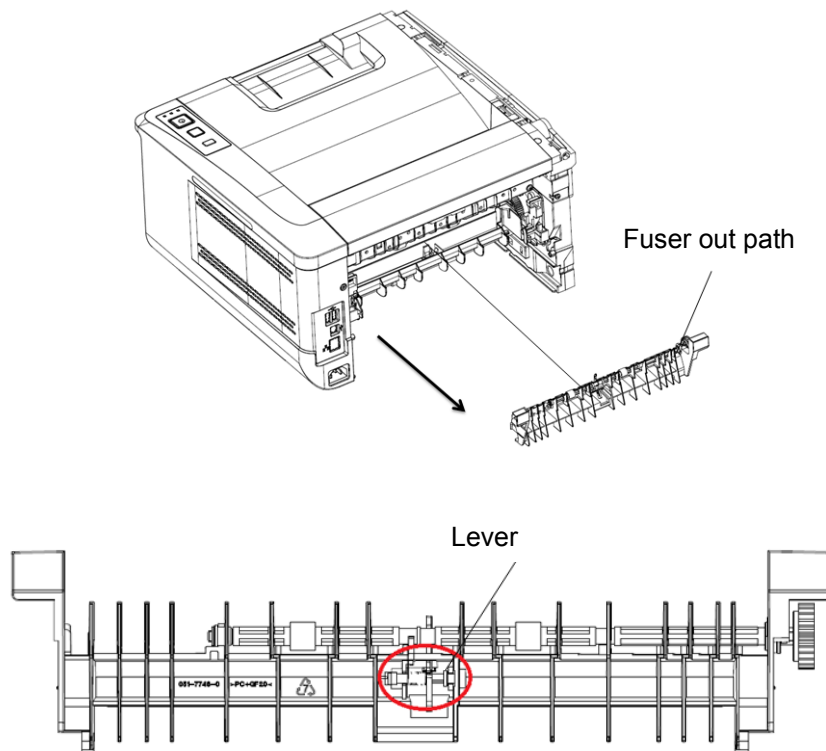
(3). Pry the rear cover with a flat screw driver (smaller one) to loose the rear cover. Open the rear cover to remove the sensor.



### 2.5.15 Fuser Out Sensor Lever

Tool Preparation: No. 1、3 (Refer to Maintenance Tool List)

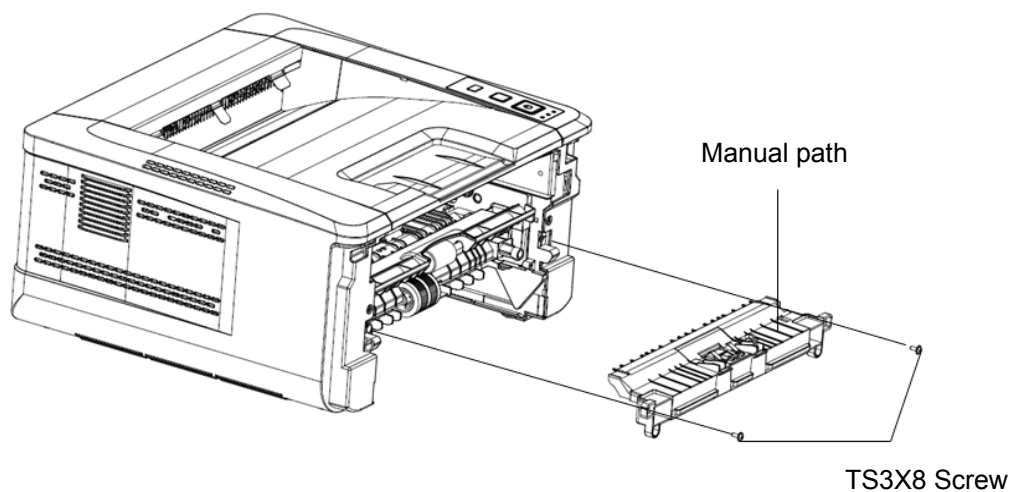
- (1). Remove Front Cover, Paper Tray, Drum Unit, Duplex unit, Right Cover, and Rear Cover.
- (2). Remove Fuser Out Path and then open the lever with a flat screw driver (small) to remove the lever.

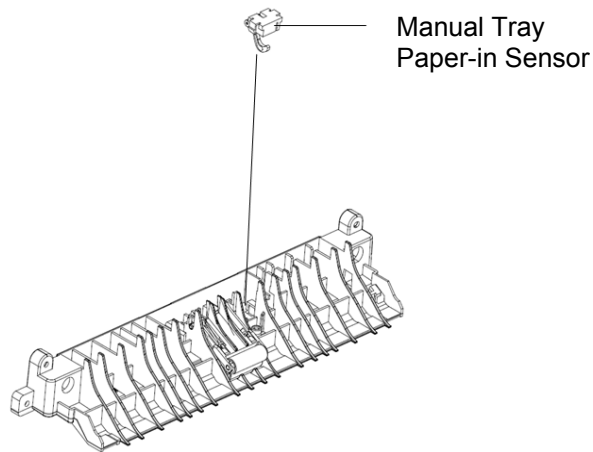


### 2.5.16 Paper-in Sensor (Manual Tray)

Tool Preparation: No. 1、3 (Refer to Maintenance Tool List)

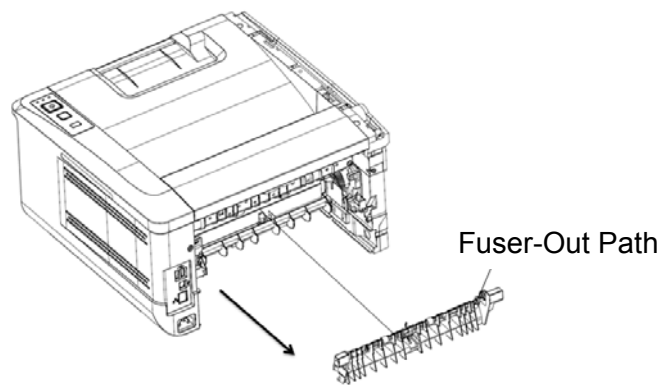
- (1). Remove Front Cover, Paper Tray, Drum Unit, Duplex unit, and Paper-in Sensor.
- (2). Remove 2 fixing screws TS3x8 and then disconnect the manual tray paper-in sensor cable to remove the manual path.
- (3). Turn over the manual tray and open the latch with a small flat screw driver to remove the manual tray paper-in sensor.





### 2.5.17 Fuser-Out Path

- (1). Remove Front Cover, Paper Tray, Drum Unit.
- (2). Remove Duplex Unit, Right Cover, and Rear Door.
- (3). Remove fuser.



