



A3 Color Copier

CLX-9201/9251/9301 series

CLX-9201ND/NA,

CLX-9251ND/NA, CLX-9301NA

(Ver 3.2)

SERVICE MANUAL

A3 Color Copier

Contents



1. Precautions
2. Product Specifications and Description
3. Disassembly and Reassembly
4. Troubleshooting
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6. Reference Information

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 malfunctions 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 60825-1. 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: 800 nm
- Beam divergence
 - Parallel: 11 degrees
 - Perpendicular: 35 degrees
- Maximum power of energy output: 12 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.



CAUTION - CLASS 3B LASER RADIATION WHEN OPEN
AVOID EXPOSURE TO THE BEAM.
DANGER - LASER RADIATION AVOID DIRECT
EXPOSURE TO BEAM.

DANGER - RADIATIONS INVISIBLES DU LASER EN CAS
D'OUVERTURE. EVITER TOUTE EXPOSITION
DIRECTE AU FASCEAU.

VORSICHT - UNSICHTBARE LASERSTRAHLUNG, WEENN
ABDECKUNG GEÖFFNET.
NICHT DEM STRAHL AUSSETZEN.

ATTENZIONE - RADIAZIONE LASER INVISIBILE IN CASO DI
APERTURA. EVITARE L'ESPOSIZIONE AL FASCIO.
EVITAR EXPOSERSE AL RAYO.

PRECAUCIÓN - RADIACIÓN LASER INVISIBLE CUANDO SE ABRE.
EVITAR EXPOSERSE AL RAYO.

PERIGO - RADIAÇÃO LASER INVISÍVEL AO ABRIR. EVITE
EXPOSIÇÃO DIRECTA AO FEIXE.

GEVAAR - ONZICHTBARE LASERSTRALEN BIJ GEOPENDE
KLEP. DEZE KLEP NIET OPENEN.

ADVARSEL - USYNLIG LASERSTRÅLNING VED ÅBNING.
UNDGÅ UDSÆTTELSE FOR STRÅLNING.

ADVARSEL - USYNLIG LASERSTRÅLNING NÅR DEKSEL
ÅPNES. UNNGÅ EKSPONERING FOR STRÅLEN.

WARNING - OSYNLIG LASERSTRÅLNING NÅR DENNA DEL
ÄR ÖPPEN. STRÅLEN ÄR FARLIG.

VAROITUS - NÄKYMÄTÖNTÄ LASERSÄTEILYÄ AVATTAESSA.
VARO SUORAAÄ ALTISTUMISTA SÄTEELLE.

注意 - 严禁拆开此盖, 以免激光泄露灼伤
주의 - 이 덮개를 열면 레이저광에 노출될 수 있으므로
주의하십시오.

- 4) Lithium battery not replaceable by user

1.2. Caution for safety

1.2.1. Toxic material

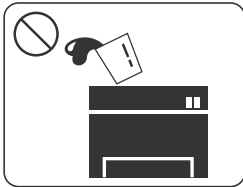
This product contains toxic materials that could cause illness if ingested.

- 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.

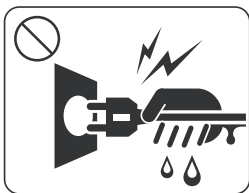
1.2.2. Electric shock and fire safety precautions

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

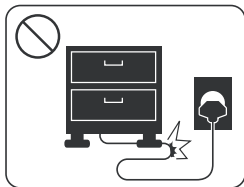
- 1) Use only the correct voltage, failure to do so could damage the product and potentially cause a fire or electric shock.
- 2) Use only the power cable supplied with the product. Use of an incorrectly specified cable could cause the cable to overheat and potentially cause a fire.
- 3) Do not overload 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.



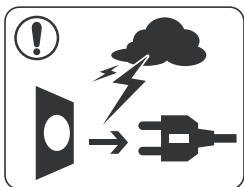
- 5) Never touch the plugs on either end of the power cable with wet hands, this can cause electric shock. When servicing the product, remove the power plug from the wall socket.



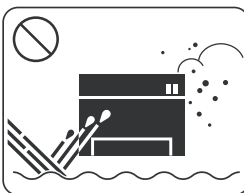
- 6) Use caution when inserting or removing the power cord. When removing the power cord, grip it firmly and pull. The power cord must be inserted completely, otherwise a poor contact could cause overheating leading to a fire.
- 7) Take care of the power cable. Do not allow it to become twisted, bent 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.



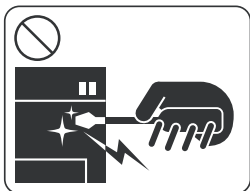
- 8) Ensure that the power sockets and plugs are not cracked or broken in any way. Any such defects should be repaired immediately. Take care not to cut or damage the power cable or plugs when moving the machine.
- 9) Use caution during thunder or lightning storms. Samsung recommends that this machine 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 (Mono/Color)<ul style="list-style-type: none">• CLX-9301 series<ul style="list-style-type: none">- Up to 30 ppm in A4 (30 ppm in Letter)- Up to 15 ppm in A3 (15 ppm in 11x17)• CLX-9251 series<ul style="list-style-type: none">- Up to 25ppm in A4 (25 ppm in Letter)- Up to 13 ppm in A3 (13 ppm in 11x17)• CLX-9201 series<ul style="list-style-type: none">- Up to 20 ppm in A4 (20 ppm in Letter)- Up to 10 ppm in A3 (10 ppm in 11x17)• Processor<ul style="list-style-type: none">• Dual Core 1GHz• Memory<ul style="list-style-type: none">• 1GB DDR3 SDRAM
--	---

2.2. Specifications

Product Specifications are subject to change without notice.

2.2.1. General Specification

Item		Specification
Configuration		<ul style="list-style-type: none"> • ND model : Platen cover model. • NA model : DADF model.
Temperature	Operating	10 to 32 °C (50 to 90 °F)
	Storage	-20 to 40 °C (-4 to 104 °F)
Humidity	Operating	20 to 80% RH
	Storage	10 to 90% RH
Acoustic Noise Level (Sound Power / Pressure)	Printing Simplex / Duplex	<ul style="list-style-type: none"> • CLX-9301 series : 50 /52 dB • CLX-9251 series : 49 /51 dB • CLX-9201 series : 48/ 50 dB
	Copying Simplex / Duplex	<ul style="list-style-type: none"> • CLX-9301 series : 53 /55 dB • CLX-9251 series : 53 /55 dB • CLX-9201 series : 53/ 55 dB
	Standby (Fuser off)	30 dB
	Sleep	27 dB
Power Supply	Input Voltage	Europe : AC 220-240V(-10%~6%) / 4A
		USA : AC 110~127V (-10%~6%) / 10A
		Korea : AC 220-240V(-10%~6%) / 4A
	Rated Frequency	50 / 60 Hz
Power Consumption	Ready	100 Watt
	AVG. (Normal Operation)	800 Watt
	Max/Peak	< 1500 Watt max
	Sleep/Power Off	3 Watt / 0 Watt
Dimension (W x D x H)	Set (mm)	<ul style="list-style-type: none"> • 560 x 600 x 787.3 mm (22 x 23.6 x 31 inches) (includes Platen Cover) • 560 x 600 x 844.3 mm (22 x 23.6 x 33.2 inches) (includes DADF) • 560 x 600 x 1046.6 mm (22 x 23.6 x 41.2 inches) (includes Platen Cover, Stand) • 560 x 600 x 1106.3 mm (22 x 23.6 x 43.6 inches) (includes DADF, DCF)
		Weight

Item		Specification
Reliability & Service	Recommended Printing Volume (AMPV)	<ul style="list-style-type: none"> CLX-9301 series : 7,500 sheets/month CLX-9251 series : 5,000 sheets/month CLX-9201 series : 3,500 sheets/month
	Max. Monthly Print Volume	100,000 sheets/month

2.2.2. Print Specifications


Item		Specification
Engine Speed	Simplex	<ul style="list-style-type: none"> CLX-9301 series <ul style="list-style-type: none"> B&W : Up to 30 ppm in A4 (30 ppm in Letter) Color : Up to 30 ppm in A4 (30 ppm in Letter) B&W : Up to 15 ppm in A3 (15 ppm in 11X17) Color : Up to 15 ppm in A3 (15 ppm in 11X17) CLX-9251 series <ul style="list-style-type: none"> B&W : Up to 25 ppm in A4 (25 ppm in Letter) Color : Up to 25 ppm in A4 (25 ppm in Letter) B&W : Up to 13 ppm in A3 (13 ppm in 11X17) Color : Up to 13 ppm in A3 (13 ppm in 11X17) CLX-9201 series <ul style="list-style-type: none"> B&W : Up to 20 ppm in A4 (20 ppm in Letter) Color : Up to 20 ppm in A4 (20 ppm in Letter) B&W : Up to 10 ppm in A3 (10 ppm in 11X17) Color : Up to 10 ppm in A3 (10 ppm in 11X17)

2. Product Specifications and Description

Item		Specification
	Duplex	<ul style="list-style-type: none"> • CLX-9301 series <ul style="list-style-type: none"> • [Basic (Without 2nd EXIT)] <ul style="list-style-type: none"> - B&W : Up to 21 ipm in A4 (21 ipm in Letter) - Color : Up to 21 ipm in A3 (21 ipm in 11×17) - B&W : Up to 11 ipm in A4 (11 ipm in Letter) - Color : Up to 11 ipm in A3 (11 ipm in 11×17) • [With 2nd EXIT (Option)] <ul style="list-style-type: none"> - B&W : Up to 30 ipm in A4 (30 ipm in Letter) - Color : Up to 30 ipm in A3 (30 ipm in 11×17) - B&W : Up to 11 ipm in A4 (11 ipm in Letter) - Color : Up to 11 ipm in A3 (11 ipm in 11×17) • CLX-9251 series <ul style="list-style-type: none"> • [Basic (Without 2nd EXIT)] <ul style="list-style-type: none"> - B&W : Up to 17 ipm in A4 (17 ipm in Letter) - Color : Up to 17 ipm in A3 (17 ipm in 11×17) - B&W : Up to 9 ipm in A4 (9 ipm in Letter) - Color : Up to 9 ipm in A3 (9 ipm in 11×17) • [With 2nd EXIT (Option)] <ul style="list-style-type: none"> - B&W : Up to 25 ipm in A4 (25 ipm in Letter) - Color : Up to 25 ipm in A3 (25 ipm in 11×17) - B&W : Up to 9 ipm in A4 (9 ipm in Letter) - Color : Up to 9 ipm in A3 (9 ipm in 11×17) • CLX-9201 series <ul style="list-style-type: none"> • [Basic (Without 2nd EXIT)] <ul style="list-style-type: none"> - B&W : Up to 14 ipm in A4 (14 ipm in Letter) - Color : Up to 14 ipm in A3 (14 ipm in 11×17) - B&W : Up to 7 ipm in A4 (7 ipm in Letter) - Color : Up to 7 ipm in A3 (7 ipm in 11×17) • [With 2nd EXIT (Option)] <ul style="list-style-type: none"> - B&W : Up to 20 ipm in A4 (20 ipm in Letter) - Color : Up to 20 ipm in A3 (20 ipm in 11×17) - B&W : Up to 7 ipm in A4 (7 ipm in Letter) - Color : Up to 7 ipm in A3 (7 ipm in 11×17)
FPOT (B&W and Color)	From Ready	<ul style="list-style-type: none"> • CLX-9301 series : Less than 9/11 sec (B&W/Color) • CLX-9251 series : Less than 9.5/11.5 sec (B&W/Color) • CLX-9201 series : Less than 10/12.5 sec (B&W/Color)
	From Sleep	<ul style="list-style-type: none"> • CLX-9301 series : Less than 27/29 sec (B&W/Color) • CLX-9251 series : Less than 28/30 sec (B&W/Color) • CLX-9201 series : Less than 29/31 sec (B&W/Color)
	From Coldboot	Less than 100/100 sec (B&W/Color)
Resolution	Optical	600 x 600 dpi
	Enhanced	<ul style="list-style-type: none"> • Normal : 2400*600 dpi Effective Output (600 x 600 x 2bit) • Best : 9600*600 dpi Effective Output (600 x 600 x 4bit) • High Quality : Real 1200*1200 dpi

Item		Specification
Printer Languages		PCL5Ce, PCL6Ce, PostScript Level3C, TIFF, PDF 1.4, JPEG
Fonts		PCL:93 scalable, 1 bitmap, OCR-A, OCR-B, PS:136
Downloadable Fonts		Yes (PCL & PS3 S/W Font)
Print Job (with HDD)	Secure Printing	Yes
	Delayed (Scheduled) Printing	No
	Proof printing	No
	Spool	Yes
	Stored Printing	Yes
	Form overlays	No
USB Memory Direct Print		Jpeg, Tiff, PDF, Samsung PRN, TXT

2.2.3. Controller and Software specification

Item		Specification																										
Processor	MPU	Chorus4N Dual Core 1GHz																										
	Image Processor	Embedded in Chorus4N																										
DRAM	Std.	1GB DDR3 SDRAM																										
	Max.	1GB DDR3 SDRAM																										
Memory Expansion		N.A.																										
Storage		320GB HDD Standard																										
		<p> NOTE</p> <p>HDD Partition Map</p> <p>- Mandatory, 157GB for users, EXT3 file system</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Size</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>HDD_SWAP</td> <td>2G</td> <td>System Swap</td> </tr> <tr> <td>HDD_RECOVER</td> <td>2G</td> <td>System Recovery</td> </tr> <tr> <td>HDD_ROOT</td> <td>11G</td> <td>Root File System</td> </tr> <tr> <td>HDD_SYS</td> <td>3G</td> <td>Fax/Network Configuration, Address Book, Log</td> </tr> <tr> <td>HDD_DOC</td> <td>157G</td> <td>Document Box</td> </tr> <tr> <td>HDD_SECURE</td> <td>4G</td> <td>Security Data</td> </tr> <tr> <td>HDD_DOC_SPOOL</td> <td>139G</td> <td>Document Spooling</td> </tr> <tr> <td>HDD_HIBERNATION</td> <td>2G</td> <td>Hibernation Image for Fast Boot</td> </tr> </tbody> </table> <p>HDD_DOC partition is available for the user data storage.</p>	Name	Size	Description	HDD_SWAP	2G	System Swap	HDD_RECOVER	2G	System Recovery	HDD_ROOT	11G	Root File System	HDD_SYS	3G	Fax/Network Configuration, Address Book, Log	HDD_DOC	157G	Document Box	HDD_SECURE	4G	Security Data	HDD_DOC_SPOOL	139G	Document Spooling	HDD_HIBERNATION	2G
Name	Size	Description																										
HDD_SWAP	2G	System Swap																										
HDD_RECOVER	2G	System Recovery																										
HDD_ROOT	11G	Root File System																										
HDD_SYS	3G	Fax/Network Configuration, Address Book, Log																										
HDD_DOC	157G	Document Box																										
HDD_SECURE	4G	Security Data																										
HDD_DOC_SPOOL	139G	Document Spooling																										
HDD_HIBERNATION	2G	Hibernation Image for Fast Boot																										
Printer driver	Supporting OS	[Windows]																										
		<ul style="list-style-type: none"> Windows 2000/ XP(32/64bit)/ 2003(32/64bit)/ Vista(32/64bit)/ 2008/ Win7/ 2008 R2(64 only) 																										
		<p>[Linux]</p> <ul style="list-style-type: none"> RedHat Enterprise Linux WS 4, 5 (32/64bit) Fedora 5, 6, 7, 8, 9, 10, 11, 12, 13 (32/64bit) SuSE Linux 10.1 (32bit) OpenSuSE 10.2 10.3, 11.0, 11.1, 11.2 (32/64bit) Mandriva 2007, 2008, 2009, 2009.1, 2010 (32/64bit) Ubuntu 6.06, 6.10, 7.04, 7.10, 8.04 8.10, 9.04, 9.10, 10.04 (32/64bit) SuSE Linux Enterprise Desktop 10, 11 (32/64bit) Debian 4.0, 5.0 (32/64bit) 																										
		[Mac]																										
		<ul style="list-style-type: none"> Mac OS X 10.5 ~ 10.7 																										
	Default Driver	PCL6 (For Windows), PS (for Mac, Linux)																										

Item		Specification
	Driver feature	<ul style="list-style-type: none"> • [Windows] <ul style="list-style-type: none"> • Watermark, Overlay, N-up printing, Poster printing • Duplex, Quality, Color mode (Color, Gray scale) • Support Color spec., Device color, color management • [Mac/Linux] <ul style="list-style-type: none"> • N-up printing, Duplex, Quality • Color mode (Color, Gray scale)
	WHQL (Windows Hardware Quality Labs)	Windows 2000/ XP(include 64bit)/ 2003/ Vista/ 2008/ Win7/ 2008 R2(64 only)
	Language Localization	23 countries(Arabic/ Portuguese Brazilian/ Simplified Chinese / Traditional Chinese/ Czech/ Danish/ Dutch/ Greek/ English/ Finnish/ French/ German/ Hebrew/ Hungarian/ Italian/ Korea/ Norwegian/ Polish/ Portuguese / Russian/ Spanish / Swedish /Turkish)
	Status Monitor (Lite SM)	Yes (Windows Only)
Scan driver	TWAIN	Yes
	WIA	No
	Supporting OS	[Windows] <ul style="list-style-type: none"> • Windows 2000/ XP(32/64bit)/ 2003(32/64bit)/ Vista(32/64bit)/ 2008(32/64bit)/ Win7/ 2008 R2(64 only)
		[Linux] <ul style="list-style-type: none"> • RedHat Enterprise Linux WS 4, 5 (32/64bit) • Fedora 5, 6, 7, 8, 9, 10, 11, 12, 13 (32/64bit) - SuSE Linux 10.1 (32bit) • OpenSuSE 10.2 10.3, 11.0, 11.1, 11.2 (32/64bit) • Mandriva 2007, 2008, 2009, 2009.1, 2010 (32/64bit) • Ubuntu 6.06, 6.10, 7.04, 7.10, 8.04 8.10, 9.04, 9.10, 10.04 (32/64bit) • SuSE Linux Enterprise Desktop 10, 11 (32/64bit) • Debian 4.0, 5.0 (32/64bit)
	[Mac] <ul style="list-style-type: none"> • Mac OS X 10.5 ~ 10.6 	
Application	Scan Manager	Yes (Win, Mac)
	Scan Assistant	Yes (Win, Mac)
	PC-FAX	No
	Network-FAX	Yes (Win, Mac)
	Samsung Easy Printer Manager	Yes (Win, Mac)
	Network Management	Set IP, SWAS 5.0 & SWS 2.0 SWAS Plug-In : Job Accounting, Storage management, Cloning, Remote Install
	HDD File Management S/W	No
	AnyWeb Print	Yes
	SmarThru	Smarthru Office, SmarThru Workflow(Optional)

■ **Interface**

Item		Specification
Parallel (IEEE 1284)		No
USB	Type A, Host	High-Speed USB 2.0 Host (2-port)
	Type B, Device	Hi-Speed USB 2.0 Peripheral (1-port)
Wired LAN		Ethernet 10/100/1000 Base TX
Wireless LAN		No
Foreign Device Interface		Optional

■ **Network Interface**

Item		Specification
Network OS		<ul style="list-style-type: none"> • Microsoft Windows 2000/ XP(32/64bits)/ 2003(32/64bits)/ Vista(32/64bits)/ Win7 [Mac] <ul style="list-style-type: none"> • Mac OS X 10.5 ~ 10.6 [Linux] <ul style="list-style-type: none"> • RedHat 8 ~ 9 • Fedora Core 1~4 • Madrake 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)
Network 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, LDAPS, IPSec, 802.1x
IP Addressing	Static IP	Yes
	Auto IP	Yes
	BOOTP	Yes
	DHCP	Yes

■ Memory (HDD) Management

Item		Specification
Box Management	Type	No
	Stored Job Type	No
	Max. Number of Boxes	No
	Box Size	No
Document Management	Creation	No
	Rename	No
	Move & Copy	No
	Delete	No
	Search	No
	Display detail information	No
	Select	No
	Auto Delete Time Setting	No
Memory to	Email	Yes
	Client	Yes
	i-Fax	No
	Server	Yes
	Multi Destination	No
Memory to Print Setting	Copies	Yes
	Duplex Printing	Yes
	Color Mode	Yes
	Autofit	Yes
	Paper Supply	Yes
	Binding Space	1-50mm left, right, top, bottom (PC Print only)
	Erase Edge	No
Image Overwrite	Immediate	Yes
	On-Demand	Yes
Data Encrytion	Supported Job Type	Print / Copy / Scan / Fax
	Cryptography	AES
	Key length	256bit

2.2.4. Scan specification

Item		Specification
Scan method		Color CCDM-MMT
Compatibility		TWAIN(N/W)
Color Mode		Mono / Gray / Color
Scan Speed	B/W (Lineart, Halftone)	ScanToEmail/SMB/FTP : 45ipm @ 300dpi (A4 LEF standard) PC scan : 15 sec @300dpi (P4-3GHz, 1G, NW 100M, A4 LEF Standard)
	Gray	ScanToEmail/SMB/FTP : 45ipm @ 300dpi (A4 LEF Standard) PC scan : 20 sec @300dpi (P4-3GHz, 1G, NW 100M, A4 LEF Standard)
	Color	ScanToEmail/SMB/FTP : 45ipm @ 300dpi (A4 LEF Standard) PC scan : 30 sec @300dpi (P4-3GHz, 1G, NW 100M, A4 LEF Standard)
Resolution	Optical	600 x 600 ppi
	Enhanced	4,800 x 4,800 ppi
Halftone		256 levels
Scan Size	Max. Document Width	Max.297mm (11.7")
	Effective Scan Width	Max 291mm
	Max. Document Length	Max.432mm
Scan Depth	Color	24 bits
	Mono	<ul style="list-style-type: none"> • 1bit for Linearity & Halftone • 8Bits for Gray scale
Multi-page Scan		Platen & DADF
Scan-to	HDD	Yes (Shared Folder)
	USB	Yes
	Email	Yes
	Client	Yes (N/W)
	SMB	Yes
	FTP	Yes
	HTTP(S)	No
	WebDAV	No
	Multi Destination	No
Address Book	Email, Fax, Server	User Based Individual (Fax+Email+Server) : 500
		Group : (Fax+Email) : 499
	Basic Feature	Searching
		Editing
		Deleting
		Grouping
		import, export

Item		Specification
Scan Setting	Mixed Document	Yes
	Scan Preset	No
	Delayed Send	No
	Job Done notice	No
	Recent	Yes
	OCR	No
	Job Build	Yes
	Book Scan	No

2.2.5. Copy specification

Item		Specification
Copy Speed (DADF)	SDMC (Single Document Multiple Copy)	<ul style="list-style-type: none"> • CLX-9301 series <ul style="list-style-type: none"> • B&W Simplex: up to 30 cpm in A4 & Letter • Color Simplex: up to 30 cpm in A4 & Letter • B&W Duplex: up to 21 cpm in A4 & Letter • Color Duplex: up to 21 cpm in A4 & Letter • CLX-9251 series <ul style="list-style-type: none"> • B&W Simplex: up to 25 cpm in A4 & Letter • Color Simplex: up to 25 cpm in A4 & Letter • B&W Duplex: up to 17 cpm in A4 & Letter • Color Duplex: up to 17 cpm in A4 & Letter • CLX-9201 series <ul style="list-style-type: none"> • B&W Simplex: up to 20 cpm in A4 & Letter • Color Simplex: up to 20 cpm in A4 & Letter • B&W Duplex: up to 14 cpm in A4 & Letter • Color Duplex: up to 14 cpm in A4 & Letter
	MDMC (Multiple Document Multiple Copy)	<ul style="list-style-type: none"> • CLX-9301 series <ul style="list-style-type: none"> • Simplex-to-Duplex(1-2): up to 21 cpm in A4 & Letter • Duplex -to-Duplex(2-2): up to 16 cpm in A4 & Letter • CLX-9251 series <ul style="list-style-type: none"> • Simplex-to-Duplex(1-2): up to 17 cpm in A4 & Letter • Duplex -to-Duplex(2-2): up to 16 cpm in A4 & Lette • CLX-9201 series <ul style="list-style-type: none"> • Simplex-to-Duplex(1-2): up to 14 cpm in A4 & Letter • Duplex -to-Duplex(2-2): up to 14 cpm in A4 & Letter
FCOT (B&W and Color)	From Ready	<ul style="list-style-type: none"> • CLX-9301 series : Less than 6/8 seconds (from platen, B&W/Color) • CLX-9251 series : Less than 7/8 seconds (from platen, B&W/Color) • CLX-9201 series : Less than 7.5/8.5 seconds (from platen, B&W/Color)
	From Sleep	<ul style="list-style-type: none"> • CLX-9301 series : Less than 24/26 seconds (from platen, B&W/Color) • CLX-9251 series : Less than 25/27 seconds (from platen, B&W/Color) • CLX-9201 series : Less than 26/28 seconds (from platen, B&W/Color)
	From Coldboot	Less than 100/100 seconds (from platen, B&W/Color)
Zoom Range		25% ~ 400% in 1% increments (Platen/DADF)
Multi Copy		1~9999
Original Type	Text	<ul style="list-style-type: none"> • Platen: Scan 600 x 600 dpi, Printing 600 x 600 x 2bit • DADF : Scan 600 x 600 dpi, Printing 600 x 600 x 2bit
	Text/Photo	<ul style="list-style-type: none"> • Platen: Scan 600 x 600dpi, Printing 600 x 600 x 2bit • DADF : Scan 600 x 600dpi, Printing 600 x 600 x 2bit
	Magazine	No
	Photo	<ul style="list-style-type: none"> • Platen: Scan 600 x 600 dpi, Printing 600 x 600 x 4bit • DADF : Scan 600 x 600 dpi, Printing 600 x 600 x 4bit
	Copied Original	<ul style="list-style-type: none"> • Platen: Scan 600 x 600 dpi, Printing 600 x 600 x 2bit • DADF : Scan 600 x 600 dpi, Printing 600 x 600 x 2bit

Item		Specification	
	Map	<ul style="list-style-type: none"> Platen: Scan 600 x 600 dpi, Printing 600 x 600 x 2bit DADF : Scan 600 x 600 dpi, Printing 600 x 600 x 2bit 	
	Light Original	<ul style="list-style-type: none"> Platen: Scan 600 x 600dpi, Printing 600 x 600 x 2bit DADF : Scan 600 x 600dpi, Printing 600 x 600 x 2bit 	
Original Type	Factory Default	Color Copy Text/Photo (Mixed) Mode	
Color Setting	Auto Color	Yes	
	Full Color	Yes	
	Twin Color	No	
	Single Color	No	
	B&W	Yes	
Max. Original Size	Platen	297 x 432 mm (11.7" x 17")	
	DADF	297 x 432 mm (11.7" x 17")	
Basic Copy	Multi Copy	1~9999	
	Automatic Paper Selection	Yes	
	Manual Paper Selection	Yes	
	Multi-page Copy	Platen & DADF	
	Duplex Copy	Using Platen	<ul style="list-style-type: none"> 1→1Sided 1→2Sided (Output : Book, Calendar)
		Using DADF	<ul style="list-style-type: none"> 1→1Sided 1→2Sided (Output: Book, Calendar) 2→1Sided (Original: Book, Calendar) 2→2Sided (Original: Book, Calendar, Output: Book, Calendar)
	Darkness Control	11 Levels	
	Collation Copy	Yes	
Reduce & Enlarge	* Zoom Range : 25% to 400% in Platen and DADF * Preset: [Original(100%)] [Auto Fit] ... 25%, 50%, 150%, 200%, 400% [Custom:25-400%]		
Other Features	Proof Copy	No	
	N-Up	2up ~ 32 up	
	ID Card Copy	Yes (Platen only)	
	Poster Copy	No	
	Clone Copy (Image Repeat)	No	
	Booklet	No	
	Covers	Yes	
	Transparencies	No	
	Book Copy	Yes (Platen only)	
	Scan to Document	No	

2. Product Specifications and Description

Item		Specification
Image	Margin Shift	No
	Book Center Erase	Yes
	Form Copy	No
	Watermark Copy	Yes
	Stamp	Yes
	Job Program	Yes
	Adjust Background	Auto, Erase(4 levels), Enhance(2 levels)
	Job Build	Yes
	Rotation Copy	No
	Mirror	No

2.2.6. Fax specification

Item		Specification
Compatibility		ITU-T G3, Super G3
Communication System		PSTN/PABX
Modem Speed		33.6 Kbps
TX Speed		3 sec (Mono/Standard/ECM-MMR, ITU-T G3 No.1 Chart,A4)
Compression		MH/MR/MMR/JBIG/JPEG
Color Fax		Yes
ECM		Yes
Resolution (Mono)	Std	203*98 dpi
	Fine	203*196 dpi
	S.Fine Photo	No
	S.Fine	300*300 dpi
	Ultra Fine	600*600 dpi
Scan speed	Std	1.5sec/LTR
	Fine	4sec/LTR
	S.Fine	Depends on Document
Telephone Features	Handset	No
	On hook Dial	Yes
	Search	Yes (Phone Book)
	Speed Dial	500 locations
	Group Dial	Max. 100 Groups (Max. locations per 1 Group : 100 locations)
	TAD I/F	Yes
	Tone/Pulse	Yes
	Pause	Yes
	Auto Redial	Yes
	Redial	Yes

Item		Specification
	Distinctive Ring	No
	Caller ID	Yes
	External Phone Interface	Yes
Functions	Mail Box	No
	Voice Request	No
	TTI	Yes
	RTI	Yes
	Polling	No
	Earth/Recall	No
	Auto Reduction	Yes
	SMS	No
	Multi-send	Same as Group Dial Capacity.
	Delayed Send	Yes
	Memory RX	Yes
	Secure Rx	Yes
	Time Secured Fax	Yes
	Relay Transmission (ITU-T Mail Box)	No
	Priority Transmission	No
Batch Transmission	No	
Address Book Basic Feature	Searching	Yes
	Storing	Yes
	Editing	Yes
	Deleting	Yes
	Grouping	Yes
	Chaining	No
	import, export	Yes
Address Book Advanced	Search condition	No
	Favorites Button	No
	Curent Sending , Receiving Tel number	Yes(Curent Sending)
	LDAP	Yes

2. Product Specifications and Description

Item		Specification
Sending fax Management	Check the Success or Fail & Error	Yes
	Re-Faxing from memory in case of failed Fax	Yes
	Re-Faxing in case of failed page.	Yes
	Delete in memory after sending completely	Yes
Fax Receiving Feature/ Printing the Rx Document	Separator Sheet	No
	Insert the stamp	Yes(Option -On,Off) Rx Time ,ID, Page
	Number of Printing Copies	No
	Revers order printing	No
	tray selection	Yes
Report & List Print out	Tx/Rx Journal	Yes
	Confirmation	2 type(Image TCR or w/o Image TCR)
	Auto Dial List	No
	System Data List	No
Sound Control	Ring Volume	Yes (7 steps and mute)
	Key Volume	Yes (7 steps and mute)
	Speaker	Yes (7 steps and mute)
	Alarm Volume	Yes (7 steps and mute)
Junk Fax barrier		No
Security Receive		Yes
Battery Backup		Permanently stored on HDD
Duplex	Send	Yes
	Receive	Yes
Receive Mode		Fax, TEL, Ans/Fax
Battery Backup		HDD Store, 500 jobs
Fax Forward to FAX		No
Fax Forward to e-mail		Yes
Broadcasting		up to 505 locations
Cover page		No

Item		Specification
Fax-to	HDD	Yes
	USB	No
	Fax	No
	Email	Yes
	Client	No
	SMB	Yes
	FTP	Yes
	HTTP(S)	No
	Multi-destination	No

2.2.7. Paper Handling specification


Item		Specification
Standard Capacity		<ul style="list-style-type: none"> 1,140 sheets @ 20 lb or 80g/m² 520-sheet cassette Tray (20 lb or 80g/m²) x 2 100-sheet MP tray (20 lb or 80g/m²)
Max. Input Capacity	MP + Tray x 4	2,180 sheets @ 20lb or 80g/m ²
Printing	Max. Size	297 x 432 mm (11.7" x 17"), Banner
	Min. Size	98 x 148 mm (3.85"x5.83")
	Margin(T/B/L/R)	4.2+/-1.5mm
MP Tray	Capacity	<ul style="list-style-type: none"> Plain Paper: 100 sheets @ 80 g/m² Envelopes: 10 sheets @ 75 g/m² Labels: 20 sheets @ 120~150 g/m² Thick Paper: 10 sheets @ 176 g/m²
	Media sizes	98 x 148 mm ~ 297 x 432 mm (3.87 x 5.8" ~ 11.7 x 17") Banner Size Printing : 297 mm x 1200 mm
	Media type	Printer Default, Plain Paper, Thick Paper, Thin Paper, Bond Paper, Color Paper, CardStock, Labels, Envelope, Preprinted, Letterhead, Recycled Paper, Cotton, Archive, Glossy
	Media weight	<ul style="list-style-type: none"> 16~47lb (60 ~ 176 g/m²) : Simplex, Duplex
	Sensing	<ul style="list-style-type: none"> Paper Empty Detect: Yes Paper Size Detect: No
Standard Cassette Tray	Capacity	520 sheets @ 20lb (80g/m ²) X 2
	Media sizes	Legder, A3, Letter, Legal, Oficio, Folio, A3, A4, JIS B5, ISO B5, Executive, A5, Statement, Custom
	Media types	Plain Paper, Thin Paper, Bond, Punched, Pre-Printed, Recycled, CardStock, Letterhead, Thick, Cotton, Colored, Archive, Glossy
	Media weight	<ul style="list-style-type: none"> Plain Paper: 71~90g/m² (19~24 lb), (Duplex : 19~24lb) Thick Paper: 91~105g/m² (25~28 lb), (Duplex : 25~28lb) Heavy Weight 1 Paper : 106~120g/m² Heavy Weight 2 Paper : 121~175g/m² Extra Heavy Weight 1 Paper : 176 ~ 216g/m² Thin Paper: 60~70g/m² (16~18 lb) Bond Paper: 105~120g/m² (28~32 lb) Punched Paper: 71~90g/m² (19~24 lb) Pre-Printed : 75~90g/m² (20~24 lb) Recycled : 60~90g/m² (16~24 lb) CardStock : 105~163g/m² (28~43lb) Letterhead : 71~90g/m² (19~24lb) Cotton paper : 75~90g/m² (20~24lb)
	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

Item		Specification
Optional Cassette Tray	Capacity	520 sheets @ 20lb (80g/m ²) x 2
	Media sizes	Legder, A3, Letter, Legal, Oficio, Folio, A4, JIS B5, ISO B5, Executive, A5, Statement, Custom
	Media types	Plain Paper, Thin Paper, Bond, Punched, Pre-Printed, Recycled, CardStock, Letterhead, Thick, Cotton, Colored, Archive, Glossy
	Media weight	<ul style="list-style-type: none"> • Plain Paper: 71~90g/m²(19~24 lb), (Duplex : 19~24lb) • Thick Paper: 91~105g/m²(25~28 lb), (Duplex : 25~28lb) • Heavy Weight 1 Paper : 106~120g/m² • Heavy Weight 2 Paper : 121~175g/m² • Extra Heavy Weight 1 Paper : 176 ~ 216g/m² • Thin Paper: 60~70g/m²(16~18 lb) • Bond Paper: 105~120g/m²(28~32 lb) • Punched Paper: 71~90g/m²(19~24 lb) • Pre-Printed : 75~90g/m²(20~24 lb) • Recycled : 60~90g/m²(16~24 lb) • CardStock : 105~163g/m² (28~43lb) • Letterhead : 71~90g/m² (19~24lb) • Cotton paper : 75~90g/m² (20~24lb)
	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
Optional High-Capacity Feeder(HCF)		N/A
Output Stacking	Capacity (FaceDown)	500 sheets @ 20lb (80g/m ²)
	Offset Stacking	No
	Output Full sensing	Yes
Standard Finisher	Capacity	50 sheets stapling / 350 (in total) sheets stacking, internal
	Staple Cartridge capacity	5000 staples / cartridge
	Stacking	<ul style="list-style-type: none"> • Top Tray : 50 sheets with 80g/m² sheet • Finishing Tray : 300 sheets with 80g/m² sheet
	Stapling	1 Corner (Single)
	Offline Stapling	No
	Offset at Non Staple job	No
	Offset at Staple job	Yes
	Output Stacking	Face Down
3250-sheet Booklet Finisher		N/A
Punch Kit		N/A

2. Product Specifications and Description

Item		Specification
Automatic Duplex	Supporting	Yes
	Media sizes	Legder, A3, Letter, Legal, Oficio, Folio, A3, A4, JIS B5, ISO B5, Executive, A5, Statement, Custom
	Media types	Plain Paper, Thin Paper, Bond, Punched, Pre-Printed, Recycled, CardStock, Letterhead, Thick, Cotton, Colored, Archive, Glossy
	Media weight	60~175g/m ² (16~46 lb)
ADF	Capacity	100 sheets (21lb, 80 g/m ²)
	2-sided Document Scanning	Yes
	Document Size	<ul style="list-style-type: none"> • Width: 128 ~ 297 mm • Length : 128 ~ 432 mm
	Document Weight	<ul style="list-style-type: none"> • 40~128 g/m² @simplex • 50~128 g/m² @duplex
	Sensing	<ul style="list-style-type: none"> • Paper empty detect : Yes • Paper width detect : Yes • Paper length detect : Yes
	Auto Detected Size Sensing	A3, A4, A4 SEF, A5, A5 SEF, B4, B5, B5 SEF

2.2.8. Supplies

Item		Model Name	Average yield
Toner Cartridge	Black	CLT-K809S	20,000 pages
	Yellow	CLT-Y809S	15,000 pages
	Magenta	CLT-M809S	15,000 pages
	Cyan	CLT-C809S	15,000 pages
Drum Unit		CLT-R809  NOTE Drum Units are exchangeable for all colors.	Approx. 50,000 pages
Waste Toner Container		CLT-W809	Approx 26,300 pages @ Color : Mono Ratio (30% : 70%), 3 Pages/Job

NOTE

- Declared yield value in accordance with 5% coverage.
- Depending on the print pattern and job mode used, the consumable's lifespan may differ.

2.2.9. Maintenance Parts

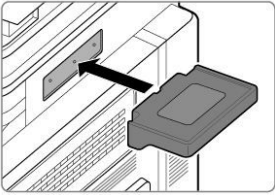

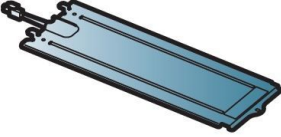

Item	Part Code	Life
Developer Unit	JC96-06222A (K)	300,000 pages
	JC96-06219A (Y)	
	JC96-06220A (M)	
	JC96-06221A (C)	
ITB	JC96-06200A	300,000 pages
ITB Cleaner	JC96-06246A	150,000 pages
Transfer roller Assy	JC95-01514A	150,000 pages
Fuser Unit	<ul style="list-style-type: none"> • JC91-01063A (220V) • JC91-01064A (110V) 	150,000 pages
Pick-Up / Reverse / Forward roller (for Tray1,2,3,4, MP Tray)	JC93-00540A	200,000 pages
DADF Pick-Up roller Assy	JC97-04009A	200,000 pages
DADF Friction Pad	JC97-03097A	100,000 pages

NOTE

Depending on the print patterns and job mode used, the lifespan may differ.

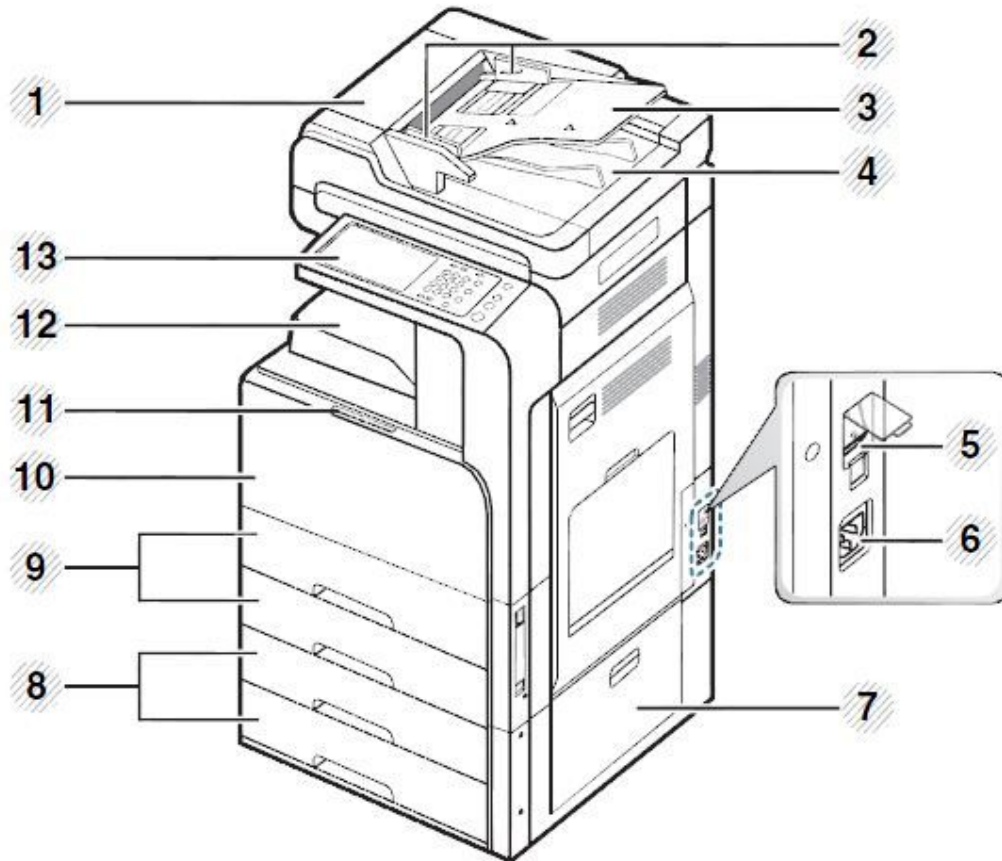
2.2.10. Option

Image	Item	Model	CLX-9301 series	CLX-9251 series	CLX-9201 series
	DCF (Dual Cassette Feeder)	CLX-PFP100/SEE	Yes	Yes	Yes
	Finisher	CLX-FIN50S/SEE	Yes	Yes	Yes
	Job Separator	CLX-JST100/SEE	Yes	Yes	Yes
	Fax	CLX-FAX160/XXX  NOTE XXX : SEE, XEG, XEU, XIL	Yes	Yes	Yes
	Cabinet Stand	CLX-DSK20T	Yes	Yes	Yes
	FDI Kit	CLX-KIT10F	Yes	Yes	Yes

Image	Item	Model	CLX-9301 series	CLX-9251 series	CLX-9201 series
	Working Table	CLX-WKT000	Yes	Yes	Yes
	Card Reader Cover Assy	CLX-CRH002	Yes	Yes	Yes
	Cassette Heater	CLX-DHK12C	Yes	Yes	Yes
	SmarThru Workflow V1.0		Yes	Yes	Yes
	Wireless LAN	CLX-NWA20L	Yes	Yes	Yes

2.3. Machine External View

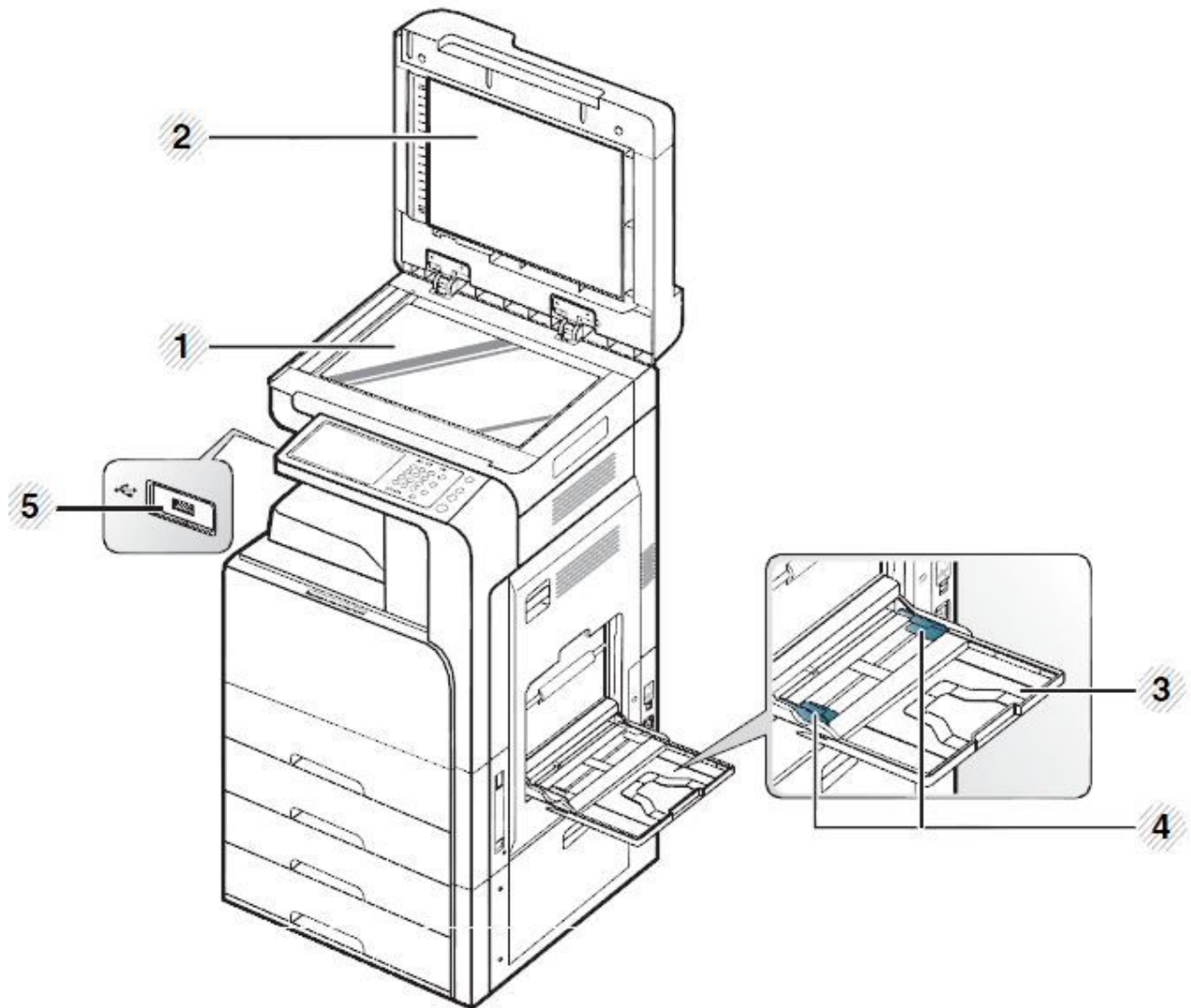
1) Front View1



1	Duplex automatic document feeder cover
2	Duplex automatic document feeder width guides
3	Duplex automatic document feeder input tray
4	Duplex automatic document feeder output tray
5	Power-switch
6	Power receptacle
7	Optional dual cassette feeder right bottom door

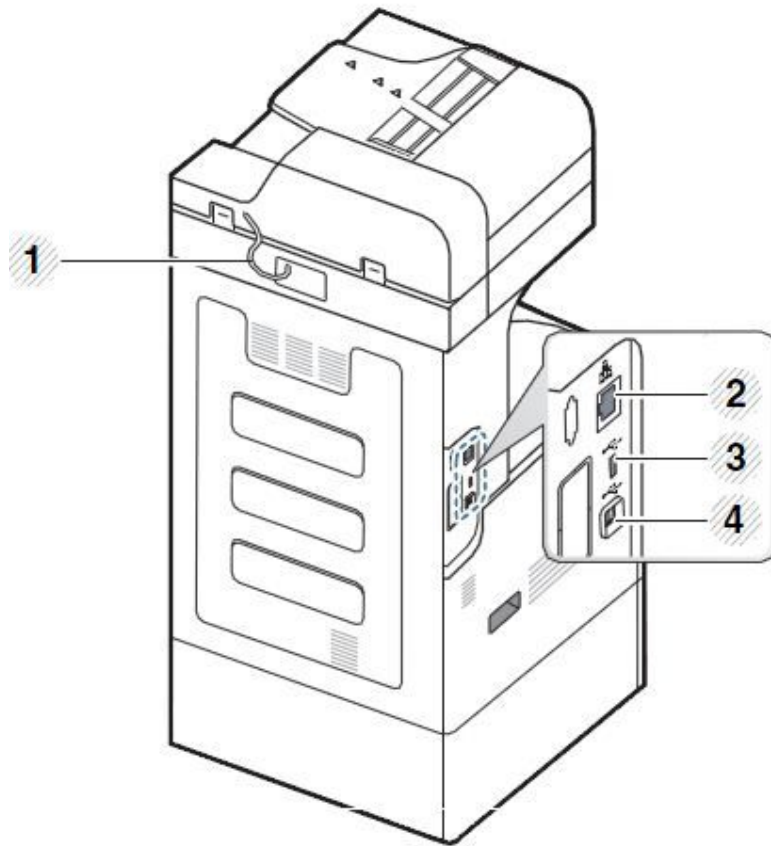
8	Dual cassette feeder (tray 3, tray 4)
9	Standard tray (tray 1, tray 2)
10	Front door
11	Front door handle
12	Paper output tray
13	Control panel

2) Front View2



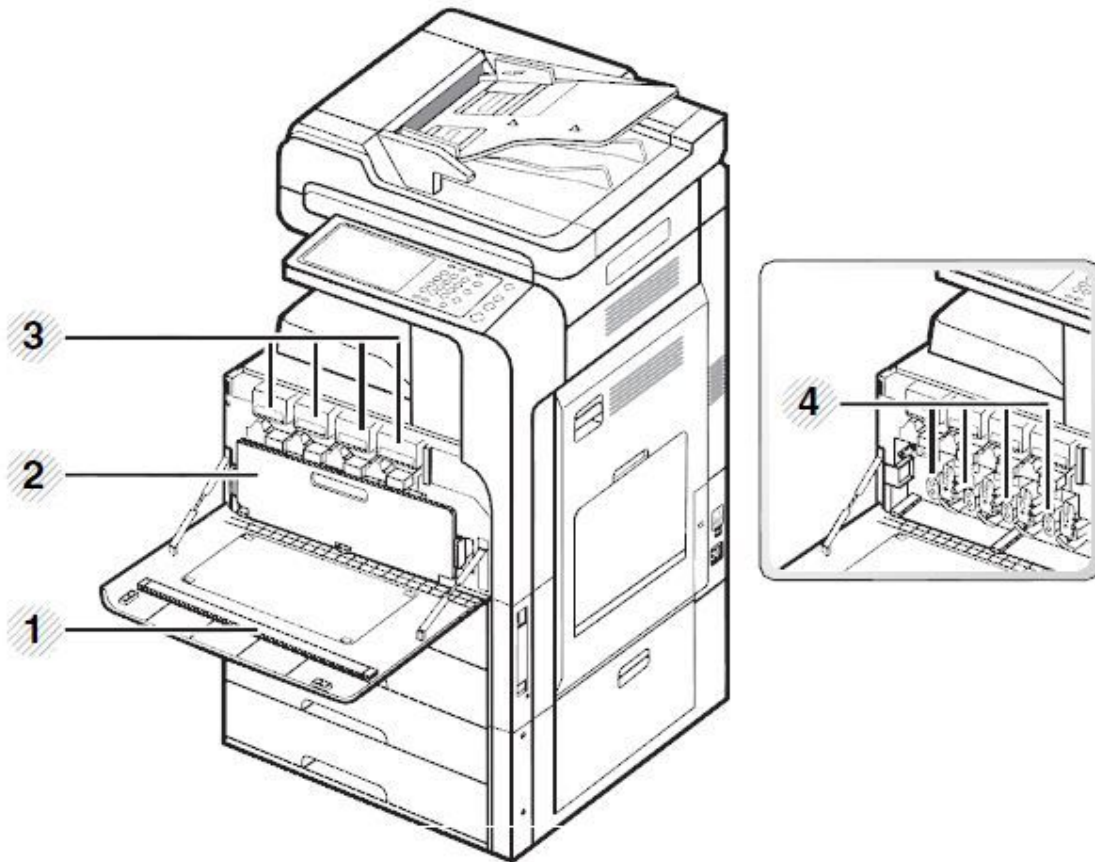
1	Scanner glass
2	White sheet
3	Multi-purpose tray
4	Multi-purpose tray paper width guide
5	USB port

3) Rear View



1	DADF Cable
2	Network Port
3	USB Port
4	USB Printer Port

4) Inner view

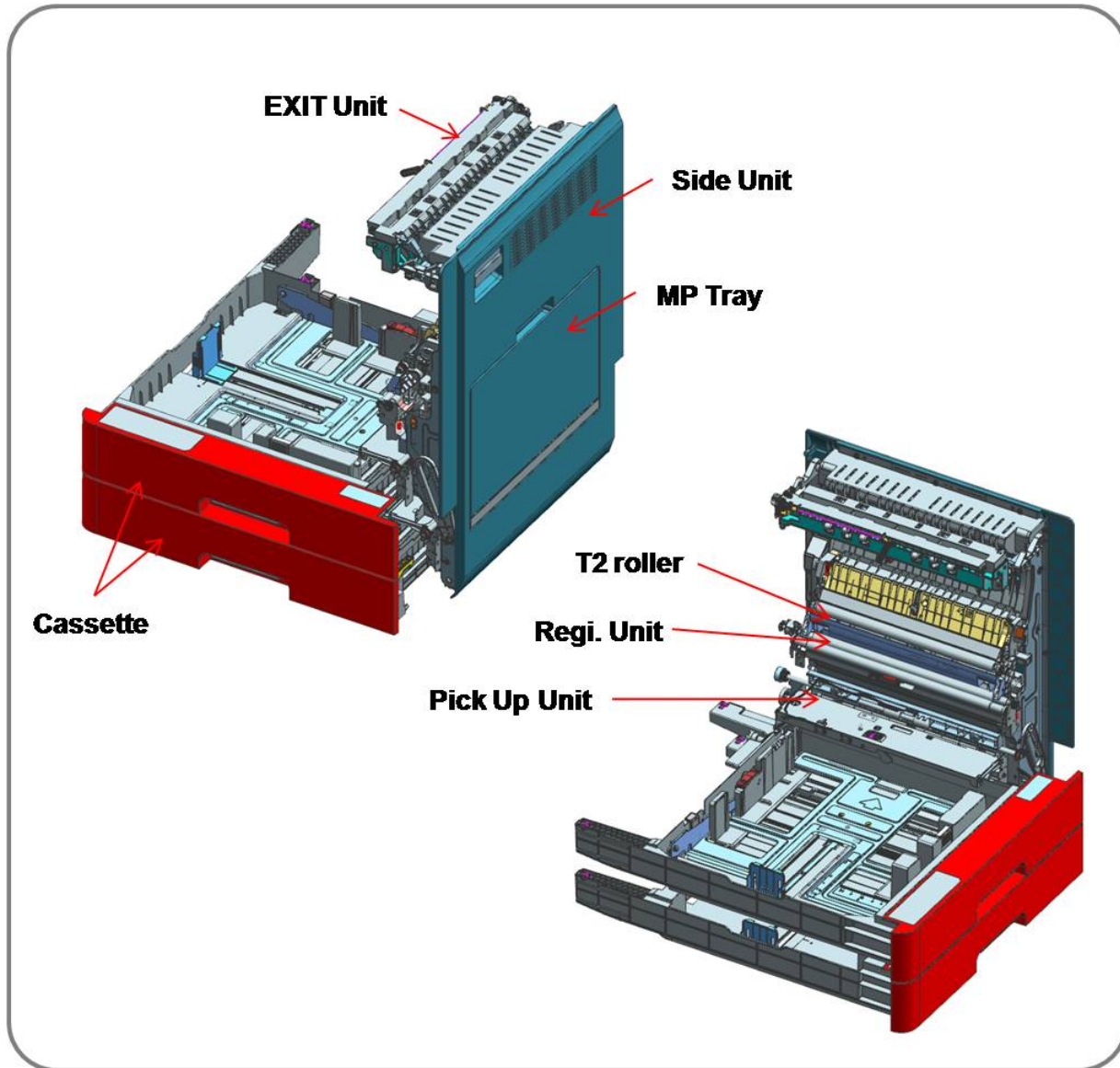


1	LSU window cleaning stick
2	Waste toner container
3	Toner Cartridges
4	Imaging units

2.4. Feeding System

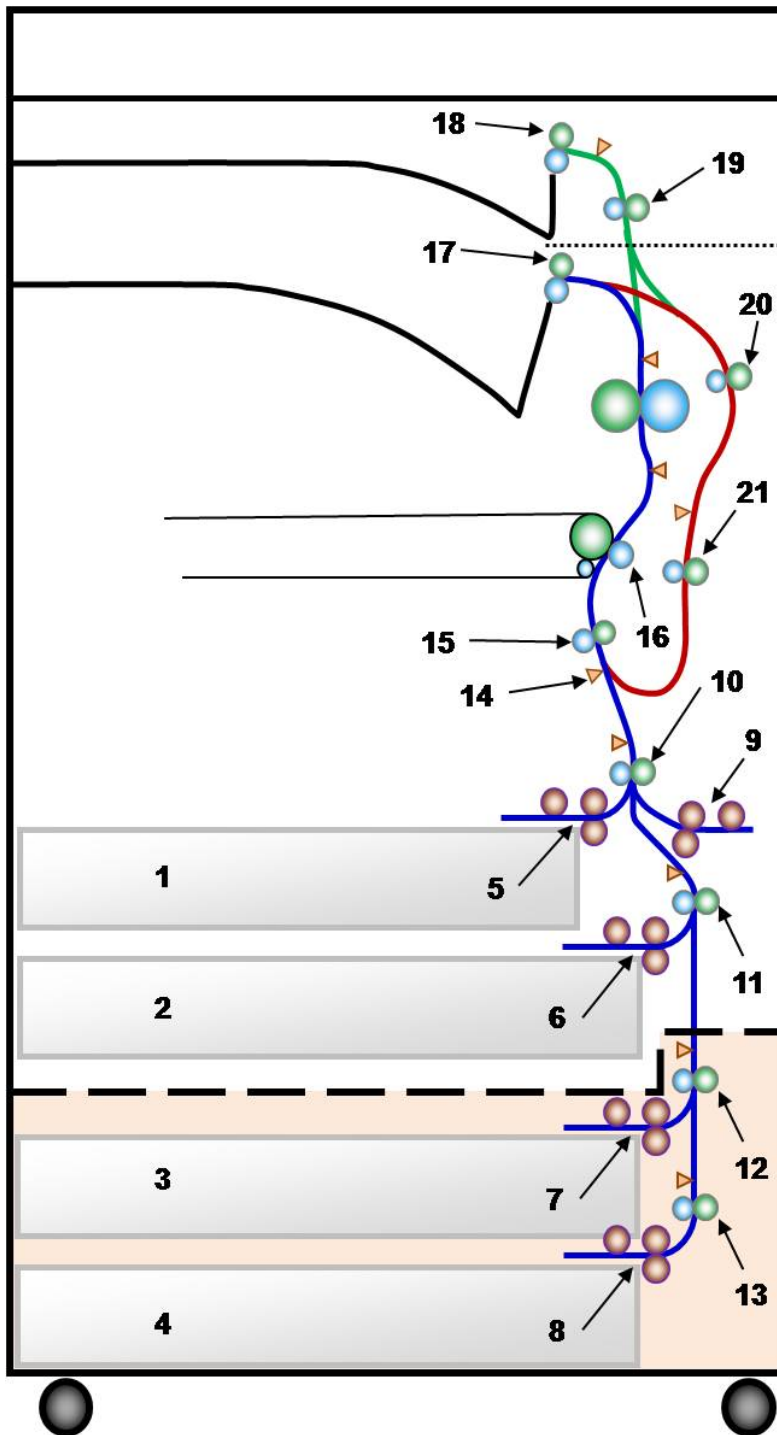
2.4.1. Feeding System Overview

The feeding system picks up a paper from the cassette or MP tray and transports it to the machine inside. It mainly consists of the pick up unit, registration unit, transfer roller 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

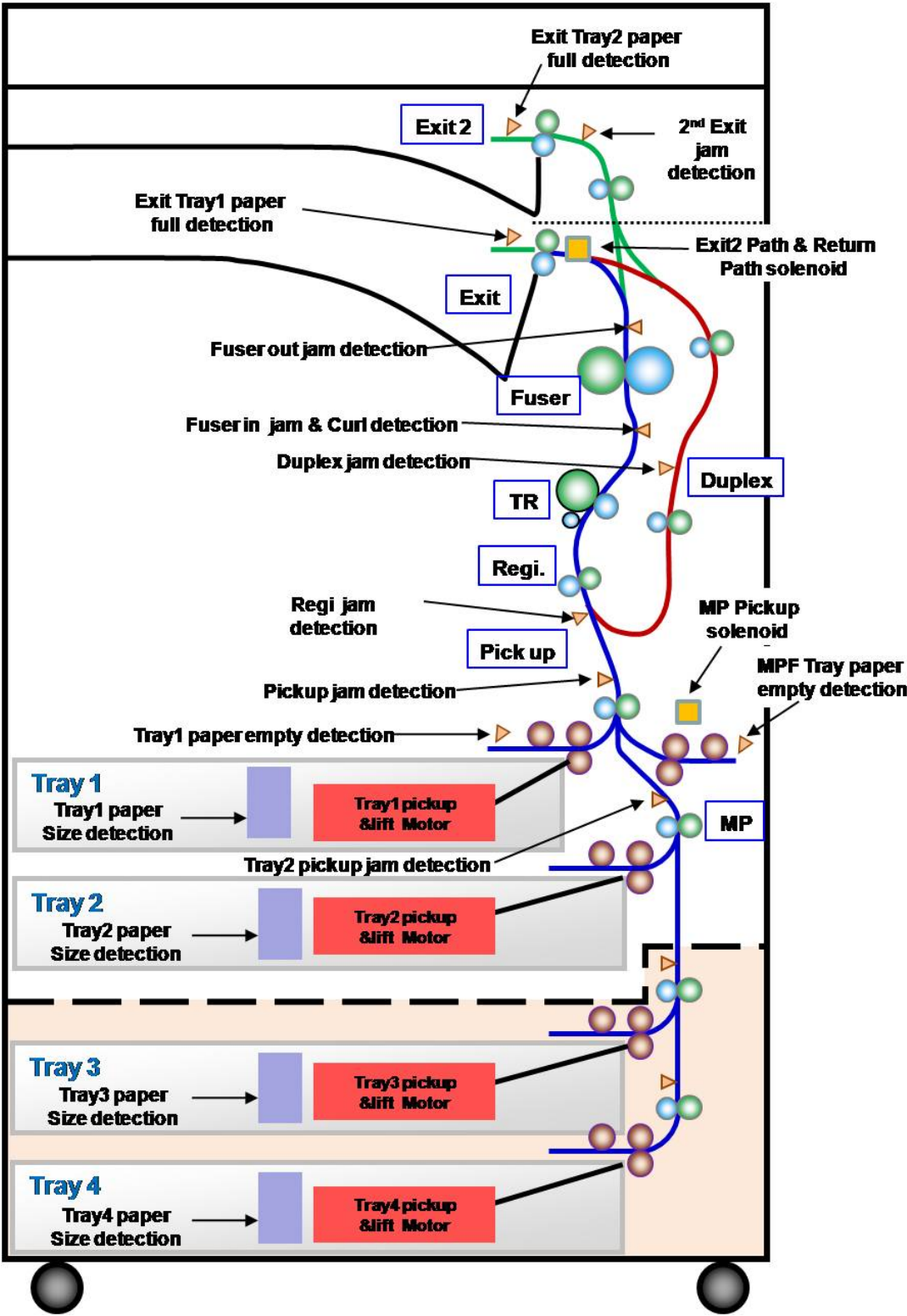
2. Product Specifications and Description

11	Tray 2 feed roller
12	Tray 3 feed roller (Option)
13	Tray 4 feed roller (Option)
14	Sensor registration
15	Roller registration
16	Roller transfer


17	Roller Exit 1st
18	Roller Exit 2nd (Option)
19	Roller Invert
20	Roller Duplex1
21	Roller Duplex2

- **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.

b) Sensor, Motor, Solenoid



2. Product Specifications and Description

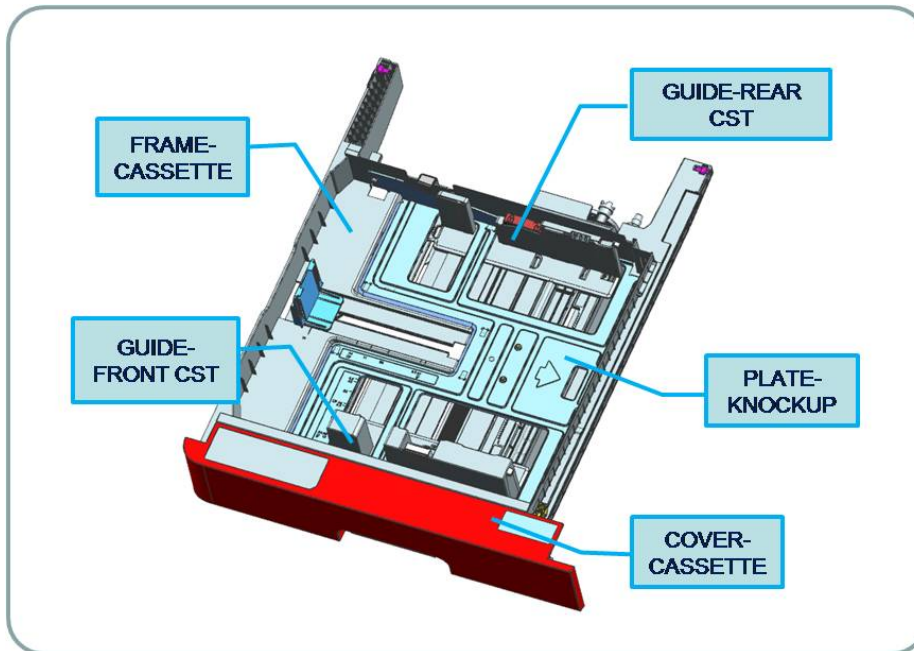
Name	Function	Connector & Pin information
Tray1 paper size detection sensor	Detects tray1 paper size	CN4@ MAIN PBA, 19Pin
Tray1 paper empty detection sensor	Detects tray1 paper empty	CN27@ MAIN PBA, 3Pin
Tray1 upper limit detection sensor	Detects tray1 upper limit	CN27@ MAIN PBA, 6Pin
Tray1 paper feed jam detection sensor	Detects Feed1 jam	CN27@ MAIN PBA, 8Pin
Tray2 paper size detection sensor	Detects tray2 paper size	CN4@ MAIN PBA, 23Pin
Tray2 paper empty detection sensor	Detects tray2 paper empty	CN27@ MAIN PBA, 20Pin
Tray2 upper limit detection sensor	Detects tray2 upper limit	CN27@ MAIN PBA, 23Pin
Tray2 paper feed jam detection sensor	Detects Feed2 jam	CN27@ MAIN PBA, 25Pin
Paper regi. jam detection sensor	Detects regi. jam	CN31@ MAIN PBA, 12Pin
Paper curl detection sensor	Detects paper curl between T2 Roller and fuser unit	CN26@ MAIN PBA, 18Pin, 21Pin
Paper fuser-out jam detection sensor	Detects fuser unit jam	CN26@ MAIN PBA, 12Pin
Exit tray1 paper full detection sensor	Detects paper full on Exit tray1	CN19@ MAIN PBA, 6Pin
Exit2 tray path &Return path solenoid	Change paper path	CN19@ MAIN PBA, 11Pin
Duplex motor	Controls duplex driving	CN26@ MAIN PBA, 6Pin~9Pin
Duplex jam detection sensor	Detects duplex jam	CN26@ MAIN PBA, 24Pin
Exit tray 2 paper full detection sensor	Detects paper full on Exit tray2	CN19@ MAIN PBA, 18Pin
Exit tray 2 paper return detection sensor	Detects Duplex Return position	CN19@ MAIN PBA, 15Pin
MPF(Multi-Purpose Feeder) Paper empty detection sensor	Detects MP tray paper empty	CN26@ MAIN PBA, 3Pin
	 NOTE If paper is loaded in the MP tray, that tray takes priority over trays 1,2,3, or 4.	
MPF(Multi-Purpose Feeder) solenoid	Controls MPF pick up roller	CN26@ MAIN PBA, 4Pin
Tray1 Lift motor	Lifting Knock up plate	CN27@ MAIN PBA, 10Pin~13Pin
Tray2 Lift motor	Lifting Knock up plate	CN27@ MAIN PBA, 14Pin~17Pin

2.4.3. Cassette (Tray 1,2,3,4)

The Cassette stores papers.

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

Basic Cassette



- **Specification**

- 1) Structure : Drawer Type
- 2) Capacity : 520 Sheets (80 g/m² paper standard)
- 3) Paper
 - Tray 1 : A5, A4, B5, B4, Letter, Statement, Legal
 - Tray 2,3,4 : A5, A4, A3, B5, B4, Letter, 11"×17"(Ledger), Statement, Legal
- 4) Weight : plain paper 60~216 g/m² (16~44 lb)
- 5) Plate knock up lift type : Lift Motor + Up Limit Sensor

2.4.4. Pick-Up Unit

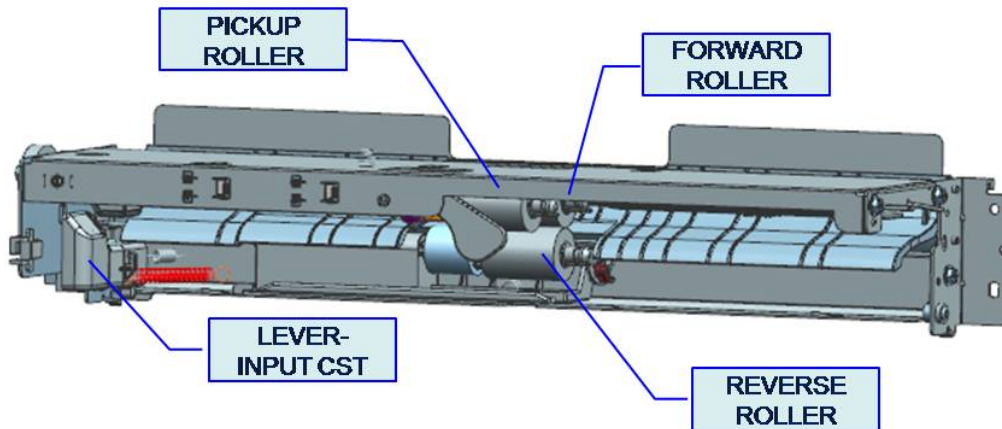
When pick-up takes place, the pickup roller moves down to come into contact with the surface of the paper. If the cassette is installed, the LEVER-INPUT CST is pushed and pick up roller moves down. The forward roller and the reverse roller serve to make sure that a single sheet of paper is moved to the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



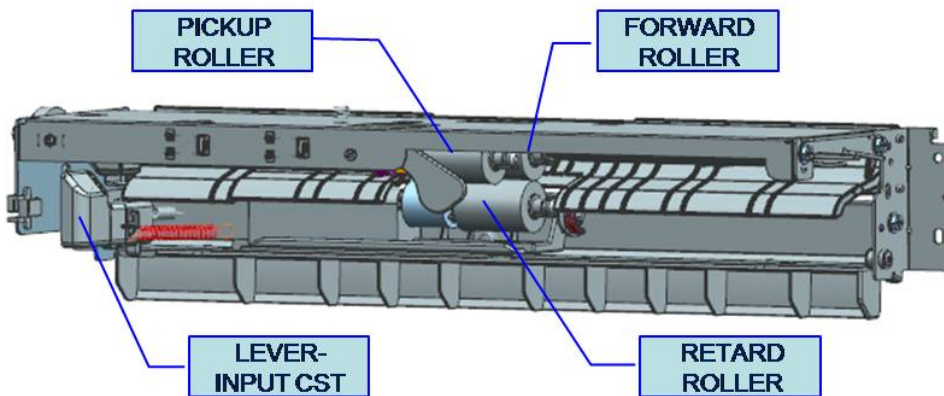
NOTE

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

Pick-Up Unit1

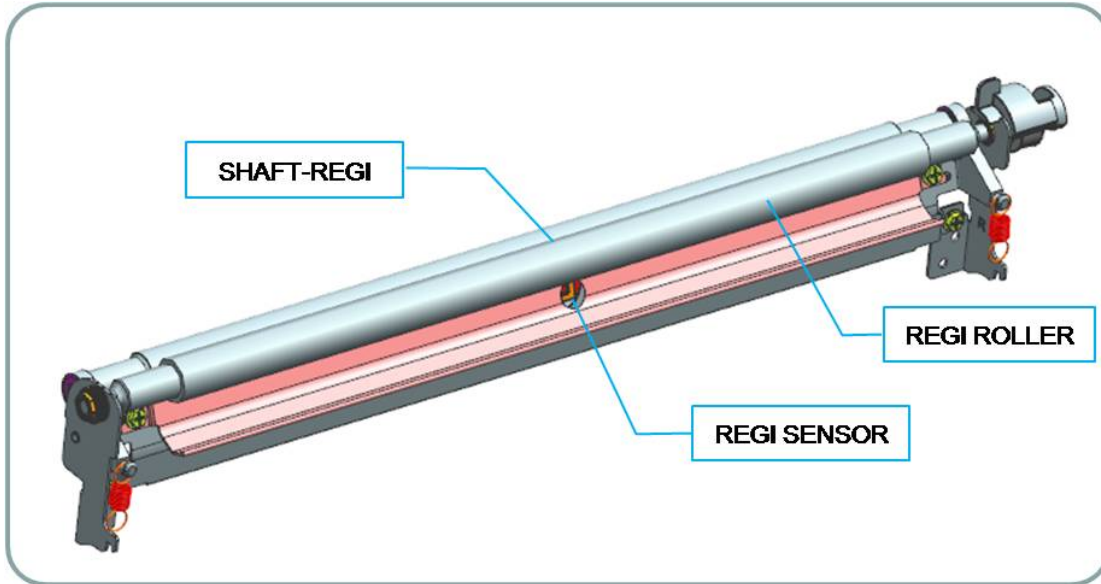


Pick-Up Unit2



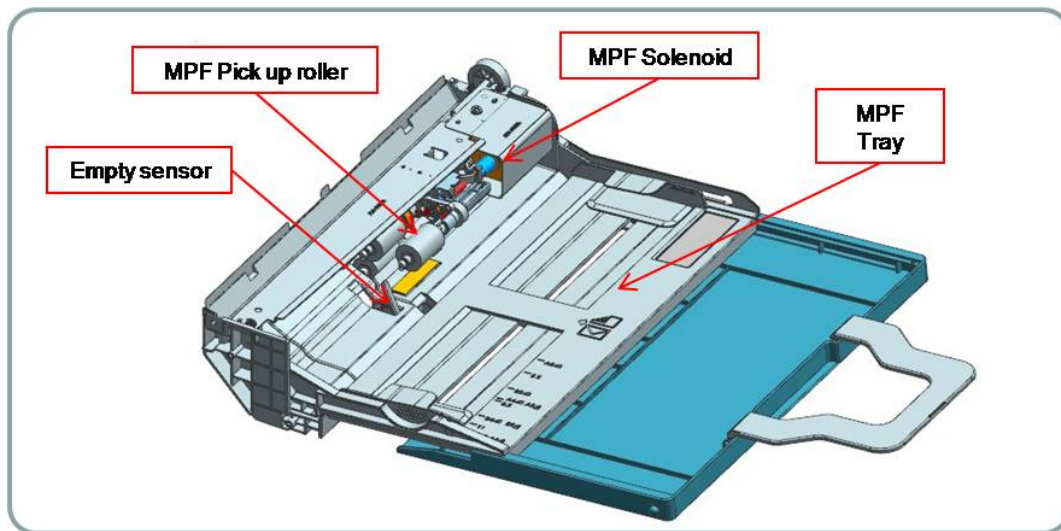
2.4.5. Registration Unit

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

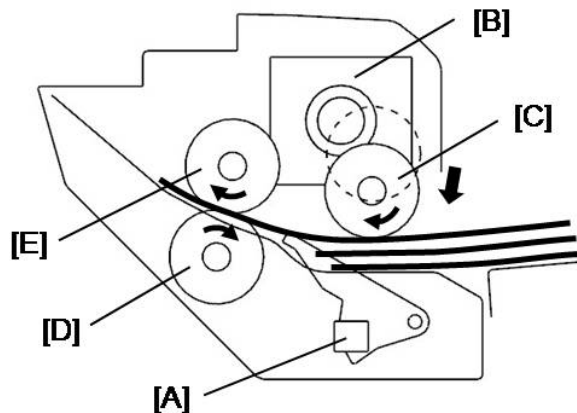
The MPF Unit allows feeding of specialty media stock, envelopes, and custom size paper.



