



SAMSUNG

A3 Mono Copier

MultiXpress K7 series

SL-K7600GX / K7500GX /

K7400GX, SL-K7600LX / K7500LX

/ K7400LX

(Ver 1.12)

SERVICE MANUAL

A3 Mono Copier

Contents



1. Precautions
2. Product Specifications and Description
3. Disassembly and Reassembly
4. Troubleshooting
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Refer to the service manual in the GSPN (see the rear cover) for more information.

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1. Precautions

In order to prevent accidents and damages to the equipment please read the precautions listed below carefully before servicing the product and follow them closely.

1.1. Safety warning

- 1) Only to be serviced by a factory trained service technician.

High voltages and lasers inside this product are dangerous. This product should only be serviced by a factory trained service technician.

- 2) Use only Samsung replacement parts.

There are no user serviceable parts inside the product. Do not make any unauthorized changes or additions to the product as these could cause the product to malfunction and create an electric shocks or fire hazards.

- 3) Laser Safety Statement

The printer is certified in the U.S. to conform to the requirements of DHHS 21 CFR, chapter 1 Subchapter J for Class I(1) laser products, and elsewhere is certified as a Class I laser product conforming to the requirements of IEC/EN 60825-1:2014. Class I laser products are not considered to be hazardous. The laser system and printer are designed so there is never any human access to laser radiation above a Class I level during normal operation, user maintenance or prescribed service condition.

- Wavelength: 795 nm
- Beam divergence
 - Parallel: 13 degrees
 - Perpendicular: 35 degrees
- Maximum power of energy output: 17 mW



WARNING

Never operate or service the product with the protective cover removed from Laser/Scanner assembly. The reflected beam, although invisible, can damage your eyes.

When using this product, these basic safety precautions should always be followed to reduce risk of fire, electric shock, and personal injury.



- 4) Lithium battery not replaceable by user

1.2. Caution for safety

1.2.1. Toxic material

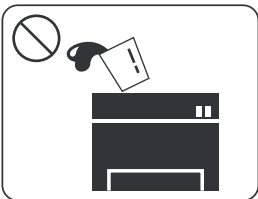
This product contains toxic materials that could cause illness if ingested.

- 1) Please keep imaging unit and toner cartridge away from children. The toner powder contained in the imaging unit and toner cartridge may be harmful, and if swallowed, you should contact a doctor.

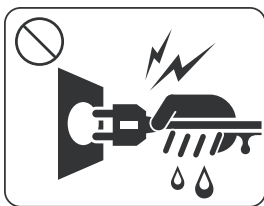
1.2.2. Electric shock and fire safety precautions

Failure to follow the following instructions could cause electric shock or potentially cause a fire.

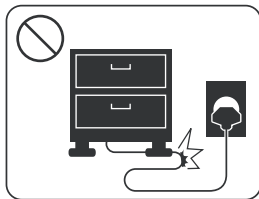
- 1) Use only the correct voltage, failure to do so could damage the product and potentially cause a fire or electric shock.
- 2) Use only the power cable supplied with the product. Use of an incorrectly specified cable could cause the cable to overheat and potentially cause a fire.
- 3) Do not overload the power socket, this could lead to overheating of the cables inside the wall and could lead to a fire.
- 4) Do not allow water or other liquids to spill into the product, this can cause electric shock. Do not allow paper clips, pins or other foreign objects to fall into the product, these could cause a short circuit leading to an electric shock or fire hazard.



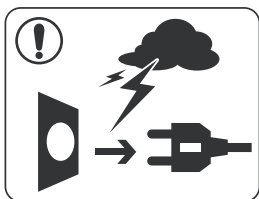
- 5) Never touch the plugs on either end of the power cable with wet hands, this can cause electric shock. When servicing the product, remove the power plug from the wall socket.



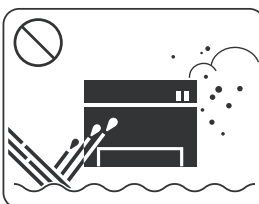
- 6) Use caution when inserting or removing the power cord. When removing the power cord, grip it firmly and pull. The power cord must be inserted completely, otherwise a poor contact could cause overheating leading to a fire.
- 7) Take care of the power cable. Do not allow it to become twisted, bent sharply around corners or power cable may be damaged. Do not place objects on top of the power cable. If the power cable is damaged it could overheat and cause a fire. Exposed cables could cause an electric shock. Replace the damaged power cable immediately, do not reuse or repair the damaged cable. Some chemicals can attack the coating on the power cable, weakening the cover or exposing cables causing fire and shock risks.



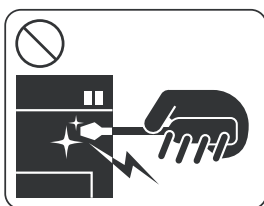
- 8) Ensure that the power sockets and plugs are not cracked or broken in any way. Any such defects should be repaired immediately. Take care not to cut or damage the power cable or plugs when moving the machine.
- 9) Use caution during thunder or lightning storms. Samsung recommends that this machine be disconnected from the power source when such weather conditions are expected. Do not touch the machine or the power cord if it is still connected to the wall socket in these weather conditions.




- 10) Avoid damp or dusty areas, install the product in a clean well ventilated location. Do not position the machine near a humidifier or in front of an air conditioner. Moisture and dust built up inside the machine can lead to overheating and cause a fire or cause parts to rust.



- 11) Do not position the product in direct sunlight. This will cause the temperature inside the product to rise possibly leading to the product failing to work properly and in extreme conditions could lead to a fire.
- 12) Do not insert any metal objects into the machine through the ventilator fan or other part of the casing, it could make contact with a high voltage conductor inside the machine and cause an electric shock.



- 13)  When replacing the SMPS board, please wait 5 minutes after unplugging the power cord, then replace it. You can get a shock by the electric discharge.

1.2.3. Handling precautions

The following instructions are for your own personal safety to avoid injury and so as not to damage the product.

- 1) Ensure the product is installed on a level surface, capable of supporting its weight. Failure to do so could cause the product to tip or fall.
- 2) The product contains many rollers, gears and fans. Take great care to ensure that you do not catch your fingers, hair or clothing in any of these rotating devices.
- 3) Do not place any small metal objects, containers of water, chemicals or other liquids close to the product which if spilled could get into the machine and cause damage or a shock or fire hazard.
- 4) Do not install the machine in areas with high dust or moisture levels, beside an open window or close to a humidifier or heater. Damage could be caused to the product in such areas.
- 5) Do not place candles, burning cigarettes, etc on the product, These could cause a fire.
- 6) Ensure that the machine is installed and used in proper area to meet the temperature and humidity specifications.
 - If the machine is stored at below zero Celsius for a long time, do not use the machine instantly after movement. It can malfunction. Take care of the machine storage. If the machine is stored at below zero Celsius for a long time, keep the machine at room temperature and install it.

1.2.4. Assembly and Disassembly precautions

- 1) Replace parts carefully and always use Samsung parts. Take care to note the exact location of parts and also cable routing before dismantling any part of the machine. Ensure all parts and cables are replaced correctly. Please carry out the following procedures before dismantling the product or replacing any parts.
- 2) Ensure that power is disconnected before servicing or replacing any electrical parts.
- 3) Disconnect interface cables and power cables.
- 4) Only use approved spare parts. Ensure that part number, product name, any voltage, current or temperature rating are correct.
- 5) When removing or re-fitting any parts do not use excessive force, especially when fitting screws into plastic.
- 6) Take care not to drop any small parts into the machine.
- 7) Handling of the OPC Drum
 - The OPC Drum can be irreparably damaged if it is exposed to light. Take care not to expose the OPC Drum either to direct sunlight or to fluorescent or incandescent room lighting. Exposure for as little as 5 minutes can damage the surface of the photoconductive properties and will result in print quality degradation. Take extra care when servicing the product. Remove the OPC Drum and store it in a black bag or other lightproof container. Take care when working with the Covers (especially the top cover) open as light is admitted to the OPC area and can damage the OPC Drum.
 - Take care not to scratch the green surface of the OPC Drum Unit. If the green surface of the Drum Cartridge is scratched or touched the print quality will be compromised.

1.2.5. Disregarding this warning may cause bodily injury

- 1) Be careful with the high temperature part.

The fuser unit works at a high temperature. Use caution when working on the printer. Wait for the fuser unit to cool down before disassembly.



- 2) Do not put fingers or hair into the rotating parts.

When operating a printer, do not put hand or hair into the rotating parts (Paper feeding entrance, motor, fan, etc.). If do, you can get harm.



- 3) When you move the printer, use safe lifting and handling techniques.

This printer is heavy. Use the lifting handles located on each side of the machine. Back injury could be caused if you do not lift carefully.

- 4) Ensure the printer is installed safely.

Ensure the printer is installed on a level surface, capable of supporting its weight. Failure to do so could cause the printer to tip or fall possibly causing personal injury or damaging the printer.

- 5) Do not install the printer on a sloping or unstable surface. After installation, double check that the printer is stable.

1.3. ESD precautions

Certain semiconductor devices can be easily damaged by static electricity. Such components are commonly called “Electrostatically Sensitive (ES) Devices” or ESDs. Examples of typical ESDs are: integrated circuits, some field effect transistors, and semiconductor “chip” components. The techniques outlined below should be followed to help reduce the incidence of component damage caused by static electricity.




CAUTION

Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

- 1) Immediately before handling a semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, employ a commercially available wrist strap device, which should be removed for your personal safety reasons prior to applying power to the unit under test.
- 2) After removing an electrical assembly equipped with ESDs, place the assembly on a conductive surface, such as aluminum or copper foil, or conductive foam, to prevent electrostatic charge buildup in the vicinity of the assembly.
- 3) Use only a grounded tip soldering iron to solder or desolder ESDs.
- 4) Use only an “anti-static” solder removal device. Some solder removal devices not classified as “anti-static” can generate electrical charges sufficient to damage ESDs.
- 5) Do not use Freon-propelled chemicals. When sprayed, these can generate electrical charges sufficient to damage ESDs.
- 6) Do not remove a replacement ESD from its protective packaging until immediately before installing it. Most replacement ESDs are packaged with all leads shorted together by conductive foam, aluminum foil, or a comparable conductive material.
- 7) Immediately before removing the protective shorting material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.
- 8) Maintain continuous electrical contact between the ESD and the assembly into which it will be installed, until completely plugged or soldered into the circuit.
- 9) Minimize bodily motions when handling unpackaged replacement ESDs. Normal motions, such as the brushing together of clothing fabric and lifting one’s foot from a carpeted floor, can generate static electricity sufficient to damage an ESD.

2. Product Specifications and Description

2.1. Product Overview

	<ul style="list-style-type: none">• Printing Speed<ul style="list-style-type: none">• K7600 series<ul style="list-style-type: none">- Up to 60 ppm in A4/Letter (Up to 31 ppm in A3)• K7500 series<ul style="list-style-type: none">- Up to 50 ppm in A4/Letter (Up to 26 ppm in A3)• K7400 series<ul style="list-style-type: none">- Up to 40 ppm in A4/Letter (Up to 21 ppm in A3)• Processor<ul style="list-style-type: none">• Quad Core 1.5GHz• Memory<ul style="list-style-type: none">• 6GB (2GB for Android OS)• Document Feeder<ul style="list-style-type: none">• DSDF-H Model : K7600GX / K7500GX / K7400GX• DSDF-L Model : K7600LX / K7500LX / K7400LX• LCD<ul style="list-style-type: none">• 10.1 inch Touch Color LCD
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2.2. Specifications

Product Specifications are subject to change without notice.



NOTE

The specification in this manual is the reference information for service engineer. Do not use this specification for sales.

2.2.1. General Specification

Item		Specification
Processor	CPU	1.5 GHz (Quad Core)
User Interface	Operational Panel	10.1" Color Touch-Panel LCD
	LED	2 ea (Power / Status)
	Key / Button	1 ea (Power)
Memory	Total (with Android OS)	6 GB
	Standard (without Android OS)	4 GB
	Expansion (Optional)	N/A
Storage	Standard	320 GB HDD
Interface	USB (Device)	Yes (Hi-Speed USB 3.0, 2.0)
	USB (Host)	Yes (Hi-Speed USB 3.0, 2.0)
	USB (EDI)	N/A
	Wired LAN	Std (Ethernet 10/100/1G Base TX)
	Additional Wired LAN Support	Yes (Optional)
	Wireless LAN / NFC	<ul style="list-style-type: none"> • Optional (IEEE 802.11b/g/n + NFC Active Type) • Optional (IEEE 802.11b/g/n/ac + BLE + NFC Active Type)
Warmup Time	from Power off (power on to ready)	23 sec
	from sleep	12 sec
Power Consumption	Ready	Less than 30W
	Normal operation	Less than 900W
	Max/Peak	Max 1300W
	Sleep/Low Power Mode	Less than 2.0W
	TEC (Default mode)	<ul style="list-style-type: none"> • K7600 series : 3.1 KWh • K7500 series : 2.717 KWh • K7400 series : 2.1 KWh
Power Requirement	<ul style="list-style-type: none"> • Input Voltage (Europe): AC 220 - 240 V (-10 % - 6 %) • Input Voltage (USA): AC 110 - 127 V (-10 % - 6 %) • Input Voltage (Korea): AC 220 - 240 V (-10 % - 6 %) • Rated Frequency: 50 / 60 Hz 	

Item		Specification
Acoustic Noise Level (Sound Power / Pressure)	Printing mode	<ul style="list-style-type: none"> • Simplex <ul style="list-style-type: none"> • K7600 series <ul style="list-style-type: none"> - Tray 1: Less than 56 dB (A) - Multi-purpose tray/Optional trays: Less than 58 dB (A) • K7500 / K7400 series <ul style="list-style-type: none"> - Tray 1: Less than 54 dB (A) - Multi-purpose tray/Optional trays: Less than 56 dB (A) • Duplex <ul style="list-style-type: none"> • K7600 series <ul style="list-style-type: none"> - Tray 1: Less than 59 dB (A) - Multi-purpose tray/Optional trays: Less than 61 dB (A) • K7500 / K7400 series <ul style="list-style-type: none"> - Tray 1: Less than 57 dB (A) - Multi-purpose tray/Optional trays: Less than 59 dB (A)
	Copying mode	<ul style="list-style-type: none"> • Simplex <ul style="list-style-type: none"> • K7600 / K7500 series <ul style="list-style-type: none"> - Tray 1: Less than 59 dB (A) - Multi-purpose tray/Optional trays: Less than 61 dB (A) • K7400 series <ul style="list-style-type: none"> - Tray 1: Less than 58 dB (A) - Multi-purpose tray/Optional trays: Less than 60 dB (A) • Duplex <ul style="list-style-type: none"> • K7600 series <ul style="list-style-type: none"> - Tray 1: Less than 61 dB (A) - Multi-purpose tray/Optional trays: Less than 64 dB (A) • K7500 series <ul style="list-style-type: none"> - Tray 1: Less than 61 dB (A) - Multi-purpose tray/Optional trays: Less than 63 dB (A) • K7400 series <ul style="list-style-type: none"> - Tray 1: Less than 60 dB (A) - Multi-purpose tray/Optional trays: Less than 62 dB (A)
	Ready mode	Less than 30 dB (A)
Dimension	Set (without stand)	<ul style="list-style-type: none"> • K7600GX / K7500GX / K7400GX <ul style="list-style-type: none"> • 585 x 670 x 932.2 mm (23 x 26.4 x 36.7 inches) • K7600LX / K7500LX / K7400LX <ul style="list-style-type: none"> • 585 x 670 x 883.7 mm (23 x 26.4 x 34.8 inches)
Weight	Set (with supplies)	<ul style="list-style-type: none"> • K7600GX / K7500GX / K7400GX : 97.3 Kg (214.5 lbs) • K7600LX / K7500LX / K7400LX : 84.3 Kg (185.8 lbs)
Recommended AMPV		<ul style="list-style-type: none"> • K7600 series : 30,000 pages • K7500 series : 25,000 pages • K7400 series : 15,000 pages
Max Monthly Duty Cycle		<ul style="list-style-type: none"> • K7600 series : 300,000 pages • K7500 series : 250,000 pages • K7400 series : 200,000 pages

2.2.2. Print Specifications

Item		Specification
Print Speed	Simplex	<ul style="list-style-type: none"> • K7600 series <ul style="list-style-type: none"> • Up to 60 ppm in A4 (60 ppm in Letter) • Up to 31 ppm in A3 (31 ppm in 11X17) • K7500 series <ul style="list-style-type: none"> • Up to 50 ppm in A4 (50 ppm in Letter) • Up to 26 ppm in A3 (26 ppm in 11X17) • K7400 series <ul style="list-style-type: none"> • Up to 40 ppm in A4 (40 ppm in Letter) • Up to 21 ppm in A3 (21 ppm in 11X17)
	Duplex (Simplex to Duplex)	<ul style="list-style-type: none"> • K7600 series <ul style="list-style-type: none"> • Up to 60 ipm in A4 (60 ipm in Letter) • Up to 31 ipm in A3 (31 ipm in 11X17) • K7500 series <ul style="list-style-type: none"> • Up to 50 ipm in A4 (50 ipm in Letter) • Up to 26 ipm in A3 (26 ipm in 11X17) • K7400 series <ul style="list-style-type: none"> • Up to 40 ipm in A4 (40 ipm in Letter) • Up to 21 ipm in A3 (21 ipm in 11X17)
FPOT	From Ready	<ul style="list-style-type: none"> • K7600 series : (as fast as) 6.9 sec • K7500 series : (as fast as) 7.5 sec • K7400 series : (as fast as) 8.4 sec
	From Sleep	<ul style="list-style-type: none"> • K7600 series : (as fast as) 18.9 sec • K7500 series : (as fast as) 19.5 sec • K7400 series : (as fast as) 20.4 sec
Resolution		1200 x 1200 dpi (Full Speed)
Printer Languages		PCL5 / PCL6(XL) / PostScript Level 3 / PDF V1.7
Font	PCL	95 Scalable Fonts (Include OCR-A / OCR-B) / 1 Bitmap
	Postscript3	136 Scalable Fonts
Printer Driver Supporting OS	Windows	XP (32 / 64 bit) / 2003 Server (32 / 64 bit) / Vista (32 / 64 bit) / 2008 server (32 / 64 bit) / Windows 7 (32 / 64 bit) / 2008 Server R2 (64 bit) / Windows 8 (32 / 64 bit) / Windows 8.1 (32 / 64 bit) / Windows Server 2012 (64 bit) / Windows Server 2012 R2 (64 bit)
	Linux	<ul style="list-style-type: none"> • RedHat Enterprise Linux WS 5, 6 (32/64bit) • Fedora 12, 13, 14, 15, 16, 17, 18, 19, 20 (32/64bit) • OpenSuSE 11.2, 11.3, 11.4, 12.1, 12.2, 12.3, 13.1 (32/64bit) • Ubuntu 10.04, 11.04, 11.10, 12.04, 12.10, 13.04, 13.10, 14.04 (32/64bit) • SuSE Linux Enterprise Desktop 10, 11 (32/64bit) • Debian 6, 7 (32/64bit) • Mint 13, 14, 15, 16 (32/64bit)
	Mac OS	Mac OS X 10.6 ~ 10.10

Item	Specification
Direct Print	PRN / PDF / TIFF / JPEG / XPS
Print Features	WSD print / Secure print / Stored print / Booklet / N-up / Cover page / Barcode / Eco / Poster / Glossy / Watermark / Tray Priority setting / Auto tray setting / Tray Protection / USB print / Secure PDF print / Google Cloud print

2.2.3. Scan specification

Item		Specification
Scan Speed		<ul style="list-style-type: none"> • K7600GX / K7500GX / K7400GX <ul style="list-style-type: none"> • Simplex : Up to 120 ipm (@ 300 x 300 dpi) • Duplex : Up to 240 ipm (@ 300 x 300 dpi) • K7600LX / K7500LX / K7400LX <ul style="list-style-type: none"> • Simplex : Up to 80 ipm (@ 300 x 300 dpi) • Duplex : Up to 160 ipm (@ 300 x 300 dpi)
Color Mode		Mono / Gray / Color
Compatibility		Network TWAIN / Network SANE
Scan method		MMT
File Formats		PDF / Searchable PDF / Compact PDF/ PDF Encryption / Digital Signature in PDF / PDF/A / Single-Page-PDF / Multi-Page-PDF / TIFF / Single-Page-TIFF / Multi-Page-TIFF / XPS / Single-Page-XPS / Multi-Page-XPS / JPEG
Resolution	Optical (ADF)	Up to 600 x 600 dpi
	Optical (Platen)	Up to 600 x 600 dpi
	Enhanced (ADF)	Up to 4,800 x 4,800 dpi
	Enhanced (Platen)	Up to 4,800 x 4,800 dpi
Scan Destinations		Email / FTP / SMB / HDD / USB / WSD / PC / Internet FAX
Multi Destinations		Yes
Communication Protocol		SMTP(IPv4, IPv6, SSL/TLS) / POP3(IPv4, IPv6, SSL/TLS) / FTP(IPv4, IPv6) / SMB(IPv4, IPv6) / WSD / T4Net
Scan Size	ADF	<ul style="list-style-type: none"> • K7600GX / K7500GX / K7400GX <ul style="list-style-type: none"> • Min. A6 SEF(105 X 148mm) • Max. 297 x 437 mm (11.7" x 17.2") • K7600LX / K7500LX / K7400LX <ul style="list-style-type: none"> • Max. 297 x 437 mm (11.7" x 17.2")
	Platen	Max. 297 x 437 mm (11.7" x 17.2")
Scan Original Types		Text / Text & Photo / Photo

2.2.4. Copy specification

Item		Specification
Copy Speed (DSDF)	SDMC (Single Document Multiple Copy)	<ul style="list-style-type: none"> • K7600 series : Up to 60 cpm in A4 • K7500 series : Up to 50 cpm in A4 • K7400 series : Up to 40 cpm in A4
	MDMC (Multiple Document Multiple Copy)	<ul style="list-style-type: none"> • K7600 series <ul style="list-style-type: none"> • Simplex to Simplex : Up to 60 cpm in A4/Letter • Duplex to Simplex : Up to 60 ipm in A4/Letter • K7500 series <ul style="list-style-type: none"> • Simplex to Simplex : Up to 50 cpm in A4/Letter • Duplex to Simplex : Up to 50 ipm in A4/Letter • K7400 series <ul style="list-style-type: none"> • Simplex to Simplex : Up to 40 cpm in A4/Letter • Duplex to Simplex : Up to 40 ipm in A4/Letter
FCOT	From Ready	<ul style="list-style-type: none"> • K7600 series : 3.1 sec • K7500 series : 3.7 sec • K7400 series : 4.6 sec
Resolution	ADF (DSDF)	<ul style="list-style-type: none"> • Scan: 600 x 600 dpi • Printing: 600 x 600 dpi
	Platen	<ul style="list-style-type: none"> • Scan: 600 x 600 dpi • Printing: 600 x 600 dpi
Reduce & Enlarge	ADF (DSDF)	25% ~ 400% in 1% increments
	Platen	25% ~ 400% in 1% increments
	Preset	25% 50%, A3→A5 61%, A3→B5 64% Ledger→Letter 70%, A3→A4 B4→B5 A4→A5 77%, Ledger→Legal 78%, Legal→Letter 81%, B4→A4 B5→A5 86%, A3→B4 A4→B5 104%, Executive→Letter 115%, B4→A3 121%, Legal→Ledger 122%, A4→B4 129%, Letter→Ledger 141%, A4→A3 A5→A4 150% 200%, A5→A3 400%
Darkness Control		11 Levels
Contrast Control		11 Levels
Multi Copy		1 - 9,999

2. Product Specifications and Description



Item	Specification
Duplex Copy	Built-in
Copy Original Type	Text / Text & Printed Photo / Text & Glossy Photo / Newspaper / Printed Photo / Glossy Photo / Copied Original / Map / Light Original
Copy Features	ID Copy / N-up / Booklet / Image Repeat / Auto Fit / Book Copy / Poster Copy / Watermark / Image Overlay / Stamp / Covers / Job Build / Preview / Erase Edge / Image Shift / Image Adjustment / Background Adjustment


2.2.5. Fax specification

Item	Specification	
Compatibility	ITU-T G3 / Super G3	
Communication System	PSTN/PABX	
Modem Speed	33.6 Kbps	
TX Speed	3sec/1page (based on ITU-T No. 1 chart)	
Scan speed	Standard	1 sec / LTR
	Fine	1 sec / LTR
	S.Fine	1 sec / LTR
Resolution (Mono)	Std	203 x 98 dpi
	Fine	203 x 196 dpi
	S.Fine	300 x 300 dpi
	Ultra Fine	600 x 600 dpi
Resolution (Color)	Std	N/A
	Fine	N/A
	S.Fine	N/A
Compression Method	MH / MR / MMR / JBIG	
Fax Memory (Standard / Max.)	N/A	
Dual Lines	Option	
Fax Features	Handset	N/A
	On hook Dial	Yes
	Search	Yes (Address Book)
	1-Touch Dial	N/A
	Speed Dial	500 locations
	TAD I/F	Yes(First Line)
	Tone/Pulse	Yes (Selectable in Tech Mode)
	Pause	Yes
	Auto Redial	Yes
	Last Number Redial	Yes
	Distinctive Ring	No
	Caller ID	Yes

Item		Specification
	External Phone Interface	Yes(First Line)
	Fax Forward to E-Mail	Yes
	Fax to PC	N/A
	Broadcasting	Yes
	Delayed Fax	Yes
	Color Fax	N/A
Report & List Print out	Tx/Rx Journal	Yes
	Confirmation	2 Types Available (With Image TCR / Without Image TCR)
	Auto Dial List	N/A
	System Data List	N/A

2.2.6. Paper Handling specification

Item		Specification
Input Capacity	Standard	1,040 sheets
	Multipurpose	100 sheets
	Maximum	6140 sheets  NOTE MP(100) + 2 Tray(1.040) + HCF bottom(2,000)+ HCF side(3,000)
Standard Cassette Tray	Capacity	<ul style="list-style-type: none"> • 520 sheets x 2 (Based on Xerox Premier 80g/m²) • Envelope : 50 sheets (only Tray1 support)  NOTE Support Envelope : Monarch, DL, C4, C5, C6, No10 No9
	Media sizes	<ul style="list-style-type: none"> • Cassette 1: 98 x 139.7 mm ~ 297 x 390 mm (3.9" x 5.5" ~ 11.7" x 15.4") • Cassette 2: 148.5 x 182 mm ~ 320 x 457 mm (5.8" x 7.2" ~ 12.6" x 18")
	Media types	Plain / Thin / Bond / Hole Punched / Pre-Printed / Recycled / Thin CardStock / Thick CardStock / Heavy Cardstock/Heavy Cardstock/Extra Heavy Cardstock 1/Letterhead / Thick / Cotton / Colored / Archive / Thin Glossy / Thick Glossy/Heavy Glossy / Heavy weight / Extra Heavy weight1,2,3,4/ Label/ Transparency/ Envelope(Casette1 Only)

Item		Specification
	Media weight	<ul style="list-style-type: none"> • Plain Paper: 70-90 g/m² (18.5-24 lb/ Duplex) • Thick Paper: 91-105 g/m² (25-28 lb / Duplex) • Heavy Weight Paper : 106-176 g/m² (Duplex) • Extra Heavy Weight 1 Paper : 177-220 g/m² • Extra Heavy Weight2 : 221~256g/m²(Duplex) • Extra Heavy Weight3 : 257~300g/m² • Thick Cardstock : 164~216g/m² (Duplex) • Heavy Cardstock : 217~256g/m²(Duplex) • Extra Heavy Cardstock1 : 257~300g/m² • Thick Glossy : 164~216g/m² • Heavy Glossy : 217~256g/m² • Transparency : 138~146g/m² • Label : 120~150g/m² • Envelope : 75~90g/m²(Only Tray1 Support) • Thick Envelope : 91~120g/m²(Only Tray1 Support) • Thin Paper: 60-69 g/m² (16-19 lb/ Duplex) • Cotton paper : 75-90 g/m² (Duplex) • Colored : 75-90 g/m² (Duplex) • Pre-Printed : 71-90 g/m² (Duplex) • Recycled : 60-90 g/m² (Duplex) • Bond Paper: 105-120 g/m² (Duplex) • Letterhead : 75-90 g/m² (Duplex) • Hole Punched Paper: 75-90 g/m² (Duplex) • Thin CardStock : 105-163 g/m² (Duplex) • Thin Glossy : 106-163 g/m² (Duplex)
	Sensing	<ul style="list-style-type: none"> • H/W Install Detect: Yes • Paper Empty & Low Level Detect: Yes • Paper Type Detect: No • Paper Size Detect: Yes
Multipurpose Tray	Capacity	<ul style="list-style-type: none"> • Plain Paper: 100 sheets @ 80 g/m² • Envelopes: 10 sheets @ 75 g/m² <div style="background-color: #cccccc; padding: 5px; margin: 5px 0;">  NOTE Support Envelope : Monarch, DL, C4, C5, C6, No10 No9 </div> <ul style="list-style-type: none"> • Labels: 20 sheets @ 120~159 g/m² • Thick Paper: 10 sheets @ 176 g/m²
	Media sizes	98 x 139.7 mm ~ 320 x 1200 mm (3.8" x 5.5" ~ 12.6" x 47.2")
	Media types	Plain / Thin / Bond / Hole Punched / Pre-Printed / Recycled / Thin CardStock / Letterhead / Thick / Cotton / Colored / Archive / Thin Glossy / Thick Glossy / Heavy Glossy / Heavy weight / Extra Heavy weight1,2,3,4 / Envelope / Transparency / Label
	Media weight	<ul style="list-style-type: none"> • 60 to 256g/m² : Simplex, Duplex • 257 to 325g/m² : Simplex • Envelope : 75~90g/m² , Simplex • Label : 120~150g/m² , Simplex

2. Product Specifications and Description

Item		Specification
	Sensing	<ul style="list-style-type: none"> Paper Empty Detect: Yes Paper Size Detect: Yes
DSDF (LX model)	Capacity	100 sheets
	Document Size	<ul style="list-style-type: none"> Width: 128 - 297 mm (5" - 11.7") Length: 140 - 432 mm (5.5" - 17")
	Document Weight	<ul style="list-style-type: none"> Simplex : 42 - 163 g/m² (11.25 ~ 43.25 lb) Duplex : 50 - 163 g/m² (13.25 ~ 43.25 lb)
	Auto Detected Size	A3 / A4 / A5 / B4/ B5/ Letter / Lgeal / Statement / Folio / Executive
DSDF (GX model)	Capacity	250 sheets
	Document Size	<ul style="list-style-type: none"> Width: 105 - 297 mm (4.13" - 11.7") Length: 140 - 432 mm (5.5" - 17")
	Document Weight	<ul style="list-style-type: none"> Simplex : 60 - 163 g/m² (11.25 ~ 43.25 lb)(Guarantee) 42~60 & 163~220g/m² (Support) Duplex : 60 - 163 g/m² (13.25 ~ 43.25 lb)(Guarantee) 50~60 & 163~220g/m² (Support)
	Auto Detected Size	A3 / A4 / A5 / A6 SEF / B4/ B5/ Letter / Lgeal / Statement / Folio / Executive
Platen Unit	Document Size	<ul style="list-style-type: none"> Width: 140 - 297 mm (5.5" - 11.7") Length: 140 - 432 mm (5.5" - 17")
Output Capacity	Standard	500 sheets Face Down
	Maximum	615 sheets [500 sheets (Standard) + 125 sheets (Job Separator)]
Printing size	Max. Size	320 x 457 mm (12.6" x 18")
	Min. Size	98 x 139.7 mm (3.8" x 5.5")
Max. Printing Area	Simplex	Top: 4.2+/-1.5 mm / Left: 4.2+/-1.5mm
	Duplex	Top: 4.2+/-2.0 mm / Left: 4.2+/-2.0mm
Duplex Printing	Support	Built-in
	Media sizes	139.7 x 182 mm ~ 320 x 457 mm (5.5" x 7.2" ~ 12.6" x 18")
	Media types	Plain / Thin / Bond / Hole Punched / Pre-Printed / Recycled / Thin CardStock / Letterhead / Thick / Cotton / Colored / Archive / Thin Glossy / Thick Glossy / Heavy Glossy / Heavy weight / Extra Heavy weight ^{1,2}
	Media weight	16~47 lb (60 to 256 g/m ²)

2.2.7. Network and Software specification

Network Interface

Item		Specifications
Network OS		[Windows] <ul style="list-style-type: none"> Microsoft Windows XP(32/64bits) / 2003(32/64bits) / Vista(32/64bits) / Win7 / Win8 [Mac] <ul style="list-style-type: none"> Mac OS 10.5 ~ 10.8 [Linux] <ul style="list-style-type: none"> RedHat 8 ~ 9 Fedora Core 1~4 Mandrake 9.2 ~ 10.1 SuSE 8.2 ~ 9.2 [Novell] <ul style="list-style-type: none"> Netware 5.x, 6.x(TCP/IP Only) [Others] <ul style="list-style-type: none"> Unix (HP-UX, Solaris, SunOS, SCO)
NW Protocols	TCP/IP	TCP/IPv4, HTTP, SNMPv1/v2c/v3, LDAP, SMTP, SSL/TLS, IPSec, DNS, WINS, SLP, Bonjour, SSDP, DDNS, DHCP/BOOTP, IPv6
	IPX/SPX	No
	Ether Talk	No
	NetBIOS over TCP/IP	Yes
	Others	HTTPS, IPSec, 802.1x
IP Addressing	Static IP	Yes
	Auto IP	Yes
	BOOTP	Yes
	DHCP	Yes
SNMP/MIB Access	MIB-2(RFC 1213)	Yes
	Host Resource MIB (RFC 2790)	Yes
	Printer MIB (RFC 3805)	Yes
	Finisher MIB (RFC 3806)	Yes
	Samsung Private MIB	Yes
	HP Compatibility	Yes - Partially
	SNMP Trap	Yes
Printing Protocols	Window Printing (SMB)	No
	LPR/LPD	Yes
	IPP	Yes
	Netware I-Print	No
	Netware NDPS	No
	Ether Talk	No
	Port 9100	Yes

2. Product Specifications and Description


Item		Specifications
Device Discovery	DNS	Yes
	Dynamic DNS	Yes
	Multicast DNS(Bonjourne)	Yes
	WSD (incl. Print & Scan)	Yes (Print & Scan)
	SLP	Yes
	uPNP(SSDP)	Yes

Software and Solution

Item		Specifications
Application	Anyweb Print	N/A
	Easy Printer Manager	Windows / Mac
	Easy Color Manager	Windows / Mac
	Easy Document Creator	Windows
	Net PC Fax	Windows / Mac
	Direct Printing Utility	Windows
	Easy Deployment Manager	Windows
	Easy Eco Driver	Windows
	Universal Printer Driver	Windows
	Universal Scan Driver	Windows
Mobile Printing	GCP (Google Cloud Print)	Yes
	AirPrint	Yes
Smart App	Smart Workspace	Yes
	Workbook Composer	Yes
	Smart Color Manager	Yes
	Smart Service App	Yes
	Hancom Office	Yes
Solution	Device Management	Fleet Admin Pro (UniThru)
	Output Management	CounThru Enterprise / Pro
	Document Management and Distribution	SmarThru Workflow 3.0
	Security	SecuThru Pro 1.0
	Mobility	SCP 1.0 ('14.09)

Item	Specifications	
Security	Authentication (Local)	Yes
	Authentication (Network)	Yes (SMB / Kerberos / LDAP / IPSec / EAP)
	IP Address Filtering	Yes (IPv4 Filtering / IPv6 Filtering / MAC Filtering)
	HDD Overwrite (Standard)	Yes
	HDD Overwrite (Max. Overwrites)	9
	Secure Print	Yes
	Encrypted Secure Print	Yes
	Encrypted PDF Mode (Encrypted Scanning)	Yes
	IP Sec	Yes
	Smart Card Authentication	Yes

2.2.8. Supplies

Item		Model Name	Average yield	Conditions for yield
Toner Cartridge	(Initial)  NOTE Only China, Korea	-	Approx. 30,000 pages	@ A4/Letter LEF , Continuous job , Simplex Mode , 6% Coverage
	(Standard)	MLT-K706S	Approx. 45,000 pages	@ A4/Letter LEF , Continuous job , Simplex Mode , 6% Coverage
OPC Drum Unit		MLT-R706	Approx. 450,000 pages	@ A4/Letter LEF , 4 pages/job , Simplex Mode , 6% Coverage
Waste Toner Container		MLT-W706	Approx. 300,000 pages	@ A4/Letter LEF , 4 pages/job , Simplex Mode , 5% Coverage

 **NOTE**

- Depending on the print pattern and job mode used, the consumable's lifespan may differ.

2.2.9. Maintenance Parts

Some of the machine's parts have shorter life span than machine's life.

To ensure that the machine produces good copies and to extend its service life, it is recommended that these maintenance parts at specific intervals be replaced as instructed.

Item	Part Code	Life	Remark
Development Unit	JC96-09829A	1,200,000 pages	@ A4/Letter LEF , 4 pages/job , Simplex Mode , 6% Coverage
Fuser Unit	JC91-01194A	360,000 pages	220V
	JC91-01195A		110V
PTB (Paper Transfer Belt)	JC93-01117A	300,000 pages	
Pick-Up / Forward / Reverse(Separation) roller (for Tray X)	JC93-01092A	360,000 pages	
MP Pick-Up / Forward / Reverse(Separation) roller	JC93-00540B	200,000 pages	
DSDF Pick-Up roller Assy	JC97-04624A	200,000 pages	For LX model
DSDF Reverse(Separation) roller Assy	JC97-04588A	100,000 pages	For LX model
DSDF Pick-Up roller Assy	JC97-04650A	200,000 pages	For GX model
DSDF Reverse(Separation) roller Assy	JC97-04915A	100,000 pages	For Gx model



NOTE

- Depending on the print patterns and job mode used, the lifespan may differ.
- Refer to Chapter 3.2.2 for replacing the maintenance parts.

Maintenance Table

- EM : Emergency Maintenance (as Needed)
- C : Clean
- R : Replace



NOTE

The period as shown in the table means lifespan for each maintenance parts.

Section	Item	EM	45K	50K	100K	200K	300K	360K	450K	1200K
Waste Toner	Waste Toner Container	C					R			
	Around Waste Toner Container	C								
Imaging Unit	Toner Cartridge	C	R							
	Drum Unit	C							R	
	Development Unit	C								R
	Around Toner Pipe	C								
	Paper Dust Stick		C							

2. Product Specifications and Description





Section	Item	EM	45K	50K	100K	200K	300K	360K	450K	1200K
Fuser Unit	Fuser Unit	C						R		
Transfer Unit	PTB (Paper Transfer Belt)	C					R			
Paper Path	Pick-Up / Forward / Reverse(Separation) roller * (for Tray X)	C						R		
	MP Pick-Up / Forward / Reverse(Separation) roller *	C				R				
	Regi / Feed / Duplex roller	C								
DSDF	DSDF Pick-Up roller Assy	C				R				
	DSDF Reverse(Separation) roller Assy	C			R					
	White sheet / White sponge / Feed roller	C								








* Replace those three parts at the same time.

2.2.10. Option


Option Configuration

Paper Output Option





Job Separator SL-JSP501S ¹⁾	
Inner Finisher SL-FIN502L	
High Volume Finisher SL-FIN701H	Booklet Finisher SL-FIN701B
	
Staples (Inner, Booklet) SCX-STP000	Staples (Main for Booklet) SL-STP000
Punch Kit (Inner - 2/3, 2/4, Swedish) SL-HPU501T, HPU501F, HPU501S	
Punch Kit (Booklet - 2/3, 2/4, Swedish) SL-HPU700T, HPU700F, HPU700S	

Multi Purpose Table SL-WKT101	
Working Table CLX-WKT001	
Wireless/NFC Kit SL-NWE001X	
Wireless/NFC/BLE⁴⁾ Kit SL-NWE002X	
Additional Network Kit SL-NWA001N	
FDI Kit CLX-KIT10F	
Fax Kit CLX-FAX160 Dual Fax Kit SL-FAX2501	

DSDF-L²⁾
DSDF-H³⁾




Paper Input Option

Cabinet SL-DSK501T	DCF SL-PFP501D
	
Heater for DCF CLX-DHK12C(220V) CLX-DHK11C(110V)	
HCF SL-HCF501B	HCF-Side SL-HCF501S
	
Heater for HCF/Side SL-DHK512C(220V) SL-DHK511C(110V)	

- 1) Job Separator is different model code with MX4 series
- 2) DSDF-L for LX Model, 80/160ipm Simplex/Duplex Scan Speed
- 3) DSDF-H for GX Model, 120/240ipm Simplex/Duplex Scan Speed
- 4) BLE: Bluetooth Low Energy for wireless connection with mobile device

Option List

Item	Model	Remark
Cabinet Stand	SL-DSK501T	
Double(Dual) Cassette Feeder	SL-PFP501D	
High Capacity Feeder - Under(Bottom)	SL-HCF501B	
High Capacity Feeder - Side (LCT : Large Capacity Tray)	SL-HCF501S	
Working Table	CLX-WKT001	
Multi Purpose Table	SL-WKT101	
Fax Kit	CLX-FAX160	
Fax Multiline Kit	SL-FAX2501	
FDI(Foreign Device Interface)Kit	CLX-KIT10F	
Job Separator	SL-JST501S	
Cassette Locking Kit	SL-CLK501	
Dehumidifying Heater Kit	CLX-DHK11C	For DCF
	CLX-DHK12C	For DCF
	SL-DHK511C	For HCF/LCT
	SL-DHK512C	For HCF/LCT
Wireless / NFC Kit	SL-NWE001X	
Wireless / NFC / BLE Kit	SL-NWE002X	
Additional Network Kit (Dual Network Kit)	SL-NWA001N	
550-Sheet Inner Finisher	SL-FIN502L	
3,250-Sheet Stapling Finisher (High Volume Finisher)	SL-FIN701H	
2,250-sheet Booklet Finisher	SL-FIN701B	
Punch Kit for 500- sheet Inner Finisher	SL-HPU501T	2 and 3 hole punch (For America & Asia & Africa)
	SL-HPU501F	2 and 4 hole (For Europe)
	SL-HPU501S	Swedish 4 hole (For Sweden)
Punch Kit for 3,250- sheet Finisher	SL-HPU701T	2 and 3 hole punch (For America & Asia & Africa)
	SL-HPU701F	2 and 4 hole (For Europe)
	SL-HPU701S	Swedish 4 hole (For Sweden)
Staples	• SCX-STP000	• Regular staples for Inner Finisher • Saddle staples for Booklet Finisher
 NOTE FIN701B has 2 staple slots.	SL-STP000	Regular staples for High Volume and Booklet Finisher

Option Specification

Item	Specification	
Dual Cassette Feeder	Model Name	SL-PFP501D
	Capacity	520 x 2 Sheets
	Media Sizes	<ul style="list-style-type: none"> Cassette 1 : 148.5 x 210 mm ~ 297 x 432 mm (5.8" x 8.2" ~ 12" x 18") Cassette 2 : 148.5 x 210 mm ~ 297 x 432 mm (5.8" x 8.2" ~ 12" x 18")
	Media types	Plain / Thin / Bond / Hole Punched / Pre-Printed / Recycled / Thin CardStock / Letterhead / Thick / Cotton / Colored / Archive / Thin Glossy/ Heavy weight/ Extra heavy weight
	Media weight	<ul style="list-style-type: none"> Plain Paper: 71-90 g/m²(18.5-24 lb/ Duplex) Thick Paper: 91-105 g/m²(25-28 lb / Duplex) Heavy Weight Paper : 106-176 g/m²(Duplex) Extra Heavy Weight 1 Paper : 177-216 g/m² (Duplex) Extra Heavy Weight 2 Paper : 217-256 g/m² (Duplex) Extra Heavy Weight 3 Paper : 257-300 g/m² Thin Paper: 60-69 g/m² (16-19 lb/ Duplex) Cotton paper : 75-90 g/m² (Duplex) Colored : 75-90 g/m² (Duplex) Pre-Printed : 71-90 g/m² (Duplex) Recycled : 60-90 g/m² (Duplex) Bond Paper: 105-120 g/m² (Duplex) Letterhead : 75-90 g/m² (Duplex) Hole Punched Paper: 75-90 g/m² (Duplex) Thin CardStock : 105-163 g/m² (Duplex) Thin Glossy : 106-163 g/m² (Duplex)
	Sensing	<ul style="list-style-type: none"> H/W Install Detect: Yes Paper Empty & Low Level Detect: Yes Paper Type Detect: No Paper Size Detect: Yes
	Dimension	566 x 610 x 265 mm (22.3" x 24" x 10")
	Weight	Net 20 kg, Packing 23.5 kg
High-Capacity Feeder - Bottom (2k)	Model Name	SL-HCF501B
	Capacity	2000 sheets @ 20lb (80 g/m ²)
	Media sizes	A4,Letter
	Media types	Plain Paper, Thin Paper, Thick Paper, Punched Paper
	Media weight	60 to 300gsm
	Sensing	<ul style="list-style-type: none"> H/W Install Detect : Yes Paper Empty & Low Level Detect : Yes Paper Type Detect : No Paper Size Detect : No

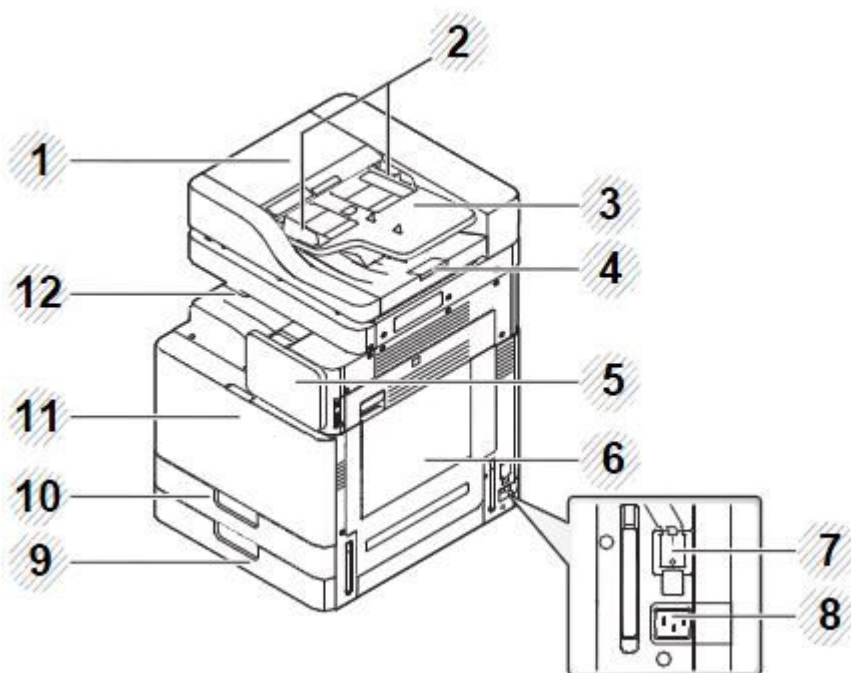
2. Product Specifications and Description

Item		Specification
High-Capacity Feeder - Side (3K)	Model Name	SL-HCF501S
	Capacity	3000 sheets @ 20lb (80 g/m ²)
	Media sizes	A4,Letter
	Media types	Plain Paper, Thin Paper, Thick Paper, Punched Paper
	Media weight	60 to 300gsm
	Sensing	<ul style="list-style-type: none"> • H/W Install Detect : Yes • Paper Empty & Low Level Detect : Yes • Paper Type Detect : No • Paper Size Detect: No
Stand	Model Name	SL-DSK501T
	Dimension	585 x 670 x 257 mm
	Weight (Net)	18 kg
Job Separator	Model Name	SL-JST501S
	Capacity	125 sheets @ (80g/m ²)
Inner Finisher	Model Name	SL-FIN502L
	Capacity	500 sheets stacking, internal
	Staple Cartridge capacity	5000 staples / cartridge
	Stacking	<ul style="list-style-type: none"> • Top Tray : 50 sheets (A4/LT @ 80gsm) • Finishing Tray : 500 sheets (A4/LT @ 80gsm)
	Stapling	<ul style="list-style-type: none"> • Max. Number of Sheets : 50 sheets stapling with 90g/m² sheet • Stapling Positions : Front flat & corner(45) / Dual / Rear flat & corner(45)
	Saddle Stapling	N/A
	Offline Stapling	N/A
	Offset at Non Staple job	Yes
	Offset at Staple job	N/A
	Output Stacking	Face Down
3250-sheet Finisher	Model Name	SL-FIN701H
	Capacity	65 sheets stapling / 3250 sheets stacking
	Staple Cartridge capacity	5000 staples / cartridge
	Stacking	<ul style="list-style-type: none"> • Top Tray : 250 sheets (A4/LT @ 80gsm) • Finishing Tray : 3000 sheets (A4/LT @ 80gsm)
	Stapling	<ul style="list-style-type: none"> • Max. Number of Sheets : 65 sheets stapling with 90g/m² sheet • Stapling Positions : 2 Corners (Single, 45 degree), Center (Double)
	Offline Stapling	Yes
	Offset at Non Staple job	Yes
	Offset at Staple job	Yes
	Output Stacking	Face Down

Item		Specification
2250-sheet Booklet Finisher	Model Name	SL-FIN701B
	Capacity	65 sheets stapling / 2000 sheets stacking
	Staple Cartridge capacity	5000 staples / cartridge
	Stacking	<ul style="list-style-type: none"> Top Tray : 250 sheets (A4/LT @ 80gsm) Finishing Tray : 2000 sheets (A4/LT @ 80gsm)
	Stapling	<ul style="list-style-type: none"> Max. Number of Sheets : 65 sheets stapling with 90 g/m² sheet Stapling Positions : 2 Corners (Single), Center (Double)
	Saddle Stapling	<ul style="list-style-type: none"> Max. Number of Sheets : 25 sheets stapling with 80 g/m² sheet
	Offline Stapling	Yes
	Offset at Non Staple job	Yes
	Offset at Staple job	Yes
	Output Stacking	Face Down
Punch Kit	Model Name	SL-HPU701T/SL-HPU701F/SL-HPU701/S
	Available Unit	Auto change 2/3 hole or auto change 2/4 hole, Swedish 4
	Paper weight	52~300 g/m ²
Punch Kit (Inner)	Model Name	SL-HPU501T/SL-HPU501F/SL-HPU501S
	Available Unit	Auto change 2/3 hole or auto change 2/4 hole, Swedish 4
	Paper weight	52~256 g/m ²
Working Table	Model Name	CLX-WKT001
	Dimension (WxDxH)	153 x 124 x 39.7 mm (6 x 4.9 x 1.6 inch)
	Weight	82 g (0.18 lb)
Working Table	Model Name	SL-WKT101
	Dimension (WxDxH)	282 x 468 x 99 mm (11.1 x 18.4 x 3.9 inch)
	Weight	828 g (1.825 lb)

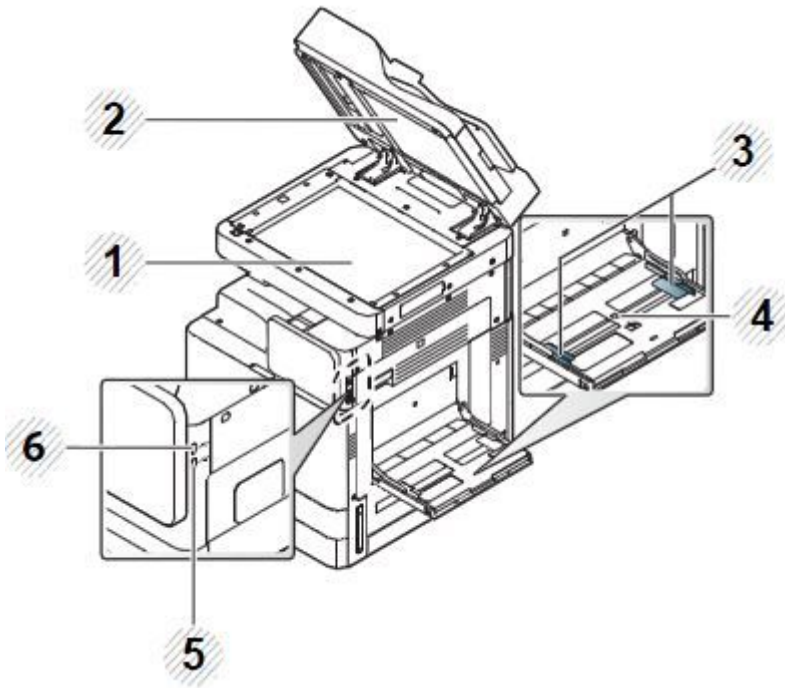
2.3. Machine External View

1) Front view 1



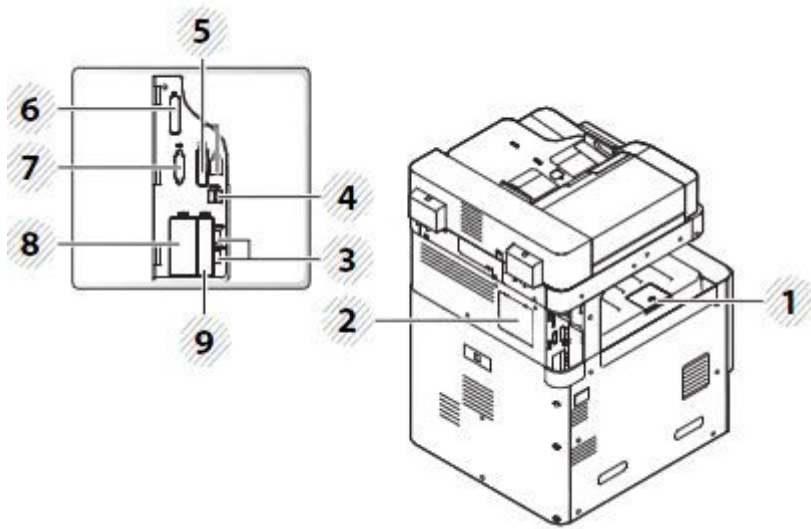
1	ADF(Auto Document Feeder) cover
2	ADF width guides
3	ADF input tray
4	ADF output tray
5	Control panel
6	Multi-purpose tray
7	Power-switch
8	Power receptacle
9	Tray2
10	Tray 1(Top tray)
11	Front door
12	Paper output tray

2) Front view 2

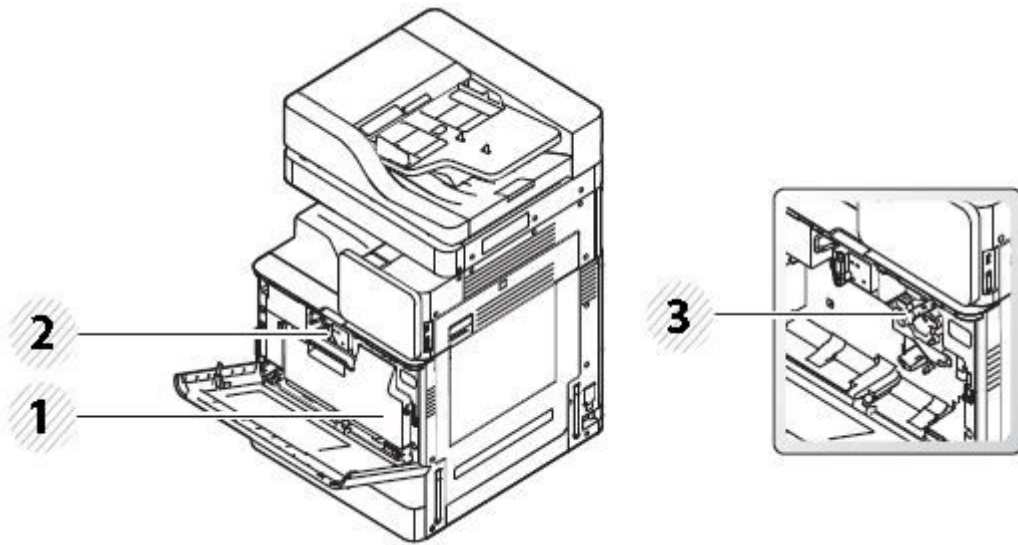


1	Scanner glass
2	White sheet
3	Multi-purpose tray paper width guide
4	Multi-purpose tray
5	USB keyboard port
6	USB port

Rear view



1	Output support tray
2	Control board cover
3	USB port
4	USB printer port
5	Network port
6	EFI (Optional) cover
7	FDI (Optional) cover
8	Fax1 (Optional) port cover
9	Fax2 (Optional) port cover

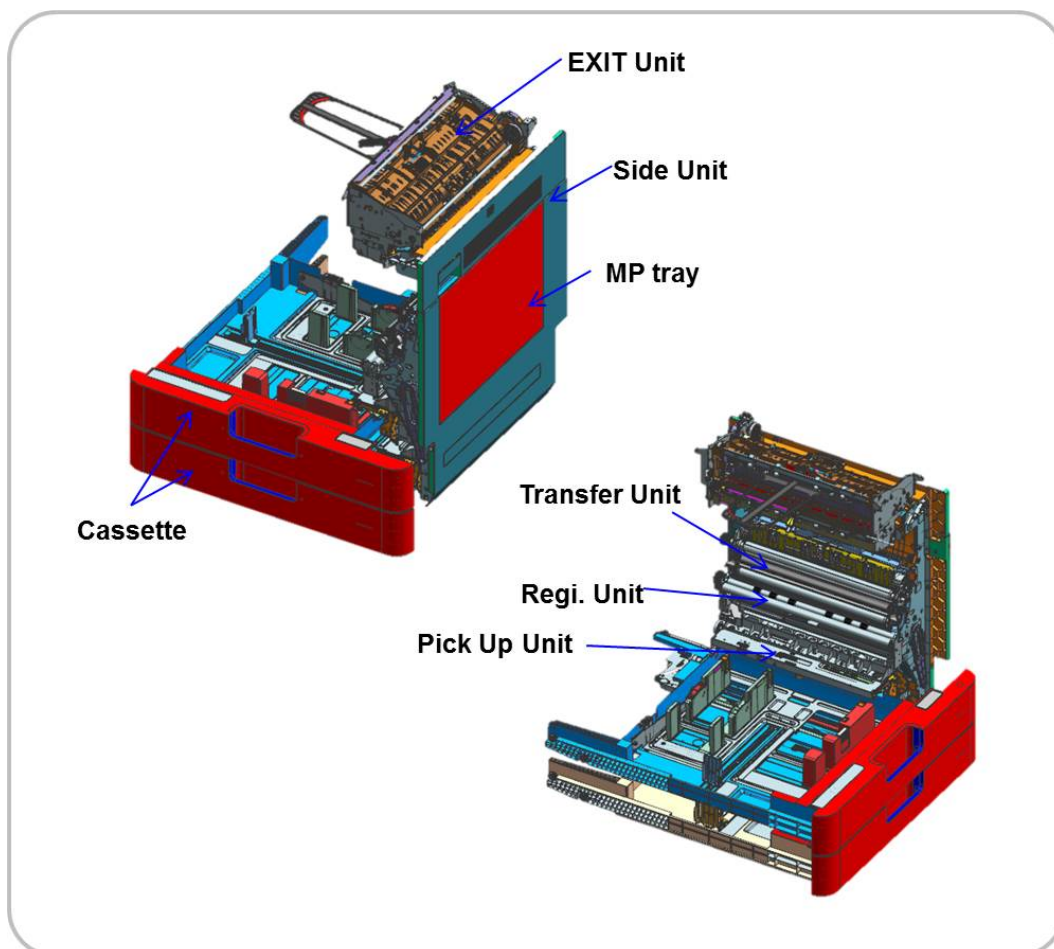
Inner view

1	Waste toner container
2	Toner Cartridges
3	Imaging units

2.4. Feeding System

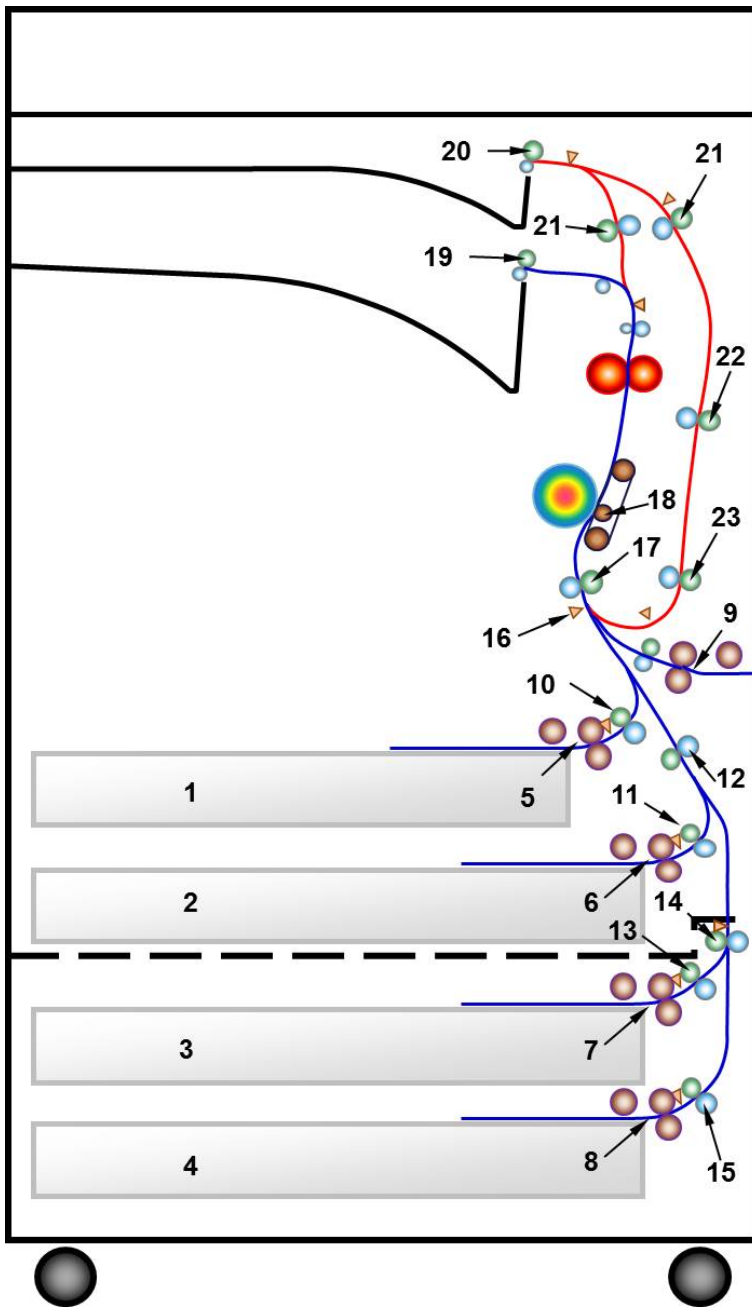
2.4.1. Feeding System Overview

The feeding system picks up a paper from the cassette or MP tray and transports it to the machine inside. After printing process, the paper is put out on the exit tray. The feeding system mainly consists of the pick up unit, registration unit, transfer Assy, Exit unit.



2.4.2. Main Components and functions

a) Rollers



1	Tray 1 Paper tray
2	Tray 2 Paper tray
3	Tray 3 Paper tray(Optional)
4	Tray 4 Paper tray(Optional)
5	Tray 1 pick up / reverse / forward rollers
6	Tray 2 pick up / reverse / forward rollers
7	Tray 3 pick up / reverse / forward rollers (Option)
8	Tray 4 pick up / reverse / forward rollers (Option)

9	MP Tray pick up / reverse / forward rollers
10	Tray 1 feed roller
11	Tray 2 feed roller
12	Tray 2 trans roller
13	Tray 3 feed roller (Option)
14	Tray 3 trans roller (Option)
15	Tray 4 feed roller (Option)
16	Sensor registration
17	Roller registration

2. Product Specifications and Description

18	PTB Unit
19	Roller Exit 1st
20	Roller Exit 2nd
21	Roller Exit trans

22	Roller Duplex1
23	Roller Duplex2
23	Roller Duplex3

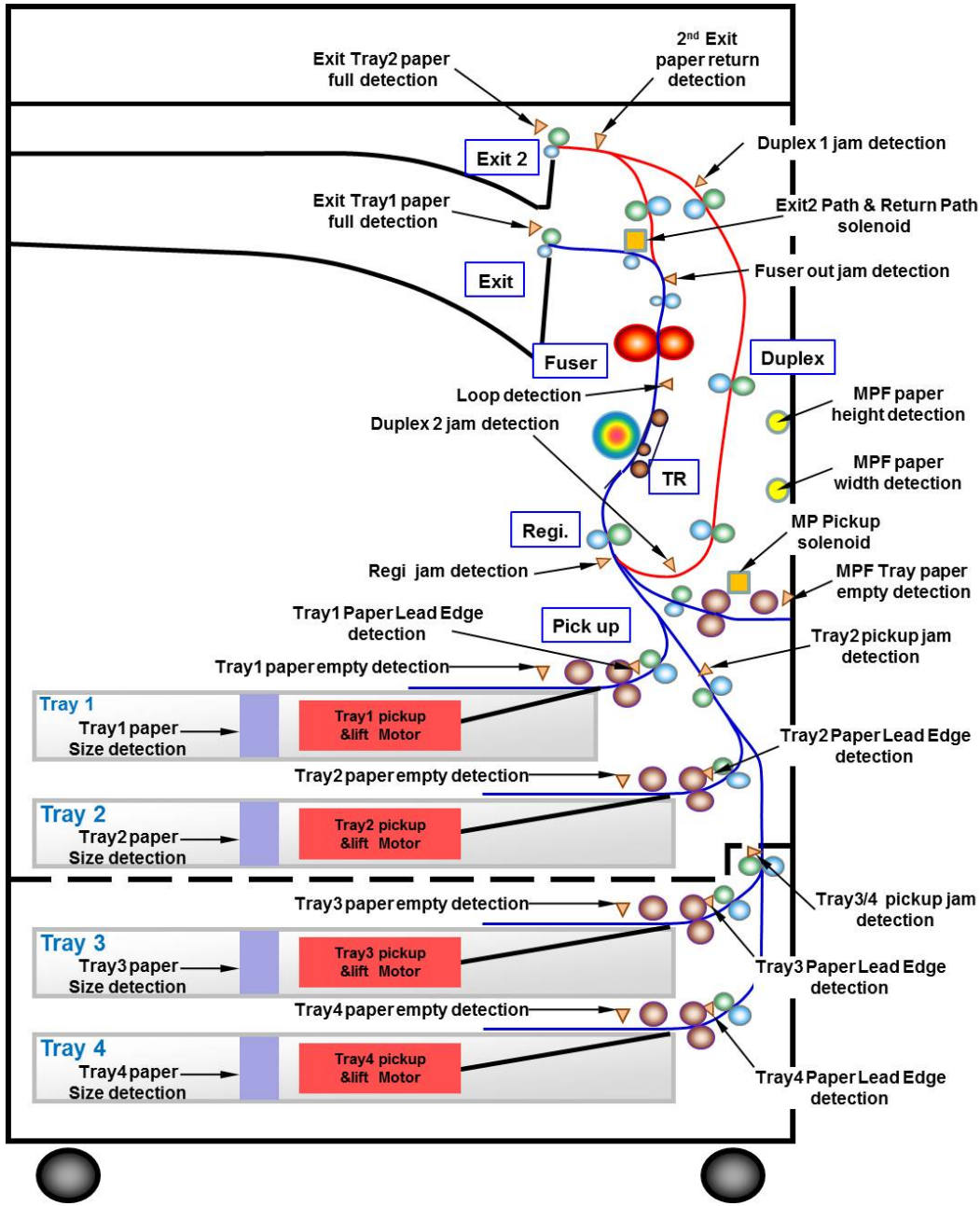
- **Pick-Up roller (Tray 1,2,3,4 and MP Tray)**
 - This roller picks up the paper from the tray.
- **Forward roller (Tray 1,2,3,4 and MP Tray)**
 - This roller is placed against the reverse roller. It transports the paper from the pick up roller to feed roller.
- **Reverse roller (Tray 1,2,3,4 and MP Tray)**
 - This roller is placed against the forward roller and transports only one sheet to the feed roller. When two sheets of paper or more are transported from the pick up roller, the load of the torque limiter of the reverse roller is heavier than the frictional force between the sheets. As a result, the reverse roller is stopped and the lower paper does not advance any further.
- **Feed roller**
 - This roller transports the paper sent from the forward/reverse roller to the registration roller.
- **Registration roller**
 - This roller aligns the leading edge of the paper and transports the paper to the transfer roller Assy.

**NOTE**


[Roller period table]

Roller	Periodic
OPC/Drum	188.5 mm
Charge Roller (CR)	37.7 mm
Magnetic roller (MR)	36.9 mm
PTB D/R	66 mm
PTB BELT	161 mm
Fuser Belt (HR)	109.96 mm
Fuser Pressure Roller (PR)	116.24 mm

b) Sensor, Motor, Solenoid



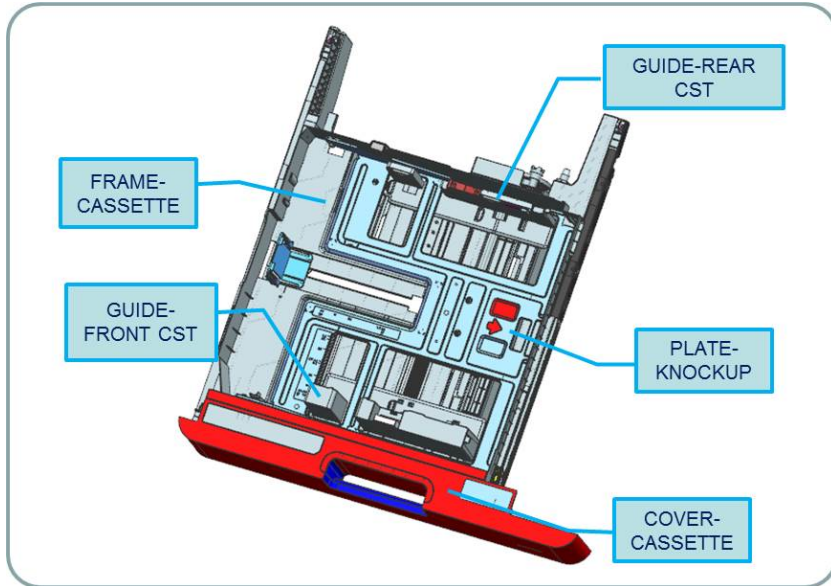
Item	Function
Tray1 paper size detection sensor	Detects Tray1 paper size
Tray1 paper empty detection sensor	Detects Tray1 paper empty
Tray1 upper limit detection sensor	Detects Tray1 upper limit
Tray1 paper Lead Edge detection sensor	Detects Tray1 paper Lead Edge
Tray2 paper size detection sensor	Detects Tray2 paper size
Tray2 paper empty detection sensor	Detects Tray2 paper empty
Tray2 upper limit detection sensor	Detects Tray2 upper limit
Tray2 paper Lead Edge detection sensor	Detects Tray2 paper Lead Edge
Tray2 paper feed jam detection sensor	Detects Tray2 paper feed jam
Tray3 paper size detection(Optional) sensor	Detects Tray3 paper size

Item	Function
Tray3 paper empty detection(Optional) sensor	Detects Tray3 paper empty
Tray3 upper limit detection(Optional) sensor	Detects Tray3 upper limit
Tray3 paper Lead Edge detection (Option) sensor	Detects Tray3 paper Lead Edge
Tray3/4 paper feed jam detection (Option) sensor	Detects Tray3/4 paper feed jam
Tray4 paper size detection(Optional) sensor	Detects Tray4 paper size detection
Tray4 paper empty detection(Optional) sensor	Detects Tray4 paper empty
Tray4 upper limit detection(Optional) sensor	Detects Tray4 upper limit
Tray4 paper Lead Edge detection (Option) sensor	Detects Tray4 paper Lead Edge
Paper regi. jam detection sensor	Detects Paper regi. jam
Paper fuser-out jam detection sensor	Detects Paper fuser-out jam
Exit tray1 paper full detection sensor	Detects Exit tray1 paper full
Exit2 tray path &Return path solenoid	Changes paper path
Return motor	Controls 2nd Exit Tray and duplex printing
Exit tray2 paper full detection sensor	Detects Exit tray2 paper full
Exit 2 paper return detection sensor	Detects Duplex Return position
1st Duplex motor	Controls duplex printing
2nd Duplex motor	Controls duplex printing
Duplex1 jam detection sensor	Detects Duplex1 jam
Duplex2 jam detection sensor	Detects Duplex2 jam
MPF Paper empty detection sensor	Detects MPF Paper empty  NOTE If paper is loaded in the MP tray, that tray takes priority over trays 1,2,3, or 4.
MPF	Controls MPF pick up roller
MPF paper width detection sensor	Detects MPF paper width
Tray1 Pickup & Lift motor	Drives the pickup roller and the knock up plate
Tray2 Pickup & Lift motor	Drives the pickup roller and the knock up plate
Tray3 Pickup & Lift motor	Drives the pickup roller and the knock up plate
Tray4 Pickup & Lift motor	Drives the pickup roller and the knock up plate
Paper Loop sensor	Detects paper loop between transfer Nip and fusing Nip At warm-up, Detects the fuser jam.

2.4.3. Cassette (Tray)

The Cassette stores papers.

Paper size is set using the Size Guides in each tray.



Specification

- 1) Structure : Drawer Type
- 2) Capacity : 520 Sheets (80 g/m² paper standard)
- 3) Paper support
 - Plain paper : A5, A4, A3(not support in tray1), B5, B4, Letter, 11"×17"(Ledger), Statement, Legal
 - Special Paper : Envelope(Tray1 Only), Label, Transparency
- 4) Paper weight : plain paper 60 ~ 300 g/m²
- 5) Plate knock up lift type : Lift Motor + Up Limit Sensor

2.4.4. Pick-Up Unit

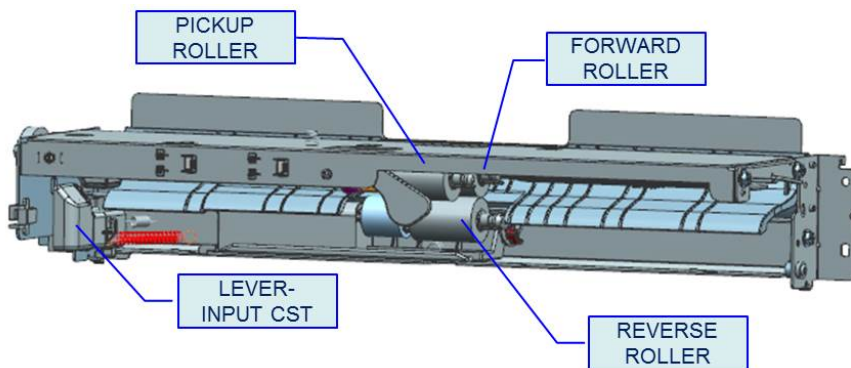
When pick-up takes place, the pickup roller moves down to come into contact with the surface of the paper. If the cassette is installed, the LEVER-INPUT CST is pushed and pick up roller moves down. The forward roller and the reverse roller serve to make sure that a single sheet of paper is moved to the paper path, and the paper is moved as far as the registration roller by the work of the feed roller.



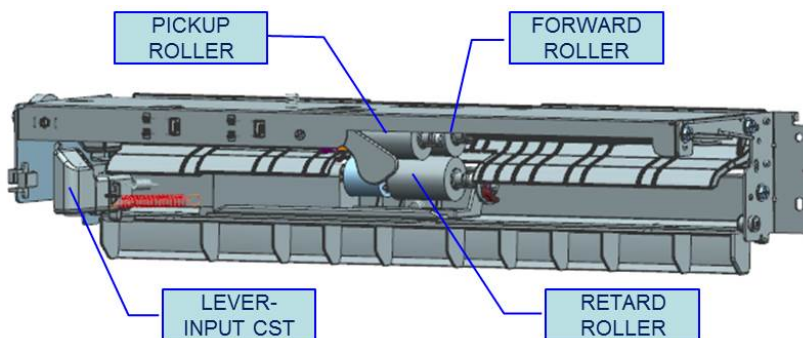
NOTE

The Pick-Up Unit1 and Pick-Up Unit2 can't be swapped over.

Pick-Up Unit 1

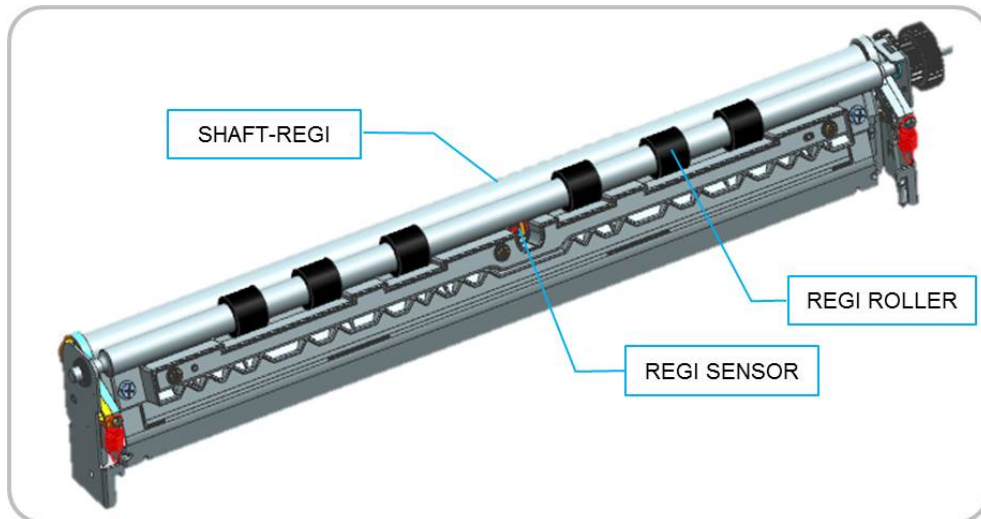


Pick-Up Unit 2



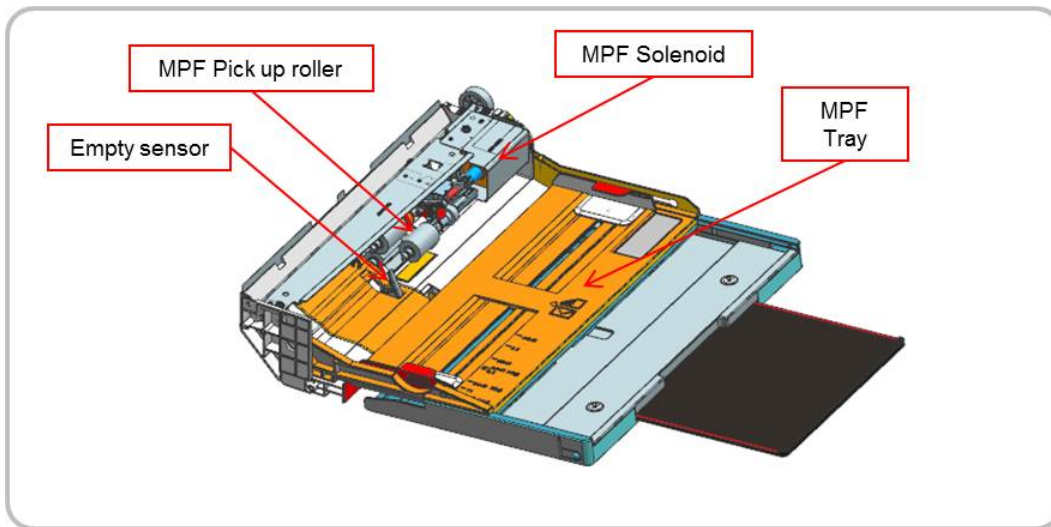
2.4.5. Registration Unit

The registration(Regi.) roller is driven by the Regi./MP motor. The Regi. clutch is located between the Regi. clutch and Regi./MP motor, and it controls ON/OFF of the registration roller in order to match paper and an image on the drum at the predetermined registration point.



2.4.6. MPF(Multi-Purpose Feeder) Unit

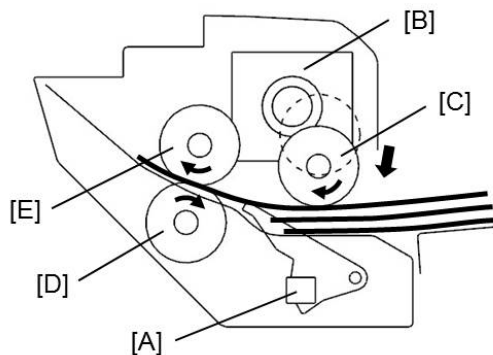
The MPF Unit allows feeding of specialty media stock, envelopes, and custom size paper.



■ Specification

- 1) Capacity : 100 sheets (80g/ paper standard)
- 2) Media Size : 98 x 148 mm ~ 320 x 1200 mm (3.8" x 5.8" ~ 12.6" x 47.2")
- 3) Media Weight : Plain paper 60 ~ 325 g/m²
- 4) Feeding Speed : 48 ppm (X7600/K7600) , 40 ppm (X7500/K7500), 32 ppm (X7400/K7400) Letter/A4 LEF (Long Edge Feeding)

■ Paper Separation



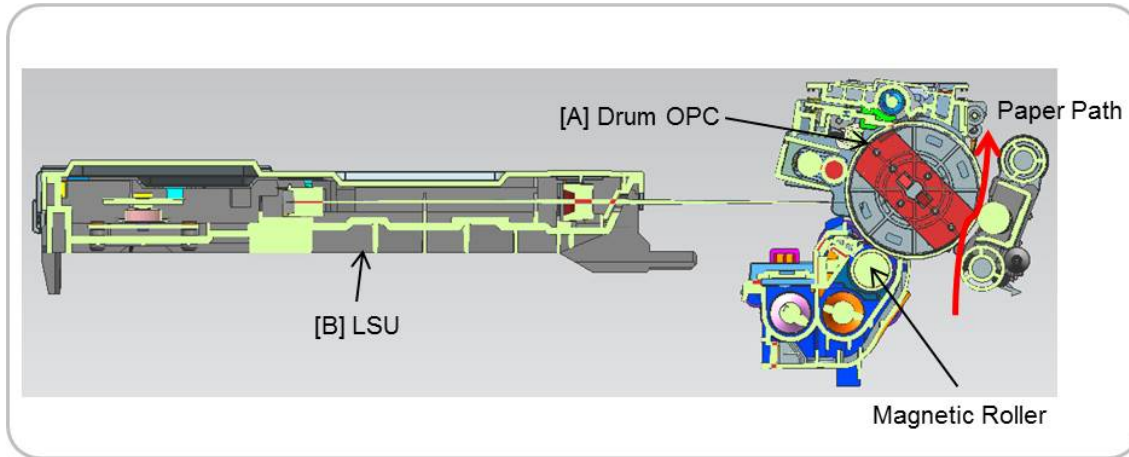
When the MP paper detection[A] sensor detects paper and the machine gets a MP printing job, the MP solenoid[B] drops the pick-up roller[C] onto the top of the paper stack on the MP tray.

This machine uses an FRR (Feed and Reverse Roller) system for feeding paper. The friction between the reverse roller[D] and forward roller[E] separates the top sheet of paper from the stack.

2.5. Image Creation

2.5.1. Printing process overview

This machine uses one drum unit, one deve unit, and a laser beam for mono printing. The drum unit consists of a OPC drum, charge roller, cleaning blade. The deve unit consists of a magnetic roller, mixing auger.



The OPC drum [A] is charged with a negative voltage and is exposed by the light from the LSU (Laser Scanning unit) [B].

The light produced by the laser creates a latent image by discharging on the surface of the OPC drum. The negatively charged toner is attracted to the latent drum image due to an electric field. The toners (mono image) on OPC drum are transferred to the paper by a positive bias.

- 1) **OPC drum charge** : The charge roller gives the drum a negative charge.
- 2) **Laser exposure** : Light produced by a laser diode hits the charged OPC through the lens and mirrors.
- 3) **Development** : The magnetic roller carries negatively charged toner to the latent image on the drum surface.
- 4) **Transfer**
 - Paper transfer : The PTB(Paper Transfer Belt) transfers the toner from the OPC drum to the paper.
- 5) **Cleaning for OPC drum** : The cleaning blade removes remaining toner on the drum surface after image transfer to the paper.
- 6) **Quenching for OPC drum** : Quenching is done by illuminating the whole area of the drum with the laser at the end of every job.

2.5.2. Imaging Unit

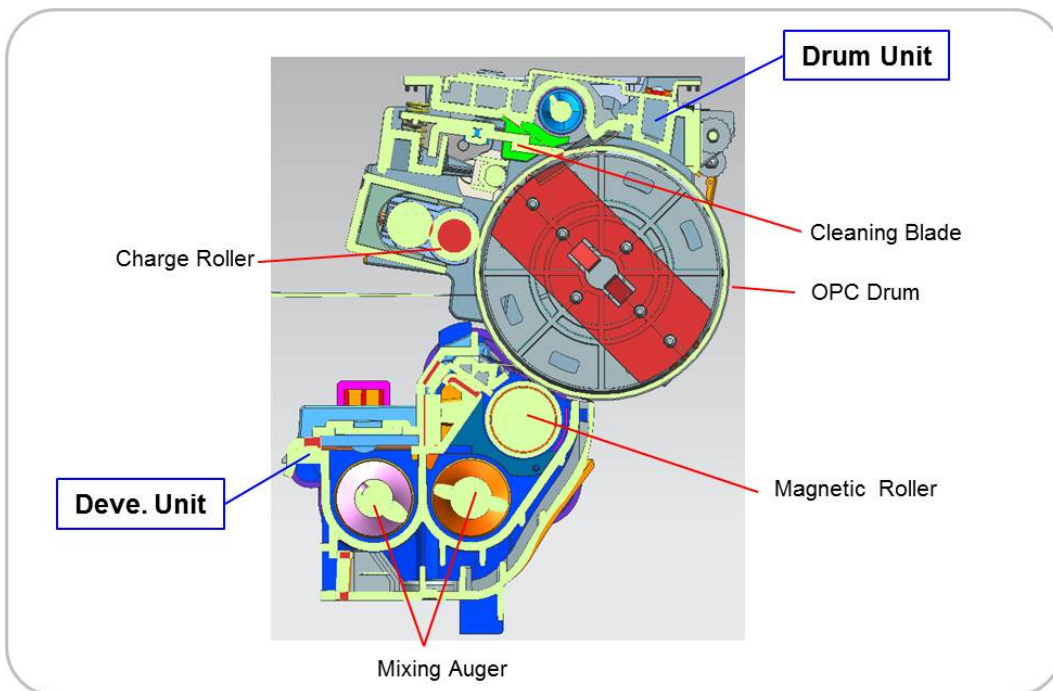
2.5.2.1. Drum Unit Overview

This machine has one Drum Unit and one Deve Unit.

The diameter of the drum is 60 mm (circumference: about 188.5 mm).

The drum unit has the charge roller to charge the drum surface and cleaning roller to clean the charge roller.

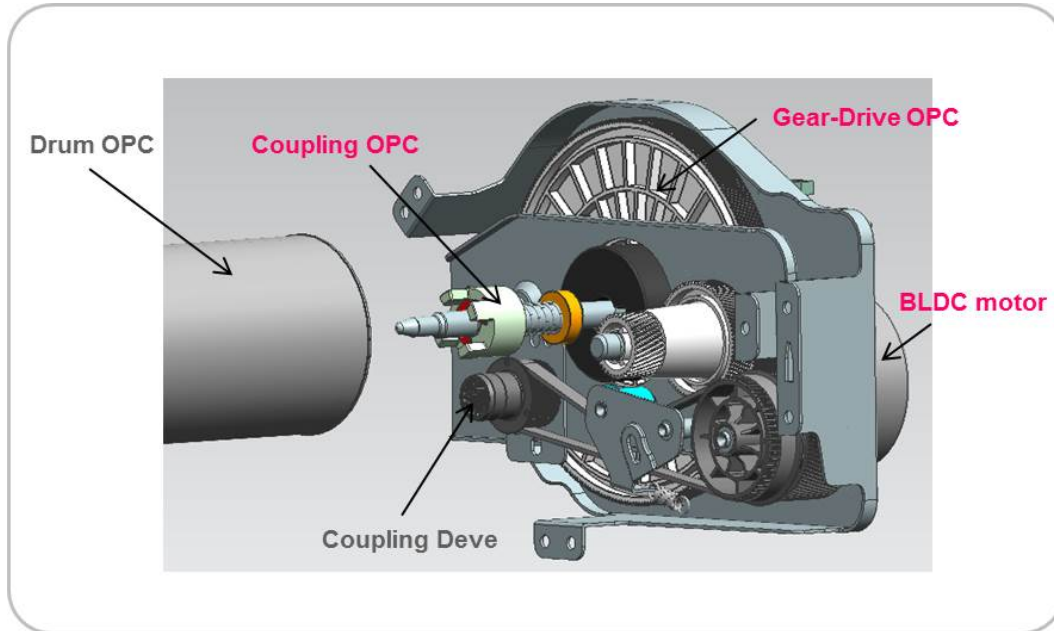
The CRUM is the sub part of the Drum Unit. It stores the count information and several data. If the Drum Unit is replaced, the count information stored by the old Drum Unit could not be kept.



2.5.2.2. Drum drive

The OPC drum and Magnetic roller is driven by a BLDC motor. The OPC drum and Magnetic roller are supplied with power from the coupling.

The driving shaft inserted to OPC drum makes the drum unit fix. It makes more stable image than previous structure.

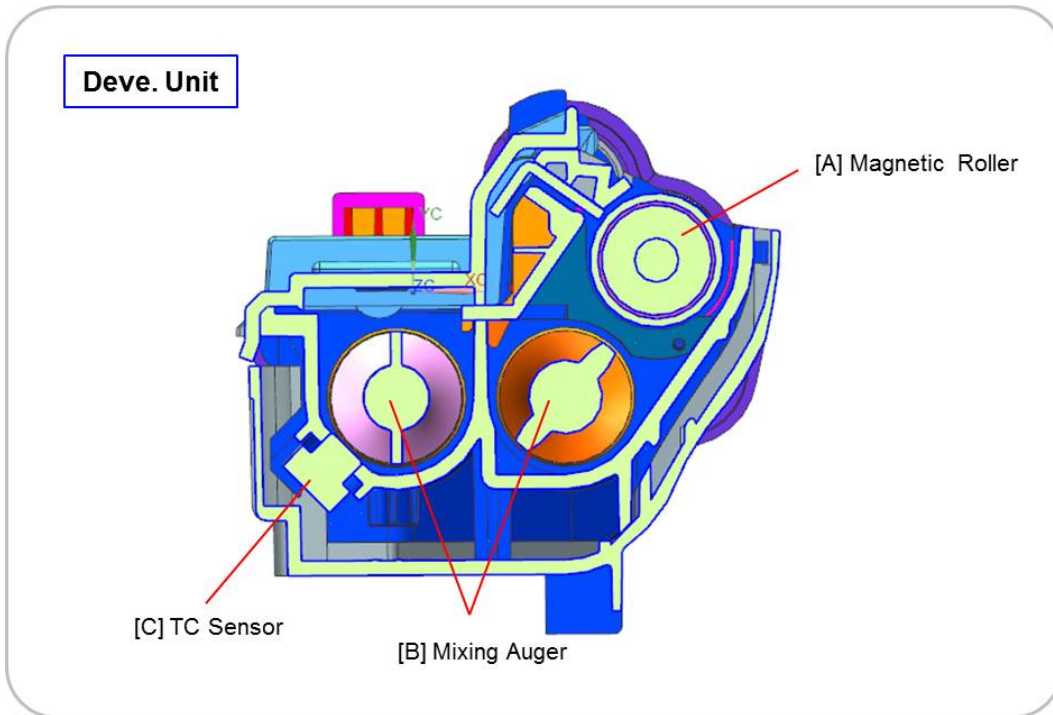


2.5.2.3. Deve(Development) Unit

This machine uses a dual-component development system. Deve unit contains 340g of magnetic toner carrier(developer powder).

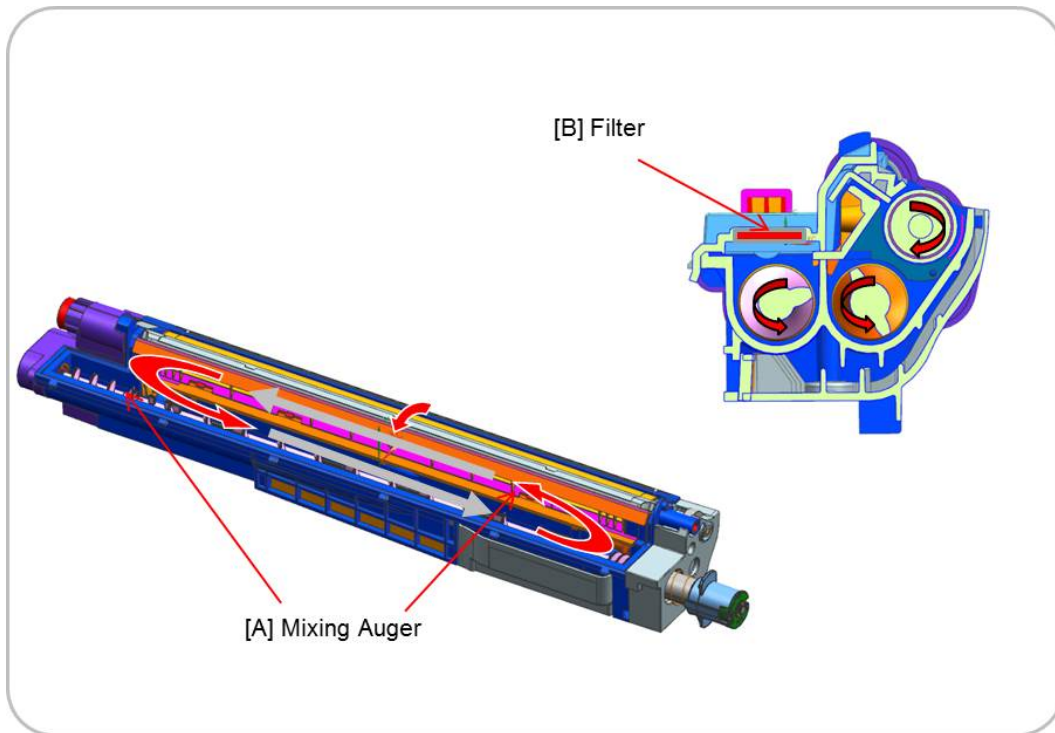
The developer powder is supplied to the magnetic(development) roller[A] by the two mixing augers[B]. The diameter of the magnetic roller is 18 mm.

Deve unit has a TC(Toner Carrier) sensor[C]. It is used for controlling the operating range of toner density.



■ Developer Agitation

Two mixing augers[A] circulate the developer forward and backward to agitate the developer in order to mix the developer and toner well.



Agitation job occurs at the following times. :

- During the process control self-checking (Warm up)
- During toner supply job
- During development job

If the deve unit is stored at temperature above 45°C (113°F), it does not works normally. The toner in deve unit is easy to harden at temperature above 45°C (113°F). If the toner in deve unit is harden, the installation error occurs when installing it.

2.5.3. Toner Cartridge

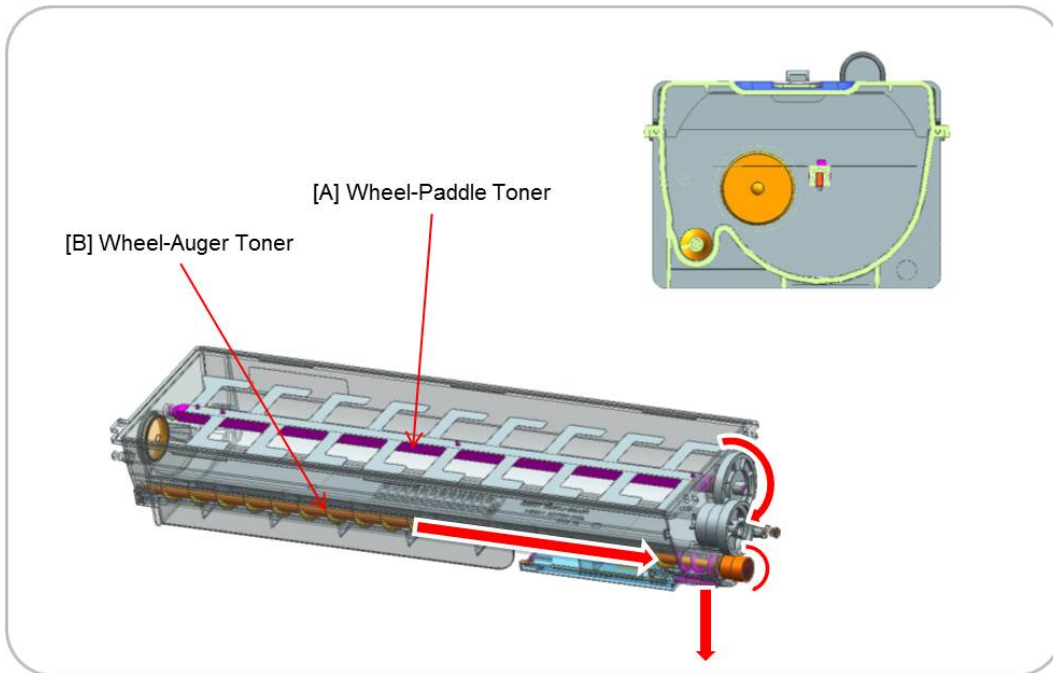
The toner and carrier in the toner cartridge is mixing.

The toner cartridge contains 940g of toner and 90g of carrier.

Toner in the cartridge is transferred from Wheel-Paddle Toner[A] to Wheel-Auger Toner[B] and transferred from Wheel-Auger Toner[B] to Reservoir

The toner cartridge has CRUM that stores the count information.

The toner in toner cartridge is easy to harden at temperature above 45°C (113°F).



2.5.4. PTB (Paper Transfer Belt) Unit

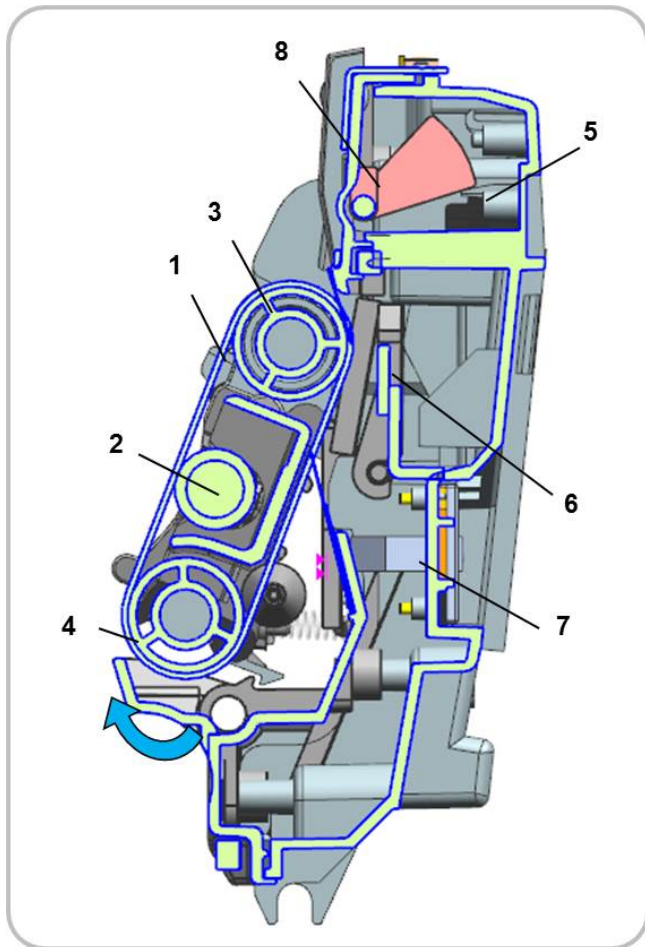
2.5.4.1. PTB unit overview

Paper Transfer Belt moves the paper.

The charged toner on drum is moved to the paper by the transfer roller in PTB unit. The rubber belt in PTB unit removes the static of the paper and separates the paper from the drum. So, paper can move into the paper path.

This process is done with rotation of the PTB. The rotation is driven by the friction between the drive roller and PTB. To The arrow above the C and M drums on the diagram shows the direction of ITB rotation. The rotation is made by the friction between the drive roller and transfer belt. For this process, the drive roller and guide roller provides proper tension to block slip.

There are 1 actuator and 2 photo sensors. An actuator recognizes the paper path and controls the paper speed for stable image quality.

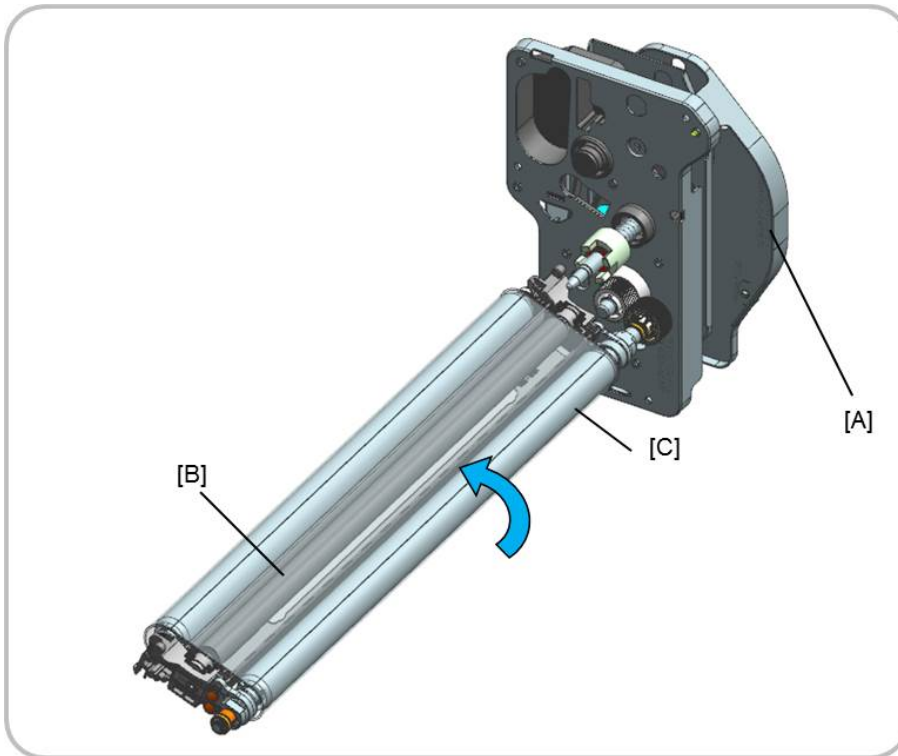


1	Belt PTB
2	Transfer Roller
3	Drive Roller
4	Guide Roller
5	PHOTO INTERRUPTOR

6	Cleaning Blade
7	Guide-Waste Toner
8	Actuator

2.5.4.2. Transfer belt drive

The drive motor[A] drives the transfer belt[B] by using gears and the PTB drive roller[C].

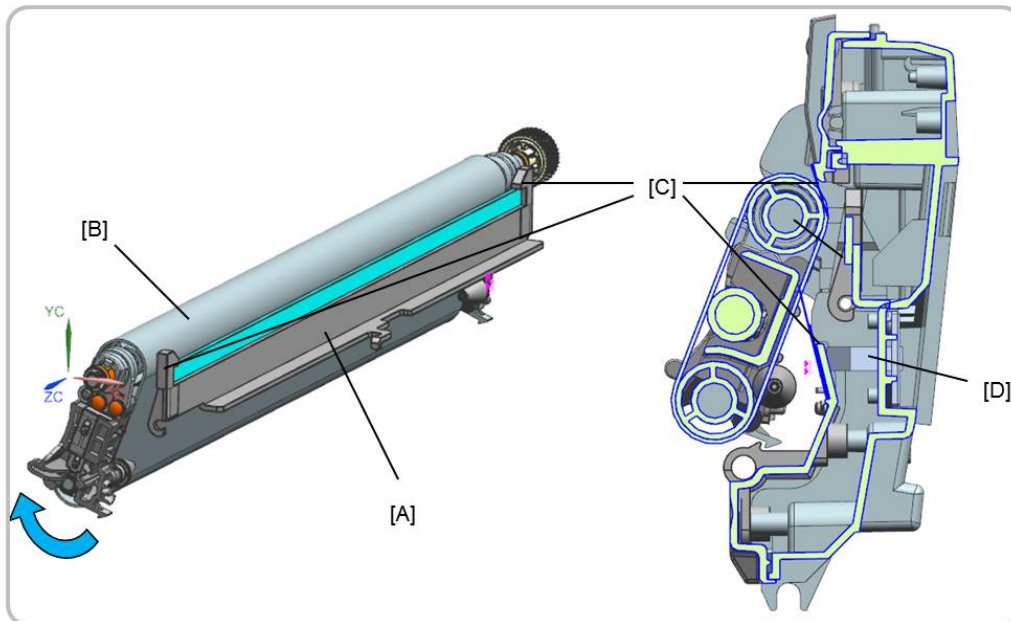


2.5.4.3. Cleaning Blade

The cleaning blade in PTB unit removes toner (during printing). Belt cleaning is completed while the transfer belt makes one rotation.

The cleaning blade[A] always contacts the transfer belt[B], and removes the used toner from the belt.

The film[C] on the cleaning unit protects against toner contamination. The lens [D] always detects waste toner level. If the light is blocked by waste toner, the machine displays the error message to inform the PTB replacement.



2.6. Fuser Unit

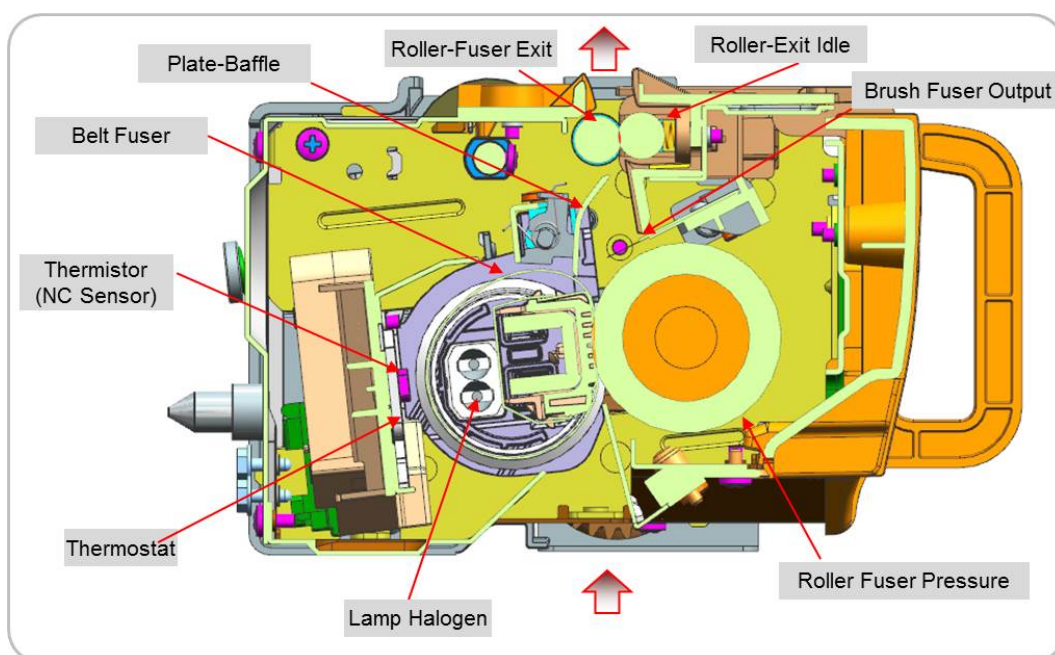
This section describes the image fusing process used by the machine.

2.6.1. Fuser Unit Overview

This unit fuses the toner that was transferred by the transfer roller onto the paper, by applying heat and pressure to complete the fusing process. This machine uses an instant fusing system(NIF type).

NOTE

This fuser unit is commonly used for MX X7(Color) and K7(Mono) series.



1) Lamp Halogen

The fuser unit has two halogen lamps. One heats the center of the fusing belt, the other heats the end of axial direction. These halogen lamps are lit alternately to heat the fusing belt. Each lamp has its coil in a different location. The coil of the center heater lamp is in the center, those of the side heater lamp are on both sides. The lamps are fixed inside of the fusing belt. When rotating the fusing belt, these lamps does not rotate.

2) Belt Fuser

The belt fuser gets heat from the halogen lamp and transfer it to toner and paper. The belt fuser consists of three thin-layers. The thin fusing belt reduces warming up time and mode changing time. To prevent the fusing belt from adhering to the toner, the surface of the fuser belt is fluorinated. There is a Nip inside the fusing belt. To maintain the proper Nip between the fusing belt and pressure roller, the spring is used.

3) Roller Fuser Pressure

The pressure roller ensures proper nip width between the pressure roller and fusing belt. It is made up of the soft silicone sponge rubber. And, it is driven by the driving system and drives the fusing belt.

4) Thermistor (NC sensor)

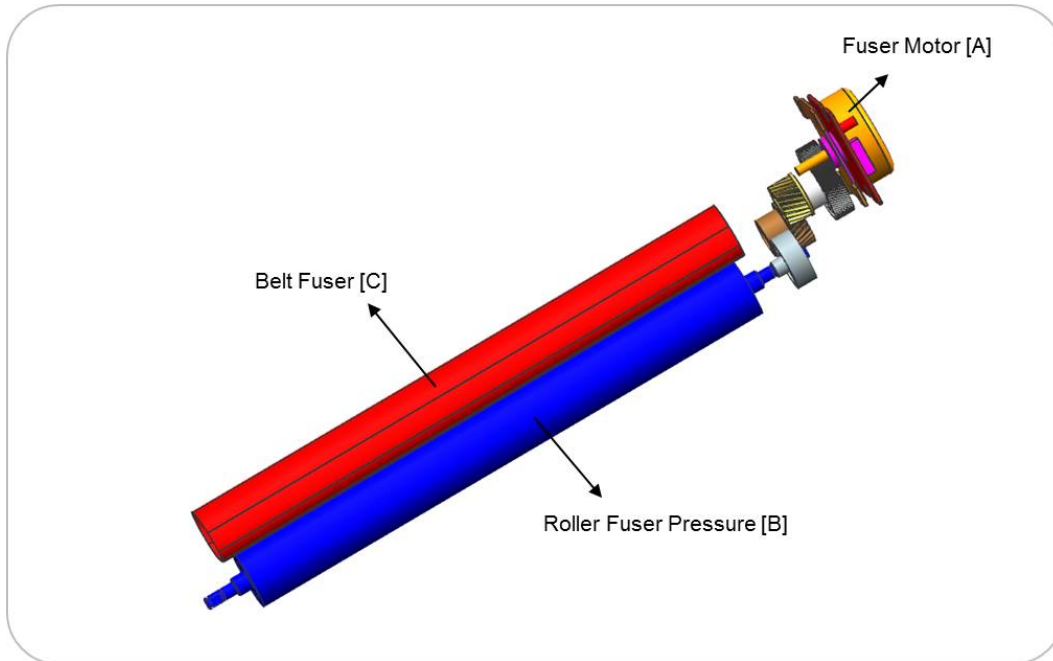
NC sensors (non-contact type thermistors), located near the center and the end of the fusing belt, control the temperature of the fusing belt.

5) **Thermostat**

Thermostats cut off the power supply to the halogen lamp by opening the circuit when the fusing belt becomes abnormally hot as a result of problems such as NC sensor malfunction. These thermostats are used to prevent abnormal operation. When the thermostat is triggered, it must be replaced (as well as the other damaged parts in the fuser unit).

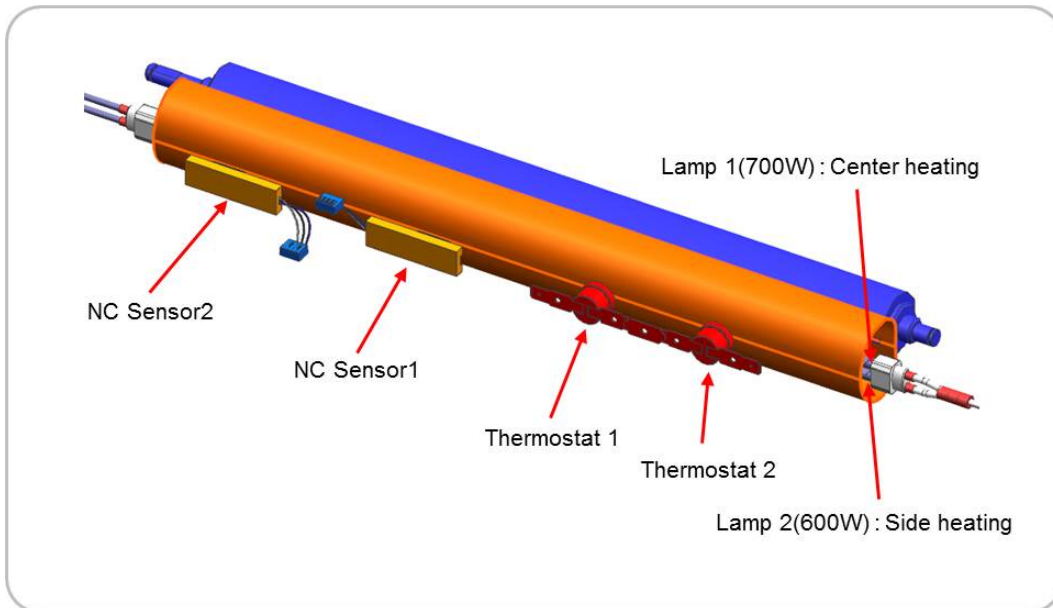
2.6.2. Fuser Unit drive

The fuser motor[A] drives the pressure roller[B] through the gear train. The fusing belt[C] pressurized by the pressure roller[B] is rotated by driving it.



2.6.3. Fuser unit temperature control

When the main switch turns on, the CPU turns on the fusing lamp. The lamp stays on until the NC sensors detect the standby temperature. Then the CPU raises the temperature up to the printing temperature.



■ Overheat Protection

The CPU cuts power to the fusing lamp in the following cases :

- The belt temperature detected by the NC sensors keeps higher than 220°C for 20 sec.
- The belt temperature detected by the NC sensors keeps higher than 230°C for 3 sec.
- The relay off works when belt temperature detected by the NC sensors is higher than 230°C

The following components are used when thermistor overheat protection fails :

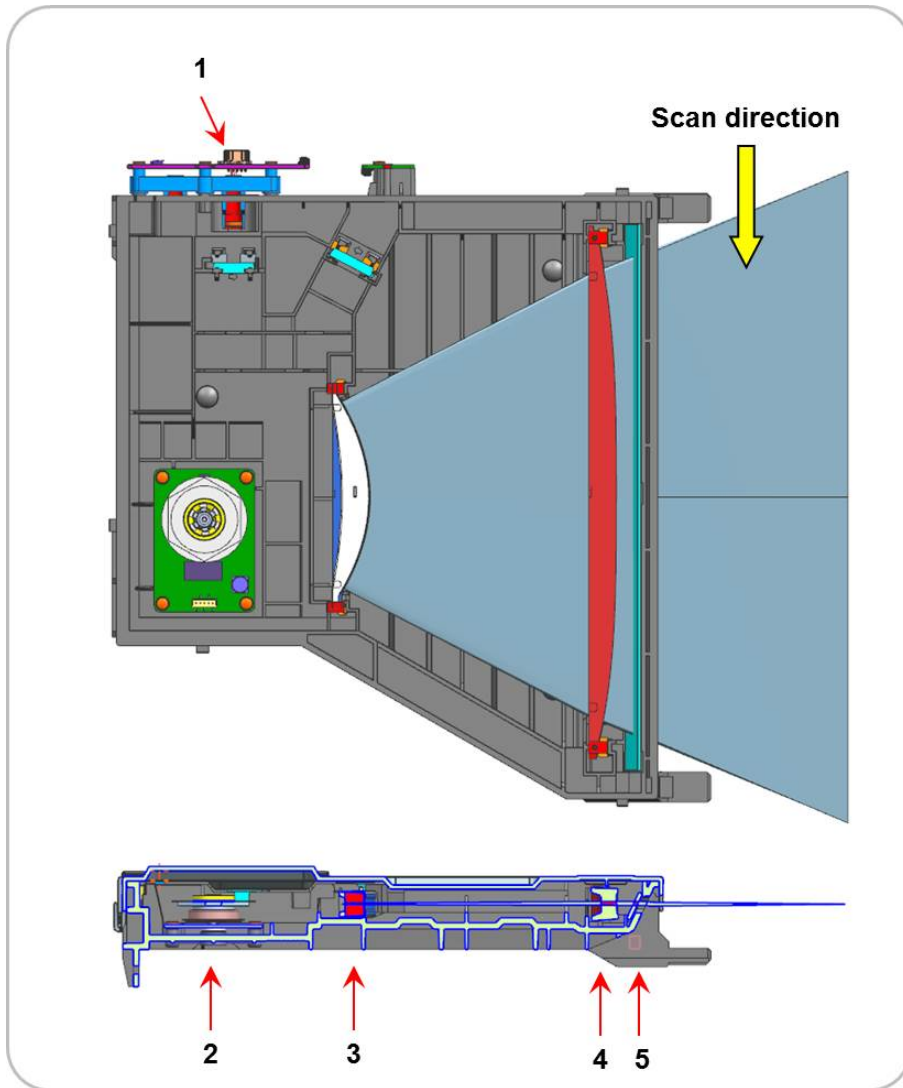
- Two thermostats get into line with the common ground wire of the fusing lamp.
- If one of the thermostat temperatures becomes higher than 195°C, it opens and cuts power to the fusing lamp. If the other thermostat temperature becomes higher than 195°C, it also opens and cuts power to the fusing lamp.

2.7. Laser Scanning Unit (LSU)

2.7.1. LSU overview

The LSU, consisted of 1 polygon motor and 1 LD unit, forms a latent image on the surface of 1 OPC drum. For this process, there are collimator lens, cylindrical lens and F-Theta Lens on optical path.

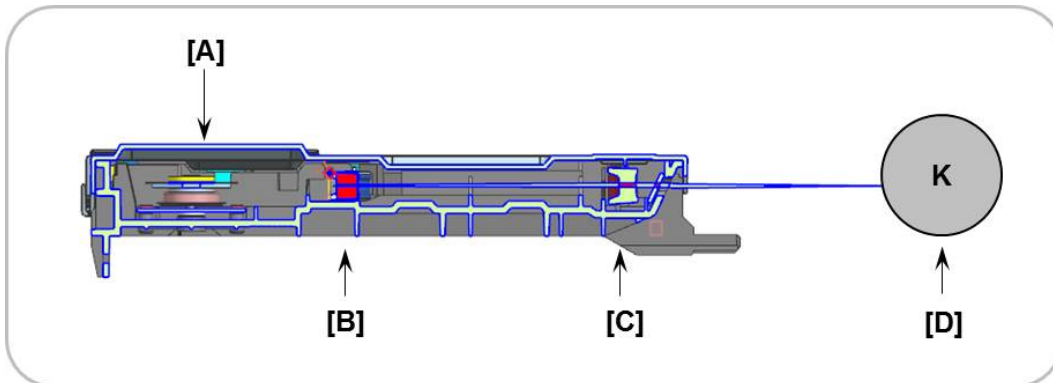
Also, LSU has the cover glass device to protect the LSU from the contamination. For interface with set, LSU has the LD PBA on front side.



1	LD PBA
2	P/Mirror Motor
3	F1 Lens
4	F2 Lens
5	Cover glass

2.7.2. Laser Scanning Optical path

The laser beam is emitted directly from a polygon motor [A] to OPC [D]. F1 Lens [B] and F2 Lens [C] determine the scanning line and image position. This is adjusted at the factory.



The LSU has 3 types depending on printing speed. The difference between the 3 models is shown below.

Item	Specification	Remark
LD Unit	Laser Diode : Quad Beam Driving IC : Dual LD X2	
P/Motor speed	<ul style="list-style-type: none"> • K7600 : 33,071 rpm • K7500 : 27,520 rpm • K7400 : 22,087 rpm 	
Speed	<ul style="list-style-type: none"> • K7600 : 280 mm/sec • K7500 : 233 mm/sec • K7400 : 187 mm/sec 	
H/W interface	Interface with machine : 40 Pin	FFC

2.7.3. Laser synchronizing detectors

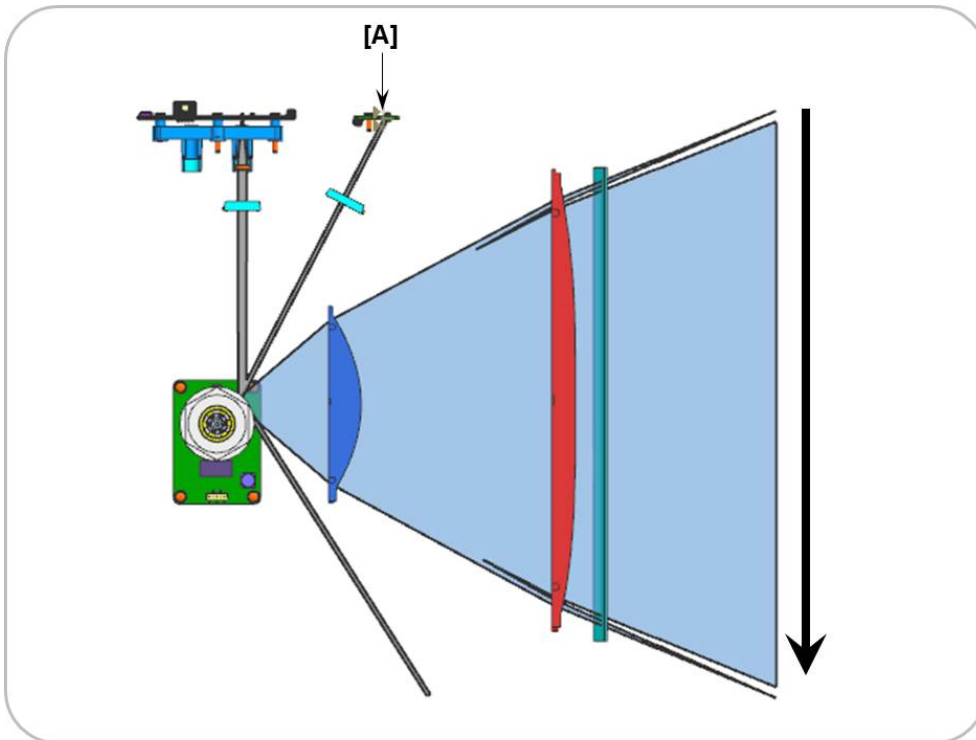
The machine has a beam detector sensor board (PD PBA). It is located on the corner (mark “A”)

The PD board detects the point of scanning start.

Main Scan Start Detection

A beam is detected by the PD PBA at the scanning start point and creates the horizontal sync signal (Hsync).

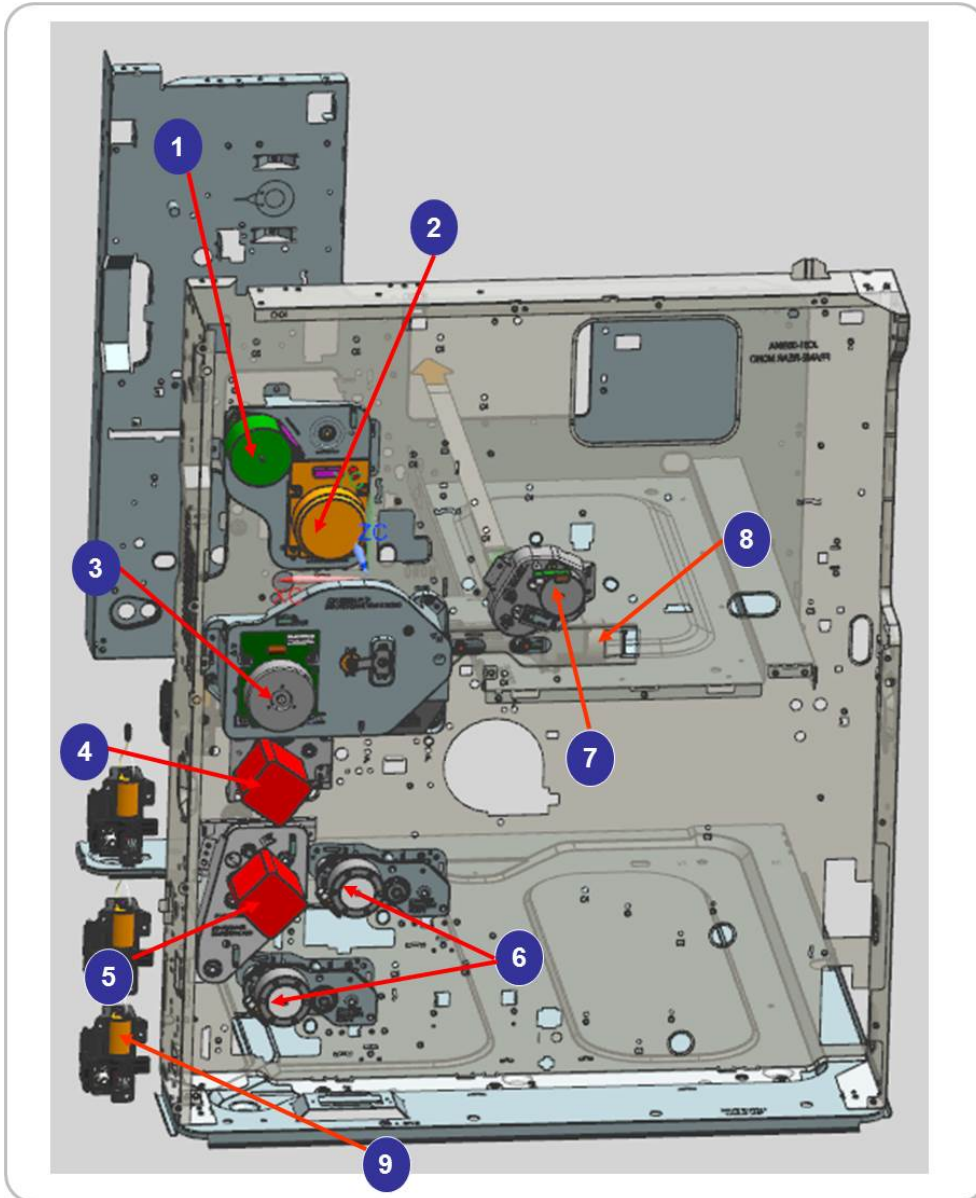
The picture below shows the data scanning direction.



2.8. Drive System

2.8.1. Drive Motors

The following diagram displays the locations of the printer drive motors.