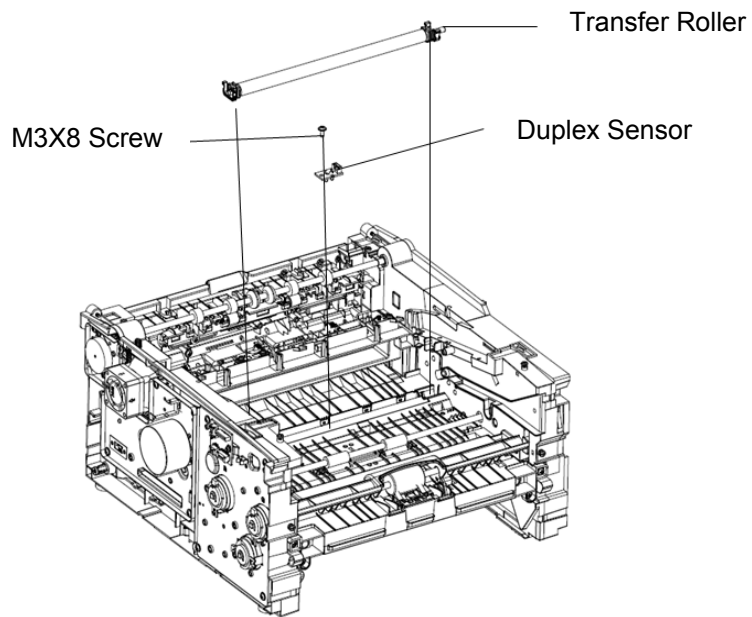
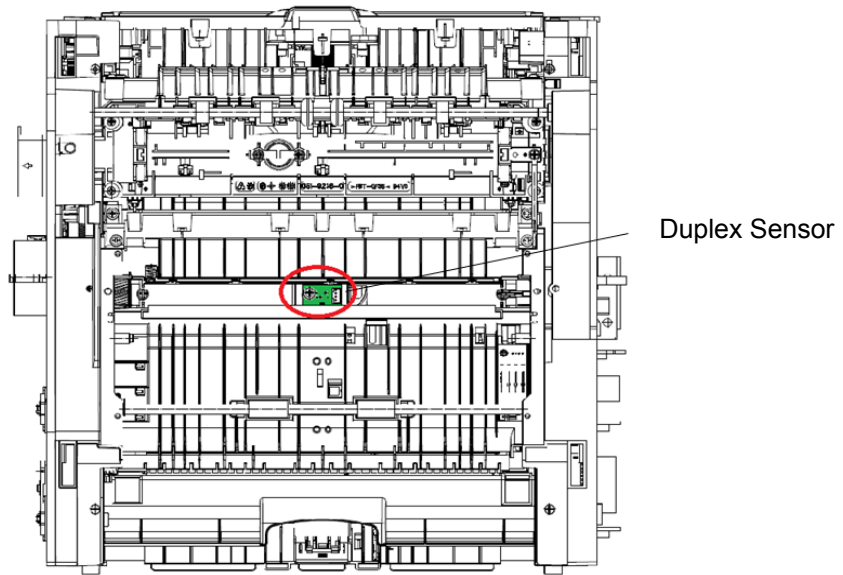
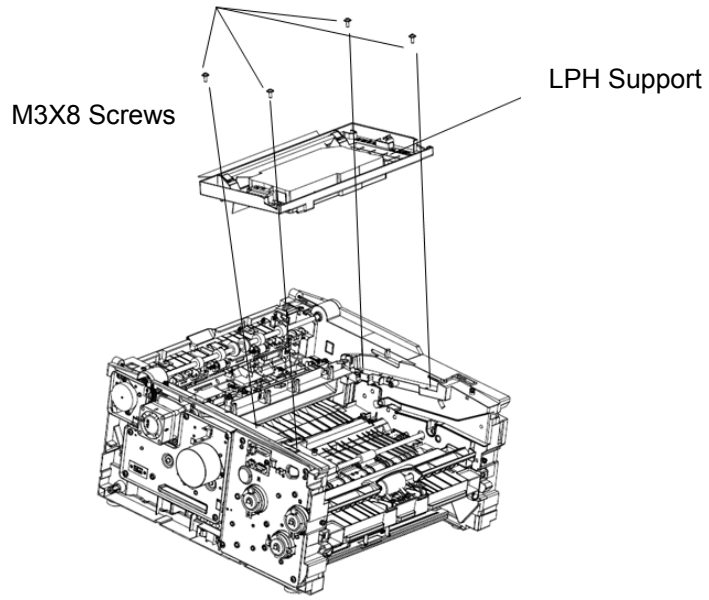
### 2.5.18 Duplex Sensor

Tool Preparation: No. 3 (Refer to Maintenance Tool List)

- (1). Remove Front Cover, Paper Tray, Drum Unit, Right/Left Cover, Top Cover, and Duplex Unit.
- (2). Disconnect the FFC cable and then remove M3X8 screws for 4 pcs to remove the LPH Support.
- (3). Remove the Transfer Roller.
- (4). Remove M3X8 fixing screw x 1 to remove the sensor.

#### Note :

- After unplugging the flat cable, be sure to check that the connectors of the flat cable are intact and that the flat cable is not short-circuited.
- When inserting the flat cable, be sure to insert it straight and make sure that it is not crooked.



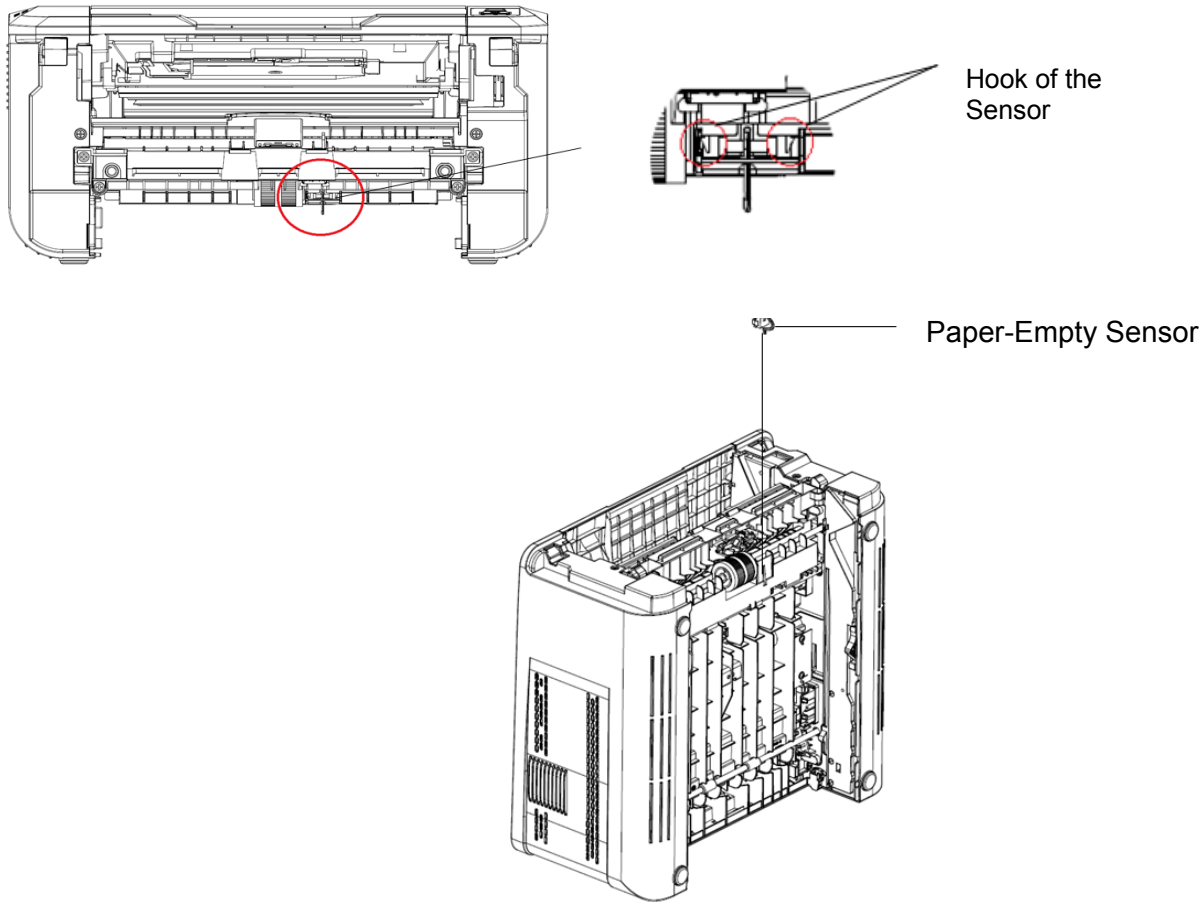
### 2.5.19 Paper-Empty Sensor

Tool Preparation: No. 1 (Refer to Maintenance Tool List)

- (1). Remove Front Cover, Paper Tray, Drum Unit, and Duplex Unit.
- (2). Turn the printer over and hold the Paper-Empty sensor to loosen the hook and remove the sensor with a flat screw driver.