■ Specification

- 1) Capacity : 100 sheets (80g/m² paper standard)
- 2) Media Size : Max 11. 7" ×17" (297×432) / Min 3.87"×5.8" (98×148)
- 3) Media Weight : Plain paper 60 ~ 176 g/m² (16~65lb)
- 4) Feeding Speed : 30 ppm (CLX-9301 series), 25ppm(CLX-9251 series), 20 ppm (CLX-9201 series) 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.

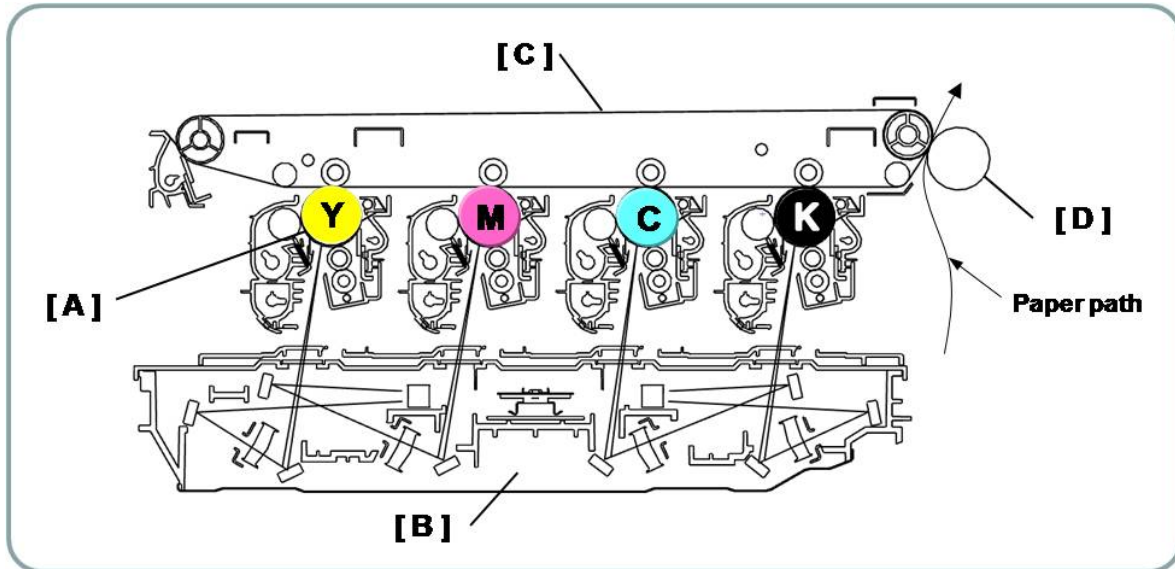
This machine uses an FRR (Feed and Reverse Roller) system for feeding paper. The friction between the reverse roller[E] and forward roller[D] separates the top sheet of paper from the stack.

2.5. Image Creation

2.5.1. Printing process overview

This machine uses four imaging units and four laser beams for color printing. Each Imaging unit consists of a Drum unit and Developer unit.

Each Drum unit has an OPC drum, Charge roller, Cleaning blade.



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 toner (real image) on each OPC drum is moved to the transfer belt[C] by the positive bias applied to the first transfer roller. All four toners (color image) are transferred to the paper by a positive charge applied to the second transfer roller[D].

- 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 developing roller carries negatively charged toner to the latent image on the drum surface. This machine uses four independent imaging units (one for each color).
- 4) **Transfer** :
 - Image transfer : The first transfer rollers opposite the OPC drums transfer toner from the drums to the transfer belt. Four toner images are super-imposed onto the belt.
 - Paper transfer : The second transfer roller transfers the toner from the transfer belt to the media.
- 5) **Cleaning for OPC drum** : The cleaning blade remove 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.
- 7) **Cleaning and quenching for transfer belt** : The cleaning blade clean the belt surface. The grounding roller inside the transfer belt unit removes the remaining charge on the belt.

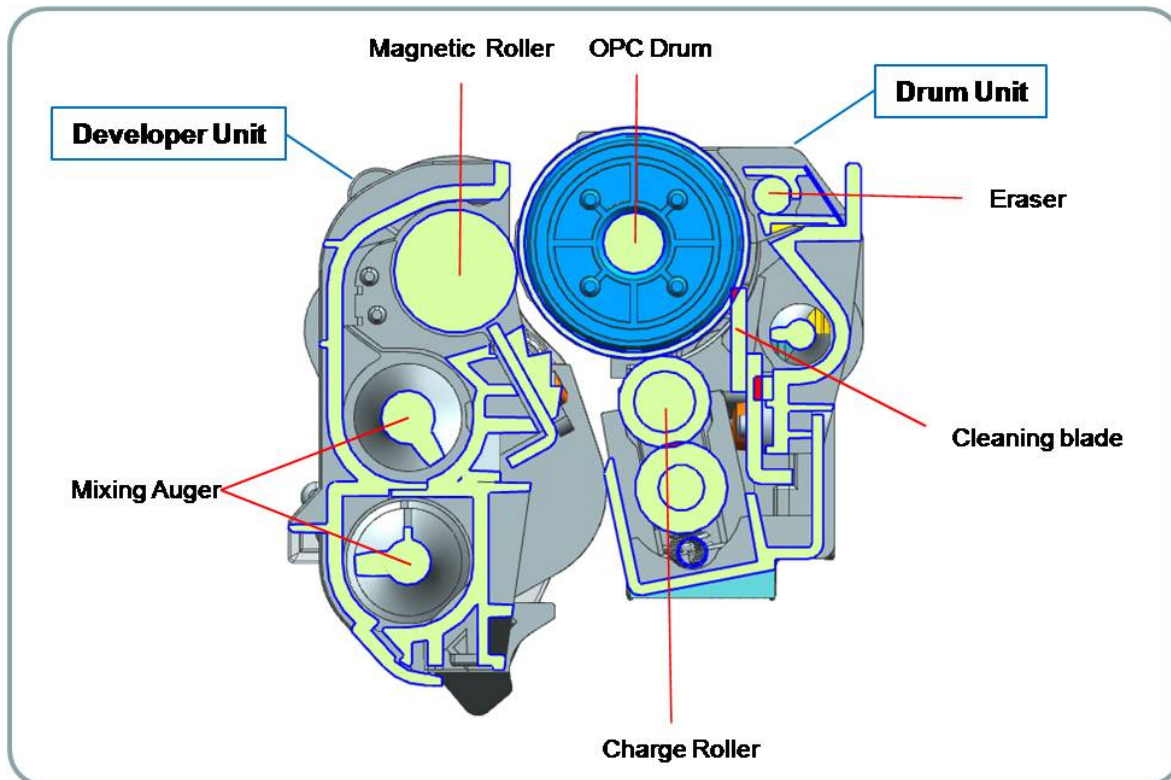
2.5.2. Imaging Unit

2.5.2.1. Imaging Unit Overview

This machine uses the tandem type imaging unit. It makes 4 color developing during one paper path and increase the productivity for color printing.

Each Imaging Unit consists of the Drum unit and the Developer unit. The Developer units are not exchangeable but the Drum units are exchangeable. The diameter of the drum is 30 mm (circumference: about 94.2 mm).

The developing gap between a drum and the corresponding magnetic roller cannot be adjusted. The CRUM is the sub part of the Drum unit. It stores the count information and several data.

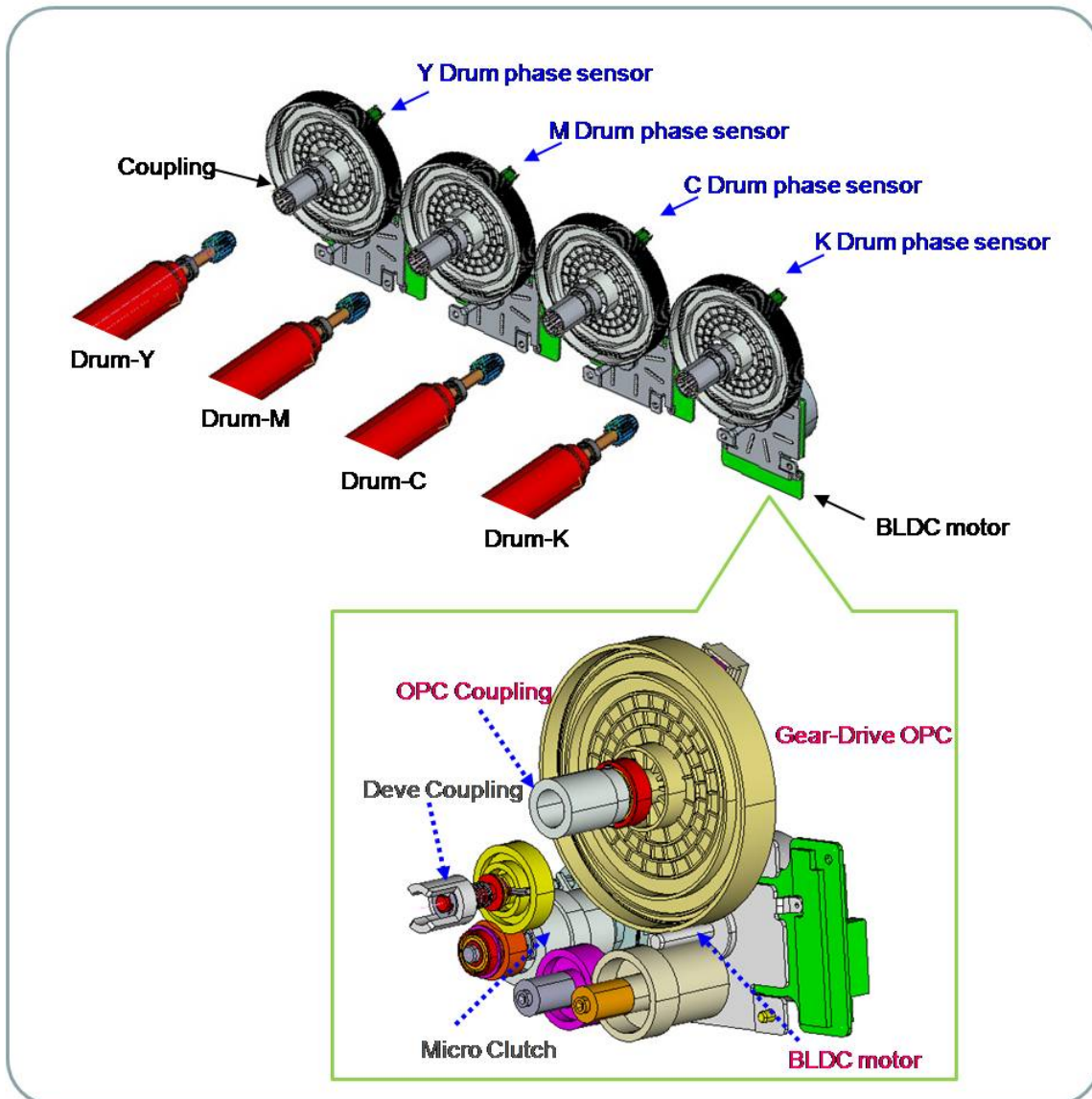


2.5.2.2. Drum drive

Each color OPC and Magnetic roller is driven by each color motor. The OPC Drum and Magnetic roller are supplied with power from the coupling.

The BLDC motor maintains the constant speed. So, the speed sync for each color depends on the BLDC motor without the additional device.

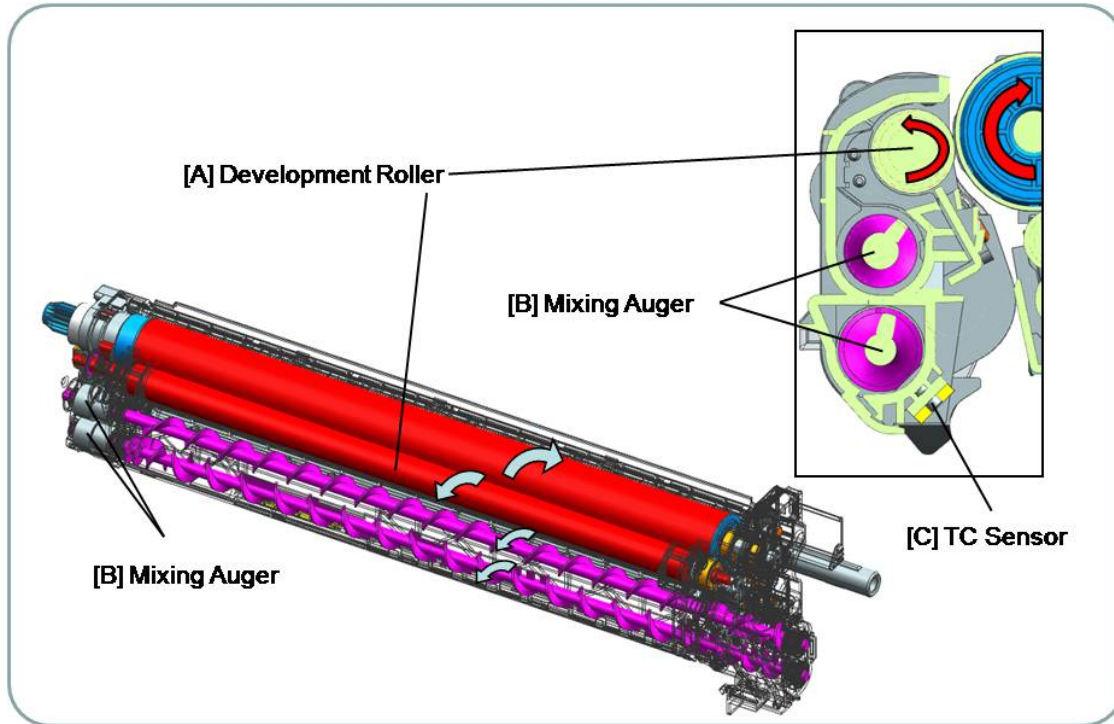
Phase sync for each OPC runout prints the pattern on the ITB and is adjusted by the data automatically.



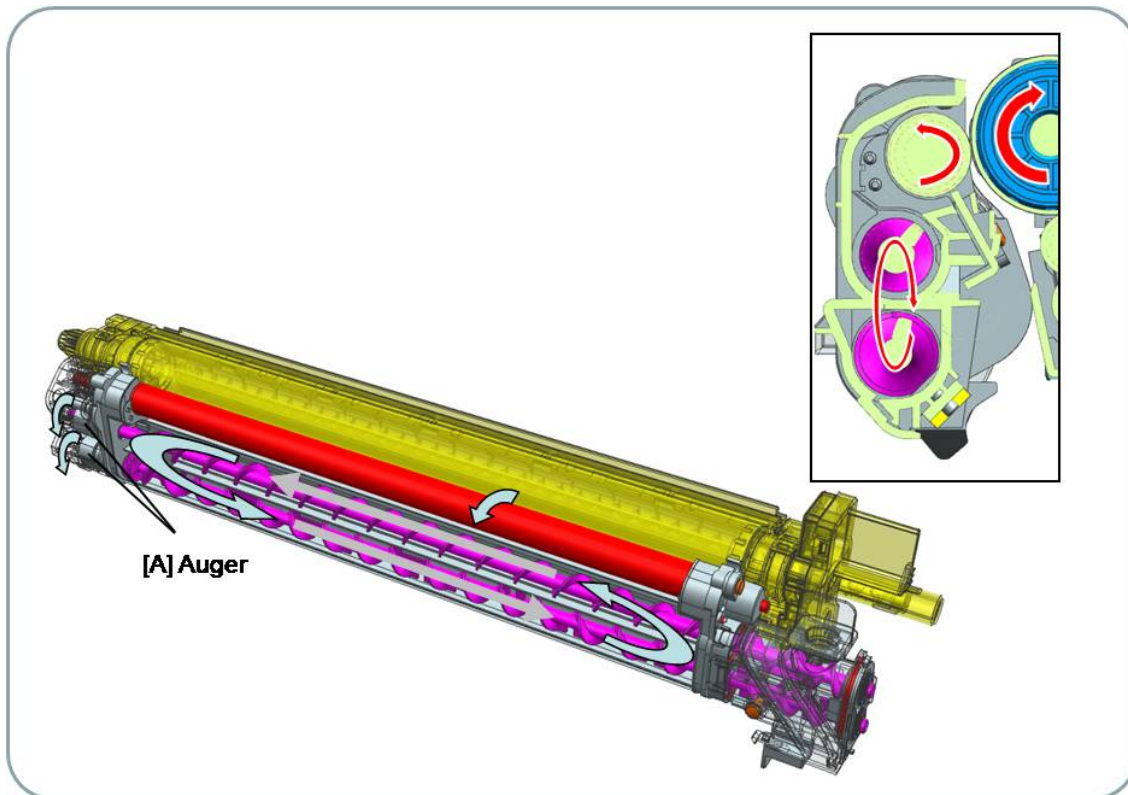
2.5.2.3. Developer Unit

This machine uses a dual-component development system and has four Developer units. Each new unit contains 185g of magnetic toner carrier. The developer in each unit is supplied to the magnetic(development) roller[A] by the two mixing augers[B]. The diameter of the magnetic roller is 16 mm.

Each Developer unit has a TC(Toner Concentration) sensor[C]. They are used for controlling the operating range of toner density.



■ Developer Circulation



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

This occurs at the following times :

- During the process control self-checking
- During toner supply job
- During development job

If the developer unit is stored at temperature above 50°C (122°F), it does not work normally. The toner in developer unit is easy to harden at temperature above 50°C (122°F).

2.5.3. ITB (Intermediate Transfer Belt) Unit

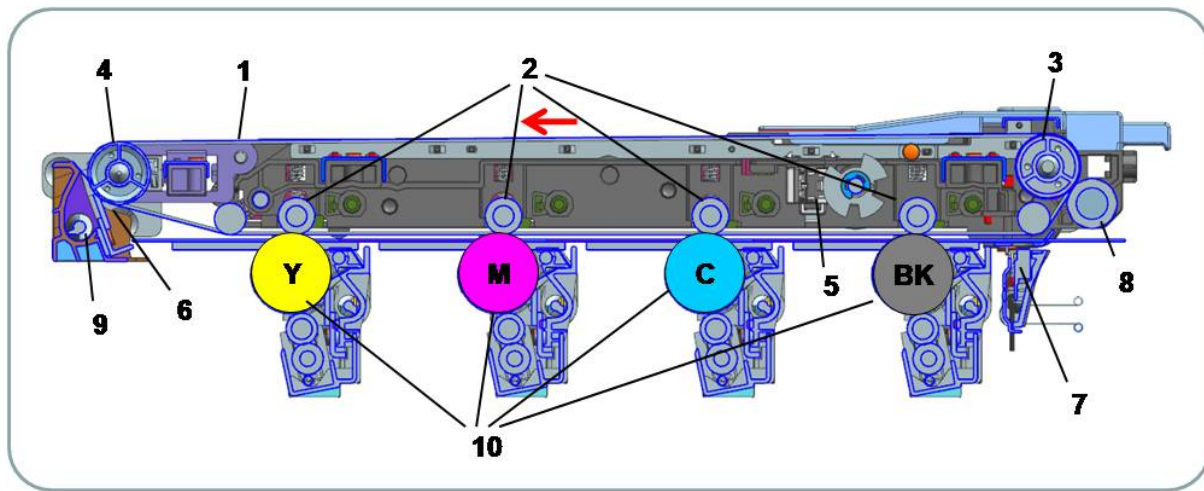
2.5.3.1. ITB Unit overview

The toner on the four drums is moved to the ITB by the first transfer roller (T1 roller).

The image overlapped by four colors is moved to the paper by the second transfer roller (T2 roller). The remaining toners are removed by the cleaning blade and moved to the waste toner container.

This process is done with one rotation of the ITB. The arrow on the diagram shows the direction of ITB rotation. The rotation is made by the friction between the drive roller and transfer belt. The tension roller provides tension to prevent slip.

There are three ACR(Auto Color Registration) sensor and one photo sensor. Two of them are for the line position adjustment and the other is for process control. One photo sensor controls the position of the first transfer roller.

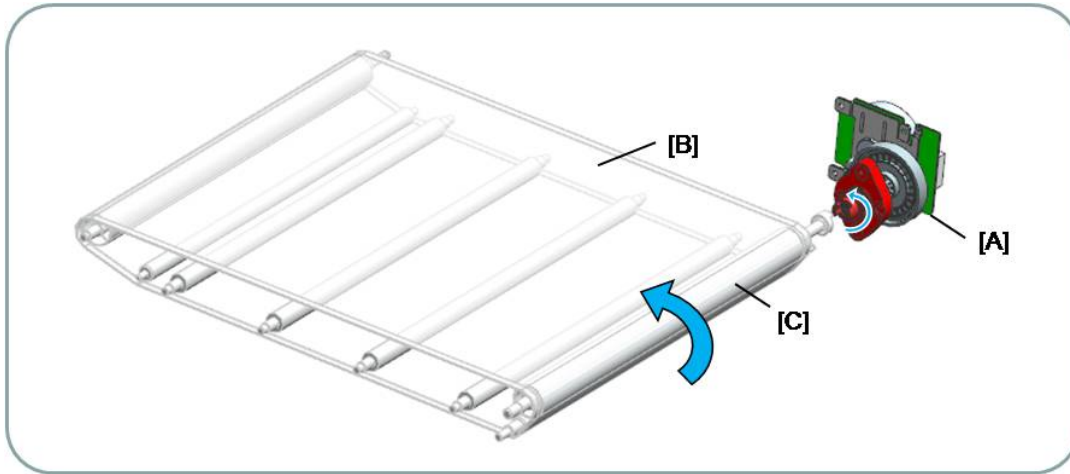


1	ITB (Intermediate Transfer Belt)
2	1st Transfer Roller
3	ITB Drive Roller
4	Tension Roller
5	Photo sensor
6	Cleaning Blade
7	ACR sensor
8	2nd Transfer Roller
9	Toner Collection Auger
10	Drum Unit

2.5.3.2. Transfer belt drive

■ Drive motor

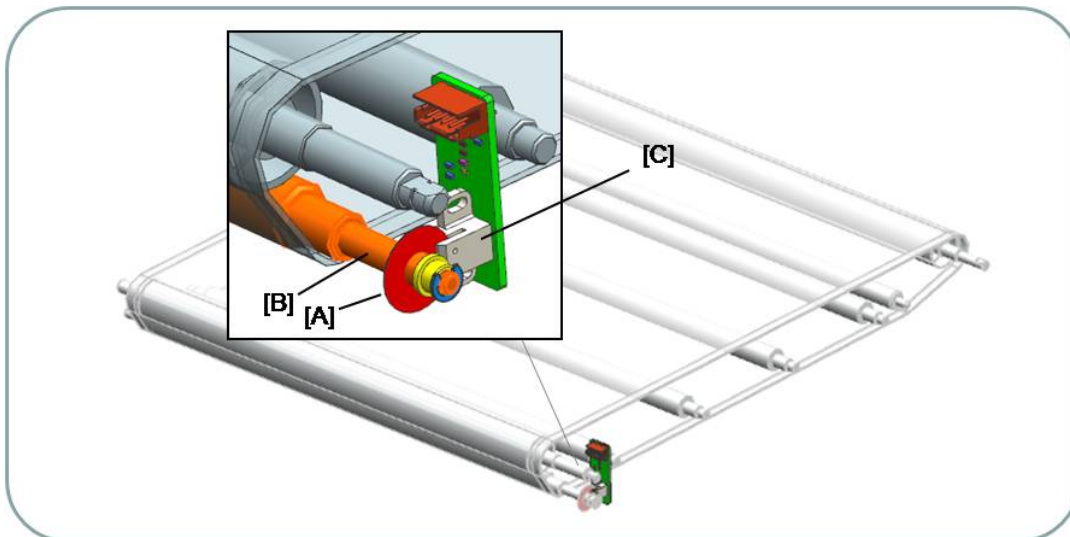
The ITB drive motor[A] drives the transfer belt[B] by using gears and the ITB drive roller[C].



■ ITB speed control

This printer uses the encoder disc to control the transfer belt speed. The encoder[A] is on one of the guide rollers[B]. This encoder checks the rotation speed of the transfer belt. The controller analyzes the signals from the encoder. Then it adjusts the rotation speed of the transfer belt.

The encoder contains a disk that has 550 notches on its surface. These notches are read by the sensor [C]. The controller counts the number of notches that the sensor has read in the unit of time. If the sensor has read an unusually large number of notches or an unusually small number of notches, the controller ignores such unusual signals. Therefore, an incorrect reading does not affect the rotation speed.

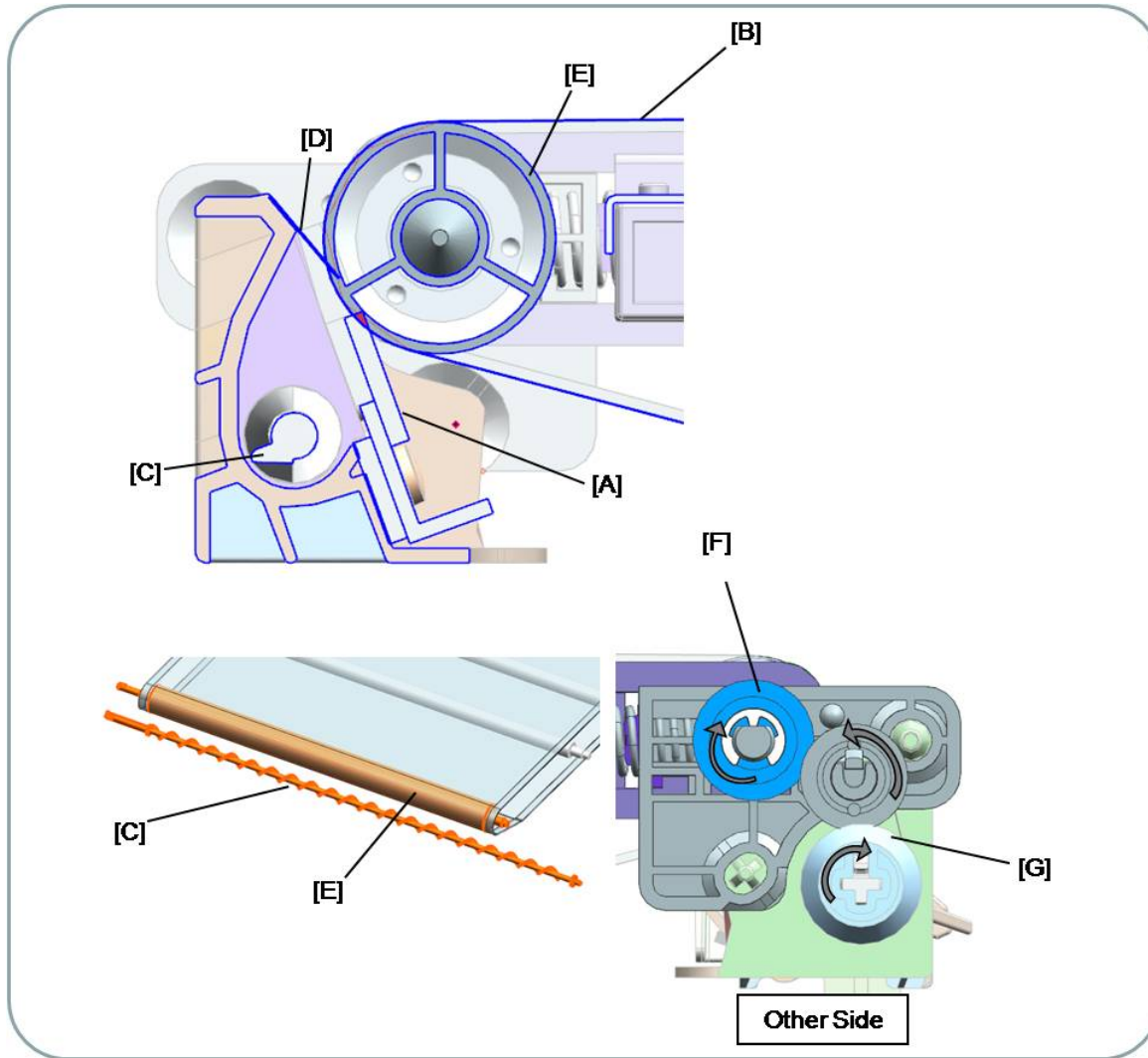


2.5.3.3. Transfer belt cleaning

The ITB-cleaner removes toner (during printing) and the ACR sensor patterns (during process control or automatic line position adjustment) from the belt. Belt cleaning is completed while the transfer belt makes one rotation. The ITB drive motor drives the ITB-cleaning motor.

The cleaning blade[A] in the ITB cleaner always contacts the transfer belt[B], and removes the used toner from the belt. Then the toner collection auger[C] transports the waste toner to the waste toner container.

The film[D] on the ITB cleaner protects against toner contamination. The driving power by driver roller is transferred to the tension roller[E] and the toner collection auger gear[F] drives the gear[G], and collects the toner.

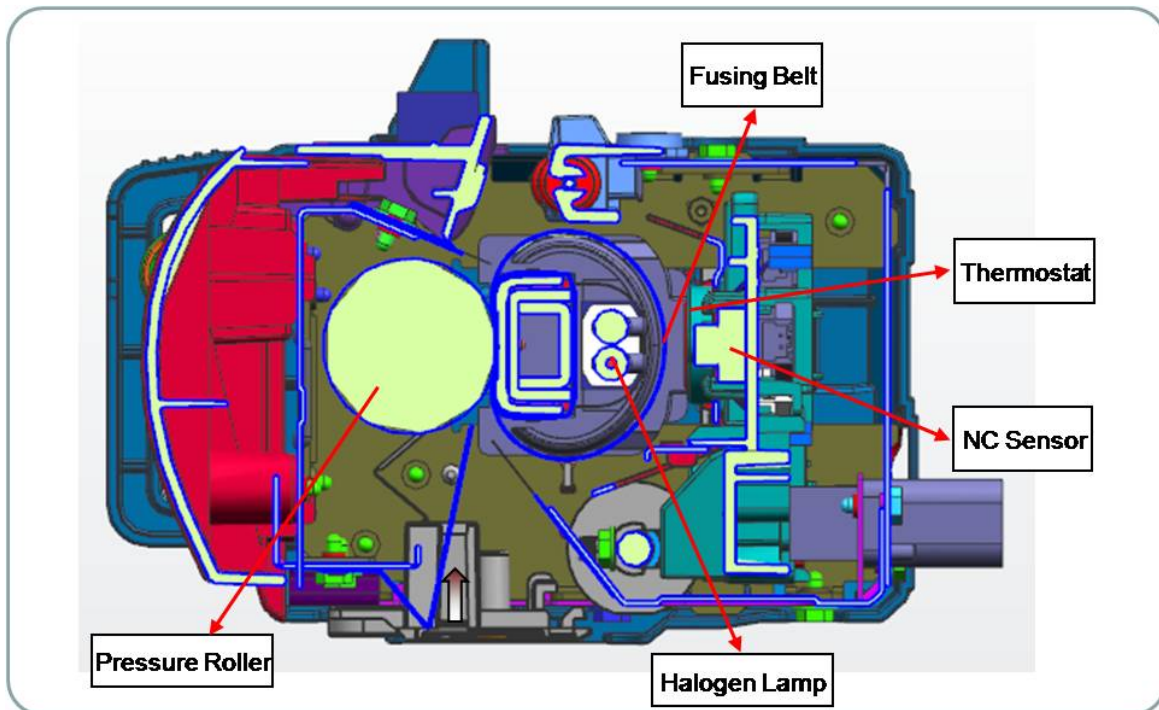


2.6. Fuser unit

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. This has a faster warm-up time than a conventional fusing and pressure roller system.



1) Halogen Lamp

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 do not rotate.

2) Fusing Belt

The fusing belt gets heat from the halogen lamp and transfer it to toner and paper. The fusing belt 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) Pressure Roller

The pressure roller is a rubber roller which ensures proper nip width between the pressure roller and fusing belt. It is driven by the driving system and drives the fusing belt.

4) Non-Contact(NC) Sensor

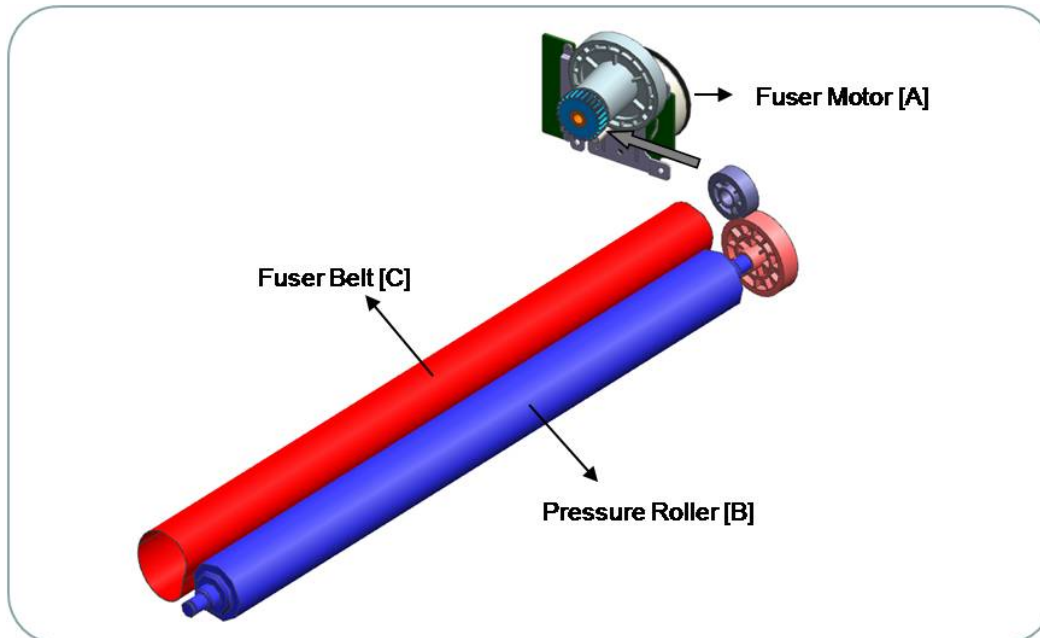
NC sensors (non-contact type thermistors), located near the center and the end of the fusing belt, control the temperature of the fusing belt.

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).

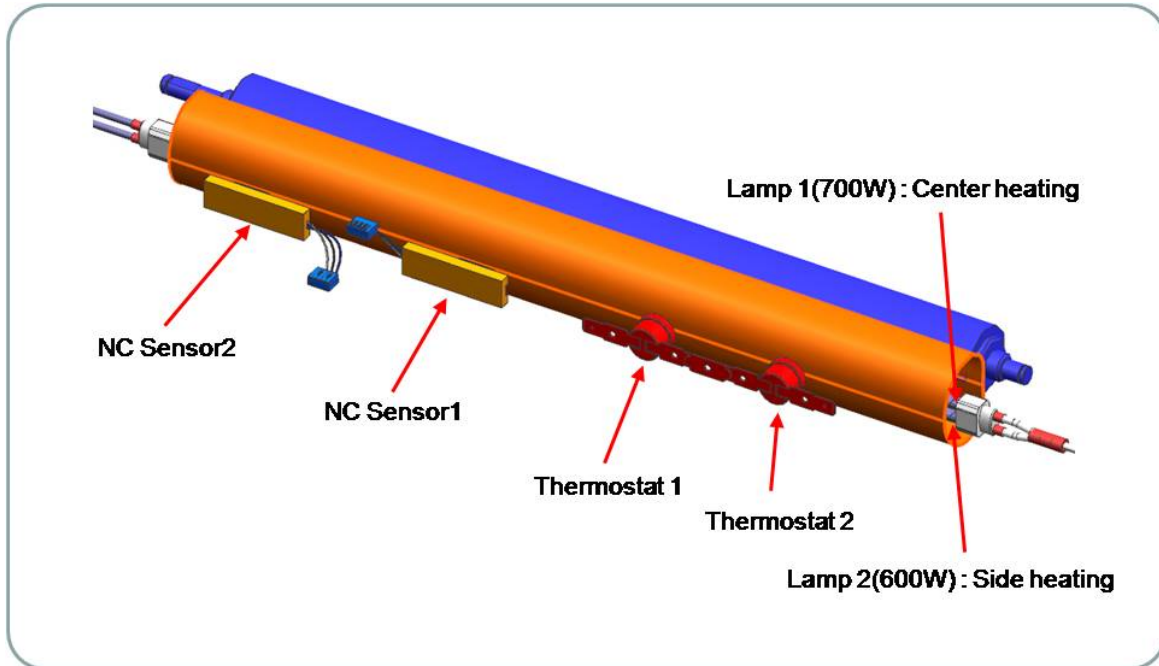
2.6.2. Fuser Unit drive

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 temperature detected by the NC sensors keeps higher than 240°C for 20 sec.

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.

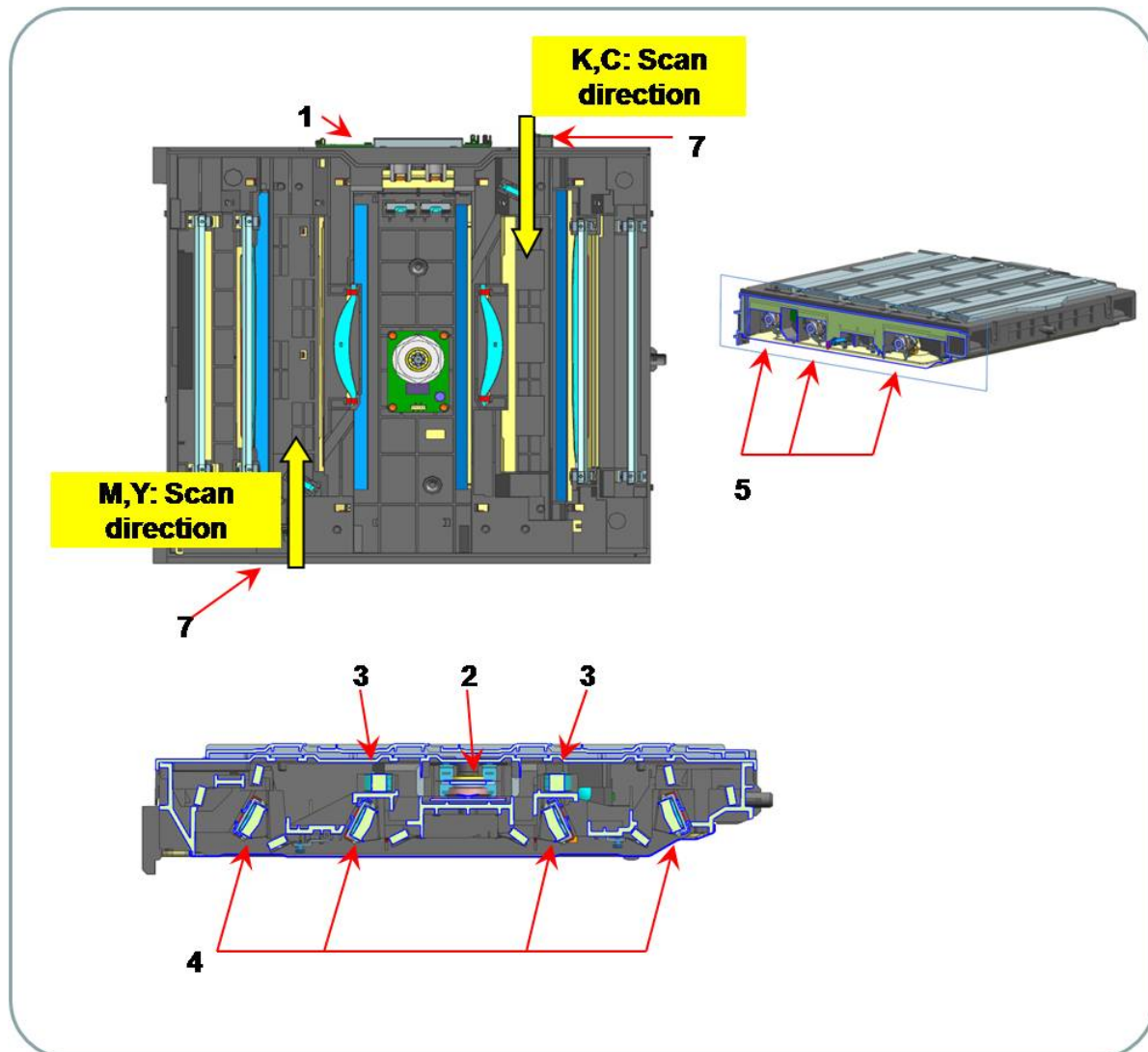
2.7. Laser scanning unit (LSU)

2.7.1. LSU overview

LSU consists of 1 polygon motor and 4 laser diodes(LD) units and forms a latent image on the surface of 4 OPC drums. For this process, LSU has a collimator lens, cylindrical lens, 2 F-Theta Lens, 2 reflective mirrors on optical path for each color.

This LSU adopted the cross scan type scanning. K Color and C Color scan the laser beam from the rear to the front, M Color and Y Color scan the laser beam from the front to the rear.

Also, the LSU has a skew adjustment function which adjusts the scanning line and the shutter device to protect the glass on the LSU optical path from the contamination.



1	LD PBA
2	P/Mirror Motor
3	F1 Lens
4	F2 Lens
5	Skew Adjust Assy

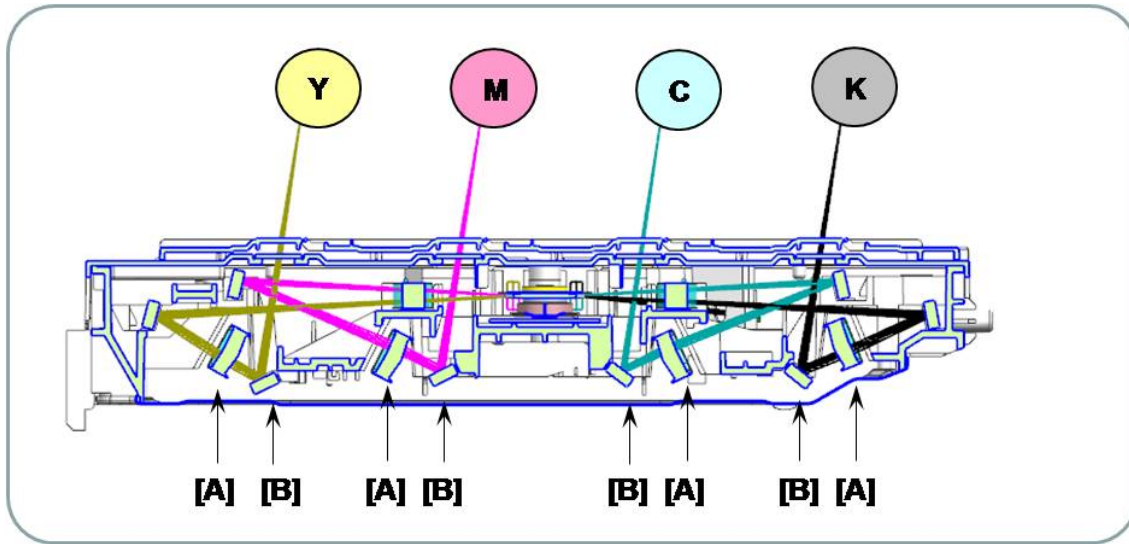
6	Shutter
7	PD PBA

2.7.2. Laser Scanning Optical path

The laser beam from the LSU is placed at intervals of 78mm for each color. All colors uses the same polygon motor for oblique incidence.

F2 Lens [A] determines the slope of the primary scanning line and the image position of the secondary scanning direction. This is adjusted at the factory. The primary scanning line slope by the machine difference is adjusted by skew adjustment in the LSU

Reflecting mirrors [C], [D] on each color path adjust the curvature of primary scanning. This is adjusted at the factory.



The LSU has 2 types depending on printing speed. The difference between 2 types is shown in the table below.

Mode	20ppm	30ppm	Remark
LD Unit	Laser Diode : Single Beam driving IC : for Single LD	Laser Diode : Single Beam driving IC : for Single LD	
P/Motor speed	27,874 rpm	34016 rpm	
Process speed	118 mm/sec	144 mm/sec	
H/W interface	Interface with machine : 50 Pin	Interface with machine : 50 Pin	FFC cable

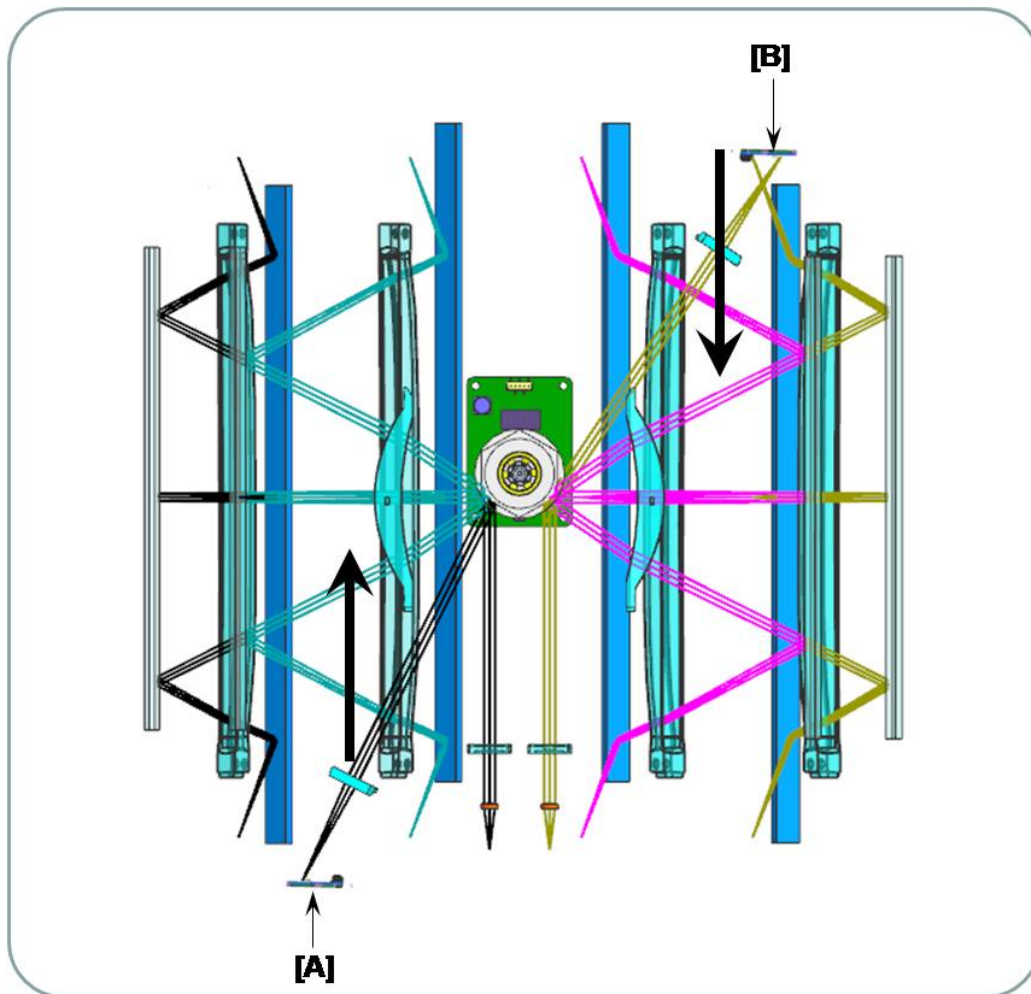
2.7.3. Laser synchronizing detectors

The machine has two beam detector sensor boards (PD PBA). They are located at each corner of the laser optics-housing unit.

The two PD PBA detect the following :

- [A]: Scanning start position for black
- [B]: Scanning start position for yellow

This machine recognizes each color from the time that they are detected.



■ Main Scan Start Detection

4 beams are detected by the PD PBA at the scanning start point and create the horizontal sync (Hsync) signal. Data is scanned by Hsync.

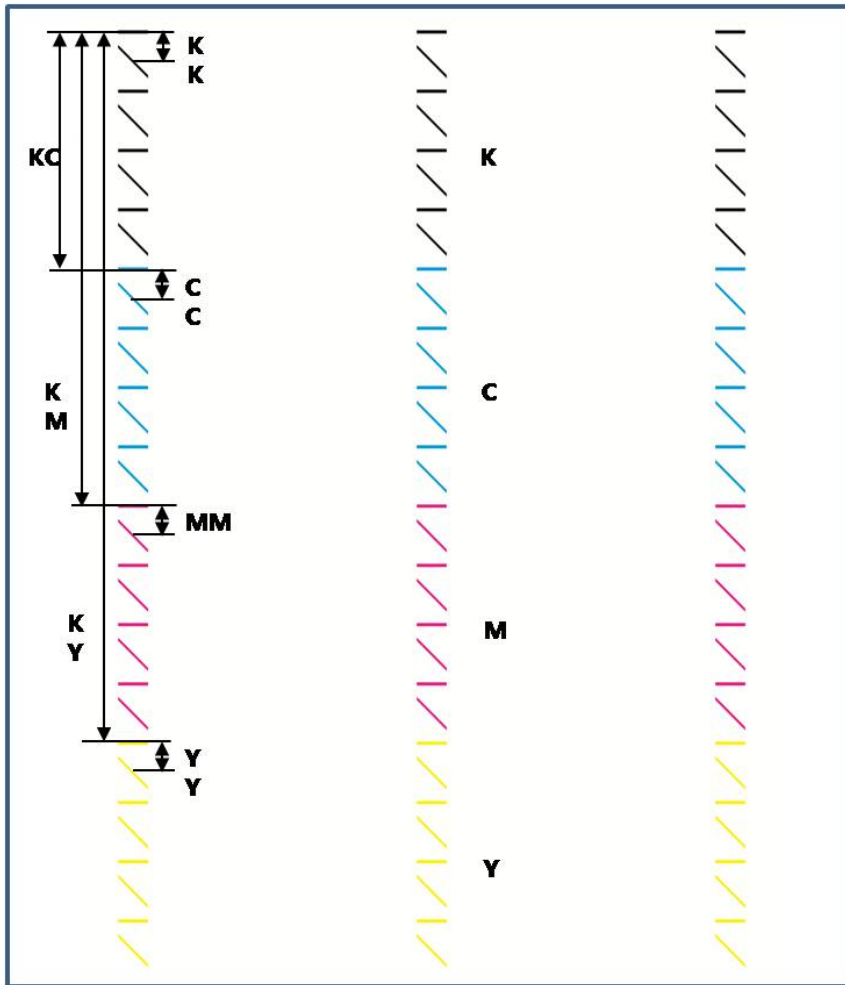
The arrow in the above diagram shows the data scanning direction for each color. Black (& Cyan) and Yellow (& Magenta) use the same polygon motor scanning in opposite directions.

2.7.4. Automatic line position adjustment

During automatic line position adjustment, the line patterns below are created eight times on the transfer belt. The spaces between the lines (KK, CC, MM, YY, KC, KM, KY) are measured by the front, center, and rear ID sensors. The controller takes the average of the spaces, then adjusts the following positions and magnification :

- Sub scan line position for CMY
- Main scan line position for CMY
- Magnification ratio for CMY
- Skew for CMY

The transfer belt-cleaning unit cleans the transfer belt after the patterns are measured.



- KK, CC, MM, YY: Spaces between two lines of the same color.
- KC, KM, KY: Spaces between a black line and each color line.

■ Adjustment

- **Sub Scan Line Position for CMY**

The adjustment of the sub-scan line position for CMY is based on the line position for K. The machine measures the gaps between the lines of each color in the pattern on the transfer belt. When the gaps for a color are not correct, the machine moves the image of the color up or down the sub scan axis. To do this, it changes the laser write timing for that color.

- **Main Scan Line Position for CMY**

When the machine detects that the image is out of position in the main scan direction, it changes the laser write start timing for each scan line.

- **Magnification Adjustment for CMY**

When the machine detects that magnification adjustment is necessary, it changes the LD clock frequency for the required color.

- **Skew for CMY**

The adjustment of the skew for CMY is based on the line position for K.

■ Adjustment Conditions

Line position adjustment can be turned on or off. However, it is normally recommended to turn on this function.

Line position adjustment timing depends on several settings. These settings include the following :

- ΔT = Temperature change of LSU (Laser Scanning Unit) between the temperature of the previous line position adjustment and the current temperature.
- Pages = Total printed pages after previous line position adjustment.

Interval During Print Job :

Line position adjustment interrupts printing and then starts automatically when one of these conditions occurs when the machine checks at the sheet interval.

- 1) $\Delta T >$ Temperature threshold (LSU temperature: [default: 3°C])
- 2) Pages $>$ Output threshold for all outputs (default: 500 pages)

Waste Toner Container Not-Installed / Installed :

- 1) Line position adjustment starts automatically when waste toner container is removed and reinstalled.

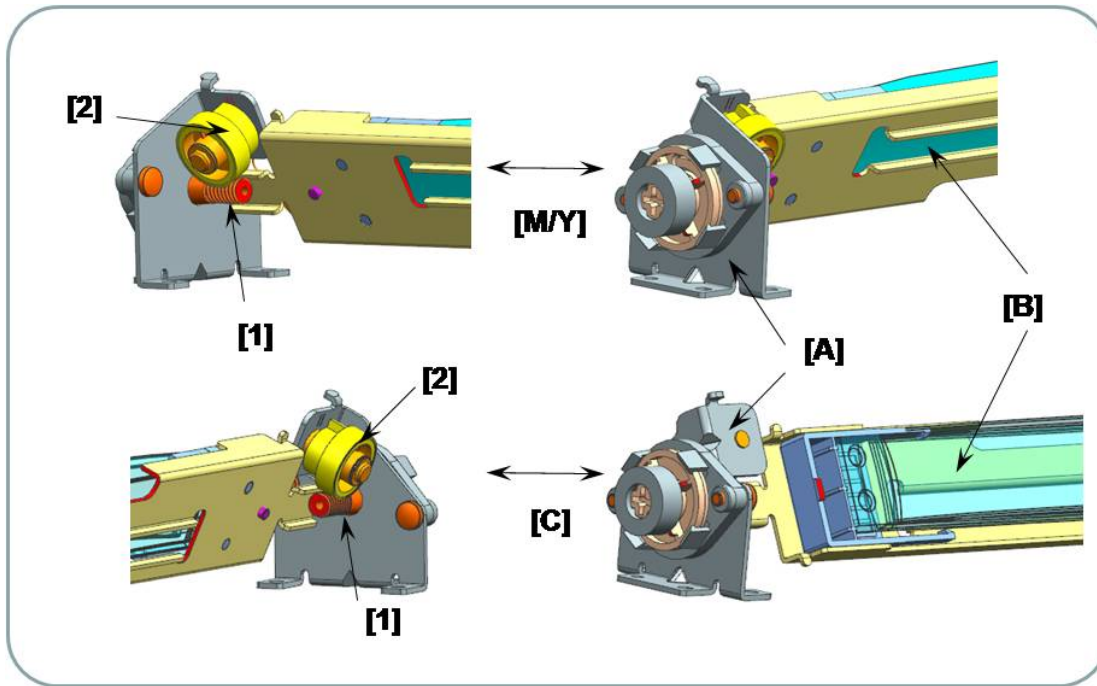
Drum Unit or Developer Unit replaced :

- 1) When the machine detects a new drum unit or developer unit, line position adjustment is automatically performed.

ITB replaced :

- 1) When the machine detects a new ITB or other ITB, SVC engineer have to execute the adjustment manually.

■ Main Scan Skew Adjustment



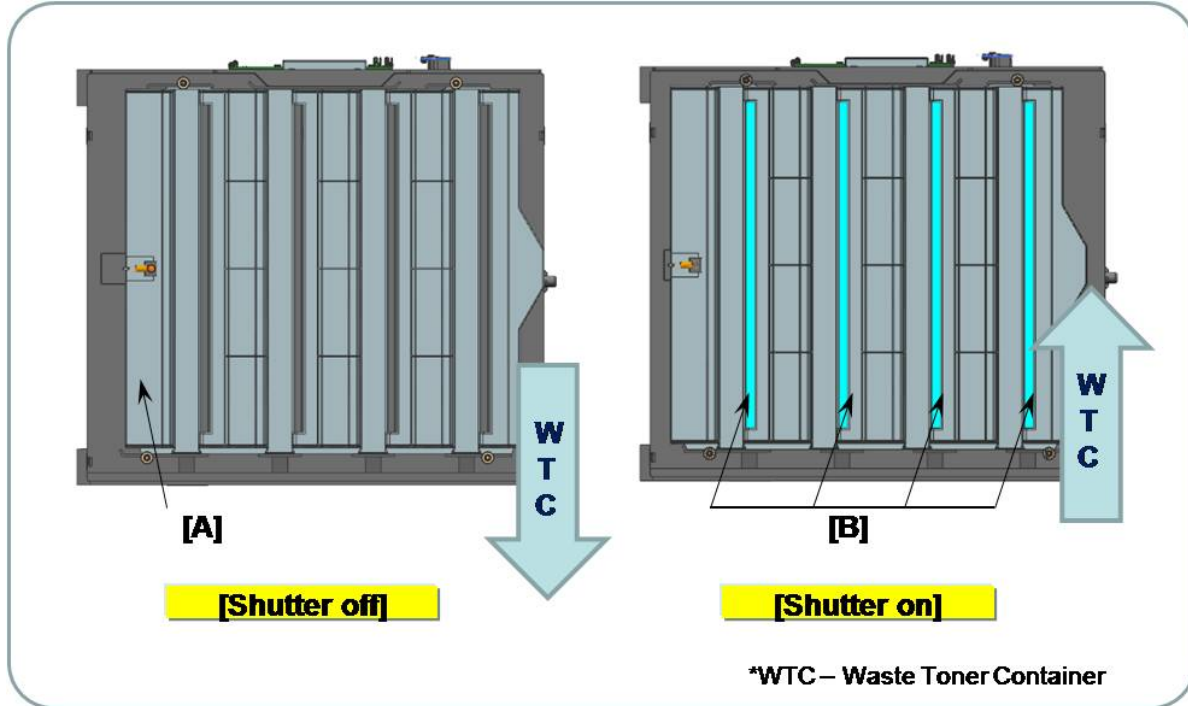
Skew adjustment assembly[A] consists of the worm gear[1] for adjustment and worm gear[2]. When ACR executes, it detects and adjusts the scanning line slope manually.

Skew adjustment assembly[A] for magenta, cyan, and yellow adjusts the skew angle of the F2 lens[B]. This mechanism corrects main scan skew.

2.7.5. Shutter Mechanism

Laser scanning unit has the shutter[A]. As a result, toner and dust do not fall on the glass[B]of the laser optics housing.

When the waste toner container is installed, it push the side of the shutter and shutter door is opened. On the contrary to this, when the waste toner is not installed, shutter door is closed.



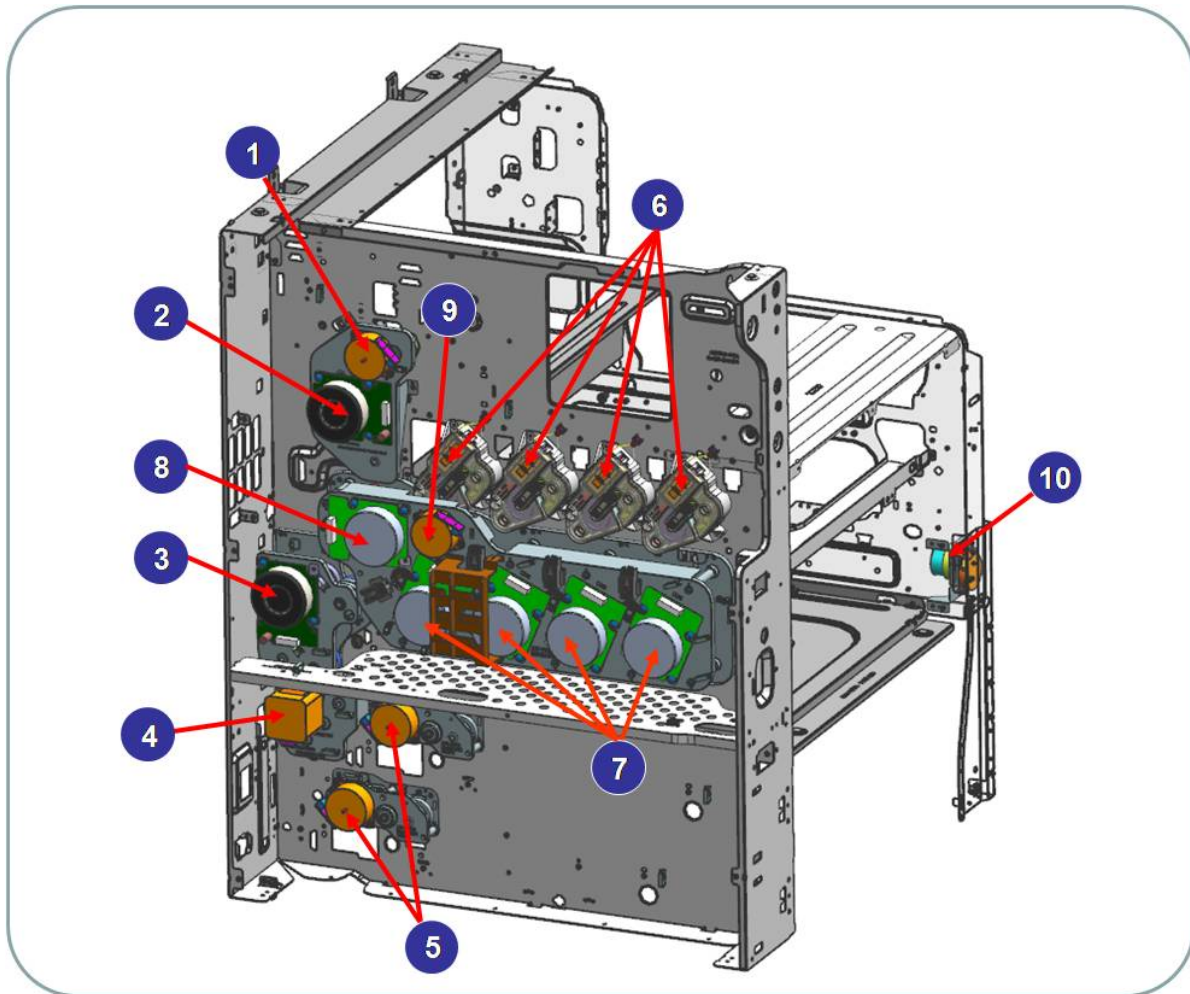
- **Shutter off** : Printing is impossible. Shutter door is closed. Waste toner container is not installed.
- **Shutter on** : Printing is possible. Shutter door is opened. Waste toner container is installed.

When the shutter is not on at printing, the LSU Unit Failure error will occur.

2.8. Drive System

2.8.1. Drive Motors

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



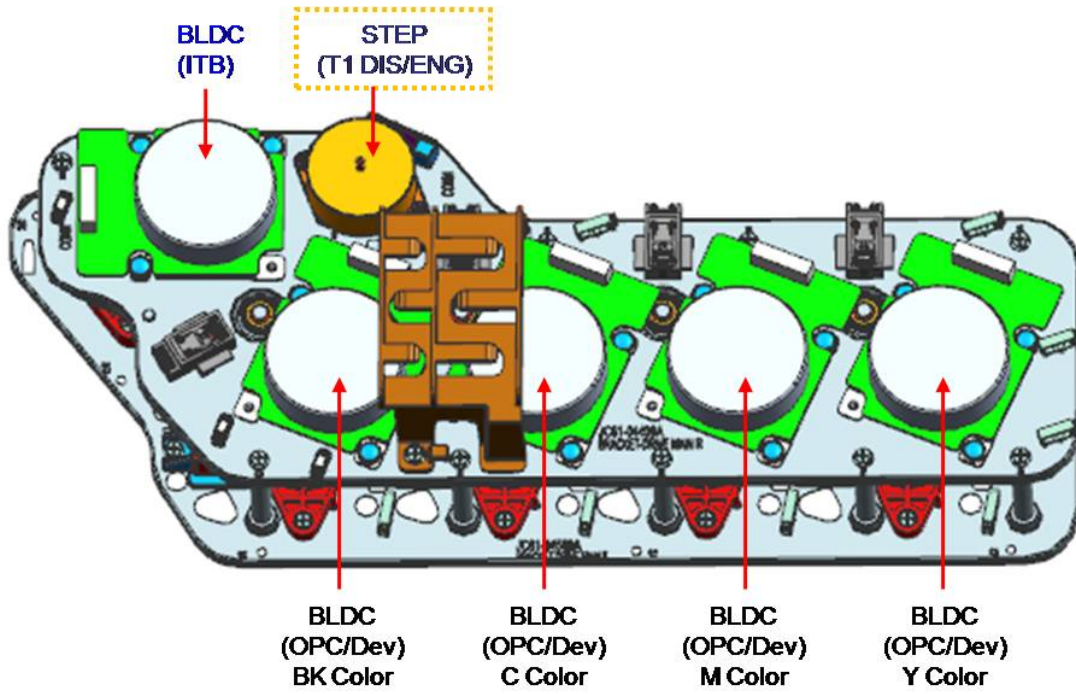
No.	Motor	Motor type	Qty	Function
1	Exit	PM-STEP	1	Exit driving (Reverse driving at Duplex job)
2	Fuser	BLDC	1	Fuser driving/Fuser pressure mode (Reverse driving at pressure mode)
3	Regi / MP	BLDC	1	Regi / MP driving
		E-CLT	2	Regi / MP driving control
4	Feed	HB-STEP	1	Feed 1 / 2 Roll driving
5	Pick-Up	PM-STEP	2	Pick-Up Roll / CST Lift driving (Reverse driving at CST Lift driving)
6	Toner supply	DC	4	Toner transfer in toner cartridge driving Duct
7	OPC / DEVE	BLDC	4	OPC/DEVE driving

2. Product Specifications and Description

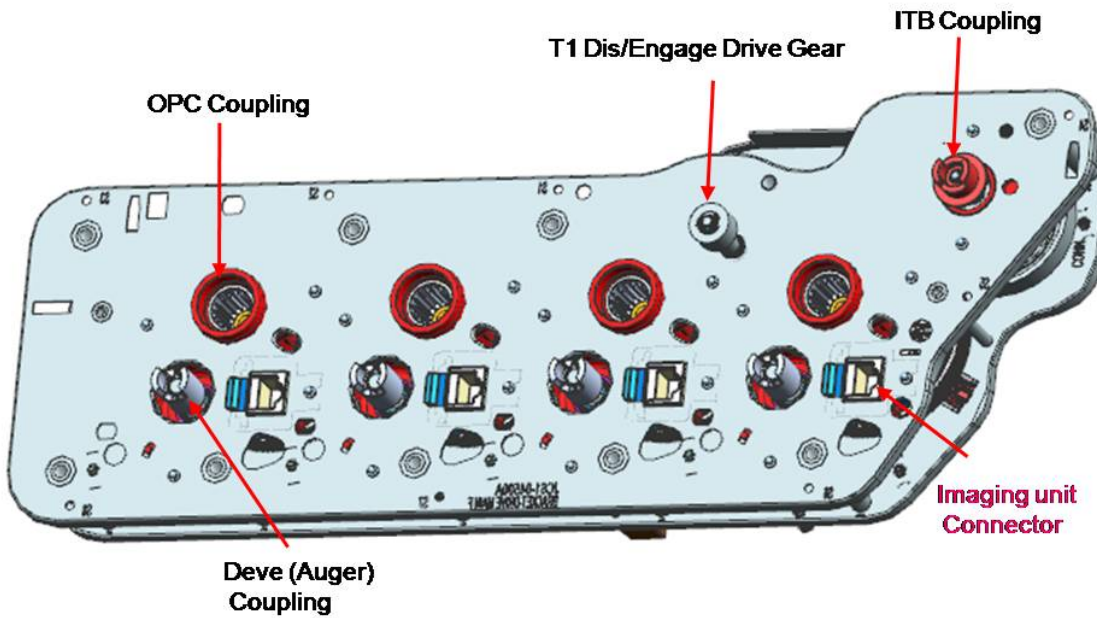
No.	Motor	Motor type	Qty	Function
8	ITB	BLDC	1	ITB driving
9	T1 Dis/En	PM-STEP	1	T1 Dis/Engage
10	Waste toner container	PM-STEP	1	Waste toner container leveling

2.8.2. Main Drive Unit (OPC, DEVE, ITB, T1 DIS/ENG)

Front View

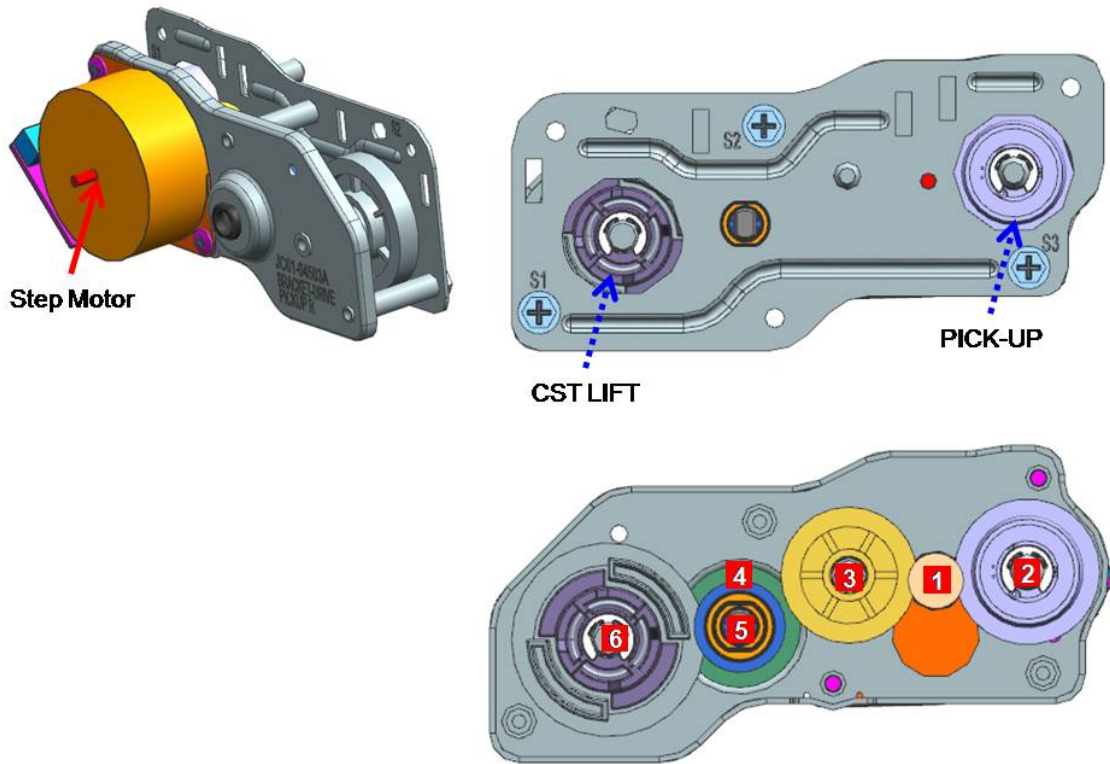


Rear View



2.8.3. Pick Up Drive

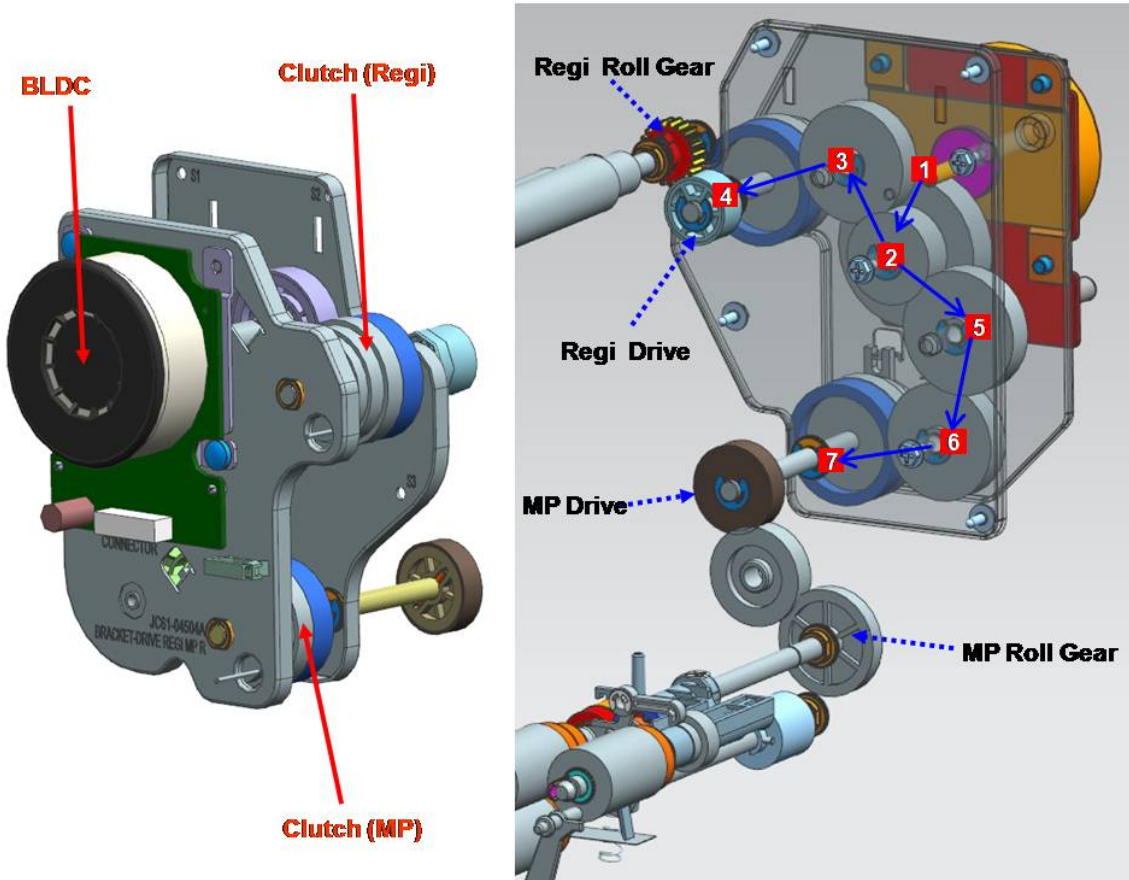
The following is a diagram of the Pick-up drive:



Power Train	Pick-up : rotating (Pick-up input) / counter rotating (Cst LIFT input)
<ul style="list-style-type: none"> • 1 Step → rotating → 2 Gear (Pick-up driving) • 1 Step → counter rotating → 3 Gear → 4 Gear → 5 Gear → 6 Gear (CST Lift driving) 	

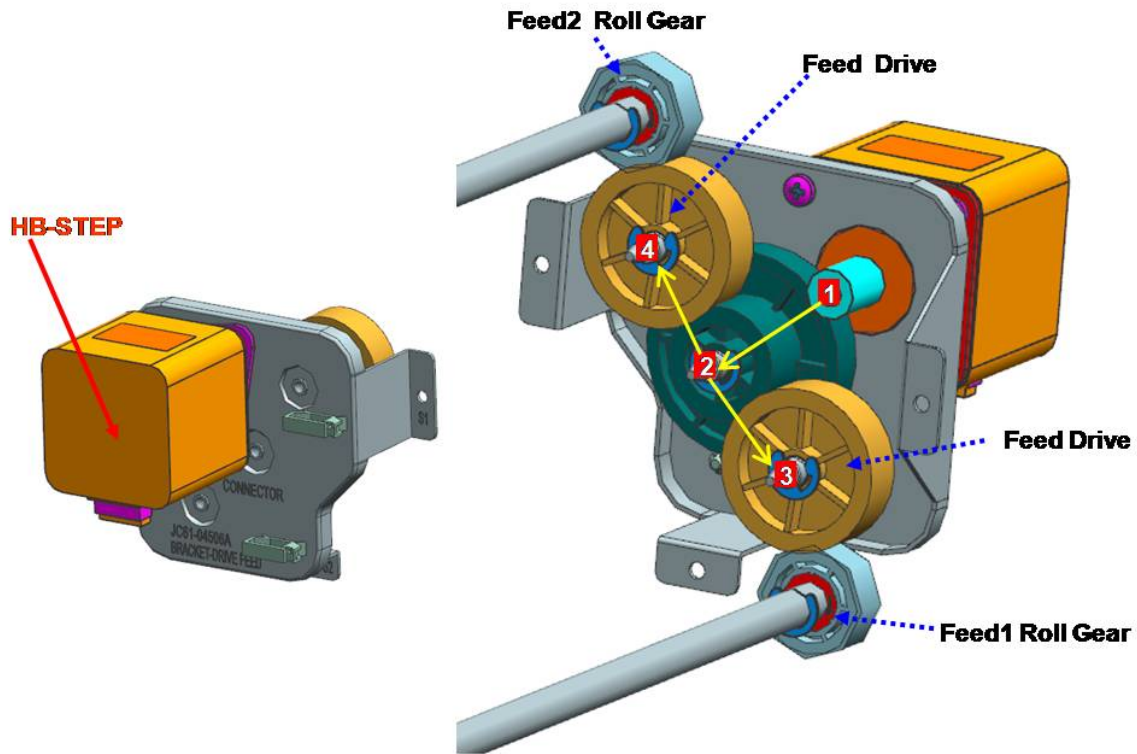
2.8.4. Regi/ MP Drive

The following is a diagram of the drives that power the MP, Regi systems:



Power Train	Regi/MP : BLDC driving, Clutch driving control
<ul style="list-style-type: none">• 1 BLDC → 2 Gear → 3 Gear → 4 Clutch / Gear (Regi. driving)• 1 BLDC → 2 Gear → 5 Gear → 6 Gear → 7 Clutch / Gear (MP driving)	

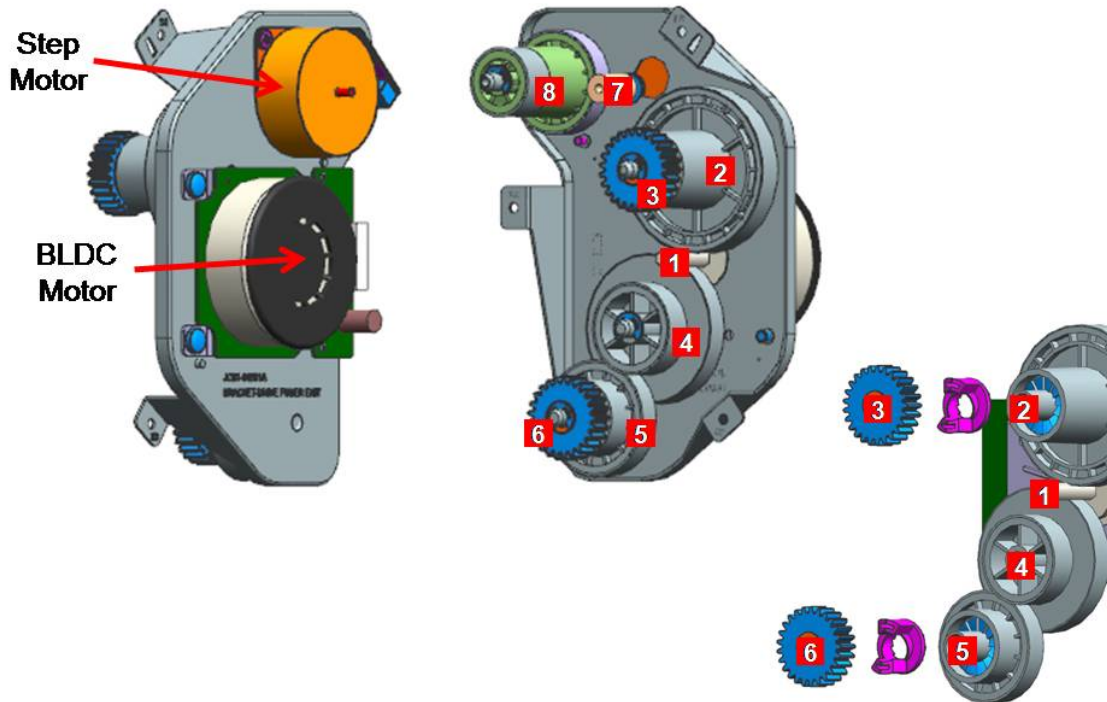
2.8.5. Feed Drive



Power Train	Feed : HB-STEP driving
<ul style="list-style-type: none"> • 1 HB-STEP → 2 Gear → 3 Gear (Feed1 driving) • 1 HB-STEP → 2 Gear → 4 Gear (Feed2 driving) 	

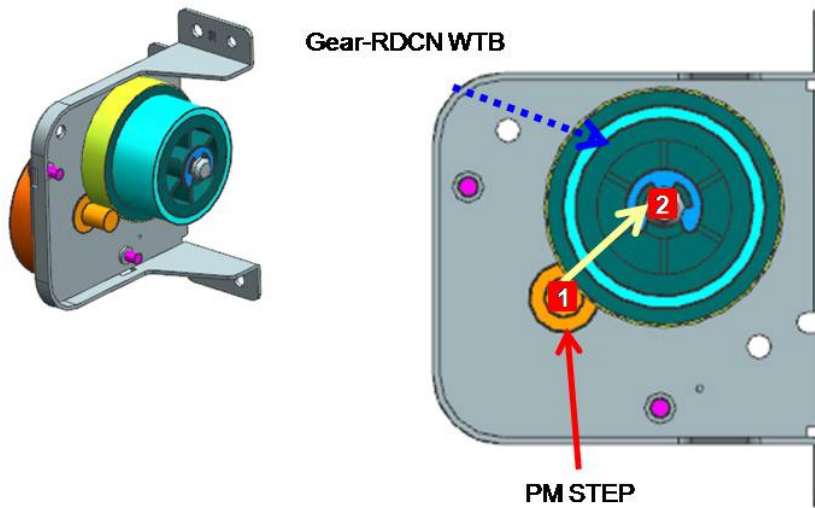
2.8.6. Fuser/Exit Drive

The following diagram displays the locations of the Fuser and Exit drives:



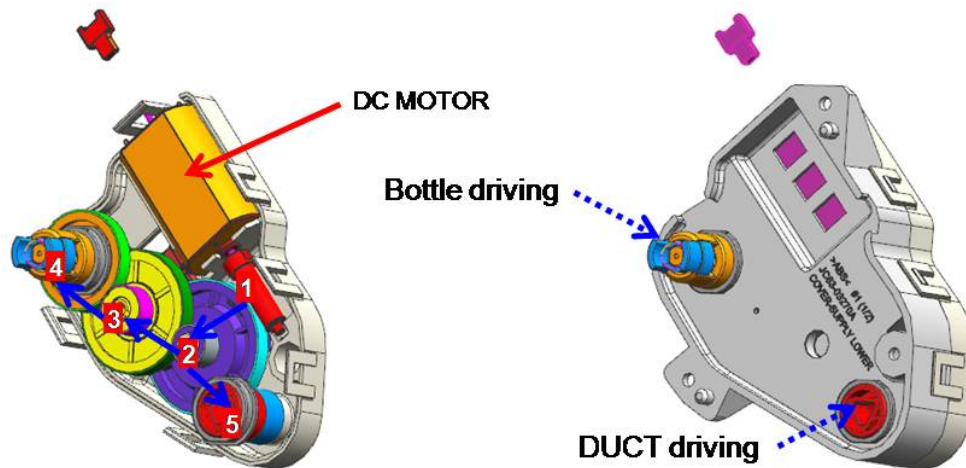
Power Train	<ul style="list-style-type: none"> • Fuser / Fuser pressure mode : BLDC Motor driving, Reverse driving at fuser pressure mode • Exit : Step Motor driving, Reverse driving at duplex mode • Fuser and Fuser release One way gear is adopted.
<ul style="list-style-type: none"> • 1 BLDC → Rotation → 2 Gear → 3 Gear (Fuser driving) • 1 BLDC → Counter rotation → 4 Gear → 5 Gear → 6 Gear (Fuser pressure mode driving) • 7 PM STEP → 8 Gear (Exit driving) 	

2.8.7. Waste Toner Container Drive



Power Train	Step motor & Gear-RDCN WTB : Waste toner container driving
	<ul style="list-style-type: none"> • 1 PM STEP → 2 Gear-RDCN WTB (Waste toner container driving)

2.8.8. Toner Supply Drive



Power Train	DUCT & Bottle driving
	<ul style="list-style-type: none"> • 1 DC Motor → 2 Gear RDCN SUPPLY → 5 Gear DUCT (DUCT driving) • 1 DC Motor → 2 Gear RDCN SUPPLY → 3 Gear SUPPLY IDLE → 4 Gear SUPPLY (Bottle driving)

2.9. Scanner System

This section describes the printer scanner system parts and functions.