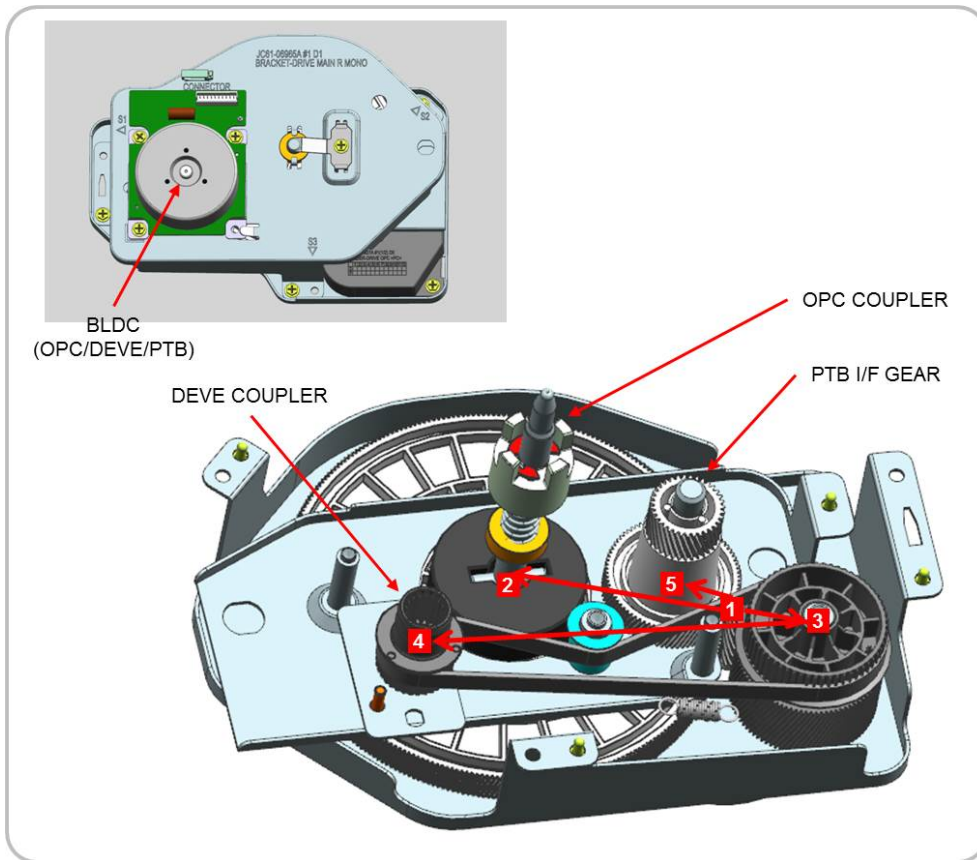


	Motor	Motor Type	Qty	Function
1	Fuser Release	PM-STEP	1	Fuser Release driving
2	Fuser & Exit	BLDC	1	Fuser and Exit driving
3	Main OPC & Deve & PITB	BLDC	4	OPC and PTB Belt driving
4	Regi.	HB-STEP	1	Regi driving
5	Feed/MP	HB-STEP	1	Feed roller 1, 2, 3 driving
		E-CLT	1	Feed / MP driving control

2. Product Specifications and Description

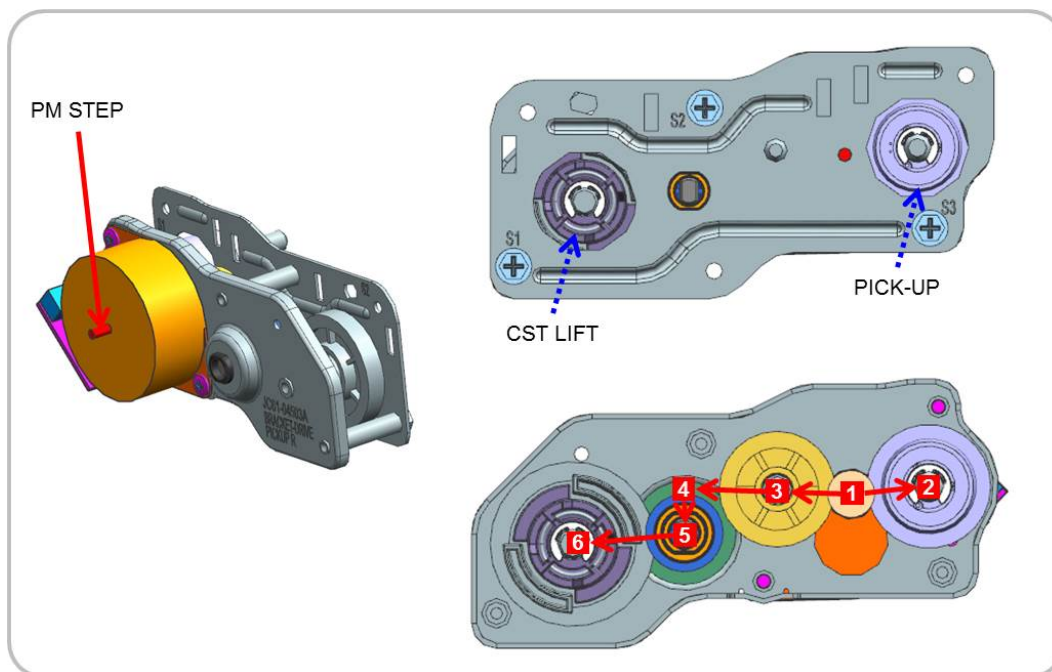
	Motor	Motor Type	Qty	Function
6	Pick-Up	PM-STEP	2	Pick-Up roller / CST Lift driving (Reverse driving at CST Lift driving)
7	Toner Supply	PM-STEP	1	Toner transfer (Toner cartridge → Reservoir)
8	Toner Reservoir	PM-STEP	1	Toner transfer (Reservoir → Deve unit)
9	CST lock	DC	4	CST lock function On/Off

2.8.2. Main Drive Unit(OPC_Deve_ITB)



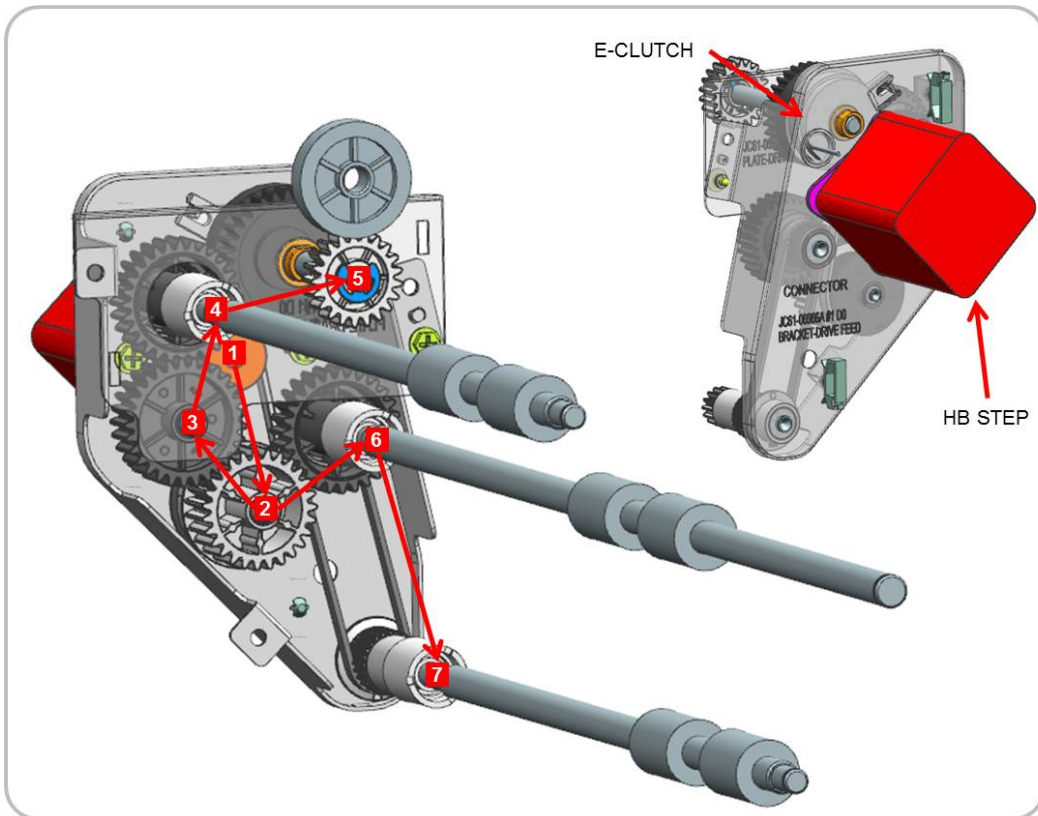
Power Train	BLDC → OPC & Deve & PTB driving
<ul style="list-style-type: none"> • 1 BLDC → 2 Gear & Coupler (OPC driving) • 1 BLDC → 3 Gear & Pulley → 4 Coupler (Deve driving) • 1 BLDC → 5 Gear (PTB driving) 	

2.8.3. Pick-Up and CST Lift drive



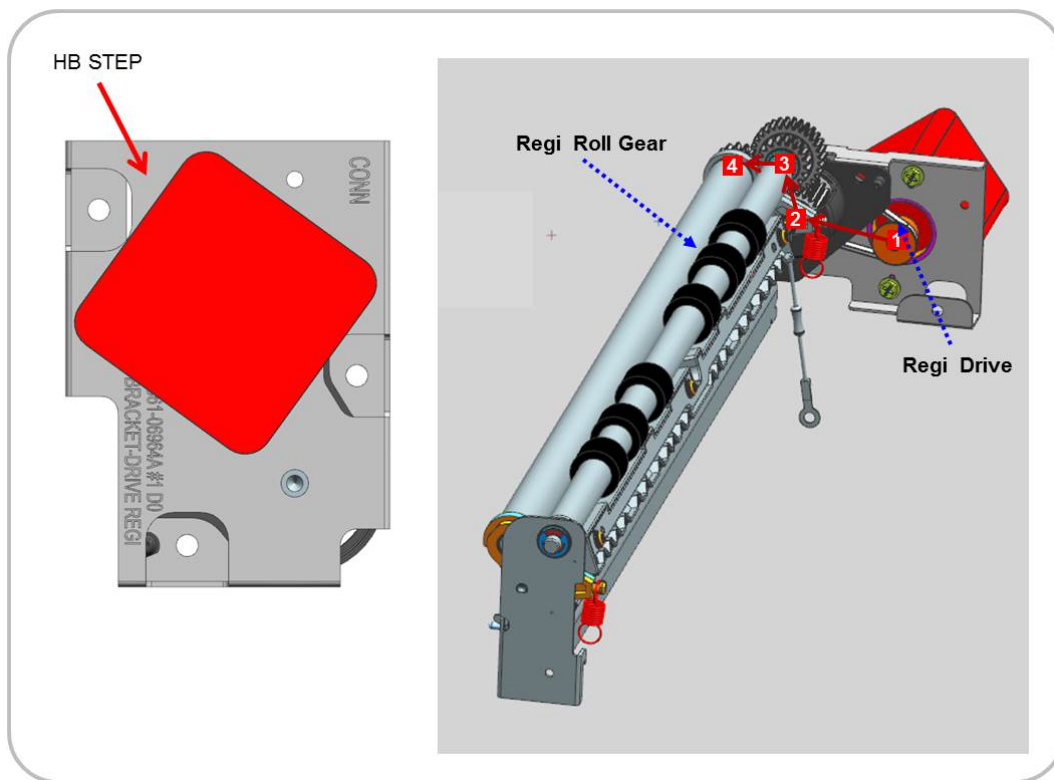
Power Train	Pick-up : normal rotation (Pick-up input) / counter rotation (Cst Lift input)
<ul style="list-style-type: none"> • 1 PM STEP → normal rotation → 2 Gear (Pick-Up driving) • 1 PM STEP → counter rotation → 3 Gear → 4 5 Gear → 6 Gear & Coupler (Cst Lift driving) 	

2.8.4. Feed Drive



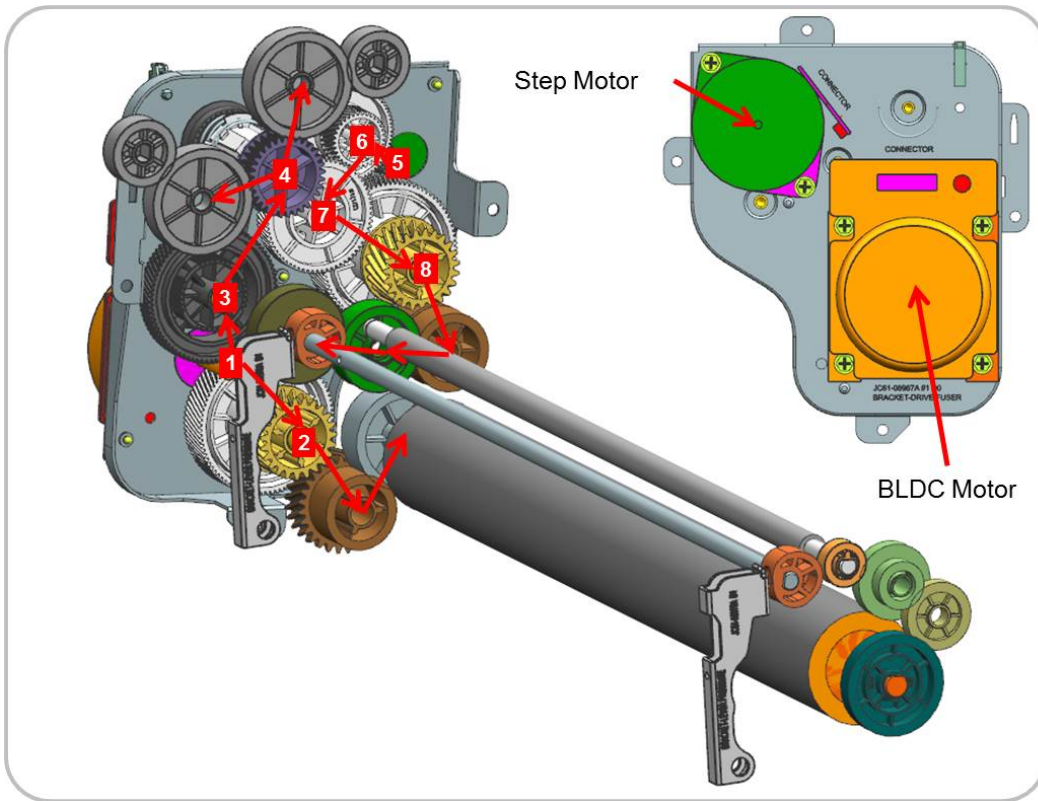
Power Train	HB STEP → Feed & MP drive
	<ul style="list-style-type: none"> • 1 HB STEP → 2 Pulley & Coupler → 3 Gear → 4 Gear & Coupler (Feed Roller driving) → 5 E-Clutch & Gear (MP driving) • 1 HB STEP → 2 Pulley & Coupler → 6 Gear & Coupler (Feed Roller driving) → 7 Pulley & Coupler (Feed Roller driving)

2.8.5. Regi Drive



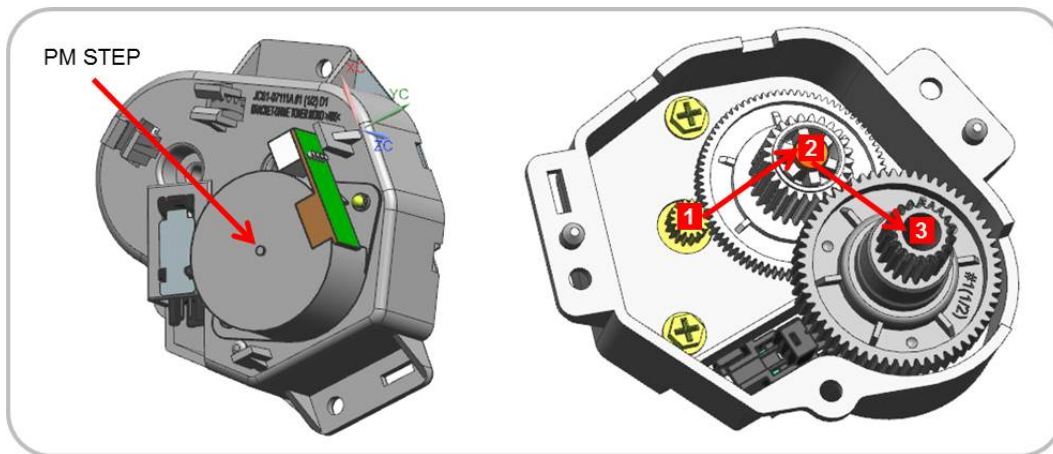
Power Train	HB STEP → Regi driving
<ul style="list-style-type: none"> 1 HB STEP → 2 Gear → 3 Gear (Regi Roller driving) 	

2.8.6. Fuser(Release)_Exit Drive



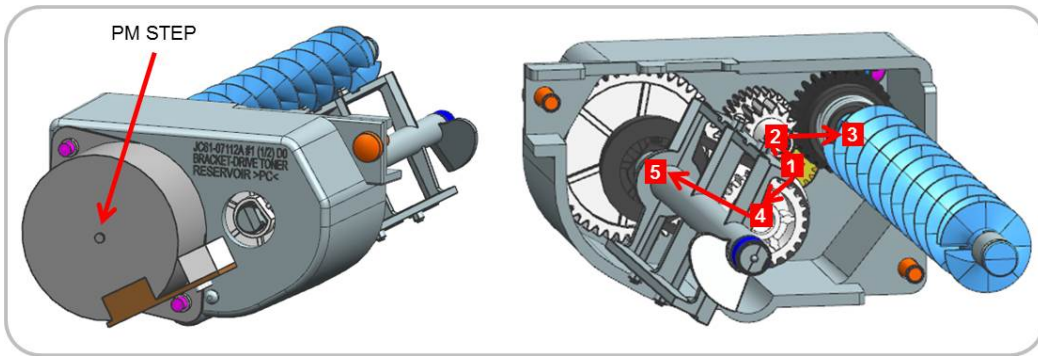
Power Train	BLDC → Fuser & Exit driving PM Step → Fuser Release driving
<ul style="list-style-type: none"> • 1 BLDC → 2 Gear (Fuser P/R driving) • 1 BLDC → 3 Gear & Pulley → 4 Gear (Exit driving) • 5 PM Step → 6 Gear → 7 Gear → 8 Gear (Fuser Release driving) 	

2.8.7. Toner Supply Drive



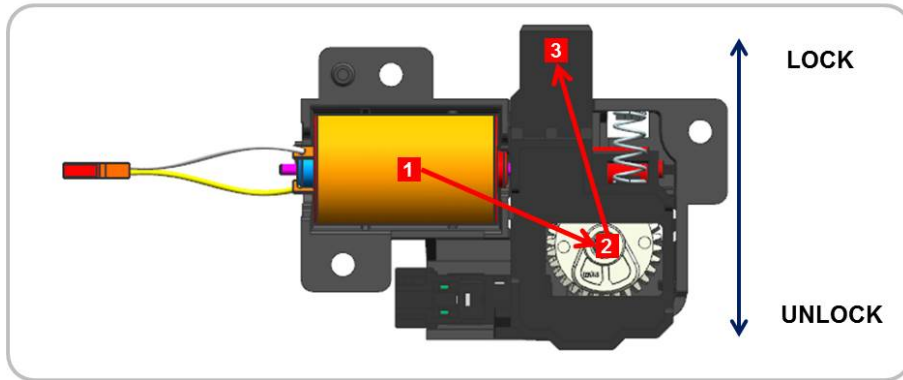
Power Train	PM Step → Toner Supply driving
• 1 PM Step → 2 Gear → 3 Gear (Toner Supply driving)	

2.8.8. Toner-Reservoir Drive



Power Train	PM STEP Motor → Toner Reservoir Auger & Paddle driving
<ul style="list-style-type: none"> • 1 PM STEP Motor → 2 Gear → 4 Gear & Latch → 5 Pulley & Gear (Paddle driving) • 1 PM STEP Motor → 2 Gear → 3 Gear & Latch (Auger driving) 	

2.8.9. CST Lock Drive



Power Train	DC Motor → CST Lock driving
• 1 DC Motor → 2 Gear & Cam → 3 Holder (CST Lock driving)	

2.9. Scanner System

This section describes the printer scanner system parts and functions.

2.9.1. Scanner System Overview

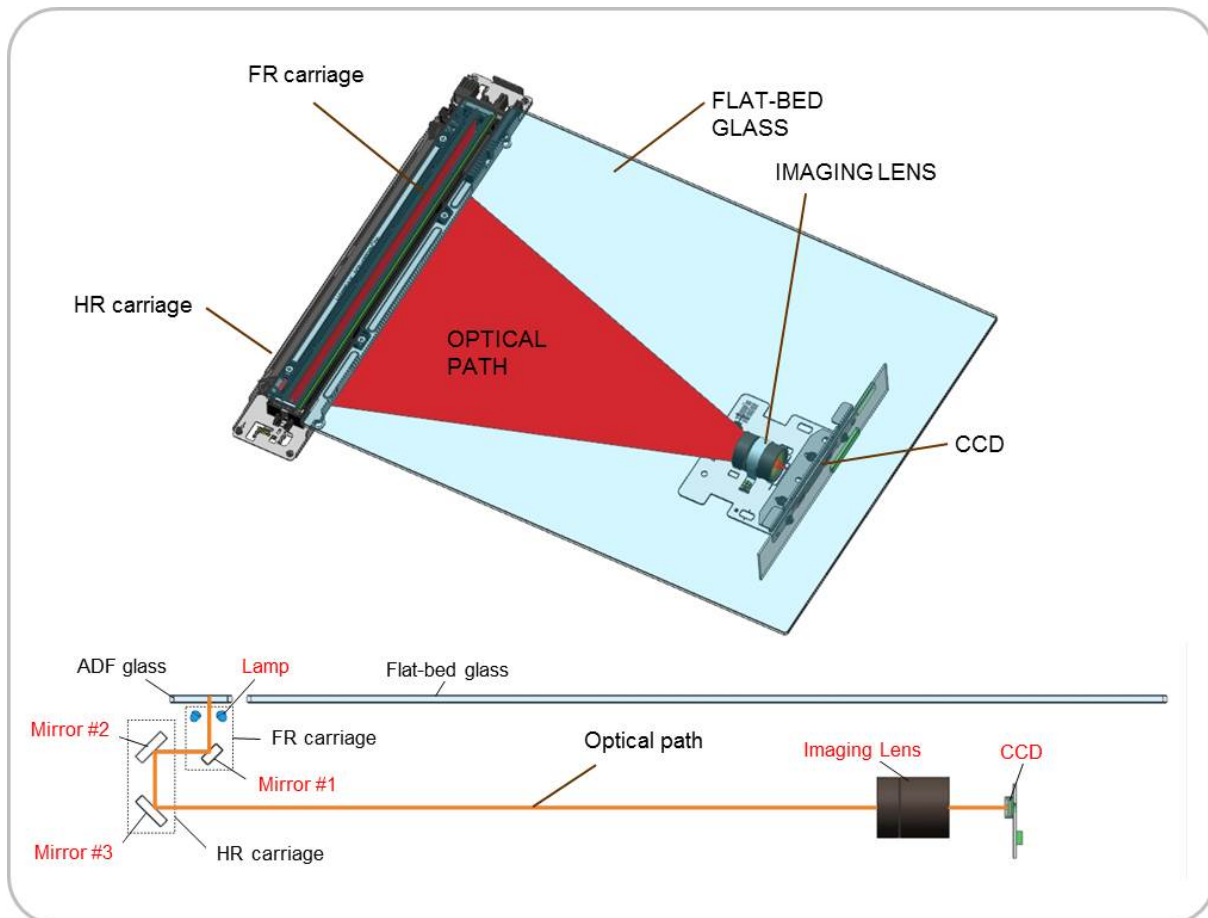
The scanner is a device to change from the image to the data. To scan the picture, image on the original, it uses the lens and CCD(Charge Coupled Device). It stores and transfers the converted image to the storage space or transfers the scanned data to the printer engine for copy.

For scan operation, the scanner uses FR carriage and HR carriage that is moved by the wire. And it scans the original document on the scan glass or ADF(Auto Document Feeding).

The scanner system consists of 3 modules following below.

- **FR(Full Rate) carriage:** Illuminates the original and reflects the light at a 90 degree angle.
- **HR(Half Rate) carriage:** Transfers the reflected light from the FR carriage to the lens.
- **Imaging module:** Make an image on CCD

HR carriage moves at half distance and half speed of FR carriage. This principle keeps a regular gap between the original and imaging lens.

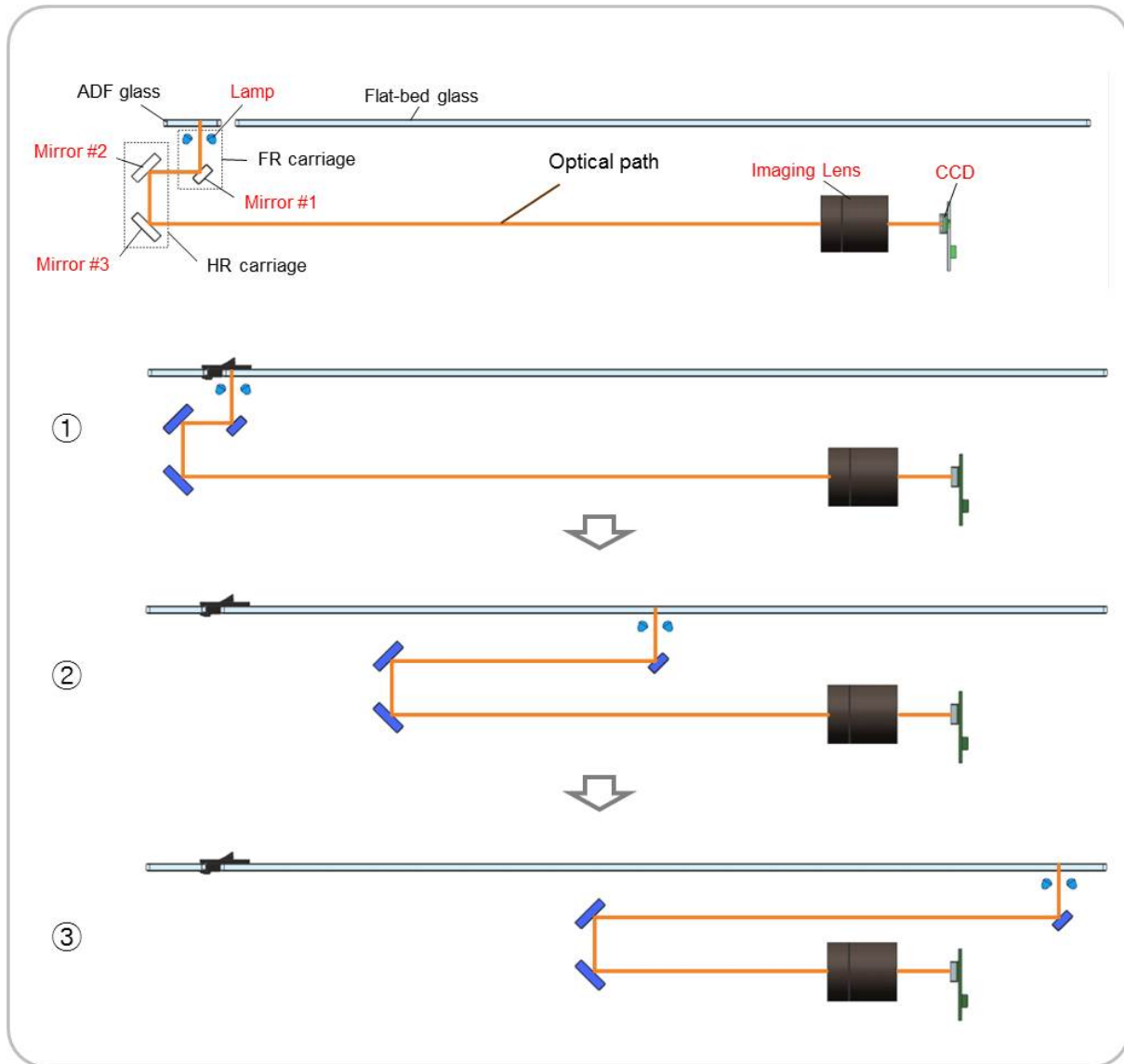


2. Product Specifications and Description

The following describes the scan process.

- 1) Lamp installed to FR carriage illuminates the original. The reflected light is moved to Mirror #1.
- 2) The reflected light from Mirror #1 is send to imaging lens through the Mirror #2,3.
- 3) The light becomes smaller and makes an optical image.
- 4) The optical image is generated to the electrical signal by the CCD sensor.

To make a stable image, the gap between original and lens must be kept. For this, HR carriage moves at half distance and half speed of FR carriage.



Optical image made by CCD sensor is changed to electrical-analog signal.

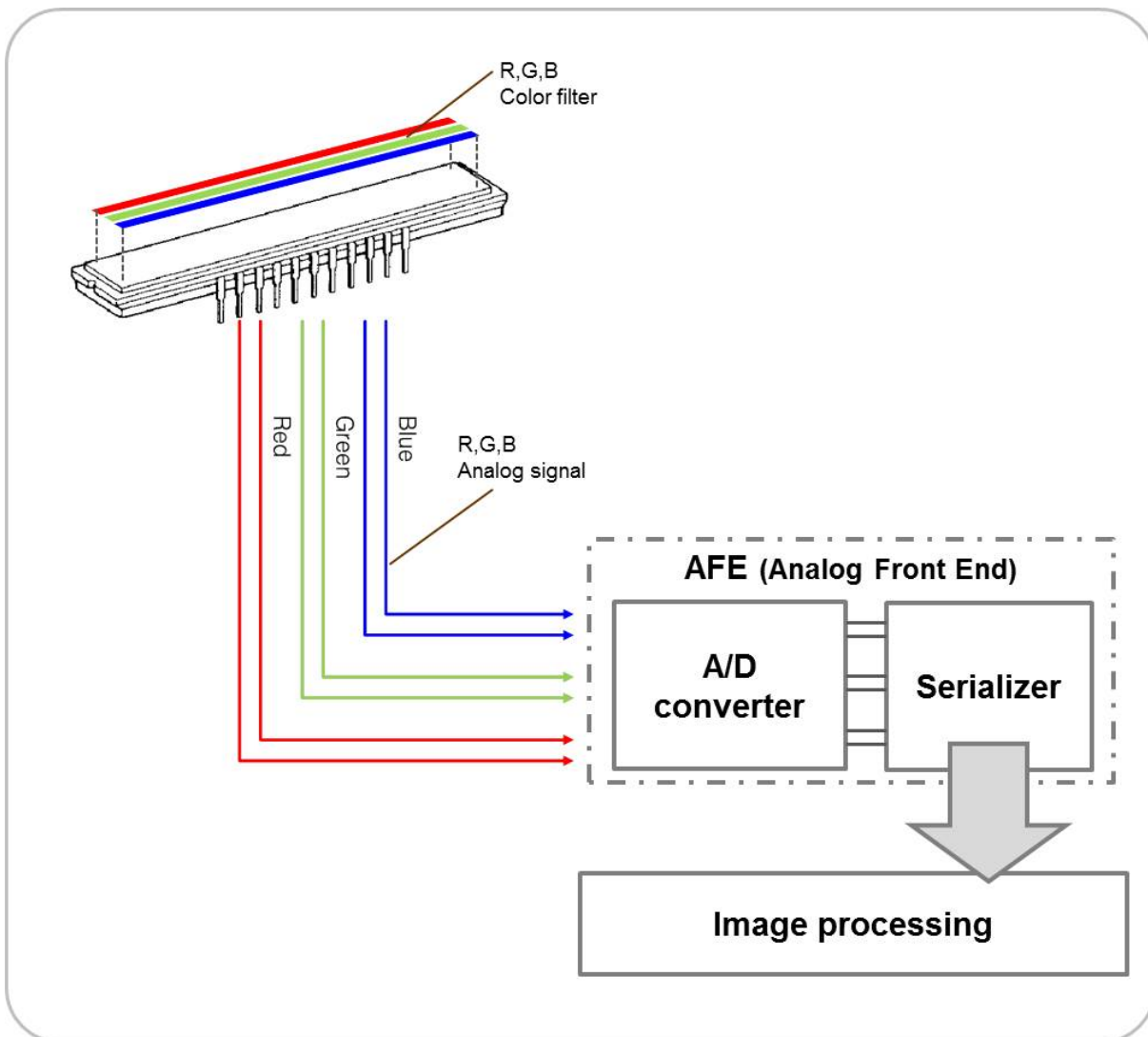
Each color element signal in optical image is separated by CCD sensor to Red, Green, Blue.

Red CCD sensor element extracts the red color from optical image, green CCD sensor element extracts the green color from optical image, and blue CCD sensor element extracts the blue color from optical image. After extraction, each color is changed to electrical-analog signal.

Analog image signal is changed to digital image signal by A/D converter and transfers to the processor.

Image scan of the main scanning direction is performed by CCD sensor. CCD sensor consist of approx. 7500 pixel. Image scan of sub scanning direction is performed by FR carriage and HR carriage. The carriage is moved by the wire driven the scan motor.

Scan resolution is 600dpi.

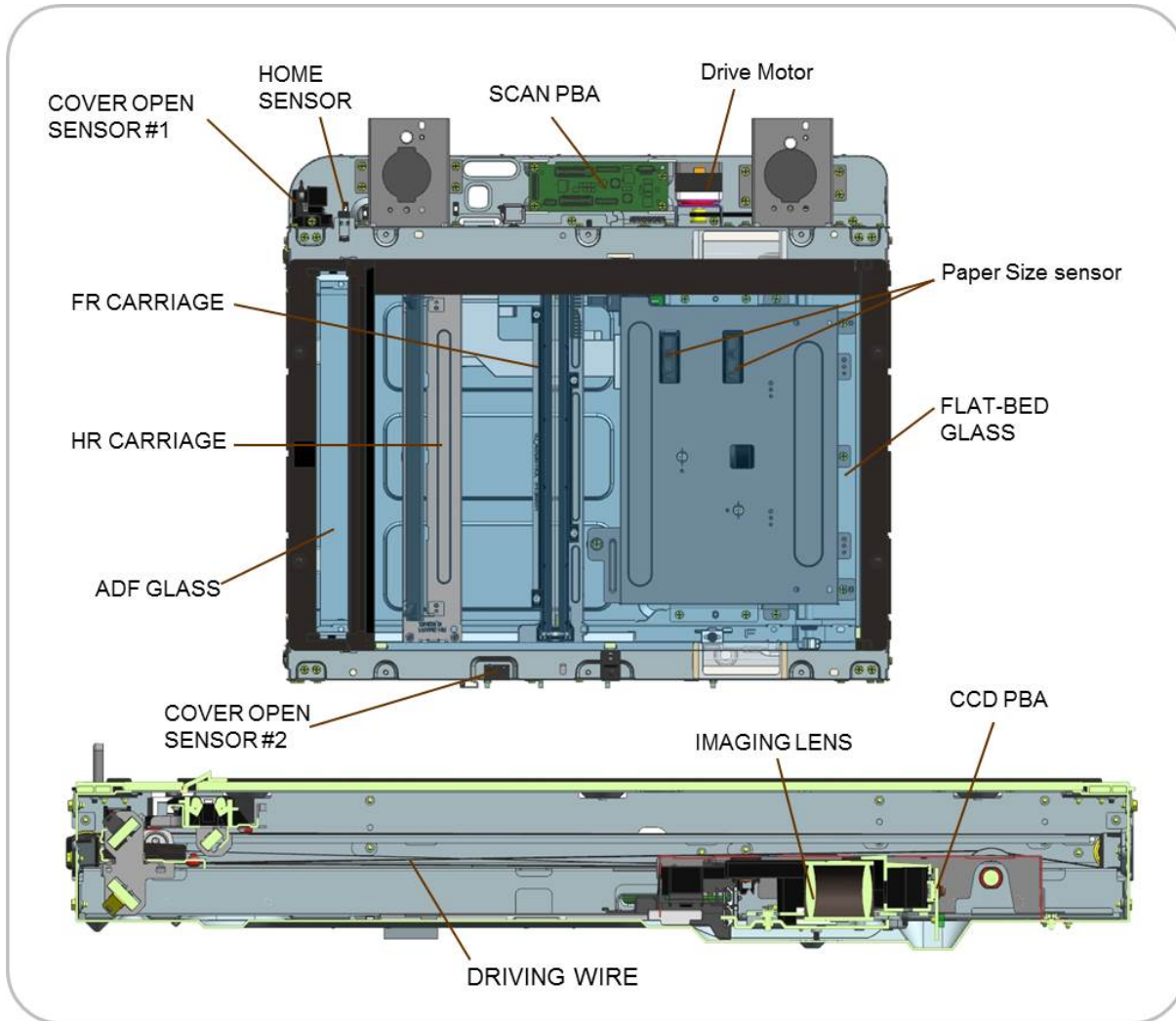


2.9.2. Scanning System Components

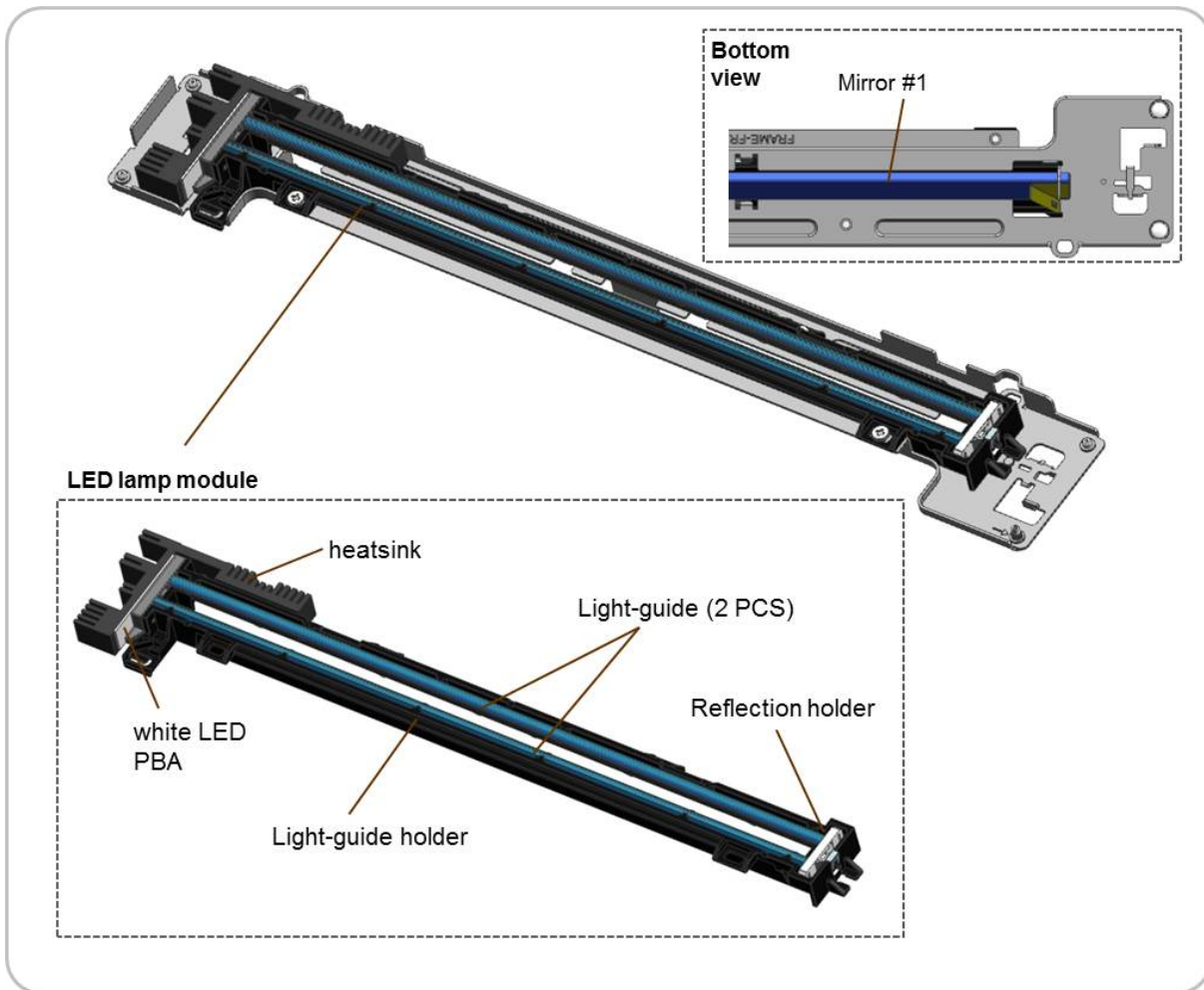
The following shows the construction and purpose of the scanning system :

To scan the original on scan glass, two carriages driven the motor moves at a regular speed. The motor drives the timing belt, pulley, and wire. The wire pulley rolls and releases the wire to move carriage.

The scanner consists of the scan glass, FR carriage, HR carriage, Imaging unit, and Driving unit.



1) FR Carriage



1) LED lamp module

This module illuminates the light on original. Two–white LED is assembled to the side of the module. The original is illuminated by the light-guide. The heat sink is assembled to the LED PCB. When it is broken or its life is expired, engineer needs to replace it.

- Light-Guide

Light-guide changes the light from the point type to the line type. It is made by the transparent resin and controls the amount of light in scan area uniformly.

- White LED

White LED emits the white light. The heat sink assembled to the PBA prevents a heat deterioration.

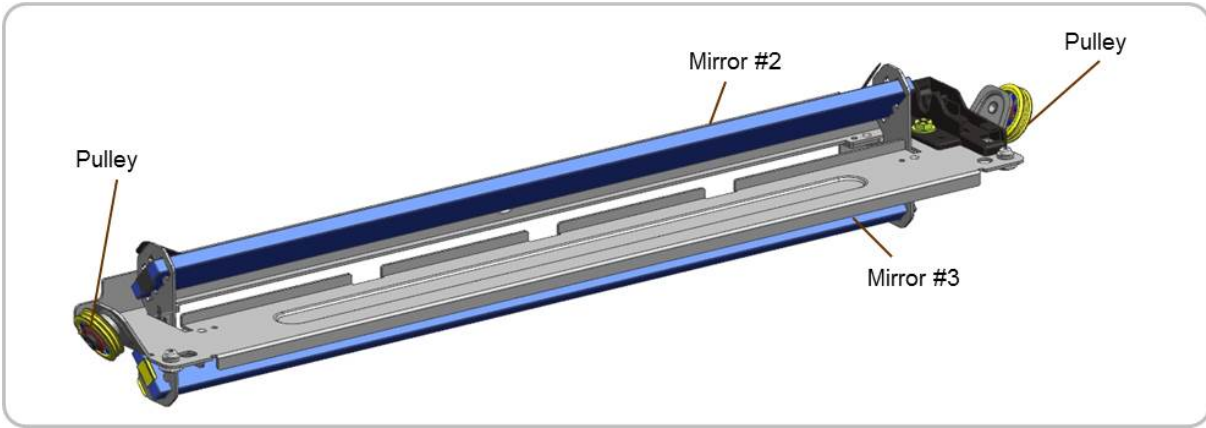
- Reflection holder

This reflects the passed light through Light-guide.

2) Mirror #1

This changes the direction of reflected light at a 90 degree angle.

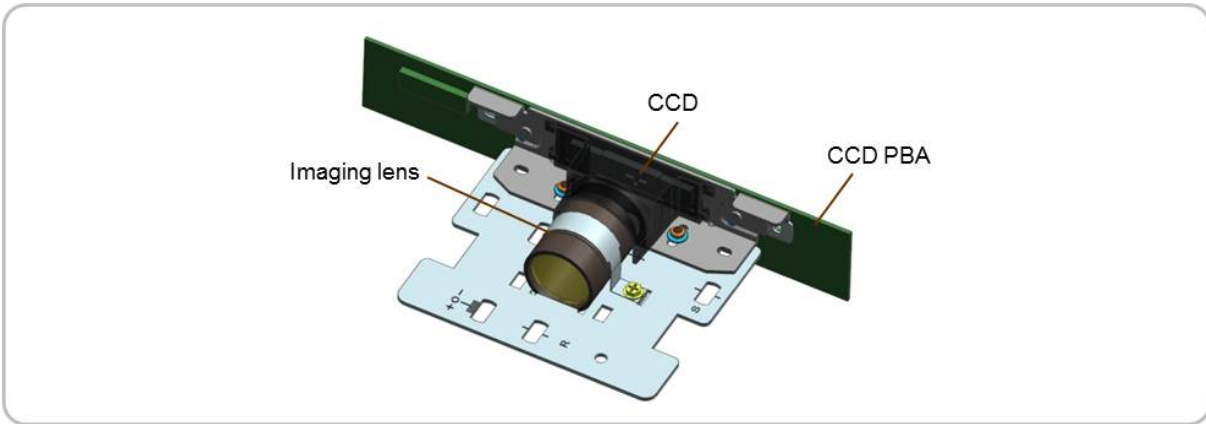
2) HR Carriage (Mirror unit)



- 1) Mirror #2, #3
To changes the light direction, Mirror #2,3 is assembled at a 45 degree angle. The reflected light from Mirror #1 is send to imaging lens through the Mirror #2,3.
- 2) Pulley
This is Ball bearing type. Pulley rolls and release the wire. This makes the HR carriage moves the half distance of the FR carriage.

3) Imaging unit

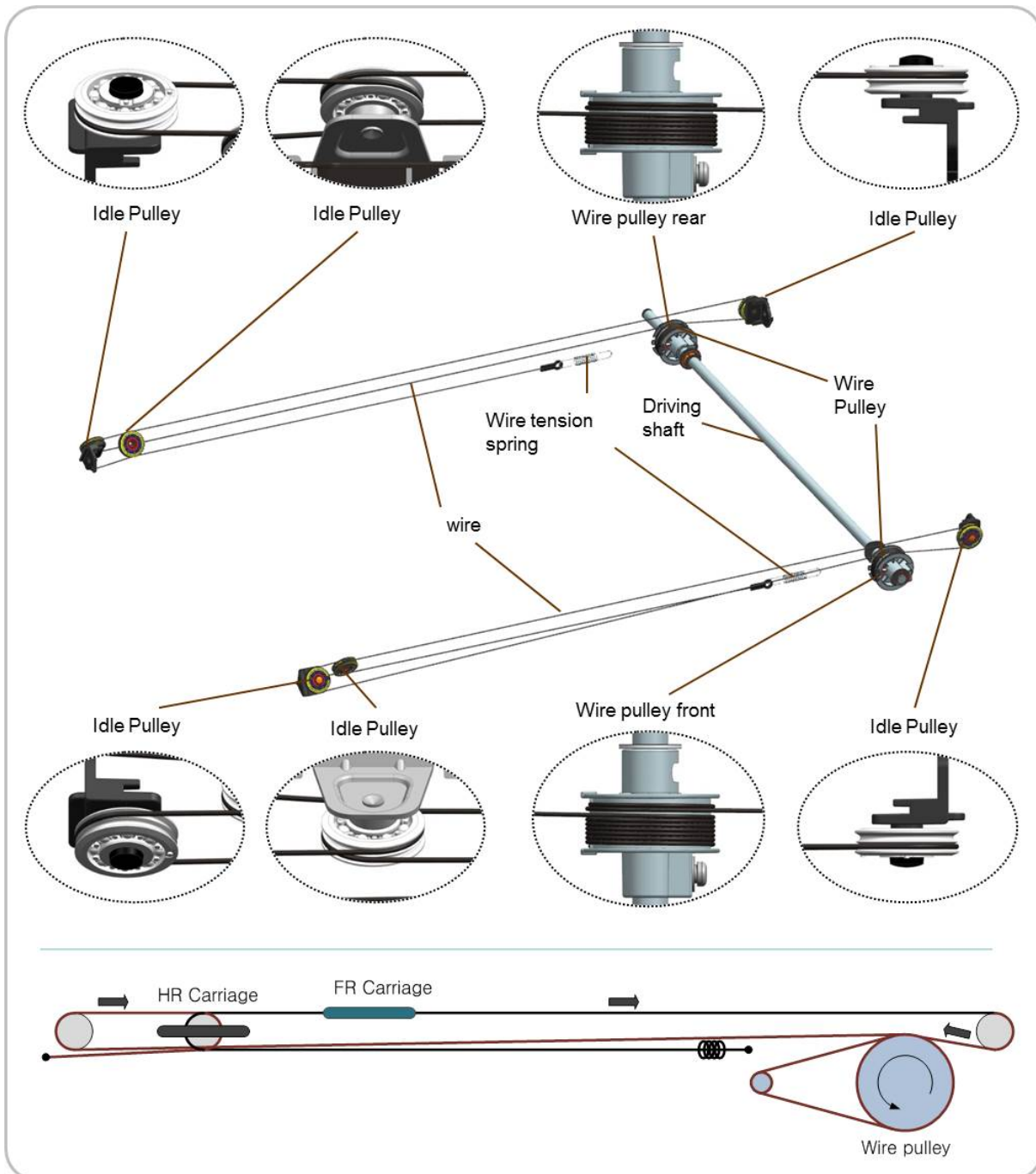
Image unit changes from the optical image to electrical signal.



- 1) Imaging lens
The reflected light through the imaging lens is focused on CCD. The image reduces to fix the CCD sensor size and pixel size CCD.
- 2) CCD PBA
The image made by lens is changed to the electrical signal by CCD. CCD consists of 3 channel line sensor for color image creation. The brightness and darkness of image is settled to the voltage level from CCD. The output voltage is changed to the digital signal. The digital signal makes the scan image through image process.

4) Wire driving

To move the carriage stably, the wire is assembled in the front and rear position of the scanner. Pulley rolls and release the wire to move the FR carriage and HR carriage.



5) Flat-bed glass

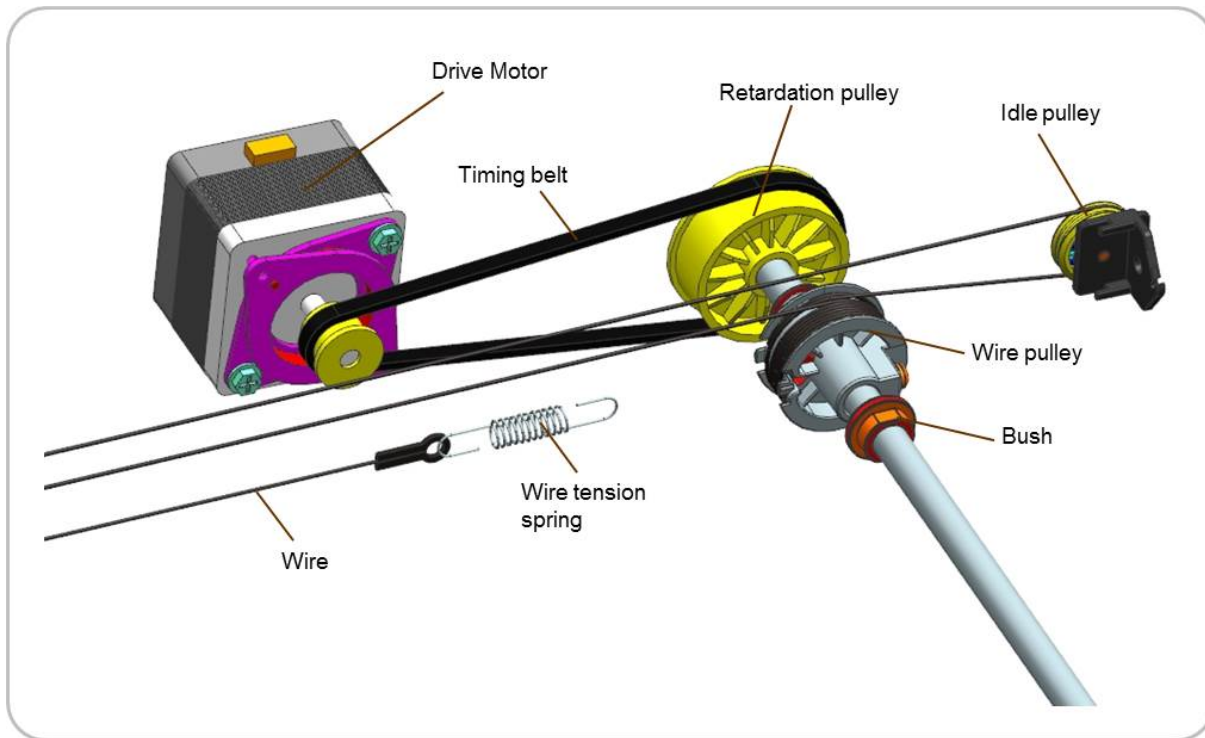
The original is placed on the flat-bed glass for scan or copy. This is made by the tempered glass and is fixed by the frame to prevent the distortion.

6) Drive motor

Scanner drive system uses the step motor to move the carriage. It controls the position and constant speed. The motor power is transferred to the wire through timing belt and pulley.

7) Timing Belt

Timing belt has the regular sawtooth and transfers the motor power to the pulley.



8) Paper size sensor

This detects the paper size on scan glass automatically. It has 2 sensors. It uses the infrared LED to detect the dark original.

9) Home sensor

This is to detect the FR carriage position. It is a transmission photosensor.

10) Cover open sensor #1

When the ADF unit open and close, this has trigger function to detect the on/off of paper size sensor. And this detects the width of the original.

11) Cover open sensor #2

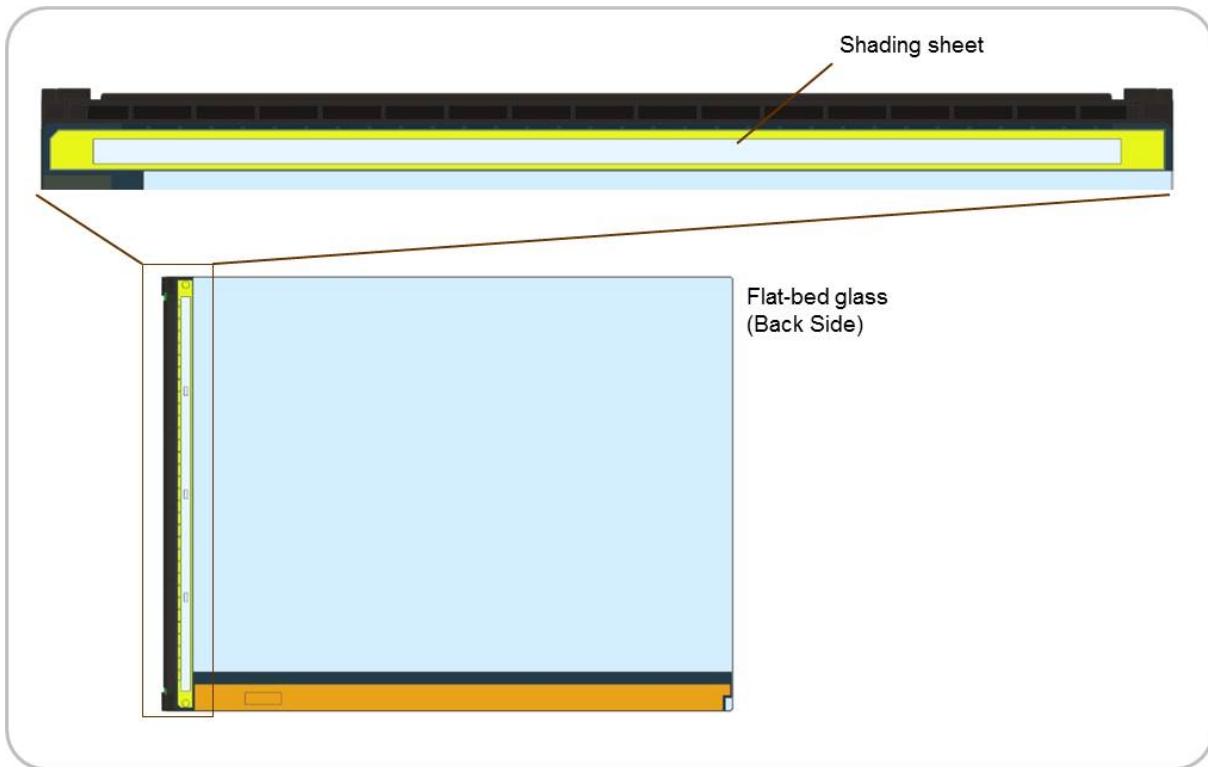
This is the reed switch to detect that the ADF unit is closed. It uses the magnetic force for ADF close detection.

12) ADF glass

ADF glass scans the original through ADF unit. When the original passes on this, FR carriage reads the original. If it is contaminated, the horizontal black line or white line can be created.

13) Shading sheet

This makes the scan module detect the base for white color. Before every scan-job, scan module reads the shading sheet to scan image as same color and brightness. If it is contaminated, the vertical image can be created.



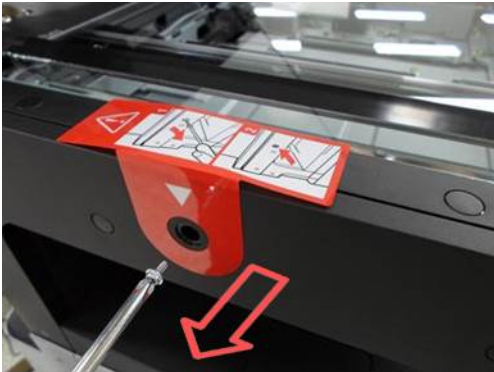
2.9.3. Caution for moving the scanner

When shipping or moving, the FR and HR carriage in scanner is slipped or swayed. To prevent the damage of the FR and HR carriage, carriages must be fixed.

1) When installing

After unpacking, before turning the machine on, the scan locking screw must be removed. If not, it causes the scanner failure.

- 1) When installing the machine, remove the scan locking screw.
- 2) After removing the screw, assemble the screw cap from accessory package.



2) When moving

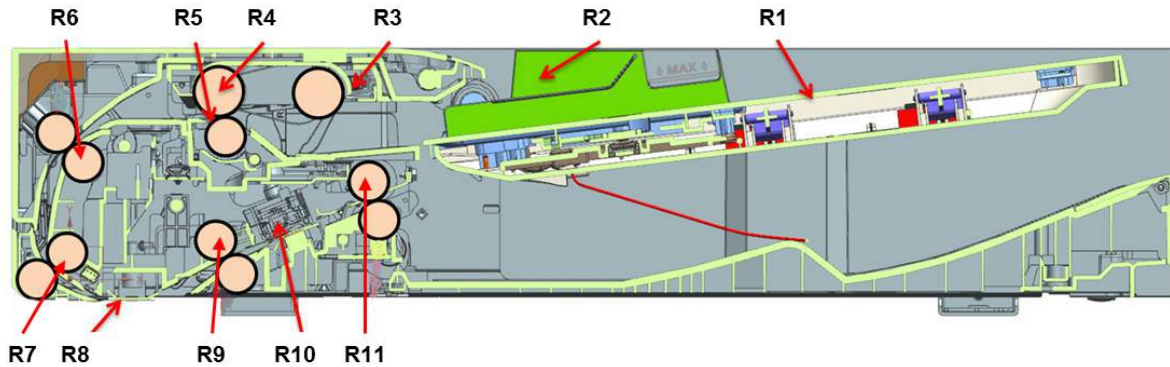
When moving the machine, tighten the scan locking screw to prevent the damage of the carriage.

- 1) Check if the FR carriage is located to the home position.
- 2) Remove the screw cap.
- 3) Tighten the M3×8 screw to fix the FR carriage.



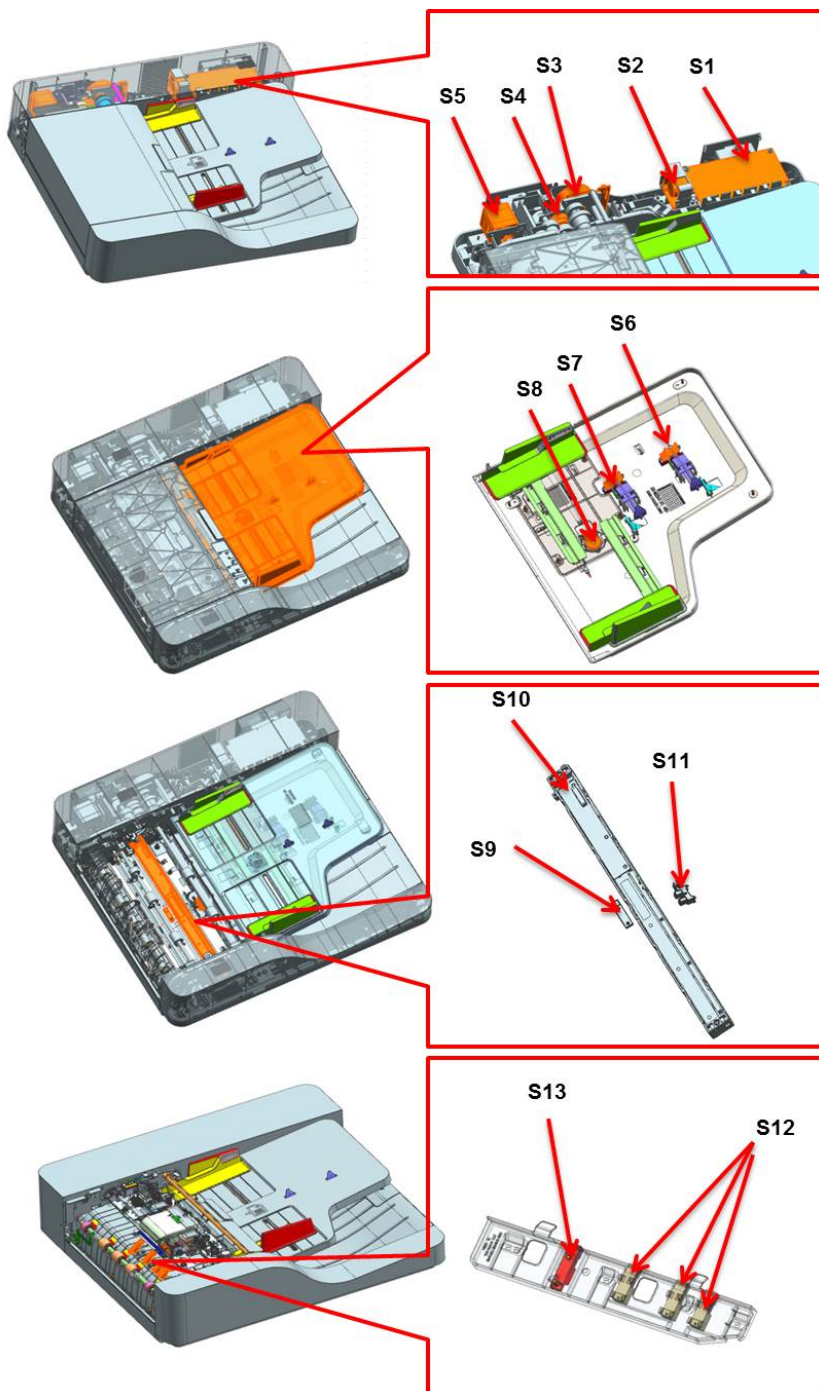
2.10. Dual Scan Document Feeder(DSDF) for LX model

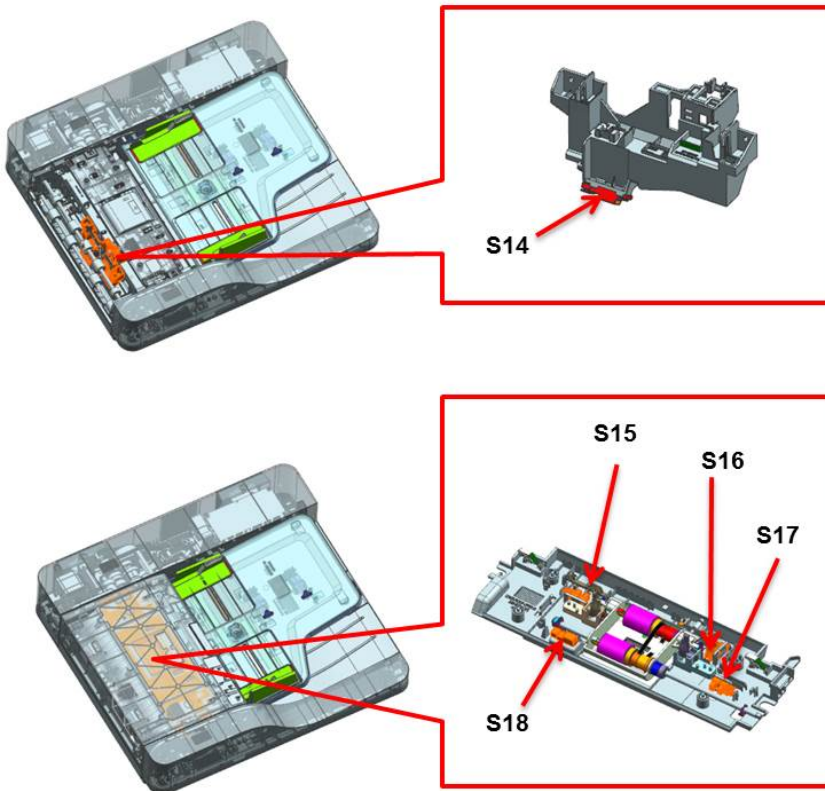
2.10.1. DSDF overview



Symbol	Part Name	Function
R1	Stacker Assy	Paper input tray
R2	GUIDE-DOCU F&R	Paper guide for skew prevention
R3	Pick-Up roller	Picks up an original from the tray.
R4	ADF roller	Separates an original from the tray and transfers it to the paper path.
R5	Reverse roller	Prevent the multi-feeding.
R6	Regi. roller	Aligns the leading edge of the paper for registration.
R7	Scan In roller	Feeds an original before simplex scanning.
R8	Simplex White-Bar	Supports a stable scanning.
R9	Scan Out roller	Feeds an original before duplex scanning.
R10	D-CIS module	Scans a back page of original.
R11	Exit roller	Transfers a scanned original to the exit tray.

2.10.2. Electrical parts location

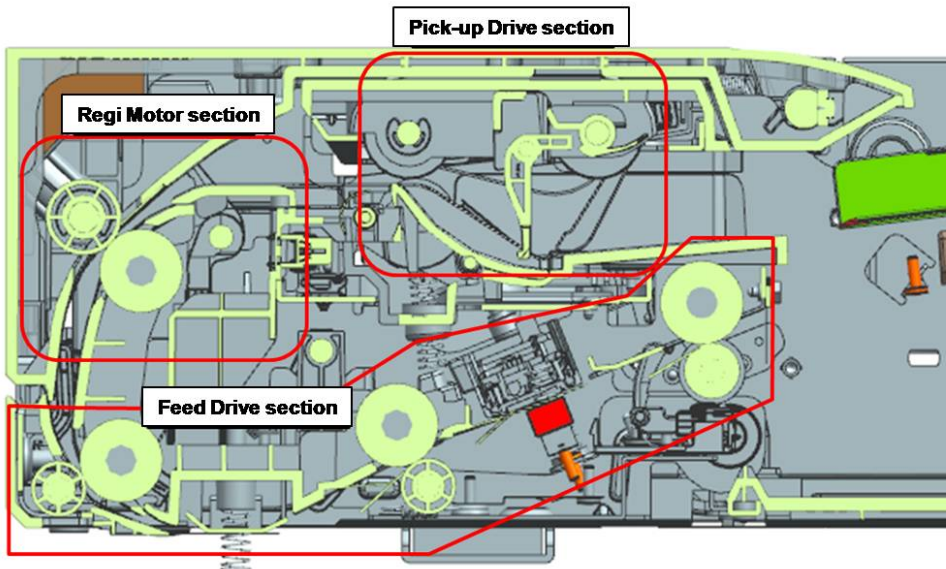




Ref.	Description	Part Code	Controller board
S1	ADF-PBA	JC92-02729A	ADF-PBA
S2	FAN	JC31-00146A	ADF-PBA
S3	MOTOR-BLDC TYPE1(PICK-UP/FEED)	JC31-00163A	ADF-PBA
S4	CLUTCH-ELECTRIC	JC47-00038A	ADF-PBA
S5	STEP-MOTOR(REGI)	JC31-00163A	ADF-PBA
S6	PHOTO-INTERRUPTER(PAPER-WIDTH 2)	0604-001394	ADF-PBA
S7	PHOTO-INTERRUPTER(PAPER-WIDTH 1)	0604-001394	ADF-PBA
S8	HARNESS-MP SIZE SENSOR	JC39-02087A	ADF-PBA
S9	PHOTO-INTERRUPTER(SCAN OUT)	0604-001381	ADF-PBA
S10	CONTACT IMAGE SENSOR	0609-001558	MAIN PBA
S11	PHOTO-INTERRUPTER(EXIT)	0604-001394	ADF-PBA
S12	PHOTO-INTERRUPTER(MSO)	0604-001490	ADF-PBA
S13	PHOTO-INTERRUPTER(REGI)	0604-001381	ADF-PBA
S14	PHOTO-INTERRUPTER(SCAN IN)	0604-001381	ADF-PBA
S15	PHOTO-INTERRUPTER(DETECT)	0604-001394	ADF-PBA
S16	PHOTO-INTERRUPTER(PICKUP)	0604-001394	ADF-PBA
S17	PHOTO-INTERRUPTER(COVER OPEN)	0604-001394	ADF-PBA
S18	PHOTO-INTERRUPTER(FEED OUT)	0604-001490	ADF-PBA

2.10.3. DSDF Drive System

DSDF drive system consists of two motors and one clutch to transfer paper.

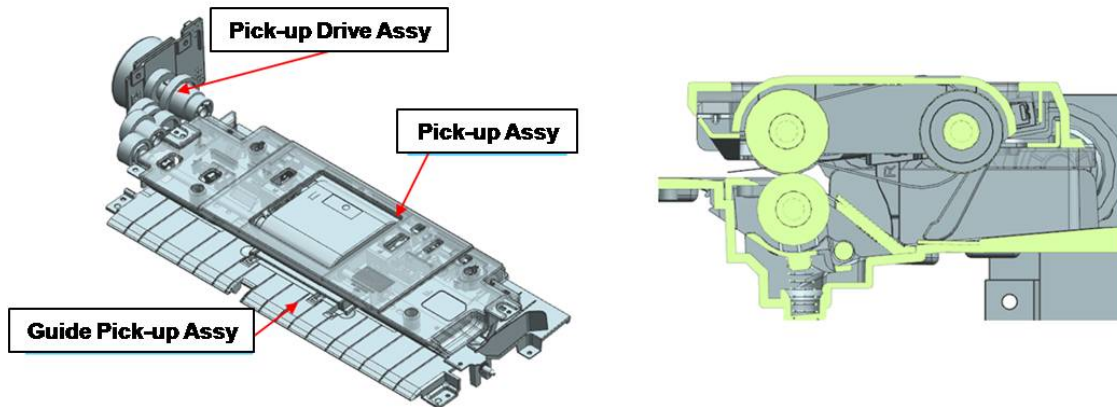


1 BLDC motor and 1 step motor drive the system for simplex and duplex job.

- BLDC motor is used for picking up original and pick up is controlled by the clutch.
- Step motor is used for the original registration.
- BLDC motor is used for feeding a original.

2.10.3.1. DSDF Original Pick-Up Assembly

DSDF Original Pick-Up Assembly consists of Pick-up Drive Assy, Pick-up Assy, and Guide Pick-up Assy.

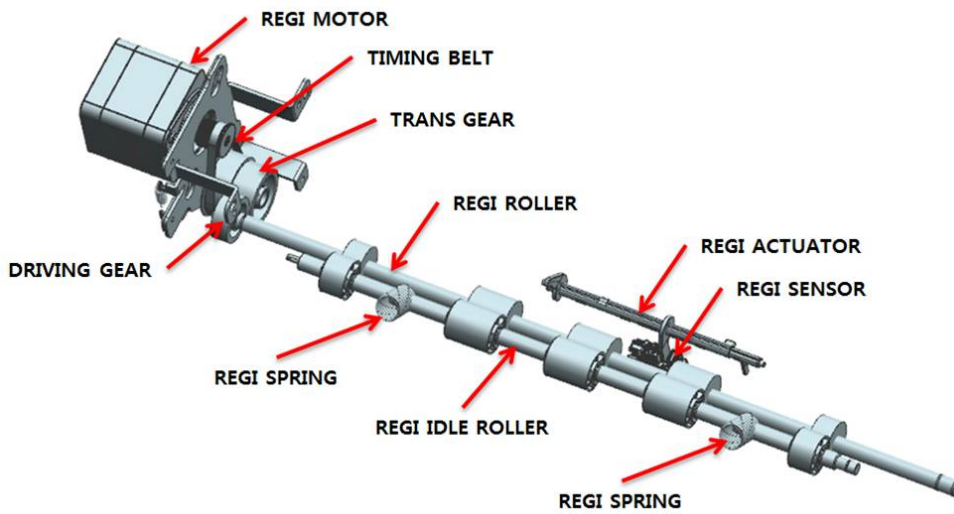


- **Operation Procedure**

- 1) Checks a paper detection.
- 2) Checks the original width size.
- 3) Holds the original not to be moved in paper path before pick up driving.
- 4) Starts pick up driving.
- 5) Separates an original by the reverse roller.

2.10.3.2. DSDF Original Regi. Drive

DSDF Original Regi Drive consists of Regi motor, Regi roller, Regi sensor etc.

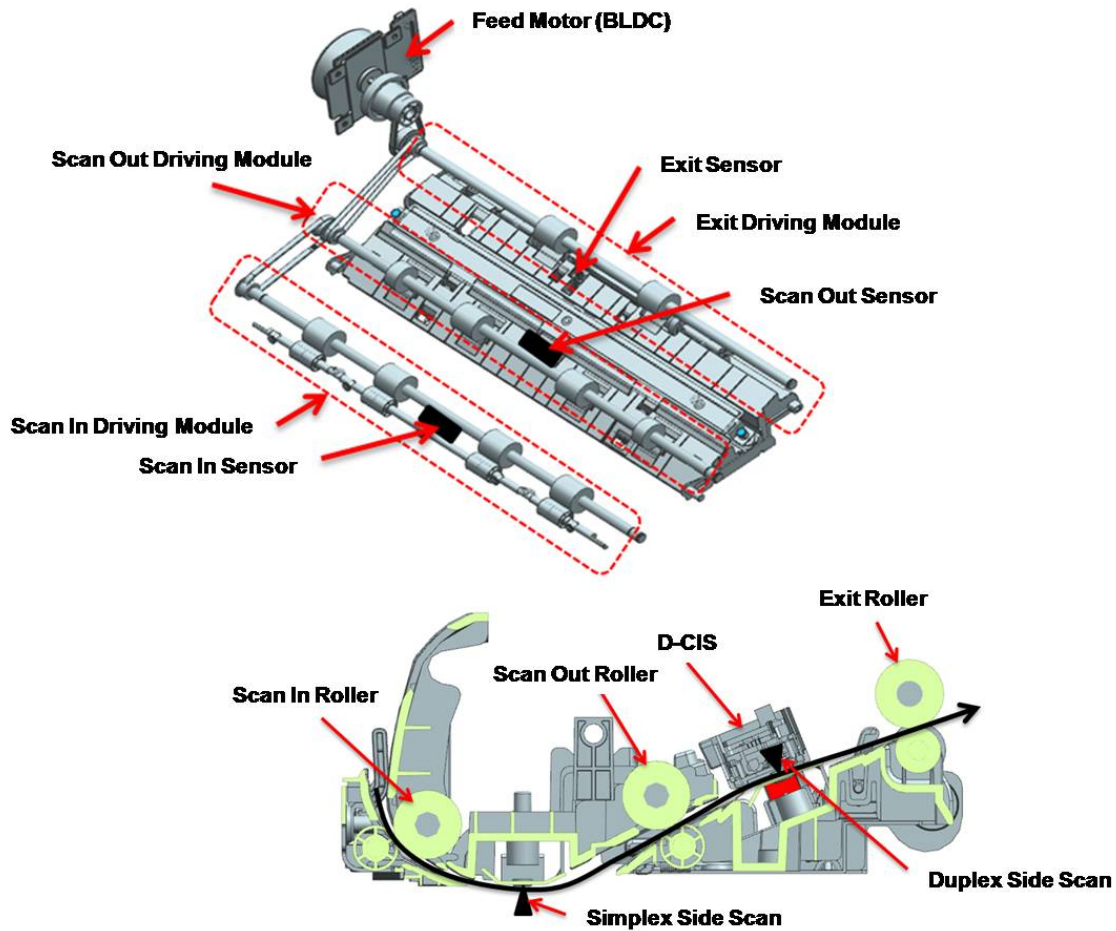


- **Operation Procedure**

- 1) The picked up original is detected by Regi-Actuator and the regi sensor is on. At this time, the regi motor is stopped and the original is aligned.
- 2) After the regi sensor is on, regi motor rotates.
- 3) After the transferred original passes the regi. actuator, the regi sensor is off and the regi motor stops.

2.10.3.3. Original Scanning and Feed-Out Drive

Feed-Out Drive consists of Feed motor, Scan In driving module, Scan Out driving module, and Exit driving module etc.

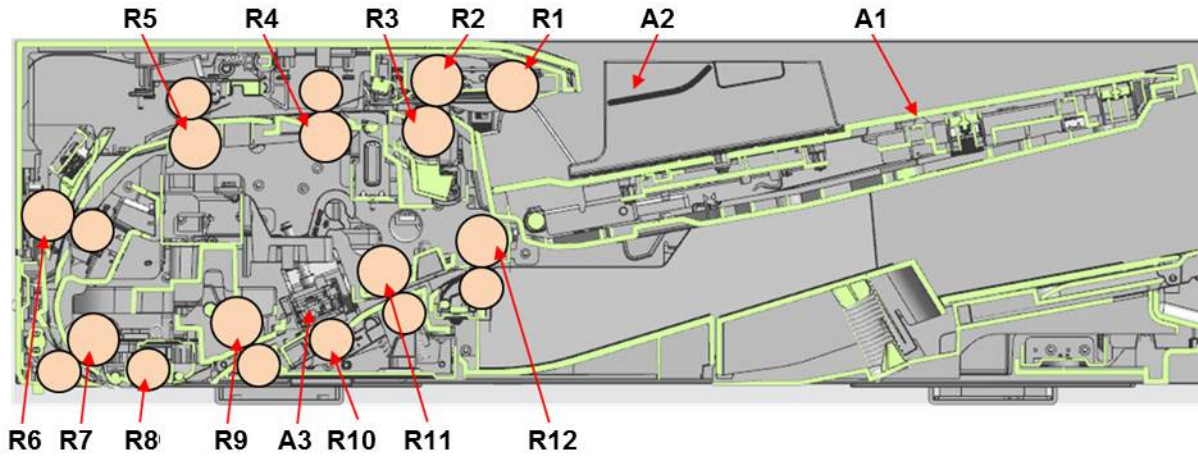


- **Operation Procedure**

- 1) The feed motor transfers the power by the timing-belt.
- 2) When original passes the scan in sensor, simplex scan starts.
- 3) Simplex white-bar functions to prevent the wrinkle and background.
- 4) When original passes the scan out actuator, duplex scan starts.
- 5) Duplex white-bar functions to prevent the wrinkle and background.
- 6) Original is transferred to exit tray.

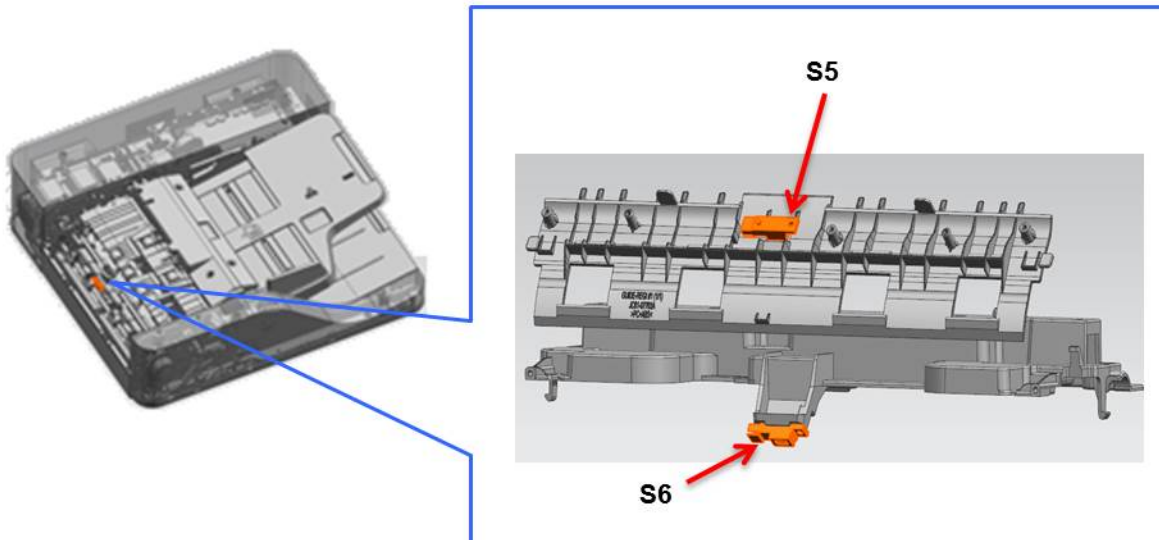
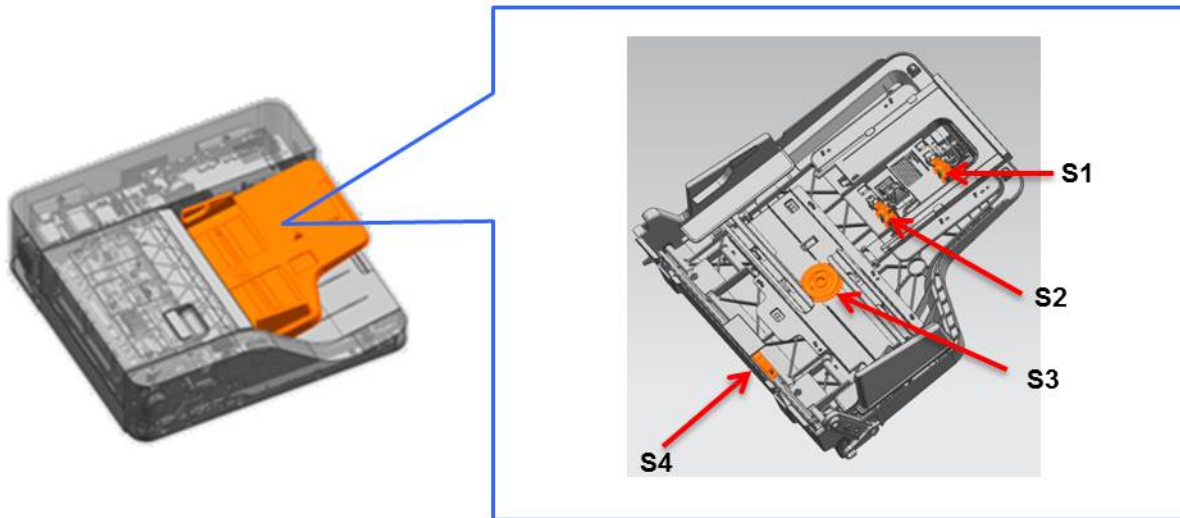
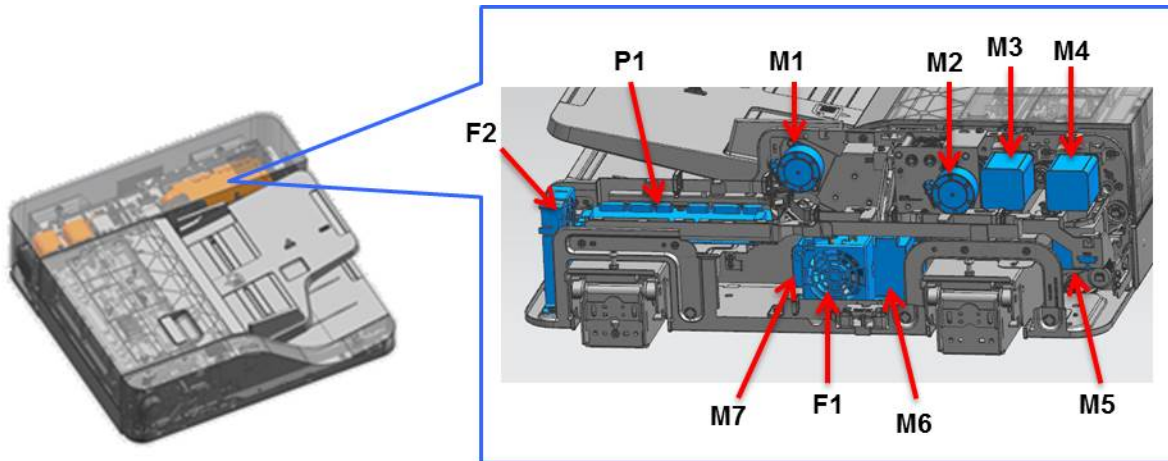
2.11. Dual Scan Document Feeder(DSDF) for GX model

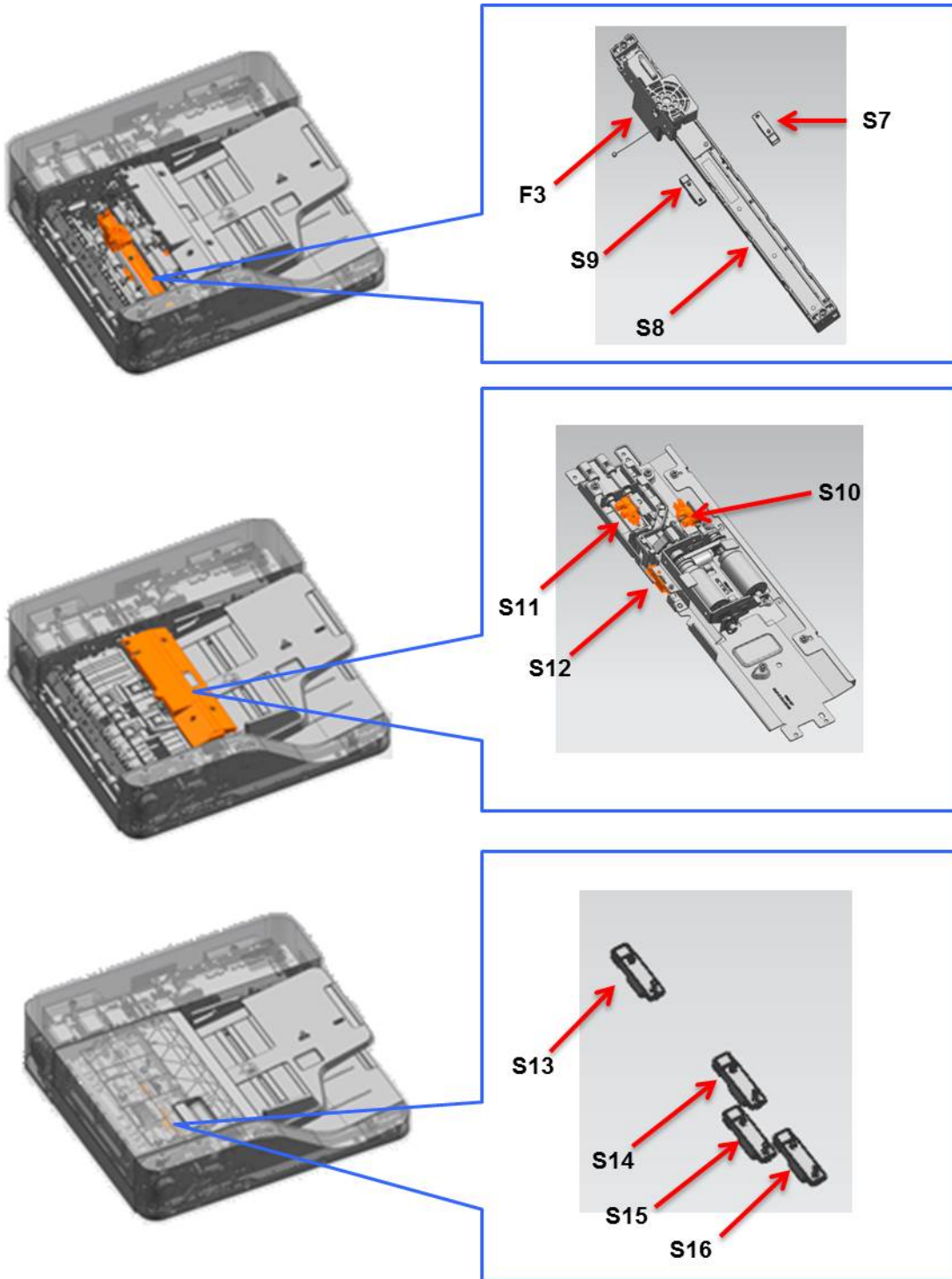
2.11.1. DSDF overview

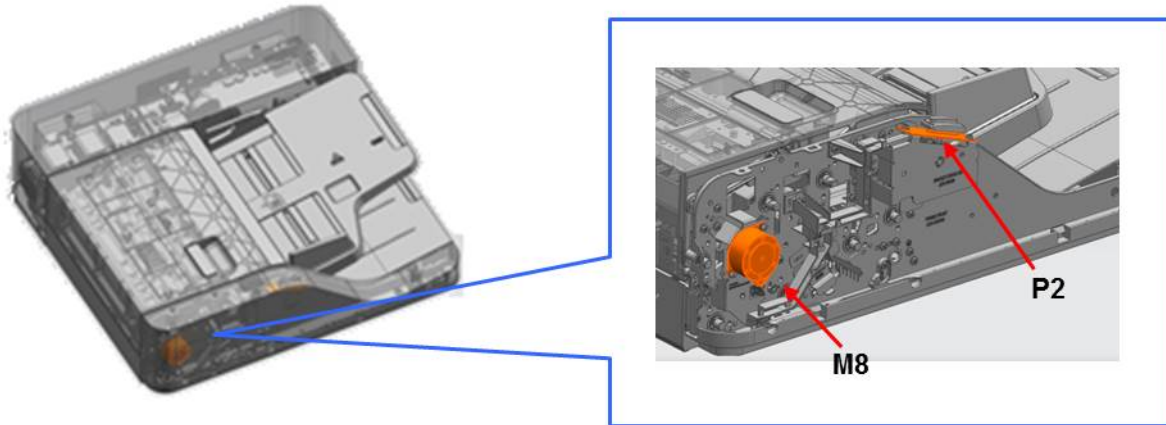


Symbol	Part Name	Function
A1	Stacker Assy	Paper input tray
A2	GUIDE-DOC F&R	Paper guide for skew prevention
A3	D-CIS module	Scans a back page of original.
R1	Pick-Up roller	Picks up an original from the tray.
R2	ADF roller	Separates an original from the tray and transfers it to the paper path.
R3	Reverse roller	Prevent the multi-feeding.
R4	Feed Roller	Transfers a original.
R5	Pre Regi Roller	Aligns the leading edge of the paper for registration. (skew prevention)
R6	Regi. roller	Aligns the leading edge of the paper for registration. (skew prevention)
R7	Simplex Scan In roller	Feeds an original before simplex scanning.
R8	Simplex White Roller	Supports a stable scanning.
R9	Duplex Scan In roller	Feeds an original before duplex scanning.
R10	Duplex White Roller	Supports a stable duplex scanning.
R11	Scan Out roller	Transfers a scanned original.
R12	Exit roller	Stacks a scanned original on the exit tray.

2.11.2. Electrical parts location



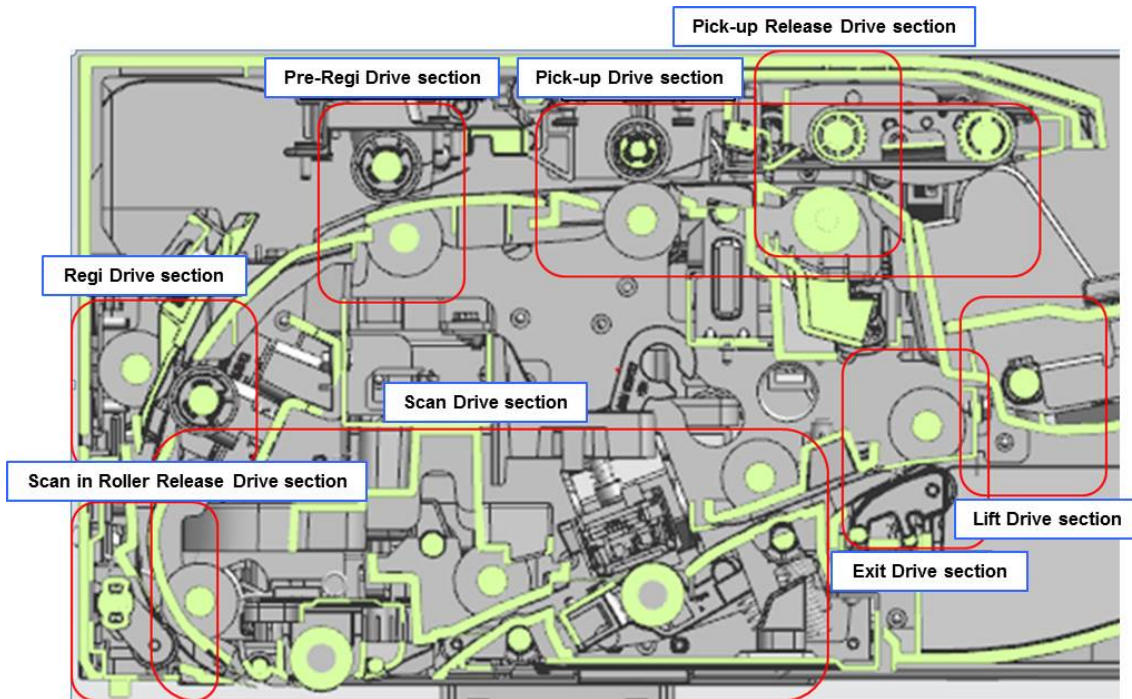




Ref.	Description	Part Code	Controller board
P1	PBA-DSDF HIGH	JC92-02828A	ADF-PBA
P2	PBA-WLED INDICATION	JC92-02829A	ADF-PBA
M1	MOTOR STEP 1P	JC31-00009C	ADF-PBA
M2	MOTOR STEP 1P	JC31-00009C	ADF-PBA
M3	MOTOR STEP	JC31-00132A	ADF-PBA
M4	MOTOR STEP	JC31-00132A	ADF-PBA
M5	MOTOR STEP	JC31-00132A	ADF-PBA
M6	MOTOR STEP 1P	JC31-00177A	ADF-PBA
M7	MOTOR STEP	JC31-00132A	ADF-PBA
M8	MOTOR STEP 1P	JC31-00009C	ADF-PBA
F1	FAN-DC	JC31-00168A	ADF-PBA
F2	FAN	JC31-00146A	ADF-PBA
F3	FAN-TYPE 1	JC31-00152B	ADF-PBA
S1	PHOTO INTERRUPTER	0604-001393	ADF-PBA
S2	PHOTO INTERRUPTER	0604-001393	ADF-PBA
S3	HARNESS-MP SIZE SENSOR	JC39-02087A	ADF-PBA
S4	PHOTO INTERRUPTER	0604-001381	ADF-PBA
S5	PHOTO INTERRUPTER	0604-001381	ADF-PBA
S6	PHOTO INTERRUPTER	0604-001381	ADF-PBA
S7	PHOTO INTERRUPTER	0604-001381	ADF-PBA
S8	CONTACT IMAGE SENSOR	0609-001558	MAIN PBA
S9	PHOTO INTERRUPTER	0604-001381	ADF-PBA
S10	PHOTO INTERRUPTER	0604-001393	ADF-PBA
S11	PHOTO INTERRUPTER	0604-001393	ADF-PBA
S12	PHOTO INTERRUPTER	0604-001381	ADF-PBA
S13	PHOTO INTERRUPTER	0604-001381	ADF-PBA
S14	PHOTO INTERRUPTER	0604-001381	ADF-PBA
S15	PHOTO INTERRUPTER	0604-001381	ADF-PBA
S16	PHOTO INTERRUPTER	0604-001381	ADF-PBA

2.11.3. DSDF Drive System

DSDF drive system consists of 8 motors to transfer paper.

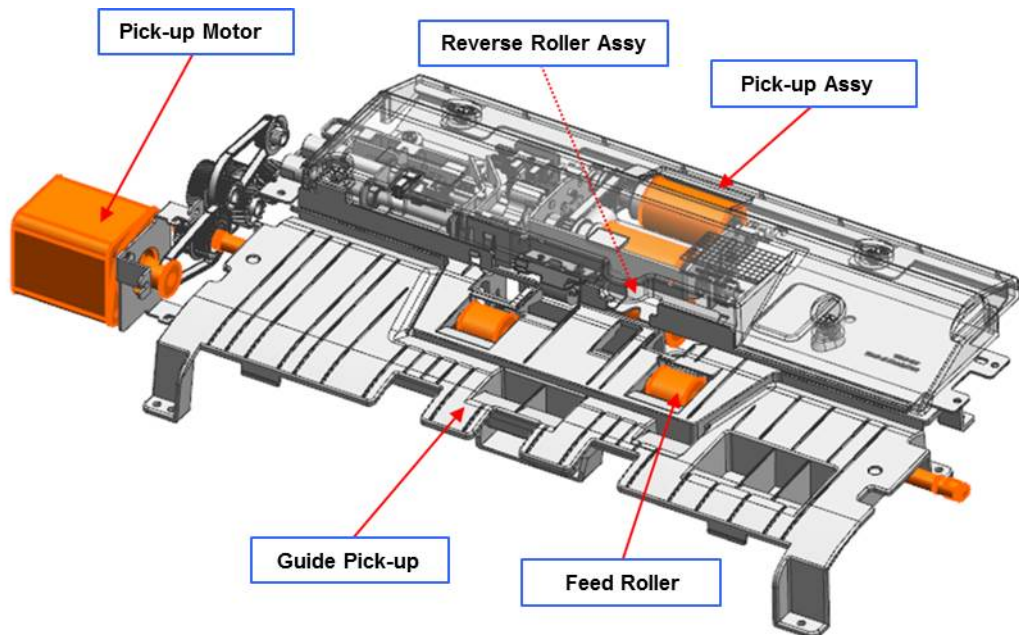


8 Step motors control roller and CAM of the DSDF drive system.

- Pick-up roller is controlled by a step motor and transfers paper to the DSDF inside.
- Pre-Regi roller is controlled by a step motor and aligns paper.
- Regi roller is controlled by a step motor and aligns paper.
- Scan-in/out roller and white roller are controlled by a step motor.
- Exit roller is controlled by a step motor and stacks papers on the tray.
- Stacker Lift is controlled by a step motor and lift paper to the pick up roller.
- Pick up roller, Reverse roller and Scan-in roller are released by a step motor and CAM.
-

2.11.3.1. DSDF Original Pick-Up Assembly

DSDF Original Pick-Up Assembly consists of Pick-up motor, Pick-up Assy, Reverse roller, Feed roller and Guide Pick-up Assy.

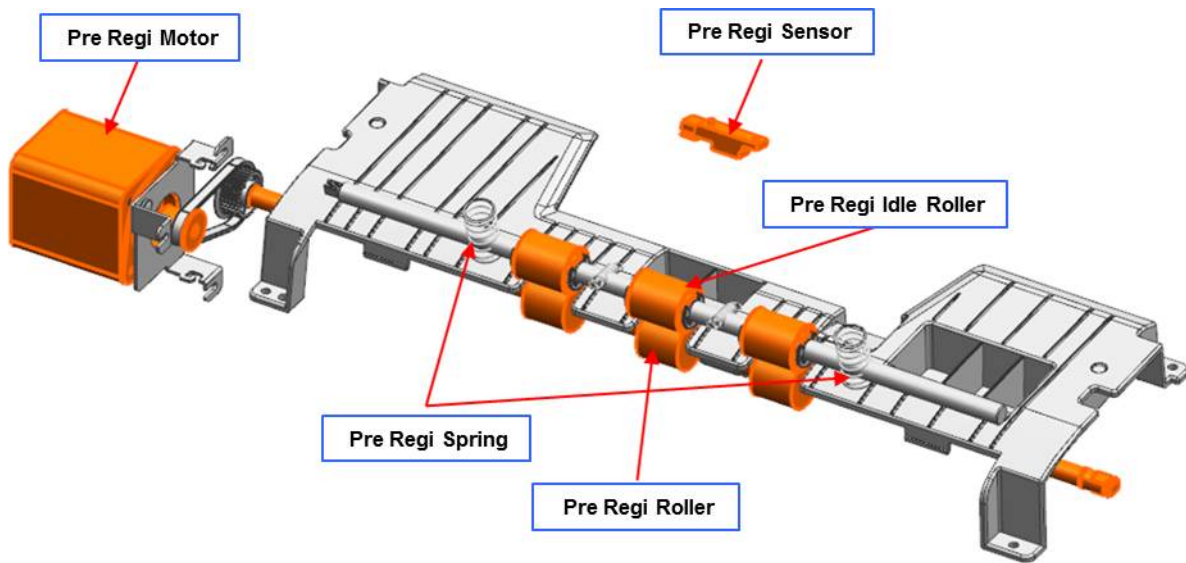


- **Operation Procedure**

- 1) Checks a paper detection.
- 2) Starts pick-up driving by supplying power to motor.
- 3) Transfers a paper to the ADF roller by driving the pick up roller.
- 4) Separates an original by the reverse roller.
- 5) Transfers a paper to the pre-regi roller by driving the feed roller.

2.11.3.2. DSDF Original Pre-Regi Assembly

DSDF Original Pre-Regi Assembly consists of Pre-Regi Motor, Pre-Regi Roller, Pre-Regi Idle Roller, and Pre-Regi Sensor.

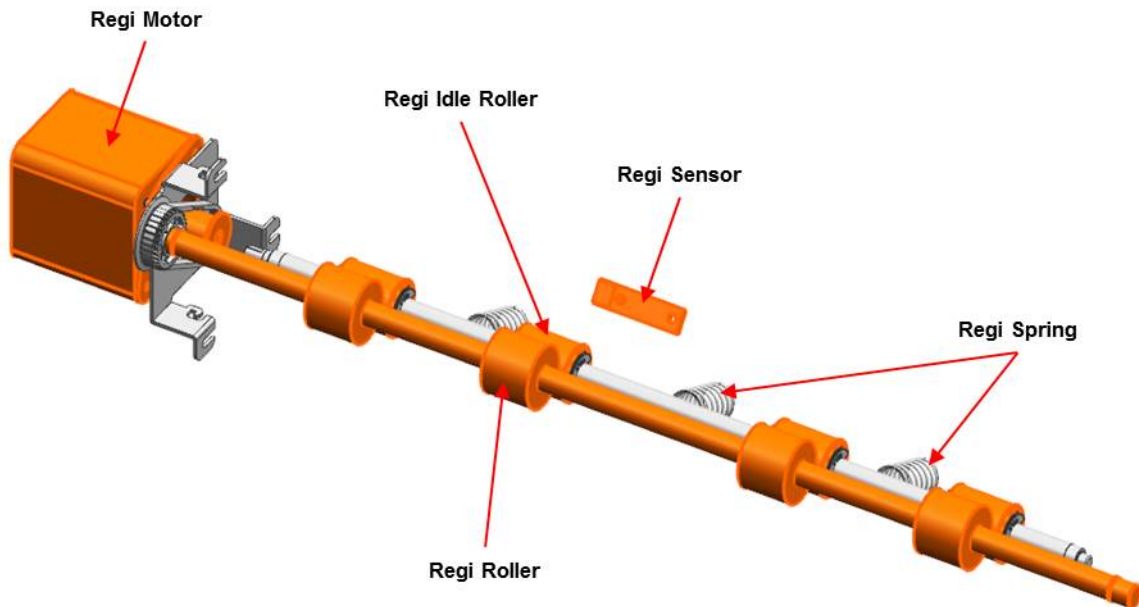


- **Operation Procedure**

- 1) When a picked up original is detected, the Pre-Regi sensor is on. At this time, the Pre-Regi motor is stopped and the original is aligned.
- 2) After the Pre-Regi sensor is on, Pre-Regi motor rotates.
- 3) After the transferred original passes the Pre-Regi. sensor, the Pre-Regi sensor is off and the Pre-Regi motor stops.

2.11.3.3. DSDF Original Regi Assembly

DSDF Original Regi Assembly consists of Regi Motor, Regi Roller, Regi Idle Roller, and Regi Sensor.

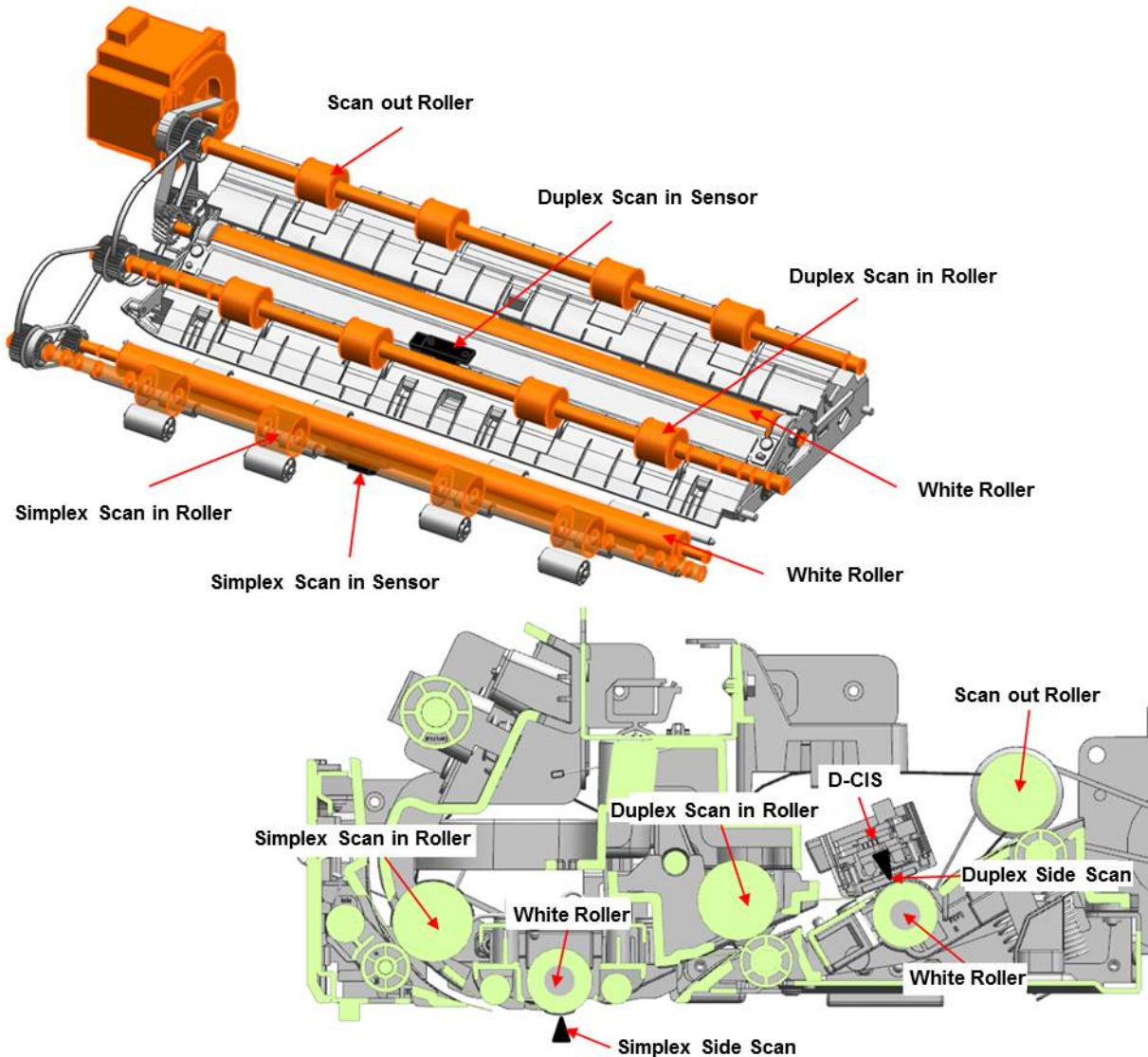


- **Operation Procedure**

- 1) When a picked up original is detected, the Regi sensor is on. At this time, the Regi motor is stopped and the original is aligned.
- 2) After the Regi sensor is on, Regi motor rotates.
- 3) After the transferred original passes the Regi. sensor, the Regi sensor is off and the Regi motor stops.

2.11.3.4. DSDF Original Scanning Drive Assembly

DSDF Original Scanning Drive Assembly consists of Scan Motor, Scan In/Out Roller, White Roller, Scan In Sensor, and D-CIS.

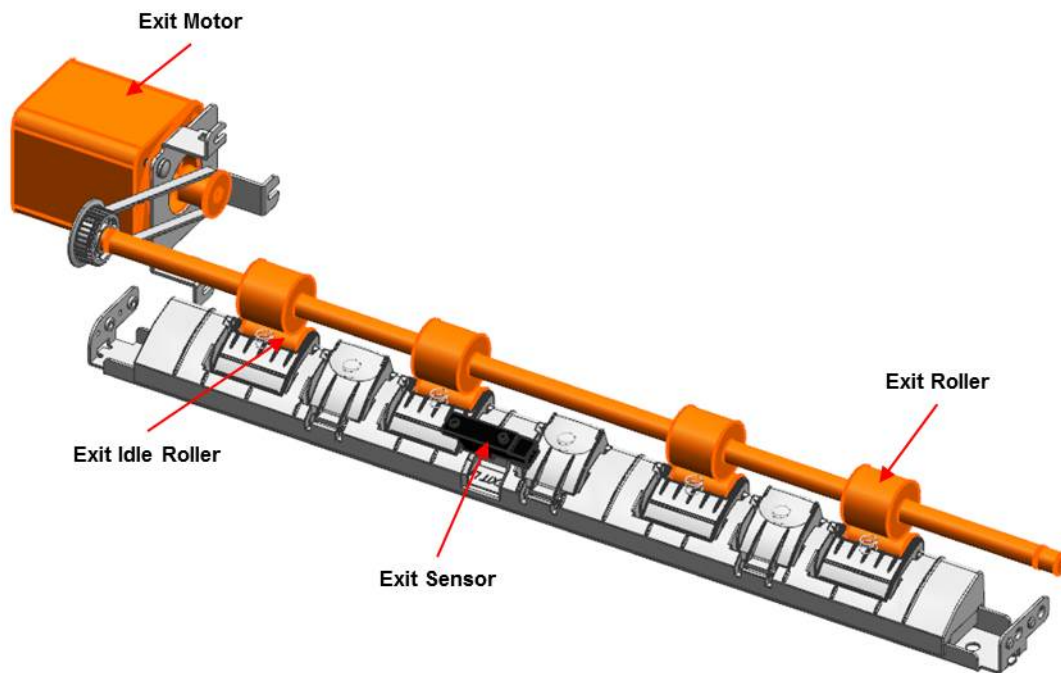


- **Operation Procedure**

- 1) The scan motor and timing-belt make the roller rotate.
- 2) When original passes the scan in sensor, simplex scan starts.
- 3) Simplex white roller functions to prevent the wrinkle and background.
- 4) When original passes the duplex scan in sensor, duplex scan starts.
- 5) Duplex white roller functions to prevent the wrinkle and background.
- 6) Scanned original is transferred to the exit roller by the scan out roller.

2.11.3.5. DSDF Original Exit Assembly

DSDF Original Exit Assembly consists of Exit Motor, Exit Roller, Exit Idle Roller, Exit Sensor.

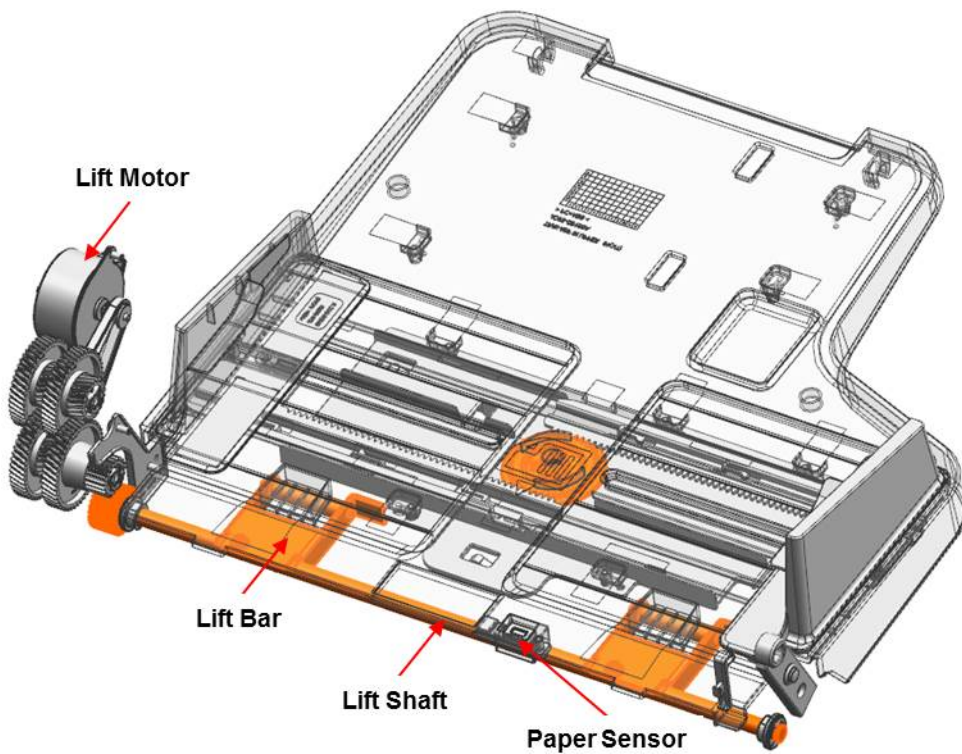


- **Operation Procedure**

- 1) When a passed original from scan out roller is detected, the exit sensor is on. At this time, the speed of the exit roller is the same with the scan out roller.
- 2) When the exit sensor is off, the exit motor speed will be slow for the stable stacking.

2.11.3.6. DSDF Original Lifting Assembly

DSDF Original Lifting Assembly consists of Lift Motor, Lift Shaft, Lift Bar, Paper Sensor.

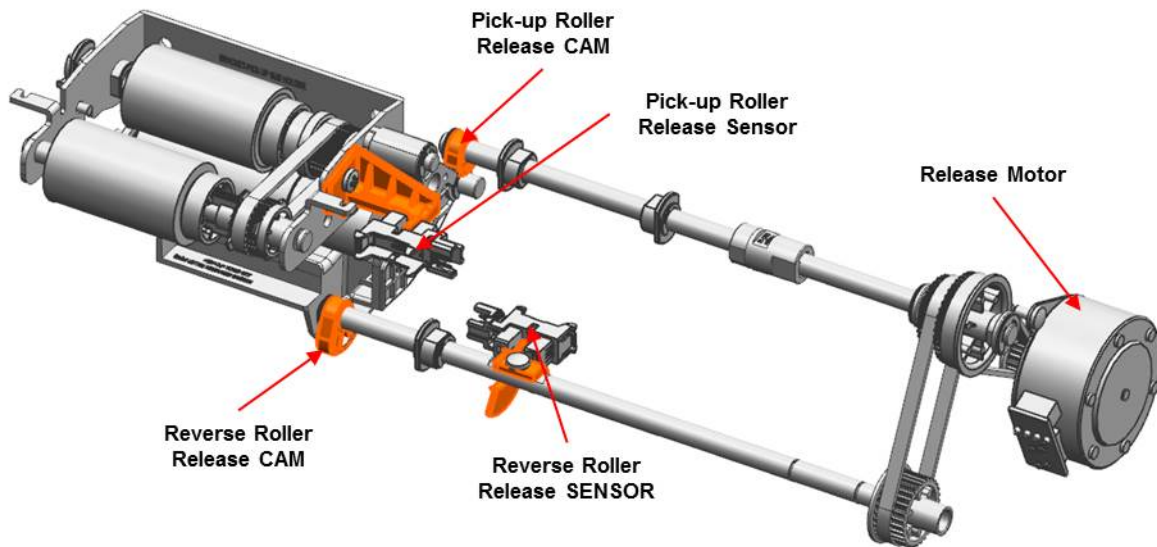


- **Operation Procedure**

- 1) Checks a paper detection.
- 2) Starts lifting driving by supplying power to motor.
- 3) Lift up the tray by a Lift Bar.
- 4) When the paper contacts to the pick up roller, the motor driving stops.

2.11.3.7. DSDF Original Pick-up_Reverse roller Release Assembly

DSDF Original Pick-up_Reverse roller Release Assembly consists of Release Motor, Pick-up / Reverse Roller Release CAM , Detecting Sensor.

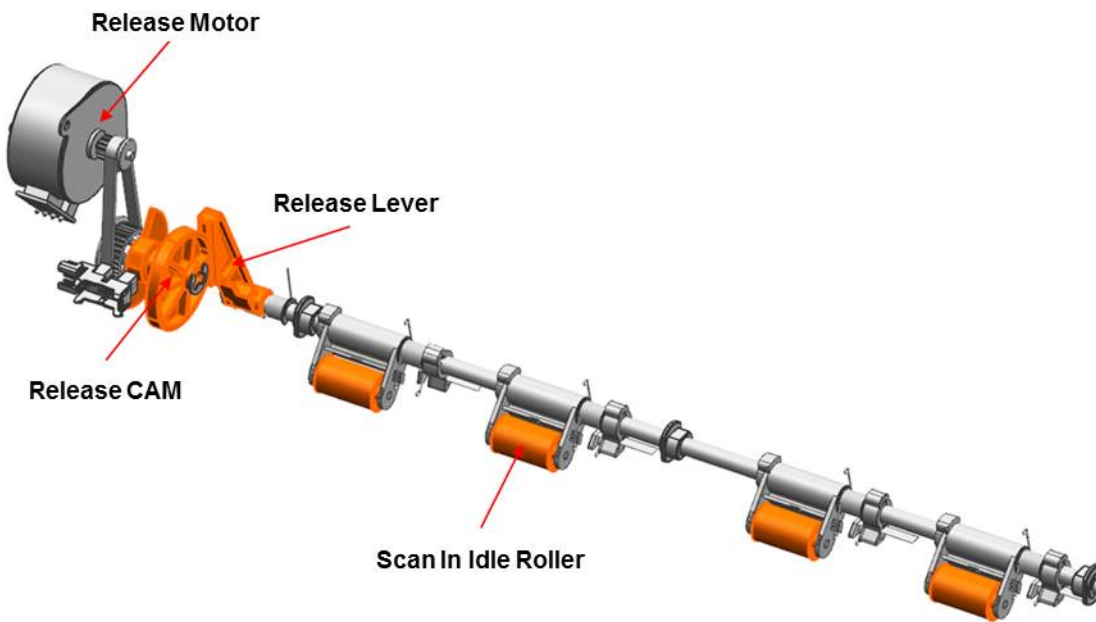


- **Operation Procedure**

- 1) When starting a scanning job, pick up roller contacts the reverse roller.
- 2) When completing a scanning job or occurring the jam, these rollers are separated.
- 3) Two CAMs are controlled by a motor and one-way bearing.
(Normal rotation : Pick-up CAM operates / Reverse rotation : Reverse CAM operates)

2.11.3.8. DSDF Scan in Roller Release Assembly

DSDF Scan in Roller Release Assembly consists of Release Motor, Release CAM, Scan In Idle Roller.



- **Operation Procedure**

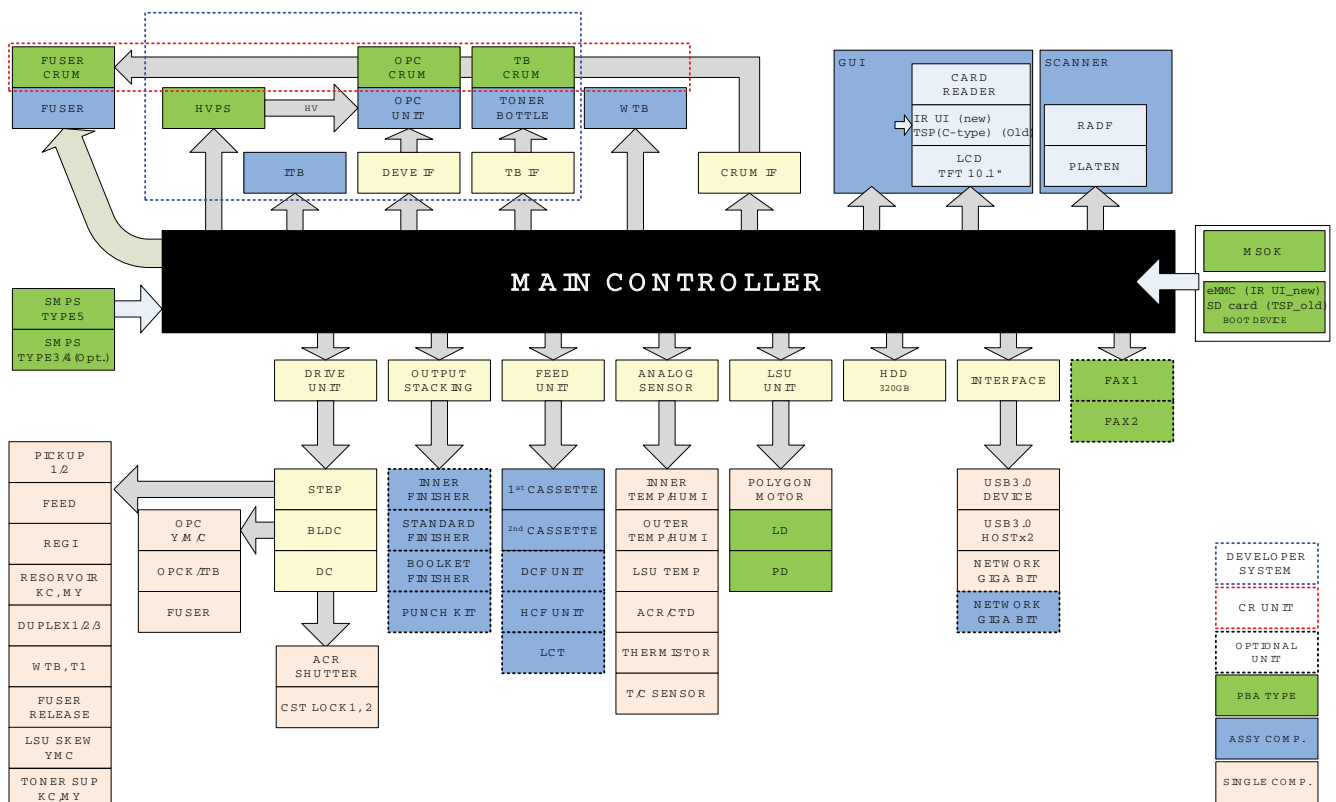
- 1) Release CAM controls the Idle roller to keep the stable scanning quality.
- 2) Motor and CAM operation repeats per one paper.

2.12. Hardware Configuration

MultiXpress K7 series Electrical Circuit System consists of the following :

- Main Controller (Main board)
- OPE Unit
- ADF(DSDF / RADF) Controller
- HVPS board
- SMPS board
- FDB board

Diagram of the MX K7 Series Electrical Circuit



The main controller handles the video controller, engine controller and scan controller.

The main controller receives print data from the host through the network or USB port, and it receives copy data from the Scan Controller. It takes this information and generates printable video bitmap data. It controls all modules required to print, that is, LSU, HVPS, FAN, Fuser, etc.

The main controller communicates with the drive system and other devices through UART(Universal Asynchronous Receiver Transmitter). It communicates with the toner cartridge and drum/developer unit through I2C to check their life.

The main controller adopted Quad Core CPU 1.5GHZ, DDR3 4GB(old model)/6GB(new model(IR UI) memory, Micro SD 4GB(old model)/eMMC 4GB(new model(IR UI)), 320GB SATA HDD to control the engine driving, video signal processing, interface, etc. successfully.

A MICOM at the main controller controls the fuser lamp on/off and system power according to an optimized energy-saving algorithm for optimal efficiency. It also communicates with the OPE Controller through the USB 2.0 protocol to display the system information on LCD.

Main controller communicates with the OPE Controller through the A3000 LCD Control Block and LVDS Data cable to display the system information on LCD.

The OPE Unit displays the status of the system by using the WQXGA(old model)/WSVGA(new model((IR UI)) TFT LCD in response to user actions or the main controller.

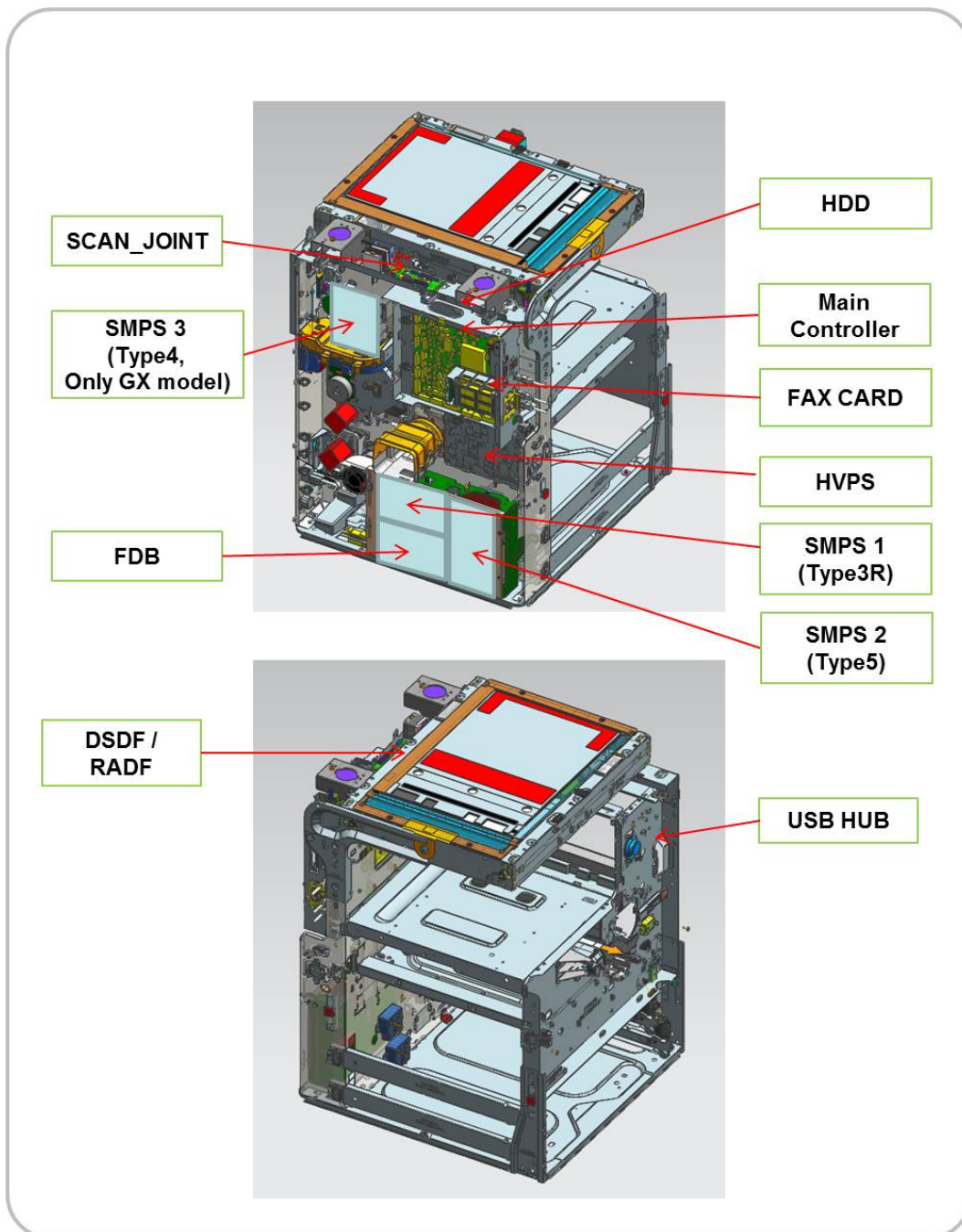
The soft power switch in the OPE Unit is used to safely shut down the system power.