#### Note :

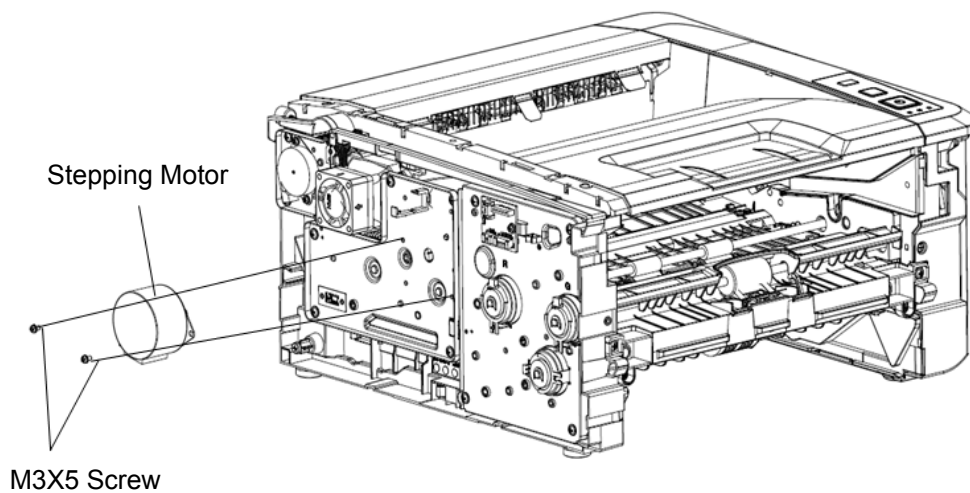
- When reassemble the Paper-Empty Sensor, make sure the cables are properly inserted to the cable slot.



### 2.5.20 Main Motor

Tool Preparation: No. 3 (Refer to Maintenance Tool List)

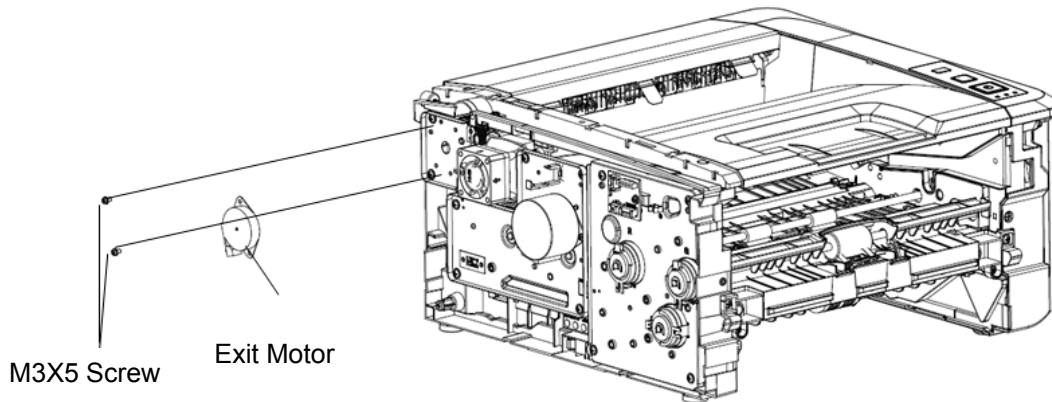
- (1). Remove Front Cover, Paper Tray, Drum Unit, and Left Cover.
- (2). Remove M3X5 screw for 2 pcs and disconnect the motor cable to remove the motor.



### 2.5.21 Exit Motor

Tool Preparation: No. 3 (Refer to Maintenance Tool List)

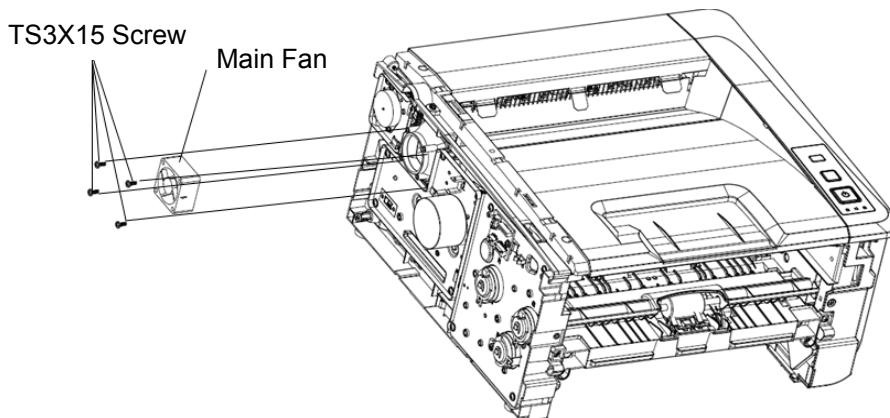
- (1). Remove Front Cover, Paper Tray, Drum Unit, and Left Cover.
- (2). Remove M3X5 screw for 2 pcs and disconnect the motor cable to remove the motor.



### 2.5.22 Main Fan

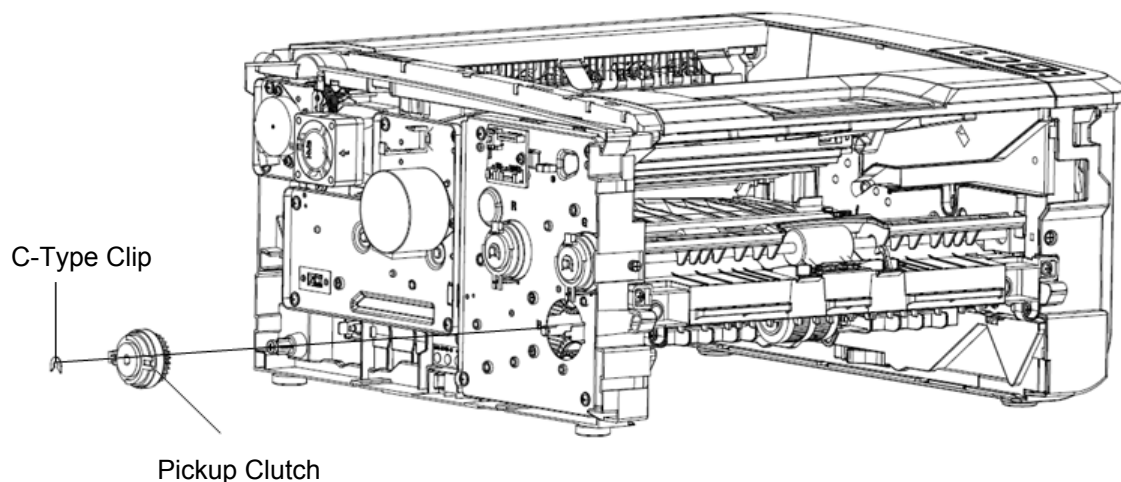
Tool Preparation: No. 3 (Refer to Maintenance Tool List)

- (1). Remove Front Cover, Paper Tray, Drum Unit, and Left Cover.
- (2). Remove TS3X15 screw for 4 pcs and disconnect the fan cable to remove the fan.



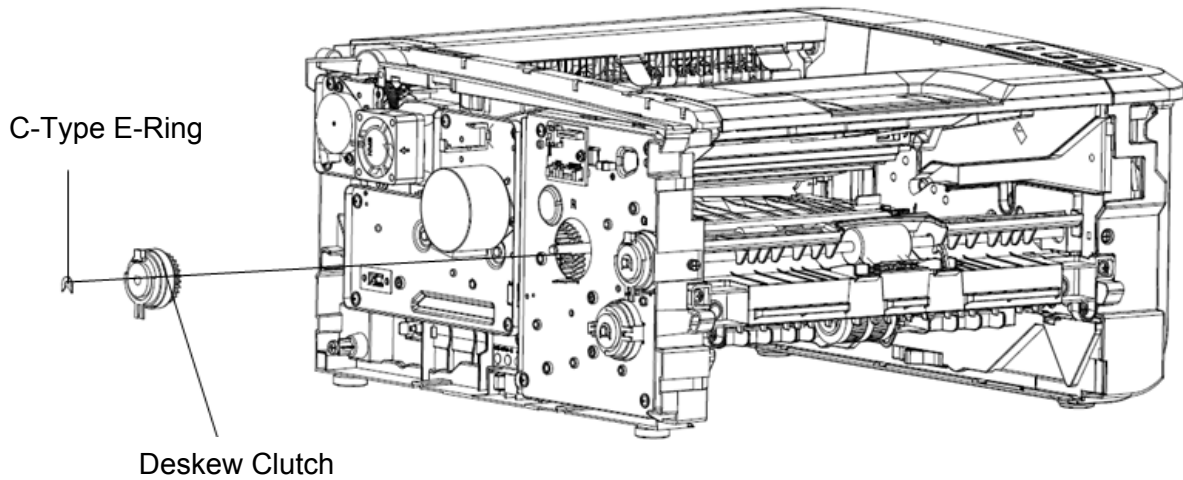
### 2.5.23 Pick-Up Clutch

- (1). Remove Front Cover, Paper Tray, Drum Unit, and Left Cover.
- (2). Disconnect Pickup Clutch and remove the C-Type Clip to remove the Pickup Clutch.