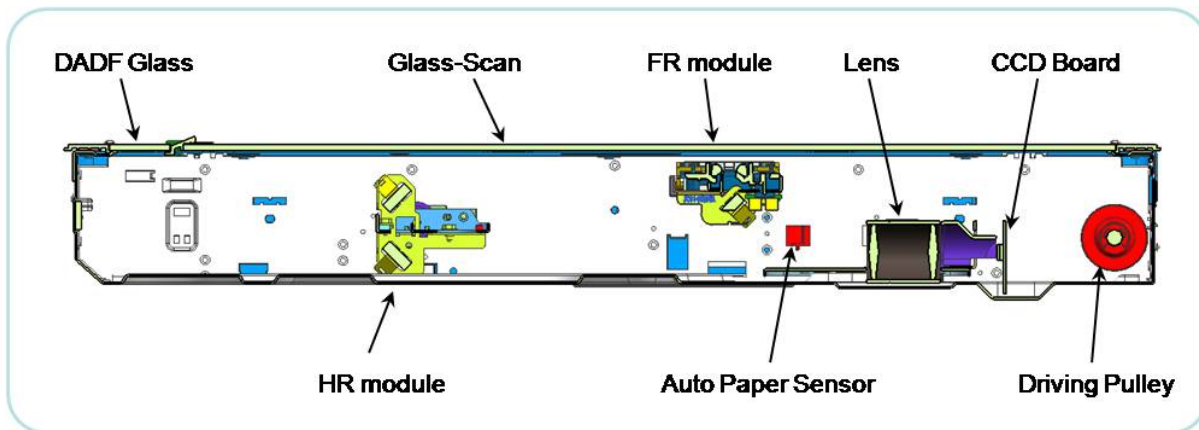
2.9.1. Scanner System Overview

During the scanning process, the surface of a document is exposed to Full Rate(FR) module light.

The light reflected from the paper is led through mirrors, a lens, and a slit to a CCD where optical-to-electrical conversion is performed, converting the optical image data into an electrical (analog) signal.

This analog signal is changed to a digital signal, which then undergoes various corrective processes necessary for image formation. After that, arithmetic operations are performed on the digital signal, which is then transmitted to the data writing processor.

In this machine, a reduction-type CCD for color processing is used. CCD is arranged in 3 lines and covered with color filters (Red, Green, and Blue).



2.9.2. Scanning System Components

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

1) DADF glass

The DADF glass is used when a document is read by the Automatic Document Feeder. The light from the White-LED is illuminated on the Document through this glass.

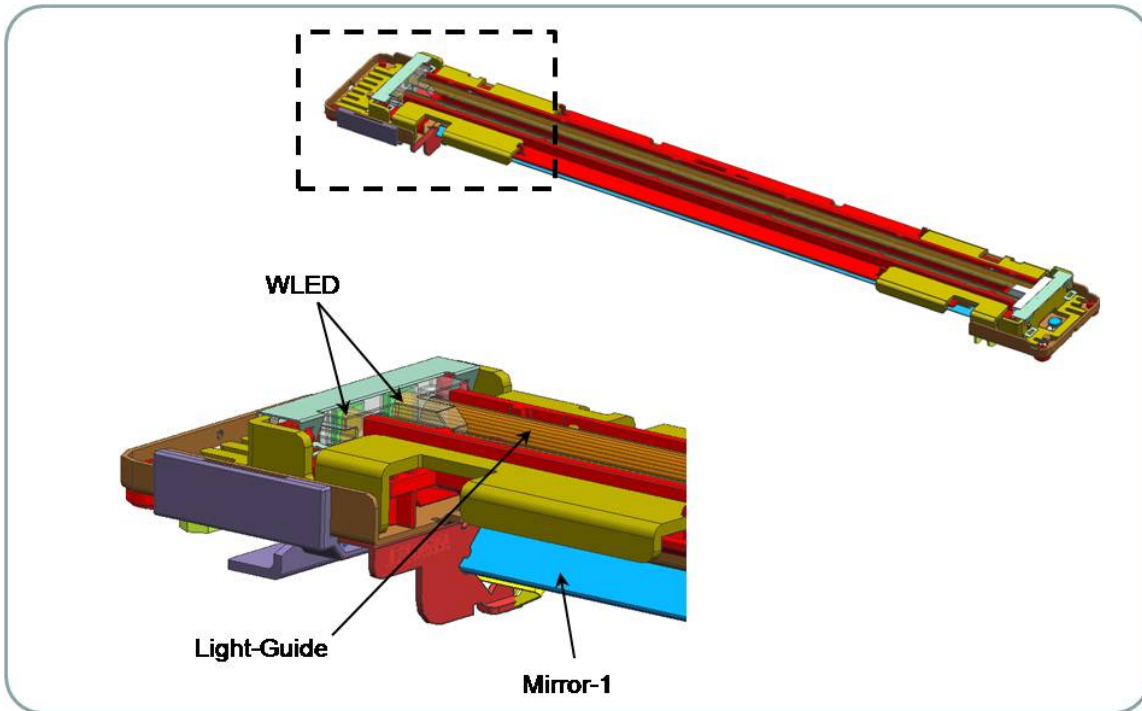
The document is transported on the DADF glass by the DADF operation.

Do not use such solvents, as alcohol when cleaning the surface of the DADF glass, as it is coated so as not to be scratched by Document.

2) **FR(Full Rate)-Module**

FR-Module is consists of the White-LED , Light-Guide, mirror-1 etc.

It is driven by the scan motor (HB Step Motor) and scans the document on the glass.



- **White-LED**

This is a light source for scanning the document on the glass. (There are 4 White-LEDs. (Front 2 EA, Rear 2 EA)

- **Light-Guide**

This is to efficiently transfer the light creating WLED to the surface of the document . made of the transparent Plastic Resin.

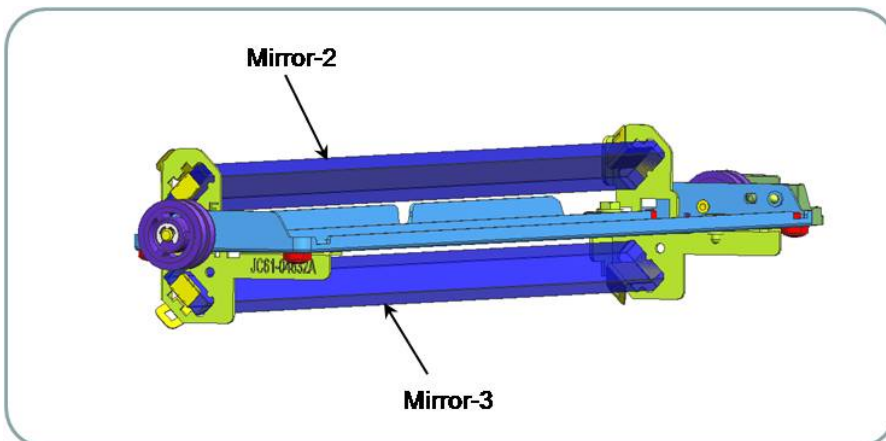
- **Mirror-1**

This mirror directs the light reflected from the Document to the mirror-2

3) **HR(Half Rate)-Module**

HR-Module mainly consists of the mirror-2, mirror-3, etc. The reflected light on document is passed from the mirror-1 through the mirrors-2 and -3 to the lens. HR module is driven by the same scan motor as that of the FR module.

The speed and distance are half that of the FR module.



4) **Lens**

The light reflected from the mirror-3 is concentrated to the CCD. The distance between the Lens and CCD is aligned accurately.

5) **CCD board**

Processes such as signal amplification, signal integration, and A/D conversion are applied on the electrical signal which was converted by the CCD.

6) **Auto Paper Sensor**

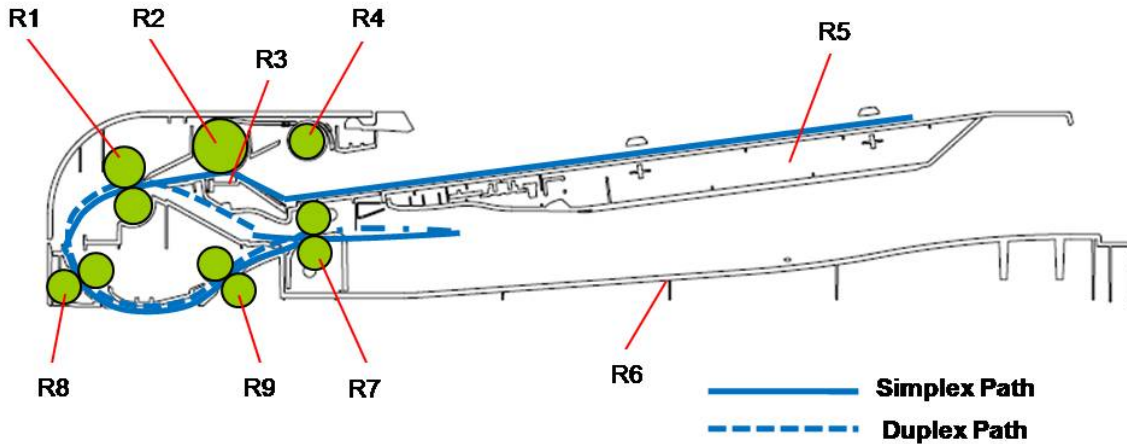
The size of an original placed on the glass is instantly detected using the Auto Paper Sensor fixed on the Align-frame.

7) **Pulley-Driving**

The Steel Wire is coiled to this part and rotated by the scan motor. This also transfers the power to move the FR/HR module.

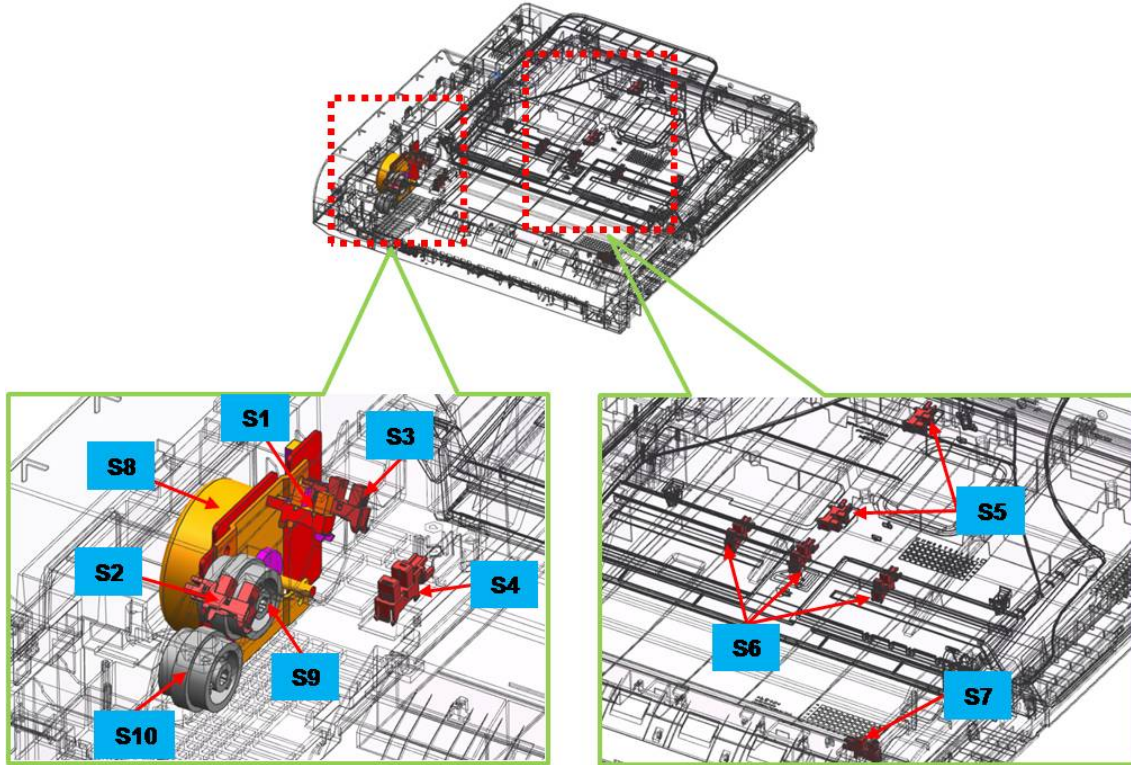
2.10. Duplex Automatic Document Feeder(DADF)

2.10.1. DADF overview



Symbol	Part	Function
R1	Simplex and Duplex Regi. roller	Aligns the leading edge of the paper for registration.
R2	DADF forward roller	Separates an original from the tray and transfers it to the paper path.
R3	DADF friction pad	Prevent the multi-feeding.
R4	DADF pick up roller	Picks up an original from the tray.
R5	Original document tray	Paper input tray
R6	Exit tray	Paper output tray
R7	Exit roller	Sends an original to the exit tray and forms the duplex reverse path.
R8	Feed in roller	Feeds an original before scanning.
R9	Feed out roller	Transfers a scanned original to the exit roller.

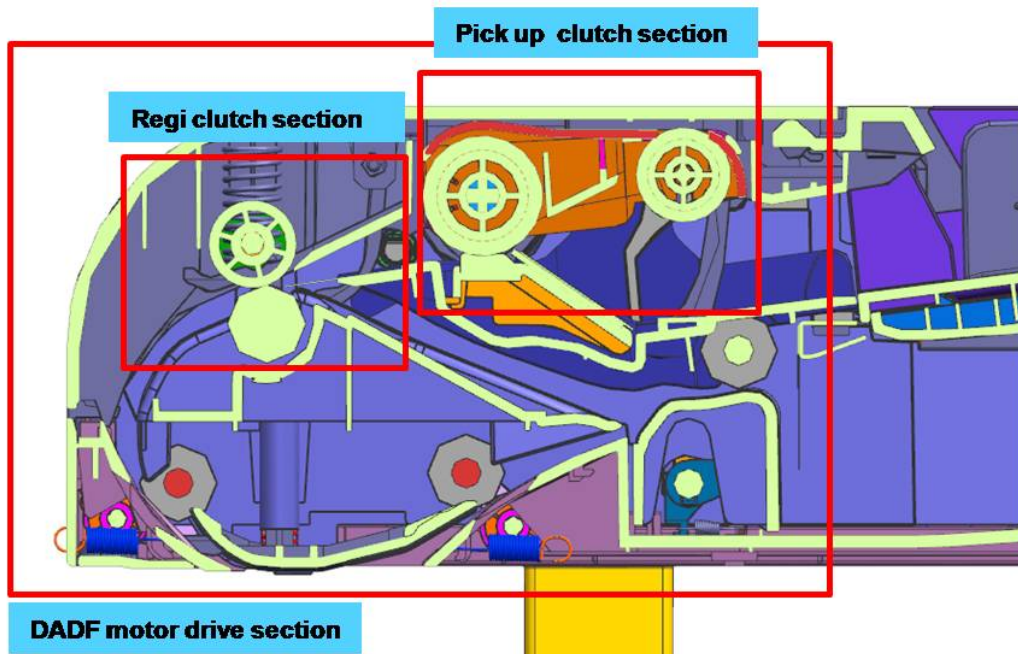
2.10.2. Electrical parts location



Symbol	Description	Part code	Controller board
S1	PHOTO-INTERRUPTER (Cover)	0604-001415	PBA-ADF
S2	PHOTO-INTERRUPTER (Regi)	0604-001393	PBA-ADF
S3	PHOTO-INTERRUPTER (Detect)	0604-001393	PBA-ADF
S4	PHOTO-INTERRUPTER (Exit Idle)	0604-001393	PBA-ADF
S5	PHOTO-INTERRUPTER (Paper Length)	0604-001393	PBA-ADF
S6	PHOTO-INTERRUPTER (Paper Width)	0604-001393	PBA-ADF
S7	PHOTO-INTERRUPTER (Exit)	0604-001393	PBA-ADF
S8	BLCD MOTOR	0604-001393	PBA-ADF
S9	CLUTCH-ELECTRIC (Pick Up)	0604-001393	PBA-ADF
S10	CLUTCH-ELECTRIC (Regi)	0604-001393	PBA-ADF

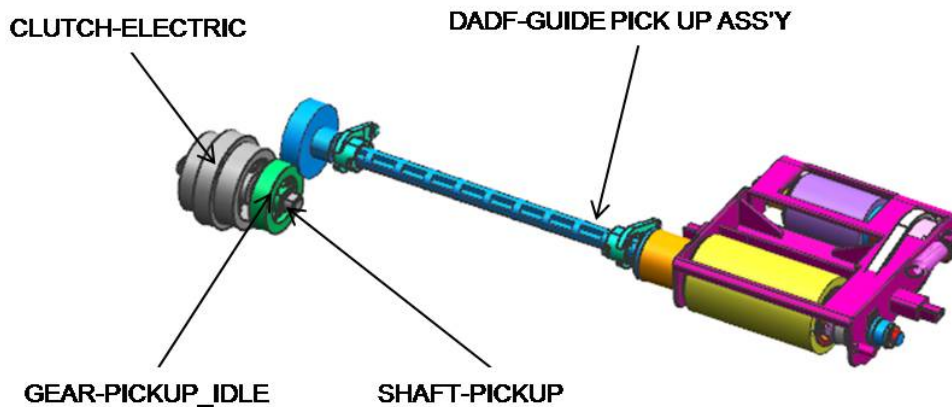
2.10.3. DADF Drive System

DADF consists of one motor and two clutch to transfer the paper.



- A BLDC motor drives the system for simplex and duplex job.
- The Pick up and Regi clutch controls the driving on/off.
- The Cam type gear and solenoid is used for duplex reverse.

2.10.3.1. DADF Original Drive Assembly



After detecting the paper, one motor controls the drive system totally.

The CLUTCH-ELECTRIC provides the power to pick up the paper.

The CLUTCH can't rotate inversely. The Spring that is included in DADF-GUIDE PICK UP ASS'Y is connected to COVER-OPEN. When the CLUTCH does not drive, it makes Stand-by status and fix the stopper operation.

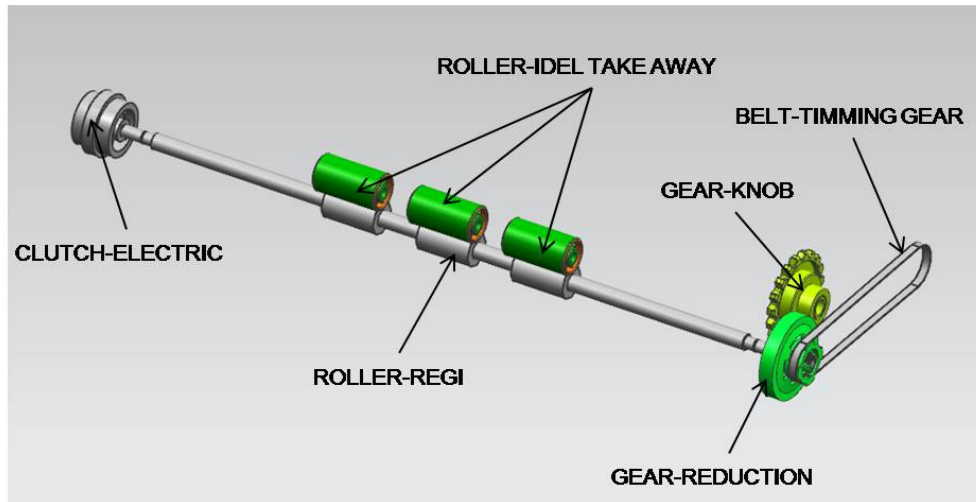
The ADF roller and Pick up Roller is connected by the belt.

The ADF roller is provided with the power while the paper is picked up and transferred to the Registration roller. When the pick up drive is stopped and Registration roller is driven, the ADF roller become idle.

The normal process is :

- When the original is setting up, the detect-sensor is activated, and printing job starts, the motor and pick up clutch work. Then, the pick-up roller moves down and contacts an original in the tray.
- When the Registration sensor detects the paper, the pick up clutch stops.
- When the Detect-Sensor detects that the tray is empty, the motor stops and the machine enters stand-by status.

2.10.3.2. DADF Registration (Regi) Drive Assembly



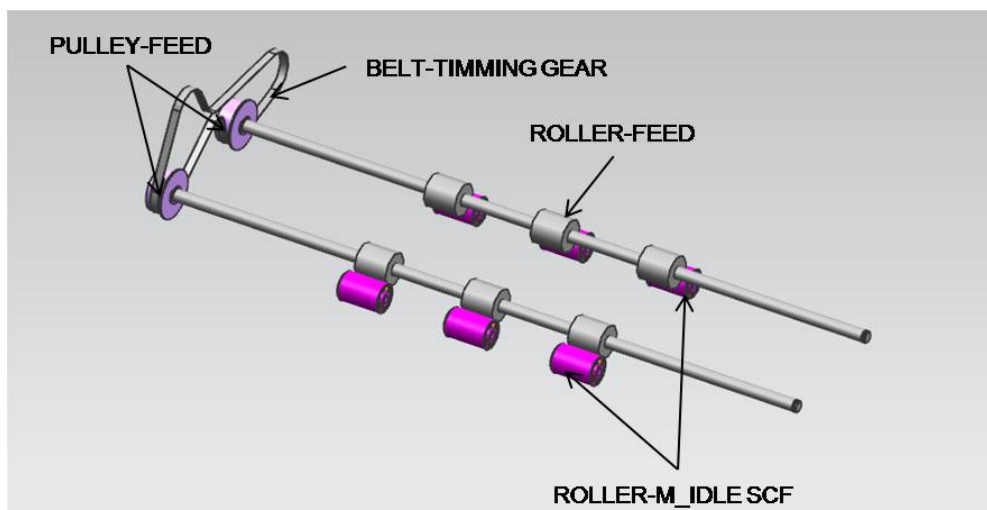
The Regi drive uses the CLUTCH-ELECTRIC to drive the Registration Roller and transfer the paper to ROLLER FEED.

The Registration Roller aligns the leading edge of the original. When original is placed in the Nip, the roller is rotated for alignment.

The CLUTHC-ELETRIC repeats on/off to align each paper.

The GEAR-KNOB and GEAR-REDUCTION uses the BELT to provide the PULLEY connecting ROLLER-EXIT with the power. This structure makes the user remove the jammed paper easily.

2.10.3.3. DADF Feed Drive Assembly

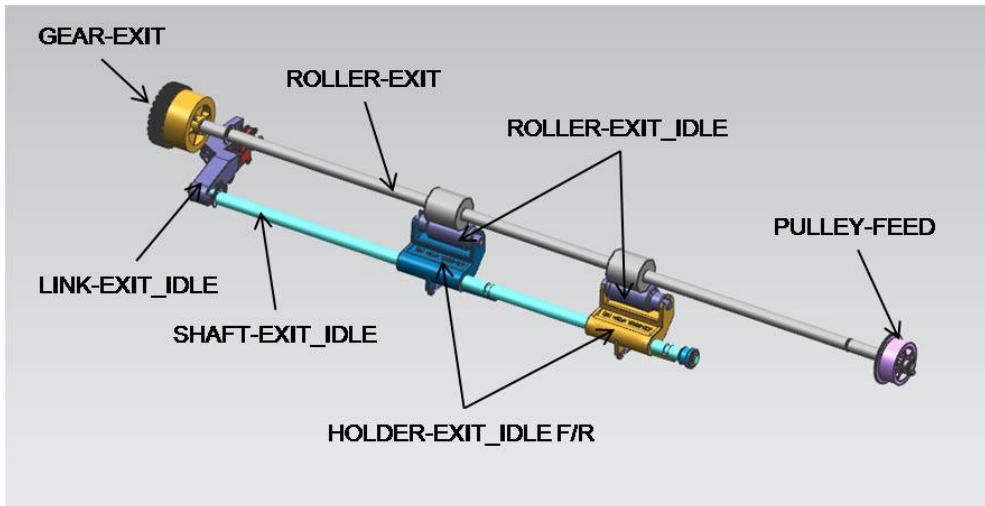


The ROLLER FEED is driven by the BELT-TIMMING that is connected to Motor.

The ROLLER-FEED and ROLLER-M IDLE SCF make the feeding force by using a spring pressure method.

The Motor transfers the paper through interlocking the Roller-Feed in and the Roller-Feed out. At scan, the Motor is driven continually to maintain stable paper transfer.

2.10.3.4. DADF Exit Drive Assembly

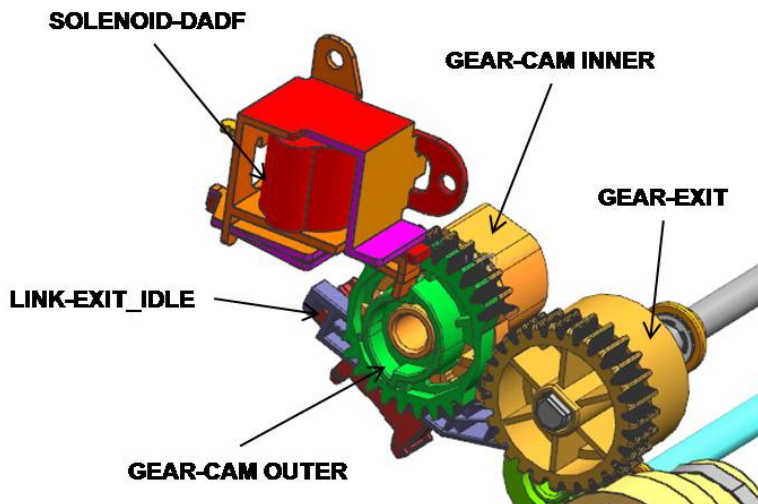


The power from the Motor is transferred to GEAR-EXIT and ROLER-EXIT. The paper is transferred to the exit. At duplex mode, counter rotation occurs.

To keep the pressure of the Exit Roller, the ROLLER-EXIT_IDLE is pressurized by spring. At duplex mode, when it is rotated inversely, it make the space between rollers to protect the jam.

The space between rollers is adjusted by LINK-EXIT_IDLE and SENSOR-EXIT_IDLE.

2.10.3.5. Original Return Drive



The solenoid works at only duplex mode.

At Duplex Mode, when the motor rotates inversely, the solenoid is on and the GEAR-CAM OUTER and GEAR-EXIT are driven.

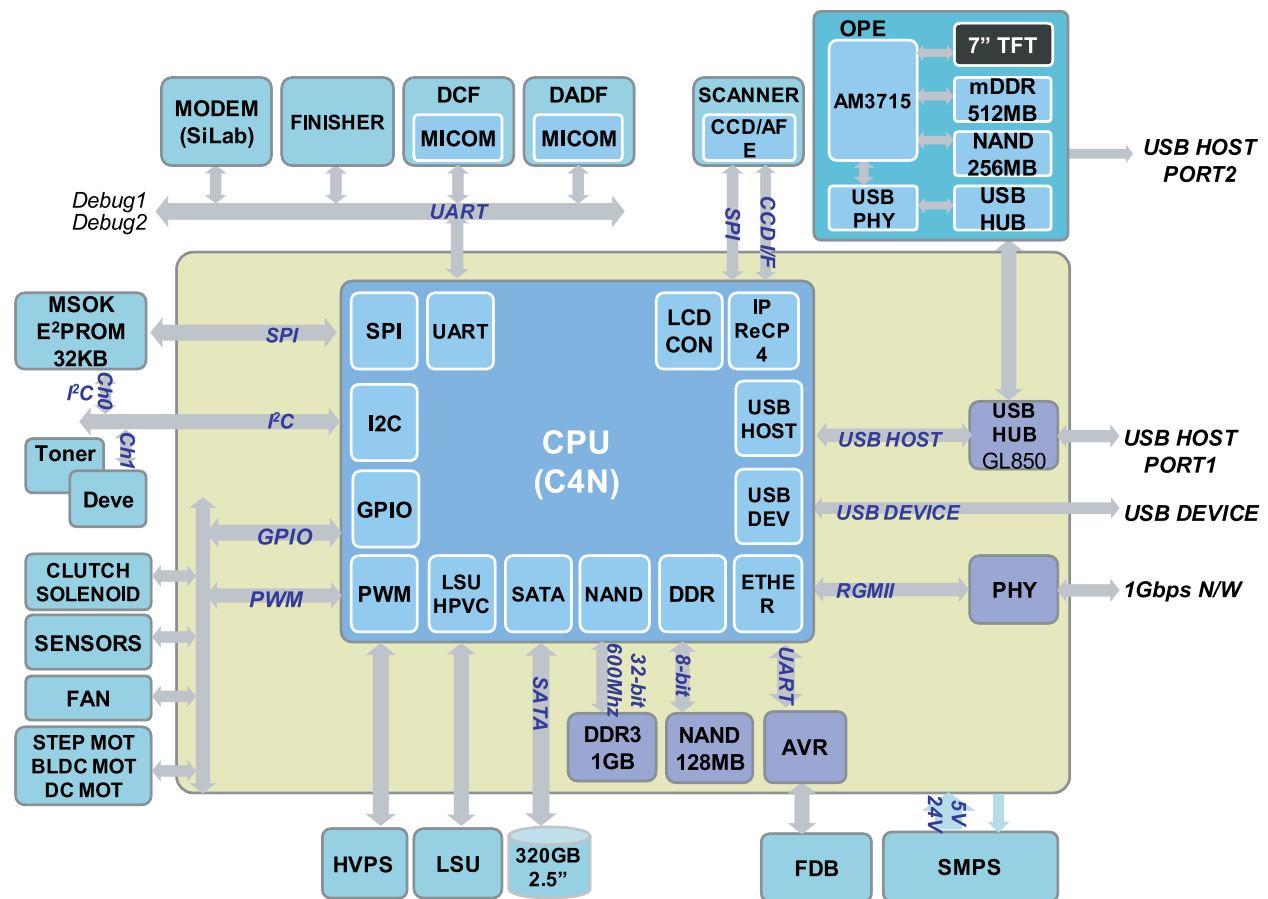
When the GEAR-EXIT rotates, the solenoid drives the GEAR-CAM and it makes the space between the Roller-Exit and Idle Roller.

2.11. Hardware Configuration

The CLX-9201/9251/9301 Electrical Circuit System consists of the following :

- Main Controller (Main board)
- OPE Controller
- DADF Controller
- HVPS board
- SMPS board
- FDB board

Diagram of the CLX-9201/9251/9301 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 Dure Core CPU 1GHZ, DDR3 1GB memory, Flash NAND 128MB, 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.

The OPE Controller displays the status of the system by using the WSVGA TFT LCD in response to user actions or the main controller.

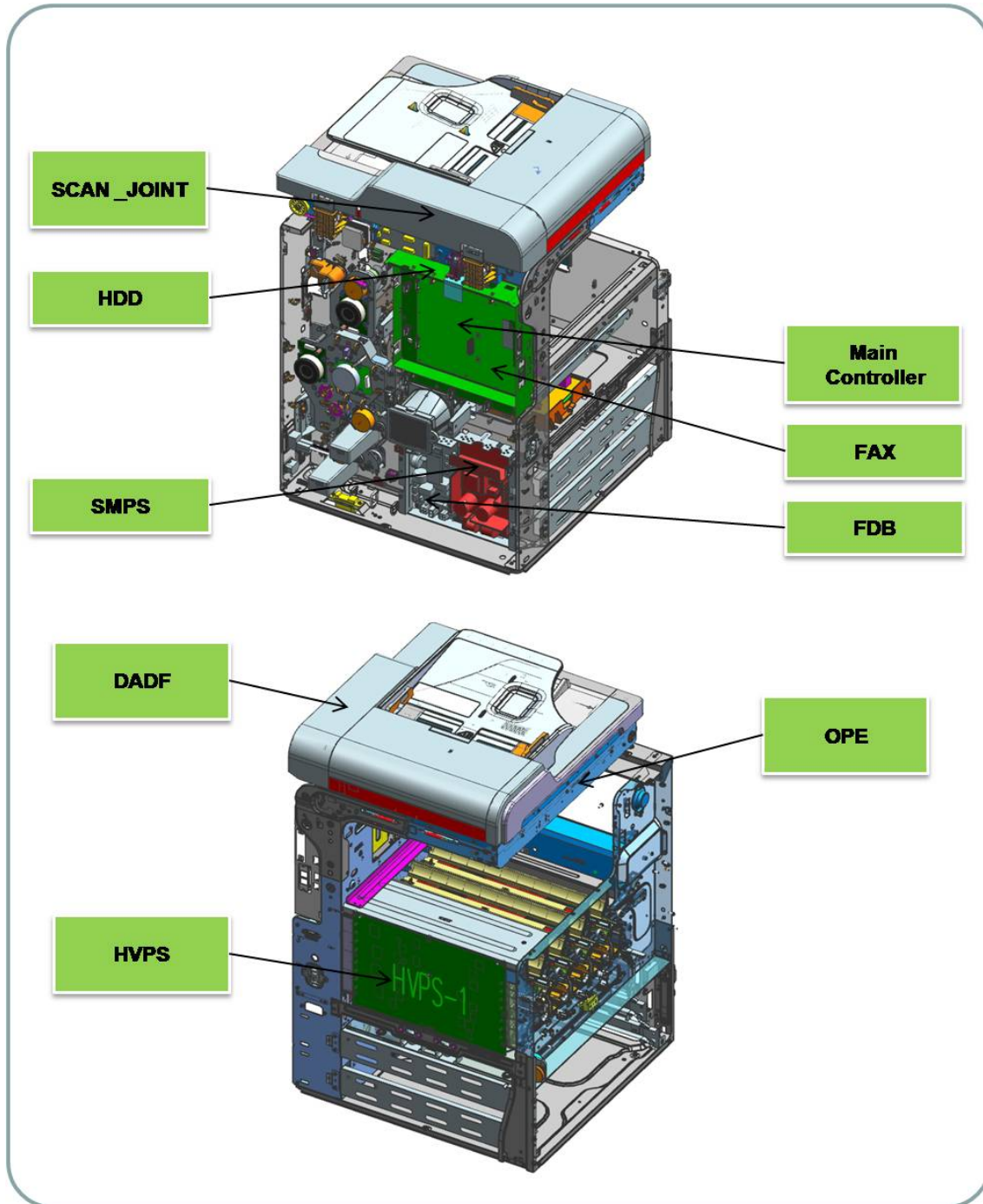
The soft power switch in the KEY SUB BOARD is used to safely shut down the system power.

The DADF 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:

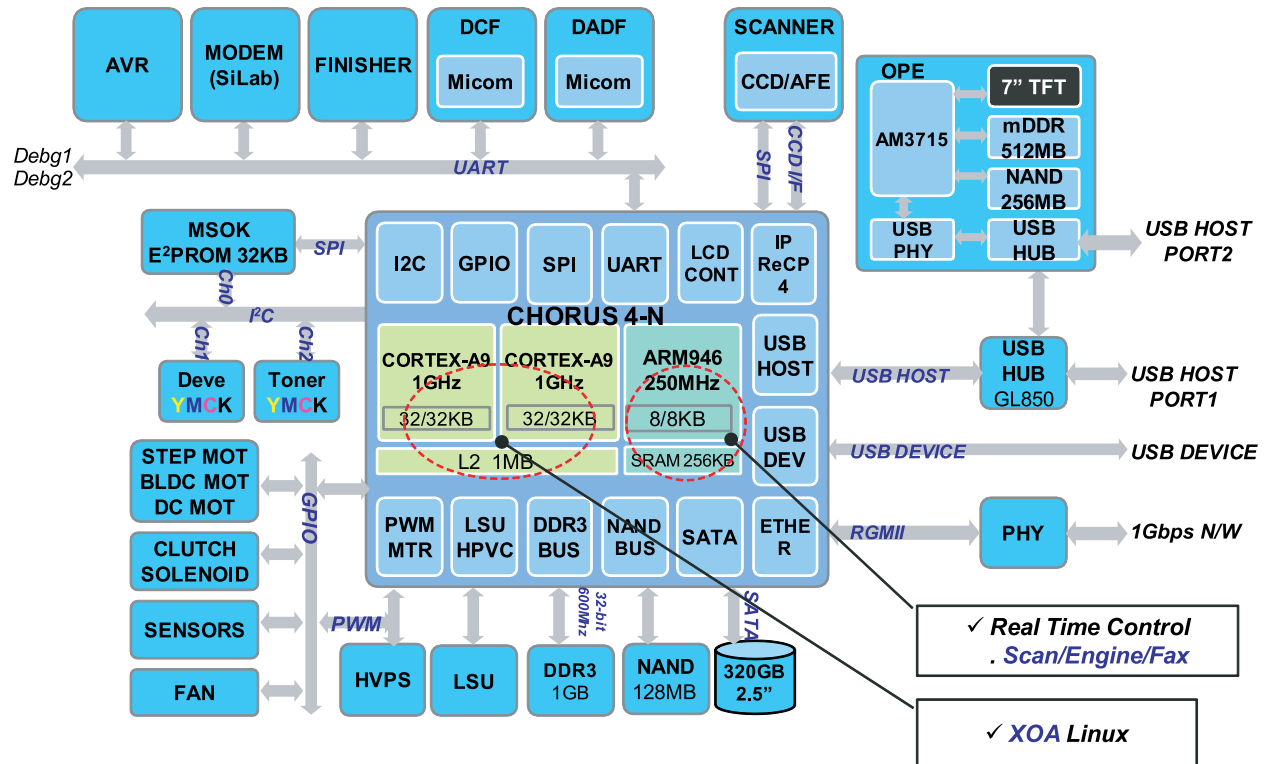


2.11.1. Main Controller

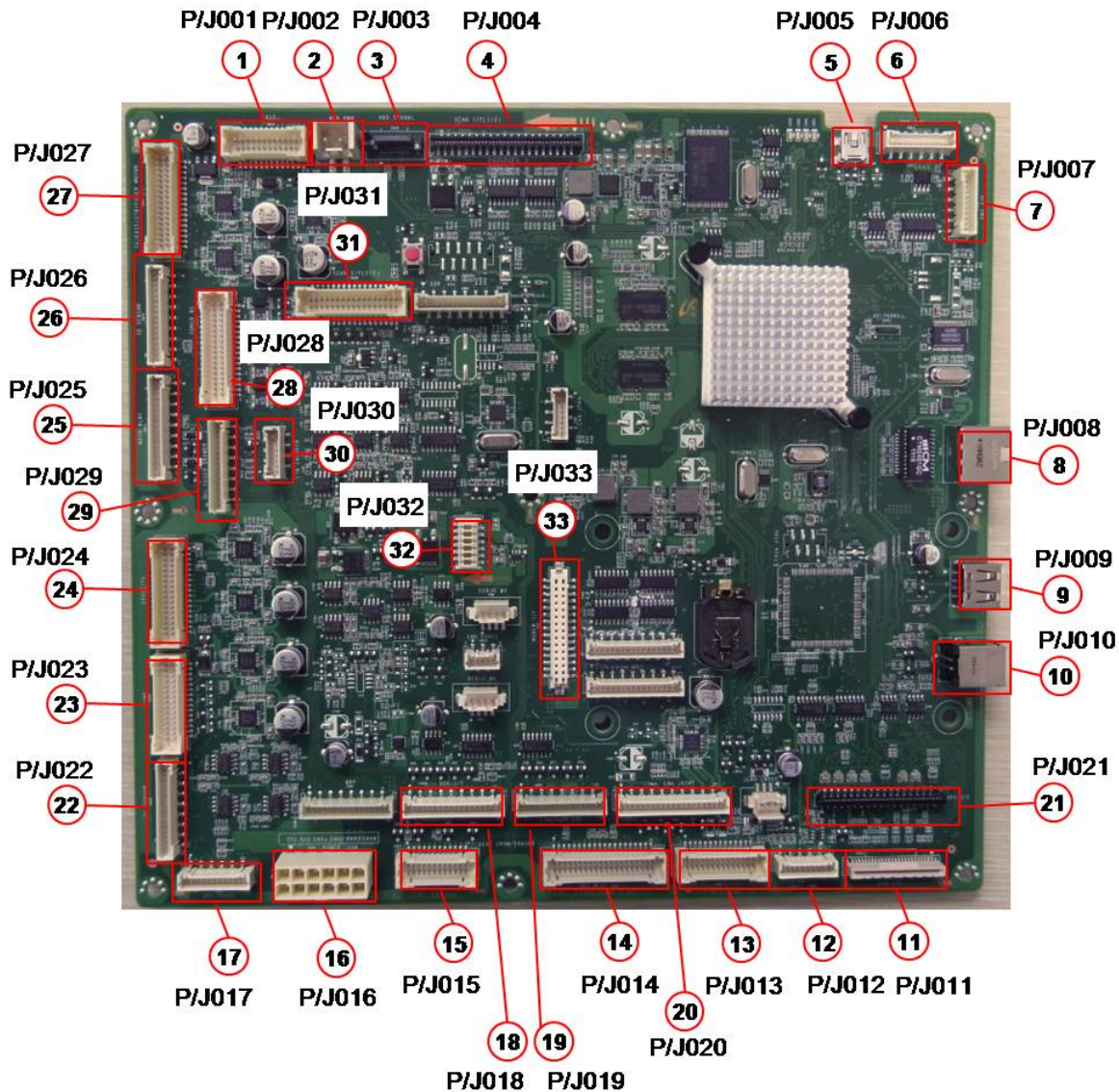
The main controller consists of the main processor(Chorus4N), memory(DDR3 1GB), flash(128MB), 1G Ethernet PHY, USB2.0 HUB, Micom(Power/Fuser control), Scan/Video/UI/FAX signal interface connection, motor driving IC, Engine signal interface connection, power interface.

The main processor (Dual Core 1GHz 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 (DADF, DCF, Finisher, Modem) by UART.

1) Main Controller Diagram



2) Main Controller Connection Information



• Connection

1	EXIT
2	SATA POWER
3	SATA SIGNAL
4	CCD
5	USB HOST(OPE)
6	OPE
7	FDI
8	GIGA RJ45
9	USH HOST JACK
10	USB DEVICE JACK
11	LSU
12	HVPS Power

13	FDI I/F
14	OPC BLDC
15	DEVE CRUM/ERASER
16	SMPS
17	OPC PHASE
18	DCF I/F
19	FINISHER I/F
20	LSU JOINT
21	HVPS I/F
22	TC SENSOR
23	SIDE
24	CASSETTE

25	MAIN BLDC
26	ID SENSOR
27	T1/EXIT/ITB/FUSER MOTOR
28	TONER DC
29	FUSER DRAWER
30	ITB ENCODER
31	SCAN
32	MSOK I/F
33	FAX JOINT

• **Information**

- Part Code : JC92-02429A

NOTE

This main board is for all models of the CLX-9201/9251/9301 series

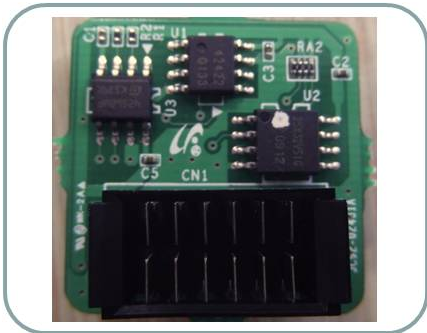
- Part Name : PBA-MAIN

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 X-CRUM. The flash memory(4MByte), EEPROM(256Kbit) and X-CRUM are used for all system operation(system parameter, device status, tech information, and service information).

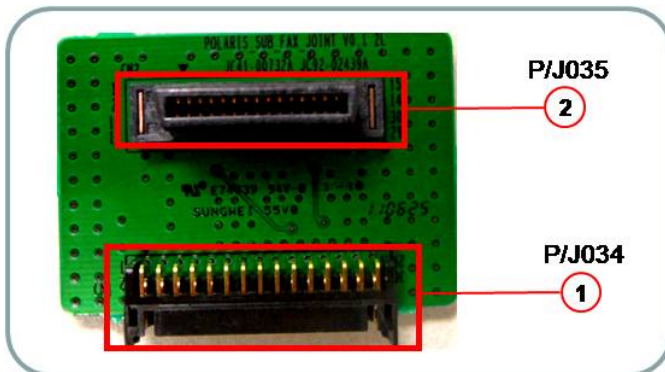
NOTE

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.



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 : JC92-02439A
- Part Name : PBA-FAX JOINT

• **Connection**

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

5) Modem Card (Optional)

The modem card is used to transfer and receive the fax data through a telephone line. This PBA is controlled by the main board and has two connectors, connectors, one for the telephone line connection and the other for an external phone connection.



- **Information**

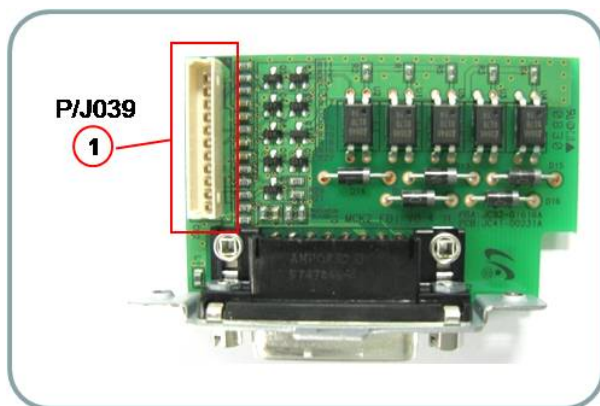
- Fax Kit model name : CLX-FAX160
- Part Code :JC92-02558A
- PBA name : PBA-FAX JOINT

- **Connection**

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

6) Foreign Device Interface (FDI)

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 : JC92-01616A
- PBA name : PBA-SUB FDI

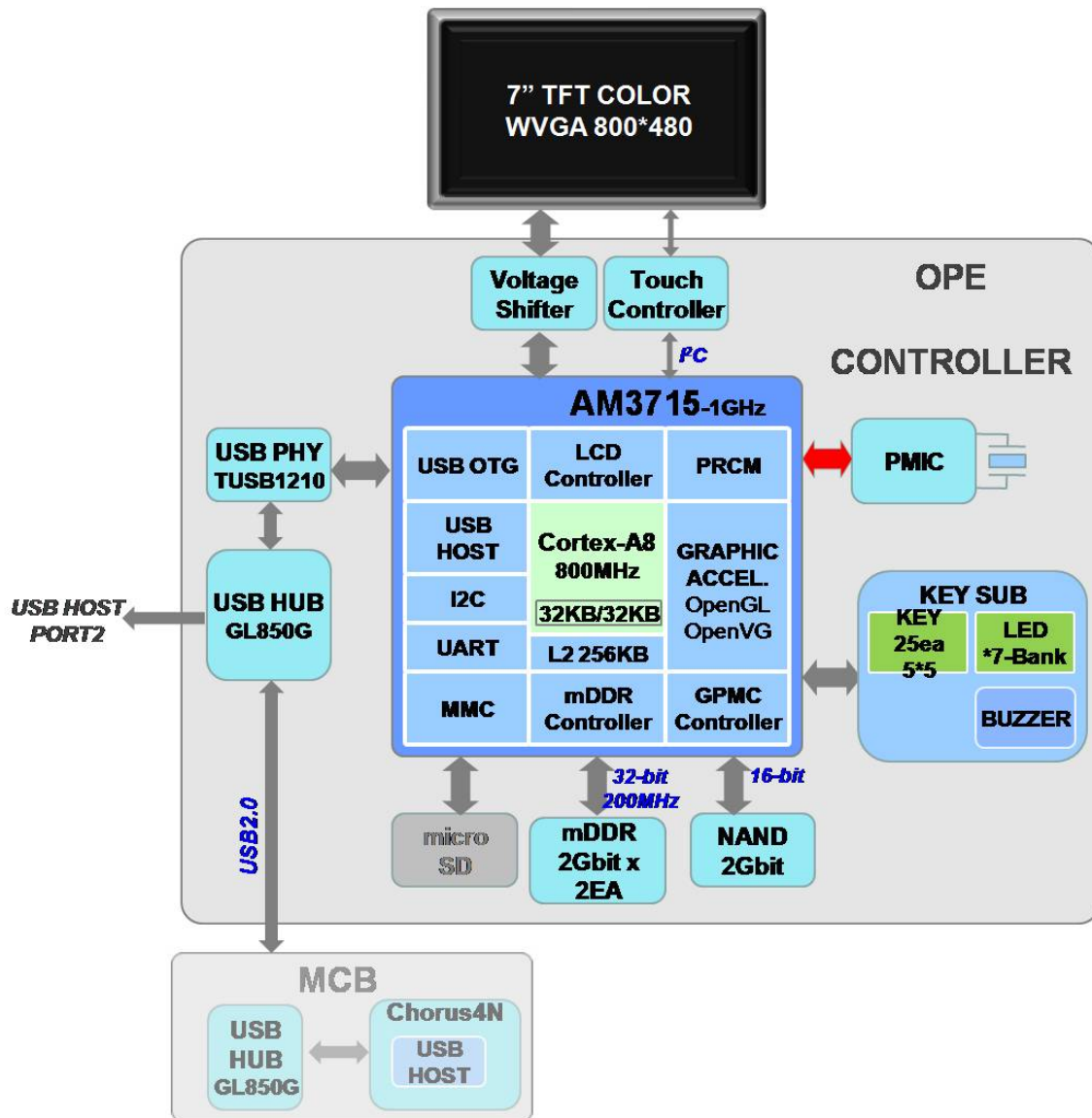
- **Connection**

1	Connector to Main controller
---	------------------------------

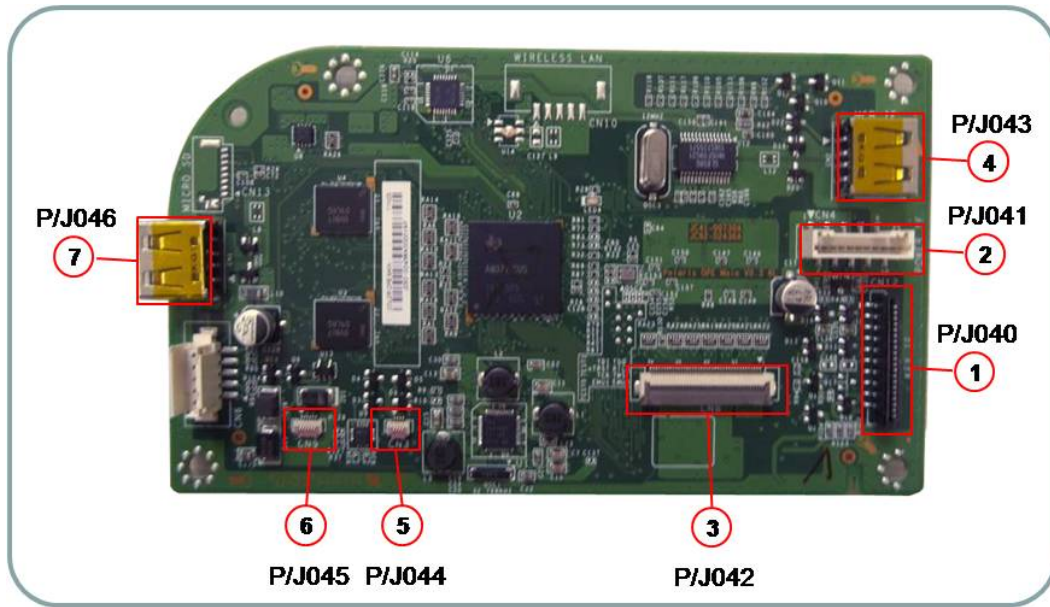
2.11.2. Operation Panel (OPE) controller

The OPE controller consists of an SOC (TI AM3715-800MHz), 256MB mobile DDR1 memory, 256MB NAND flash memory, 7 inch touch LCD(800x480). The AM3715 is used to interface with users through the touch screen and some buttons. The AM3715 supports the Graphic Accelation for better UI.

1) OPE controller diagram



2) OPE MAIN PBA



• Information

- Part Code : JC92-02436A



This board is for all models of the CLX-9201/9251/9301 series

- Part Name : OPE MAIN

• Connection

1	KEY PBA Interface connector
2	MAIN PBA POWER Interface connector
3	LCD DATA Interface connector
4	MAIN PBA USB Interface connector
5	LCD TSP Interface
6	LCD BACK LIGHT Interface
7	USB Host Port for Memory Stick

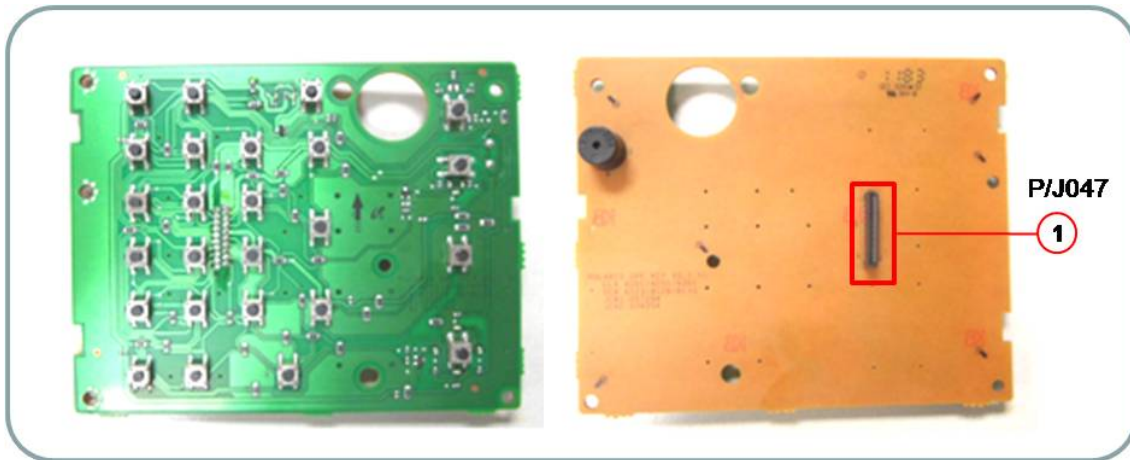
3) 7" TFT LCD, TOUCH SCREEN



• Information

- Part Code : JC07-00021A
- Part Name : LCD/TSP

4) OPE KEY PBA



• Information

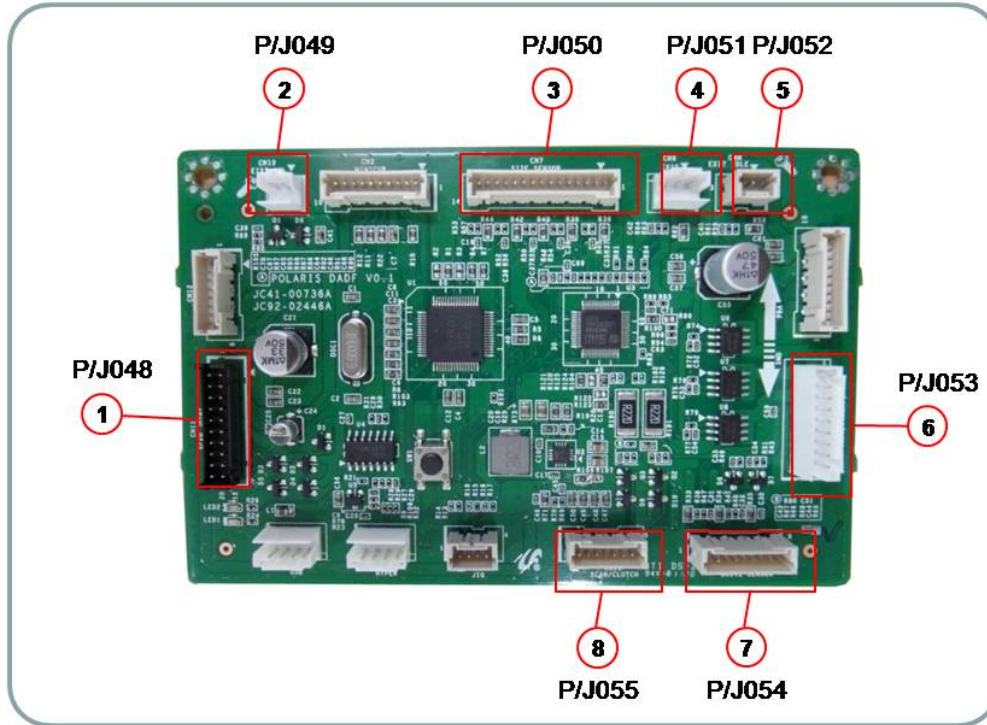
- Part Code : JC92-02435A
- Part Name : OPE KEY

• Connection

1	Interface Connector to OPE Main
---	---------------------------------

2.11.3. ADF PBA

ADF PBA controls the DADF driving. It uses RENESAS's uPD70F3824(48MHz Main Clock, 256KB Flash memory, 24KB RAM) and interfaces with MAIN PBA through UART communication. It has one Motor Driver IC for motor driving and controls one BLDC motor, one solenoid, two clutch, ten sensors.



- **Information**

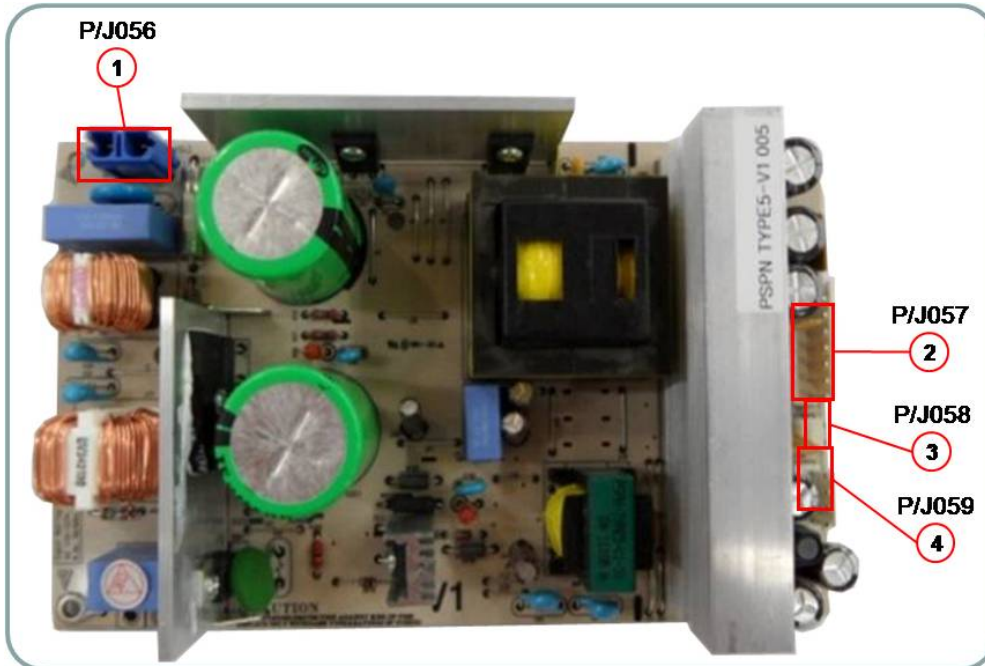
- Part Code : JC92-02446A
- PBA Name : PBA-ADF

- **Connection**

1	Scan Joint PBA
2	Exit Solenoid
3	Length Sensor 1,2,3 / Width Sensor 1,2
4	Exit Sensor
5	Exit Idle Sensor
6	BLDC Motor
7	Cover Open Sensor / Regi. Sensor / Detect Sensor
8	Pick up Clutch / Regi. Clutch / Scan Read Sensor

2.11.4. SMPS (Switching Mode Power Supply) board

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

- 1) AC 110V (90V ~ 135V)
- 2) AC 220V (180V ~ 270V)
- 3) Input Current: 13.7A (110V) / 6.8A (220V)
- 4) Output Power: 1500W
 - DC 5V : 55W / DC 5VS : 30W / DC 24V : 432W

- Information**

	110V	220V
Part Code	JC44-00093A	JC44-00100C
Part Name	SMPS Type 5 V1	SMPS Type 5 V2

- Connection**

1	INPUT_AC
2	OUTPUT_24V1/2/3/4/5/6 (to DC POWER PBA)
3	SMPS Enable
4	OUTPUT_5V1/2/3/4/S1/S2 (to DC POWER PBA)

- **Input / Output connector**

- **AC Input Connector (CN1)**

PIN Assign	PIN NO	Description
1	AC_L	AC Input
2	AC_N	

- **AC Input Connector (CN2)**

PIN Assign	PIN Name	Description
1	GND	AC Input
2	24VOn_Off	
3	GND	

- **DC Output Connector (CN3)**

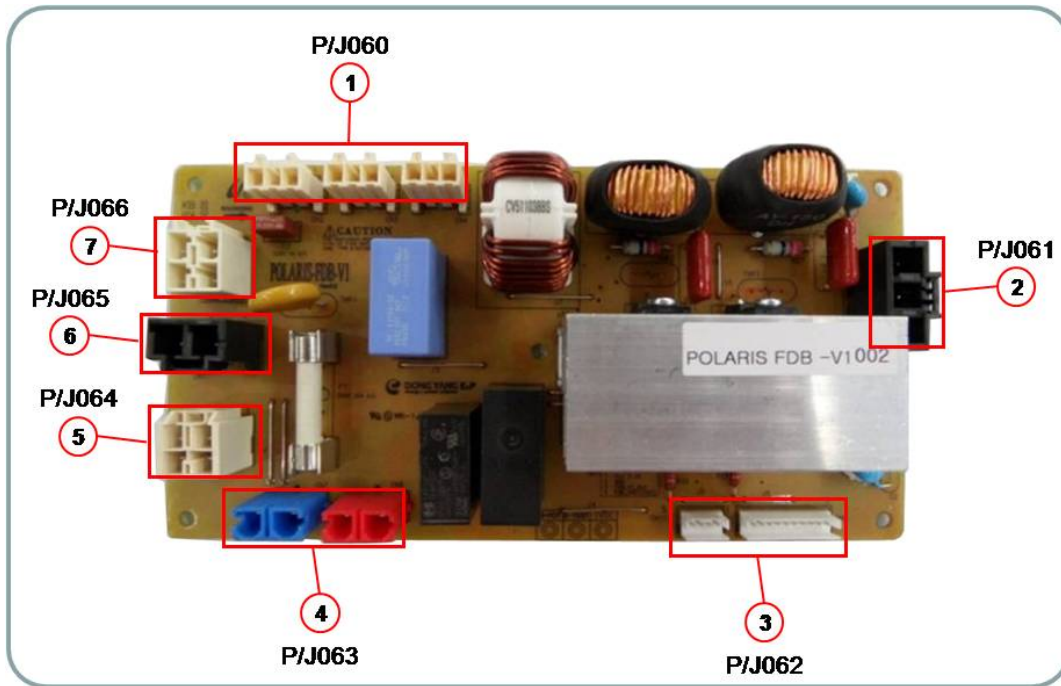
PIN Assign	PIN Name	Description
1	+24V1	Power
2	GND	24V Ground
3	+24V2	Power
4	+GND	24V Ground
5	+24V3	Power
6	GND	24V Ground
7	+24V4	Power
8	GND	24V Ground

- **DC Output Connector (CN4)**

PIN Assign	PIN Name	Description
1	+5V1	Power
2	GND	5V Ground
3	+5V2	Power
4	GND	5V Ground

2.11.5. Fuser Drive Board (FDB)

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



- **Information**

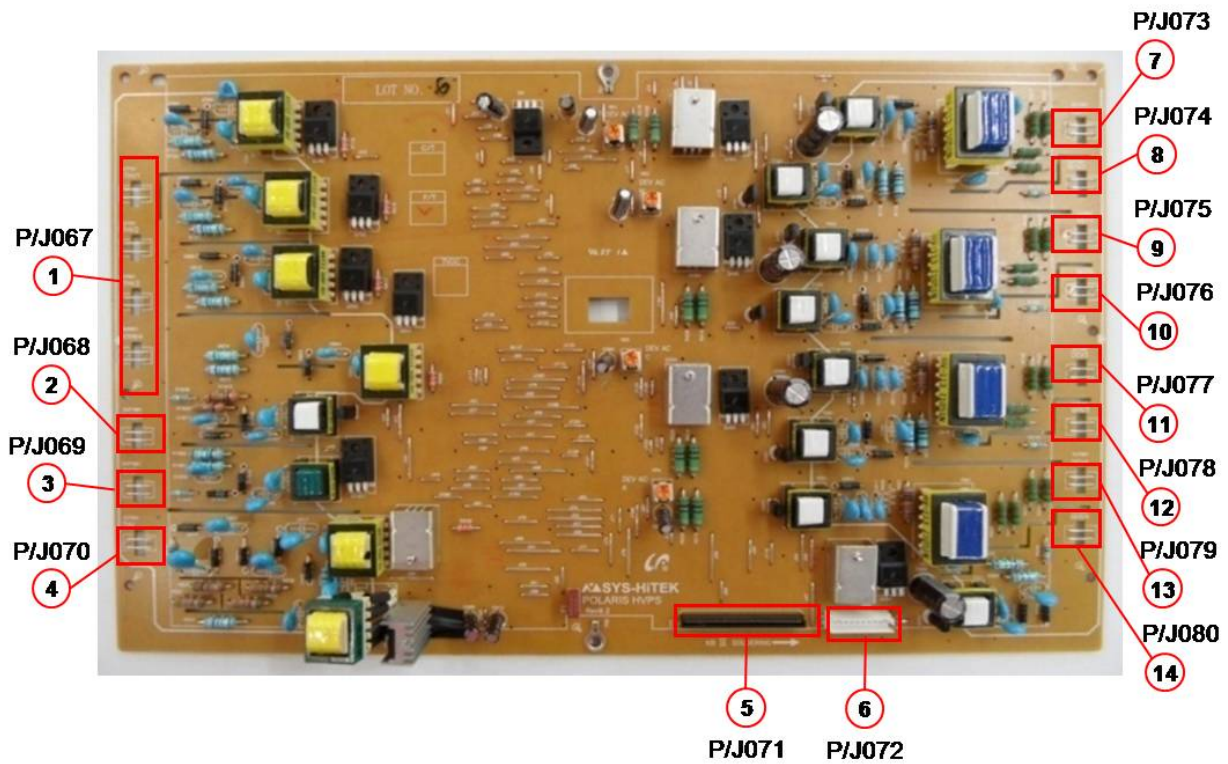
	110V	220V
SEC CODE	JC44-00210A	JC44-00211A
PBA NAME	FDB V1	FDB V2

- **Connection**

1	Heater I/F
2	Fuser AC
3	FDB I/F
4	Type 5
5	Main S/W
6	Inlet
7	Heater S/W

2.11.6. HVPS board

HVPS board generates 15 high-voltage channels, which include ITHV(4), MHV(4), DEV(4), FUSER, SAW, THV.