The ADF Controller controls some mechanisms required to scan by feeder continuously and communicates with the main controller to synchronize the scanning timing.

The HVPS board generates high-voltage channels and controls it. The FDB board controls the fuser lamp On/Off. The SMPS board generates the 5V, 24V for system power.

Circuit Board Locations

The following diagrams show the locations of the printer circuit boards :



2.12.1. Main Controller (Main Board)

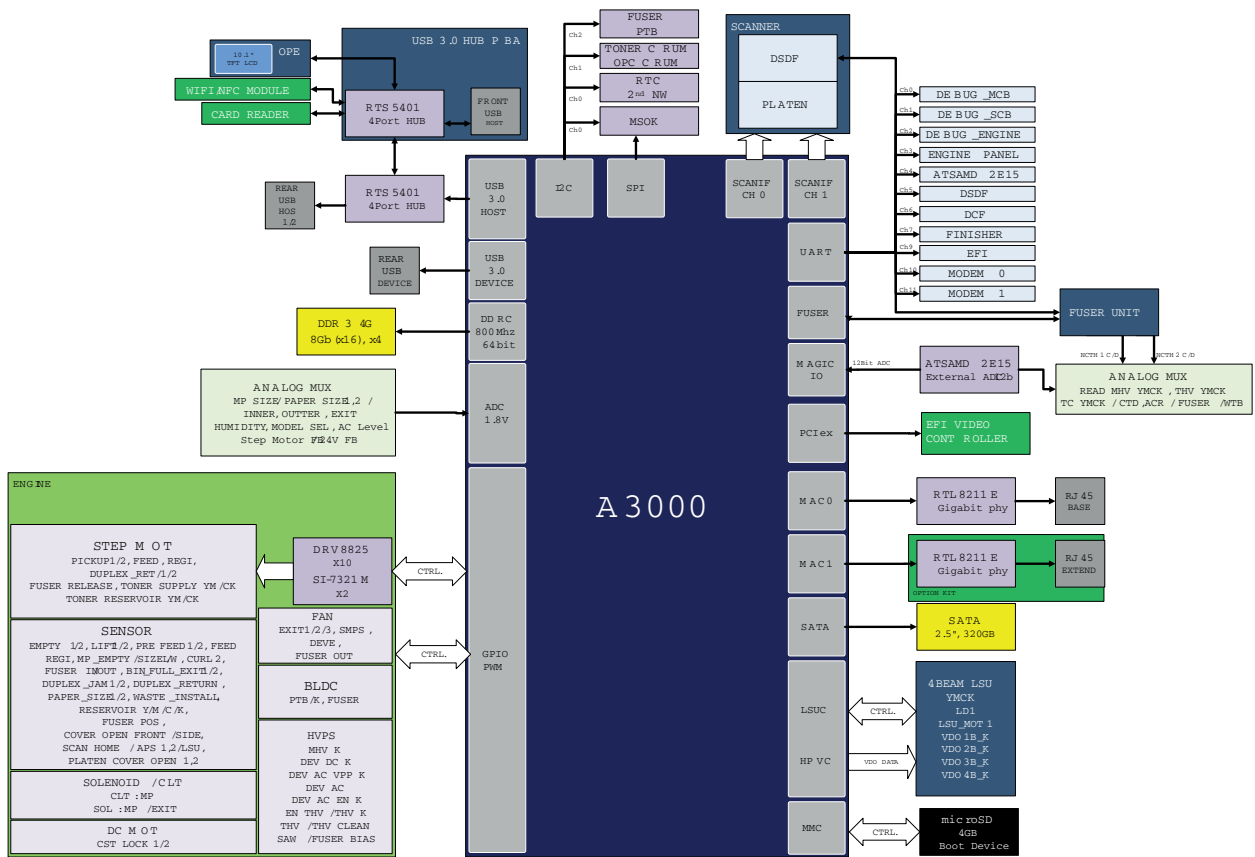
NOTE
 The main controller for previous model is not compatible with new model(IR UI). When replacing the main controller, be careful not to be replaced with incompatible one.

1) Main Controller for previous model

The main controller consists of the main processor(A3000), memory(DDR3 4GB), Micro SD(4GB), 1G Ethernet PHY,USB3.0 HUB, Micom(Power/Fuser control) and can control Video/UI/FAX signal interface connection, motor driving IC, Engine signal interface connection, power interface.

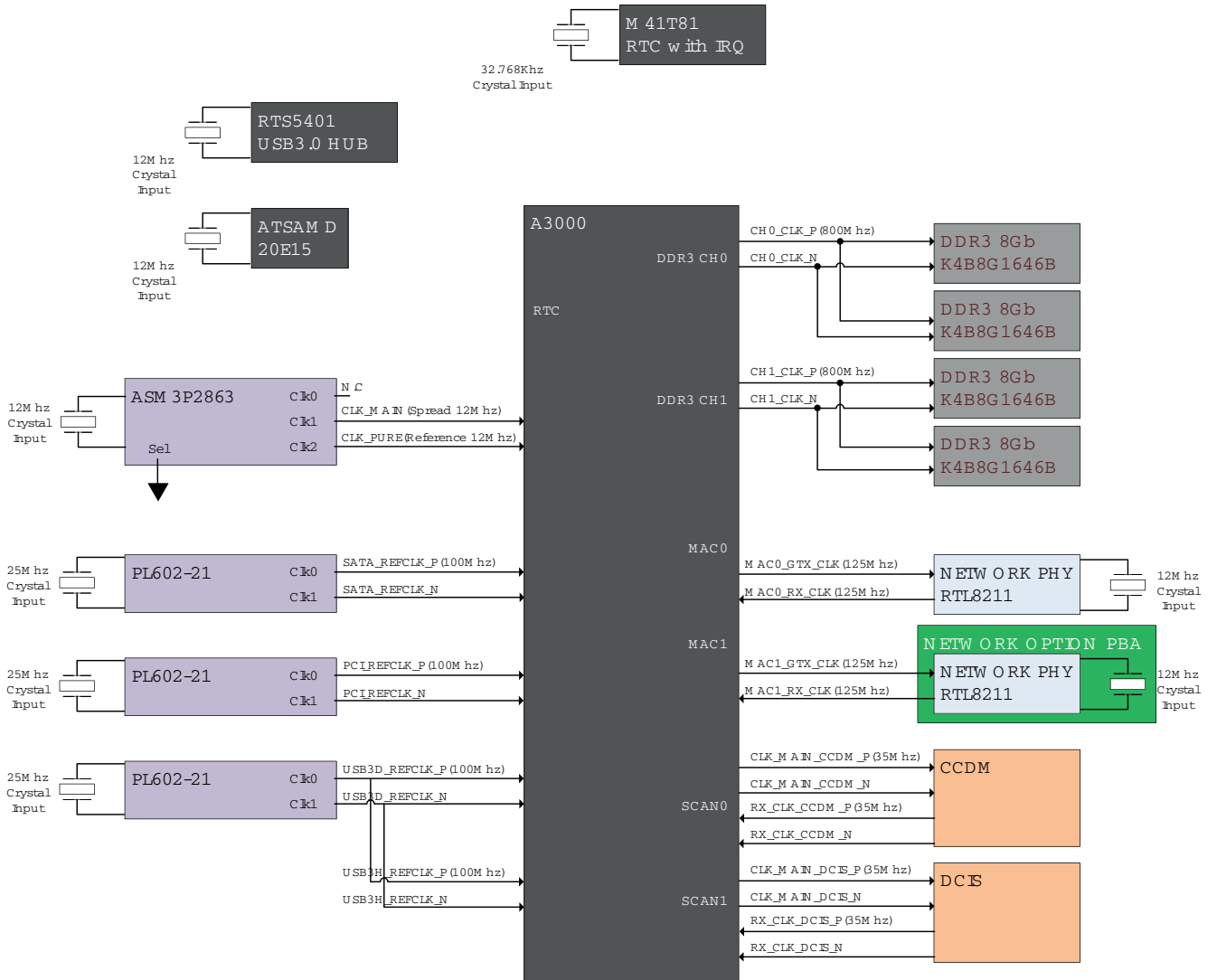
The main processor (Quad Core 1.5GHz CPU) controls video, engine, UI display and communicates with the various devices. The HDD is connected to the main controller by SATA cable and to the other device (ADF, DCF, Finisher, Modem) by UART.

1) Main Controller Block Diagram

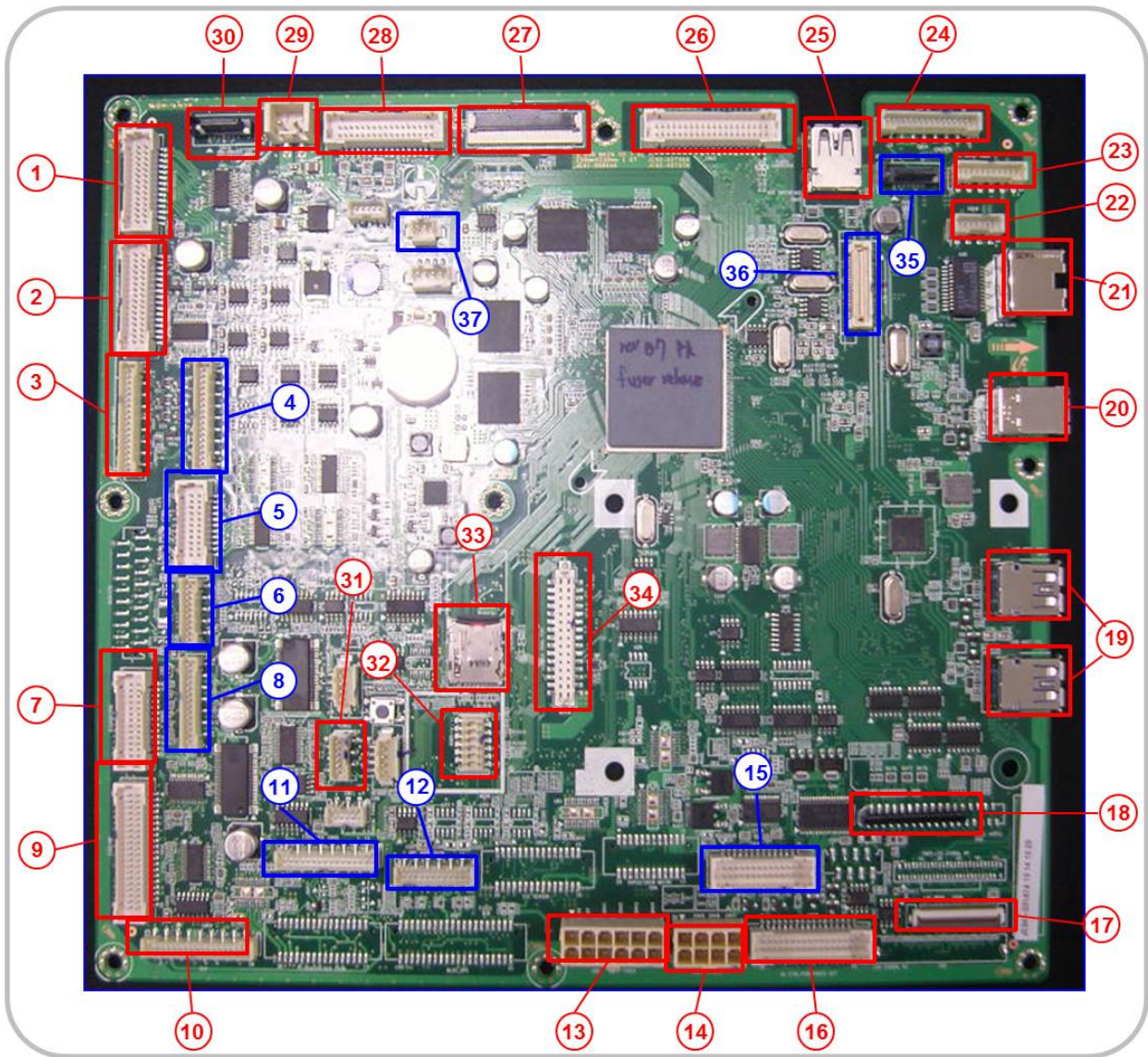


2) Main Controller Clock Diagram

2. Product Specifications and Description



3) Main Controller Connection Information



• **Connection**

1	EXIT
2	FUSER DRIVE
3	FUSER DRAWER
4	TB_DEVE CRUM
5	TONER SUP_RES
6	CTD_REGI SENS
7	PICKUP 1/2
8	FEED_REGI MOT
9	SIDE
10	DCF IF
11	FINISHER
12	OPC BLDC MONO
13	SMPS TYPE5

14	SMPS TYPE3R
15	FRONT IF MONO
16	FDB IF
17	LSU MONO
18	HVPS MONO
19	USB HOST 1/2
20	USB DEVICE
21	NETWORK
22	EFI POWER
23	FDI JOINT
24	UI IF
25	USB HOST_HUB
26	DCIS

27	CCDM
28	DSDF
29	HDD POWER
30	HDD SIGNAL
31	SIDE FAN
32	MSOK
33	SD CARD
34	FAX JOINT
35	2ND NETWORK
36	EFI SIGNAL
37	CPU FAN

• **Information**

- Part Code

2. Product Specifications and Description

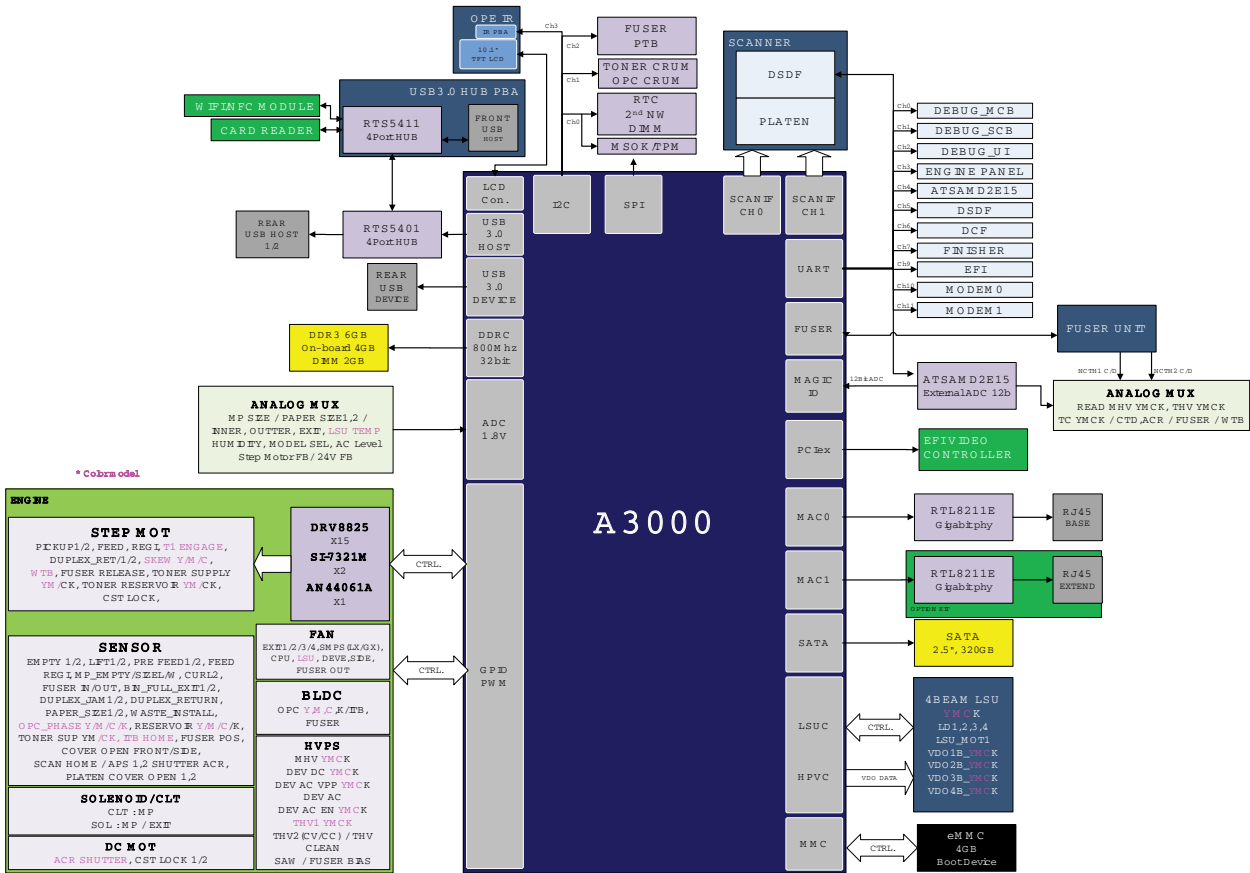
- JC92-02736A for LX model (K7600LX, K7500LX, K7400LX)
- JC92-02736B for GX model (K7600GX, K7500GX, K7400GX)
- Part Name : PBA-MAIN

2) Main Controller for new model(IR UI)

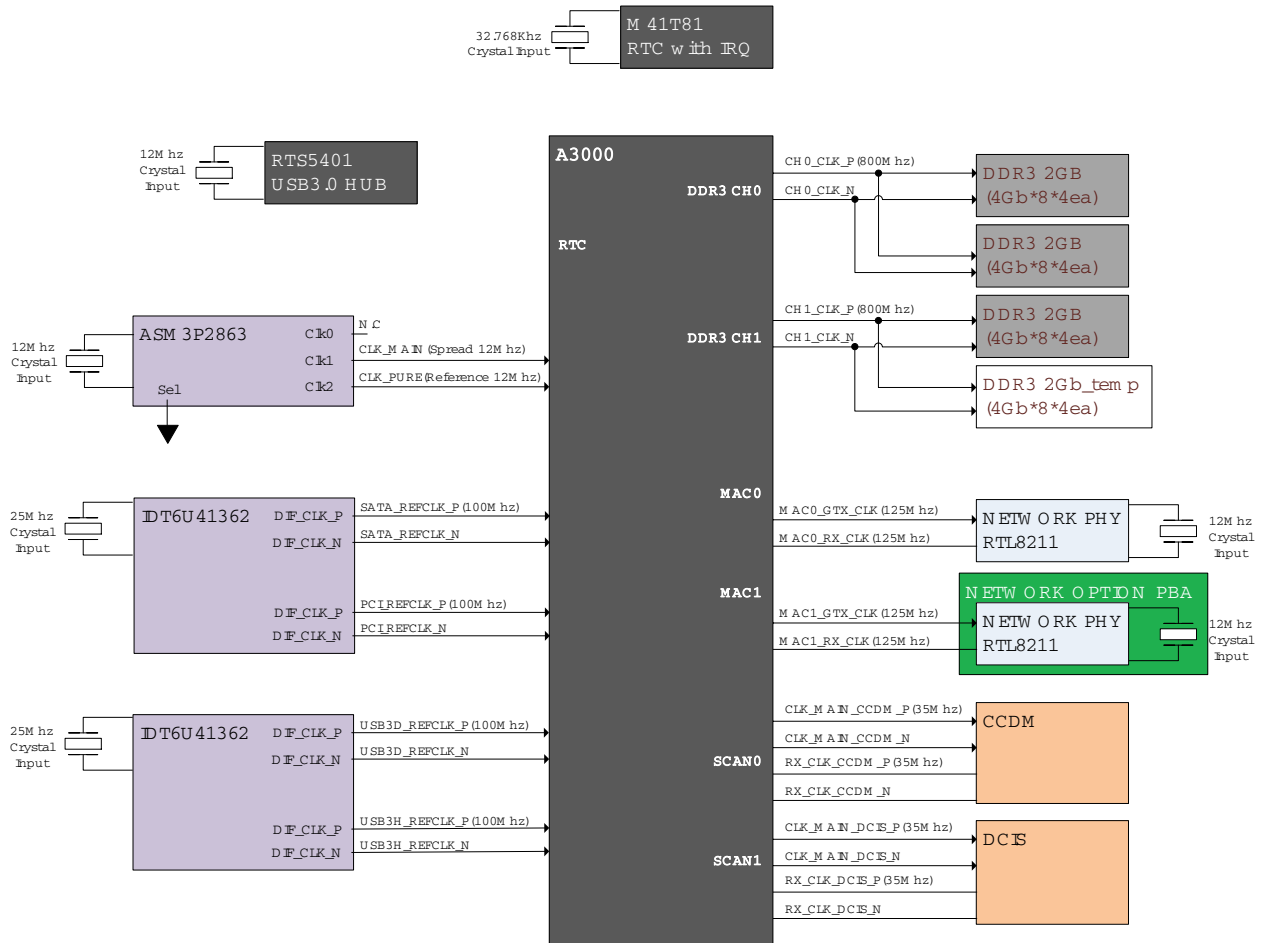
The main controller consists of the main processor(A3000), memory(DDR3 6GB), eMMC(4GB), 1G Ethernet PHY,USB3.0 HUB, Micom(Power/Fuser control), can control Video/UI/FAX signal interface connection, motor driving IC, Engine signal interface connection, power interface.

The main processor (Quad Core 1.5GHz CPU) controls video, engine, UI display and communicates the various devices. The HDD is connected to the main controller by SATA cable and to the other device (ADF, DCF, Finisher, Modem) by UART.

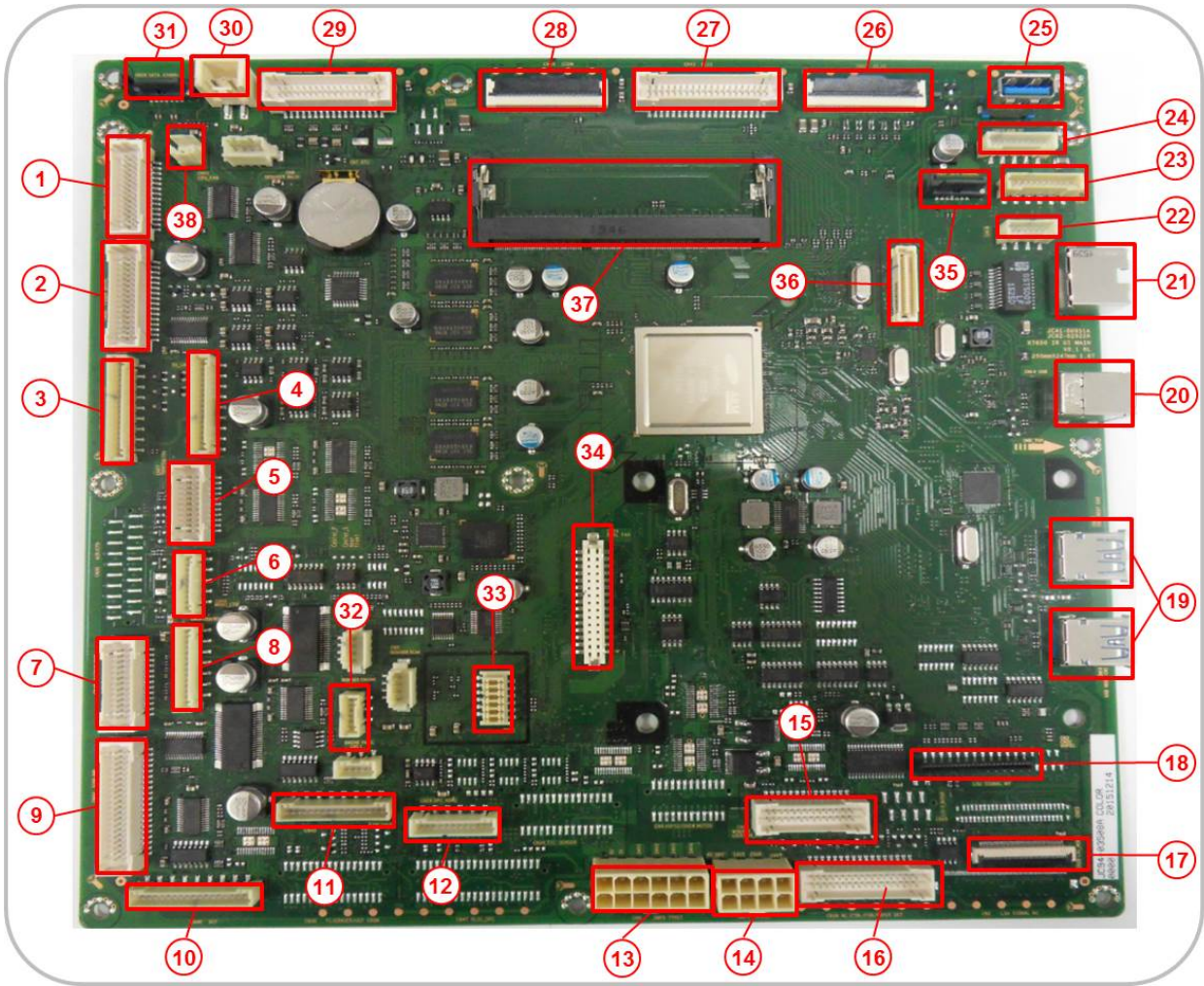
1) Main Controller Block Diagram



2) Main Controller Clock Diagram



3) Main Controller Connection Information



• **Connection**

1	EXIT
2	FUSER DRIVE
3	FUSER DRAWER
4	TB_DEVE CRUM
5	TONER SUP_RES
6	CTD_REGI SENS
7	PICKUP 1/2
8	FEED_REGI MOT
9	SIDE
10	DCF IF
11	FINISHER
12	OPC BLDC MONO
13	SMPS TYPE5

14	SMPS TYPE3R
15	FRONT IF MONO
16	FDB IF
17	LSU MONO
18	HVPS MONO
19	USB HOST 1/2
20	USB DEVICE
21	NETWORK
22	EFI POWER
23	FDI JOINT
24	HUB IF
25	USB HOST_HUB
26	UI IF

27	DCIS
28	CCDM
29	DSDF
30	HDD POWER
31	HDD SIGNAL
32	SIDE FAN
33	MSOK
34	FAX JOINT
35	2ND NETWORK
36	EFI SIGNAL
37	DDR3 DIMM
38	CPU FAN

• **Information**

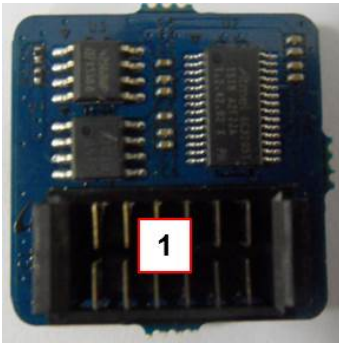
- Part Code:
 - JC92-02922D for LX model (K7600LX, K7500LX, K7400LX)
 - JC92-02922C for GX model (K7600GX, K7500GX, K7400GX)
- Part Name : PBA-MAIN

3) Master System Operation Key (MSOK)

MSOK PBA is used to store all system information and consists of serial flash memory, a EEPROM and a ACRUM. The flash memory(4MByte), EEPROM(256Kbit) and ACRUM are used for all system operation(system parameter, device status, tech information, and service information).

 **NOTE**

When a main board needs to be exchanged, the MSOK PBA should be re-installed to the new main board to retain the system information.



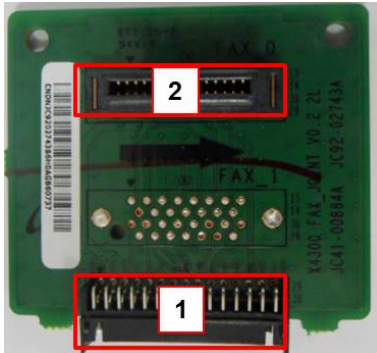
- **Connection**

1	Main PBA I/F connector
---	------------------------

4) Fax Joint PBA

The FAX JOINT PBA is used for interfacing between the main board and modem PBA.

It uses UART for interface.



- **Information**

- Part Code : JC92-02743B
- Part Name : PBA-FAX JOINT

- **Connection**

1	Main PBA I/F connector
2	Modem Card I/F connector

5) Fax Card (Optional)

The fax card is used to transfer and receive the fax data through a telephone line. This PBA is controlled by the main board.

1) 1st Modem



- **Information**

- Part Code : JC92-02558A
- Part Name : PBA-FAX CARD

- **Connection**

1	FAX JOINT I/F connector
2	TEL Line I/F connector
3	External Phone I/F connector

2) 2nd Modem



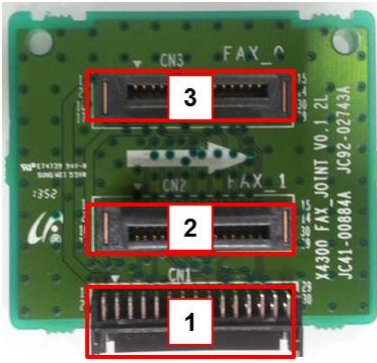
- **Information**

- Part Code : JC92-02599A
- Part Name : PBA-FAX CARD

- **Connection**

1	FAX JOINT I/F connector
2	TEL Line I/F connector

3) Fax Joint PBA (Only used dual fax kit)



• **Information**

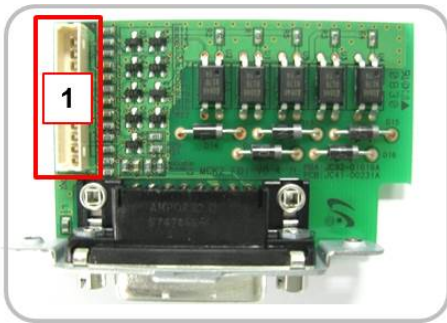
- Part Code : JC92-02743A
- Part Name : PBA-FAX JOINT

• **Connection**

1	Main PBA I/F connector
2	Modem Card I/F connector (2nd)
3	Modem Card I/F connector (1st)

6) Foreign Device Interface (FDI) (Optional)

The FDI Module as a option is used to track machine usage such as the number of print or copy pages for some special users. This module interfaces to the main board.



- **Information**

- Part Code : JC92-02068A
- Part Name : PBA SUB-FDI

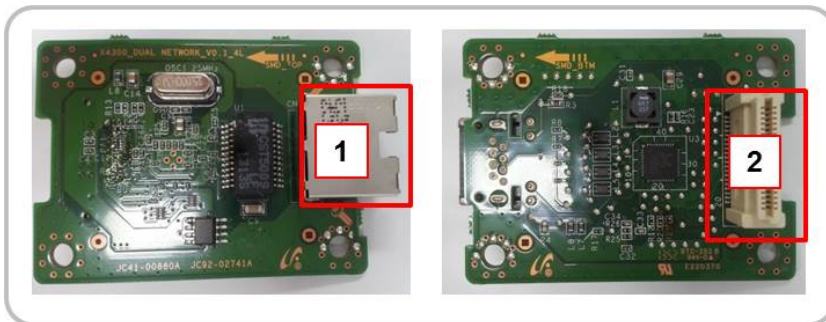
- **Connection**

1	Connector to Video Controller
---	-------------------------------

7) Dual Network board (Optional)

The Dual Network board as a option is used to make Dual Network environment.

It provides 2nd Network Port.



- **Information**

- Part Code : JC92-02741A
- Part Name : PBA-NPC

- **Connection**

1	GIGA N/W RJ45
2	Main PBA I/F connector

2.12.2. HUB PBA

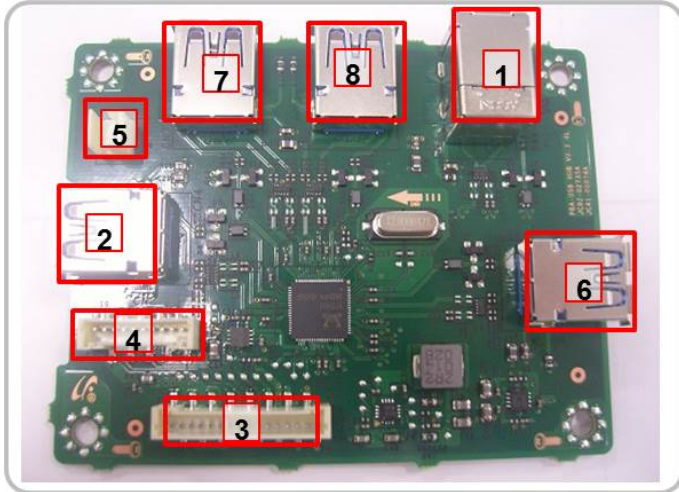
NOTE

The HUB PBA for previous model is not compatible with new model(IR UI). When replacing the HUB PBA, be careful not to be replaced with incompatible one.

USB HUB PBA for previous model

USB Hub PBA is used to interface with the main board, UI, USB Memory stick, NFC, Wireless module.

It interfaces through USB communication.



• **Information**

- Part Code : JC92-02735A
- Part Name : PBA-USB HUB

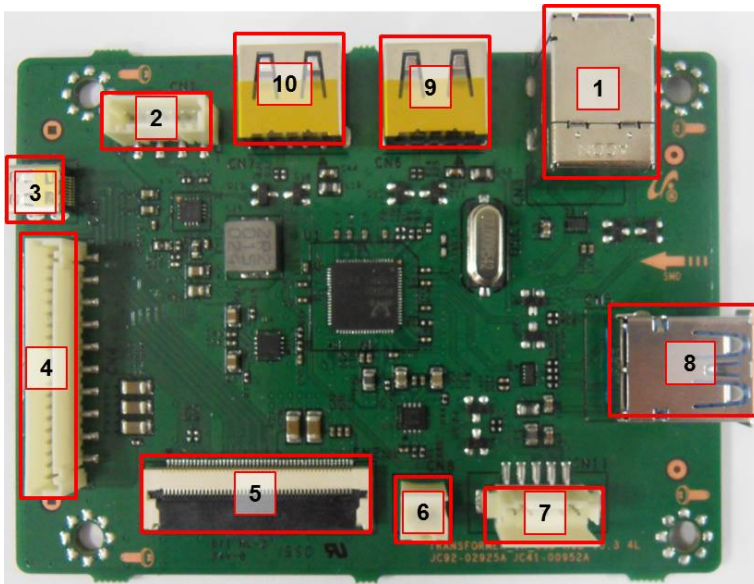
• **Connection**

1	MAIN Board I/F Connector
2	OPE Unit I/F Connector
3	Power Input Connector
4	OPE Unit Power
5	Speaker
6	External USB Host Slot
7	External USB Host Slot
8	WLAN / NFC

OPE HUB PBA for new model(IR UI)

OPE Hub PBA is used to interface with Main PBA, UI, USB Memory stick, NFC, Wireless module.

It interfaces through USB communication.



- **Information**

- Part Code : JC92-02925A
- Part Name : PBA-OPE HUB

- **Connection**

1	MAIN Board USB I/F
2	Reset & Speaker I/F
3	OPE LVDS I/F
4	Main Borad Power I/F
5	Main Borad LVDS I/F
6	Speaker
7	Keyborad
8	External USB Host Slot
9	WLAN / NFC
10	WLAN / NFC

2.12.3. SMPS (Switching Mode Power Supply) PBA (Type5)

NOTE

- MX K7 LX series have 2 SMPS boards. (Type5 x 1 EA , Type3R x 1 EA)
- MX K7 GX series have 3 SMPS boards. (Type5 x 1 EA , Type4 x 1 EA , Type3R x 1 EA)

SMPS board supplies electric power to the main board and other boards. The voltage provided includes +5V, and +24V from a 110V/220V power input. It has safety protection modes for over current and overload.



Specification

General Input / Output Voltage

- AC 110V (110V ~ 127V)
- AC 220V (220V ~ 240V)
- Input Current: 8.0A (110V) / 5.0A (220V)
- Output Power: 275W
 - DC 5V : 35W / DC 24V : 240W

Information

	110V	220V
Part Code	JC44-00093D	JC44-00100D
PBA Name	PSPN2-TYPE5-V1	PSPN2-TYPE5-V2

Connection

1	INPUT_AC
2	OUTPUT_DC +24V1/2/3/4 (to Main PBA)
3	24V on/off
4	OUTPUT_DC +5V1/2 (to Main PBA)

- **Input / Output connector**

- AC Input connector (CN1)

PIN Assign	PIN NO	Description
1	AC_L	AC Input
2	AC_N	

- DC Output connector (CN2)

PIN Assign	PIN NO	Description
1	+5V1	Power
2	GND	5V Ground
3	+5V2	Power
4	GND	5V Ground

- DC Output Connector (CN3)

PIN Assign	PIN NO	Description
1	+24V1	Power
2	GND	24V Ground
3	+24V2	Power
4	GND	24V Ground
5	+24V3	Power
6	GND	24V Ground
7	+24V4	Power
8	GND	24V Ground

- Signal Connector (CN4)

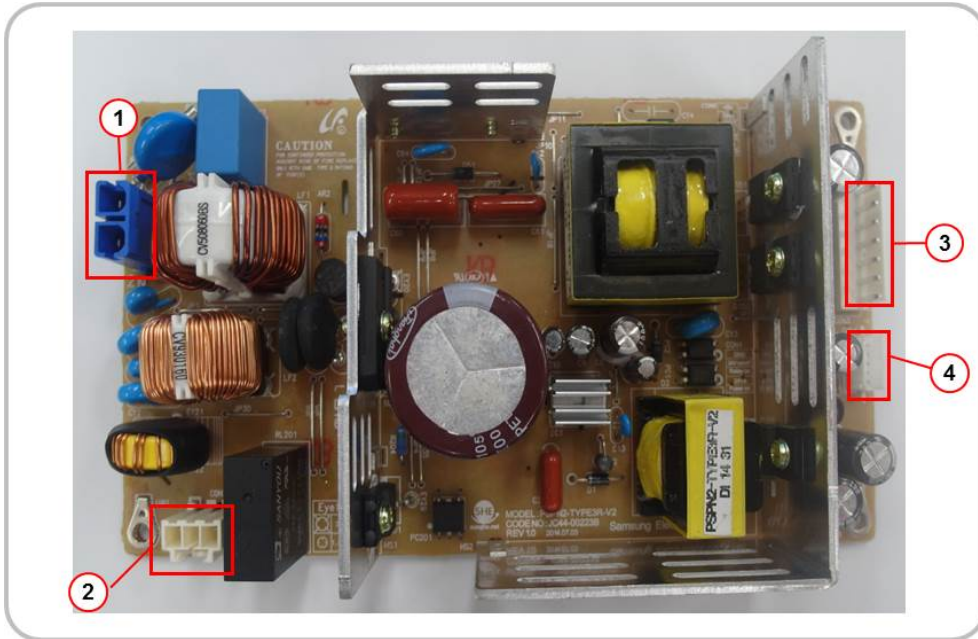
PIN Assign	PIN NO	Description
1	GND	Active Low
2	24V On_Off	
3	GND	

2.12.4. SMPS (Switching Mode Power Supply) PBA (Type3R)

NOTE

- MX K7 LX series have 2 SMPS boards. (Type5 x 1 EA , Type3R x 1 EA)
- MX K7 GX series have 3 SMPS boards. (Type5 x 1 EA , Type4 x 1 EA , Type3R x 1 EA)

SMPS board supplies electric power to the main board and other boards. The voltage provided includes +5V, and +24V from a 110V/220V power input. It has safety protection modes for over current and overload.



Specification

General Input / Output Voltage

- AC 110V (110V ~ 127V)
- AC 220V (220V ~ 240V)
- Input Current : 10A (110V) / 8A (220V)
- Output Power: 164W
 - DC 5V : 20W / DC 24V : 144W

Information

	110V	220V
Part Code	JC44-00222B	JC44-00223B
PBA Name	PSPN2 -TYPE3R-V1	PSPN2-TYPE3R-V2

Connection

1	INPUT_AC Power (CON1)
2	Fuser AC Power (CON2) / Not available for MX7
3	OUTPUT_DC +24V1/2/3 and +5V1 (CON3)
4	Signal_24V on/off, Relay on, Fuser on (CON4)

- **Input / Output connector**

- AC Input connector (CON1)

PIN Assign	PIN NO	Description
1	AC_L	AC Input
2	AC_N	

- Fuser AC Power Connector (CON2) - N/A for MX7

PIN Assign	PIN NO	Description
1	AC_L	AC Input for Fuser
2	AC_N	

- DC Output Connector (CON3)

PIN Assign	PIN NO	Description
1	+5V1	DC 5V
2	GND	Ground
3	+24V1	DC 24V
4	GND	Ground
5	+24V2	DC 24V
6	GND	Ground
7	+24V3	DC 24V

- Signal Connector (CON4)

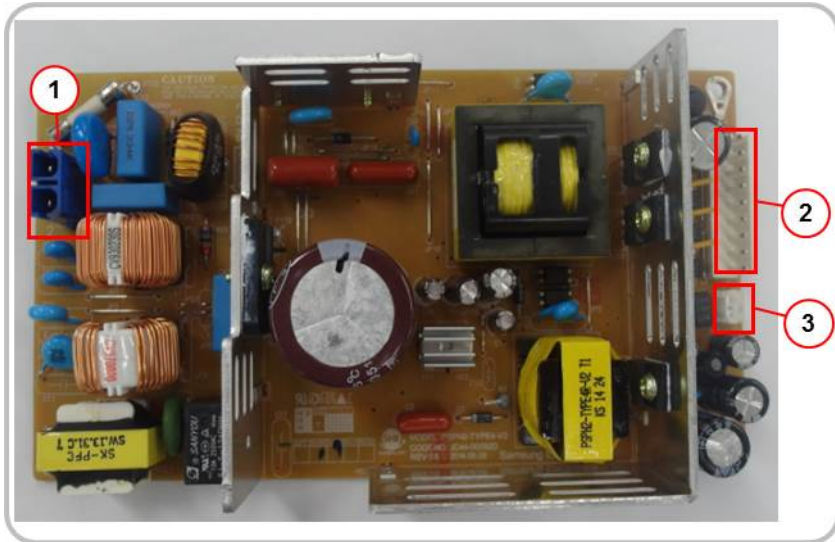
PIN Assign	PIN NO	Description
1	GND	Ground
2	24V on/off	Active Low
3	Relay on	Active High
4	24Vs	Bias for photo triac, relay
5	Fuser on	Active High

2.12.5. SMPS (Switching Mode Power Supply) PBA (Type4)

NOTE

- MX K7 LX series have 2 SMPS boards. (Type5 x 1 EA , Type3R x 1 EA)
- MX K7 GX series have 3 SMPS boards. (Type5 x 1 EA , Type4 x 1 EA , Type3R x 1 EA)

SMPS board supplies electric power to the main board and other boards. The voltage provided includes +5V, and +24V from a 110V/220V power input. It has safety protection modes for over current and overload.



Specification

General Input / Output Voltage

- AC 110V (110V ~ 127V)
- AC 220V (220V ~ 240V)
- Input Current : 6.3A (110V) / 5A (220V)
- Output Power: 205W
 - DC 5V : 25W / DC 24V : 180W

Information

	110V	220V
Part Code	JC44-00091D	JC44-00092D
PBA Name	PSPN2 -TYPE4-V1	PSPN2-TYPE4-V2

Connection

1	INPUT_AC
2	OUTPUT_DC +24V1/2/3 and DC +5V 1/2 (to Main PBA)
3	24V on/off

- **Input / Output connector**

- AC Input connector (CN1)

PIN Assign	PIN NO	Description
1	AC_L	AC Input
2	AC_N	

- DC Output Connector (CN4)

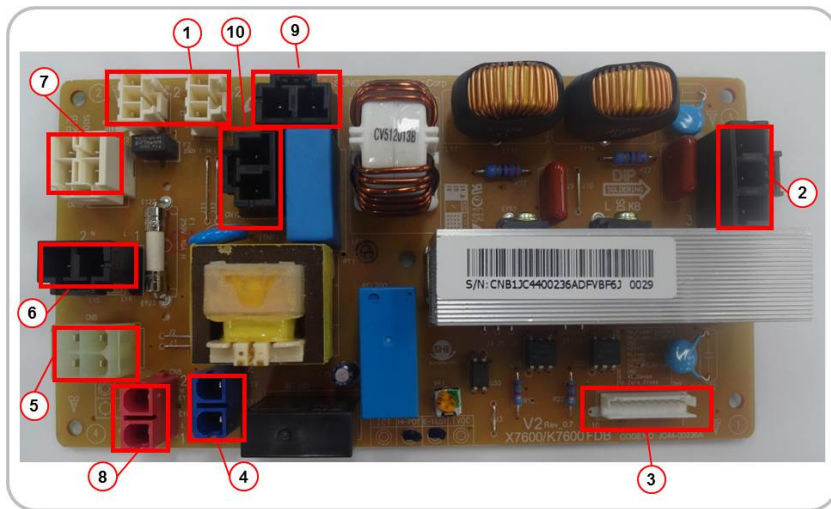
PIN Assign	PIN NO	Description
1	+5V1	Power
2	GND	5V Ground
3	+5V2	Power
4	GND	5V Ground
5	+24V1	Power
6	GND	24V Ground
7	+24V2	Power
8	GND	24V Ground
9	+24V3	Power

- Signal Connector (CN3)

PIN Assign	PIN NO	Description
1	GND	Active Low
2	24V On_Off	
3	GND	

2.12.6. Fuser Drive Board (FDB)

This board supplies the voltage to Fuser AC, Heater, Main board.



• **Information**

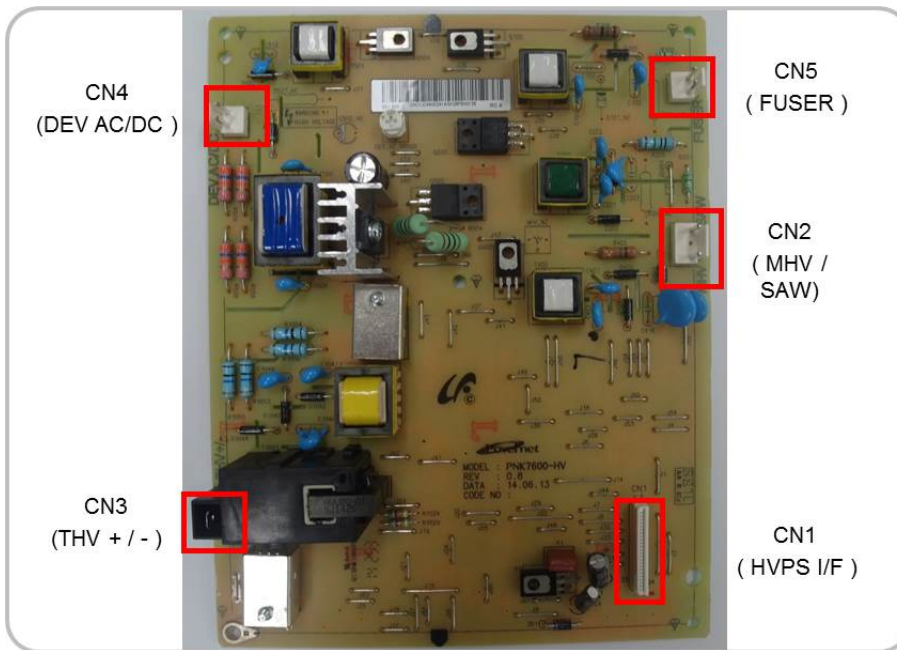
	110V	220V
Part Code	JC44-00235A	JC44-00236A
PBA Name	X7600/K7600 FDB-V1	X7600/K7600 FDB-V2

• **Connection**

1	Option Heater
2	Fuser Lamp
3	FDB I/F
4	SMPS (Type 5)
5	Main Switch
6	AC Inlet
7	Option Heater Switch
8	SMPS (Type4)
9/10	Inductor

2.12.7. HVPS (High Voltage Power Supply) board

HVPS board generates 5 high-voltage channels, which include FUSER, SAW, DEV AC/DC, THV+/-, MHV.



- **Specification**

- 1) Input Voltage : DC 24V, 3.3V
- 2) Output Voltage :
 - MHV : -1387V
 - DEV DC : -603V, AC : Vpp 960V
 - THV+(CC/CV) : 25.6uA/2045V, THV- : -1295V
 - SAW : -990V
 - FUSER : 400V

- **Information**

- Part Code : JC44-00241A
- Part Name : HVPS

- **Connection**

CN1		
PIN Assign	PIN Name	Description
1	DETECT	
2	24V	Input Voltage
3	24V	Input Voltage
4	ADC_HVPS_24	Signal
5	24V	Input Voltage
6	GND	GND
7	GND	GND
8	3.3V	Input Voltage
9	GND	GND

CN1		
PIN Assign	PIN Name	Description
10	OPEN	
11	READ_THV+_CV	Output Voltage
12	PWM_THV+_CV	PWM signal
13	PWM_MHV	PWM signal
14	THV+_CV_SELECT	Input Voltage
15	PWM_SAW	PWM signal
16	READ_THV	Output Voltage
17	PWM_THV-	PWM signal
18	nEN_DEVE	nEN signal
19	PWM_FUSER_BIAS	PWM signal
20	PWM_DEV_DC	PWM signal
21	PWM_THV+_CC	PWM signal
22	PWM_DEV_Vpp	PWM signal
23	PWM_DEV_AC	PWM signal
24	DETECT	

PIN Assign	PIN Name	Description
CN2	MHV / SAW	Output Voltage
CN3	THV + / -	Output Voltage
CN4	DEV AC/DC	Output Voltage
CN5	FUSER	Output Voltage

2.12.8. Eraser PBA

Eraser PBA has one LED. This LED is used for erasing the negative charges on the surface of the drum after printing.

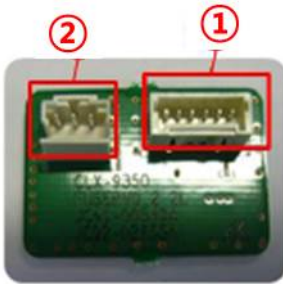


- **Information**

- Part Code : JC92-02747A
- Part Name : PBA-ERASER

2.12.9. Fuser PBA

The Fuser PBA includes CRU memory for Fuser Unit Life Cycle counting. It also provides a connection interface for the pressure sensor.



- **Connection**

1	Fuser EEPROM, Pressure Sensor I/F
2	Pressure Sensor (Not used)

- **Information**

- Part Code : JC92-02470A
- Part Name : PBA-FUSER

2.12.10. Waste Sensor PBA

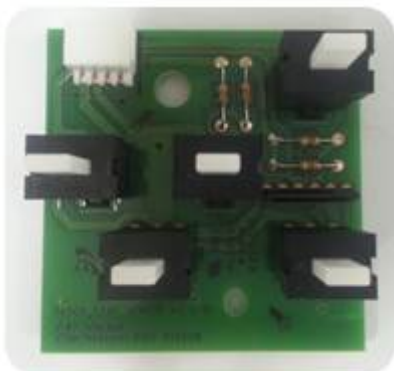
The Waste Sensor PBA detects the waste toner level inside the waste toner container.



- **Information**
 - Part Code : JC92-02471A
 - Part Name : WASTE SENSOR RX

2.12.11. Paper Size sensor PBA

The paper size sensor PBA is used for sensing paper size of tray.



- **Information**
 - Part Code : JC92-02622A
 - Part Name : PBA-PAPER SIZE SENSOR

2.12.12. OPE Unit

NOTE

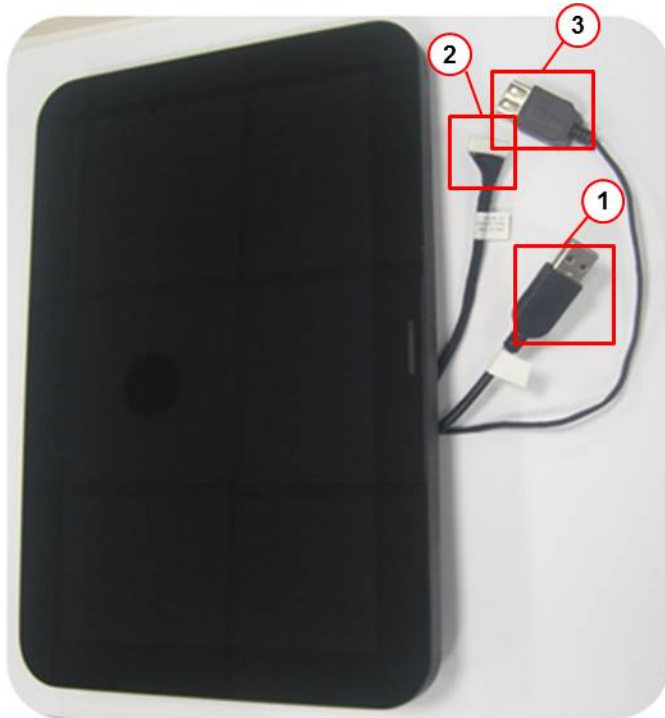
The OPE Unit for previous model is not compatible with new model(IR UI). When replacing the OPE Unit, be careful not to be replaced with incompatible one.

OPE Unit for previous model

The OPE Unit consists of a Quad core, Cortex-A7 SOC(A31s -1.2GHz), 2GB DDR3 SDRAM, 4GB eMMCmemory, 10.1 inch WSVGA(1024X600) touch LCD .

The A31s is used to interface with users through the touch screen.

The A31s has a GPU(SGX544MP2), which supports the Graphic Accelation for better UI.



- **Information**

- Part Code : JC97-04499C
- Part Name : OPE

- **Connection**

1	USB host in OPE Hub PBA
2	Input POWER Connector in OPE Hub PBA
3	USB host for external USB-keyboard option

OPE Unit for new model(IR UI)

The OPE Unit is IR TSP type, consist of infrared ray LED, light guide, 9.7 inch WSVGA(960x600) touch LCD.

The IR type is used to interface with users through the touch screen.

The IR type has a speaker, which supports independent sound.



- **Information**

- Part Code : JC97-04775A
- Part Name : OPE

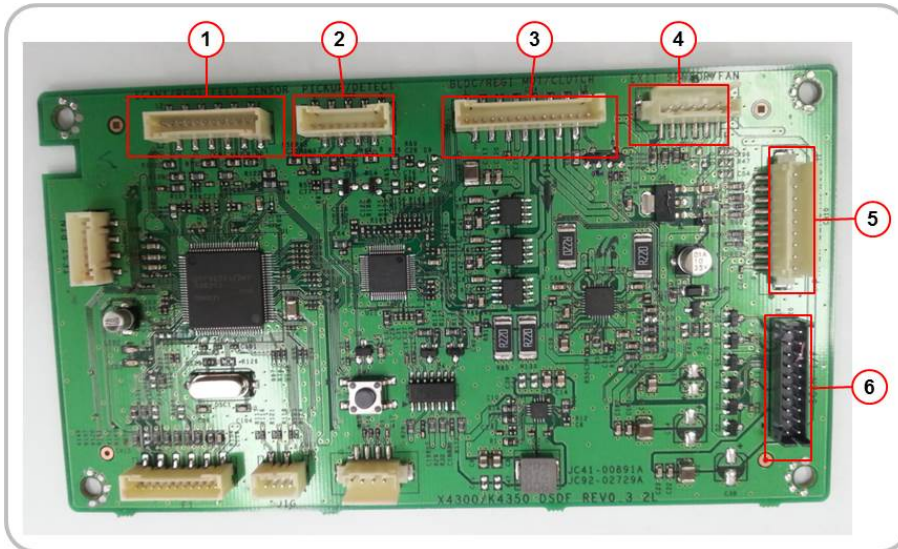
- **Connection**

1	Micro HDMI Interface
2	Power Interface

2.12.13. DSDF PBA

The DSDF PBA uses the R5F562TAEDFP(100MHzMain Clock) for controlling the DSDF unit and interfaces with the main board through UART.

It has three Motor Driver ICs to control the BLDC/Step motor and controls 1 BLDC motor, 2 step motors, 1 clutch, 1, Fan , and 11 sensors.



- **Information**

- Part Code : JC92-02729A
- Part Name : PBA-DSDF

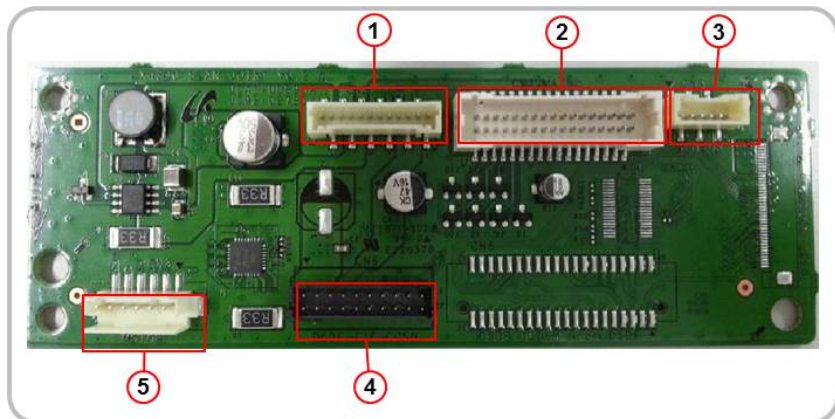
- **Connection**

1	Scan Position1/2, Regi, Feed Sensor
2	Pickup, Paper Detect, Cover Open Sensor
3	BLDC Motor, Regi Motor, Pickup Clutch
4	Exit Sensor, Fan
5	Paper Length1/2, Width Sensor
6	Scan Joint PBA

2.12.14. Scan Joint PBA

The Scan Joint PBA has a Bipolar Step Motor driving IC and interfaces with the WLED, APS sensor1,2, Cover open sensor1,2, Home position sensor and main board.

It also functions as the relay board to interface with the ADF I/F, Power board.



- **Information**

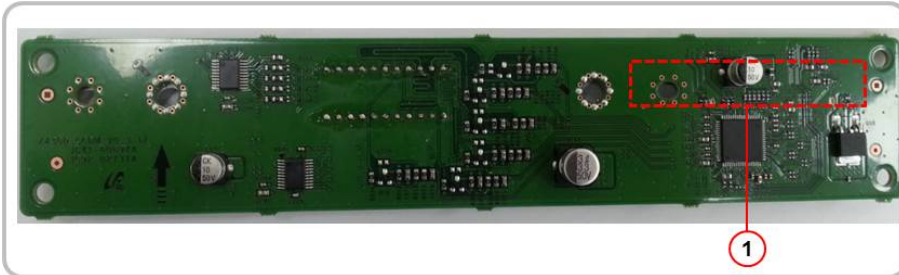
- Part Code : JC92-02781A
- Part Name : PBA-SCAN JOINT

- **Connection**

1	WLED IF PBA
2	MAIN PBA
3	Cover Open2, Home Sensor
4	RADF/DSDP PBA
5	Platen Motor

2.12.15. CCDM PBA

This is the CCD board used in the Scanner unit. The function of this board is to convert the reflected light from an original document to electrical signals. It includes the CCD, ADC, Logic IC, etc. The CCD converts the reflected light from an original document to three-color analog signals; red, green, blue. ADC converts each analog signal to digital. And for high speed data transmission, the digital data signal is converted to LVDS format with serialization.



- **Information**

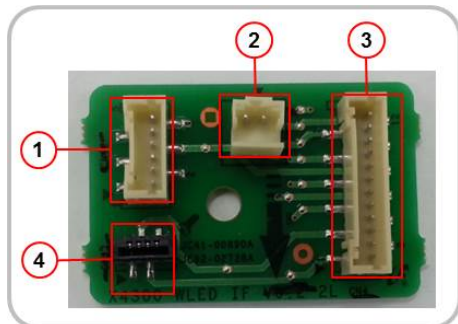
- Part Code : JC92-00894A
- Part Name : PBA-CCDM

- **Connection**

1	MAIN PBA
---	----------

2.12.16. WLED IF PBA

WLED IF PBA interfaces with the WLED and sensors inside the platen unit.



• **Information**

- Part Code : JC92-02728A
- Part Name : PBA-WLED IF

• **Connection**

1	APS1, APS2 Sensor
2	Cover Open1 Sensor
3	SCAN JOINT PBA
4	WLED PBA

2.12.17. WLED PBA

WLED PBA consists of two WLED used as scanner light.



• **Information**

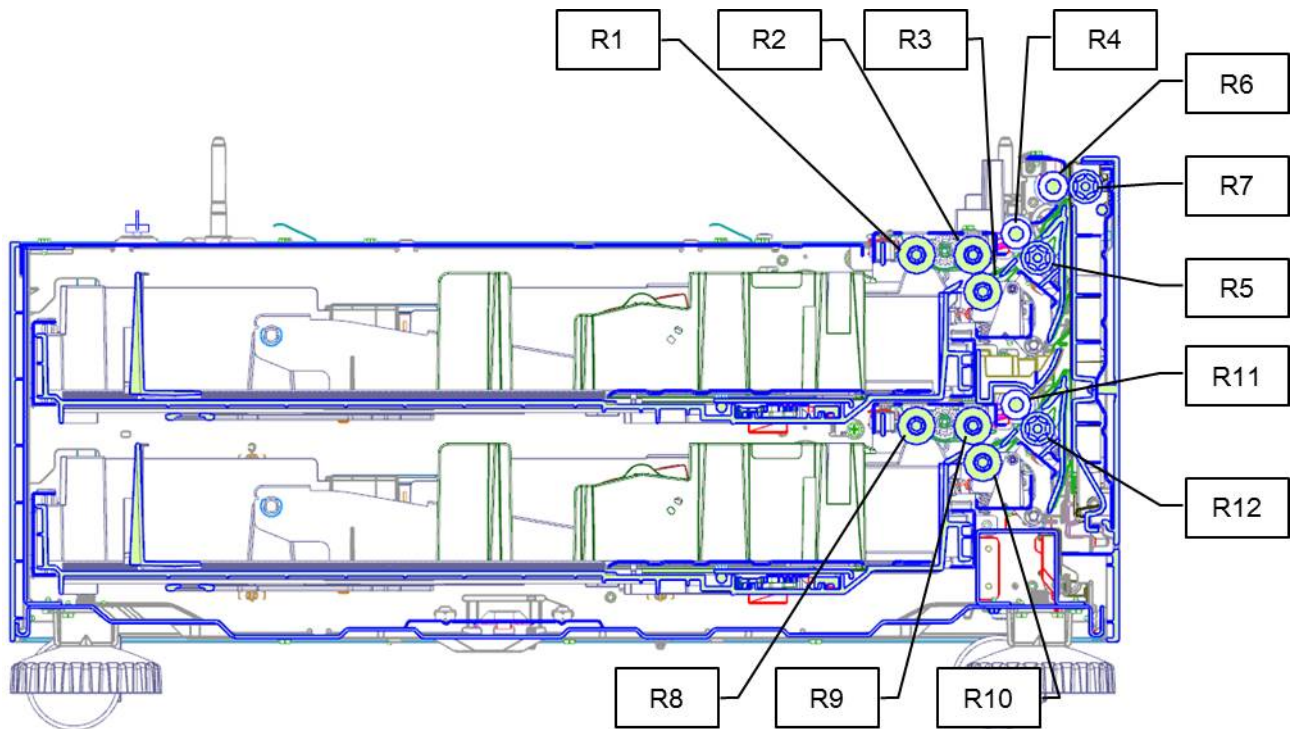
- Part Code : JC92-02727A
- Part Name : PBA-WLED

• **Connection**

1	WLED IF PBA
---	-------------

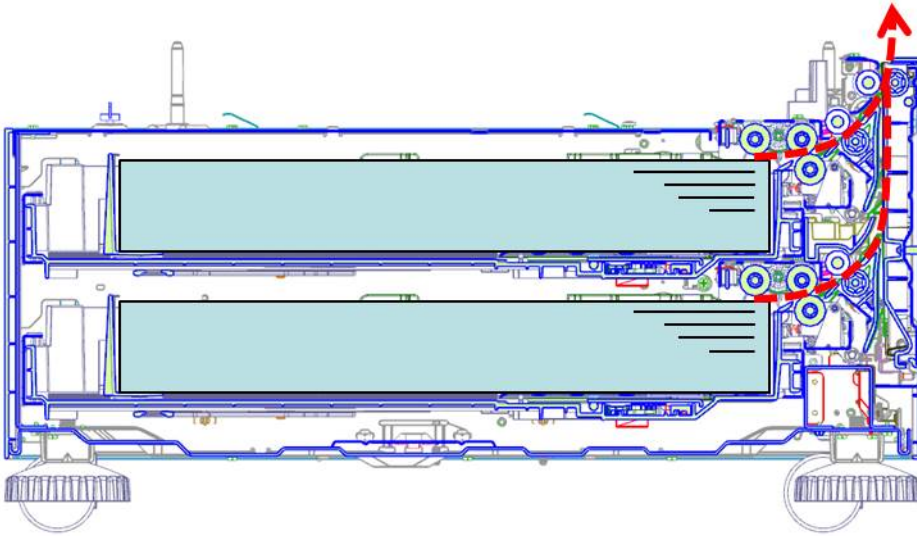
2.13. Double Cassette Feeder(DCF) Unit

1) Paper Feeding System (Rollers and Functions)

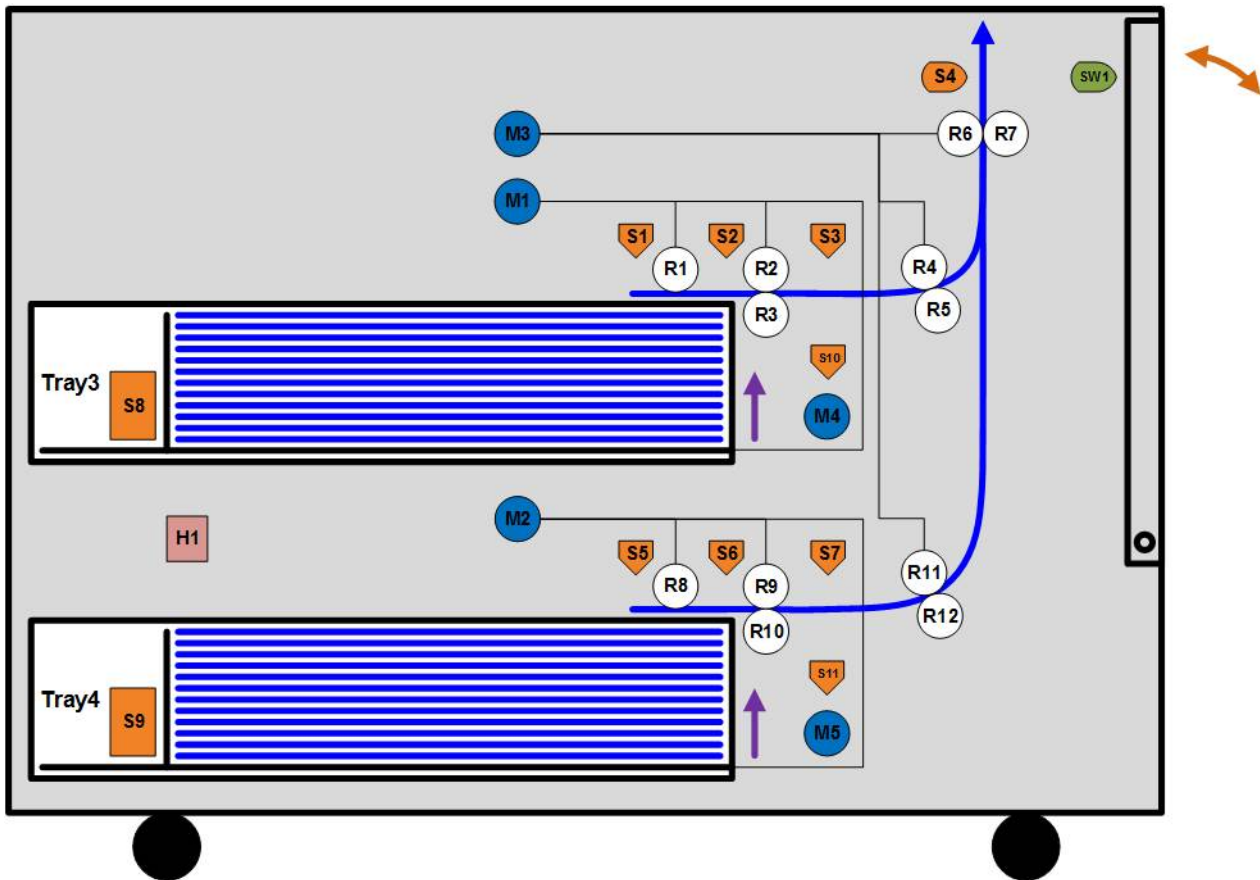


Tray No.	Roller No.	Roller Name	Function
3	R1	Pick-up roller	Transports paper from paper stack.
3	R2	Forward roller	Transports one sheet of paper to Pre feed roller.
3	R3	Reverse(Separation) roller	Assure paper transportation one by one.
3	R4	Pre feed roller	Transports paper to Feed roller.
3	R5	Idle roller	Makes paper transportation smooth.
3/4	R6	Feed roller	Transports one sheet of paper to the basic machine.
3/4	R7	Idle roller	Makes paper transportation smooth.
4	R8	Pick-up roller	Transports paper from paper stack.
4	R9	Forward roller	Transports one sheet of paper to Pre feed roller.
4	R10	Reverse(Separation) roller	Assure paper transportation one by one.
4	R11	Prefeed roller	Transports paper to Feed roller.
4	R12	Idle roller	Makes paper transportation smooth.

2) Paper Path

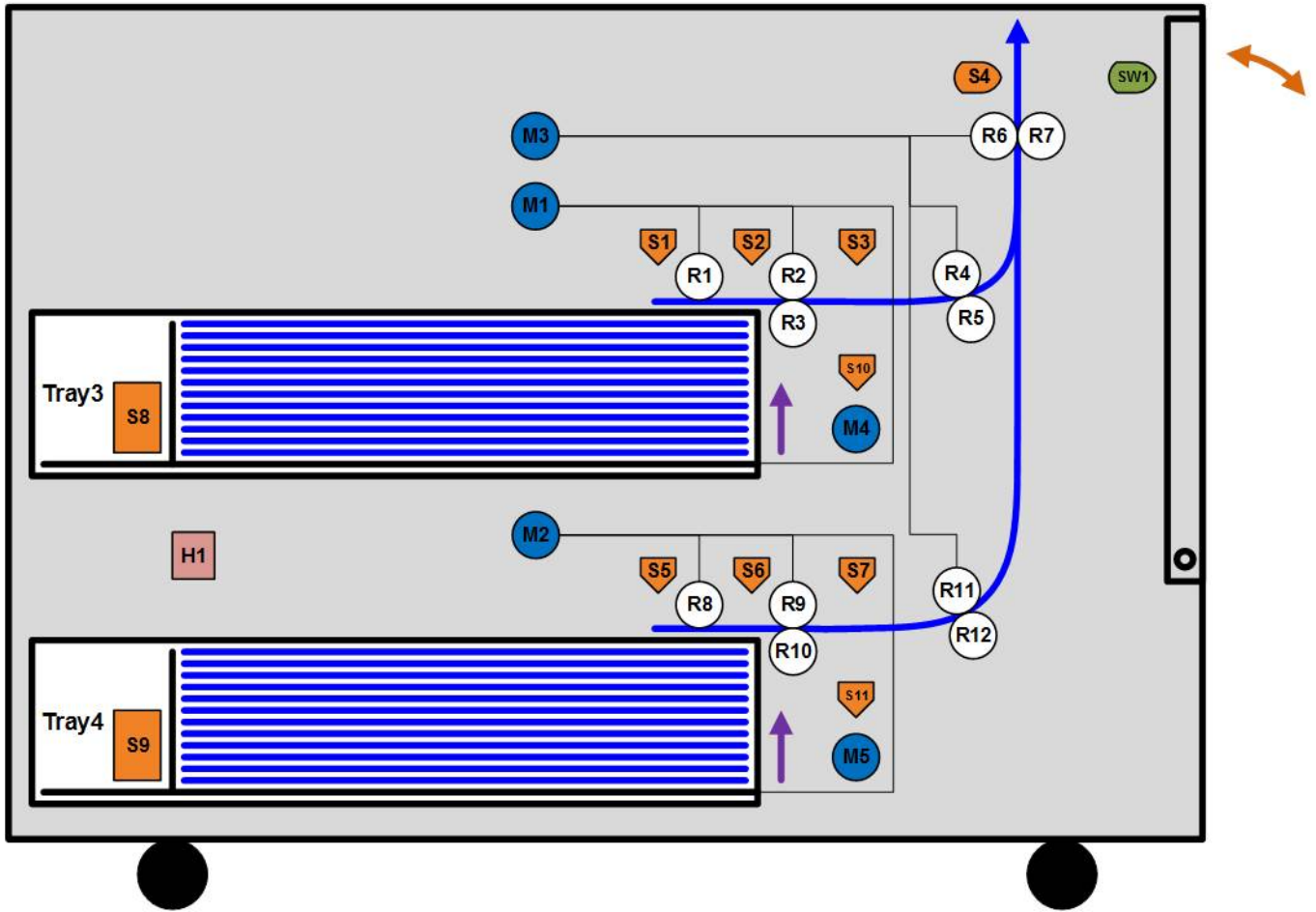


3) Electrical Parts Location / Parts Code / Connection Information



Tray No	Ref.	Description	Parts number	DC controller PCB
3	S1	Pickup No-paper Sensor	0604-001393	CN502-1 to 3
3	S2	Pickup Level Sensor	0604-001393	CN502-4 to 6
3	S3	Pre feed Sensor	0604-001490	CN502-7 to 9
3/4	S4	Path Sensor	0604-001393	CN502-10 to 12
4	S5	Pickup No-paper Sensor	0604-001393	CN501-1 to 3
4	S6	Pickup Level Sensor	0604-001393	CN501-4 to 6
4	S7	Prefeed Sensor	0604-001490	CN501-7 to 9
3	S8	Paper size sensor	JC32-00013A	CN802-2 to 4
4	S9	Paper size sensor	JC32-00013A	CN802-6 to 8
3	S10	Tray3 lock home sensor	0604-001393	CN701-3 to 5
4	S11	Tray4 lock home sensor	0604-001393	CN701-6 to 8
3/4	SW1	Side Door Open Switch	JC39-02268A	CN601-9 to 10
3	M1	Tray3 Pickup Motor	JC31-00009C	CN601-1 to 4
4	M2	Tray4 Pickup Motor	JC31-00009C	CN801-1 to 4
3/4	M3	Tray Feed Motor	JC31-00177A	CN601-5 to 8
3	M4	Tray3 lock motor	JC31-00078A	CN902-2 to 3
4	M5	Tray4 lock motor	JC31-00078A	CN902-4 to 5

4) Sensors and Functions



Tray No	Ref.	Description	Function
3	S1	Pickup No-paper Sensor	Detects paper empty in tray3.
3	S2	Pickup Level Sensor	Detects upper limit of lifting-up of tray3.
3	S3	Pre-feed Sensor	Detects paper between R2-R3 and R4-5.
3/4	S4	Path Sensor	Detects paper passing through R6-R7.
4	S5	Pickup No-paper Sensor	Detects paper empty in tray4.
4	S6	Pickup Level Sensor	Detects upper limit of lifting-up in tray4.
4	S7	Pre-feed Sensor	Detects paper between R9-R10 and R11-12.
3	S8	Paper size sensor	Detects tray insertion and paper size in tray3.
4	S9	Paper size sensor	Detects tray insertion and paper size in tray4.
3	S10	Tray3 lock home sensor	Detects home position of Tray3 locking unit.
4	S11	Tray4 lock home sensor	Detects home position of Tray4 locking unit.
3/4	SW1	Side Door Open Switch	Detects opening of right cover.

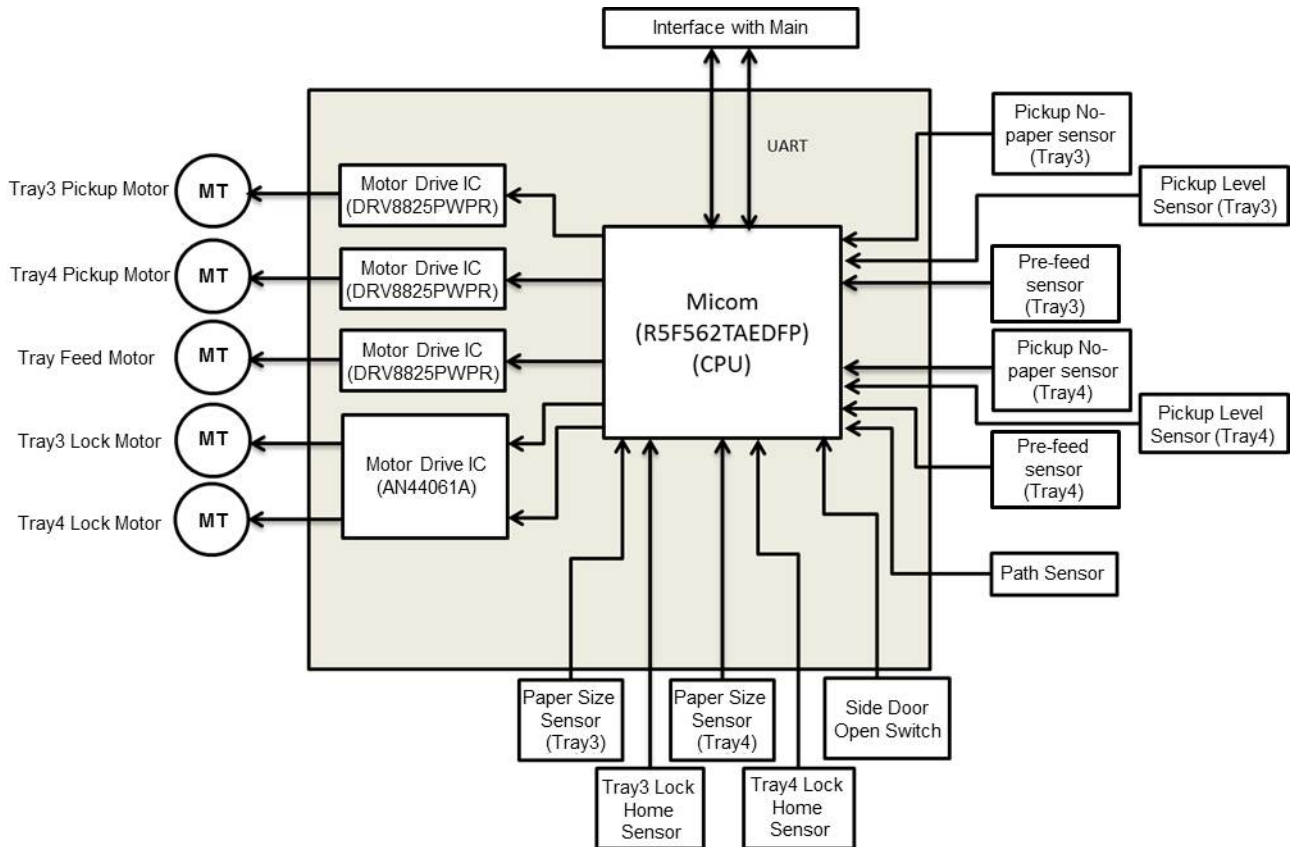
5) Block Diagram

The DCF board controls all functions for DCF Assy. It consists of CPU, Motor drive IC.

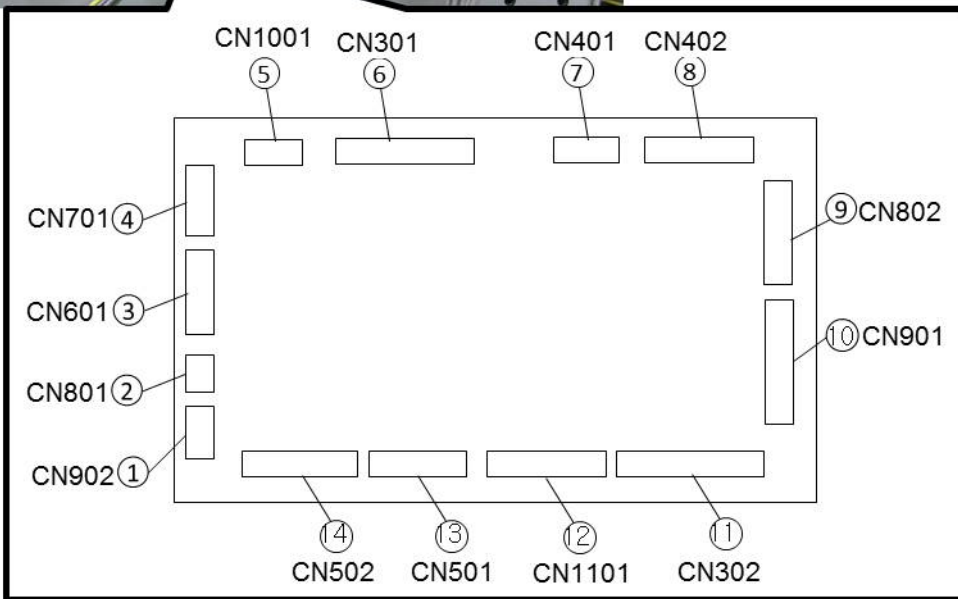
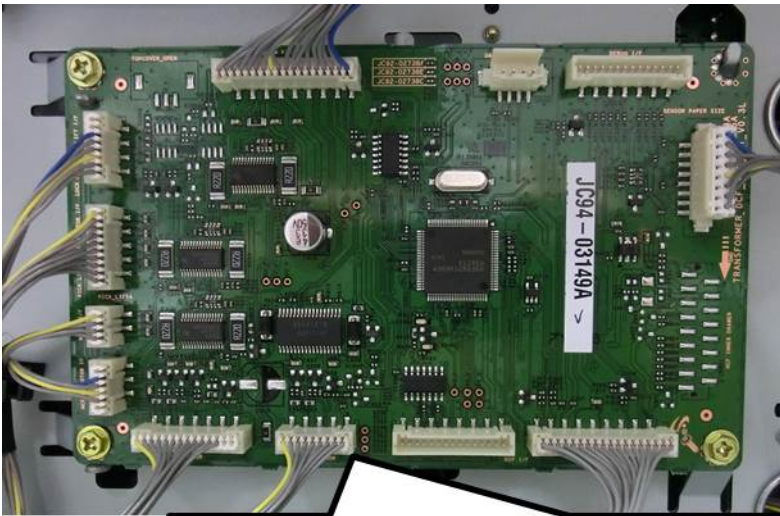
The Micom in the board receives the information from the paper size sensor, Pickup No-paper Sensor, Pickup Level Sensor, Prefeed sensor etc. and communicates with the copier main board through the UART.

When being received the print job command from the interface connector (CN301) through UART, DCF board drives the feed motor and pick up motor to pick up a paper.

This board has 2 LEDs. The lower LED is for checking 3.3V power supply and the upper LED is checking the micom operation.



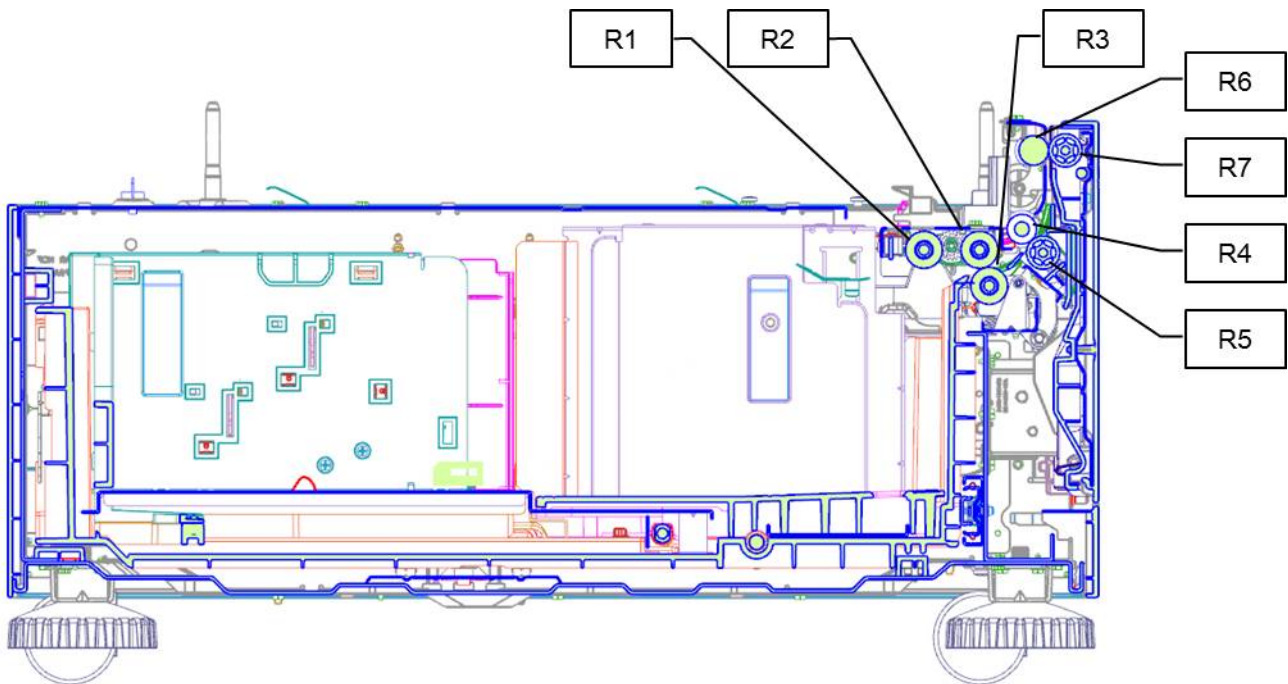
6) PBA Connection



Connector Number	Item Number	Connection
CN902	1	DC MOTOR I/F
CN801	2	PICK_LIFT4 MOTOR I/F
CN601	3	PICK_LIFT3 & FEED MOTOR I/F
CN701	4	LOCKMOT/MOT LIFT/LCT HOME I/F
CN1001	5	TOPCOVER_OPEN INTERLOCK
CN301	6	MAIN I/F
CN401	7	UART DEBUG I/F
CN402	8	E1 JTAG DEBUG I/F
CN802	9	SENSOR PAPER SIZE
CN901	10	HCF INNER DRAWER
CN302	11	SUB I/F
CN1101	12	BBP I/F
CN501	13	T4 SENSOR
CN502	14	T3 SENSOR

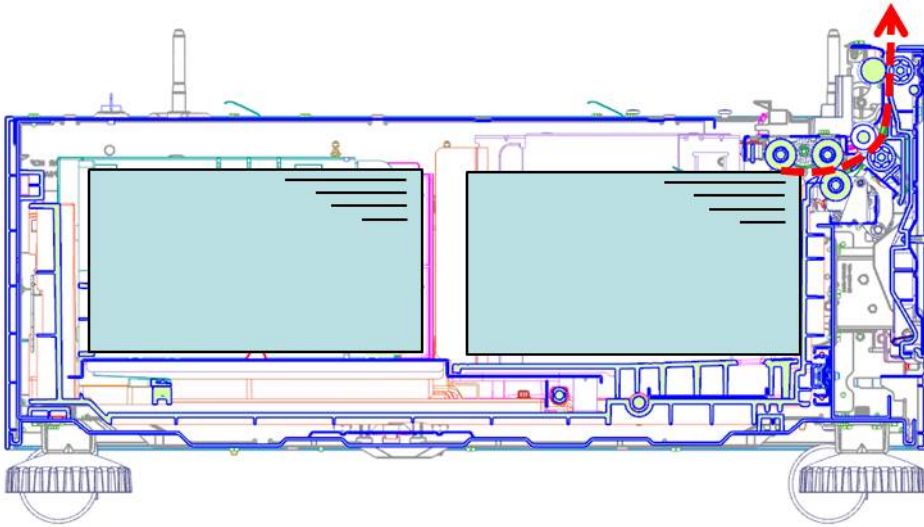
2.14. High Capacity Feeder(HCF) Unit

1) Paper Feeding System (Rollers and Functions)

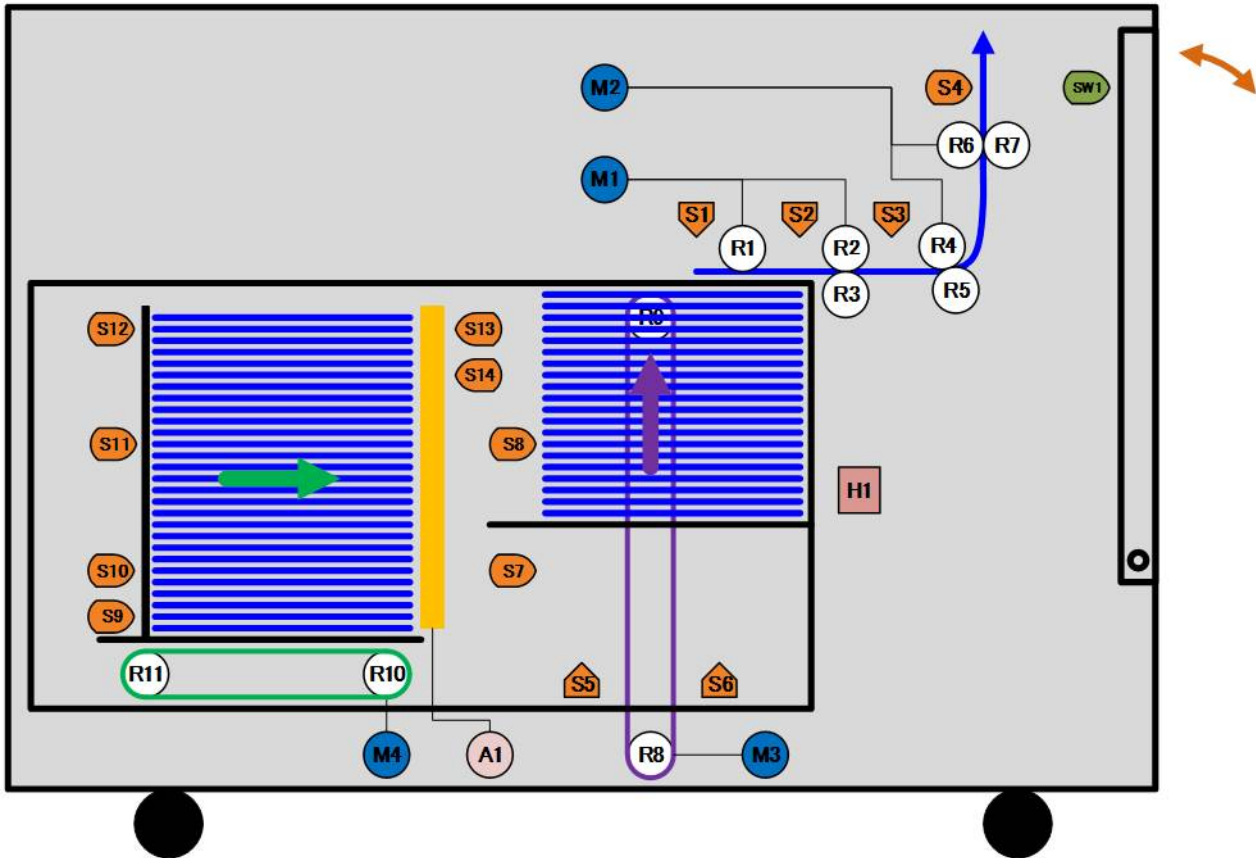


Tray No.	Roller No.	Roller Name	Function
3	R1	Pick-up roller	Transports paper from paper stack.
3	R2	Forward roller	Transports one sheet of paper to Pre feed roller.
3	R3	Reverse(Separation) roller	Assure paper transportation one by one.
3	R4	Pre feed roller	Transports paper to Feed roller.
3	R5	Idle roller	Makes paper transportation smooth.
3	R6	Feed roller	Transports one sheet of paper to the basic machine.
3	R7	Idle roller	Makes paper transportation smooth.

2) Paper Path

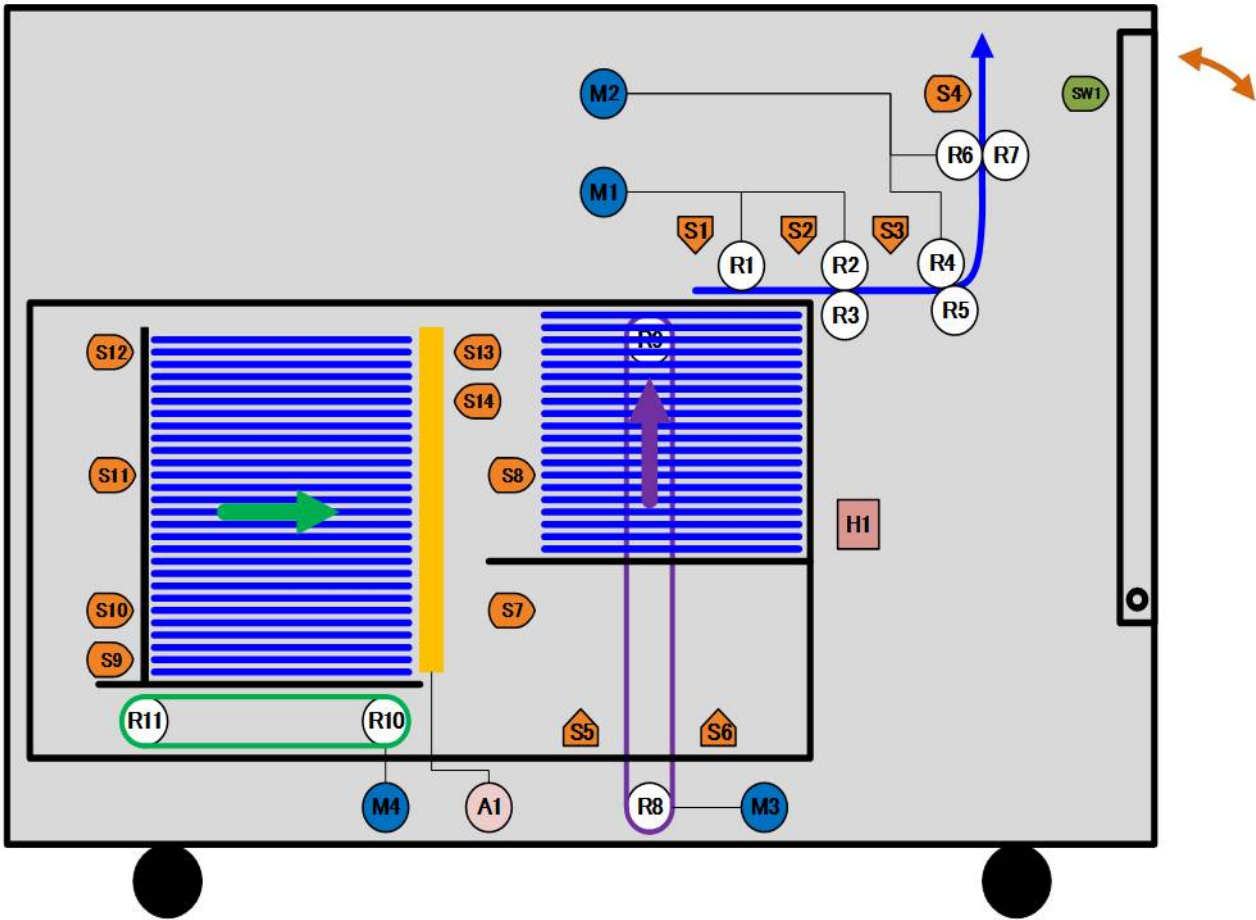


3) Electrical Parts Location / Parts Code / Connection Information



Tray No	Ref.	Description	Parts number	DC controller PCB
3	S1	Pickup No-paper Sensor	0604-001393	CN502-1 to 3
3	S2	Pickup Level Sensor	0604-001393	CN502-4 to 6
3	S3	Pre feed Sensor	0604-001490	CN502-7 to 9
3	S4	Path Sensor	0604-001393	CN502-10 to 12
3	S5	Tray Insertion Sensor	0604-001393	CN901-15 to 17
3	S6	Knockup Home Sensor	0604-001393	CN901-7
3	S7	Main Tray Level Sensor1	0604-001393	CN901-4
3	S8	Main Tray Level Sensor2	0604-001393	CN901-5
3	S9	Shift Tray No-paper Sensor	0604-001393	CN901-2
3	S10	Shift Tray Level Sensor1	0604-001393	CN901-10
3	S11	Shift Tray Level Sensor2	0604-001393	CN901-11
3	S12	Shift Plate Home Sensor	0604-001393	CN901-3
3	S13	Shift Plate End Sensor	0604-001393	CN901-6
3	S14	Solenoid Home Sensor	0604-001393	CN901-8
3	SW1	Side Door Open Switch	JC39-02279A	CN601-9 to 10
3	M1	Tray Pickup Motor	JC31-00009C	CN601-1 to 4
3	M2	Tray Feed Motor	JC31-00177A	CN601-5 to 8
3	M3	Tray Liftup Motor	JC31-00109A	CN902-1 to 2
3	M4	Paper Shift Motor	JC31-00125A	CN902-4 to 5
3	A1	Solenoid	JC33-00031B	CN901-12 to 14

4) Sensors and Functions



Tray No	Ref.	Description	DC controller PCB
3	S1	Pickup No-paper Sensor	Detects paper empty in main tray.
3	S2	Pickup Level Sensor	Detects upper limit of lifting-up of main tray.
3	S3	Pre-feed Sensor	Detects paper between R2-R3 and R4-5.
3	S4	Path Sensor	Detects paper passing through R6-R7.
3	S5	Tray Insertion Sensor	Detects tray insertion.
3	S6	Knock-up Home Sensor	Detects home position of knock-plate.
3	S7	Main Tray Level Sensor1	Detects paper residual paper quantity in main tray.
3	S8	Main Tray Level Sensor2	Detects paper residual paper quantity in main tray.
3	S9	Shift Tray No-paper Sensor	Detects paper empty in sub tray.
3	S10	Shift Tray Level Sensor1	Detects paper residual quantity in sub tray.
3	S11	Shift Tray Level Sensor2	Detects paper residual quantity in sin tray.
3	S12	Shift Plate Home Sensor	Detects home position of shift plate.
3	S13	Shift Plate End Sensor	Detects end position of shift plate
3	S14	Solenoid Home Sensor	Detects home position of solenoid
3	SW1	Side Door Open Switch	Detects opening of solenoid.

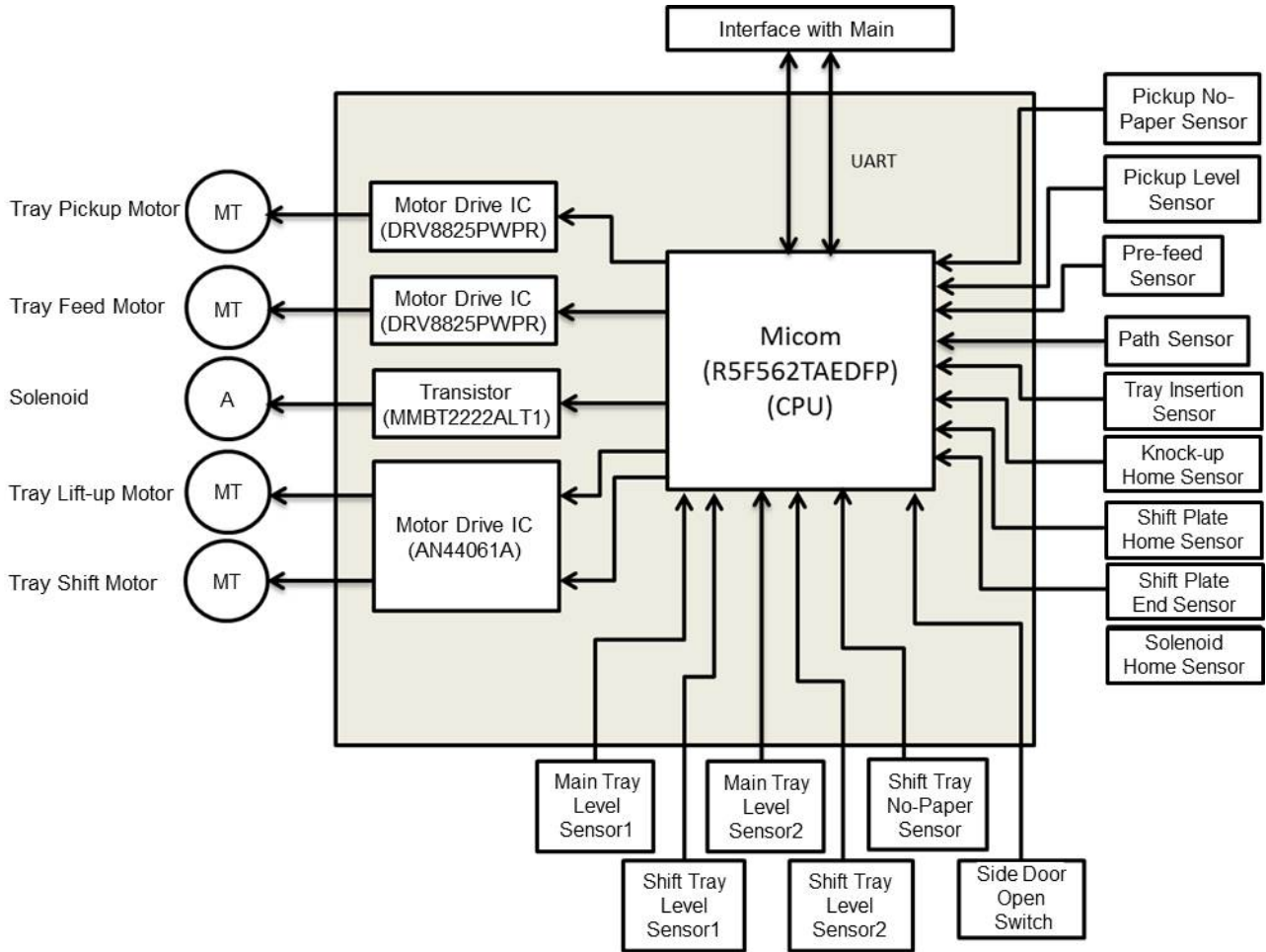
5) Block Diagram

The HCF board controls all functions for HCF Assy. It consists of CPU, Motor drive IC.

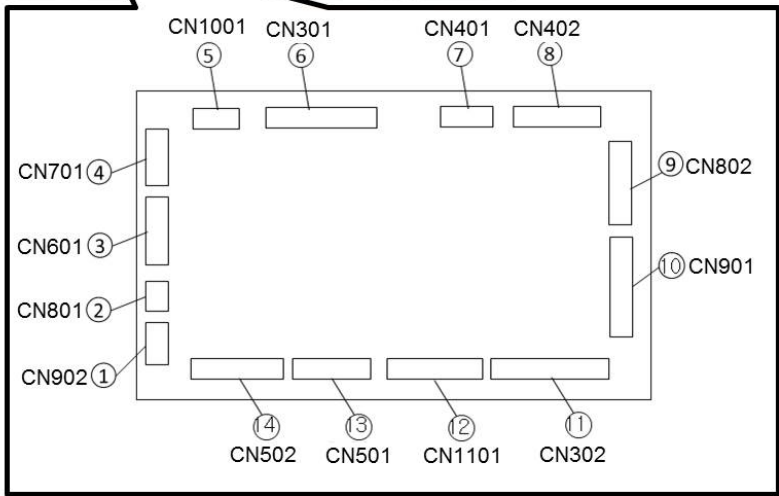
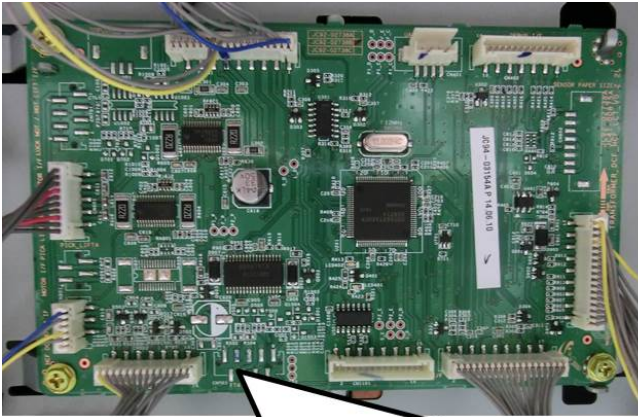
The Micom in the board receives the information from the Pickup No-paper Sensor, Pickup Level Sensor, Prefeed sensor etc. and communicates with the copier main board through the UART.

When being received the print job command from the interface connector (CN301) through UART, HCF board drives the feed motor and pick up motor to pick up a paper.

This board has 2 LEDs. The lower LED is for checking 3.3V power supply and the upper LED is checking the micom operation.



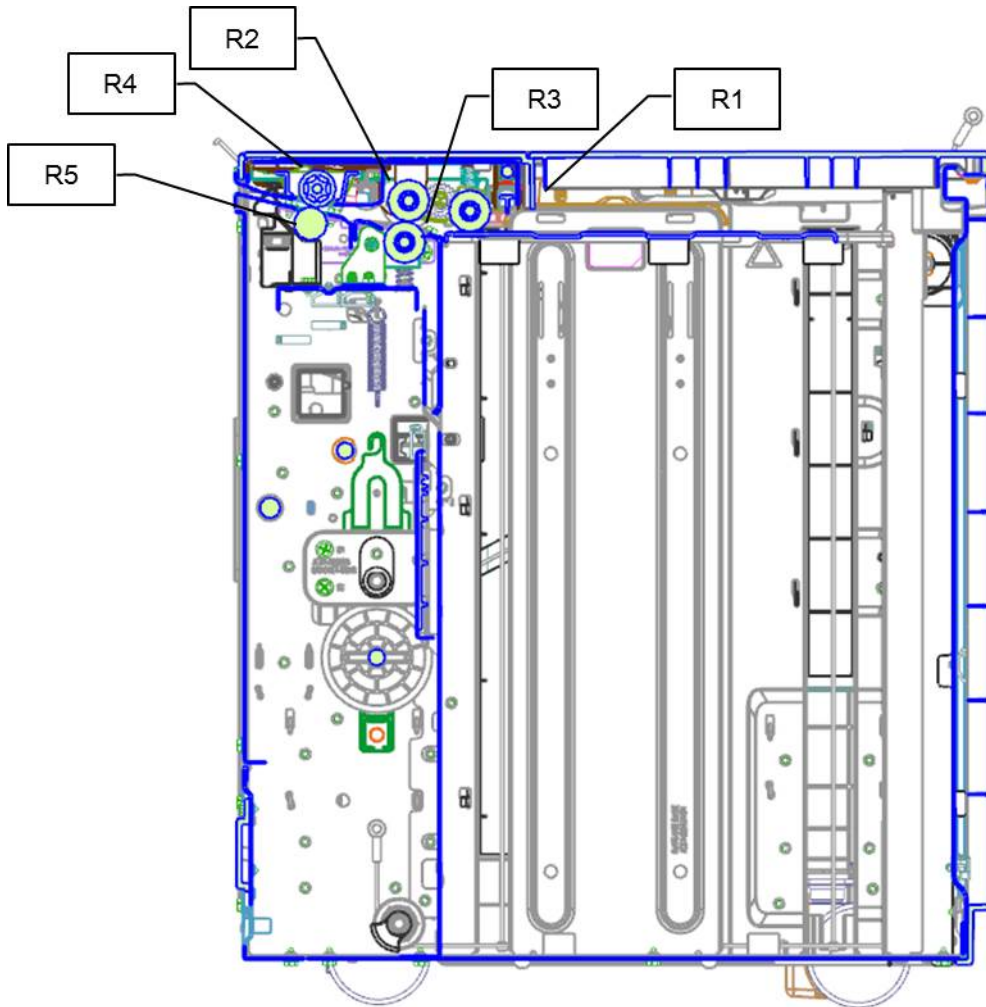
6) PBA Connection



Connector Number	Item Number	Connection
CN902	1	DC MOTOR I/F
CN801	2	PICK_LIFT4 MOTOR I/F
CN601	3	PICK_LIFT3 & FEED MOTOR I/F
CN701	4	LOCKMOT/MOT LIFT/LCT HOME I/F
CN1001	5	TOPCOVER_OPEN INTERLOCK
CN301	6	MAIN I/F
CN401	7	UART DEBUG I/F
CN402	8	E1 JTAG DEBUG I/F
CN802	9	SENSOR PAPER SIZE
CN901	10	HCF INNER DRAWER
CN302	11	SUB I/F
CN1101	12	BBP I/F
CN501	13	T4 SENSOR
CN502	14	T3 SENSOR

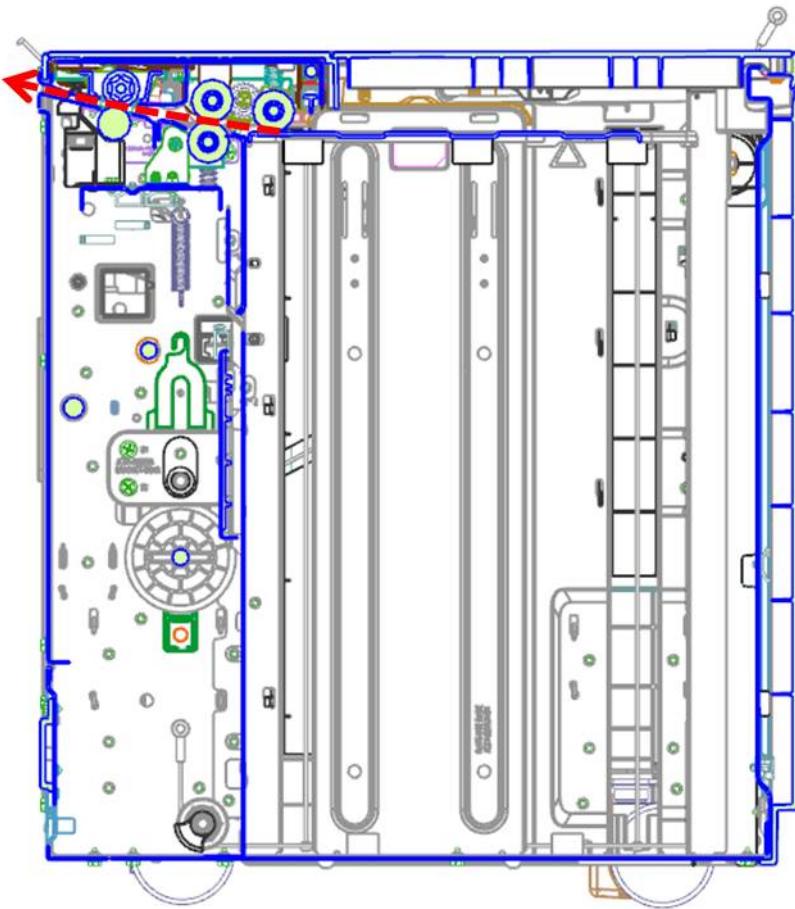
2.15. High Capacity Feeder Side Unit (Large Cassette Tray Unit)

1) Paper Feeding System (Rollers and Functions)

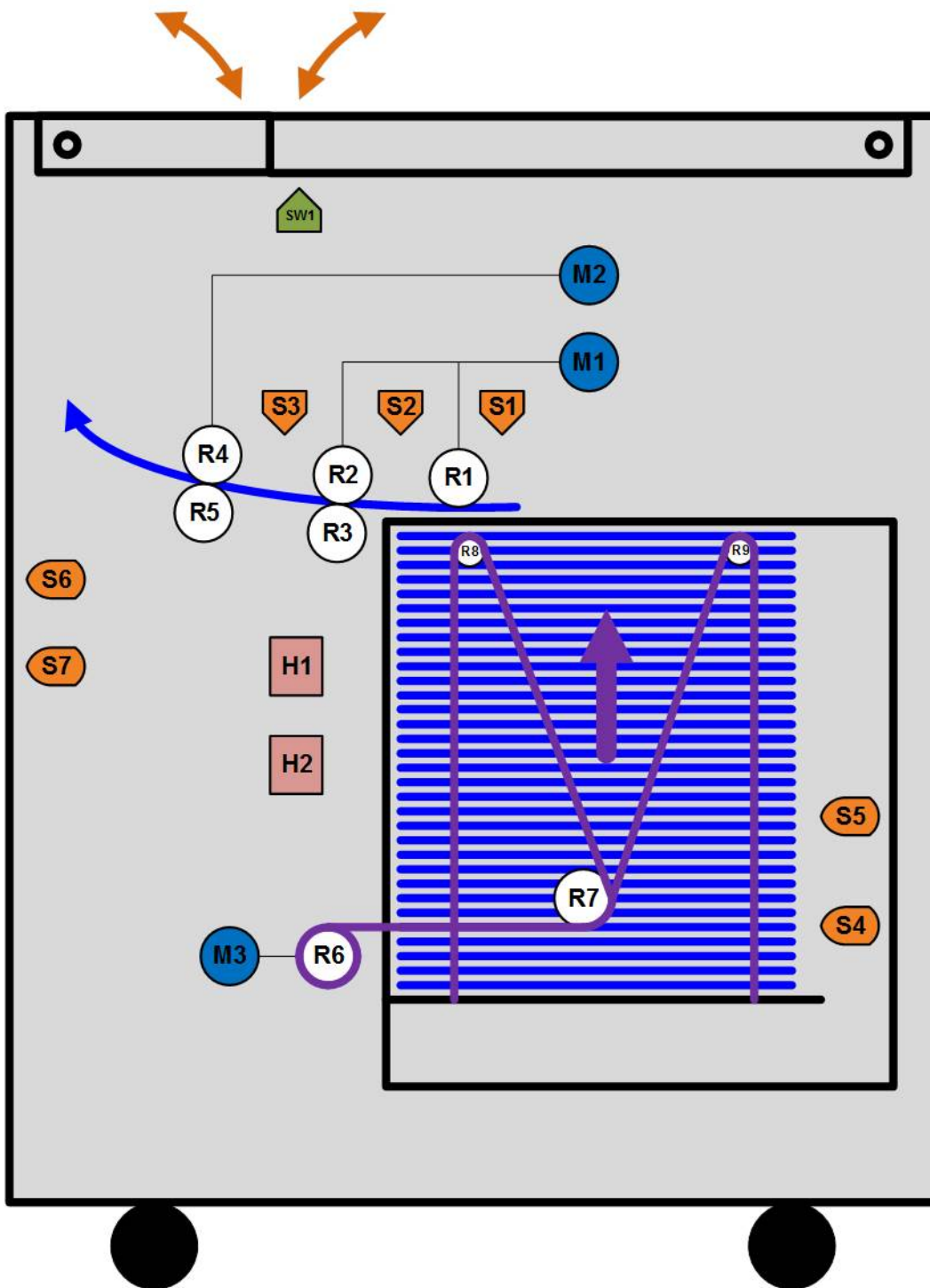


Roller No.	Roller Name	Function
R1	Pick-up roller	Transports paper from paper stack.
R2	Forward roller	Transports one sheet of paper to Pre feed roller.
R3	Reverse(Separation) roller	Assure paper transportation one by one.
R4	Idle roller	Transports paper to Feed roller.
R5	Feed roller	Makes paper transportation smooth.

2) Paper Path



3) Electrical Parts Location / Parts Code / Connection Information

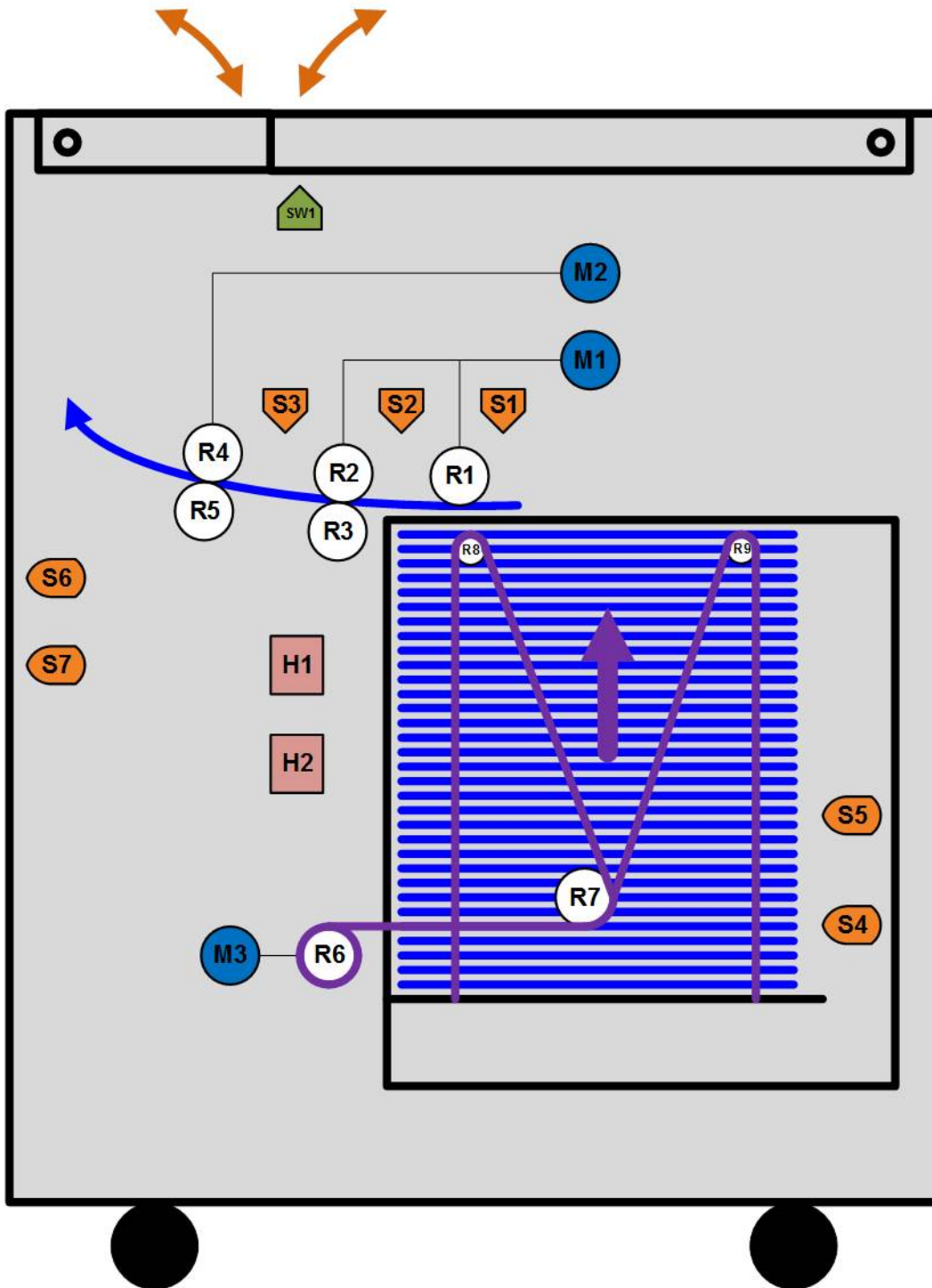


Ref.	Description	Parts number	DC controller PCB
S1	Pickup No-paper Sensor	0604-001393	CN502-1 to 3
S2	Pickup Level Sensor	0604-001393	CN502-4 to 6
S3	Pre feed Sensor	0604-001490	CN502-7 to 9
S4	Paper Level Sensor1	0604-001393	CN501-4 to 6
S5	Paper Level Sensor2	0604-001393	CN501-1 to 3
S6	Install Sensor1	0604-001393	CN701-3 to 5

2. Product Specifications and Description

Ref.	Description	Parts number	DC controller PCB
S7	Install Sensor2	0604-001393	CN701-6 to 8
SW1	Top Door Open Switch	JC39-02346A	CN1001-1 to 2
M1	Tray Pickup Motor	JC31-00009C	CN601-1 to 4
M2	Tray Feed Motor	JC31-00163A	CN601-5 to 8
M3	Tray Liftup Motor	JC31-00109A	CN701-1 to 2

4) Sensors and Functions



Ref.	Description	DC controller PCB
S1	Pickup No-paper Sensor	Detects paper empty in tray.
S2	Pickup Level Sensor	Detects upper limit of lifting-up of tray.
S3	Prefeed Sensor	Detects paper between R2-R3 and R4-5.
S4	Paper Level Sensor1	Detects paper residual paper quantity in tray.
S5	Paper Level Sensor2	Detects paper residual paper quantity in tray.
S6	Install Sensor1	Detects installation of SL-HCF501S to the basic machine.

2. Product Specifications and Description

Ref.	Description	DC controller PCB
S7	Install Sensor2	Detects installation of SL-HCF501S to the basic machine.
SW1	Top Door Open Switch	Detects opening of the top door
M1	Tray Pickup Motor	Drives pick up roller.
M2	Tray Feed Motor	Drives Feed Roller
M3	Tray Liftup Motor	Lifts up the tray.

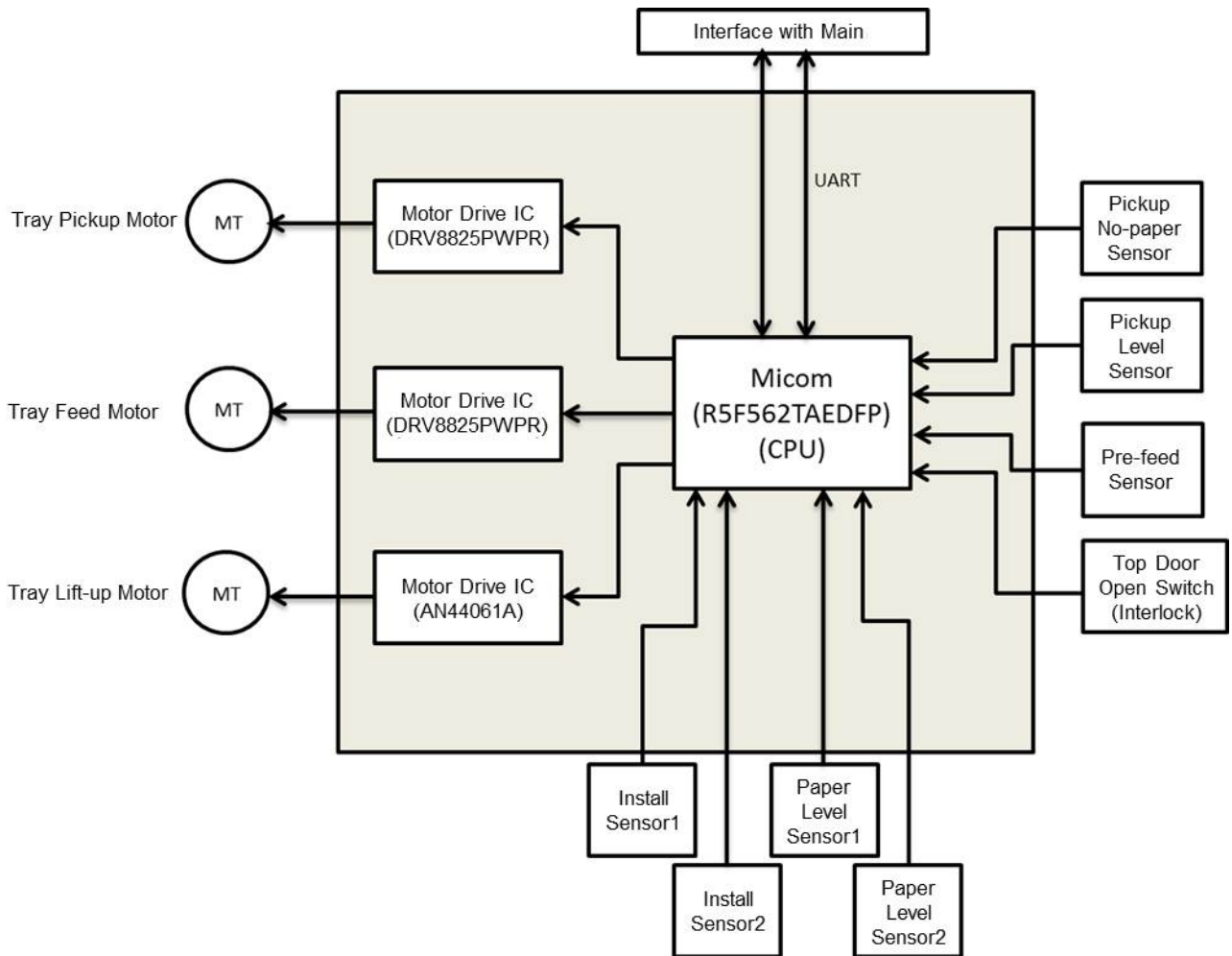
5) Block Diagram

The LCT board controls all functions for LCT Assy. It consists of CPU, Motor drive IC.

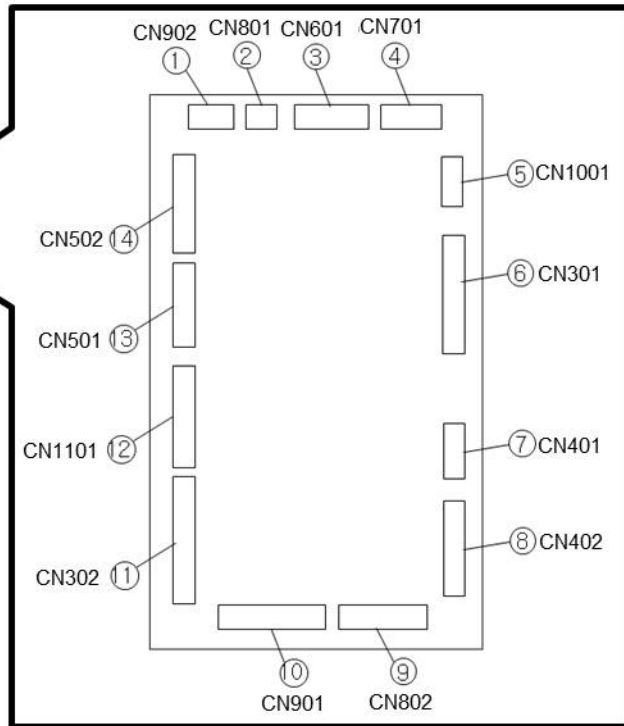
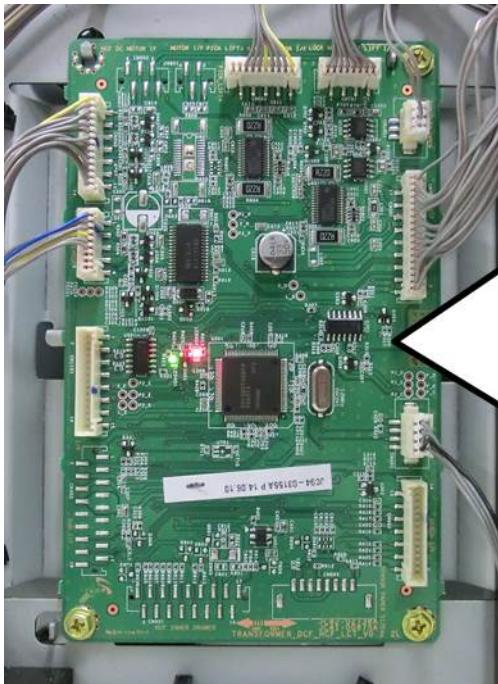
The Micom in the board receives the information from the Pickup No-paper Sensor, Pickup Level Sensor, Prefeed sensor etc. and communicates with the copier main board through the UART.

When being received the print job command from the interface connector (CN301) through UART, LCT board drives the Tray feed motor and Tray pickup motor to pick up a paper.

This board has 2 LEDs. The right LED is for checking 3.3V power supply and the left LED is checking the Micom operation.