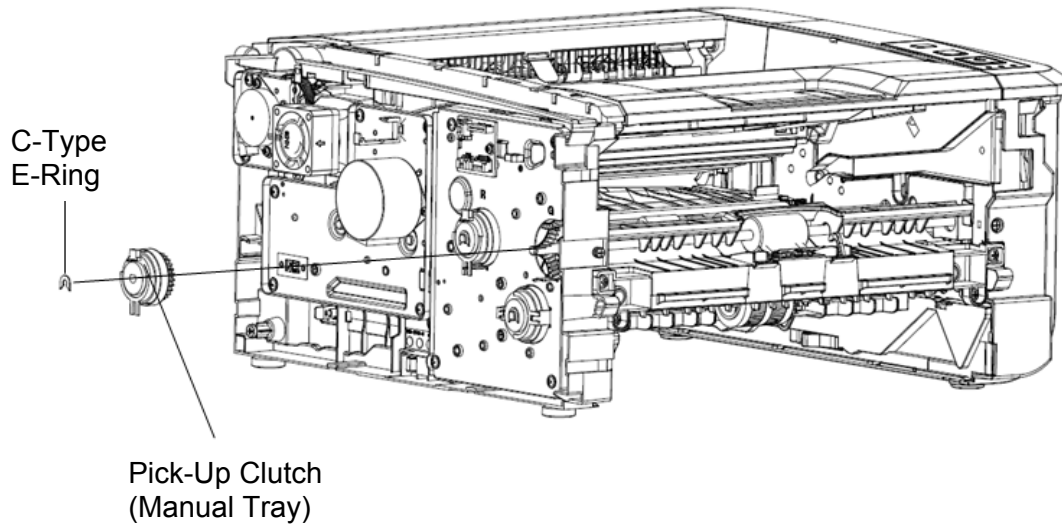
### 2.5.24 Deskew Clutch

- (1). Remove Front Cover, Paper Tray, Drum Unit, and Left Cover.
- (2). Disconnect Deskew Clutch cable and remove the C-Type E-Ring to remove the Deskew Clutch.



### 2.5.25 Pick-Up Clutch (Manual Tray)

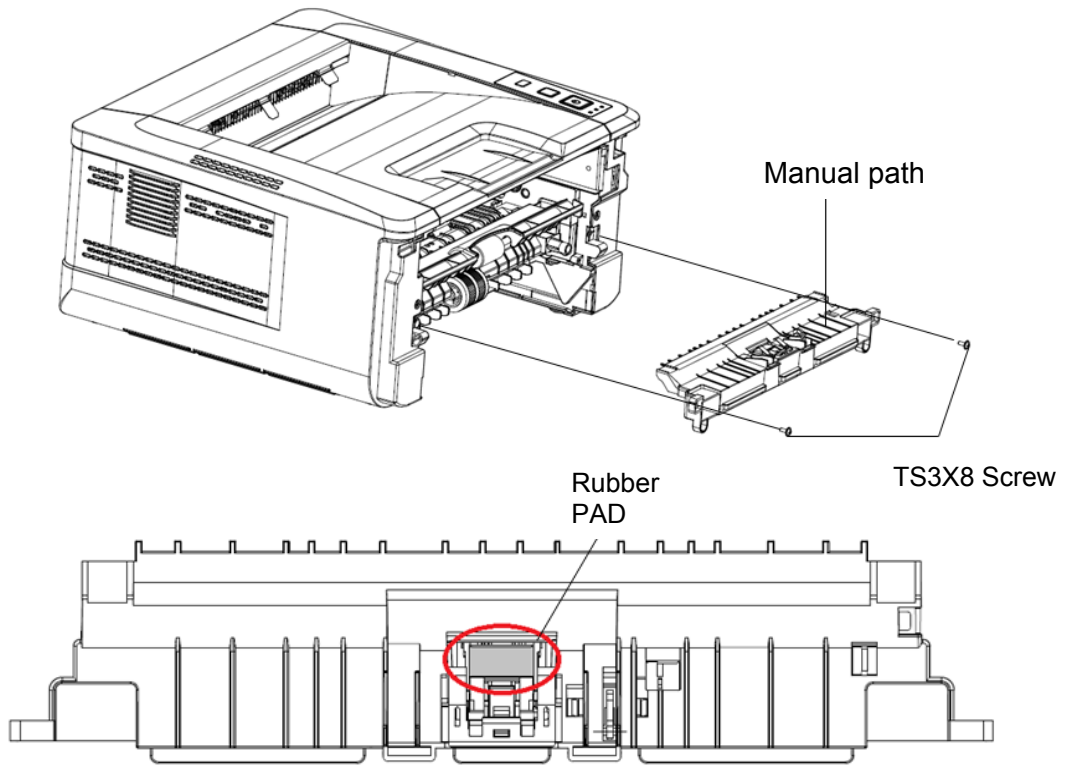
- (1). Remove Front Cover, Paper Tray, Drum Unit, and Left Cover.
- (2). Disconnect Pickup Clutch and remove the C-Type E-Ring to remove the Pickup Clutch.



### 2.5.26 Manual Tray Pad

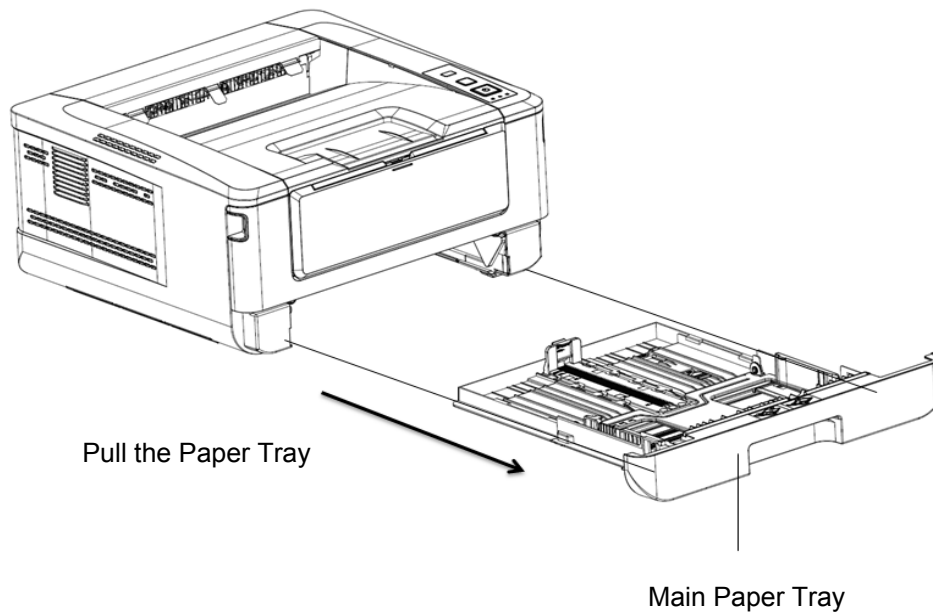
Tool Preparation: No. 1, 3 (Refer to Maintenance Tool List)

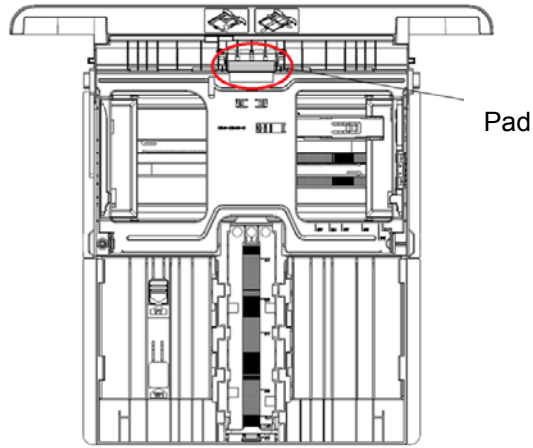
- (1). Remove Front Cover, Paper Tray, Drum Unit, Duplex unit, and Paper-in Sensor.
- (2). Remove 2 fixing screws TX3X8.
- (2). Disconnect manual tray paper-in sensor cable to remove the manual path.
- (4). Remove the rubber pad.