- **Information**

- Part Code : JC44-00212A
- Part Name : HVPS

- **Connection**

1	Ithv Y/M/C/K
2	FUSER
3	SAW
4	THV
5	HVPS I/F
6	HVPS VOLTAGE
7	DEV Y
8	MHV Y
9	DEV M
10	MHV M
11	DEV C
12	MHV C
13	DEV K
14	MHV K

2.11.7. Eraser PBA

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

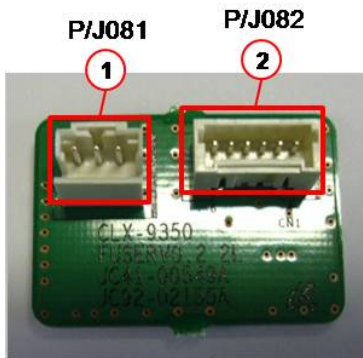


- **Information**

- Part Code : JC92-02457A
- Part Name : PBA-ERASER

2.11.8. 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**

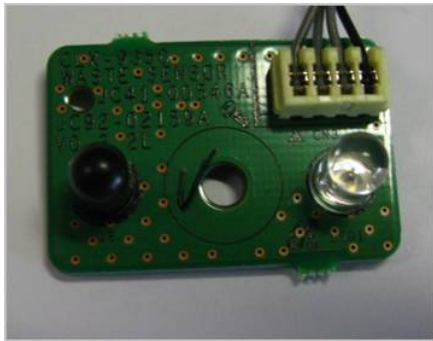
1	Fuser EEPROM, Pressure Sensor I/F
2	Pressure Sensor

- **Information**

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

2.11.9. Waste Sensor PBA

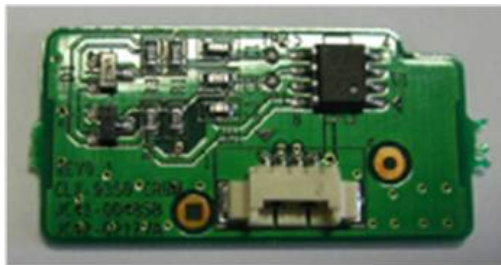
The Waste Sensor PBA detects the waste toner level inside the waste toner container.



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

2.11.10. CRUM PBA

The CRUM PBA includes CRU memory for developer unit, drum unit, toner cartridge life cycle counting.



- **Information**
 - Part Code : JC92-02456A
 - Part Name : TONER CRUM

2.11.11. Deve CRUM Joint PBA

The Deve Crum Joint PBA is the interface PBA between the imaging unit(drum unit and developer unit) and the machine.



- **Information**
 - Part Code : JC92-02163A
 - Part Name : DEVE CRUM JOINT

2.11.12. Toner CRUM Joint PBA

The Toner CRUM Joint PBA is the interface PBA between the toner cartridge and the machine.



- **Information**

- Part Code : JC92-02164A
- Part Name : TONER CRUM I/F

2.11.13. ITB Encoder PBA

The ITB Encoder PBA provides ITB belt rotation speed information by using a specific photo interrupt sensor (Encoder Sensor).



- **Information**

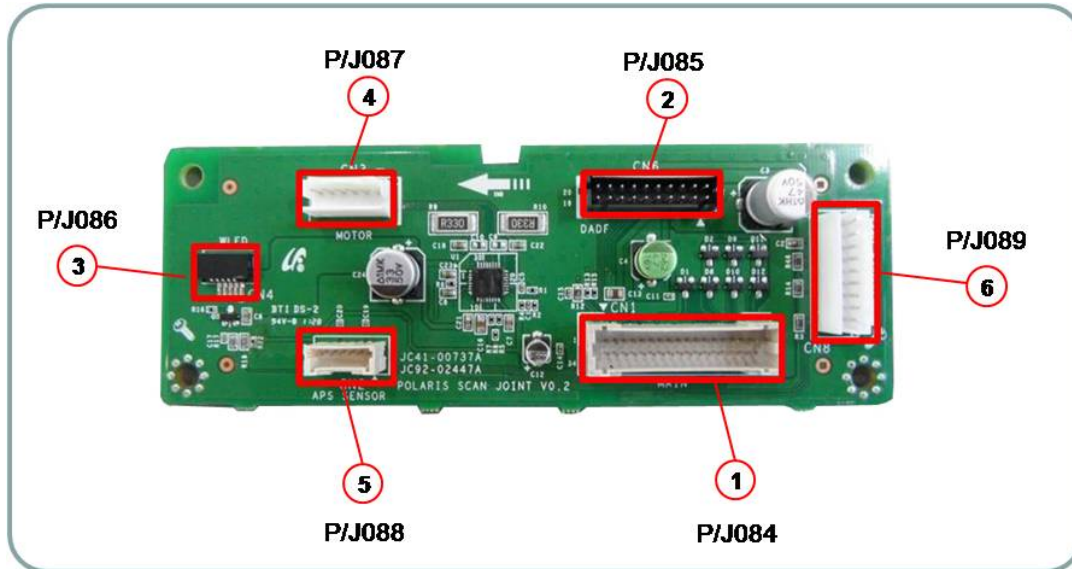
- Part Code : JC92-02455A
- Part Name : ITB ENCODER

- **Connection**

1	ITB Encoder Interface
---	-----------------------

2.11.14. Scan Joint PBA

The Scan Joint PBA has one bipolar step motor drive IC for driving the scanner motor. It functions as connection between WLED, APS Sensor1, APS Sensor2, Cover Open Sensor1, Cover Open Sensor2, Home Position Sensor and Main PBA. And it functions as the joint PBA for ADF I/F and 24V, 5V power connectors.



- **Information**

- Part Code : JC92-02447A
- Part Name : PBA-SCAN JOINT

- **Connection**

1	MAIN PBA
2	ADF PBA
3	WLED CTL PBA
4	Scan Motor
5	APS Sensor1,2
6	Home Position Sensor, Cover Open Sensor 1,2

2.11.15. Charge Coupled Device Module(CCDM) PBA

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**

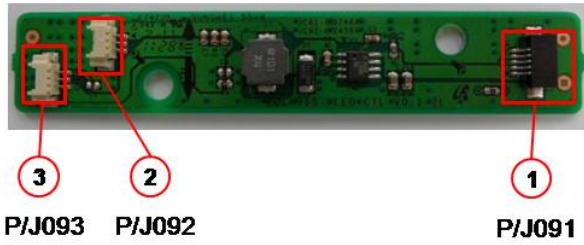
- Part Code : JC92-02458A
- Part Name : PBA-CCDM

- **Connection**

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

2.11.16. White-LED(WLED) CTL PBA

The WLED CTL PBA has the LED DRIVER IC for WLED light drive.



- **Information**

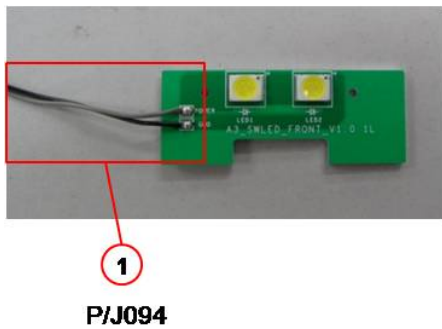
- Part Code : JC92-02459A
- Part Name : PBA-WLED CTL

- **Connection**

1	Scan Joint PBA
2	WLED AL Front
3	WLED AL Front

2.11.17. White-LED(WLED) AL FRONT PBA

The WLED AL FRONT consists of two WLED used as scanner light. The scanner unit has two WLED AL FRONT PBAs.



- **Information**

- Part Code : JC92-02460A
- Part Name : PBA-WLED AL Front

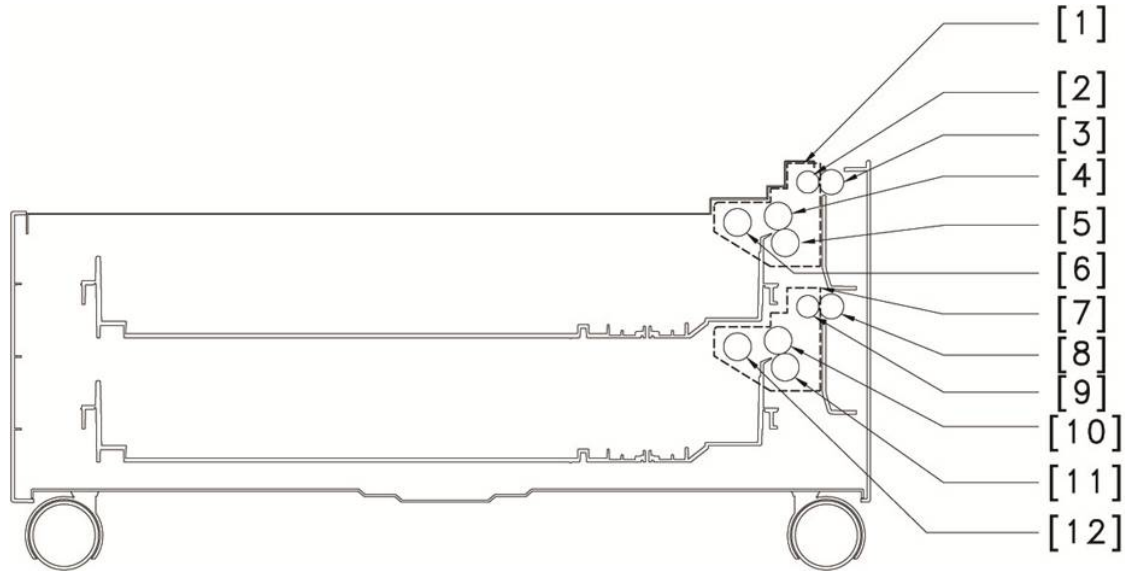
- **Connection**

1	WLED CTL PBA
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2.12. DCF Unit

DCF (Double Cassette Feeder) is an optional device to store more papers.

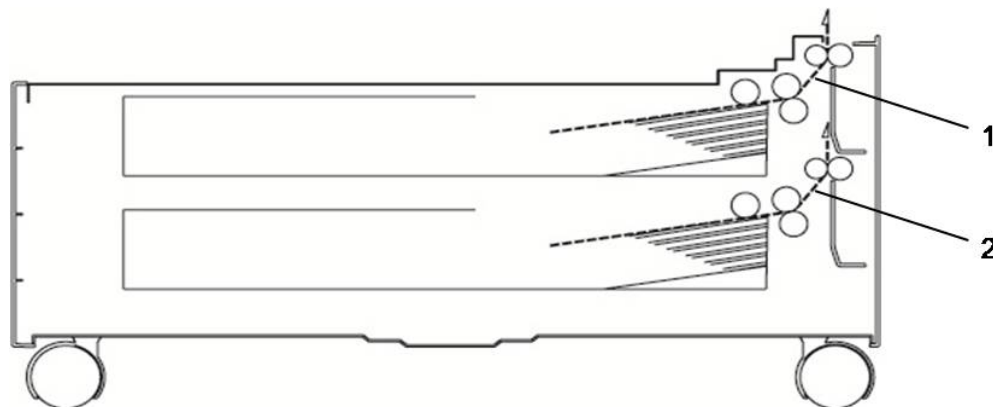
1) Front sectional view



1	Cassette 3 Pickup Assembly
2	Feed Roller (Cassette 3)
3	Idle Roller (Cassette 3)
4	Forward Roller (Cassette 3)
5	Retard Roller (Cassette 3)
6	Pickup Roller (Cassette 3)
7	Cassette 4 Pickup Assembly

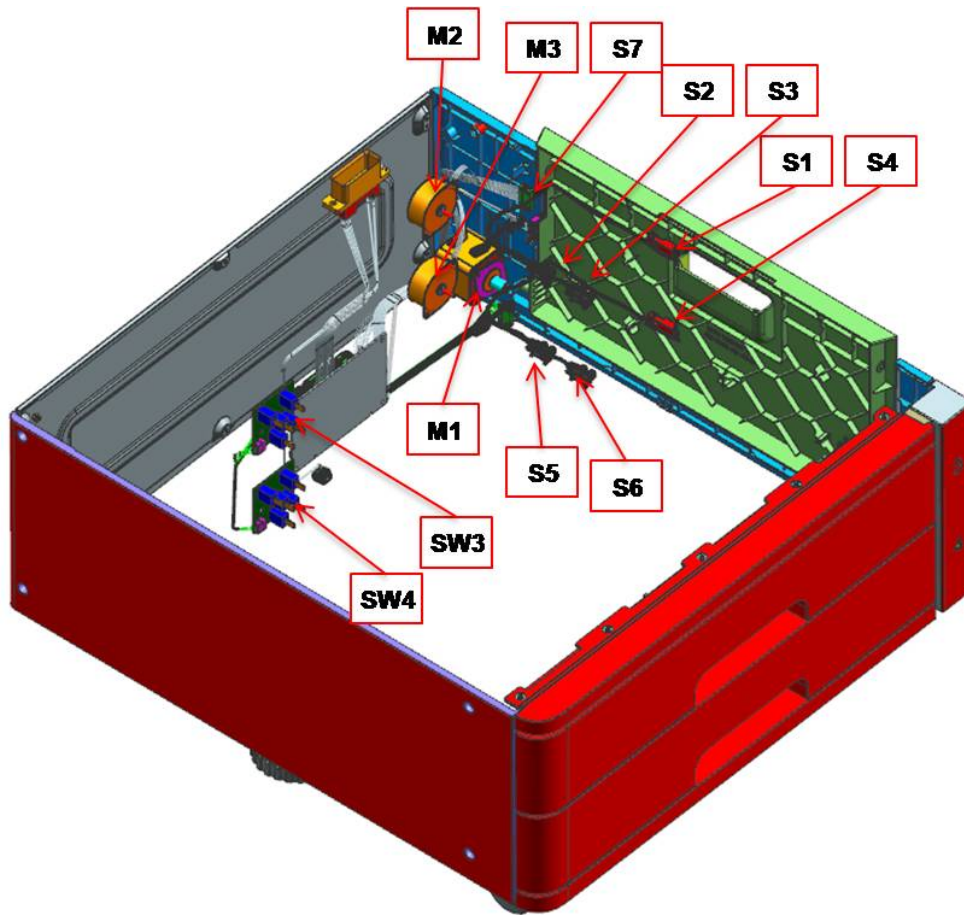
8	Feed Roller (Cassette 4)
9	Idle Roller (Cassette 4)
10	Forward Roller (Cassette 4)
11	Retard Roller (Cassette 4)
12	Pickup Roller (Cassette 4)

2) Paper path



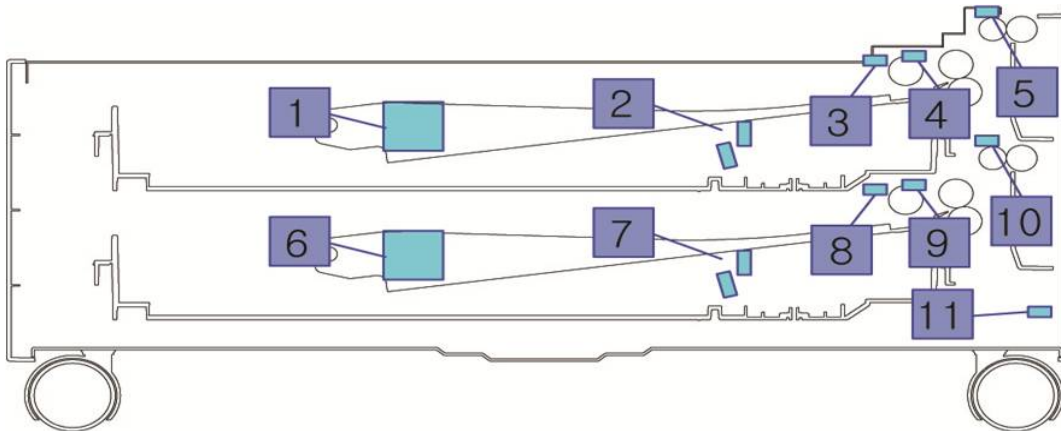
1	Tray3 paper path
2	Tray4 paper path

3) Layout of electrical parts



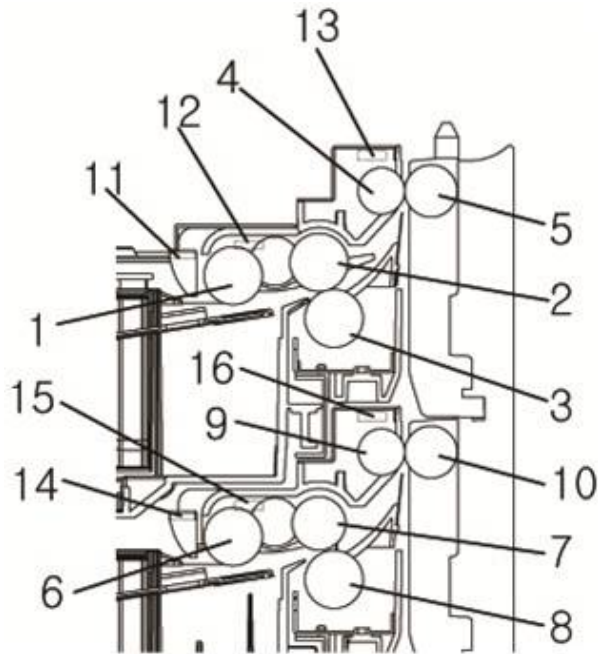
Ref.	Description	Parts number	DC controller PCB
M1	Feed motor	JC31-00033B	CN5 3 to 6
M2	Tray3 Pick up motor	JC31-00149A	CN5 9 to 12
M3	Tray4 Pick up motor	JC31-00149A	CN5 13 to 16
SW1	Tray3 auto size switch	JC32-00013A	CN9 1 to 4
SW2	Tray4 auto size switch	JC32-00013A	CN9 5 to 8
S1	Tray3 feed sensor	0604-001381	CN6 7 to 9
S2	Tray3 limit sensor	0604-001393	CN6 4 to 6
S3	Tray3 paper empty sensor	0604-001393	CN6 1 to 3
S4	Tray4 feed sensor	0604-001381	CN6 16 to 18
S5	Tray4 limit sensor	0604-001393	CN6 13 to 15
S6	Tray4 paper empty sensor	0604-001393	CN6 10 to 12
S7	Door open sensor	JC39-01696A	CN3 1 to 2

4) Sensor and signal



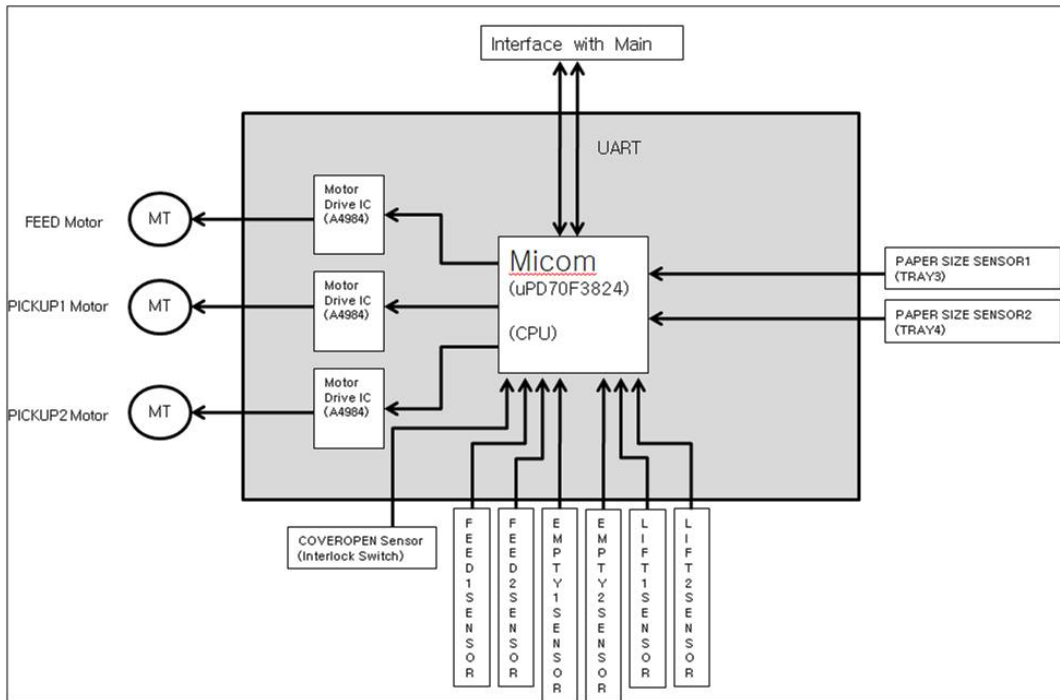
No.	Sensor	Signal
1	P_Size_DCF1	Tray3 Paper Size analog signal
3	nP_Empty_DCF1_IHCF	Tray3 Paper Empty signal
4	Limit_DCF1_IHCF	Tray3 Paper Limit signal
5	Feed_DCF1_IHCF	Tray3 Feed signal
6	P_Size_DCF2	Tray4 Paper Size analog signal
8	nP_Empty_DCF2	Tray4 Paper Empty signal
9	Limit_DCF2	Tray4 Paper Limit signal
10	Feed_DCF2	Tray4 Feed signal
11	nDoor_open	Door open signal

5) Paper feeding system



No.	Name	Description
1 6	Pickup Roller (Cassette 3) Pickup Roller (Cassette 4)	This roller transports the paper from the cassette3 or 4.
2 7	Forward Roller (Cassette 3) Forward Roller (Cassette 4)	This roller transports the paper from the pickup roller to the feed roller.
3 8	Retard Roller (Cassette 3) Retard Roller (Cassette 4)	When two sheets of paper or more are transported from the pickup roller, the torque limit load is bigger than the resistance between the sheets. As the result, retard roller is stopped and the lower paper is not advanced any further. When the last sheet is transported from the pick up roller, the retard roller rotates following the feed roller.
4 9	Feed Roller (Cassette 3) Feed Roller (Cassette 4)	This roller transports the paper from the forward roller to the basic machine.
5 10	Idle Roller (Cassette 3) Idle Roller (Cassette 4)	When the paper is passed at the feed roller, this roller makes paper transporting be smooth.
11 14	nP_Empty_DCF1 nP_Empty_DCF2	This sensor detects the paper in the cassette3 or 4.
12 15	Limit_DCF1_IDCF Limit_DCF2_DCF	This sensor detects whether the paper is at pickup position or not.
13 16	Feed_DCF1_IDCF Feed_DCF2_DCF	This sensor detects the leading edge of the paper that is passing on the feed roller.

6) Block Diagram



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

The Microm in the board receives the information from the paper size sensor, empty sensor, feed sensor etc. and communicates with the copier main board through the UART.

When being received the print job command from the interface connector (CN7) through UART, DCF board drives the feed motor and pick up motor to pick up a paper.

This board has 2 LEDs. The left LED is for checking 5V power supply and the right LED is checking the microm operation.

7) Plug and jack location list

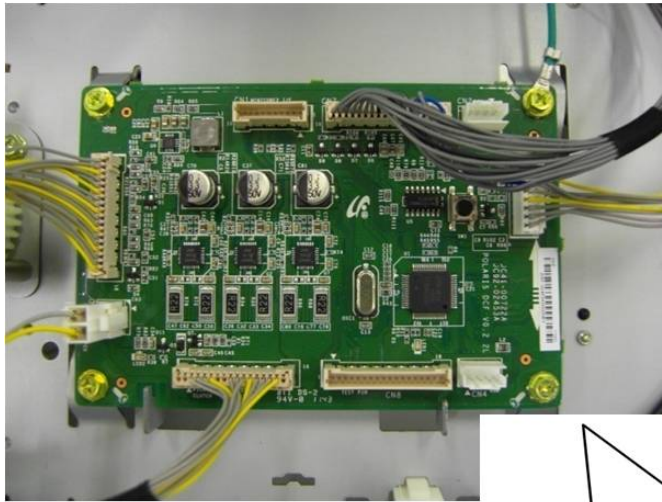
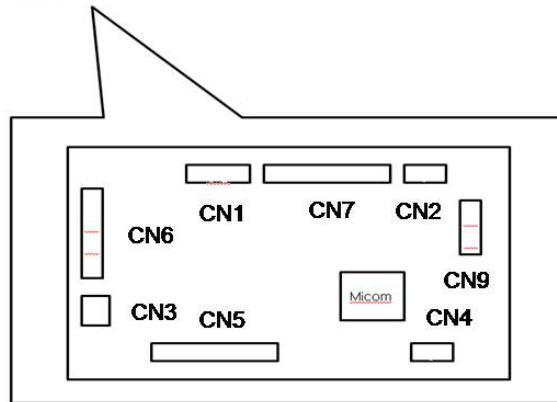


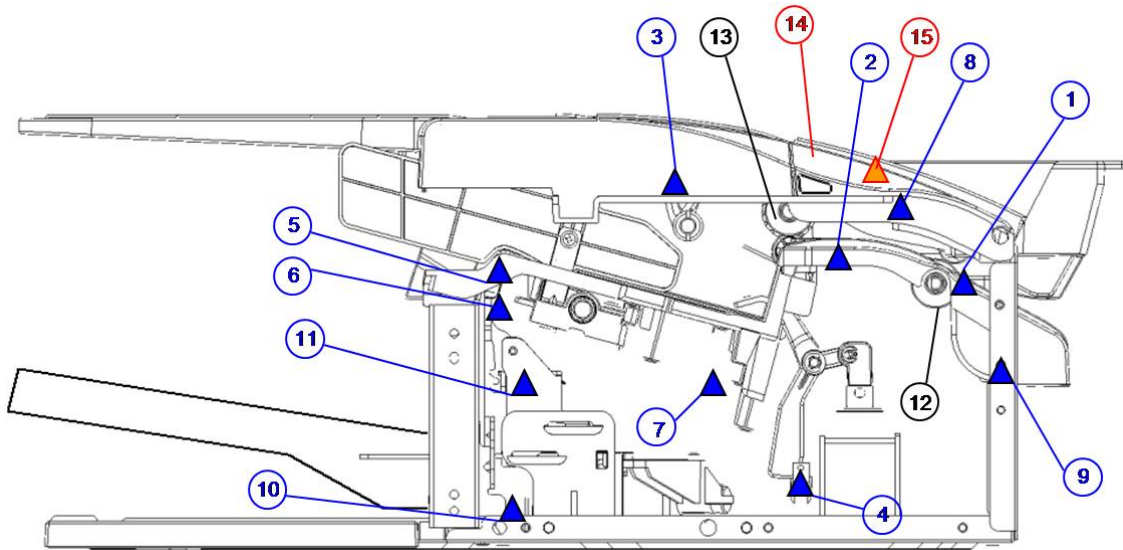
Figure 1



Connector Number	Connection
CN1	Download tool I/F(Minicube)
CN2	Debug I/F
CN3	Cover open Switch (24V interlock Switch)
CN4	USB I/F
CN5	EMPTY/LIFT/FEED(Tray3,4) Sensor
CN6	FEED / PICKUP3,4 Motor
CN7	Interface with Main
CN9	Papersize sensor(Tray3,4)

2.13. Finisher

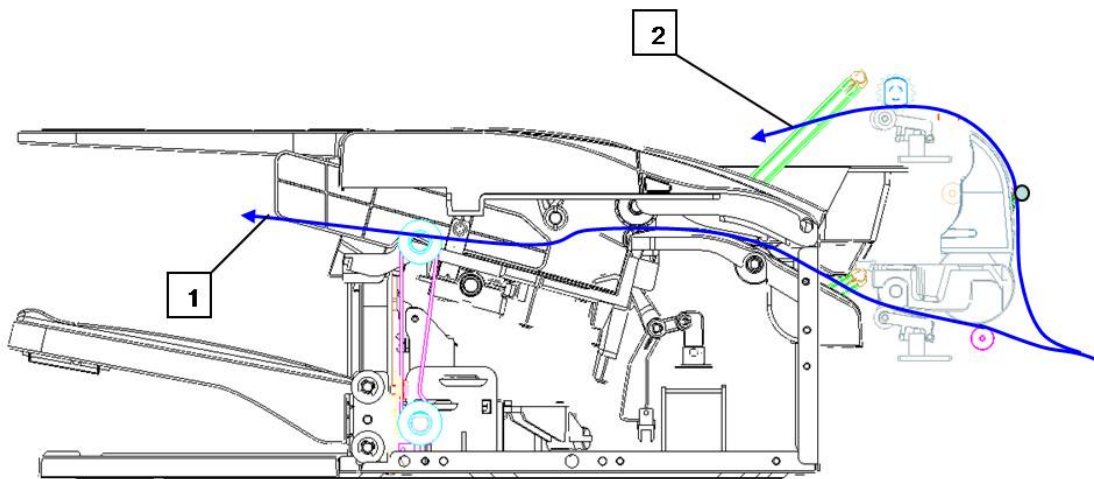
1) Front Section View



1	Entrance Sensor
2	Passthru Sensor
3	Paddle Home Sensor
4	Media Height Sensor
5	Tamper Home_R Sensor
6	Tamper Home_F Sensor
7	Eject Home Sensor
8	Jam Door Open Sensor

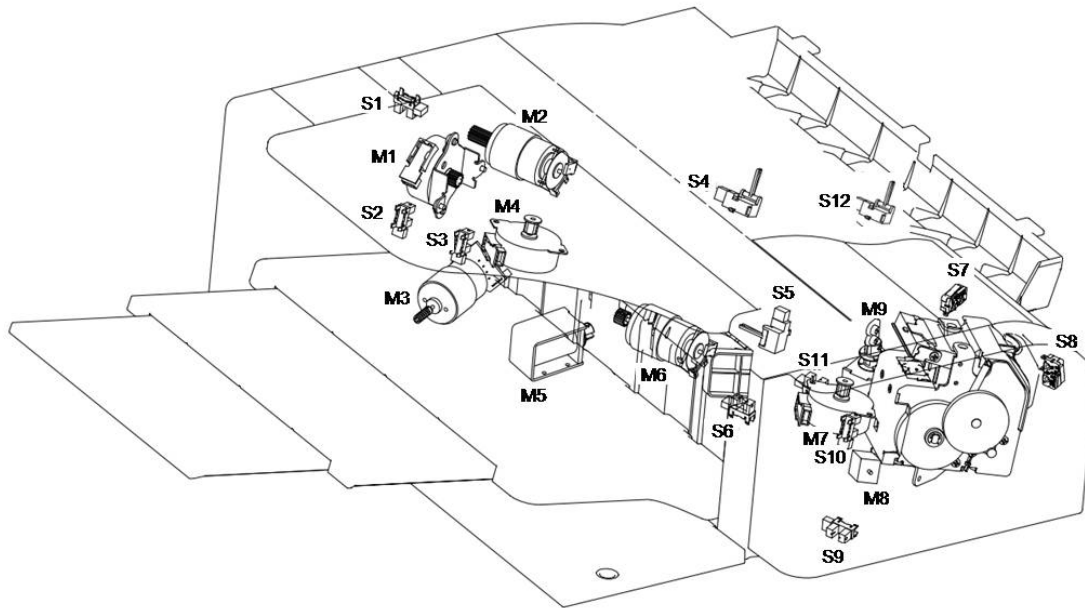
9	Front Door Open Sensor
10	Stacker Tray STB Sensor
11	Stacker Tray Home Sensor
12	Paper Feed roller
13	Paper Exit roller
14	Jam door
15	Turning Knob

2) Paper Path



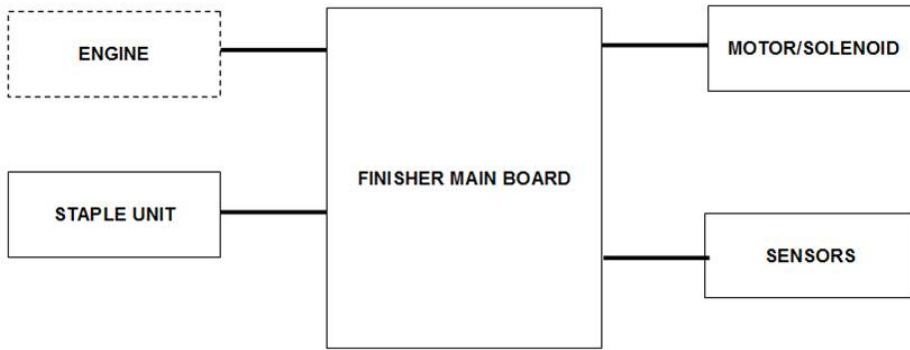
1	Finisher Main Tray - Staple / Offset
2	Finisher Top Tray – None Staple

3) Layout of electrical parts

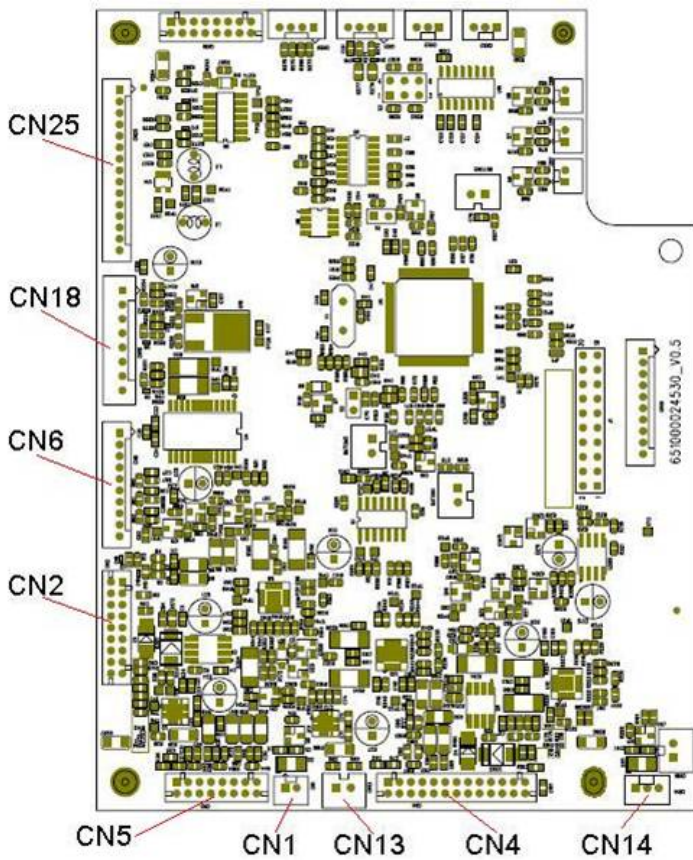


Ref.	Part Name	Function
S1	SENSOR_TOSHIBA TLP1243(C8)	Paddle Home Sensor
S2	SENSOR_TOSHIBA TLP1243(C8)	Rear Tamper Home Sensor
S3	SENSOR_TOSHIBA TLP1243(C8)	Rear Tamper Home Sensor-LET
S4	AS Sensor_KIA0005C	Pass- thru Sensor
S5	AS Sensor_KIA0005C	Ejector Home Sensor
S6	SENSOR_TOSHIBA TLP1243(C8)	Tray STB Sensor
S7	SM5-108N2-80S-C5	Jam Door Open Sensor
S8	SM5-108N2-80S-C5	Front Cover Open Sensor
S9	SENSOR_TOSHIBA TLP1243(C8)	Tray Home Sensor
S10	SENSOR_TOSHIBA TLP1243(C8)	Front Tamper Home Sensor
S11	SENSOR_TOSHIBA TLP1243(C8)	Media Height Sensor
S12	AS Sensor_KIA0005C	Entrance Sensor
M1	ASSY:HB MOTOR:S2M19T	Paddle Motor
M2	ASSY:HB MOTOR:S2M19T	Feed Motor
M3	ASSY:PM MOTOR:S2M12T	Stacker Moving Motor
M4	ASSY:PM MOTOR:S2M12T	Rear Tamper Motor
M5	ASSY:PM MOTOR:S2M20T	SCU Solenoid
M6	AS-MOTOR DC EJECTOR	Ejector Motor
M7	AS-MOTOR PM:Z18:HELICAL	Front Tamper Motor
M8	AS-MOTOR PM:STAPLER	Stapler Cover Solenoid
M9	AS-MOTOR PM:STAPLER	Push Holder Solenoid

4) Block Diagram



5) Plug and jack location list



Connector	Connection
CN25	ENGINE Interface
CN18	Door and Cover Switch
CN6	Stapler unit
CN2	Feeder/Paddle motors and sensors
CN5	Main tray motor and sensors

Connector	Connection
CN1	Push holder solenoid
CN13	Stapler cover solenoid
CN4	Tamper/Ejector motors and sensors
CN14	SCU solenoid

2.14. Wireless LAN Option

This option will enable wireless printing without the additional wireless AP.

- **Support model**
 - CLX-9301 / 9251 / 9201 series
 - SCX-8128 / 8123 series
 - CLX-9352 / 9252 series
 - SCX-8240 / 8230 series
 - CLX-8650 / 8640 series

- **Sales Target Subsidiaries**

Region	1st Target	2nd Target
EU	SEG / SEI / SEUK / SEF	SENA / SEBN / SEPOL / SEAG
North America	SEA	SECA

- **Specification**

Item	Description
Wireless LAN	2.4 GHz Single Band IEEE 802.11 b/g/n compliant
Security	WEP, WPA-PSK, WMM, WMM-PS, TKIP, and AES hardware acceleration
Wi-Fi	WPS(Wi-Fi Protected Setup™) compatible Wi-Fi Direct™ compatible
NFC	NFC (Passive type)
Host Interface	USB 2.0
Dimension	205.0*145.0*55.0 mm
Weight	0.16Kg

• Component



1	Wireless Kit	<ul style="list-style-type: none"> JC63-04415A [COVER-WLAN] JC63-04416A [COVER-WLAN LOWER] JC92-02308A [PBA-WNPC] JC39-02052A [HARNESS-WLAN]
2	USB Extension cable	JC39-02053A [HARNESS-WLAN EXTENSION]
3	Internal Harness for CLX-9x52/SCX-82x0	JC39-01192A [HARNESS-WIRELESS LAN]
4	NFC Tag	JC68-03012A [LABEL ETC-NFC TEXTILE STICKER]
5	NFC Guide Sticker	JC68-03048A [LABEL VER-INFORMATION]

 **NOTE**

For installing this option, refer to QIG(Quick Installation Guide).

NFC Tag write

• Summary

2. Product Specifications and Description



1) PIN code

- Check the current PIN code of printer using print report(Network setting).
- Printer : “Setup” → “Reports” → “Print”
- “Wi-Fi Direct Information” > ***“WPS-PIN for NFC”**

```

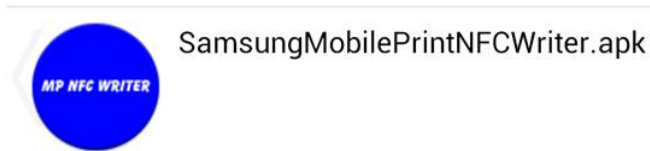
Wi-Fi Direct Information
Wi-Fi Direct           : Disabled
Current Status        : Not Connected
WPS-PIN for NFC       : 12345670
    
```

2) NFC Setting

- NFC option of mobile phone should be turned on before using tag writer
 - Android 4.1 : Settings → WIRELESS & NETWORKS More... → NFC checkbox
 - Android 4.0 : Settings → WIRELESS & NETWORK NFC On

3) NFC Tag Writing App (This application will be issued via service bulletin by HQ CS)

a) Install the App.



Install “SamsungMobilePrintNFCWriter” APK file

b) Run NFC Writer

NOTE
Please turn on the WiFi before checking WPS-PIN for NFC value



c) Search for Wi-Fi Direct printers. Select target printer.

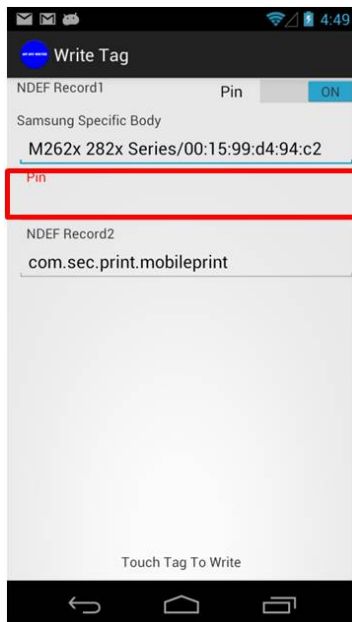
NOTE

Wi-Fi Direct should be turned on in both printer and mobile phone.



d) Model information : Model Name, MAC Address, AAR

Need to insert PIN code if target model supports WFD PIN connection. (NFC model)

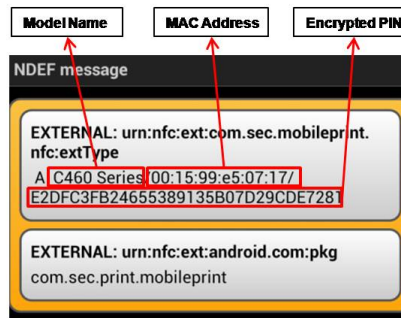
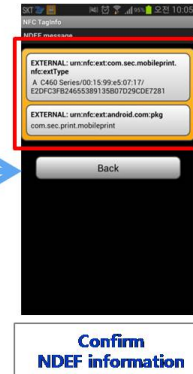
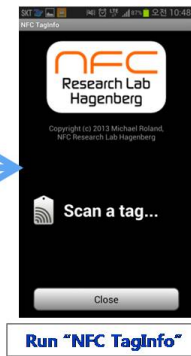
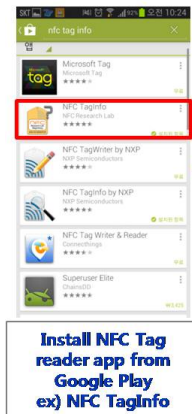
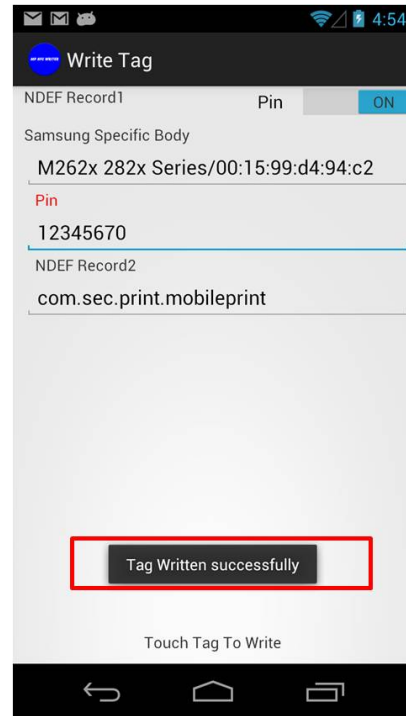
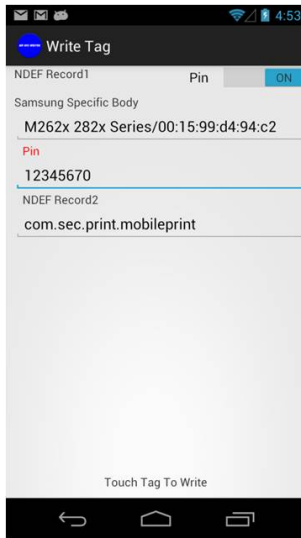


e) Touch mobile phone to NFC tag, and then it will show “Tag written successfully” message.

NOTE

If there occurs an error while writing NFC tag, try to touch NFC tag again.

2. Product Specifications and Description



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

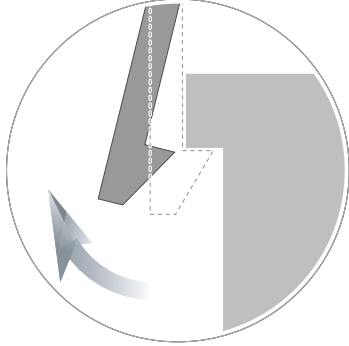
Static electricity can damage a PBA, always use approved anti-static precautions when handling or storing a PBA.

- **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

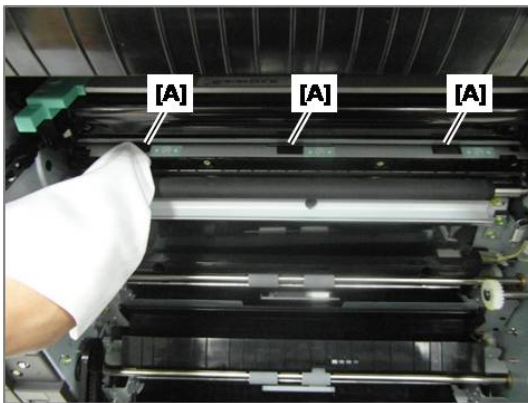
3.2.1. Machine Cleaning for maintenance

3.2.1.1. Cleaning the ACR/CTD sensor window

1. Open the side cover.



2. Clean the sensor window[A] by using a soft cloth.



3. Close the side cover.
4. Enter the SVC mode. Select “**CTD Sensor Cleaning**”. (Diagnostics > Image Management > Auto Color Tone Adjustment Condition > CTD Sensor Cleaning)
5. When appearing the confirm popup menu, select “Yes” button on screen.



NOTE

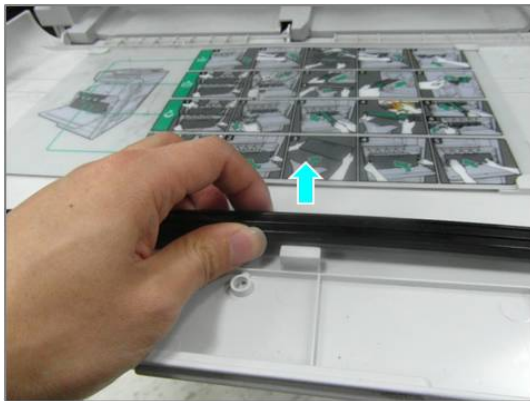
If you don't execute “CTD sensor cleaning” menu on SVC mode after cleaning the sensor window, the error message will not disappear.

3.2.1.2. Cleaning the LSU window

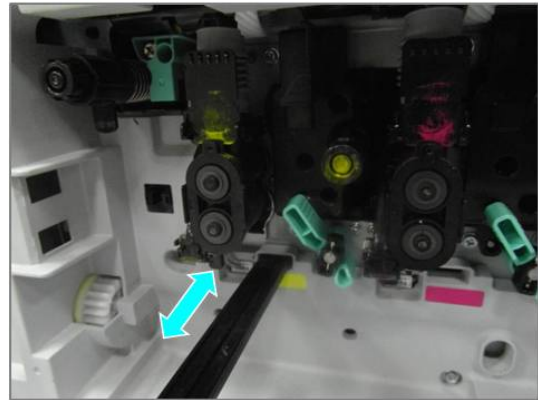
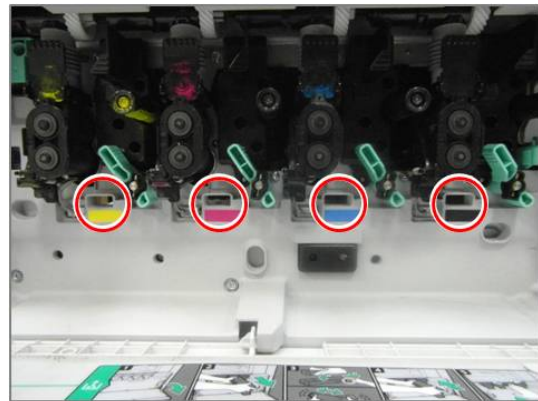
1. Open the front cover. Remove the waste toner container[A].



2. Take out the LSU window cleaning tool that is located on the front cover.



3. Insert the LSU window cleaning tool to each color hole.



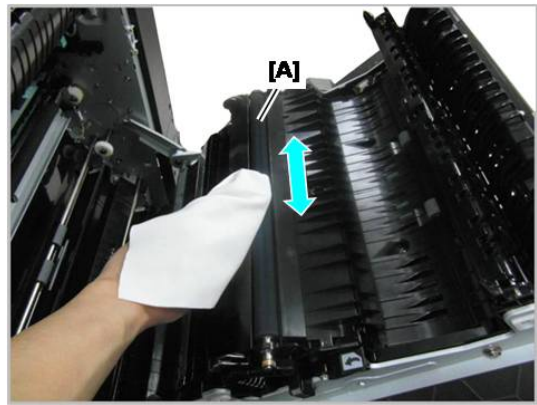
4. Slowly pull out and push the cleaning tool.
5. Repeat step 4 at least 5 times for each LSU window.

3.2.1.3. Cleaning the transfer roller

1. Open the side cover.



2. Clean the transfer roller[A] by using a soft cloth.

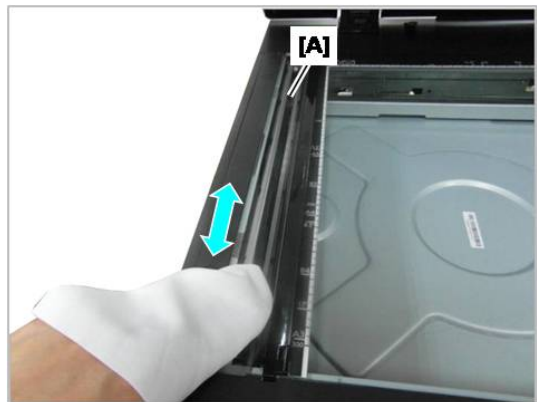


3.2.1.4. Cleaning the scan glass

1. Open the DADF Unit.



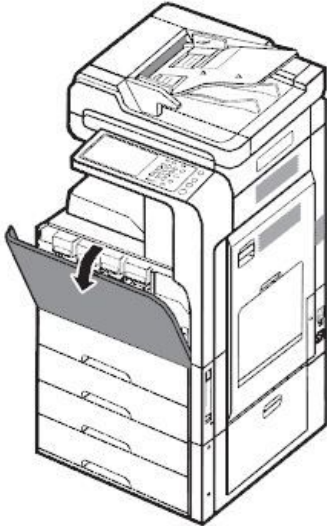
2. Clean the scan glass[A] by using a soft cloth.



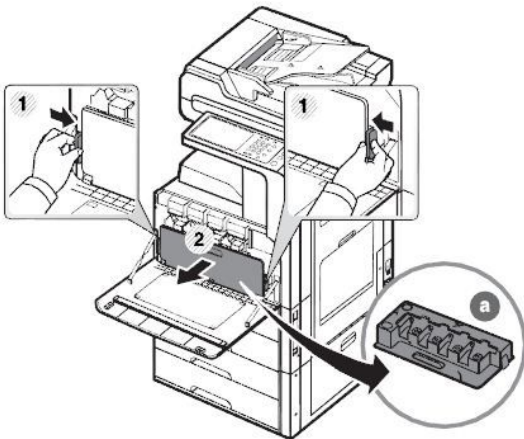
3.2.2. Replacing the maintenance part

3.2.2.1. Drum Unit

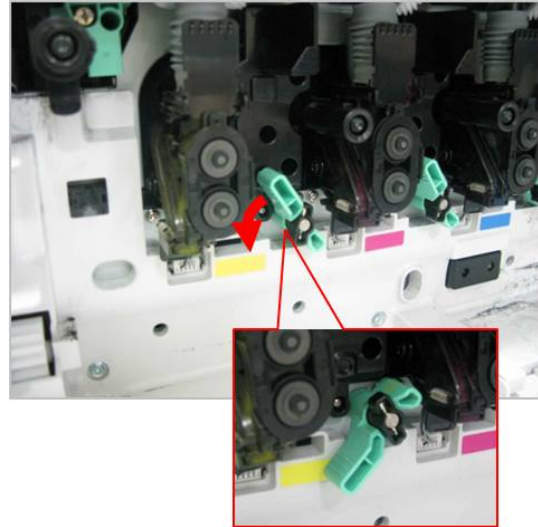
1. Open the front cover.



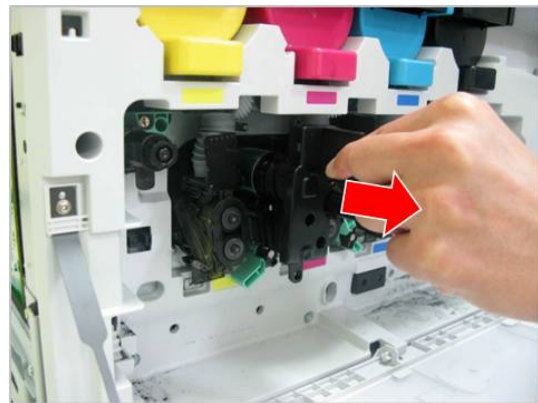
2. Remove the waste toner container.



3. Turn the green lever counterclockwise.

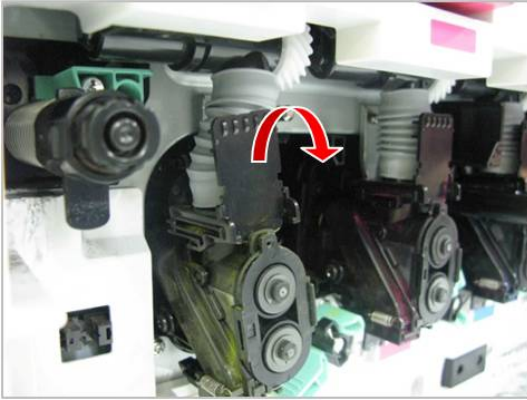


4. Hold the Drum unit and take it out.

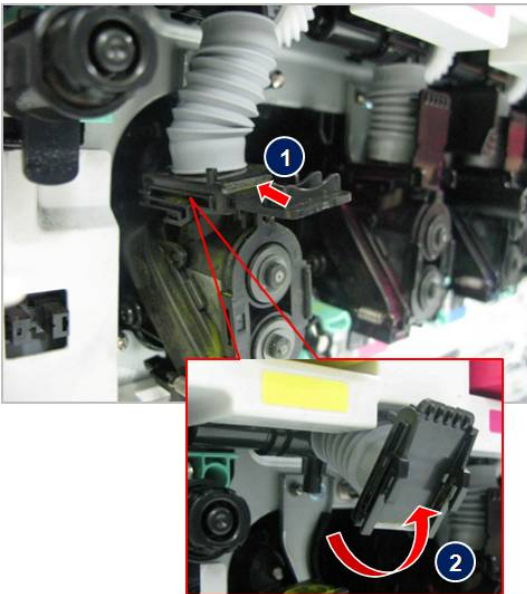


3.2.2.2. Developer Unit

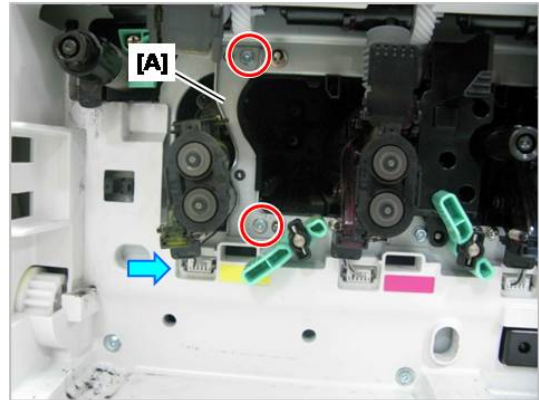
1. Turn the machine off. Then remove the corresponding drum unit. (Refer to 3.2.2.1)
2. Pull down the toner supply shutter.



3. Push the toner supply shutter to the direction of arrow. And then release the toner supply cap.



4. Remove the bracket[A] after removing 2 screws. Unplug the connector.



5. Remove the developer unit.



! NOTE

It is not possible to change the carriers in developer unit for CLX-9201/9251/9301 series. You must replace the whole Developer Unit.

6. Install the new developer unit.
7. Turn the machine on while the front cover is opened.

! NOTE

- 1) When replacing the developer unit, SVC engineer must execute "Life Count Update" and "TC calibration".
- 2) If you turn on the machine after closing the front cover, toner will be supplied without TC calibration. It may affect the image quality.

8. When the control panel is activated, select "Developer Unit" menu. (Information > supply Status > Field Replacement Unit > Developer Unit)

9. Select the “Developer Unit” for all colors that is replaced.

10. Push the OK button

11. Close the front cover.

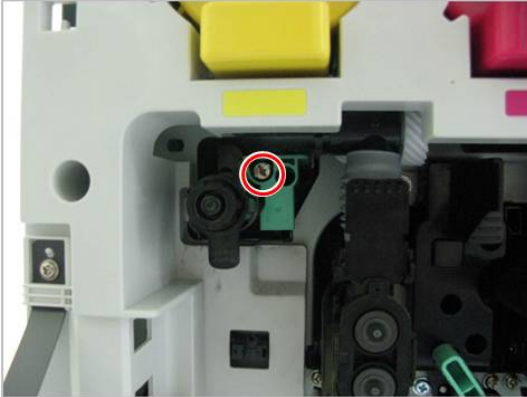


NOTE

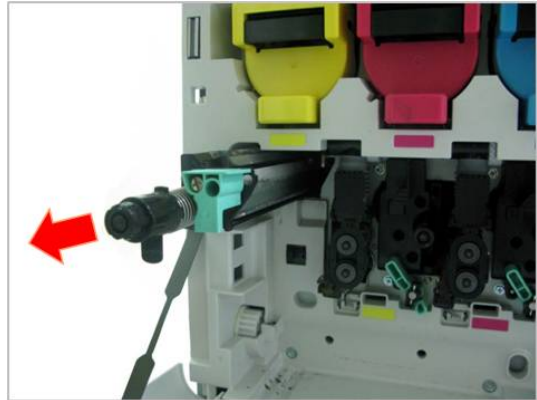
TC calibration will start. Please wait until warm-up operation is completed.

3.2.2.3. ITB Cleaner

1. Open the front cover.
2. Loosen a screw. (Note : Less than torque 6kgf.cm)



3. Release the ITB Cleaner.

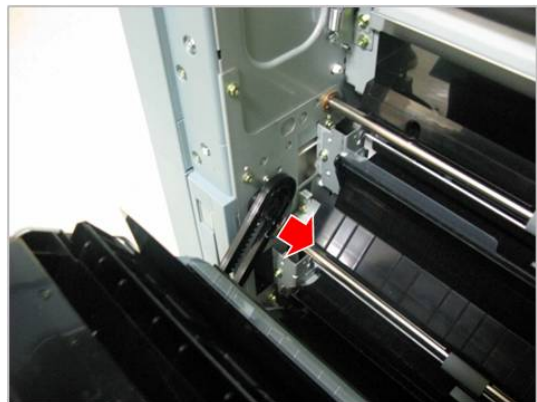


3.2.2.4. ITB Unit

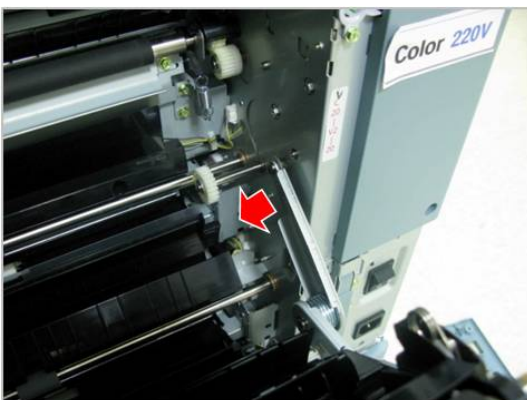
1. Remove the ITB cleaner. (Refer to 3.2.2.3)
2. Open the side cover.



4. Release the left stopper.

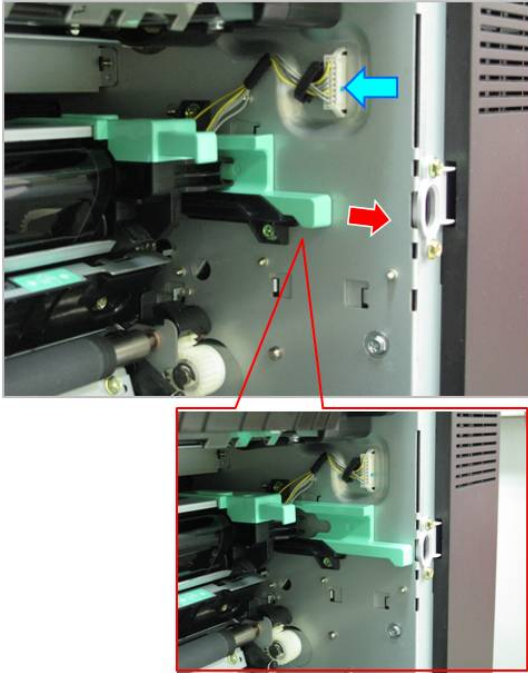


3. Release the right stopper.



3. Disassembly and Reassembly

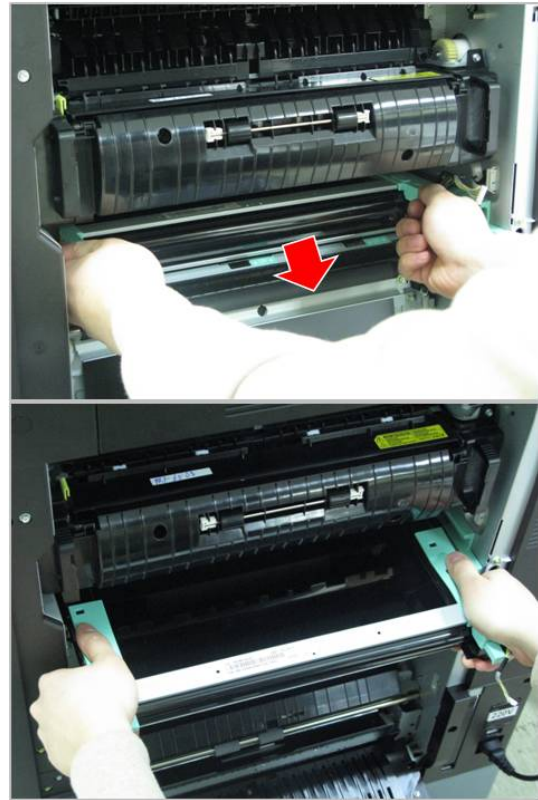
5. Unplug the ITB connector from the right. Pull the holder to the front.



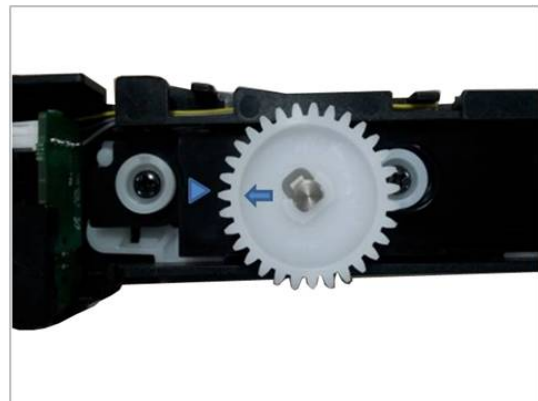
6. Remove 2 screws.



7. Pull out the ITB unit until the green handles are shown totally. Change your grip and release the ITB unit perfectly.



8. Before install the new ITB unit, align the CAM position. (Align 2 arrows)



9. Install the new ITB unit. And then install the ITB cleaner. (Note : Less than torque 6kgf.cm)

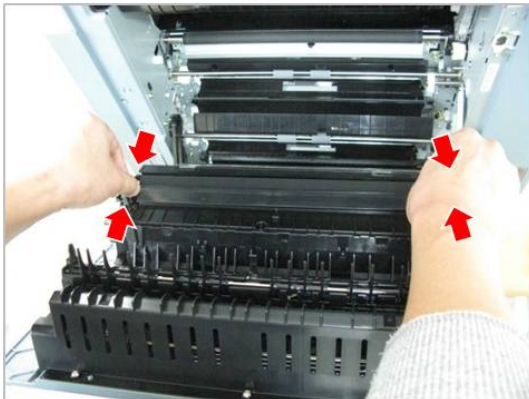
3.2.2.5. Fuser unit

1. Open the side cover.
2. Remove the fuser unit after removing 2 screws.



3.2.2.6. Transfer roller

1. Open the side cover.
2. Hold and release the both sides of the transfer roller.

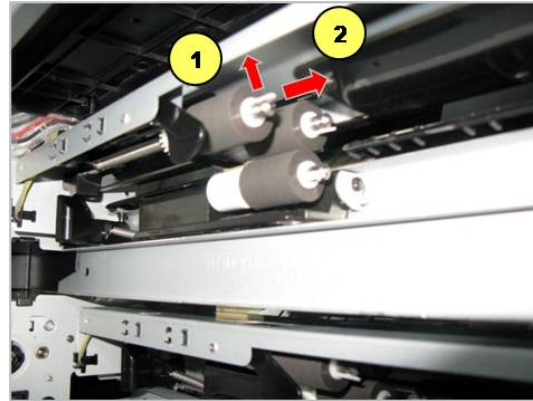


3.2.2.7. Pick-Up_Reverse_Forward roller

1. Open the side cover. Remove 2 cassettes.



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



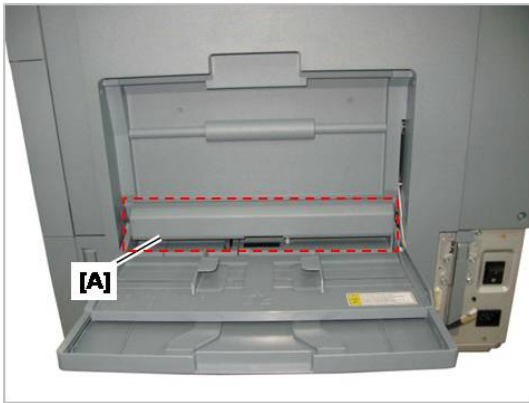
NOTE

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

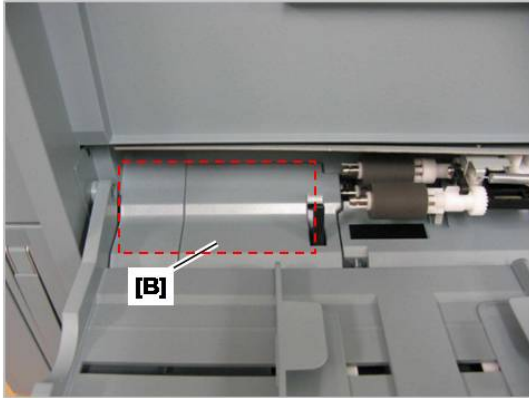
3. Enter SVC mode. Select the menu. (Information > Supply Status > Field Replacement Unit). Push “Reset” button to reset the current count to 0.

3.2.2.8. MP Pick up_Reverse_Forward roller

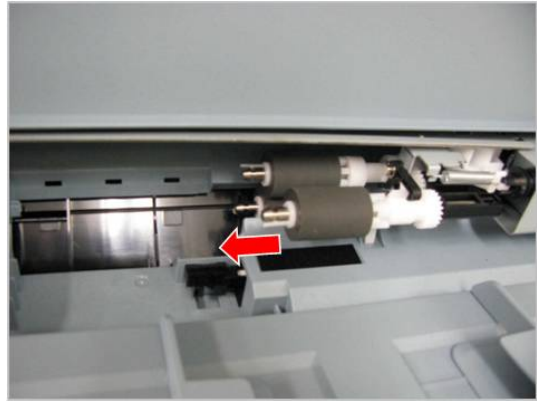
1. Open the MP tray. Remove the cover[A].



2. Remove the cover [B].



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



 **NOTE**

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

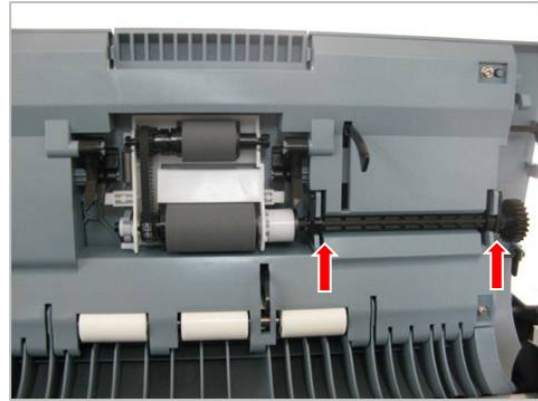
4. Enter SVC mode. Select the menu. (Information > Supply Status > Field Replacement Unit). Push “Reset” button to reset the current count to 0.

3.2.2.9. DADF Pick-up roller Assy

1. Open the DADF-open cover.
2. Remove the spring.



3. Remove the DADF Pick-up roller Assy after releasing 2 hooks.

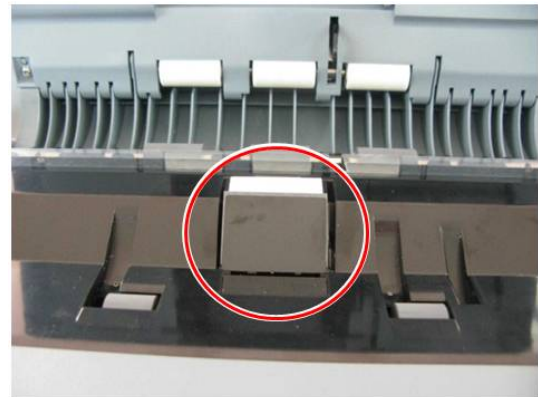


4. Enter SVC mode. Select the menu. (Information > Supply Status > Field Replacement Unit). Push “Reset” button to reset the current count to 0.

3.2.2.10. DADF friction pad

1. Open the DADF-open cover.

2. Remove the DADF friction pad.



3.3. Replacing the main SVC part

3.3.1. Left Cover

1. Remove the left cover after removing 9 screws.



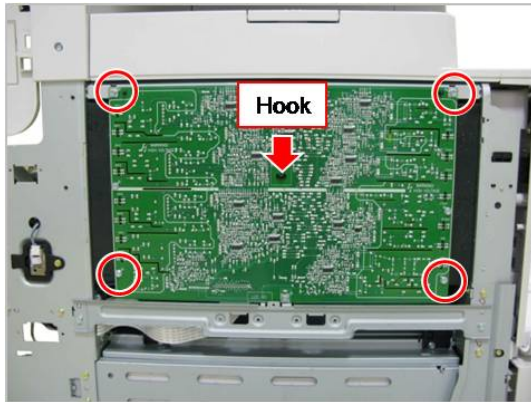
3.3.2. Rear Cover

1. Remove the rear cover after removing 10 screws.

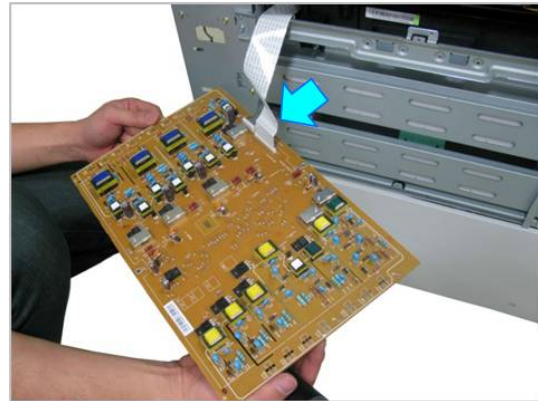


3.3.3. HVPS board

1. Remove the left cover. (Refer to 3.3.1)
2. Remove 4 screws. Release the middle hook.

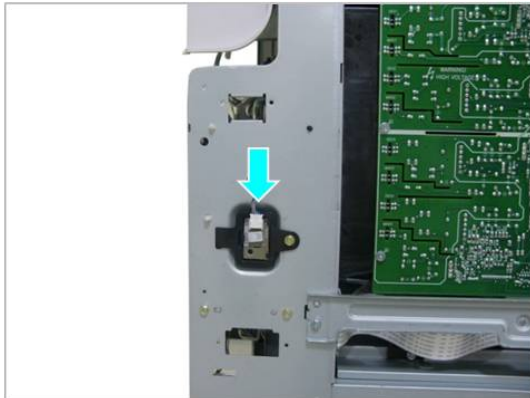


3. Unplug the connector. Remove the HVPS board.



3.3.4. Temperature Sensor

1. Remove the left cover. (Refer to 3.3.1)
2. Remove the sensor after unplugging the connector.

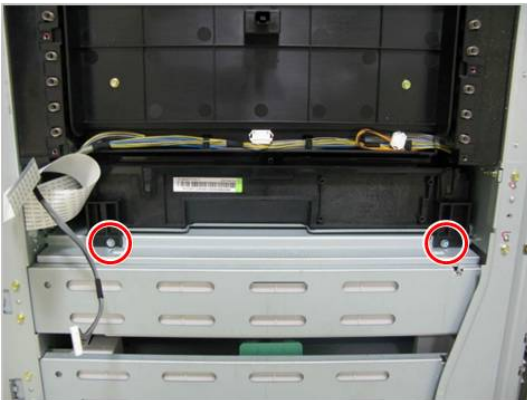


3.3.5. LSU

1. Remove the left cover. (Refer to 3.3.1)
2. Remove the HVPS board. (Refer to 3.3.3)
3. Remove the bracket after removing 2 screws.

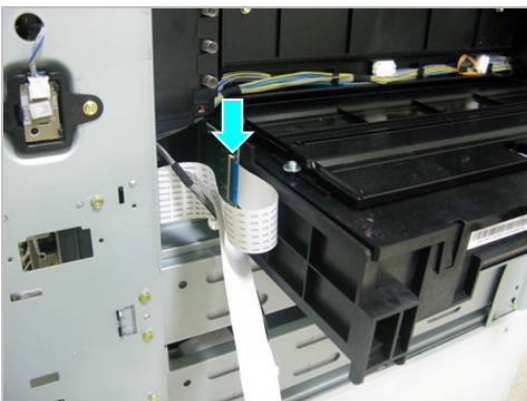


4. Remove 2 screws. Take out the LSU slowly.

**CAUTION**

If you yank the LSU, the LSU harness may be damaged.

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



3.3.6. OPE Unit

1. Remove the OPE overlay cover.



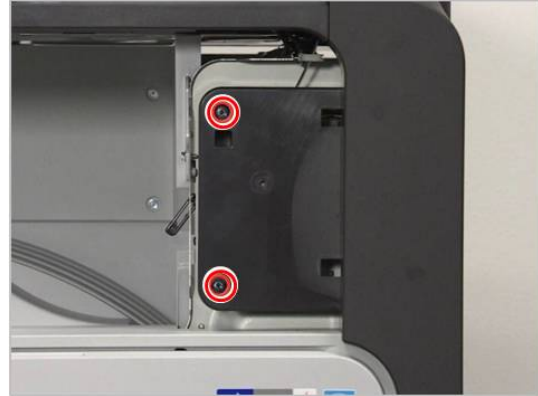
2. Remove the sticker covering the screw hole.



3. Remove the cover[A] after removing 2 screws.



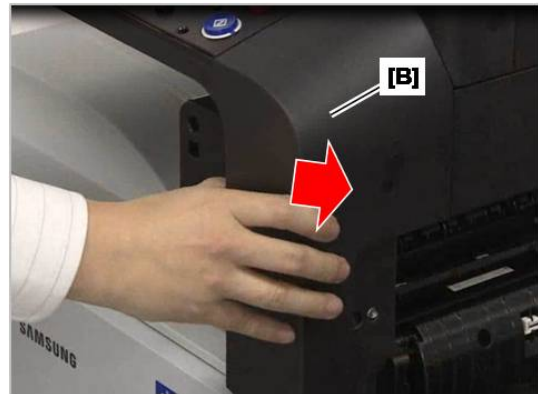
4. Remove 2 screws from the front.



5. Open the side cover. Remove 2 screws.



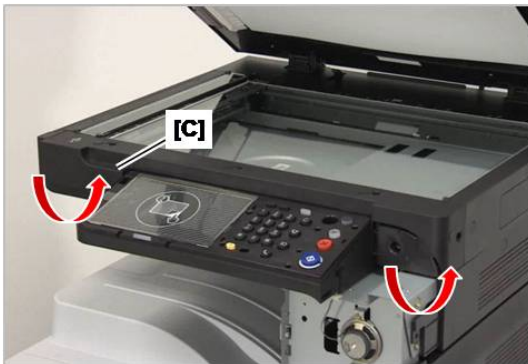
6. Remove the cover[B].



7. Open the DADF unit. Remove 5 screws.



8. Remove the cover [C].



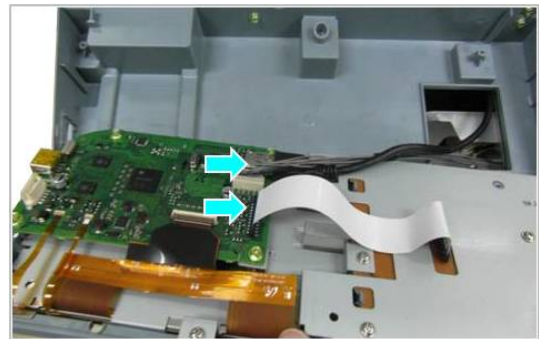
9. Remove 5 screws.



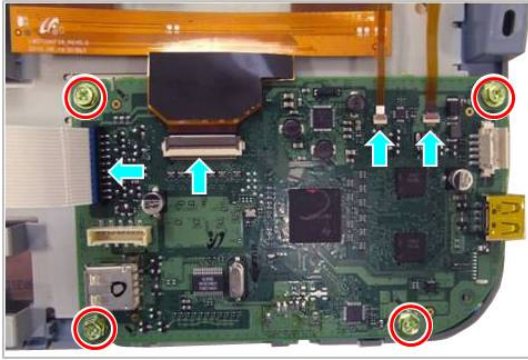
10. Lift up the OPE unit.