6) PBA Connection



Connector Number	Item Number	Connection
CN902	1	DC MOTOR I/F
CN801	2	PICK_LIFT4 MOTOR I/F
CN601	3	PICK_LIFT3 & FEED MOTOR I/F
CN701	4	LOCKMOT/MOT LIFT/LCT HOME I/F
CN1001	5	TOPCOVER_OPEN INTERLOCK
CN301	6	MAIN I/F
CN401	7	UART DEBUG I/F
CN402	8	E1 JTAG DEBUG I/F
CN802	9	SENSOR PAPER SIZE
CN901	10	HCF INNER DRAWER
CN302	11	SUB I/F
CN1101	12	BBP I/F
CN501	13	T4 SENSOR
CN502	14	T3 SENSOR

3. Disassembly and Reassembly

3.1. Precautions when replacing parts

3.1.1. Precautions when assembling and disassembling

- Use only approved Samsung spare parts. Ensure that part number, product name, any voltage, current or temperature rating are correct. Failure to do so could result in damage to the machine, circuit overload, fire or electric shock.
- Do not make any unauthorized changes or additions to the printer, these could cause the printer to malfunction and create electric shock or fire hazards.
- Take care when dismantling the unit to note where each screw goes. There are 19 different screws. Use of the wrong screw could lead to system failure, short circuit or electric shock.
- Do not disassemble the LSU unit. Once it is disassembled dust is admitted to the mirror chamber and will seriously degrade print quality. There are no serviceable parts inside.
- Regularly check the condition of the power cord, plug and socket. Bad contacts could lead to overheating and fire. Damaged cables could lead to electric shock or unit malfunction.

3.1.2. Precautions when handling PBA

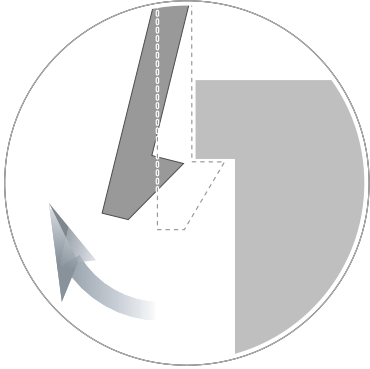
Static electricity can damage a PBA, always used approved anti-static precautions when handling or storing a PBA.

- **Precautions when moving and storing PBA**
 - 1) Please keep PBA in a conductive case, anti-static bag, or wrapped in aluminum foil.
 - 2) Do not store a PBA where it is exposed to direct sunlight.
- **Precautions when replacing PBA**
 - 1) Disconnect power connectors first, before disconnecting other cables.
 - 2) Do not touch any soldered connections, connector terminals or other electronic parts when handling insulated parts.
- **Precautions when checking PBA**
 - 1) Before touching a PBA, please touch other grounded areas of the chassis to discharge any static electrical charge on the body.
 - 2) Take care not to touch the PBA with your bare hands or metal objects as you could create a short circuit or get an electric shock. Take extra care when handling PBAs with moving parts fitted such as sensors, motors or lamps as they may get hot.
 - 3) Take care when fitting, or removing, screws. Look out for hidden screws. Always ensure that the correct screw is used and always ensure that when toothed washers are removed they are refitted in their original positions.

3.1.3. Releasing Plastic Latches

Many of the parts are held in place with plastic latches. The latches break easily; release them carefully.

To remove such parts, press the hook end of the latch away from the part to which it is latched.



3.2. Maintenance

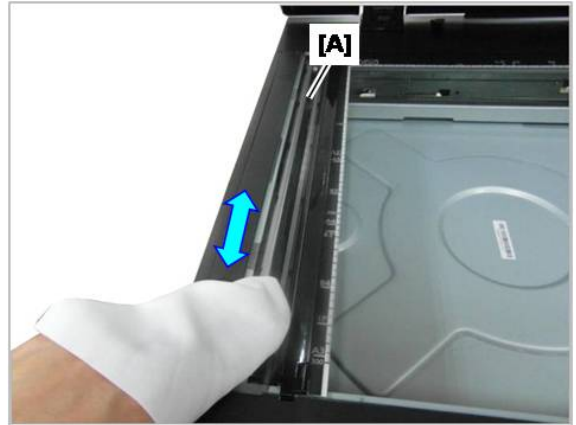
3.2.1. Machine Cleaning for maintenance

3.2.1.1. Cleaning the scan glass

1. Open the DSDF Unit.



2. Clean the scan glass[A] by using a soft cloth.

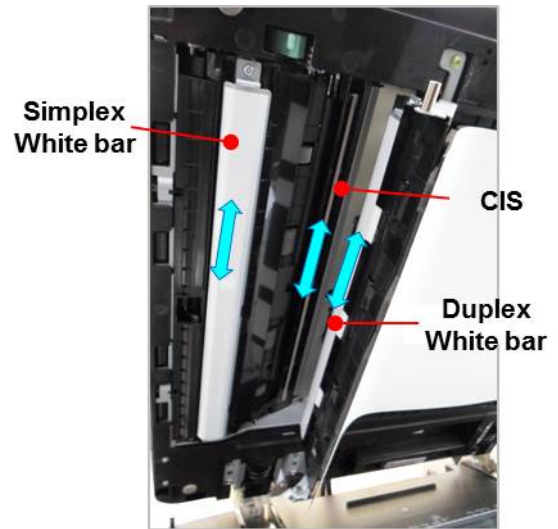


3.2.1.2. Cleaning the DSDF white bar_CIS

1. Open the DSDF Unit.



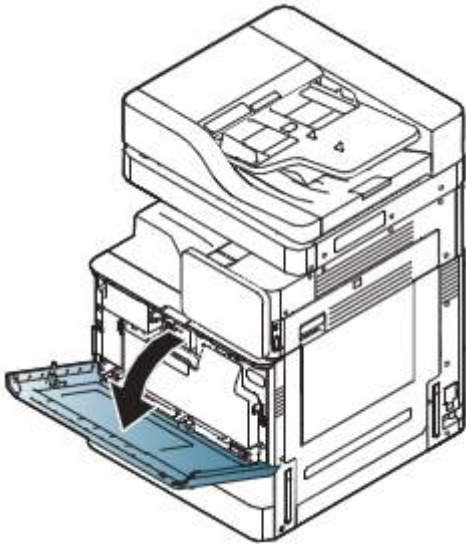
2. Clean the DSDF white bar and CIS by using a soft cloth.



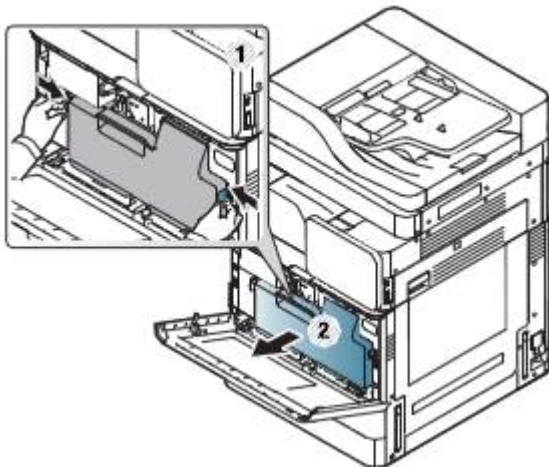
3.2.1.3. Cleaning the paper dust stick

The paper dust stick will need to be cleaned after a specified number of paper is printed out. When the message that demands you to clean the paper dust stick appears, you have to clean the paper dust stick. Follow the cleaning procedure below.

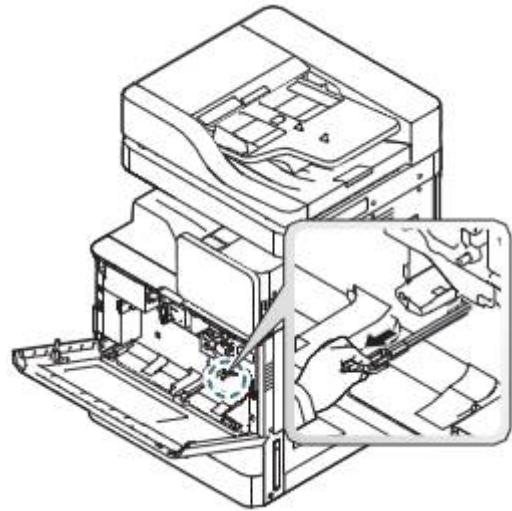
1. Open the front door.



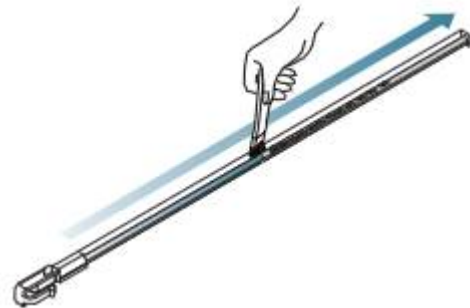
2. Remove the waste toner container.



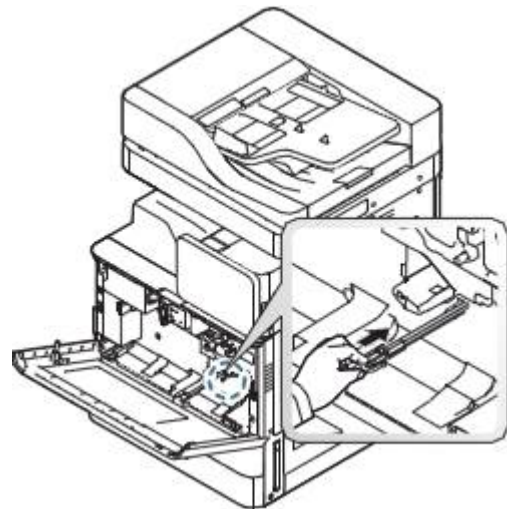
3. Pull the paper dust stick out.



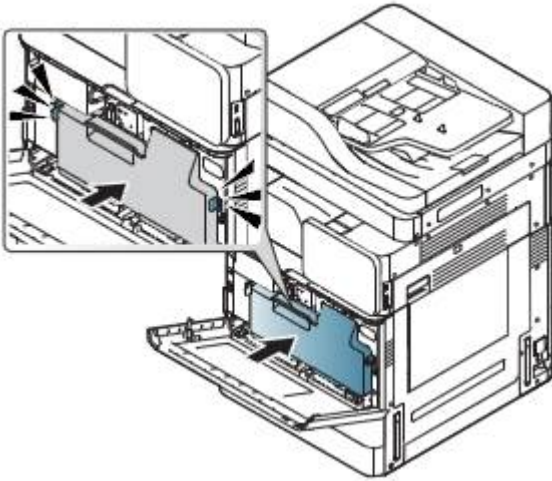
4. Remove the paper dust.



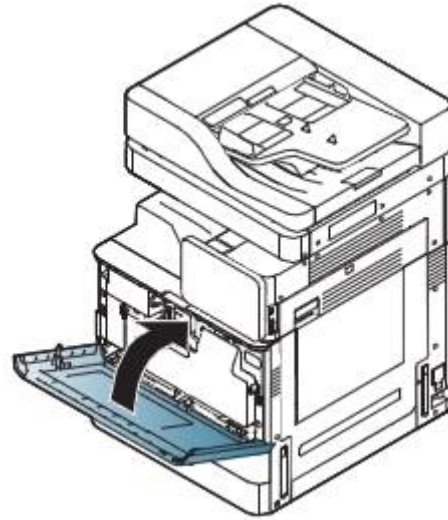
5. Insert the paper dust stick back.



6. Insert the waste toner container until it locks in place.



7. Close the front door. Ensure that the cover is securely closed.



If the message still appears, do step 3 and 4 again.

3.2.2. Replacing the maintenance part

3.2.2.1. Development(Deve) unit

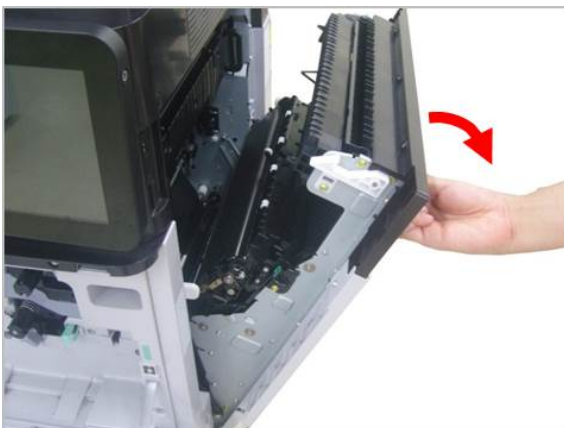
1. Open the front cover.



2. Release the waste toner container while pushing both hooks.



3. Open the side cover.



4. Pull down the deve locking lever. Then, loosen 1 screw.



5. Grip the handle and remove the drum unit.

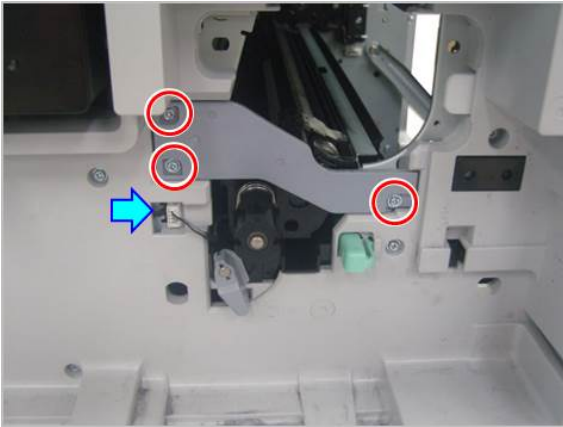
! NOTE

Do not grip the bulging part when removing the drum unit.



3. Disassembly and Reassembly

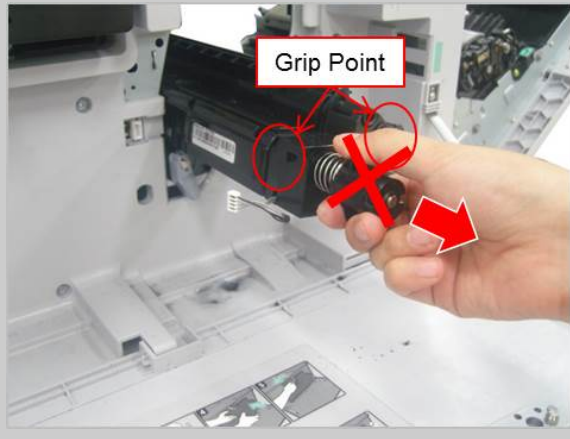
6. Release the bracket after 3 screws. Unplug the connector.



7. Hold the grip point of deve unit with hand and remove the deve unit.

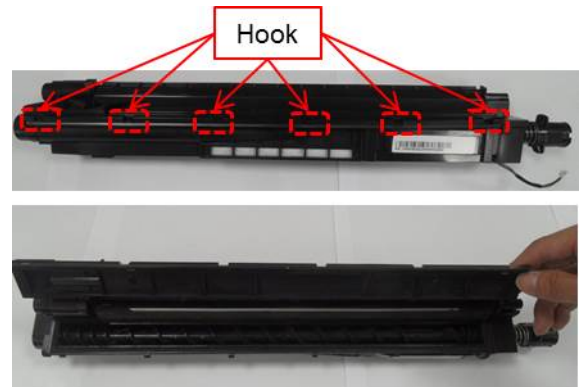
NOTE

Do not grip the bulging part when removing the deve unit.



8. Unpack the new deve unit box and check the components. (deve unit & silver pack)

9. Release 6 hooks and open the cover.



10. Pour the developer powder to the deve unit

NOTE

- Before filling the developer, shake the silver pack about 3 times for preventing from toner scattering.
- When filling the developer, intermittently, lean back & shake the deve unit weakly from side to side to avoid overflow.



11. Reassemble the deve unit and drum unit in reverse order of disassembly.

3.2.2.2. Fuser Unit

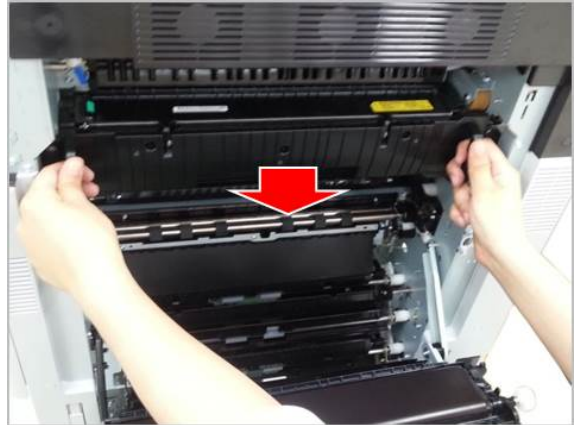
1. Open the side cover.



2. Remove 4 screws.



3. Pull out the fuser unit.

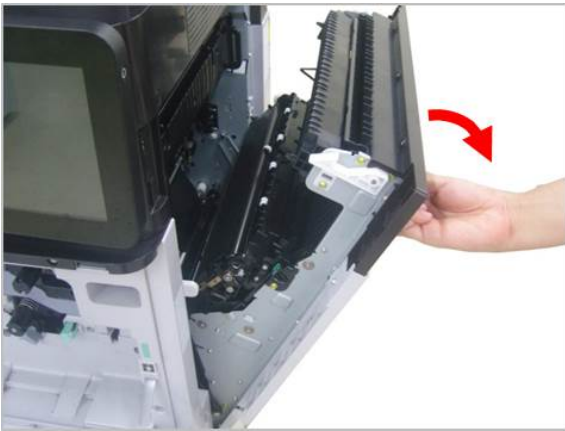


 **CAUTION**

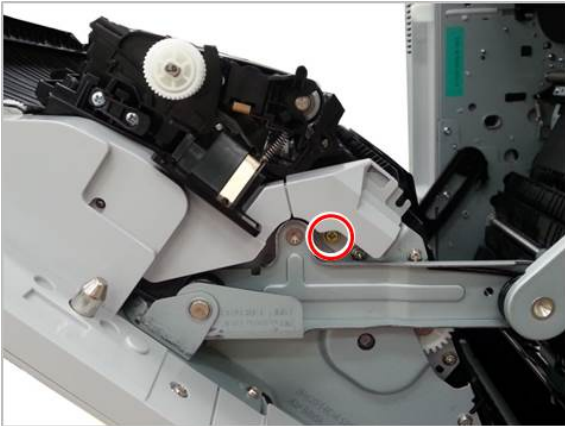
The temperature gets high in the vicinity of the fuser unit. When replacing it, you may get burned. Before replacing it, make sure that fuser unit has cooled.

3.2.2.3. Paper Transfer Belt

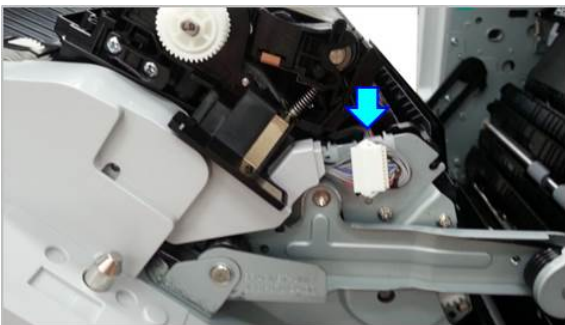
1. Open the side cover.



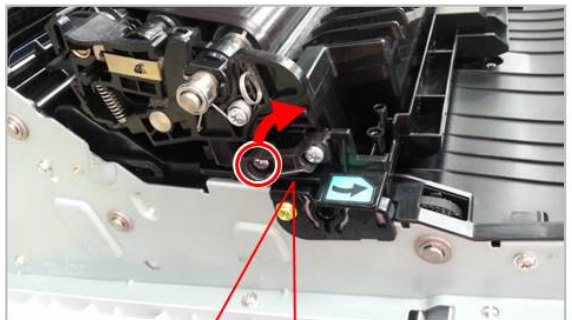
2. Remove 1 screw and the connector cover.



3. Unplug the PTB connector.



4. Remove both screws of the PTB Assy and stand both levers to the direction of arrow.

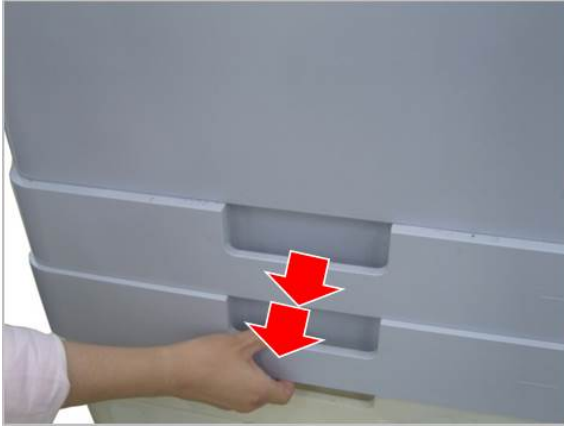


5. Remove the PTB Assy.

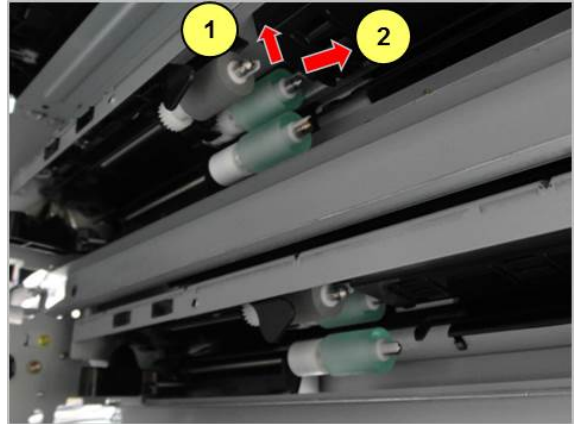


3.2.2.4. Pick-Up_Separation_Forward roller

1. Remove 2 cassettes.



2. Lift small tap, remove the pick up / reverse/ forward roller.

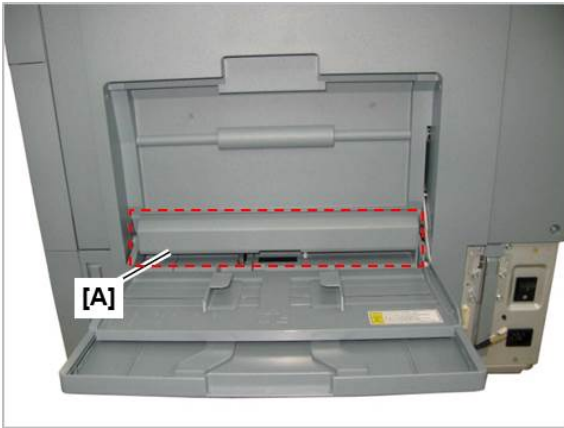


 **NOTE**

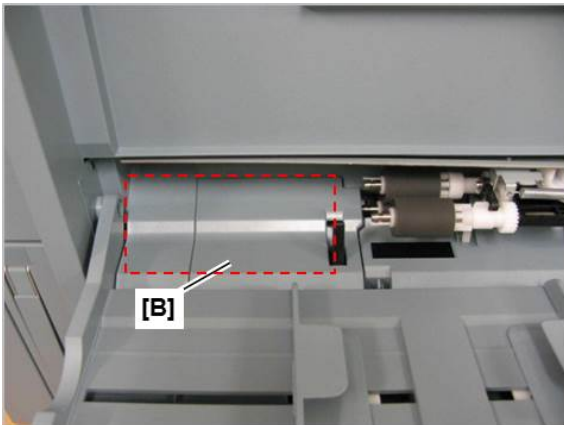
When replacing these rollers, it is recommended that you replace all three rollers at the same time.

3.2.2.5. MP Pick Up_Reverse_Forward roller

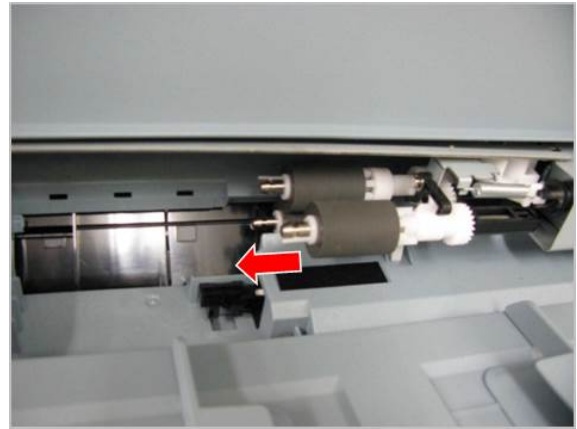
1. Open the MP Tray. Remove the cover[A].



2. Remove the cover[B].



3. Lift small tap, remove the pick up/ reverse/ forward roller.



 **NOTE**

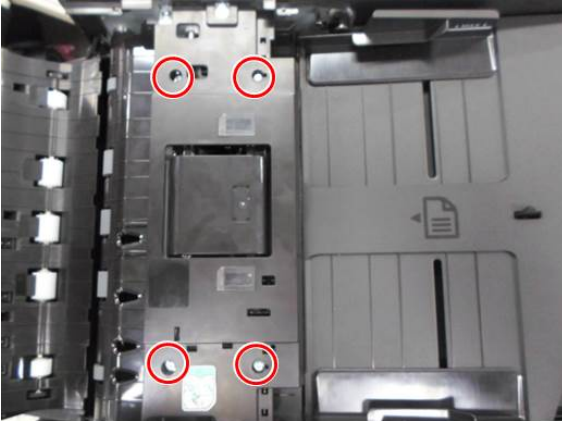
When replacing these rollers, it is recommended that you replace all three rollers at the same time.

3.2.2.6. DSDF Pick-up roller Assy (LX model)

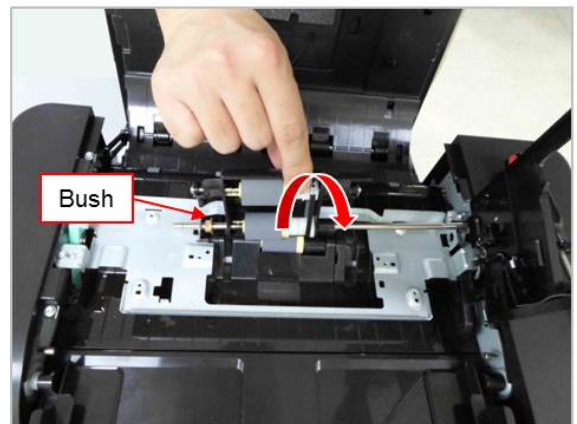
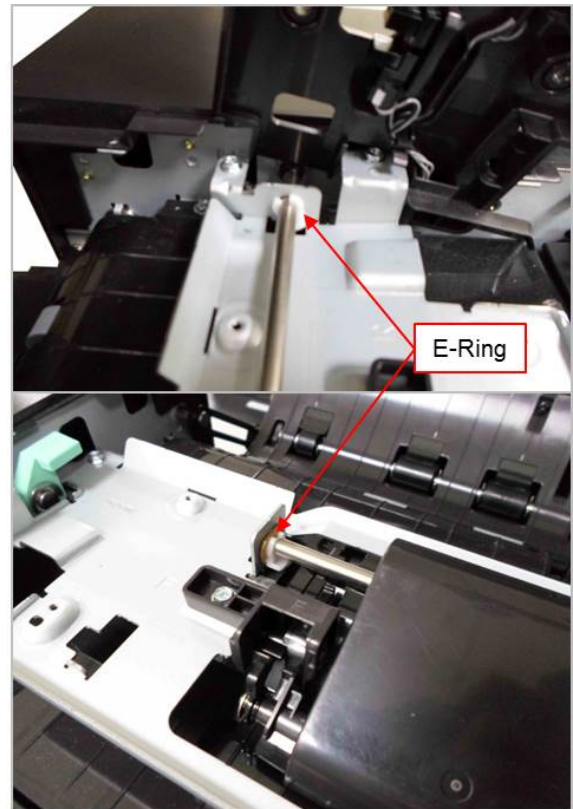
1. Open the DSDF-open cover.



2. Remove 6 screws. Then release the DSDF pick up cover.

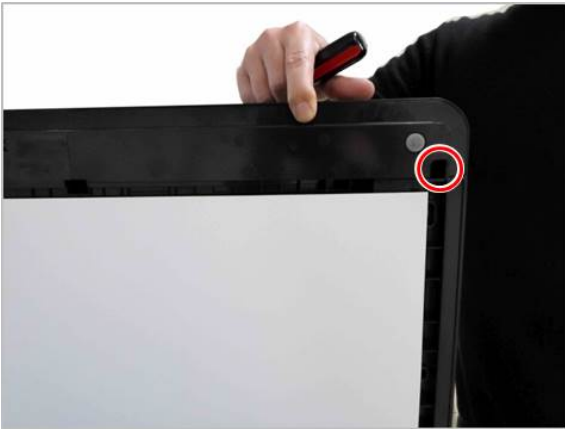


3. Remove the E-ring and Bush. Then, release the DSDF pick up roller Assy.

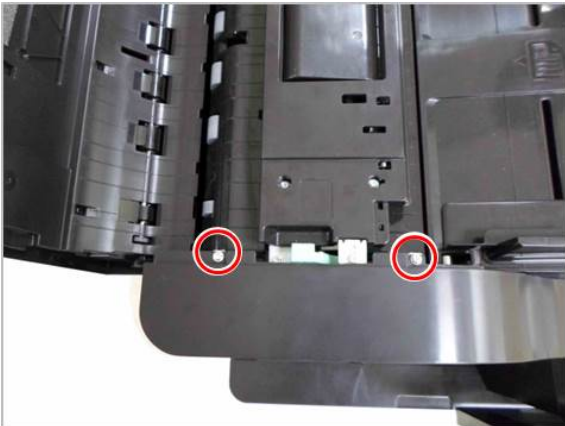


3.2.2.7. DSDF reverse roller (LX model)

1. Open the DSDF unit. Remove 1 screw from the bottom of the DSDF unit.



2. Open the DSDF-open cover. Remove 2 screws.



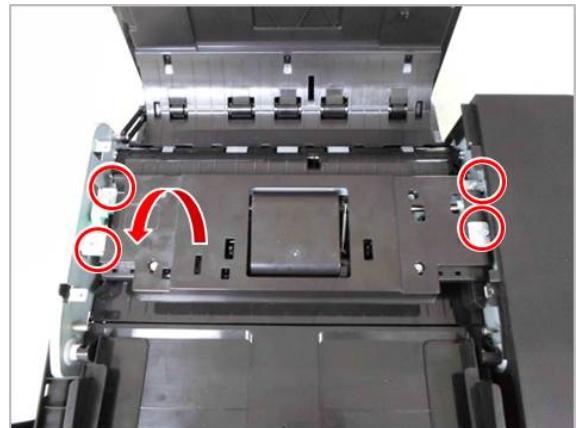
3. Release the DSDF link.



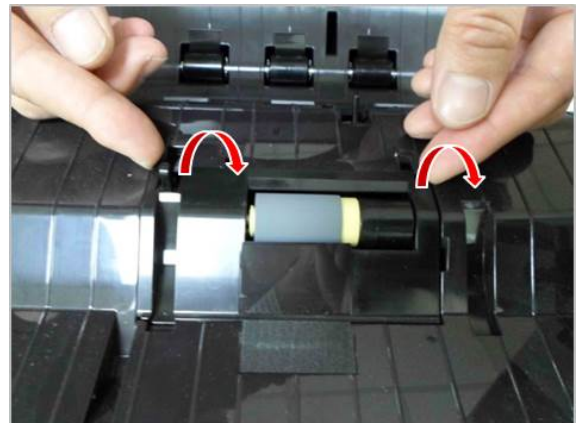
4. Remove the DSDF front cover.



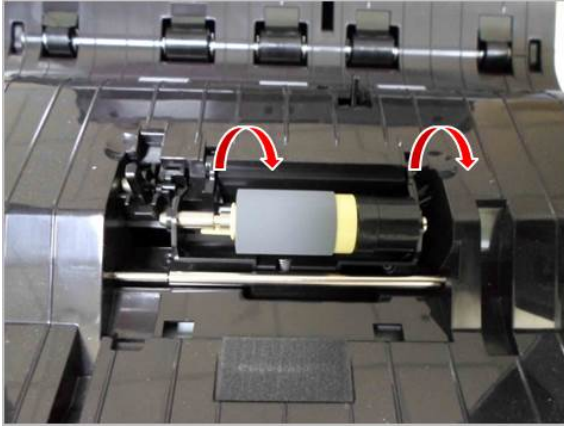
5. Remove 4 screws. Then, release the pick up module.



6. Remove the reverse roller cover.

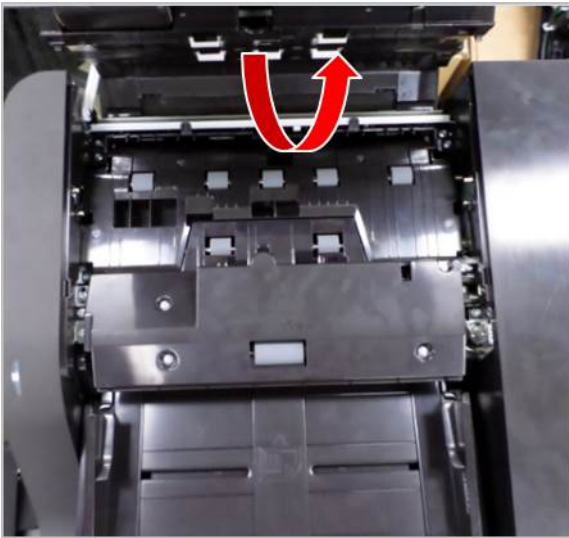


7. Release the reverse roller Assy.



3.2.2.8. DSDF Pick-up roller Assy (GX model)

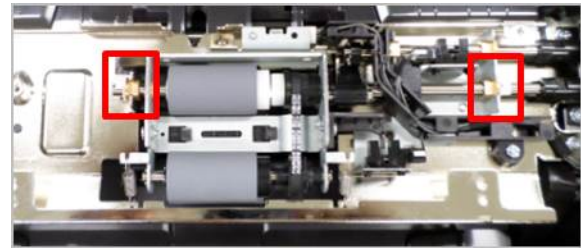
1. Open the DSDF-open cover.



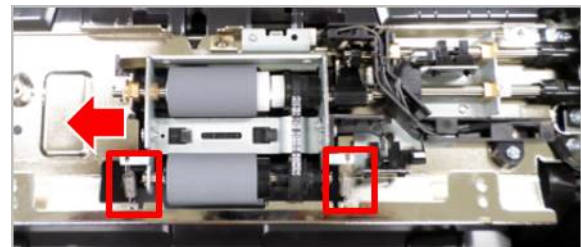
2. Remove 4 screws. Then, release the DSDF pick up cover.



3. Remove 2 Mold E-Rings.

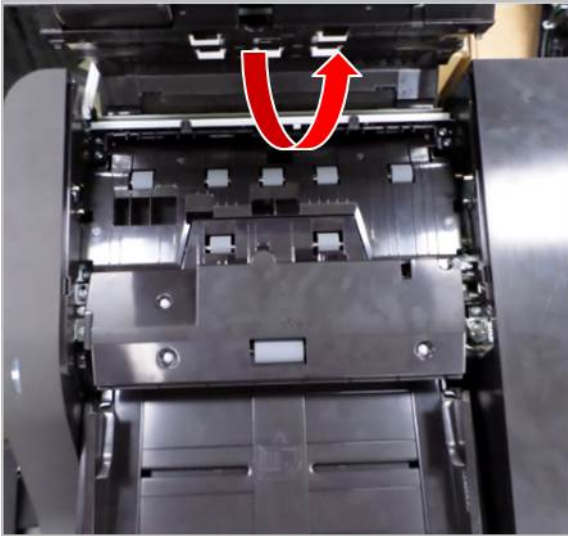


4. Remove 2 springs. Then, release the DSDF pick up roller Assy while pulling it to the left.

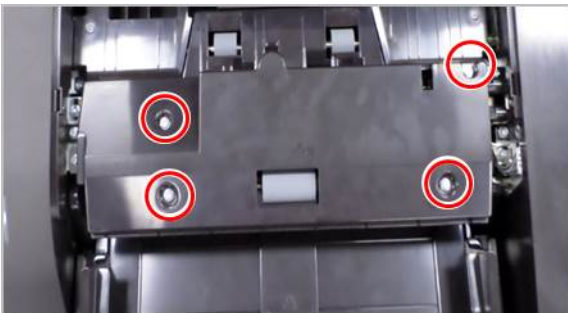


3.2.2.9. DSDF reverse roller Assy (GX model)

1. Open the DSDF-open cover.



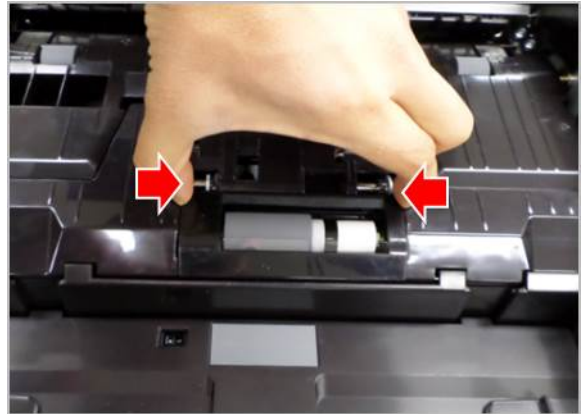
2. Remove 4 screws.



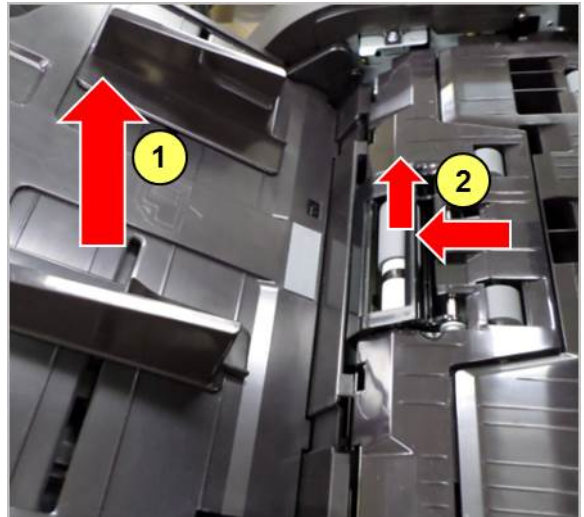
3. Pull the pick up module to the front and unplug the connector while lifting up its front.



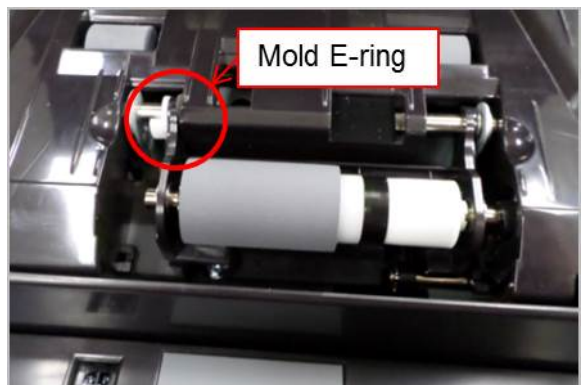
4. Release the roller cover locking.



5. Pull and release the roller cover while lifting the stacker up.



6. Remove the Mold E-ring.



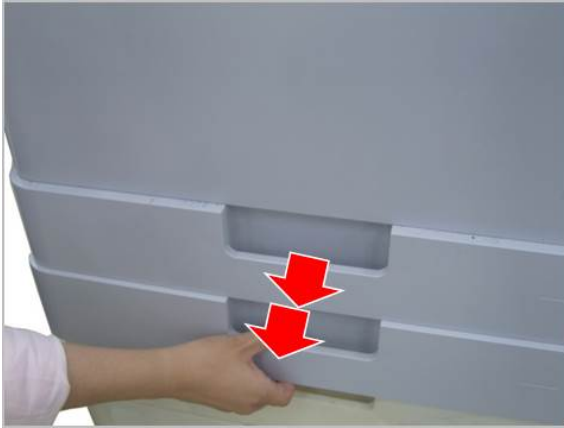
7. Pull the reverse roller Assy to the left until the pin is shown. Then, lift up and release it.



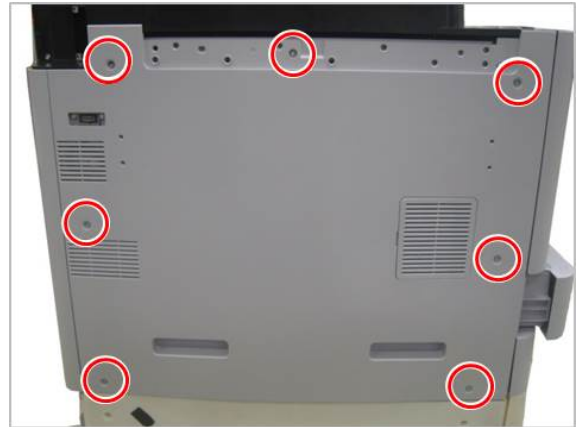
3.3. Replacing the main SVC part

3.3.1. Left Cover

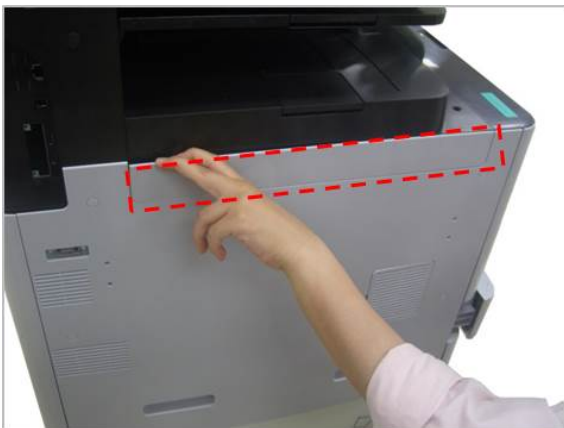
1. Remove 2 cassettes.



3. Remove 6 Screw-caps and 7 screws.



2. Remove the Left-dummy cover.



4. Remove the left cover.



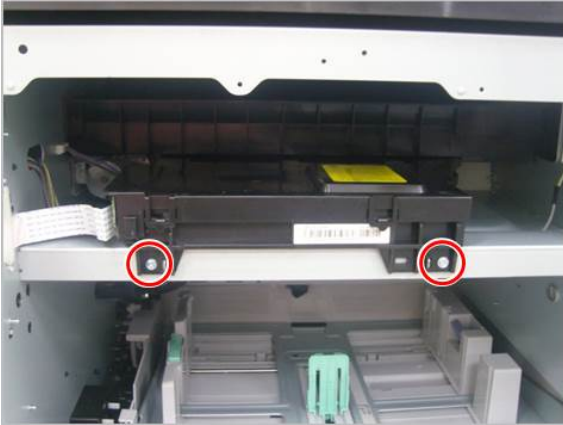
3.3.2. Rear Cover

1. Remove 12 screw-caps and 12 screws.

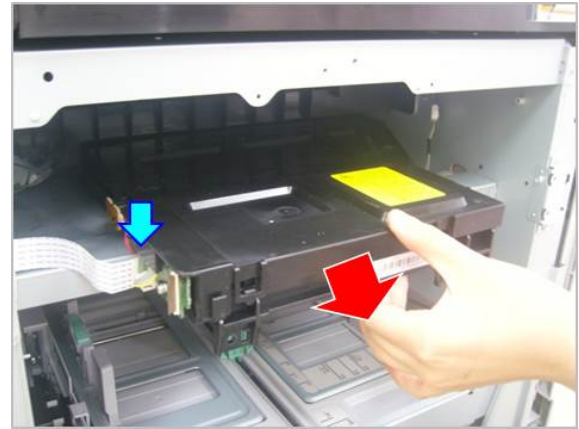


3.3.3. LSU

1. Remove the left cover. (**Refer to 3.3.1.**)
2. Remove 2 screws.



3. Unplug the LSU harness from the left. Remove the LSU.



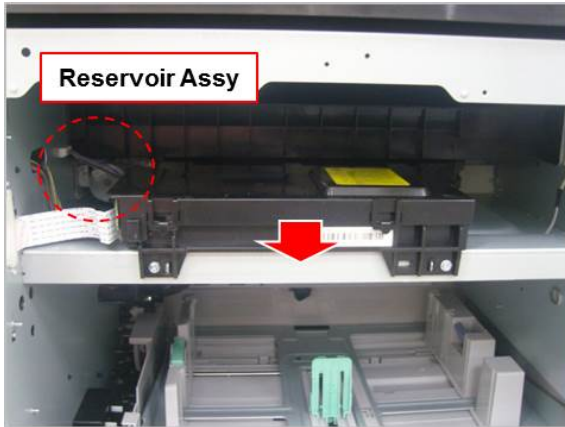
3.3.4. Temperature_Humidity sensor

1. Remove the left cover. (**Refer to 3.3.1.**)
2. Unplug the sensor connector. Then release the temperature-humidity sensor.

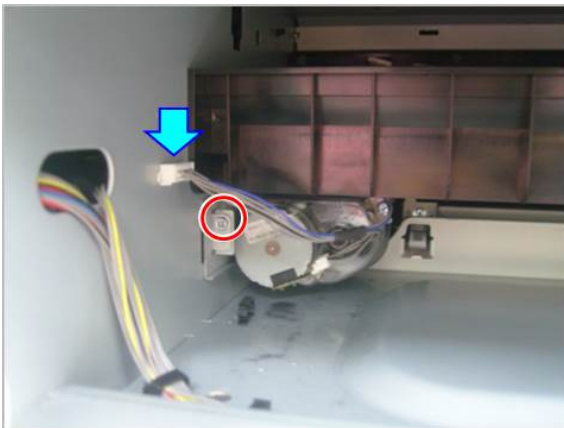


3.3.5. Reservoir Assy

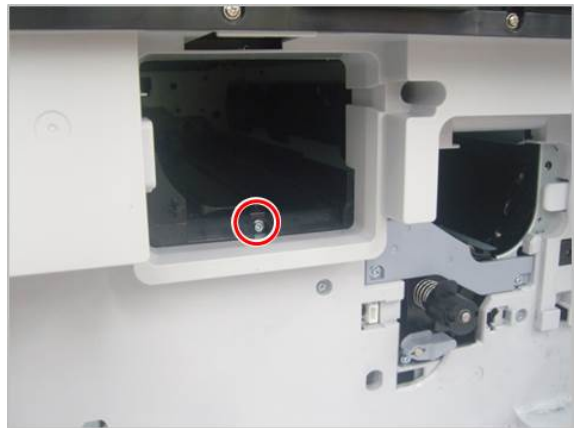
1. Remove the toner cartridge.
2. Remove the Developer unit. (**Refer to 3.2.2.1.**)
3. Remove the LSU. (**Refer to 3.3.3.**)



4. Remove 1 screws. And unplug the Reservoir Assy connector.



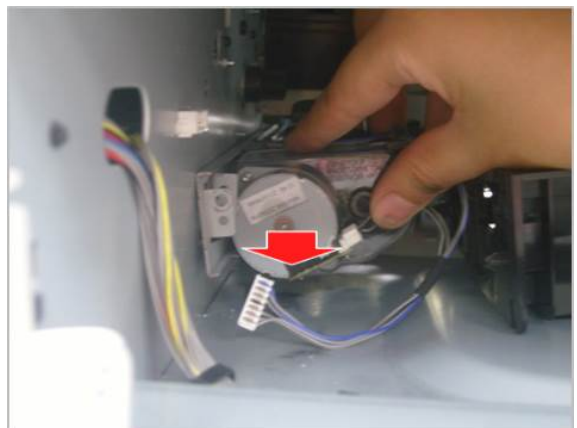
5. Remove 1 screw securing the Guide-Toner.



6. Pull out the Guide-Toner slightly.

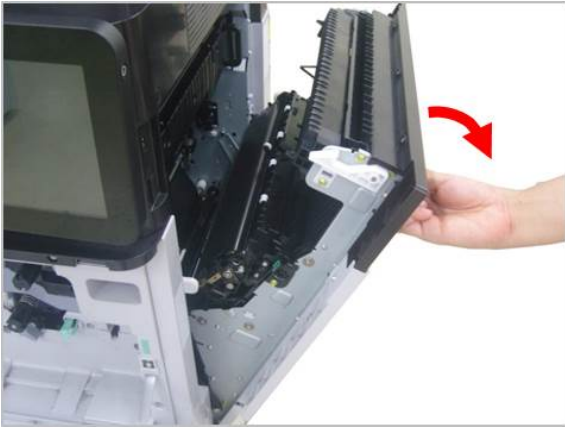


7. Remove the Reservoir Assy.



3.3.6. OPE Unit

1. Open the side cover.



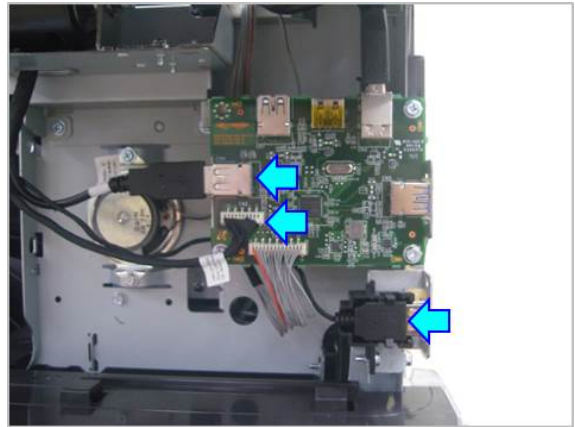
2. Remove 2 screw-caps and 2 screws. Then remove the front-top left cover.



3. Remove 2 screw-caps and 2 screws. Then remove the front-top right cover.



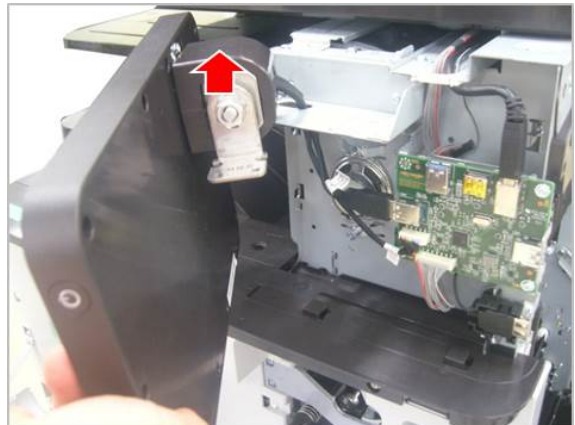
4. Unplug the OPE cables from the OPE Hub board.



5. Remove 2 screws securing the OPE Hinge.

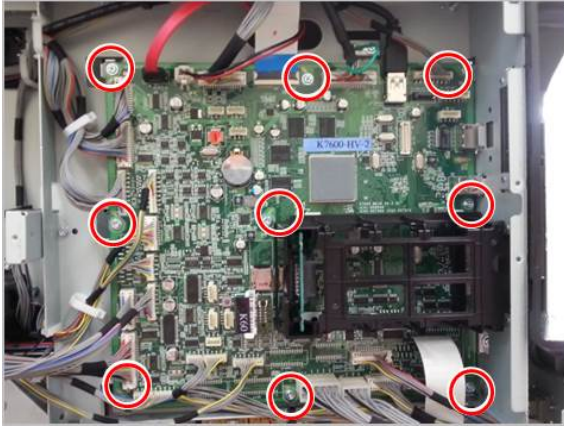


6. Release the OPE Assy.

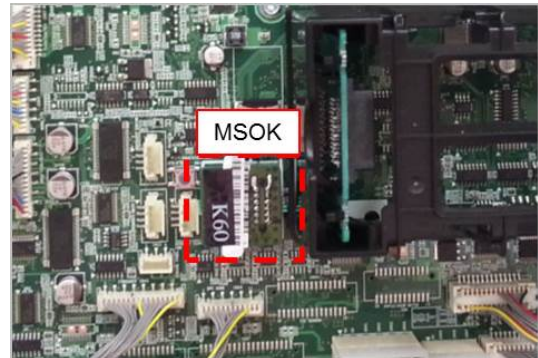


3.3.7. Main board

1. Remove the rear cover. (Refer to 3.3.2.)
2. Unplug all connectors on the main board.
3. Remove 9 screws. And release the main board.

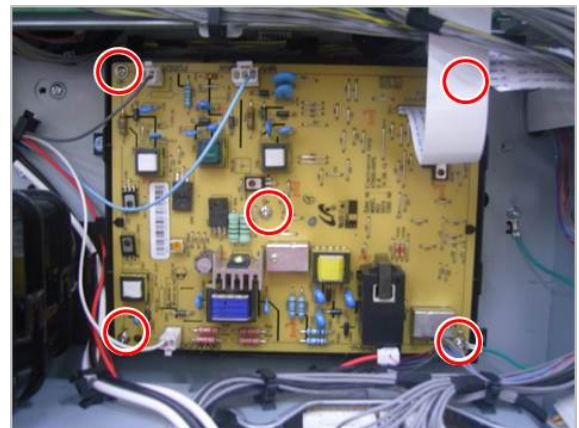


4. Install the new main board and insert the MSOK.



3.3.8. HVPS board

1. Remove 7 screw-caps and 7 screws. Then remove the Lower-Rear cover.
2. Unplug all harness from the HVPS board. Remove 5 screws. And release the HVPS board.



3.3.9. SMPS board

NOTE

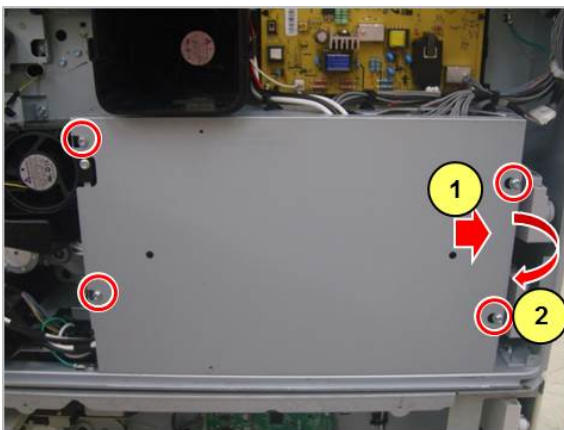
- LX model has 2 SMPS boards.
- GX model has 3 SMPS boards.

3.3.9.1. SMPS board 1

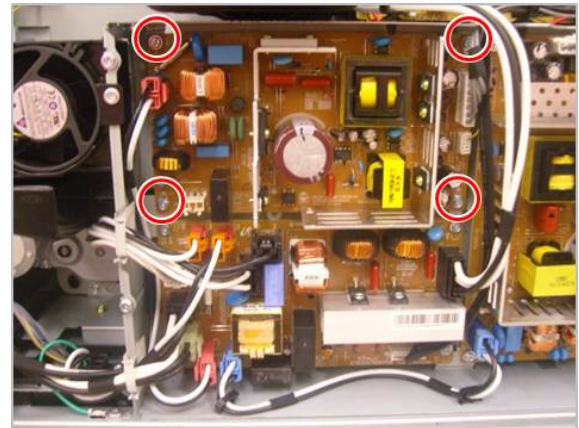
1. Remove 7 screw-caps and 7 screws. Then remove the Lower-Rear cover.



2. Loosen 4 screws. Pull the SMPS cover to the right and release it.



3. Unplug all connectors. Remove 4 screws. And release the SMPS board 1.

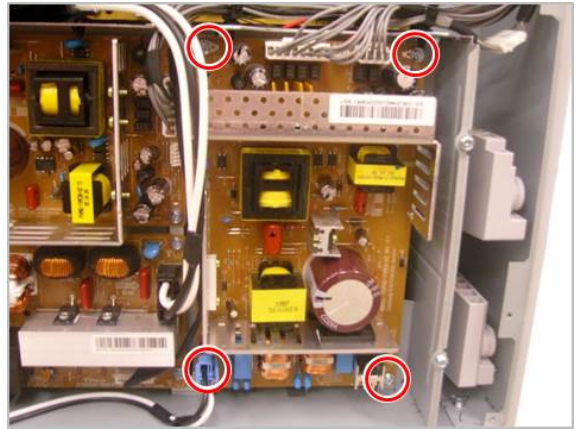


3.3.9.2. SMPS board 2

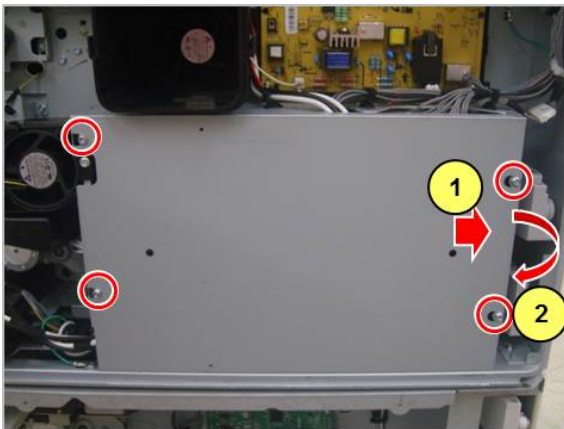
1. Remove 7 screw-caps and 7 screws. Then remove the Lower-Rear cover.



3. Unplug all connectors. Remove 4 screws. And release the SMPS board 2.



2. Loosen 4 screws. Pull the SMPS cover to the right and release it.



3.3.9.3. SMPS board 3

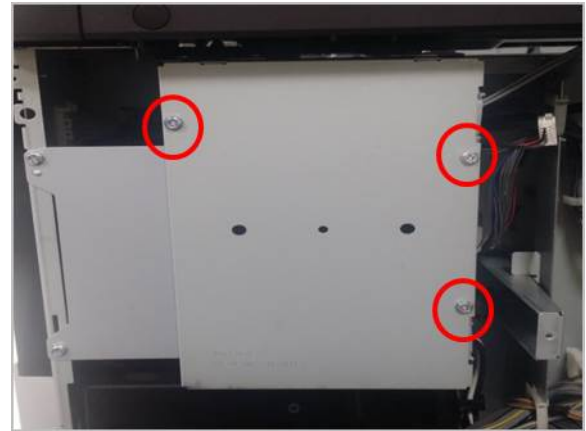
NOTE

This SMPS board is installed for only GX model.

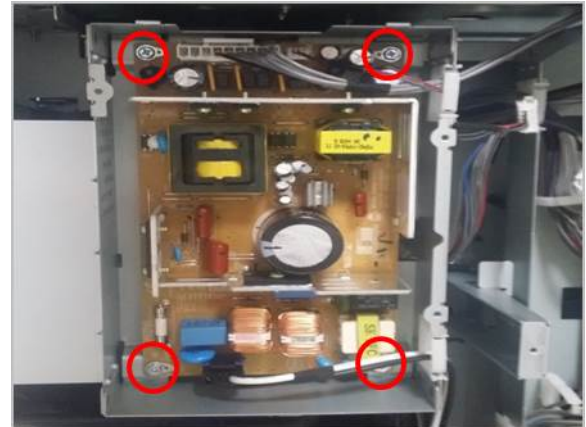
1. Remove 11 screw-cap and 11 screws. Then remove the rear cover.



2. Remove 3 screws. Then remove the shield-SMPS sub upper.



3. Unplug all connectors. Remove 4 screws. And release the SMPS board 3.

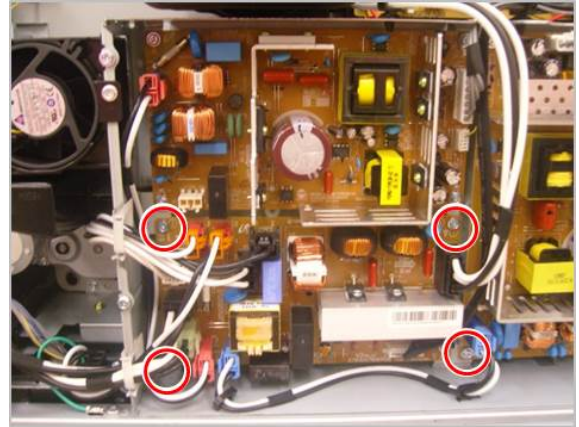


3.3.10. FDB (Fuser Drive Board)

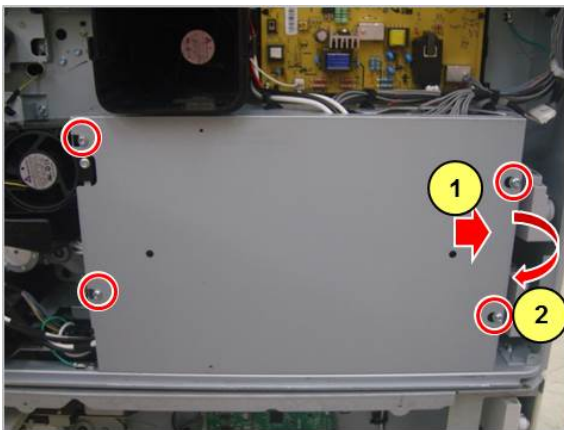
1. Remove 7 screw-caps and 7 screws. Then remove the Lower-Rear cover.



3. Unplug all connectors. Remove 4 screws. And release the FDB.

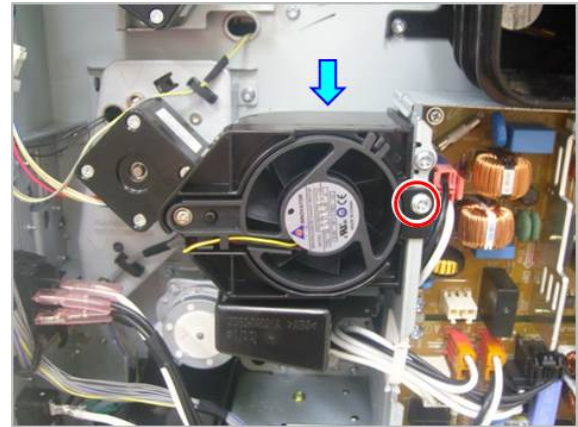


2. Loosen 4 screws. Pull the SMPS cover to the right and release it.



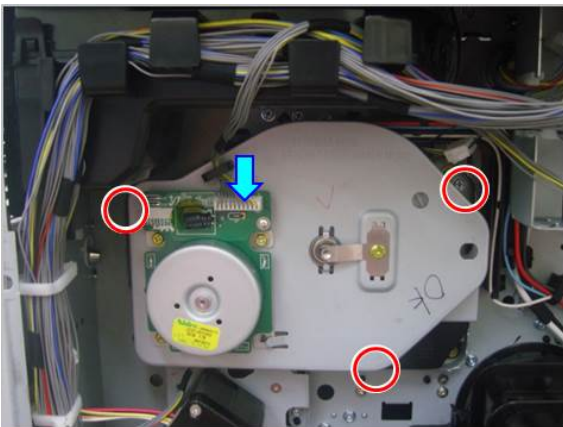
3.3.11. SMPS Fan

1. Remove the rear cover. (Refer to 3.3.2.)
2. Remove 1 screw. Unplug the fan connector. And, release the SMPS fan.



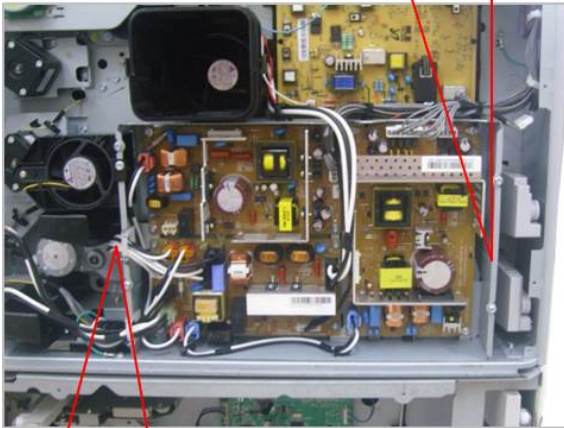
3.3.12. Main Drive Unit

1. Remove the rear cover. (Refer to 3.3.2.)
2. Unplug the motor connector. Remove 3 screws. And release the Main Drive unit.

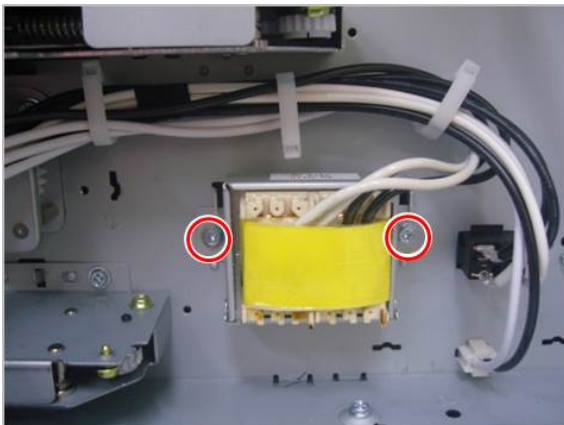


3.3.13. Inductor unit

1. Remove the rear cover. (**Refer to 3.3.2.**)
2. Unplug all harness from SMPS board1,2 and FDB.
Remove 2 screws. And release the power board shield.

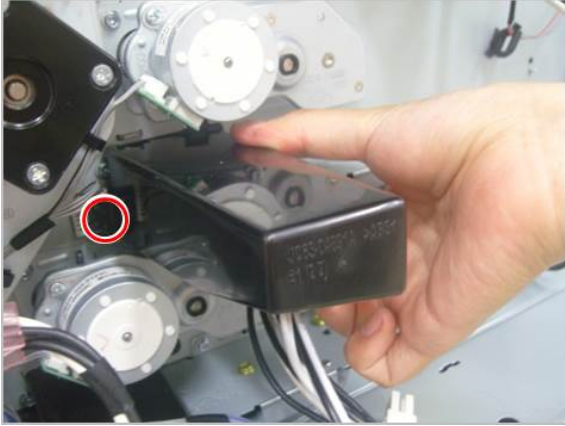


3. Remove 2 screws. Unplug the harness. And release the Inductor unit.

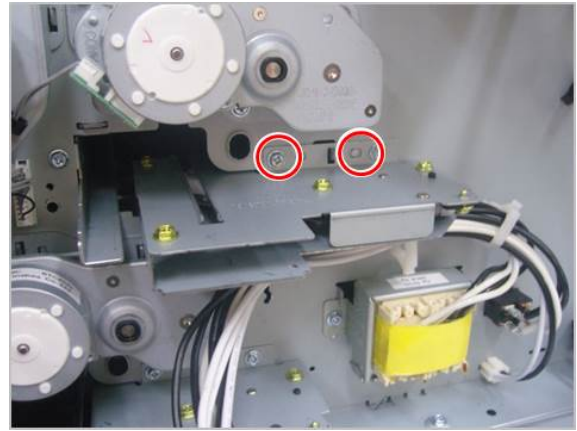


3.3.14. Auto-Closing unit

1. Remove the cassette.
2. Remove the rear cover. (**Refer to 3.3.2.**)
3. Remove the power board shield. (**Refer to 3.3.13.**)
4. Release the CST rail cover after removing 1 screw.

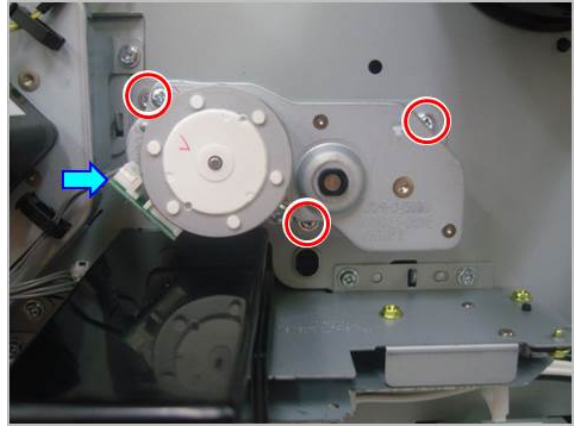


5. Release the Auto Closing unit after removing 2 screws.



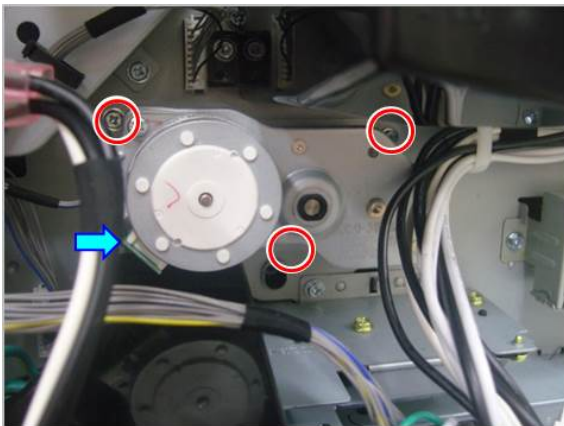
3.3.15. Pick-up Drive unit 1

1. Remove the rear cover. (Refer to 3.3.2.)
2. Remove the power board shield. (Refer to 3.3.13.)
3. Unplug the motor connector. Remove 3 screws. And release the Pick-up Drive unit 1.



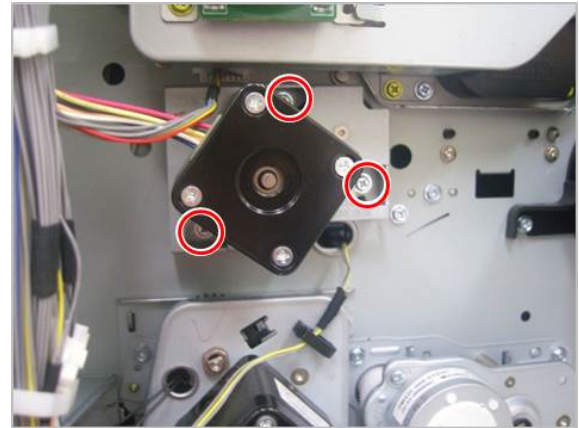
3.3.16. Pick-up Drive unit 2

1. Remove the rear cover. (Refer to 3.3.2.)
2. Unplug the motor connector. Remove 3 screws. And release the Pick-up Drive unit 2.



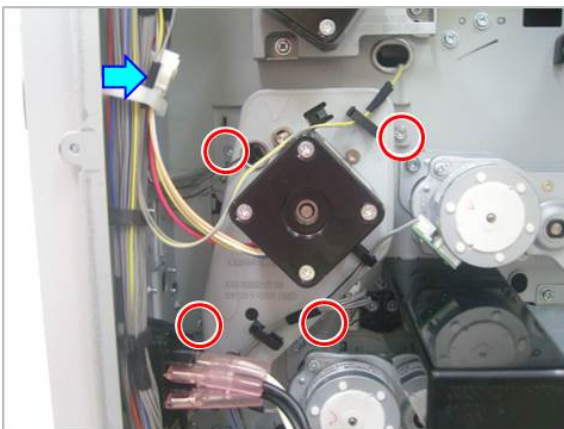
3.3.17. Regi Drive Unit

1. Remove the rear cover. (Refer to 3.3.2.)
2. Unplug the motor connector. Remove 3 screws. And release the Regi Drive Unit.



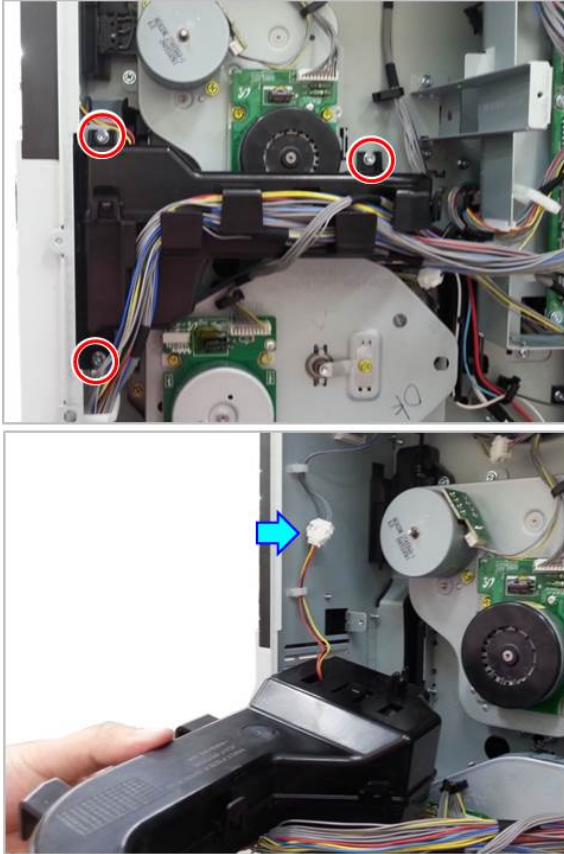
3.3.18. Feed Drive Unit

1. Remove the rear cover. (Refer to 3.3.2.)
2. Unplug the motor connector. Remove 4 screws. And release the Feed Drive Unit.



3.3.19. Fuser Fan

1. Remove the rear cover. (**Refer to 3.3.2.**)
2. Release the harness from the duct. Remove 3 screws. And release the Fuser Fan duct after unplugging the fan connector.

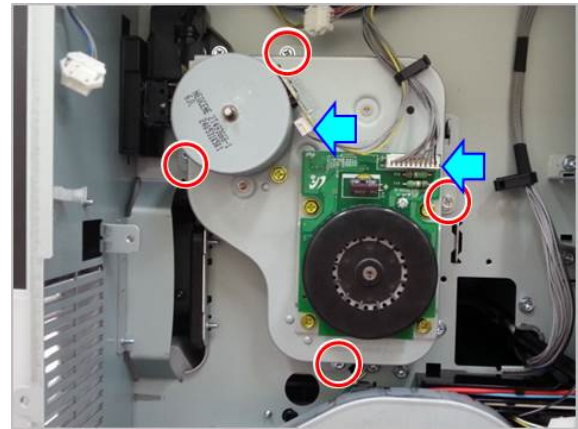


3. Separate the Fuser Fan Duct and release the fan.



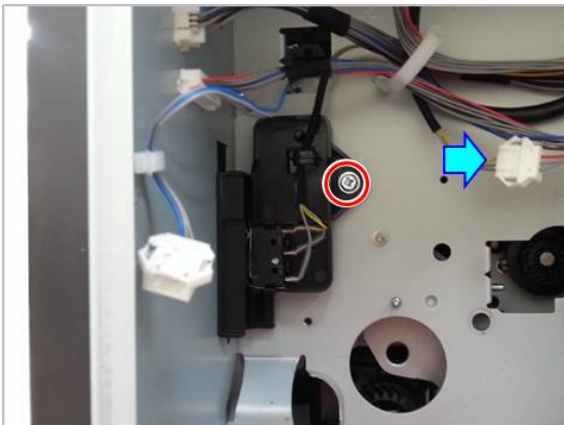
3.3.20. Fuser_Exit Drive unit

1. Remove the rear cover. (**Refer to 3.3.2.**)
2. Remove the Fuser Fan duct. (**Refer to 3.3.19.**)
3. Unplug the motor connector. Remove 4 screws. And release the Fuser/Exit Drive unit.



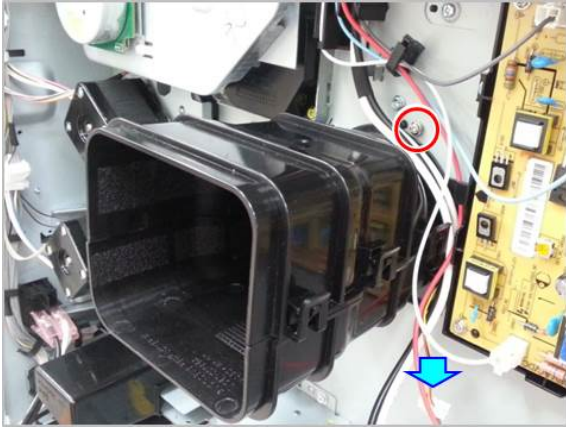
3.3.21. Side Door open sensor

1. Remove the rear cover. (**Refer to 3.3.2.**)
2. Remove the Fuser/Exit Drive unit. (**Refer to 3.3.20.**)
3. Unplug the connector. Remove 1 screw. And release the side door open sensor.

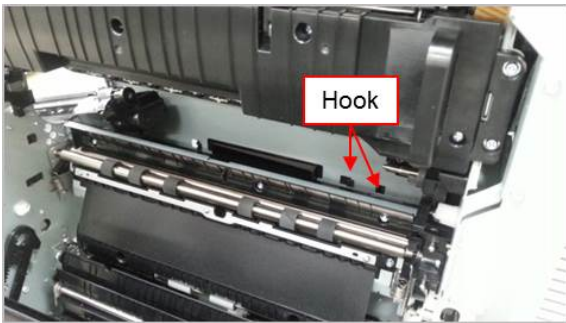


3.3.22. Deve Fan

1. Remove the drum unit. (Refer to 3.2.2.1.)
2. Remove the left cover. (Refer to 3.3.1.)
3. Remove the rear cover. (Refer to 3.3.2.)
4. Remove 1 screw. Unplug the connector.



5. Open the side cover. Then push and release the hook of the Deve fan.



6. Remove the Deve Fan duct.

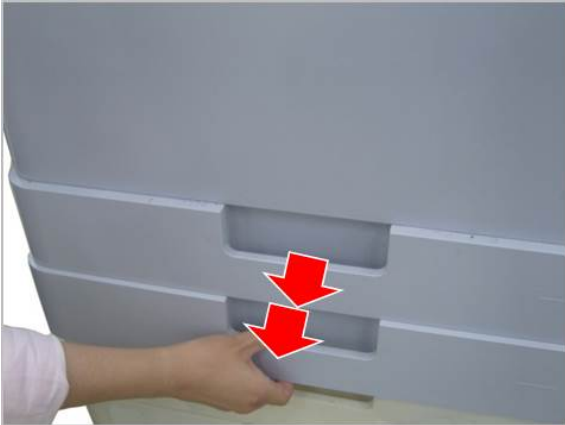


7. Release the Deve fan from the Deve Fan duct.

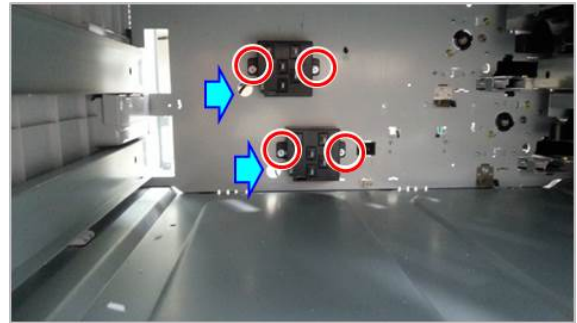


3.3.23. Auto Size sensor

1. Remove 2 cassettes.



2. Unplug the sensor connector. Remove 2 screws. And release the auto size sensor.



3.3.24. Inner cover

1. Open the side cover.



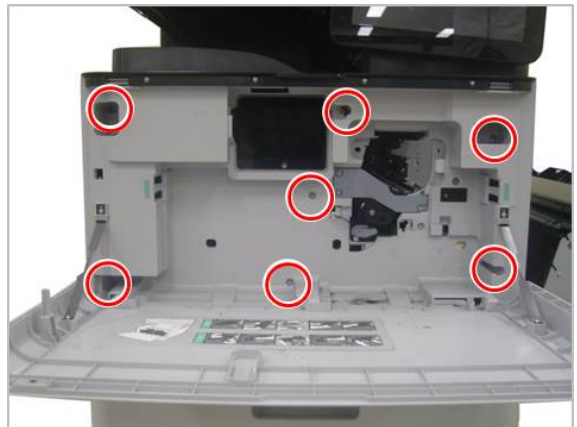
4. Remove the cleaner.



2. Remove 2 screw-caps and 2 screws. Then remove the front-top left cover.



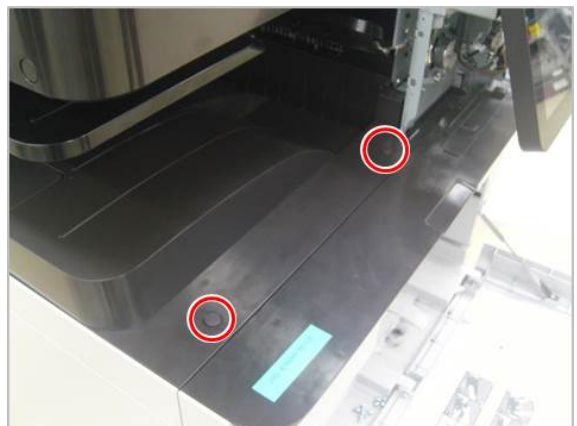
5. Remove 7 screws securing the Inner Cover.



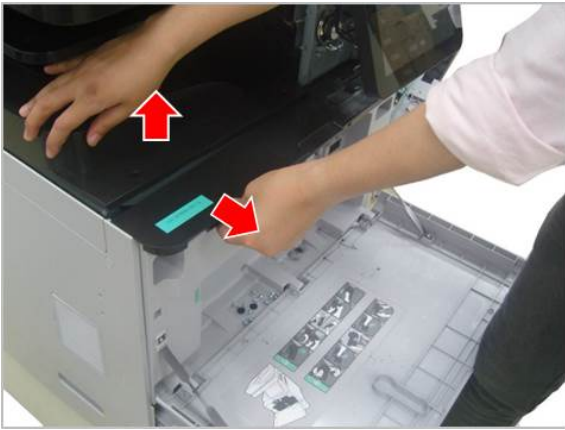
3. Remove 2 screw-caps and 2 screws. Then remove the front-top right cover.



6. Remove 2 screw-caps and 2 screws. Then release the Exit Tray.

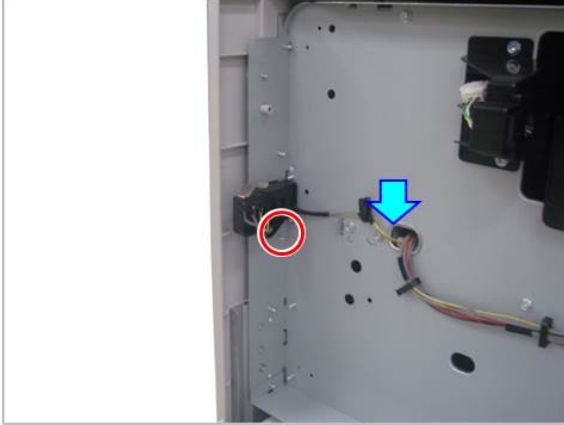


7. Remove the inner cover while lifting the Exit Tray.



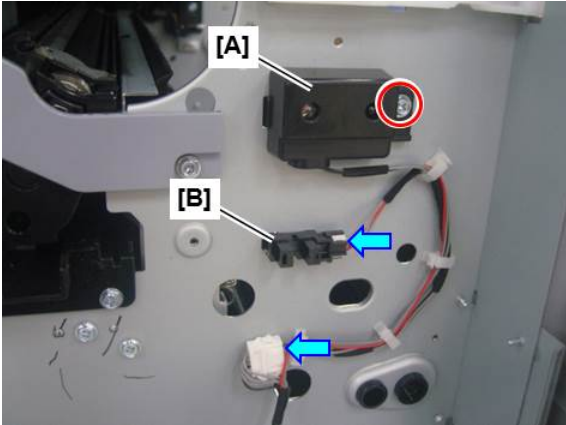
3.3.25. Front Cover Open sensor

1. Remove the Inner cover.(**Refe to 3.3.24.**)
2. Remove 1 screw. Unplug the sensor connector. And, release the Front Cover Open sensor.



3.3.26. Waste Toner Container sensor

1. Remove the inner cover. (Refer to 3.3.24.)
2. Release the corresponding sensor.
 - [A] : Waste Toner Level sensor
 - [B] : Waste Toner Container Detect sensor

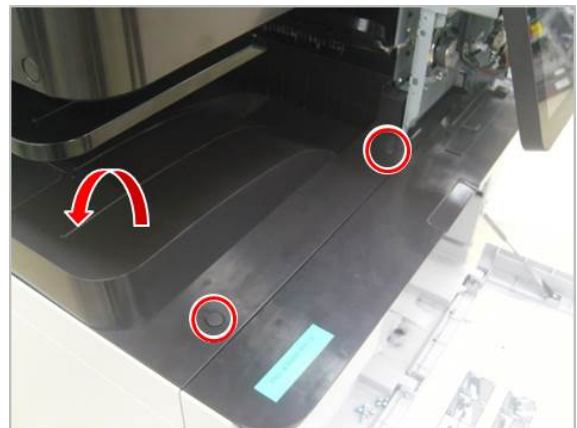


3.3.27. HDD (Hard Disk Drive)

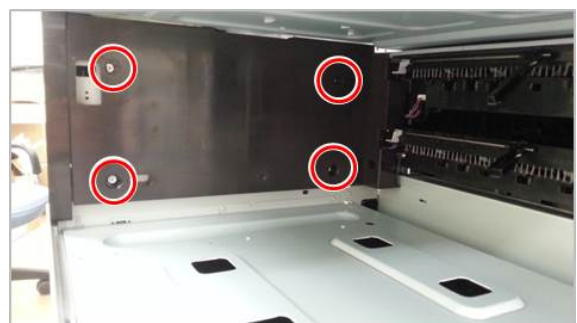
1. Remove 2 screw-caps and 2 screws. Then remove the front-top left cover.



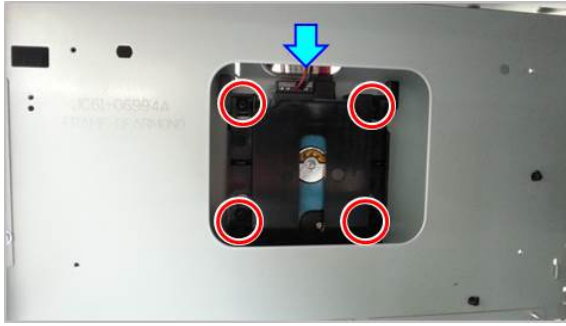
2. Remove 2 screw-caps and 2 screws. Then remove the Exit Tray.



3. Release the HDD cover after removing 4 screws.

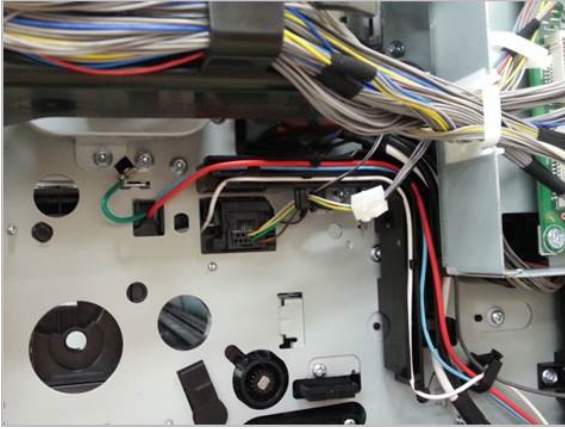


4. Remove 4 screws. Unplug the HDD cable. And release the HDD with its holder.



3.3.28. High Voltage Terminal

1. Remove the rear cover. (**Refer to 3.3.1.**)
2. Remove the Main Drive Unit. (**Refer to 3.3.12.**)
3. Release the harness from its holder.



4. Unplug the connector from the HVPS board.

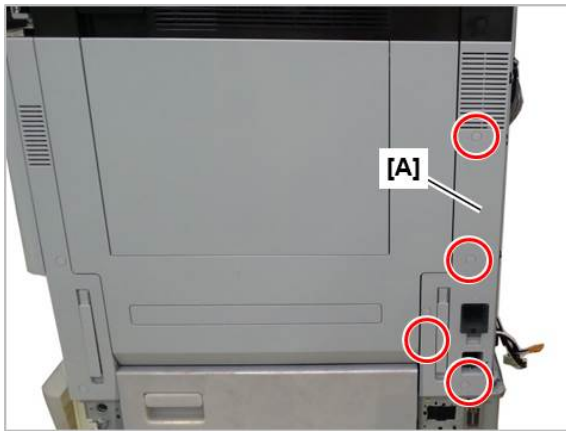


5. Open the side cover. Remove 3 screws. And release the high voltage terminal.

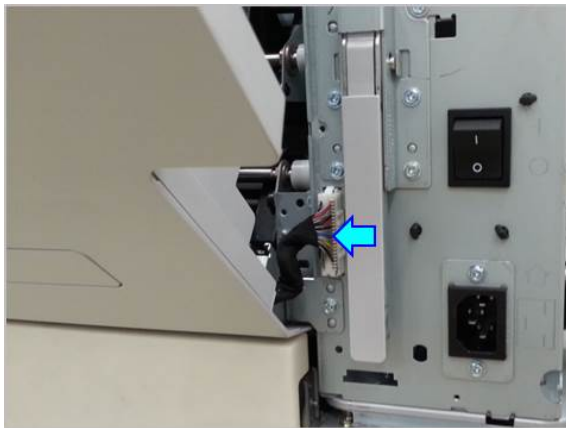


3.3.29. Side Unit

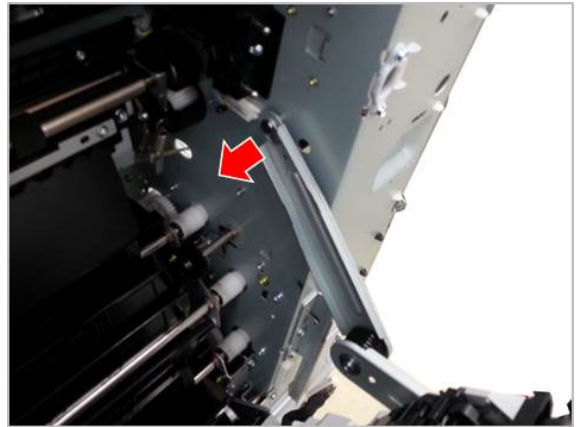
1. Remove 4 screw-caps and 4 screws. Then release the Right-Rear cover[A].



2. Unplug the side unit connector.



3. Release the right stopper.



4. Release the left stopper.

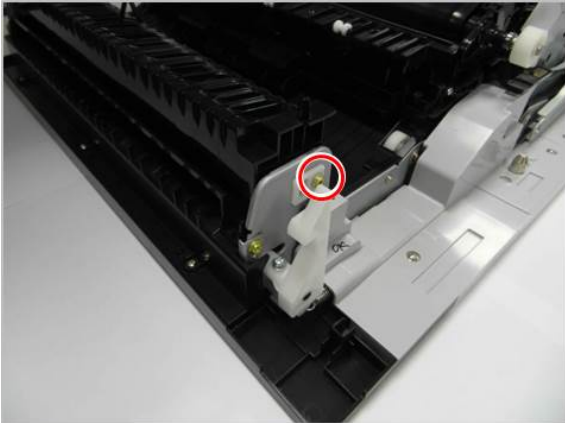


5. Release the side unit.

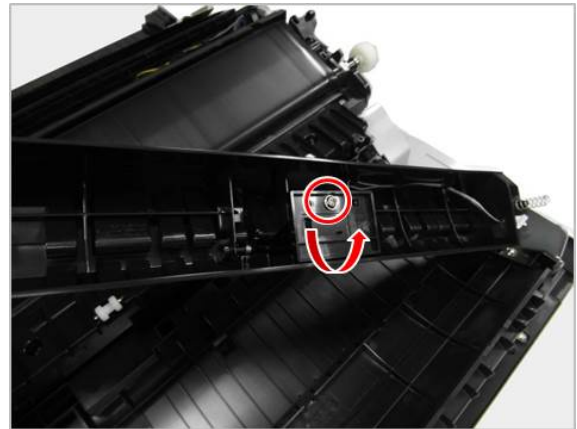


3.3.29.1. Fuser-Out Sensor

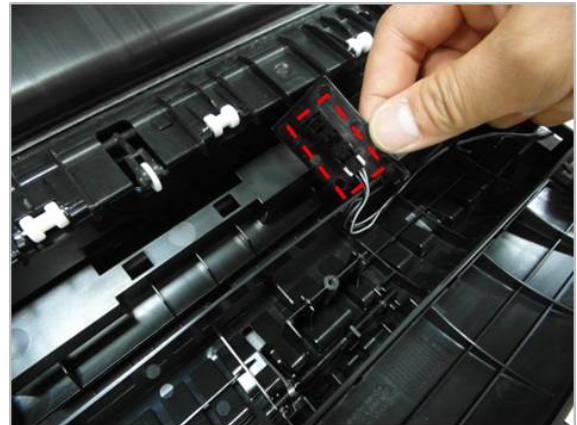
1. Remove the Side Unit. (Refer to 3.3.29.)
2. Remove both screws. Then turn up the Cover-Side Exit.



3. Remove 1 screw. Then turn up the sensor holder.

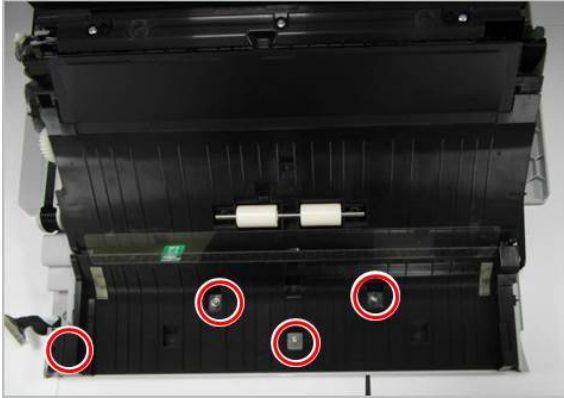


4. Unplug the sensor connector. Then release the Fuser-Out sensor from its holder.

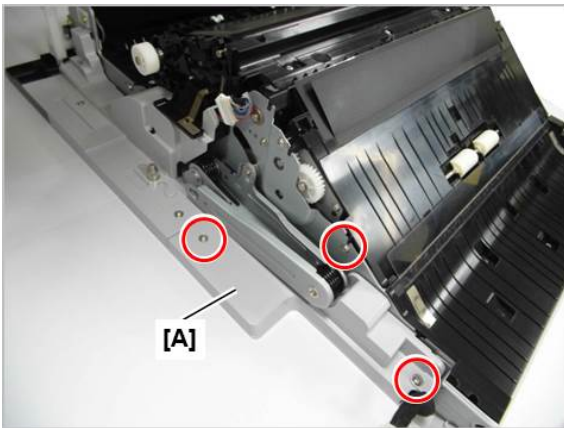


3.3.29.2. Feed 2 sensor

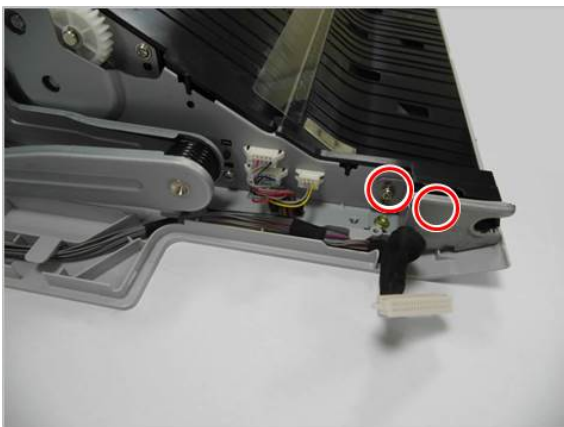
1. Remove the Side Unit. (Refer to 3.3.29.)
2. Remove 4 screws.



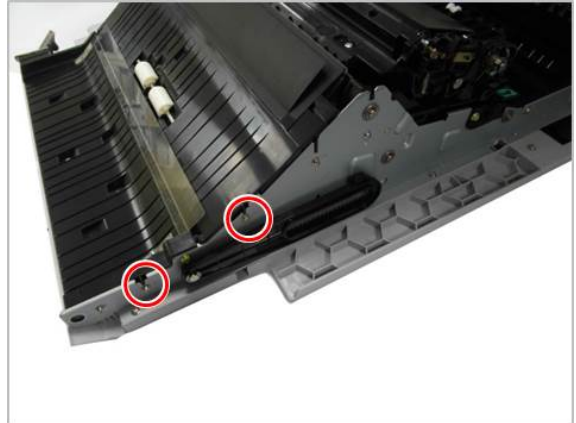
3. Remove 3 screws. Then remove the Cover-Harness Lower[A].



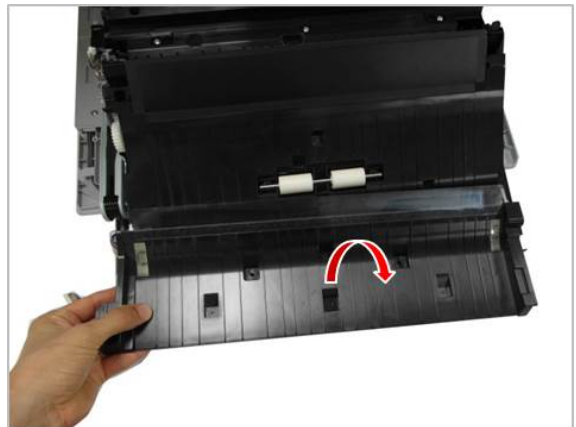
4. Remove 2 screws.



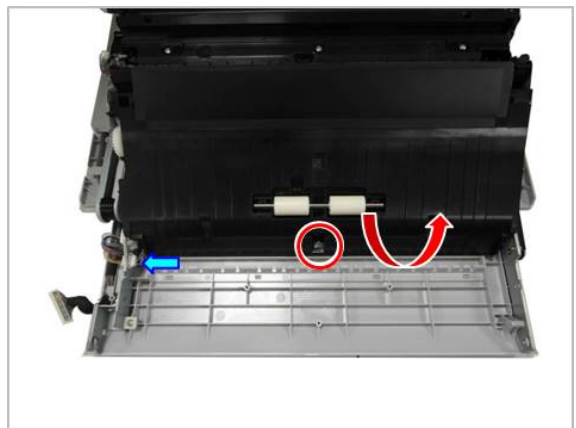
5. Remove 2 screws.



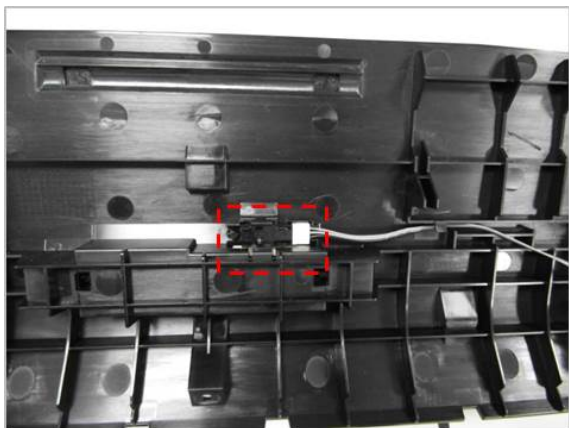
6. Remove the Guide-Take Away Lower.



7. Unplug the sensor connector. Remove 1 screw. And then remove the Guide-Take Away Upper.

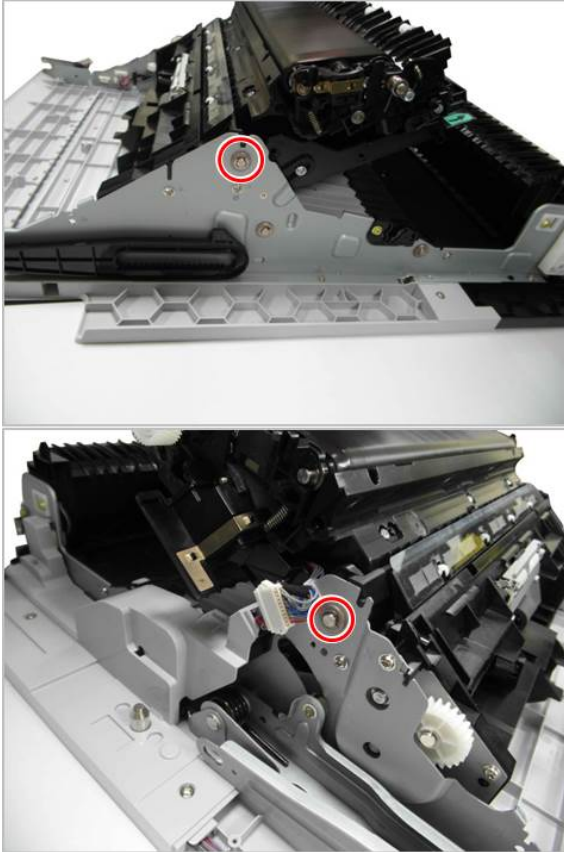


8. Unplug the sensor connector. Then release the Feed 2 sensor.

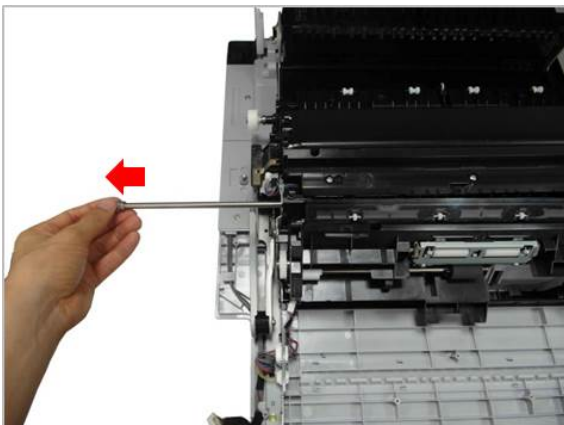


3.3.29.3. MP Unit

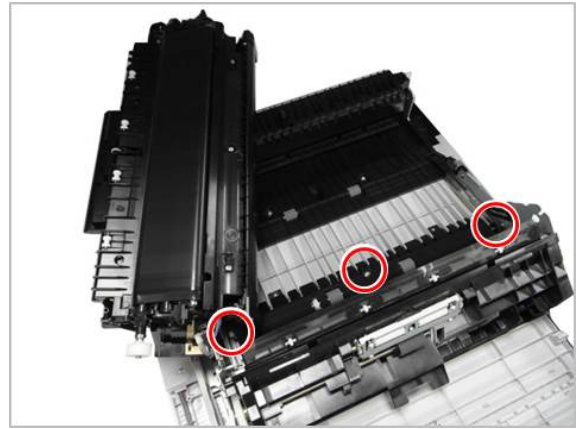
1. Remove the Side Unit. (Refer to 3.3.29.)
2. Remove the Guide-Take Away Lower and Upper. (Refer to 3.3.29.2)
3. Remove both E-ring and Bush.



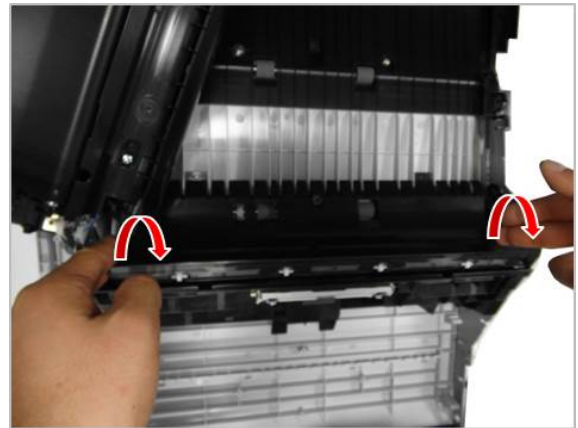
4. Remove the Shaft.



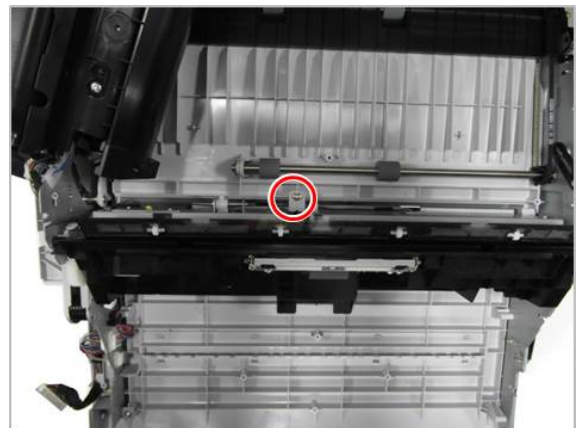
5. Release and place the PTB Assy as shown below. Then remove 3 screws.



6. Remove the Guide-Duplex Lower.

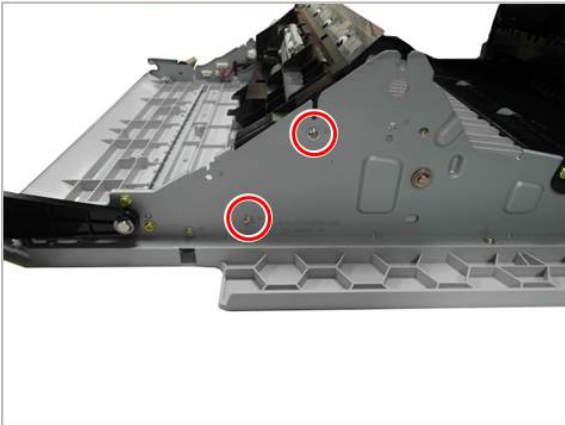
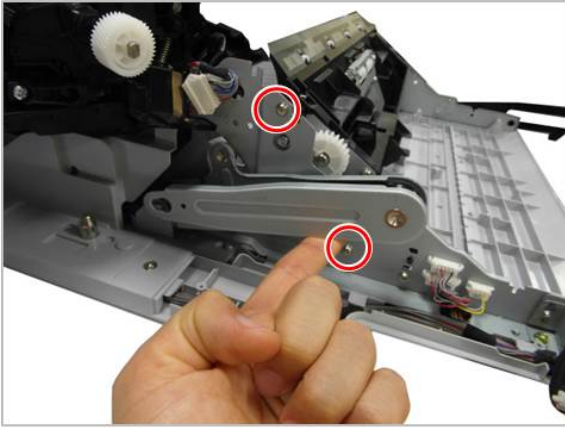


7. Remove 1 screw.

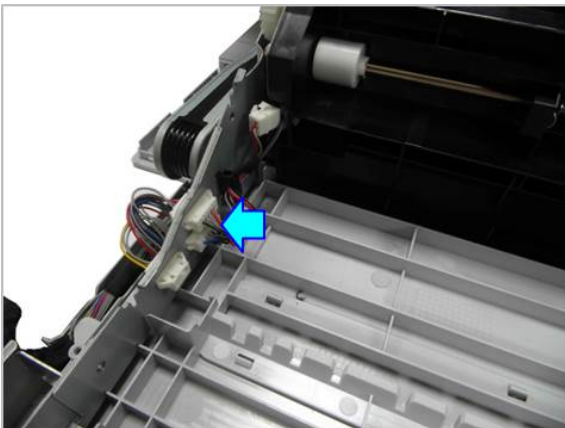


3. Disassembly and Reassembly

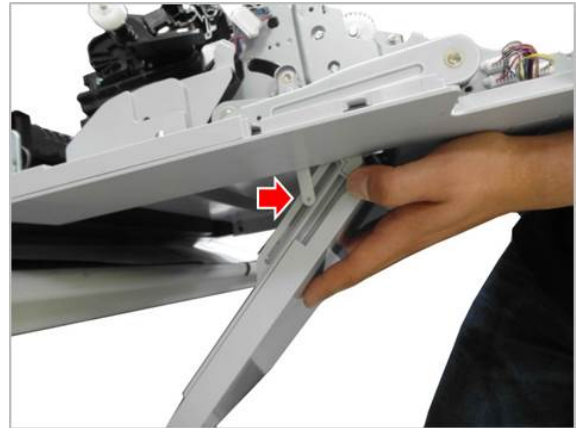
8. Remove 4 screws.



9. Unplug the sensor connector.



10. Release the MP Tray Linker.

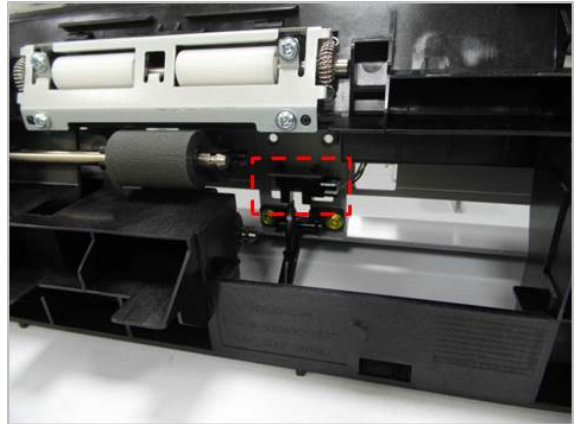


11. Release the MP Unit.



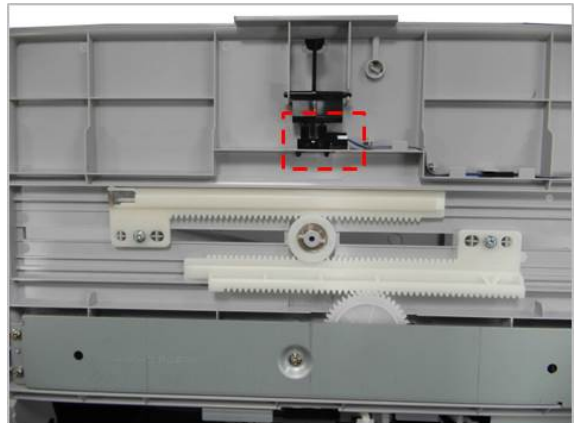
3.3.29.4. MP empty sensor

1. Remove the MP Unit. (Refer to 3.3.29.3.)
2. Unplug the connector. Then release the MP empty sensor.



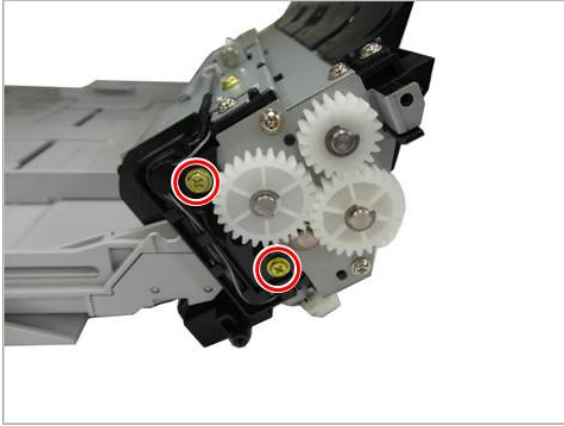
3.3.29.5. MP paper length sensor

1. Remove the MP Unit. (Refer to 3.3.29.3.)
2. Remove the MP Tray Upper.
3. Unplug the connector. Then remove the MP paper length sensor.

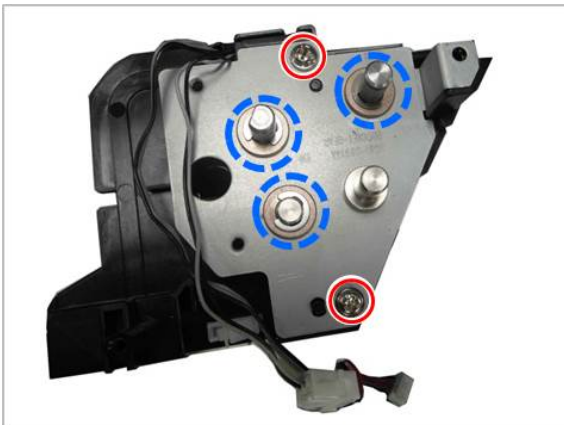


3.3.29.6. MP solenoid

1. Remove the MP Unit. (**Refer to 3.3.29.3.**)
2. Remove 2 screws. Remove 3 gears. And then release the MP tray.



3. Remove 2 screws. Remove 3 E-rings and Bushes. And then release the Bracket-Rear.



4. Remove 7 screws. Then release the Frame-Base.

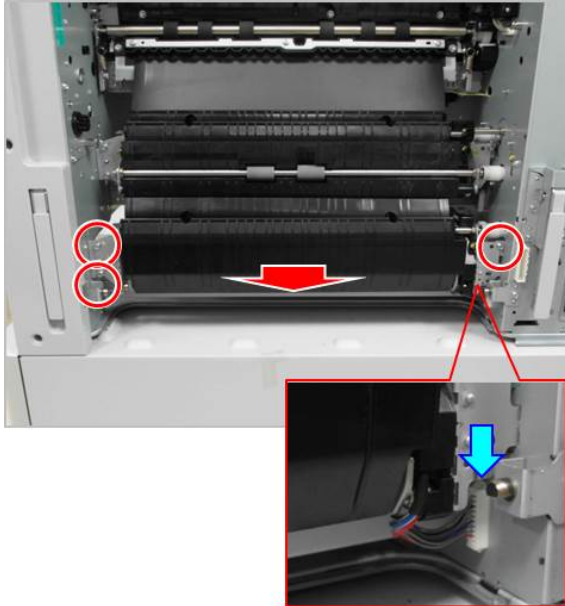


5. Remove 2 screws. Then release the MP solenoid.



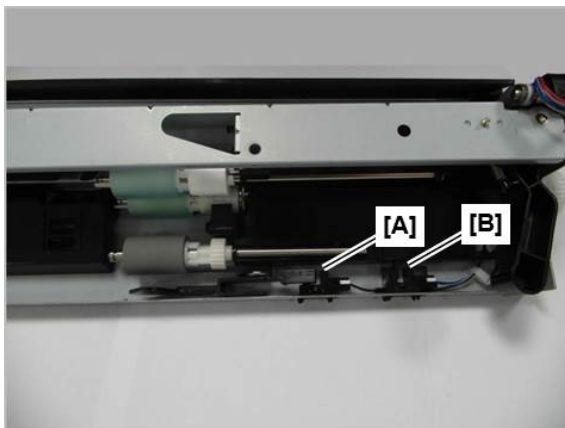
3.3.30. Pick-Up Unit 2

1. Remove the Side Unit. (Refer to 3.3.29.)
2. Remove 3 screws. Unplug the connector. And then release the Pick-Up Unit 2.



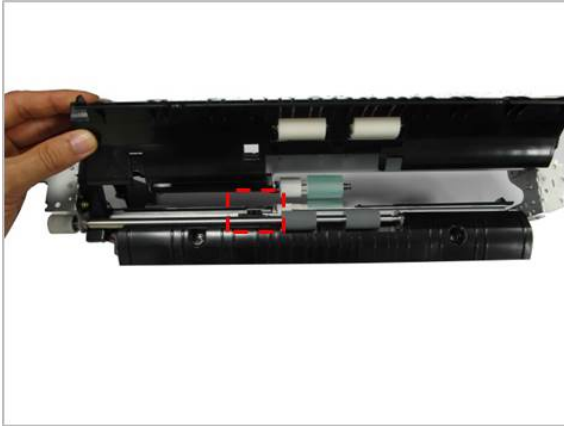
3.3.30.1. Pick up Lifting sensor and Empty sensor

1. Remove the Pick-Up Unit 2. (Refer to 3.3.30.)
2. Unplug the corresponding sensor connector. Then remove the sensor.
 - [A] : Empty sensor
 - [B] : Pick up Lifting sensor



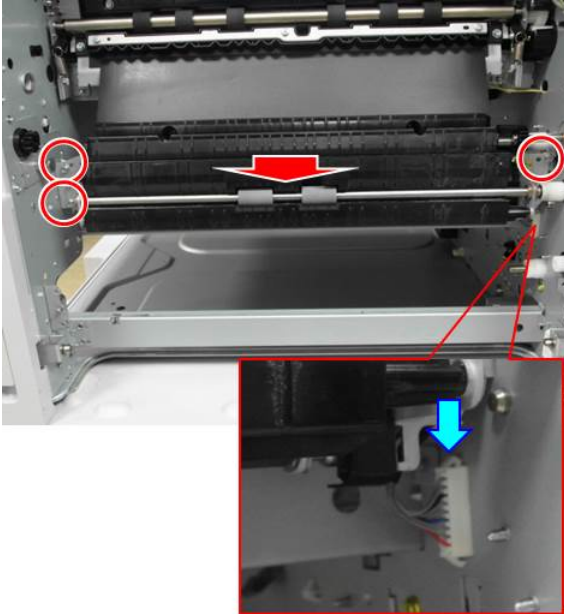
3.3.30.2. Pre-Feed sensor 2

1. Remove the Pick-Up Unit 2. (**Refer to 3.3.30.**)
2. Open the Guide-Pick up. Then remove the Pre-Feed sensor 2.



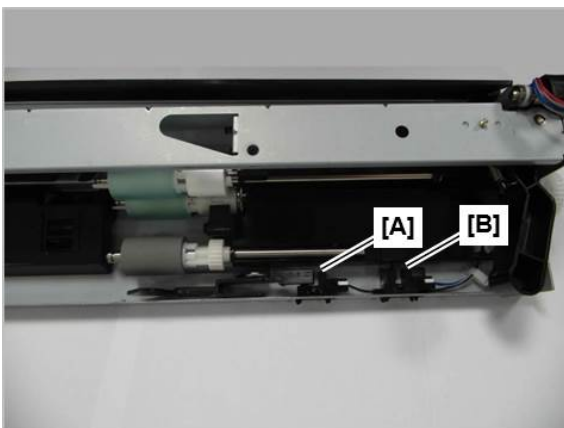
3.3.31. Pick-Up Unit 1

1. Side Unit . (3.3.29)
2. Pick-Up Unit 2 . (3.3.30)
3. 3 , Pick-Up Unit 1 .



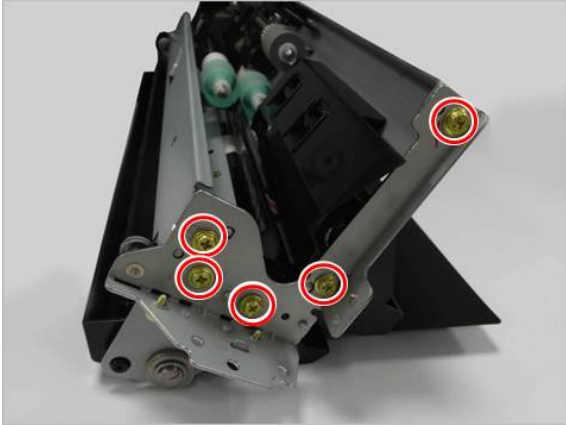
3.3.31.1. Pick-Up Lifting sensor and Empty sensor

1. Remove the Pick-Up Unit 1. (Refer to 3.3.31.)
2. Unplug the corresponding sensor connector. Then remove the sensor.
 - [A] : Empty sensor
 - [B] : Pick up Lifting sensor

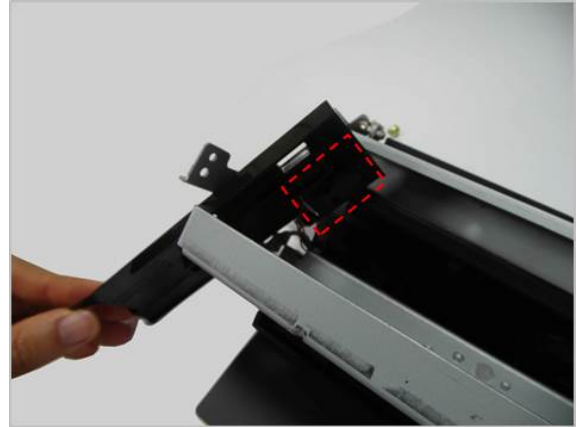


3.3.31.2. Pre-Feed sensor 1

1. Remove the Pick-Up Unit 1. (Refer to 3.3.31.)
2. Remove 5 screws. Then remove the bracket.

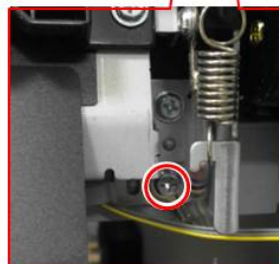
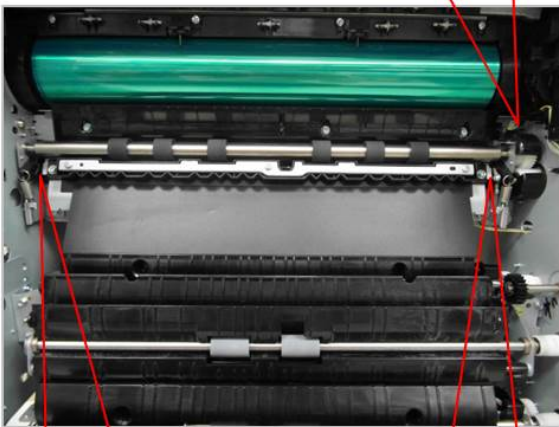
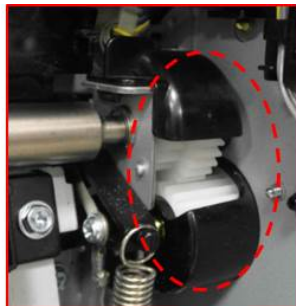


3. Release the sensor from its holder.

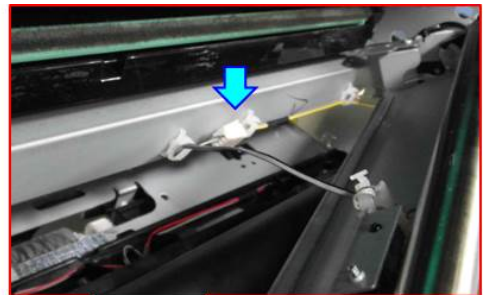


3.3.32. Regi Unit

1. Remove the Side Unit. (Refer to 3.3.29.)
2. Remove 2 screws and gear cover.



3. Pull out the Regi Unit and then unplug the connector.



3.3.32.1. Regi sensor

1. Remove the Regi. Unit. (**Refer to 3.3.32**)
2. Remove 2 screws. Then remove the Guide Regi upper.



3. Remove 1 screw.



4. Remove the Regi sensor.



3.3.33. Exit Unit

1. Remove the Side Unit. (Refer to 3.3.29.)
2. Remove 2 screw-caps and 2 screws. Then remove the front-top right cover.



3. Remove 4 screws.



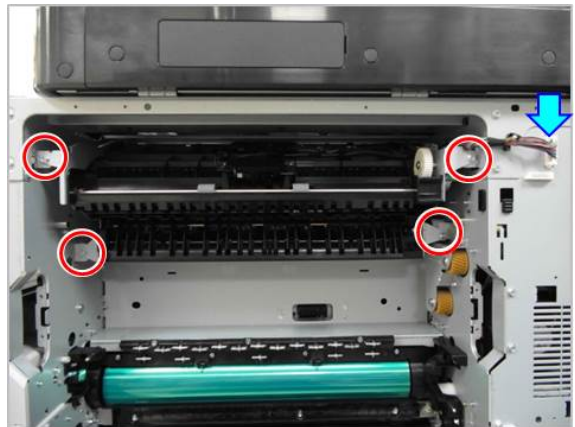
4. Unplug the connector. Then release the Right-top cover.



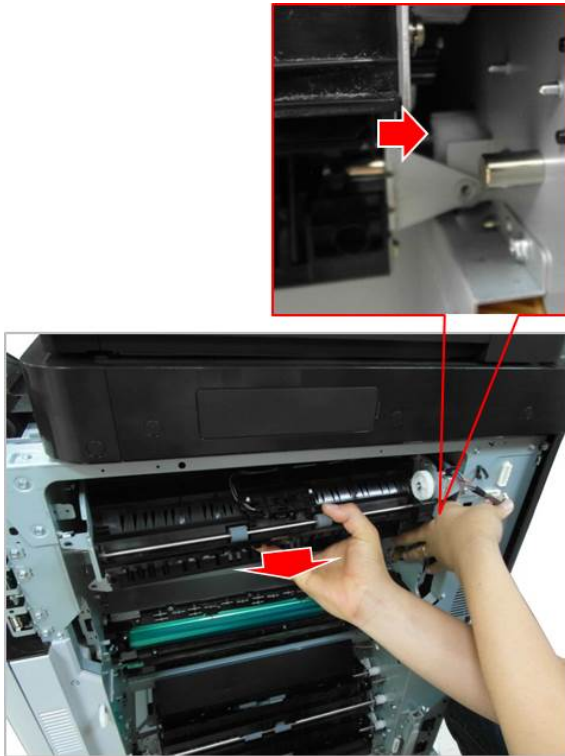
5. Remove 4 screws. Then pull out the fuser unit.



6. Unplug the connector. Remove 4 screws.

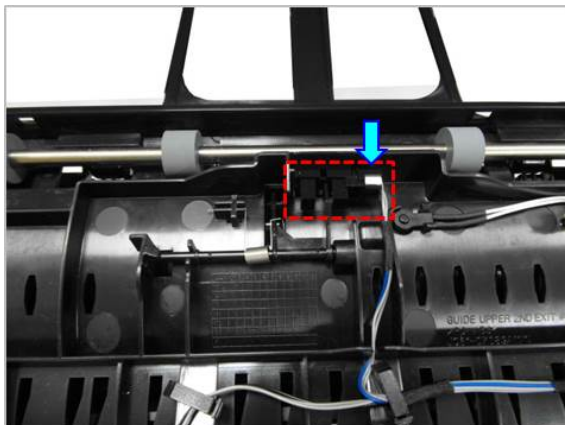


7. Remove the Exit Unit while pushing the gear to the right.



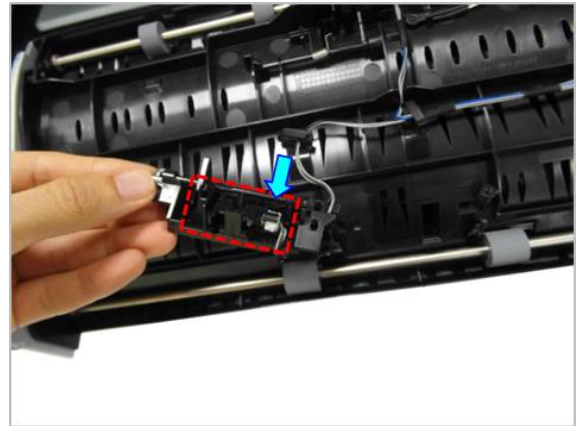
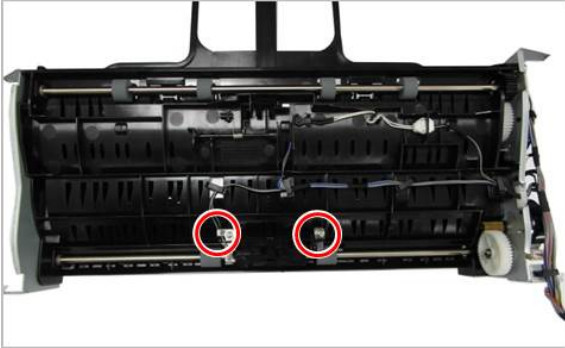
3.3.33.1. Return sensor

1. Remove the Exit Unit. (Refer to 3.3.33)
2. Unplug the sensor connector. Then remove the Return sensor.



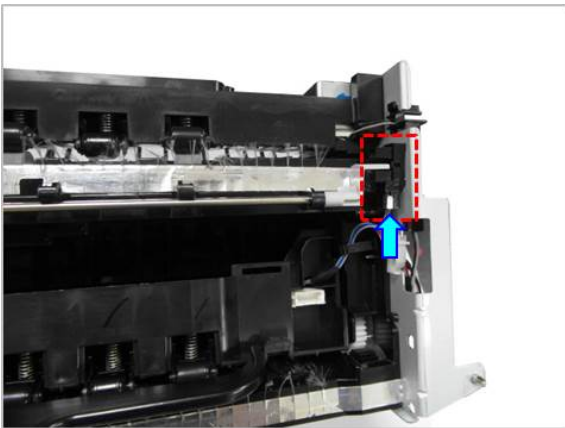
3.3.33.2. Duplex 1 sensor

1. Remove the Exit Unit. (**Refer to 3.3.33.**)
2. Remove 2 screws. Then turn up the sensor holder.
3. Unplug the connector. Then release the Duplex 1 sensor.