### 2.5.27 Main Tray Pad

- (1). Pull the Paper Tray out of the printer.
- (2). Replace the pad.

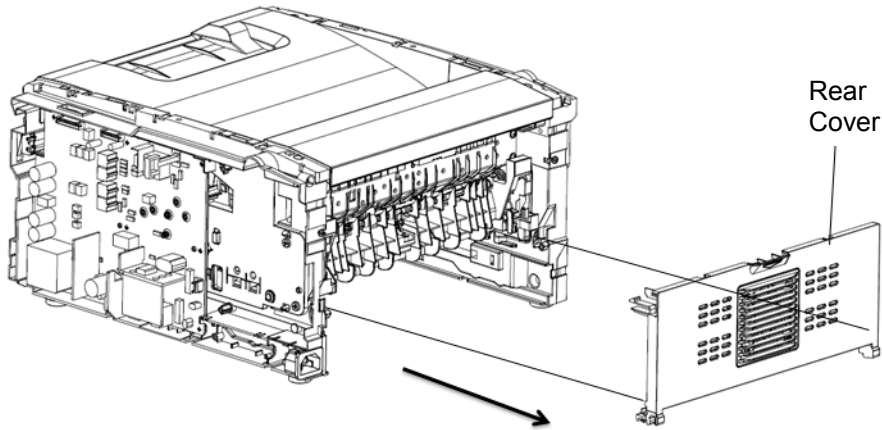




**2.5.28 Rear Cover**

Tool Preparation: No. 1、3 (Refer to Maintenance Tool List)

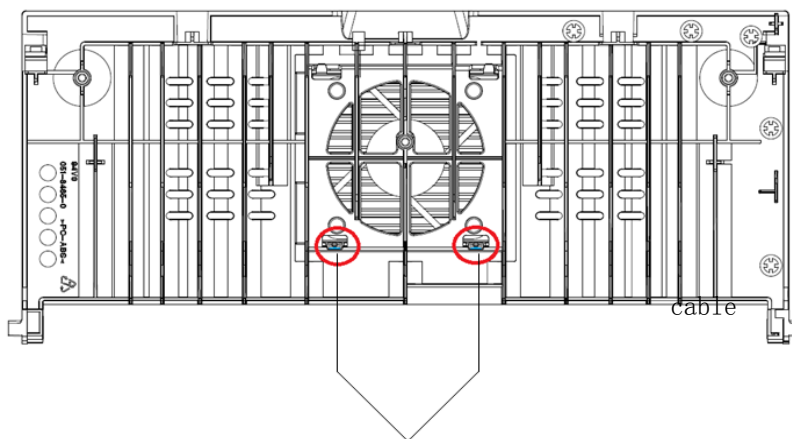
- (1). Remove Front Cover, Paper Tray, Drum Unit, Duplex Unit, Right/Left Cover, and the Main Board.
- (2). Remove the Rear Cover.



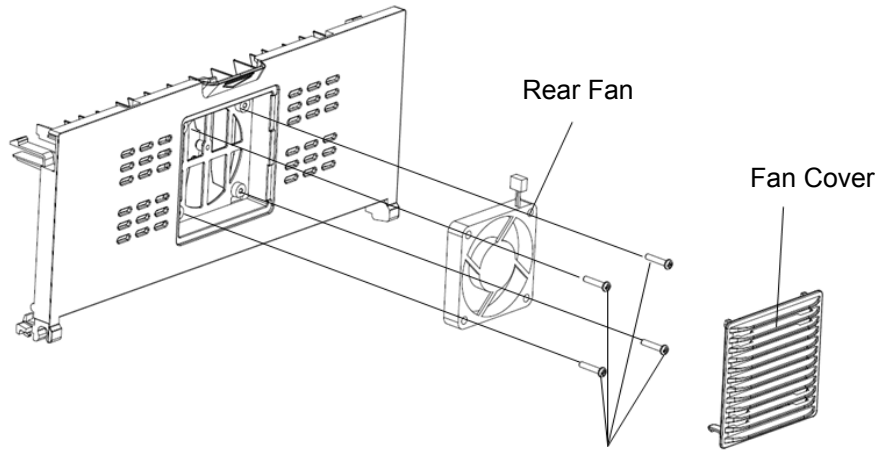
**2.5.29 Rear Fan**

Tool Preparation: No. 3 (Refer to Maintenance Tool List)

- (1). Remove Front Cover, Paper Tray, Drum Unit, Duplex Unit, Right/Left Cover, Main Board and the Rear Cover.
- (2). Open the hooks of the fan cover with a small flat screw driver.
- (3). Remove 4 fixing screws TS3x15 to remove the fan.



Fan cover hook position



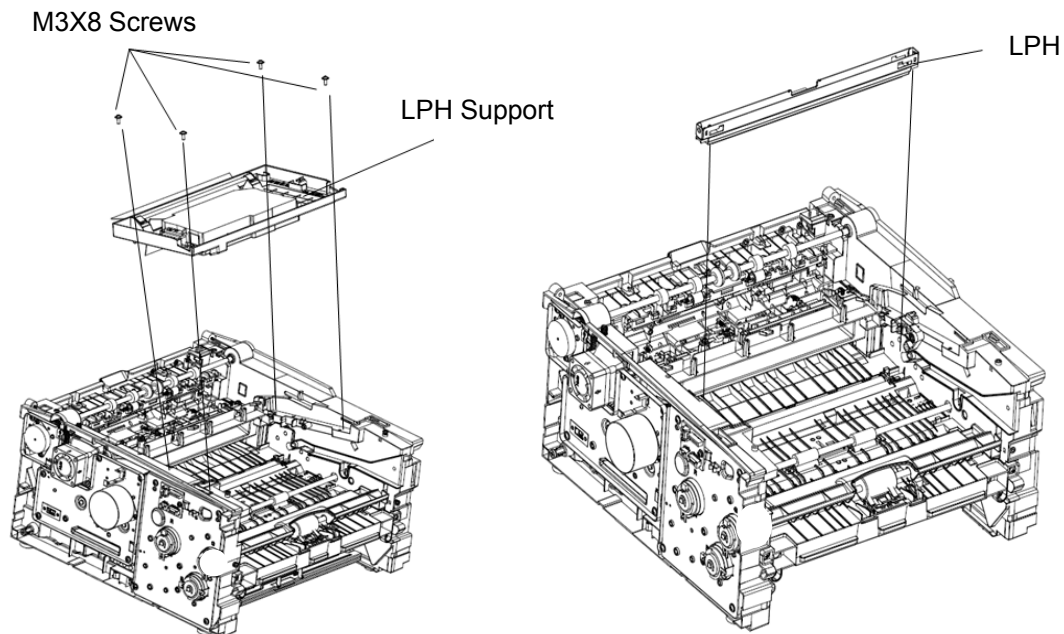
### 2.5.30 LPH (for model with LPH)

Tool Preparation: No. 3 (Refer to Maintenance Tool List)

- (1). Remove Front Cover, Paper Tray, Drum Unit, Right/Left Cover, and Top Cover.
- (2). Disconnect all cables and the FFC cable and remove M3X8 screws for 4 pcs to remove the LPH Support.
- (3). Lift the hook of the LPH and slightly move it outward to remove the LPH.