11. Turn the OPE unit. Unplug all connectors connecting the machine.

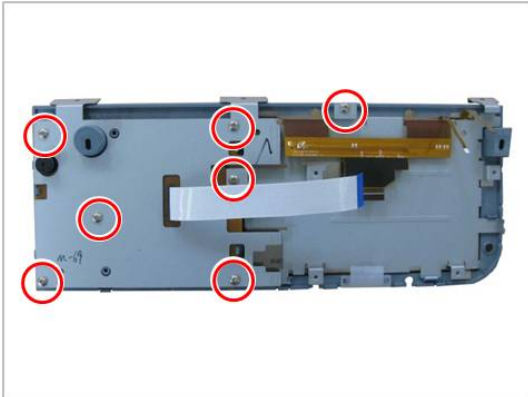


12. Unplug all connectors on OPE Main PBA. Remove 4 screws. And then remove the OPE Main PBA.

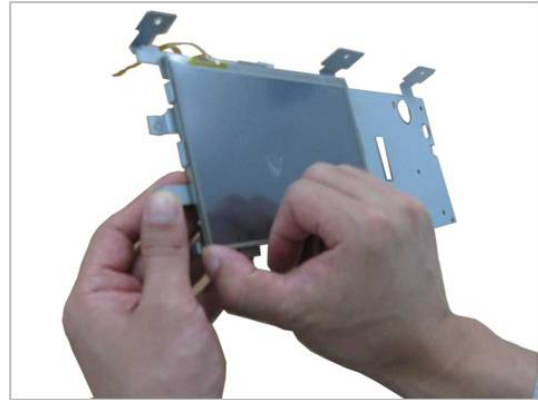


 **CAUTION**
Be careful not to damage flat cables.

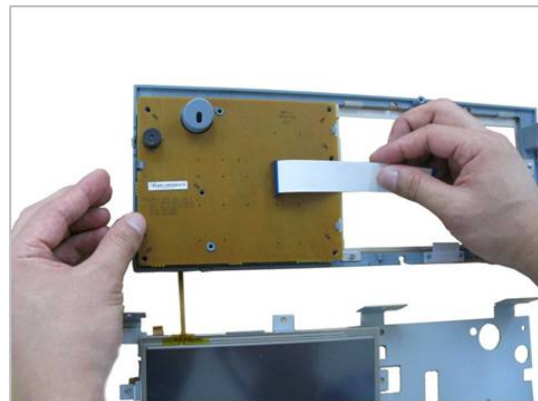
13. Remove 7 screws. Lift up the OPE bracket.



14. Remove the LCD.

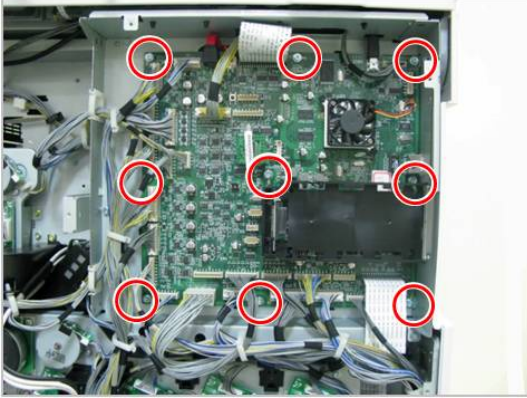


15. Remove the OPE key PBA.



3.3.7. Main board

1. Remove the rear cover. (Refer to 3.3.2)
2. Unplug all connector on the main board.
3. Remove the main board after removing 9 screws.




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

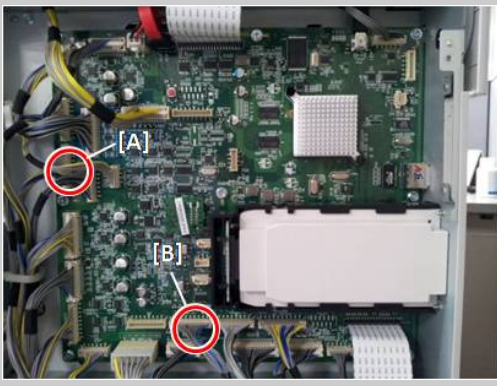
 **NOTE**

When inserting the MSOK, be careful its direction.



 **CAUTION**

When re-assembling the main board, be careful of swapping the MAIN BLDC connector[A] and DCF connector[B].



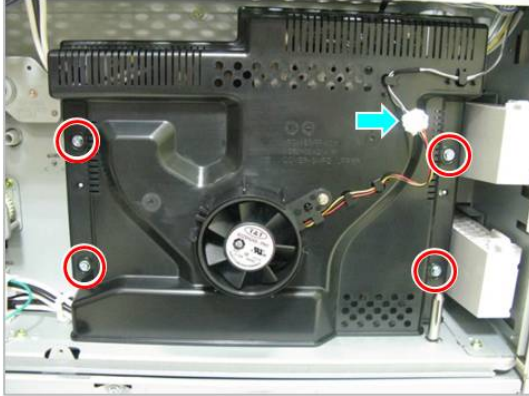
3.3.8. SMPS Fan

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

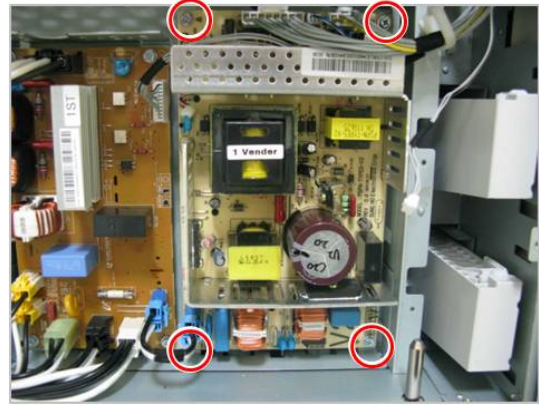


3.3.9. SMPS board

1. Remove the rear cover. (Refer to 3.3.2)
2. Unplug the connector. Remove 4 screws. And then remove the SMPS cover.



3. Unplug all connectors on SMPS board. Remove 4 screws. And then remove the SMPS board.

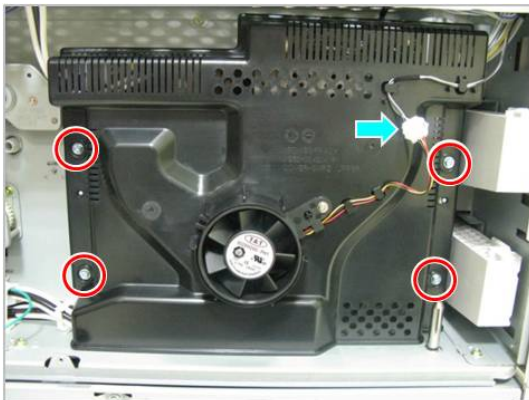


CAUTION

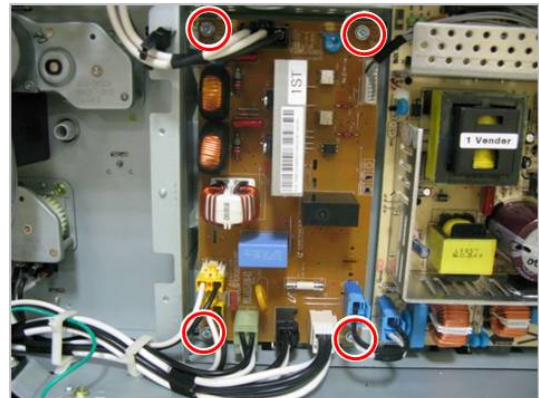
When replacing the SMPS board, please wait 5 minutes after unplugging the power cord, then replace it. You can get a shock by the electric discharge.

3.3.10. FDB board

1. Remove the rear cover. (Refer to 3.3.2)
2. Unplug the connector. Remove 4 screws. And then remove the SMPS cover.



3. Unplug all connectors on FDB board. Remove 4 screws. And then remove the FDB board.

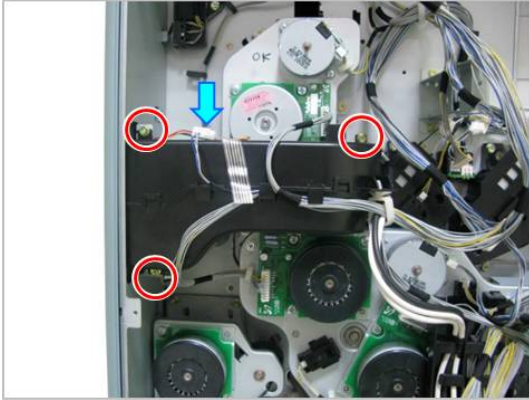


CAUTION

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

3.3.11. Fuser-Duct Fan

1. Remove the rear cover. (Refer to 3.3.2)
2. Unplug the connector. Remove 3 screws. And then remove the Fuser-Duct.



3. Release the fan by separating the Fuser-Duct.

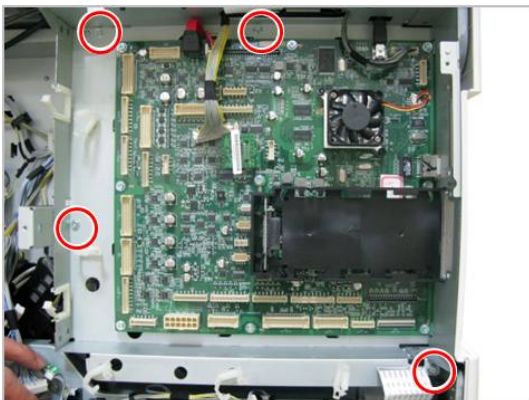


CAUTION

When assembling the new fan, be careful not to change the fan direction. The label must be shown on the outside.

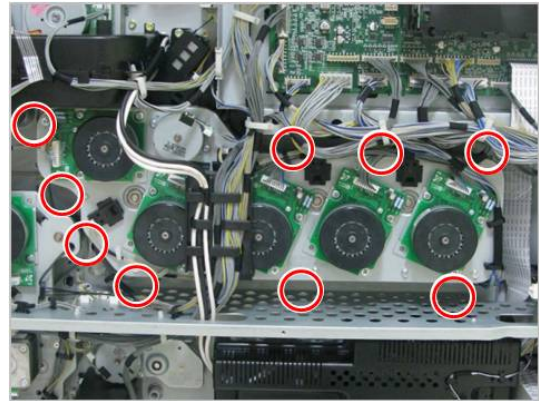
3.3.12. Main board shield

1. Remove the rear cover. (Refer to 3.3.2)
2. Unplug all connectors on the main board.
3. Remove the main board shield after removing 4 screws.



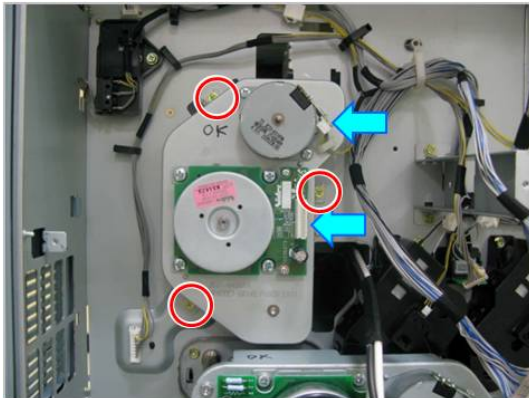
3.3.13. Main Drive unit

1. Remove all developer units and drum units.
2. Remove the rear cover. (Refer to 3.3.2)
3. Unplug all connectors connecting the main drive unit. Release the harness from the holder.
4. Remove the main drive unit after removing 9 screws.



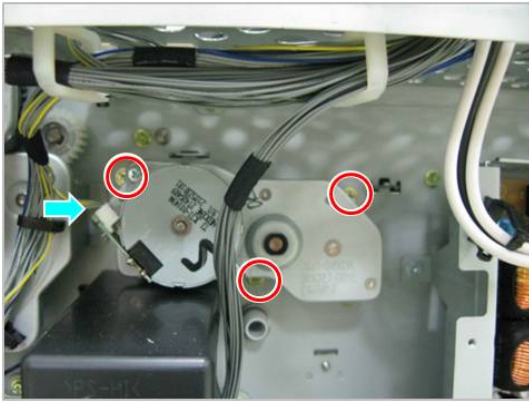
3.3.14. Fuser/Exit Drive unit

1. Remove the rear cover. (Refer to 3.3.2)
2. Unplug 2 motor connectors. Remove 3 screws. And then remove the Fuser/Exit Drive unit.



3.3.15. Pick-up Drive unit

1. Remove the rear cover. (Refer to 3.3.2)
2. Unplug the connector. Remove 3 screws. And then Pick-up Drive unit1.

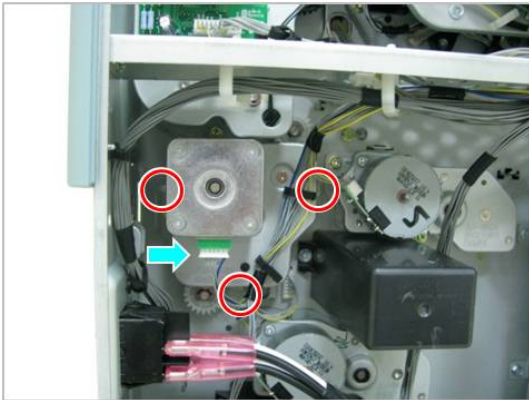


3. Unplug the connector. Remove 3 screws. And then Pick-up Drive unit2.



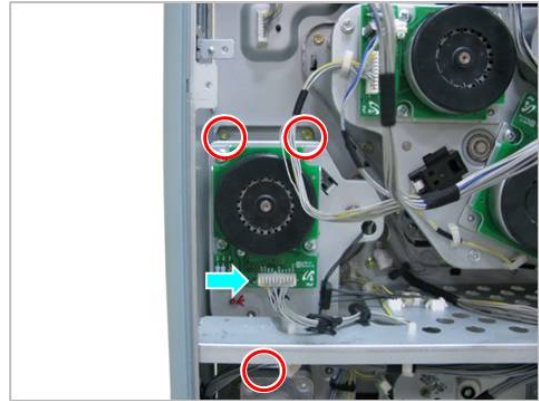
3.3.16. Feed Drive unit

1. Remove the rear cover. (Refer to 3.3.2)
2. Unplug the connector. Remove 3 screws. And then remove the Feed Drive Unit.



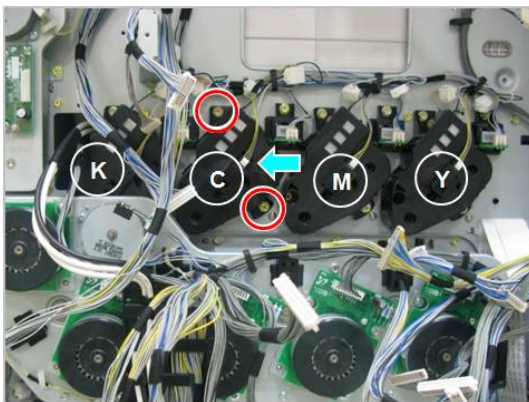
3.3.17. Regi_MP Drive unit

1. Remove the rear cover. (Refer to 3.3.2)
2. Unplug the connector. Remove 3 screws. And the remove the Regi_MP Drive Unit.



3.3.18. Toner Supply Drive unit

1. Remove the rear cover. (Refer to 3.3.2)
2. Remove the Main board shield. (Refer to 3.3.12)
3. Unplug the connector. Remove 2 screws. And then remove the Toner supply drive unit.

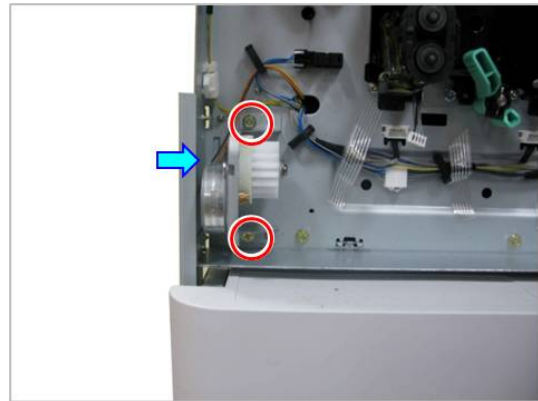
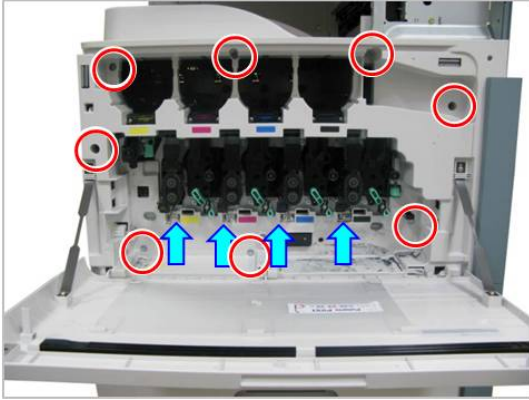


NOTE

- To remove K Toner supply drive unit, first remove the main drive unit.
- The toner supply drive units are exchangeable.

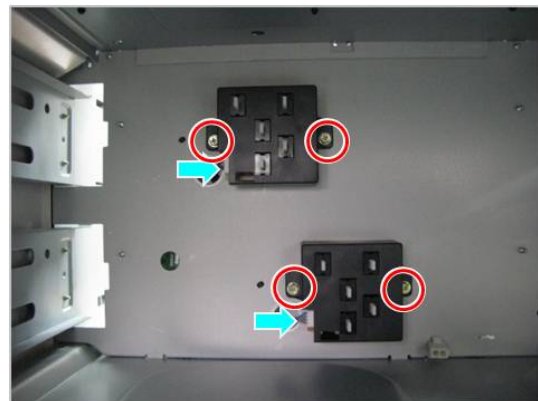
3.3.19. Waste toner container Drive unit

1. Open the front cover. Remove all toner cartridges.
2. Unplug 4 connectors connecting the developer units.
3. Remove the inner cover after removing 8 screws.
4. Unplug the connectors. Remove 2 screws. And then remove the Waste toner container drive unit.



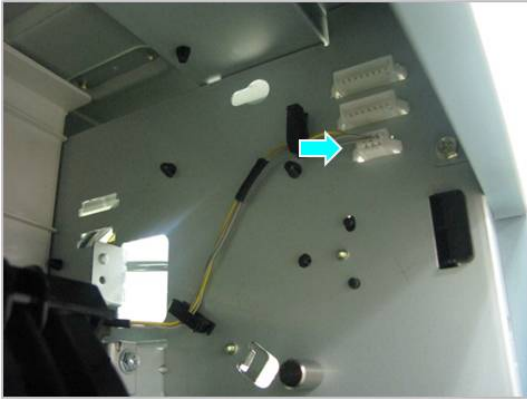
3.3.20. Auto Size sensor

1. Remove all cassettes. See the machine inside.
2. Unplug the connector. Remove 2 screws. And then remove the sensor.



3.3.21. Exit Unit

1. Open the side cover. Unplug the Exit unit connector.

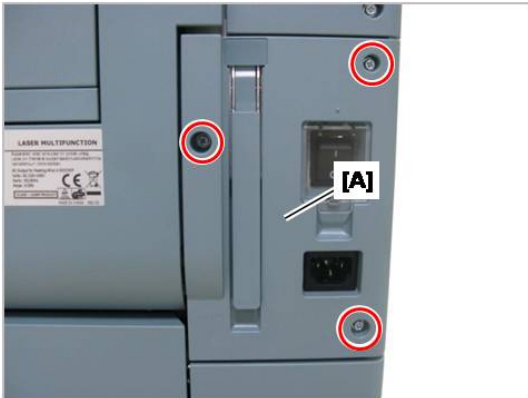


2. Remove the Exit unit after removing 3 screws.



3.3.22. Side Unit

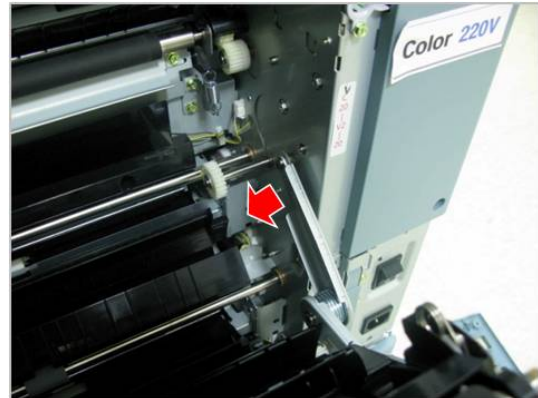
1. Remove the cover [A] after removing 3 screws.



2. Unplug the side unit connector.



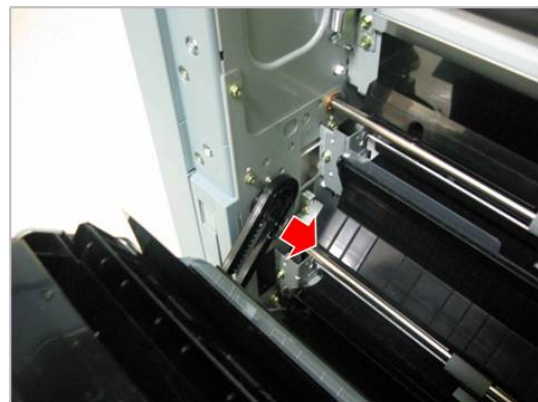
3. Release the right stopper.



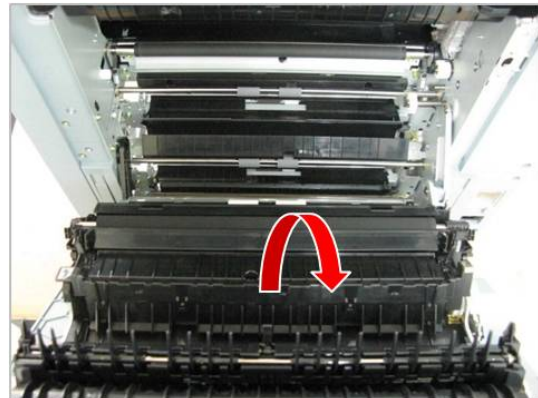
CAUTION

The spring tension for right stopper is strong. When releasing it, be careful not to hurt yourself.

4. Release the left stopper.

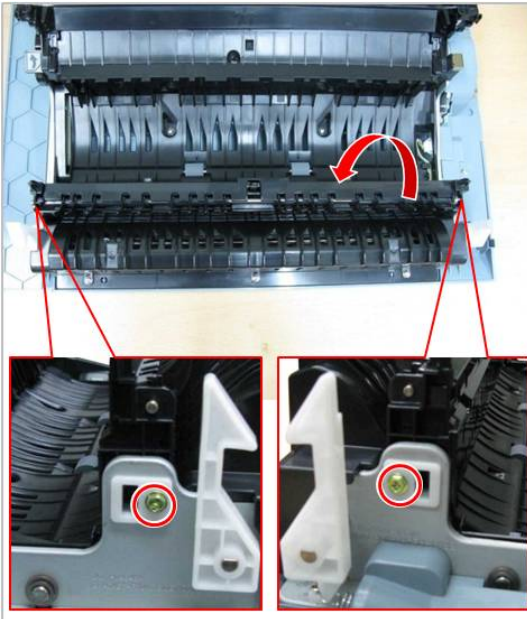


5. Remove the Side Unit.

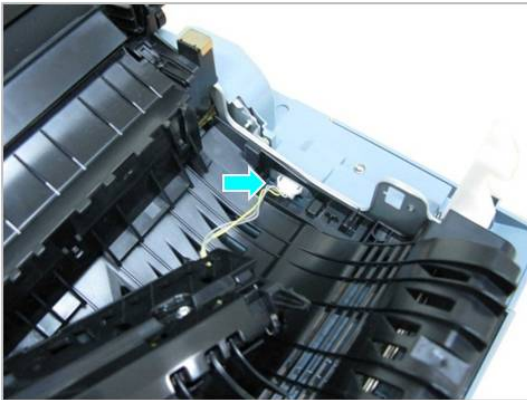


3.3.22.1. Fuser out sensor

1. Remove 2 screws from the both sides. Lift up the Cover-side exit.



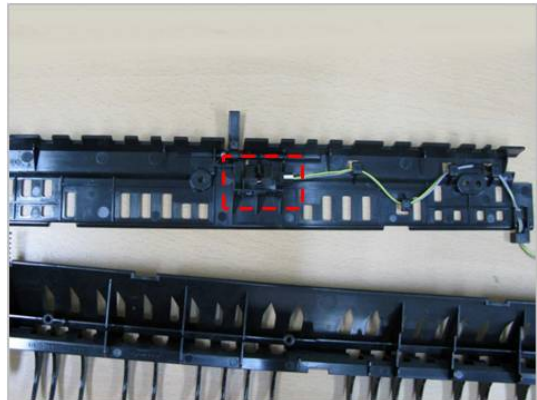
2. Remove the Cover-side exit after unplugging the connector.



3. Separate the Cover-side exit after removing 3 screws.

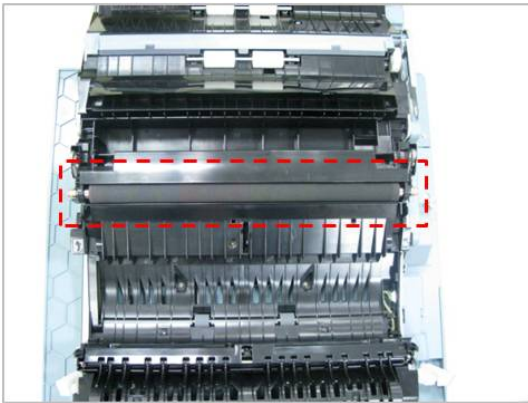


4. Remove the Fuser out sensor after unplugging the connector.

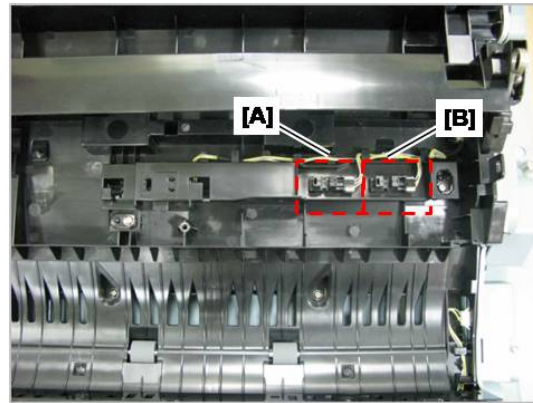


3.3.2.2. Duplex sensor and Curl sensor

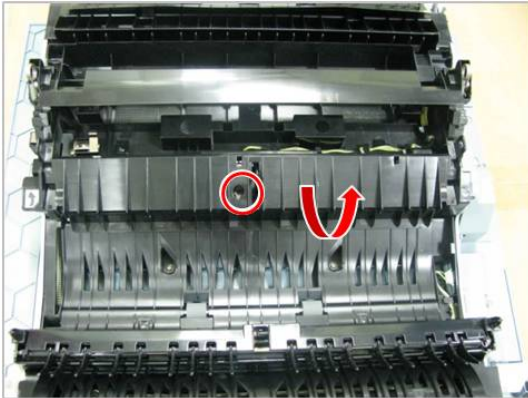
1. Remove the transfer roller Assy.



3. Remove the Duplex sensor [A] and Curl sensor [B].

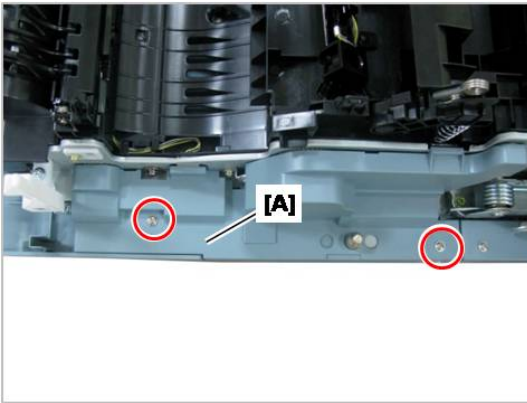


2. Remove 1 screw. Turn over the Guide-TR Upper.

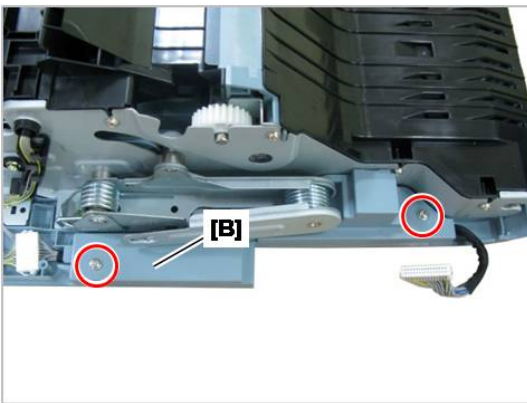


3.3.22.3. MP unit

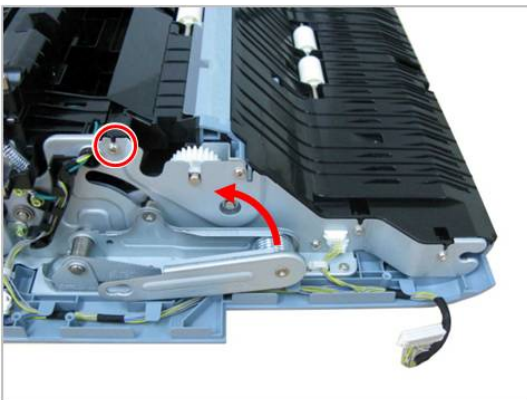
1. Remove the Harness-Cover [A] after removing 2 screws.



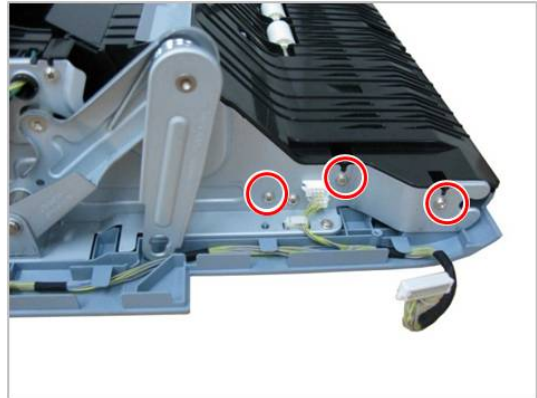
2. Remove the Harness-Cover Lower [B] after removing 2 screws.



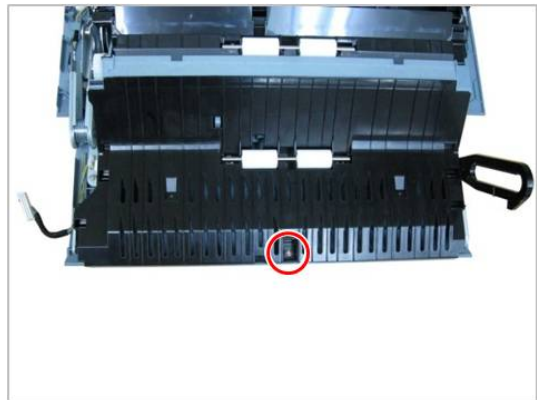
3. Remove 1 screw. Stand the stopper.



4. Remove 3 screws.



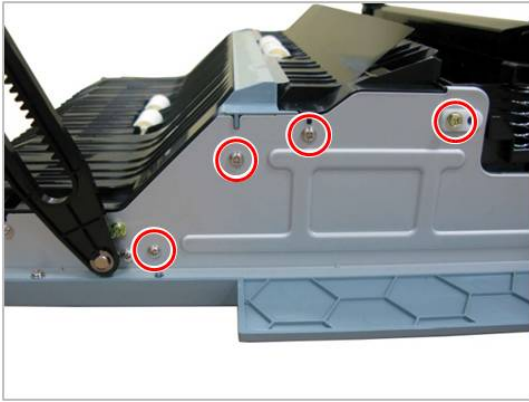
5. Remove 1 screw.



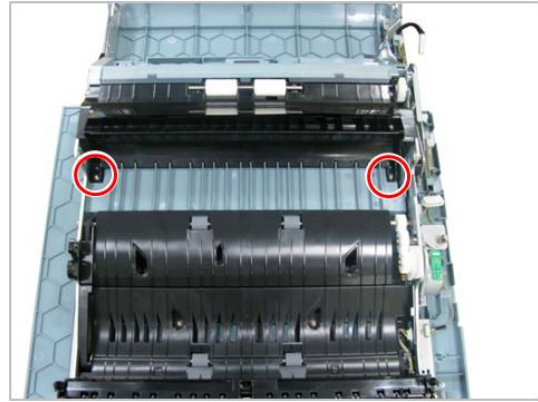
6. Remove 2 screws.



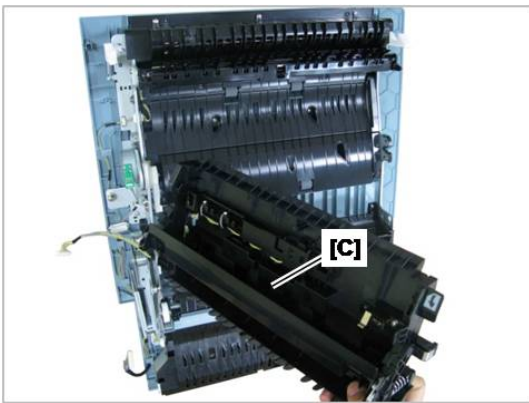
7. Remove 4 screws.



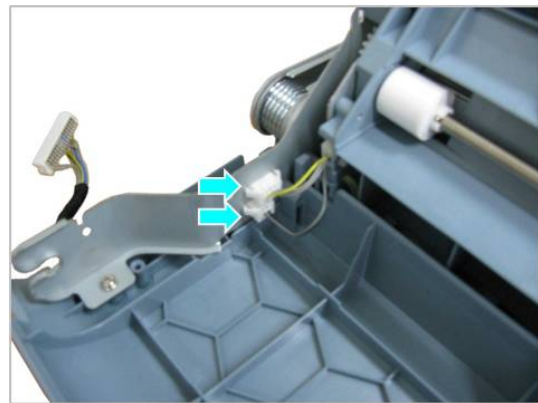
10. Remove 2 screws.



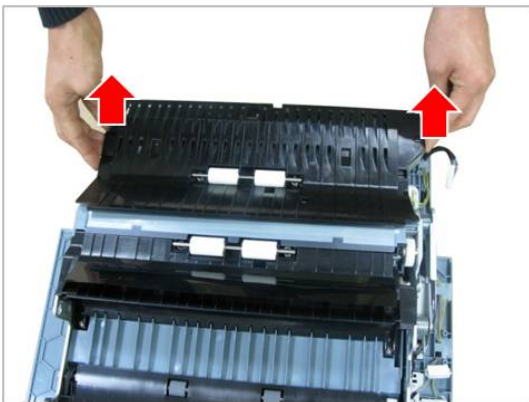
8. Remove the Cover-Side Guide Feed[C].



11. Unplug the connectors.



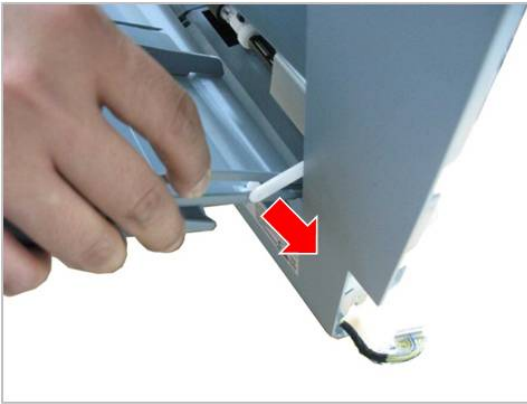
9. Lift up the Cover-Side Duplex Lower.



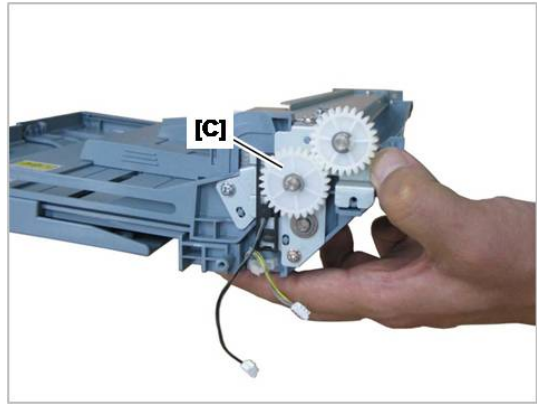
12. Remove the Cover-MP Front.



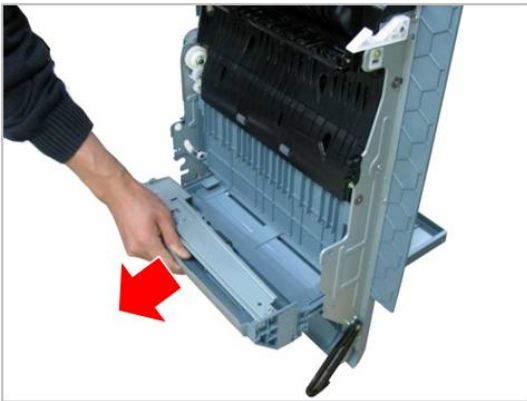
13. Release the Linker from the right of the MP tray.



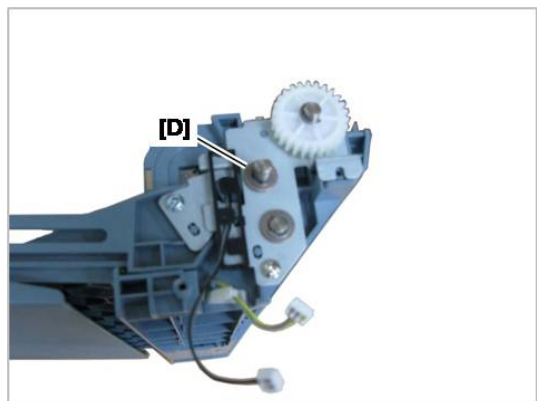
16. Remove the gear [C] after removing the E-ring.



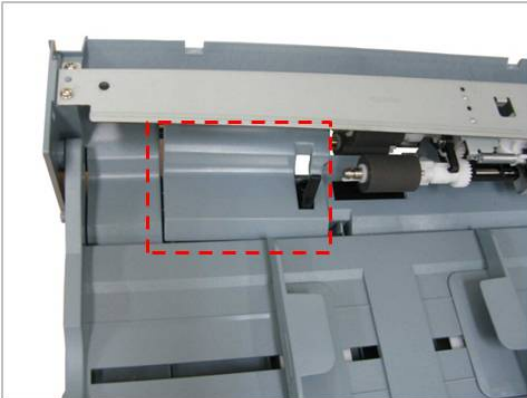
14. Remove the MP Unit.



17. Remove the Bush [D] after removing the E-ring.



15. Remove the MP-cover base.



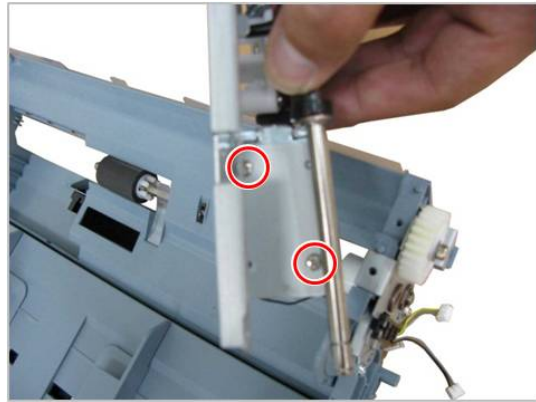
18. Remove the Bracket-Solenoid after removing 1 screw.



19. Release the MP bracket pick-up after removing 4 screws.



20. Remove the MP solenoid after removing 2 screws.



3.3.23. Fuser unit

1. Open the side cover.



2. Remove the fuser unit after removing 2 screws.



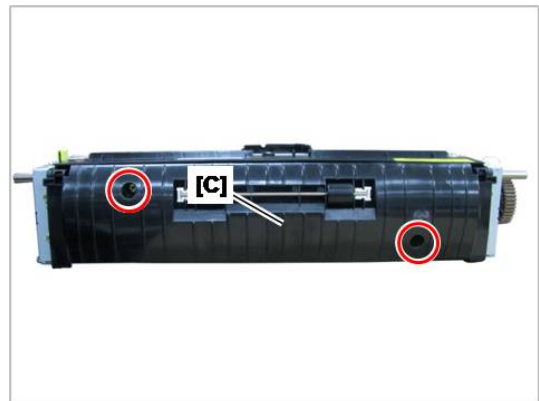
3. Remove the Frame-Fuser Front[A] after removing 3 screws.



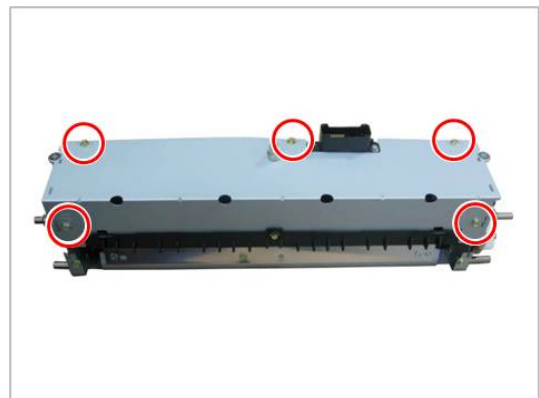
4. Remove the Frame-Fuser Rear[B] after removing 3 screws.



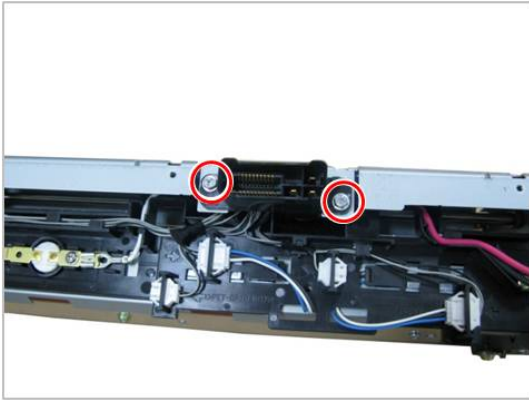
5. Remove the Fuser-Guide Duplex[C] after removing 3 screws.



6. Remove the Fuser-Bracket Top after removing 5 screws.



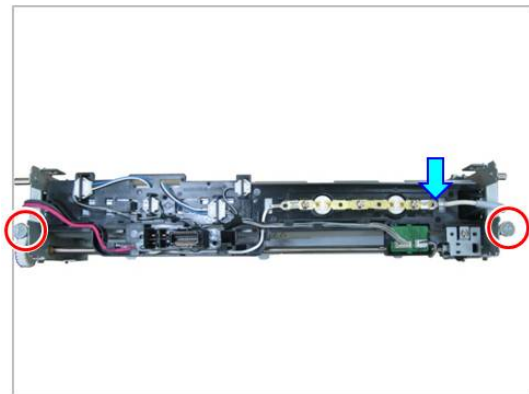
7. Remove 2 screws.



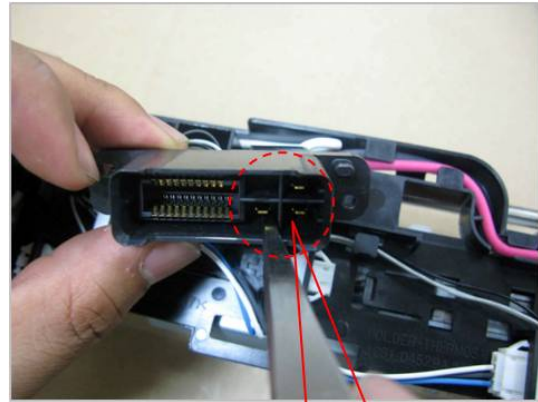
8. Remove 6 screws. Remove the Holder-Bias. And remove the Bracket-Fuser Bottom.




9. Remove 2 screws. Unplug the thermostat connector.



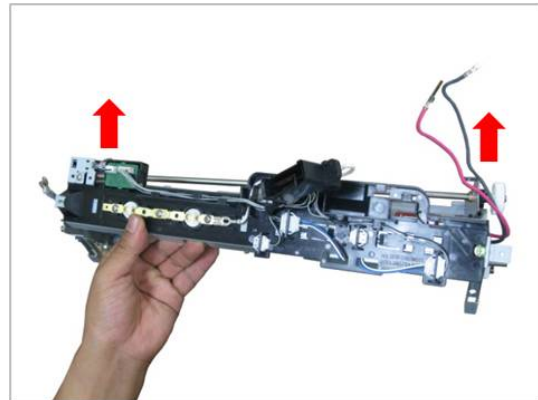
10. Release the pin connector with the tweezers.



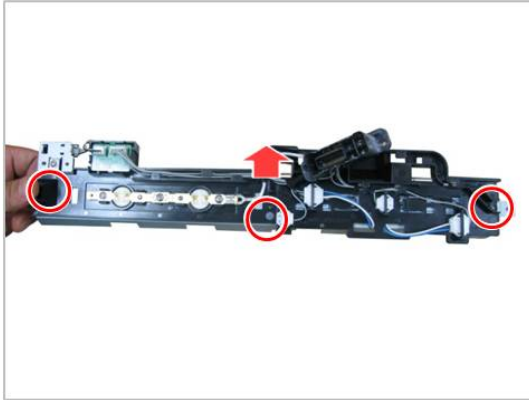
 **CAUTION**

- When reassembling the pin connector, make sure the colors are positioned as shown above.
- Check the connector assembly status. If there is a wrong connection, a operation error or a fire can happen.
- Be careful not to bend the connector.

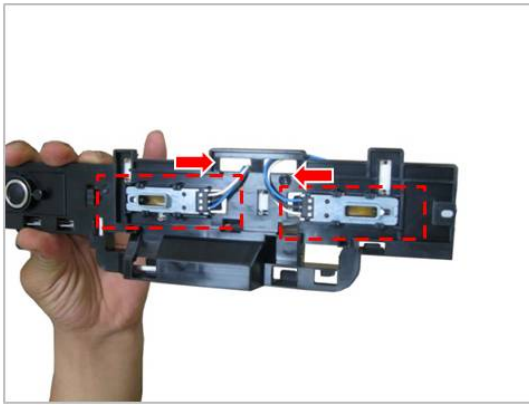
11. Lift up the thermostat holder Assy.



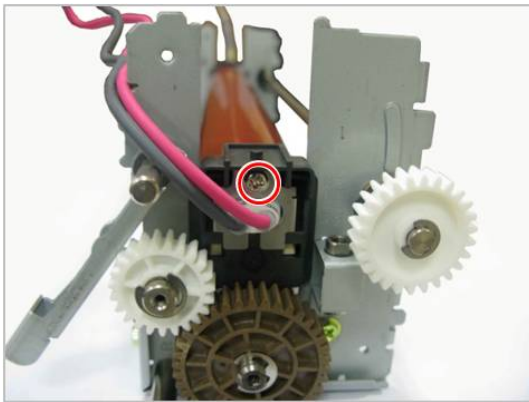
12. Remove 3 screws. Lift up and release the thermostat holder.



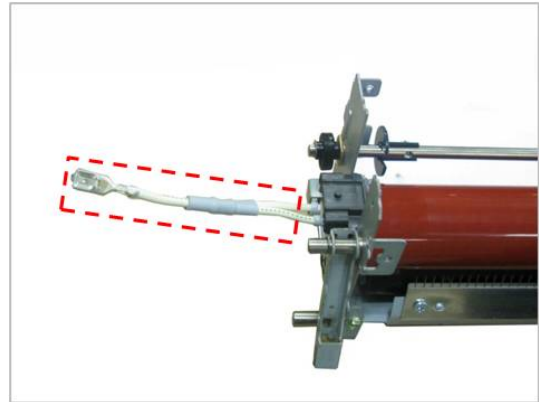
13. Release the NC sensor.



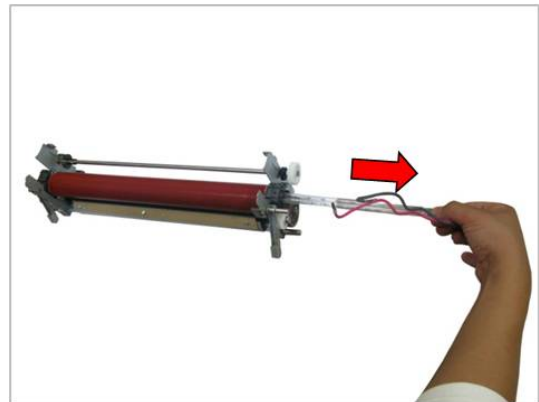
14. Remove 1 screw.



15. Straighten the bent thermostat harness.



16. Take out the halogen lamp carefully.

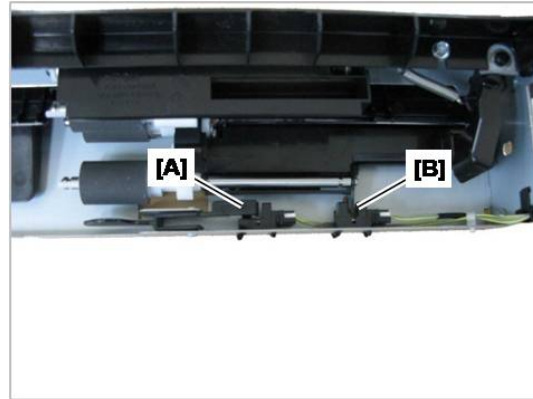


3.3.24. Pick-up Unit and sensor

1. Remove the Side Unit. (Refer to 3.3.22)
2. Remove the Pick-up Unit 1,2 after removing 2 screws.



3. Release the sensor after unplugging the connector. (Empty sensor[A], Level sensor[B])

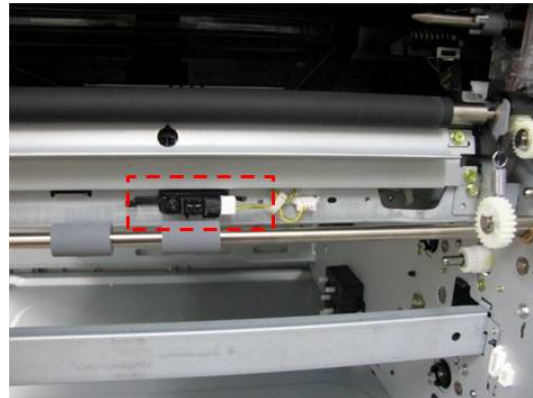


3.3.25. Feed sensor

1. Remove the Side Unit. (Refer to 3.3.22)
2. Remove the sensor cover after removing 2 screws.



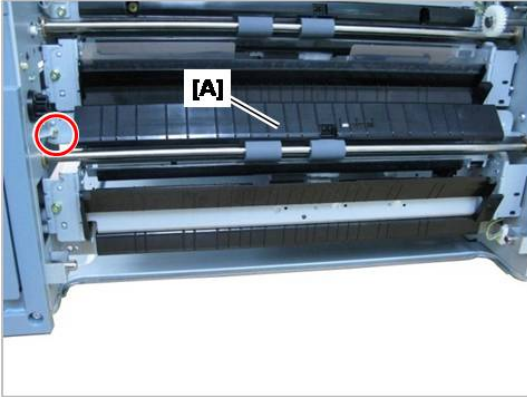
4. Remove the Feed sensor after unplugging connector.



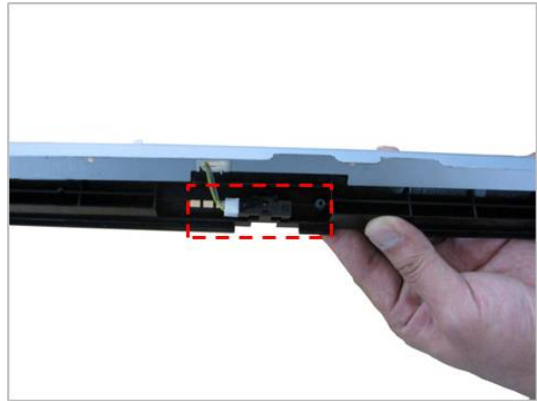
3. Release the sensor holder after removing 1 screw.

3.3.26. Feed Unit

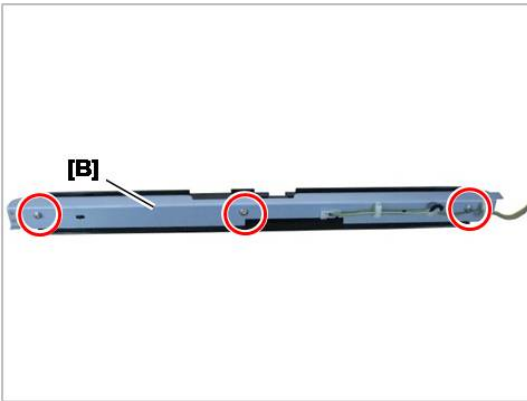
1. Remove the Side Unit. (Refer to 3.3.22)
2. Remove the Feed Unit[A] after removing 1 screw.



4. Remove the feed sensor after unplugging the connector.

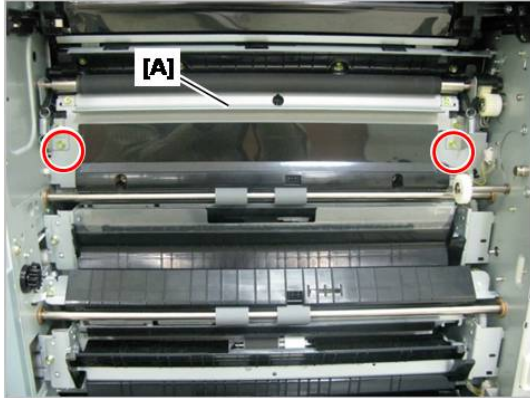


3. Remove the bracket[B] after removing 3 screws.



3.3.27. Registration Unit

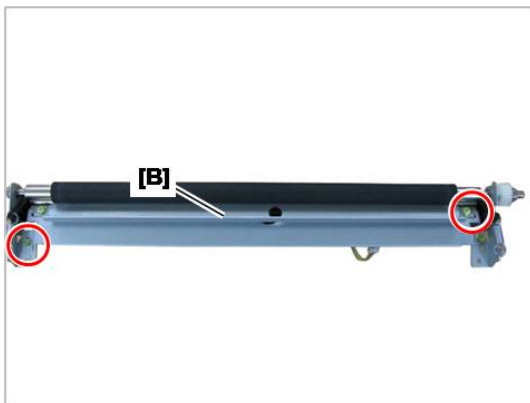
1. Remove the Side Unit. (Refer to 3.3.23)
2. Remove the Regi.unit [A] after removing 2 screws.



4. Remove the Regi. sensor after unplugging the connector.

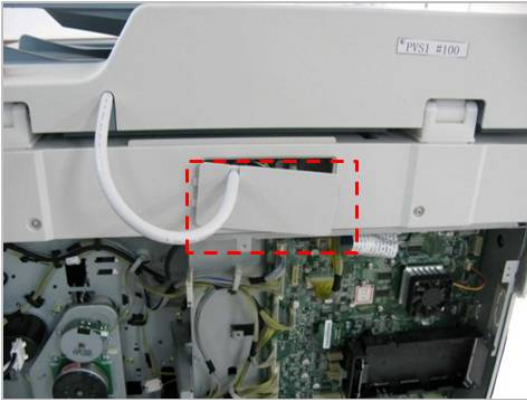


3. Remove the bracket[B] after removing 3 screws.



3.3.28. DADF Unit

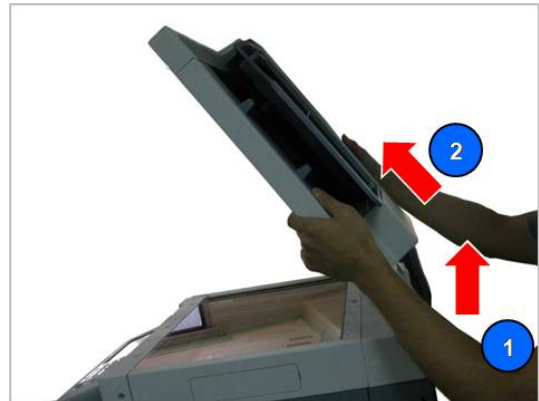
1. Remove the DADF connector cover.



2. Remove 1 screw. Unplug the connector.

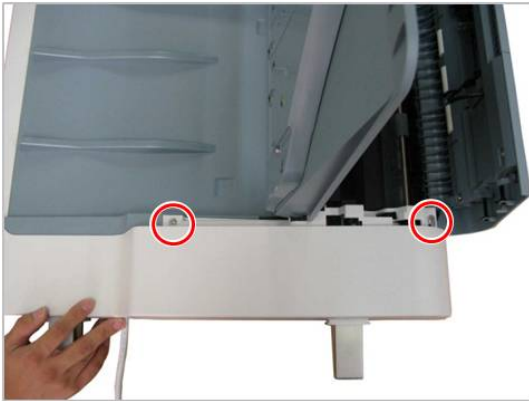


3. Lift up the DADF unit and release it to diagonal direction.



3.3.28.1. DADF Cover

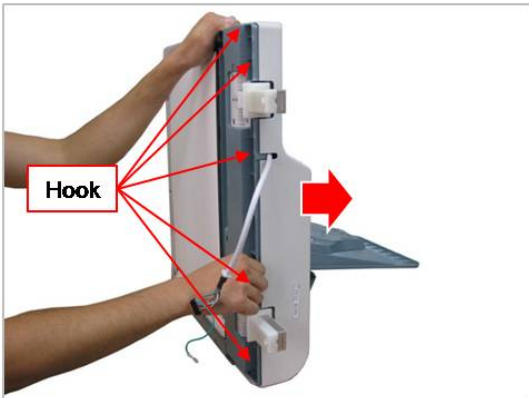
1. Open the Stacker and Cover-Open. Remove 2 screws.



4. Remove the Cover-Deco F.



2. Remove the Cover-Side R by releasing the bottom hooks.



5. Remove 2 screw.



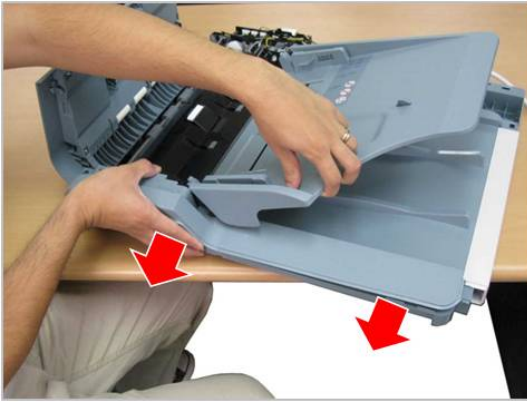
3. Remove 3 screws.



6. Release the hook from the bottom.

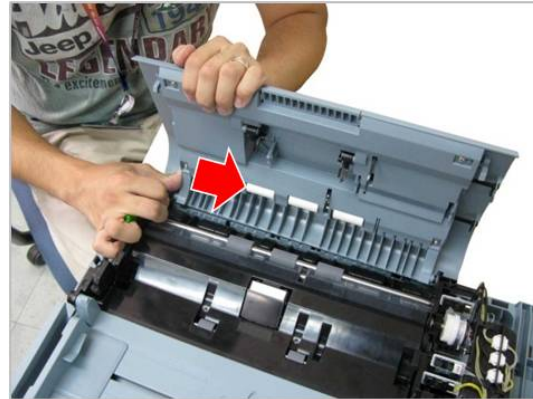


7. Remove the Cover-Side F.



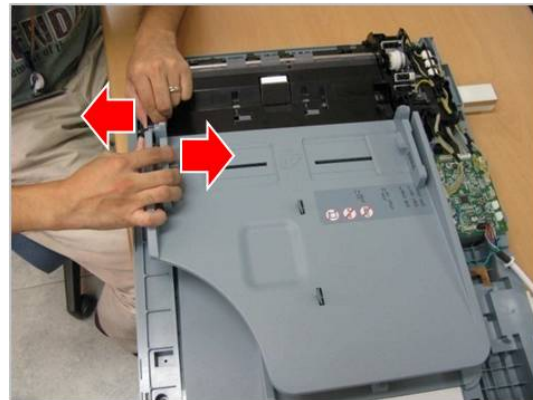
3.3.28.2. DADF Open Cover

1. Remove the DADF cover. (Refer to 3.3.28.1)
2. Release the DADF Open Cover by pushing it to the direction of arrow.



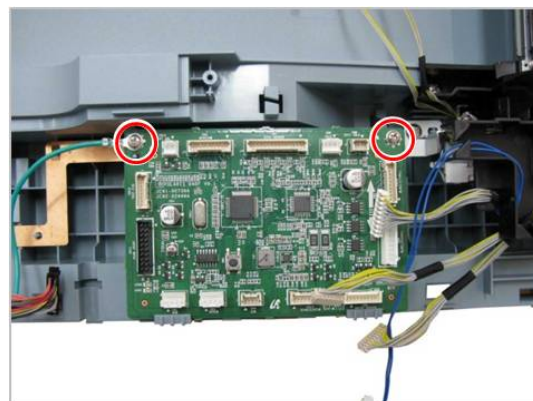
3.3.28.3. DADF Stacker

1. Remove the DADF cover. (Refer to 3.3.28.1)
2. Release the Stacker by pushing it and its holder in the opposite direction.



3.3.28.4. DADF main board

1. Remove the Cover-Side R. (Refer to 3.3.28.1)
2. Unplug all connectors on the board.
3. Remove the DADF main board after removing 2 screws.

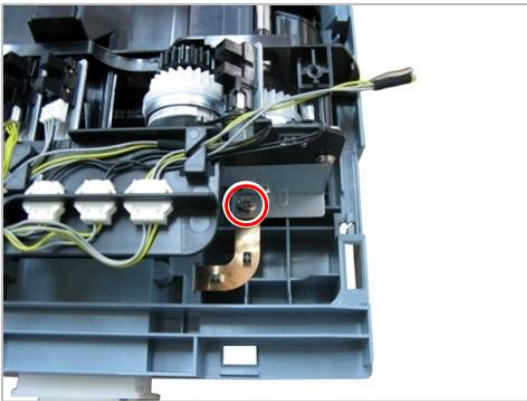


3.3.28.5. DADF motor_solenoid_clutch

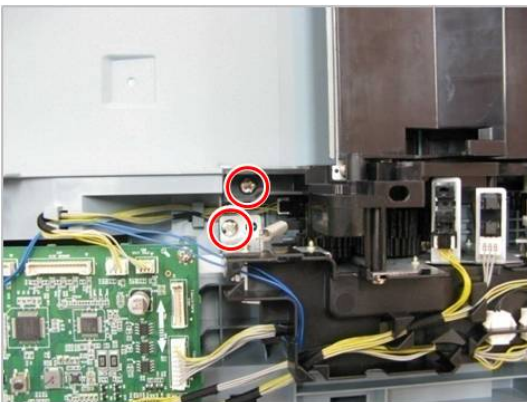
1. Remove the DADF cover. (Refer to 3.3.28.1)
2. Unplug all connectors on the DADF board.



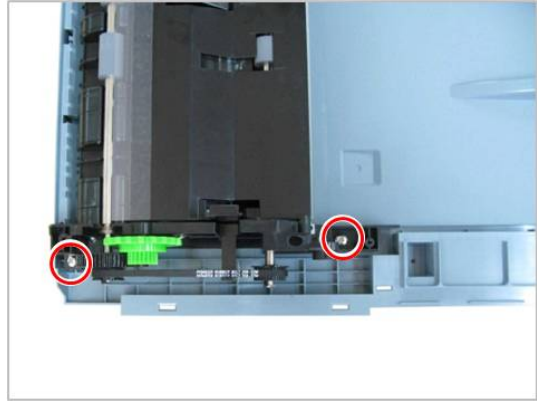
3. Remove 1 screw.



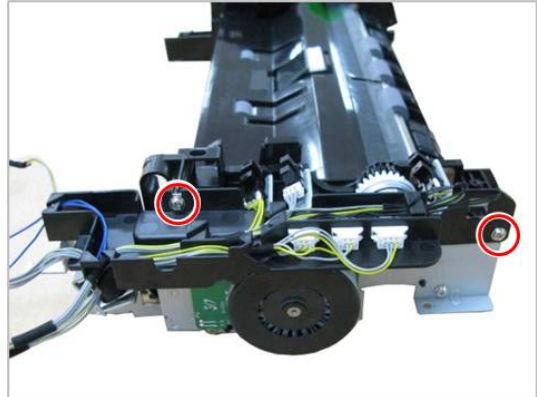
4. Remove 2 screws.



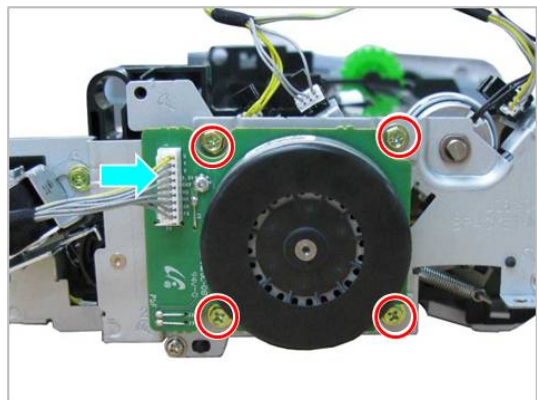
5. Lift up and release the DADF Frame Main after removing 2 screws.



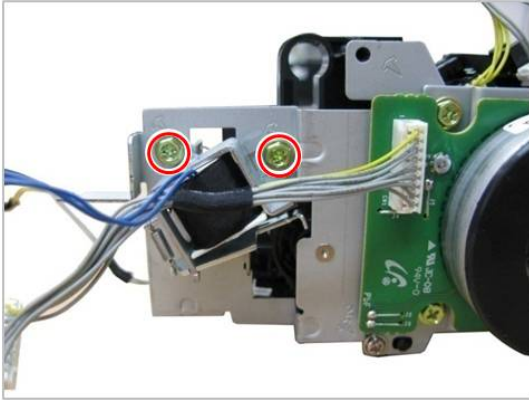
6. Release the harness holder after removing 2 screw.



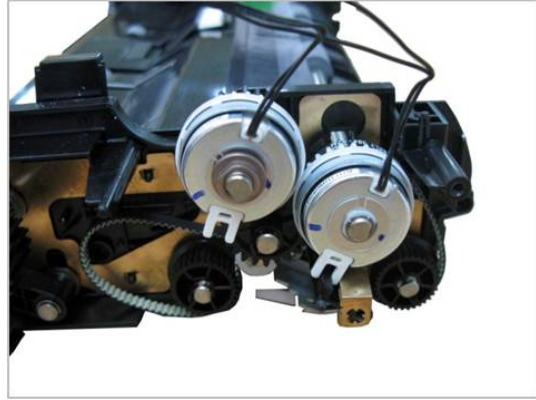
7. Unplug the connector. Remove 4 screws. And release the motor.



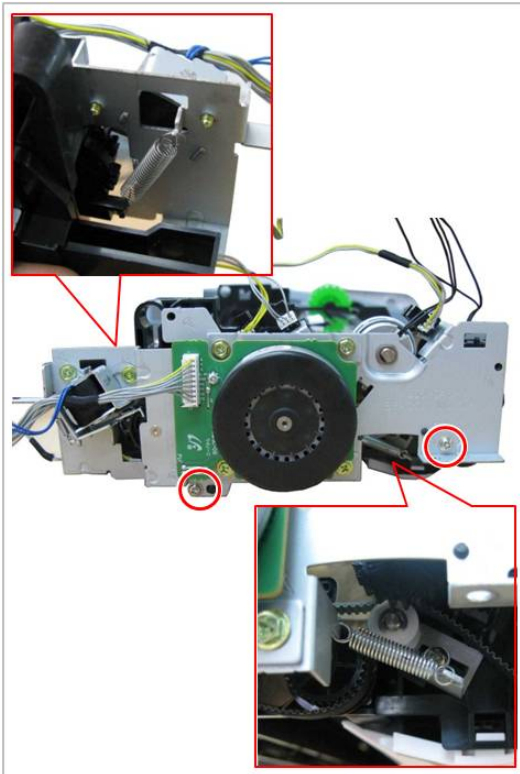
8. Release the solenoid after removing 2 screws.



10. Remove the clutch.

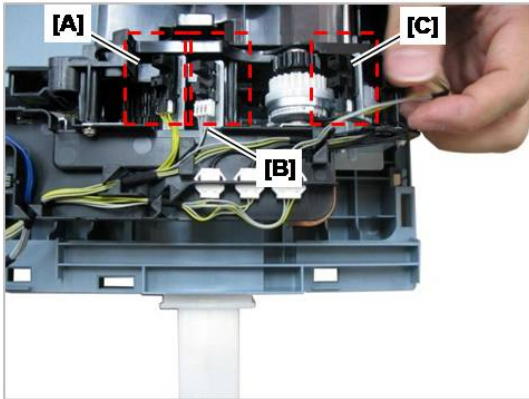


9. Remove 2 springs. Remove 2 screws. And release the bracket.



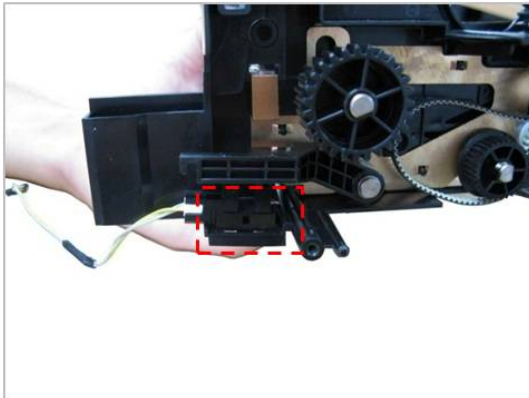
3.3.28.6. DADF Regi_Cover_Detect sensor

1. Release the corresponding sensor after unplugging connector.
 - A : Detect sensor
 - B : Cover sensor
 - C : Registration sensor



3.3.28.7. DADF Exit Idle sensor

1. Remove the motor bracket. (Refer to 3.3.28.4)
2. Remove the sensor after unplugging the connector.



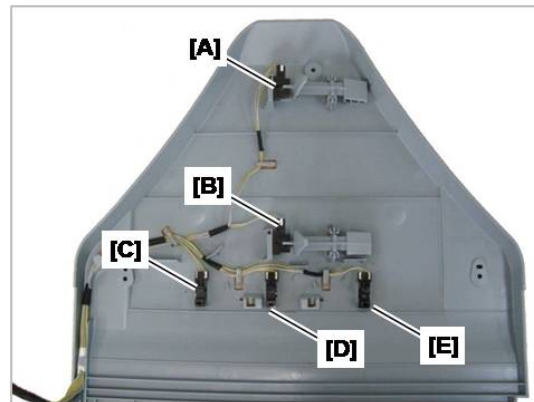
3.3.28.8. DADF Exit sensor

1. Remove the DADF Frame-Main. (Refer to 3.3.28.4)
2. Remove the sensor after unplugging the connector.



3.3.28.9. DADF Length_Width sensor

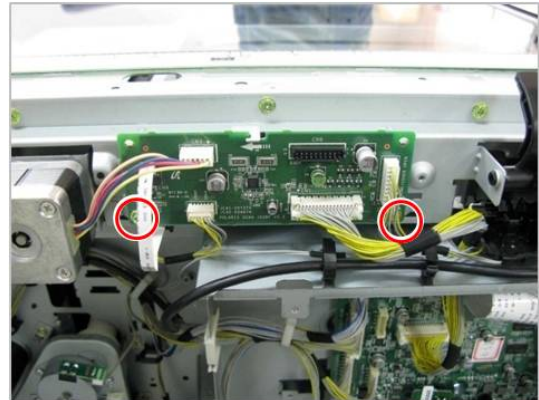
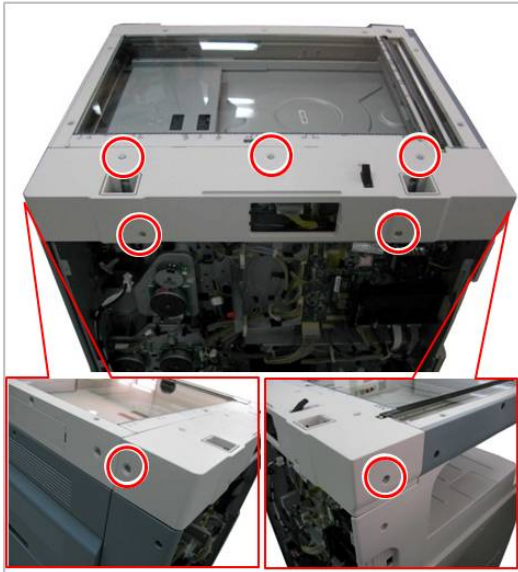
1. Remove the DADF Stacker. (Refer to 3.3.28.3)
2. Release the sensor cover after removing 3 screws.
3. Remove the defective sensor after unplugging the connector.
 - A, B : Paper Length sensor
 - C, D, E : Paper Width sensor



3.3.29. Scanner Unit

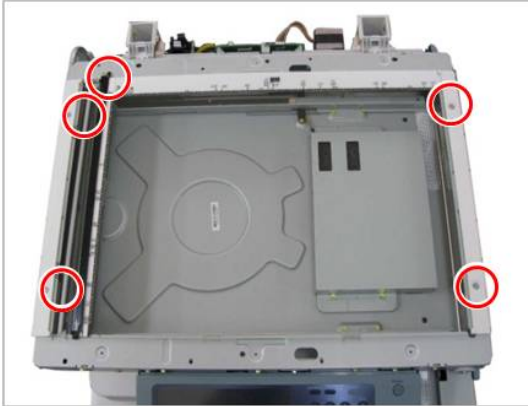
3.3.29.1. Scanner joint board

1. Remove the DADF unit. (Refer to 3.3.28)
2. Remove the Scan-Rear cover after removing 7 screws.
3. Unplug all connector. Remove 2 screws. And release the scanner joint board.



3.3.2.2. Scan glass

1. Open and stand the DADF unit at 90 degree angle.
2. Remove 5 screws.



3. Remove the COVER-GLASS and ADF GLASS.



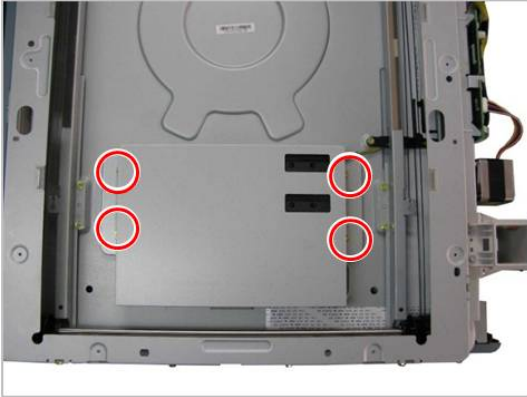
ADF-GLASS
Cover-GLASS **Cover-GLASS**

4. Lift up and release the scan glass.

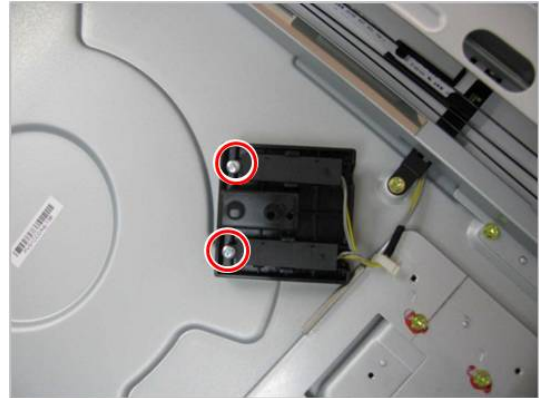


3.3.29.3. APS sensor

1. Remove the scan glass. (Refer to 3.3.29.2)
2. Remove the align cover after removing 4 screws.



4. Release the APS sensor after remove 2 screws.

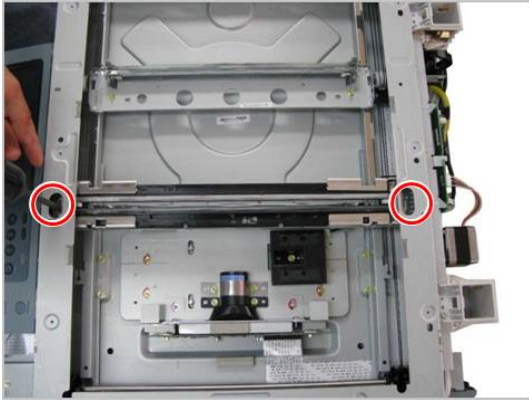


3. Remove 1 screw. Turn over the holder.



3.3.29.4. FR module

1. Remove the scan glass. (Refer to 3.3.29.2)
2. Remove 2 screws.

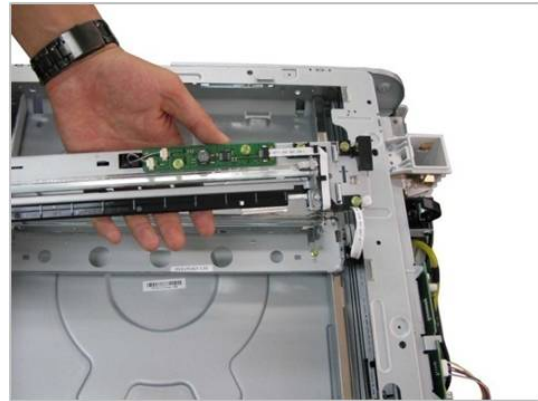


NOTE

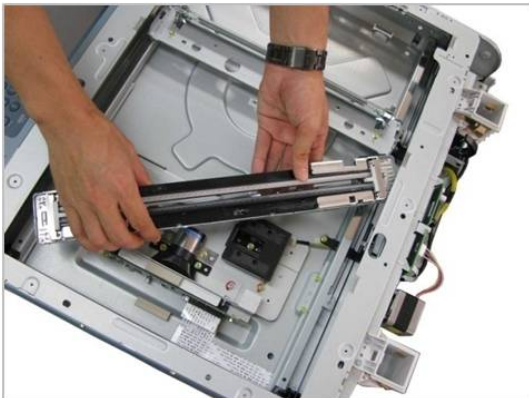
Before removing the below screw, mark the current gradation position to tighten the screw in the same position.