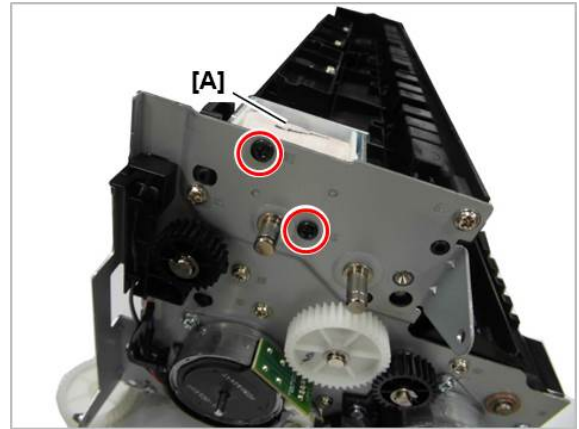
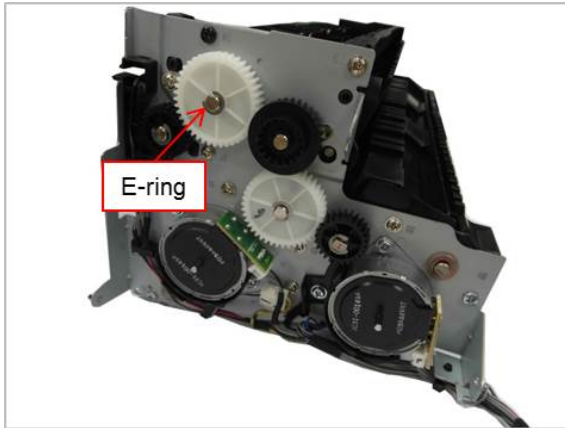
3.3.33.3. Exit 1 Bin Full sensor

1. Remove the Exit Unit. (**Refer to 3.3.33.**)
2. Unplug the sensor connector. Then release the Exit 1 Bin Full sensor.



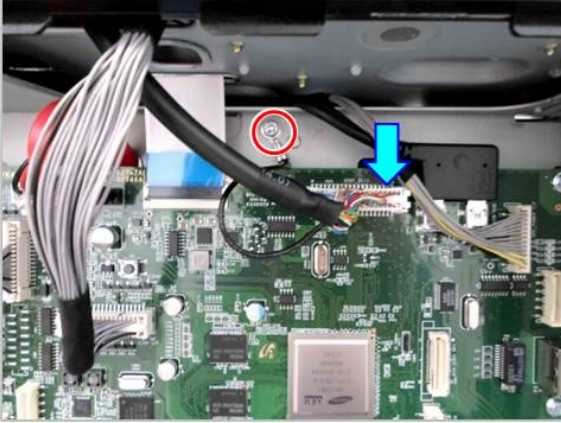
3.3.33.4. Exit Gate Solenoid

1. Remove the Exit Unit. (Refer to 3.3.33.)
2. Remove the E-ring. Then remove the gear.
3. Remove 2 screws. Then remove the Exit Gate solenoid[A].

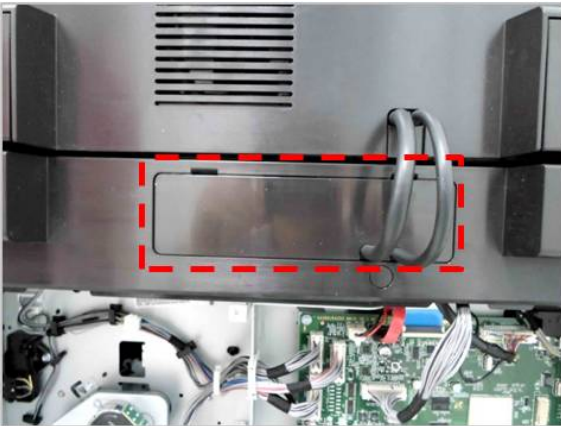


3.3.34. DSDF Unit for LX model

1. Remove the rear cover.
2. Remove 1 screw. Unplug the DSDF harness from the main board.



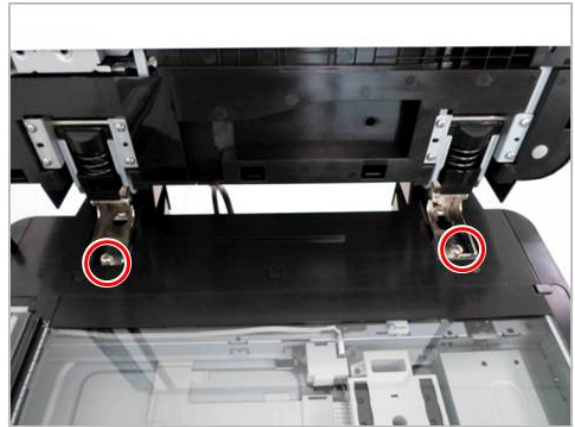
3. Remove the DSDF connector cover.



4. Unplug the DSDF harness from the scan joint board.



5. Open the DSDF unit. Remove 2 screws.



6. Lift up and release the DSDF unit.



! NOTE

Shading Test for DSDF Unit must be carried out, after replacing the DSDF unit. (Refer to 4.5.5.3)

3.3.34.1. DSDF PBA

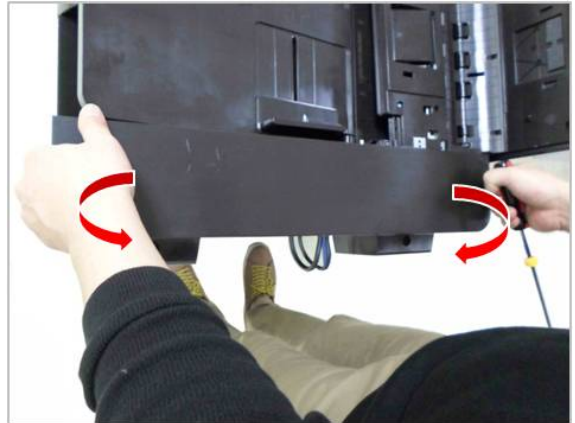
1. Open the DSDF unit. Remove 3 screws from the bottom of the DSDF. And close the DSDF unit.



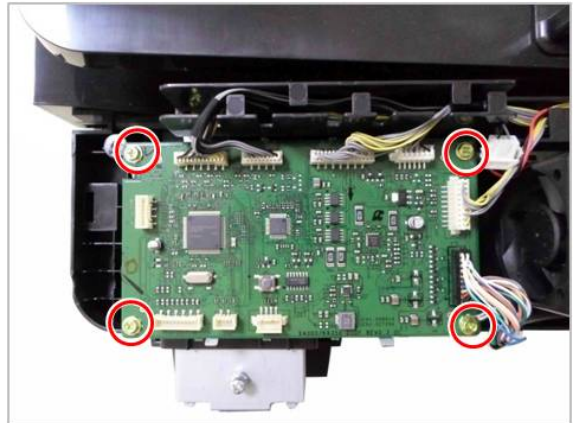
2. Open DSDF-open cover. Remove 2 screws.



3. Release the DSDF rear cover.



4. Unplug all harness on the DSDF board. Remove 4 screws. And release the DSDF PBA.

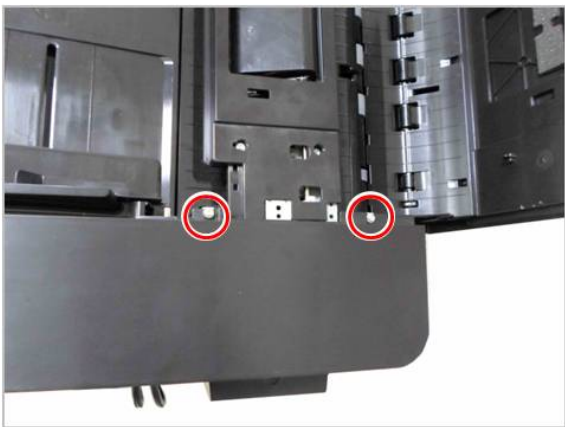


3.3.34.2. DSDF main motor

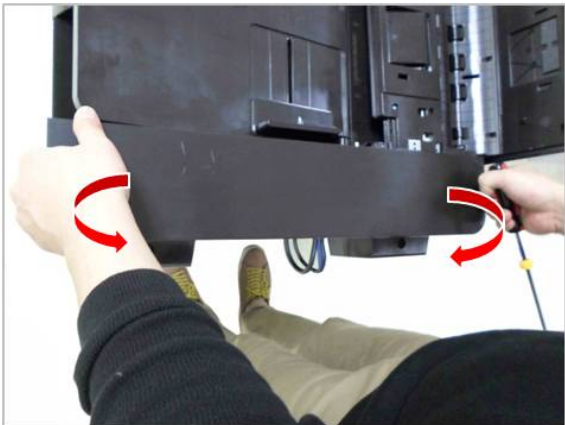
- 1. Open the DSDF unit. Remove 3 screws from the bottom of the DSDF. And close the DSDF unit.



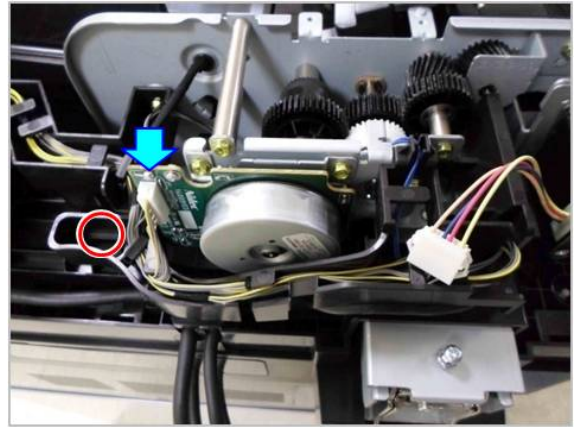
- 2. Open DSDF-open cover. Remove 2 screws.



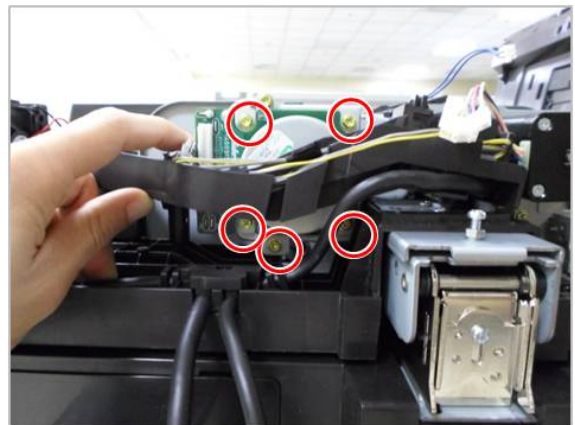
- 3. Release the DSDF rear cover.



- 4. Unplug the motor connector. Remove 1 screw securing the harness guide.

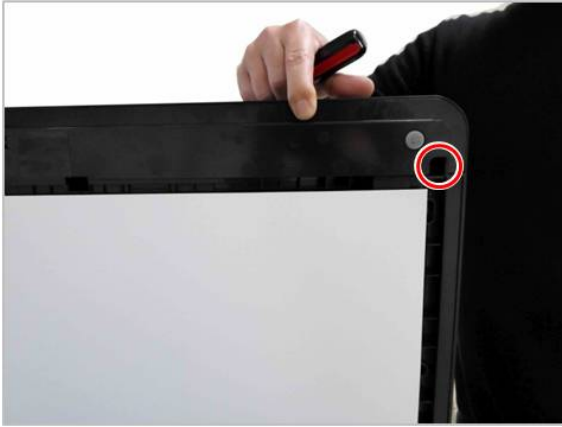


- 5. Remove 5 screws. Release the DSDF main motor while pulling the harness guide.

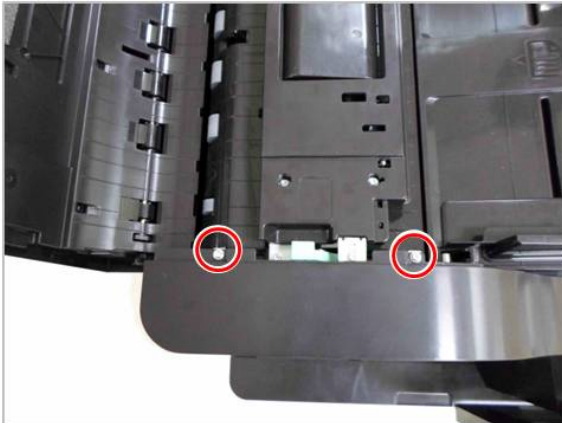


3.3.34.3. DSDF paper length sensor

1. Open the DSDF unit. Remove 1 screw from the bottom of the DSDF. And close the DSDF unit.



2. Open DSDF-open cover. Remove 2 screws.



3. Release the DSDF cover-open link.



4. Release the DSDF front cover.



5. Open the DSDF unit. Remove 3 screws from the bottom of the DSDF. And close the DSDF unit.

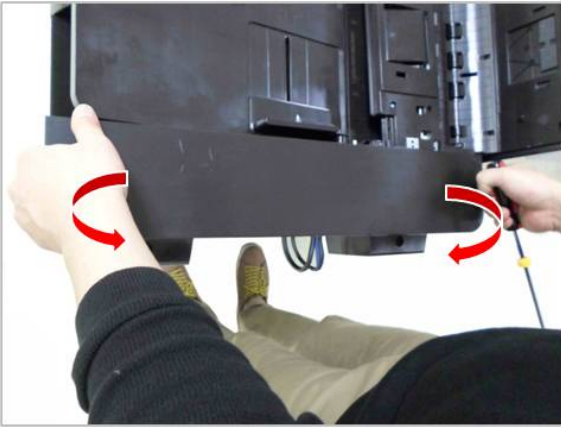


6. Open DSDF-open cover. Remove 2 screws.

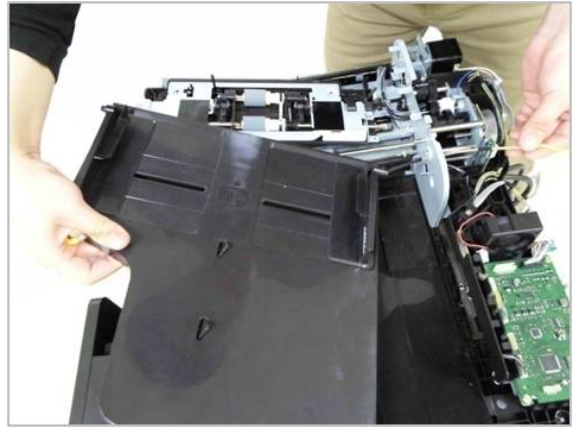


3. Disassembly and Reassembly

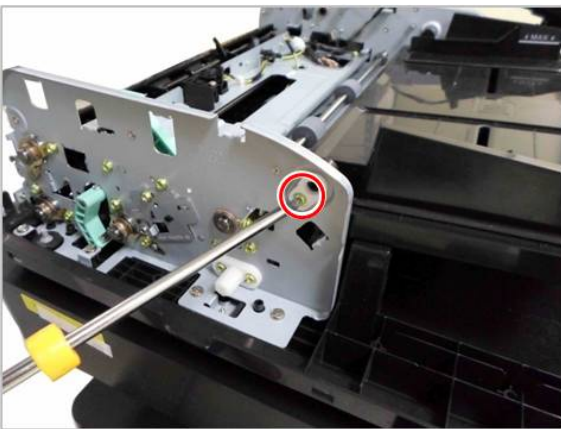
7. Release the DSDF rear cover.



10. Release the stacker.



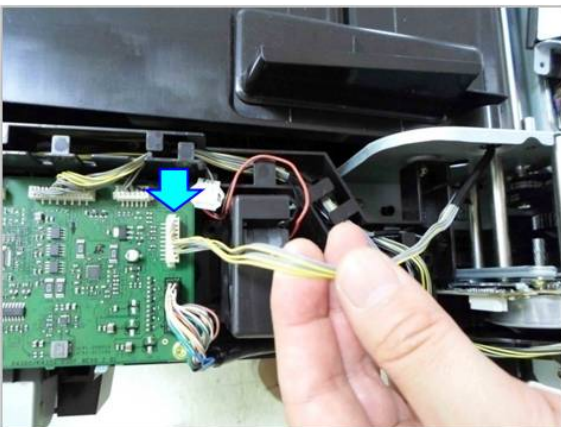
8. Remove 1 screw.



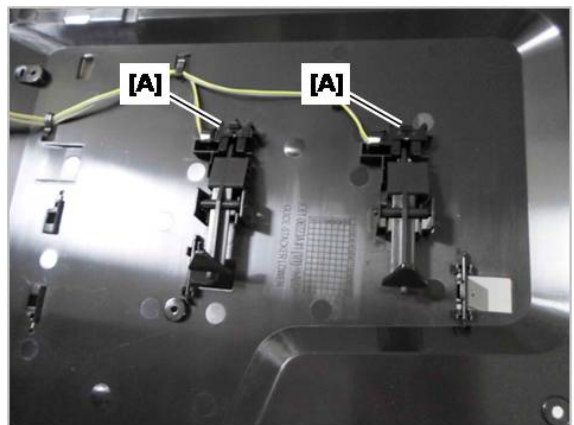
11. Remove 6 screws. Then remove the stacker lower.



9. Unplug the stacker connector from the DSDF board.

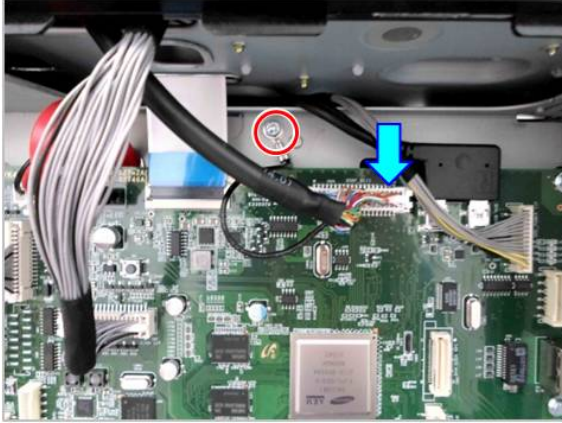


12. Remove the paper length sensor after unplugging the connector.

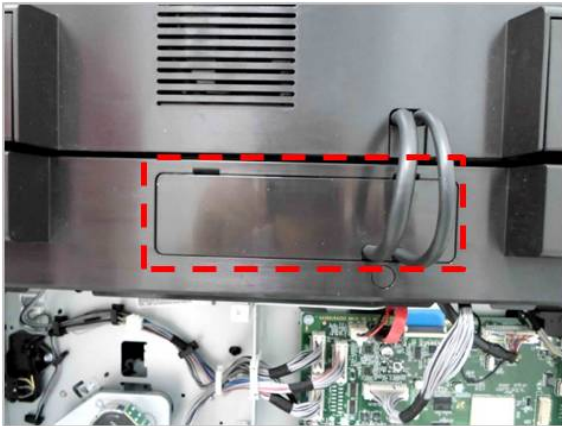


3.3.35. DSDF Unit for GX model

1. Remove the rear cover.
2. Remove 1 screw. Unplug the DSDF harness from the main board.



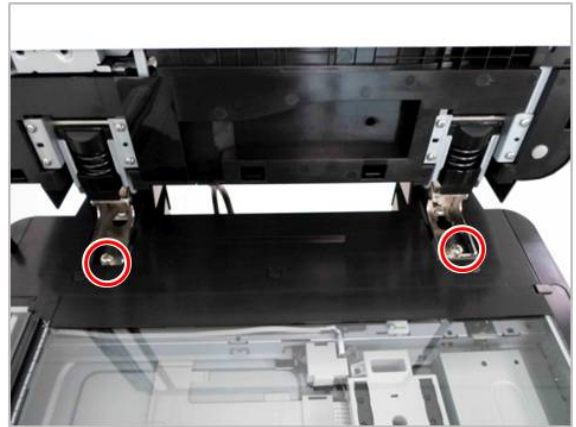
3. Remove the DSDF connector cover.



4. Unplug the DSDF harness from the scan joint board.



5. Open the DSDF unit. Remove 2 screws.



6. Lift up and release the DSDF unit.

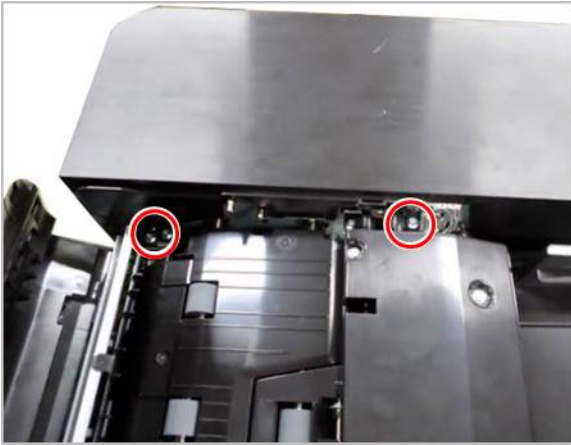


NOTE

Shading Test for DSDF Unit must be carried out, after replacing the DSDF unit. (Refer to 4.5.5.3)

3.3.35.1. DSDF PBA

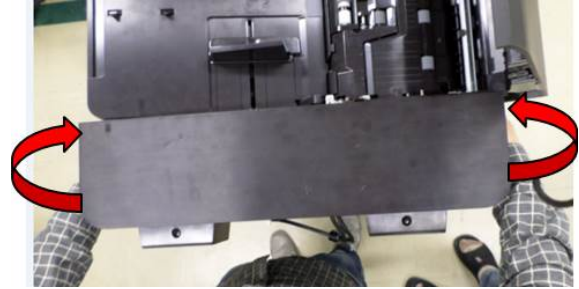
1. Open the DSDF-open cover. Then, remove 2 screws.



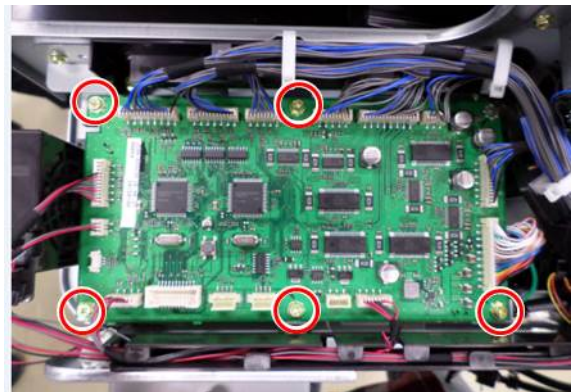
2. Remove 3 screws from the rear.



3. Remove the DSDF rear cover.

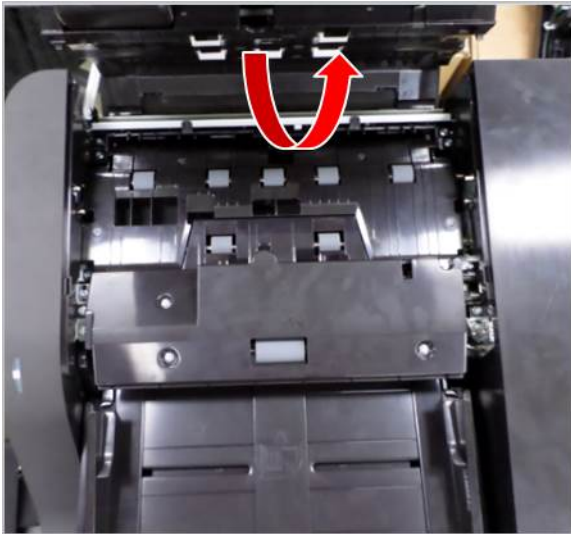


4. Unplug all harness on the DSDF PBA. Remove 5 screws. And release the DSDF PBA.

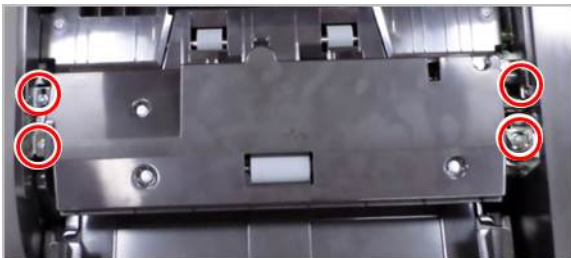


3.3.35.2. DSDF Stacker Sensor

1. Open the DSDF-open cover.



2. Remove 4 screws.



3. Pull the pick up module to the front and unplug the connector while lifting up its front.



4. Push the lower part of the cover to release the lock by stopper.



5. Release the Stacker Upper Assy while keep the status of step 4.



6. Release the harness from the marked position. Place the Stacker Upper Assy on the rear cover.



3. Disassembly and Reassembly

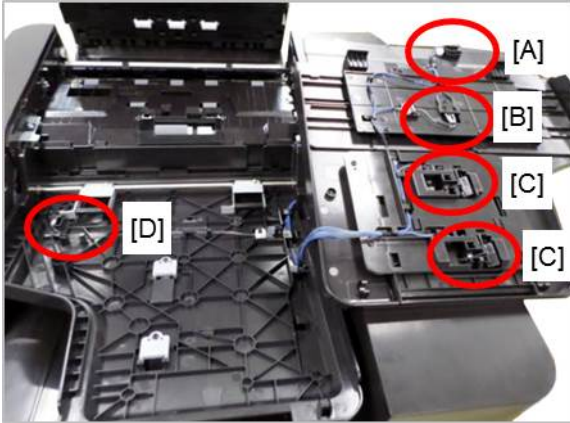
7. Check the connection and replace the defective sensor.

[A] : 0604-001381 , Stacker paper detection sensor

[B] : JC39-02087A , Paper width sensor

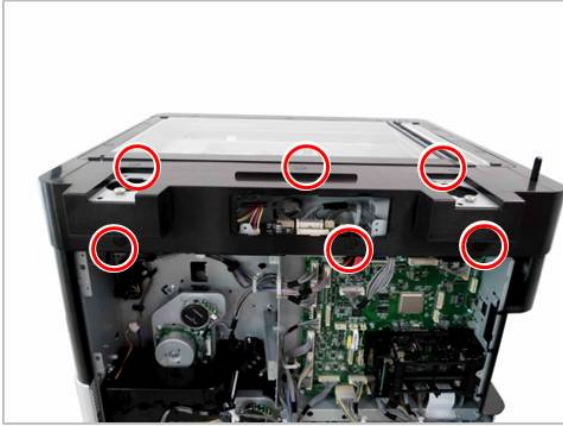
[C] : 0604-001393 , Paper Length sensor

[D] : 0604-001393 , Stacker elevator position detection sensor



3.3.36. Scanner Unit(Platen Unit)

1. Remove the DSDF unit.
2. Remove 6 screw-caps and 6 screws. Then release the scan-rear cover.



3. Remove 5 screw-caps and 5 screws. Then release the scan-front cover.



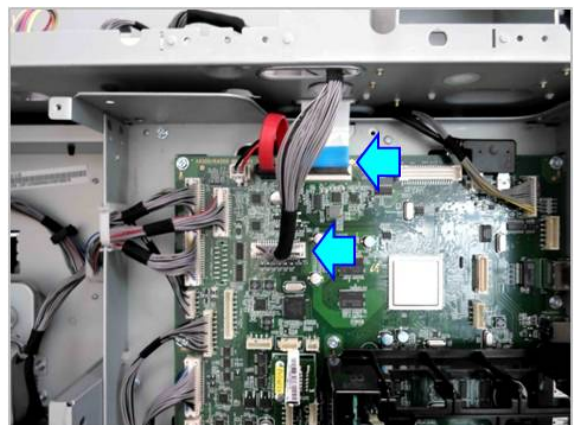
4. Remove 3 screw-caps and 3 screws. Then release the scan-left cover.



5. Remove 3 screw-caps and 3 screws. Then release the scan-right cover.



6. Unplug the scan cables.

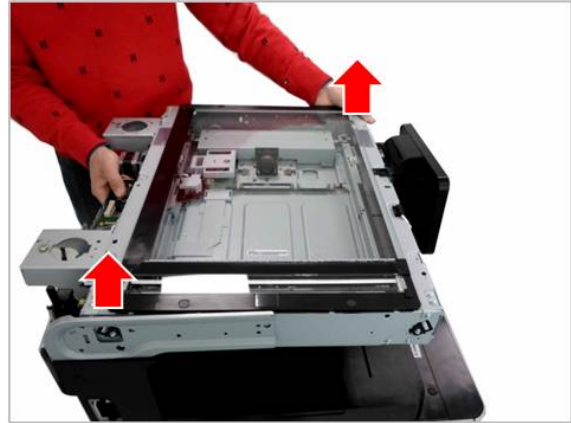


3. Disassembly and Reassembly

7. Remove 3 screws from the left.



9. Lift up and release the platen unit.

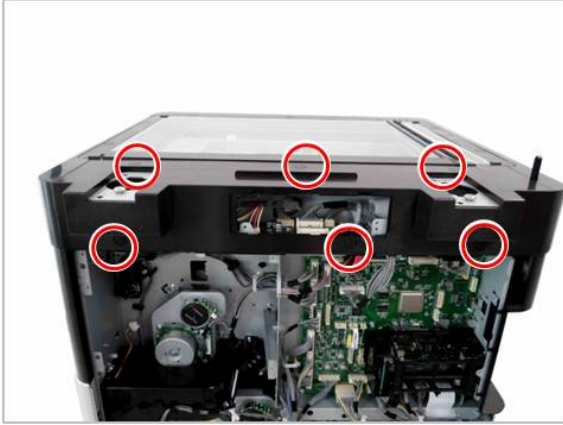


8. Remove 2 screws from the right.



3.3.36.1. Scan Glass

1. Remove the DSDF unit.
2. Remove 6 screw-caps and 6 screws. Then release the scan-rear cover.



3. Remove 5 screw-caps and 5 screws. Then release the scan-front cover.



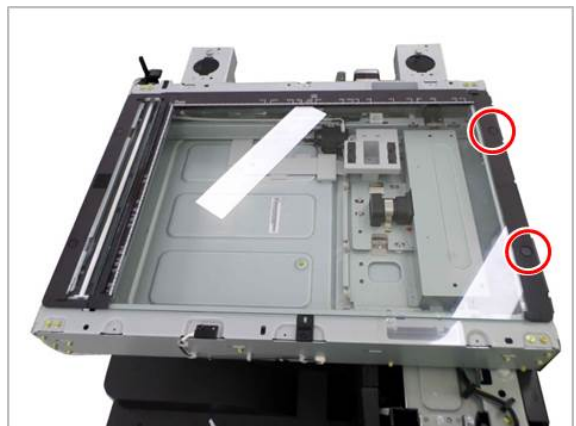
4. Remove 3 screw-caps and 3 screws. Then release the scan-left cover.



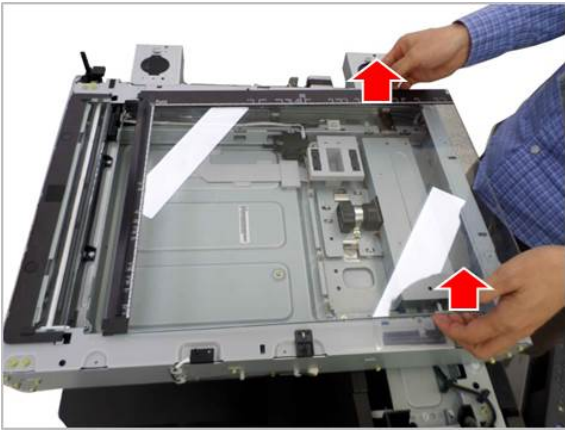
5. Remove 3 screw-caps and 3 screws. Then release the scan-right cover.



6. Remove 2 screw-caps and 2 screws.



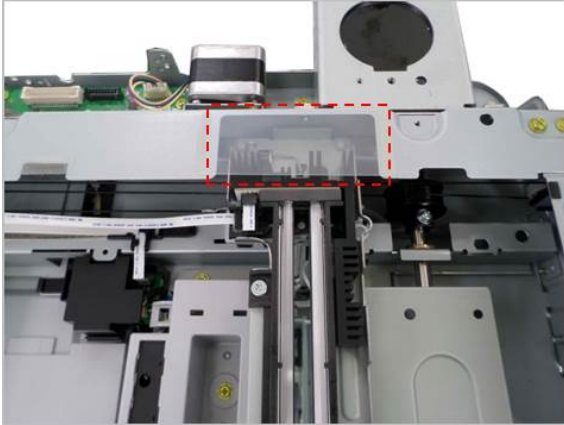
7. Remove the scan glass.



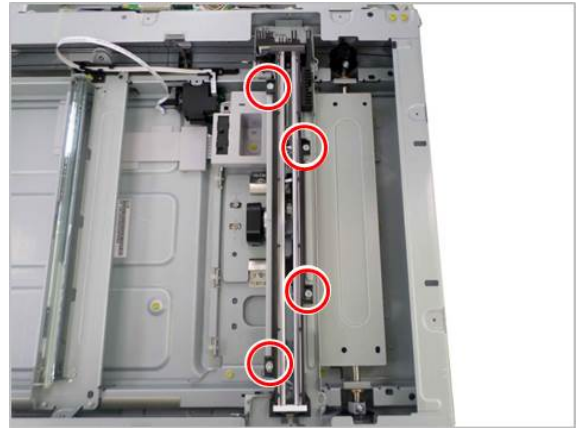
3.3.36.2. LED Lamp Module

1. Remove the scan glass. (Refer to 3.3.36.1)

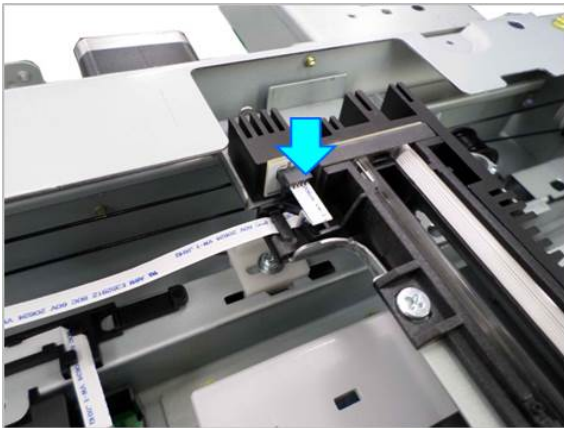
2. Remove the transparent tape.



4. Remove 4 screws. Then, release the LED lamp module.

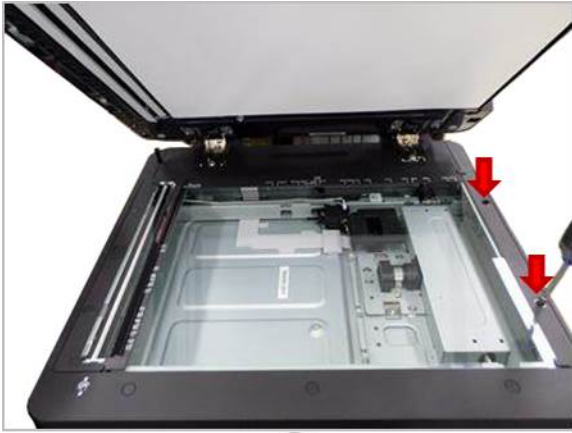


3. Unplug the flat cable.



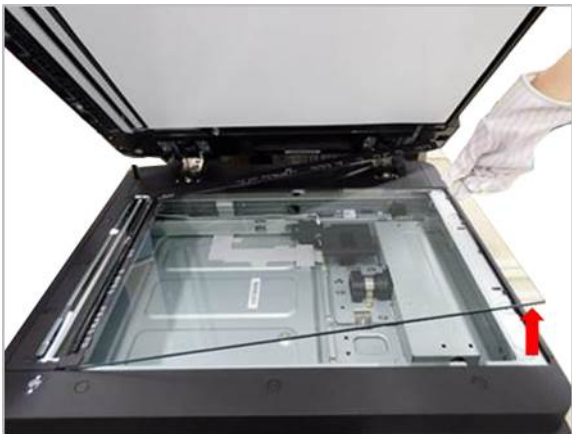
3.3.36.3. Scan Imaging Unit

1. Remove 2 screws. And then, remove the scan glass holder cover.



 × 2 (6001-002786)

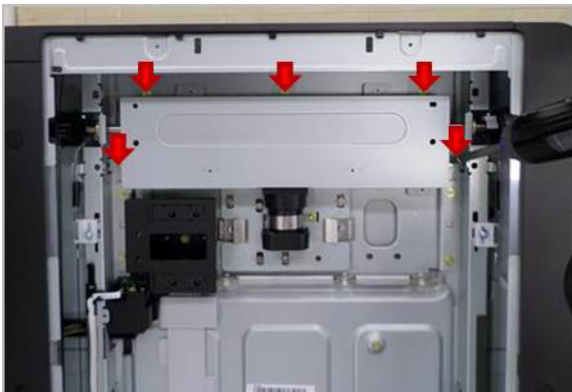
2. Lift the scan glass up and release it.




 **NOTE**

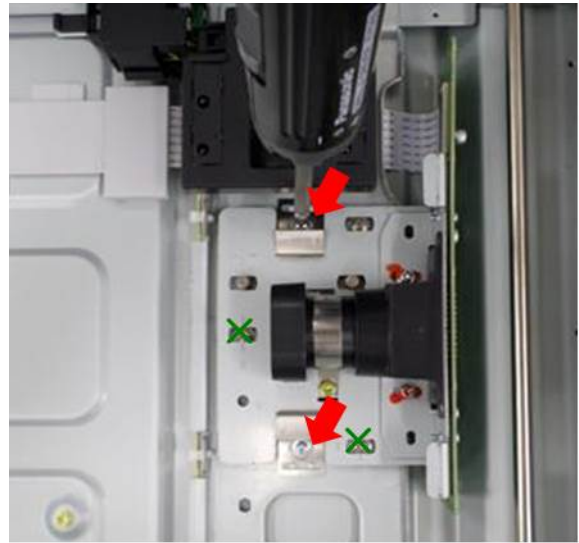
Be careful not to contaminate the scan glass.

3. Remove 5 screws. And then, release the CCD shield.



 × 5 (6009-001665)

4. Remove the 2 screws and 2 plate springs.

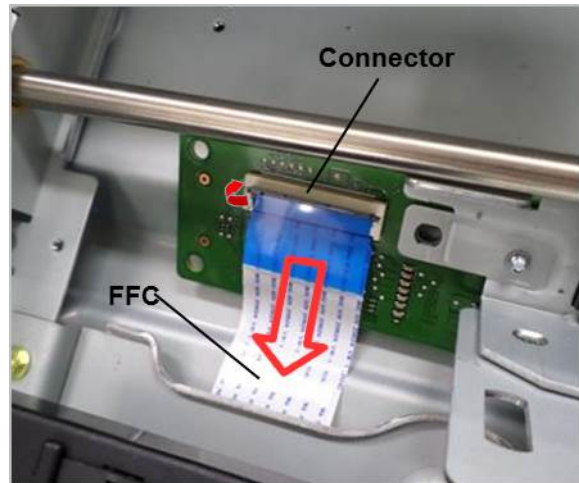


 × 2 (6006-001193)

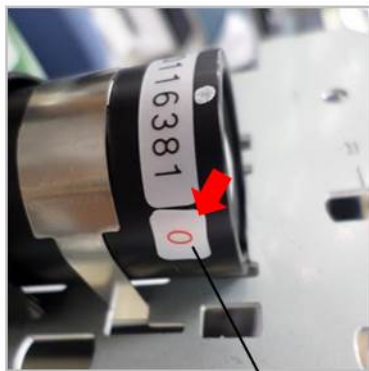
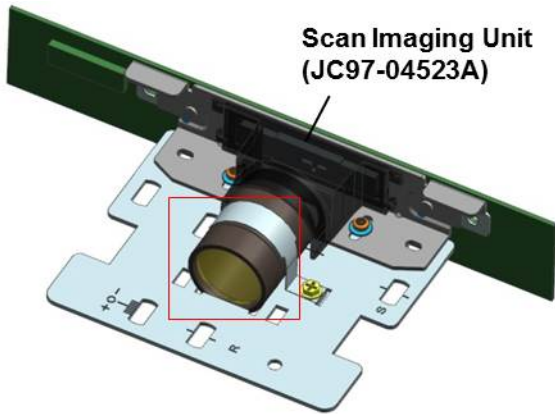
 **NOTE**

Do not loosen the screws marked by green X.

5. Open the connector flip. And then, unplug the flat cable.

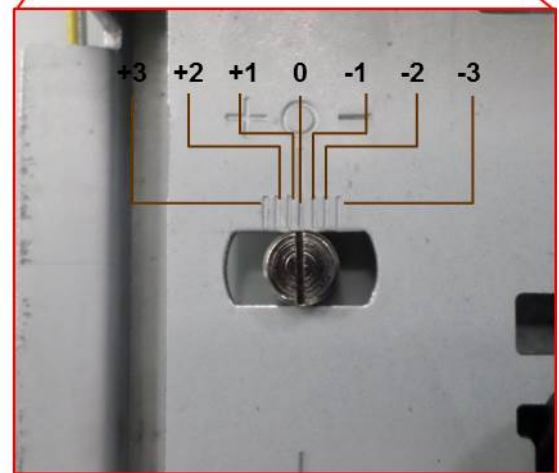
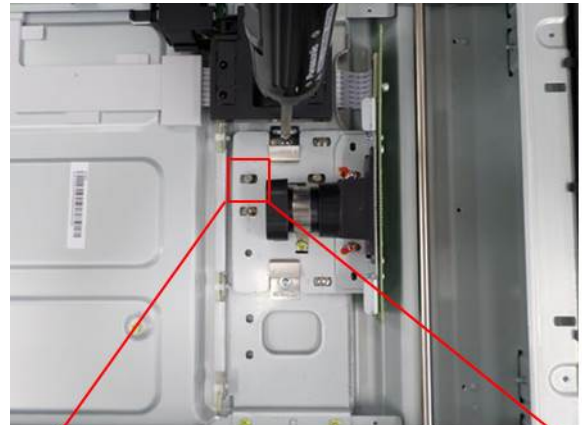


6. Remove and replace the Scan Imaging Unit. Check the lens number of the new Scan Imaging Unit.



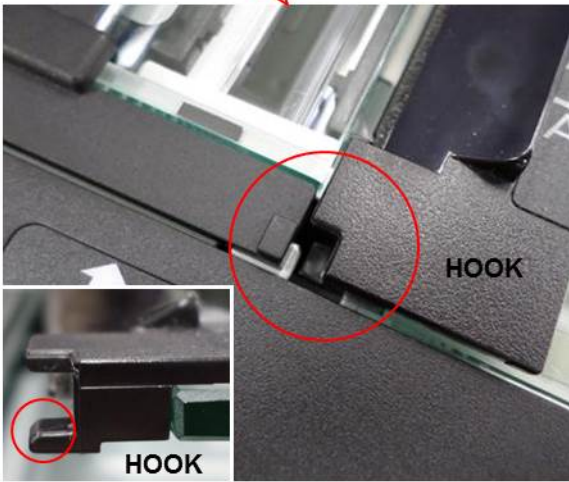
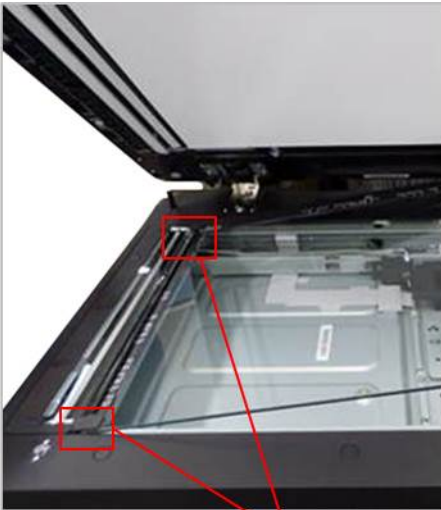
Lens Number

7. Match the value between the lens number and the scale. And then, assemble the 2 spring plates with screw.



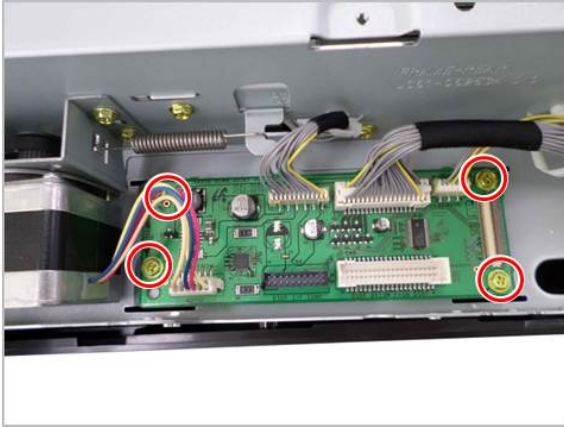
8. Reassemble the CCD shield.

9. Reassemble the scan glass.



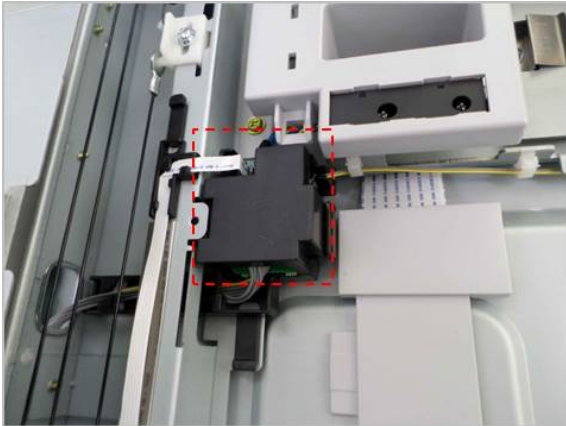
3.3.36.4. Scan Joint PBA

1. Unplug all harness. Remove 4 screws. And release the scan joint board.

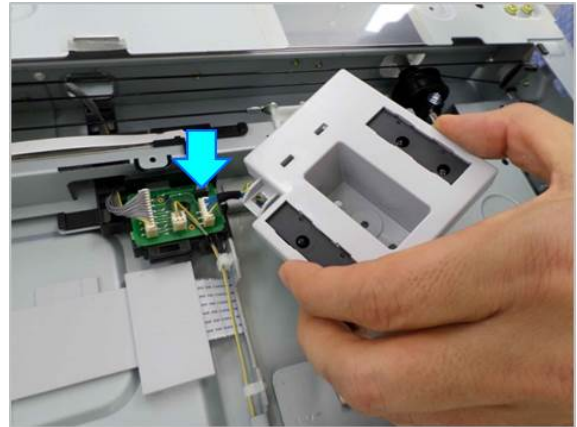


3.3.36.5. APS Sensor

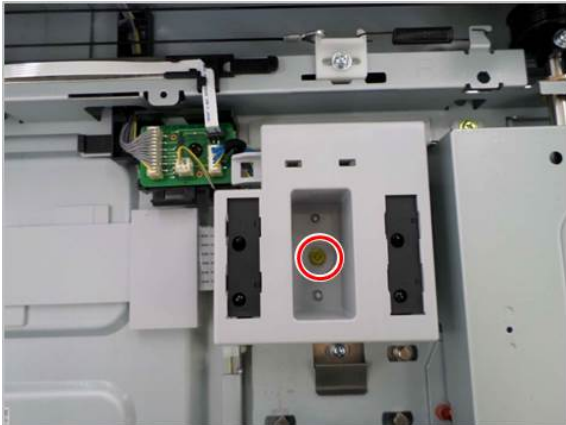
1. Remove the scan glass. (Refer to 3.3.36.1)
2. Remove the joint board cover.



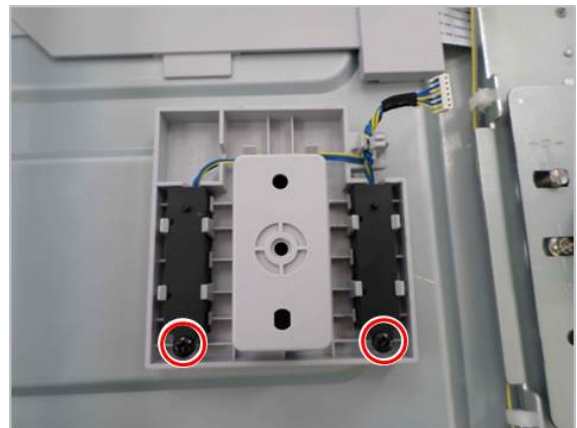
4. Unplug the harness.



3. Remove 1 screw.



5. Release the APS sensor after removing 2 screws.



3.3.37. ADF White Sponge

1. Open the ADF Unit. And then, detach the white sponge from the bottom of the ADF unit.

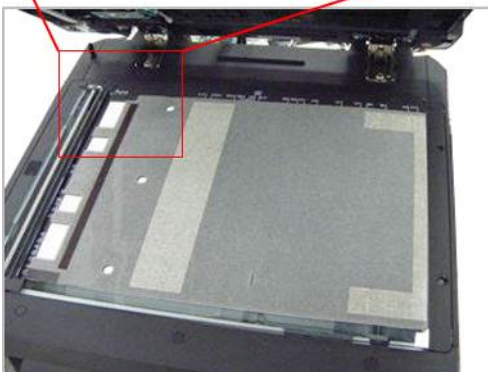
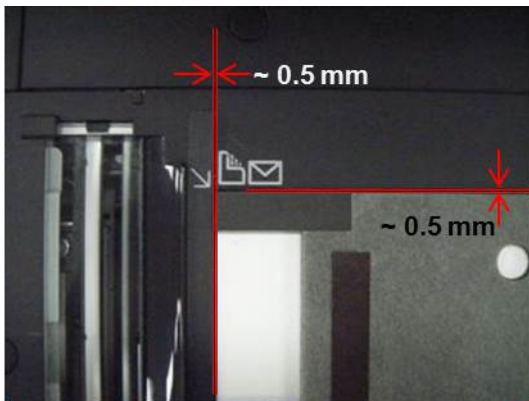


2. Place the white sponge on the platen glass and align it with top and left line.

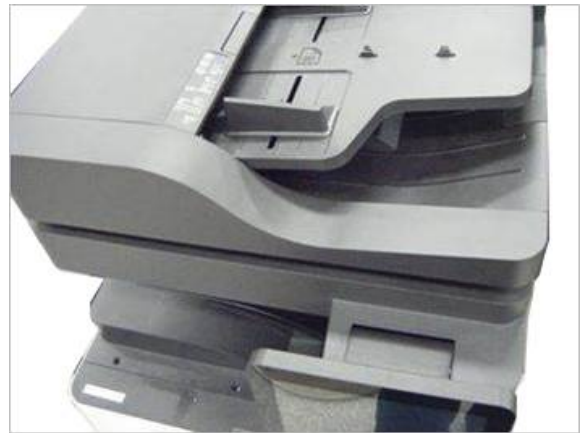


NOTE

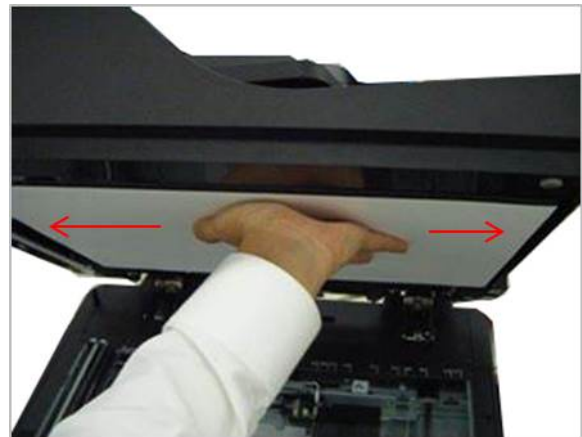
Recommendation of Gap : 0.5~1 mm



3. Close the ADF unit to attach the white sponge.



4. Open the ADF unit. And then, rub the surface of the white sponge.



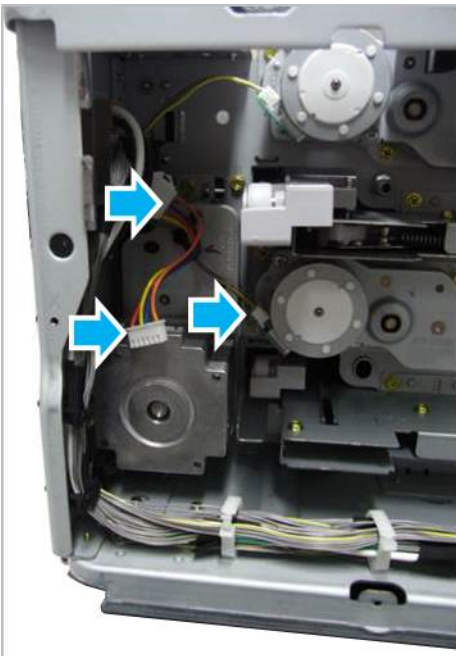
3.3.38. Double Cassette Feeder(DCF) Unit

3.3.38.1. DCF Feed Motor

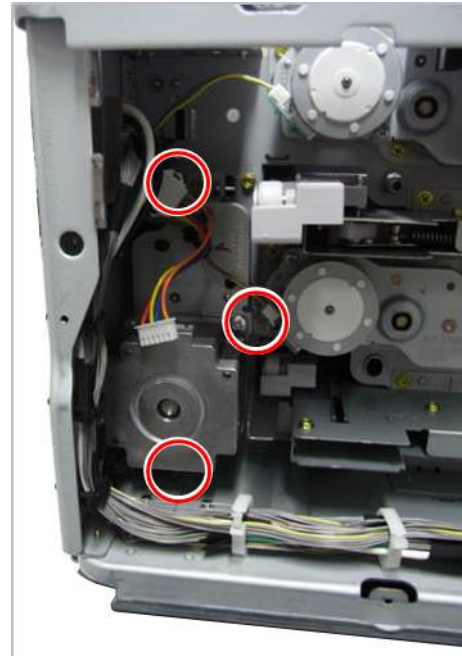
1. Remove 4 "CAP-SCREW". Remove 4 screws. And remove the COVER-REAR.



2. Unplug 2-motor connectors. Open the harness clamp.



3. Remove 3 screws. Then, remove the Feed Drive Unit.



4. Remove 2 screws. Then, replace the Feed Motor.

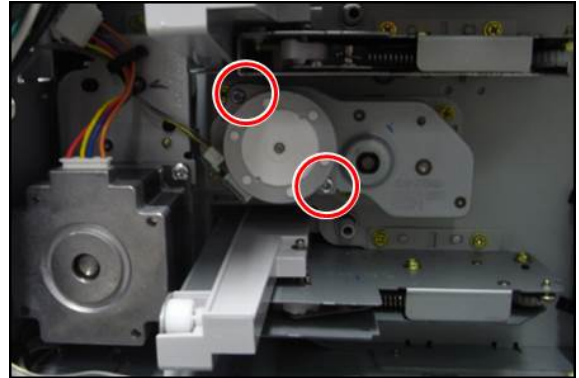


3.3.38.2. DCF Pick-up Motor

1. Remove 4 "CAP-SCREW". Remove 4 screws. And remove the COVER-REAR.



2. Unplug the motor connector. Remove 2 screws. And replace the DCF Pick-up Motor.

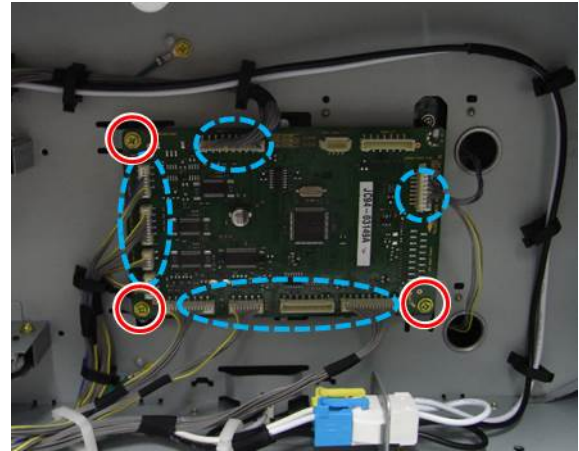


3.3.38.3. DCF PBA

1. Remove 4 “CAP-SCREW”. Remove 4 screws. And remove the COVER-REAR.



2. Unplug the 8 connectors. Remove 3 screws. And replace the DCF PBA.



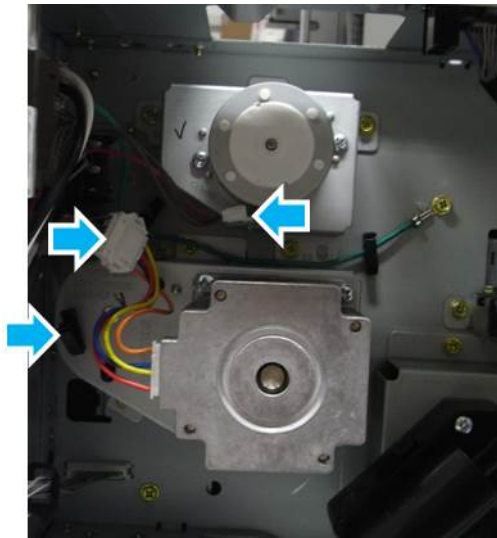
3.3.39. High Capacity Feeder(HCF) Unit

3.3.39.1. HCF Feed Motor

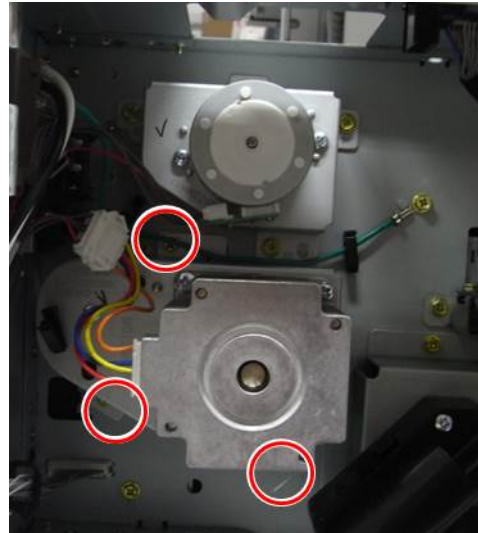
1. Remove 4 "CAP-SCREW". Remove 4 screws. And remove the COVER-REAR.



2. Unplug 2-motor connectors. Open the harness clamp.



3. Remove 3 screws. Then, remove the Feed Drive Unit.



4. Remove 2 screws. Then, replace the Feed Motor.

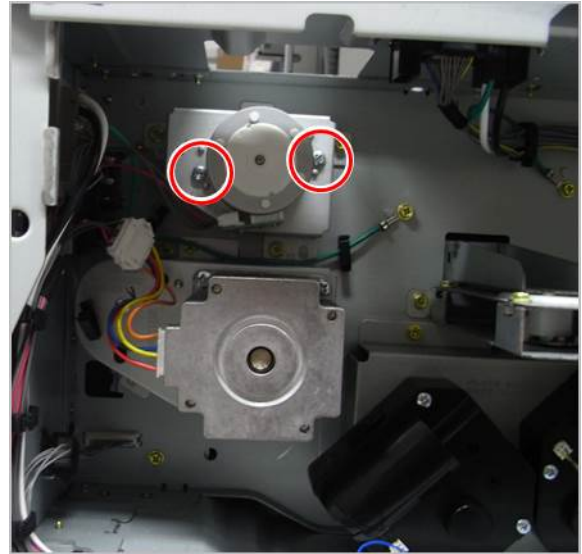


3.3.39.2. HCF Pick-up Motor

1. Remove 4 "CAP-SCREW". Remove 4 screws. And remove the COVER-REAR.



2. Unplug the motor connector. Remove 2 screws. And replace the HCF Pick-up Motor.

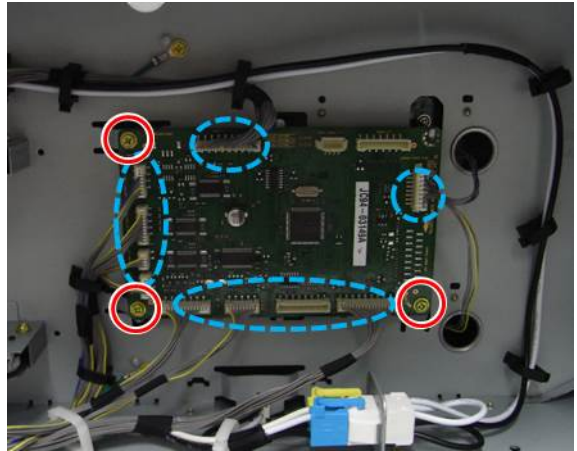


3.3.39.3. HCF PBA

1. Remove 4 “CAP-SCREW”. Remove 4 screws. And remove the COVER-REAR.



2. Unplug the 8 connectors. Remove 3 screws. And replace the HCF PBA.

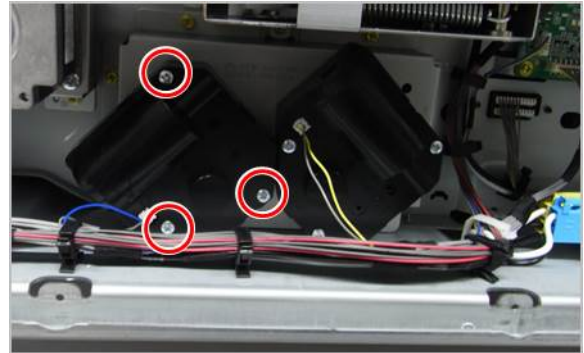


3.3.39.4. HCF Lift-up Motor

1. Remove 4 "CAP-SCREW". Remove 4 screws. And remove the COVER-REAR.



2. Unplug the connector. Remove 3 screws. And replace the Lift-up Motor.

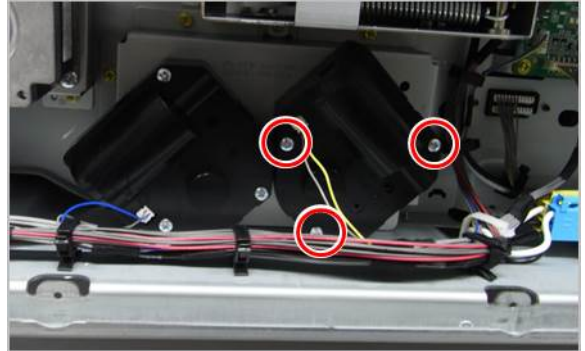


3.3.39.5. HCF Shaft Motor

1. Remove 4 "CAP-SCREW". Remove 4 screws. And remove the COVER-REAR.



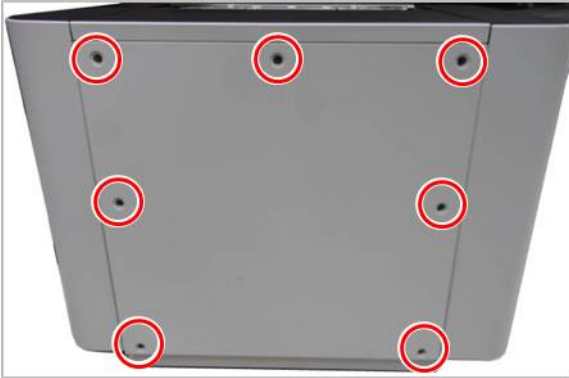
2. Unplug the connector. Remove 3 screws. And replace the Shaft Motor.



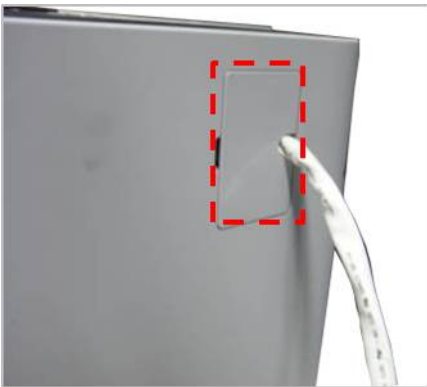
3.3.40. High Capacity Feeder Side Unit (Large Cassette Tray Unit)

3.3.40.1. LCT Feed Motor

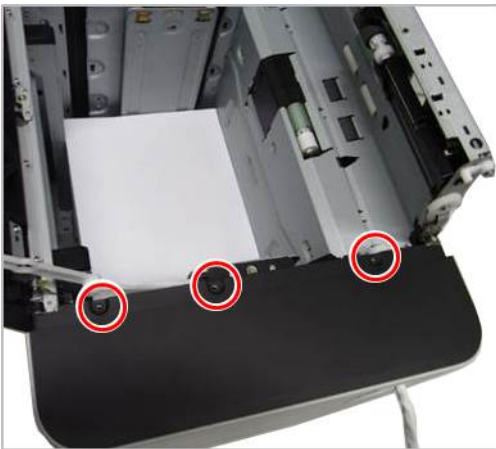
1. Remove 7 "CAP-SCREW". Remove 7 screws. And remove the COVER-RIGHT LCT.



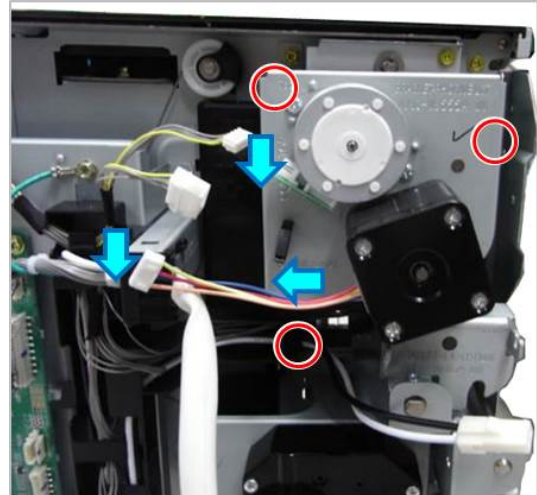
2. Remove the COVER-HARNESS LCT.



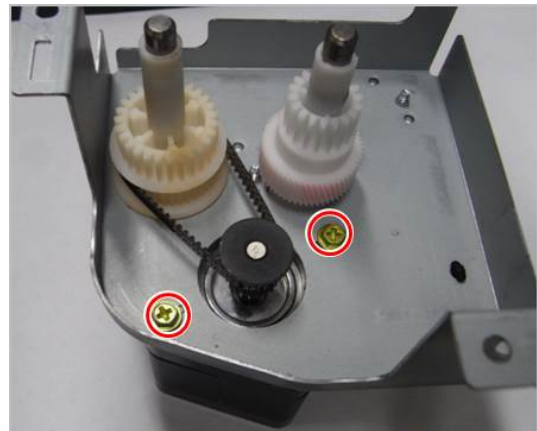
3. Remove 3 screws from the top side. Then, remove the COVER-REAR LCT.



4. Unplug 2 connectors. Open the harness clamp. Remove 3 screws. And, remove the DRIVE-PH.

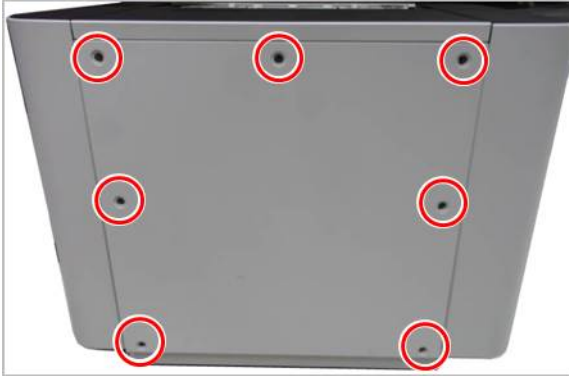


5. Remove 2 screws. Then, replace the Feed Motor.

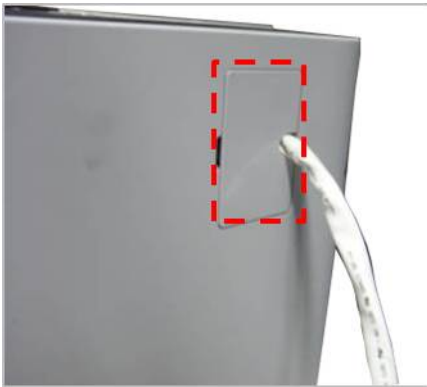


3.3.40.2. LCT Pick-up Motor

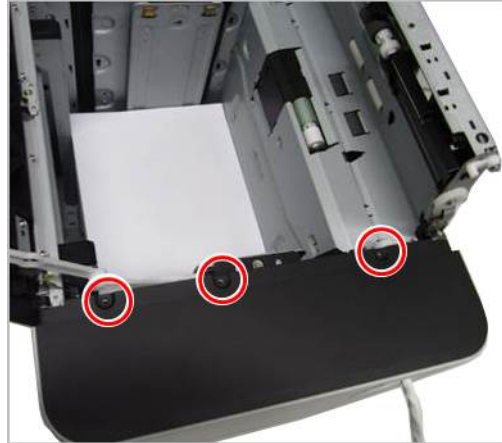
1. Remove 7 "CAP-SCREW". Remove 7 screws. And remove the COVER-RIGHT LCT.



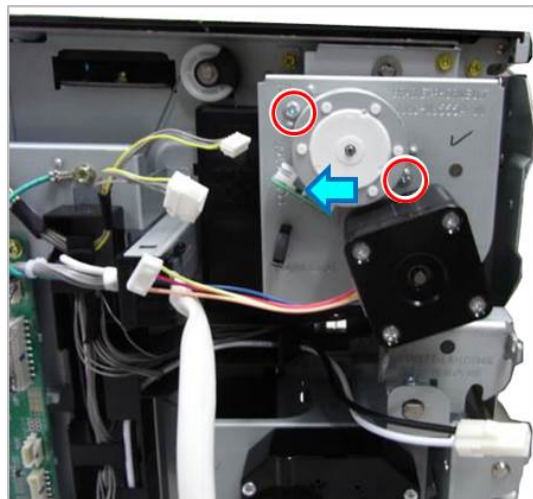
2. Remove the COVER-HARNESS LCT.



3. Remove 3 screws from the top side. Then, remove the COVER-REAR LCT.

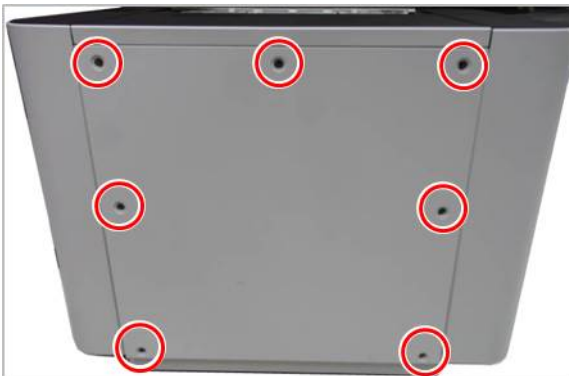


4. Unplug the motor connector. Remove 2 screws. And, replace the Pick-up Motor.

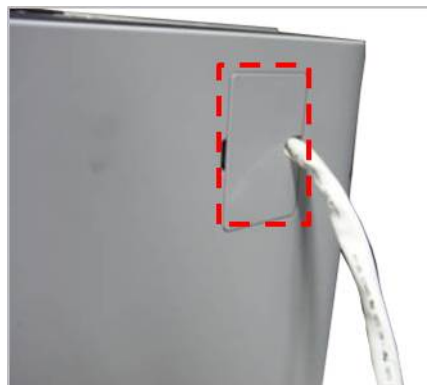


3.3.40.3. LCT PBA

1. Remove 7 "CAP-SCREW". Remove 7 screws. And remove the COVER-RIGHT LCT.

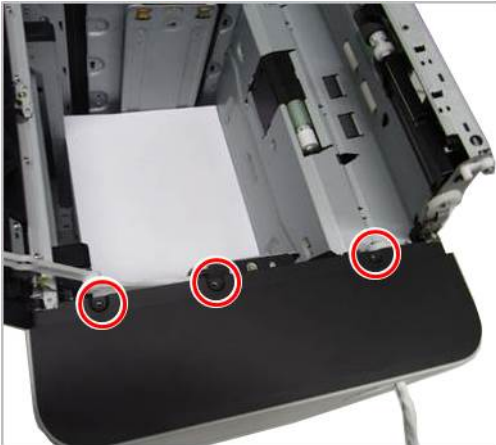


2. Remove the COVER-HARNESS LCT.

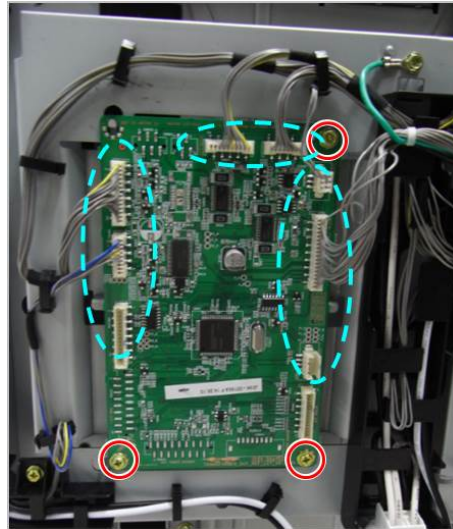


3. Disassembly and Reassembly

3. Remove 3 screws from the top side. Then, remove the COVER-REAR LCT.

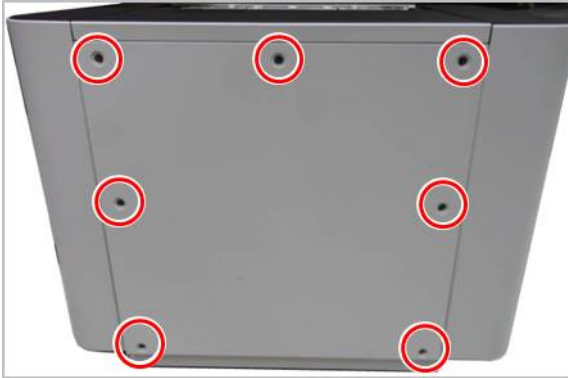


4. Unplug all connectors. Remove 3 screws. And, replace the LCT PBA.

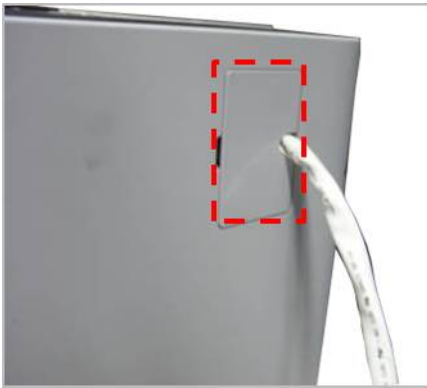


3.3.40.4. LCT Lift-up Motor

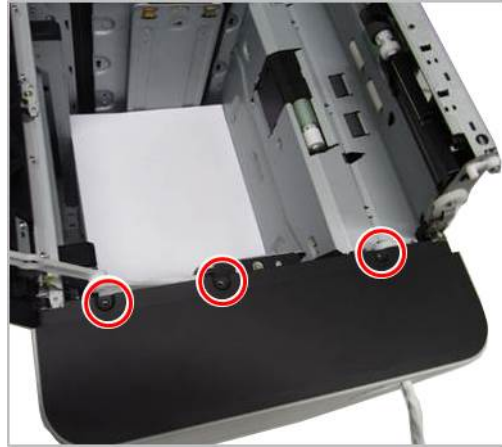
1. Remove 7 "CAP-SCREW". Remove 7 screws. And remove the COVER-RIGHT LCT.



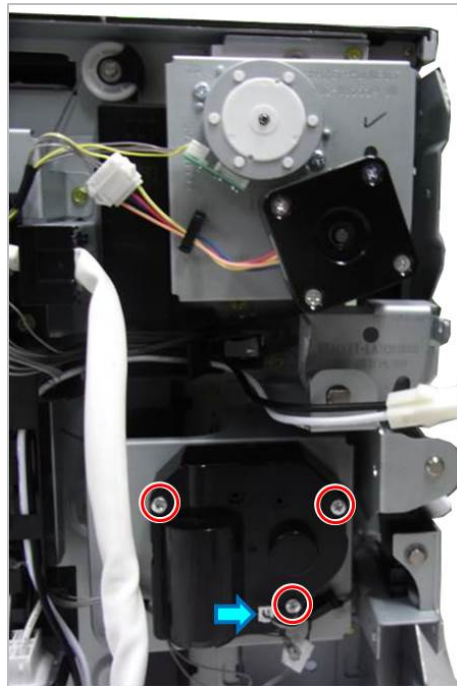
2. Remove the COVER-HARNESS LCT.



3. Remove 3 screws from the top side. Then, remove the COVER-REAR LCT.

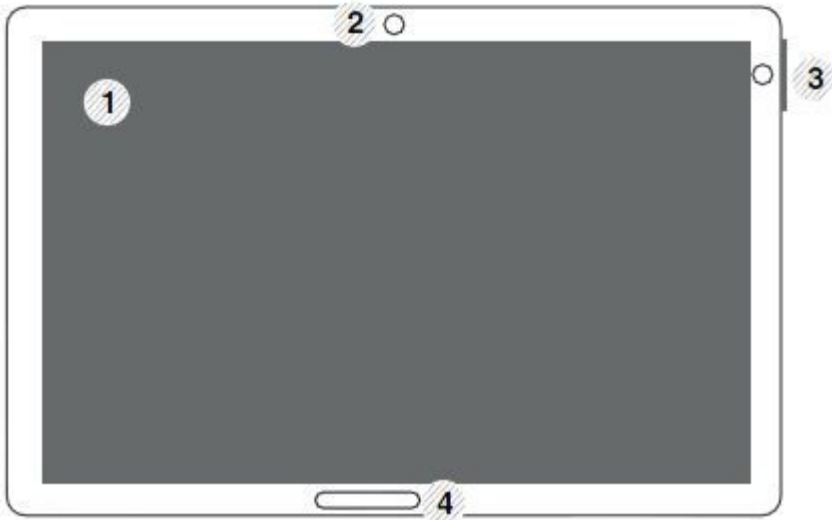


4. Unplug the motor connector. Remove 3 screws. And, replace the LCT Lift-up Motor.



4. Troubleshooting

4.1. Control panel



1	Display screen	Shows the current machine status and prompts during an operation. You can set menus easily using the display screen.
2	Motion sensor hole	Motion sensor.
3	(Power / Wakeup) button	Turn the power on or off. When the blue LED is on, the machine is powered on and you can use it. If you turn the machine off, press this button for more than two seconds. Then, confirmation window appears.
4	Power LED	Shows the power status of your machine.



CAUTION

When you use the display screen, use your finger only. The screen may be damaged with a sharpen pen or anything else.

4.1.1. Display screen and useful buttons



NOTE

For more information, refer to the user guide.

4.1.1.1. Menu navigation

Terms used in this manual

- **Tap**

Lightly touch items to select or launch them. For example:

- Tap the on screen keyboard to enter characters or text.
- Tap a menu item to select it.
- Tap an application's icon to launch the application.

- **Touch and Hold**

Activate on-screen items by a touch and hold gesture. For example:

- Touch and hold a widget on the home screen to move it.
- Touch and hold on a field to display a pop-up menu of options.

- **Swipe**

To swipe, lightly drag your finger vertically or horizontally across the screen. Use swipe when :

- Scrolling through the home screen or a menu

- **Panning**

To pan, touch and hold a selected icon, then move the device to the left or right to reposition it to another page.




For example:

- Move icons on your home screens or application menus to another page.




Main Screen




Command Keys

-  (Back) icon : Return to the previous screen, option or step.
-  (Home) icon : Display the main Home screen.
-  (Recent) icon : Display recently used apps.
- Quick launch : Excute applied settings.

Add quick launch

- 1) Tap  (Setting) icon > **Display** > **More Settings** > **Quick Launch** from the display screen.
- 2) Select the quick launch option.
 - None: Icon not shows.
 - Screen Capture (): Capture the current screen.
 - Applications: Move to all apps.
 - Search: Move to search screen.
- 3) Tap  (Back) icon or other settings menu.

4.1.1.2. Home Screen Overview

The main home screen is the starting point for many applications and functions, and it allows you to add items like application icons, shortcuts or widgets to give you instant access to information and applications. This is the default page and accessible from any menu by tap  icon . The display screen image in this user’s guide may differ from your machine depending on its options or models.

 **NOTE**

Depending on the authentication setting, the machine’s users have to enter an ID and a password. In this case, the machine can only be used by an authorized user who has registered an ID and a password on the machine. Contact the machine’s administrator.


Navigating Through the Home Screens

The machine initially has six home screens. If you like, you can place different applications on each of the home screens.

 **NOTE**

From the main Home screen, sweep the screen with your finger in either direction. The main home screen is located in the middle with three Home screens on each side.

Navigating through the application menus


This machine initially has four application menus available in main home screen. If you want to using all application menus and widgets, tap  icon. Then sweep the screen left or right to access the other menus and widgets.

**NOTE**

As you add applications, the number of Application menus that you have available will increase.

Accessing recently-used apps

You can find the recently-used apps easily.

- 1) Tap  icon from any screen to open the recently-used applications window.
- 2) Tap an icon to open the selected application.


4.1.1.3. Customizing your home screen

You can customize your Home screen.



Creating shortcuts

Shortcuts are different from widgets. While widgets can only launch applications, shortcuts can do this and activate features and actions.

[Adding a shortcut from the home screen]

- 1) Tap  icon to activate the main home screen.
- 2) Touch and hold the home screen, shows list. Then select your desired shortcut.
 - Set wallpaper
 - Home Screen : You can setting the wallpaper of Home Screen.
 - Login Screen : You can setting the wallpaper of Login Screen.
 - Home and Login Screen : You can setting the wallpaper of both.
 - Apps, XOA Apps, Widgets and Programs : Place apps, XOA apps, widgets, and program icons on home screen.
 - Folder : You can create folder on home screen.
 - Page : You can add page.

[Adding a shortcut from the Apps menu]

- 1) Tap  icon to activate the main home screen.
- 2) Tap  icon to display your current applications.
- 3) Scroll through the list and locate the desired application.
- 4) Touch and hold the application icon. This creates a shortcut to the application and shows the main home screen.
- 5) Drag the shortcut to a desired position on the screen and release it. To move to a different page, drag the shortcut to the edge of the screen until the screen scrolls to the desired page.

[Deleting a shortcut]

- 1) Touch and hold a shortcut until it becomes movable.

- 2) You can drag shortcut and place a shortcut in the trash, both items turn red.





NOTE

This action does not delete the shortcut, it just removes it from the current screen.

Adding and removing widgets

Widgets are self-contained applications that reside on your widgets tab and on any page of the home screen. Unlike shortcuts, a widget appears as an on-screen application.

[Adding a widget]

- 1) Tap  icon to activate the main home screen.
- 2) Tap  icon and tap the Widgets tap at the top of the screen.
- 3) Scroll through the list and locate your desired widget.
- 4) Touch and hold the widget icon. This creates a copy of the widget and opens the main home screen.
- 5) Drag the widget to the desired position on the screen and release it. To move the widget to a different page, drag it to the edge of the screen until the screen scrolls to the desired page.

[Removing a widget]



- 1) Touch and hold a widget until it becomes movable.
- 2) You can drag shortcut and place a shortcut in the trash, both items turn red.



NOTE

This action does not uninstall a widget, it only removes the copy from the home screen.

Moving icons in the Apps menu

- 1) Tap  icon to go to the main home screen.
- 2) Tap  icon to display your current applications.
- 3) Tap the Apps tab at the top of the screen if it is not already selected.
- 4) Drag the icon to a desired position on the screen and release it. To move to a different page, drag the icon to the edge of the screen until the screen scrolls to the desired page.

Changing the Wallpaper

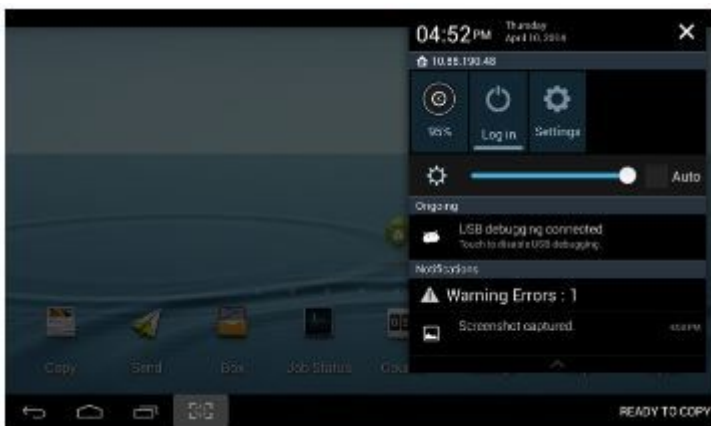
You can customize the Wallpaper (background) of your home screens.

- 1) From any home screen, touch and hold on an empty area of the screen. Then select Set wallpaper option.
- 2) Tap one of the following options in the window that appears.
 - Home Screen : Set the wallpaper for the Home Screen.
 - Login Screen : Set the wallpaper for the Login Screen.
 - Home and Login Screen : Set the wallpaper for both screens.

- 3) Tap one of the following options in the next window that appears.
 - Gallery: Select a wallpaper from photographs and images in the machine's gallery.
 - Live wallpapers: Select an animated image.
 - Wallpapers: Select from several built-in stationary images.
- 4) Select a wallpaper and tap OK, Set wallpaper, or Cancel.

4.1.1.4. Notification Bar

The notification bar includes a pull-down list to show information about processes that are running, toner status, darkness, recent notifications, and alerts.



NOTE

On the home screen, touch and hold the notification bar until the pull-down displays, then drag down vertically.

Accessing additional panel functions

In addition to notifications, this panel also provides quick and ready access to separate device functions. These can be quickly activated or deactivated by toggling them on or off. The following functions can either be activated (green) or deactivated (gray): ECO, Wi-Fi, NFC, Log in, Setup and darkness setting.

4.2. Understanding the LEDs

Understanding the status LED

The color of the status LED indicates the machine's current status.

Status		Description	
Off		<ul style="list-style-type: none"> The machine is off-line. The machine is in power save mode. When data is received, or any button is pressed, it switches to online automatically. 	
Ice-blue	On	The machine is on-line and can be used.	
	Blinking	Fax	The machine is sending or receiving faxes.
		Copy	The machine is copying documents.
		Scan	The machine is scanning documents.
	Print	<ul style="list-style-type: none"> When the status LED slowly blinks, the machine is receiving data from the computer. When the status LED blinks rapidly, the machine is printing data. 	
Red	On	<ul style="list-style-type: none"> The imaging unit is at the end of its lifespan. Remove the old imaging unit and install a new one. The toner cartridge life* is totally empty. Remove the old toner cartridge and install a new one. A paper jam has occurred. The door is open. Close the door. There is no paper in the tray. Load paper in the tray The machine has stopped due to a major error. Check the display message. The waste toner container is not installed in the machine, or full waste toner container. 	
	Blinking	<ul style="list-style-type: none"> A minor error has occurred and the machine is waiting for the error to be cleared. Check the display message. When the problem is cleared, the machine resumes its original task. The toner cartridge life, imaging unit, or waste toner container is near the end of its life. Order a new toner cartridge, imaging unit, or waste toner container. You can temporarily improve print quality by redistributing the toner. 	

4.3. Updating Firmware

This chapter includes instructions for updating the printer firmware. You can update the printer firmware by using one of the following methods :

- Update the firmware by using the printer control panel
- Update the firmware by using the network.

4.3.1. Updating from the Printer Control Panel

**WARNING**

Failure to follow these instructions could lead to corruption issues and prevent the proper operation of this printer. Follow all of the instructions carefully.

- 1) Download the firmware file from the Global Service Partner Network (GSPN) or Technical Support Portal (TSP) website.
- 2) Unzip the firmware file to a folder on your PC.
- 3) Copy the firmware file (*.hds or *.par) to a USB flash drive.
- 4) Plug the USB flash drive into the USB port.
- 5) Press the button on control panel in this order. (**Settings > Admin Settings > Application Management > Application > Install**)
- 6) The installation window will list the files on the USB drive. Touch the name of the firmware file to select it.
- 7) Press the “OK” button after selecting the file.
- 8) Once the installation is complete, “OK” button will be activated. Press “OK” button.

4.3.2. Updating from the Network



WARNING

Failure to follow these instructions could lead to corruption issues and prevent the proper operation of this MFP. Follow all of the instructions carefully.

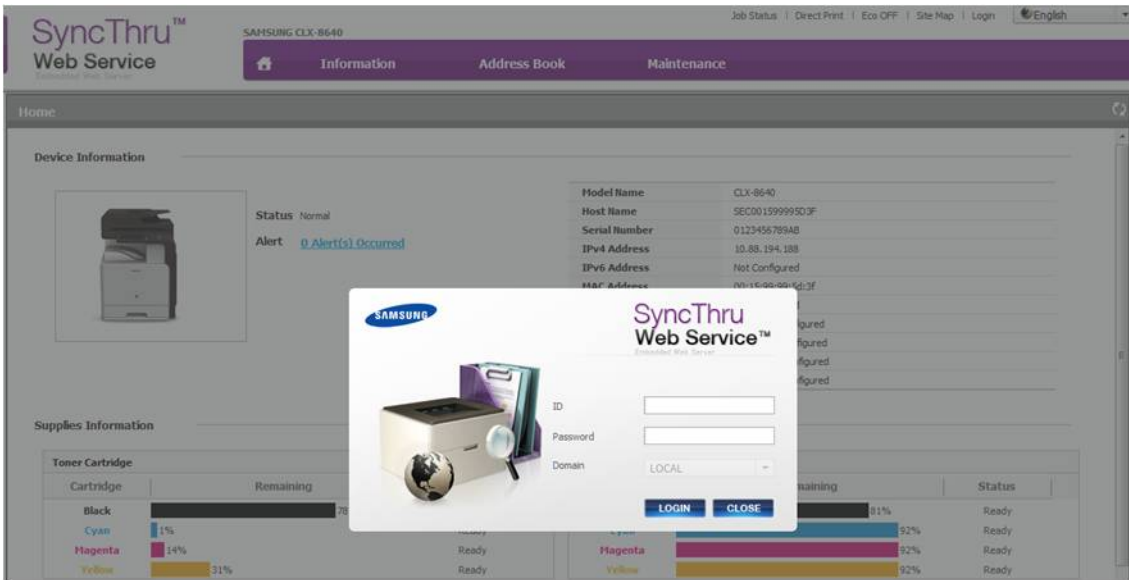
Perform the following procedure to update the MFP firmware from the network.

- 1) Go to the SyncThruWeb Service (SWS) main home page. Login as Admin in Sync Thru Web Service.

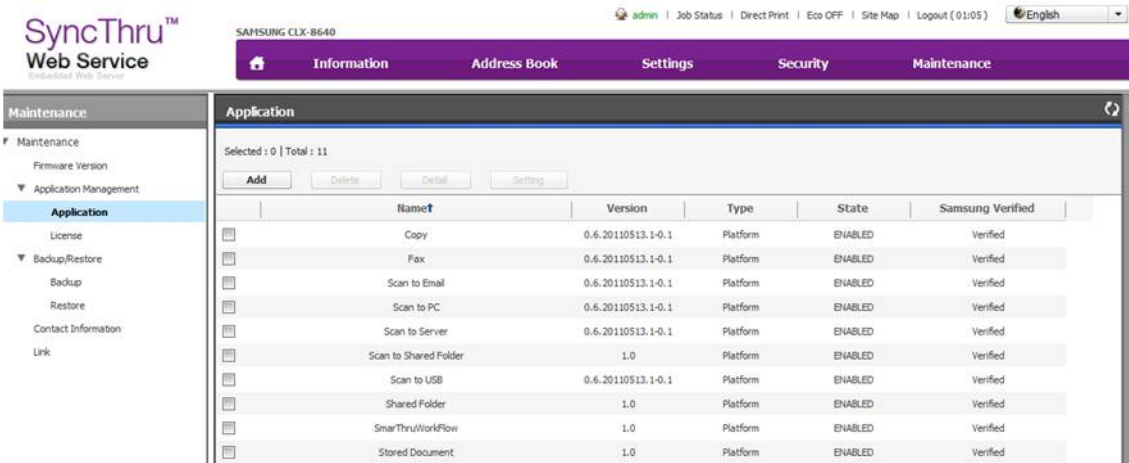


NOTE

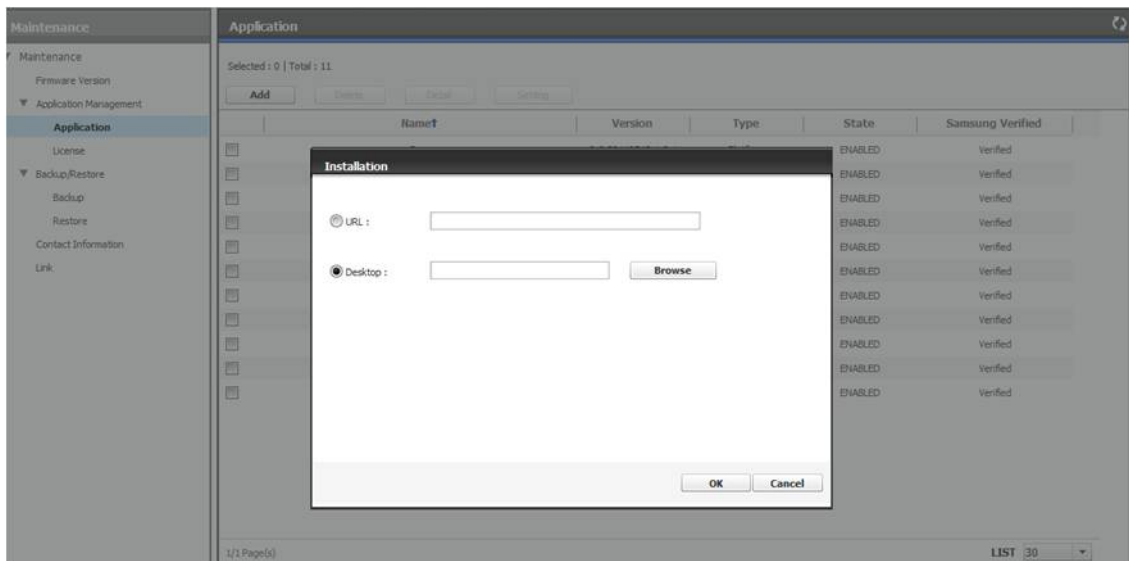
Login using the Administrator ID and Password established during initial machine setup.



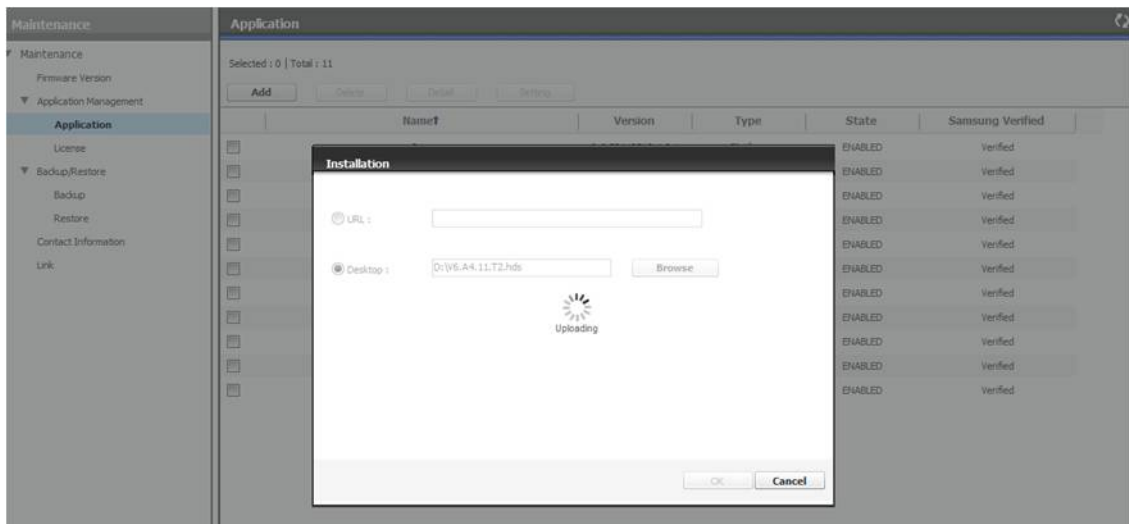
- 2) Click on **Maintenance > Application Management > Application > Add**.



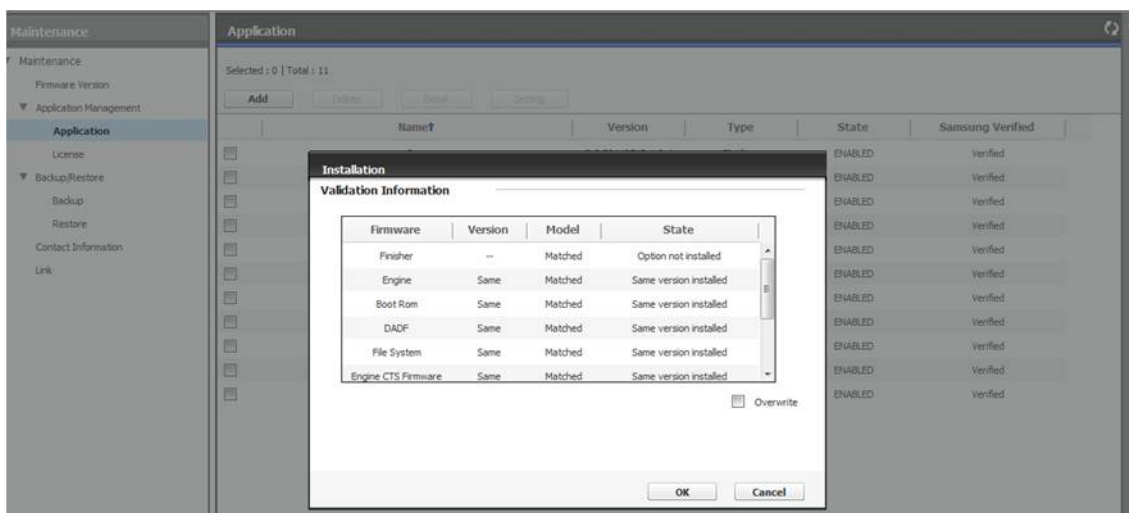
- 3) Choose installation file (F/W file) by browsing the file system and click [OK].



- 4) The uploading step will start.

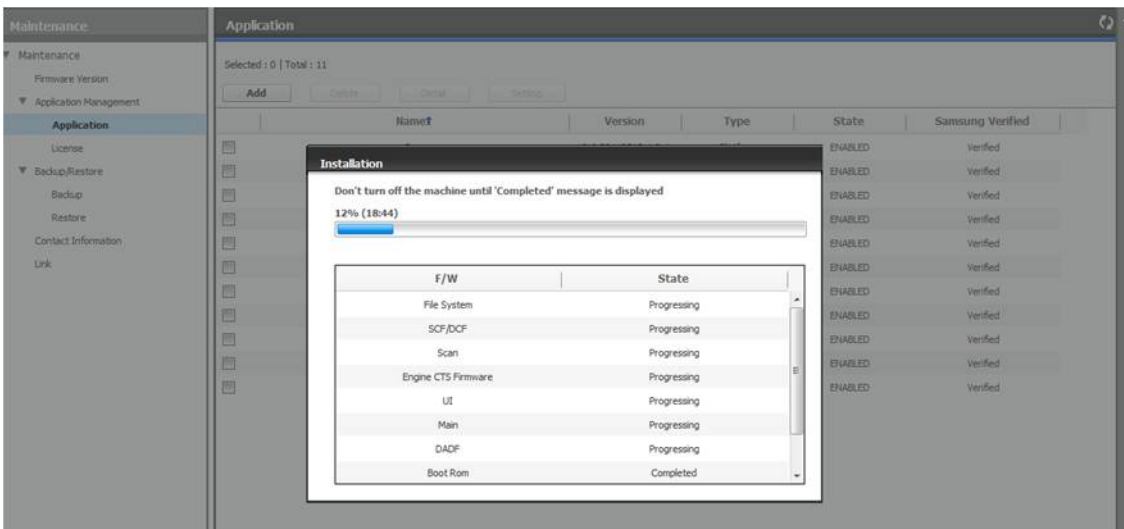


- 5) After uploading the f/w file on MFP, validation information will appear. Check the [Overwrite] check-box if you want to force the firmware update even if the firmware version to be installed is lower or same with the currently installed firmware in the device. Press [OK] to start the firmware upgrade.

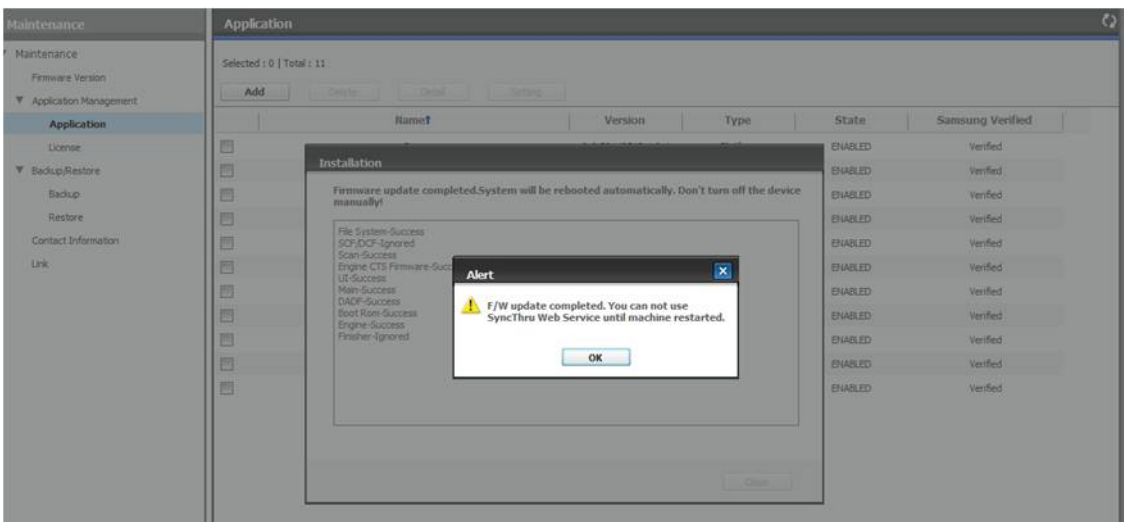


4. Troubleshooting

6) The firmware update will start.



7) Once the installation is complete, the machine power-off and power-on automatically.



4.4. JAM removal

4.4.1. Clearing original document jams

When an original jams while passing through the document feeder, a warning message appears on the display screen.

 **CAUTION**

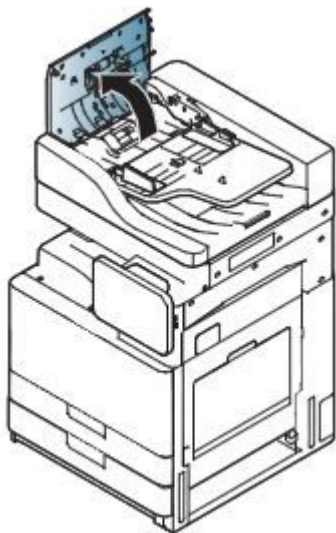
To avoid tearing the document, remove the jammed document slowly and gently.

 **NOTE**

To prevent document jams, use the scanner glass for thick, thin, or mixed paper-type originals.

Original paper jam in front of scanner

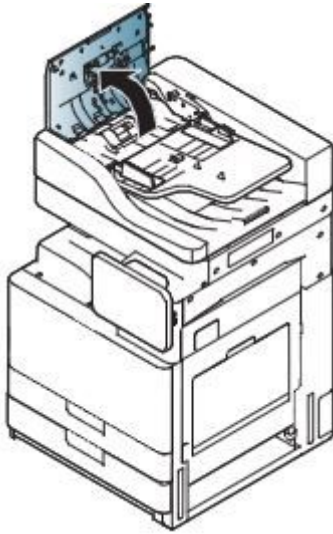
- 1) Remove any remaining pages from the ADF.
- 2) Open the ADF cover.
- 3) Gently remove the jammed paper from the ADF.



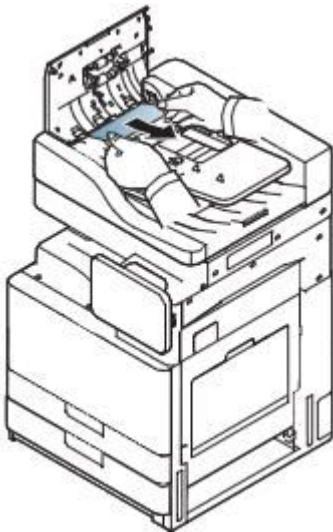
- 4) Close the ADF cover.

Original paper jam inside of scanner

- 1) Remove any remaining pages from the ADF.
- 2) Open the ADF cover.

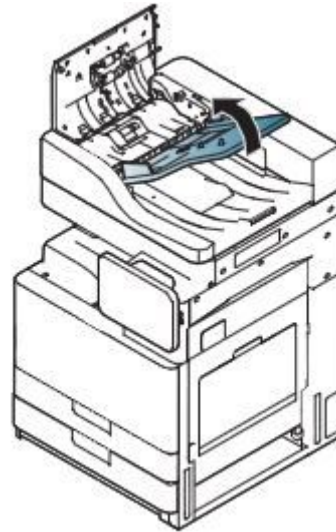


- 3) Gently remove the jammed paper from the ADF.

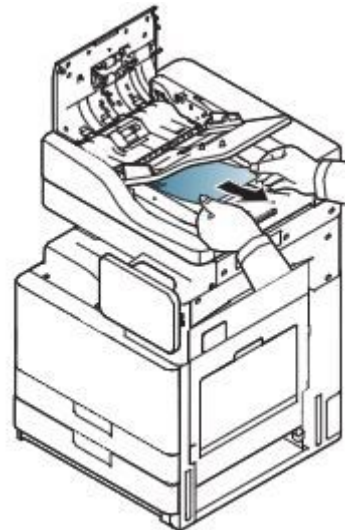


If you do not see paper in this area, go to the next step.

- 4) Open the input tray.



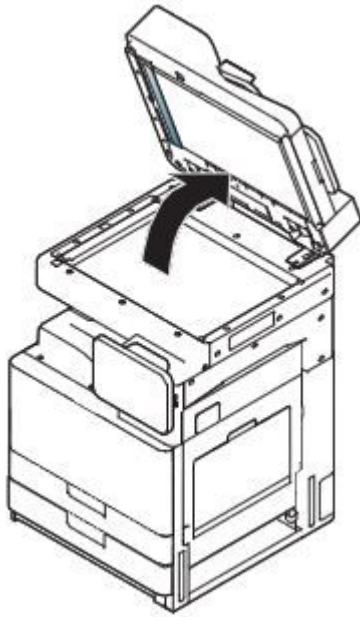
- 5) Pull the jammed paper gently out of the ADF.



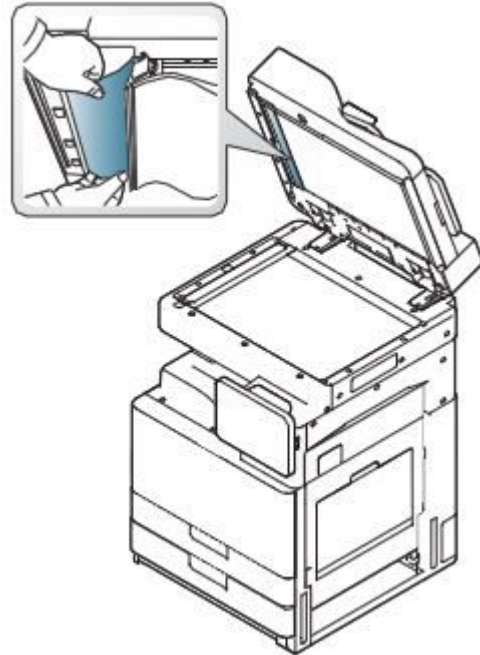
If you do not see paper in this area, go to the next step.

- 6) Close ADF cover and ADF input tray.

7) Open the ADF.



8) Grasp the misfed paper, and remove the paper from the feed area by carefully pulling it using both hands.



9) Close the ADF.

4.4.2. Clearing paper jams

When a paper jam occurs, a warning message appears on the display screen.

NOTE

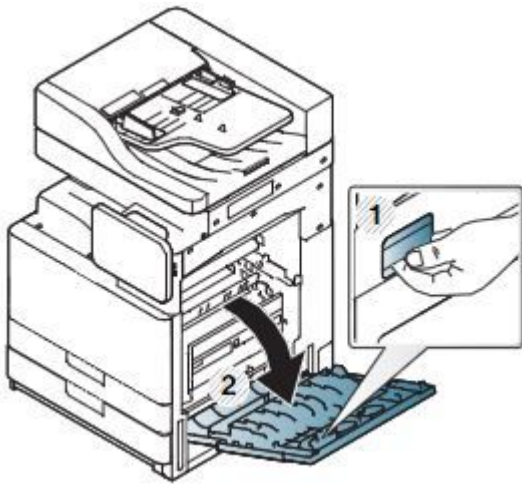
To avoid tearing the paper, pull the jammed paper out slowly and gently. Follow the instructions in the following sections to clear the jam.

Paper jam in tray 1, 2

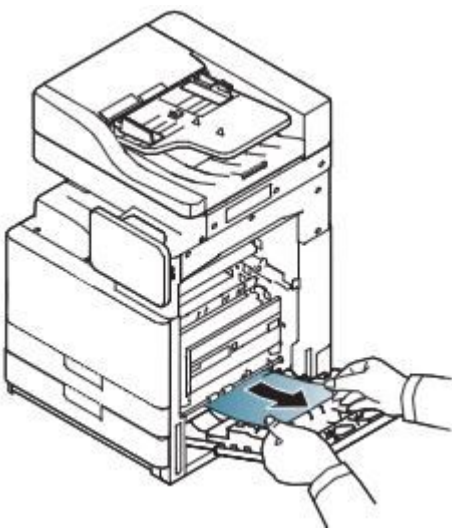
CAUTION

The fuser area is hot. Take care when removing paper from the machine.

- 1) Open the right door.

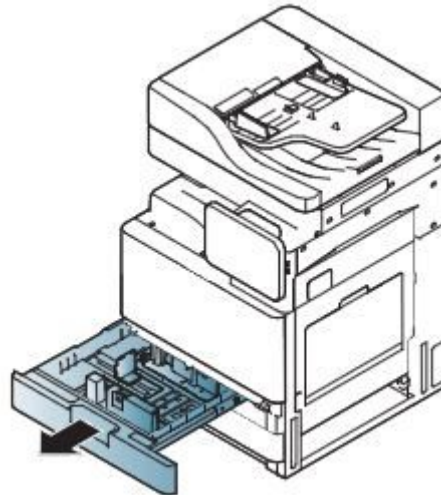


- 2) Remove the jammed paper by gently pulling it straight out.

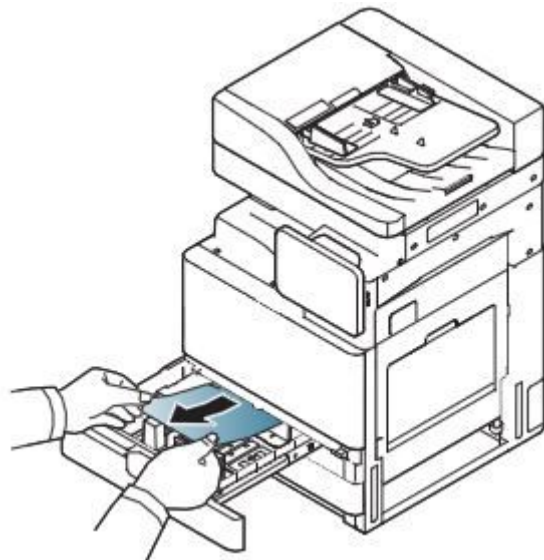


Close the right door. If you do not see paper in this area, go to the next step.

- 3) Pull out tray 1 or 2.



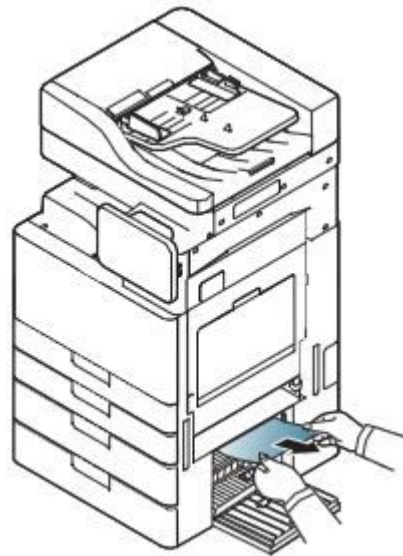
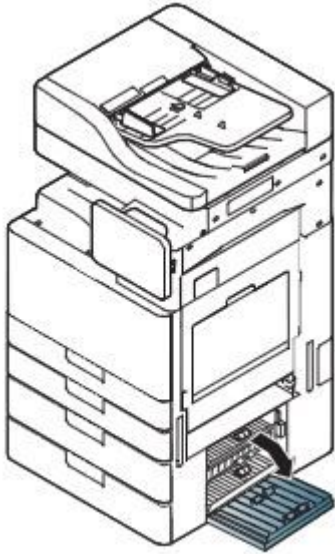
- 4) Remove the jammed paper from the machine.



- 5) Insert tray 1 or 2 back into the machine until it locks into place. Printing automatically resumes.

Paper jam in tray 3, 4

- 1) Open the right bottom door of the dual cassette feeder.
- 2) Remove the jammed paper by gently pulling it straight out.

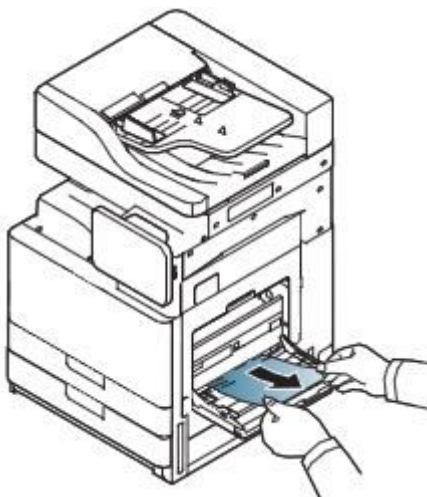


Close the dual cassette feeder right bottom door. If you do not see paper in this area, go to the next step.

- 3) Pull out tray 3 or 4.
- 4) Remove the jammed paper from the machine.
- 5) Insert tray 3 or 4 back into the machine until it locks into place. Printing automatically resumes.

Paper jam in the multi-purpose tray

- 1) If the paper is not feeding properly, pull the paper out of the machine.
- 2) Open and close the front door to resume printing.



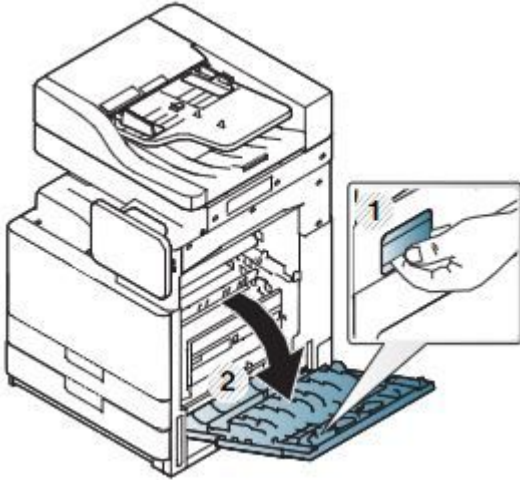
Paper jam inside the machine (Jam feed 1, Jam feed 2)



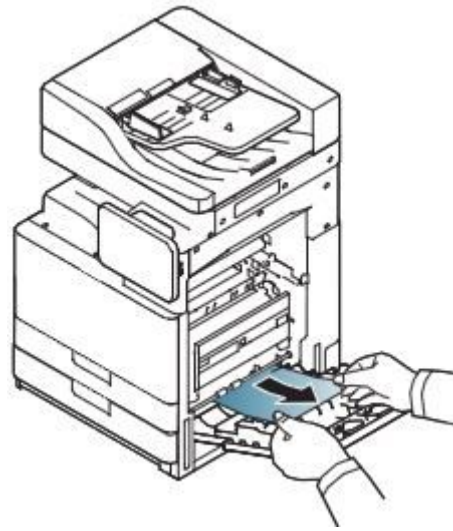
CAUTION

The fuser area is hot. Take care when removing paper from the machine.

- 1) Open the right door.



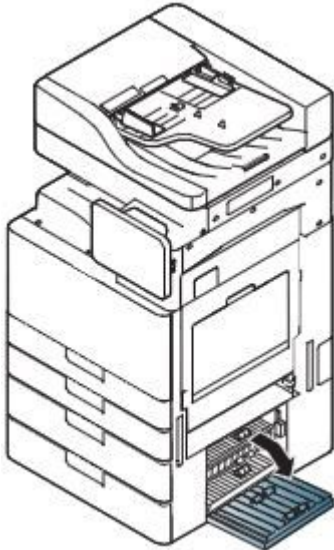
- 2) Remove the jammed paper by gently pulling it straight out.



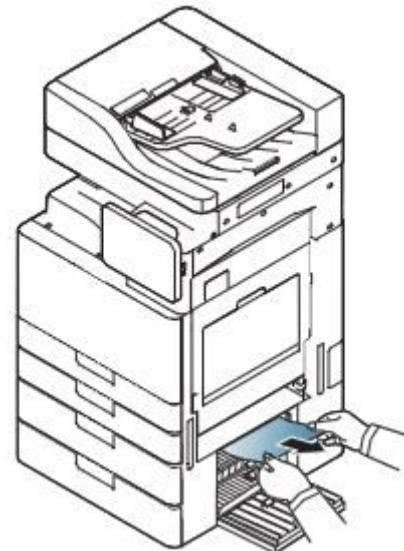
- 3) Close the right door.

Paper jam inside the machine (Jam feed 3, Jam feed 4)

- 1) Open the right bottom door of the dual cassette feeder.



- 2) Remove the jammed paper by gently pulling it straight out.



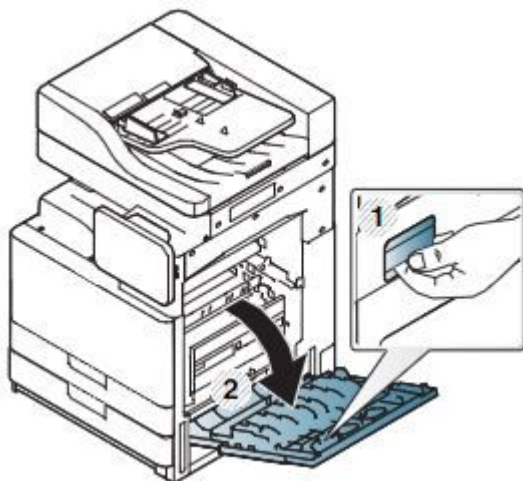
- 3) Close the dual cassette feeder right bottom door.

Paper jam inside the machine (Jam Registration)

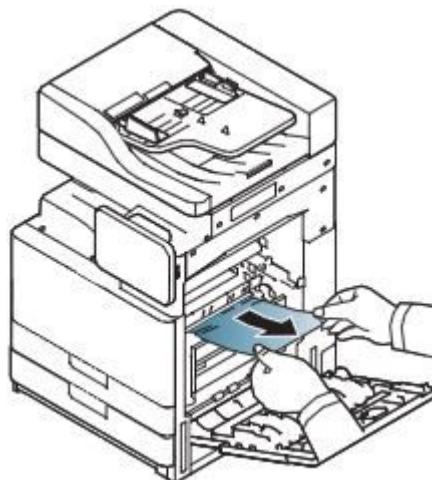
CAUTION

The fuser area is hot. Take care when removing paper from the machine.

- 1) Open the right door.



- 2) Remove the jammed paper by gently pulling it straight out.



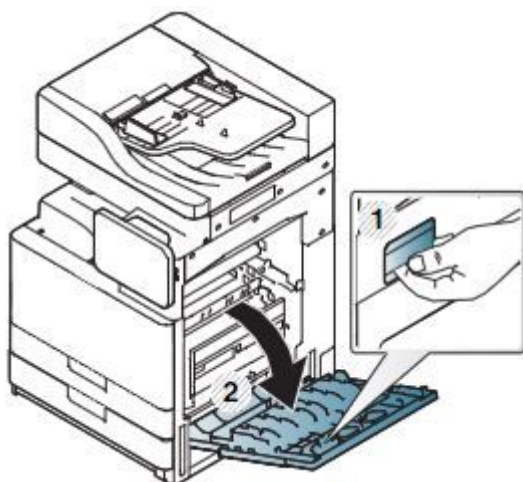
- 3) Close the right door.

Paper jam inside of the machine (Jam at Fuser out)

CAUTION

The fuser area is hot. Take care when removing paper from the machine.

- 1) Open the right door.



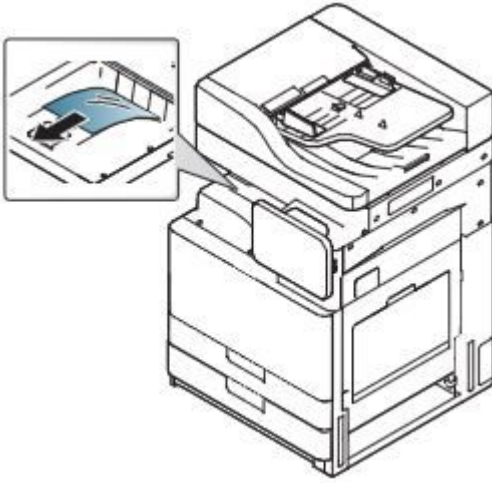
- 2) Open the fuser cover. Then remove the jammed paper by gently pulling it straight out.



- 3) Close the fuser cover and the right door.

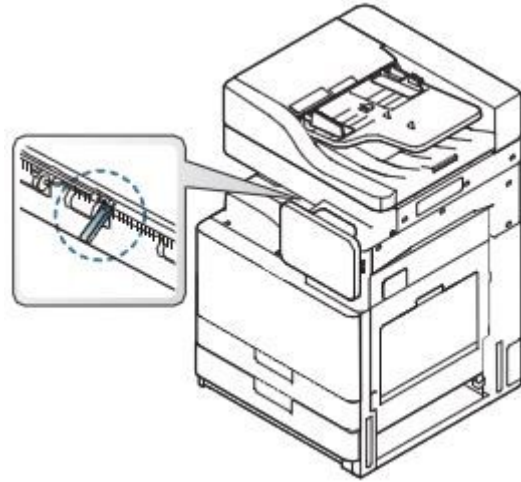
Paper jam in exit area (Jam Exit Face down)

1) Gently pull the paper out of the output tray.



2) Open and close the front door. Printing automatically resumes.

If this paper jam persists, make sure the bin full sensor is unfolded. The bin full sensor is located in front of the output tray.



4.5. Service Mode (Tech Mode)

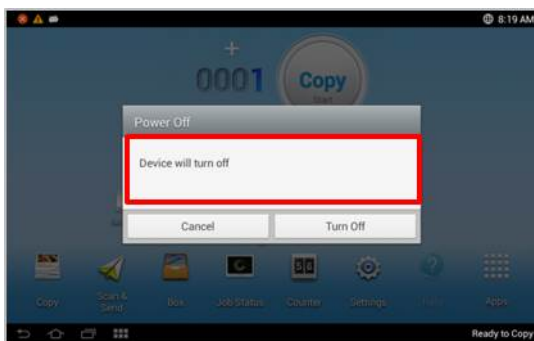
4.5.1. Entering the Service Mode

To enter the service mode,

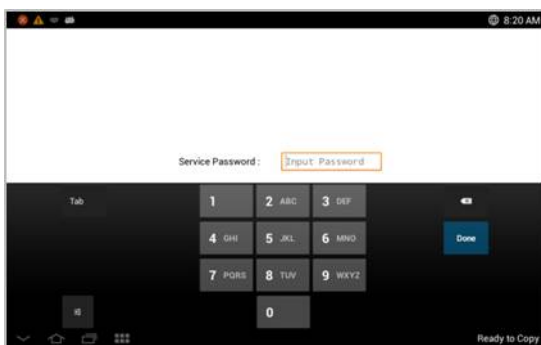
- 1) Press "Power button" until the pop up will be displayed.



- 2) Press pop-up area except "Cancel" and "Turn Off" button until the password window will be displayed.




- 3) Enter "1934" and press the "Done" button.



4.5.2. Service Mode Menu Tree

a) Information Tab

Level 1	Level 2	Level 3	Level 4	Page	
Information	General			P.4-26	
	Supply Status	Customer Replacement Unit	Toner	P.4-26	
		Field Replacement Unit			Imaging Unit
					Development Unit
					Waste Toner Container
					PTB Waste Toner Container
					Transfer
					Finisher
					 NOTE This menu shall be displayed only if finisher is installed.
					Fuser
					Roller
	ADF Roller				
	Software Version			P.4-27	
	Service Hours	Power On Hours		P.4-27	
		Power Save Hours			
	Fault Log			P.4-27	
	Print Reports	Supplies Information		P.4-27	
		Usage Counter			
		Error Information			
		Fax Protocol Dump (Line 1)			
Fax Protocol Dump (Line 2)					
Fax Diagnostics (Line 1)					
Fax Diagnostics (Line 2)					
Job Duty					
Auto Toning History					
Maintenance					
Toner Event					
Export Reports	RTF Format		P.4-28		
	XML Format				
	PDF Format				

b) Maintenance Counts Tab

Level 1	Level 2	Level 3	Level 4	Page
Maintenance Counts	Fault Count			P.4-29
	Jam Count	Print Jam	Pick-up Jam	P.4-29
			Feed Jam	
			Duplex Jam	
			Exit Jam	
			Finisher Jam *	
			Booklet Jam *	
		Scan Jam	Feed Jam	
			Regi Jam	
			Scan Jam	
			Exit Jam	
			Duplex Regi Jam	
			Duplex Scan Jam	
	Part Replacement Count	Toner Cartridge		P.4-30
		Imaging Unit		
		Development Unit		
		Transfer		
		Fuser		
		Roller		
ADF Roller				

**NOTE**

* This menu shall be displayed only if finisher is installed.

c) Diagnostics Tab

Level 1	Level 2	Level 3	Level 4	Page	
Diagnostics	Engine Diagnostics	Engine NVM Initialization		P.4-31	
		Engine NVM Read/Write		P.4-31	
		Engine Test Routines		P.4-31	
	Fax Diagnostics	Fax NVM Read/Write		P.4-40	
		Fax Test Routines		P.4-42	
	Scanner Diagnostics	Shading Test	Shade and Print Report		P.4-45
			Print Last Shade Report		
			Shade and Print Report (ADF)		
			Print Last Shade Report (ADF)		
		Scanner/ADF NVM Read/Write		P.4-46	
		Scanner/ADF Test Routines		P.4-47	
	Adjustment	Print Adjustment	Automatic Adjustment		P.4-49
			Image Position		P.4-50
			Print Test Patterns		P.4-50
		Copy Adjustment	Image Position		P.4-51
		Scan Area Adjustment	Automatic Adjustment		P.4-52
			Manual Adjustment		P.4-53
		ADF Adjustment	Automatic Adjustment		P.4-54
			Manual Adjustment		P.4-55
	Image Management	Auto Tone Adjustment Activation	Normal		P.4-57
Full					
Print Test Patterns	Skew Pattern		P.4-57		

d) Service Functions

Level 1	Level 2	Level 3	Level 4	Page
Service Functions	Main Memory Clear			P.4-58
	Hard Disk Maintenance	Device Configuration Data Clear		P.4-58
		Temporary & Spool Data Clear		
		User Saved Data & Log Clear		
		All Saved Data Clear		
		HDD Encryption		
	Count Setting of Large Pages	1 Count Up		P.4-58
		2 Count Up		
	Network Port	Enable Telnet		P.4-59
		Enable OSGI		
		Enable Samba		
		Enable SSH		
		Enable ADB		
	Debug Log	Off		P.4-59
		Job Status		
		Details		
		Activation for Boot Logs	Off/ On	
	Capture Log	All		P.4-59
		Period	Start Date / End Date	
	Network Packet Capture	Packet Capture	Start/Stop	P.4-60
		Capture File Download	Export	
		Capture File Delete	Clear	
	System Recovery	SYS		P.4-61
ALL				
TR Control Mode	T2 Control Mode	Paper Group / Paper Side / Paper Direction / T2 PWM	P.4-63	
Clear System Cache			P.4-64	
Hibernation	ON		P.4-64	
	OFF			
	CREATE NEW			
Paper Low Warning Message	Off		P.4-64	
	On			
Part Replacement Alert	Imaging Unit	Off / On	P.4-64	
	Development Unit	Off / On		
	Fuser	Off / On		
FDI	Type A		P.4-65	
	Type B			

4. Troubleshooting

Level 1	Level 2	Level 3	Level 4	Page	
		Type C			
	EIUL	Off		P.4-65	
		On			
	SFE	SFE Code List		P.4-66	
		Export			
		Import			
		Print			
		OK			
	Dealer ID	Off		P.4-67	
		On			Continent
					Branch
					Dealer ID
	Envelope Rotate	Off		P.4-67	
		90 degrees			
		180 degrees			

4.5.3. Information

4.5.3.1. General

- **Information > General**

This menu displays the following informations.

- Machine Serial Number
- Ethernet IP Address
- Ethernet Mac Address
- Optional Ethernet IP Address
- Optional Ethernet Mac Address
- Total Printed Impressions Machine
- Installed Date & Time

4.5.3.2. Supply Status

Customer Replacement Unit (CRU)

- **Information > Supply Status > Customer Replacement Unit**

This menu displays the machine's customer replacement unit status. Users can select one item in the list to check the information of the selected unit.