**Note :**

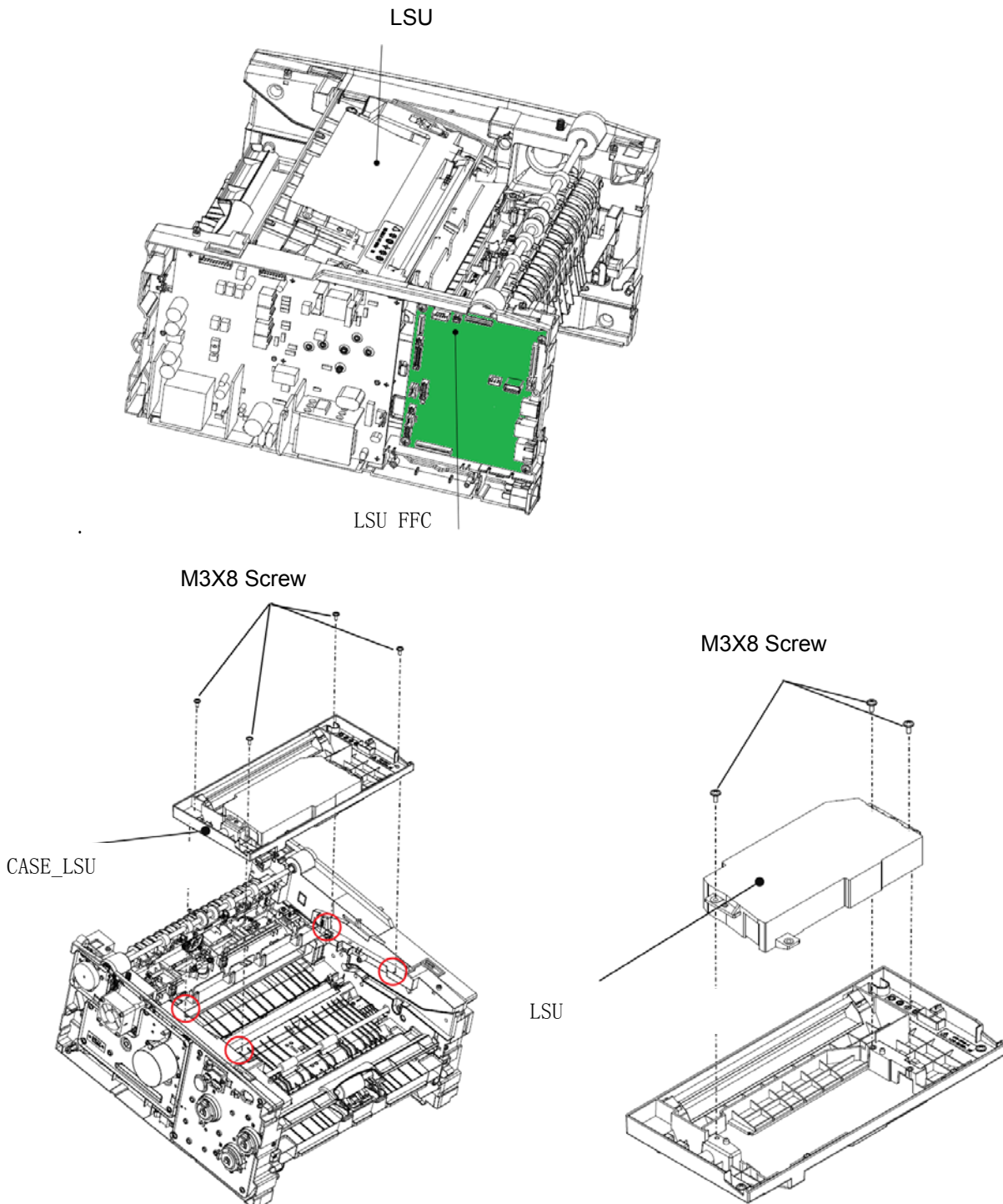
- After unplugging the flat cable, be sure to check that the connectors of the flat cable are intact and that the flat cable is not short-circuited.
- When inserting the flat cable, be sure to insert it straight and make sure that it is not crooked.
- When disassembling the LPH, be sure to wear latex gloves and do not touch the metal surface of the LPH flat cable and the PCBA circuit board.



### 2.5.31 LSU (for model with LSU)

Tool Preparation: No. 3 (Refer to Maintenance Tool List)

- (1). Remove Front Cover, Paper Tray, Drum Unit, Right/Left Cover, and Top Cover.
- (2). Disconnect all cables and the FFC cable and remove M3X8 screws for 4 pcs to remove the CASE\_LSU.
- (3). Remove screws T3X8 for 3 pcs and then remove the LSU.



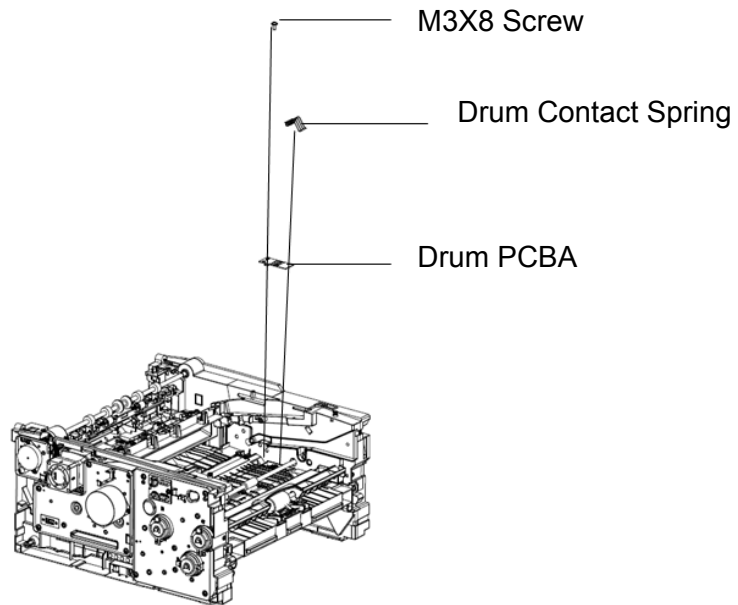
**Note:**

- After unplugging the flat cable, be sure to check that the connectors of the flat cable are intact and that the flat cable is not short-circuited.
- When inserting the flat cable, be sure to insert it straight and make sure that it is not crooked.

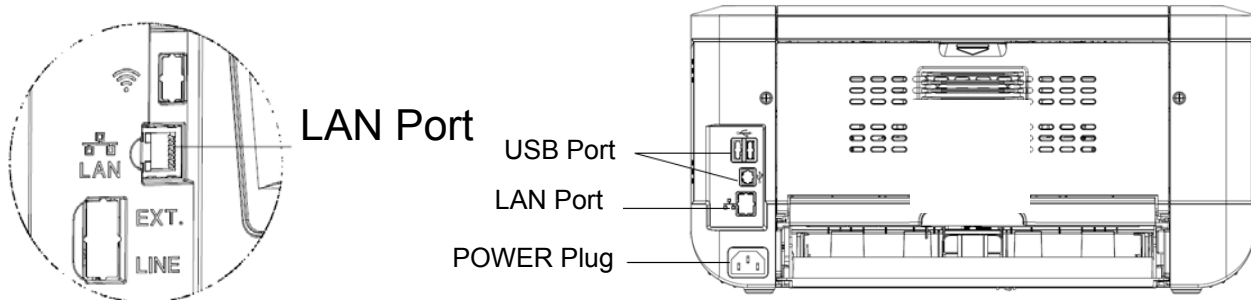
### 2.5.32 Drum Contact Spring

Tool Preparation: No. 3 (Refer to Maintenance Tool List)

- (1). Remove Front Cover, Paper Tray, Drum Unit, Right/Left Cover, Top Cover, and LPH/LSU Support.
- (2). Remove one fixing screw M3X8, and then disconnect the cable.
- (3). Remove the printed circuit board and then remove the Drum Contact Spring.