A close-up photograph of the exterior panel of the scanner. A red arrow points to a screw located in a circular opening. To the left of the opening are two buttons labeled '1' and '2'.

4. Unplug the harness.



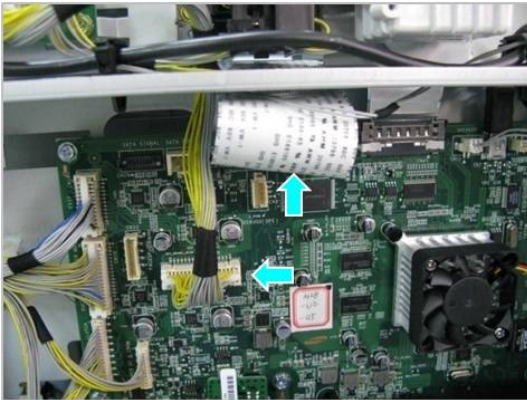
3. Release the FR module.



3.3.29.5. Scanner Assy

1. Remove the DADF unit and OPE unit. (Refer to 3.3.7 and 3.3.28)

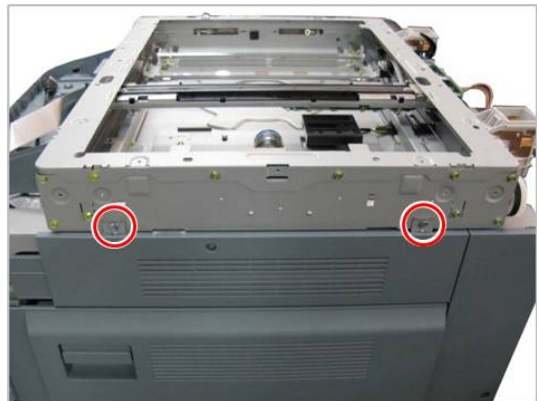
2. Unplug all connectors on the main board.



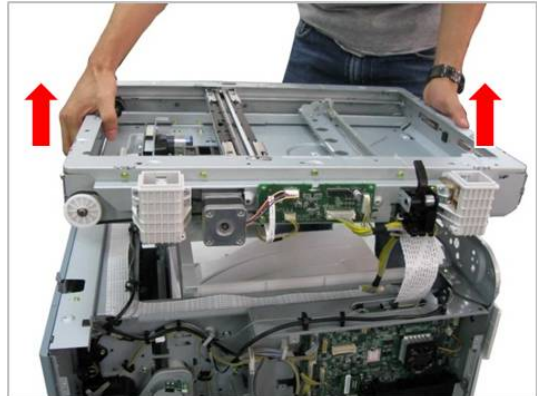
3. Remove 3 screws from the left.



4. Remove 2 screws from the right.

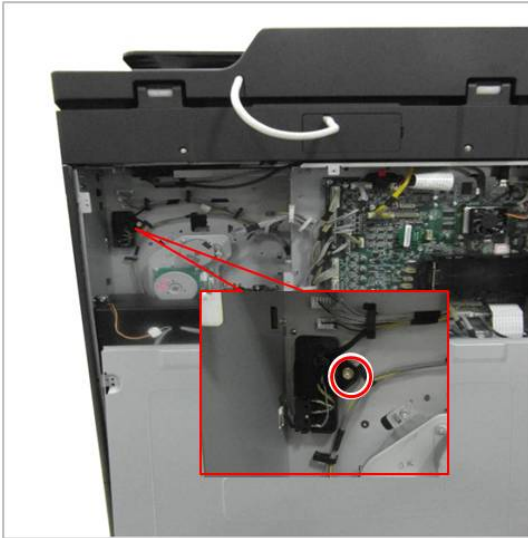


5. Lift up and release the scanner Assy.

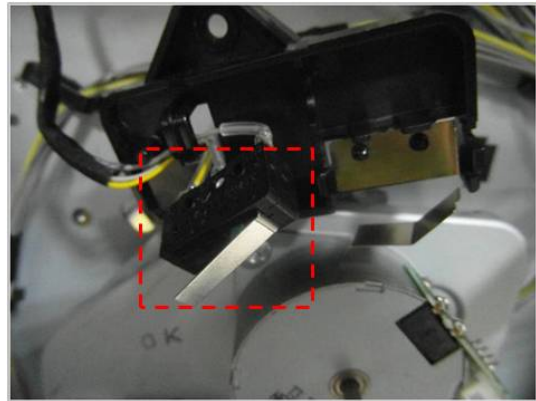


3.3.30. Side Cover Open Switch

1. Remove the rear cover. Remove 1 screw securing the sensor.

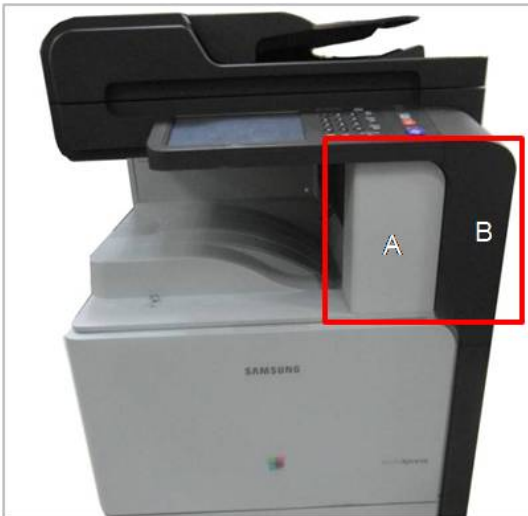


2. Remove the micro-switch.

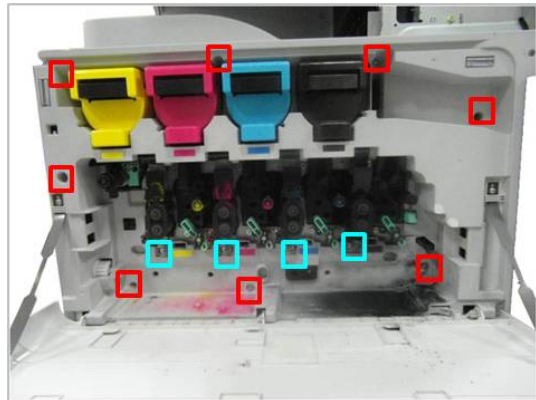


3.3.31. Front Cover Open Switch

1. Remove the COVER FRONT TOP[A] and COVER FRONT TOP DECO[B]. (Refer to 3.3.6 OPE unit)

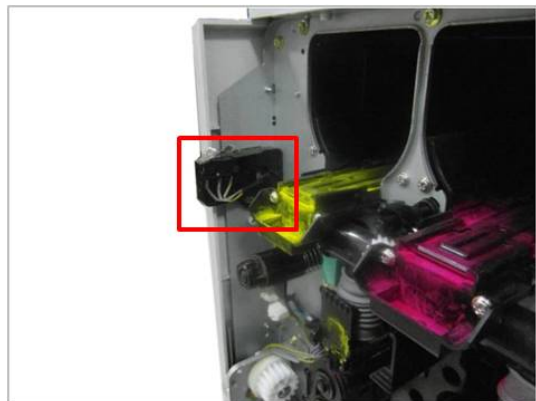


4. Remove the inner cover.



2. Remove all toner cartridges.
3. Unplug 4 connectors and 8 screws.

5. Remove the cover open switch.



3.3.32. Replacing the HDD

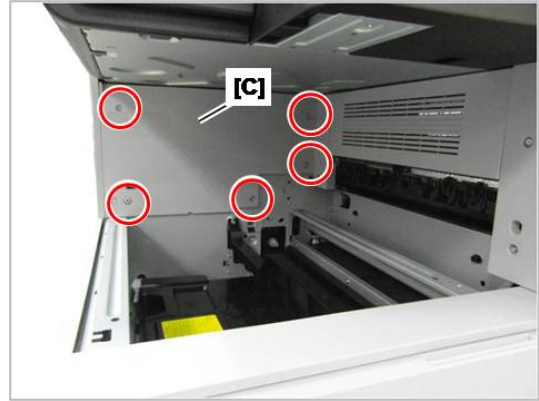
1. Remove the screw cover sheet.



2. Remove the Exit-Cover [B].



3. Remove the COVER-EXIT REAR [C] after removing 5 screws.



4. Remove 4 screws. Unplug the cable. And remove the HDD Assy.

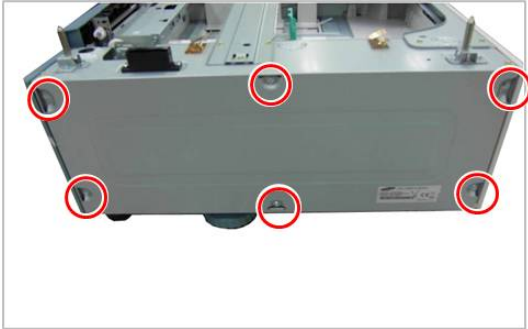


5. Install the new HDD Assy.

3.3.33. DCF (Double Cassette Feeder)

3.3.33.1. DCF main board

1. Remove the Bracket Rear Cover after removing 6 screws.

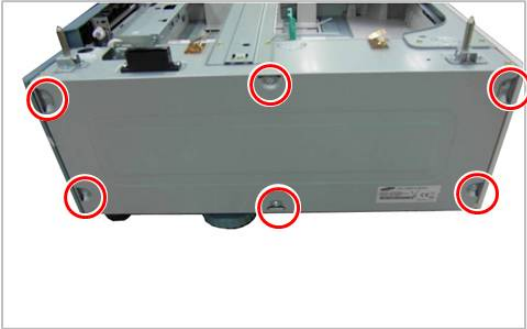


2. Unplug all connectors. Remove 4 screws. And release the DCF main board.

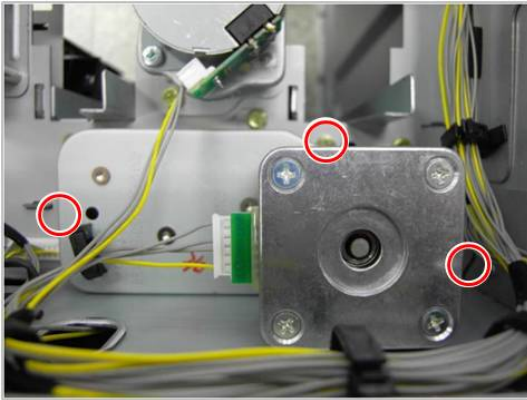


3.3.33.2. DCF Feed Motor

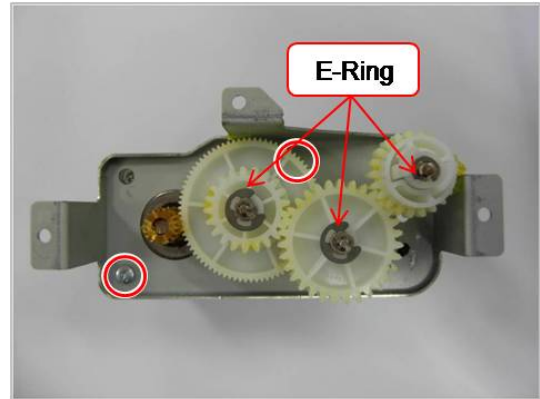
1. Remove the Bracket Rear Cover after removing 6 screws.



2. Unplug the connector. Remove 3 screws. And release the Feed Drive unit.

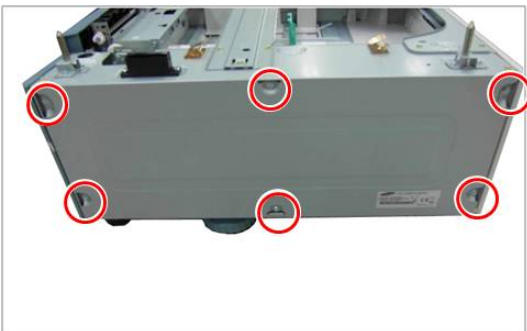


3. Remove 3 E-rings and 3 gears. Remove 2 screws. And release the feed motor.

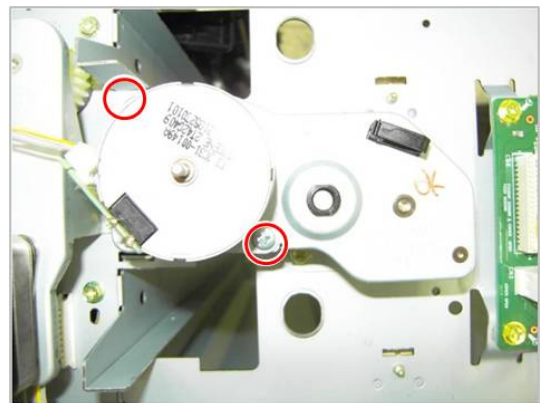


3.3.33.3. DCF Pick Up Motor

1. Remove the Bracket Rear Cover after removing 6 screws.



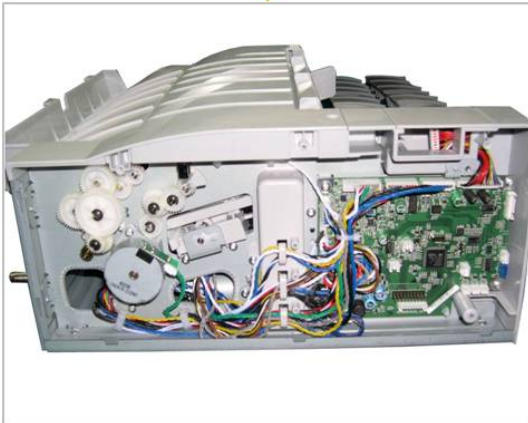
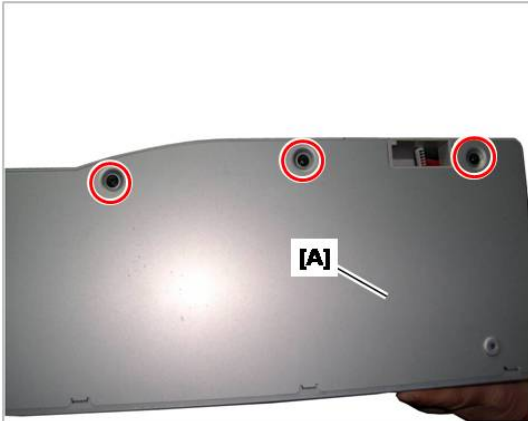
2. Unplug the pick up motor connector. Remove 2 screws. And release the DCF pick up motor.



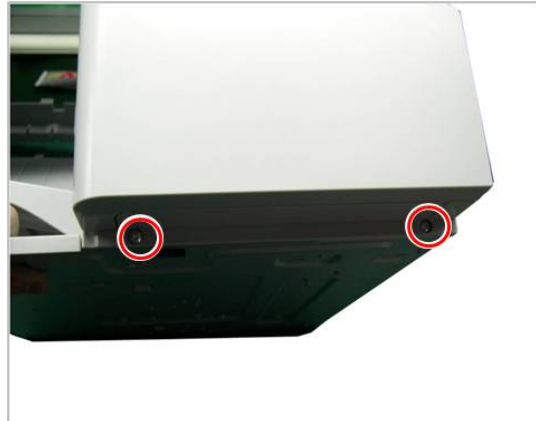
3.3.34. Finisher

3.3.34.1. Finisher Main Motor

1. Remove the rear cover after 3 screws.



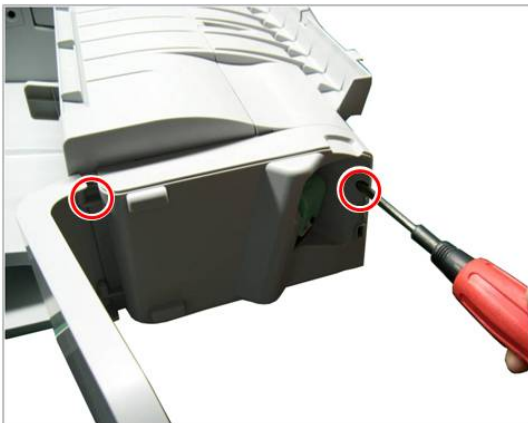
3. Remove 2 screws.



4. Remove the jam cover.



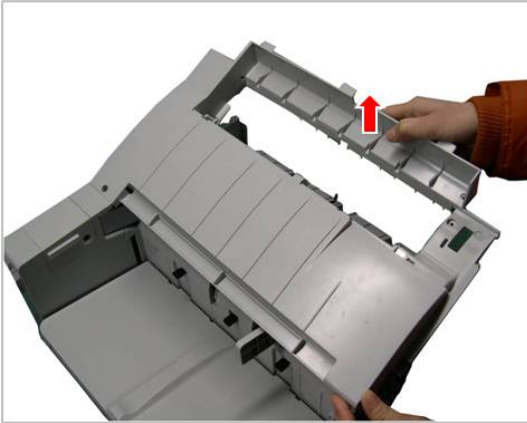
2. Remove 2 screws.



5. Remove 5 screws

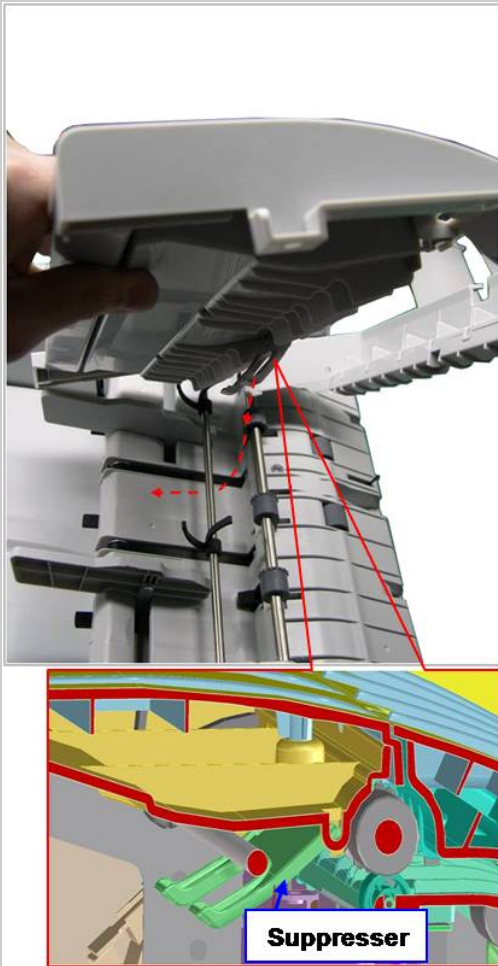


6. Remove the Top-Tray.

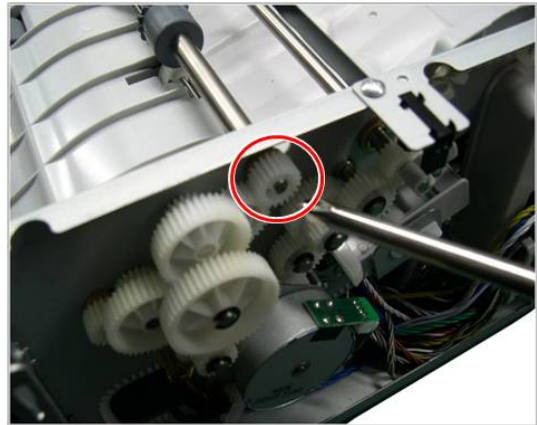


NOTE

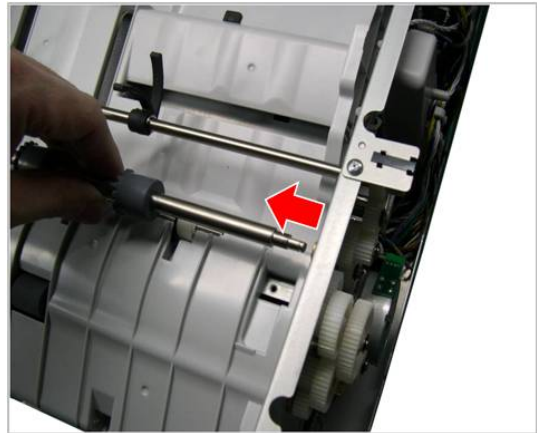
When reassembling the Top-Tray, check that the suppresser is in right position.



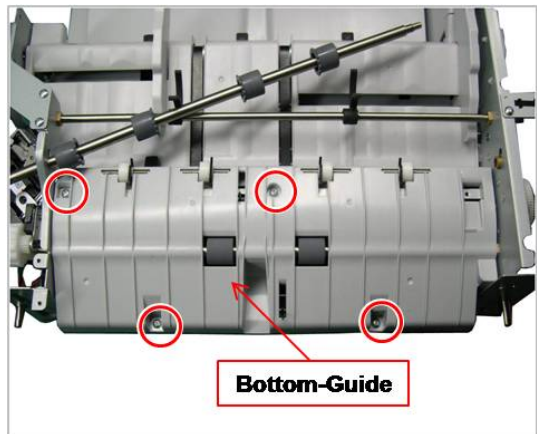
7. Remove the drive gear after removing the E-ring.



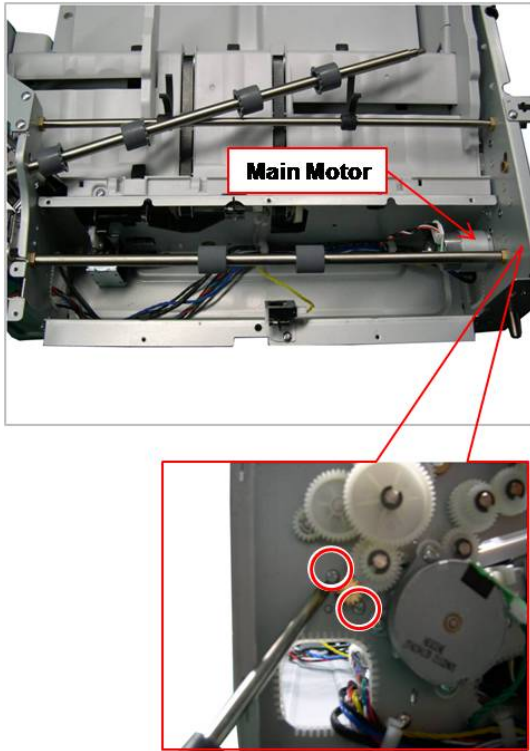
8. Release the exit roller.



9. Remove the Bottom-Guide after removing 4 screws.

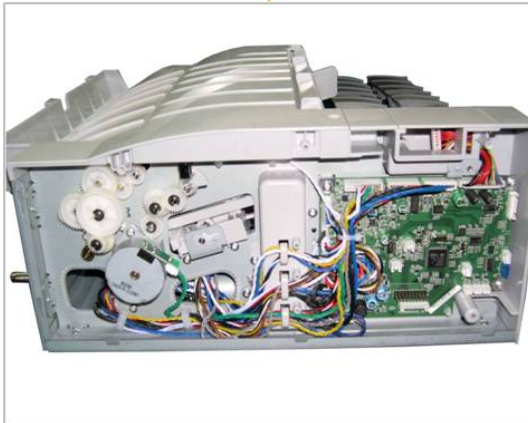
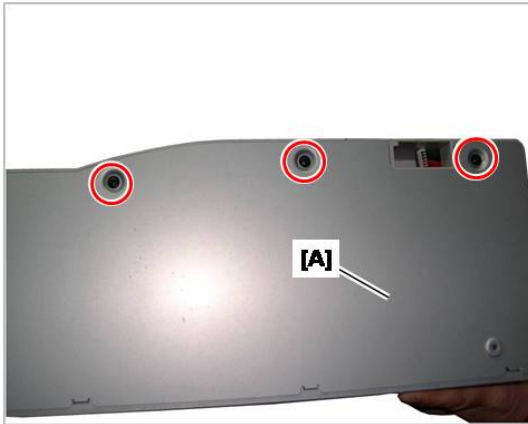


10. Remove the Main motor after removing 2 screws.

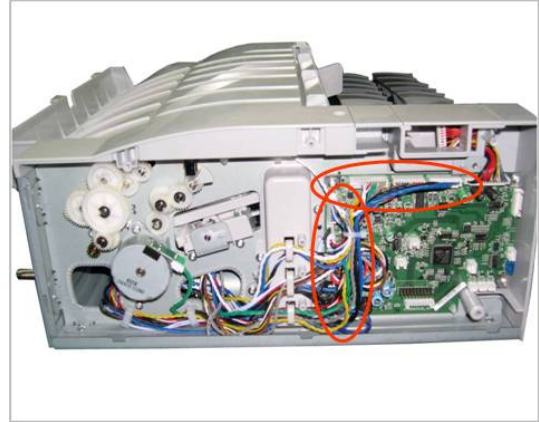


3.3.34.2. Finisher Board

1. Remove the rear cover after removing 3 screws.



2. Disconnect all cables on finisher board.

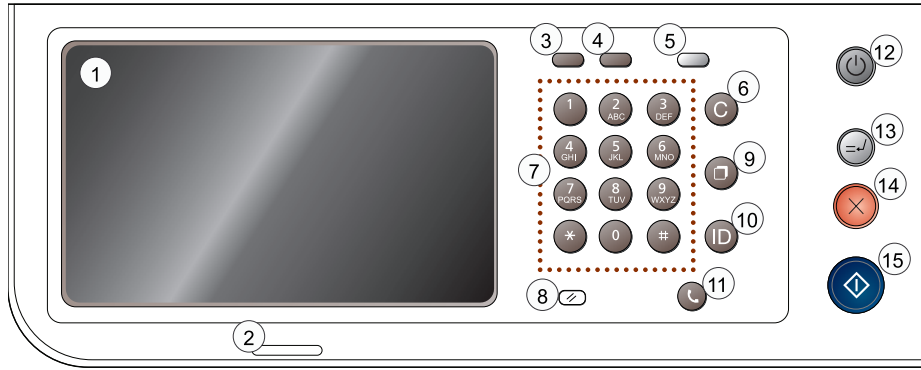


3. Remove the finisher board after removing 4 screws.



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	Status LED	Shows the status of your machine
3	Job Status	Shows the jobs currently running, queued jobs, completed jobs, current error code or secured jobs.
4	Counter	Shows the amount of paper used.
5	Eco	Turn into Eco mode.
6	Clear	Deletes characters in the edit area.
7	Numeric keypad	Dials numbers and enters alphanumeric characters. You can also enter the number value for document copies or other options.
8	Reset	Resets the current machine's setup.
9	Redial/Pause	Redials the recently sent fax number or received caller ID in ready mode, or inserts a pause(-) into a fax number in edit mode.
10	Log in/Logout	Allows user to log in or log out.
11	On Hook Dial	When you press this button, you can hear a dial tone. Then enter a fax number. It is similar to making a call using speaker phone.
12	Power	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 three seconds. Press Yes when the confirmation window appears.
13	Interrupt	Stops a job in operation for urgent copying.
14	Stop	Stops an operation at any time. The pop-up window appears on the screen showing the current job that the user can stop or resume.
15	Start	Starts a job.



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. Introducing the display screen and useful buttons

Display screen



NOTE

For more information, refer to the user guide.

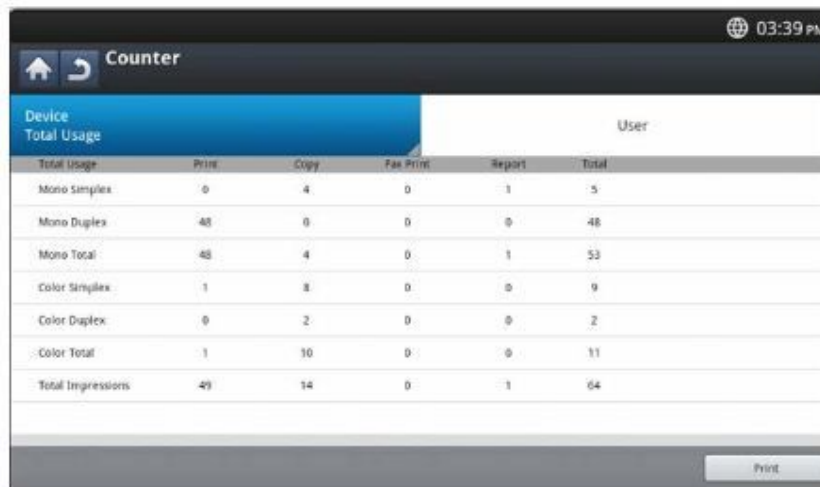
The display screen on the control panel allows user-friendly operation of the machine. Once you press the home icon on the screen, it shows the display screen. The display screen image in this user's guide may differ from your machine depending on its options or models.



- Copy : Enters the Copy menu.
- Fax : Enters the Fax menu. Fax is activated on the display screen by installing an optional fax kit.
- Stored Document : Enters the Stored Document menu.
- Shared Folder : Enters the Shared Folder menu.
- Scan to Email : Enters the Scan to Email menu.
- Scan to Server : Enters the Scan to Server menu.
- Scan to PC : Enters the Scan to PC menu.
- Scan to Shared Folder : Enters the Scan to Shared Folder menu.
- Quick Copy : Enters the Quick Copy menu.
- ID Copy : Enters the ID Copy menu.
- USB : Enters the USB menu. When a USB memory device is inserted into the USB memory port on your machine, USB is activated on the display screen.
- Scan to USB : Enters the Scan to USB menu. When a USB memory device is inserted into the USB memory port on your machine, Scan to USB is activated on the display screen.
- Machine Setup : You can browse current machine settings or change machine values.

Counter button

When you press the Counter button on the control panel, You can see the number of impressions.



The screenshot shows a 'Counter' screen with a table of usage statistics. The table has columns for 'Device', 'Print', 'Copy', 'Fax Print', 'Report', and 'Total'. The rows include 'Mono Simplex', 'Mono Duplex', 'Mono Total', 'Color Simplex', 'Color Duplex', 'Color Total', and 'Total Impressions'. A 'Print' button is visible at the bottom right of the screen.

Device	Print	Copy	Fax Print	Report	Total
Mono Simplex	0	4	0	1	5
Mono Duplex	48	0	0	0	48
Mono Total	48	4	0	1	53
Color Simplex	1	8	0	0	9
Color Duplex	0	2	0	0	2
Color Total	1	10	0	0	11
Total Impressions	49	14	0	1	64

- Total Usage : Displays the total number of impressions.
- Large Page : Displays the total number of impressions with large size paper.
- Send Usage : Displays the number of images sent via email, server, etc.
- Fax Send Usage(PSTN) : Displays the number of sent faxes.

Eco button

The eco feature allows you to save print resources and leads you to eco-friendly printing. When you press the Eco button, the machine turns eco mode on or off. If the eco mode is on, you can see the eco image on some features. Some options in the features are not available to use in the eco mode. For detailed information about the eco feature, refer to the Administrator's Guide.

Job Status button

When you press the Job Status button, the screen lists the currently running, queued, and completed jobs.

4.2. 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 saver mode. When data is received, or any button is pressed, it switches to on-line automatically. 	
Green	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 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, 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.

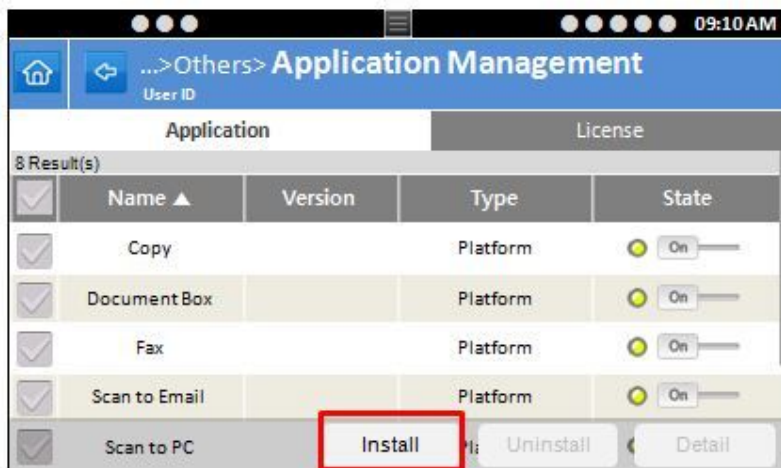
- 1) Download the firmware file from the Global Service Partner Network (GSPN) website.
- 2) Unzip the firmware file to a folder on your PC.
- 3) Copy the firmware file (*.hds) to a USB flash drive.



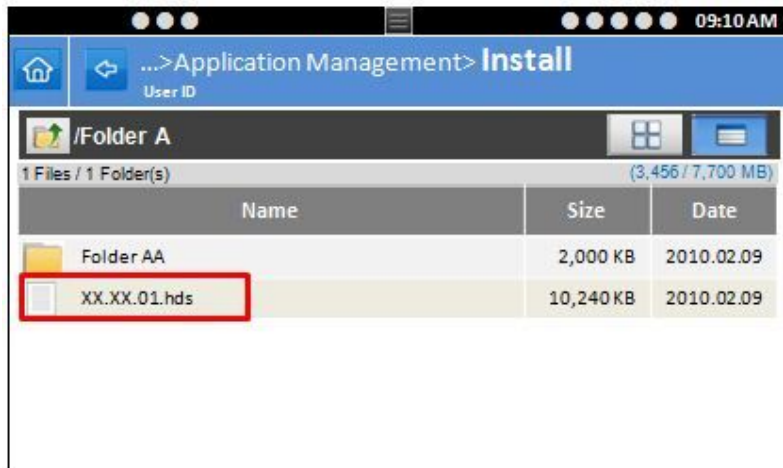
NOTE

The firmware files may be up to 500MB in size. USB flash drive size must be a minimum of 2 GB.

- 4) Press the button on control panel in this order. (**Machine Setup > Others > Application Management > Application**)
- 5) Plug the USB flash drive into the USB port. “Install” button will be activated on the Application tab. Press the “Install” button.



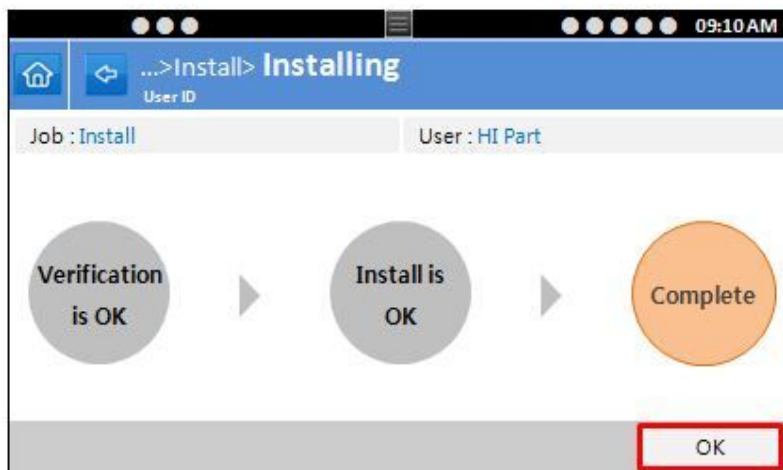
- 6) The installation window will list the files on the USB drive. Touch the name of the firmware file to select it.



- 7) Press the "OK" button after marking the check box.



- 8) Once the installation is complete, "OK" button will be activated. Press "OK" button.



- 9) After completing the update, you can find the updated versions at [Machine Setup] > [Machine Details] > [Software Versions].

4.3.2. Updating from the Network

WARNING

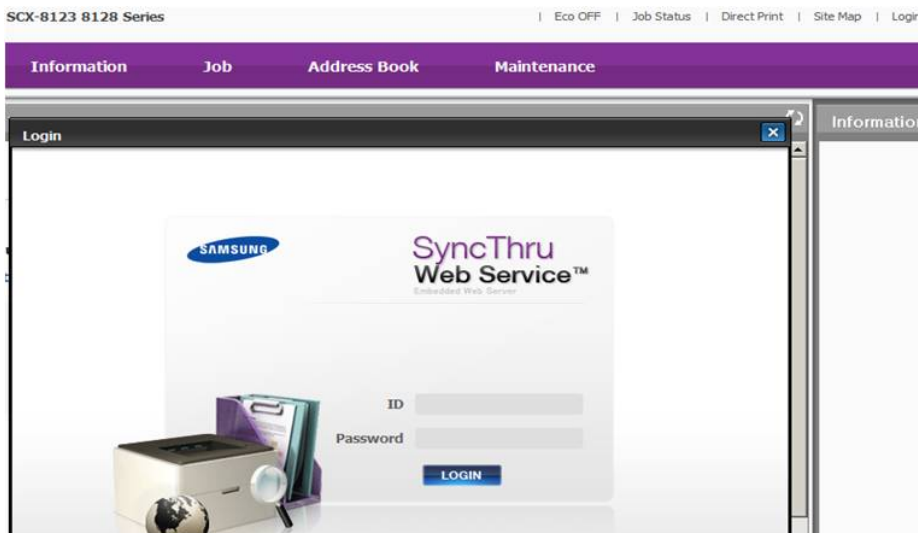
Failure to follow these instructions could lead to corruption issues and prevent the proper operation of this printer. Follow all of the instructions carefully.

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

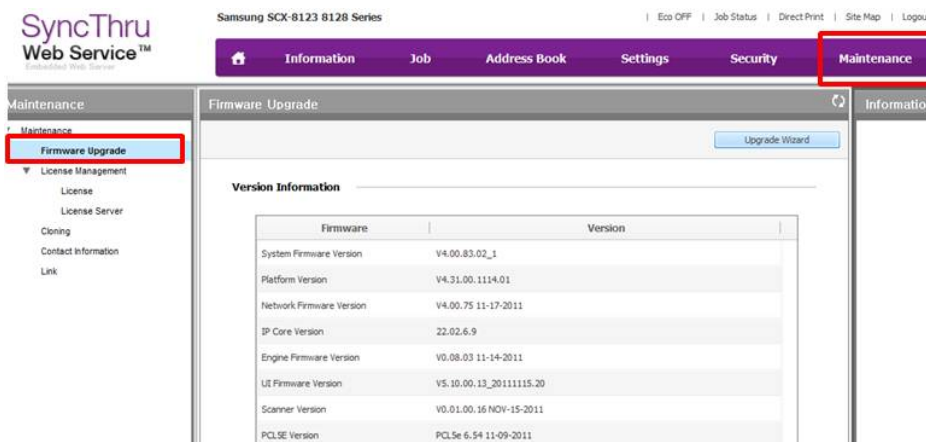
- 1) Go to the SyncThruWeb Service (SWS) main home page. Click **[Login]** to access as default administrator as shown below.

NOTE

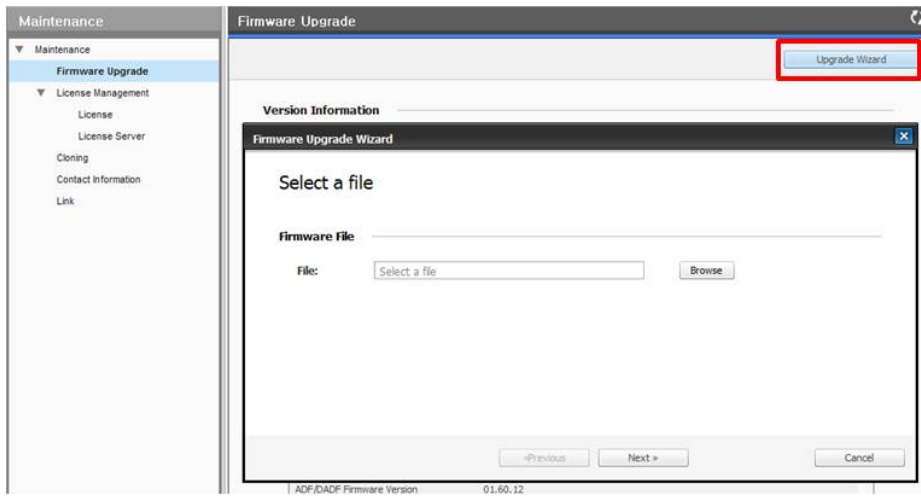
Login using the Administrator ID and Password established during initial machine setup.



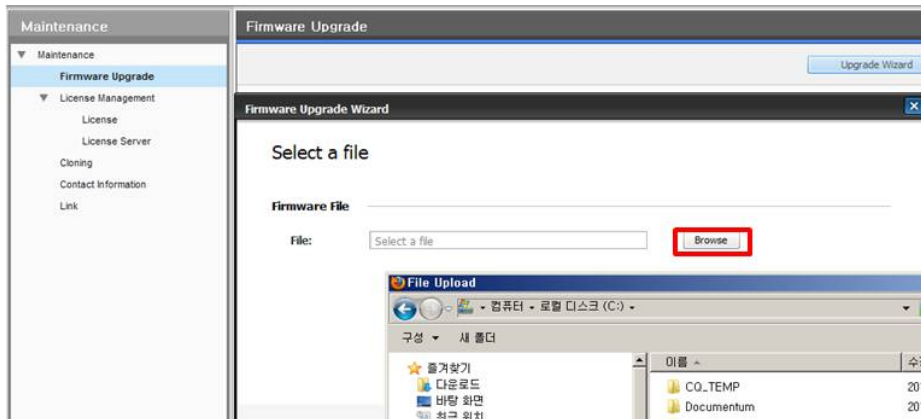
- 2) Click **[Maintenance]** on the top menu. And then click **[Firmware Upgrade]**.



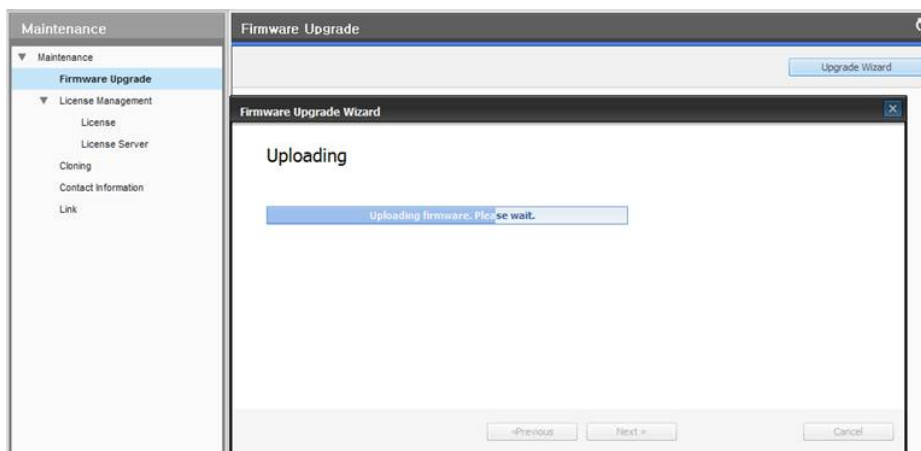
- 3) Click [Upgrade Wizard].



- 4) Click [Browse]. Choose installation file by browsing file system. And click [Next].

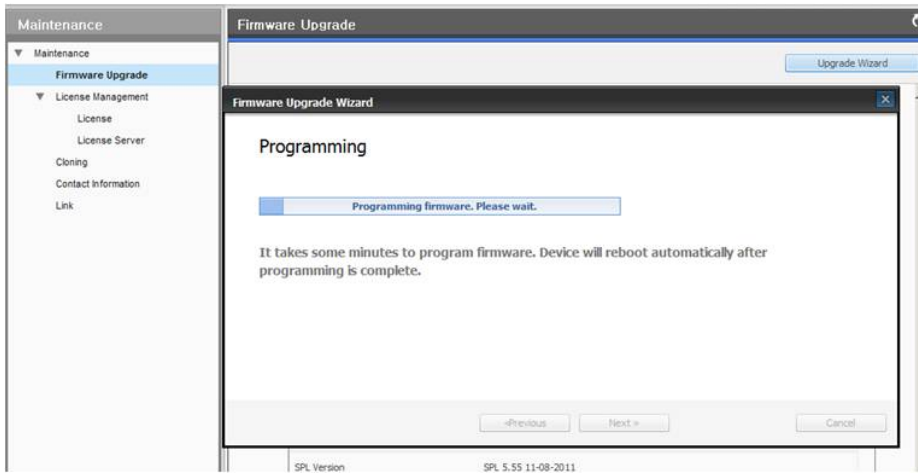


- 5) The uploading step will start. After this step, next step will be started automatically.

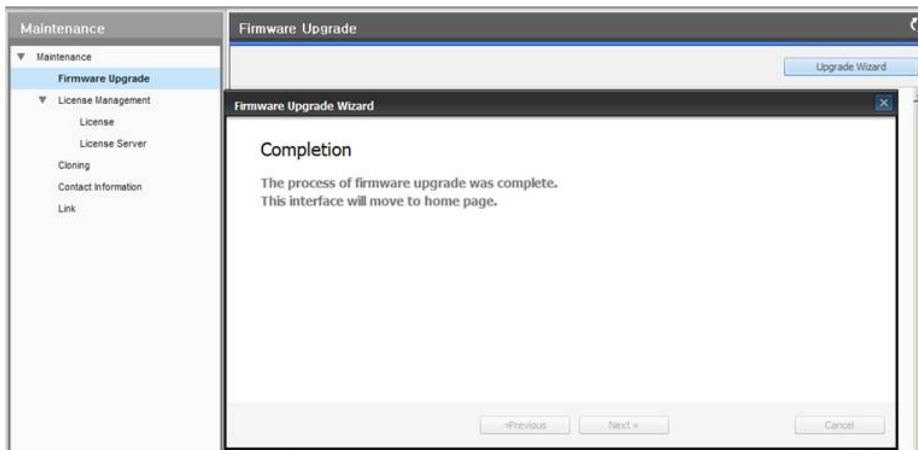


4. Troubleshooting

6) The firmware update will start.



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



4.4. Service Mode (Tech Mode)

4.4.1. Entering/Exiting Service Mode

To enter the service mode, press 1,2,3 number keys simultaneously. When the password dialog box appears, enter “1934” and press the “OK” button.

To exit the service mode, press the “Exit Service” button at the right upper corner of the display.

4.4.2. Service Mode Menu Tree

a) Information Tab

Level 1	Level 2	Level 3	Level 4	Page	
Information	General	Machine Serial Number		Page 4-15	
		Network IP Address			
		Total Printed Impressions			
		Machine Installed Date & Time			
	Supply Status	Customer Replacement Unit		Toner	Page 4-15
			Field Replacement Unit	OPC Unit	
		Developer Unit			
		Developer			
		Waste Toner Container			
		Finisher			
		ITB			
		Fuser			
	Roller				
	DADF Roller				
	Software Version				Page 4-16
	Service Hours		Power On Hours		Page 4-16
			Low Power Hours		
			Power Save Hours		
	Fault Log				Page 4-16
	Print Reports		Supplies Information		Page 4-17
			Fax Protocol Dump		
			Auto Color Registration		
			Maintenance		
Job Duty					
Auto Color Toning History					
Manual Toning History					
Usage Counter					
Full Auto Color Registration					
Export Reports		RTF Format		Page 4-18	
		XML Format			
		PDF Format			

b) Maintenance Counts Tab

Level 1	Level 2	Level 3	Level 4	Page	
Maintenance Counts	Fault Counts			Page 4-19	
	Jam Count	Print Jam		Pick-up Jam	Page 4-19
				Feed Jam	
				Duplex Jam	
				Exit Jam	
		Scan Jam		Feed Jam	
				Regi Jam	
				Scan Jam	
				Exit Jam	
				Duplex Regi Jam	
				Duplex Scan Jam	
	Part Replacement Count		Toner Cartridge		Page 4-20
			OPC Unit		
			Developer Unit		
			Developer		
			ITB		
			Fuser		
		Roller			
		DADF Roller			
Finisher Handling Count		Sheets Delivered to Top Tray		Page 4-21	
		Sheets Delivered to Finishing Tray			
		Finisher Set Count			

c) Diagnostics Tab

Level 1	Level 2	Level 3	Level 4	Page	
Diagnostics	Engine Diagnostics	Engine NVM Initialization		Page 4-22	
		Engine NVM Read/Write		Page 4-22	
		Engine Test Routines		Page 4-24	
	Fax Diagnostics	Fax NVM Read/Write			Page 4-28
		Fax Test Routines			Page 4-29
	Scanner Diagnostics	Shading Test		Shade and Print Report	Page 4-30
				Print Last Shade Report	
		Scanner/DADF NVM Read/Write			Page 4-30
	Adjustment	Print Adjustment		Automatic Adjustment	Page 4-32
				Magnification	Page 4-33
				Image Position	Page 4-33
				Print Test Patterns	
		Copy Adjustment		Image Position	Page 4-34
		Scan Area Adjustment		Automatic Adjustment	Page 4-35
				Manual Adjustment	Page 4-36
		DADF Adjustment		Automatic Adjustment	Page 4-37
				Manual Adjustment	Page 4-38
		ACS	ACS Level Adjustment		
	Image Management	Auto Color Registration			Page 4-39
		Manual Color Registration			Page 4-40
		Auto Tone Adjustment Activation		Normal	
				Full	
		Auto Tone Adjustment		Normal	Page 4-41
				Full	Page 4-42
			CTD Sensor Cleaning	Page 4-42	
	Print Test Patterns	Skew Pattern			

d) Service Functions

Level 1	Level 2	Level 3	Level 4	Page	
Service Functions	Main Memory Clear			Page 4-43	
	Hard Disk Maintenance	Device Configuration Data Clear		Page 4-43	
		Temporary & Spool Data Clear			
		User Saved Data & Log Clear			
		All Saved Data Clear			
		Hard Disk Check			
		Hard Disk Access			
		HDD Encryption			
	EIUL	On/Off			
	Count Setting of Large Pages	1 Count Up		Page 4-43	
		2 Count Up			
	Toner Save			Page 4-43	
	Port	Enable Telnet		Page 4-44	
		Enable OSGI			
		Enable Samba			
	Debug Log	Off / Job Status / Details		Page 4-44	
	Capture Log			Page 4-44	
	System Recovery	SYS		Page 4-45	
		ALL			
	TR Control Mode	T1 Control		Process Speed	Page 4-48
				Paper for Driver	
				T1 PWM	
		T2 Control		Paper Group	
			Paper Side		
			Paper Direction		
			T2 PWM		
User Data Management	Back up		Page 4-49		
	Restore				
Clear System Cache					
Enhanced Security	Off/On				
Hibernation	Off/On				

4.4.3. Information

4.4.3.1. General

- **Information > General**

This menu displays the machine's serial number, assigned IP address, total printed impressions, and the machine installed date.

4.4.3.2. 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 the CRU and FRU list, there are four columns : items, status, current, max life.

- Item : Refer to the table below.
- 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.
- Max. life : This shows the max capacity of the selected item.

Users 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.

Unit	Item	Max. Life	Default	Threshold
Toner	Yellow	15K	10%	1~ 30%
	Magenta	15K	10%	1~ 30%
	Cyan	15K	10%	1~ 30%
	Black	20K	10%	1~ 30%
OPC Unit	Yellow	50K	10%	5 ~ 30%
	Magenta	50K	10%	5 ~ 30%
	Cyan	50K	10%	5 ~ 30%
	Black	50K	10%	5 ~ 30%

Unit	Item	Max. Life	Default	Threshold
Developer Unit	Yellow	300K	10%	5 ~ 30%
	Magenta	300K	10%	5 ~ 30%
	Cyan	300K	10%	5 ~ 30%
	Black	300K	10%	5 ~ 30%
Waste Toner Container	Waste Toner Container	50K	Near Full	NA
Finisher	Finisher Stapler Cartridge	NA	Near Empty	NA
ITB	ITB	300K (PM Count)	5%	2% ~ 10%
	ITB Cleaner	150K (PM Count)	5%	3% ~ 10%
	T2 Roller	150K (PM Count)	5%	3% ~ 10%
Fuser	Fuser	150K (PM Count)	10%	5% ~ 20%
Roller	P/up Roller MP	200K (PM Count)	10%	5% ~ 20%
	P/up Roller Kit-tray1	200K (PM Count)	10%	5% ~ 20%
	P/up Roller Kit-tray2	200K (PM Count)	10%	5% ~ 20%
	P/up Roller Kit-tray3	200K (PM Count)	10%	5% ~ 20%
	P/up Roller Kit-tray4	200K (PM Count)	10%	5% ~ 20%
DADF Roller	Assembly ADF Roller	200K (PM Count)	10%	5% ~ 20%

4.4.3.3. Software Version

- **Information > Software Version**

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

4.4.3.4. Service Hours

- **Information > Service Hours**

This menu displays three items, “Power on Hours”, “Low Power Hours” and “Power Save Hours”.

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

4.4.3.5. 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.

4.4.3.6. 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
- Fax Protocol Dump List
- Auto Color Registration Result
- Full Auto Color Registration Result
- Maintenance
- Job Duty
- Auto Toning History
- Manual Toning History
- Usage Counter Report

Auto Color Registration

- **Information > Print Reports > Auto Color Registration**

This report lists last 10 Auto Color Registration results.

If there is color registration problem , and execution of Auto Color Registration does not solve the problem, service engineers can print out this report and check “Succeeded or Failed for ACR” field.

Result	Meaning
0	Success
256	Pattern Sensing Sensor LED calibration failure
1152	Machine can't read the pattern. So, the machine can't execute the calibration.

Auto Toning History and Manual Toning History

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

4.4.3.7. 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.

4.4.4. Maintenance Counts

4.4.4.1. Fault Count

- **Maintenance Counts > Fault Count**

This menu displays the fault Counts of the system. Users 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	H1 Input (Trays) System	S2 Engine System
A2 Fan	H2 Output (Bins) System	S3 Scan System
A3 Sensor		S4 Fax System
C1 Toner Cartridge Unit	M1 Input (Trays) System	S5 UI System
C3 Imaging Unit	M2 Media Path System	S6 Network System
C4 Developer Unit	M3 Output (Bins) System	S7 HDD System
C6 iTB	M4 Auto Document Feeder System	U1 Fusing Unit
C7 Fusing unit	S1 Video System	U2 LSU Unit

4.4.4.2. 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	Level 3
Print Jam	Pick-up Jam	Jam Bypass
		Jam 0 Tray 1
		Jam 0 Tray 2
		Jam 0 Tray 3 (DCF)
		Jam 0 Tray 4 (DCF)
	Feed Jam	Jam Feed 1
		Jam Feed 2
		Jam Feed 3 (DCF)
		Jam Feed 4 (DCF)
		Jam Regi
		Jam Fuser Out
	Duplex Jam	Jam Duplex 1
		Jam Duplex 2
		Jam Duplex Regi
		Jam Duplex Return

Level 1	Level 2	Level 3
	Exit Jam	Jam Exit In (Face Down)
		Jam Exit Out (Face Down)
		Jam Exit In (Inner)
		Jam Exit Out (Inner)
Scan Jam	Feed Jam	Feed In Jam
		Feed Out Jam
		Feed Idle Jam
	Regi Jam	Regi In Jam
		Regi Out Jam
		Regi Idle Jam
	Scan Jam	Scan In Jam
		Scan Out Jam
		Scan Idle Jam
	Exit Jam	Exit In Jam
		Exit Out Jam
		Exit Idle Jam
	Duplex Regi Jam	Duplex Regi In Jam
		Duplex Regi Out Jam
		Duplex Regi Idle Jam
	Duplex Scan Jam	Duplex Scan In Jam
		Duplex Scan Out Jam
		Duplex Scan Idle Jam
	Duplex Exit Jam	Duplex Exit In Jam
		Duplex Exit Out Jam
		Duplex Exit Idle Jam

4.4.4.3. 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.

4. Troubleshooting

Unit	Item	Sensing Method
Toner Cartridge	Toner (Yellow)	Auto Sensing
	Toner (Magenta)	Auto Sensing
	Toner (Cyan)	Auto Sensing
	Toner (Black)	Auto Sensing
OPC Unit	OPC Unit (Yellow)	Auto Sensing
	OPC Unit (Magenta)	Auto Sensing
	OPC Unit (Cyan)	Auto Sensing
	OPC Unit (Black)	Auto Sensing
Developer Unit	Developer Unit (Yellow)	Auto Sensing
	Developer Unit (Magenta)	Auto Sensing
	Developer (Cyan)	Auto Sensing
	Developer (Black)	Auto Sensing
Developer	Developer (Yellow)	Auto Sensing
	Developer (Magenta)	Auto Sensing
	Developer (Cyan)	Auto Sensing
	Developer (Black)	Auto Sensing
ITB	ITB	Count Clear
	ITB Cleaner	Count Clear
	T2 Roller	Count Clear
Fuser	Fuser	Auto Sensing
Roller	P/up Roller MP	Count Clear
	P/up Roller Kit-tray1	Count Clear
	P/up Roller Kit-tray2	Count Clear
	P/up Roller Kit-tray3	Count Clear
	P/up Roller Kit-tray4	Count Clear
DADF Roller	Assembly ADF Roller	Count Clear

4.4.4.4. Finisher Handling Count

- Maintenance Counts > Finisher Handling Count

This menu displays the sheet counts delivered to finisher tray and finisher set count. Users can select one item and press “OK” to see a count information.



NOTE

This menu shall be displayed only if finisher is installed

Finisher Handling Count	Sheets Delivered to Top Tray
	Sheets Delivered to Finishing Tray
	Finisher Set Count

4.4.5. Diagnostics

4.4.5.1. 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	Display	Meaning	Default	Max/Min
103-0031	Regi Curl Length	Buckle Control : Regi On Curl	0	6 / -3
103-0032	Duplex Regi Curl Length	Buckle Control : Duplex Regi On Curl (x1)	0	6 / -3
103-0033	Double Speed Duplex Regi Curl Length	Buckle Control : Duplex Regi On Curl (x2)	0	6 / -3
109-0000	StandBy Temperature offset	Target Temperature during standby mode.	0	5 / -5
109-0010	Run Temperature offset	Target Temperature during run mode.	0	5 / -5
109-0050	60 gms Temperature offset	Media type offset for fuser roll temperature.	0	5 / -5
109-0060	90 gms Temperature offset	Media type offset for fuser roll temperature.	0	5 / -5
109-0070	Bond Temperature offset	Media type offset for fuser roll temperature.	0	5 / -5
109-0090	Cardstock Temperature offset	Media type offset for fuser roll temperature.	0	5 / -5
109-0100	Envelopes Temperature offset	Media type offset for fuser roll temperature.	0	5 / -5
109-0110	Labels Temperature offset	Media type offset for fuser roll temperature.	0	5 / -5
109-0130	Thick Temperature Offset	Media type offset for fuser roll temperature.	0	5 / -5
109-0131	Recycled Temperature offset	Media type offset for fuser roll temperature.	0	5 / -5
109-0132	Special Temperature offset	Media type offset for fuser roll temperature.	0	5 / -5
109-0133	1200 dpi_thin temperature offset	Media type offset for fuser roll temperature.	0	5 / -5
109-0134	1200 dpi_plain temperature offset	Media type offset for fuser roll temperature.	0	5 / -5
109-0135	1200 dpi_thick temperature offset	Media type offset for fuser roll temperature.	0	5 / -5
109-0140	Cooldown Mode idling Time1	Narrow Paper idling Time1(~175°C)	10	150/0
109-0150	Cooldown Mode idling Time2	Narrow Paper idling Time2(~185°C)	30	150/0
109-0160	Cooldown Mode idling Time3	Narrow Paper idling Time3(~195°C)	60	150/0
109-0170	Cooldown Mode idling Time4	Narrow Paper idling Time4(~205°C)	90	150/0
109-0180	Cooldown Mode idling Time5	Narrow Paper idling Time5(205~°C)	120	150/0

4. Troubleshooting

Code	Display	Meaning	Default	Max/Min
112-0120	Manual Color Regi X-offset Yellow	Distant from hsync to lsync (multi-hsync) for yellow	100	200 / 0
112-0130	Manual Color Regi X-offset Magenta	Distant from hsync to lsync (multi-hsync) for Magenta	100	200 / 0
112-0140	Manual Color Regi X-offset Cyan	Distant from hsync to lsync (multi-hsync) for Cyan	100	200 / 0
112-0150	Manual Color Regi X-offset Black	Distant from hsync to lsync (multi-hsync) for Black	100	200 / 0
112-0160	Manual Color Regi Y-offset Yellow	Distant from psync to Image area for yellow	100	200 / 0
112-0170	Manual Color Regi Y-offset Magenta	Distant from psync to Image area for Magenta	100	200 / 0
112-0180	Manual Color Regi Y-offset Cyan	Distant from psync to Image area for Cyan	100	200 / 0
112-0190	Manual Color Regi Y-offset Black	Distant from psync to Image area for Black	100	200 / 0
112-0200	Manual Color Regi Width Yellow	Image Area Width for Yellow	1000	2000 / 0
112-0210	Manual Color Regi Width Magenta	Image Area Width for Magenta	1000	2000 / 0
112-0220	Manual Color Regi Width Cyan	Image Area Width for Cyan	1000	2000 / 0
112-0230	Manual Color Regi Width Black	Image Area Width for Black	1000	2000 / 0
112-0240	Manual Color Regi Left Width Yellow	Image Area Left Width for Yellow	500	1000 / 0
112-0250	Manual Color Regi Right Width Yellow	Image Area Right Width for Yellow	500	1000 / 0
112-0260	Manual Color Regi Left Width Magenta	Image Area Left Width for Magenta	500	1000 / 0
112-0270	Manual Color Regi Right Width Magenta	Image Area Right Width for Magenta	500	1000 / 0
112-0280	Manual Color Regi Left Width Cyan	Image Area Left Width for Cyan	500	1000 / 0
112-0290	Manual Color Regi Right Width Cyan	Image Area Right Width for Cyan	500	1000 / 0
112-0300	Manual Color Regi Left Width Black	Image Area Left Width for Black	500	1000 / 0
112-0310	Manual Color Regi Right Width Black	Image Area Right Width for Black	500	1000 / 0
112-0320	Color Regi LSU Skew Yellow	LSU Skew for Yellow	100	200 / 0
112-0330	Color Regi LSU Skew Magenta	LSU Skew for Magenta	100	200 / 0
112-0340	Color Regi LSU Skew Cyan	LSU Skew for Cyan	100	200 / 0

Engine Test Routines

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

Purpose	To perform test routines for the engine.
Operation Procedure	<p>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.</p> <p>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.</p>

Code	Display	Meaning
100-0000	Main BLDC Motor	Main BLDC Motor is On/Off
100-0010	Main BLDC Motor Ready	Detect if Main BLDC Motor runs at normal speed
100-0041	OPC Motor Y	Yellow Opc BLDC Motor is On/Off
100-0042	OPC Motor M	Magenta Opc BLDC Motor is On/Off
100-0043	OPC Motor C	Cyan Opc BLDC Motor is On/Off
100-0044	OPC Motor K	Black Opc BLDC Motor is On/Off
100-0046	Y OPC Motor Ready	Detect if Yellow OPC BLDC Motor runs at normal speed
100-0047	M OPC Motor Ready	Detect if Magenta OPC BLDC Motor runs at normal speed
100-0048	C OPC Motor Ready	Detect if Cyan OPC BLDC Motor runs at normal speed
100-0049	K OPC Motor Ready	Detect if Black OPC BLDC Motor runs at normal speed
100-0080	T1 Engage Motor	T1 Engage Motor On/Off
100-0090	T1 Engae Sensor	Detect if the T1 Engage is On or Off.
100-0120	Exit Motor Forward Fast	Exit Motor Forward Fast On/Off
100-0130	Exit Motor Forward Slow	Exit Motor Forward Slow On/Off
100-0131	Exit Motor Backward	Exit Motor Forward Backward On/Off
100-0132	Exit Motor Backward Slow	Exit Motor Forward Backward Slow On/Off
100-0140	Duplex Motor Forward	Duplex Motor Forward On/Off
100-0141	Duplex Motor Forward Slow	Duplex Motor Forward Slow 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)
100-0240	Waste Toner Motor	Waste Toner Motor On/Off
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.
100-0260	SMPS Fan Run	Start/Stop Deve. Fan run
100-0270	SMPS Fan Run Ready	Detects if Deve Fan runs at normal speed.
100-0340	Feed Motor	Feed Motor is On/Off
100-0370	Tray1 Pickup Motor	Tray1 Motor is On/Off

4. Troubleshooting

Code	Display	Meaning
100-0380	Tray2 Pickup Motor	Tray2 Motor is On/Off
100-0390	Tray3 Pickup Motor	Tray3 Motor is On/Off
100-0400	Tray4 Pickup Motor	Tray4 Motor is On/Off
100-0430	Exit2 Motor Forward	Exit2 Motor is On/Off
100-0440	Exit2 Motor Backward	Exit2 Motor is On/Off
100-0450	ITB Motor	ITB Motor is On/Off
100-0460	Ready ITB	Detect if ITB Motor runs at normal speed
100-0470	DCF Feed Motor	DCF Feed Motor is On/Off
101-0000	Bypass Feed Clutch	Engages drive to pick up a paper from bypass Tray(MP Tray).
101-0050	Registration Clutch	Engages drive to registartion rolls.
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
101-0270	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.
102-0010	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.
102-0080	T2 Paper Empty Sensor	Detect when paper is in tray2.
102-0111	T2 Paper Size Read	Detects Paper Tray2 size.
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.
102-0150	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.
102-0210	Tray4 Home Position	Detect when tray4 is closed.
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.
102-0280	Bypass Paper Empty Sensor	Detects when paper is in Bypass Tray(MP Tray).
102-0290	Feed Sensor	Detect when a paper is at Feed sensor.
102-0300	T2 Feed Sensor (or Door Open)	Detect when a paper is at T2 Feed sensor. (optional)
102-0320	T3 Feed Sensor (or Door Open)	Detect when a paper is at T3 Feed sensor. (optional)
102-0340	T4 Feed Sensor (or Door Open)	Detect when a paper is at T4 Feed sensor. (optional)
102-0352	DCF Feed Cover Open	Detect DCF Cover is closed
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.

Code	Display	Meaning
102-0380	Duplex Jam1 Sensor	Detect when a paper is at Duplex Jam1 sensor.
104-0000	Waste Install Sensor	Detect if Waste is installed.
109-0020	Fuser Fan Run Ready	Detects if Fuser Fan Motor runs at normal speed.
109-0030	Fuser Motor Forward	Fuser Motor Forward On/Off
109-0031	Fuser Motor Backward	Fuser Motor Backward 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
109-0140	Fuser Gap Home Sensor	Detect if the fuser press is located Home position.
110-0000	LSU Motor1 Run Ready	Detects if LSU motor1 runs at normal speed.
110-0060	LSU Motor1 Run	LSU Motor1 On/Off
111-0000	Toner Dispense Motor Yellow	Toner Dispense(Supply) Motor On/Off
111-0010	Toner Dispense Motor Magenta	Toner Dispense(Supply) Motor On/Off
111-0020	Toner Dispense Motor Cyan	Toner Dispense(Supply) Motor On/Off
111-0030	Toner Dispense Motor Black	Toner Dispense(Supply) Motor On/Off
111-0040	Toner Sensor Yellow	TC sensor in developer tank.
111-0050	Toner Sensor Magenta	TC sensor in developer tank.
111-0060	Toner Sensor Cyan	TC sensor in developer tank.
111-0070	Toner Sensor Black	TC sensor in developer tank.
112-0010	Clear Manual Offset Value of Color Regi	Clear Manual Offset Value of Color Regi.
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
113-0370	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
113-0400	Finisher Media Height Sensor	Detect Main Tray level.
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
113-0450	Finisher Stapler Selfpriming Sensor	Detect Stapler Selfpriming Sensor
113-0460	Finisher Ejector Home Sensor	Detect Ejector Home position
113-0470	Finisher Main Tray Home Sensor	Detect Main Tray Home position
113-0480	Finisher Stacker Height sensor	Detect Stacker Height sensor
113-0490	Finisher Letter Size Sensor	Detect Paper Size
113-0500	Finisher Transport Motor	Finisher Transport Motor On/Off
113-0510	Finisher Paddle Motor	Finisher Paddle Motor On/Off
113-0520	Finisher Left Tamper Motor	Finisher Left Tamper Motor On/Off
113-0530	Finisher Right Tamper Motor	Finisher Right Tamper Motor On/Off
113-0540	Finisher Media Height Solenoid	Finisher Media Height Solenoid On/Off
113-0550	Finisher Staple Unit Motor	Finisher Staple Unit Motor On/Off

4. Troubleshooting

Code	Display	Meaning
113-0560	Finisher Ejector Motor	Finisher Ejector Motor On/Off
113-0570	Finisher Main Tray Motor	Finisher Main Tray Motor On/Off
113-0580	Finisher SCU Solenoid	Finisher SCU Solenoid On/Off
113-0590	Finisher Safety Cover Solenoid	Finisher Safety Cover Solenoid On/Off

4.4.5.2. 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.

Code (Line 1)	Displayed Name	Default
20-200	Pause Dial Time	1
20-210	Dial Pulse M/B ratio	0
20-220	Auto Dial Start Pause Time	1
20-300	Ring On Time	170
20-310	Ring Off Time	560
20-320	Ring Detection Freq	1
20-400	DTMF High-Freq Level	8
20-410	DTMF Low-Freq Level	11
20-420	DTMF Timing	5
20-500	Dial Mode	
20-520	Error Rate	2
20-530	Dial Tone Detect	0
20-540	Loop Current Detect	0
20-550	Busy Signal Detect	0
20-700	Line Monitor Setting	0
20-800	Modem Speed	7
20-810	Fax Transmission Level	12
20-830	Auto Dial Timeout	55
20-999	Fax Line Setting	

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 (Line 1)	Displayed Name
20-012	Single Tone 110 Hz
20-014	Single Tone 1650 Hz
20-015	Single Tone 1850 Hz
20-016	Single Tone 2100 Hz
20-020	DMTF # Line
20-021	DMTF * Line
20-022	DMTF 0 Line
20-023	DMTF 1 Line
20-024	DMTF 2 Line
20-025	DMTF 3 Line
20-026	DMTF 4 Line
20-027	DMTF 5 Line
20-028	DMTF 6 Line
20-029	DMTF 7 Line
20-030	DMTF 8 Line
20-031	DMTF 9 Line
20-040	V.21 300 bps
20-041	V.27ter 2400 bps
20-042	V.27ter 4800 bps
20-043	V.29 7200 bps

Code (Line 1)	Displayed Name
20-044	V.29 9600 bps
20-045	V.17 7200 bps
20-046	V.17 9600 bps
20-047	V.17 12000 bps
20-048	V.17 14400 bps
20-049	V.34 2400 bps
20-050	V.34 4800 bps
20-051	V.34 7200 bps
20-052	V.34 9600 bps
20-053	V.34 12000 bps
20-054	V.34 14400 bps
20-055	V.34 16800 bps
20-056	V.34 19200 bps
20-057	V.34 21600 bps
20-058	V.34 24000 bps
20-059	V.34 26400 bps
20-060	V.34 28800 bps
20-061	V.34 31200 bps
20-062	V.34 33600 bps

4.4.5.3. Scanner Diagnostics

Shading Test

- **Diagnostics > Scanner Diagnostics > Shading Test**

Purpose	To check quality of scanned images, especially defect in optical devices, including lens, mirror, lamp, and etc, are suspected.
Operation Procedure	Press "Share 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".

Scanner/DADF NVM Read/Write

- **Diagnostics > Scanner Diagnostics > Scanner/DADF NVM Read/Write**

Purpose	To read and/or write values in the scanner and DADF memory.
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 directly input a code to the text box to find a NVM. After selecting a code, the "Edit" button will be enabled only if the code is writable. If the selected code is writable and the "Edit" button is enabled, press the button to configure the desired value for the code.