Field Replacement Unit (FRU)

- **Information > Supply Status > Field Replacement Unit**

This menu displays the machine's field replacement unit status. Users can select one item in the list to check the information of the selected unit.

In this menu, there are five columns : Item, Threshold, Status, Count, Maximum Life.

- Status : This shows the current status of the selected item.
 - OK : The current count is smaller than the default warning value
 - Check : The current count is bigger than default warning value
 - OFF : The current count exceeds the max life.
- Count : This shows the current count of the selected item.
- Maximum life : This shows the max capacity of the selected item.

The technician can edit the default warning value within the given threshold.

Selecting some items will enable the reset button to reset the current count to 0 after replacing the unit.

4.5.3.3. Software Version

- **Information > Software Version**

This menu displays all the version of the software installed in the system in detail.

4.5.3.4. Service Hours

- **Information > Service Hours**

This menu displays two items, “Power on Hours”, “Power Save Hours”.

- Power on Hours : It indicates the hours of system power on since the first booting of the system.
- Power Save Hours : It indicates the hours of system power save since the first booting of the system.

4.5.3.5. Fault Log

- **Information > Fault Log**

This menu displays faults occurred while the system was operating.

Pressing clear button will clear all the save fault log of the system.

4.5.3.6. Print Reports

- **Information > Print Reports**

This menu displays reports which that can be printed from the system. The following reports will be available to print.

- Supplies Information
- Usage Counter
- Error Information
- Fax Protocol Dump (Line 1)
- Fax Protocol Dump (Line 2)
- Fax Diagnostics (Line 1)
- Fax Diagnostics (Line 2)
- Job Duty
- Auto Toning History
- Maintenance
- Toner Event

Auto Toning History

- **Information > Print Reports > Auto Toning History**



NOTE

TRC means “Tone Reproduction Curve”.

This report shows history of execution of TRC control. TRC control preserves color consistency against changes in supplies resulting from long-time use and environmental change. The purpose of the history report is to check if TRC control works normally.

- If TRC control performs normally, “Pass” count must be non-zero value and “Fail” count must be zero.
- If “Fail” count is not zero, the image density sensor needs to be checked.

4.5.3.7. Export Reports

- **Information > Export Reports**

This menu exports report to usb stick. Configuration, Error Information, Supplies Information, Usage Counter Reports are exported as the form of selected format.

4.5.4. Maintenance Counts

4.5.4.1. Fault Count

- **Maintenance Counts > Fault Count**

This menu displays the fault counts of the system. Technician can select one fault group and press “OK” to see detailed fault descriptions. The detailed fault description window displays engine diagnostic code and descriptions of the fault along with the number of occurrences.

The following list shows the group of the faults defined for the system.

A1 Motor	H2 Output (Bins) System	S3 Scan System
A2 Fan	M1 Input (Trays) System	S5 UI System
A3 Sensor	M2 Media Path System	S6 Network System
C1 Toner Cartridge Unit	M3 Output (Bins) System	S7 HDD System
C3 Imaging Unit	M4 Auto Document Feeder System	U1 Fusing Unit
C7 Fusing unit	S1 Video System	U2 LSU Unit
H1 Input (Trays) System	S2 Engine System	

4.5.4.2. Jam Count

- **Maintenance Counts > Jam Count**

This menu displays the jam Counts of the system. Users can select one jam group, which indicates the location of jams, and press “OK” to see a detailed jam location along with the occurrence of the jam.

The following table shows the jam groups defined for the system :

Level 1	Level 2
Print Jam	Pick-up Jam
	Feed Jam
	Duplex Jam
	Exit Jam
Scan Jam	Feed Jam
	Regi Jam
	Scan Jam
	Exit Jam
	Duplex Regi Jam
	Duplex Scan Jam
	Duplex Exit Jam

4.5.4.3. Part Replacement Count

- **Maintenance Counts > Part Replacement Count**

This menu displays the replacement Counts for the system parts. Users can select one part group and press “OK” to see the exact name of the part along with the occurrence of the replacement.

The following table shows groups of the replaceable parts of the system.

Unit	Item	Sensing Method
Toner Cartridge	Toner (Black)	Auto Sensing
Imaging Unit	Imaging Unit (Black)	Auto Sensing
Fuser	Fuser	Auto Sensing
Transfer	Transfer Roller	Count Clear
Roller	Tray 1 Roller	Count Clear
	Tray 2 Roller	Count Clear
	Tray 3 Roller	Count Clear
	Tray 4 Roller	Count Clear
ADF Roller	ADF Roller	Count Clear

4.5.5. Diagnostics

4.5.5.1. Engine Diagnostics

Engine NVM Initialization

- **Diagnostics > Engine Diagnostics > Engine NVM Initialization**

This menu initializes all engine NVM value to the default.

Engine NVM Read/Write

- **Diagnostics > Engine Diagnostics > Engine NVM Read/Write**

Purpose	To change a configuration value for engine firmware.
Operation Procedure	When the main “NVM Read/Write” window displays, users can navigate through the list of codes with descriptions and saved values. Users can also input a code to the text box to find a configuration value directly. After selecting one value, pressing “Edit” button will open an interface for user input.

Code	NVM Description	Meaning	Default	Max/ Min
103-0031	Regi Curl Length	Buckle Control : Regi On Curl	10	16 / 4
103-0032	Duplex Regi Curl Length	Buckle Control : Duplex Regi On Curl (x1)	10	16 / 4
103-0038	Regi Curl Fast Speed Length	Buckle Control : Regi On Curl (Fast Speed)	10	16 / 4
109-0000	StandBy Temperature offset	Target Temperature during standby mode.	10	15 / 5
109-0005	Warmup Temperature offset	Target Temperature during warmup Mode.	10	15 / 5
109-0055	Thin Temperature offset	Media type offset for fuser roll temperature.	10	15 / 5
109-0065	Plain Temperature offset	Media type offset for fuser roll temperature.	10	15 / 5
109-0070	Bond Temperature offset	Media type offset for fuser roll temperature.	10	15 / 5
109-0071	Heavy Temperature offset	Media type offset for fuser roll temperature.	10	15 / 5
109-0072	Extra Heavy Temperature offset	Media type offset for fuser roll temperature.	10	15 / 5
109-0080	Transparency Temperature offset	Media type offset for fuser roll temperature.	10	15 / 5
109-0100	Envelopes Temperature offset	Media type offset for fuser roll temperature.	10	15 / 5
109-0110	Labels Temperature offset	Media type offset for fuser roll temperature.	10	15 / 5
109-0130	Thick Temperature Offset	Media type offset for fuser roll temperature.	10	15 / 5
109-0131	Recycled Temperature offset	Media type offset for fuser roll temperature.	10	15 / 5

Engine Test Routines

- **Diagnostics > Engine Diagnostics > Engine Test Routines**

Purpose	To perform test routines for the engine.
Operation Procedure	When the main Engine Test Routines window displays, users can navigate through the list of routines that display along with their descriptions. Users can also directly input an EDC code to the text box to find a routine. Users can select a maximum of 3 routines at the same time. After selecting one or multiple routines, pressing the “OK” button will open the test window that lists selected routines. Users can start/stop a desired test routine.

Code	Display	Meaning
100-0044	OPC Motor K	Black OpC BLDC Motor is On/Off
100-0049	K OPC Motor Ready	Detect if Black OPC BLDC Motor runs at normal speed
100-0140	Duplex Motor Forward	Duplex Motor Forward On/Off
100-0141	Duplex Motor Forward Slow	Duplex Motor Forward Slow On/Off
100-0142	Duplex Motor Forward Slowest	Duplex Motor Forward Slowest On/Off
100-0160	Duplex Fan1 Run	Start/Stop Duplex Fan1 run
100-0180	Dupelx Fan1 Run Ready	Detects if Duplex Fan1 runs at normal speed.
100-0200	T1 Elevating Motor	T1 Elevate Motor On/Off
100-0210	T2 Elevating Motor	T2 Elevate Motor On/Off (Optional)
100-0220	T3 Elevating Motor	T3 Elevate Motor On/Off (Optional)
100-0230	T4 Elevating Motor	T4 Elevate Motor On/Off (Optional)
100-0231	T5 Elevating Motor	T5 Elevate Motor On/Off (Optional)
100-0241	Waste Toner Led	Waste Toner Led On/Off
100-0250	Waste Toner Full Sensor	Detect if the waste toner is full or not.
100-0251	PTB Waste Toner Full Sensor	Detect level of a PTB waste toner bottle
100-0260	SMPS Fan Run	Start/Stop SMPS Fan run
100-0270	SMPS Fan Run Ready	Detects if SMPS Fan runs at normal speed.
100-0340	Feed Motor	Feed Motor is On/Off
100-0341	Feed Motor Slow	Feed Motor Slow On/Off
100-0342	Feed Motor Slowest	Feed Motor Slowest On/Off
100-0370	Tray1 Pickup Motor	Tray1 Motor is On/Off
100-0371	Tray1 Pickup Motor Slow	Tray1 Motor Slow On/Off
100-0372	Tray1 Pickup Motor Slowest	Tray1 Motor Slowest On/Off
100-0380	Tray2 Pickup Motor	Tray2 Motor is On/Off
100-0381	Tray2 Pickup Motor Slow	Tray2 Motor Slow On/Off
100-0382	Tray2 Pickup Motor Slowest	Tray2 Motor Slowest On/Off
100-0390	Tray3 Pickup Motor	Tray3 Motor is On/Off
100-0391	Tray3 Pickup Motor Slow	Tray3 Motor Slow On/Off
100-0392	Tray3 Pickup Motor Slowest	Tray3 Motor Slowest On/Off
100-0400	Tray4 Pickup Motor	Tray4 Motor is On/Off
100-0401	Tray4 Pickup Motor Slow	Tray4 Motor Slow On/Off
100-0402	Tray4 Pickup Motor Slowest	Tray4 Motor Slowest On/Off
100-0410	Registration Motor	Registration Motor is On/Off
100-0411	Registration Motor Slow	Registration Motor Slow On/Off
100-0412	Registration Motor Slowest	Registration Motor Slowest On/Off
100-0420	MP Motor	MP Motor is On/Off
100-0421	MP Motor Slow	MP Motor Slow On/Off
100-0422	MP Motor Slowest	MP Motor Slowest On/Off
100-0430	Exit2 Motor Forward	Exit2 Motor is On/Off

4. Troubleshooting

Code	Display	Meaning
100-0431	Exit2 Motor Forward Slow	Exit2 Motor Slow On/Off
100-0432	Exit2 Motor Forward Slowest	Exit2 Motor Slowest On/Off
100-0490	Duplex2 Motor Forward	Duplex Motor Forward On/Off
100-0491	Duplex2 Motor Forward Slow	Duplex Motor Slow Forward On/Off
100-0492	Duplex2 Motor Forward Slowest	Duplex Motor Slowest Forward On/Off
100-0600	Return Motor Forward	Return Motor Forward On/Off
100-0601	Return Motor Forward Slow	Return Motor Slow Forward On/Off
100-0602	Return Motor Forward Slowest	Return Motor Slowest Forward On/Off
100-0603	Return Motor Backward	Return Motor Backward On/Off
100-0604	Return Motor Backward Slow	Return Motor Slow Backward On/Off
100-0605	Return Motor Backward Slowest	Return Motor Slowest Backward On/Off
100-0700	Tray5 Pickup Motor	Tray4 Motor is On/Off
100-0701	Tray5 Pickup Motor Slow	Tray4 Motor Slow On/Off
100-0702	Tray5 Pickup Motor Slowest	Tray4 Motor Slowest On/Off
101-0101	T3 Shift Gate Solenoid	Tray3 Shift Gate Solenoid On/Off
101-0140	T3 Feed Motor	T3 Feed Motor On/Off
101-0150	T4 Feed Motor	T4 Feed Motor On/Off
101-0151	T4 Feed Motor Slow	T4 Feed Motor Slow On/Off
101-0152	T4 Feed Motor Slowest	T4 Feed Motor Slowest On/Off
101-0160	T5 Feed Motor	T5 Feed Motor On/Off
101-0161	T5 Feed Motor Slow	T5 Feed Motor Slow On/Off
101-0162	T5 Feed Motor Slowest	T5 Feed Motor Slowest On/Off
101-0190	Out-Bin Full Sensor	Detect when a paper is at Out-Bin Full Sensor
101-0191	Out-Bin2 Full Sensor	Detect when a paper is at Out-Bin2 Full Sensor
101-0206	Dev Suction Fan Run	Start/Stop Dev Suction Fan run
101-0207	Dev Suction Fan Run Ready	Detects if Dev Suction Fan runs at normal speed.
101-0270	MP Clutch	MPClutch On/Off
101-0271	MP Solenoid	MP Solenoid On/Off
101-0280	Return Gate Solenoid	Return Gate Solenoid On/Off
102-0000	Tray1 Home Position	Detect when tray1 is closed.
102-0001	Tray1 Lock Detect	Detect tray1 lock unit
102-0002	Tray1 Lock Position	Check tray1 lock position
102-0010	T1 Paper Empty Sensor	Detect when paper is in Tray1.
102-0041	T1 Paper Size Read	Detects Paper Tray1 size.
102-0050	T1 Stack Height Sensor	Detects if paper in tray1 is elevated to the sensor.
102-0070	Tray2 Home Position	Detect when tray2 is closed.
102-0071	Tray2 Lock Detect	Detect tray2 lock unit
102-0072	Tray2 Lock Position	Check tray2 lock position
102-0080	T2 Paper Empty Sensor	Detect when paper is in tray2.
102-0111	T2 Paper Size Read	Detects Paper Tray2 size.

Code	Display	Meaning
102-0120	T2 Stack Height Sensor	Detects if paper in tray2 is elevated to the sensor.
102-0140	Tray3 Home Position	Detect when tray3 is closed.
102-0141	Tray3 Lock Detect	Detect tray3 lock unit
102-0142	Tray3 Lock Position	Check tray3 lock position
102-0150	T3 Paper Empty Sensor	Detect when paper is in tray3.
102-0181	T3 Paper Size Read	Detects Paper Tray3 size.
102-0190	T3 Stack Height Sensor	Detects if paper in tray3 is elevated to the sensor.
102-0201	T3 Level Sensor 1	Detects when the stack height of tray3 Level Sensor 1
102-0202	T3 Level Sensor 2	Detects when the stack height of tray3 Level Sensor 2
102-0210	Tray4 Home Position	Detect when tray4 is closed.
102-0211	Tray4 Lock Detect	Detect tray4 lock unit
102-0212	Tray4 Lock Position	Check tray4 lock position
102-0220	T4 Paper Empty Sensor	Detect when paper is in tray4.
102-0251	T4 Paper Size Read	Detects Paper Tray4 size.
102-0260	T4 Stack Height Sensor	Detects if paper in tray4 is elevated to the sensor.
102-0271	T4 Level Sensor 1	Detects when the stack height of tray4 Level Sensor 1
102-0272	T4 Level Sensor 2	Detects when the stack height of tray4 Level Sensor 2
102-0273	T4 Install Sensor1	Detect when Tray T4 install sensor 1
102-0274	T4 Install Sensor2	Detect when Tray T4 install sensor 2
102-0280	Bypass Paper Empty Sensor	Detects when paper is in Bypass Tray(MP Tray).
102-0281	Bypass Paper Size Read	Detects Paper MP size.
102-0292	Pre Feed1 Sensor	Detect when a paper is at Pre Feed1 sensor.
102-0300	T2 Feed Sensor (or Door Open)	Detect when a paper is at T2 Feed sensor. (optional)
102-0301	Pre Feed2 Sensor	Detect when a paper is at Pre Feed2 sensor.
102-0320	T3 Feed Sensor (or Door Open)	Detect when a paper is at T3 Feed sensor. (optional)
102-0321	Pre Feed3 Sensor	Detect when a paper is at Pre Feed3 sensor.
102-0330	T3 Door Open Sensor	Detect when T3 is closed.
102-0343	Pre Feed4 Sensor	Detect when a paper is at Pre Feed4 sensor.
102-0350	T4 Door Open Sensor	Detect when T4 is closed.
102-0351	T5Door Open Sensor	Detect when T5 is closed.
102-0353	Pre Feed5 Sensor	Detect when a paper is at Pre Feed5 sensor. (optional)
102-0360	Regi. Sensor	Detect when a paper is at Regi. sensor.
102-0361	FuserOut Sensor	Detect when a paper is at FuserOut sensor.
102-0371	Exit2 Sensor	Detect when a paper is at Exit2 sensor.
102-0380	Duplex Jam1 Sensor	Detect when a paper is at Duplex Jam1 sensor.
102-0390	Duplex Jam2 Sensor	Detect when a paper is at Duplex Jam2 sensor.
102-0435	Front Cover Sensor	Detect status of Front cover.
102-0436	Side Cover Sensor	Detect status of Front cover.
102-0480	T5 Paper Empty Sensor	Detect when paper is in tray4.
102-0520	T5 Stack Height Sensor	Detects if paper in tray4 is elevated to the sensor.

4. Troubleshooting

Code	Display	Meaning
102-0531	T5 Level Sensor 1	Detects when the stack height of tray5 Level Sensor 1
102-0532	T5 Level Sensor 2	Detects when the stack height of tray5 Level Sensor 2
102-0533	T5 Install Sensor1	Detect when Tray T5 install sensor 1
102-0534	T5 Install Sensor2	Detect when Tray T5 install sensor 2
102-0730	T3 Knock Up Home Sensor	Detect when Tray T3 knock up home sensor.
102-0731	T3 ShiftTray Paper Empty Sensor	Detect when paper is in T3 ShiftTray
102-0732	T3 ShiftTray Level Sensor1	Detects when the stack height of T3 ShiftTray level sensor 1
102-0733	T3 ShiftTray Level Sensor2	Detects when the stack height of T3 ShiftTray level sensor 2
102-0734	T3 Shfit Plate Home Sensor	Detect when T3 Shfit Plate home sensor
102-0735	T3 Shfit Plate End Sensor	Detect when T3 Shfit Plate end sensor
102-0736	T3 Gate Solenoid Home Sensor	Detect when T3 Gate Solenoid home sensor
104-0000	Waste Install Sensor	Detect if Waste is installed.
105-0030	Black MHV Bias	Black MHV bias voltage on at normal drive level
106-0030	Black Dev Bias	Black Dev bias voltage on at normal drive level
106-0031	Black Dev AC Bias	Black Dev bias AC voltage on at normal drive level
106-0200	HVPS Installed	Detect HVPS Unit
107-0033	THV(-) Bias	THV minus bias voltage on at normal drive level
107-0034	THV CC Bias	THV constant current plus bias voltage
107-0035	THV CV Bias	THV constant voltage plus bias voltage
107-0165	K Eraser On	K Eraser Lamp On/Off
107-0169	K Eraser Detect	Detect K eraser status
109-0000	Fuser Temperature A	Detects what the temperature A is on fuser.
109-0010	Fuser Temperature B	Detects what the temperature B is on fuser.
109-0012	Inner Temperature	Inner Temperature
109-0013	Outer Temperature	Outer Temperature
109-0014	Humidity	Humidity
109-0020	Fuser Fan Run Ready	Detects if Fuser Fan Motor runs at normal speed.
109-0021	Exit2 Fan Run	Start/Stop Exit2 Fan run
109-0022	Exit2 Fan Run Ready	Detects if Exit2 Fan runs at normal speed.
109-0023	Exit3 Fan Run	Start/Stop Exit3 Fan run
109-0024	Exit3 Fan Run Ready	Detects if Exit3 Fan runs at normal speed.
109-0030	Fuser Motor Forward	Fuser Motor Forward On/Off
109-0034	Fuser Motor Ready	Detect if Fuser Motor runs at each speed
109-0040	Fuser Fan Run	Fuser Fan Motor On/Off
109-0046	Exit Fan Run	Exit Fan Motor On/Off
109-0047	Exit Fan Run Ready	Detects if Fuser Fan runs at normal speed.
109-0130	Fuser Gap Motor	Fuser press control motor On/Off
109-0140	Fuser Gap Home Sensor	Detect if the fuser press is located Home position.
109-0200	Detect Fuser Relay	Detect Fuser Relay Status

Code	Display	Meaning
109-0210	Detect ZeroCross Period	Detect ZeroCross Period
109-0300	Fuser Installed	Detect Fuser Unit
110-0000	LSU Motor1 Run Ready	Detects if LSU motor1 runs at normal speed.
110-0060	LSU Motor1 Run	LSU Motor1 On/Off
110-0110	LSU LD Power4	LSU LD4 Power On/Off (black)
110-0170	LSU HSync4	Detect LSU HSync4 (black)
110-0200	LSU Installed	Detect LSU Unit
111-0030	Toner Dispense Motor Black	Toner Dispense(Supply) Motor On/Off
111-0070	Toner Sensor Black	TC sensor in developer tank.
111-0140	Toner Control Voltage K	K Toner Voltage On/Off
111-0230	Toner Supply Lock Sensor K	K Supply Motor Lock Sensor
111-0330	Toner Reservoir Motor K	K Reservoir Motor On/Off
111-0370	Toner Reservoir Level K	K Reservoir Level Display
112-0340	Center ID Sensor P Read	Show Center ID Sensor P value
112-0350	Center ID Sensor S Read	Show Center ID Sensor S value
113-0000	Finisher Present Sensor	Detect if the Finisher is in place.
113-0350	Finisher Entrance Sensor	Detect when a paper is at Entrance Sensor
113-0360	Finisher Exit Sensor	Detect when a paper is at Exit Sensor
113-0361	Finisher Compile Paper Sensor	Detect when a paper is at Compile Sensor
113-0370	Finisher Paddle Home Sensor	Detect Paddle Home position
113-0380	Finisher Left Tamper Home Sensor	Detect Lift Tamper Home position
113-0390	Finisher Right Tamper Home Sensor	Detect Right Tamper Home position
113-0410	Finisher Stapler Door Sensor	Detect Stapler Door Cover is closed
113-0420	Finisher Jam Cover Sensor	Detect Jam Door Cover is closed
113-0430	Finisher Stapler Home Sensor	Detect Stapler Home position
113-0440	Finisher Stapler Low Sensor	Detect Stapler level
113-0451	Finisher Stapler Ready Sensor	Detect Stapler Ready Sensor
113-0461	Finisher Ejector1 Home Sensor	Detect Ejector1 Home position
113-0462	Finisher Ejector2 Home Sensor	Detect Ejector2 Home position
113-0463	Finisher Ejector2 Encoder Sensor	Detect Ejector2 Encoder Sensor
113-0470	Finisher Main Tray Home Sensor	Detect Main Tray Home position
113-0471	Finisher Main Tray Beam Sensor	Detect Main Tray Beam Sensor
113-0472	Finisher Main Tray LowLimit Sensor	Detect Main Tray Low Limit Sensor
113-0473	Finisher Main Tray Encoder Sensor	Detect Main Tray Encoder Sensor
113-0481	Finisher Paper Support Sensor	Detect Paper Support Home Sensor
113-0491	Finisher Traverse Front Sensor	Detect Traverse Front Home Sensor
113-0492	Finisher Traverse Rear Sensor	Detect Traverse Rear Home Sensor
113-0501	Finisher Entrance Motor	Finisher Entrance Motor On/Off
113-0502	Finisher Exit Motor	Finisher Exit Motor On/Off
113-0510	Finisher Paddle Motor	Finisher Paddle Motor On/Off

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Code	Display	Meaning
113-0520	Finisher Left Tamper Motor	Finisher Left Tamper Motor On/Off
113-0530	Finisher Right Tamper Motor	Finisher Right Tamper Motor On/Off
113-0550	Finisher Staple Unit Motor	Finisher Staple Unit Motor On/Off
113-0561	Finisher Ejector1 Motor	Finisher Ejector1 Motor On/Off
113-0562	Finisher Ejector2 Motor	Finisher Ejector2 Motor On/Off
113-0563	Finisher Ejector2 Reverse Motor	Finisher Ejector2 Reverse Direction On/Off
113-0570	Finisher Main Tray Motor	Finisher Main Tray Motor On/Off
113-0571	Finisher Paper Support Motor	Finisher Paper Support Motor On/Off
113-0581	Finisher Traverse Motor	Finisher Staple Unit Traverse Motor On/Off
113-0591	Finisher Paper Hold Solenoid	Finisher Paper Hold Solenoid On/Off
113-0600	Finisher Punch Motor	Finisher Punch Motor On/Off
113-0610	Finisher Punch Encoder Sensor	Detect Finisher Punch Encoder Sensor
113-0611	Finisher Punch Position Sensor	Detect Finisher Punch Position Sensor
113-0612	Finisher Punch Home Sensor	Detect Finisher Punch Home Sensor
113-0620	Finisher Hopper Install Sensor	Detect Finisher Punch Hopper Install Sensor
113-0621	Finisher Hopper Full Sensor	Detect Finisher Punch Hopper Full Sensor
113-2000	2BinFinisher Buffer lift Sensor	Detect 2Bin Finisher Buffer lift Sensor
113-2010	2BinFinisher Clamp home Sensor	Detect 2BinFinisher Clamp home Sensor
113-2020	2BinFinisher Diverter home Sensor	Detect 2BinFinisher Diverter home Sensor
113-2030	2BinFinisher Eject1 away Sensor	Detect 2BinFinisher Eject1 away Sensor
113-2031	2BinFinisher Eject1 home Sensor	Detect 2BinFinisher Eject1 home Sensor
113-2032	2BinFinisher Eject1 encoder Sensor	Detect 2BinFinisher Eject1 encoder Sensor
113-2040	2BinFinisher Eject2 home Sensor	Detect 2BinFinisher Eject2 home Sensor
113-2041	2BinFinisher Eject2 encoder Sensor	Detect 2BinFinisher Eject2 encoder Sensor
113-2050	2BinFinisher End fence Sensor	Detect 2BinFinisher End fence Sensor
113-2060	2BinFinisher Paddle home Sensor	Detect 2BinFinisher Paddle home Sensor
113-2070	2BinFinisher Bridge entrance Sensor	Detect 2BinFinisher Bridge entrance Sensor
113-2071	2BinFinisher Bridge middle Sensor	Detect 2BinFinisher Bridge middle Sensor
113-2080	2BinFinisher Entrance Sensor	Detect 2BinFinisher Entrance Sensor
113-2090	2BinFinisher Main exit Sensor	Detect 2BinFinisher Main exit Sensor
113-2091	2BinFinisher Sub exit Sensor	Detect 2BinFinisher Sub exit Sensor
113-2100	2BinFinisher Buffer exit Sensor	Detect 2BinFinisher Buffer exit Sensor
113-2110	2BinFinisher Stapler home Sensor	Detect 2BinFinisher Stapler home Sensor
113-2111	2BinFinisher Stapler rear Sensor	Detect 2BinFinisher Stapler rear Sensor
113-2112	2BinFinisher Stapler front Sensor	Detect 2BinFinisher Stapler front Sensor
113-2113	2BinFinisher Stapler manual Sensor	Detect 2BinFinisher Stapler manual Sensor
113-2114	2BinFinisher Stapler head Sensor	Detect 2BinFinisher Stapler head Sensor
113-2115	2BinFinisher Stapler low Sensor	Detect 2BinFinisher Stapler low Sensor
113-2116	2BinFinisher Stapler ready Sensor	Detect 2BinFinisher Stapler ready Sensor
113-2120	2BinFinisher Front tamper Sensor	Detect 2BinFinisher Front tamper Sensor

Code	Display	Meaning
113-2130	2BinFinisher Rear tamper Sensor	Detect 2BinFinisher Rear tamper Sensor
113-2140	2BinFinisher Main beam Sensor	Detect 2BinFinisher Main beam Sensor
113-2141	2BinFinisher Main Front level Sensor	Detect 2BinFinisher Main Front level Sensor
113-2142	2BinFinisher Main Rear level Sensor	Detect 2BinFinisher Main Rear level Sensor
113-2143	2BinFinisher Main Encoder Sensor	Detect 2BinFinisher Main Encoder Sensor
113-2144	2BinFinisher Main Full Sensor	Detect 2BinFinisher Main Full Sensor
113-2145	2BinFinisher Sub Full Sensor	Detect 2BinFinisher Sub Full Sensor
113-2150	2BinFinisher Booklet paper Sensor	Detect 2BinFinisher Booklet paper Sensor
113-2160	2BinFinisher Staple paper Sensor	Detect 2BinFinisher Staple paper Sensor
113-2161	2BinFinisher Staple button Sensor	Detect 2BinFinisher Staple button Sensor
113-2170	2BinFinisher Compile paper Sensor	Detect 2BinFinisher Compile paper Sensor
113-2180	2BinFinisher Bridge cover Sensor	Detect 2BinFinisher Bridge cover Sensor
113-2181	2BinFinisher Top cover Sensor	Detect 2BinFinisher Top cover Sensor
113-2182	2BinFinisher Front door Sensor	Detect 2BinFinisher Front door Sensor
113-2190	2BinFinisher Stack top Sensor	Detect 2BinFinisher Stack top Sensor
113-2200	2BinFinisher Bridge detect Sensor	Detect 2BinFinisher Bridge detect Sensor
113-2201	2BinFinisher Punch detect Sensor	Detect 2BinFinisher Punch detect Sensor
113-2202	2BinFinisher Booklet detect Sensor	Detect 2BinFinisher Booklet detect Sensor
113-2500	2BinFinisher Buffer lift Motor	2BinFinisher Buffer lift Motor On/Off
113-2510	2BinFinisher Clamp Motor	2BinFinisher Clamp Motor On/Off
113-2520	2BinFinisher Diverter Motor	2BinFinisher Diverter Motor On/Off
113-2530	2BinFinisher Eject1 Motor	2BinFinisher Eject1 Motor On/Off
113-2540	2BinFinisher Eject2 Motor	2BinFinisher Eject2 Motor On/Off
113-2560	2BinFinisher Bridge feed Motor	2BinFinisher Bridge feed Motor On/Off
113-2570	2BinFinisher Entrance Motor	2BinFinisher Entrance Motor On/Off
113-2580	2BinFinisher Exit feed Motor	2BinFinisher Exit feed Motor On/Off
113-2590	2BinFinisher End fence Motor	2BinFinisher End fence Motor On/Off
113-2600	2BinFinisher Paddle Motor	2BinFinisher Paddle Motor On/Off
113-2610	2BinFinisher Maintray Motor	2BinFinisher Maintray Motor On/Off
113-2620	2BinFinisher Staple move Motor	2BinFinisher Staple move Motor On/Off
113-2621	2BinFinisher Staple head Motor	2BinFinisher Staple head Motor On/Off
113-2630	2BinFinisher Front tamper Motor	2BinFinisher Front tamper Motor On/Off
113-2640	2BinFinisher Rear tamper Motor	2BinFinisher Rear tamper Motor On/Off
113-2650	2BinFinisher Manual blue LED	2BinFinisher Manual blue LED On/Off
113-2651	2BinFinisher Manual red LED	2BinFinisher Manual red LED On/Off
113-3000	Booklet Stopper home Sensor	Detect Booklet Stopper home Sensor
113-3010	Booklet Staple home Sensor	Detect Booklet Staple home Sensor
113-3020	Booklet Front Staple empty Sensor	Detect Booklet Front Staple empty Sensor
113-3030	Booklet Rear Staple empty Sensor	Detect Booklet Rear Staple empty Sensor
113-3040	Booklet Knife home Sensor	Detect Booklet Knife home Sensor

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Code	Display	Meaning
113-3050	Booklet Guide home Sensor	Detect Booklet Guide home Sensor
113-3060	Booklet Diverter home Sensor	Detect Booklet Diverter home Sensor
113-3080	Booklet Tamper home Sensor	Detect Booklet Tamper home Sensor
113-3090	Booklet Paddle home Sensor	Detect Booklet Paddle home Sensor
113-3100	Booklet Entrance paper Sensor	Detect Booklet Entrance paper Sensor
113-3110	Booklet Tray paper Sensor	Detect Booklet Tray paper Sensor
113-3120	Booklet Fold exit paper Sensor	Detect Booklet Fold exit paper Sensor
113-3130	Booklet Press home Sensor	Detect Booklet Press home Sensor
113-3500	Booklet Feed Motor	Booklet Feed Motor On/Off
113-3510	Booklet Fold Motor	Booklet Fold Motor On/Off
113-3520	Booklet Stopper Solenoid	Booklet Stopper Solenoid On/Off
113-3530	Booklet Stopper Motor	Booklet Stopper Motor On/Off
113-3540	Booklet Tamper Motor	Booklet Tamper Motor On/Off
113-3550	Booklet Knife Motor	Booklet Knife Motor On/Off
113-3560	Booklet Diverter Motor	Booklet Diverter Motor On/Off
113-3570	Booklet Press Motor	Booklet Press Motor On/Off
113-3580	Booklet Paddle Motor	Booklet Paddle Motor On/Off
113-3590	Booklet Guide Motor	Booklet Guide Motor On/Off
113-3600	Booklet Staple Motor	Booklet Staple Motor On/Off
113-4000	Punch Scan home Sensor	Detect Punch Scan home Sensor
113-4010	Punch Scan Edge1 Sensor	Detect Punch Scan Edge1 Sensor
113-4011	Punch Scan Edge2 Sensor	Detect Punch Scan Edge2 Sensor
113-4012	Punch Scan Edge3 Sensor	Detect Punch Scan Edge3 Sensor
113-4013	Punch Scan Edge4 Sensor	Detect Punch Scan Edge4 Sensor
113-4020	Punch Home Sensor	Detect Punch Home Sensor
113-4030	Punch Position A Sensor	Detect Punch Position A Sensor
113-4031	Punch Position B Sensor	Detect Punch Position B Sensor
113-4040	Punch Encoder Sensor	Detect Punch Encoder Sensor
113-4050	Punch Hopper full Sensor	Detect Punch Hopper full Sensor
113-4060	Punch Type1 detect Sensor	Detect Punch Type1 detect Sensor
113-4061	Punch Type2 detect Sensor	Detect Punch Type2 detect Sensor
113-4500	Punch Scan Motor	Punch Scan Motor On/Off
113-4510	Punch Motor	Punch Motor On/Off

4.5.5.2. Fax Diagnostics

Fax NVM Read/Write

- **Diagnostics > Fax Diagnostics Fax NVM Read/Write**

Purpose	To change a configuration value for fax firmware.
Operation Procedure	When the main “NVM Read/Write” window displays, users can navigate through the list of configuration values that display along with description. Users can also input a code to the text box to find a configuration value directly. After selecting one value, pressing “Edit” button will open an interface for user input.
Verification	N/A
Specification	N/A
Reference	N/A

Code	Name	Description	Default	Range
20-200	Pause Dial Time	Pause Time (value * 1000ms)	Country Value	0~200
20-210	Dial Pulse M/B ratio	33 / 66 40 / 60	Country Value	0=OPTION_DP_33 1=OPTION_DP_40 2=OPTION_DP_37 3=OPTION_DP_50
20-220	Auto Dial Start Pause Time	Pause time before auto-dialing (second)	1	0~10
20-300	Ring On Time	Ring On Time (ms)	170	90~800
20-310	Ring Off Time	Ring Off Time (ms)	560	90~800
20-320	Ring Detection Freq	sets the Call Indication frequency range that will be detected by LIU	1	1=12-80hz 2=16-55hz 3=20-55hz 4=22-55hz
20-330	Ring On Max Time	Ring On Max Time (ms)	5100	3000~12000
20-340	Ring Off Max Time	Ring Off Max Time (ms)	11100	9000~22000
20-400	DTMF High-Freq Level	DTMF High-Freq. Level (dBm)	Country Value	0~15
20-410	DTMF Low-Freq Level	DTMF Low-Freq. Level (dBm)	Country Value	0~15
20-420	DTMF Timing	DTMF duration of on/off output (Ms)	8	1=80/80 2=70/70 3=70/150 4=60/60 5=80/100 6=150/50 7=150/240 8=100/100 9=100/80
20-500	Dial Mode	Select Tone / Pulse	Country Value	0=OPTION_TONE_MODE 1=OPTION_PULSE_MODE

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Code	Name	Description	Default	Range
20-520	Error Rate	Adjust Error Rate (Off / 5% / 10% / 20%)	2	0=OPTION_RATE_OFF 1=OPTION_RATE_5 2=OPTION_RATE_10 3=OPTION_RATE_20
20-530	Dial Tone Detect	detect dial tone prior to sending	Country Value	0=OPTION_OFF 1=OPTION_ON
20-540	Loop Current Detect	detect if loop current is present prior to sending	Country Value	0=OPTION_OFF 1=OPTION_ON
20-550	Busy Signal Detect	detect busy signal to allow redials	Country Value	0=OPTION_OFF 1=OPTION_ON
20-560	TCF Duration	Adjust TCF duration (ms)	1500	1000~3000
20-800	Modem Speed	Select Modem Start Speed	24	
20-810	Fax Transmission Level	Adjust Fax Transmission Level (dBm)	Country Value	Country Value
20-830	Auto Dial Timeout	Adjust Auto Dial Timeout (second)	Country Value	30~150
20-920	CNG Detection Count	CNG Tone Detection check count during ANS/FAX mode.	2	1~15
20-930	Caller ID	This option is needed to guide Caller ID off for user environment.	Country Value	0=OPTION_OFF 1=OPTION_ON
20-940	Ext. Phone	Ext. Phone Detection Enable/Disable (Default : Enable 1)	1	0=Disable 1=Enable
21-999	Fax Line Setting	Fax Test Line Setting(Dual Fax)	0	0 = Line 1 1 = Line 2
21-800	Modem Speed Line2	Select Modem Start Speed for Line 2 This item shall be displayed only when Dual Line Fax Kit is Installed.	24	

Fax Test Routines

- **Diagnostics > Fax Diagnostics > Fax Test Routines**

Purpose	To perform test routines for the fax machine.
Operation Procedure	When the main Fax Test Routines window displays, users can navigate through the list of routines that display along with description. Users can also input a code to the text box to find a routine directly. After selecting one routine, pressing “OK” button will open the test window that lists selected routine. Users can start/stop a desired test routine.

Code	Name	Description	State Displayed
20-012	Sngl Tone 1100Hz Ln1	Emits single tone 1100Hz on line 1	On / Off
20-014	Sngl Tone 1650Hz Ln1	Emits single tone 1650Hz on line 1	On / Off
20-015	Sngl Tone 1850Hz Ln1	Emits single tone 1850Hz on line 1	On / Off
20-016	Sngl Tone 2100Hz Ln1	Emits single tone 2100Hz on line 1	On / Off
20-020	DTMF # Line1	Emits DTMF # on line 1	On / Off
20-021	DTMF * Line1	Emits DTMF * on line 1	On / Off
20-022	DTMF 0 Line1	Emits DTMF 0 on line 1	On / Off
20-023	DTMF 1 Line1	Emits DTMF 1 on line 1	On / Off
20-024	DTMF 2 Line1	Emits DTMF 2 on line 1	On / Off
20-025	DTMF 3 Line1	Emits DTMF 3 on line 1	On / Off
20-026	DTMF 4 Line1	Emits DTMF 4 on line 1	On / Off
20-027	DTMF 5 Line1	Emits DTMF 5 on line 1	On / Off
20-028	DTMF 6 Line1	Emits DTMF 6 on line 1	On / Off
20-029	DTMF 7 Line1	Emits DTMF 7 on line 1	On / Off
20-030	DTMF 8 Line1	Emits DTMF 8 on line 1	On / Off
20-031	DTMF 9 Line1	Emits DTMF 9 on line 1	On / Off
20-040	V.21 300 bps Line1	Emits V.21 300 bps Line1	On / Off
20-041	V.27ter 2400 bps Line1	Emits V.27ter 2400 bps Line1	On / Off
20-042	V.27ter 4800 bps Line1	Emits V.27ter 4800 bps Line1	On / Off
20-043	V.29 7200 bps Line1	Emits V.29 7200 bps Line1	On / Off
20-044	V.29 9600 bps Line1	Emits V.29 9600 bps Line1	On / Off
20-045	V.17 7200 bps Line1	Emits V.17 7200 bps Line1	On / Off
20-046	V.17 9600 bps Line1	Emits V.17 9600 bps Line1	On / Off
20-047	V.17 12000 bps Line1	Emits V.17 12000 bps Line1	On / Off
20-048	V.17 14400 bps Line1	Emits V.17 14400 bps Line1	On / Off
20-049	V.34 2400 bps Line1	Emits V.34 2400 bps Line1	On / Off
20-050	V.34 4800 bps Line1	Emits V.34 4800 bps Line1	On / Off
20-051	V.34 7200 bps Line1	Emits V.34 7200 bps Line1	On / Off
20-052	V.34 9600 bps Line1	Emits V.34 9600 bps Line1	On / Off
20-053	V.34 12000 bps Line1	Emits V.34 12000 bps Line1	On / Off
20-054	V.34 14400 bps Line1	Emits V.34 14400 bps Line1	On / Off
20-055	V.34 16800 bps Line1	Emits V.34 16800 bps Line1	On / Off
20-056	V.34 19200 bps Line1	Emits V.34 19200 bps Line1	On / Off

4. Troubleshooting


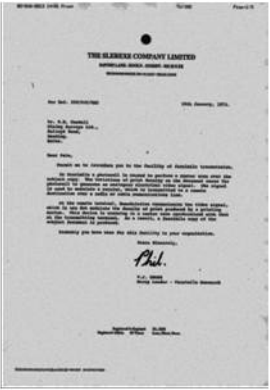

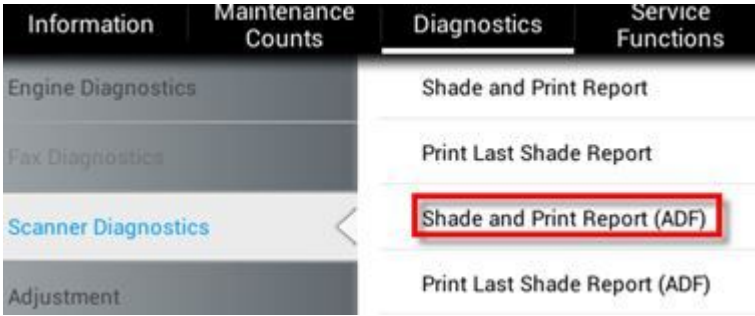
Code	Name	Description	State Displayed
20-057	V.34 21600 bps Line1	Emits V.34 21600 bps Line1	On / Off
20-058	V.34 24000 bps Line1	Emits V.34 24000 bps Line1	On / Off
20-059	V.34 26400 bps Line1	Emits V.34 26400 bps Line1	On / Off
20-060	V.34 28800 bps Line1	Emits V.34 28800 bps Line1	On / Off
20-061	V.34 31200 bps Line1	Emits V.34 31200 bps Line1	On / Off
20-062	V.34 33600 bps Line1	Emits V.34 33600 bps Line1	On / Off
21-012	Sngl Tone 1100Hz Ln2	Emits single tone 1100Hz on line 2	On / Off
21-014	Sngl Tone 1650Hz Ln2	Emits single tone 1650Hz on line 2	On / Off
21-015	Sngl Tone 1850Hz Ln2	Emits single tone 1850Hz on line 2	On / Off
21-016	Sngl Tone 2100Hz Ln2	Emits single tone 2100Hz on line 2	On / Off
21-020	DTMF # Line2	Emits DTMF # on line 2	On / Off
21-021	DTMF * Line2	Emits DTMF * on line 2	On / Off
21-022	DTMF 0 Line2	Emits DTMF 0 on line 2	On / Off
21-023	DTMF 1 Line2	Emits DTMF 1 on line 2	On / Off
21-024	DTMF 2 Line2	Emits DTMF 2 on line 2	On / Off
21-025	DTMF 3 Line2	Emits DTMF 3 on line 2	On / Off
21-026	DTMF 4 Line2	Emits DTMF 4 on line 2	On / Off
21-027	DTMF 5 Line2	Emits DTMF 5 on line 2	On / Off
21-028	DTMF 6 Line2	Emits DTMF 6 on line 2	On / Off
21-029	DTMF 7 Line2	Emits DTMF 7 on line 2	On / Off
21-030	DTMF 8 Line2	Emits DTMF 8 on line 2	On / Off
21-031	DTMF 9 Line2	Emits DTMF 9 on line 2	On / Off
21-040	V.21 300 bps Line2	Emits V.21 300 bps Line2	On / Off
21-041	V.27ter 2400 bps Line2	Emits V.27ter 2400 bps Line2	On / Off
21-042	V.27ter 4800 bps Line2	Emits V.27ter 4800 bps Line2	On / Off
21-043	V.29 7200 bps Line2	Emits V.29 7200 bps Line2	On / Off
21-044	V.29 9600 bps Line2	Emits V.29 9600 bps Line2	On / Off
21-045	V.17 7200 bps Line2	Emits V.17 7200 bps Line2	On / Off
21-046	V.17 9600 bps Line2	Emits V.17 9600 bps Line2	On / Off
21-047	V.17 12000 bps Line2	Emits V.17 12000 bps Line2	On / Off
21-048	V.17 14400 bps Line2	Emits V.17 14400 bps Line2	On / Off
21-049	V.34 2400 bps Line2	Emits V.34 2400 bps Line2	On / Off
21-050	V.34 4800 bps Line2	Emits V.34 4800 bps Line2	On / Off
21-051	V.34 7200 bps Line2	Emits V.34 7200 bps Line2	On / Off
21-052	V.34 9600 bps Line2	Emits V.34 9600 bps Line2	On / Off
21-053	V.34 12000 bps Line2	Emits V.34 12000 bps Line2	On / Off
21-054	V.34 14400 bps Line2	Emits V.34 14400 bps Line2	On / Off
21-055	V.34 16800 bps Line2	Emits V.34 16800 bps Line2	On / Off
21-056	V.34 19200 bps Line2	Emits V.34 19200 bps Line2	On / Off
21-057	V.34 21600 bps Line2	Emits V.34 21600 bps Line2	On / Off

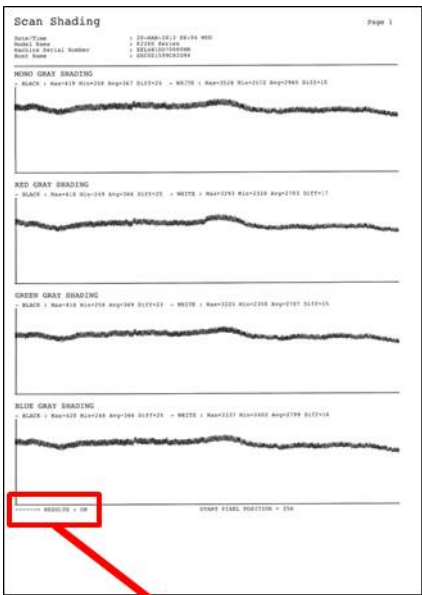
Code	Name	Description	State Displayed
21-058	V.34 24000 bps Line2	Emits V.34 24000 bps Line2	On / Off
21-059	V.34 26400 bps Line2	Emits V.34 26400 bps Line2	On / Off
21-060	V.34 28800 bps Line2	Emits V.34 28800 bps Line2	On / Off
21-061	V.34 31200 bps Line2	Emits V.34 31200 bps Line2	On / Off
21-062	V.34 33600 bps Line2	Emits V.34 33600 bps Line2	On / Off

4.5.5.3. Scanner Diagnostics

Shading Test

- Diagnostics > Scanner Diagnostics > Shading Test

<p>Purpose</p>	<ul style="list-style-type: none"> • To check quality of scanned images, especially defect in optical devices, including lens, mirror, lamp, and etc, are suspected. • To check quality problem as shown below <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Normal Image</p> </div> <div style="text-align: center;">  <p>Defected Image</p> </div> <div style="text-align: center;">  <p>Defected Image</p> </div> </div>
<p>Operation Procedure</p>	<p>[For Platen Unit] Press "Shade and Print report" to see if the current shading value is correct. Mono, red, green, blue gray shading values will be shown on the printed report. When the previous shading value is needed, press "Print Last Shade Report".</p> <p>[For ADF(DSDF) Unit]</p> <ol style="list-style-type: none"> 1) Load the shading sheet on the DSDF tray. 2) Enter SVC mode. Select the following menu. (Diagnostics > Scanner Diagnostics > Shading Test > Shade and Print Report(ADF)) <div style="text-align: center;">  </div> <p>(When the previous shading value is needed, press "Print Last Shade Report(ADF)".)</p> <ol style="list-style-type: none"> 3) Check if RESULTS on the sheet is OK. <div style="background-color: #f0f0f0; padding: 10px; margin-top: 10px;"> <p>! NOTE</p> <ul style="list-style-type: none"> • When executing DSDF shading, use only enclosed sheet in accessory package. • Shading Test for ADF Unit must be carried out, after replacing the DSDF unit or main board. </div>

Verification	 <p>=====> RESULTS : OK</p>
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Scanner/ADF NVM Read/Write

- Diagnostics > Scanner Diagnostics > Scanner/ADF NVM Read/Write

Purpose	To read and/or write values in the scanner and ADF memory.
Operation Procedure	<p>When the main “NVM Read/Write” window displays, users can navigate through the list of codes with descriptions and saved values.</p> <p>Users can also directly input a code to the text box to find a NVM.</p> <p>After selecting a code, the “Edit” button will be enabled only if the code is writable.</p> <p>If the selected code is writable and the “Edit” button is enabled, press the button to configure the desired value for the code.</p>
Verification	N/A
Specification	N/A
Reference	N/A

Code	NVM		LX model	GX model
05-0000	Pick Up Count	0	O	O
05-0001	Retard Roller Count	0	O	O
05-0030	Simplex Regi Value(Regi1)	0	O	O
05-0040	Duplex Regi Value(Regi2)	0	X	O
05-0050	Width Guide Max Value	Depend on ADF	O	O
05-0060	Width Guide Min Value	Depend on ADF	O	O

Scanner/ADF Test Routines

- **Diagnostics > Scanner Diagnostics > Scanner/DADF Test Routines**

Purpose	To perform test routines for the scanner and ADF.
Operation Procedure	<p>When the main scanner/ADF Test Routines window displays, users can navigate through the list of routines that display along with description.</p> <p>Users can also input a code to the text box to find a routine directly.</p> <p>After selecting one routine, pressing “OK” button will open the test window that lists selected routine. Users can start/stop a desired test routine.</p>
Verification	N/A
Specification	N/A
Reference	Table below

Code	Item	Value	LX model	GX model
06-0000	Scanner Original Size Detecting Sensor 1	High/Low	O	O
06-0001	Scanner Original Size Detecting Sensor 2	High/Low	O	O
06-0010	Scanner Cover Open/Close Sensor 1	High/Low	O	O
06-0011	Scanner Cover Open/Close Sensor 2	High/Low	O	O
06-0020	Scanner Platen Motor Forward	Start/Stop	O	O
06-0030	Scanner Platen Motor Backward	Start/Stop	O	O
06-0040	Scanner Platen Home Position Sensor	High/Low	O	O
05-0000	Document Length .1 Sensor	High/Low	O	O
05-0001	Document Length .2 Sensor	High/Low	O	O
05-0002	Document Length .3 Sensor	High/Low	X	O
05-0020	Document Cover Open Sensor	High/Low	O	O
05-0040	Document Detect Sensor	High/Low	O	O
05-0050	Document Feed Sensor	High/Low	X	O
05-0060	Document Simplex Registration Sensor	High/Low	O	O
05-0070	Document Scan Read Sensor1	High/Low	O	O
05-0071	Document Scan Read Sensor2	High/Low	O	O
05-0080	Document Exit Sensor	High/Low	O	O
05-0090	Document Pick up Clutch	Start/Stop	O	X
05-0110	Document Motor Forward	Start/Stop	O	O
05-0111	Document Motor Backward	Start/Stop	O	O
05-0123	Document width1 MSO Sensor	High/Low	X	O
05-0124	Document width2 MSO Sensor	High/Low	X	O
05-0125	Document width3 MSO Sensor	High/Low	X	O
05-0130	Document Pickup Motor Forward	Start/Stop	X	O
05-0131	Document Pickup Motor Backward	Start/Stop	X	O
05-0140	Document Pickup Roller Detect Sensor	High/Low	O	X
05-0150	Document Stacker Lift Upper Sensor	High/Low	X	O
05-0151	Document Stacker Lift Lower Sensor	High/Low	X	O
05-0160	Document Regi1 Motor Forward	Start/Stop	O	O

Code	Item	Value	LX model	GX model
05-0162	Document Regi1 Motor Backward	Start/Stop	O	O
05-0170	Document Regi2 Motor Forward	Start/Stop	X	O
05-0171	Document Regi2 Motor Backward	Start/Stop	X	O
05-0180	Document Stacker Lift Motor Forward	Start/Stop	X	O
05-0181	Document Stacker Lift Motor Backward	Start/Stop	X	O
05-0190	Document Width Guide ADC Sensor	10Bit (0~1023)	O	O
05-0210	Document Jig Test Low Speed Simplex	Start/Stop	O	O
05-0230	Document Jig Test High Speed Simplex	Start/Stop	O	O


4.5.5.4. Adjustment

Print Adjustment

- **Diagnostics > Adjustment > Print Adjustment > Automatic Adjustment**

Purpose	To calibrate/adjust the lengths of vertical & horizontal image and image position automatically in print engine.
Operation Procedure	<ol style="list-style-type: none"> 1) Press “Paper Supply” button and select a tray. 2) Press “Paper Size” button and select a paper size of the previously selected tray. 3) Press “Print” button. A test pattern will be printed out. 4) Place the printed pattern on platen. <ul style="list-style-type: none"> • The words “front side” on the chart face the glass • The arrows face left edge of the platen • Press “Scan 1” 5) Press “OK” button. Automatic scanning will occur . 6) Place the printed pattern on platen. <ul style="list-style-type: none"> • The words “back side” on the chart face the glass • The arrows face left edge of the platen • Press “Scan 2” 7) Press “OK” button. Automatic scanning will occur . 8) The system will automatically calculate the proper value based on scanning result of the test pattern. 9) The new values are set to the system.

- **Diagnostics > Adjustment > Print Adjustment > Image Position**



Purpose	Manually adjust printed image position on paper in print engine
Operation Procedure	<ol style="list-style-type: none"> 1) Select a tray required adjustment. 2) Change the adjustment value with "+" , "-" then press "OK" button to save changes. <ul style="list-style-type: none"> • Simplex Leading Edge • Simplex Side Edge • Duplex Leading Edge • Duplex Side Edge <div style="background-color: #e0e0e0; padding: 5px; margin: 10px 0;"> <p> NOTE</p> <ul style="list-style-type: none"> • Adjustment must be done for each tray (Tray X, MP). • It is recommended not to choose "ALL" for tray selection. • It is always better to adjust for a particular tray at each time. </div> 3) Print out the test pattern and check if the image is moved as you want. If not, repeat step 2.

- **Diagnostics > Adjustment > Print Adjustment > Print Test Patterns**

This menu is to print out the test pattern manually.

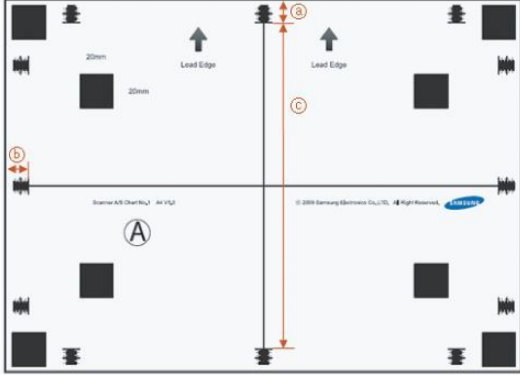

Copy Adjustment

- **Diagnostics > Adjustment > Copy Adjustment > Image Position**


Purpose	Manually adjust copied image position on paper in copy engine
Operation Procedure	<div style="background-color: #f0f0f0; padding: 5px; margin-bottom: 10px;">  NOTE Before copy adjustment, <ol style="list-style-type: none"> 1) Please make sure that initial values of margin adjustment must be the same as values of print adjustment. 2) It is recommended to perform adjustment for each tray at a time. i.e. do not select “All” for tray selection. It often causes confusing for the adjustment. 3) The Procedure for copy adjustment is almost same as “Print Adjustment”. </div> <div style="background-color: #f0f0f0; padding: 5px; margin-bottom: 10px;">  NOTE <ul style="list-style-type: none"> • Adjustment must be done for each tray (Tray X, MP). • It is recommended not to choose “ALL” for tray selection. • It is always better to adjust for a particular tray at each time. </div> <ol style="list-style-type: none"> 1) Select a tray required adjustment. 2) Change the adjustment value with “+”, “-” then press “OK” button to save changes. <ul style="list-style-type: none"> • Simplex Leading Edge • Simplex Side Edge • Duplex Leading Edge • Duplex Side Edge 3) Print out the test pattern and check if the image is moved as you want. If not, repeat step 2.

Scan Area Adjustment

- **Diagnostics > Adjustment > Scan Area Adjustment > Automatic Adjustment**

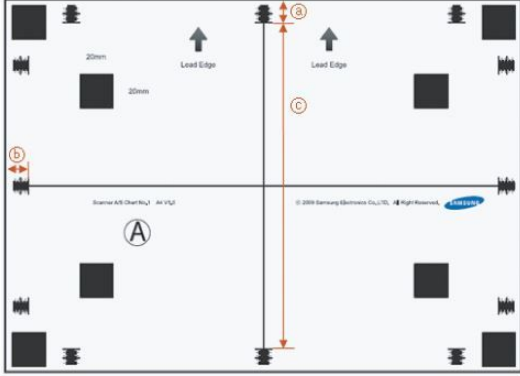
Purpose	To correct image position and magnification of scanned images automatically.
Operation Procedure	<p>1) Locate the Scanner A/S Chart at the scan glass.</p>  <p style="text-align: center;">A4 Scanner A/S Chart</p> <p>Note that “Lead Edge” arrows need to head to the left side of scan glass and to be placed face down. Also note that the Scanner A/S Charts come in two sizes, A4 and Letter. Choose one size to meet your primary size of use.</p> <p>2) Press “OK” button. Automatic scanning will occur, and the system will automatically calculate the proper value based on scanning result of the chart .</p> <p>3) The new value set to the system.</p> <p>4) Scan the Scanner A/S Chart and send it to a PC. Scanning must be occur from the scan glass.</p> <p>5) To check the image position, compare the position of scale marks (a,b) of the chart to the scanned image.</p> <p>6) To check the magnification, compare the length of line “c” of the chart to the scanned image.</p> <div style="background-color: #e0e0e0; padding: 5px;"> <p> NOTE</p> <p>Specification</p> <ul style="list-style-type: none"> • a,b : 10, ± 1.5 mm • c: 190, ± 1.5 mm </div>

• **Diagnostics > Adjustment > Scan Area Adjustment > Manual Adjustment**



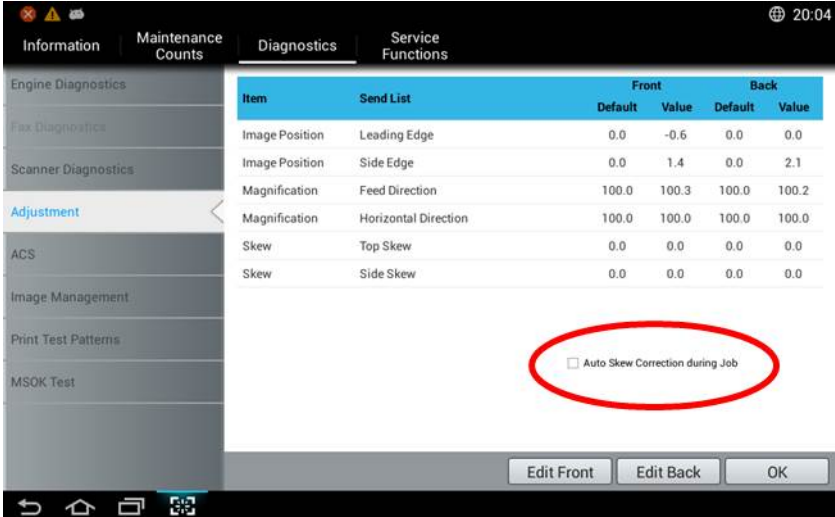
Purpose	To correct image position and magnification of scanned images manually.
Operation Procedure	<ol style="list-style-type: none"> 1) Choose one item from the table. There are three items to choose. <ul style="list-style-type: none"> • Image Position - Leading Edge (Unit : mm, Scale : 0.1, Min/Max : -6/+6) • Image Position - Side Edge (Unit : mm, Scale : 0.1, Min/Max : -6/+6) • Magnification - Vertical Direction (Unit : %, Min/Max: 98.5/101.5) 2) Select one item and press the “Edit” button. 3) Change the adjustment value with arrow button. 4) Image Position (a, b) : If the current value is smaller than the specification, press “+”. Otherwise, press “-”. 5) Magnification (c) : If the current value is smaller than the specification, press “-”. Otherwise, press “+”. 6) Press the “OK” button to apply the new value to the system. 7) Scan the Scanner A/S Chart and send it to a PC. Scanning must be occur from the scan glass. 8) To check the image position, compare the position of scale marks (a,b) of the chart to the scanned image. 9) To check the magnification, compare the length of line “c” of the chart to the scanned image. <div style="background-color: #e0e0e0; padding: 10px; margin-top: 10px;"> <p> NOTE</p> <p>Specification</p> <ul style="list-style-type: none"> • a,b : 10, ± 1.5 mm • c: 190, ± 1.5 mm </div>

ADF Adjustment

- **Diagnostics > Adjustment > ADF Adjustment > Automatic Adjustment**

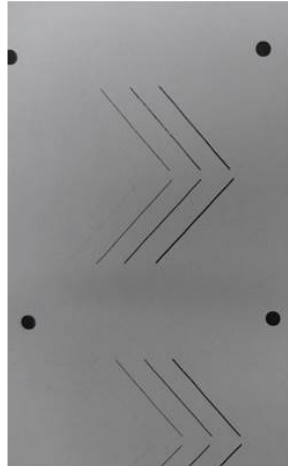
Purpose	To correct image position and magnification of scanned images via DSDF automatically.
Operation Procedure	<p>1) Locate the Scanner A/S chart on the DSDF tray.</p>  <p style="text-align: center;">A4 Scanner A/S Chart</p> <p>2) Press “OK” button. Automatic scanning will occur, and the system will automatically calculate the proper value based on scanning result of the chart .</p> <p>3) The new value set to the system.</p> <p>4) Copy the Scanner A/S Chart. Scanning must be occur from the DSDF.</p> <p>5) To check the image position, compare the position of scale marks (a,b) of the chart to the copy.</p> <p>6) To check the magnification, compare the length of line “c” of the chart to the copy.</p> <div style="background-color: #f0f0f0; padding: 5px;"> <p>NOTE</p> <p>Specification</p> <ul style="list-style-type: none"> • a,b : 10, ± 1.5 mm • c: 190, ± 1.5 mm </div> <div style="background-color: #f0f0f0; padding: 5px; margin-top: 10px;"> <p>NOTE</p> <p>After executing ADF adjustment, the shading test must be executed. (<u>Refer to 4.5.5.3. Scanner Diagnostics.</u>)</p> </div>

• **Diagnostics > Adjustment > ADF Adjustment > Manual Adjustment**

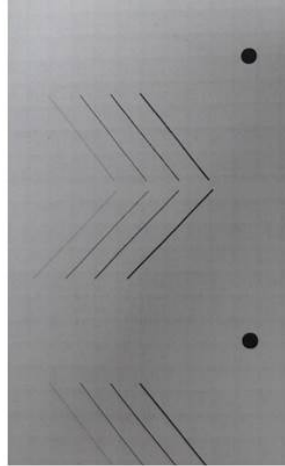
Purpose	To correct image position and magnification of scanned images manually.
Operation Procedure	<div style="background-color: #f0f0f0; padding: 5px; margin-bottom: 10px;"> <p> NOTE After executing ADF adjustment, the shading test must be executed. (<u>Refer to 4.5.5.3. Scanner Diagnostics.</u>)</p> </div> <ol style="list-style-type: none"> 1) Choose one item from the table. There are three items to choose. <ul style="list-style-type: none"> • Image Position - Leading Edge (Unit : mm, Scale : 0.1, Min/Max : -6/+6) • Image Position - Side Edge (Unit : mm, Scale : 0.1, Min/Max : -6/+6) • Magnification - Vertical Direction (Unit : %, , Min/Max: 98.5/101.5) 2) Select one item and press the “Edit” button. 3) Change the adjustment value with arrow button. 4) Image Position (a, b) : If the current value is smaller than the specification, press “+”. Otherwise, press “-”. 5) Magnification (c) : If the current value is smaller than the specification, press “-”. Otherwise, press “+”. <div style="background-color: #f0f0f0; padding: 5px; margin-bottom: 10px;"> <p> NOTE Specification</p> <ul style="list-style-type: none"> • a,b : 10, ± 1.5 mm • c: 190, ± 1.5 mm </div> <ol style="list-style-type: none"> 6) Press the “OK” button to apply the new value to the system. 7) Copy the Scanner A/S Chart. Scanning must be occur from the DSDF. 8) To check the image position, compare the position of scale marks (a,b) of the chart to the copy. 9) To check the magnification, compare the length of line “c” of the chart to the copy. 10) If "Auto Skew Correction during job" box is checked, skewed image is corrected by digitally rotating the scanned images. <div style="text-align: right; margin-top: 20px;">  </div>

NOTE

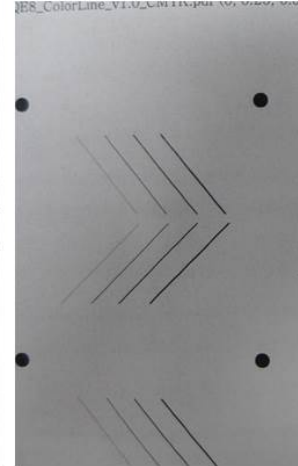
When this function is enabled, visual artifact (like checkerboard patterns) may appear on the image depending on the original contents or copy option settings.

[Reference Image]

**Mixed Mode Copy
(Auto Skew Correction ON)**



**Map Mode Copy
with Background
Enhanced
(Auto Skew
Correction ON)**



**Map Mode Copy
with Background
Enhanced
(Auto Skew
Correction OFF)**

4.5.5.5. Image Management

Auto Tone Adjustment Activation

- **Diagnostics > Image Management > Auto Tone Adjustment Activation > Normal**

Purpose	To correct image quality when density of the image is poor. Normal TRC Control is recommended to be performed after changing a unit, such as toner cartridge, imaging unit, and ITB, and reboot.
Operation Procedure	<ol style="list-style-type: none"> 1) Select “On” or “Off” for Normal TRC Control execution. <ul style="list-style-type: none"> • If you select “Off”, Normal TRC Control will not execute. • If you select “On”, Normal TRC Control will execute as the determined conditions. 2) Change execution condition(s) of Normal TRC Control. <ul style="list-style-type: none"> • Page Count: The system executes Normal TRC Control based on the count of printed pages since the last execution. • Time Left Alone: The system executes Normal TRC Control when the system returns from a power save mode and the rest time exceeds the configured value.
Verification	Print out a test job and make sure the image quality has recovered.

- **Diagnostics > Image Management > Auto Tone Adjustment Activation > Full**

Purpose	To correct image quality when any OPC drum is replaced or the life of the OPC drum is changed, replacing any OPC drum or density of the image is poor. And this function will be performed when temperature and/or humidity in the room changes suddenly.
Operation Procedure	<ol style="list-style-type: none"> 1) Select “On” or “Off” for Full TRC Control execution. <ul style="list-style-type: none"> • If you select “Off”, Full TRC Control will not execute. • If you select “On”, Full TRC Control will execute as the determined conditions. 2) Change execution condition(s) of Full TRC Control. <ul style="list-style-type: none"> • Page Count: The system executes Full TRC Control based on the count of printed pages since the last execution. • Time Left Alone: The system executes Full TRC Control when the system returns from a power save mode and the rest time exceeds the configured value.
Verification	Print out a test job and make sure the image quality has recovered.

4.5.5.6. Print Test Patterns

- **Diagnostics > Print Test Patterns > Skew Pattern**

The skew pattern stored in the machine will be printed out as the size you select.

4.5.6. Service Functions

4.5.6.1. Main Memory Clear

- **Service Functions > Main Memory Clear**

This function resets the main memory of the system to the factory default setting. It can be used to reset the system to the initial value when the product is functioning abnormally. All the user configured values return to the default values.

To clear the main memory, users need to select the country of the system locates, and rebooting of the system is required.

4.5.6.2. Hard Disk Maintenance

- **Service Functions > Hard Disk Maintenance > Device Configuration Data Clear**

- This function formats all device configuration data, for example, user profile, address book, and devices settings, on the hard disk.

- **Service Functions > Hard Disk Maintenance > Temporary and Spool Data Clear**

- This function formats all temporary and spool data saved on the hard disk.

- **Service Functions > Hard Disk Maintenance > User Saved Data and Log Data Clear**

- This function formats all the user data, for example, box data, pending secure jobs, font, form, macro, data related applications, and job log, on the hard disk.

- **Service Functions > Hard Disk Maintenance > All Saved Data Clear**

- This function formats all the data that can be erased with 3 functions above. The function will NOT format the hard disk entirely.

- **Service Functions > Hard Disk Maintenance > Hard Disk Check**

- This function checks a bad sector in the hard disk. If a bad sector is found, the system will display an error message and send an email notification to the system administrator.

4.5.6.3. Count Setting of Large Page

- **Service Functions > Count Setting of Large Page**

This function sets count of large page, such as A3 and ledger size, to 1 count or 2 count of the total count.

For example, the total use of 100 A4 impressions and 100 A3 impressions will become 200 impressions if the configuration is set to “1 Count Up” while the total will be 300 impression if the configuration is set to “2 Count Up”.

4.5.6.4. Network Port

- **Service Functions > Network Port**

This function enables/disables remote connections to the system via telnet, OSGI command shell, and SMB(samba) protocol.

This function can be used when there is a problem that requires developers to access the system or when there is a need for developers to upload applications for a test.

Since enabling those ports can create a risk of damaging data stored in the device, agreement of the administrator of the customer site is necessary. The user must log in as the administrator to enable/disable the services.

4.5.6.5. Debug Log

- **Service Functions > Debug Log**

This function sets the system log message level. Users can select three options.

- Off : This option disables the logging option.
- Job Status: This option only enables the logging option of user created jobs.
- Details : This option enables all the logging options of the running tasks of the system. Note that this option might create a trade-off of performance in certain system operation. Use this option when the system behaves abnormally, and engineers need to investigate problems.

4.5.6.6. Capture Log

- **Service Functions > Capture Log**

This function copies all the saved log in the system to a UBS memory as a zip file. Note that the size of system log could reach up to 1GB. If the system log size become considerably huge, it will take longer time to copy to the plugged memory.

- 1) Connect USB memory to device.
- 2) Tap "Service Mode" app. When the pop-up appears, press the area below until the passcode window appears. Enter "1934" and press the "OK" button.
- 3) Go to "**Service Functions > Debug Log**" and change debug log level to "DETAILS".
- 4) Go to "**Service Functions > Capture Log**"
- 5) Select All or Period. When you select Period, input the start and end date.
- 6) Press Capture Log button.
- 7) Once it is completed, the message will be displayed. Then restore the debug log level to "JOB STATUS".



NOTE

If the system log size become considerably huge, it will take longer time to copy to the plugged memory.

- 8) Check is the Log file is created in the USB memory.

4.5.6.7. Network Packet Capture

- **Service Functions > Network Packet Capture**

- 1) Capture Packets

- Start button
 - a) Start to capture network packet between device and external peer mode
 - b) Start button shall be changed to Stop button

**NOTE**

The packet capture is implemented by using “tcpdump-leth0-s1200-w[filename]”

- Packet Size
 - Show the file size captured

- 2) Export Capture File

- Export button
 - Export network packet capture file to USB memory stick

- 3) Delete Capture File

- Delete button
 - Clear network packet capture file in a device

4.5.6.8. System Recovery

- **Service Functions > System Recovery**

 **NOTE**

There are 3 methods for entering System Recovery mode.

- In case of normal booting,
 - Enter SVC mode and select **System Recovery** menu.
- In case of abnormal booting,
 - If the HDD is broken, the machine will enter System Recovery at booting.
 - When turning the machine on while pushing the power button on OP panel, you can enter System Recovery forcibly.

This function repairs or formats the HDD of the system. To use this function, a HDD image need to be saved in a USB memory, and that USB memory needs to be plugged in the system before the execution.

 **NOTE**

- Memory stick file system type : FAT16 or FAT32 not NTFS
- Memory stick must contain the following 3 files only.
 - **unix script files x 2**
 - **HDD image file x1**

- 1) From the system recovery UI, Choose “SYS” to recover only the system partition of the HDD or “ALL” to recover all the partition of the HDD.
- 2) When the system recovery UI is appeared after reboot, choose “HDD Repair” to repair any corrupted data in the selected partition or choose “HDD Format” to format the data in the selected partition.
 - a) HDD Format
 - Hidden Partition : This can format and reinstall the only System Binary in HDD. User data is not deleted.
 - USB : This can format the HDD using USB stick. All data except the stored in MSOK will be deleted.
 - Network : This can format the HDD using network. All data except the stored in MSOK will be deleted.
 - b) HDD Repair : This can restore the internal system by checking the HDD error. This is for HDD recovery itself and irrelevant to the user data in device.
- 3) When pushing “Next” button, the login page for authentication will be displayed. The password will be **1934** as the factory setting password.
- 4) When pushing “Next” button, the following page will be displayed.
 - In case of selecting USB option :

The Next button is pressed after inserting the USB stick.

The system will check for the required packages in the USB stick. If all the packages are present in the USB stick then the system will be directed to the confirmation page otherwise an Error page will be displayed with an appropriate error message.
 - In case of selecting Network option :

This page contains two sections :

 - **Configure device IP address**
 - a) Device IP: IP address for the device
 - b) Gateway IP: Gateway IP address for the device

- c) Subnet Mask: Network Subnet Mask for the device
- **Configure samba settings**
 - a) Server IP : IP address of the server.
 - b) User ID : user ID of the server to login into the server system
 - c) Password : password of the server system
 - d) Shared folder : name of the shared folder on the server, where the packages for the system recovery are present.

The Next button is pressed after providing the above information.

The system will establish the provided IP to the device and try to connect to the server and check for the available packages on the server.

If Network is establish and all the packages are present in the shared folder of the server then the system will be directed to the Confirmation page otherwise an Error page will be displayed with an appropriate error message.

- 5) When pushing “Next” button on option selection page, the confirmation page will be displayed.
- 6) When pushing “Next” button, progress page will be displayed.
- 7) When completing HDD Recovery or HDD Repair successfully, reboot the machine.
- 8) After rebooting, the machine will start the system initialization.

**NOTE**

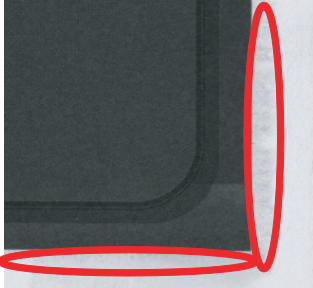
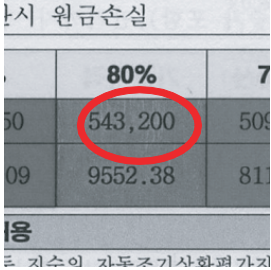
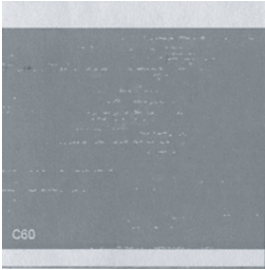
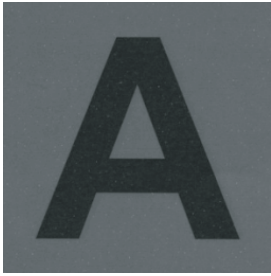

If the system initialization is not executed, enter the svc mode and execute “Full memory clear”.

If not, the machine may not work normally.

- 9) Execute the firmware update using the one ROM FW file after system initialization. This work is a must for all FW module level.

4.5.6.9. TR Control Mode

• Service Functions > TR Control Mode

Purpose	To correct transfer related problems. This function can be used to change the transfer value to optimize image quality to a certain type of paper.
Operation Procedure	<p>1) T2 Control Mode</p> <ul style="list-style-type: none"> • Choose the paper group, paper side, and paper direction. • Adjust PWM value based on the problem type. <ul style="list-style-type: none"> • Blur : Increase PWM value • Poor Transfer : Increase PWM value • Re-transfer : Decrease PWM value • White Spot : Decrease PWM value • OPC Cyclic Ghost : Decrease PWM value <div style="display: flex; justify-content: space-around; align-items: flex-end; margin-top: 20px;"> <div style="text-align: center;">  <p>Blur</p> </div> <div style="text-align: center;">  <p>Poor Transfer</p> </div> <div style="text-align: center;">  <p>Retransfer</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-end; margin-top: 20px;"> <div style="text-align: center;">  <p>White Spot</p> </div> <div style="text-align: center;">  <p>OPC Cyclic Ghost</p> </div> </div>
Verification	Print out a test job and make sure the transfer problem has resolved.
Specification	N/A
Reference	N/A

4.5.6.10. Clear System Cache

- **Service Functions > Clear System Cache**

This function is to clear machine's cache data for it after installing the XOA app.

4.5.6.11. Hibernation

- **Service Functions > Hibernation**

Hibernation mode makes the operating system image and it reduces operating time when you turn on the machine.

- ON : Hibernation mode ON
- OFF : Hibernation mode OFF
- Create New Image : Make the new Hibernation system image. When you enable the hibernation mode, you can use this menu.

4.5.6.12. Paper Low Warning Message

- **Service Functions > Paper Low Warning Message**

This function enables / disables the warning message of the paper low status.

4.5.6.13. Part Replacement Alert

- **Service Functions > Part Replacement Alert**

This function enables / disables the alert message of the consumable's life time.

- ON : Alert message on (Level : Low, Empty, Exhaust, Worn)
- OFF : Alert message off

4.5.6.14. FDI

- **Service Functions > FDI**

In this function, user and administrator can choose the type of FDI.

4.5.6.15. EIUL (End of Image Unit Life)

- **Service Functions > EIUL**

The function is to set the machine hard stop when the drum life is expired.

- Off : No machine stop @ end of drum life
- On : Machine stop @ end of drum life

4.5.6.16. SFE (Special Feature Enablement)

- **Service Functions > SFE**

Special Feature Enablement (SFE) means to provide the configurable options (On/Off) in service mode for technicians or dealers to satisfy the requirements from B2B sites easily without changing the firmware installed in a device.



NOTE

The description for some codes like a 003, 020 can not be provided by HQ R&D policy.

SFE menu description

SFE Code	Description
001	In case of printing in directional media (Letterhead/Preprinted/Punched), the device prints as the same output direction regardless of simplex or duplex.
003	confidential
006	The device supports only user's own email address for scan to email.
007	[PCL6] The device prints as original 1 dot line without 2 dot line compensation.
008	[PCL5] The device ignores paper size command in PRN and prints as paper size in tray.
009	PJL readback response is changed with HPOS. 1) Add <CR><LF> to EOJ response. 2) No EOJ job but EOJ response occurs. 3) Device uses Job name instead of EOJ name.
010	Maximum value of 'Power save time' is increased as 240 min.
012	If the device is in jam status, all print jobs except secure or stored jobs are deleted automatically.
013	The device ignores the USB memory stick and detects only card reader.
014	When the authenticated user uses scan to email, user's email address is added automatically.
015	The device supports to connect to LDAPs server without any certificate.
016	The device fits image appearance in report page
018	The device blocks apk installation.

SFE Code	Description
019	User ID is not case-sensitive for login
020	confidential
021	confidential
022	The device supports "A6 LEF" in original size for scan service.
023	The device rotates copy output 180 degrees when executed on flatbed.
025	confidential
026	The device maintains HDD encryption as a default.
031	The device shall store confidential/store print without image processing.
032	The device shall print line even though that has less than 1 dot.

4.5.6.17. Dealer ID

- **Service Functions > Dealer ID**

The SFE functions related to the dealer will be enable.

4.5.6.18. Envelope Rotate

- **Service Functions > Envelope Rotate**

This menu is enabling rotate when printing on envelope. The machine usually guides to load envelope with SEF direction. If this function is enabled, the user can load envelope with LEF direction and the machine shall rotate image for printing exactly on envelope.

This function shall provide the setting options as follows:

- Off (default) : Load envelope SEF direction
- 90 degrees : Load envelope LEF direction
- 180 degrees : Load envelope SEF direction with flap is bottom side





NOTE

- 1) If the paper source is 'Auto', the device shall feed from MP Tray. Because the LEF envelope can be loaded only in MP Tray according to Paper Specification.
- 2) If the length of envelope is over max size of custom width, the device shall not rotate image and just determine the direction of envelope is SEF.
For example, the A4 model support custom size like W 98-216 ~ L148-356. This model doesn't support C5 Env.(162x229) DL Env.(110x220), No9 Env.(98x225), No10 Env.(105x241) rotation.

4.5.6.19. Drain

- **Service Functions > Drain**

This menu is recovering toner density. The device print grayed image after operating over 500 low coverage images. This menu support to set 10 levels.

This function shall provide the setting options as follows:

- Off (default)
- On
- Black [1~10]

4.6. Error Code and Troubleshooting

Messages appear on the control panel display to indicate the machine's status or errors.

**NOTE**

Some messages may not appear on the display depending on the options or models.

4.6.1. 11-2Txx (Paper mismatch error)

Error Code	Error Message	Troubleshooting Page
11-2T01	Load tray with [Letter], [Plain] paper	P.4-69
11-2T11	Load tray 1 with [Letter], [Plain] paper	P.4-69
11-2T21	Load tray 2 with [Letter], [Plain] paper	P.4-69
11-2T31	Load tray 3 with [Letter], [Plain] paper	P.4-69
11-2T41	Load tray 4 with [Letter], [Plain] paper	P.4-69
11-2T51	Load tray 5 with [Letter], [Plain] paper	P.4-69
11-2T61	Load MP with [Letter], [Plain] paper	P.4-69

► **Error Code**

11-2T01 / 11-2T11 / 11-2T21 / 11-2T31 / 11-2T41 / 11-2T51 / 11-2T61

► **Error message**

Load tray with [Letter], [Plain] paper

Load tray 1 with [Letter], [Plain] paper

Load tray 2 with [Letter], [Plain] paper

Load tray 3 with [Letter], [Plain] paper

Load tray 4 with [Letter], [Plain] paper

Load tray 5 with [Letter], [Plain] paper

Load MP with [Letter], [Plain] paper

► **Symptom**

Paper in tray is not matched to the machine paper setting.

► **Troubleshooting method**

 **NOTE**

To see the troubleshooting video for this error, click through to the link below.

- 11-2T01 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_11-2T01.html
- 11-2T11 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_11-2T11.html
- 11-2T21 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_11-2T21.html
- 11-2T31 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_11-2T31.html
- 11-2T41 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_11-2T41.html
- 11-2T51 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_11-2T51.html
- 11-2T61 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_11-2T61.html

- 1) Check and change the paper setting of the corresponding tray properly.

4.6.2. 61–1xxx (System Error)

Error Code	Error Message	Troubleshooting Page
61-1111	Booting Failure: #61-1111. Turn off then on. Call for service if the problem persists	P.4–70
61-1Y70	Scanner Failure: #61-1Y70. Turn off then on. Call for service if the problem persists	P.4–70

► Error Code

61-1111

► Error message

Booting Failure: #61-1111. Turn off then on. Call for service if the problem persists

► Symptom

Hibernation image creation is failed.

► Troubleshooting method



NOTE

To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_61-1111.html

- 1) Turn the machine on with a normal booting.
- 2) Enter the SVC mode. Select “Hibernation On” again.

► Error Code

61-1Y70

► Error message

Scanner Failure: #61-1Y70. Turn off then on. Call for service if the problem persists

► Symptom

Shading data is broken due to HDD/SD replacement or system format.

► Troubleshooting method



NOTE

To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_61-1Y70.html

- 1) Turn the machine off then on.
- 2) If the error persists, enter the SVC mode.
- 3) Execute the shading test.

4.6.3. A1–xxxx (Motor error)

Error Code	Error Message	Troubleshooting Page
A1-1111	Motor Failure: #A1-1111. Turn off then on. Call for service if the problem persists	P.4-72
A1-1113	Motor Failure: #A1-1113. Turn off then on. Call for service if the problem persists	P.4-72
A1-1211	Motor Failure: #A1-1211. Turn off then on. Call for service if the problem persists	P.4-73
A1-1213	Motor Failure: #A1-1213. Turn off then on. Call for service if the problem persists	P.4-73
A1-2111	Motor Failure: #A1-2111. Turn off then on. Call for service if the problem persists	P.4-74
A1-2113	Motor Failure: #A1-2113. Turn off then on. Call for service if the problem persists	P.4-74
A1-5113	Motor Failure: #A1-5113. Turn off then on. Call for service if the problem persists	P.4-75
A1-5512	Motor Failure: #A1-5512. Turn off then on. Call for service if the problem persists	P.4-75
A1-5513	Motor Failure: #A1-5513. Turn off then on. Call for service if the problem persists	P.4-75
A1-5610	Motor Failure: #A1-5610. Turn off then on. Call for service if the problem persists	P.4-75

▶ **Error Code**

A1-1111

A1-1113

▶ **Error message**

Motor Failure: #A1-1111. Turn off then on. Call for service if the problem persists.

Motor Failure: #A1-1113. Turn off then on. Call for service if the problem persists.

▶ **Symptom**

Regi/MP motor does not operate. / Regi/MP motor is operating but machine recognizes status as "Stopped".

▶ **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

- A1-1111 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_A1-1111.html
- A1-1113 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_A1-1113.html

- 1) Turn the machine off then on. If the error persists, check the following.
- 2) Open the side cover. Check if there are any foreign substances or paper around Regi./MP unit.
- 3) Remove the rear cover.
- 4) Check the connection between the motor and main board.
- 5) If the connection is OK, enter SVC mode. Execute the motor test.
(Diagnostics > Engine Diagnostics > Engine Test Routines)
 - a) If the motor is not operational,
 - i) Check the motor signal(3.3V). If the signal is abnormal, replace the main board.
 - ii) Check the power(24V). If the power is abnormal, check the SMPS board. If the SMPS board is defective, replace it.
 - iii) If the motor signal and power is normal, replace the Feed/MP motor.
 - b) If the motor is operational, replace the main board.

▶ Error Code

A1-1211

A1-1213

▶ Error message

Motor Failure: #A1-1211. Turn off then on. Call for service if the problem persists.

Motor Failure: #A1-1213. Turn off then on. Call for service if the problem persists.

▶ Symptom

Fuser motor does not operate. / Fuser motor is operational but machine recognizes status as stopped.

▶ Troubleshooting method



NOTE

To see the troubleshooting video for this error, click through to the link below.

- A1-1211 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_A1-1211.html
- A1-1213 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_A1-1213.html

- 1) Turn the machine off then on. If the error persists, check the following.
- 2) Open the side cover. Check if there are any foreign substances or paper around fuser unit.
- 3) Remove the rear cover.
- 4) Check the connection between the motor and main board.
- 5) If the connection is OK, enter SVC mode. Execute the motor test.
(Diagnostics > Engine Diagnostics > Engine Test Routines)
 - a) If the motor is not operational,
 - i) Check the motor signal(3.3V). If the signal is abnormal, replace the main board.
 - ii) Check the power(24V). If the power is abnormal, check the SMPS board. If the SMPS board is defective, replace it.
 - iii) If the motor signal and power is normal, replace the Fuser/Exit motor.
 - b) If the motor is operational, replace the main board.

▶ **Error Code**

A1-2111

A1-2113

▶ **Error message**

Motor Failure: #A1-2111. Turn off then on. Call for service if the problem persists.

Motor Failure: #A1-2113. Turn off then on. Call for service if the problem persists.

▶ **Symptom**

OPC motor does not operate. / OPC motor is operational but machine recognizes status as stopped.

▶ **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

- A1-2111 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_A1-2111.html
- A1-2113 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_A1-2113.html

- 1) Turn the machine off then on. If the error persists, check the following.
- 2) Remove the drum unit. Check if there are any foreign substances in drum unit.
- 3) Remove the rear cover.
- 4) Check the connection between the OPC motor and main board.
- 5) If the connection is OK, enter SVC mode. Execute the motor test.
(Diagnostics > Engine Diagnostics > Engine Test Routines)
 - a) If the motor is not operational,
 - i) Check the motor signal(3.3V). If the signal is abnormal, replace the main board.
 - ii) Check the power(24V). If the power is abnormal, check the SMPS board. If the SMPS board is defective, replace it.
 - iii) If the motor signal and power is normal, replace the OPC motor.
 - b) If the motor is operational, replace the main board.

► Error Code

A1-5113

A1-5512

A1-5513

A1-5610

► Error message

Motor Failure: #A1-5113. Turn off then on. Call for service if the problem persists.

Motor Failure: #A1-5512. Turn off then on. Call for service if the problem persists.

Motor Failure: #A1-5513. Turn off then on. Call for service if the problem persists.

Motor Failure: #A1-5610. Turn off then on. Call for service if the problem persists.

► Symptom

The motor related to toner supply has a problem.

► Troubleshooting method



NOTE

To see the troubleshooting video for this error, click through to the link below.

- A1-5113 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_A1-5113.htm
- A1-5512 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_A1-5512.html
- A1-5513 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_A1-5513.html
- A1-5610 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_A1-5610.html

1) Turn the machine off then on. If the error persists, check the following steps.

2) Enter the SVC mode. Select the toner supply motor test.

(Diagnostics > Engine Diagnostics > Engine Test Routines)

- a) If the motor is not operational,
 - i) Check the power(24V). If the power is abnormal, check the SMPS board. If the SMPS board is defective, replace it.
 - ii) If the SMPS board is normal, replace the main board.
 - iii) If the error persists after replacing the main board, replace the toner supply motor.
- b) If the motor is operational,
 - i) Check the toner cartridge remains. If necessary, replace the toner cartridge.
 - ii) If the toner cartridge remains is enough, replace the drum unit.

4.6.4. A2-xxxx (Fan error)

Error Code	Error Message	Troubleshooting Page
A2-1510	Fan Failure: #A2-1510. Turn off then on. Call for service if the problem persists	P.4-77
A2-1511	Fan Failure: #A2-1511. Turn off then on. Call for service if the problem persists	P.4-77
A2-1521	Fan Failure: #A2-1521. Open the door, then close it. Call for service if the problem persists	P.4-77
A2-1523	Fan Failure: #A2-1523. Open the door, then close it. Call for service if the problem persists	P.4-77
A2-2810	Fan Failure: #A2-2810. Turn off then on. Call for service if the problem persists	P.4-77
A2-2811	Fan Failure: #A2-2811. Turn off then on. Call for service if the problem persists	P.4-77
A2-2821	Fan Failure: #A2-2821. Open the door, then close it. Call for service if the problem persists	P.4-77
A2-2823	Fan Failure: #A2-2823. Open the door, then close it. Call for service if the problem persists	P.4-77
A2-2910	Fan Failure: #A2-2910. Turn off then on. Call for service if the problem persists	P.4-77
A2-2911	Fan Failure: #A2-2911. Turn off then on. Call for service if the problem persists	P.4-77
A2-2920	Fan Failure: #A2-2920. Open the door, then close it. Call for service if the problem persists	P.4-77
A2-2921	Fan Failure: #A2-2921. Open the door, then close it. Call for service if the problem persists	P.4-77

▶ Error Code

A2-1510 / A2-1511 / A2-1521 / A2-1523

A2-2810 / A2-2811 / A2-2821 / A2-2823

A2-2910 / A2-2911 / A2-2920 / A2-2921

▶ Error message

Fan Failure: #A2-xxxx. Turn off then on. Call for service if the problem persists

Fan Failure: #A2-xxxx. Open the door, then close it. Call for service if the problem persists

▶ Symptom

Fan does not operate or fan signal is abnormal.

▶ Troubleshooting method



NOTE

- Duplex fan error : A2-1510 / A2-1511 / A2-1521 / A2-1523
- Deve fan error : A2-2810 / A2-2811 / A2-2821 / A2-2823
- OPC blow-in fan error : A2-2910 / A2-2911 / A2-2920 / A2-2921

- 1) Turn the machine off then on. If the problem persists, check the followings.
- 2) Check the connection of the corresponding fan and main board.
- 3) If the connection is OK, enter SVC mode. Execute the fan test.
(Diagnostics > Engine Diagnostics > Engine Test Routines)
 - a) If the fan is not operational,
 - i) Check the power(24V).
 - If the power is abnormal, check the SMPS board. If the SMPS board is defective, replace it.
 - If the SMPS board is normal, replace the corresponding fan.
 - If the error persists after replacing the fan, replace the main board.
 - b) If the fan is operational,
 - i) Check the fan signal (3.3V) as connected or disconnected.
 - If the fan signal as disconnected is abnormal, replace the main board.
 - If the fan signal as connected is abnormal, replace the corresponding fan.

4.6.5. A3–xxxx (Sensor error)

Error Code	Error Message	Troubleshooting Page
A3-2113	The CTD sensor is dirty. Please clean it with soft cloth or paper	P.4–78
A3-3111	Sensor Failure: #A3-3111. Turn off then on. Call for service if the problem persists	P.4–79
A3-3112	Sensor Failure: #A3-3112. Turn off then on. Call for service if the problem persists	P.4–79
A3-3113	Sensor Failure: #A3-3113. Turn off then on. Call for service if the problem persists	P.4–79
A3-3114	Sensor Failure: #A3-3114. Turn off then on. Call for service if the problem persists	P.4–79
A3-3310	Sensor Failure: #A3-3310. Turn off then on. Call for service if the problem persists	P.4–80
A3-3311	Sensor Failure: #A3-3311. Turn off then on. Call for service if the problem persists	P.4–80
A3-3312	Sensor Failure: #A3-3312. Turn off then on. Call for service if the problem persists	P.4–80
A3-3410	Sensor Failure: #A3-3410. Turn off then on. Call for service if the problem persists	P.4–80
A3-3411	Sensor Failure: #A3-3411. Turn off then on. Call for service if the problem persists	P.4–80
A3-3412	Sensor Failure: #A3-3412. Turn off then on. Call for service if the problem persists	P.4–80

► **Error Code**

A3–2113

► **Error message**

The CTD sensor is dirty. Please clean it with soft cloth or paper.

► **Symptom**

CTD sensor window is contaminated.

► **Troubleshooting method**



NOTE

If the pop up window for cleaning is displayed, follow it.

- 1) Open the side cover.
- 2) Clean the sensor window with a soft cloth.
- 3) Close the side cover.
- 4) Enter SVC mode. Select the “CTD Sensor Cleaning”
(**Diagnostics Image Management > Auto Color Tone Adjustment Condition > CTD Sensor Cleaning**)
- 5) When pop up appears, select the “Yes” button.



NOTE

- a) CTD sensor calibration will start. Then “CTD sensor failure” error will be solved
- b) If you don't execute the CTD sensor cleaning in SVC mode, error message persists.

▶ **Error Code**

A3-3111 / A3-3112 / A3-3113 / A3-3114

▶ **Error message**

Sensor Failure: #A3-3111. Turn off then on. Call for service if the problem persists

Sensor Failure: #A3-3112. Turn off then on. Call for service if the problem persists

Sensor Failure: #A3-3113. Turn off then on. Call for service if the problem persists

Sensor Failure: #A3-3114. Turn off then on. Call for service if the problem persists

▶ **Symptom**

The NC sensor in the fuser unit is defective. / The sensor signal is abnormal due to a defective harness.

▶ **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

- A3-3111 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_A3-3111.html
- A3-3112 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_A3-3112.html
- A3-3113 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_A3-3113.html
- A3-3114 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_A3-3114.html

- A3-3111 : Center NC sensor is in short status.
 - A3-3112 : Center NC sensor is in open status.
 - A3-3113 : Side NC sensor is in short status.
 - A3-3114 : Side NC sensor is in open status.
- 1) Turn the machine off then on. If the problem persists, check the followings.
 - 2) Enter SVC mode. Execute the fuser temperature test
(Diagnostics > Engine Diagnostics > Engine Test Routines)
 - a) If the temperature test is failed, replace the fuser unit.
 - b) If the temperature test is normal, replace the main board.

► **Error Code**

A3-3310 / A3-3311 / A3-3312

A3-3410 / A3-3411 / A3-3412

► **Error message**

Sensor Failure: #A3-3310. Turn off then on. Call for service if the problem persists

Sensor Failure: #A3-3311. Turn off then on. Call for service if the problem persists

Sensor Failure: #A3-3312. Turn off then on. Call for service if the problem persists

Sensor Failure: #A3-3410. Turn off then on. Call for service if the problem persists

Sensor Failure: #A3-3411. Turn off then on. Call for service if the problem persists

Sensor Failure: #A3-3412. Turn off then on. Call for service if the problem persists

► **Symptom**

Outer temperature/humidity sensor is defective.

► **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

- A3-3310 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_A3-3310.html
- A3-3311 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_A3-3311.html
- A3-3312 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_A3-3312.html
- A3-3410 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_A3-3410.html
- A3-3411 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_A3-3411.html
- A3-3412 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_A3-3412.html

- A3-3310 / A3-3311 / A3-3312 : Temperature function is abnormal.
 - A3-3410 / A3-3411 / A3-3412 : Humidity function is abnormal.
- 1) Turn the machine off then on.
 - 2) Check the connection between the outer temp sensor and main board. If the connection is OK, replace the outer temp sensor .
 - 3) If the sensor is normal, replace the main board.

4.6.6. C1–xxxx (Toner cartridge error)

Error Code	Error Message	Troubleshooting Page
C1-1110	Prepare new toner cartridge	P.4–82
C1-1130	Replace with new toner cartridge	P.4–82
C1-1140	End of life, Replace with new toner cartridge	P.4–82
C1-1311	Toner Cartridge Failure: #C1-1311. Install toner cartridge again	P.4–82
C1-1411	Toner cartridge is not installed. Install the cartridge	P.4–83
C1-1512	Toner cartridge is not compatible. Check users guide	P.4–83

▶ **Error Code**

C1-1110

▶ **Error message**

Prepare new yellow toner cartridge.

▶ **Symptom**

Toner remained is 5 ~ 30% of its life.

▶ **Troubleshooting method**

- 1) Order new toner cartridge because toner cartridge with level of “Low” will be exhausted soon.

▶ **Error Code**

C1-1130 / C1-1140

▶ **Error message**

Replace with new toner cartridge

End of life, Replace with new toner cartridge

▶ **Symptom**

The toner cartridge is at the end of its life.

▶ **Troubleshooting method**

- 1) Open the front cover.
- 2) Remove the toner cartridge.
- 3) Install the new toner cartridge.
- 4) Close the toner cartridge.

▶ **Error Code**

C1-1311

▶ **Error message**

Toner Cartridge Failure: #C1-1311. Install toner cartridge again

▶ **Symptom**

Toner supply is inefficient or abnormal.

▶ **Troubleshooting method****NOTE**

To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_C1-1311.html

- 1) Turn the machine off. Open the front cover
- 2) Remove the toner cartridge. Shake the toner cartridge horizontally to distribute the toner evenly inside the cartridge.
- 3) If the problem persists, check the follows.
 - a) Check if the Toner Supply Drive Unit is defective. Replace it.
 - b) If the problem persists, replace the toner cartridge.
 - c) If the problem persists, replace the drum unit.

▶ **Error Code**

C1-1411

▶ **Error message**

Toner cartridge is not installed. Install it.

▶ **Symptom**

The toner cartridge is not installed. / The CRUM data is not detected.

▶ **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

(http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_C1-1411.html)

- 1) Open the front cover. Check if the toner cartridge is installed.
- 2) Remove and reinstall the toner cartridge.
- 3) If the problem persists, check if the toner cartridge modular jack is contaminated or deformed.
- 4) Replace the toner cartridge with a new one.

▶ **Error Code**

C1-1512

▶ **Error message**

Toner cartridge is not compatible. Check users guide.

▶ **Symptom**

Toner cartridge is not compatible.

▶ **Troubleshooting method**

- 1) Open the front cover. Remove the toner cartridge and re-install it.
- 2) Print the supply information report. Check the toner cartridge information.
- 3) If the toner cartridge is not a Samsung genuine, replace it with a new one.

4.6.7. C3–xxxx (Drum unit error)

Error Code	Error Message	Troubleshooting Page
C3-1110	Prepare new imaging unit	P.4-84
C3-1130	Replace with new imaging unit	P.4-84
C3-1140	End of life, Replace with new imaging unit	P.4-84
C3-1211	Imaging Unit Failure: #C3-1211. Please turn off then on	P.4-85
C3-1312	Imaging Unit Failure: #C3-1312. Install imaging unit again	P.4-85
C3-1411	Imaging unit is not installed. Install the unit	P.4-86
C3-1430	Clean the paper dust stick	P.4-86
C3-1512	Imaging unit is not compatible. Check users guide	P.4-86
C3-5414	Imaging Unit Failure: #C3-5414. Install imaging unit again	P.4-87

► **Error Code**

C3-1110

C3-1130

C3-1140

► **Error message**

Prepare new imaging unit

Replace with new imaging unit.

► **Symptom**

The Imaging unit has almost reached the end of life.

► **Troubleshooting method**

- 1) Open the front cover and remove the waste toner container.
- 2) Remove the drum unit.
- 3) If its life is at the end, replace the drum unit with new one.

▶ **Error Code**

C3-1211

▶ **Error message**

Imaging Unit Failure:#C3-1211. Please turn off then on.

▶ **Symptom**

Sensor calibration error that detects the toner density for image stabilization control has occurred.

▶ **Troubleshooting method**



To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_C3-1211.html

- 1) Open the front cover and remove the waste toner container.
- 2) Remove the drum unit.
- 3) If its life is at the end, replace the drum unit with new one.

▶ **Error Code**

C3-1312

▶ **Error message**

Imaging Unit Failure: #C3-1312. Install imaging unit again

▶ **Symptom**

TC sensor value in Deve unit is abnormal.

▶ **Troubleshooting method**



To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_C3-1312.html

- 1) Open the front cover.
- 2) Remove the waste toner container.
- 3) Check if the connector of the Deve unit is connected correctly.
- 4) Check if the 4 pin is deformed.
- 5) If the connector is OK, replace the Deve unit.
- 6) If the waste toner is full, replace it.

▶ Error Code**C3-1411****▶ Error message**

Imaging unit is not installed. Install the unit.

▶ Symptom

The imaging unit is not installed. / The data of CRUM is not detected.

▶ Troubleshooting method**NOTE**

To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_C3-1411.html

- 1) Open the front cover and remove the waste toner container.
- 2) Remove the drum unit.
- 3) If its life is at the end, replace the drum unit with new one.

▶ Error Code**C3-1430****▶ Error message**

Clean the paper dust stick

▶ Symptom

OPC cleaning error has occurred.

▶ Troubleshooting method

- 1) Open the front cover and remove the waste toner container.
- 2) Pull the paper dust stick out.
- 3) Remove the paper dust. Then, insert the paper dust stick back.
(Refer to “Cleaning the paper dust stick”.)

▶ Error Code**C3-1512****▶ Error message**

Imaging unit is not compatible. Check user's guide

▶ Symptom

Imaging unit is not compatible.

▶ Troubleshooting method

- 1) Open the front cover and remove the waste toner container.
- 2) Remove the drum unit.
- 3) If its life is at the end, replace the drum unit with new one.

▶ **Error Code**

C3-5414

▶ **Error message**

Imaging Unit Failure: #C3-5414. Install imaging unit again

▶ **Symptom**

The machine can't read the charge roller resistance of the drum unit.

▶ **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_C3-5414.html

- 1) Open the front cover.
- 2) Remove the waste toner container.
- 3) Open the side cover.
- 4) Remove the drum unit after loosening 1 screw.
- 5) If there is contamination or foreign substance of the contact plate in drum unit, clean it.
- 6) Check if both screws of the charge roller tighten.
- 7) If there is no problem, replace the drum unit.
- 8) If the problem persists, replace the HVPS board.

4.6.8. C6–xxxx (Fuser unit error)

Error Code	Error Message	Troubleshooting Page
C6-1120	Replace with new fuser unit	P.4–88
C6-1310	Fuser unit is not installed. Install it	P.4–88

▶ **Error Code**

C6–1120

▶ **Error message**

Replace with new fuser unit

▶ **Symptom**

The life of the fuser unit has expired.

▶ **Troubleshooting method**

- 1) Turn the machine off.
- 2) Replace the fuser unit.
- 3) Turn the machine on.

▶ **Error Code**

C6–1310

▶ **Error message**

Fuser unit is not installed. Install it.

▶ **Symptom**

The fuser unit is not installed or fuser unit connector is not connected properly.

▶ **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_C6-1310.html

- 1) Turn the machine off then on.
- 2) If the problem persists, turn the machine off again.
- 3) Open the side cover. Check if the fuser unit is installed. If not, install the fuser unit.
- 4) If the fuser unit is installed, remove it.
- 5) Check if the fuser draw connector is broken or defective.
- 6) Install the fuser unit.
- 7) If the problem persists, replace the fuser unit.



CAUTION

The temperature gets high in the vicinity of the fuser unit. When replacing it, you may get burned. Before replacing it, make sure that fuser unit has cooled.

4.6.9. C7-xxxx (Waste toner container error)

Error Code	Error Message	Troubleshooting Page
C7-1110	Waste toner container is almost full. Order new one	P.4-89
C7-1130	Waste toner container is full. Replace it	P.4-89
C7-1311	Waste toner container is not installed. Install it	P.4-90

▶ **Error Code**

C7-1110

C7-1130

▶ **Error message**

Waste toner container is almost full. Order new one.

Waste toner container is full. Replace it.

▶ **Symptom**

The life of the waste toner container expires soon or has expired.

▶ **Troubleshooting method**

- 1) Open the front cover and remove the waste toner container.
- 2) Replace the waste toner container with new one.
- 3) Close the front cover.

▶ Error Code

C7-1311

▶ Error message

Waste toner container is not installed. Install it.

▶ Symptom

The waste toner container is not installed.

▶ Troubleshooting method**NOTE**

To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_C7-1311.html

- 1) Open the front cover and check the waste toner container is installed correctly.
- 2) Check the waste toner container sensor operates correctly.
- 3) If the waste toner container sensor is defective, replace it.
- 4) If the problem persists, replace the waste toner container with new one.

4.6.10. C8–xxxx (Developer error)

Error Code	Error Message	Troubleshooting Page
C8-1130	Replace with new developer unit	P.4–91

▶ **Error Code**

C8-1130

▶ **Error message**

Replace with new magenta developer unit

▶ **Symptom**

The life of the developer unit has expired.

▶ **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_C8-1130.html

- 1) Turn the machine off.
- 2) Open the front cover and remove the waste toner container.
- 3) Replace the deve unit.

4.6.11. C9–xxxx (Transfer Belt error)

Error Code	Error Message	Troubleshooting Page
C9-2110	Prepare new transfer roller	P.4–92
C9-2120	Replace with new transfer roller	P.4–92
C9-2220	TR Failure: #C9-2220. Install transfer roller again	P.4–93

▶ **Error Code**

C9–2110

C9–2120

▶ **Error message**

Prepare new transfer roller

Replace with new Transfer roller.

▶ **Symptom**

Transfer belt (PTB) is at the end of its life.

▶ **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

- C9–2110 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_C9-2110.html
- C9–2120 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_C9-2120.html

- 1) Open the side-cover.
- 2) Replace the PTB unit.

▶ **Error Code**

C9-2220

▶ **Error message**

TR Failure: #C9-2220. Install transfer roller again.

▶ **Symptom**

The resistance value of the transfer roller is abnormal.

▶ **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

(http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_C9-2220.html)

- 1) Open the side cover.
- 2) Replace the PTB unit.
- 3) If the problem persists, replace the HVPS board.

4.6.12. H1-xxxx (Double Cassette Feeder Unit Error)

Error Code	Error Message	Troubleshooting Page
H1-1311	Paper jam in Tray 3	P.4-95
H1-1312	Paper jam in Tray 3	P.4-95
H1-1313	Paper jam in Tray 3	P.4-95
H1-1314	Paper jam inside of machine	P.4-95
H1-1315	Paper jam in Tray 3	P.4-95
H1-1317	Paper jam in Tray 3	P.4-95
H1-1318	Paper jam in Tray 3	P.4-95
H1-1322	Tray 3 cassette is pulled out. Insert it properly	P.4-97
H1-1351	Paper is low in Tray 3. Load paper	P.4-98
H1-1352	Paper is empty in Tray 3. Load paper	P.4-98
H1-1353	Input System Failure: #H1-1353. Pull Tray 3 out and insert it	P.4-99
H1-1354	Paper is empty in tray 3. Load paper	P.4-98
H1-1411	Paper jam in Tray 4	P.4-100
H1-1412	Paper jam in Tray 4	P.4-100
H1-1417	Paper jam in Tray 4	P.4-100
H1-1418	Paper jam in Tray 4	P.4-100
H1-1422	Tray 4 cassette is pulled out. Insert it properly	P.4-102
H1-1451	Paper is low in Tray 4. Load paper	P.4-103
H1-1452	Paper is empty in Tray 4. Load paper	P.4-103
H1-1453	Input System Failure: #H1-1453. Pull Tray 4 out and insert it	P.4-104
H1-1454	Paper is empty in tray 4. Load paper	P.4-103
H1-5323	Tray door is open. Close the door	P.4-105
H1-5330	DCF Failure: #H1-5330. Check internal DCF connection	P.4-106

▶ **Error Code**

H1-1311 / H1-1312 / H1-1313 / H1-1314 / H1-1315 / H1-1317 / H1-1318

▶ **Error message**

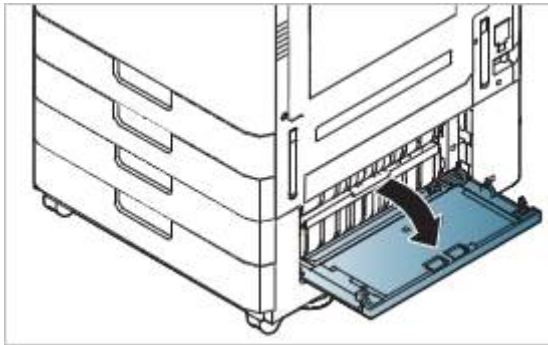
Paper jam in Tray 3.

▶ **Symptom**

Paper jam has occurred in tray3. (Pick up unit connection is defective. / Pickup rollers are defective. / pre Feed sensor is defective.)

▶ **Troubleshooting method**

- 1) Open the DCF Take Away-Cover. Remove the jammed paper.



- 2) Remove tray3. Remove the jammed paper. Close the DCF Take Away-Cover and insert tray3.
- 3) If this jam error occurs frequently, check the rollers below.
 - a) Remove the tray3 and tray4.
 - b) Check if the pick up/ reverse/ forward rollers are assembled correctly.



- c) If the pick up/ reverse/ forward rollers are worn out or contaminated, replace the defective roller.
- 4) If pick up/ reverse/ forward rollers have no problem, check the following.
 - a) Remove the DCF pick up unit1. Check if the pre feed sensor cable is connected correctly.
 - b) Check if the sensor cable on DCF PBA is connected correctly.
 - c) If the connection is OK, replace the pre feed sensor(0604-001490).
 - d) Install the DCF pick up unit1.
- 5) If the problem persists after checking step 3~4, check the following :
 - a) Remove the DCF pick up unit1. Check if the sensor and actuator are assembled correctly.
 - b) When pushing the pickup lever, check if the pick up rollers are down.
 - c) Replace the DCF pick up unit1(JC93-01087A) or defective part.
- 6) Check the DCF feed motor.
 - a) Check if the DCF feed motor cable is connected correctly.
 - b) If the connection is OK, replace the DCF feed drive unit(JC93-01135A).
- 7) Check the DCF pick up motor.

- a) Check if the DCF pick up motor cable is connected correctly.
- b) If the connection is OK, replace the DCF pick up drive unit([JC93-01063A](#)).

▶ **Error Code**

H1-1322

▶ **Error message**

Tray 3 cassette is pulled out. Insert it properly.

▶ **Symptom**

Tray 3 is pulled out or the auto size sensor connector is not connected or broken.

▶ **Troubleshooting method**

- 1) Remove and insert tray3 correctly.
- 2) If the problem persists, remove tray3 and tray4. Look inside machine.
- 3) Check if the auto size sensor cable is connected correctly. Unplug and reconnect it.



- 4) If the connection is OK, replace the auto size sensor([JC32-00013A](#)).
- 5) If the problem persists, replace the DCF PBA([JC92-02738A](#)).

▶ Error Code

H1-1351 / H1-1352 / H1-1354

▶ Error message

Paper is low in Tray 3. Load paper.

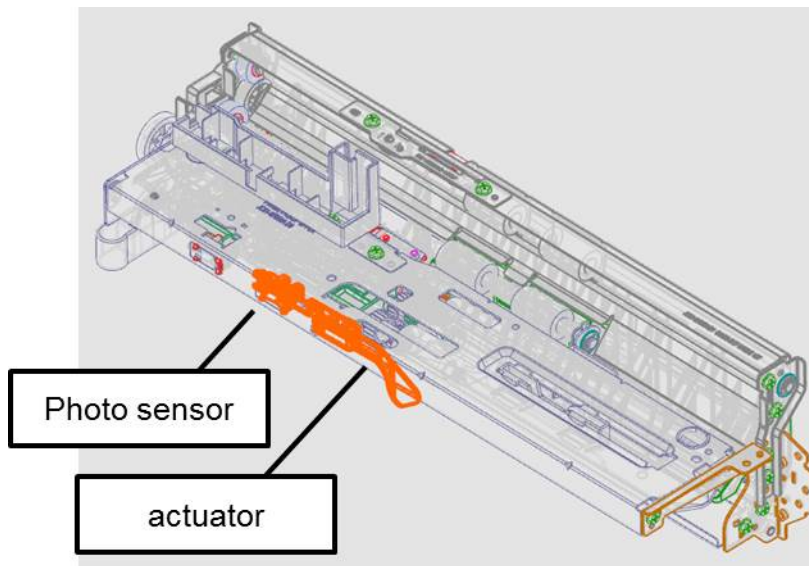
Paper is empty in Tray 3. Load paper.

▶ Symptom

Paper in the tray is less than 10% of specification. / The photo sensor is defective.

▶ Troubleshooting method

- 1) Remove tray3. Load the paper in tray3.
- 2) If paper is loaded but error message has not disappeared, check the following.
 - a) Remove the DCF pick up unit1.
 - b) Check if the photo sensor in the DCF pick up unit1 is contaminated. If so, clean it.
 - c) If the photo sensor([0604-001393](#)) is defective, replace it.
 - d) If the actuator([JC66-04399A](#)) is defective, replace it.



▶ **Error Code**

H1-1353

▶ **Error message**

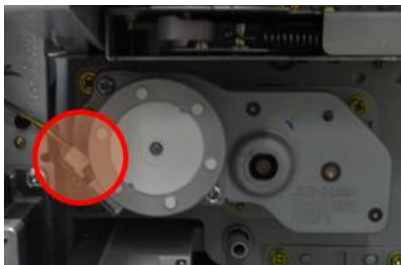
Input System Failure #H1-1353 : Pull Tray 3 out and insert it.

▶ **Symptom**

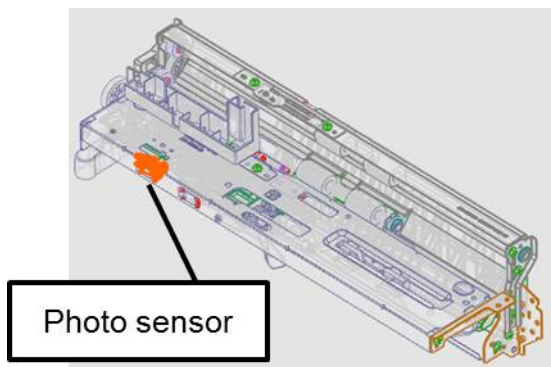
The paper is not fed from tray3.

▶ **Troubleshooting method**

- 1) Remove and insert tray3 correctly.
- 2) Turn the machine off then on.
- 3) If the problem persists, turn the machine off.
- 4) Remove the Rear Cover.
- 5) Check if the connection between the DCF pick up drive unit and DCF PBA is correct.



- 6) If the connection is OK, replace the pick up drive unit([JC93-01063A](#)).
- 7) If the problem persists, check the following.
 - a) Remove the DCF pick up unit1.
 - b) Check if the photo sensor in the DCF pick up unit1 is contaminated, clean it.
 - c) If the photo sensor([0604-001393](#)) is defective, replace it.



► **Error Code**

H1-1411 / H1-1412 / H1-1417 / H1-1418

► **Error message**

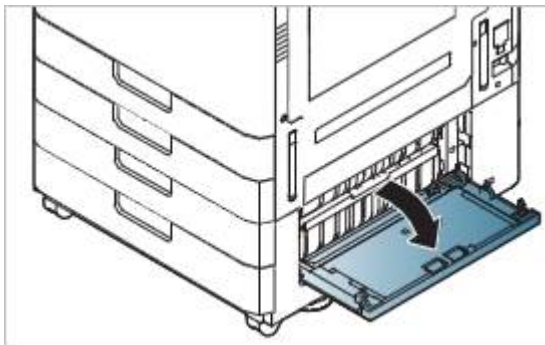
Paper jam in Tray 4.

► **Symptom**

Paper jam has occurred in tray4. (Pick up unit connection is defective. / Pickup rollers are defective. / Pre Feed sensor is defective.)

► **Troubleshooting method**

- 1) Open the DCF Take Away-Cover. Remove the jammed paper.



- 2) Remove tray4. Remove the jammed paper. Close the DCF Take Away-Cover and insert tray4.
- 3) If this jam error occurs frequently, check the rollers below.
 - a) Remove tray3 and tray4.
 - b) Check if the pick up/ reverse/ forward rollers are assembled correctly.



- c) If the pick up/ reverse/ forward rollers are worn out or contaminated, replace the defective roller.
- 4) If pick up/ reverse/ forward rollers have no problem, check the following.
 - a) Remove the DCF pick up unit2. Check if the feed sensor cable is connected correctly.
 - b) Check if the sensor cable on DCF PBA is connected correctly.
 - c) If the connection is OK, replace the pre feed sensor(0604-001490).
 - d) Install the DCF pick up unit2.
- 5) If the problem persists after checking step 3~4, check the following :
 - a) Remove the DCF pick up unit2. Check if the sensor and actuator are assembled correctly.
 - b) When pushing the pickup lever, check if the pick up rollers are down.
 - c) Replace the DCF pick up unit2(JC93-00513A) or defective part.
- 6) Check the DCF feed motor.
 - a) Check if the DCF feed motor cable is connected correctly.
 - b) If the connection is OK, replace the DCF feed drive unit(JC93-01135A).
- 7) Check the DCF pick up motor.

4. Troubleshooting

- a) Check if the DCF pick up motor cable is connected correctly.
- b) If the connection is OK, replace the DCF pick up drive unit([JC93-01063A](#)).

▶ Error Code

H1-1422

▶ Error message

Tray 4 cassette is pulled out. Insert it properly.

▶ Symptom

Tray 4 is pulled out or the auto size sensor connector is not connected or is broken.

▶ Troubleshooting method

- 1) Remove and insert tray4 correctly.
- 2) If the problem persists, remove tray3 and tray4. Look inside machine.
- 3) Check if the auto size sensor cable is connected correctly. Unplug and reconnect it.



- 4) If the connection is OK, replace the auto size sensor([JC32-00013A](#)).
- 5) If the problem persists, replace the DCF PBA([JC92-02738A](#)).

▶ **Error Code**

H1-1451 / H1-1452 / H1-1454

▶ **Error message**

Paper is low in Tray 4. Load paper.

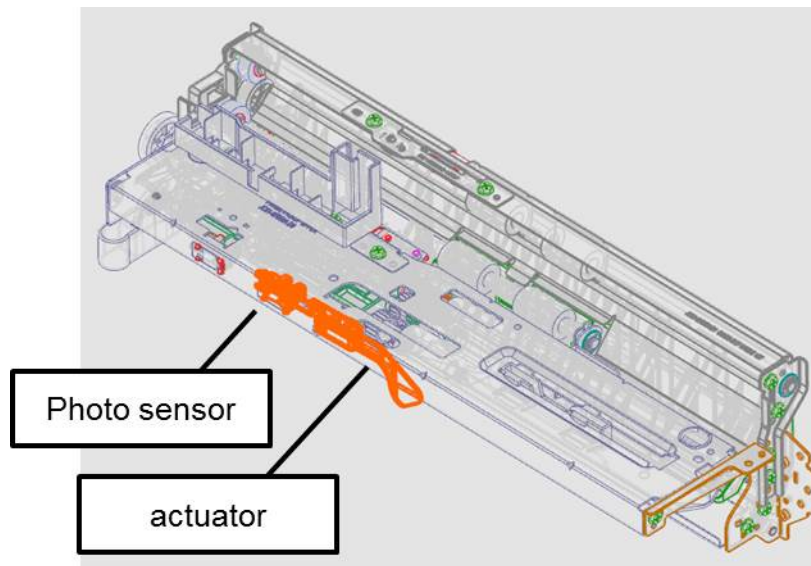
Paper is empty in Tray 4. Load paper.

▶ **Symptom**

Paper in tray4 is less than 10%. / The photo sensor is defective.

▶ **Troubleshooting method**

- 1) Remove tray4. Load the paper in tray4.
- 2) If paper is loaded but error message has not disappeared, check the following.
 - a) Remove the DCF pick up unit2.
 - b) Check if the photo sensor in the DCF pick up unit2 is contaminated. If so, clean it.
 - c) If the photo sensor([0604-001393](#)) is defective, replace it.
 - d) If the actuator([JC66-04399A](#)) is defective, replace it.



► **Error Code**

H1-1453

► **Error message**

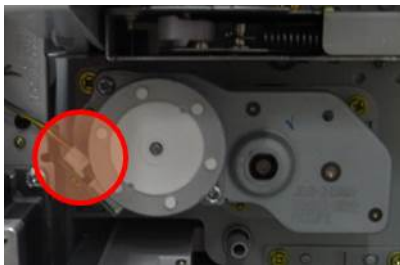
Input System Failure #H1-1453 : Pull Tray 4 out and insert it.

► **Symptom**

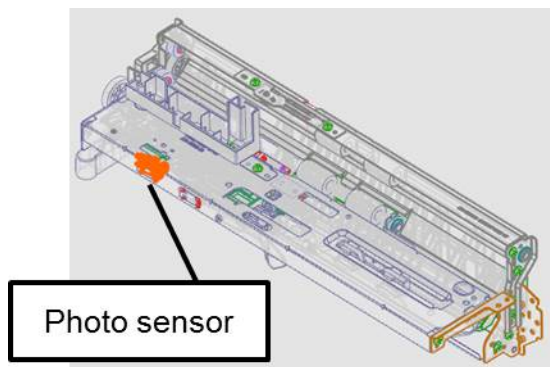
The paper is not fed from tray4.

► **Troubleshooting method**

- 1) Remove and insert tray4 correctly.
- 2) Turn the machine off then on.
- 3) If the problem persists, turn the machine off.
- 4) Remove the Rear Cover.
- 5) Check if the connection between the DCF pick up drive and DCF PBA is correct.



- 6) If the connection is OK, replace the pick up drive unit([JC93-00442A](#)).
- 7) If the problem persists, check the following.
 - a) Remove the DCF pick up unit2.
 - b) Check if the photo sensor in the DCF pick up unit2 is contaminated. If so, clean it.
 - c) If the photo sensor([0604-001393](#)) is defective, replace it.



▶ **Error Code**

H1-5323

▶ **Error message**

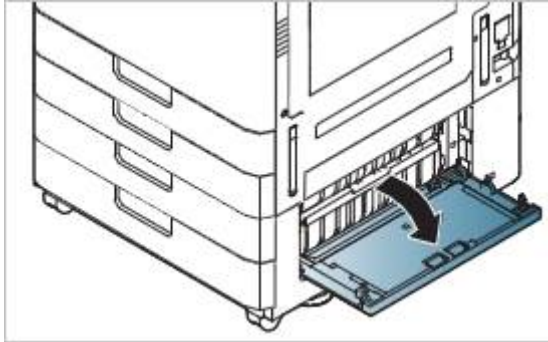
Tray door is open. Close the door

▶ **Symptom**

DCF Takeaway-Cover is open. / I/L-Switch harness or connector is defective.

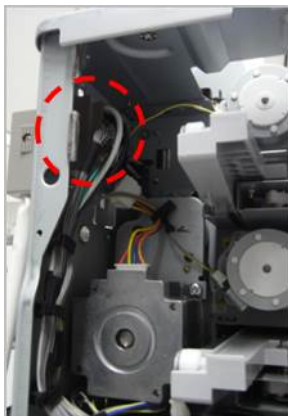
▶ **Troubleshooting method**

- 1) Open and close the DCF Take away-Cover correctly.



- 2) If the problem persists, check the following.

- a) Check if I/L-Switch(HARNES-DCF COVER OPEN)([JC39-02268A](#)) is not operating normally. If it is defective, replace it.



- b) If the I/L Switch is OK, replace the DCF PBA([JC92-02738A](#)).

▶ Error Code

H1-5330

▶ Error message

DCF Failure #H1-5330. Check internal DCF connection.

▶ Symptom

A communication error between the optional tray and the main machine has occurred.

▶ Troubleshooting method

- 1) Lift up and release the DCF unit from the machine.
- 2) Remove the Rear Cover.
- 3) Check if the interface connector is connected to the DCF PBA. If the interface connector([JC39-02276A](#)) is defective, replace it.



- 4) If the problem persists, replace the DCF PBA.

4.6.13. H1-xxxx (High Capacity Feeder Unit Error)

Error Code	Error Message	Troubleshooting Page
H1-2311	Paper Jam in tray 3. After open the door & remove paper, Close the door	P.4-108
H1-2312	Paper Jam in tray 3. After open the door & remove paper, Close the door	P.4-108
H1-2313	Paper Jam in tray 3. After open the door & remove paper, Close the door	P.4-108
H1-2317	Paper Jam in tray 3. After open the door & remove paper, Close the door	P.4-108
H1-2318	Paper Jam in tray 3. After open the door & remove paper, Close the door	P.4-108
H1-2320	HCF 3 door is open. Close it	P.4-110
H1-2322	HCF 3 cassette is pulled out. Insert it properly	P.4-110
H1-2330	Input System Failure: #H1-2330. Check HCF 3 connection	P.4-110
H1-2351	Paper is low in HCF 3. Load paper	P.4-111
H1-2352	Paper is empty in HCF 3. Load paper	P.4-111
H1-2353	Input System Failure #H1-2353 : Pull HCF 3 out and insert it	P.4-112

► **Error Code**

H1-2311 / H1-2312 / H1-2313 / H1-2317 / H1-2318

► **Error message**

Paper Jam in tray 3. After open the door & remove paper, Close the door

► **Symptom**

Paper jam has occurred in HCF tray. (Pick up unit connection is defective. / Pickup rollers are defective. / pre feed sensor is defective.)