### 2.5.33 Check the Network Port



# Chapter 3 Adjustment and Renew Settings after Replacement

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## 3.1 Main Board Replacement

### 3.1.1 Adjustment after Replacement

Please, contact service center

# Chapter 4 Care and Maintenance

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## 4.1 Notice before maintenance

In order to avoid secondary malfunction due to incorrect operation, the following warnings and precautions must be observed during the disassembly and reassembling of the equipment.

### **Warning**

After using the equipment for a while, the temperature of some parts inside the equipment is very high! When opening the side door or the rear cover to repair parts inside the device, do not touch the parts shown in the high temperature mark.

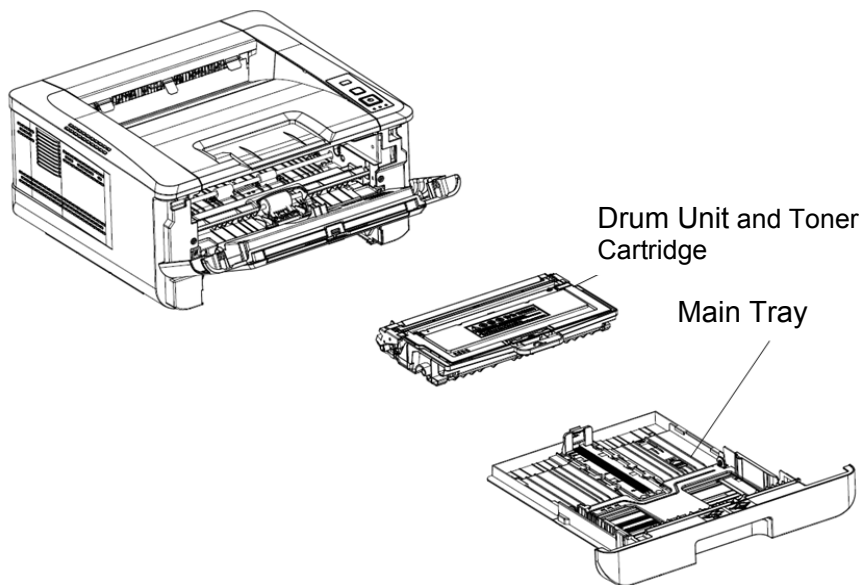
- Be careful not to lose the removed screws, washers and other parts.
- Be sure to apply grease to the parts specified in this chapter.
- When using an electric soldering iron or other heating tools, please be careful not to damage the wires, circuit boards, casings and other components made of synthetic resin.
- The static electricity charged by the human body may damage electronic components. Therefore, when transporting the circuit board, be sure to wrap the circuit board with conductive foil.
- When replacing circuit boards and all other parts with circuit boards, please wear a wrist strap for discharging static electricity and operate on an anti-static mat. In addition, please be careful not to touch the flat cable and the electrode conductor part of the wire.
- After unplugging the flat cable, be sure to check that the flat cable plug is in good condition and that the flat cable is not short-circuited.
- When inserting the flat cable, be sure to insert it straight, and check that the cable is not crooked after inserting it.
- When connecting or disconnecting the patch cord, do not hold the cable part but the connector part. If there is a lock on the connector, be sure to unlock the lock first.
- After repairing, please pay attention not only to check the repaired part, but also to check the connection of the patch cord. In addition, you need to check if other related parts are working properly.
- Do not close the front cover forcibly before installing the toner cartridge and drum unit, otherwise the machine may be damaged.
- After installation, it is recommended to conduct an insulation withstand voltage test and a conductivity test.
- Be careful not to damage the insulating sheet.
- When replacing the circuit board, be sure to check if there is any foreign matter on the component surface and soldering surface of the circuit board.

## 4.2 Preparation before Replacement

Disconnect power and remove key parts

Before performing replacement, do the following preparation:

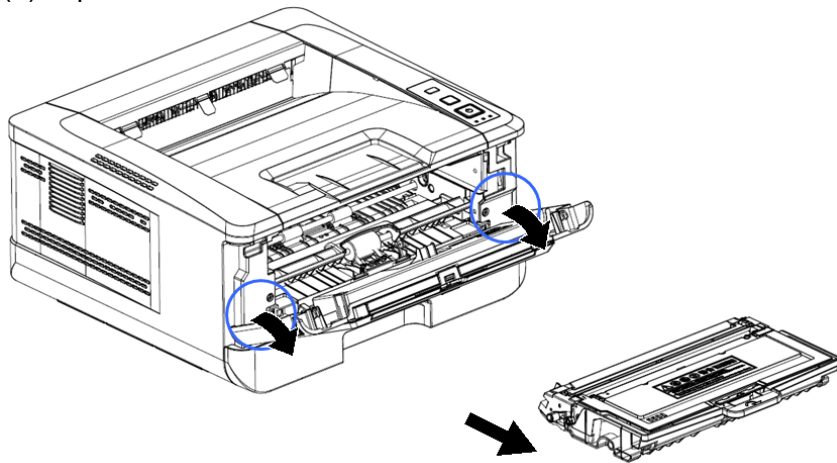
- (1) Disconnect the following cables:
  - USB cable ( if connected )
  - LAN cable ( if connected )
  - POWER cable ( if connected )
  
- (2) Remove the following parts:
  - Paper Tray
  - Toner Cartridge and Drum Unit



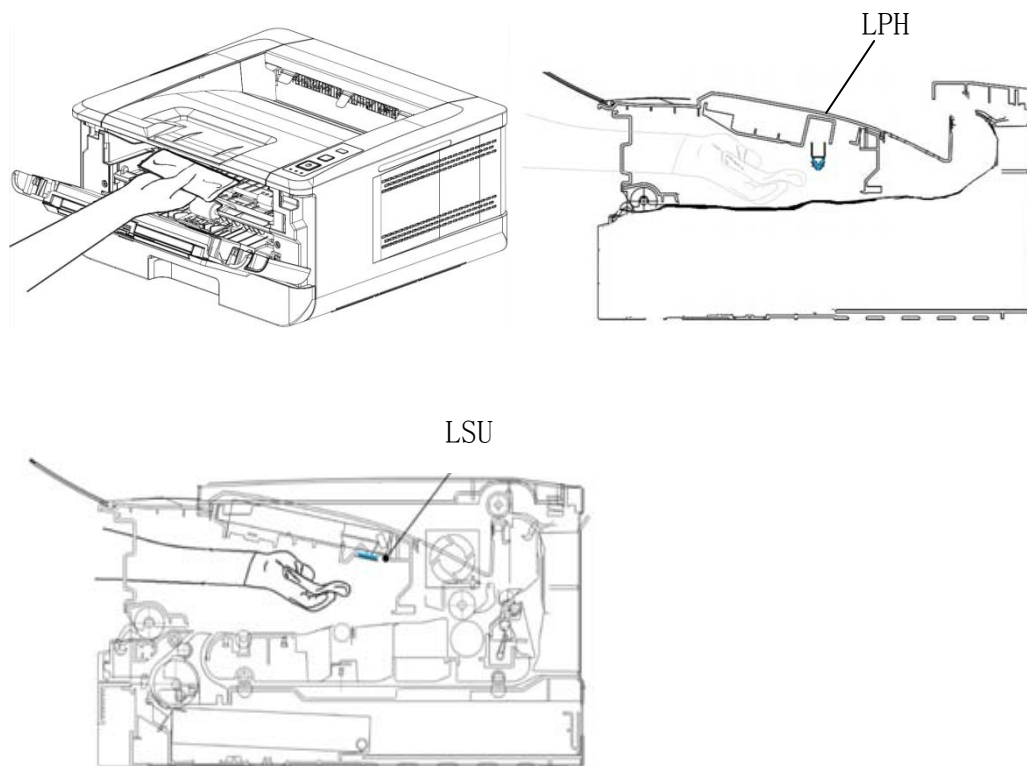
### 4.3 Cleaning the LPH/LSU Unit

Prepare maintenance tool no. 11 (Refer to the maintenance tool list)

(1). Open the front cover and remove the drum unit as illustrated.