Code	NVM Description	Meaning	Access
05-0000	Pick up Count	Pick up Roller Life Count	Read Only
05-0010	Document Duplex Reverse Point	Document Duplex Reverse Point	Read/Write
05-0020	Document Exit Turn Reverse Point	Document Exit Turn Reverse Point	Read/Write

Scanner/DADF Test Routines

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


Purpose	To perform test routines for the scanner and DADF.
Operation Procedure	<p>When the main scanner/DADF 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.</p> <p>Users can start/stop a desired test routine.</p>

Code	NVM Description	Meaning	Access
05-0000	Document Length .1 Sensor	Document Length .1 Sensor	High/Low
05-0001	Document Length .2 Sensor	Document Length .2 Sensor	High/Low
	Document Width1 Sensor	Document Width1 Sensor	High/Low
	Document Width2 Sensor	Document Width2 Sensor	High/Low
	Document Width3 Sensor	Document Width3 Sensor	High/Low
05-0020	Document Cover Open Sensor	Document Cover Open Sensor	High/Low
05-0040	Document Detect Sensor	Document Detect Sensor	High/Low
05-0060	Document Simplex Registration Sensor	Document Simplex Registration Sensor	High/Low
05-0070	Document Scan Read Sensor	Document Scan Read Sensor	High/Low
05-0080	Document Exit Sensor	Document Exit Sensor	High/Low
05-0210	Document Jig Test Low Speed Simplex	Document Jig Test Low Speed Simplex	
05-0220	Document Jig Test Low Speed Duplex	Document Jig Test Low Speed Duplex	
05-0230	Document Jig Test High Speed Simplex	Document Jig Test High Speed Simplex	
05-0240	Document Jig Test High Speed Duplex	Document Jig Test High Speed Duplex	
	Document Exit IDLE Sensor	Document Exit IDLE Sensor	High/Low
	Document Motor Forward	Document Motor Forward	Start/Stop
	Document Motor Backward	Document Motor Backward	Start/Stop
06-0000	Scanner Original Size Detecting Sensor 1	Scanner Original Size Detecting Sensor 1	High/Low
06-0001	Scanner Original Size Detecting Sensor 2	Scanner Original Size Detecting Sensor 2	High/Low
06-0010	Scanner Cover Open/Close Sensor 1	Scanner Cover Open/Close Sensor 1	High/Low
06-0011	Scanner Cover Open/Close Sensor 2	Scanner Cover Open/Close Sensor 2	High/Low
06-0020	Scanner Platen Motor Forward	Scanner Platen Motor Forward	Start/Stop
06-0030	Scanner Platen Motor Backward	Scanner Platen Motor Backward	Start/Stop
	Scanner home Sensor	Scanner home Sensor	High/Low

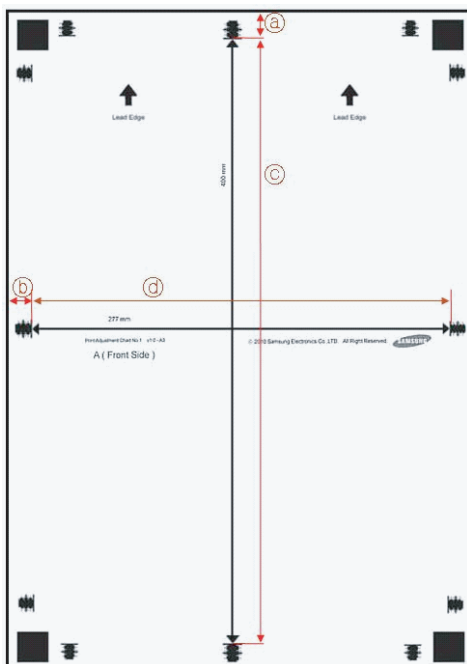
4.4.5.4. Adjustment

Print Adjustment

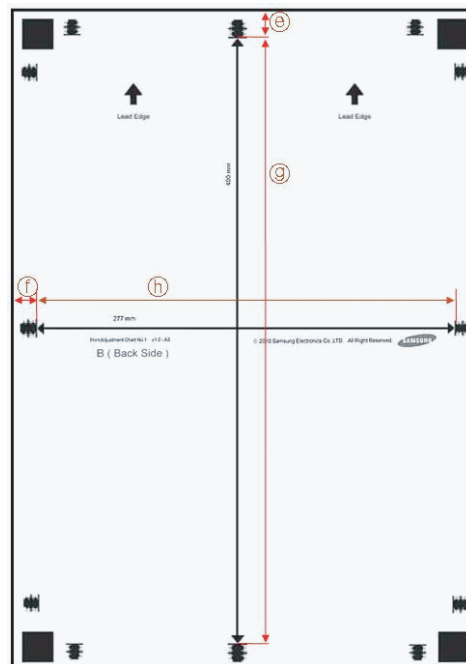
- Diagnostics > Adjustment > Print Adjustment > Automatic Adjustment

Purpose	To correct image position of print-outs automatically.
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) Press “Next” button. The system ask to locate the test pattern. 5) Locate the front side of Scanner A/S Chart at the scanner glass . <div style="background-color: #cccccc; padding: 5px; margin: 10px 0;"> <p> NOTE DADF cannot be used.</p> </div> <ol style="list-style-type: none"> 6) Press “OK” button. Automatic scanning will occur . 7) Locate the back side of Scanner A/S Chart at the scanner glass again and press “OK” button once more. 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.
Verification	Print out and check if all the position of scale marks (a, b, e, f) in the image are located within the specified limit.
Specification	a, b, e, f : 10 mm, ± 1.5 mm
Reference	Scanner A/S Chart

■ Scanner A/S Chart



Front Side



Back Side

• **Diagnostics > Adjustment > Print Adjustment > Image Position**

Purpose	To correct image position of print-outs manually.																									
Operation Procedure	<p>1) Select a tray required adjustment.</p> <p>2) Change the adjustment value with arrow button. “+” value will move to Tail-Edge while “-” value will move to Lead-Edge.</p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Example Cases</th> <th>Simplex Leading Edge</th> <th>Simplex Side Edge</th> <th>Duplex Leading Edge</th> <th>Duplex Side Edge</th> </tr> </thead> <tbody> <tr> <td>Ⓐ = 8.5 mm</td> <td>+15</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Ⓑ = 11.6 mm</td> <td></td> <td>-16</td> <td></td> <td></td> </tr> <tr> <td>Ⓔ = 8.0 mm</td> <td></td> <td></td> <td>+20</td> <td></td> </tr> <tr> <td>Ⓕ = 13.0 mm</td> <td></td> <td></td> <td></td> <td>-30</td> </tr> </tbody> </table>	Example Cases	Simplex Leading Edge	Simplex Side Edge	Duplex Leading Edge	Duplex Side Edge	Ⓐ = 8.5 mm	+15				Ⓑ = 11.6 mm		-16			Ⓔ = 8.0 mm			+20		Ⓕ = 13.0 mm				-30
Example Cases	Simplex Leading Edge	Simplex Side Edge	Duplex Leading Edge	Duplex Side Edge																						
Ⓐ = 8.5 mm	+15																									
Ⓑ = 11.6 mm		-16																								
Ⓔ = 8.0 mm			+20																							
Ⓕ = 13.0 mm				-30																						
Verification	Print out and check if all the position of scale marks (,,,) in the image are located within the specified limit.																									
Specification	a, b, e, f : 10 mm, ± 1.5 mm																									
Reference	Scanner A/S Chart																									

Copy Adjustment

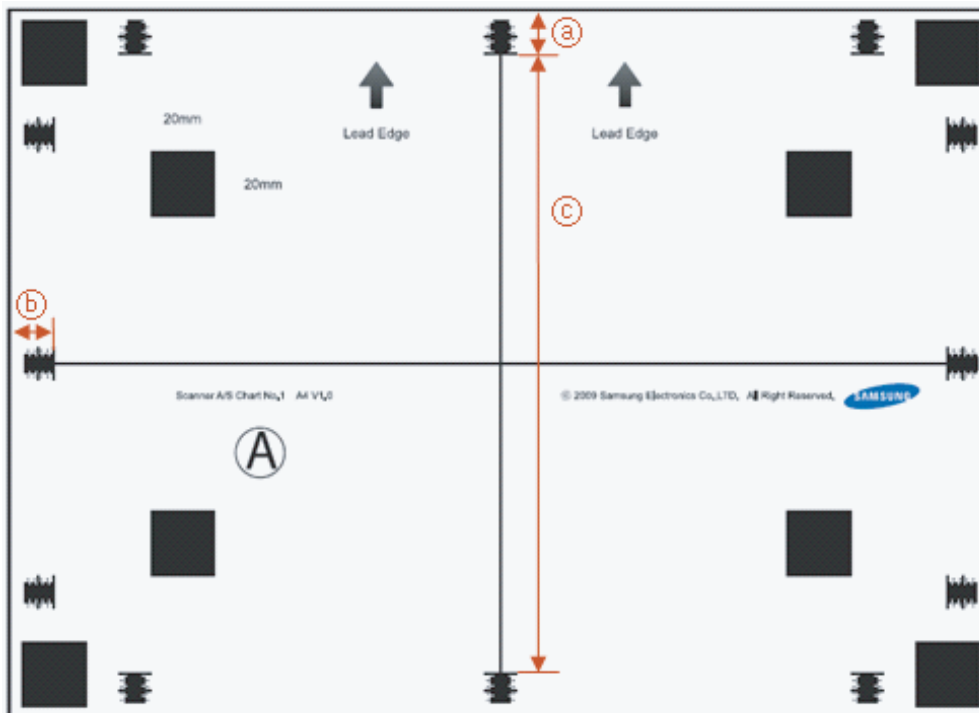
• **Diagnostics > Adjustment > Copy Adjustment > Image Position**

Purpose	To correct image position of copied images manually.																									
Operation Procedure	<p>1) Select a tray required adjustment.</p> <p>2) Change the adjustment value with arrow button. “+” value will move to Tail-Edge while “-” value will move to Lead-Edge.</p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Example Cases</th> <th>Simplex Leading Edge</th> <th>Simplex Side Edge</th> <th>Simplex Leading Edge</th> <th>Simplex Side Edge</th> </tr> </thead> <tbody> <tr> <td>Ⓐ = 11.5 mm</td> <td>-15</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Ⓑ = 8.4 mm</td> <td></td> <td>-16</td> <td></td> <td></td> </tr> <tr> <td>Ⓔ = 12.0 mm</td> <td></td> <td></td> <td>-20</td> <td></td> </tr> <tr> <td>Ⓕ = 7.0 mm</td> <td></td> <td></td> <td></td> <td>+30</td> </tr> </tbody> </table>	Example Cases	Simplex Leading Edge	Simplex Side Edge	Simplex Leading Edge	Simplex Side Edge	Ⓐ = 11.5 mm	-15				Ⓑ = 8.4 mm		-16			Ⓔ = 12.0 mm			-20		Ⓕ = 7.0 mm				+30
Example Cases	Simplex Leading Edge	Simplex Side Edge	Simplex Leading Edge	Simplex Side Edge																						
Ⓐ = 11.5 mm	-15																									
Ⓑ = 8.4 mm		-16																								
Ⓔ = 12.0 mm			-20																							
Ⓕ = 7.0 mm				+30																						
Verification	<p>1) Copy the Scanner A/S Chart . Scanning must be occur at the scanner glass .</p> <p>2) Check if all the position of scale marks (a, b, e, f) in the image are located within the specified limit.</p>																									
Specification	a, b, e, f : 10 mm ± 1.5 mm																									
Reference	Scanner A/S Chart																									

Scan Area Adjustment


- Diagnostics > Adjustment > Scan Area Adjustment > Automatic Adjustment

Purpose	To correct image position and magnification of scanned images automatically.
Operation Procedure	<ol style="list-style-type: none"> 1) Locate the Scanner A/S Chart at the scan glass . 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. 2) Press “OK” button. Automatic scanning will occur, and the system will automatically calculate the proper value based on scanning result of the chart . 3) The new value set to the table.
Verification	<ol style="list-style-type: none"> 1) Scan the Scanner A/S Chart and send it to a PC. Scanning must be occur from the scan glass. 2) To check the image position, compare the position of scale marks (a, b) of the chart to the copy. 3) To check the magnification, compare the length of line “c” of the chart to the copy.
Specification	a, b : 10 ± 1.5 mm c : 190 ± 1.5 mm
Reference	A4 Scanner A/S Chart



A4 Scanner A/S Chart

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


Purpose	To correct image position and magnification of scanned images manually. This function is used when a result of automatic adjustment does not satisfy the expectation.																				
Operation Procedure	<p>1) Choose one item from the table. There are three items to choose.</p> <ul style="list-style-type: none"> • Image Position - Leading Edge • Image Position - Side Edge • Magnification - Vertical Direction <p>2) Select one item and press the “Edit” button.</p> <p>3) Change the adjustment value with arrow button.</p> <p>4) Image Position (a, b) : If the current value is smaller than the specification, press “+”. Otherwise, press “-”.</p> <p>5) Magnification (c) : If the current value is smaller than the specification, press “-”. Otherwise, press “+”.</p> <p>6) Press the “OK” button to apply the new value to the system.</p> <table border="1" data-bbox="477 737 1255 1024" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="background-color: #ADD8E6;">Example Cases</th> <th style="background-color: #ADD8E6;">Leading Edge</th> <th style="background-color: #ADD8E6;">Side Edge</th> <th style="background-color: #ADD8E6;">Vertical Direction Adjustment</th> </tr> </thead> <tbody> <tr> <td>Ⓐ = 11.0 mm</td> <td style="text-align: center;">-10</td> <td></td> <td></td> </tr> <tr> <td>Ⓑ = 9.0 mm</td> <td></td> <td style="text-align: center;">+10</td> <td></td> </tr> <tr> <td>Ⓒ = 191.7 mm</td> <td></td> <td></td> <td style="text-align: center;">+0.8% (-3.4mm)</td> </tr> <tr> <td>Ⓒ = 188.1 mm</td> <td></td> <td></td> <td style="text-align: center;">-0.4% (near +1.8mm)</td> </tr> </tbody> </table> <div style="background-color: #D3D3D3; padding: 5px; margin-top: 10px;"> <p> NOTE The value of magnification adjustment needs to be calculated based on A3 size, 420mm ((190mm + 10mm*2)*2) if the used Scanner A/S Chart is A4 size.</p> </div>	Example Cases	Leading Edge	Side Edge	Vertical Direction Adjustment	Ⓐ = 11.0 mm	-10			Ⓑ = 9.0 mm		+10		Ⓒ = 191.7 mm			+0.8% (-3.4mm)	Ⓒ = 188.1 mm			-0.4% (near +1.8mm)
Example Cases	Leading Edge	Side Edge	Vertical Direction Adjustment																		
Ⓐ = 11.0 mm	-10																				
Ⓑ = 9.0 mm		+10																			
Ⓒ = 191.7 mm			+0.8% (-3.4mm)																		
Ⓒ = 188.1 mm			-0.4% (near +1.8mm)																		
Verification	<p>1) Scan the Scanner A/S Chart and send it to a PC. Scanning must occur from the scan glass.</p> <p>2) To check the image position, compare the position of scale marks (a, b) of the chart to the copy.</p> <p>3) To check the magnification, compare the length of line “c” of the chart to the copy.</p>																				
Specification	<p>a, b : 10 ± 1.5 mm</p> <p>c : 190 ± 1.5 mm</p> <p>Image Position Unit : mm, Scale : 0.1, Min/Max : -6/+6</p> <p>Magnification Unit : %, Scale: 0.1(0.42mm), Min/Max: 99/101</p>																				
Reference	A4 Scanner A/S Chart																				

DADF Adjustment

- **Diagnostics > Adjustment > DADF Adjustment > Automatic Adjustment**

Purpose	To correct image position and magnification of scanned images via DADF automatically.
Operation Procedure	<ol style="list-style-type: none"> 1) Locate the Scanner A/S Chart at the DADF. Note that “Lead Edge” arrows need to head to feeding direction and to be placed face up. Also note that the Scanner A/S Charts come in two size, A4 and Letter . Choose one size to meet your primary size of use. 2) Press “OK” button. Automatic scanning will occur ,and the system will automatically calculate the proper value based on scanning result of the chart . 3) The new values are set to the table.
Verification	<ol style="list-style-type: none"> 1) Copy the Scanner A/S Chart. Scanning must be occur from the DADF. 2) To check the image position, compare the position of scale marks (a, b) of the chart to the copy. 3) To check the magnification, compare the length of line “c” of the chart to the copy.
Specification	a, b : 10 ± 1.5 mm c : 190 ± 1.5 mm
Reference	A4 Scanner A/S Chart

• **Diagnostics > Adjustment > DADF Adjustment > Manual Adjustment**

Purpose	To correct image position and magnification of scanned images via DADF manually. This function is used when a result of automatic adjustment does not satisfy the expectation.																				
Operation Procedure	<p>1) Choose one item from the table. There are three items to choose.</p> <ul style="list-style-type: none"> • Image Position - Simplex Leading Edge • Image Position – Simplex Side Edge • Magnification – Vertical Direction <p>2) Select one item and press the “Edit” button.</p> <p>3) Change the adjustment value with arrow button.</p> <p>4) Image Position (Simplex Leading Edge, a) : If the current value is smaller than the specification, press “+”. Otherwise, press “-”.</p> <p>5) Image Position (Simplex Side Edge, b) : If the current value is smaller than the specification, press “-”. Otherwise, press “+”.</p> <p>6) Magnification (c) : If the current value is smaller than the specification, press “-”. Otherwise, press “+”.</p> <p>7) Press the “OK” button to apply the new value to the system.</p> <table border="1" data-bbox="477 810 1255 1077" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #e1f5fe;"> <th style="padding: 5px;">Example Cases</th> <th style="padding: 5px;">Leading Edge</th> <th style="padding: 5px;">Side Edge</th> <th style="padding: 5px;">Vertical Direction Adjustment</th> </tr> </thead> <tbody> <tr style="border-top: 1px solid black;"> <td style="padding: 5px;">Ⓐ = 11.5 mm</td> <td style="padding: 5px;">-15</td> <td></td> <td></td> </tr> <tr style="border-top: 1px solid black;"> <td style="padding: 5px;">Ⓑ = 8.8 mm</td> <td></td> <td style="padding: 5px;">-12</td> <td></td> </tr> <tr style="border-top: 1px solid black;"> <td style="padding: 5px;">Ⓒ = 191.3 mm</td> <td></td> <td></td> <td style="padding: 5px;">+0.6% (near -2.6mm)</td> </tr> <tr style="border-top: 1px solid black;"> <td style="padding: 5px;">Ⓒ = 188.0 mm</td> <td></td> <td></td> <td style="padding: 5px;">-0.5% (near +2.0mm)</td> </tr> </tbody> </table> <div style="background-color: #e0e0e0; padding: 10px; margin-top: 10px;"> <p> NOTE</p> <p>The value of magnification adjustment needs to be calculated based on A3 size, 420mm ((190mm + 10mm*2)*2) if the used Scanner A/S Chart is A4 size.</p> </div>	Example Cases	Leading Edge	Side Edge	Vertical Direction Adjustment	Ⓐ = 11.5 mm	-15			Ⓑ = 8.8 mm		-12		Ⓒ = 191.3 mm			+0.6% (near -2.6mm)	Ⓒ = 188.0 mm			-0.5% (near +2.0mm)
Example Cases	Leading Edge	Side Edge	Vertical Direction Adjustment																		
Ⓐ = 11.5 mm	-15																				
Ⓑ = 8.8 mm		-12																			
Ⓒ = 191.3 mm			+0.6% (near -2.6mm)																		
Ⓒ = 188.0 mm			-0.5% (near +2.0mm)																		
Verification	<p>1) Copy the Scanner A/S Chart. Scanning must be occur from the DADF.</p> <p>2) To check the image position, compare the position of scale marks (,) of the chart to the copy.</p> <p>3) To check the magnification, compare the length of line of the chart to the copy.</p>																				
Specification	<p>a, b : 10 ± 1.5 mm</p> <p>c : 190 ± 1.5 mm</p> <p>Image Position Unit : mm, Scale : 0.1, Min/Max : -6/+6</p> <p>Magnification Unit : %, Scale : 0.1(0.42mm), Min/Max : 99/101</p>																				
Reference	A4 Scanner A/S Chart																				

4.4.5.5. ACS (Auto Color Sensing)


• **Diagnostics > ACS**

Purpose	To set the color coverage ratio of auto color mode in copy function. <ul style="list-style-type: none"> Color Coverage Ratio : The ratio of color contents in the original document. 												
Operation Procedure	Change the level from 1 to 5. <ul style="list-style-type: none"> Classifies a document as color, if color coverage of the document is higher than predefined level. Level 1 has higher probability of classifying documents to color, while level 5 has lower probability. 												
Verification	Copy the 'mono copied' original with auto color mode and check if print out is monochrome.												
Specification	<table border="1"> <thead> <tr> <th></th> <th>Level 1</th> <th>Level 2</th> <th>Level 3</th> <th>Level 4</th> <th>Level 5</th> </tr> </thead> <tbody> <tr> <td>Color Coverage</td> <td>0.01%</td> <td>0.05%</td> <td>0.1%</td> <td>0.25%</td> <td>0.5%</td> </tr> </tbody> </table>		Level 1	Level 2	Level 3	Level 4	Level 5	Color Coverage	0.01%	0.05%	0.1%	0.25%	0.5%
	Level 1	Level 2	Level 3	Level 4	Level 5								
Color Coverage	0.01%	0.05%	0.1%	0.25%	0.5%								
Reference	N/A												

4.4.5.6. Image Management

Auto Color Registration


- **Diagnostics > Color Management > Auto Color Registration**

Purpose	To correct color registration of the system when it shows color shift between the original and a copy.												
Operation Procedure	<p>1) Select “On” or “Off” for ACR execution.</p> <ul style="list-style-type: none"> • If you select “Off”, ACR will not execute. • If you select “On”, ACR will execute as the determined conditions. <p>2) Change execution condition(s) of the Automatic Color Registration.</p> <ul style="list-style-type: none"> • Page Condition : The system executes ACR based on the count of printed pages since the last ACR execution. • LSU Temperature : The system executes ACR when LSU temperature of the device increases or decreases by the configured value since the last ACR execution. <div style="background-color: #e0e0e0; padding: 5px;"> <p> NOTE</p> <ul style="list-style-type: none"> • ACR execution occurs when one of the ACR option meets the condition. </div>												
Verification	Compare the original with a copy after an execution of Auto Color Registration.												
Specification	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #e0f2f7;"> <th></th> <th>Default</th> <th>Min. Value</th> <th>Max. Value</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">Page Condition</td> <td>500</td> <td>200</td> <td>5000</td> </tr> <tr> <td style="text-align: left;">LSU Temperature</td> <td>3</td> <td>1</td> <td>100</td> </tr> </tbody> </table>		Default	Min. Value	Max. Value	Page Condition	500	200	5000	LSU Temperature	3	1	100
	Default	Min. Value	Max. Value										
Page Condition	500	200	5000										
LSU Temperature	3	1	100										
Reference	<u>Refer to 4.6.8. Incorrect color registration</u>												

Manual Color Registration


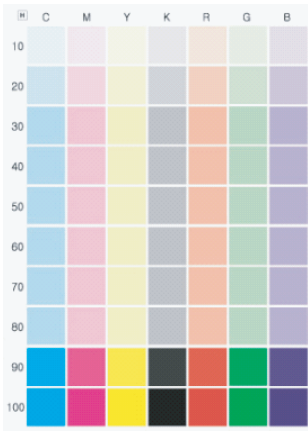
- **Diagnostics > Image Management > Manual Color Registration**

Purpose	To correct color registration of the system manually when it shows color shift between the original and a copy.
Operation Procedure	<p>Adjust the offset value for each color.</p> <ul style="list-style-type: none"> • X offset of Y in Left • X offset of M in Left • X offset of C in Left • X offset of Y in Right • X offset of M in Right • X offset of C in Right • Y offset of Y in Center • Y offset of M in Center • Y offset of C in Center

	 NOTE <ul style="list-style-type: none">• Range : [-5 ~ 5]• Unit : dot• Default : 0
Verification	Compare the original with a copy after an execution of Manual Color Registration.
Specification	N/A
Reference	Incorrect Color Registration in the troubleshooting chapter

Auto Tone Adjustment Activation

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


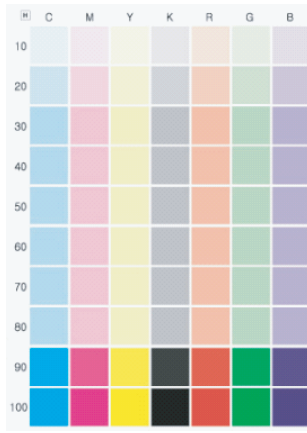
<p>Purpose</p>	<p>To correct image quality when density of the image is poor. Normal TRC Control is recommended to be performed after changing a unit, such as toner cartridge, imaging unit, and ITB, and reboot.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Low Image Density</p> </div> <div style="text-align: center;">  <p>Gradation Reproduction Failure</p> </div> </div>												
<p>Operation Procedure</p>	<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. 												
<p>Verification</p>	<p>Print out a test job and make sure the image quality has recovered.</p>												
<p>Specification</p>	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #e0f2f7;"> <th></th> <th>Default</th> <th>Min. Value</th> <th>Max. Value</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">Page Count</td> <td>300</td> <td>10</td> <td>5000</td> </tr> <tr> <td style="text-align: left;">Time Left Alone</td> <td>480</td> <td>90</td> <td>900</td> </tr> </tbody> </table>		Default	Min. Value	Max. Value	Page Count	300	10	5000	Time Left Alone	480	90	900
	Default	Min. Value	Max. Value										
Page Count	300	10	5000										
Time Left Alone	480	90	900										
<p>Reference</p>	<p>Refer to 4.6.6 Light Image</p>												

• 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	Change execution condition(s) of Normal TRC Control. <ul style="list-style-type: none">• On : Full TRC Control Enable• Off : Full TRC Control Disenable
Verification	Print out a test job and make sure the image quality has recovered.
Specification	N/A
Reference	<u>Refer to 4.6.6 Light Image</u>

Auto Tone Adjustment


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

<p>Purpose</p>	<p>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.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Low Image Density</p> </div> <div style="text-align: center;">  <p>Gradation Reproduction Failure</p> </div> </div>
<p>Operation Procedure</p>	<p>Select “Execute” button.</p>
<p>Verification</p>	<p>Print out a test job and make sure the image quality has recovered.</p>
<p>Reference</p>	<p><u>Refer to 4.6.6 Light Image</u></p>

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

<p>Purpose</p>	<p>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.</p>
<p>Operation Procedure</p>	<p>Select “Execute” button.</p>
<p>Verification</p>	<p>Print out a test job and make sure the image quality has recovered.</p>
<p>Reference</p>	<p><u>Refer to 4.6.6 Light Image</u></p>

- **Diagnostics > Image Management > Auto Tone Adjustment > CTD Sensor Cleaning**

<p>Purpose</p>	<p>To solve the “CTD Sensor Failure” error.</p> <div style="background-color: #f0f0f0; padding: 5px; border: 1px solid #ccc;"> <p> NOTE Refer to the troubleshooting for error “A3-2113”</p> </div>
<p>Operation Procedure</p>	<ol style="list-style-type: none"> 1) Clean the ACR/CTD sensor. 2) Enter the SVC mode. Execute the CTD Sensor cleaning.

4.4.6. Service Functions

4.4.6.1. 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.

4.4.6.2. 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.

4.4.6.3. 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”.

4.4.6.4. Toner Save

- **Service Functions > Toner Save**

This function reduces the use of toner up to 30% and only applies to monochrome printing.

4.4.6.5. Port

- **Service Functions > 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.

4.4.6.6. Debug Log

- **Service Functions > Debug Log**

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

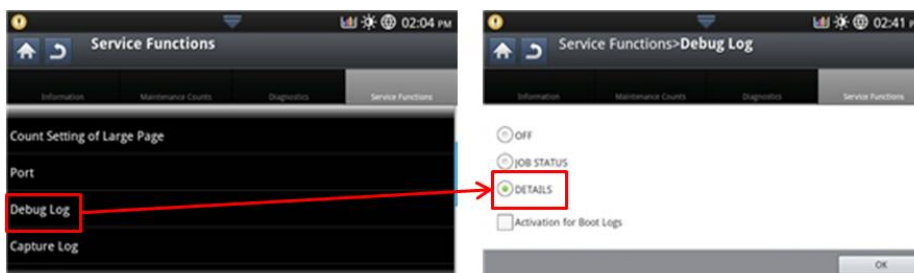
- Off : This option disables the logging option.
- Job Status: This option only enables the logging option of user created jobs.
- Details : This option enables all the logging options of the running tasks of the system. Note that this option might create a trade-off of performance in certain system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

4.4.6.7. Capture Log

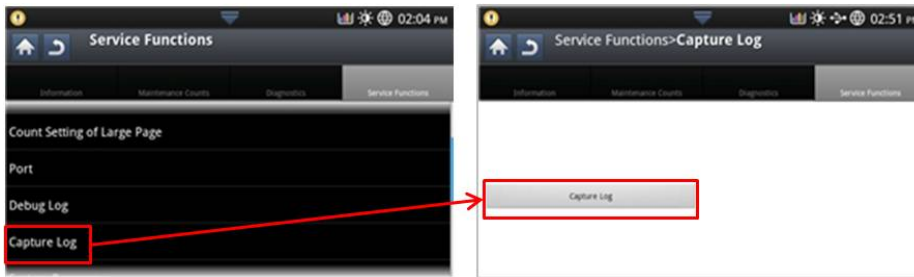
- **Service Functions > Capture Log**

This function copies all the saved log in the system to a USB 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) Enter service mode by pressing 1 + 2 + 3 buttons. Enter 1934 and OK.
- 3) Go to "**Service Functions > Debug Log**" and change debug log level to "DETAILS".



- 4) Go to "Service Functions > Capture Log" and press Capture Log button.



- 5) 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.

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

4.4.6.8. System Recovery

- **Service Functions > System Recovery**

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.

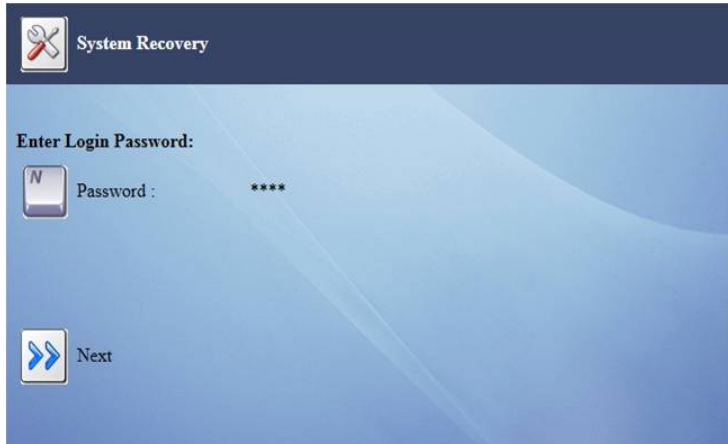


a) **HDD Format**

- **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.

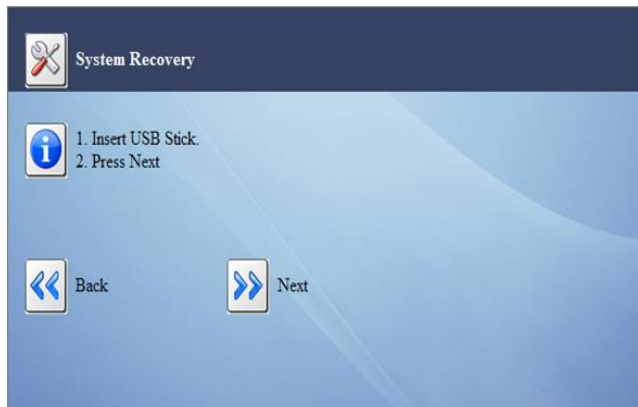
b) **HDD Repair** : This can restore the internal system by checking the HDD error. This is for HDD recovery itself and irrelevant to the user data in device.

- 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.

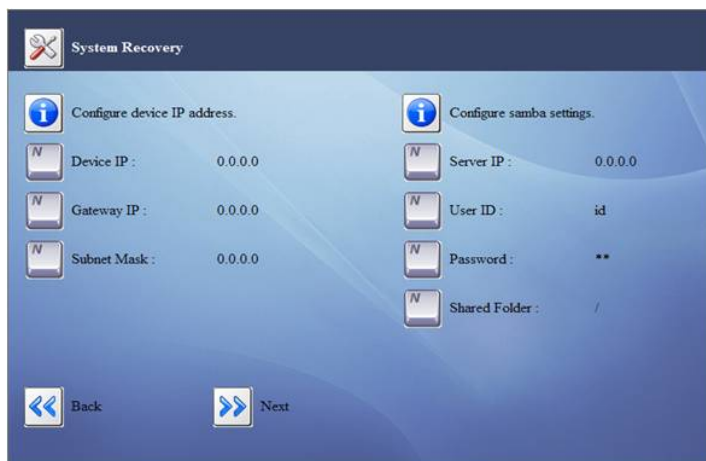
- In case of selecting USB option :



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 :

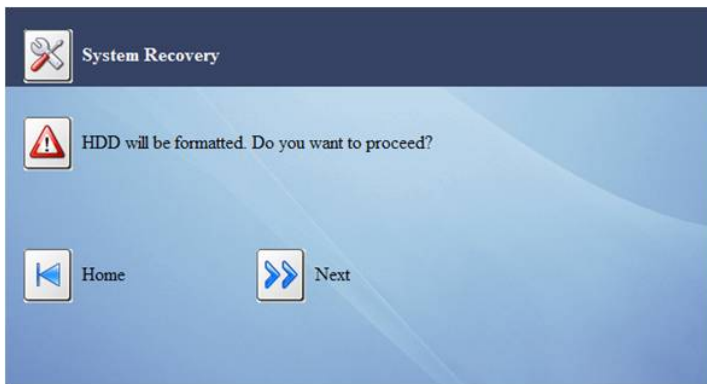
- **Configure device IP address**
 - a) Device IP: IP address for the device
 - b) Gateway IP: Gateway IP address for the device
 - c) Subnet Mask: Network Subnet Mask for the device
- **Configure samba settings**
 - a) Server IP : IP address of the server.
 - b) User ID : user ID of the server to login 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.

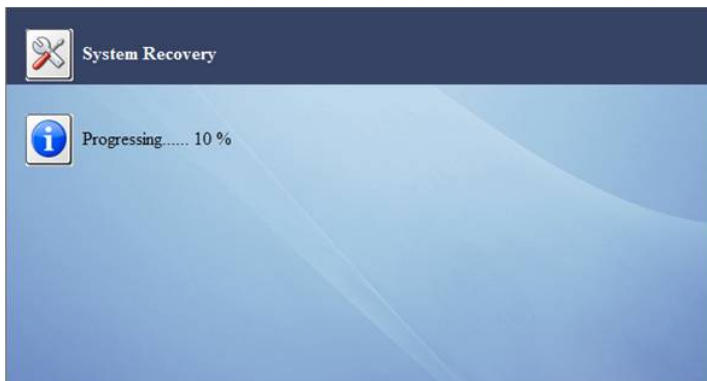
The system will establish the provided IP to the device and try to connect to the server and check for the available packages on the server.

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.

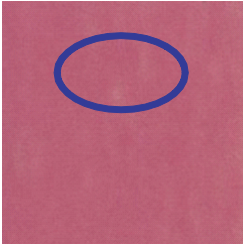
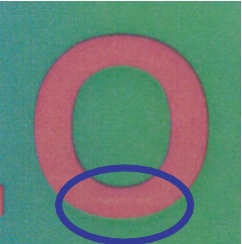
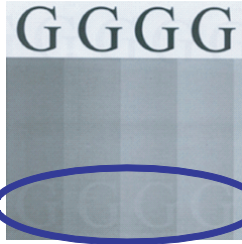
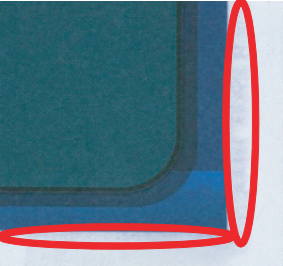
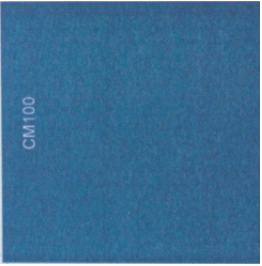

 **NOTE**

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.

4.4.6.9. 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) T1 Control Problems</p> <ul style="list-style-type: none"> • Choose the process speed (Full, Half, Lower) based on the type of paper to be used. • Adjust T1 PWM value based on the problem type. <ul style="list-style-type: none"> • Gray Spot : Increase T1 PWM value of the issued color • Non Cyclic White Line : Decrease T1 PWM value of the issued color • OPC Cyclic Ghost : Decrease T1 PWM value of the issued color <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Gray Spot</p> </div> <div style="text-align: center;">  <p>Non Cyclic White Line</p> </div> <div style="text-align: center;">  <p>OPC Cyclic Ghost</p> </div> </div> <p>2) T2 Control Problems</p> <ul style="list-style-type: none"> • Choose the paper group, paper side, and paper direction. • Adjust T1 PWM value based on the problem type. <ul style="list-style-type: none"> • Blur : Increase T1 PWM value • Poor Transfer : Increase T1 PWM value • Re-transfer : Decrease T1 PWM value • White Spot : Decrease T1 PWM value <div style="display: flex; justify-content: space-around; align-items: center;"> <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>White Spot</p> </div> </div>
Verification	Print out a test job and make sure the transfer problem has resolved.

Specification	N/A
Reference	N/A

4.4.6.10. User Data Management

- **Service Functions > User Data Management**

This function backup or restore user data stored in the hard disk. The purpose of this function is to backup user data before format of the hard disk and store back to the hard disk after format. Note that hard disk format will be performed when the data encryption option is enabled by administrators.



NOTE

To use this function users need to prepare a USB hard disk that its size is larger than 100GB.

4.4.7. SFE (Special Feature Enablement)

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.

SFE menu description

- **Service Mode > SFE > Letterhead/Preprinted paper handle (001)**

If this option is enabled, in case of printing in directional media (Letterhead/Preprinted), the device prints as the same output direction regardless of simplex or duplex.

- **Service Mode > SFE > Mono Print only mode (002)**

If this option is enabled, the device always prints output as mono about PC printing.

- **Service Mode > SFE > Copy Speed (004)**

If this option is enabled, the device accelerates the scan speed of ADF copy by reducing scan resolution from 600 dpi to 300 dpi.

- **Service Mode > SFE > Print Output (005)**

If this option is enabled, the device provides the same output direction about Flatbed printing and ADF printing.



NOTE

Refer to the following table for SFE supported in each model.

SFE Code	Title	CLX-9201/ 9251/ 9301 (Polaris Color)	SCX-8123/ 8128 (Polaris Mono)	CLX-9252/ 9352 (Cosmos-R Color)	SCX-8230/ 8240 (Cosmos-R Mono)	CLX-8640/ 8650 (Evergreen)
001	Letterhead/Preprinted paper handle	O	O	O	O	O
002	Mono Print only mode	O	X	O	X	O
004	Copy Speed	O	O	O	O	X
005	Print Output	O	O	X	X	X

4.5. 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.

Error Code	Error Message	Troubleshooting Page
A1-1111	Motor Failure: #A1-1111. Turn off then on. Call for service if the problem persists	Page 4-63
A1-1113	Motor Failure: #A1-1113. Turn off then on. Call for service if the problem persists	Page 4-63
A1-1211	Motor Failure: #A1-1211. Turn off then on. Call for service if the problem persists	Page 4-65
A1-1213	Motor Failure: #A1-1213. Turn off then on. Call for service if the problem persists	Page 4-65
A1-1611	Motor Failure: #A1-1611. Turn off then on. Call for service if the problem persists	Page 4-67
A1-1612	Motor Failure: #A1-1612. Turn off then on. Call for service if the problem persists	Page 4-67
A1-1613	Motor Failure: #A1-1613. Turn off then on. Call for service if the problem persists	Page 4-67
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U1-2337	Fuser Failure: #U1-2337. Turn off then on	Page 4-194
U1-233A	Fuser Failure: #U1-233A. Turn off then on	Page 4-192
U1-233D	Fuser Failure: #U1-233D. Turn off then on	Page 4-194
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U2-6143	LSU Failure: #U2-6143. Turn off then on. Call for service if the problem persists	Page 4-198
U3-3211	Original paper jam inside of scanner	Page 4-199
U3-3213	Original paper jam inside the scanner	Page 4-199
U3-3214	Original paper jam inside the scanner	Page 4-199
U3-3311	Original paper jam inside the scanner	Page 4-199
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U3-3414	Original paper jam inside the scanner	Page 4-200
U3-3513	Original paper jam inside the scanner	Page 4-201
U3-3514	Original paper jam inside the scanner	Page 4-201
U3-3611	Original paper jam in the exit area of scanner	Page 4-202
U3-3613	Original paper jam in the exit area of scanner	Page 4-202
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U3-4210	Top door of scanner is open	Page 4-203

4.5.1. Ax-xxxx type error code

▶ **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**

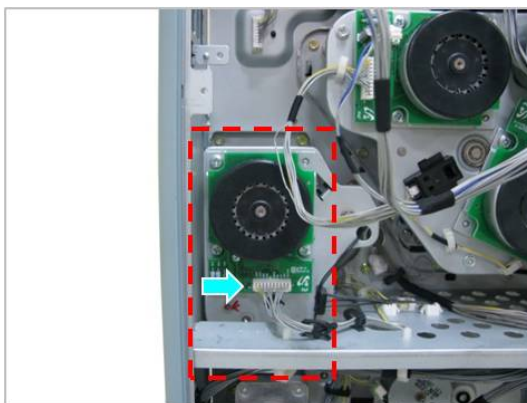
Regi/MP motor operation is abnormal.

▶ **Troubleshooting method**

- A1-1111 : Regi/MP motor is stopped but machine recognizes it as operational.
 - A1-1113 : Regi/MP motor is operating but machine recognizes status as "Stopped".
- 1) Turn the machine off then on. If the error persists, turn the machine off again.
 - 2) Open the side cover. Check if there are any foreign substances or paper around Regi./MP unit.
 - 3) Remove the rear cover after removing 10 screws.



- 4) Check if the Regi/MP motor connector is connected correctly.



- 5) If the connection is OK, turn the machine on. Enter SVC mode. Select motor test.
(Diagnostics > Engine Diagnostics > Engine Test Routines > 100-0000)
Check the motor operation.
 - a) If the motor is not operational,

- Check the signal and power with the DVM.

Pin Num	Name	Checking point (Measurement error range $\pm 5\%$)
1, 2	24V	24V
3, 4	GND	0V
5	Brake	-
6	Gain	-
7	Enable	At working : 0V, At stop : 3.3V
8	Ready	At working : 0V, At stop : 3.3V
9	CLK	At working : 1.5~ 1.8V, At stop : 0V or 3.3V
10	DIR	-

- If the checked result is normal, replace the motor([JC31-00123B](#)).
- If the checked result is abnormal, check the following.
 - If 24V power is not generated, replace the SMPS board ([JC44-00100A \(220V\)](#) / [JC44-00093A \(110V\)](#)).



- If the control signal is abnormal, replace the main board([JC92-02429A](#)).

b) If the motor is operational,

- Check the Pin Num 8. If the value is abnormal, replace the main board. If the value is normal, replace the harness.

► **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**

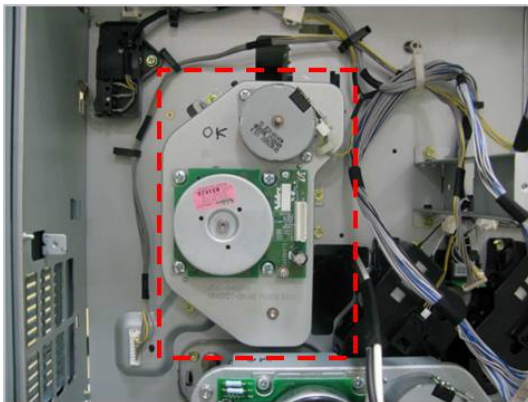
Fuser motor operation is abnormal.

► **Troubleshooting method**

- A1-1211 : Fuser motor is stopped but machine recognizes it as operational.
 - A1-1213 : Fuser motor is operating but recognizes status as "Stopped".
- 1) Turn the machine off then on. If the error persists, turn the machine off again.
 - 2) Open the side cover. Check if there are any foreign substances or paper around fuser unit.
 - 3) Remove the rear cover after removing 10 screws.



- 4) Check if the fuser motor connector is connected correctly.



- 5) If the connection is OK, turn the machine on. Enter SVC mode. Select motor test.
(Diagnostics > Engine Diagnostics > Engine Test Routines > 100-0120)
Check the motor operation.
 - a) If the motor is not operational,

- Check the signal and power with the DVM.

Pin Num	Name	Checking point (Measurement error range $\pm 5\%$)
1, 2	24V	24V
3, 4	GND	0V
5	Brake	-
6	Gain	-
7	Enable	At working : 0V, At stop : 3.3V
8	Ready	At working : 0V, At stop : 3.3V
9	CLK	At working : 1.5~ 1.8V, At stop : 0V or 3.3V
10	DIR	-

- If the checked result is normal, replace the motor([JC31-00123B](#)).
- If the checked result is abnormal, check the following.
 - If 24V power is not generated, replace the SMPS board ([JC44-00100A \(220V\)](#) / [JC44-00093A \(110V\)](#)).



- If the control signal is abnormal, replace the main board([JC92-02429A](#)).

b) If the motor is operational,

- Check the Pin Num 8. If the value is abnormal, replace the main board. If the value is normal, replace the harness.

► **Error Code**

A1-1611

A1-1612

A1-1613

► **Error message**

Motor Failure: #A1-1611. Turn off then on. Call for service if the problem persists.

Motor Failure: #A1-1612. Turn off then on. Call for service if the problem persists.

Motor Failure: #A1-1613. Turn off then on. Call for service if the problem persists.

► **Symptom**

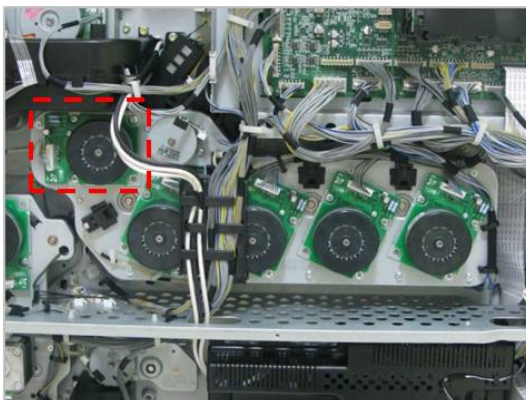
ITB motor operation is abnormal

► **Troubleshooting method**

- A1-1611 : ITB motor is stopped but machine recognizes it as operational.
 - A1-1612 : ITB motor is not operated for print-job.
 - A1-1613 : ITB motor is operating but machine recognizes status as "Stopped".
- 1) Turn the machine off then on. If the error persists, turn the machine off again.
 - 2) Open the side cover. Remove the ITB unit
(Refer to 3.2.2.4 ITB Unit in chapter 3)
 - 3) Remove the rear cover after removing 10 screws.



- 4) Check if the ITB motor connector is connected correctly.



- 5) If the connection is OK, turn the machine on. Enter SVC mode. Select motor test.

(Diagnostics > Engine Diagnostics > Engine Test Routines > 100-0450)

Check the motor operation.

- a) If the motor is not operational,
- Check the signal and power with the DVM.

Pin Num	Name	Checking point (Measurement error range $\pm 5\%$)
1, 2	24V	24V
3, 4	GND	0V
5	Brake	-
6	Gain	-
7	Enable	At working : 0V, At stop : 3.3V
8	Ready	At working : 0V, At stop : 3.3V
9	CLK	At working : 1.5~ 1.8V, At stop : 0V or 3.3V
10	DIR	-

- If the checked result is normal, replace the motor([JC31-00123B](#)).
- If the checked result is abnormal, check the following.
 - If 24V power is not generated, replace the SMPS board ([JC44-00100A \(220V\)](#) / [JC44-00093A \(110V\)](#)).



- If the control signal is abnormal, replace the main board([JC92-02429A](#)).

b) If the motor is operational,

- Check the Pin Num 8. If the value is abnormal, replace the main board. If the value is normal, replace the harness.

► **Error Code**

A1-2211

A1-2212

A1-2213

► **Error message**

Motor Failure: #A1-2211. Turn off then on. Call for service if the problem persists

Motor Failure: #A1-2212. Turn off then on. Call for service if the problem persists

Motor Failure: #A1-2213. Turn off then on. Call for service if the problem persists

► **Symptom**

Yellow OPC motor operation is abnormal.

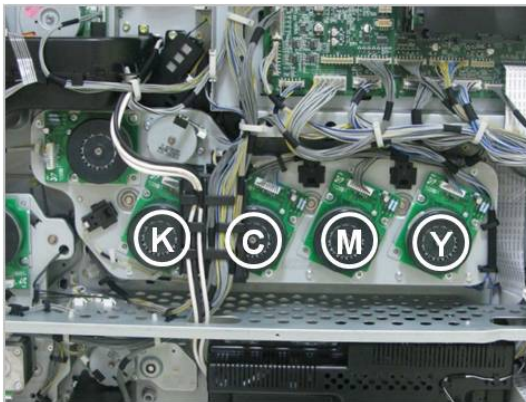
► **Troubleshooting method**

- A1-2211 : Yellow OPC motor is stopped but machine recognizes it as operational.
- A1-2212 : Yellow OPC motor is not operated for print-job.
- A1-2213 : Yellow OPC motor is operating but machine recognizes status as "Stopped".

- 1) Turn the machine off then on. If the error persists, turn the machine off again.
- 2) Open the side cover. Check if there are any foreign substances or paper around yellow drum drive unit.
- 3) Remove the rear cover after removing 10 screws.



- 4) Check if the yellow OPC motor connector is connected correctly.



- 5) If the connection is OK, turn the machine on. Enter SVC mode. Select the yellow OPC motor test.

(Diagnostics > Engine Diagnostics > Engine Test Routines > 100-0041)

Check the motor operation.

- a) If the motor is not operational,
- Check the signal and power with the DVM.

Pin Num	Name	Checking point (Measurement error range $\pm 5\%$)
1, 2	24V	24V
3, 4	GND	0V
5	Brake	-
6	Gain	-
7	Enable	At working : 0V, At stop : 3.3V
8	Ready	At working : 0V, At stop : 3.3V
9	CLK	At working : 1.5~ 1.8V, At stop : 0V or 3.3V
10	DIR	-

- If the checked result is normal, replace the motor([JC31-00123B](#)).
- If the checked result is abnormal, check the following.
 - If 24V power is not generated, replace the SMPS board ([JC44-00100A \(220V\)](#) / [JC44-00093A \(110V\)](#)).



- If the control signal is abnormal, replace the main board([JC92-02429A](#)).

b) If the motor is operational,

- Check the Pin Num 8. If the value is abnormal, replace the main board. If the value is normal, replace the harness.

► **Error Code**

A1-2311

A1-2312

A1-2313

► **Error message**

Motor Failure: #A1-2311. Turn off then on. Call for service if the problem persists

Motor Failure: #A1-2312. Turn off then on. Call for service if the problem persists

Motor Failure: #A1-2313. Turn off then on. Call for service if the problem persists

► **Symptom**

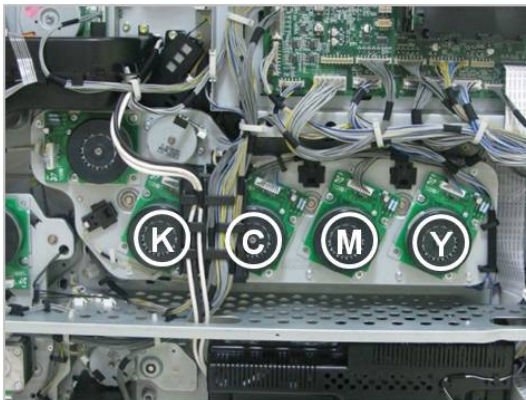
Magenta OPC motor operation is abnormal.

► **Troubleshooting method**

- A1-2311 : Magenta OPC motor is stopped but machine recognizes it as operational.
 - A1-2312 : Magenta OPC motor is not operated for print-job.
 - A1-2313 : Magenta OPC motor is operating but machine recognizes status as "Stopped".
- 1) Turn the machine off then on. If the error persists, turn the machine off again.
 - 2) Open the side cover. Check if there are any foreign substances or paper around magenta drum drive unit.
 - 3) Remove the rear cover after removing 10 screws.



- 4) Check if the magenta OPC motor connector is connected correctly.



- 5) If the connection is OK, turn the machine on. Enter SVC mode. Select the magenta OPC motor test.
(Diagnostics > Engine Diagnostics > Engine Test Routines > 100-0042)

Check the motor operation.

- a) If the motor is not operational,
- Check the signal and power with the DVM.

Pin Num	Name	Checking point (Measurement error range $\pm 5\%$)
1, 2	24V	24V
3, 4	GND	0V
5	Brake	-
6	Gain	-
7	Enable	At working : 0V, At stop : 3.3V
8	Ready	At working : 0V, At stop : 3.3V
9	CLK	At working : 1.5~ 1.8V, At stop : 0V or 3.3V
10	DIR	-

- If the checked result is normal, replace the motor([JC31-00123B](#)).
- If the checked result is abnormal, check the following.
 - If 24V power is not generated, replace the SMPS board ([JC44-00100A \(220V\)](#) / [JC44-00093A \(110V\)](#)).



- If the control signal is abnormal, replace the main board([JC92-02429A](#)).

b) If the motor is operational,

- Check the Pin Num 8. If the value is abnormal, replace the main board. If the value is normal, replace the harness.

► **Error Code**

A1-2411

A1-2412

A1-2413

► **Error message**

Motor Failure: #A1-2411. Turn off then on. Call for service if the problem persists

Motor Failure: #A1-2412. Turn off then on. Call for service if the problem persists

Motor Failure: #A1-2413. Turn off then on. Call for service if the problem persists

► **Symptom**

Cyan OPC motor operation is abnormal.

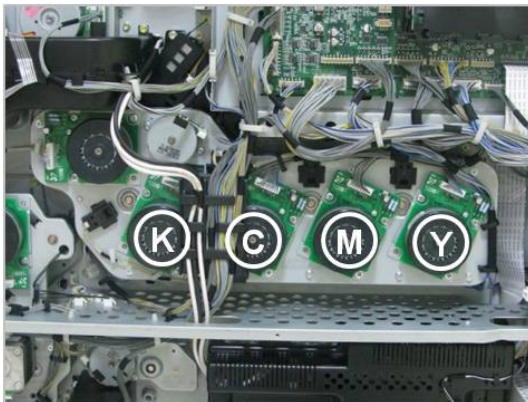
► **Troubleshooting method**

- A1-2411 : Cyan OPC motor is stopped but machine recognizes it as operational.
- A1-2412 : Cyan OPC motor is not operated for print-job.
- A1-2413 : Cyan OPC motor is operating but machine recognizes status as "Stopped".

- 1) Turn the machine off then on. If the error persists, turn the machine off again.
- 2) Open the side cover. Check if there are any foreign substances or paper around cyan drum drive unit.
- 3) Remove the rear cover after removing 10 screws.



- 4) Check if the cyan OPC motor connector is connected correctly.



- 5) If the connection is OK, turn the machine on. Enter SVC mode. Select the cyan OPC motor test.
(Diagnostics > Engine Diagnostics > Engine Test Routines > 100-0043)

Check the motor operation.

- a) If the motor is not operational,
- Check the signal and power with the DVM.

Pin Num	Name	Checking point (Measurement error range $\pm 5\%$)
1, 2	24V	24V
3, 4	GND	0V
5	Brake	-
6	Gain	-
7	Enable	At working : 0V, At stop : 3.3V
8	Ready	At working : 0V, At stop : 3.3V
9	CLK	At working : 1.5~ 1.8V, At stop : 0V or 3.3V
10	DIR	-

- If the checked result is normal, replace the motor([JC31-00123B](#)).
- If the checked result is abnormal, check the following.
 - If 24V power is not generated, replace the SMPS board ([JC44-00100A \(220V\)](#) / [JC44-00093A \(110V\)](#)).



- If the control signal is abnormal, replace the main board([JC92-02429A](#)).

b) If the motor is operational,

- Check the Pin Num 8. If the value is abnormal, replace the main board. If the value is normal, replace the harness.

► **Error Code**

A1-2511

A1-2512

A1-2513

► **Error message**

Motor Failure: #A1-2511. Turn off then on. Call for service if the problem persists

Motor Failure: #A1-2512. Turn off then on. Call for service if the problem persists

Motor Failure: #A1-2513. Turn off then on. Call for service if the problem persists

► **Symptom**

Black OPC motor operation is abnormal.

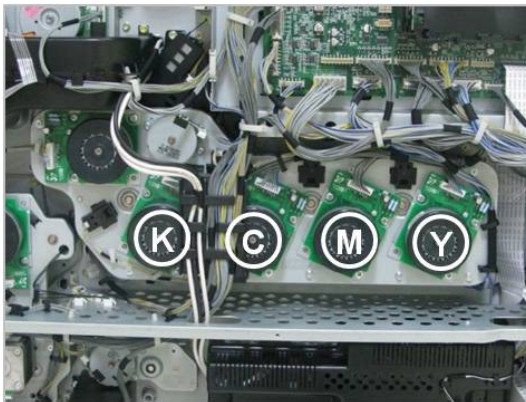
► **Troubleshooting method**

- A1-2511 : Black OPC motor is stopped but machine recognizes it as operational.
- A1-2512 : Black OPC motor is not operated for print-job.
- A1-2513 : Black OPC motor is operating but machine recognizes status as "Stopped".

- 1) Turn the machine off then on. If the error persists, turn the machine off again.
- 2) Open the side cover. Check if there are any foreign substances or paper around black drum drive unit.
- 3) Remove the rear cover after removing 10 screws.



- 4) Check if the black OPC motor connector is connected correctly.



- 5) If the connection is OK, turn the machine on. Enter SVC mode. Select the black OPC motor test.
(Diagnostics > Engine Diagnostics > Engine Test Routines > 100-0044)

Check the motor operation.

- a) If the motor is not operational,
- Check the signal and power with the DVM.

Pin Num	Name	Checking point (Measurement error range $\pm 5\%$)
1, 2	24V	24V
3, 4	GND	0V
5	Brake	-
6	Gain	-
7	Enable	At working : 0V, At stop : 3.3V
8	Ready	At working : 0V, At stop : 3.3V
9	CLK	At working : 1.5~ 1.8V, At stop : 0V or 3.3V
10	DIR	-

- If the checked result is normal, replace the motor([JC31-00123B](#)).
- If the checked result is abnormal, check the following.
 - If 24V power is not generated, replace the SMPS board ([JC44-00100A \(220V\)](#) / [JC44-00093A \(110V\)](#)).



- If the control signal is abnormal, replace the main board([JC92-02429A](#)).

b) If the motor is operational,

- Check the Pin Num 8. If the value is abnormal, replace the main board. If the value is normal, replace the harness.

► **Error Code**

A1-4310

► **Error message**

Motor Failure: #A1-4310. Turn off then on. Call for service if the problem persists

► **Symptom**

The contact of ITB Unit is abnormal. / The resistance value of the first transfer roller is abnormal.

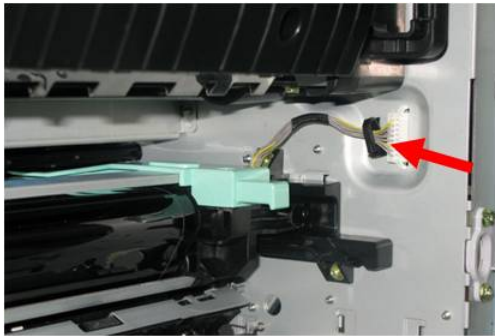
► **Troubleshooting method**

- 1) Enter SVC mode. Select the T1 engage motor test. (**Diagnostics > Engine Diagnostics > Engine Test Routines > 100-0080**)

Push the start button and check the motor operation.

- 2) If the motor is not operational,

- a) Open the side cover. Check if the ITB connector is connected correctly or is deformed.



- b) If the harness is defective, replace it.

- c) Remove the ITB unit from the machine. Check if the photo interrupter sensor is contaminated or assembled properly.



- d) If the photo sensor is defective, replace it.

- e) If the motor is operational but the engage gear is not operational, replace the main drive unit([JC93-00723A](#)).

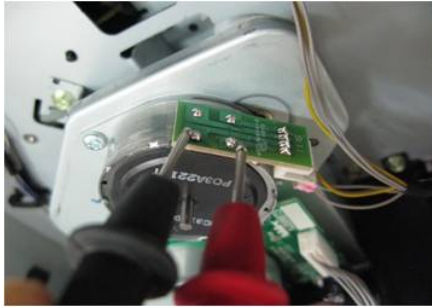


- 3) If there is a motor noise or the motor is not operational normally, check the following :

- a) Remove the rear cover. Check if the T1 engage motor in the main drive unit is defective.

- i) Rotate the motor manually.

- If the motor operation is stiff, replace the motor([JC93-00452A](#)).
- ii) Measure the resistance value with DVM.
- If the measured value is out of the standard area (7~10 ohm), replace the motor([JC93-00452A](#)).



- b) If the motor is normal, measure the motor signal with DVM.
- If the phase output voltage is changed in 0~24V(8~10V), the output value is normal.
 - If the phase output voltage is not changed to 0 or 24V, replace the main board([JC92-02429A](#)).

4. Troubleshooting

▶ Error Code

A1-5212

A1-5213

▶ Error message

Motor Failure: #A1-5212. Turn off then on. Call for service if the problem persists

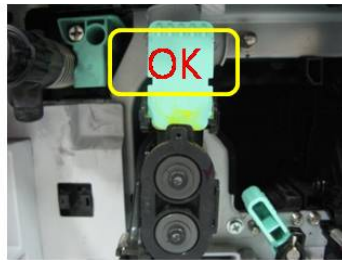
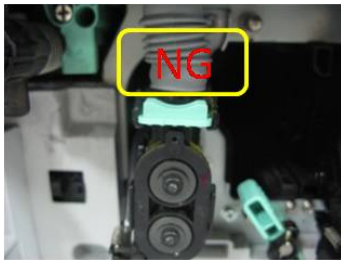
Motor Failure: #A1-5213. Turn off then on. Call for service if the problem persists

▶ Symptom

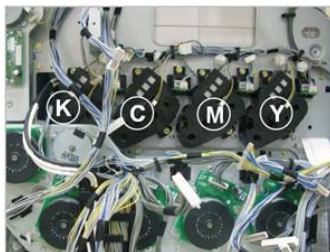
Yellow toner is not supplied normally.

▶ Troubleshooting method

- A1-5212 : Toner supply is stopped during operation.
 - A1-5213 : Toner is not supplied.
- 1) Open the front cover. If the yellow toner pipe is blocked, open it.



- 2) Turn the machine off then on. If the error persists, check the following steps.
- 3) Enter SVC mode. Select the yellow toner supply motor test.
(Diagnostics > Engine Diagnostics > Engine Test Routines)
 - 111-0010 : Toner Dispense Motor Yellow
- 4) If the motor is not operational, measure the yellow motor power with DVM.



- a) If 24V power is generated, replace the yellow toner supply motor([JC93-00446A](#)).
- b) If 24V power is not generated,
 - Measure the 24V power on the SMPS board. If the SMPS board([JC44-00100A \(220V\)](#) / [JC44-00093A \(110V\)](#)) is defective, replace it.



- If the SMPS board is normal, replace the main board([JC92-02429A](#)).

► **Error Code**

A1-5312

A1-5313

► **Error message**

Motor Failure: #A1-5312. Turn off then on. Call for service if the problem persists

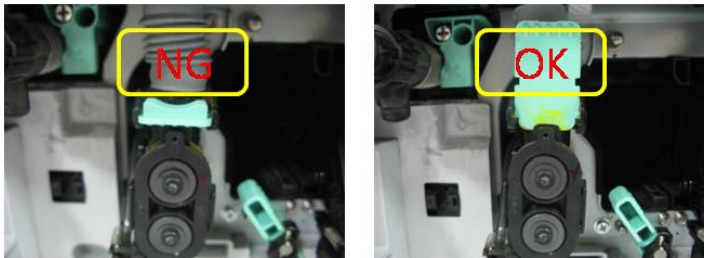
Motor Failure: #A1-5313. Turn off then on. Call for service if the problem persists

► **Symptom**

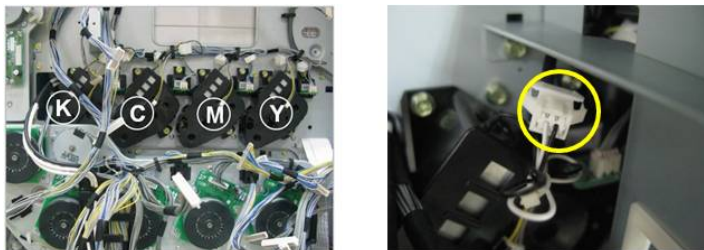
Magenta toner is not supplied normally.

► **Troubleshooting method**

- A1-5312 : Toner supply is stopped during operation.
 - A1-5313 : Toner is not supplied.
- 1) Open the front cover. If the magenta toner pipe is blocked, open it.



- 2) Turn the machine off then on. If the error persists, check the following steps.
- 3) Enter SVC mode. Select the magenta toner supply motor test.
(**Diagnostics > Engine Diagnostics > Engine Test Routines**)
 - 111-0020 : Toner Dispense Motor Magenta
- 4) If the motor is not operational, measure the magenta motor power with DVM.



- a) If 24V power is generated, replace the magenta toner supply motor([JC93-00446A](#)).
- b) If 24V power is not generated,
 - Measure the 24V power on the SMPS board. If the SMPS board([JC44-00100A \(220V\)](#) / [JC44-00093A \(110V\)](#)) is defective, replace it.



- If the SMPS board is normal, replace the main board([JC92-02429A](#)).

▶ **Error Code**

A1-5412

A1-5413

▶ **Error message**

Motor Failure: #A1-5412. Turn off then on. Call for service if the problem persists

Motor Failure: #A1-5413. Turn off then on. Call for service if the problem persists

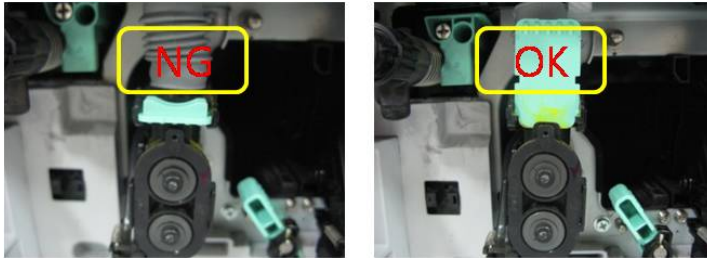
▶ **Symptom**

Cyan toner is not supplied normally.

▶ **Troubleshooting method**

- A1-5412 : Toner supply is stopped during operation.
- A1-5413 : Toner is not supplied.

1) Open the front cover. If the cyan toner pipe is blocked, open it.



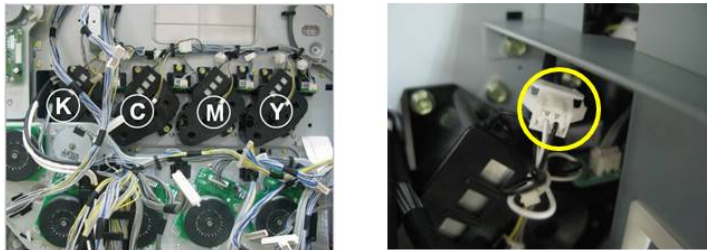
2) Turn the machine off then on. If the error persists, check the following steps.

3) Enter SVC mode. Select the cyan toner supply motor test.

(Diagnostics > Engine Diagnostics > Engine Test Routines)

- 111-0030 : Toner Dispense Motor Cyan

4) If the motor is not operational, measure the cyan motor power with DVM.



a) If 24V power is generated, replace the cyan toner supply motor([JC93-00446A](#)).

b) If 24V power is not generated,

- Measure the 24V power on the SMPS board. If the SMPS board([JC44-00100A \(220V\)](#) / [JC44-00093A \(110V\)](#)) is defective, replace it.



- If the SMPS board is normal, replace the main board([JC92-02429A](#)).

► **Error Code**

A1-5512

A1-5513

► **Error message**

Motor Failure: #A1-5512. Turn off then on. Call for service if the problem persists

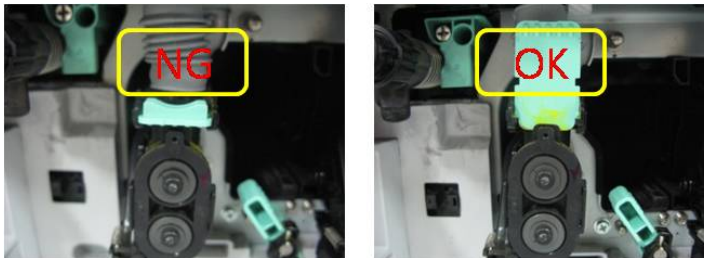
Motor Failure: #A1-5513. Turn off then on. Call for service if the problem persists

► **Symptom**

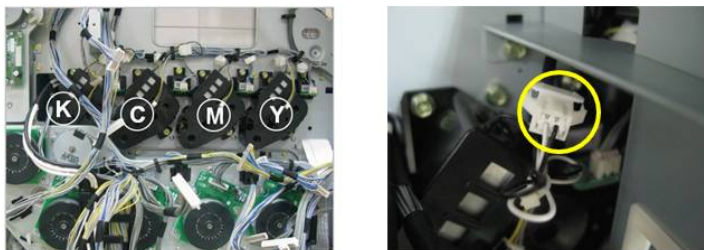
Black toner is not supplied normally.

► **Troubleshooting method**

- A1-5212 : Toner supply is stopped during operation.
 - A1-5213 : Toner is not supplied.
- 1) Open the front cover. If the black toner pipe is blocked, open it.



- 2) Turn the machine off then on. If the error persists, check the following steps.
- 3) Enter SVC mode. Select the black toner supply motor test.
(**Diagnostics > Engine Diagnostics > Engine Test Routines**)
 - 111-0040 : Toner Dispense Motor Black
- 4) If the motor is not operational, measure the black motor power with DVM.



- a) If 24V power is generated, replace the black toner supply motor([JC93-00446A](#)).
- b) If 24V power is not generated,
 - Measure the 24V power on the SMPS board. If the SMPS board([JC44-00100A \(220V\)](#) / [JC44-00093A \(110V\)](#)) is defective, replace it.



- If the SMPS board is normal, replace the main board([JC92-02429A](#)).

► Error Code

A2-1211 / A2-1212 / A2-1221 / A2-1223

A2-1521 / A2-1523

A2-2310 / A2-2311 / A2-2321 / A2-2323

A2-2410

► Error message

Fan Failure: #A2-1211 / A2-1212 / A2-1221 / A2-1223. Turn off then on. Call for service if the problem persists

Fan Failure: #A2-1521 / A2-1523. Turn off then on. Call for service if the problem persists

Fan Failure: #A2-2310 / A2-2311 / A2-2321 / A2-2323. Turn off then on. Call for service if the problem persists

Fan Failure: #A2-2410. Turn off then on. Call for service if the problem persists

► Symptom

SMPS or Fuser or Duplex or LSI fan is not operational.

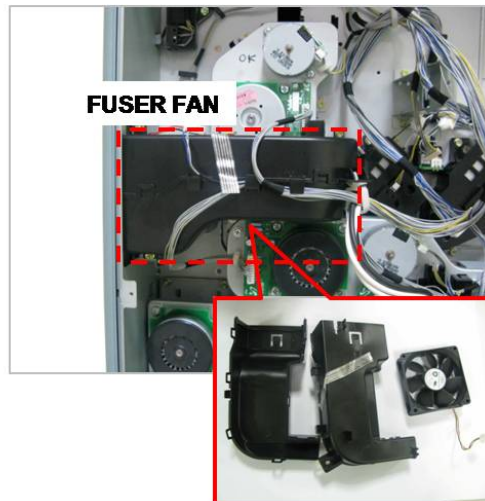
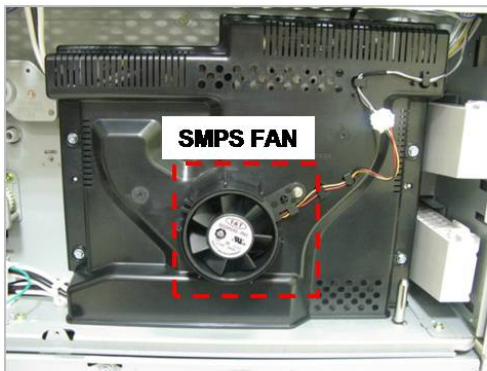
► Troubleshooting method



NOTE

- SMPS fan error : A2-1211 / A2-1212 / A2-1221 / A2-1223
- Duplex fan error : A2-1521 / A2-1523
- Fuser fan error : A2-2310 / A2-2311 / A2-2321 / A2-2323
- LSU fan error : A2-2410

- 1) Turn the machine off.
- 2) Remove the rear cover.
(Refer to 3.3.2 Rear Cover in chapter 3)
- 3) Check if the corresponding fan connector is connected correctly.



- 4) If the connection is OK, Enter SVC mode and execute fan test.
(Diagnostics > Engine Diagnostics > Engine Test Routines)
- 100-0260 : SMPS Fan Run
 - 109-0040 : Fuser Fan Run

- 5) If the fan is not operational, measure the fan power. (Red line)



- a) If 24V power is generated, replace the defective fan.
- Fuser Fan : JC31-00161A
 - SMPS Fan : JC31-00160B
- b) If 24V power is not generated,
- Measure the 24V power on the SMPS board. If the SMPS board([JC44-00100A \(220V\)](#) / [JC44-00093A \(110V\)](#)) is defective, replace it.



- If the SMPS board is normal, replace the main board([JC92-02429A](#)).
- 6) If the fan operation is normal but the error persists,
- a) Check the yellow line signal with DVM. (Refer to the image in step 5)

Fan Lock Signal (Yellow)	Measurement Value (Fan is connected)	Measurement Value (Fan is removed)
At operation	0 V	3.3V
At stop	3.3 V	3.3V

- b) Check fan operation as connected or disconnected.
- If the Lock signal is 0V continually, check the harness. If the harness is OK, replace the main board.
 - If the signal value is different from the table above, replace the fan.

▶ **Error Code**

A3-2113 / A3-4114

▶ **Error message**

The CTD/ACR sensor is dirty. Please clean it with soft cloth or paper.

▶ **Symptom**

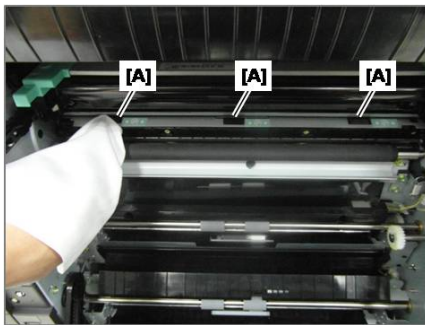
CTD/ACR sensor window is contaminated.

▶ **Troubleshooting method**

- 1) Open the side cover.



- 2) Clean the sensor window [A] 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**

- 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) Enter SVC mode. Execute sensor test to check the sensor operation. (**Diagnostics > Engine Diagnostics > Engine Test Routines**)
 - 109-0000 : Fuser Temperature A
 - 109-0010 : Fuser Temperature B
 - 2) Remove and disassemble the fuser unit.
(Refer to 3.3.23 Fuser Unit)
 - 3) Measure the resistance value of the thermistor (*1404-001453*). If the measured value is out of 307K Ω ~430K Ω @25°C, replace the thermistor.



Measurement Point	Resistance value (@ 25 °C)
1-2 (Blue - Black)	307K Ω ~430K Ω
1-3 (Blue -White)	307K Ω ~430K Ω

- 4) Install the fuser unit after replacing the thermistor.
- 5) If the error persists, replace the fuser unit (*JC91-01063A(220V) / JC91-01064A (110V)*).
- 6) If the error persists after replacing fuser unit, replace the main board(*JC92-02429A*).

▶ **Error Code**

A3-3210

A3-3211

A3-3212

▶ **Error message**

Sensor Failure: #A3-3210. Turn off then on. Call for service if the problem persists

Sensor Failure: #A3-3211. Turn off then on. Call for service if the problem persists

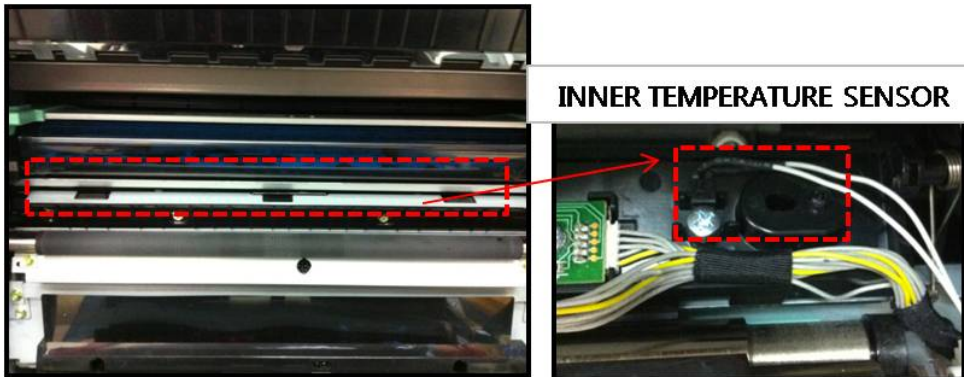
Sensor Failure: #A3-3212. Turn off then on. Call for service if the problem persists

▶ **Symptom**

Inner temperature sensor is defective.

▶ **Troubleshooting method**

- A3-3210 : Inner temperature sensor value is abnormal.
 - A3-3211 : Inner temperature sensor is in short status.
 - A3-3212 : Inner temperature sensor is in open status.
- 1) Enter SVC mode. Execute sensor test to check the sensor operation.(**Diagnostics > Engine Diagnostics > Engine Test Routines > 109-0012 Inner Temperature**)
 - 2) Open the side cover. Measure the resistance value of the connector at both ends.
 - If the values is not in $10K\Omega \pm 1\%$ (@ 25 °C), replace the photo sensor ([I404-001417](#)).



- 3) If the sensor is normal, replace the main board([JC92-02429A](#)).

► **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**

- A3-3310 / A3-3311 / A3-3312 : Temperature function is abnormal.
- A3-3410 / A3-3411 / A3-3412 : Humidity function is abnormal.

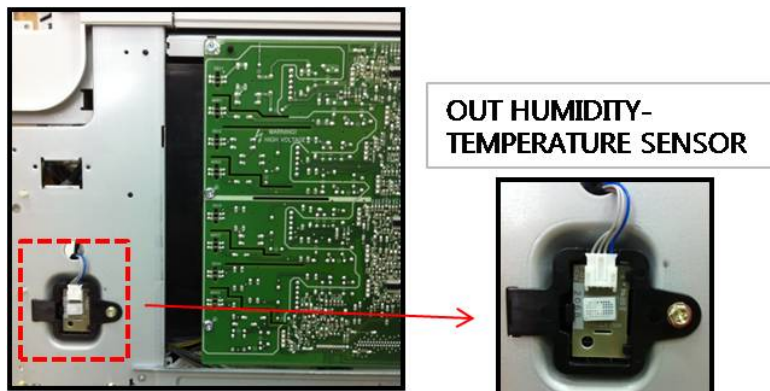
1) Enter SVC mode. Execute sensor test to check the sensor operation. (**Diagnostics > Engine Diagnostics > Engine Test Routines > 109-0013 Outer Temperature**)

2) Remove the left cover.

(Refer to 3.3.4 Temperature Sensor)

Measure the resistance value of the connector at both ends.

If the value is not in $47.5K\Omega \sim 52.5K\Omega$ (@ 25 °C), replace the sensor([JC93-00486A](#)).



3) If the harness and sensor are normal, replace the main board ([JC92-02429A](#)).

4.5.2. Cx-xxxx type error code

▶ **Error Code**

C1-2110

▶ **Error message**

Prepare new yellow toner cartridge.

▶ **Symptom**

Yellow toner is almost empty.

▶ **Troubleshooting method**

- 1) Order new yellow toner cartridge because toner cartridge with level of “Low” will be exhausted soon.

▶ **Error Code**

C1-2120

C1-2130

C1-2140

▶ **Error message**

Replace with new yellow toner cartridge

End of life, Replace with new yellow toner cartridge

▶ **Symptom**

The yellow toner cartridge is at the end of its life.