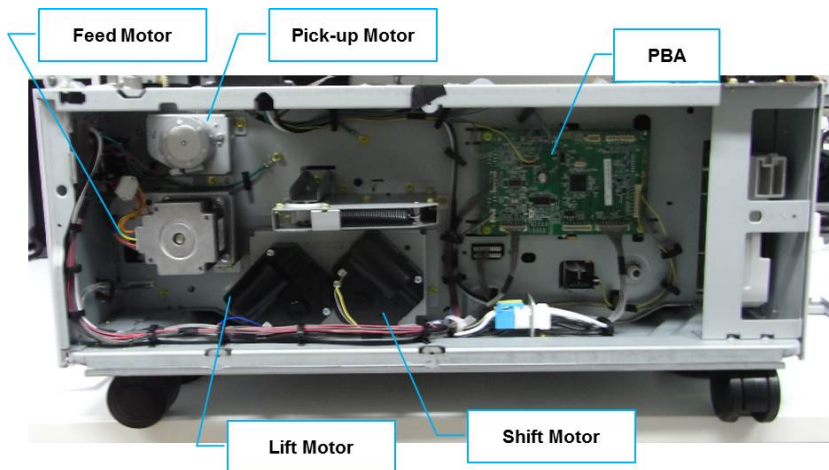
► **Troubleshooting method**

- 1) Open the HCF Take Away-Cover. Remove the jammed paper.
- 2) Remove HCF tray. Remove the jammed paper. Close the HCF Take Away-Cover and insert HCF tray.
- 3) If this jam error occurs frequently, check the rollers below.
 - a) Remove the HCF tray.
 - b) Check if the pick up/ reverse/ forward rollers are assembled correctly.



- c) If the pick up/ reverse/ forward rollers are worn out or contaminated, replace the defective roller.
- 4) If pick up/ reverse/ forward rollers have no problem, check the following.
 - a) Remove the HCF pick up unit. Check if the pre feed sensor cable is connected correctly.
 - b) Check if the sensor cable on HCF PBA is connected correctly.
 - c) If the connection is OK, replace the pre feed sensor([0604-001490](#)).
 - d) Install the HCF pick up unit.
- 5) If the problem persists after checking step 3~4, check the following :
 - a) Remove the HCF pick up unit. Check if the sensor and actuator are assembled correctly.
 - b) When pushing the pickup lever, check if the pick up rollers are down.
 - c) Replace the HCF pick up unit([JC93-01139A](#)) or defective part.
- 6) Check the HCF feed motor.
 - a) Check if the HCF feed motor cable is connected correctly.

- b) If the connection is OK, replace the HCF feed drive unit(*JC93-01114A*).



- 7) Check the HCF pick up motor.
- a) Check if the HCF pick up motor cable is connected correctly.
 - b) If the connection is OK, replace the HCF pick up drive unit(*JC93-01115A*).

▶ Error Code**H1-2320****▶ Error message**

Tray 3 door is open. Close it.

▶ Symptom

HCF Takeaway-Cover is open. / Side door open switch harness or connector is defective.

▶ Troubleshooting method

- 1) Open and close the HCF Take away-Cover correctly.
- 2) Check if the side door open switch is connected correctly. Unplug and reconnect it.
- 3) If the connection is OK, replace the side door open switch([JC39-02279A](#)).
- 4) If the problem persists, replace the HCF PBA([JC92-02738B](#)).

▶ Error Code**H1-2322****▶ Error message**

Tray 3 cassette is pulled out. Insert it properly.

▶ Symptom

HCF Tray is pulled out or the Tray insertion sensor connector is not connected or broken.

▶ Troubleshooting method

- 1) Remove and insert HCF tray correctly.
- 2) If the problem persists, remove HCF tray. Look inside machine.
- 3) Check if the tray insertion sensor is connected correctly. Unplug and reconnect it.
- 4) If the connection is OK, replace the tray insertion sensor([0604-001393](#)).
- 5) If the problem persists, replace the HCF PBA([JC92-02738B](#)).

▶ Error Code**H1-2330****▶ Error message**

Tray Failure: #H1-2330. Check tray 3 connection & turn off then on. Call for service if the problem persists

▶ Symptom

A communication error between the optional tray and the main machine has occurred.

▶ Troubleshooting method

- 1) Turn the machine off.
- 2) Remove the Rear Cover.
- 3) Check the connection of HCF PBA. If the interface connector is defective, replace it.
- 4) If the problem persists, replace the HCF PBA.

▶ **Error Code**

H1-2351 / H1-2352

▶ **Error message**

Paper is low in Tray 3. Load paper.

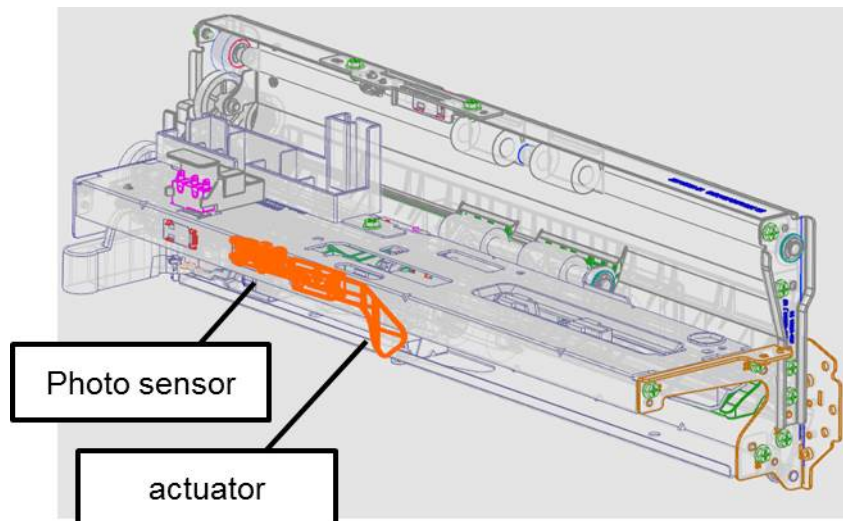
Paper is empty in Tray 3. Load paper.

▶ **Symptom**

Paper in the HCF tray is less than 10% of specification. / The photo sensor is defective.

▶ **Troubleshooting method**

- 1) Remove HCF tray. Load the paper in HCF tray.
- 2) If paper is loaded but error message has not disappeared, check the following.
 - a) Remove the HCF pick up unit.
 - b) Check if the photo sensor in the HCF pick up unit is contaminated. If so, clean it.
 - c) If the photo sensor([0604-001393](#)) is defective, replace it.
 - d) If the actuator([JC66-04399A](#)) is defective, replace it.



▶ Error Code

H1-2353

▶ Error message

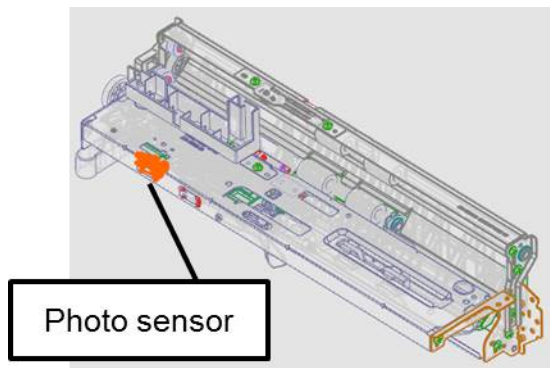
Tray Failure: #H1-2353. Pull tray 3 out and insert it. Call for service if the problem persists

▶ Symptom

The paper is not fed from HCF tray.

▶ Troubleshooting method

- 1) Remove and insert HCF tray correctly.
- 2) Turn the machine off then on.
- 3) If the problem persists, turn the machine off.
- 4) Remove the Rear Cover.
- 5) Check if the connection between the HCF pick up drive unit and HCF PBA is correct.
- 6) If the connection is OK, replace the HCF pick up drive unit(*JC93-01115A*).
- 7) If the problem persists, check the following.
 - a) Remove the HCF pick up unit.
 - b) Check if the photo sensor in the HCF pick up unit is contaminated, clean it.
 - c) If the photo sensor(*0604-001393*) is defective, replace it.



4.6.14. H1–xxxx (High Capacity Feeder Side Unit(LCT Unit) Error)

Error Code	Error Message	Troubleshooting Page
H1-4411	Paper jam in Tray 4	P.4-114
H1-4412	Paper jam in Tray 4	P.4-114
H1-4413	Paper jam in Tray 4	P.4-114
H1-4417	Paper jam in Tray 4	P.4-114
H1-4418	Paper jam in Tray 4	P.4-114
H1-4420	Tray 4 door is open. Close it	P.4-116
H1-4422	Tray 4 cassette is pulled out. Insert it properly.	P.4-117
H1-4430	Tray Failure: #H1-4430. Check tray 4 connection	P.4-118
H1-4451	Paper is low in Tray 4. Load paper.	P.4-119
H1-4452	Paper is empty in Tray 4. Load paper.	P.4-119
H1-4453	Input System Failure #H1-4453 : Pull Tray 4 out and insert it.	P.4-120
H1-4511	Paper jam in Tray 5	P.4-114
H1-4512	Paper jam in Tray 5	P.4-114
H1-4513	Paper jam in Tray 5.	P.4-114
H1-4517	Paper jam in Tray 5.	P.4-114
H1-4518	Paper jam in Tray 5	P.4-114
H1-4520	Tray 5 door is open. Close it	P.4-116
H1-4522	Tray 5 cassette is pulled out. Insert it properly.	P.4-117
H1-4530	Tray Failure: #H1-4530. Check tray 5 connection	P.4-118
H1-4551	Paper is low in Tray 5. Load paper.	P.4-119
H1-4552	Paper is empty in Tray 5. Load paper.	P.4-119
H1-4553	Input System Failure #H1-4553 : Pull Tray 5 out and insert it.	P.4-120

► **Error Code**

H1-4411 / H1-4412 / H1-4413 / H1-4417 / H1-4418 (HCF+LCT)

H1-4511 / H1-4512 / H1-4513 / H1-4517 / H1-4518 (DCF+LCT)

► **Error message**

Paper jam in Tray 4.

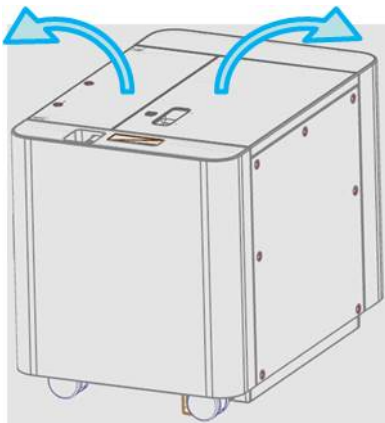
Paper jam in Tray 5.

► **Symptom**

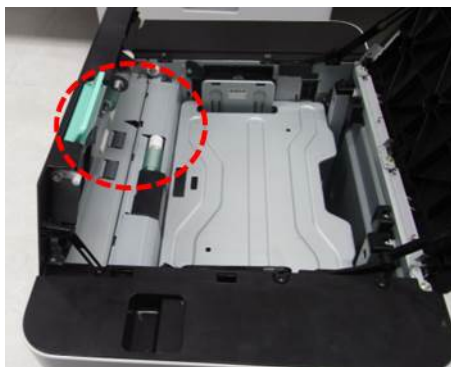
Paper jam has occurred in LCT. (Pick up unit connection is defective. / Pickup rollers are defective. / Feed sensor is defective.)

► **Troubleshooting method**

- 1) Open the LCT Top Cover. Remove the jammed paper. And, close the LCT Top Cover.



- 2) If this jam error occurs frequently, check the rollers below.
 - a) Open the LCT Top Cover.
 - b) Check if the pick up/ reverse/ forward rollers are assembled correctly.



- c) If the pick up/ reverse/ forward rollers are worn out or contaminated, replace the defective roller([JC93-01091A](#)).
- 3) If pick up/ reverse/ forward rollers have no problem, check the following.
 - a) Remove the LCT pick up unit. Check if the feed sensor cable is connected correctly.
 - b) Check if the sensor cable on LCT board is connected correctly.
 - c) If the connection is OK, replace the feed sensor([0604-001490](#)).
 - d) Check if the sensor and actuator are assembled correctly.
 - e) Install the LCT pick up unit.
- 4) Check the LCT feed motor and pick-up motor.
 - a) Check if the LCT feed motor and pick-up motor cables are connected correctly.

- b) If the connection is OK, replace the LCT feed drive unit([JC93-01112A](#)).

► Error Code

H1-4420

H1-4520

► Error message

Tray 4 door is open. Close it

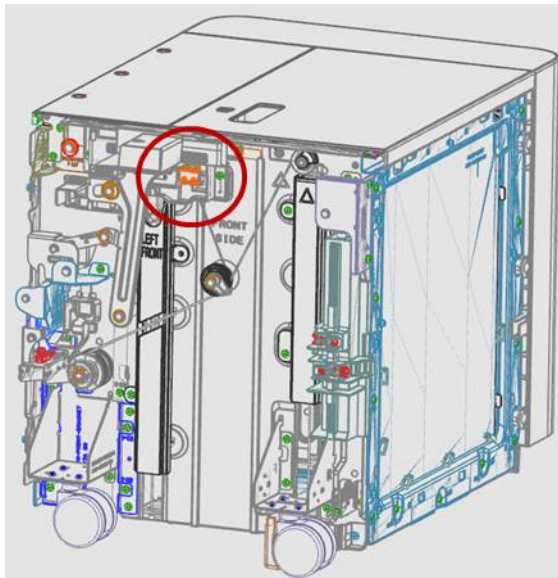
Tray 5 door is open. Close it

► Symptom

LCT Top Cover is open. / I/L-Switch harness or connector is defective.

► Troubleshooting method

- 1) Open and close the LCT Top Cover correctly.
- 2) If the problem persists, check the following.
 - a) Check if I/L-Switch(Top Door Open Switch)([JC39-02346A](#)) is not operating normally. If it is defective, replace it.



- b) If the Top Door Open Switch is OK, replace the LCT PBA([JC92-02738C](#)).

▶ **Error Code**

H1-4422

H1-4522

▶ **Error message**

Tray 4 cassette is pulled out. Insert it properly.

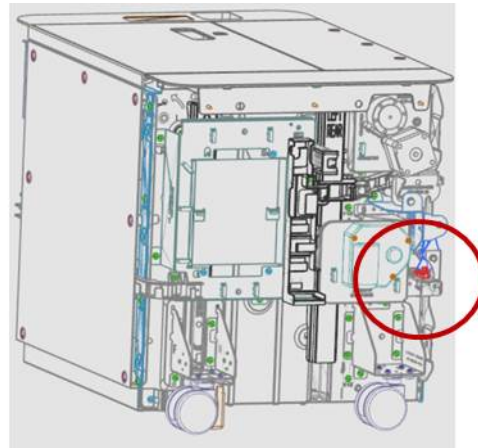
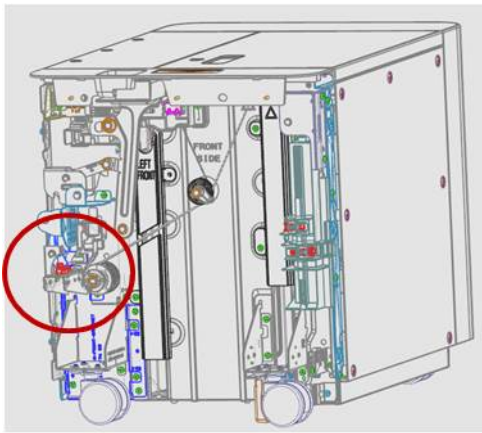
Tray 5 cassette is pulled out. Insert it properly.

▶ **Symptom**

LCT is pulled out or installation detect sensor is not connected or broken.

▶ **Troubleshooting method**

- 1) Detach and Attach the LCT
- 2) If the problem persists, detach LCT and check inside machine.
- 3) Remove the Front Cover and Rear Cover. Check the connection of the installation detect sensors. And, unplug and reconnect it.



- 4) If the connection is OK, replace the installation detect sensor ([0604-01393](#)).
- 5) If the problem persists, replace the LCT PBA ([JC92-02738C](#)).

▶ Error Code

H1-4430

H1-4530

▶ Error message

Tray Failure: #H1-4430. Check tray 4 connection

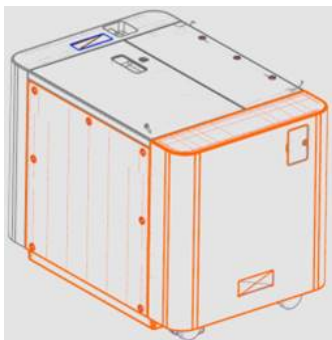
Tray Failure: #H1-4530. Check tray 5 connection

▶ Symptom

A communication error between the LCT and the main machine has occurred.

▶ Troubleshooting method

- 1) Turn the machine off.
- 2) Remove the LCT Cover-Right and LCT Cover-Rear.



- 3) Check the connection of LCT PBA. If the interface connector([JC39-02294A](#)) is defective, replace it.



- 4) If the problem persists, replace the LCT PBA.

▶ **Error Code**

H1-4451 / H1-4452

H1-4551 / H1-4552

▶ **Error message**

Paper is low in Tray 4. Load paper. / Paper is empty in Tray 4. Load paper.

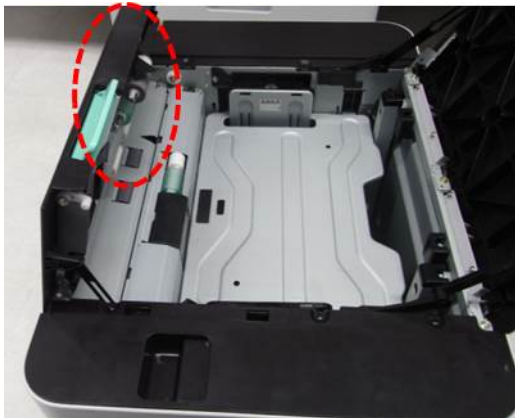
Paper is low in Tray 4. Load paper. / Paper is empty in Tray 4. Load paper.

▶ **Symptom**

Paper in the LCT is less than 20% of specification. / The photo sensor is defective.

▶ **Troubleshooting method**

- 1) Open the LCT Top Cover. Load the paper in LCT.
- 2) If paper is loaded but error message has not disappeared, check the following.
 - a) Remove the LCT pick up unit.
 - b) Check if the photo sensor in the LCT pick up unit1 is contaminated. If so, clean it.
 - c) If the photo sensor([0604-001393](#)) is defective, replace it.
 - d) If the actuator([JC66-04276A](#)) is defective, replace it.



► Error Code

H1-4453

H1-4553

► Error message

Input System Failure #H1-4453 : Pull Tray 4 out and insert it.

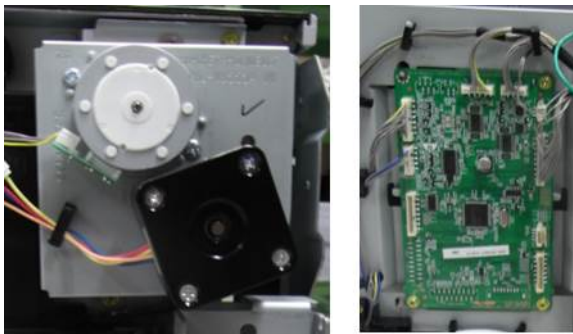
Input System Failure #H1-4553 : Pull Tray 5 out and insert it.

► Symptom

The paper is not fed from the LCT.

► Troubleshooting method

- 1) Turn the machine off then on.
- 2) If the problem persists, turn the machine off.
- 3) Remove the Cover-Right and Cover-Rear after removing 16 screws.
- 4) Check if the connection between the LCT pick up drive and LCT PBA is correct.



- 5) If the connection is OK, replace the drive unit(*JC93-01112A*).
- 6) If the problem persists, check the following.
 - a) Remove the LCT pick up unit.
 - b) Check if the photo sensor in the LCT pick up unit is contaminated, clean it.
 - c) If the photo sensor(*0604-001393*) is defective, replace it.



4.6.15. H2-xxxx (Finisher error)



NOTE

For H2-xxxx type error, refer to the Finisher Service Manual.



NOTE

- H2-6xxx : Inner Finisher (Refer to SL-FIN501L Service Manual.)
- H2-7xxx : 3K Finisher (Refer to SL-FIN701B/H Service Manual.)
- H2-8xxx : Booklet (Refer to SL-FIN701B/H Service Manual.)

4.6.16. Mx–xxxx (Jam error)

Error Code	Error Message	Troubleshooting Page
M1-1113	Paper jam in tray 1	P.4-123
M1-1121	Paper jam in tray 2	P.4-124
M1-1213	Paper jam in tray 2	P.4-124
M1-1610	Paper jam in MP tray	P.4-125
M1-1613	Paper jam in MP tray	P.4-125
M2-1114	Paper jam inside of machine	P.4-126
M2-1117	Paper jam at the bottom of duplex path	P.4-126
M2-1121	Paper jam in tray 1	P.4-127
M2-1124	Paper jam in tray 1	P.4-127
M2-1125	Paper jam inside of machine	P.4-127
M2-1131	Paper jam in tray 2	P.4-128
M2-1134	Paper jam in tray 2	P.4-128
M2-1135	Paper jam in tray 2	P.4-128
M2-1211	Paper jam inside of machine	P.4-129
M2-1213	Paper Mismatch at tray. Load tray with setting paper, and remove the jammed paper	P.4-129
M2-1214	Paper jam inside of machine	P.4-129
M2-1331	Paper jam inside of machine	P.4-130
M2-1333	Check whether the pieces of paper remain in the paper path	P.4-130
M2-1334	Paper jam inside of machine	P.4-130
M2-2111	Paper jam at the top of duplex path	P.4-131
M2-2112	Paper jam at the top of duplex path	P.4-131
M2-2113	Check whether the pieces of paper remain in the paper path	P.4-131
M2-2114	Paper jam at the top of duplex path	P.4-131
M2-2311	Paper jam at the bottom of duplex path	P.4-131
M2-2312	Paper jam at the bottom of duplex path	P.4-131
M2-2314	Paper jam at the bottom of duplex path	P.4-131
M3-1411	Paper jam in exit area	P.4-132
M3-1412	Paper jam inside of machine	P.4-132
M3-1413	Check whether the pieces of paper remain in the paper path	P.4-132
M3-1414	Paper jam in exit area	P.4-132

▶ **Error Code**

M1-1113

▶ **Error message**

Paper jam in Tray 1.

▶ **Symptom**

Paper jam has occurred in tray1.

▶ **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M1-1113.html

- 1) Open the side cover and check if a foreign substance or paper is jammed inside the machine.
- 2) Remove tray1 and remove the jammed paper.
- 3) If this jam error occurs frequently, check the rollers of the pick up unit1.
 - a) Remove tray1 and tray2.
 - b) Check if the pick up/ reverse/ forward rollers are assembled correctly.
 - c) If the pick up/ reverse/ forward rollers are worn out or contaminated, replace the defective roller.
- 4) If the problem persists, check the pick-up unit1.
 - a) Check if the pre-feed sensor is connected correctly. If the sensor is defective, replace it.
 - b) If there is any defective part in pick-up unit 1, replace it or pick up unit 1.
- 5) If the problem persists, replace the pickup drive unit 1.

▶ Error Code

M1-1211 / M1-1213

▶ Error message

Paper jam in Tray 2.

▶ Symptom

Paper jam has occurred in tray2.

▶ Troubleshooting method**NOTE**

To see the troubleshooting video for this error, click through to the link below.

- M1-1211 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M1-1211.html
- M1-1213 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M1-1213.html

- 1) Open the side cover and check if a foreign substance or paper is jammed inside the machine.
- 2) Remove tray2 and remove the jammed paper.
- 3) If this jam error occurs frequently, check the rollers of the pick up unit2.
 - a) Remove tray1 and tray2.
 - b) Check if the pick up/ reverse/ forward rollers are assembled correctly.
 - c) If the pick up/ reverse/ forward rollers are worn out or contaminated, replace the defective roller.
- 4) If the problem persists, check the pick-up unit2.
 - a) Check if the pre-feed sensor is connected correctly. If the sensor is defective, replace it.
 - b) If there is any defective part in pick-up unit 2, replace it or pick up unit 2.
- 5) If the problem persists, replace the pickup drive unit 2.

▶ **Error Code**

M1-1610 / M1-1613

▶ **Error message**

Paper jam in MP Tray.

▶ **Symptom**

Paper jam has occurred in MP tray.

▶ **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

- M1-1610 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M1-1610.html
- M1-1613 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M1-1613.html

- 1) Open the side cover. Remove the jammed paper from the MP tray.
- 2) If this jam error occurs frequently, check the rollers of the MP unit.
 - a) Check if MP pick up/ reverse/ forward rollers are assembled correctly.
 - b) If the MP pick up/ reverse/ forward rollers are worn out or contaminated, replace the defective roller.
- 3) If the problem persists, check if the MP solenoid operates correctly.
 - a) Enter SVC mode. Execute MP solenoid test.
 - b) If the MP solenoid operation is abnormal, check the harness connection of MP unit.
 - c) If the harness has no defects, replace the MP solenoid.
- 4) If the problem persists, check the Feed/MPdrive unit.
 - a) Enter SVC mode. Execute Feed/MP motor test.
 - b) Remove the rear cover.
 - c) Check if the motor harness is connected correctly.
 - d) If the problem occurs, replace the Feed/MP Drive Unit.

▶ Error Code

M2-1114 / M2-1117

▶ Error message

Paper jam inside of machine

Paper jam at the bottom of duplex path

▶ Symptom

Paper jam has occurred inside the machine.

▶ Troubleshooting method**NOTE**

To see the troubleshooting video for this error, click through to the link below.

- M2-1114 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M2-1114.html
- M2-1117 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M2-1117.html

- M2-1114 : The paper has not left from the feed sensor within the specified time.
- M2-1117 : The paper passed duplex path has not reached the feed sensor within the specified time.

- 1) Open the side cover. Remove the jammed paper.
- 2) If jammed paper occurs continually, check the following.
 - a) Enter SVC mode. Execute the feed 1 sensor test.
 - b) Check connection between the feed 1 sensor and main board.
 - c) If the connection is OK, replace the feed 1 sensor.
 - d) If the feed 1 sensor is normal, check the feed motor.
 - e) Execute feed motor test.
 - f) Check if the feed motor cable is connected correctly.
 - g) If the connection is OK, replace the feed/MP drive unit.

▶ **Error Code**

M2-1121 / M2-1124 / M2-1125

▶ **Error message**

Paper jam in tray 1

Paper jam inside of machine.

▶ **Symptom**

Paper jam has occurred inside the machine.

▶ **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

- M2-1121 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M2-1121.html
- M2-1124 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M2-1124.html
- M2-1125 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M2-1125.html

- M2-1121 : The paper is detected by feed 1 sensor.
 - M2-1124 : The leading edge of the paper has not reached the feed 1 sensor within the specified time.
 - M2-1125 : The paper has not left from the feed 1 sensor within the specified time.
- 1) Open the side cover. Remove the jammed paper.
 - 2) If jammed paper occurs continually, check the following.
 - a) Enter SVC mode. Execute the feed 1 sensor test.
 - b) Check connection between the feed 1 sensor and main board.
 - c) If the connection is OK, replace the feed 1 sensor.
 - d) If the feed 1 sensor is normal, check the feed motor.
 - e) Execute feed motor test.
 - f) Check if the feed motor cable is connected correctly.
 - g) If the connection is OK, replace the feed/MP drive unit.

▶ Error Code

M2-1131 / M2-1134 / M2-1135

▶ Error message

Paper jam in tray 2

Paper jam in tray 1

▶ Symptom

Paper jam has occurred inside the machine.

▶ Troubleshooting method**NOTE**

To see the troubleshooting video for this error, click through to the link below.

- M2-1131 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M2-1131.html
- M2-1134 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M2-1134.html
- M2-1135 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M2-1135.html

- M2-1131 : The paper is detected by feed 2 sensor.
- M2-1134 : The leading edge of the paper has not reached the feed 2 sensor within the specified time.
- M2-1135 : The paper has not left from the feed 2 sensor within the specified time.

- 1) Open the side cover. Remove the jammed paper.
- 2) If jammed paper occurs continually, check the following.
 - a) Enter SVC mode. Execute the feed 2 sensor test.
 - b) Check connection between the feed 2 sensor and main board.
 - c) If the connection is OK, replace the feed 2 sensor.
 - d) If the feed 2 sensor is normal, check the feed motor.
 - e) Execute feed motor test.
 - f) Check if the feed motor cable is connected correctly.
 - g) If the connection is OK, replace the feed/MP drive unit.

▶ Error Code

M2-1211 / M2-1213 / M2-1214

▶ Error message

Paper jam inside of machine.

▶ Symptom

Paper jam has occurred inside the machine.

▶ Troubleshooting method



NOTE

To see the troubleshooting video for this error, click through to the link below.

- M2-1211 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M2-1211.html
- M2-1213 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M2-1213.html
- M2-1214 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M2-1214.html

- M2-1211 : When the machine is warming-up, jammed paper inside machine is detected.
 - M2-1213 : The leading edge of the paper has not reached the regi. sensor within the specified time.
 - M2-1214 : The paper has not left from the regi. sensor within the specified time.
- 1) Open the side cover. Remove the jammed paper.
 - 2) If jammed paper occurs continually, check the following.
 - a) Enter SVC mode. Execute the regi sensor test.
 - b) Check connection between the regi sensor and main board.
 - c) If the connection is OK, replace the regi sensor.
 - d) If the regi sensor is normal, check the regi motor.
 - e) Execute regi motor test.
 - f) Check if the regi motor cable is connected correctly.
 - g) If the connection is OK, replace the regi drive unit.

► **Error Code**

M2-1331 / M2-1332 / M2-1333 / M2-1334

► **Error message**

Paper jam inside of machine

Paper jam at the top of duplex path

► **Symptom**

Paper jam has occurred inside the machine.

► **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

- M2-1331 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M2-1331.html
- M2-1332 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M2-1332.htm
- M2-1333 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M2-1333.html
- M2-1334 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M2-1334.html

- M2-1331 : Paper is detected by the fuser out JAM sensor.
 - M2-1332 : Paper has not reached the fuser out JAM sensor within the specified time.
 - M2-1333 : Paper escaped from feed sensor has reached to the fuser out JAM sensor faster than the specified time.
 - M2-1334 : The paper has not left from the fuser out JAM sensor within the specified time.
- 1) Open the side cover. Remove jammed paper.
 - 2) If the problem persists, check the following:
 - a) Enter SVC mode. Execute the fuser out sensor test.
 - b) Check connection between the fuser out sensor and main board.
 - c) If the connection is OK, replace the fuser out sensor.
 - d) If the fuser out sensor is normal, check the fuser/exit motor.
 - e) Execute fuser/exit motor test.
 - f) Check if the fuser/exit motor cable is connected correctly.
 - g) If the connection is OK, replace the fuser/exit drive unit.

▶ **Error Code**

M2-2111 / M2-2112 / M2-2113 / M2-2114 / M2-2311 / M2-2312 / M2-2314

▶ **Error message**

Paper jam inside of machine

Paper jam at the top of duplex path

▶ **Symptom**

Paper jam has occurred in duplex path.

▶ **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

- M2-2111 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M2-2111.html
- M2-2112 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M2-2112.html
- M2-2113 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M2-2113.html
- M2-2114 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M2-2114.html
- M2-2311 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M2-2311.html
- M2-2312 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M2-2312.html
- M2-2314 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M2-2314.html

- 1) Open the side cover. Remove jammed paper.
- 2) If the problem persists, check the following:
 - a) Enter SVC mode. Execute the fuser out sensor test.
 - b) Check connection between the fuser out sensor and main board.
 - c) If the connection is OK, replace the fuser out sensor.
 - d) If the fuser out sensor is normal, check the fuser/exit motor.
 - e) Execute fuser/exit motor test.
 - f) Check if the fuser/exit motor cable is connected correctly.
 - g) If the connection is OK, replace the fuser/exit drive unit.

▶ Error Code

M3-1411 / M3-1412 / M3-1413 / M3-1414

▶ Error message

Paper jam in exit area.

Check whether the pieces of paper remain in the paper path

▶ Symptom

Paper jam has occurred around the fuser unit.(Job separator connection is defective. / Actuator-Exit is defective.)

▶ Troubleshooting method**NOTE**

To see the troubleshooting video for this error, click through to the link below.

- M3-1411 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M3-1411.html
- M3-1412 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M3-1412.html
- M3-1413 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M3-1413.html
- M3-1414 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M3-1414.html

- 1) Open the side cover. Remove the jammed paper.
- 2) If the problem persists, check the following:
 - a) Remove the exit unit.
 - b) Check if the return sensor is connected correctly. If the connection is OK, replace the sensor.
 - c) Check if the return sensor actuator is broken or deformed. If necessary, reassemble or replace it.
 - d) Check if the exit gate solenoid connected correctly. If the connection is OK, replace the solenoid.
 - e) If the problem persists, replace the fuser unit.

4.6.17. Mx-xxxx (Tray not install_Paper empty_Outbin full)

Error Code	Error Message	Troubleshooting Page
M1-3122	Tray 1 cassette is pulled out. Insert it properly	P.4-134
M1-3222	Tray 2 cassette is pulled out. Insert it properly	P.4-135
M1-4111	Tray Failure: #M1-4111. Pull tray 1 out and insert it. Call for service if the problem persists	P.4-136
M1-4211	Tray Failure: #M1-4211. Pull tray 2 out and insert it. Call for service if the problem persists	P.4-137
M1-5111	Paper is low in tray 1. Load paper	P.4-138
M1-5112	Paper is empty in tray 1. Load paper	P.4-138
M1-5113	Paper is empty in tray 1. Load paper	P.4-138
M1-5120	Paper is empty in all tray. Load paper	P.4-138
M1-5211	Paper is low in tray 2. Load paper	P.4-139
M1-5212	Paper is empty in tray 2. Load paper	P.4-139
M1-5612	Paper is empty in MP tray. Load paper	P.4-140
M3-2230	Paper in output bin is full. Remove printed paper	P.4-141
M3-2430	Paper in output bin is full. Remove printed paper	P.4-141

▶ Error Code

M1-3122

▶ Error message

Tray 1 cassette is pulled out. Insert it properly.

▶ Symptom

Tray 1 is pulled out or the auto size sensor connector is not connected or broken.

▶ Troubleshooting method**NOTE**

To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M1-3122.html

- 1) Remove and insert Tray1 correctly.
- 2) If Tray1 is not locked or pulled out without holding the locking lever, remove Tray1.
- 3) Check if foreign substance or paper is inside the space between Tray1,2. If so, please remove it.
- 4) If the problem persists, check that the auto size sensor is connected properly.
- 5) If the problem persists, replace the main board.

▶ **Error Code**

M1-3222

▶ **Error message**

Tray 2 cassette is pulled out. Insert it properly.

▶ **Symptom**

Tray 2 is pulled out or the auto size sensor connector is not connected or broken.

▶ **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M1-3222.html

- 1) Remove and insert Tray2 correctly.
- 2) If Tray2 is not locked or pulled out without holding the locking lever, remove Tray2.
- 3) Check if foreign substance or paper is inside the space between Tray1,2. If so, please remove it.
- 4) If the problem persists, check that the auto size sensor is connected properly.
- 5) If the problem persists, replace the main board.

▶ Error Code

M1-4111

▶ Error message

Input System Failure #M1-4111 : Pull Tray 1 out and insert it.

▶ Symptom

The paper is not fed from tray1.

▶ Troubleshooting method**NOTE**

To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M1-4111.html

- 1) Remove tray1 and re-install it.
- 2) If the problem persists, turn the machine off then on.
- 3) Enter SVC mode. Execute pickup motor test.
(Diagnostics > Engine Diagnostics > Engine Test Routines)
- 4) If the pick up motor operation is abnormal, turn the machine off.
- 5) Remove the rear cover.
- 6) Check if the connection between pickup drive unit1 and main board is secure.
- 7) If the connection is OK, replace the pickup drive unit.
- 8) If the problem persists, check the pickup unit1.
 - a) Check if the photo sensor in the pickup unit1 is defective.
 - b) If the sensor is defective, replace it.

▶ **Error Code**

M1-4211

▶ **Error message**

Input System Failure #M1-4211 : Pull Tray 2 out and insert it.

▶ **Symptom**

The paper is not fed from tray2.

▶ **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M1-4211.html

- 1) Remove tray2 and re-install it.
- 2) If the problem persists, turn the machine off then on.
- 3) Enter SVC mode. Execute pickup motor test.
(Diagnostics > Engine Diagnostics > Engine Test Routines)
- 4) If the pick up motor operation is abnormal, turn the machine off.
- 5) Remove the rear cover.
- 6) Check if the connection between pickup drive unit2 and main board is secure.
- 7) If the connection is OK, replace the pickup drive unit.
- 8) If the problem persists, check the pickup unit2.
 - a) Check if the photo sensor in the pickup unit2 is defective.
 - b) If the sensor is defective, replace it.

► Error Code

M1-5111 / M1-5112 / M1-5113 / M1-5120

► Error message

Paper is low in Tray 1. Load paper.

Paper is empty in Tray 1. Load paper.

► Symptom

Paper in the tray1 is less than 10%. / The photo sensor is defective.

► Troubleshooting method**NOTE**

To see the troubleshooting video for this error, click through to the link below.

- M1-5111 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M1-5111.html
- M1-5112 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M1-5112.html
- M1-5113 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M1-5113.html
- M1-5120 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M1-5120.html

- 1) Remove tray 1. Load paper in the tray. And insert tray 1.
- 2) If paper is loaded but error message has not disappeared, check the following:
 - a) Turn the machine off. Open the Side Cover.
 - b) Remove Pick-Up Unit1.
 - c) If the photo sensor is contaminated, clean it.
 - d) If the photo sensor is defective, replace it.
 - e) If the actuator is defective, replace it.

▶ **Error Code**

M1-5211 / M1-5212

▶ **Error message**

Paper is low in Tray 2. Load paper.

Paper is empty in Tray 2. Load paper.

▶ **Symptom**

Paper in the tray is less than 10% of specification. / The photo sensor is defective.

▶ **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

- M1-5211 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M1-5211.html
- M1-5212 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M1-5212.html

- 1) Remove tray 2. Load paper in the tray, and insert the tray 2.
- 2) If paper is loaded but error message has not disappeared, check the following :
 - a) Turn the machine off. Open the Side Cover.
 - b) Remove Pick-Up Unit2.
 - c) If the photo sensor is contaminated, clean it.
 - d) If the photo sensor is defective, replace it.
 - e) If the actuator is defective, replace it.

▶ Error Code

M1-5612

▶ Error message

Paper is empty in MP Tray. Load paper.

▶ Symptom

Paper in the MP tray is less than 10%. / The photo sensor is defective.

▶ Troubleshooting method**NOTE**

To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M1-5612.html

- 1) Load the paper in the MP tray.
- 2) If paper is loaded but error message has not disappeared, check the following :
 - a) If the photo sensor is contaminated, clean it.
 - b) If the photo sensor is defective, replace it.
 - c) If the actuator is defective, replace it.

▶ Error Code

M3-2230 / M3-2430

▶ Error message

Output tray is full. Remove printed media.

▶ Symptom

There is too much paper in output bin tray or inner tray.

▶ Troubleshooting method



NOTE

To see the troubleshooting video for this error, click through to the link below.

- M3-2230 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M3-2230.html
 - M3-2430 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_M3-2430.html
- M3-2230 : There is too much paper in output bin tray.
 - M3-2430 : There is too much paper in inner tray.
- 1) Remove the paper from output bin tray or inner tray.
 - 2) If this error occurs continually, check the following.
 - a) Check if the bin-full sensor and actuator is assembled correctly.
 - b) Check if the bin-full sensor is defective.

4.6.18. Sx-xxxx (System error)

Error Code	Error Message	Troubleshooting Page
S1-1113	Video System Failure: #S1-1113. Turn off then on	P.4-144
S1-1114	Video System Failure: #S1-1114. Turn off then on	P.4-144
S1-1313	The clock became initial time. Set a time again	P.4-145
S1-1411	Video System Failure: #S1-1411. Turn off then on	P.4-145
S1-1413	Video System Failure: #S1-1413. Turn off then on	P.4-145
S1-2111	Video System Failure: #S1-2111. Turn off then on	P.4-146
S1-2433	System Failure: #S1-2433 . Call for service	P.4-147
S1-2434	There is not enough space on the hard disk. Please delete the information stored in the address book	P.4-148
S1-2435	There is not enough space on the hard disk. Please delete the stored file	P.4-148
S1-2436	There is not enough space on the hard disk. Please delete the stored file	P.4-148
S1-2437	There is not enough space on the hard disk. Please wait a moment	P.4-148
S1-2438	There is not enough space on the hard disk. Please check your printer	P.4-148
S1-2439	There is not enough space on the hard disk. Please check your printer	P.4-148
S1-2443	HDD System Failure #S1-2443 : Call for service	P.4-147
S1-2444	HDD System Failure #S1-2444 : Call for service	P.4-147
S1-2445	HDD System Failure #S1-2445 : Call for service	P.4-147
S1-2446	HDD System Failure #S1-2446 : Call for service	P.4-147
S1-2447	HDD System Failure #S1-2447 : Call for service	P.4-147
S1-2448	HDD System Failure #S1-2448 : Call for service	P.4-147
S1-2449	HDD System Failure #S1-2449 : Call for service	P.4-147
S1-2510	MSOK Failure: #S1-2510. Call for service and change MSOK	P.4-149
S1-2521	MSOK Failure: #S1-2521. Call for service	P.4-149
S1-4111	Video System Failure: #S1-4111. Turn off then on	P.4-150
S1-4311	Video System Failure: #S1-4311. Turn off then on	P.4-151
S1-5221	Wireless network card is not installed. Install the card	P.4-151
S1-5521	FDI device is not installed. Install the device	P.4-151
S2-1211	Engine System Failure: #S2-1211. Turn off then on	P.4-152
S2-2311	Engine System Failure: #S2-2311. Turn off then on	P.4-152
S2-3321	Supplying and mixing toner to developer unit. Please wait...	P.4-153
S2-3421	Calibrating image density. Please wait...	P.4-153
S2-4210	Front door is open. Close it	P.4-153
S2-4410	Right door is open. Close it	P.4-154
S3-3121	Scanner is locked	P.4-155
S3-3211	Scan System Failure: #S3-3211. Turn off then on	P.4-156
S4-3131	There has been a problem with fax modem card(Line 1). Install again. Call for service if the problem persists	P.4-157
S4-3132	There has been a problem with fax modem card(Line 2). Install again. Call for service if the problem persists	P.4-157

4. Troubleshooting

Error Code	Error Message	Troubleshooting Page
S5-3111	UI System Failure: #S5-3111. Call for service	P.4-158
S6-3113	Network Failure: #S6-3113. Turn off then on. Call for service if the problem persists	P.4-159
S6-3114	Network Failure: #S6-3114. Turn off then on. Call for service if the problem persists	P.4-159
S6-3122	Network cable is disconnected. Check it	P.4-159
S6-3123	This IP address conflicts with that of other system. Check it	P.4-160
S6-3128	802.1x authentication failed. Please contact the system administrator	P.4-160
S7-2110	Fuser Failure: #S7-2110. Turn off then on. Call for service if the problem persists	P.4-161

▶ Error Code

S1-1113 / S1-1114

▶ Error message

Video System Failure #S1-1113: Turn off then on.

▶ Symptom

The system has some problems due to CPU overheating.

▶ Troubleshooting method**NOTE**

To see the troubleshooting video for this error, click through to the link below.

- S1-1113 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S1-1113.html
- S1-1114 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S1-1114.html

- 1) Turn the machine off.
- 2) Wait until the machine is cool, and then turn the machine on.
- 3) If the problem persists, turn the machine off again.
- 4) Remove the rear cover.
- 5) Replace the main board.

**NOTE**

Insert the MSOK to the new main board.

- 6) Assemble the rear cover. Turn the machine on.

▶ Error Code

S1-1313

▶ Error message

The clock became initial time. Set a time again.

▶ Symptom

Saved time is invalid

▶ Troubleshooting method

- 1) Set up the time and reboot the machine.
 - a) Select “Machine Setup” on touch screen.
 - b) Select “General Setting”.
 - c) Select “Date and Time” and set the time.
- 2) If the problem persists, check the following.
 - a) Remove the rear cover.
 - b) Remove the fax holder from the main board.
 - c) Measure the voltage of the battery. If the battery is normal, the measured value is over 3V.
- 3) If the battery is normal, replace the main board.

▶ Error Code

S1-1411 / S1-1413

▶ Error message

Video System Failure: #S1-1411. Turn off then on

Video System Failure: #S1-1413. Turn off then on

▶ Symptom

Video chip in main board is defective.

▶ Troubleshooting method

NOTE

To see the troubleshooting video for this error, click through to the link below.

- S1-1411 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S1-1411.html
- S1-1413 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S1-1413.html

- 1) Turn the machine off then on.
- 2) If the problem persists, replace the main board.

NOTE

Insert the MSOK to the new main board.

▶ Error Code

S1-2111

▶ Error message

Video System Failure #S1-2111: Turn off then on.

▶ Symptom

The machine can't detect memory during booting.

▶ Troubleshooting method**NOTE**

To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S1-2111.html

- 1) Turn the machine off then on.
- 2) If the problem persists, turn the machine off again.
- 3) Remove the rear cover.
- 4) Replace the main board.

**NOTE**

Insert the MSOK to the new main board.

- 5) Assemble the rear cover. Turn the machine on.

▶ Error Code

S1-2433 / S1-2443 / S1-2444 / S1-2445 / S1-2446 / S1-2447 / S1-2448 / S1-2449

▶ Error message

HDD System Failure #S1-24xx: Turn off then on.

▶ Symptom

HDD partition is full or corrupted.

▶ Troubleshooting method



NOTE

To see the troubleshooting video for this error, click through to the link below.

- S1-2433 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S1-2433.html
- S1-2443 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S1-2443.html
- S1-2444 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S1-2444.html
- S1-2445 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S1-2445.html
- S1-2446 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S1-2446.html
- S1-2447 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S1-2447.html
- S1-2448 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S1-2448.htm
- S1-2449 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S1-2449.html

- 1) Enter SVC mode. Select “System Recovery” in Service Function menu.
- 2) Execute hard disk format and firmware re-installation.
- 3) If the problem persists, replace the HDD.

▶ **Error Code**

S1-2434 / S1-2435 / S1-2436 / S1-2437 / S1-2438 / S1-2439

▶ **Error message**

HDD Error #S1-243x. Check users guide.

▶ **Symptom**

HDD partition or memory is full.

▶ **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

- S1-2434 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S1-2434.html
- S1-2435 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S1-2435.html
- S1-2436 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S1-2436.html
- S1-2437 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S1-2437.html
- S1-2438 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S1-2438.html
- S1-2439 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S1-2439.html



NOTE

- S1-2434 : Addresses in Address book / User data in User profile
- S1-2435 : Documents in Document box / Jobs in Secure job list / Fonts / Forms
- S1-2436 : System Logs
- S1-2437/3438/3439 : Printing Error / No Paper in Tray

- 1) Enter SVC mode. Select “Hard Disk Maintenance” in Service Function menu.
- 2) Execute hard disk format.
- 3) If the problem persists, replace the HDD.

▶ **Error Code**

S1-2510 / S1-2521

▶ **Error message**

MSOK System Failure #S1-2510: Turn off then on.

MSOK Failure: #S1-2521. Call for service

▶ **Symptom**

MSOK is not installed properly. / MSOK is defective.

▶ **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

- S1-2510 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S1-2510.html
- S1-2521 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S1-2521.html

- 1) Remove the rear cover.
- 2) Check if the MSOK is inserted correctly. Remove and reinstall it.
- 3) If the problem persists, replace the main board.

▶ Error Code

S1-4111

▶ Error message

Video System Failure #S1-4111: Turn off then on.

▶ Symptom

The main board can't send the data through the network channel.

▶ Troubleshooting method

- 1) Check if the green LED of the network port is on.
- 2) If not, unplug and reconnect the network cable.
- 3) If the problem persists, replace the main board.

▶ Error Code

S1-4311

▶ Error message

Video System Failure #S1-4311: Turn off then on.

▶ Symptom

The USB device chip is defective.

▶ Troubleshooting method



NOTE

To see the troubleshooting video for this error, click through to the link below.

(http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S1-4311.html)

- 1) Turn the machine off then on.
- 2) If the problem persists, turn the machine off again.
- 3) Replace the OPE hub board.
- 4) Turn the machine on.

▶ Error Code

S1-5221

▶ Error message

Wireless network card is not installed. Install the card

▶ Symptom

Wireless network card is not installed correctly.

▶ Troubleshooting method



NOTE

To see the troubleshooting video for this error, click through to the link below.

(http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S1-5221.html)

- 1) Check if the WLAN card is installed correctly. If necessary, re-install or replace it with new one.

▶ Error Code

S1-5521

▶ Error message

FDI device is not installed. Install the device

▶ Symptom

FDI device was removed.

▶ Troubleshooting method

- 1) Check if the FDI is installed correctly. If necessary, re-install or replace it with new one.

▶ Error Code

S2-1211

S2-2311

▶ Error message

Engine System Failure: #S2-1211. Turn off then on

Engine System Failure: #S2-2311. Turn off then on

▶ Symptom

The main board is defective.

▶ Troubleshooting method**NOTE**

To see the troubleshooting video for this error, click through to the link below.

- S2-1211 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S2-1211.html
- S2-2311 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S2-2311.html

- Power chip error
 - EEPROM detection error
 - Communication error
- 1) Turn the machine off then on.
 - 2) If the problem persists, turn the machine off again.
 - 3) Replace the main board.
 - 4) Turn the machine on.

▶ **Error Code**

S2-33xx

S2-34xx

▶ **Error message**

Engine is power save

Supplying and mixing toner to developer unit. Please wait...

Calibrating image density. Please wait...

▶ **Symptom**

These error show the engine status.

▶ **Troubleshooting method**

- 1) Wait until error will be disappeared.

▶ **Error Code**

S2-4210

▶ **Error message**

Front door is open. Close it.

▶ **Symptom**

Front cover or Side cover is opened.

▶ **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S2-4210.html

- 1) Close the front cover correctly.
- 2) Check if the cover open sensor connector is connected properly. Reconnect it.
- 3) If the sensor is defective, replace it.

▶ Error Code

S2-4410

▶ Error message

Right door is open. Close it.

▶ Symptom

Front cover or Side cover is opened.

▶ Troubleshooting method**NOTE**

To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S2-4410.html

- 1) Close the side cover correctly.
- 2) Check if the cover open sensor connector is connected properly. Reconnect it.
- 3) If the sensor is defective, replace it.

▶ **Error Code**

S3-3121

▶ **Error message**

Scanner is locked.

▶ **Symptom**

Scanner module does not move.

▶ **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

(http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S3-3121.html)

- 1) Turn off the machine then on. Check if the scanner module works normally.
- 2) If the initial operation does not occurred normally, turn the machine off.
- 3) Remove the scan glass.
- 4) Check if the home position sensor cable is connected correctly.
- 5) Remove the scan rear cover. Check if all cables on scan joint board are connected correctly.
- 6) If the connection is OK, replace the scan joint board.

▶ Error Code

S3-3211

▶ Error message

Scan System Failure #S3-3211: Turn off then on.

▶ Symptom

ADF is not connected or communication error occurs with CIP6 board.

▶ Troubleshooting method**NOTE**

To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S3-3211.html

- 1) Turn the machine off then on. If the problem persists, check the following:
- 2) Turn the machine off again.
- 3) Remove the scan rear cover. Check if the connector on scan joint board is connected correctly.
- 4) Remove the ADF rear cover. Check if the connector on ADF board is connected correctly.
- 5) If the connection is OK, replace the ADF board.

▶ **Error Code**

S4-3131

▶ **Error message**

There has been a problem with fax modem card(Line 1). Install again. Call for service if the problem persists

▶ **Symptom**

1st Fax card is not installed properly. / Fax card is defective.

▶ **Troubleshooting method**

- 1) Remove and reinstall the 1st fax card.
- 2) If the 1st fax card is defective, replace it.

▶ **Error Code**

S4-3132

▶ **Error message**

There has been a problem with fax modem card(Line 1). Install again. Call for service if the problem persists

▶ **Symptom**

2nd Fax card is not installed properly. / Fax card is defective.

▶ **Troubleshooting method**

- 1) Remove and reinstall the 2nd fax card.
- 2) If the 2nd fax card is defective, replace it.

▶ Error Code

S5-3111

▶ Error message

UI System Failure #S5-3111:Turn off then on.

▶ Symptom

Communication error between main board and OPE board has occurred.

▶ Troubleshooting method**NOTE**

To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S5-3111.html

- 1) Remove the rear cover.
- 2) Check if the OPE cable is connected to the main board correctly.
- 3) Replace the OPE hub board.
- 4) If the problem persists, replace the main board.

▶ **Error Code**

S6-3113 / S6-3122

▶ **Error message**

Network Failure: #S6-3113. Turn off then on. Call for service if the problem persists

Network cable is disconnected. Check it.

▶ **Symptom**

Network cable is disconnected.

▶ **Troubleshooting method**

- 1) Check if the green LED of the network port is on.
- 2) If not, unplug and reconnect the network cable.
- 3) If the problem persists, replace the main board.

▶ **Error Code**

S6-3114

▶ **Error message**

Network Failure: #S6-3114. Turn off then on. Call for service if the problem persists

▶ **Symptom**

Network chip in option network kit is defective.

▶ **Troubleshooting method**

- 1) Check if the green LED of the network port is on.
- 2) If not, unplug and reconnect the network cable.
- 3) Re-install the optional network kit.
- 4) If the problem persists, replace the optional network kit.
- 5) If the problem persists, replace the main board.

▶ Error Code

S6-3123

S6-3128

▶ Error message

This IP address conflicts with that of other system. Check it.

802.1x authentication failed. Please Contact the System Administrator.

▶ Symptom

Network error. (IP address conflicts with that of another system. / Communication error / There is no response when checking the ping test.)

▶ Troubleshooting method

- Change the machine's IP address.
 - 1) Select "Machine Setup" on the touch screen.
 - 2) Select "Networking Setting".
 - 3) "Log-In".
 - 4) Select "TCP/IP".
 - 5) Select the proper item for your machine.
 - 6) Select "IP Setting".
 - 7) Select the proper item for your machine.
 - 8) Change the IP address.

▶ **Error Code**

S7-2110

▶ **Error message**

Fuser Failure: #S7-2110. Turn off then on

▶ **Symptom**

Heater control relay is abnormal.

▶ **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

(http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_S7-2110.html)

- 1) Turn the machine off. Re-install the fuser unit, then turn the machine on.
- 2) If the problem persists, replace the fuser unit.

4.6.19. U1-xxxx (Fuser error)

Error Code	Error Message	Troubleshooting Page
U1-2113	Fuser Unit Failure: #U1-2113. Turn off then on	P.4-163
U1-2115	Fuser Unit Failure: #U1-2115. Turn off then on. Call for service if the problem persists	P.4-164
U1-2119	Fuser Unit Failure: #U1-2119. Turn off then on	P.4-163
U1-2132	Fuser Unit Failure: #U1-2132. Turn off then on. Call for service if the problem persists	P.4-163
U1-2135	Fuser Unit Failure: #U1-2135. Turn off then on. Call for service if the problem persists	P.4-163
U1-2141	Fuser Unit Failure: #U1-2141. Turn off then on	P.4-163
U1-2142	Fuser Unit Failure: #U1-2142. Turn off then on	P.4-163
U1-2315	Fuser Unit Failure: #U1-2315. Turn off then on. Call for service if the problem persists	P.4-163
U1-2316	Fuser Failure: #U1-2316. Turn off then on. Call for service if the problem persists	P.4-163
U1-2317	Fuser Failure: #U1-2317. Turn off then on. Call for service if the problem persists	P.4-163
U1-2320	Fuser Unit Failure: #U1-2320. Turn off then on. Call for service if the problem persists	P.4-163
U1-2330	Fuser Unit Failure: #U1-2330. Turn off then on. Call for service if the problem persists	P.4-163
U1-2334	Fuser Unit Failure: #U1-2334. Turn off then on. Call for service if the problem persists	P.4-163
U1-2335	Fuser Failure: #U1-2335. Turn off then on	P.4-163
U1-2337	Fuser Failure: #U1-2337. Turn off then on	P.4-163
U1-233A	Fuser Failure: #U1-233A. Turn off then on	P.4-163
U1-233D	Fuser Failure: #U1-233D. Turn off then on	P.4-163
U1-2340	Fuser Unit Failure: #U1-2340. Turn off then on. Call for service if the problem persists	P.4-163
U1-234H	Fuser Unit Failure: #U1-234H. Turn off then on. Call for service if the problem persists	P.4-163

► Error Code

U1-2xxx

► Error message

Fuser Unit Failure: #U1-2xxx Turn off then on

► Symptom

The thermistor can't measure temperature. The hear-roller will not heat-up. / Temperature of the fuser increases abnormally.

► Troubleshooting method



NOTE

To see the troubleshooting video for this error, click through to the link below.

- U1-2316 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U1-2316.html
- U1-2317 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U1-2317.html
- U1-2320 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U1-2320.htm
- U1-2321 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U1-2321.html
- U1-2323 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U1-2323.html
- U1-2332 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U1-2332.html
- U1-2339 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U1-2339.html
- U1-2341 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U1-2341.html
- U1-234H : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U1-234H.html

- 1) Remove the fuser unit. After opening the jam cover, check if jammed or wrapped paper is in the fuser unit.
- 2) Re-install the fuser unit, then turn the machine on.
- 3) If the problem persists, check the following :
 - a) Check if the Halogen lamp is broken or disconnected.
 - b) Check if the AC connection of the Halogen lamp is disconnected or contaminated.
 - c) Check if the thermostat is disconnected.
 - d) Check if the non-contact type thermistor is broken.
- 4) If the problem persists, replace the Fuser unit
- 5) If the problem persists, replace the Main board or FDB board, SMPS

▶ Error Code

U1-2115

▶ Error message

Fuser Unit Failure: #U1-2115. Turn off then on.

▶ Symptom

The pressure control unit(Cam unit)of the fuser is abnormal.

▶ Troubleshooting method**NOTE**

To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U1-2115.html

- 1) Turn the machine off then open the side cover.
- 2) Remove and re-install the fuser unit, then turn the machine on.
- 3) If the problem persists, check the following :
 - a) When the side-cover closes, check if the operation sound of the pressure control unit occurs.
 - b) Check if the parts of the pressure control unit are abnormal.
 - Check if the shape of the CAM-REAR is broken.
 - Check if there are abnormal parts of the pressure control unit.
 - c) Check if the fuser-motor is abnormal via SVC mode.
- 4) If the problem persists, replace the Fuser unit.
- 5) If the problem persists, replace the pressure control unit or cam-motor or main board.

4.6.20. U2-xxxx (LSU error)

Error Code	Error Message	Troubleshooting Page
U2-1111	LSU Failure: #U2-1111. Turn off then on. Call for service if the problem persists	P.4-166
U2-1112	LSU Failure: #U2-1112. Turn off then on. Call for service if the problem persists	P.4-166
U2-1113	LSU Failure: #U2-1113. Turn off then on. Call for service if the problem persists	P.4-167
U2-1114	LSU Failure: #U2-1114. Turn off then on. Call for service if the problem persists	P.4-166

► **Error Code**

U2-1111 / U2-1112 / U2-1114

► **Error message**

LSU Failure: #U2-111x. Turn off then on. Call for service if the problem persists

► **Symptom**

LSU motor does not operate or it operates abnormally. Motor ready signal is abnormal.

► **Troubleshooting method**



NOTE

To see the troubleshooting video for this error, click through to the link below.

- U2-1111 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U2-1111.html
- U2-1112 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U2-1112.html
- U2-1114 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U2-1114.html



CAUTION

Before unplugging the LSU harness, the machine must be turned off and power cord must be removed.

- 1) Turn the machine off then on. Check for the LSU motor operation sound during warm-up.
- 2) Print a demo page to check that the machine operates normally.
- 3) If the problem persists, check the following :
 - a) If the LSU motor makes a sound,
 - i) Enter SVC mode to check the LSU motor ready signal.
(**Diagnostics > Engine Diagnostics > Engine Test Routines**)
 - ii) Select “LSU Motor1 Run Ready”.
 - iii) Press ‘Start’ button. Check that the status has changed to ‘Executing -> Low -> High’.
 - iv) If the status has not changed, the motor ready signal is abnormal. Replace the LSU.
 - b) If the LSU motor does not make a sound,
 - i) Turn the machine off and open the side cover. Unplug and reconnect the LSU cable. Check that the LSU motor make a sound after turning the machine on.
 - ii) Turn the machine off and remove the rear cover. Unplug and reconnect the LSU cable on main board. Check that the LSU motor make a sound after turning the machine on.
 - iii) If the LSU cable is defective, replace it. Check that the LSU motor make a sound after turning the machine on.
 - iv) If the problem persists, replace the LSU.

▶ Error Code

U2-1113

▶ Error message

LSU Failure: #U2-1113. Turn off then on. Call for service if the problem persists

▶ Symptom

Hsync signal of the LSU is abnormal.

▶ Troubleshooting method



NOTE

To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U2-1113.html



CAUTION

Before unplugging the LSU harness, the machine must be turned off and power cord must be removed.

- 1) Turn the machine off then on. Check for the LSU motor operation sound during warm-up.
- 2) Print a demo page to check that the machine operates normally.
- 3) If the problem persists, check the following :
 - a) Turn the machine off and open the side cover. Unplug and reconnect the LSU cable. Print a demo page to check that the machine operates normally.
 - b) Turn the machine off and open the side cover. Unplug and reconnect the LSU cable on main board. Print a demo page to check that the machine operates normally.
 - c) If the LSU cable is defective, replace it. Check that the LSU motor makes a sound after turning the machine on.
 - d) If the problem persists, replace the LSU.

4.6.21. U3–xxxx (Document Feeder error_DSDF for LX model)

Error Code	Error Message	Troubleshooting Page
U3-3111	Original paper jam in front of the scanner	P.4-169
U3-3113	Original paper jam in front of the scanner	P.4-169
U3-3114	Original paper jam in front of the scanner	P.4-169
U3-3122	Documents are inserted incorrectly. After open the scanner's door, put it again. Call for service if the problem persists	P.4-170
U3-3211	Original paper jam inside of scanner	P.4-169
U3-3213	Original paper jam inside the scanner	P.4-169
U3-3214	Original paper jam inside the scanner	P.4-169
U3-3311	Original paper jam inside the scanner	P.4-169
U3-3313	Original paper jam inside the scanner	P.4-169
U3-3314	Original paper jam inside the scanner	P.4-169
U3-3511	Original paper jam inside the scanner	P.4-171
U3-3513	Original paper jam inside the scanner	P.4-171
U3-3514	Original paper jam inside the scanner	P.4-171
U3-3611	Original paper jam in the exit area of scanner	P.4-172
U3-3613	Original paper jam in the exit area of scanner	P.4-172
U3-3614	Original paper jam in the exit area of scanner	P.4-172
U3-4210	Top door of scanner is open	P.4-173

▶ **Error Code**

U3-3111 / U3-3113 / U3-3114 / U3-3211 / U3-3213 / U3-3214 / U3-3311 / U3-3313 / U3-3314

▶ **Error message**

Original paper jam in front of the scanner

Original paper jam inside of scanner

▶ **Symptom**

Jam has occurred inside the DSDF unit.

▶ **Troubleshooting method**

- 1) Open the DSDF cover. If there is jammed paper, remove it.
- 2) If this error occurs continually, check the Regi. sensor and Regi actuator.
Push and release the regi actuator. Check if the pick up module returns the original position.
If the sensor is defective, replace it.
- 3) If the regi sensor is OK, check the scan 1 sensor and reflect film.
 - If the scan 1 sensor is defective, replace it.
 - If the reflect film is contaminated, clean it.

▶ Error Code

U3-3122

▶ Error message

Documents are inserted incorrectly. After open the scanner's door, put it again. Call for service if the problem persists

▶ Symptom

DSDF pick up module has the problem.

▶ Troubleshooting method

- 1) Open and close the DSDF cover. Check if the error message is disappeared.
- 2) Open the DSDF cover. Push and release the pick up module. Check if the pick up module returns the original position.
 - Check if the spring is deformed. If the spring is defective, replace it.
- 3) Check If the regi sensor is OK, check the scan sensor and scan actuator. If their operation is abnormal, replace the defective part.

▶ **Error Code**

U3-3511 / U3-3513 / U3-3514

▶ **Error message**

Original paper jam inside of scanner.

▶ **Symptom**

Jam has occurred inside the DSDF unit.

▶ **Troubleshooting method**

- 1) Open the DSDF cover. If there is jammed paper, remove it.
- 2) If this error occurs continually, check the Regi. sensor and Regi actuator.
Push and release the regi actuator. Check if the pick up module returns the original position.
If the sensor is defective, replace it.
- 3) If the regi sensor is OK, check the scan 2 sensor and exit sensor.
 - If the scan 2 sensor is defective, replace it.
 - If the exit sensor is defective, replace it.

▶ Error Code

U3-3611 / U3-3613 / U3-3614

▶ Error message

Original paper jam in the exit area of scanner

▶ Symptom

Jam has occurred in exit area of the DSDF unit.

▶ Troubleshooting method

- 1) Open the DSDF cover. If there is jammed paper, remove it.
- 2) If the regi sensor is OK, check the scan 2 sensor and exit sensor.
 - If the scan 2 sensor is defective, replace it.
 - If the exit sensor is defective, replace it.

▶ **Error Code**

U3-4210

▶ **Error message**

Top door of scanner is open.

▶ **Symptom**

DSDF cover is open.

▶ **Troubleshooting method**

- 1) Open and close the DSDF cover. Check if the error message is disappeared.
- 2) If the problem persists, check the cover open sensor.
 - a) Open the DSDF cover. Remove the spring.
 - b) Check if the sensor connector is connected correctly.
If the sensor is defective, replace it.

4.6.22. U3–xxxx (Document Feeder error_DSDF for GX model)

Error Code	Error Message	Troubleshooting Page
U3-3111	Original paper jam in front of the scanner	P.4-175
U3-3113	Original paper jam in front of the scanner	P.4-175
U3-3114	Original paper jam in front of the scanner	P.4-175
U3-3122	Documents are inserted incorrectly. After open the scanner's door, put it again. Call for service if the problem persists	P.4-176
U3-3211	Original paper jam inside of scanner	P.4-175
U3-3213	Original paper jam inside the scanner	P.4-175
U3-3214	Original paper jam inside the scanner	P.4-175
U3-3311	Original paper jam inside the scanner	P.4-177
U3-3313	Original paper jam inside the scanner	P.4-177
U3-3314	Original paper jam inside the scanner	P.4-177
U3-3511	Original paper jam inside the scanner	P.4-178
U3-3513	Original paper jam inside the scanner	P.4-178
U3-3514	Original paper jam inside the scanner	P.4-178
U3-3611	Original paper jam in the exit area of scanner	P.4-178
U3-3613	Original paper jam in the exit area of scanner	P.4-178
U3-3614	Original paper jam in the exit area of scanner	P.4-178
U3-4210	Top door of scanner is open	P.4-179

▶ **Error Code**

U3-3111 / U3-3113 / U3-3114 / U3-3211 / U3-3213 / U3-3214

▶ **Error message**

Original paper jam inside of scanner

▶ **Symptom**

Jam has occurred inside the DSDF unit.

▶ **Troubleshooting method**

 **NOTE**

To see the troubleshooting video for this error, click through to the link below.

- U3-3211 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U3-3211.html
- U3-3213 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U3-3211.html
- U3-3214 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U3-3211.html

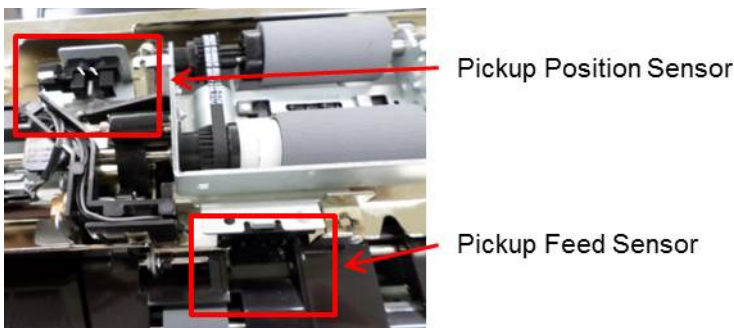
1) Find and remove the jammed paper.



2) If this error occurs continually, remove 4 screws and the upper cover.



3) Check the Pick-up Position Sensor(0604-001393) and Pick-up Feed Sensor(0604-001381) connection.



4) Check if the black sheet from the bottom of the pick up feed sensor is attached properly. If it is contaminated, clean it.

5) If the sensor is defective, replace it.

▶ Error Code

U3-3122

▶ Error message

Documents are inserted incorrectly. After open the scanner's door, put it again. Call for service if the problem persists

▶ Symptom

DSDF pick up module has the problem.

▶ Troubleshooting method**NOTE**

To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U3-3122.html

- 1) Open and close the DSDF cover. Check if the error message is disappeared.
- 2) Open the DSDF cover. Push and release the pick up module. Check if the pick up module returns the original position.
 - Check if the spring is deformed. If the spring is defective, replace it.
- 3) Check If the regi sensor is OK, check the scan sensor and scan actuator. If their operation is abnormal, replace the defective part.

► **Error Code**

U3-3311 / U3-3313 / U3-3314

► **Error message**

Original paper jam inside of scanner

► **Symptom**

Jam has occurred inside the DSDF unit.

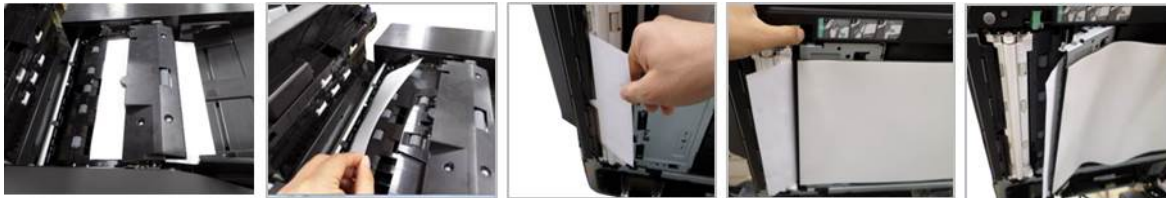
► **Troubleshooting method**

 **NOTE**

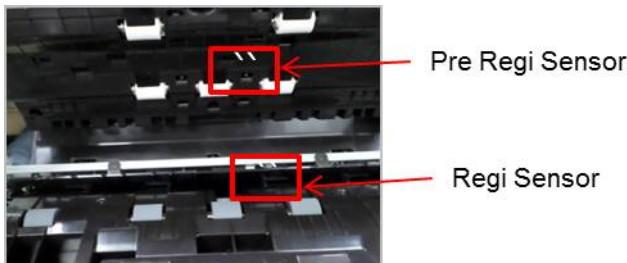
To see the troubleshooting video for this error, click through to the link below.

- U3-3311 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U3-3311.html
- U3-3313 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U3-3313.html
- U3-3314 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U3-3314.html

1) Find and remove the jammed paper.



2) If this error occurs continually, open the DSDF-open cover and check the Pre-Regi sensor and Regi sensor. If the sensor is defective, replace it(0604-001381).



3) Open the DSDF Unit and check the Scan In sensor operation. Check if the sensor harness is connected correctly. If the sensor is defective, replace it. If the black sheet in the middle of the platen ADF glass is contaminated, clean it.



► **Error Code**

U3-3511 / U3-3613 / U3-3614

U3-3611 / U3-3613 / U3-3614

► **Error message**

Original paper jam in the exit area of scanner

► **Symptom**

Jam has occurred in exit area of the DSDF unit.

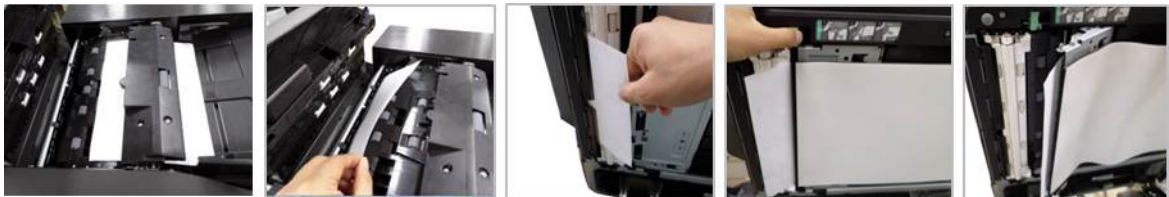
► **Troubleshooting method**

 **NOTE**

To see the troubleshooting video for this error, click through to the link below.

- U3-3511 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U3-3511.html
- U3-3611 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U3-3611.html
- U3-3613 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U3-3613.html
- U3-3614 : http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U3-3614.html

- 1) Find and remove the jammed paper.



- 2) If this error occurs continually, push the locking lever and pull down the Scan Out.



- 3) Check the Scan Out sensor and Exit sensor. If the sensor is defective, replace it(0604-001381).



Scan Out Sensor



Exit Sensor

► **Error Code**

U3-4210

► **Error message**

Top door of scanner is open.

► **Symptom**

DSDF cover is open.

► **Troubleshooting method**

 **NOTE**

To see the troubleshooting video for this error, click through to the link below.

http://tsp.samsung.com/tsp_file/spds/samsungprinter/K7/Webview/EN_K7_U3-4210.html

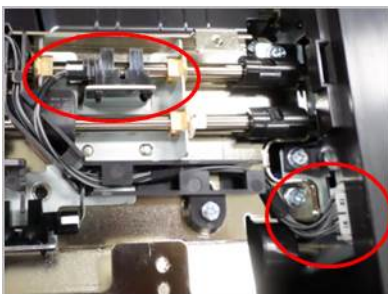
- 1) Open and close the DSDF cover. Check if the error message is disappeared.



- 2) If the problem persists, check the cover open sensor.
 - a) Open the DSDF cover. Remove 4 screws.



- b) Remove the cover and check if the sensor harness is connected correctly.
If the sensor is defective, replace it.



4.7. Image quality problems and solutions

Print-quality defects can be attributed to printer components, consumables, media, internal software, external software applications and environmental conditions.

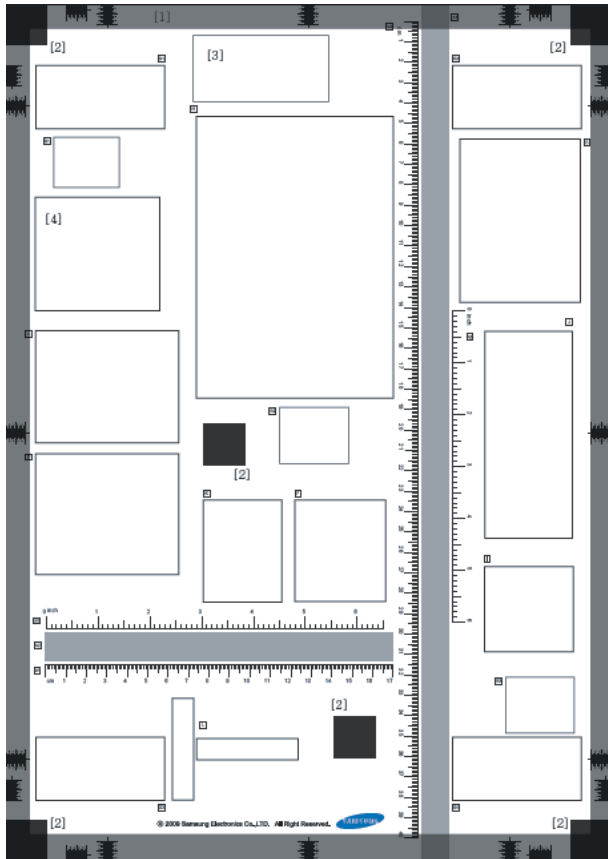
To successfully troubleshoot print-quality problems, as many variables as possible must be eliminated.

The first step is to generate prints using printable pages embedded in the printer on laser paper. The paper should be from an unopened ream that has been acclimated to room temperature and you should ensure that genuine Samsung Toner is installed in the printer.

Samsung A/S chart (A3)



4. Troubleshooting



[1]	Grid pattern	For adjusting margin and magnification
[2]	Black patches	For adjusting skew error
[3]	Barcode	For checking the reproduction of barcode
[4]	Note area	For recording the date, conditions, etc.
[A]	Halftone band	For checking banding and jitter (K 50%)
[B, L]	Resolution patterns	For checking resolution
[C, D, E]	Images	For checking color reproduction
[F]	Map image	For checking fine line reproduction
[G]	Color patches	For checking color reproduction and uniformity
[H]	Gradation pattern	For checking tone reproduction of 7 colors (C, M, Y, K, R, G, B/ 10~100%)
[I]	Color/Mono text	For checking the reproduction of color, mono text
[J]	Multilingual Feature	For checking the reproduction of small text
[K]	White Gap pattern	For checking color to color, color to mono white gap
[M]	Rulers	For checking the magnification error (unit : cm)
[N]	Rulers	For checking the magnification error (unit : inch)

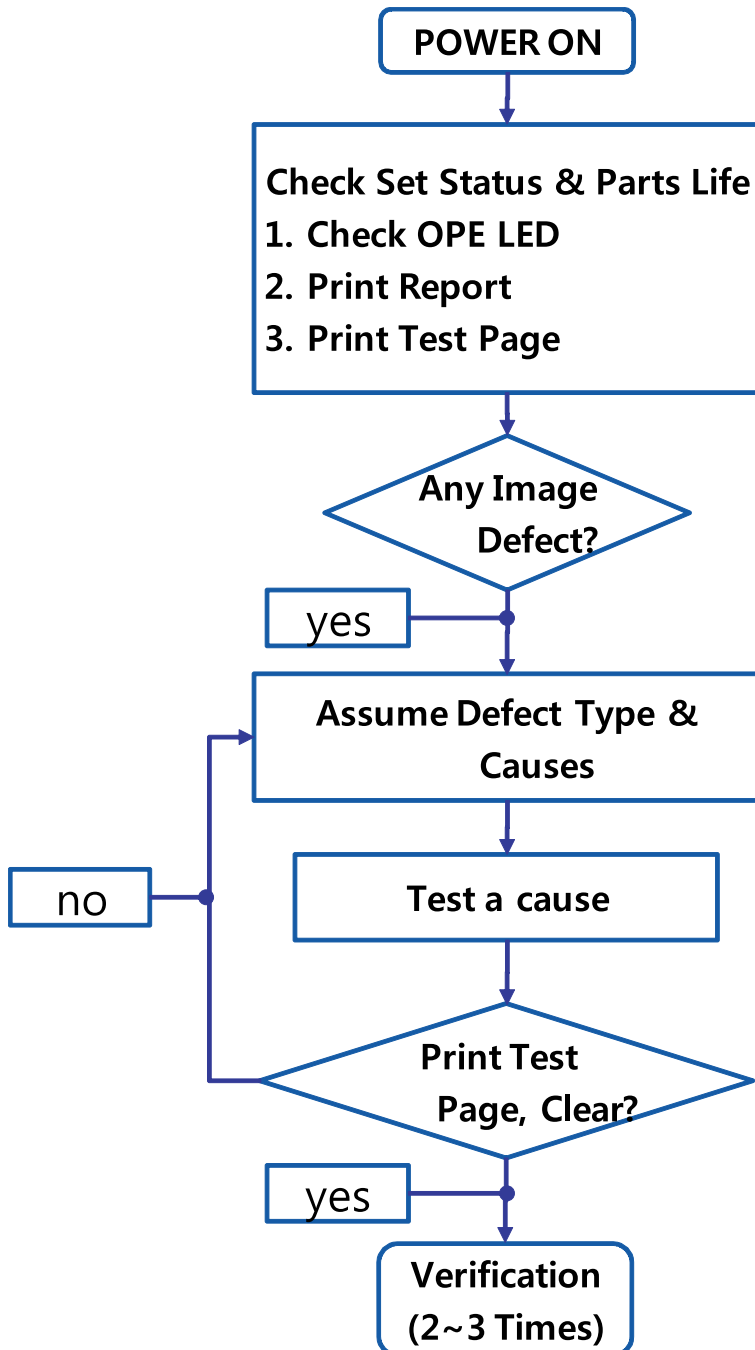
How to analysis the defect image

See the next flow chart.



TIP

- 1) According to the part remain life, cause can vary. Check the part remain life.
- 2) Check the defect whether periodic or not.

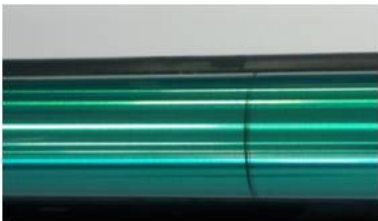
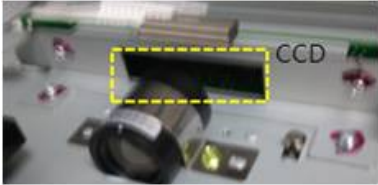


4.7.1. Vertical Black Lines

A. Typical faulty images

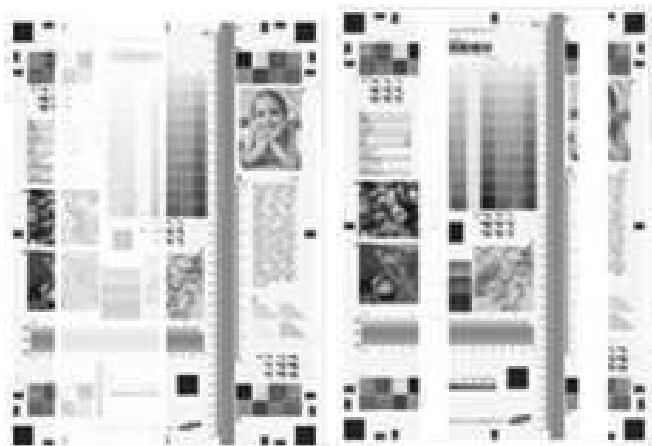


B. Troubleshooting procedure

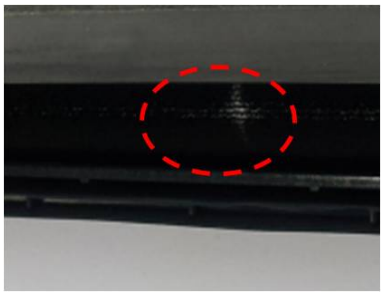
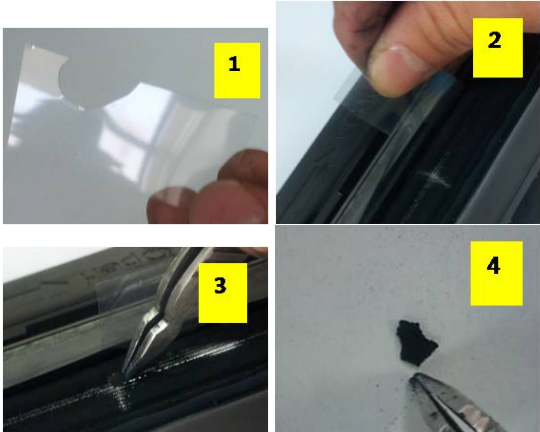
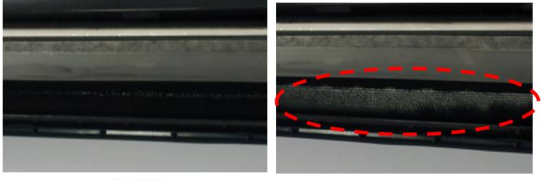
Step	Check item	Action
1	OPC is scratched or contaminated in the vertical direction. 	Replace the drum unit.
2	Scanner unit is contaminated. (ADF Glass / Mirror / CCD Sensor) 	Wipe the surface of contaminated parts with a soft cloth.

4.7.2. Vertical Light or White Lines


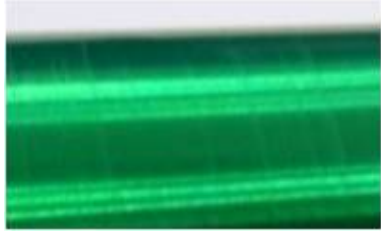
A. Typical faulty images



B. Troubleshooting procedure

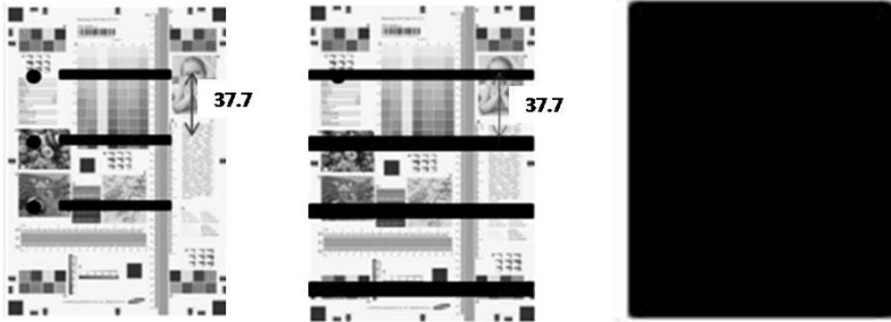
Step	Check item	Action
1	<p>Some foreign substance is stuck between magnetic roller and Blade.</p> <p>No toner on magnetic roller partially.</p> 	<p>Remove foreign substances.</p>  <ul style="list-style-type: none"> • Make the hook (Transparency sheet is recommended.) • Put the hook into the gap between magnetic roller and Blade. • Pull out foreign substances.
2	<p>Developer in Deve unit is empty or Deve unit life is expired.</p>	<p>Check the deve unit remain on supplies information report.</p> <p>If its life is expired, replace the deve unit.</p> <p>Check the developer layer on magnetic roller is uniform or not.</p> <p>If the developer layer is short seriously, replace the deve unit.</p>  <p style="text-align: center;"> Normal Low Toner Layer </p>

4. Troubleshooting

Step	Check item	Action
3	The path of Laser beam is blocked. (Foreign substance is on the LSU window.)	Clean the LSU window. 
4	OPC is scratched or contaminated in the vertical direction. 	Replace Drum unit. <u>(Refer to 3.2.2.1.)</u>

4.7.3. Horizontal periodic Black Band or Dot

A. Typical faulty images

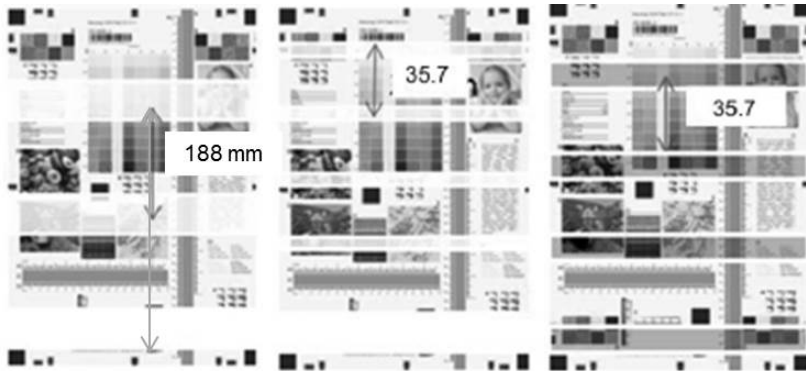


B. Troubleshooting procedure

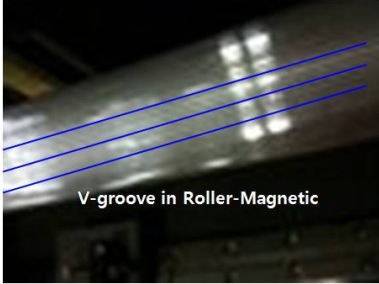
Step	Cause	Action
1	Check if the horizontal band or spot occurs at approx. 38 mm period. <ul style="list-style-type: none"> • Check if the surface of the charge roller is contaminated or scratched. 	1) Clean the contaminated surface on the charge roller with a soft cloth. 2) If the surface is scratched, replace the drum unit.
2	Check if the horizontal band or spot occurs at approx. 188 mm period. <ul style="list-style-type: none"> • Check if the surface of the OPC drum is contaminated or scratched. 	1) Clean the contaminated surface on the OPC drum with a soft cloth. 2) If the surface is scratched, replace the drum unit.
3	Check if the charge roller contact plate is contaminated or has the debris.	1) Clean the charge roller contact plate. 2) If the problem persists, replace the drum unit. 3) If the problem persists after replacing the drum unit, replace the HVPS board.

4.7.4. Horizontal Periodic Light/Dark Lines, Dots.

A. Typical faulty images

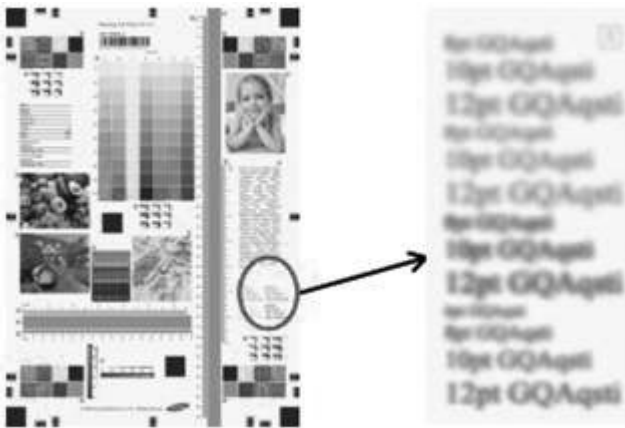


B. Troubleshooting procedure

Step	Check item	Action
1	Horizontal periodic bands (OPC, 188 mm) – OPC was exposed for long hours. – Damaged by high voltage in a short time.	As some time passes, most of bands will disappear. Replace Drum unit. (Refer to 3.2.2.1.)
2	Horizontal periodic Light/Dark bands (Roller-Magnetic, 35.7mm) – Roller-Magnetic is inferior in quality. – V-groove of the surface of Roller-Magnetic is not uniform. 	Replace Deve unit. (Refer to 3.2.2.1.)

4.7.5. Blurred image

A. Typical faulty images

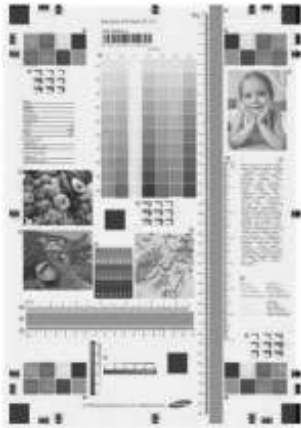


B. Troubleshooting procedure

Step	Check item	Action
1	Humidity of the circumstances and paper.	Change to the new and better grade paper.
2	Thv transfer voltage is low.	Turn up the THV transfer voltage. (Refer to 4.5.6.9.)
3	Connection between HVPS and THV is incorrect.	Check if the connection between THV high voltage terminal and HVPS THV terminal is correct. Check if the connection of HVPS and TR correct.

4.7.6. Foggy image

A. Typical faulty images



B. Troubleshooting procedure

Step	Check item	Action
1	Voltage of OPC is abnormally low.	Replace Drum unit. (Refer to 3.2.2.1.)
2	Toner is over supplied by abnormal TC sensor.	Replace the Toner cartridge.
3	T1 Voltage is abnormally high	Check the connection in HVPS. – Connection of Transfer rollers in THV, TR Replace HVPS. (Refer to 3.3.8.)
4	HVPS operates abnormally. HVPS is damaged or broken.	Replace HVPS.

4.7.7. Light image

A. Typical faulty images



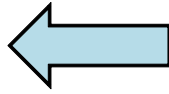
B. Troubleshooting procedure

Step	Check item	Action
1	Occur the poor Transfer.	Replace HVPS. (Refer to 3.3.8.)
2	Output voltage of HVPS is abnormally low. – Color density becomes low.	Replace HVPS. (Refer to 3.3.8.)
3	TC Sensor operates abnormally.	Replace Deve unit. (Refer to 3.2.2.1.)

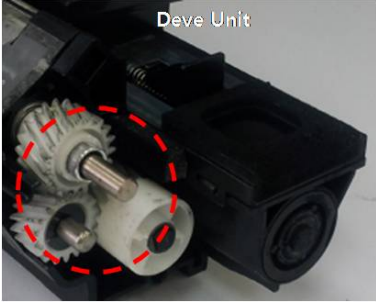
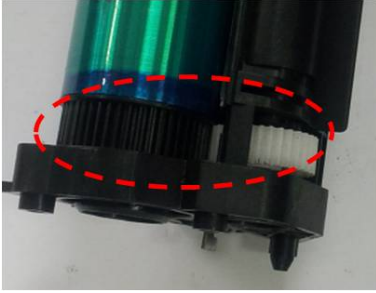
4.7.8. Uneven pitch and jitter image

A. Typical faulty images

Paper feeding direction

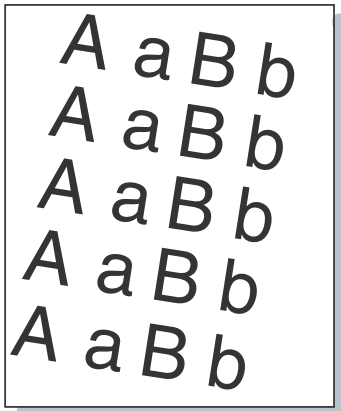


B. Troubleshooting procedure


Step	Check item	Action
1	Under 3mm periodic jitters or horizontal bands has occurred.	Remove foreign substances at the drive gears. Apply grease. - Toner cartridge gears.  - OPC unit gears.  - Main drive unit gears. Replace the abnormal units. - Toner cartridge. - Drum unit. - Main drive unit.
2	Under 1mm periodic jitter or horizontal bands has occurred.	Check if the LSU is assembled incorrectly, replace the screws. Replace LSU (Refer to 3.3.3.)

4.7.9. Skewed image

A. Typical faulty images

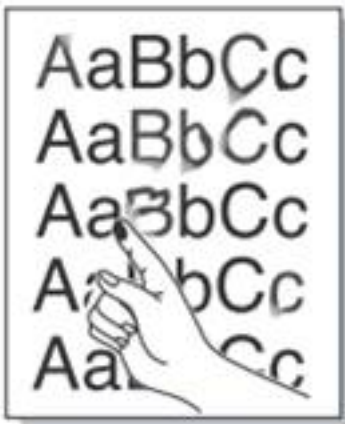


B. Troubleshooting procedure


Step	Check item	Action
1	Is the cassette properly installed?	Reinstall the cassette properly.
2	Is too much paper loaded in the cassettes?	Reduce paper.
3	Are the cassette side guides properly set?	Adjust the side guides.
4	Is the surface of pick up/ separation / forward roller dirty?	Clean or replace the contaminated roller. (Refer to 3.2.2.4.)
5	Is the DSDF installed and adjusted properly?	Reinstall the DSDF unit. Adjust DSDF skew. (Refer to 4.9.) 
6	Is the transfer belt installed properly?	Reinstall PTB unit.

4.7.10. Poor fusing performance

A. Typical faulty images

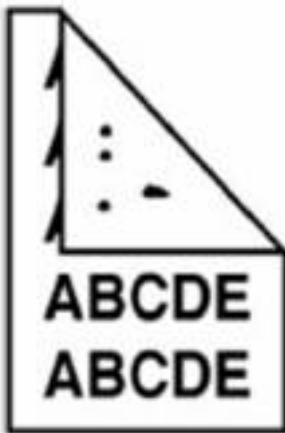


B. Troubleshooting procedure

Step	Check item	Action
1	<p>Check the paper type.</p> <p>Depending on what type of paper used, print speed will vary.</p> <p>(ex)</p> <ul style="list-style-type: none"> - Plain (71~90g/), Thick (91~105g/) : 100% - Heavy weight (106~175g/) : 50% - Envelope (75~90 g/), Label (120~150 g/) : 50% 	<p>Check the paper type on control panel is same as paper user uses.</p>
2	The fuser unit is worn out.	Replace the fuser unit.
3	Check if the surface of the fuser belt & pressure roller is scratched.	Replace the fuser unit.
4	<p>Check if the temperature control system has problems.</p> <ul style="list-style-type: none"> - Thermistor is broken or operates abnormally - Halogen lamp is broken or operates abnormally. 	<p>Check the Non-contact thermistor sensor.</p>  <p>Check the Halogen lamp.</p> <p>If you find some problems, replace the broken parts or Fuser unit.</p>
5	Check if the pressure control system operates properly.	<p>Check the pressure control system.</p> <p>The problem persists, replace Fuser unit.</p>
6	Paper is wrapped on the Heating roller.	<p>Remove a wrapped paper and print the demo page.</p> <p>If there are some problems on the printout, replace Fuser unit.</p>

4.7.11. Stain on the paper back side

A. Typical faulty images



B. Troubleshooting procedure

Step	Check item	Action
1	Is the transfer belt dirty or worn out?	Clean or replace the PTB Unit.
2	Are the fuser belt and pressure roller dirty?	Clean the fuser belt and pressure roller.
3	Check the pressure roller surface is damaged or scratched.	Replace Fuser unit.

4.7.12. Setting Standard Tone

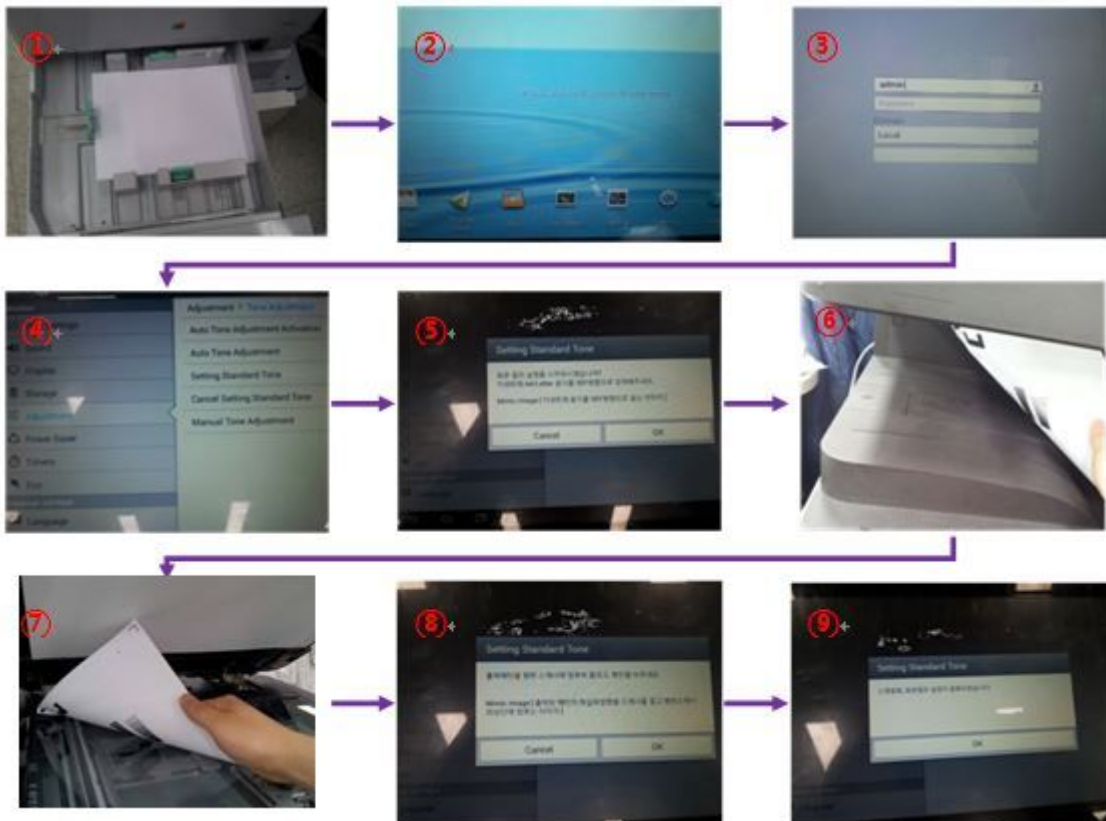
1. Setting Standard Tone

- <Purpose>
 - To adjust the color tone to the standard set by factory.

NOTE

- After first machine installation, this functions must be executed.

- <Procedure>
 - 1) Load A4 or Letter with SEF (Short Edge Feeding) direction on tray.
 - 2) Select [Setting] on main UI.
 - 3) Log in as Admin.
 - 4) Select [Adjustment] -> [Tone Adjustment] -> [Setting Standard Tone].
 - 5) Select "OK" on confirmation window.
 - 6) The scan ID chart will be printed out.
 - 7) Load the chart on platen glass. (Horizontal direction)
 - 8) Start scan.
 - 9) When the scan complete window appears, select "OK".



2. Cancel Setting Standard Tone

NOTE

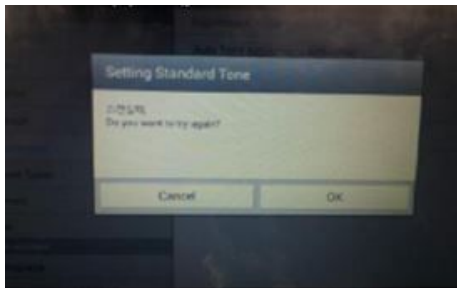
When the machine is installed for the first time, "Cancel Setting Standard Tone" does not need to be executed.

- <Purpose>
 - To cancel the setting standard tone.
 - To return the customized tone by user after setting the standard tone.
- <Procedure>
 - 1) Select [Adjustment] -> [Tone Adjustment] -> [Cancel Setting Standard Tone].
 - 2) When the cancel setting standard toner will be appeared, select "OK".
 - 3) Select "FullTRC" : [Adjustment] -> [Tone Adjustment] -> [Auto Tone Adjustment] -> *Full + Execute Now



3. Error message

- <Scan Image Fail>
 - When there is any problem on the scanned ID chart, error message will be appeared.



- <Check items>
 - Check if the scanned ID chart is placed.
 - Check if the chart direction is horizontal.
 - Re-try the setting standard tone procedure.

4. In case of need

- When installing the machine for the first time.
- When the brightness is changed in comparison to previous image.



Normal Image



Dark Image



Light Image

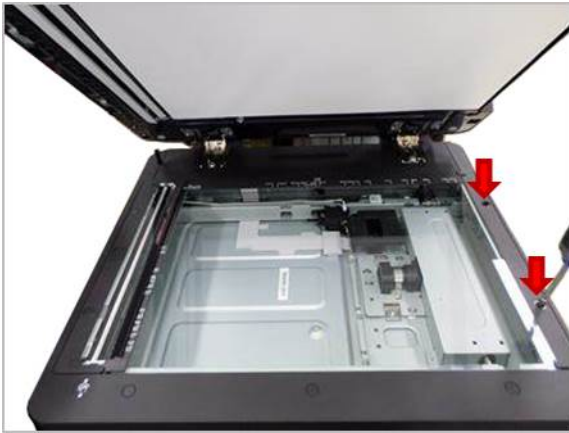


NOTE

If the problem persists after executing the setting standard tone, find another causes.

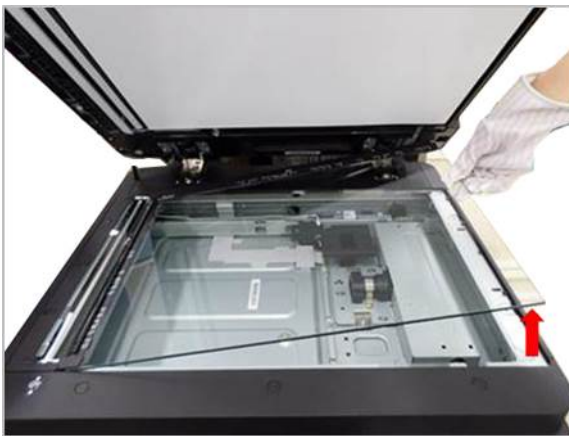
4.7.13. Scan Waveform Drop Image

- 1) Remove 2 screws. And then, remove the scan glass holder cover.



 × 2 (6001-002786)

- 2) Lift the scan glass up and release it.



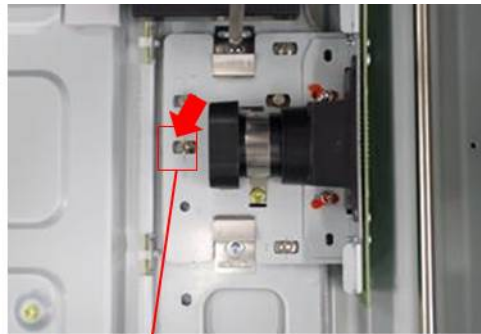
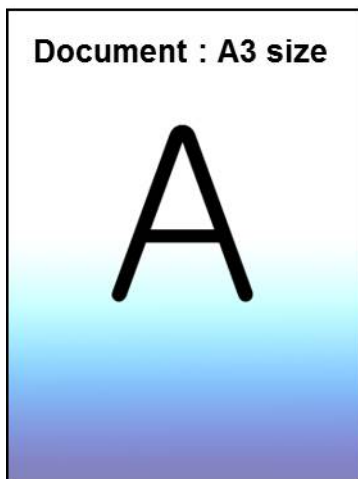
 **NOTE**

Be careful not to contaminate the scan glass.

- 3) Cyan Background
- a) Mark a point on the screw with the pen.
 - b) Rotate the 'R' screw 90 degrees in a clockwise direction. (This is the -1.2 mm align adjustment.)
 - c) Execute a copy or scan job to check the image improvement.
 - d) Repeat step 2,3 for improvement.

 **NOTE**

If the image does not improve by three attempts, please stop the adjustment.



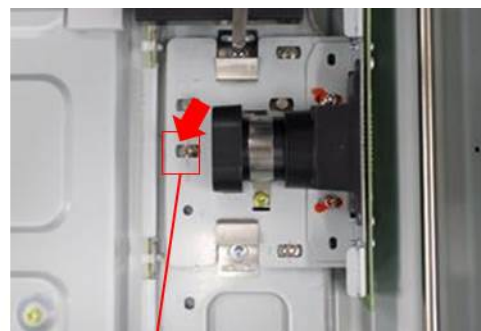
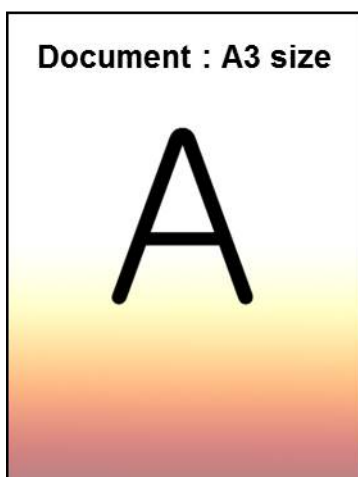
**R(Registration)
Adjustment Screw**

4) Yellow Background

- a) Mark a point on the screw with the pen.
- b) Rotate the 'R' screw 90 degrees in a counterclockwise direction. (This is the 1.2 mm align adjustment.)
- c) Execute a copy or scan job to check the image improvement.
- d) Repeat step 2,3 for improvement.

 **NOTE**

If the image does not improve by three attempts, please stop the adjustment.



**R(Registration)
Adjustment Screw**

4.8. Other Errors

4.8.1. Image system problem

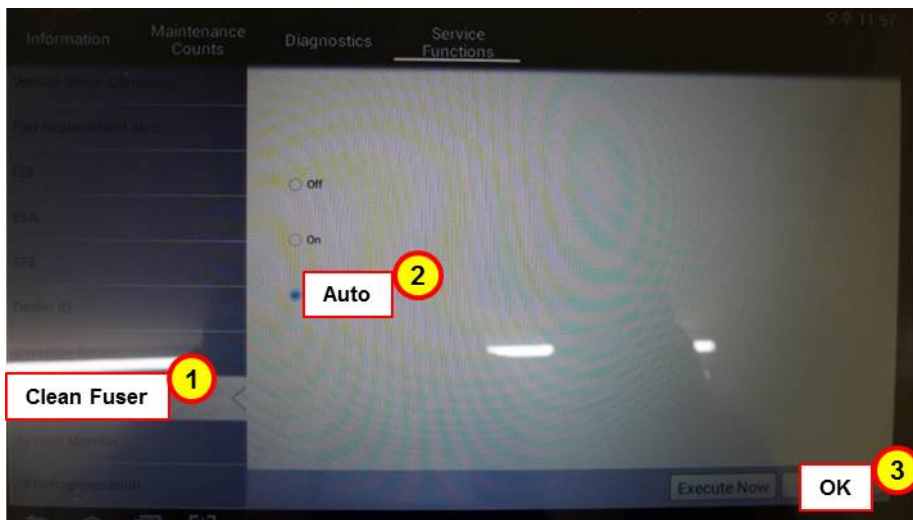
No	Problem Description	Troubleshooting Page
1	Toner cartridge detection error	P.4-198
2	Image contamination (Pressure roller contamination)	P.4-199

1) Toner cartridge detection error

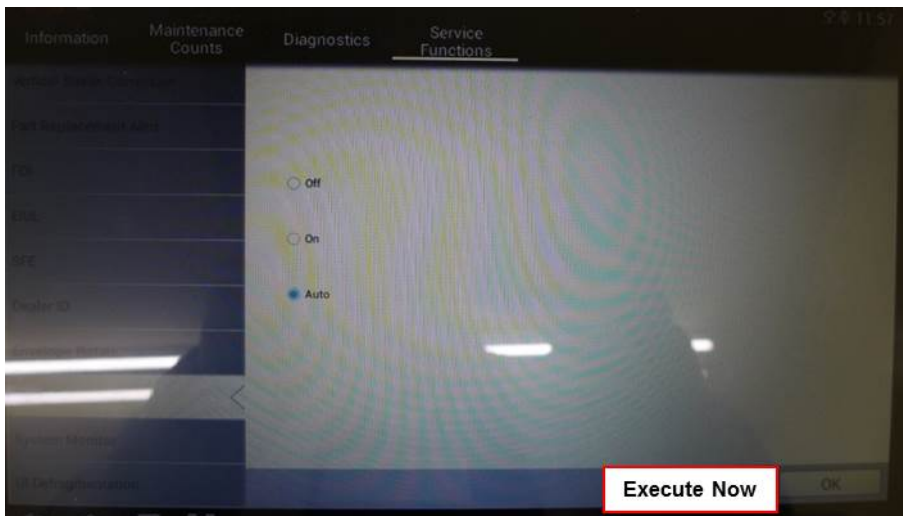
- **Symptom** : Toner cartridge is installed, but “Not Install” message occurs.
- **Cause** :
 - Toner cartridge is not installed properly.
 - CRUM harness of the toner cartridge is defective.
 - CRUM PBA or CRUM Chip is defective.
 - CRUM connection(Modular connector) is defective.
 - CRUM Joint PBA is defective.
 - Bad connection between the main board and the CRUM Joint PBA
- **Troubleshooting**
 - 1) Toner cartridge install problem
 - Check if the toner cartridge is installed properly.
 - If the cartridge comes out automatically from set, check the cartridge fixing hook.
 - If there are some problems of hook, replace cartridge cap or cartridge.
 - 2) CRUM harness problem of the toner cartridge
 - Check if CRUM harness of the toner cartridge is connected correctly.
Check if modular jack of the toner cartridge is broken or assembled abnormally.
 - If the modular jack harness is defective, replace it with new one.
If the modular jack is entered to the toner cartridge, pull out it with hands.
 - 3) CRUM PBA problem or CRUM data broken
 - Replace the toner cartridge with new one.
 - 4) CRUM connection(Modular connector) installation problem
 - a) Open the front cover. Pull out the toner cartridge.
 - b) Check the CRUM connection (Modular connector) is installed properly.
 - c) If the modular connector is not installed properly, open the front cover and re-install it.
 - 5) CURM Joint PBA problem
 - If CRUM Joint PBA has some problems of the modular jack pin or the main board interface connector etc, replace the PBA with new one like No.4.
 - 6) Bad connection between the main board and the CRUM Joint PBA
 - Check the connection between the main board and the CRUM Joint PBA.
If the connection is bad, replace the harness or the CRUM Joint PBA or main board.

2) Image contamination (Pressure roller contamination)

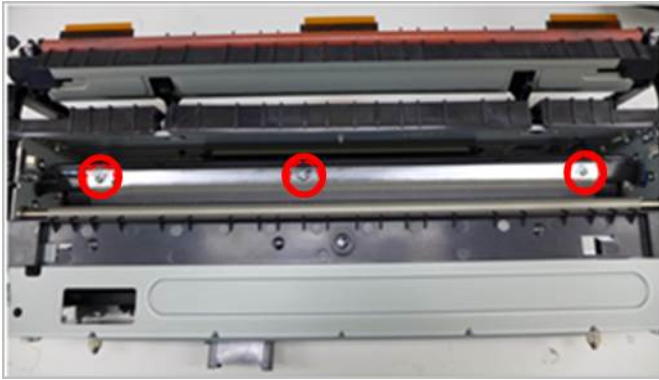
- **Symptom :**
Image (Front/Back side of paper) is contaminated with toner
- **Cause :**
Toner is contaminated on the surface of pressure-roller with low coverage, mainly simplex, and low duty jobs.
- **Troubleshooting**
 - 1) Install Vx.D6.08 or latest version.
 - 2) Make sure 'Clean Fuser' function is set to 'Auto'.
Vx.D6.08 or later version has Auto 'Clean Fuser' function as default.
If you are using 'On' mode previously, that pre-existing setting value will be kept as before. Otherwise, it will be changed to 'Auto'.
You can use 'On' mode and set desired interval as you need.
(SVC mode → Service Functions → Clean Fuser → Auto)



- 3) To execute fuser cleaning function manually, press 'Execute Now'.



- 4) Repeat step '3)' up to 6 times until you cannot find any contamination on the fuser cleaning sheet.
If the contamination on the fuser cleaning sheet still exists, you may need to clean the pressure-roller with soft brush or scraper with care.
 - a) Open the fuser jam cover. Remove 3 screws. And, remove the brush.



- b) Check the surface of pressure roller and remove the toner contamination while rotating the pressure roller 1 cycle carefully.



4.8.2. Fuser problem

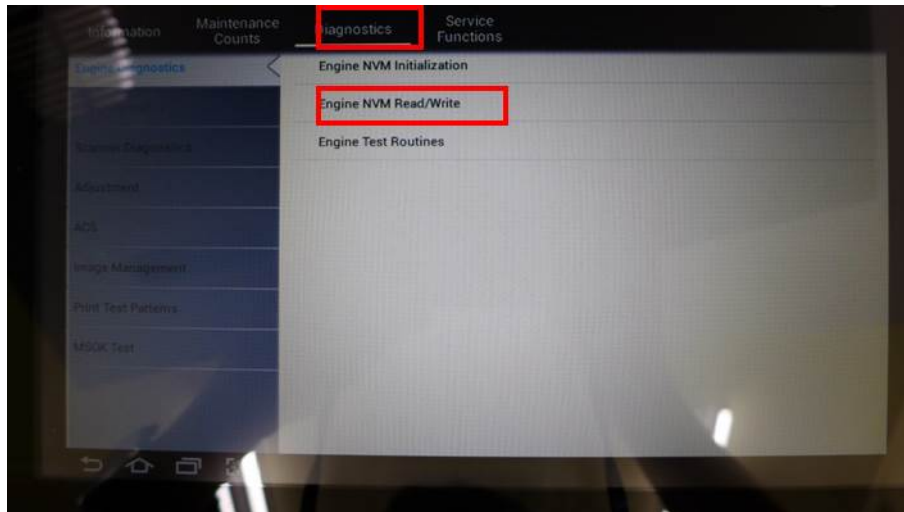
No	Problem Description	Troubleshooting Page
1	Acoustic noise in Fuser unit	P.4-201
2	Image 'Hot offset' problem	P.4-202
3	Error 'Fusing unit not compatible' problem	P.4-203

1) Acoustic noise in Fuser unit

- **Symptom** : Acoustic noise from fuser assembly in early stage of printing
- **Cause** : Fuser belt edges is damaged.
- **Troubleshooting**
 - 1) Replace the fuser unit with new one.

2) Image 'Hot offset' problem

- **Symptom** : Image at the leading edge of the paper is duplicated after 110mm.
- **Cause** : The fusing temperature was quite high.
- **Troubleshooting**
 - 1) Lower the fusing temperature in SVC mode until the problem disappears.
Default value is 10, and it is recommended to change the value up to 8.
 - How to change the plain temperature offset
 - a) Enter SVC mode. Select 'Engine NVM Rear/Write' tap.



- b) Select 'Plain Temperature offset' menu.

 A screenshot of the 'Engine NVM Read/Write' menu showing a list of NVM items. The 'Plain Temperature offset' item is highlighted with a red box, and its value is set to 12, which is also circled in red. The table below shows the details of the NVM items.

Code	NVM Name	Default	Value
103-0031	Regi Curl Length	10	10
103-0032	Duplex Regi Curl Length	10	10
103-0038	Regi Curl Fast Speed Length	10	10
109-0000	StandBy Temperature Offset	10	10
109-0005	Warmup Temperature offset	10	10
109-0055	Thin Temperature offset	10	10
109-0065	Plain Temperature offset	10	12
109-0070	Bond Temperature Offset	10	10
109-0071	Heavy Temperature offset	10	10
109-0072	Extra Heavy Temperature offset	10	10
109-0080	Transparency Temperature offset	10	10
109-0100	Envelopes Temperature Offset	10	10
109-0110	Labels Temperature Offset	10	10
109-0120	Thin Temperature Offset	10	10

- c) Press 'OK' button after adjusting the value. (1 = 2°C)
- d) Press 'Home' button to exit SVC mode.

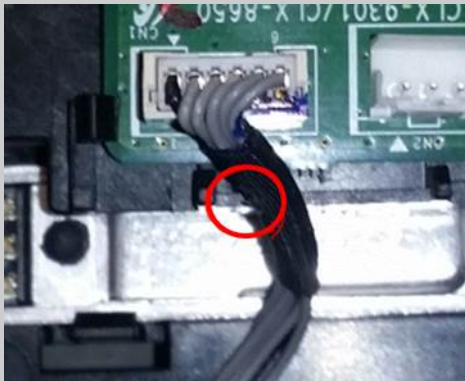
3) Error 'Fusing unit not compatible' problem

- **Symptom** : Error 'Fusing unit not compatible' happens.
- **Cause** : Harness for EEPROM signal is damaged by the sharp edge of the Fuser frame.
- **Troubleshooting**

1) Check if the EEPROM signal harness is damaged.

If so, replace the fuser unit (from 2015.08.11 the new part was applied) or insulate the damaged spot of harness by wrapping each harness up.

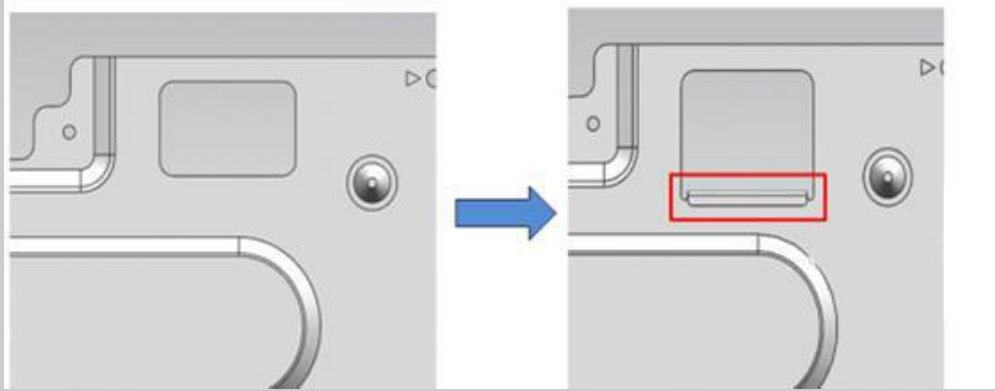
 **NOTE**



You may need to remove the pre-existing AT tape, and re-apply the insulation for damaged each harness.

 **NOTE**

New design was applied from 2015.08.11 which doesn't have the sharp edge on the harness path.



4.8.3. Scanner and Document Feeder problem

No	Problem Description	Troubleshooting Page
1	Noise of ADF Hinge / Crack of ADF Hinge / ADF can't be fixed as open	P.4-205
2	ADF is not recognized.	P.4-205
3	During copy or scan job, the original paper JAM and U3-3213 error occur.	P.4-206

1) Noise of ADF Hinge / Crack of ADF Hinge / ADF can't be fixed as open

- **Symptom :**
 - When ADF is opened or closed, the noise from its hinge happened.
 - ADF hinge is cracked.
 - When the ADF unit is lifted to access the platen glass, the unit should remain at a 50° angle ($\pm 10^\circ$). ADF unit does not remain open as expected.
- **Troubleshooting**
 - 1) Remove the ADF connector cover.
 - 2) Remove the connector and 1 screw.
 - 3) Lift up and remove the ADF unit.
 - 4) Replace the hinge unit with new one.
 - 5) Reassemble the ADF unit again.

2) ADF is not recognized

- **Symptom :**
 - ADF installation is not recognized.
- **Cause :**

ADF power cable fails.
- **Troubleshooting**
 - 1) Reassemble the ADF power cable and if it does not solve the problem, replace the cable.
 - 2) Adjust harness and make it fixed with cable tie.

3) During copy or scan job, the original paper JAM and U3-3213 error occur.

- **Symptom :**

- During copy or scan job, the original paper JAM and U3-3213 error occur. (SL-K7xxx LX series / SL-X7xxx LX series)

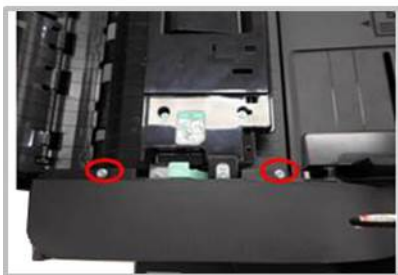
- **Troubleshooting**

- 1) Check if the “Sponge-Damper Separation” is moved to other position.



- 2) If yes, refer to following guide.

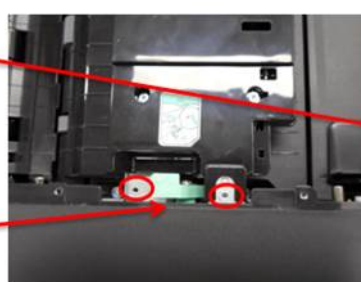
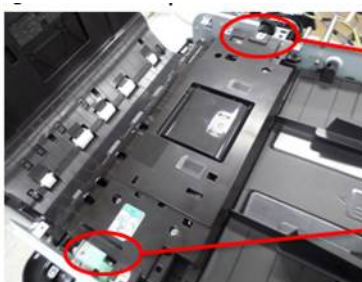
- a) Remove 3 screws.



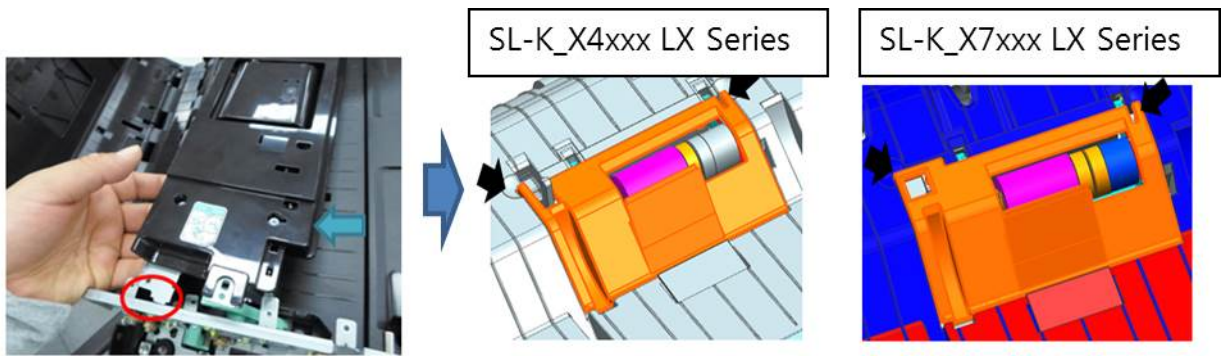
- b) Remove the linker pressing its upper side to the inner direction. And then, remove the front cover.



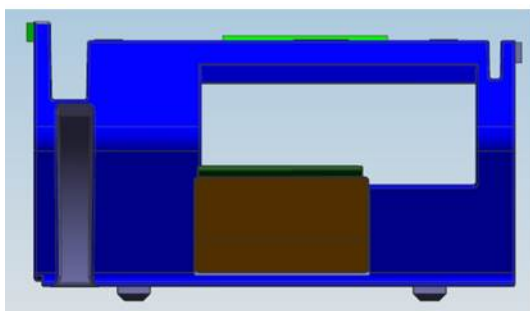
- c) Remove 4 screws.



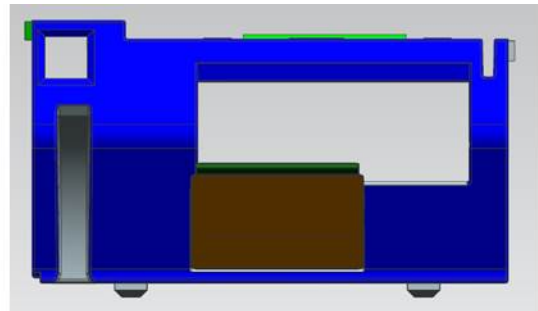
d) Remove the Pick up Assy.



e) Replace the DSDf-HOUSING SEPARATION.



SL-K_X4xxx LX Series
JC97-04586A_DSDf-HOUSING SEPARATION



SL-K_X7xxx LX Series
JC97-04621A_DSDf-HOUSING SEPARATION

4.8.4. Drive unit problem

No	Problem Description	Troubleshooting Page
1	Machine makes noise when paper print out	P.4-208

1) Machine makes noise when paper print out

- **Symptom** : Machine makes noise when paper print out
- **Cause** :
 - Lack of grease in gear-train
 - Old type gear is assembled.
- **Troubleshooting**
 - 1) Enter the service mode.
 - 2) Execute the fuser motor test.
(Service Mode > Diagnostics > Engine Diagnostics > Engine Test Routines > Fuser Motor Forward)
 - 3) Remove the fuser unit. And execute the fuser motor test again.
 - 4) If the machine still makes noise, replace the “DRIVE-FUSER EXIT” Assy.
 - 5) If not, replace the fuser unit.

4.8.5. Feeding system problem

No	Problem Description	Troubleshooting Page
1	Tray1, Tray2, MP Tray can not pick up the paper.	P.4-209
2	Machine can not feed the paper.	P.4-210
3	Envelope wrinkle	P.4-210

1) Tray1, Tray2, MP Tray can not pick up the paper.

- **Symptom** : Tray1, Tray2, MP Tray can not pick up the paper.
- **Cause** :
 - Bad harness connection on the main board
 - Connector defect of the main board
- **Troubleshooting**
 - 1) Check the harness connection. If the harness is not connected correctly, reconnect it.
 - 2) Check the pick up unit and pick up drive unit connector on main board.
If the connector has some problem of soldering, replace the main board.

2) Machine can not feed the paper.

- **Symptom** : The machine can not feed the paper from Tray1 or Tray2.
- **Cause** :
 - Feed motor problem
 - Feed motor connection problem
 - Main board defect
- **Troubleshooting**
 - 1) Check the Feed motor operation.
 - a) Open the side cover, and push the cover switch with paper forcibly.
 - b) Enter the service mode.
 - c) Select the menu below.
(EDC Mode > Diagnostics > Engine Diagnostics > Engine Test Routine > Feed motor > on/off)
Check the two feed rollers operating status.
 - d) If the feed rollers can not rotate, open the rear cover and check the motor and gears.
 - 2) Check the connection between the main board and feed motor.
 - 3) If the problem persists, replace the main board.