(2). Moisten a clean, soft cloth with 95% alcohol to clean the position marked in blue color of the LPH/LSU unit.



## 4.4 Regular Cleaning

Use a dry, lint-free cloth to clean the inside and outside of the printer regularly. When replacing the toner cartridge or drum unit, be sure to clean the inside of the printer. If the printed page is stained with toner, use a dry, lint-free cloth to clean the inside of the printer.

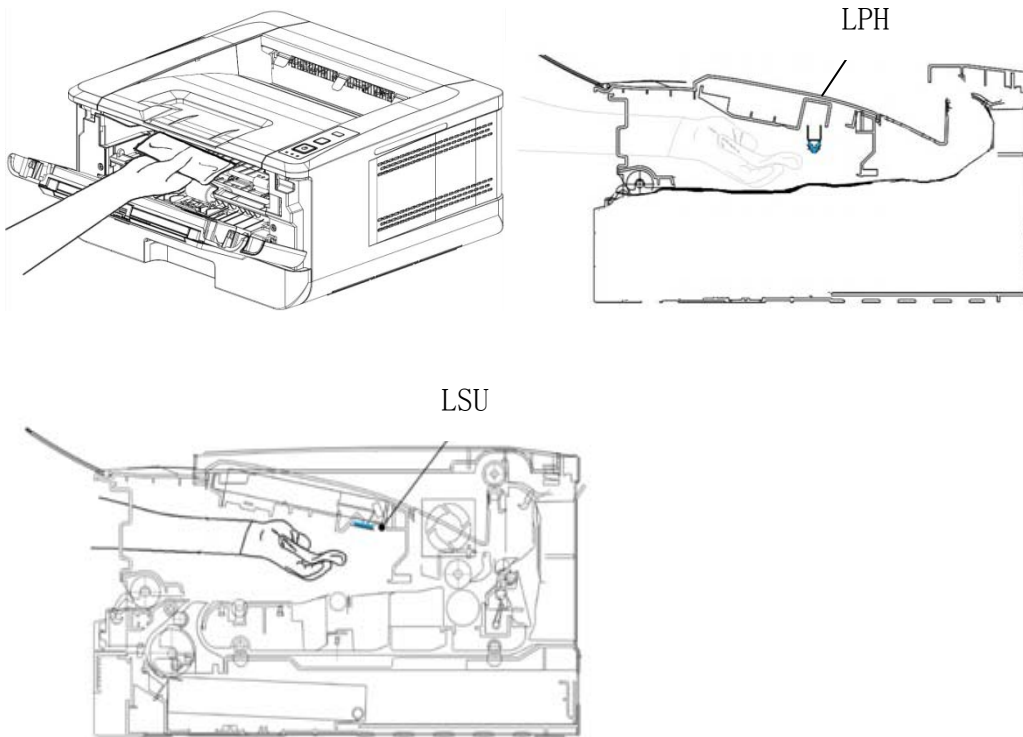
### Important :

The basic cleaning of the drum unit and printer can be done by the users. Yet, the cleaning for the electronic parts inside the printer should be performed by the maintenance personnel. Inform the users do not touch these electrodes.

### 4.4.1 Cleaning the Inside of the Printer

Follow the steps in below to clean the inside of the printer:  
Turn off the printer, and unplug the power cable from the power outlet.

- (1). Open the front cover of the printer.
- (2). Remove the drum unit and toner cartridge assembly.
- (3). Wipe the laser scanner window with a dry lint-free cloth.



- (4). Install the toner cartridge/toner cartridge assembly back into the printer.
- (5). Close the front cover of the printer.
- (6). Plug the power cable to the power outlet, and then turn on the printer.

**Important:**

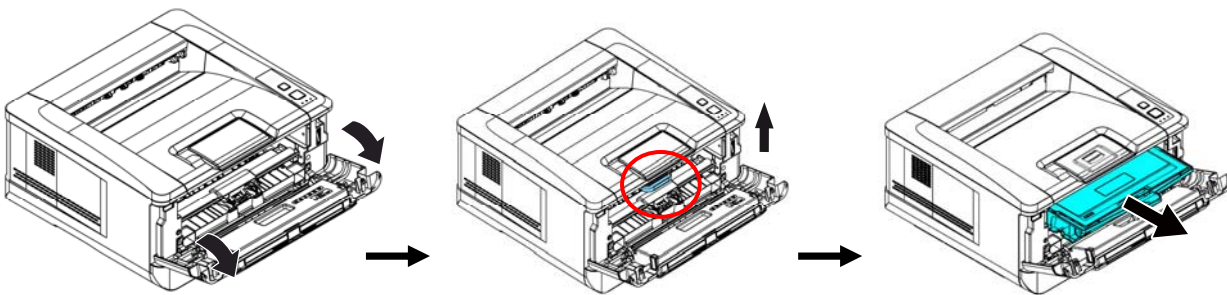
\* Be careful as the drum unit contains toner. If toner gets on your hands or clothes, wipe it off immediately or scrub it with cold water.

\* Do not touch the scanner window with your hands.

#### 4.4.2 Cleaning the Corona Wire

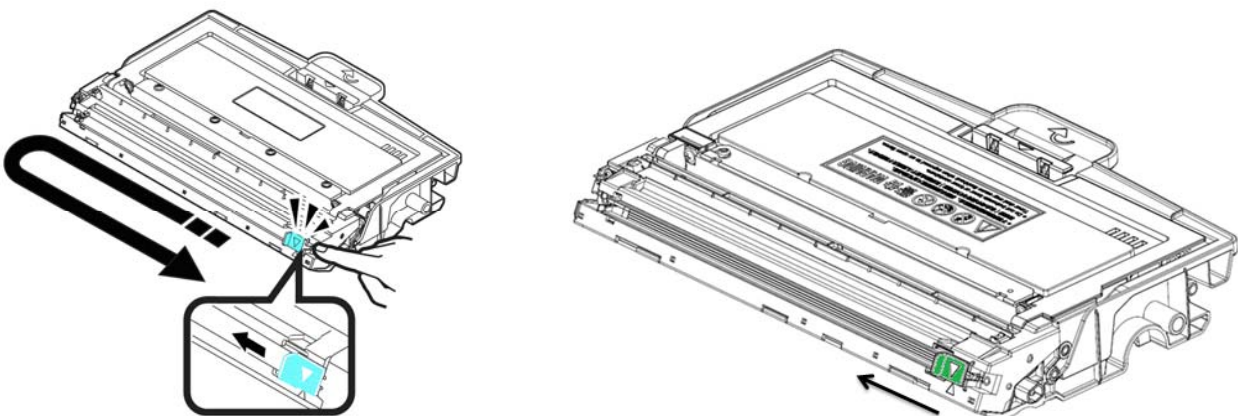
If you encounter the printing quality issues, please follow the steps in below to clean the corona wire.

- (1). Turn off the power and unplug the power cord.
- (2). Open the front cover of the printer.
- (3). Lift up the handle of the toner cartridge assembly, and pull out the toner cartridge assembly.



- (4). Clean the corona wire inside the drum unit by gently sliding the tab from left to right and right to left for several times. (After the toner cartridge has been used for a period of time, some amounts of toner may remain on the corona wire.)

Be sure to return the tab to the Home position (▲). The arrow on the tab must be aligned with the arrow on the drum unit. If it is not, printed pages may have a vertical stripe.



- (5). Install the toner cartridge back to the printer.

(6).Close the front cover.

**Note:**

- The lifetime of the drum unit and toner cartridge depends on the amount of the print job. The lifetime is tested based on the "ISO/IEC 19752" paper. The frequency of replacement of the drum unit and toner cartridge varies according to the printed page, print coverage, and paper type used.
- Unless the toner cartridge has been replaced before end of lifetime, printing can not be continued. It is recommended to purchase the extra toner cartridge before the lifetime ends.
- The actual number of printable pages varies depending on the document contents, the number of pages to be printed at a time, the type and size of paper, and environmental conditions (such as temperature and humidity).
- Due to the deterioration of the quality of the toner cartridge with the extension of use time, it may need to be replaced before the relevant instructions appear.