3) Envelope wrinkle

- **Symptom** :
Envelope is wrinkled when printing from MP tray.
- **Troubleshooting**
 - 1) Enter SVC mode.
 - 2) Select "Envelope Rotate". (**Service Functions > Envelope Rotate**)
 - 3) Select one menu among 'off', '90 degree', '180 degree'.
(Refer to 4.5.6.18. Envelope Rotate)

4.8.6. LSU problem

No	Problem Description	Troubleshooting Page
1	Loud noise sound of LSU motor	P.4-211

1) Loud noise sound of LSU motor

- **Symptom** : The machine makes some noise like a siren from LSU motor in printing mode.
- **Cause** : LSU motor defect
- **Troubleshooting**
 - 1) Enter the service mode and execute the LSU motor test.
 - 2) If the LSU motor run sound is loud, replace the LSU.
 - 3) If not, check the other unit.

4.8.7. Electrical circuit problem

No	Problem Description	Troubleshooting Page
1	SMPS output voltage drop error	P.4-212
2	HDD makes a loud noise.	P.4-213
3	Networking is not working.	P.4-213
4	UI touch malfunction	P.4-214
5	Home screen icon is disappeared or UI screen is broken.	P.4-216

1) SMPS output voltage drop error

- **Symptom** : Some error messages occur on the OPE(C3-1312,S3-3121,M1-4111,M1-4211).
- **Cause** : 24V channels output voltage drop to under 21.6V and 5V channels output is normal.
- **Troubleshooting**
 - 1) Check all 24V output channels (24VS1, 24VS2, 24VS3, 24VS4) whether 24V voltage comes out or not.
 - 2) If 24V voltage doesn't come out, check '24V on/off signal pin' on the main board.
 - a) The voltage at '24V on/off signal pin' is 0V. → Main board and signal is normal.
 - b) The voltage at signal pin is 4~5.3V → Main board and signal is abnormal.
 - 3) If Main board and signal is normal and all 24V output channels are nearly 0V, check other parts(i.e. Fuser, motor, scanner harness, etc.) driven by 24V voltage before replacing the SMPS.
 - 4) If Main board and signal is normal and just one or two or three 24V output channels are nearly 0V, inspect some harness from abnormal 24V output channel before replacing the SMPS.
 - 5) If Main board and signal is abnormal and all 24V output channels are nearly 0V, inspect the harness, connector and main board.

2) HDD makes a loud noise.

- **Symptom** : The Hard Disk Drive makes a loud noise when working.
- **Cause** : HDD itself has defects.
- **Troubleshooting**
 - 1) Replace the HDD with new one.

3) Networking is not working.

- **Symptom** : Network is not working suddenly.
- **Cause** :
 - Network line itself is not working properly.
 - Network configuration is wrong.
 - Some related electronic components have the defect in the main board.
- **Troubleshooting**
 - 1) Do a ping test after connecting the network line which was used in the SET to a PC to check the network line itself.
 - 2) Do a ping test after connecting the network line to the SET. If it is okay, check the network configuration which may set wrong by some users without notice.
 - 3) If the result of the ping test is not good, then open the rear cover and see the main board if there are some visible defects on the network related components such as connector(CN16), capacitor(C192), and any other components nearby. Surge voltage from the outside may cause the defects.
 - 4) If those components have visible defects, then the main board should be changed.

4) UI touch malfunction

- **Symptom** : When touching a button, another button is entered.

※ For example,

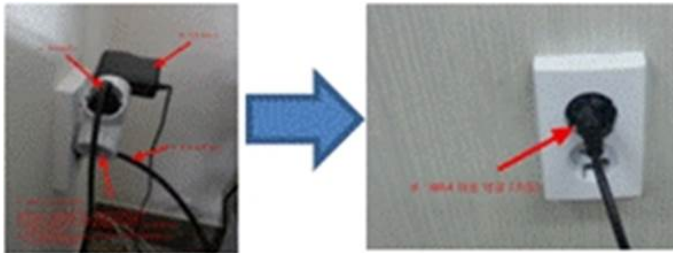


When touching home button,
another menu is executed.



When touching "5" button,
"4", "6", "cos" are entered.

- **Cause** :
 - Touch IC is influenced by the interference between TX frequency and power noise frequency.
- **Troubleshooting**
 - 1) If the power cord is connected to the multi tap, unplug and plug it to the independent outlet.



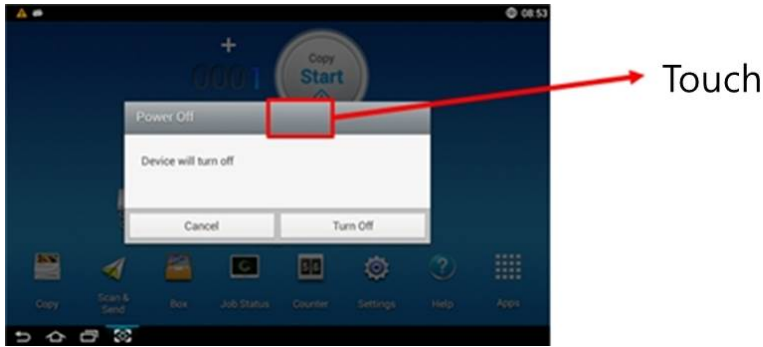
[X]

[O]

- 2) If the touch malfunction persists, check the followings.
 - a) Press "Power button" until the pop up will be displayed.



- b) Press pop-up area except "Cancel" and "Turn Off" button until the password window will be displayed.



c) Enter “8378” and press the “Done” button.



d) Select “Utilities” Tap.



e) Change “Touch Config” value.

- After changing “Touch Config”, press “Home” button.
- Priority : 1.(default) → 4. 401K_500K → 5. 500K_599K → 3. 148K_290K → 2. 86K_216K

f) Check the touch operation.

- If the touch malfunction persists, change “Touch Config” to another value and test the touch operation again.

5) Home screen icon is disappeared or UI screen is broken.

- **Symptom** : Home screen icon is disappeared or UI screen is broken.
- **Cause** :
 - UI software error
- **Troubleshooting**
 - 1) Enter SVC mode. (**Refer to 4.5.1**)
 - 2) Execute “Main Memory Clear” (**Service Functions > Main Memory Clear**)

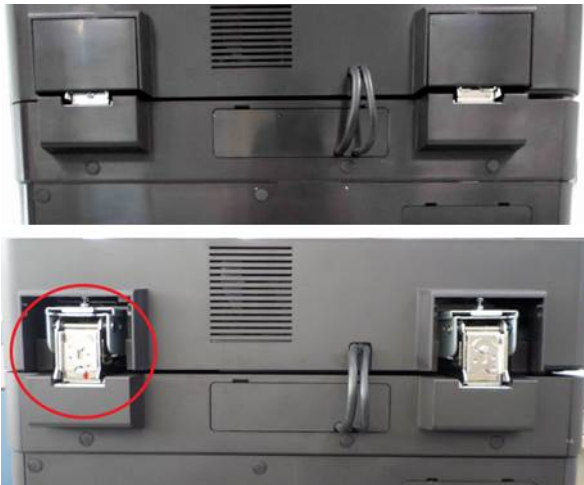
4.9. Adjustment

4.9.1. Adjusting the ADF(DSDF) skew

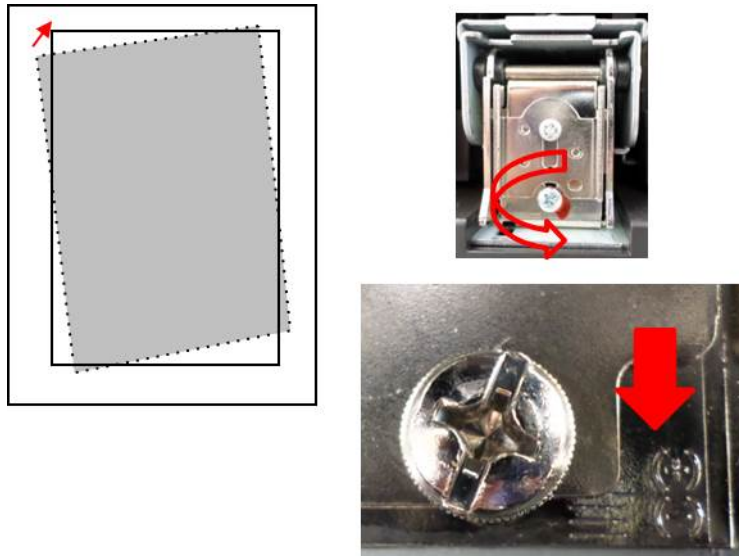
- 1) Stand the ADF unit. Loosen 2 screws securing both hinge units slightly.



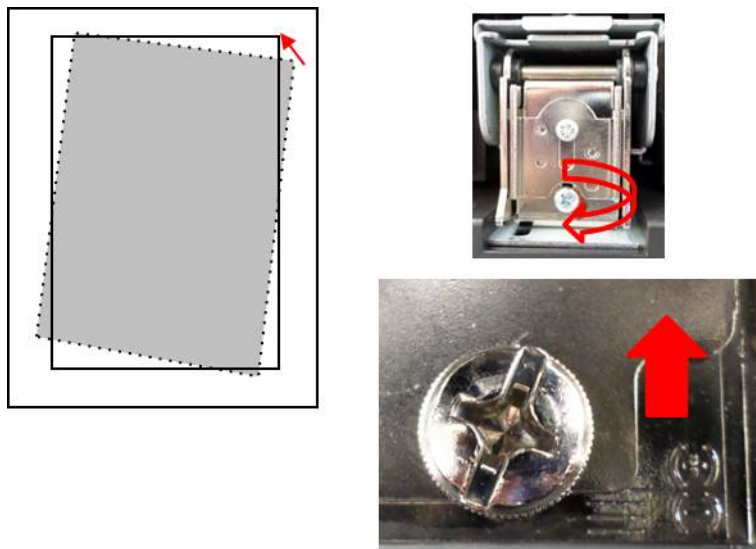
- 2) Adjust the position of the ADF hinge as the skew status.



- a) If the skew image is like a below sample, adjust the hinge unit to the direction of arrow. (1 scale => 1.0 mm skew adjustment)



- b) If the skew image is like a below sample, adjust the hinge unit to the direction of arrow. (1 scale => 1.0 mm skew adjustment)



- 3) Detach the ADF sponge after adjusting the skew. Place the ADF sponge on platen glass. And then close the ADF unit to stick the sponge.



4.9.2. Adjusting the Scan FR Carriage Flatness

- 1) Remove 7 screws. And then, release the scan front cover and scan glass holder cover.



- 2) Lift the scan glass up and release it.



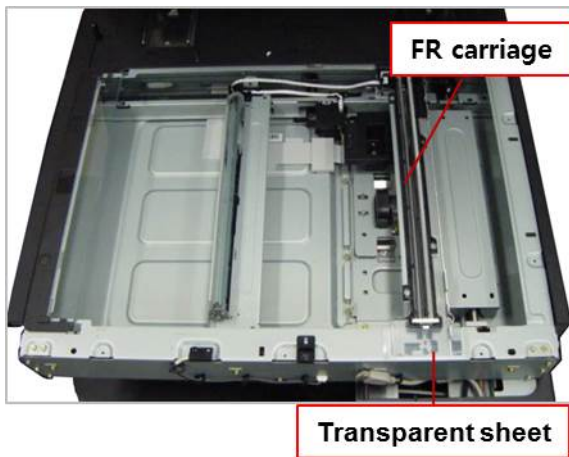
NOTE

Be careful not to contaminate the scan glass.

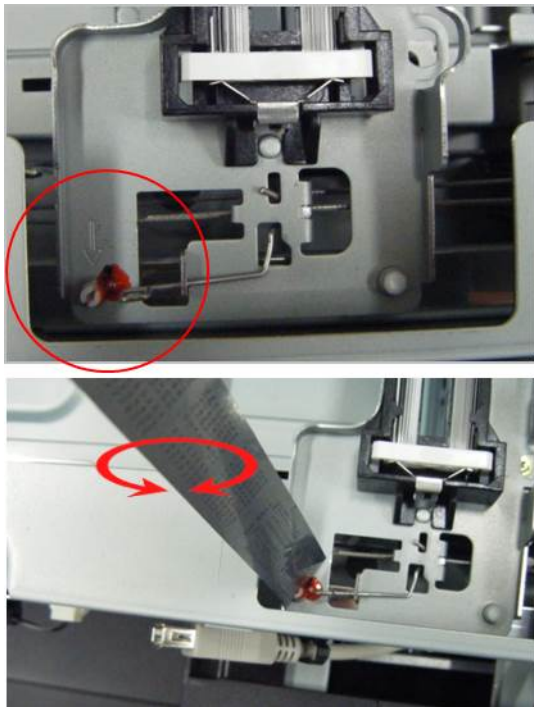
- 3) Tap 4 corners of the FR carriage to check the direction that adjustment is needed.



- 4) Move the FR carriage as shown below. And then, remove the transparent sheet.



- 5) Rotate the slider-adjust to adjust the FR carriage flatness.



- 6) Reassemble in reverse order of disassembly.

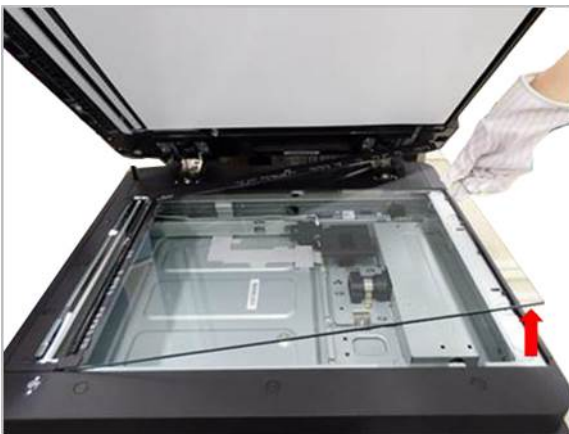
4.9.3. Adjusting the Scan Top Skew

- 1) Remove 2 screws. And then, remove the scan glass holder cover.



 × 2 (6001-002786)

- 2) Lift the scan glass up and release it.



 **NOTE**

Be careful not to contaminate the scan glass.

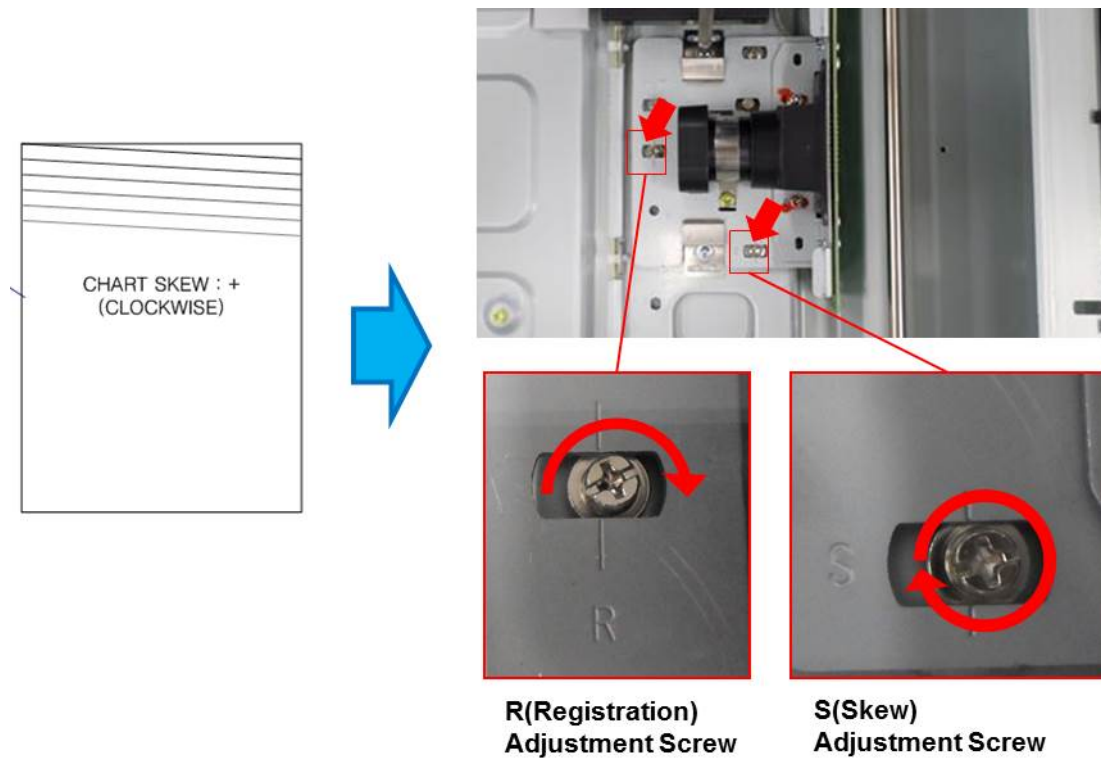
- 3) Adjust 'R', 'S' screws as the skew status.

For example,

- a) If the top skew is like a below sample (@AS chart, 1.5mm clockwise direction skew), rotate 'S' screw one turn and 'R' screw a half turn in a clockwise direction.

 **NOTE**

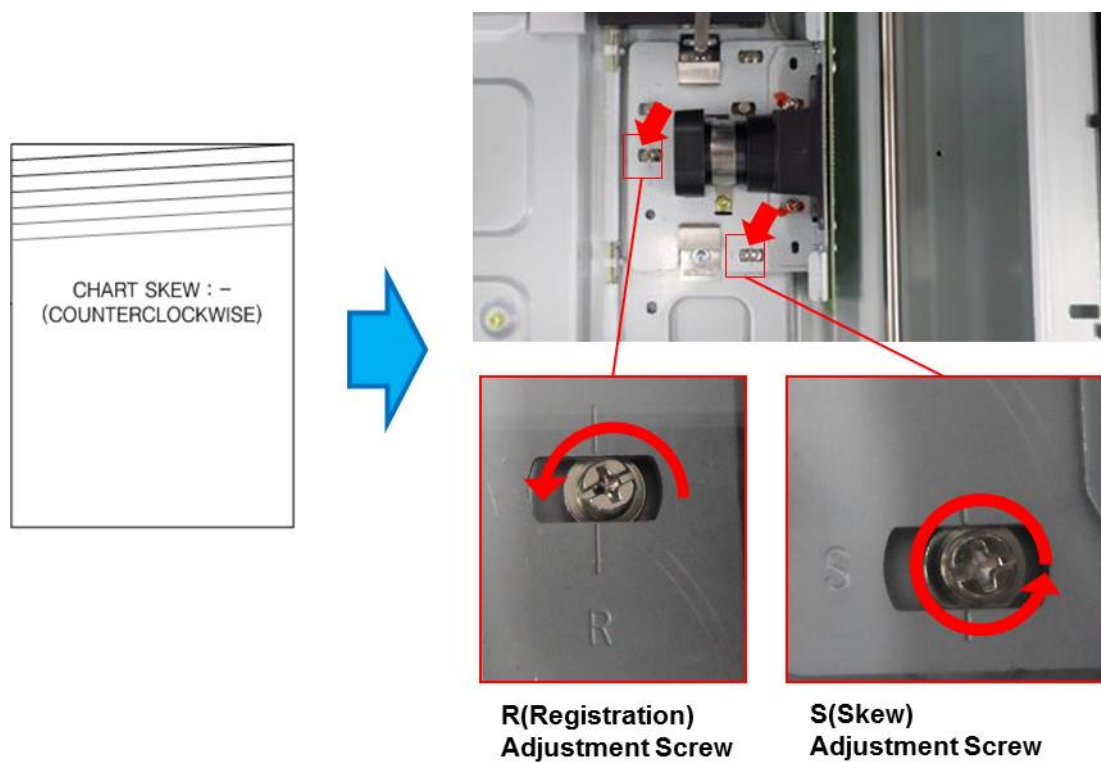
The combination of 'S' screw one turn and 'R' screw a half turn must be kept.



- b) If the top skew is like a below sample (@AS chart, 1.5mm counterclockwise direction skew), rotate 'S' screw one turn and 'R' screw a half turn in a counterclockwise direction.

NOTE

The combination of 'S' screw one turn and 'R' screw a half turn must be kept.



- 4) Reassemble in reverse order of disassembly.

4.10. SPDS (Smart Printer Diagnostic System) Application

This application is based on Android and the purpose of SPDS is to help the service engineer when repairing a machine.

Specification of SPDS App.

1) **Mobile**

- a) Support model : Galaxy series, All android phone.
 - Galaxy S series (S2, S3, S4,...)
 - Galaxy Note series (Note1, Note2, Note3,...)
 - Galaxy Tab series (Tab7.0, Tab7.7, Tab8.9, Tab10.1,...)
- b) Android version
 - Android 4.0 or later (Ice Cream Sandwich)

2) **Printer**

- a) USB support model
- b) Wifi-Direct support model

4.10.1. SPDS App Installation and Login

4.10.1.1. SPDS App Installation

1) Run Google Play Store

- Run Google Play Store to download SPDS App.

2) Search SPDS App

- SPDS App can be found by searching 'SPDS'.

3) Start Installation

- Press 'INSTALL' after checking App information.

4) Check Authority

- Press 'ACCEPT' after checking required authority.

5) Installing

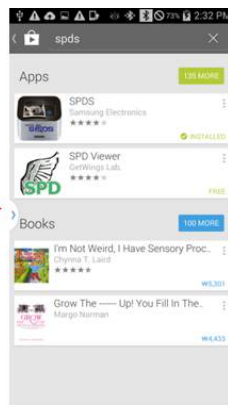
- SPDS App will be installed.

6) Installation Complete

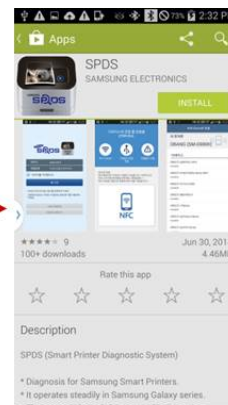
- After completing install App you can see installation result. If you want to run App press 'OPEN'.



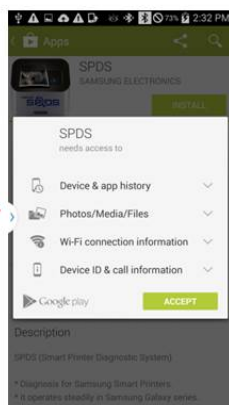
[Run Google Play Store]



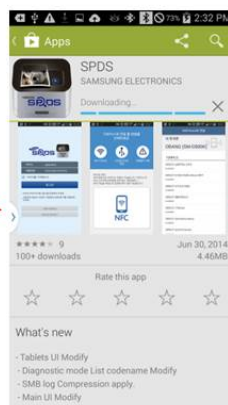
[Search SPDS App]



[Start Installation]



[Check Authority]



[Installing]



[Installation Complete]

4.10.1.2. User Registration Request

1) Screen that is running

- User registration is required for first time users. Press ‘User Registration Request’.

2) Input User Information

- Input ID, Name, E-mail, Partner ID. ID is required more than 4 characters. Blank spaces are not allowed. Utilize capital and small letters.



NOTE

If E-mail address is invalid you cannot progress to the next step.

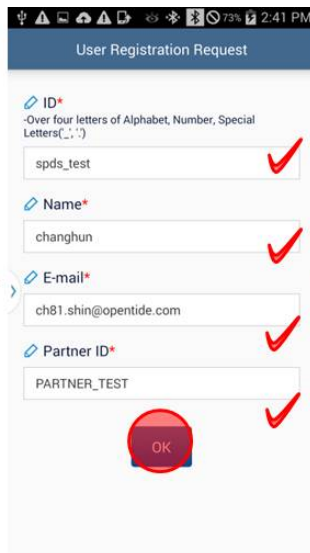
- If Partner ID is invalid you cannot receive approval of administrator.

3) Request User Registration

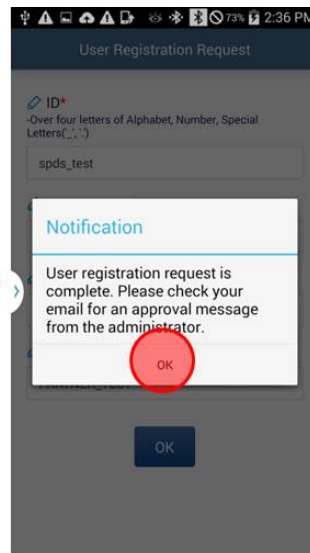
- After request of user registration wait for approval of administrator.
- If approved by the administrator email notification will be sent out.



[Screen running]



[Input User Information]



[Request User Registration]

4.10.1.3. Change_Reset Password

1) Screen is running

- After approval of 'User Request Registration', you can proceed 'Change/Reset your Password'.
- Press 'Change/Reset your Password' at the bottom of screen.

2) Registration Password

- Press 'OK' after ID input 'User Request Registration'.

3) Send Authentication Code

- Confirm Authentication Code to e-mail of registered user.

4) Input Authentication Code

- Press 'OK' after input authentication code.

5) Registration Password

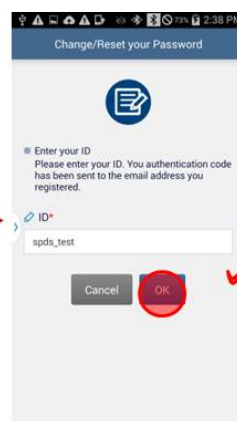
- Input your password.

6) Complete Registration

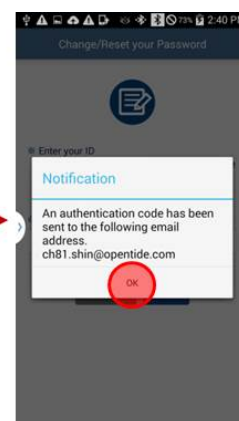
- Press 'OK' and then login at login screen.



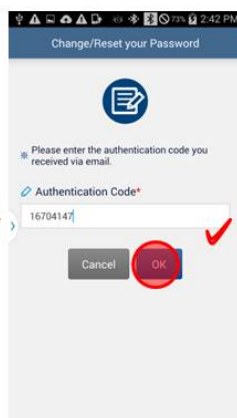
[Screen is running]



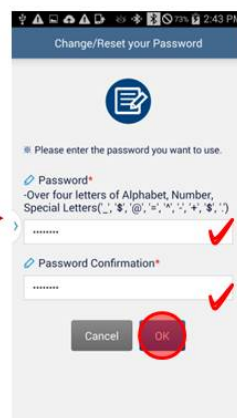
[Registration Password]



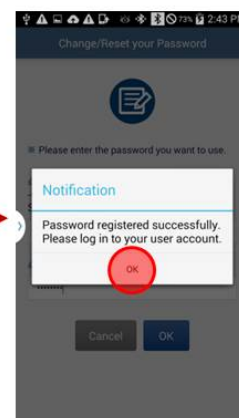
[Send Authentication Code]



[Input Authentication Code]



[Registration Password]



[Complete Registration]

4.10.1.4. Login

1) **Screen is running**

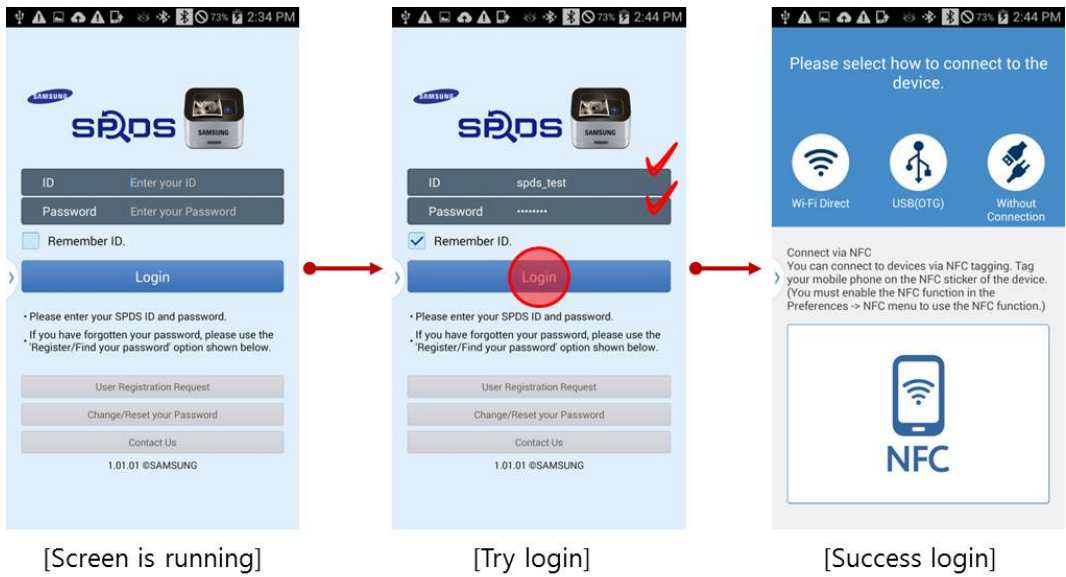
- Input ID and password that registered at ‘User Request Registration’, ‘Change/Reset your Password’.

2) **Try login**

- Try login after input ID and Password.
- If you forget your password, press ‘Change/Reset your Password’.

3) **Success login**

- If you have successful login you can see the four device connectivity method.



Login (USIM Change)

1) Screen that is running

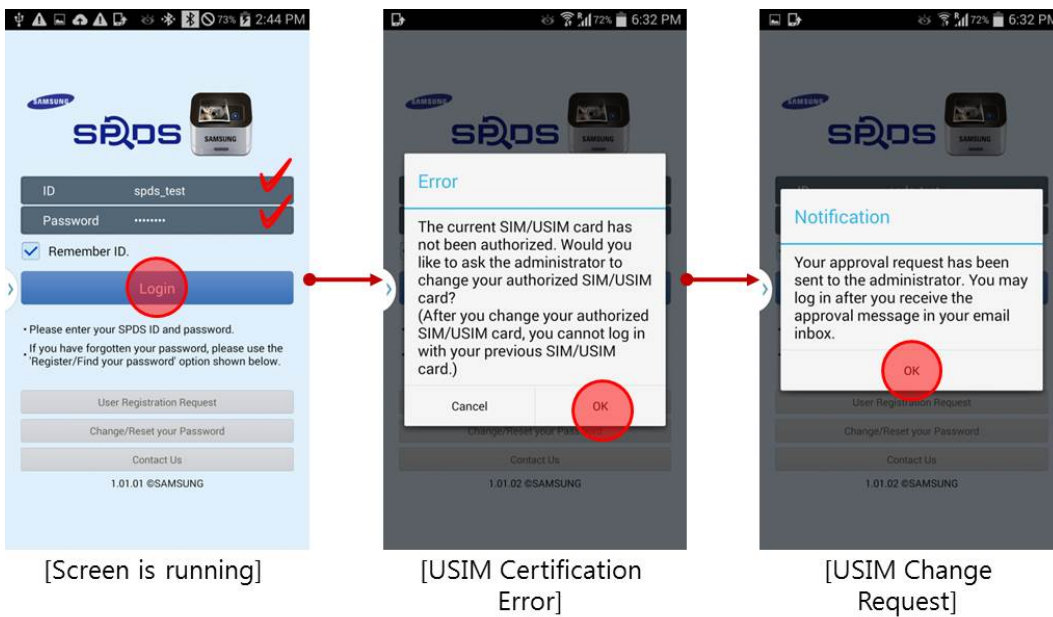
- Utilize your ID and password to login.

2) USIM Certification Error

- When present device USIM and USIM that used at sign up are different you can login after USIM Change Request.

3) USIM Change Request

- You can login via new ID and password after administrator approve USIM change.
- USIM information will be updated you cannot login with existing USIM.



4.10.1.5. Select Connect Method

WIFI-Direct

1) Device Connect Method

- Press 'Wi-Fi Direct'. If 'Wi-Fi' is disabled 'Wi-Fi' will be turn on automatically.

2) Select Device

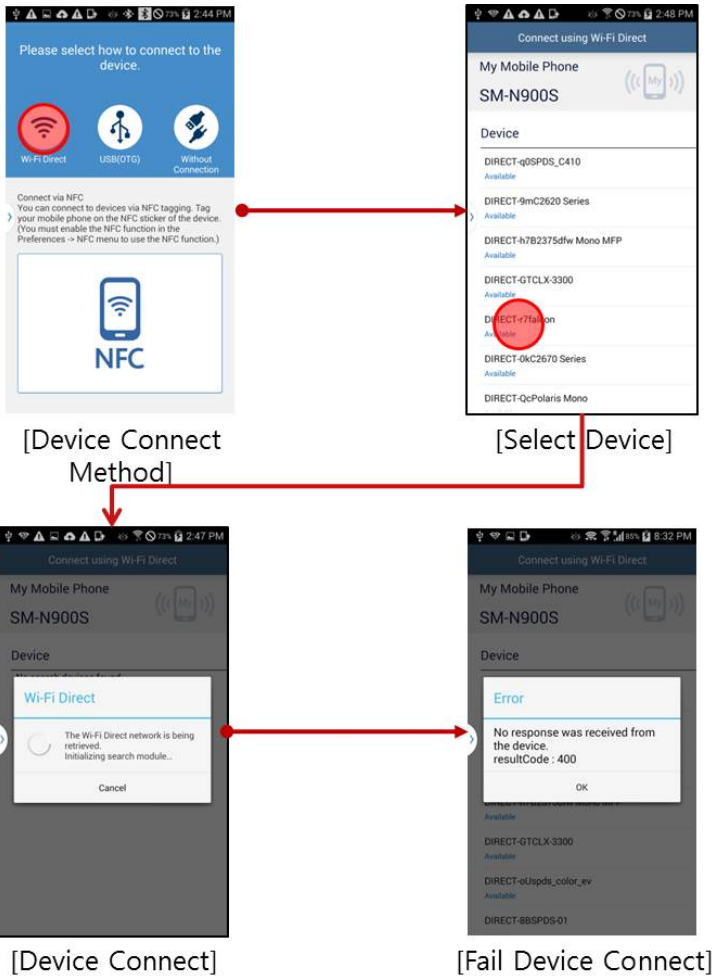
- After searching Peer you can see printer list that is available.
- Select printer for connectivity.

3) Device Connect

- Press WPS or Connect button of printer for connectivity.
- Once SPDS has connected you can see User Information Consent Screen.

4) Fail Device Connect

- When your printer firmware is not supported by SPDS a temporary device error pop-up message will occur.



WIFI-Direct with NFC

1) Preparation

- After checking NFC availability of your device find NFC Tag.
- Go to Setting of your Phone, enable the NFC function.

2) NFC Tag

- After login select NFC protocol on your device at 'Device Connect Method'.

3) Connect Device

- When NFC tagging 'Wi-Fi Direct' device connection is made confirmation window pops up.
- Unlike 'Wi-Fi Direct' NFC Tagging method is directly connected to the printer. The list of available devices is omitted.



[Preparation]

[NFC Tag]

[Connect Device]

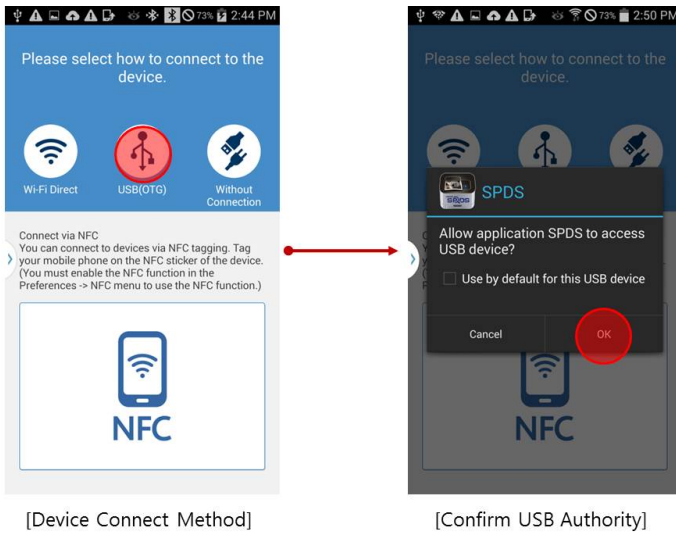
USB-OTG

1) Device Connect Method

- Connect to Printer using USB (OTG) cable.
- Press 'USB OTG' after 'printer is connected' message at the top of screen.

2) Confirm USB Authority

- Press 'OK' when pop-up occurs. Once SPDS has connected you can see User Information Consent Screen.



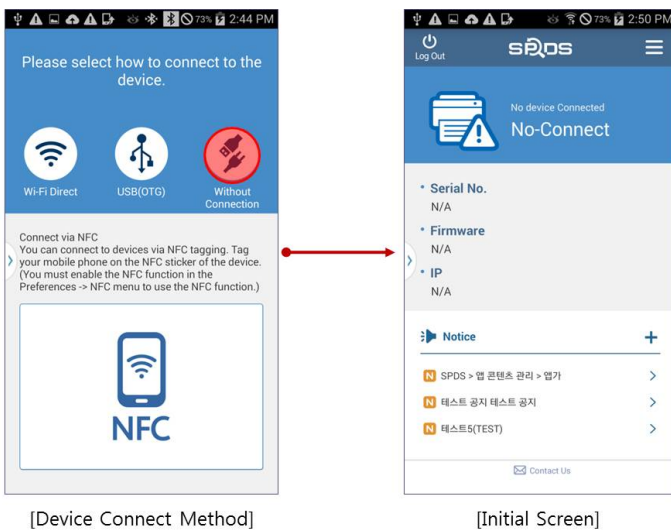
Without Connection

1) Device Connect Method

- Press 'Without Connection'.
- Need no connection to device 'Approval process of user information' is omitted.

2) Initial Screen

- -You can see initial screen does not include any device information.



4.10.1.6. Consent to customer information

1) Confirm Registered User Information

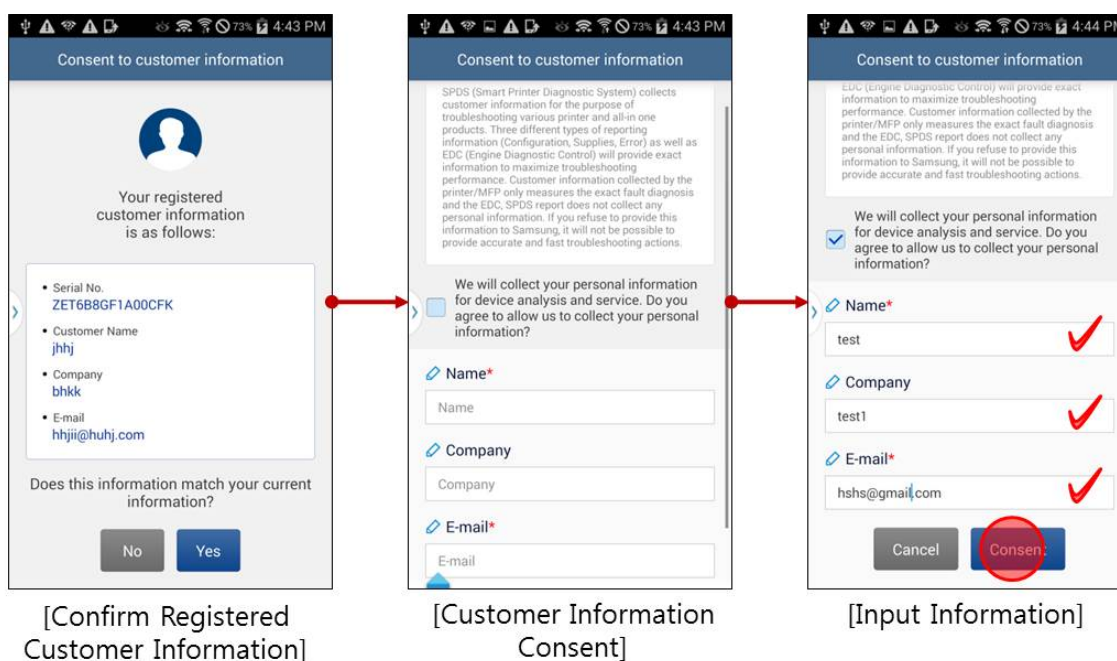
- When customer consent has been completed this screen comes out.
- If user information is correct press 'YES'. Press 'NO' for customer consent.

2) Customer Information Consent

- Customer consent has not been completed this screen comes out.

3) Input information

- Check the checkbox after reading terms.
- Input name, company, e-mail of customer, and then press 'Consent'.



4.10.2. SPDS Menu Introduction

4.10.2.1. Error Mode

Device Error Inquiry

1) Menu Screen

- At menu screen error mode menu comes out by press error icon.
- As a subordinate menu of error mode there are Device Error, Action Guide, Corrective History, Requesting Statistics, and Movie Guide.

2) Error Inquiry

- Error Code of Connected device shows by pressing ‘device error inquiry’.

3) Detailed Inquiry

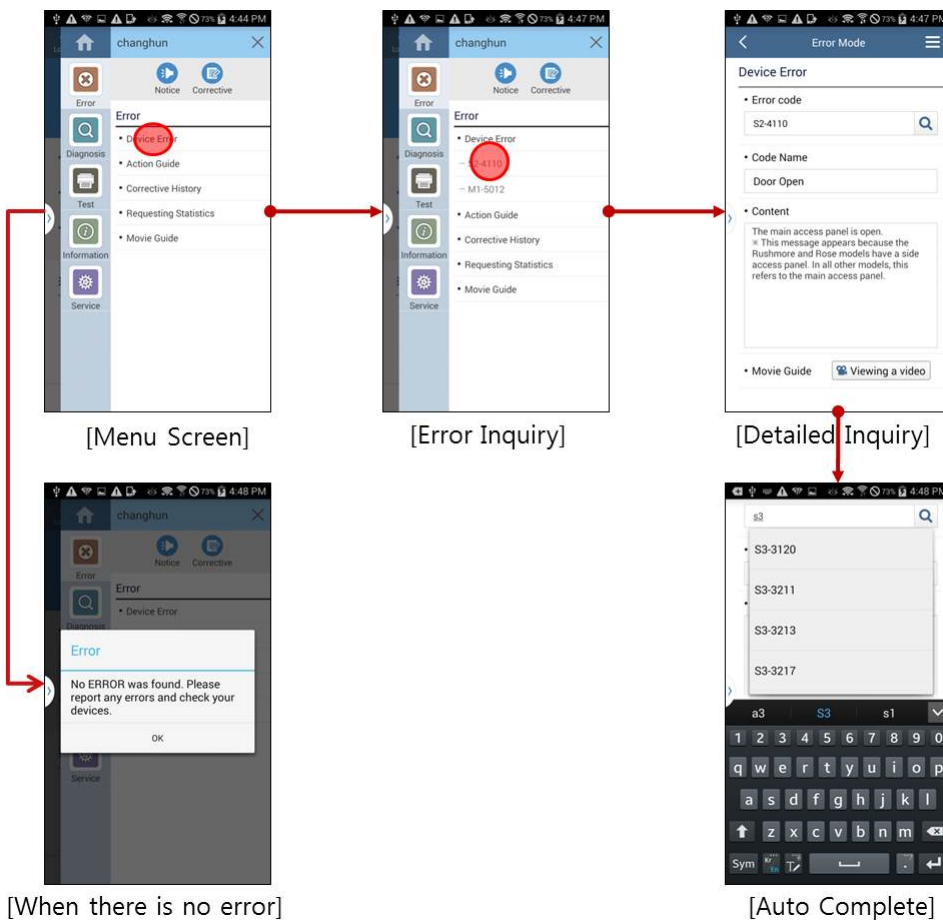
- You can see detailed information of connected device by selecting Error code.

4) When there is no error

- If connected device has no error code pop-up comes out.

5) Auto Complete

- If you input more than two characters, Error Code auto complete function is offered.



Action Guide

1) Menu Screen

- Select Error → Action Guide → Service Bulletin.

2) Search Condition

- You can search by input Basic model, Title, Doc No, Start Date, End Date.
- Start Date and End date is requirement condition.

3) Select Date

- When click Start Date or End date, calendar comes out, you can select date.

4) Conduct Search

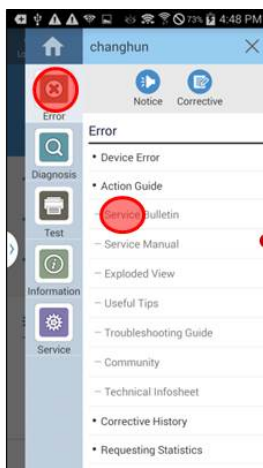
- After input search condition conduct search.

5) Result list

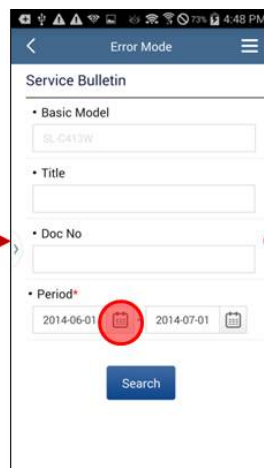
- The results of search condition comes out as a list.

6) See the detail

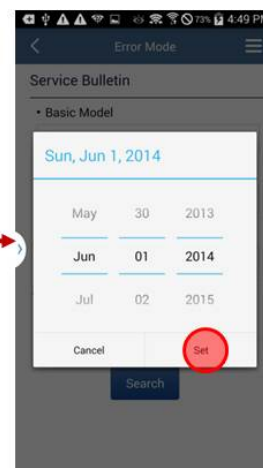
- By selecting items from list you can see detail.



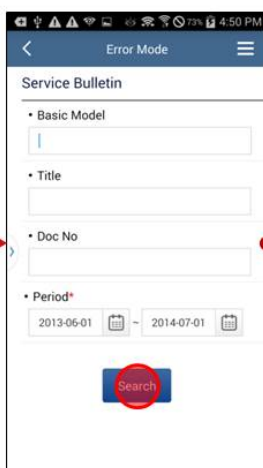
[Menu Screen]



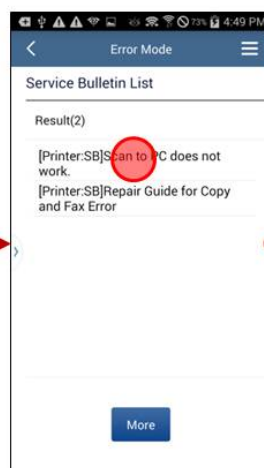
[Search Condition]



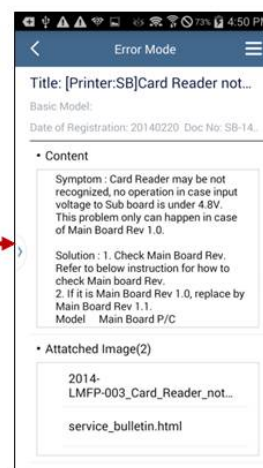
[Select Date]



[Conduct Search]



[Result list]



[See the detail]

Connected Device History

1) **Menu Screen**

- Press Error → Corrective History → Connected Device History.

2) **Initial Screen**

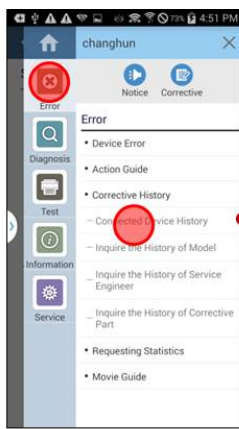
- As a subordinate menu of Connected Device History there are History of Each Error Code, History of Each Corrective Part and History of Each Service Engineer.

3) **Subordinate Menu Selection**

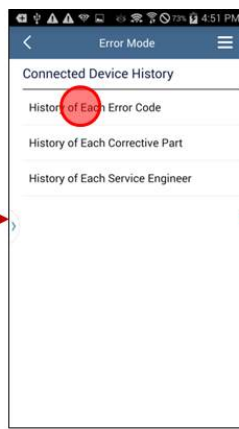
- Corrective Histories are listed by selecting menu.

4) **See the detail**

- Detailed Action comes out by selecting Corrective history list.



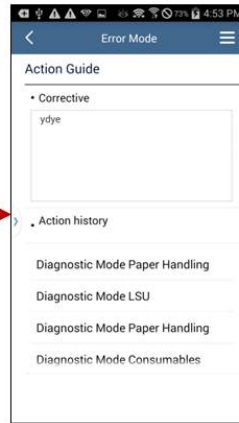
[Menu Screen]



[Initial Screen]



[Subordinate Menu Selection]



[See the detail]

Requesting Statistics

1) Menu Screen

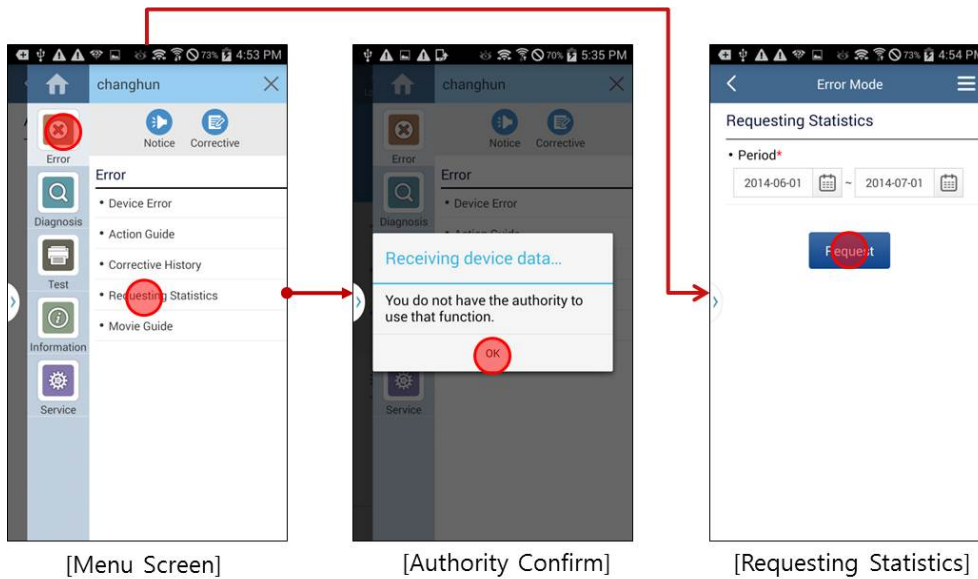
- Press 'Requesting Statistics' of Error mode.

2) Authority Confirm

- Requesting Statistics require administrator authority. So if you have no administrator authority, you cannot use this function.

3) Requesting Statistics

- Usage/Statistics History will be sent to e-mail of requester.



Movie Guide

1) **Menu Screen**

- Press ‘Movie Guide’ of Error Mode.

2) **Search Condition**

- Movie list comes out related to Error Code. Select movie that you want.

3) **Check SD Card**

- Check whether selected movie exist.

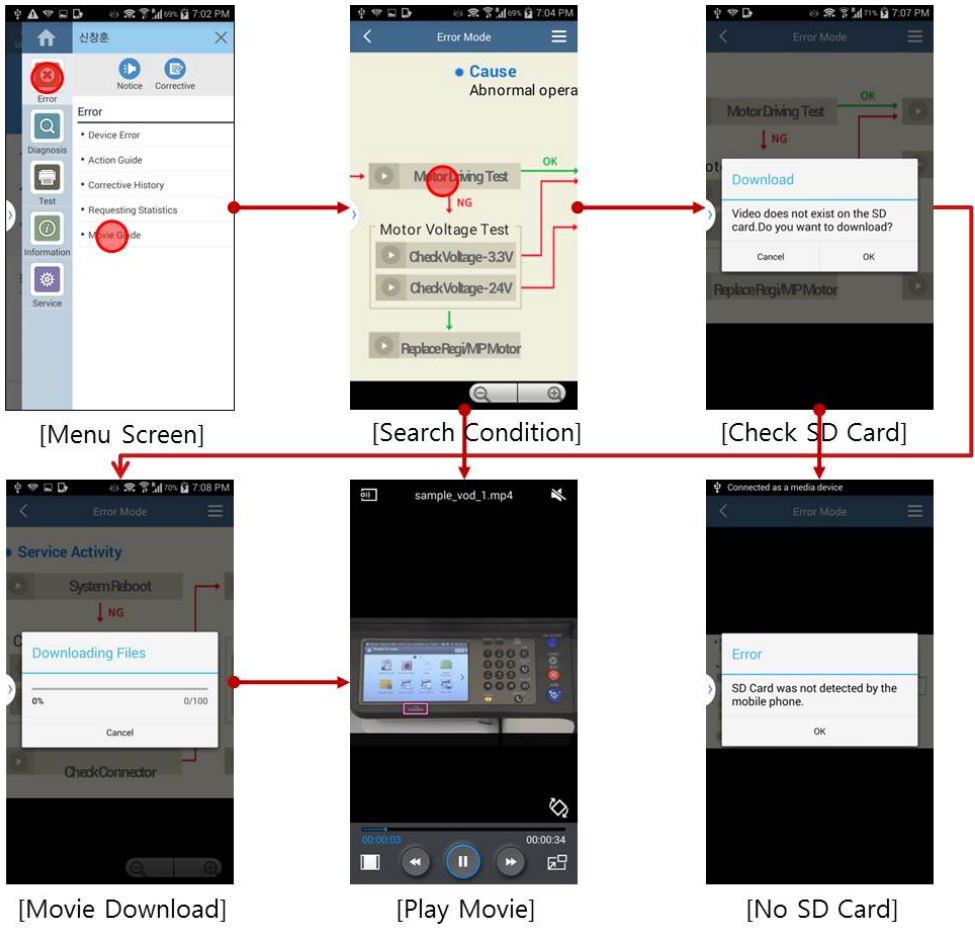
NOTE
If SD Card of the mobile phone does not exist it is not downloaded.

- If there is movie at SD Card, movie will be played.
- If movie does not exist a download confirmation pop-up comes out.

NOTE
Movie is saved to SD Card. (/Card/Android/data/com.sec.spds/files/video/)

4) **Play Movie**

- Play Movie that exist in SD card.
- Movie support landscape mode.



4.10.2.2. Diagnosis Mode

1) Menu Screen

- Diagnosis mode allows user to diagnosis or check status of connected device.
- SHADING TEST is menu that report status of SCANNER.

2) Subordinate Menu Selection

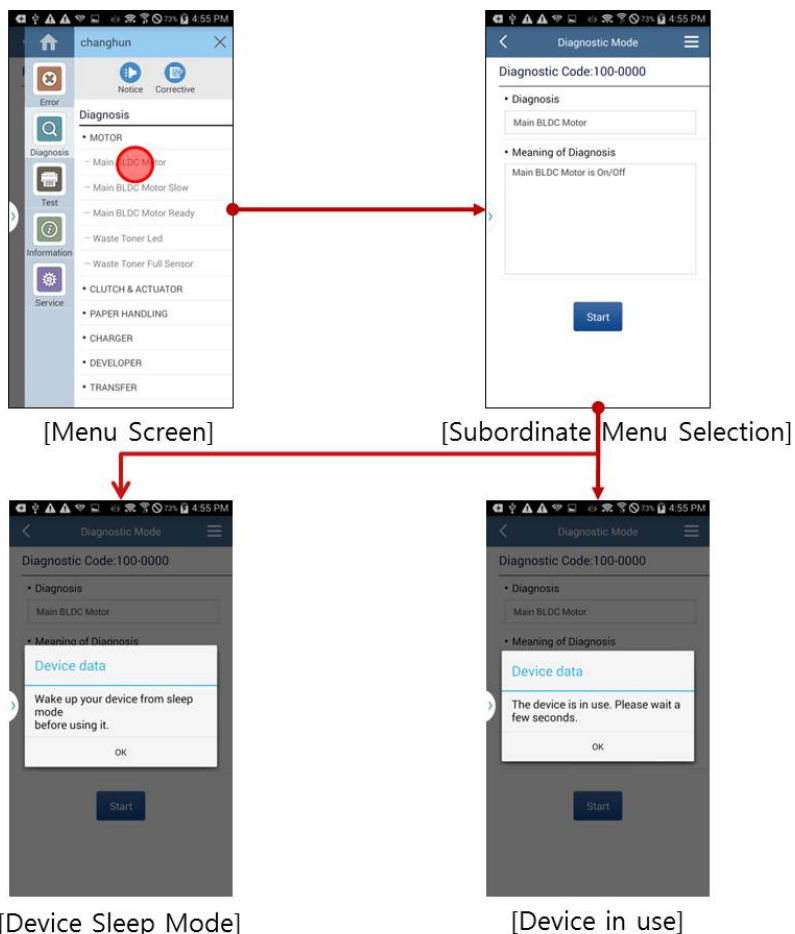
- Diagnosis mode consist of ON/OFF, HIGH/LOW, OPEN/CLOSE, INSTALL/UNINSTALL, 3DIGI.
- Only ON/OFF run diagnosis by Start Button.
- Other function except ON/OFF Diagnosis Mode indicate status value of connected device.

3) Device Sleep Mode

- If device status is sleep you can use diagnosis mode after wake-up process.

4) Device in use

- However, wake-up device you cannot use diagnosis before status become ready.



4.10.2.3. Test Mode

1) Menu Screen

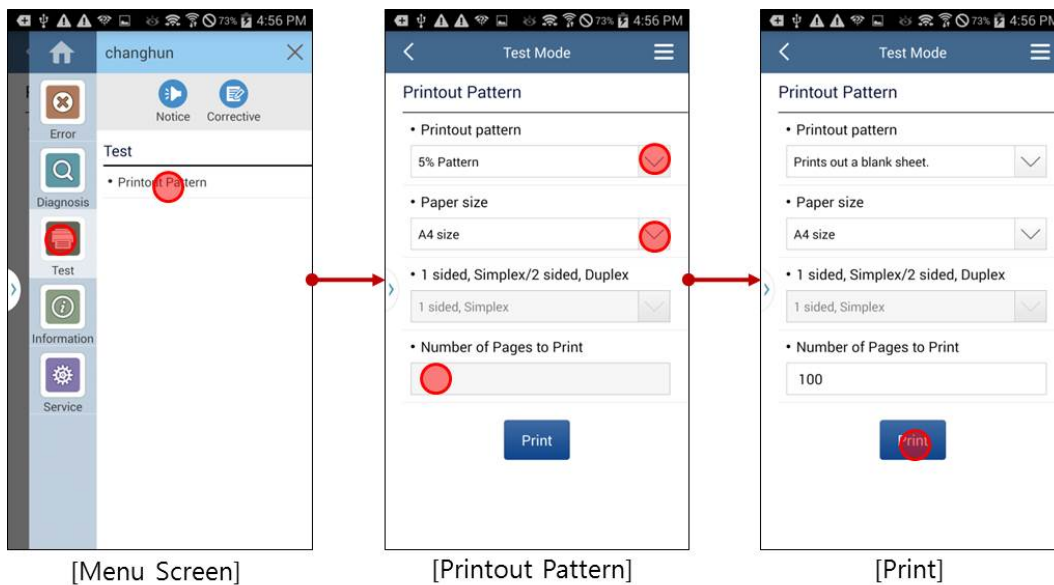
- Press Test → Printout Pattern.

2) Printout Pattern

- You can print by selecting Printout pattern, Paper size, 1 sided, Simplex/2 sided, Duplex, Number of Pages to Print.
- There are five types of pattern. 5%, Skew, Black, Solid, Prints out a blank sheet.
- There are four types of pattern. A4, Letter, A3, Ledger.
- 1 sided, Simplex/2 sided, Duplex, Number of Pages to Print is only enable at 'Prints out a blank sheet'.
- 'Prints out a blank sheet' 1 to 100 can be entered.

3) Print

- When press Print, options set in the print are utilized.



4.10.2.4. Information Mode

Configuration Menu

1) Menu Screen

- Information Mode consist of Configuration, Supplies, Network, Fax report, Tech mode.

2) Configuration

- Configuration mode consist of Preferences Information, Date of First Set Installation, Firmware information.

3) Preferences Information

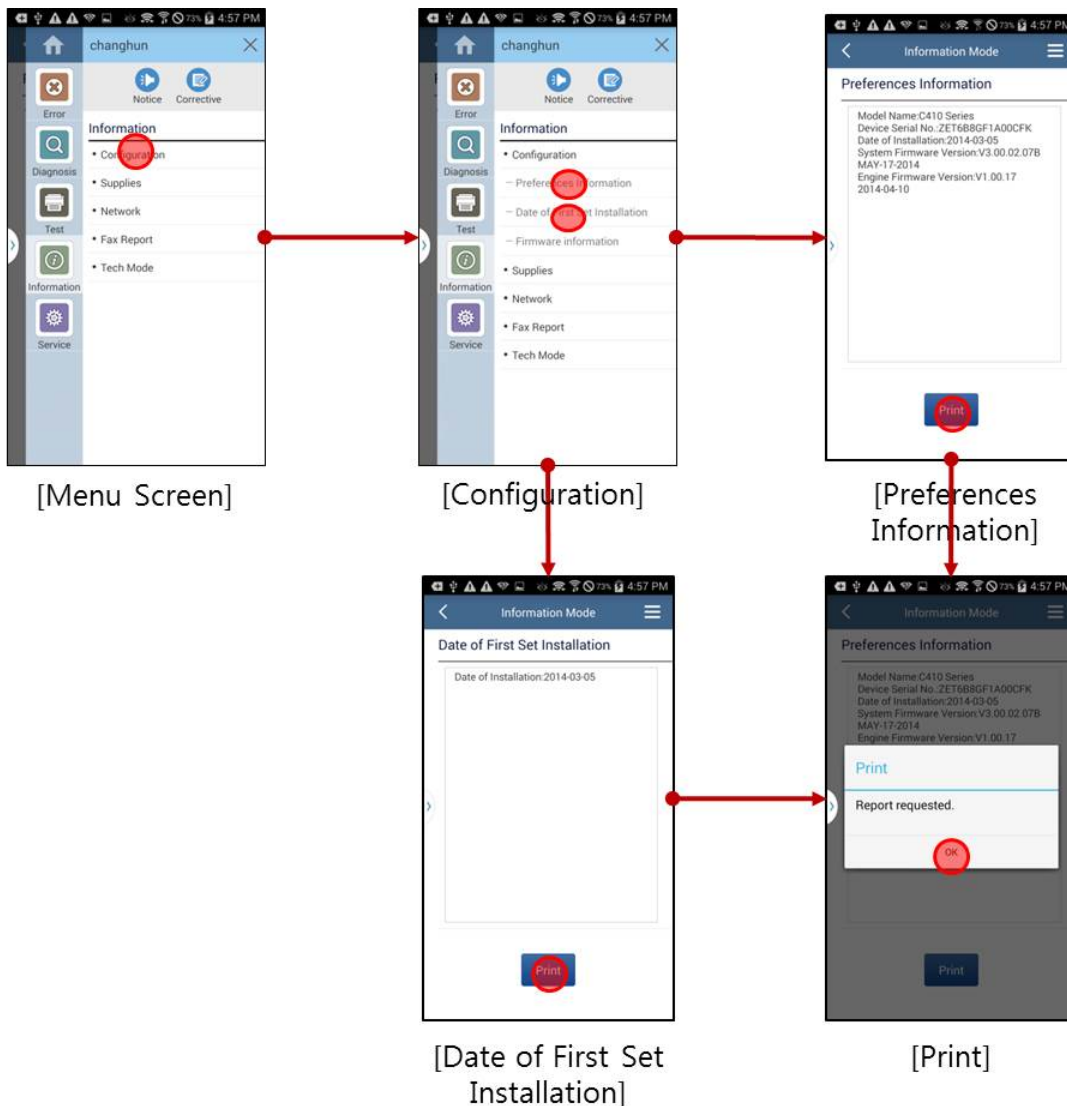
- Preferences Information indicates Model Name, Device Serial Number, Date of Installation, Firmware Version.

4) Date of First Set Installation

- Date of First Set Installation, Firmware information indicate each information.

5) Print

- Press 'Print', information indicated on UI will print out.



Other Menu

1) Supplies

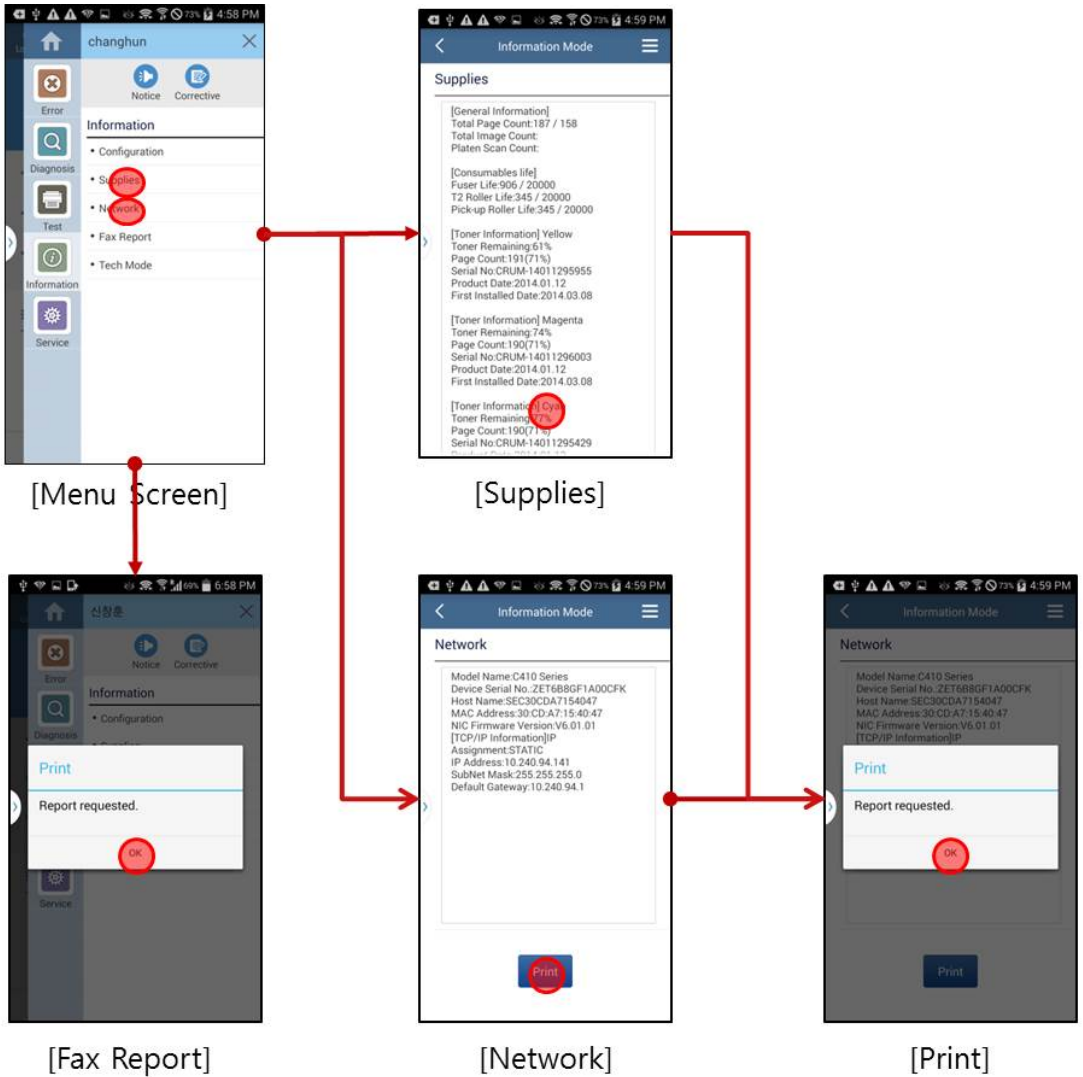
- Supplies indicate Supplies information of connected device.

2) Network

- Network indicate Network information of connected device.

3) Fax Report

- FAX REPORT Fax Sent, Fax Received, Fax Protocol Dump, Fax Diagnostics .



4.10.2.5. Service Mode

Cloning Menu

1) Menu Screen

- Press Service button
- Press Cloning menu.

2) Admin Login

- Input admin account of connected device and press Login Button.

3) Export

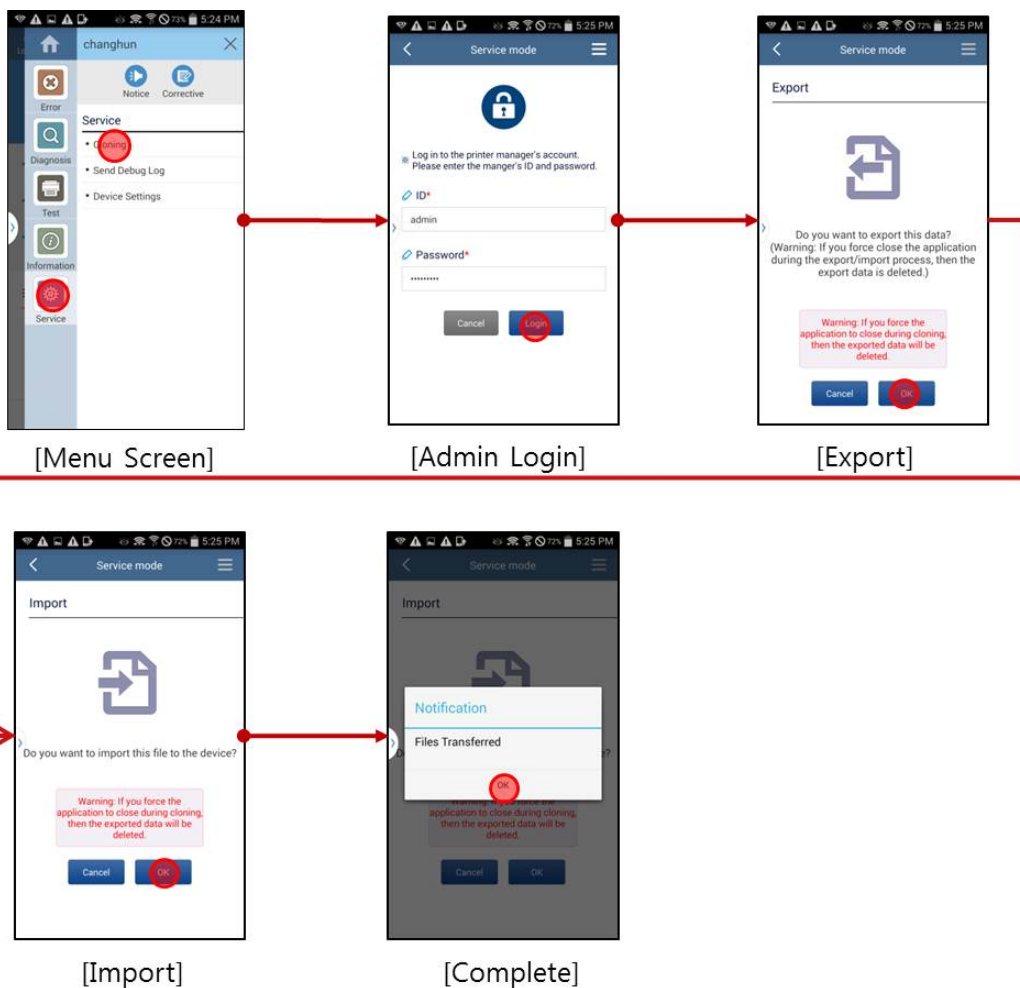
- Export data of printer press 'OK'.

4) Import

- Importing data of data that exported from connected printer press 'OK'.

5) Complete

- After end of Import press 'OK', Export menu ends.
- Device will reboot.



Send Debug Log

- 1) **Menu Screen**
 - Press 'Service'.
 - Press 'Send Debug Log'.
- 2) **Select Date**
 - Select Date. Press request button.
- 3) **Transport Position Selection-1**
 - Log names that can transport are indicated on screen.
 - Select save method (SD Card)
- 4) **SD Card Transport Complete**
 - If you select SD Memory, Log will be saved at "/>Phone/SPDS/DEBUGLOG".
 - Press 'OK', then 'Send Debug Log' Menu end.
- 5) **Transport Position Selection-2**
 - Log names that can transport are indicated on screen. Select save method(Server)
- 6) **Server Transport Complete**
 - After completing upload pop-up comes out.
 - Press 'OK' then 'Send Debug Log' Menu end.



IP Settings

1) Menu Screen

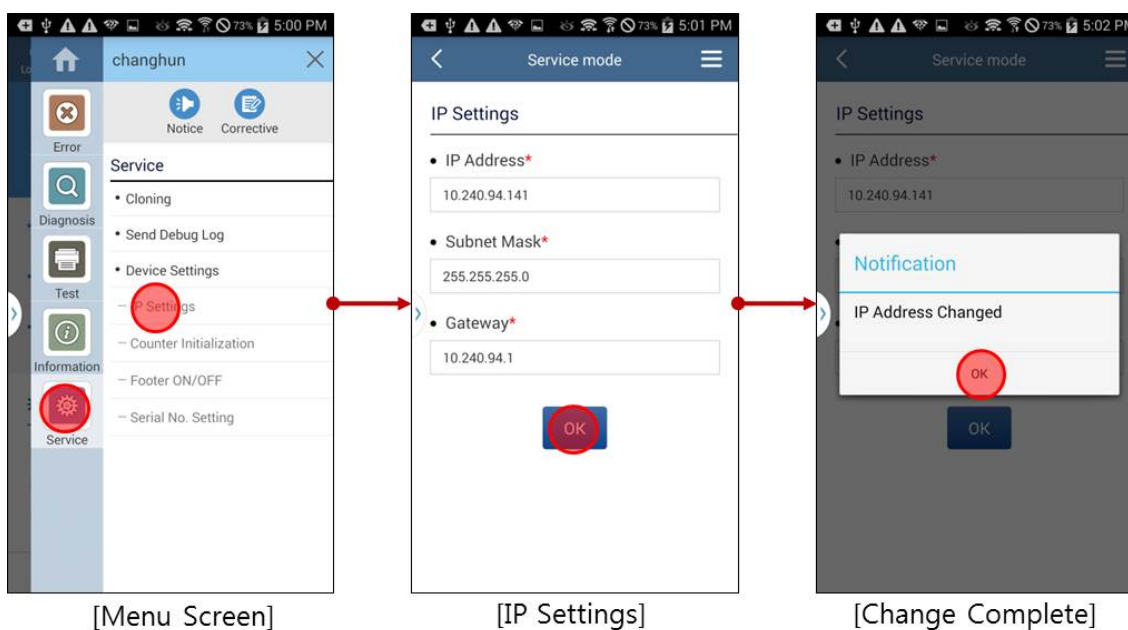
- Press Service → Device Settings. Press IP Settings.

2) IP Setting

- Input IP Address, Subnet Mask, Gateway.
- Press OK.

3) Change Complete

- If IP changing complete normally, above pop-up comes out.
- Press 'OK', then 'IP Setting' Menu end.



Counter Initialization

1) Menu Screen

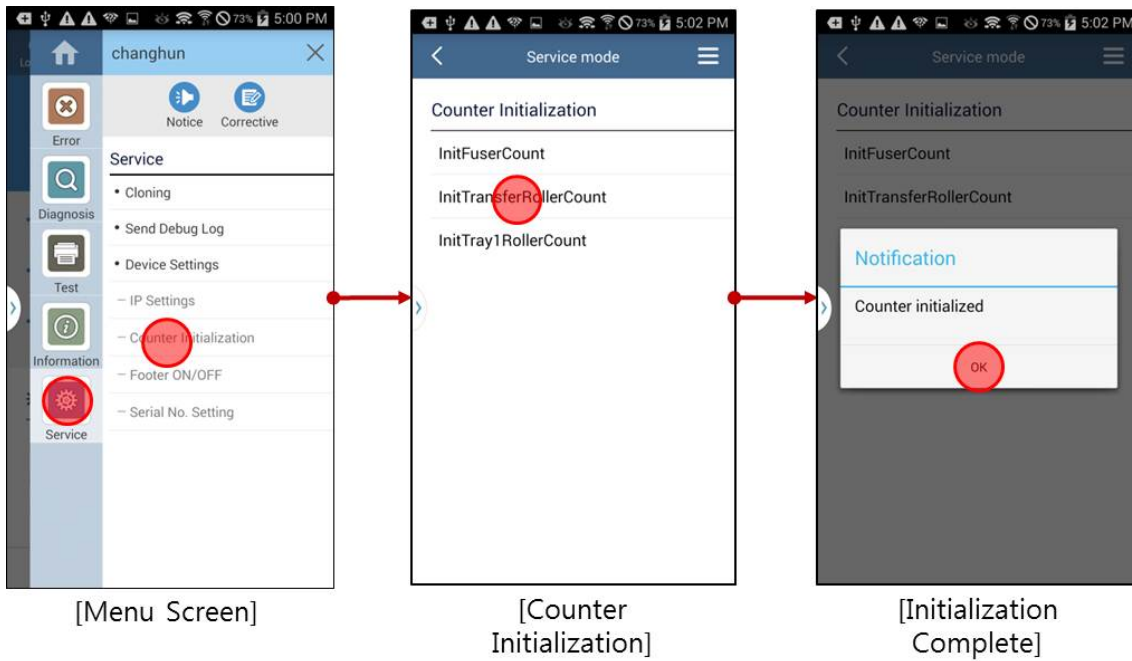
- Press Service → Device Settings. Press Counter Initialization

2) Counter Initialization

- Select item to initialize.

3) Initialization Complete

- If initialization complete normally, pop-up comes out. Press 'OK' you can initialize other counter value.



Footer ON/OFF

1) Menu Screen

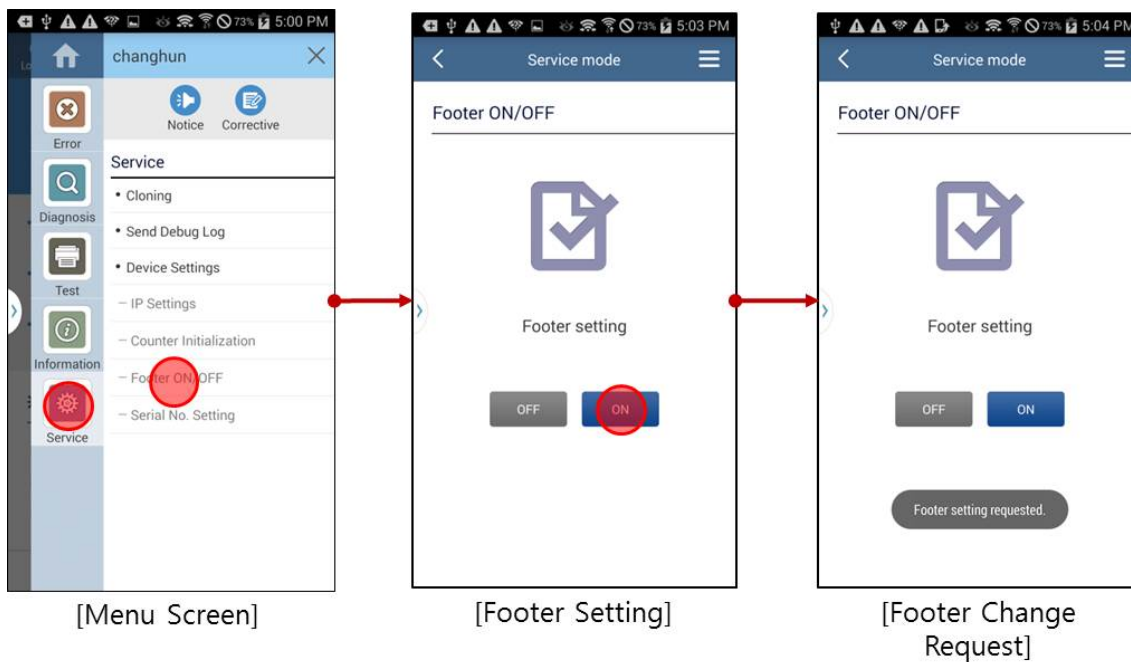
- Press Service → Device Settings. Press Footer ON/OFF.

2) Footer Setting

- When press 'ON' button, activate Footer value.
- When press 'OFF' button, inactivate Footer value.

3) Footer Change Request

- If Footer Setting is requested normally toast message will occur.



4.10.3. Corrective Upload

1) **Menu Screen**

- You can go to Corrective Screen by pressing ‘Corrective’.

2) **Confirmation Window before Shutdown.**

- Before shutdown App. upload Corrective is required.
- You can go to Corrective Screen by Press ‘OK’.
- If you shutdown App forcibly without upload Corrective will be aggregated with abnormal action.

3) **Corrective**

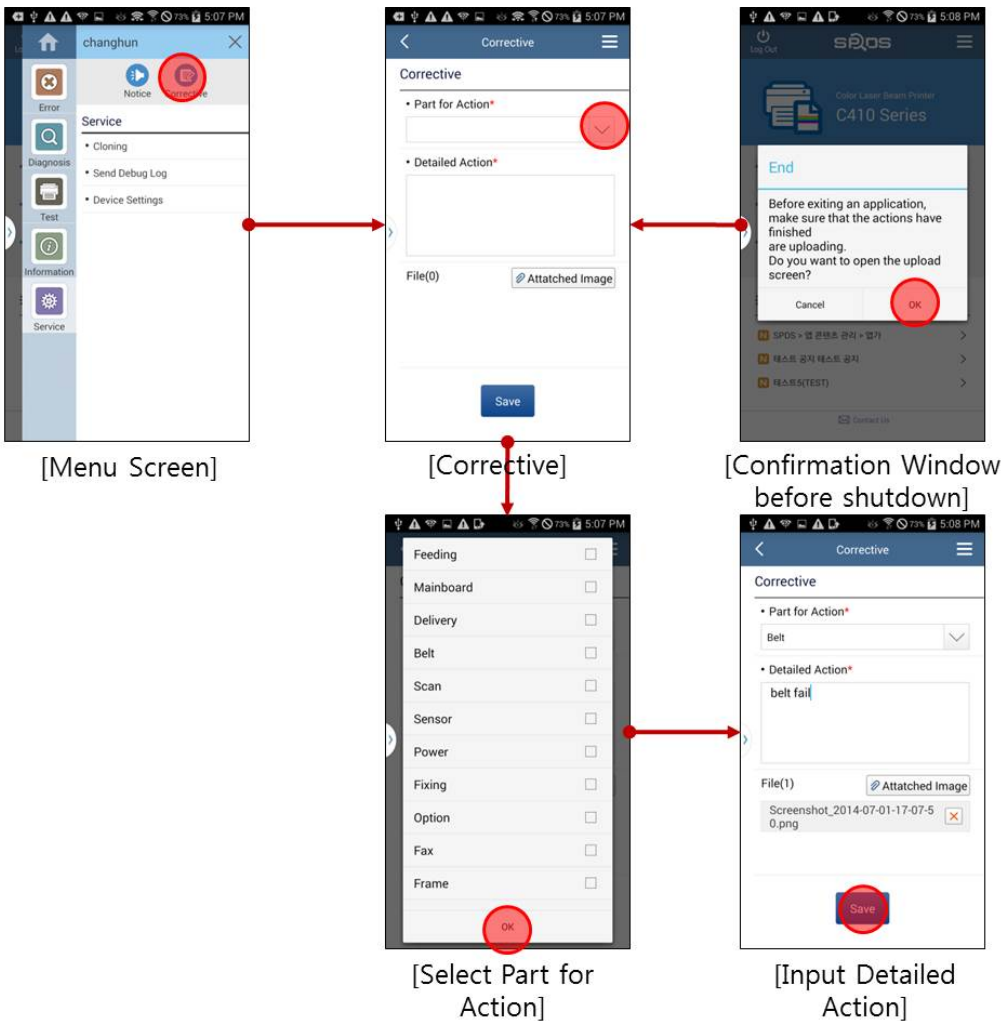
- In the Corrective you can input Part of Action, Detailed Action, Attached Image.

4) **Select Part for Action**

- Part for Actions are Feeding, Main board, Delivery, Belt, Scan, Sensor, Power, Fixing, Option, Fax, Frame, Phenomenon, LSU, Application, Driver, Firmware, Others.

5) **Input Detailed Action**

- Part of Action and Detailed Action are required.
- Input requirements and press ‘Upload’ button



4.10.4. Exceptions

Exceptions (Device Interface)

1) Menu Screen

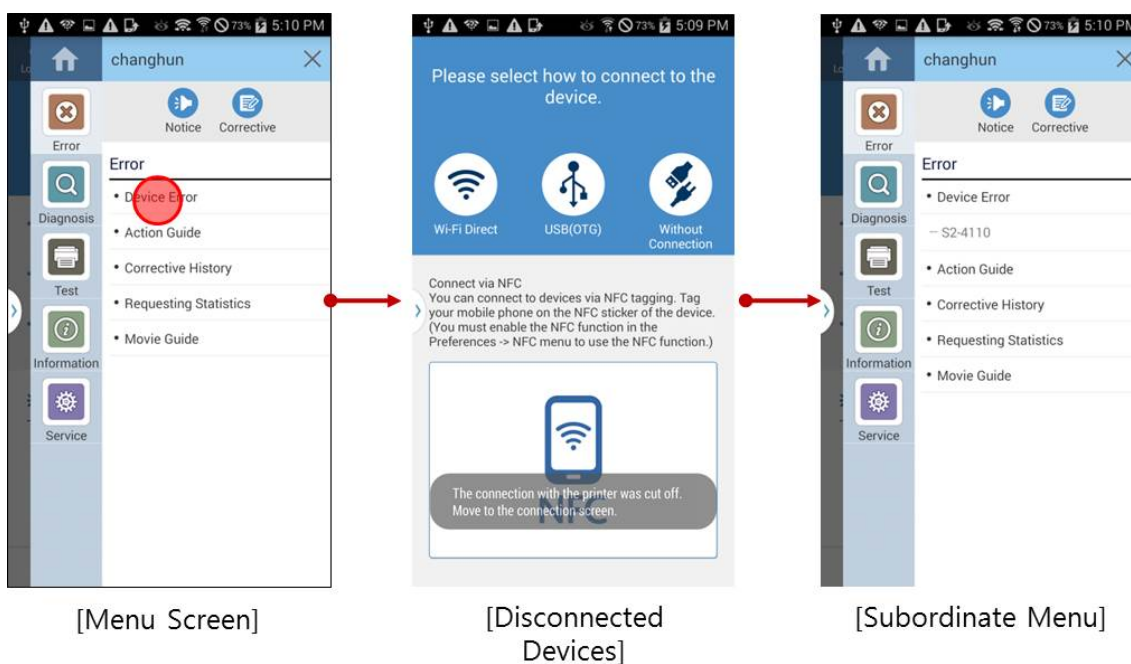
- Need to I/F the device menu first check the connection status of the device.
- If connection between App and device (e.g. device reboot, Timeout), go to device connection menu.

2) Disconnected Devices

- For App reconnect to device go to device connection menu before indicate subordinate menu.

3) Subordinate Menu

- If device connection perform normally you can see subordinate menu.



Exceptions (Server Interface)

1) **Menu Screen**

- Need to Server I/F the device menu first check the connection status of network (3G, LTE, WIFI).

2) **Network Error Occurrence**

- When network isn't connected (3G, LTE, WIFI), try search.

3) **Error Message**

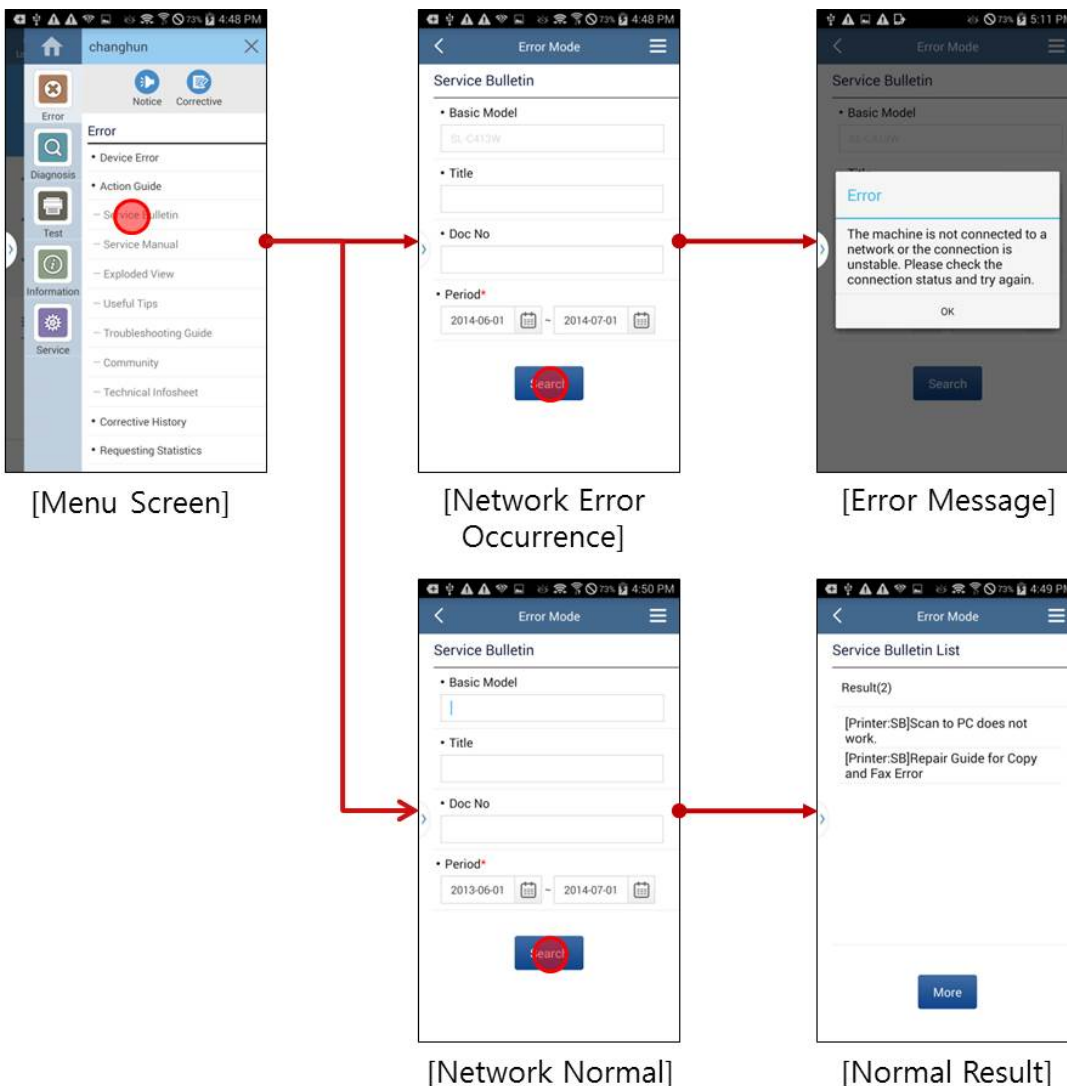
- If network error (3G, LTE, WIFI) occur, error message pop-up print out and cannot proceed.
- In this case it is necessary to check the network.

4) **Network Normal**

- When network (3G, LTE, WIFI) is connected normally, try search.

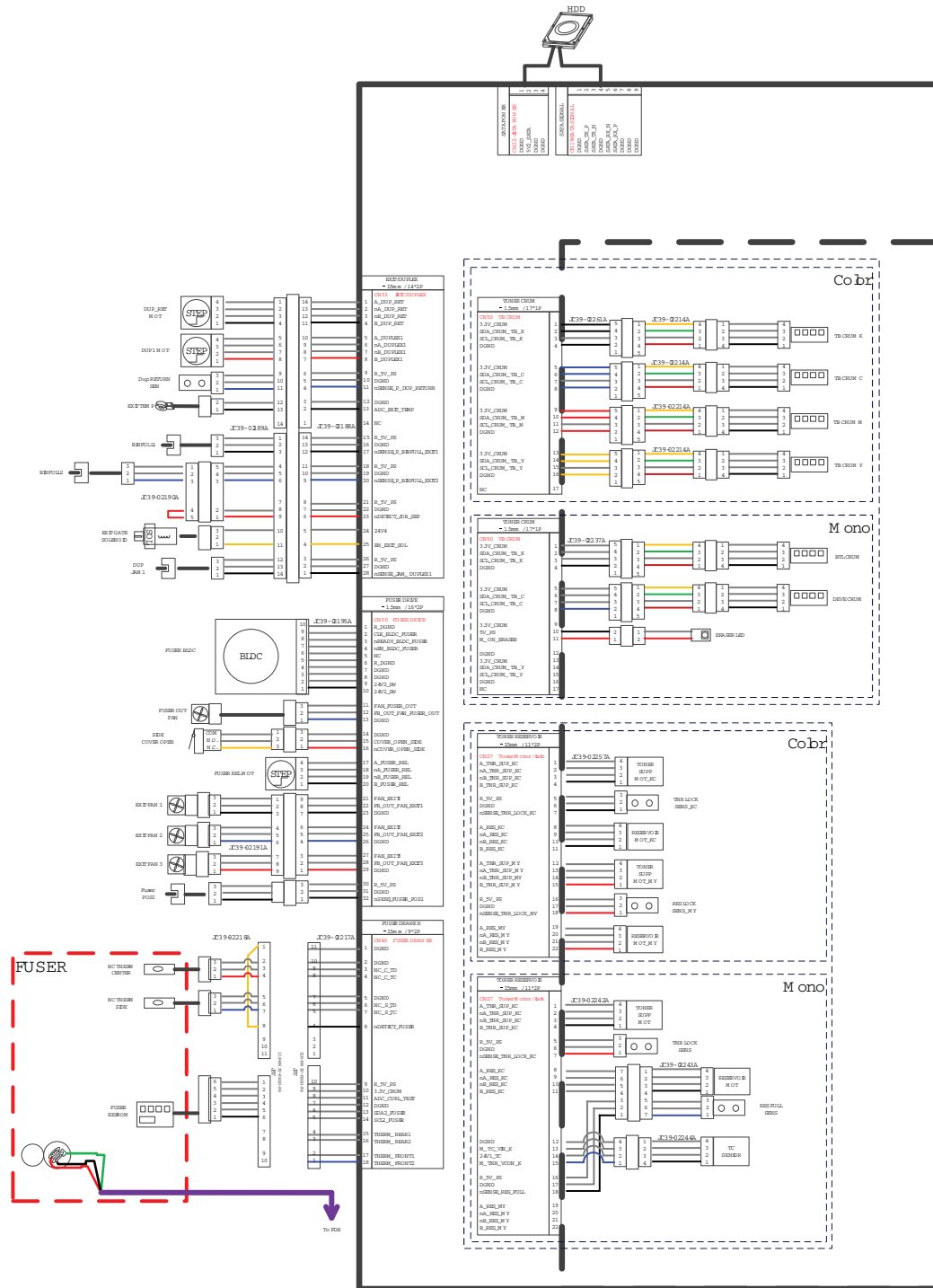
5) **Normal Result**

- Because there is no problem with the network App will show normal results.

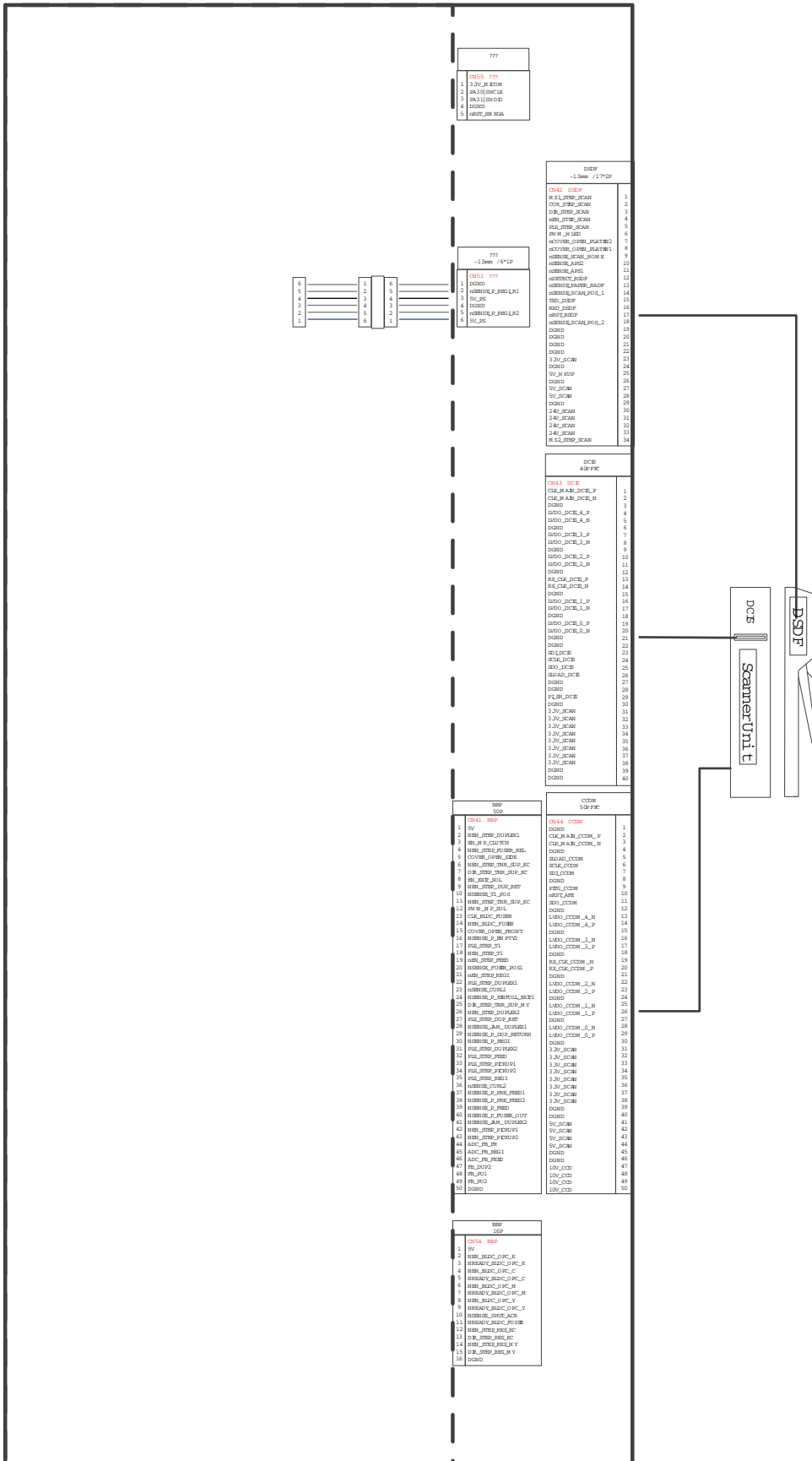


5. Connection Diagram

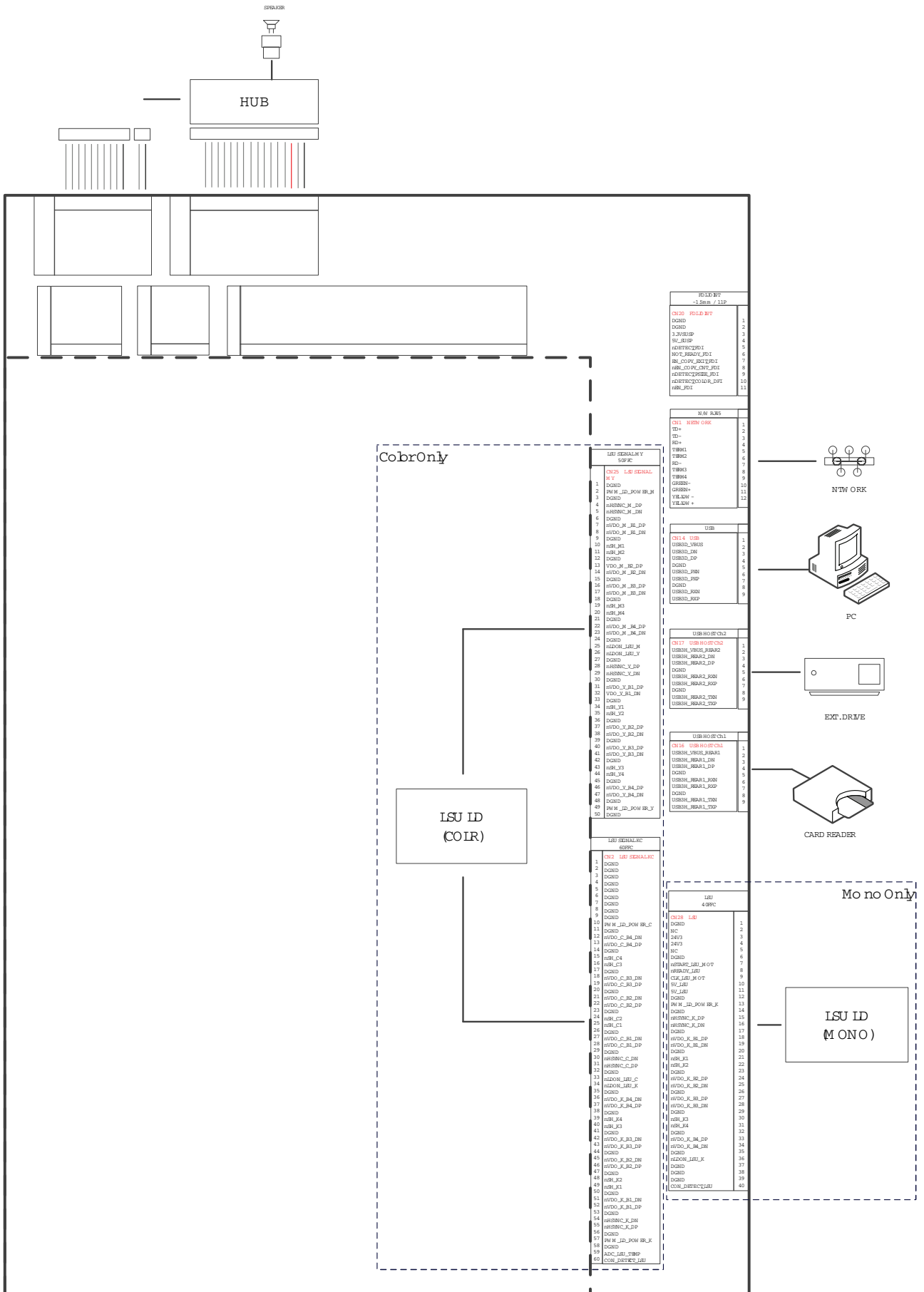
5.1. Connection Diagram (FUSER_EXIT_DUPLEX_TONER)



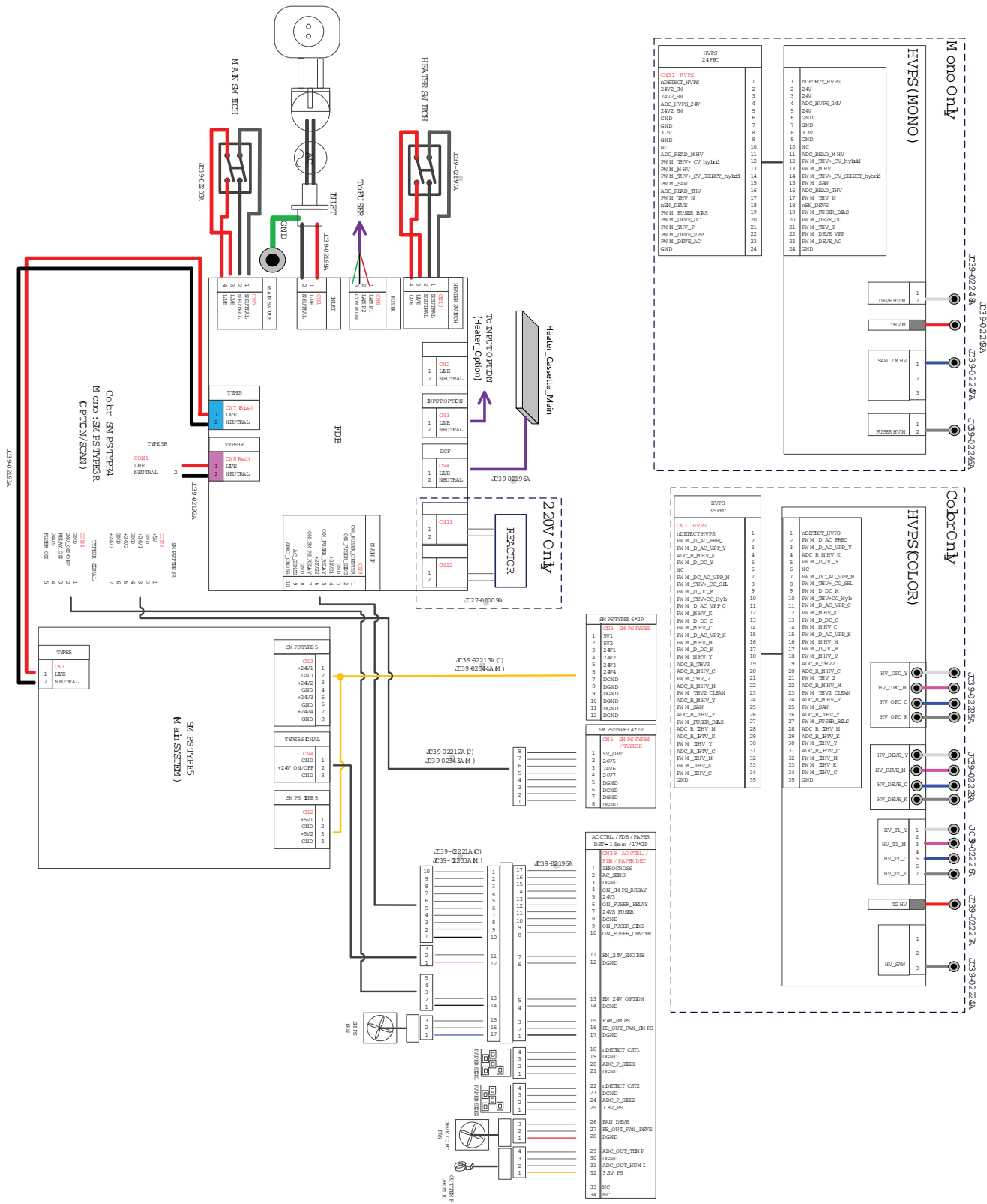
5.2. Connection Diagram (Scanner)



5.3. Connection Diagram (LSU_OPE_USB)



5.6. Connection Diagram (HVPS_SMPS_FDB)

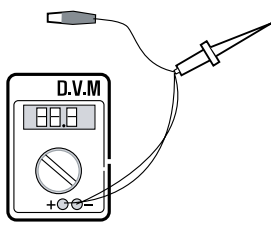

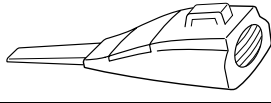
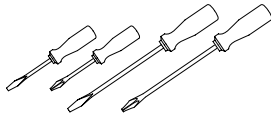




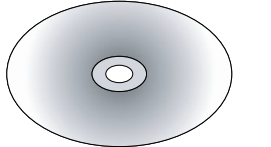


6. Reference Information

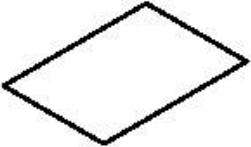

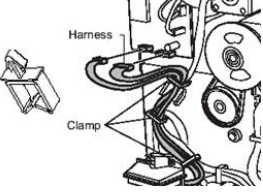
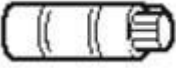
This chapter contains the tools list, list of abbreviations used in this manual, and a guide to the location space required when installing the printer. A definition of test pages and Wireless Network information definition is also included.

6.1. Tools for Troubleshooting

The following tools are recommended safe and easy troubleshooting as described in this service manual.

Tool	Image	Use	Remark
Hand DVM		Checking the fuser lamp. Checking the SMPS fuse.	Service
Spring hook		When disassembling the spring	Service
Small vacuum		To remove the toner and contamination inside of the machine.	Service
Driver		To tighten screws. To remove the hinge of the cover.	Service
Tweezers		To unplug the pin connector of the fuser unit. To remove the E-ring.	Service
Soft cloth		To clean the rollers To clean the frame and scan glass	Service
Black soft cloth		To cover the OPC drum	Service
Install guide, User guide, Admin guide		When installing the machine.	Installation
Software CD		When installing the machine.	Installation

6. Reference Information

Tool	Image	Use	Remark
Test Chart • A4 image, A3 image, Skew		To check the image quality	Service
Spare Kit • Screw, E-Ring		To fix the unit or parts	Service
Clamp		To form the harness	Service
Grease		To remove the noise by gear. • G-8050 : JC81-08663A (200g) • SPY272 : JC81-08664A (100g)	Service

6.2. Glossary

The following glossary helps you get familiar with the product by understanding the terminologies commonly used with printing as well as mentioned in this user's guide and service manual.

802.11	802.11 is a set of standards for wireless local area network (WLAN) communication, developed by the IEEE LAN/MAN Standards Committee (IEEE 802).
802.11b/g/n	802.11b/g/n can share same hardware and use the 2.4 GHz band. 802.11b supports bandwidth up to 11 Mbps, 802.11n supports bandwidth up to 150 Mbps. 802.11b/g/n devices may occasionally suffer interference from microwave ovens, cordless telephones, and Bluetooth devices.
Access point	Access Point or Wireless Access Point (AP or WAP) is a device that connects wireless communication devices together on wireless local area networks (WLAN), and acts as a central transmitter and receiver of WLAN radio signals.
ADF	An Automatic Document Feeder (ADF) is a scanning unit that will automatically feed an original sheet of paper so that the machine can scan some amount of the paper at once.
AppleTalk	AppleTalk is a proprietary suite of protocols developed by Apple, Inc for computer networking. It was included in the original Macintosh (1984) and is now deprecated by Apple in favor of TCP/IP networking.
BIT Depth	A computer graphics term describing the number of bits used to represent the color of a single pixel in a bitmapped image. Higher color depth gives a broader range of distinct colors. As the number of bits increases, the number of possible colors becomes impractically large for a color map. 1-bit color is commonly called as monochrome or black and white.
BMP	A bitmapped graphics format used internally by the Microsoft Windows graphics subsystem (GDI), and used commonly as a simple graphics file format on that platform.
BOOTP	Bootstrap Protocol. A network protocol used by a network client to obtain its IP address automatically. This is usually done in the bootstrap process of computers or operating systems running on them. The BOOTP servers assign the IP address from a pool of addresses to each client. BOOTP enables 'diskless workstation' computers to obtain an IP address prior to loading any advanced operating system.
CCD	Charge Coupled Device (CCD) is a hardware which enables the scan job. CCD Locking mechanism is also used to hold the CCD module to prevent any damage when you move the machine.
Collation	Collation is a process of printing a multiple-copy job in sets. When collation is selected, the device prints an entire set before printing additional copies.
Control Panel	A control panel is a flat, typically vertical, area where control or monitoring instruments are displayed. They are typically found in front of the machine.
Coverage	It is the printing term used for a toner usage measurement on printing. For example, 5% coverage means that an A4 sided paper has about 5% image or text on it. So, if the paper or original has complicated images or lots of text on it, the coverage will be higher and at the same time, a toner usage will be as much as the coverage.
CSV	Comma Separated Values (CSV). A type of file format, CSV is used to exchange data between disparate applications. The file format, as it is used in Microsoft Excel, has become a de facto standard throughout the industry, even among non-Microsoft platforms.
DADF	A Duplex Automatic Document Feeder (DADF) is a scanning unit that will automatically feed and turn over an original sheet of paper so that the machine can scan on both sides of the paper.
Default	The value or setting that is in effect when taking a printer out of its box state, reset, or initialized.
DHCP	A Dynamic Host Configuration Protocol (DHCP) is a client-server networking protocol. A DHCP server provides configuration parameters specific to the DHCP client host requesting, generally, information required by the client host to participate on an IP network. DHCP also provides a mechanism for allocation of IP addresses to client hosts.
DIMM	Dual Inline Memory Module (DIMM), a small circuit board that holds memory. DIMM stores all the data within the machine like printing data, received fax data.

DLNA	The Digital Living Network Alliance (DLNA) is a standard that allows devices on a home network to share information with each other across the network.
DNS	The Domain Name Server (DNS) is a system that stores information associated with domain names in a distributed database on networks, such as the Internet.
Dot Matrix Printer	A dot matrix printer refers to a type of computer printer with a print head that runs back and forth on the page and prints by impact, striking an ink-soaked cloth ribbon against the paper, much like a typewriter.
DPI	Dots Per Inch (DPI) is a measurement of resolution that is used for scanning and printing. Generally, higher DPI results in a higher resolution, more visible detail in the image, and a larger file size.
DRPD	Distinctive Ring Pattern Detection. Distinctive Ring is a telephone company service which enables a user to use a single telephone line to answer several different telephone numbers.
Duplex	A mechanism that will automatically turn over a sheet of paper so that the machine can print (or scan) on both sides of the paper. A printer equipped with a Duplex Unit can print on both sides of paper during one print cycle.
Duty Cycle	Duty cycle is the page quantity which does not affect printer performance for a month. Generally the printer has the lifespan limitation such as pages per year. The lifespan means the average capacity of print-outs, usually within the warranty period. For example, if the duty cycle is 48,000 pages per month assuming 20 working days, a printer limits 2,400 pages a day.
ECM	Error Correction Mode (ECM) is an optional transmission mode built into Class 1 fax machines or fax modems. It automatically detects and corrects errors in the fax transmission process that are sometimes caused by telephone line noise.
Emulation	Emulation is a technique of one machine obtaining the same results as another. An emulator duplicates the functions of one system with a different system, so that the second system behaves like the first system. Emulation focuses on exact reproduction of external behavior, which is in contrast to simulation, which concerns an abstract model of the system being simulated, often considering its internal state.
Ethernet	Ethernet is a frame-based computer networking technology for local area networks (LANs). It defines wiring and signaling for the physical layer, and frame formats and protocols for the media access control (MAC)/data link layer of the OSI model. Ethernet is mostly standardized as IEEE 802.3. It has become the most widespread LAN technology in use during the 1990s to the present.
EtherTalk	A suite of protocols developed by Apple Computer for computer networking. It was included in the original Macintosh (1984) and is now deprecated by Apple in favor of TCP/IP networking.
FDI	Foreign Device Interface (FDI) is a card installed inside the machine to allow a third party device such as a coin operated device or a card reader. Those devices allow the pay-for-print service on your machine.
FTP	A File Transfer Protocol (FTP) is a commonly used protocol for exchanging files over any network that supports the TCP/IP protocol (such as the Internet or an intranet).
Fuser Unit	The part of a laser printer that fuses the toner onto the print media. It consists of a heat roller and a pressure roller. After toner is transferred onto the paper, the fuser unit applies heat and pressure to ensure that the toner stays on the paper permanently, which is why paper is warm when it comes out of a laser printer.
Gateway	A connection between computer networks, or between a computer network and a telephone line. It is very popular, as it is a computer or a network that allows access to another computer or network.
Grayscale	A shades of gray that represent light and dark portions of an image when color images are converted to grayscale; colors are represented by various shades of gray.
Halftone	An image type that simulates grayscale by varying the number of dots. Highly colored areas consist of a large number of dots, while lighter areas consist of a smaller number of dots.
HDD	Hard Disk Drive (HDD), commonly referred to as a hard drive or hard disk, is a non-volatile storage device which stores digitally-encoded data on rapidly rotating platters with magnetic surfaces.

IEEE	The Institute of Electrical and Electronics Engineers (IEEE) is an international non-profit, professional organization for the advancement of technology related to electricity.
IEEE 1284	The 1284 parallel port standard was developed by the Institute of Electrical and Electronics Engineers (IEEE). The term "1284-B" refers to a specific connector type on the end of the parallel cable that attaches to the peripheral (for example, a printer).
Intranet	A private network that uses Internet Protocols, network connectivity, and possibly the public telecommunication system to securely share part of an organization's information or operations with its employees. Sometimes the term refers only to the most visible service, the internal website.
IP address	An Internet Protocol (IP) address is a unique number that devices use in order to identify and communicate with each other on a network utilizing the Internet Protocol standard.
IPM	The Images Per Minute (IPM) is a way of measuring the speed of a printer. An IPM rate indicates the number of single-sided sheets a printer can complete within one minute.
IPP	The Internet Printing Protocol (IPP) defines a standard protocol for printing as well as managing print jobs, media size, resolution, and so forth. IPP can be used locally or over the Internet to hundreds of printers, and also supports access control, authentication, and encryption, making it a much more capable and secure printing solution than older ones.
IPX/SPX	IPX/SPX stands for Internet Packet Exchange/Sequenced Packet Exchange. It is a networking protocol used by the Novell NetWare operating systems. IPX and SPX both provide connection services similar to TCP/IP, with the IPX protocol having similarities to IP, and SPX having similarities to TCP. IPX/SPX was primarily designed for local area networks (LANs), and is a very efficient protocol for this purpose (typically its performance exceeds that of TCP/IP on a LAN).
ISO	The International Organization for Standardization (ISO) is an international standard-setting body composed of representatives from national standards bodies. It produces world-wide industrial and commercial standards.
ITU-T	The International Telecommunication Union is an international organization established to standardize and regulate international radio and telecommunications. Its main tasks include standardization, allocation of the radio spectrum, and organizing interconnection arrangements between different countries to allow international phone calls. A -T out of ITU-T indicates telecommunication.
ITU-T No. 1 chart	Standardized test chart published by ITU-T for document facsimile transmissions.
JBIG	Joint Bi-level Image Experts Group (JBIG) is an image compression standard with no loss of accuracy or quality, which was designed for compression of binary images, particularly for faxes, but can also be used on other images.
JPEG	Joint Photographic Experts Group (JPEG) is a most commonly used standard method of lossy compression for photographic images. It is the format used for storing and transmitting photographs on the World Wide Web.
LDAP	The Lightweight Directory Access Protocol (LDAP) is a networking protocol for querying and modifying directory services running over TCP/IP.
LED	A Light-Emitting Diode (LED) is a semiconductor device that indicates the status of a machine.
MAC address	Media Access Control (MAC) address is a unique identifier associated with a network adapter. MAC address is a unique 48-bit identifier usually written as 12 hexadecimal characters grouped in pairs (e. g., 00-00-0c-34-11-4e). This address is usually hard-coded into a Network Interface Card (NIC) by its manufacturer, and used as an aid for routers trying to locate machines on large networks.
MFP	Multi Function Peripheral (MFP) is an office machine that includes the following functionality in one physical body, so as to have a printer, a copier, a fax, a scanner and etc.
MH	Modified Huffman (MH) is a compression method for decreasing the amount of data that needs to be transmitted between the fax machines to transfer the image recommended by ITU-T T.4. MH is a codebook-based run-length encoding scheme optimized to efficiently compress white space. As most faxes consist mostly of white space, this minimizes the transmission time of most faxes.
MMR	Modified Modified READ (MMR) is a compression method recommended by ITU-T T.6.

Modem	A device that modulates a carrier signal to encode digital information, and also demodulates such a carrier signal to decode transmitted information.
MR	Modified Read (MR) is a compression method recommended by ITUT T.4. MR encodes the first scanned line using MH. The next line is compared to the first, the differences determined, and then the differences are encoded and transmitted.
NetWare	A network operating system developed by Novell, Inc. It initially used cooperative multitasking to run various services on a PC, and the network protocols were based on the archetypal Xerox XNS stack. Today NetWare supports TCP/IP as well as IPX/SPX.
OPC	Organic Photo Conductor (OPC) is a mechanism that makes a virtual image for print using a laser beam emitted from a laser printer, and it is usually green or rust colored and has a cylinder shape. An imaging unit containing a drum slowly wears the drum surface by its usage in the printer, and it should be replaced appropriately since it gets worn from contact with the cartridge development brush, cleaning mechanism, and paper.
Originals	The first example of something, such as a document, photograph or text, etc, which is copied, reproduced or translated to produce others, but which is not itself copied or derived from something else.
OSI	Open Systems Interconnection (OSI) is a model developed by the International Organization for Standardization (ISO) for communications. OSI offers a standard, modular approach to network design that divides the required set of complex functions into manageable, self-contained, functional layers. The layers are, from top to bottom, Application, Presentation, Session, Transport, Network, Data Link and Physical.
PABX	A private automatic branch exchange (PABX) is an automatic telephone switching system within a private enterprise.
PCL	Printer Command Language (PCL) is a Page Description Language (PDL) developed by HP as a printer protocol and has become an industry standard. Originally developed for early inkjet printers, PCL has been released in varying levels for thermal, dot matrix printer, and laser printers.
PDF	Portable Document Format (PDF) is a proprietary file format developed by Adobe Systems for representing two dimensional documents in a device independent and resolution independent format.
PostScript(PS)	PostScript (PS) is a page description language and programming language used primarily in the electronic and desktop publishing areas. - that is run in an interpreter to generate an image.
Printer Driver	A program used to send commands and transfer data from the computer to the printer.
Print Media	The media like paper, envelopes, labels, and transparencies which can be used in a printer, a scanner, a fax or, a copier.
PPM	Pages Per Minute (PPM) is a method of measurement for determining how fast a printer works, meaning the number of pages a printer can produce in one minute.
PRN file	An interface for a device driver, this allows software to interact with the device driver using standard input/output system calls, which simplifies many tasks.
Protocol	A convention or standard that controls or enables the connection, communication, and data transfer between two computing endpoints.
PSTN	The Public-Switched Telephone Network (PSTN) is the network of the world's public circuit-switched telephone networks which, on industrial premises, is usually routed through the switchboard.
RADIUS	Remote Authentication Dial In User Service (RADIUS) is a protocol for remote user authentication and accounting. RADIUS enables centralized management of authentication data such as usernames and passwords using an AAA (authentication, authorization, and accounting) concept to manage network access.
Resolution	The sharpness of an image, measured in Dots Per Inch (DPI). The higher the dpi, the greater the resolution.
SMB	Server Message Block (SMB) is a network protocol mainly applied to share files, printers, serial ports, and miscellaneous communications between nodes on a network. It also provides an authenticated Interprocess communication mechanism.

SMTP	Simple Mail Transfer Protocol (SMTP) is the standard for e-mail transmissions across the Internet. SMTP is a relatively simple, text based protocol, where one or more recipients of a message are specified, and then the message text is transferred. It is a client server protocol, where the client transmits an email message to the server.
SSID	Service Set Identifier (SSID) is a name of a wireless local area network (WLAN). All wireless devices in a WLAN use the same SSID in order to communicate with each other. The SSIDs are case-sensitive and have a maximum length of 32 characters.
Subnet Mask	The subnet mask is used in conjunction with the network address to determine which part of the address is the network address and which part is the host address.
TCP/IP	The Transmission Control Protocol (TCP) and the Internet Protocol (IP); the set of communications protocols that implement the protocol stack on which the Internet and most commercial networks run.
TCR	Transmission Confirmation Report (TCR) provides details of each transmission such as job status, transmission result and number of pages sent. This report can be set to print after each job or only after failed transmissions.
TIFF	Tagged Image File Format (TIFF) is a variable-resolution bitmapped image format. TIFF describes image data that typically come from scanners. TIFF images make use of tags, keywords defining the characteristics of the image that is included in the file. This flexible and platform-independent format can be used for pictures that have been made by various image processing applications.
Toner Cartridge	A kind of bottle or container used in a machine like a printer which contains toner. Toner is a powder used in laser printers and photocopiers, which forms the text and images on the printed paper. Toner can be fused by a combination of heat/pressure from the fuser, causing it to bind to the fibers in the paper.
TWAIN	An industry standard for scanners and software. By using a TWAIN-compliant scanner with a TWAIN-compliant program, a scan can be initiated from within the program. It is an image capture API for Microsoft Windows and Apple Macintosh operating systems.
UNC Path	Uniform Naming Convention (UNC) is a standard way to access network shares in Window NT and other Microsoft products. The format of a UNC path is: \\<servername>\<sharename>\<Additional directory>
URL	Uniform Resource Locator (URL) is the global address of documents and resources on the Internet. The first part of the address indicates what protocol to use, the second part specifies the IP address or the domain name where the resource is located.
USB	Universal Serial Bus (USB) is a standard that was developed by the USB Implementers Forum, Inc., to connect computers and peripherals. Unlike the parallel port, USB is designed to concurrently connect a single computer USB port to multiple peripherals.
Watermark	A watermark is a recognizable image or pattern in paper that appears lighter when viewed by transmitted light. Watermarks were first introduced in Bologna, Italy in 1282; they have been used by papermakers to identify their product, and also on postage stamps, currency, and other government documents to discourage counterfeiting.
WEP	Wired Equivalent Privacy (WEP) is a security protocol specified in IEEE 802.11 to provide the same level of security as that of a wired LAN. WEP provides security by encrypting data over radio so that it is protected as it is transmitted from one end point to another.
WIA	Windows Imaging Architecture (WIA) is an imaging architecture that is originally introduced in Windows Me and Windows XP. A scan can be initiated from within these operating systems by using a WIA-compliant scanner.
WPA	Wi-Fi Protected Access (WPA) is a class of systems to secure wireless (Wi-Fi) computer networks, which was created to improve upon the security features of WEP.
WPA-PSK	WPA-PSK (WPA Pre-Shared Key) is special mode of WPA for small business or home users. A shared key, or password, is configured in the wireless access point (WAP) and any wireless laptop or desktop devices. WPA-PSK generates a unique key for each session between a wireless client and the associated WAP for more advanced security.

6. Reference Information

WPS	The Wi-Fi Protected Setup (WPS) is a standard for establishing a wireless home network. If your wireless access point supports WPS, you can configure the wireless network connection easily without a computer.
XPS	XML Paper Specification (XPS) is a specification for a Page Description Language (PDL) and a new document format, which has benefits for portable document and electronic document, developed by Microsoft. It is an XML-based specification, based on a new print path and a vector-based device-independent document format.

6.3. Model Name and Code

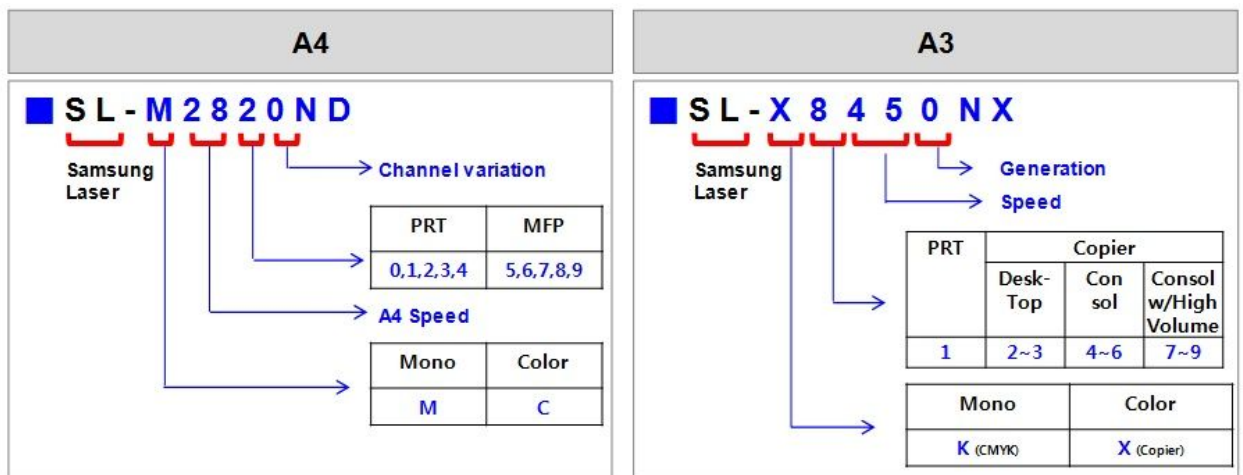
1) Sub brand name Information

- Applying Independent sub brand name by Segment : Xpress / ProXpress / MultiXpress



2) Model code Information

- Basic Structure : [SL-●○○■□◆◆]



- ◆◆ : Function Information

	Function
N	Network
W	Wireless Network
D	Duplex Printing
R	Reverse Type ADF
F	Fax
X	XOA (eXtensible Open Architecture)
H	Handset
A	Auto Document Feeder



GSPN (GLOBAL SERVICE PARTNER NETWORK)

Area	Web Site
Europe, MENA, CIS, Africa	https://gspn1.samsungsportal.com
E.Asia, W.Asia, China, Japan	https://gspn2.samsungsportal.com
N.America, S.America	https://gspn3.samsungsportal.com

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