▶ **Troubleshooting method**

- 1) Open the front cover.
- 2) Remove the yellow toner cartridge.



- 3) Install the new yellow toner cartridge ([CLT-Y809S](#))

- 4) Close the front cover.

▶ Error Code

C1-2311

▶ Error message

Yellow Toner Cartridge Failure: #C1-2311. Install yellow toner cartridge again

▶ Symptom

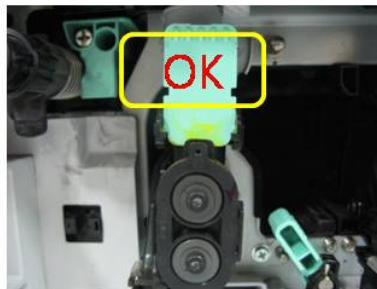
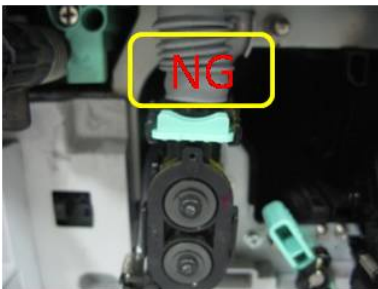
Yellow toner supply is inefficient or abnormal.

▶ Troubleshooting method

- 1) Open the front cover.
- 2) Remove the yellow toner cartridge. Shake the toner cartridge horizontally to distribute the toner evenly inside the cartridge.



- 3) Check if the toner supply pipe is blocked. If it is closed, open it.



- 4) Close the front cover.

4. Troubleshooting

▶ **Error Code**

C1-2411

C1-2413

▶ **Error message**

Yellow toner cartridge is not installed. Install it.

Shake yellow toner cartridge.

▶ **Symptom**

The yellow toner cartridge is not installed. / The CRUM data is not detected.

▶ **Troubleshooting method**

- 1) Open the front cover. Check if the yellow toner cartridge is installed.
- 2) Remove and reinstall the yellow toner cartridge.



- 3) If the problem persists, check if the toner cartridge modular jack is contaminated or deformed.



- 4) Replace the yellow toner cartridge([CLT-Y809S](#)) with a new one.

▶ **Error Code**

C1-2510 / C1-2512

▶ **Error message**

Yellow toner cartridge is not compatible. Check users guide.

▶ **Symptom**

Yellow toner cartridge is not compatible.

▶ **Troubleshooting method**

- 1) Replace the yellow toner cartridge with a new one.

▶ Error Code

C1-3110

▶ Error message

Prepare new magenta toner cartridge.

▶ Symptom

Magenta toner is almost empty.

▶ Troubleshooting method

- 1) Order new magenta toner cartridge because toner cartridge with level of “Low” will be exhausted soon.

▶ Error Code

C1-3120

C1-3130

C1-3140

▶ Error message

Replace with new magenta toner cartridge

End of life, Replace with new magenta toner cartridge

▶ Symptom

The magenta toner cartridge is at the end of its life.

▶ Troubleshooting method

- 1) Open the front cover.
- 2) Remove the magenta toner cartridge.



- 3) Install the new magenta toner cartridge ([CLT-M809S](#))
- 4) Close the front cover.

4. Troubleshooting

▶ Error Code

C1-3311

▶ Error message

Magenta Toner Cartridge Failure: #C1-3311. Install magenta toner cartridge again

▶ Symptom

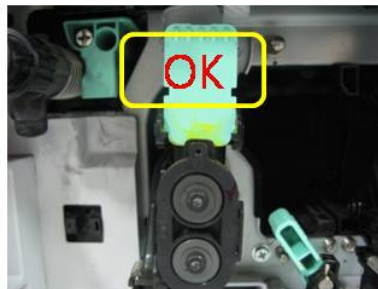
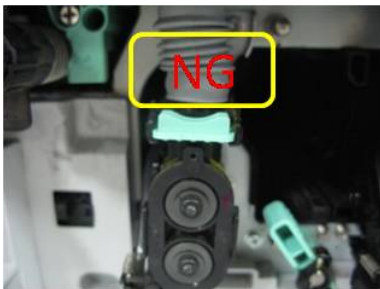
Magenta toner supply is inefficient or abnormal.

▶ Troubleshooting method

- 1) Open the front cover.
- 2) Remove the magenta toner cartridge. Shake the toner cartridge horizontally to distribute the toner evenly inside the cartridge.



- 3) Check if the toner supply pipe is blocked. If it is closed, open it.



- 4) Close the front cover.

▶ Error Code

C1-3411

C1-3413

▶ Error message

Magenta toner cartridge is not installed. Install it.

Shake magenta toner cartridge.

▶ Symptom

The magenta toner cartridge is not installed. / The CRUM data is not detected.

▶ Troubleshooting method

- 1) Open the front cover. Check if the magenta toner cartridge is installed.
- 2) Remove and reinstall the magenta toner cartridge.



- 3) If the problem persists, check if the toner cartridge modular jack is contaminated or deformed.



- 4) Replace the magenta toner cartridge(*CLT-M809S*) with a new one.

▶ Error Code

C1-3512

▶ Error message

Magenta toner cartridge is not compatible. Check users guide.

▶ Symptom

Magenta toner cartridge is not compatible.

▶ Troubleshooting method

- 1) Replace the magenta toner cartridge with a new one.

▶ **Error Code**

C1-4110

▶ **Error message**

Prepare new cyan toner cartridge.

▶ **Symptom**

Cyan toner is almost empty.

▶ **Troubleshooting method**

- 1) Order new cyan toner cartridge because toner cartridge with level of “Low” will be exhausted soon.

▶ **Error Code**

C1-4120

C1-4130

C1-4140

▶ **Error message**

Replace with new cyan toner cartridge

End of life, Replace with new cyan toner cartridge

▶ **Symptom**

The cyan toner cartridge is at the end of its life.

▶ **Troubleshooting method**

- 1) Open the front cover.
- 2) Remove the cyan toner cartridge.



- 3) Install the new cyan toner cartridge ([CLT-C809S](#))
- 4) Close the front cover.

▶ Error Code

C1-4311

▶ Error message

Cyan Toner Cartridge Failure: #C1-4311. Install yellow toner cartridge again

▶ Symptom

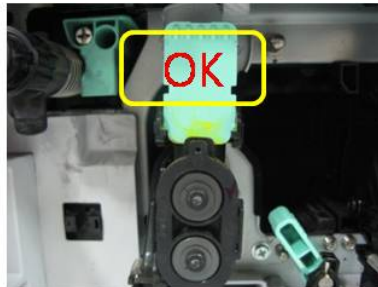
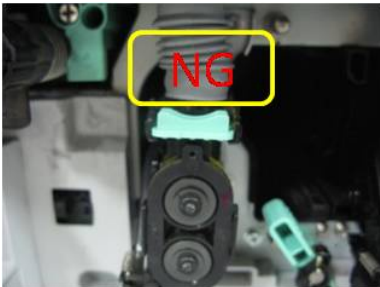
Cyan toner supply is inefficient or abnormal.

▶ Troubleshooting method

- 1) Open the front cover.
- 2) Remove the cyan toner cartridge. Shake the toner cartridge horizontally to distribute the toner evenly inside the cartridge.



- 3) Check if the toner supply pipe is blocked. If it is closed, open it.



- 4) Close the front cover.

4. Troubleshooting

▶ **Error Code**

C1-4411

C1-4413

▶ **Error message**

Cyan toner cartridge is not installed. Install it.

Shake cyan toner cartridge.

▶ **Symptom**

The cyan toner cartridge is not installed. / The CRUM data is not detected.

▶ **Troubleshooting method**

- 1) Open the front cover. Check if the cyan toner cartridge is installed.
- 2) Remove and reinstall the cyan toner cartridge.



- 3) If the problem persists, check if the toner cartridge modular jack is contaminated or deformed.



- 4) Replace the cyan toner cartridge([CLT-C809S](#)) with a new one.

▶ **Error Code**

C1-4512

▶ **Error message**

Cyan toner cartridge is not compatible. Check users guide.

▶ **Symptom**

Cyan toner cartridge is not compatible.

▶ **Troubleshooting method**

- 1) Replace the cyan toner cartridge with a new one.

▶ Error Code

C1-5110

▶ Error message

Prepare new black toner cartridge.

▶ Symptom

Black toner is almost empty.

▶ Troubleshooting method

- 1) Order new black toner cartridge because toner cartridge with level of “Low” will be exhausted soon.

▶ Error Code

C1-5120

C1-5130

C1-5140

▶ Error message

Replace with new black toner cartridge

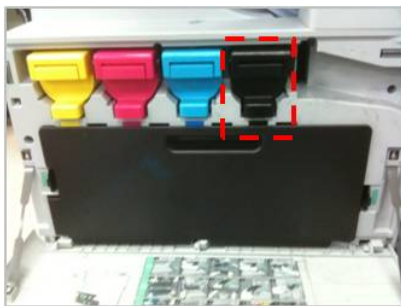
End of life, Replace with new black toner cartridge

▶ Symptom

The black toner cartridge is at the end of its life.

▶ Troubleshooting method

- 1) Open the front cover.
- 2) Remove the black toner cartridge.



- 3) Install the new black toner cartridge ([CLT-K809S](#))
- 4) Close the front cover.

4. Troubleshooting

▶ Error Code

C1-5311

▶ Error message

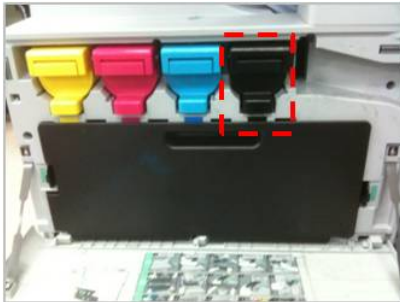
Black Toner Cartridge Failure: #C1-5311. Install black toner cartridge again

▶ Symptom

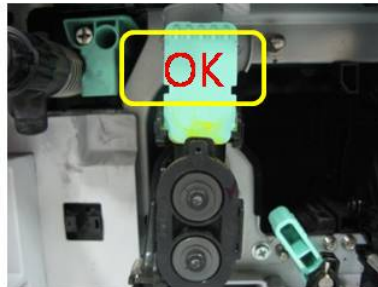
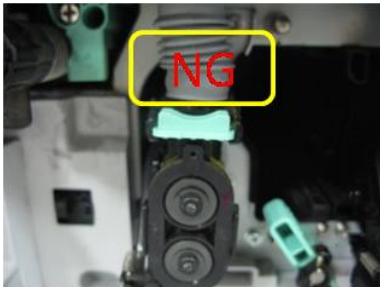
Black toner supply is inefficient or abnormal.

▶ Troubleshooting method

- 1) Open the front cover.
- 2) Remove the black toner cartridge. Shake the toner cartridge horizontally to distribute the toner evenly inside the cartridge.



- 3) Check if the toner supply pipe is blocked. If it is closed, open it.



- 4) Close the front cover.

▶ Error Code

C1-5411

C1-5413

▶ Error message

Black toner cartridge is not installed. Install it.

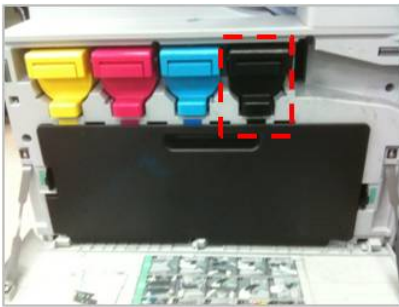
Shake black toner cartridge.

▶ Symptom

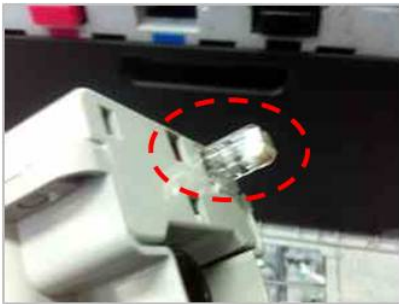
The black toner cartridge is not installed. / The CRUM data is not detected.

▶ Troubleshooting method

- 1) Open the front cover. Check if the black toner cartridge is installed.
- 2) Remove and reinstall the black toner cartridge.



- 3) If the problem persists, check if the toner cartridge modular jack is contaminated or deformed.



- 4) Replace the black toner cartridge(*CLT-K809S*) with a new one.

▶ Error Code

C1-5512

▶ Error message

Black toner cartridge is not compatible. Check users guide.

▶ Symptom

Black toner cartridge is not compatible.

▶ Troubleshooting method

- 1) Replace the black toner cartridge with a new one.

▶ **Error Code**

C3-2110

▶ **Error message**

Prepare new yellow imaging unit

▶ **Symptom**

Yellow drum unit has almost reached the end of its life.

▶ **Troubleshooting method**

- 1) Order new yellow drum unit because drum unit with level of “Low” will be exhausted soon.

▶ **Error Code**

C3-2130

C3-2140

▶ **Error message**

End of life, Replace with new yellow imaging unit

▶ **Symptom**

Yellow drum unit is at the end of its life.

▶ **Troubleshooting method**

- 1) Open the front cover.
- 2) Remove the waste toner container.
- 3) Remove the yellow drum unit.
(Refer to 3.2.2.1. Drum Unit)
- 4) Install the new yellow drum unit([CLT-R809](#)).
- 5) Clean the LSU window.
(Refer to 3.2.1.2. Cleaning the LSU window)
- 6) Install the waste toner container.
- 7) Close the front cover.

▶ Error Code

C3-2411

C3-2414

▶ Error message

Yellow imaging unit is not installed. Install it.

Yellow Imaging Unit Failure: #C3-2414. Install yellow imaging unit again

▶ Symptom

The yellow drum unit is not installed. / The CRUM data is not detected. / The machine can't read the charger resistance of the imaging unit.

▶ Troubleshooting method

- 1) Open the front cover.
- 2) Remove the waste toner container.
- 3) Remove and reinstall the yellow drum unit
(Refer to 3.2.2.1. Drum Unit)
- 4) Install the waste toner container.
- 5) Close the front cover.

▶ Error Code

C3-2511 / C3-2512

▶ Error message

Yellow imaging unit is not compatible. Check user's guide

▶ Symptom

Yellow drum unit is not compatible.

▶ Troubleshooting method

- 1) Open the front cover.
- 2) Remove the waste toner container.
- 3) Remove the yellow drum unit. Check if the drum unit is compatible with the machine.
- 4) If the drum unit is not a samsung genuine, replace it with a new one.

▶ **Error Code**

C3-3110

▶ **Error message**

Prepare new magenta imaging unit

▶ **Symptom**

Magenta drum unit has almost reached the end of its life.

▶ **Troubleshooting method**

- 1) Order new magenta drum unit because drum unit with level of “Low” will be exhausted soon.

▶ **Error Code**

C3-3130

C3-3140

▶ **Error message**

End of life, Replace with new magenta imaging unit

▶ **Symptom**

Magenta drum unit is at the end of its life.

▶ **Troubleshooting method**

- 1) Open the front cover.
- 2) Remove the waste toner container.
- 3) Remove the magenta drum unit.
(Refer to **3.2.2.1. Drum Unit**)
- 4) Install the new magenta drum unit([CLT-R809](#)).
- 5) Clean the LSU window.
(Refer to **3.2.1.2. Cleaning the LSU window**)
- 6) Install the waste toner container.
- 7) Close the front cover.

▶ Error Code

C3-3411

C3-3414

▶ Error message

Magenta imaging unit is not installed. Install it.

Magenta Imaging Unit Failure #C3-3414. Install magenta imaging unit again.

▶ Symptom

The magenta drum unit is not installed. / The CRUM data is not detected. / The machine can't read the charger resistance of the imaging unit.

▶ Troubleshooting method

- 1) Open the front cover.
- 2) Remove the waste toner container.
- 3) Remove and reinstall the magenta drum unit
(Refer to 3.2.2.1. Drum Unit)
- 4) Install the waste toner container.
- 5) Close the front cover.

▶ Error Code

C3-3512

▶ Error message

Magenta imaging unit is not compatible. Check user's guide

▶ Symptom

Magenta drum unit is not compatible.

▶ Troubleshooting method

- 1) Open the front cover.
- 2) Remove the waste toner container.
- 3) Remove the magenta drum unit. Check if the drum unit is compatible with the machine.
- 4) If the drum unit is not a samsung genuine, replace it with a new one.

▶ **Error Code**

C3-4110

▶ **Error message**

Prepare new cyan imaging unit

▶ **Symptom**

Cyan drum unit has almost reached the end of its life.

▶ **Troubleshooting method**

- 1) Order new cyan drum unit because drum unit with level of “Low” will be exhausted soon.

▶ **Error Code**

C3-4130

C3-4140

▶ **Error message**

End of life, Replace with new magenta imaging unit

▶ **Symptom**

Cyan drum unit is at the end of its life.

▶ **Troubleshooting method**

- 1) Open the front cover.
- 2) Remove the waste toner container.
- 3) Remove the cyan drum unit.
(Refer to 3.2.2.1. Drum Unit)
- 4) Install the new cyan drum unit([CLT-R809](#)).
- 5) Clean the LSU window.
(Refer to 3.2.1.2. Cleaning the LSU window)
- 6) Install the waste toner container.
- 7) Close the front cover.

▶ Error Code

C3-4411

C3-4414

▶ Error message

Cyan imaging unit is not installed. Install it.

Cyan Imaging Unit Failure: #C3-4414. Install imaging unit again.

▶ Symptom

The cyan drum unit is not installed. / The CRUM data is not detected./ The machine can't read the charger resistance of the imaging unit.

▶ Troubleshooting method

- 1) Open the front cover.
- 2) Remove the waste toner container.
- 3) Remove and reinstall the magenta drum unit
(Refer to 3.2.2.1. Drum Unit)
- 4) Install the waste toner container.
- 5) Close the front cover.

▶ Error Code

C3-4512

▶ Error message

Cyan imaging unit is not compatible. Check user's guide

▶ Symptom

Cyan drum unit is not compatible.

▶ Troubleshooting method

- 1) Open the front cover.
- 2) Remove the waste toner container.
- 3) Remove the cyan drum unit. Check if the drum unit is compatible with the machine.
- 4) If the drum unit is not a samsung genuine, replace it with a new one.

▶ **Error Code**

C3-5110

▶ **Error message**

Prepare new cyan imaging unit

▶ **Symptom**

Cyan drum unit has almost reached the end of its life.

▶ **Troubleshooting method**

- 1) Order new cyan drum unit because drum unit with level of “Low” will be exhausted soon.

▶ **Error Code**

C3-5130

C3-5140

▶ **Error message**

End of life, Replace with new magenta imaging unit

▶ **Symptom**

Cyan drum unit is at the end of its life.

▶ **Troubleshooting method**

- 1) Open the front cover.
- 2) Remove the waste toner container.
- 3) Remove the cyan drum unit.
(Refer to 3.2.2.1. Drum Unit)
- 4) Install the new cyan drum unit([CLT-R809](#)).
- 5) Clean the LSU window.
(Refer to 3.2.1.2. Cleaning the LSU window)
- 6) Install the waste toner container.
- 7) Close the front cover.

▶ Error Code

C3-5411

C3-5414

▶ Error message

Black imaging unit is not installed. Install it.

Black Imaging Unit Failure: #C3-5414. Install imaging unit again.

▶ Symptom

The black drum unit is not installed. / The CRUM data is not detected. / The machine can't read the charger resistance of the imaging unit.

▶ Troubleshooting method

- 1) Open the front cover.
- 2) Remove the waste toner container.
- 3) Remove and reinstall the black drum unit
(Refer to 3.2.2.1. Drum Unit)
- 4) Install the waste toner container.
- 5) Close the front cover.

▶ Error Code

C3-5512

▶ Error message

Black imaging unit is not compatible. Check user's guide

▶ Symptom

Black drum unit is not compatible.

▶ Troubleshooting method

- 1) Open the front cover.
- 2) Remove the waste toner container.
- 3) Remove the black drum unit. Check if the drum unit is compatible with the machine.
- 4) If the drum unit is not a samsung genuine, replace it with a new one.

▶ Error Code

C5-1110

C5-1120

▶ Error message

Prepare new transfer belt unit.

Replace new transfer belt unit.

▶ Symptom

The life of the ITB Unit expires soon or has expired.

▶ Troubleshooting method

- 1) Turn the machine off.
- 2) Replace the ITB Unit (*JC96-06660A*).
(Refer to 3.2.2.3. ITB Cleaner and 3.2.2.4. ITB Unit)
- 3) Turn the machine on.
- 4) Enter SVC mode.
 - To enter SVC mode, press 1,2,3 number keys simultaneously. When the password dialog box appears, enter “1934” and press the “OK” button.
- 5) Select “TRANSFER”
(**INFORMATION > Supply Status > Field Replacement Unit > TRANSFER**)
- 6) Select “ITB Roller”. The “RESET” button will be activated. Click “RESET” to clear the ITB count.
- 7) Exit SVC mode by pushing the home button.

▶ Error Code

C5-3120

▶ Error message

Replace with new Transfer roller.

▶ Symptom

The life of the transfer roller has expired.

▶ Troubleshooting method

- 1) Turn the machine off.
- 2) Replace the Transfer roller(*JC95-01514A*).
(Refer to 3.2.2.6. Transfer roller)
- 3) Turn the machine on.
- 4) Enter SVC mode.
 - To enter SVC mode, press 1,2,3 number keys simultaneously. When the password dialog box appears, enter “1934” and press the “OK” button.
- 5) Select “TRANSFER”
(**INFORMATION > Supply Status > Field Replacement Unit > TRANSFER**)
- 6) Select “T2 Roller”. The “RESET” button will be activated. Click “RESET” to clear the T2 Roller count.
- 7) Exit SVC mode by pushing the home button.

▶ 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(*JC91-01063A (220V) /JC91-01064A (110V)*).
(Refer to 3.2.2.5. 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**

- 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.
(Refer to 3.2.2.5. Fuser unit)
- 5) Check if the fuser draw connector ([JC39-01677A](#)) is broken or defective.
- 6) Install the fuser unit.
- 7) If the problem persists, replace the fuser unit([JC91-01063A\(220V\)](#) / [JC91-01064A\(110V\)](#)).



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.

▶ 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.
- 2) Remove the waste toner container([CLT-W809](#)). Install a new waste toner container.
- 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

- 1) Open the front cover.
- 2) Remove and reinstall the waste toner container.
- 3) Close the front cover.

▶ **Error Code**

C8-2130

▶ **Error message**

Replace with new yellow developer unit

▶ **Symptom**

The life of the yellow developer unit expires has expired.

▶ **Troubleshooting method**

- 1) Turn the machine off.
- 2) Replace the yellow developer unit.
(Refer to 3.2.2.2. Developer Unit)
- 3) Turn the machine on then print the test page.

▶ **Error Code**

C8-2210

C8-2310

C8-2313

▶ **Error message**

Yellow Developer Failure: #C8-2210. Turn off then on

Yellow Developer Failure: #C8-2310. Install yellow developer unit again

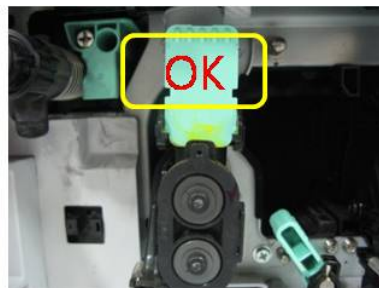
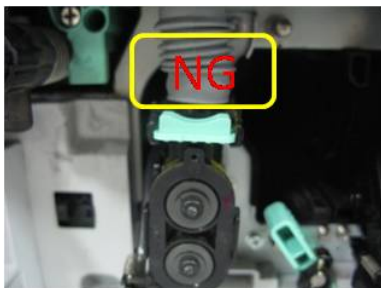
Yellow Developer Failure: #C8-2313. Turn off then on. Please call for service if the problem persists

▶ **Symptom**

The yellow developer unit has a problem with toner supply or sensor calibration.

▶ **Troubleshooting method**

- 1) Open the front cover.
- 2) Remove the waste toner container.
- 3) Check if the toner supply pipe is blocked. If it is closed, open it.



- 4) Install the waste toner container. Close the front cover.
- 5) Turn the machine off then on.
- 6) If the problem persists, remove and reinstall the yellow developer unit.
- 7) If the problem persists, replace the yellow developer unit.

(Refer to 3.2.2.2. Developer Unit)

▶ **Error Code**

C8-3130

▶ **Error message**

Replace with new magenta developer unit

▶ **Symptom**

The life of the magenta developer unit expires has expired.

▶ **Troubleshooting method**

- 1) Turn the machine off.
- 2) Replace the magenta developer unit.
(Refer to 3.2.2.2. Developer Unit)
- 3) Turn the machine on then print the test page.

▶ **Error Code**

C8-3210

C8-3310

C8-3313

▶ **Error message**

Magenta Developer Failure: #C8-3210. Turn off then on

Magenta Developer Failure: #C8-3310. Install magenta developer unit again

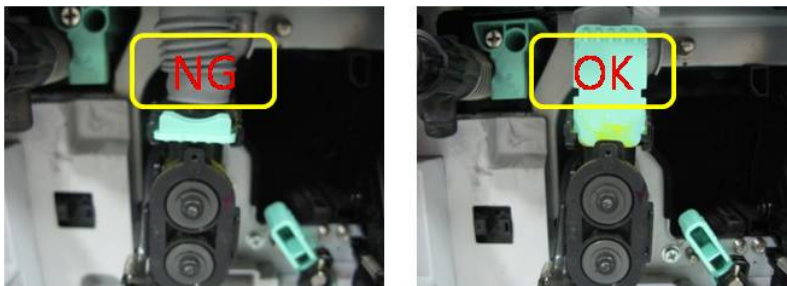
Magenta Developer Failure: #C8-3313. Turn off then on. Please call for service if the problem persists

▶ **Symptom**

The magenta developer unit has a problem with toner supply or sensor calibration.

▶ **Troubleshooting method**

- 1) Open the front cover.
- 2) Remove the waste toner container.
- 3) Check if the toner supply pipe is blocked. If it is closed, open it.



- 4) Install the waste toner container. Close the front cover.
- 5) Turn the machine off then on.
- 6) If the problem persists, remove and reinstall the magenta developer unit.
- 7) If the problem persists, replace the magenta developer unit.

(Refer to 3.2.2.2. Developer Unit)

▶ **Error Code**

C8-4130

▶ **Error message**

Replace with new cyan developer unit

▶ **Symptom**

The life of the cyan developer unit expires has expired.

▶ **Troubleshooting method**

- 1) Turn the machine off.
- 2) Replace the cyan developer unit.
(Refer to 3.2.2.2. Developer Unit)
- 3) Turn the machine on then print the test page.

▶ **Error Code**

C8-4210

C8-4310

C8-4313

▶ **Error message**

Cyan Developer Failure: #C8-4210. Turn off then on

Cyan Developer Failure: #C8-4310. Install cyan developer unit again

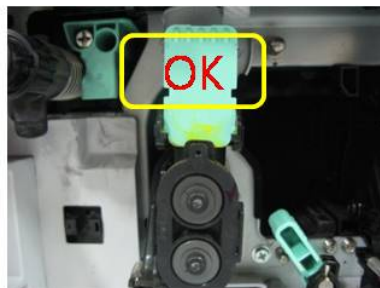
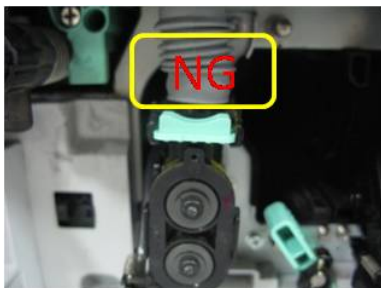
Cyan Developer Failure: #C8-4313. Turn off then on. Please call for service if the problem persists

▶ **Symptom**

The cyan developer unit has a problem with toner supply or sensor calibration.

▶ **Troubleshooting method**

- 1) Open the front cover.
- 2) Remove the waste toner container.
- 3) Check if the toner supply pipe is blocked. If it is closed, open it.



- 4) Install the waste toner container. Close the front cover.
- 5) Turn the machine off then on.
- 6) If the problem persists, remove and reinstall the cyan developer unit.
- 7) If the problem persists, replace the cyan developer unit.

(Refer to 3.2.2.2. Developer Unit)

▶ **Error Code**

C8-5130

▶ **Error message**

Replace with new black developer unit

▶ **Symptom**

The life of the black developer unit expires has expired.

▶ **Troubleshooting method**

- 1) Turn the machine off.
- 2) Replace the black developer unit.
(Refer to 3.2.2.2. Developer Unit)
- 3) Turn the machine on then print the test page.

▶ **Error Code**

C8-5210

C8-5310

C8-5313

▶ **Error message**

Black Developer Failure: #C8-5210. Turn off then on

Black Developer Failure: #C8-5310. Install black developer unit again

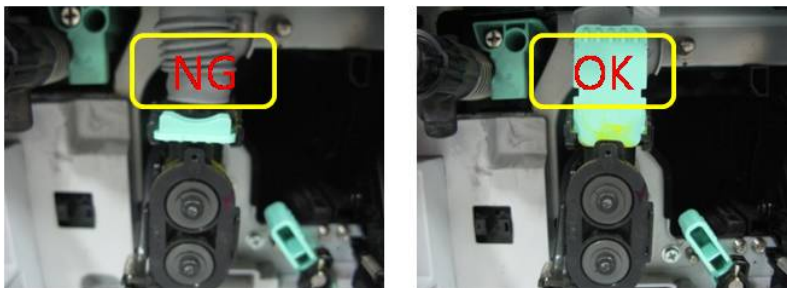
Black Developer Failure: #C8-5313. Turn off then on. Please call for service if the problem persists

▶ **Symptom**

The black developer unit has a problem with toner supply or sensor calibration.

▶ **Troubleshooting method**

- 1) Open the front cover.
- 2) Remove the waste toner container.
- 3) Check if the toner supply pipe is blocked. If it is closed, open it.



- 4) Install the waste toner container. Close the front cover.
- 5) Turn the machine off then on.
- 6) If the problem persists, remove and reinstall the black developer unit.
- 7) If the problem persists, replace the black developer unit.

(Refer to 3.2.2.2. Developer Unit)

▶ **Error Code**

C9-2110

C9-2120

▶ **Error message**

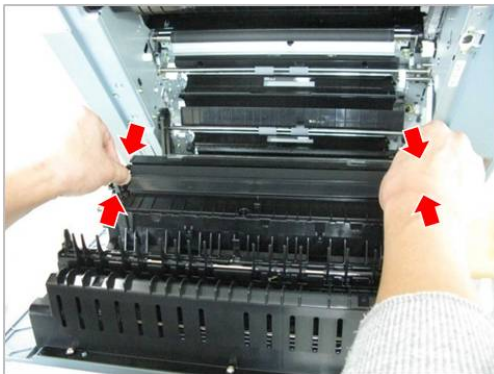
Replace with new Transfer roller.

▶ **Symptom**

The life of the second transfer roller(T2) expires soon or has expired.

▶ **Troubleshooting method**

- 1) Open the side cover.
- 2) Replace the second transfer roller([JC95-01514A](#)) with a new one.
(Refer to 3.2.2.6. Transfer roller)



- 3) Close the side cover.
- 4) Enter SVC mode.
 - To enter the service mode, press 1,2,3 number keys simultaneously. When the password dialog box appears, enter "1934" and press the "OK" button.
- 5) Select "TRANSFER"
(**INFORMATION > Supply Status > Field Replacement Unit > TRANSFER**)
- 6) Select "T2 Roller". The "RESET" button will be activated. Click "RESET" to clear the T2 Roller count.
- 7) Exit the SVC mode by pushing the home button.

▶ Error Code

C9-2220

C9-2120

▶ Error message

TR Failure: #C9-2220. Install transfer roller again

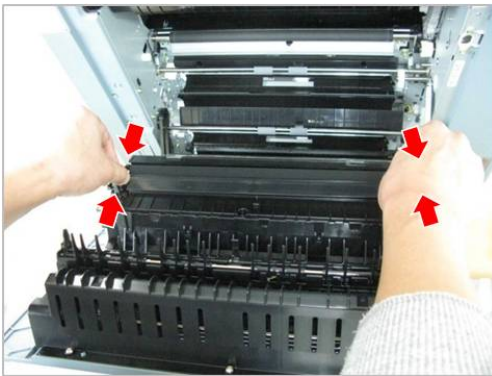
▶ Symptom

The life of the second transfer roller(T2) is not installed.

▶ Troubleshooting method

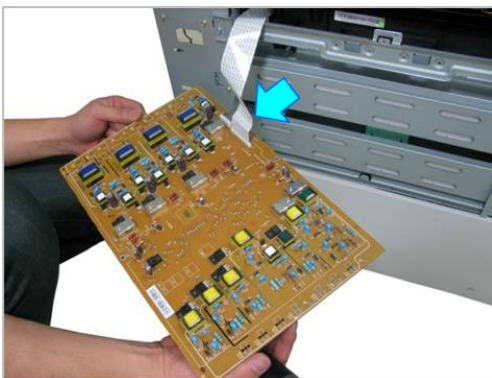
- 1) Open the side cover.
- 2) Remove and reinstall the second transfer roller.

(Refer to 3.2.2.6. Transfer roller)



- 3) Close the side cover.
- 4) If the problem persists, replace the HVPS board([JC44-00212A](#)).

(Refer to 3.3.3. HVPS board)



4.5.3. H1-xxxx type (DCF) error code

► **Error Code**

H1-1311

H1-1312

H1-1313

H1-1314

H1-1315

H1-1317

H1-1318

► **Error message**

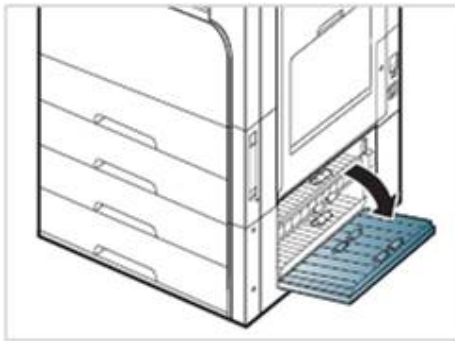
Paper jam in Tray 3.

► **Symptom**

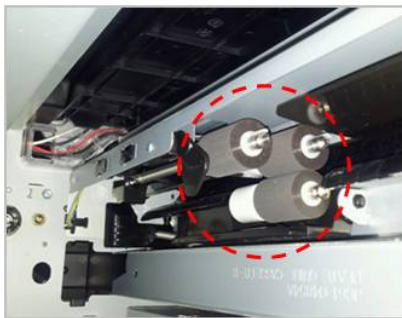
Paper jam has occurred in tray3. (Pick up unit connection is defective. / Pickup rollers are defective. / Feed sensor is defective.)

► **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([JC93-00540A](#)).
- 4) If pick up/ reverse/ forward rollers have no problem, check the following.
 - a) Remove the DCF pick up unit1. Check if the feed sensor cable is connected correctly.
 - b) Check if the sensor cable on DCF board is connected correctly.

-
- c) If the connection is OK, replace the feed sensor([0604-001381](#)).
 - 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([JC93-00513A](#)) 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([JC93-00447A](#)).
- (Refer to 3.3.33.2 DCF Feed Motor)**
- 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([JC93-00442A](#)).
- (Refer to 3.3.33.3 DCF Pick Up Motor)**

▶ **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([JC93-00018A](#)).
- 5) If the problem persists, replace the DCF board([JC92-02453A](#)).
(Refer to 3.3.33.1. DCF Main Board)

▶ Error Code

H1-1351

H1-1352

▶ 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([JC66-03199A](#)) is defective, replace it.



► **Error Code**

H1-1353

► **Error message**

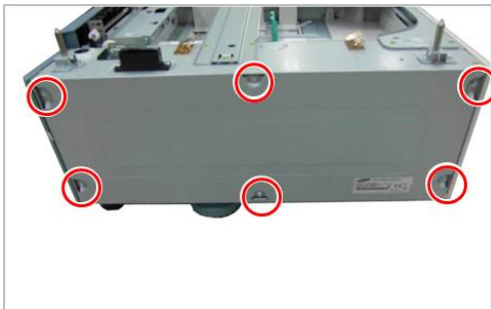
Input System Failure #H1-1353 : Pull Tray 3 out and insert it.

► **Symptom**

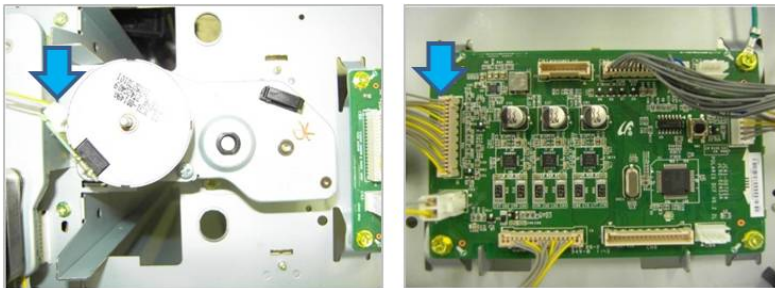
The paper is not fed from tray3.

► **Troubleshooting method**

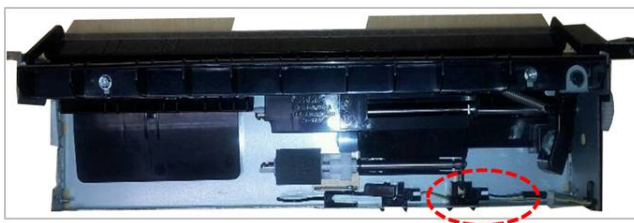
- 1) Remove and insert tray3 correctly.
- 2) Turn the machine off then on.
- 3) If the problem persists, turn the machine off.
- 4) Remove the Bracket Rear Cover after removing 6 screws.



- 5) Check if the connection between the DCF pick up drive and DCF board is correct.



- 6) If the connection is OK, replace the pick up drive unit([JC93-00442A](#)).
(Refer to 3.3.33.3. DCF Pick Up Motor)
- 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**

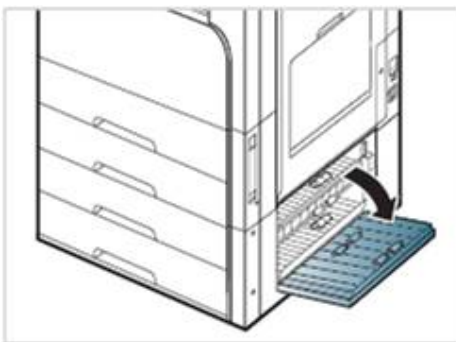
Paper jam in Tray 4.

► **Symptom**

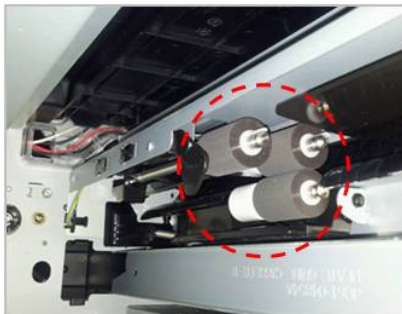
Paper jam has occurred in tray4. (Pick up unit connection is defective. / Pickup rollers are defective. / Feed sensor is defective.)

► **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([JC93-00540A](#)).
- 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 board is connected correctly.
 - c) If the connection is OK, replace the feed sensor([0604-001381](#)).
 - 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([JC93-00447A](#)).
(Refer to 3.3.33.2 DCF Feed Motor)
- 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([JC93-00442A](#)).
(Refer to 3.3.33.3 DCF Pick Up Motor)

▶ 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([JC93-00018A](#)).
- 5) If the problem persists, replace the DCF board([JC92-02453A](#)).
(Refer to 3.3.33.1. DCF Main Board)

▶ **Error Code**

H1-1451

H1-1452

▶ **Error message**

Paper is low in Tray 4. Load paper.

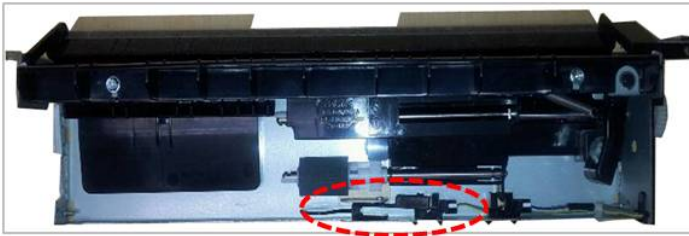
Paper is empty in Tray 4. Load paper.

▶ **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([JC66-03199A](#)) is defective, replace it.



► **Error Code**

H1-1453

► **Error message**

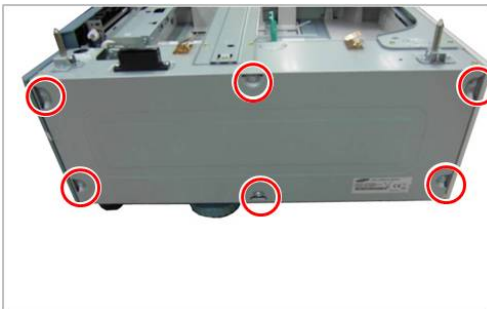
Input System Failure #H1-1453 : Pull Tray 4 out and insert it.

► **Symptom**

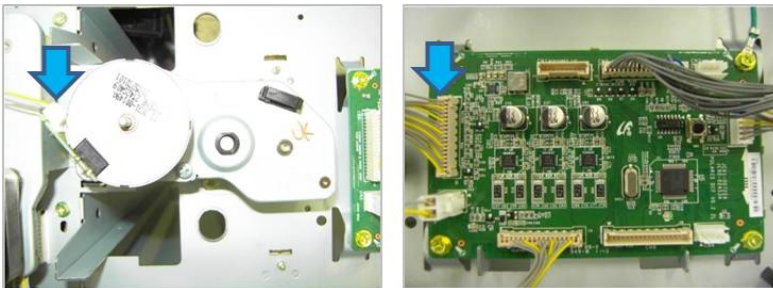
The paper is not fed from tray4.

► **Troubleshooting method**

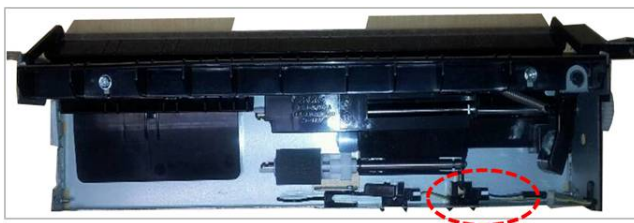
- 1) Remove and insert tray4 correctly.
- 2) Turn the machine off then on.
- 3) If the problem persists, turn the machine off.
- 4) Remove the Bracket Rear Cover after removing 6 screws.



- 5) Check if the connection between the DCF pick up drive and DCF board is correct.



- 6) If the connection is OK, replace the pick up drive unit([JC93-00442A](#)).
(Refer to [3.3.33.3. DCF Pick Up Motor](#))
- 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.

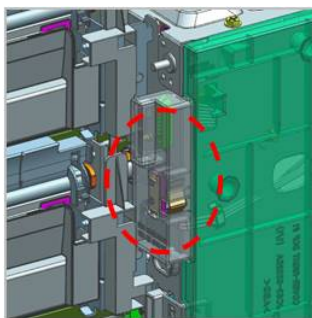
▶ **Troubleshooting method**

- 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)([JC39-01696A](#)) is not operating normally. If it is defective, replace it.



- b) If the I/L Switch is OK, replace the DCF board([JC92-02453A](#)).
(Refer to 3.3.33.1. DCF Main Board)

▶ Error Code

H1-5330

▶ Error message

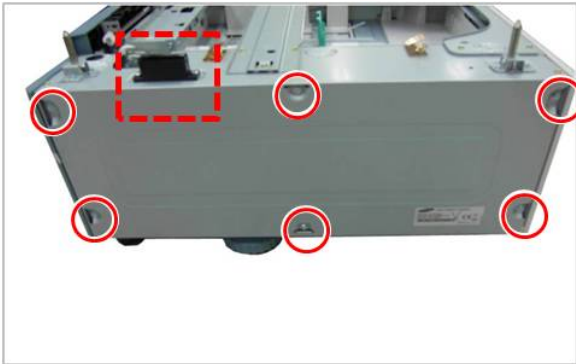
DCF Failure #H1-5330. Check internal DCF connection.

▶ 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 Bracket Rear Cover after removing 6 screws.



- 3) Check if the interface connector is connected to the DCF board. If the interface connector(*JC39-01690A*) is defective, replace it.
- 4) If the problem persists, replace the DCF board.
(Refer to 3.3.33.1. DCF Main Board)

4.5.4. H2-xxxx (Finisher) type error code

► **Error Code**

H2-6700

H2-6701

H2-6702

H2-6703

H2-6704

H2-6705

► **Error message**

Paper jam inside of finisher

Paper jam at exit of finisher

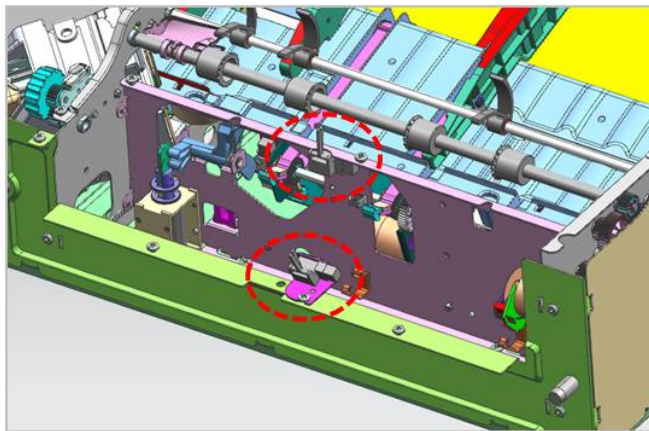
► **Symptom**

Paper failed to pass finisher's paper transportation path within the specified time.

► **Troubleshooting method**

- 1) Open finisher jam cover, and make sure that the paper is on the paper path. If there is paper, remove paper manually.
- 2) If the error does not disappear even after removing paper and closing finisher jam door, follow the instructions below:
 - a) Does finisher input sensor work well?
 - i) Make sure finisher input sensor cable is connected well to the sensor connector.
 - ii) Make sure finisher input sensor cable is connected well to the main board connector.
 - iii) Replace the finisher input sensor([JC81-09686A](#)).

(Refer to 3.3.34.1 Finisher Main Motor)



- iv) Replace the finisher main board([JC81-09692A](#)).

(Refer to 3.3.34.2. Finisher Board)

- b) Check if any debris is present. Please make sure to remove any debris.

► **Error Code**

H2-6706

► **Error message**

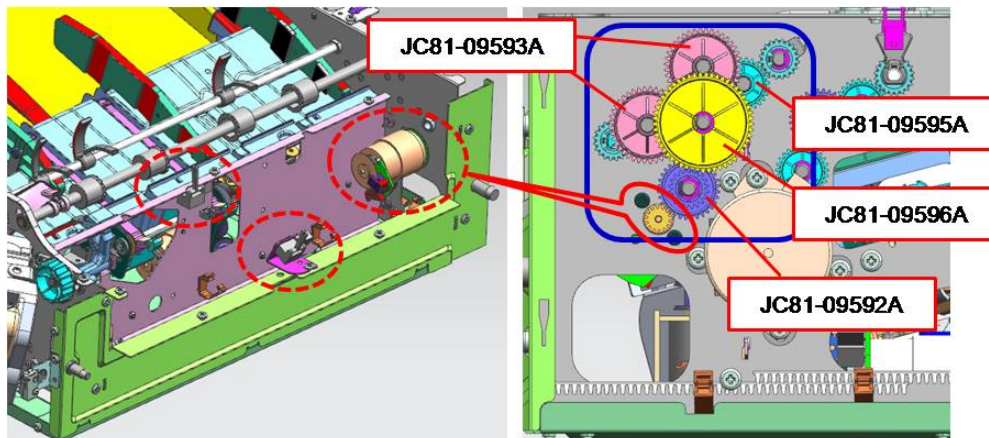
Finisher Failure: #H2-6706. Check finisher

► **Symptom**

Transport motor doesn't work.

► **Troubleshooting method**

- 1) Open finisher jam cover to check if there is a paper jam. If there is paper, remove paper manually. Then close door to do finisher initialization.
- 2) If transport motor is still not running and the error does not disappear, follow the instructions below:
 - a) Does finisher transport motor work well?
 - i) Make sure finisher transport motor cable is connected well to the transport motor connector.
 - ii) Make sure finisher transport motor cable is connected well to the main board connector.
 - iii) Replace the finisher transport motor(JC81-09677A).
(Refer to 3.3.34.1 Finisher Main Motor)
 - iv) Replace the finisher main board(JC81-09692A).
(Refer to 3.3.34.2. Finisher Board)
 - b) Does finisher input sensor work well?
 - i) Make sure finisher input sensor cable is connected well to the sensor connector.
 - ii) Make sure finisher input sensor cable is connected well to the main board connector.
 - iii) Replace the finisher input sensor(JC81-09686A).
(Refer to 3.3.34.1 Finisher Main Motor)
 - iv) Replace the finisher main board(JC81-9692A).
(Refer to 3.3.34.2. Finisher Board)
 - c) Does finisher motor gear set work well?
 - i) Make sure gear set can rotate smoothly.
 - ii) Make sure each gear is not broken.
 - iii) Replace the gear set(JC81-09592A / J81-09593A / JC81-09595A / JC81-09596A).
 - d) Check if any debris is present. Please make sure to remove any debris.



► **Error Code**

H2-6707 ~ H2-6725

► **Error message**

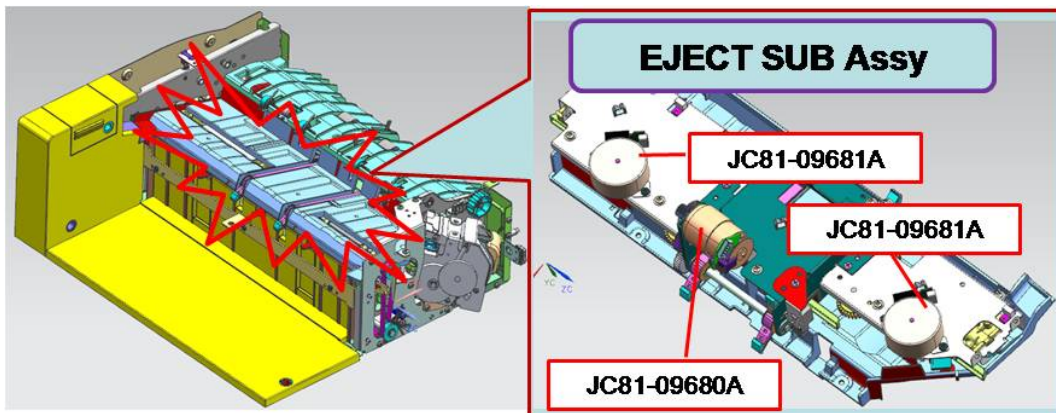
Finisher Failure: #H2-67xx. Check finisher

► **Symptom**

Component does not move to or leave home position.

► **Troubleshooting method**

- 1) If there is jammed paper on the paper path, remove paper manually. Open and close finisher stapler door or jam cover to check if finisher executes initialization process.
- 2) If component still doesn't go back to home position and error does not disappear, follow the instructions below:
 - a) Does finisher input sensor work well?
 - i) Make sure finisher input sensor cable is connected well to the sensor connector.
 - ii) Make sure finisher input sensor cable is connected well to the main board connector.
 - iii) Replace the finisher input sensor(JC81-09686A).
(Refer to 3.3.34.1 Finisher Main Motor)
 - iv) Replace the finisher main board(JC81-09692A).
(Refer to 3.3.34.2. Finisher Board)
 - b) Does finisher component motor work well?
 - i) Make sure finisher component motor cable is connected well to the motor connector.
 - ii) Make sure finisher component motor cable is connected well to the main board connector.
 - iii) Replace the finisher component motor(JC81-09680A / JC81-09681A).
 - iv) Replace the finisher main board(JC81-09692A).
(Refer to 3.3.34.2. Finisher Board)
 - c) Do finisher component parts work well?
 - i) Make sure component parts can move or rotate smoothly.
 - ii) Make sure there is no any mechanical interference to stop moving or rotating.
 - iii) Make sure the belt is tight on the correct position, if it has the belt.
 - d) Does finisher component motor gear set work well?
 - i) Make sure gear set can rotate smoothly.
 - ii) Make sure each gear is not broken.
 - iii) Replace the Eject-Sub Assy.
 - e) Check if any debris existed. Please make sure to remove any debris.



► **Error Code**

H2-6726

H2-6727

► **Error message**

Finisher Stapler door is open. Close it.

Finisher Jam door is open. Close it.

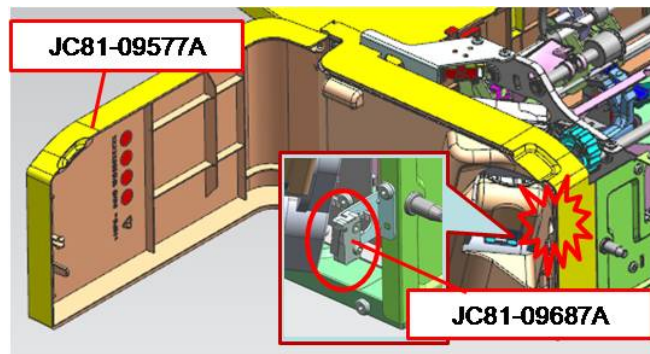
► **Symptom**

Finisher door is not closed.

► **Troubleshooting method**

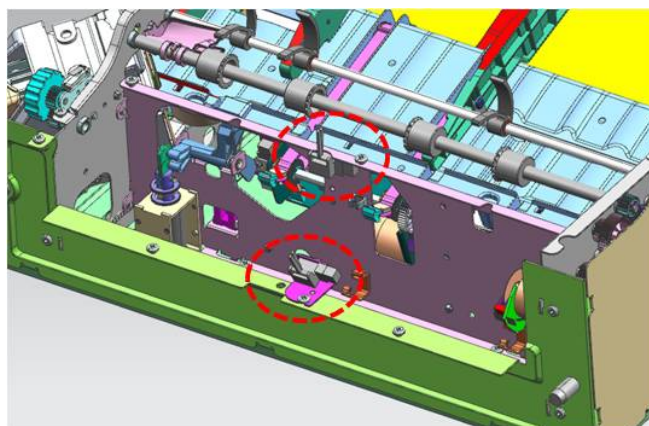
1) Close door to perform finisher initialization. If error does not disappear, follow the instructions below:

- a) Does finisher door cover close well?
 - i) The finisher door cover can close well.
 - ii) The finisher door cover can contact and push input sensor switch well.
 - iii) The finisher input sensor switch can be pushed well.
 - iv) Replace finisher cover door(JC81-09577A) or Switch(JC81-09687A).



- b) Does finisher input sensor work well?
 - i) Make sure finisher input sensor cable is connected well to the sensor connector.
 - ii) Make sure finisher input sensor cable is connected well to the main board connector.
 - iii) Replace the finisher input sensor(JC81-09686A).

(Refer to 3.3.34.1 Finisher Main Motor)



- iv) Replace the finisher main board(JC81-09692A).

(Refer to 3.3.34.2. Finisher Board)

- c) Check if any debris exists. Please make sure to remove any debris.

► **Error Code**

H2-6728

H2-6729

H2-6730

H2-6731

► **Error message**

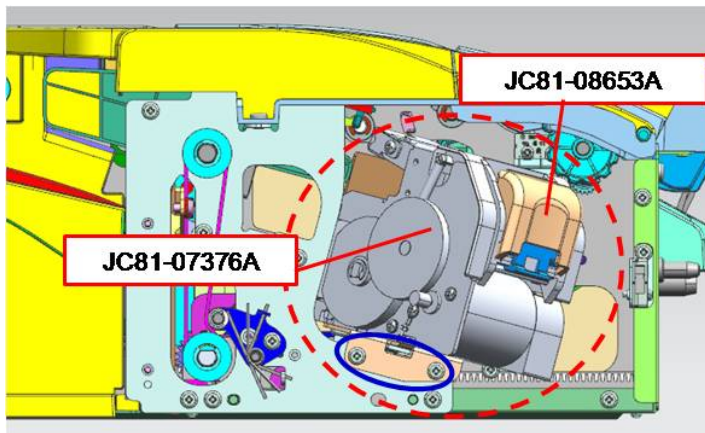
Finisher Failure: #H2-67xx. Check finisher.

► **Symptom**

Finisher stapler head does not move to or leave home position.

► **Troubleshooting method**

- 1) If there is jammed paper on the stapler, removing paper manually. Open and close finisher stapler door or jam cover to check if finisher executes initialization process.
- 2) If stapler still doesn't go back to home position and error does not disappear, follow the instructions below :
 - a) Can finisher stapler cartridge can be pulled out?
 - i) Rotate stapler gear manually to move stapler head back to home (top) position.
 - ii) Remove staple completely from stapler cartridge.
 - iii) Remove staples from inside stapler.
 - b) Does finisher stapler input sensor work well?
 - i) Make sure finisher input sensor cable is connected well to the sensor connector.
 - ii) Make sure finisher input sensor cable is connected well to the main board connector.
 - iii) Replace the finisher stapler(JC81-07376A).
 - iv) Replace the finisher main board(JC81-09692A).
(Refer to 3.3.34.2. Finisher Board)
 - c) Does finisher stapler motor work well?
 - i) Make sure finisher stapler motor cable is connected well to the stapler motor connector.
 - ii) Make sure finisher stapler motor cable is connected well to the main board connector.
 - iii) Replace the finisher stapler(JC81-07376A).
 - iv) Replace the finisher main board(JC81-09692A).
(Refer to 3.3.34.2. Finisher Board)
 - d) Check if any debris (staple) exists. Please make sure to remove any debris.



► **Error Code**

H2-6732

H2-6733

► **Error message**

Staple cartridge is low. Replace it.

Staple cartridge is empty. Replace it.

► **Symptom**

Finisher stapler cartridge is necessary to refill.

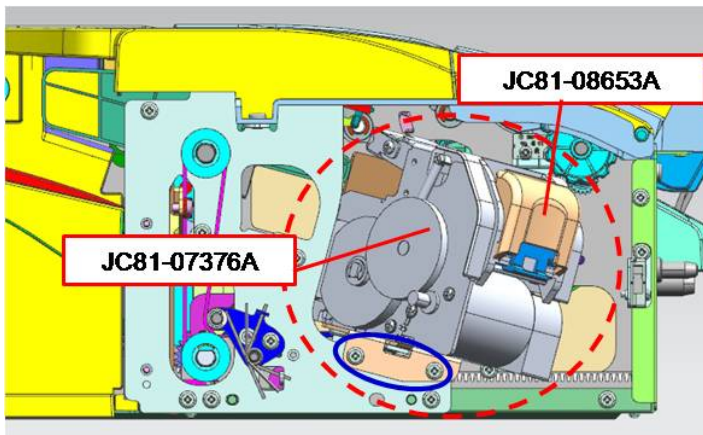
► **Troubleshooting method**

1) Open finisher stapler door to refill cartridge and then close door. Self-Priming will execute automatically if necessary. If stapler error or warning does not disappear, follow the instructions below :

- a) Does finisher stapler cartridge refill box fit well?
 - i) Make sure stapler refill box fit well into cartridge.
 - ii) Make sure staples do not jam near stapler head.
- b) Does finisher stapler input sensor work well?
 - i) Make sure finisher input sensor cable is connected well to the sensor connector.
 - ii) Make sure finisher input sensor cable is connected well to the main board connector.
 - iii) Replace the finisher stapler(*JC81-07376A*).
 - iv) Replace the finisher main board(*JC81-09692A*).

(Refer to 3.3.34.2. Finisher Board)

- c) Check if any debris (staple) is present. Please make sure to remove any debris.



► **Error Code**

H2-6734

► **Error message**

Finisher Failure: #H2-6734. Check finisher

► **Symptom**

Finisher stapler cartridge refill failed.

► **Troubleshooting method**

1) Open finisher stapler door to refill cartridge and then close door. Self-Priming will execute automatically if necessary. If stapler error or warning does not disappear, follow the instructions below :

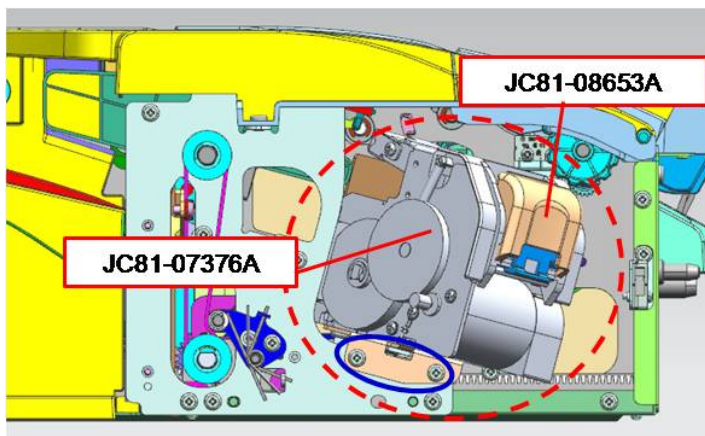
- a) Does finisher stapler cartridge refill box fit well?
 - i) Make sure stapler refill box fit well into cartridge.
 - ii) Make sure staples do not jam near stapler head.
- b) Does finisher stapler input sensor work well?
 - i) Make sure finisher input sensor cable is connected well to the sensor connector.
 - ii) Make sure finisher input sensor cable is connected well to the main board connector.
 - iii) Replace the finisher stapler(JC81-07376A).
 - iv) Replace the finisher main board(JC81-09692A).

(Refer to 3.3.34.2. Finisher Board)

- c) Does finisher stapler motor work well?
 - i) Make sure finisher stapler motor cable is connected well to the stapler motor connector.
 - ii) Make sure finisher stapler motor cable is connected well to the main board connector.
 - iii) Replace the finisher stapler(JC81-07376A).
 - iv) Replace the finisher main board(JC81-09692A).

(Refer to 3.3.34.2. Finisher Board)

d) Check if any debris (staple) is present. Please make sure to remove any debris.



► **Error Code**

H2-6735

► **Error message**

Too much paper in finisher stacker. Remove printed paper.

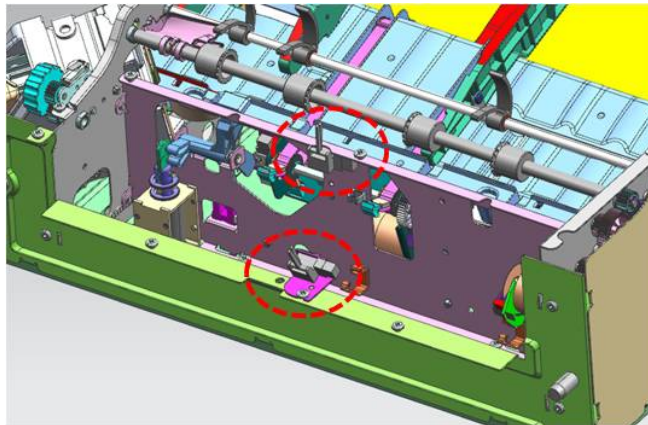
► **Symptom**

Finisher output tray is full.

► **Troubleshooting method**

- 1) Remove paper from the finisher main tray. Main tray will move downward and upward to clear stack full warning.
- 2) If warning does not disappear, follow the instructions below :
 - a) Does finisher main tray input sensor (Standby & Home sensor) work well?
 - i) Make sure finisher input sensor cable is connected well to the sensor connector.
 - ii) Make sure finisher input sensor cable is connected well to the main board connector.
 - iii) Replace the finisher input sensor(*JC81-09686A*).

(Refer to 3.3.34.1 Finisher Main Motor)

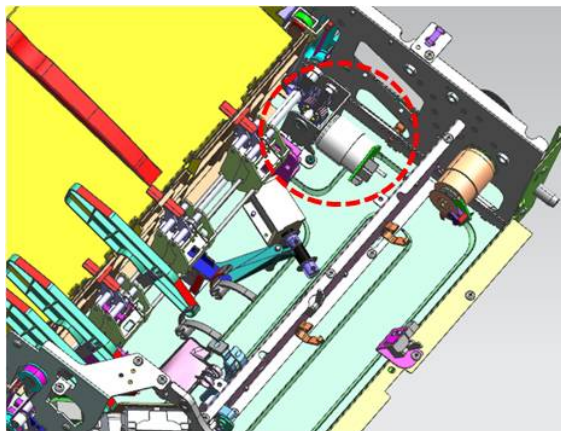


- iv) Replace the finisher main board(*JC81-09692A*).

(Refer to 3.3.34.2. Finisher Board)

- b) Does finisher main tray motor work well?
 - i) Make sure finisher main tray motor cable is connected well to the main tray motor connector.
 - ii) Make sure finisher main tray motor cable is connected well to the main board connector.
 - iii) Replace the finisher main tray motor(*JC81-09679A*).

(Refer to 3.3.34.1 Finisher Main Motor)



iv) Replace the finisher main board(*JC81-09692A*).

(Refer to 3.3.34.2. Finisher Board)

c) Check if any debris (staple) is present. Please make sure to remove any debris.

► **Error Code**

H2-6736 ~ H2-6743

► **Error message**

Finisher Failure: #H2-67xx. Check finisher

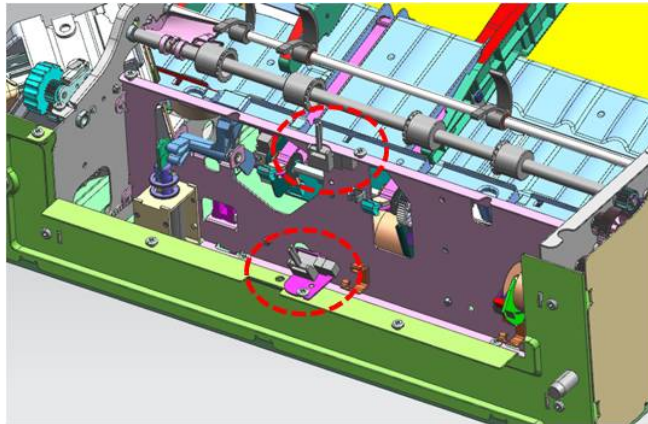
► **Symptom**

Main Tray does not move to or leave home position.

► **Troubleshooting method**

- 1) If there is jammed paper on the Main Tray, removing paper manually. Open and close finisher stapler door or jam cover to check if finisher executes initialization process.
- 2) If Main Tray still doesn't go back to home position and error does not disappear, follow the instructions below:
 - a) Does finisher input sensor (Standby & Home sensor) work well?
 - i) Make sure finisher input sensor cable is connected well to the sensor connector.
 - ii) Make sure finisher input sensor cable is connected well to the main board connector.
 - iii) Replace the finisher input sensor(*JC81-09686A*).

(Refer to 3.3.34.1 Finisher Main Motor)



- iv) Replace the finisher main board(*JC81-09692A*).

(Refer to 3.3.34.2. Finisher Board)

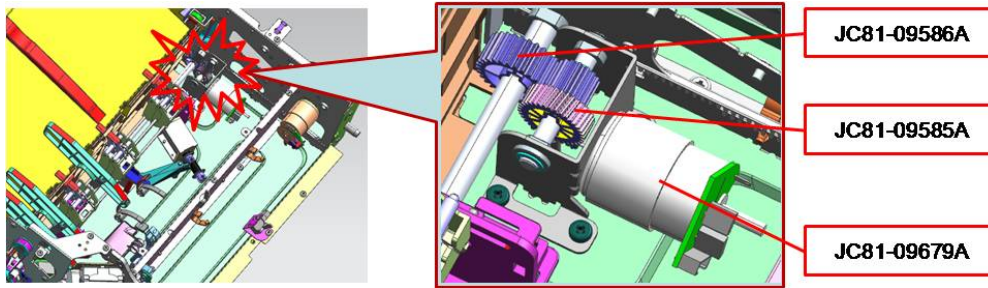
- b) Does finisher Main Tray motor work well?
 - i) Make sure finisher Main Tray motor cable is connected well to the motor connector.
 - ii) Make sure finisher Main Tray motor cable is connected well to the main board connector.
 - iii) Replace the finisher Main Tray motor(*JC81-09679A*).

(Refer to 3.3.34.1 Finisher Main Motor)

 - iv) Replace the finisher main board(*JC81-09692A*).

(Refer to 3.3.34.2. Finisher Board)
- c) Do finisher Main Tray parts work well?
 - i) Make sure Main Tray parts can move or rotate smoothly.
 - ii) Make sure there are no mechanical interference to stop moving or rotating.
 - iii) Make sure the belt is tight in the correct position, if it has a belt.
- d) Does finisher Main Tray motor gear set work well?
 - i) Make sure gear set can rotate smoothly.
 - ii) Make sure each gear is not broken.

iii) Replace the gear set(*JC81-9585A / JC81-09586A*).



e) Check if any debris is present. Please make sure to remove any debris.

► **Error Code**

H2-6744

► **Error message**

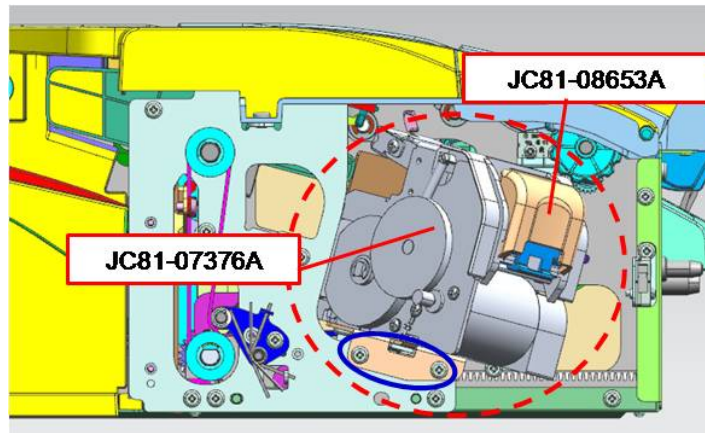
Staple Cartridge not install. Install it.

► **Symptom**

Finisher stapler cartridge is not installed into stapler.

► **Troubleshooting method**

- 1) Open finisher stapler door to put cartridge into stapler and then close door. Self-Priming will be execute automatically if necessary.
- 2) If stapler warning does not disappear, follow the instructions below :
 - a) Does finisher stapler input sensor work well?
 - i) Make sure finisher input sensor cable is connected well to the sensor connector.
 - ii) Make sure finisher input sensor cable is connected well to the main board connector.
 - iii) Replace the finisher stapler cartridge(JC81-08653A).



- iv) Replace the finisher stapler(JC81-07376A).
- v) Replace the finisher main board(JC81-09692A).
(Refer to 3.3.34.2. Finisher Board)
- b) Check if any debris is present. Please make sure to remove any debris.

▶ **Error Code**

H2-6A50

▶ **Error message**

Finisher Failure: #H2-6A50. Check finisher.

▶ **Symptom**

Communication error with finisher has occurred.

▶ **Troubleshooting method**

- 1) Copier power off and power on. If the error does not disappear, follow the instructions below:
- 2) Does finisher work well?
 - a) Make sure finisher interface cable is connected with main board.
 - b) Replace the finisher main board(*JC81-09692A*).

(Refer to 3.3.34.2. Finisher Board)

▶ **Error Code**

H2-6A63

▶ **Error message**

Finisher Failure: #H2-6A63. Check finisher.

▶ **Symptom**

Finisher stapler cartridge is not installed into stapler or Staples are empty.

▶ **Troubleshooting method**

- 1) Replace the finisher stapler(*JC81-07376A*).

4.5.5. Mx-xxxx type error code

► **Error Code**

M1-1113

M2-1121

► **Error message**

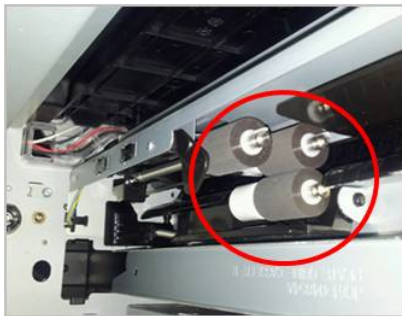
Paper jam in Tray 1.

► **Symptom**

Paper jam has occurred in tray1.

► **Troubleshooting method**

- 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([JC93-00540A](#)).
(Refer to 3.2.5. Pickup Reverse Forward roller)
- 4) If the problem persists, check the pickup unit1 and feed sensor.
 - a) Check if the pickup unit1 and feed sensor operate correctly.
 - b) Check if the pickup unit1 harness is connected to the main board correctly.

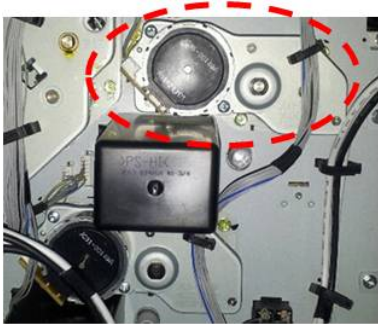


- c) Check if the connector of the Guide-feed assembly is connected correctly.
 - d) Check if the harness of pickup unit and feed sensor are connected correctly.
- 5) If the problem persists, check the pickup unit1.
 - a) Remove the pickup unit and check the actuator and photo-sensor.

- b) Push the pickup-lever and check if it operates correctly.



- 6) If the problem persists, replace the pickup drive unit([JC93-00422A](#)) or Pickup unit1([JC93-00511A](#)).
(Refer to 3.3.15. Pick-up Drive unit)



- (Refer to 3.3.24. Pick-up Unit and Sensor)**

► **Error Code**

M1-1213

M2-1131

► **Error message**

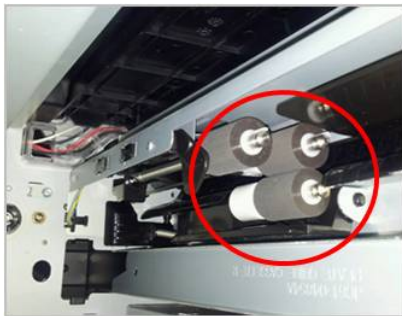
Paper jam in Tray 2.

► **Symptom**

Paper jam has occurred in tray2.

► **Troubleshooting method**

- 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 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([JC93-00540A](#)).
(Refer to 3.2.5. Pickup Reverse Forward roller)
- 4) If the problem persists, check the pickup unit2 and feed sensor.
 - a) Check if the pickup unit2 and feed sensor operate correctly.
 - b) Check if the pickup unit2 harness is connected to the main board correctly.

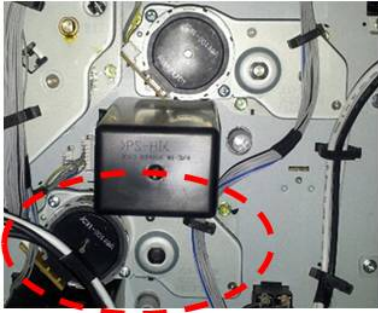


- c) Check if the connector of the Guide-feed assembly is connected correctly.
 - d) Check if the harness of pickup unit and feed sensor are connected correctly.
 - e)
- 5) If the problem persists, check the pickup unit2.
 - a) Remove the pickup unit2 and check the actuator and photo-sensor.

- b) Push the pickup-lever and check if it operates correctly.



- 6) If the problem persists, replace the pickup drive unit2([JC93-00422A](#)) or Pickup unit1([JC93-00512A](#)).
(Refer to 3.3.15. Pick-up Drive unit)



- (Refer to 3.3.24. Pick-up Unit and Sensor)**

▶ **Error Code**

M1-1610

▶ **Error message**

Paper jam in MP Tray.

▶ **Symptom**

Paper jam has occurred in MP tray.

▶ **Troubleshooting method**

- 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.

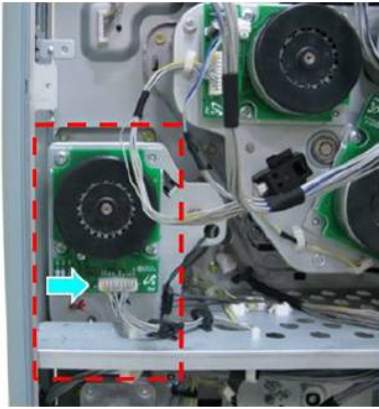


- a) Check if MP pick up/ reverse/ forward rollers are assembled correctly.
- b) If the MP pick up/ reverse/ forward rollers are worn out or contaminated, replace the defective roller([JC93-00540A](#)).

(Refer to 3.2.2.8. MP Pick up Reverse Forward roller)

- 3) If the problem persists, check if the MP solenoid operates correctly.
 - a) Enter SVC mode. Execute MP solenoid test.
(Diagnostics > Engine Diagnostics > Engine Test Routines > 101-0271)
 - 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([JC33-00029B](#)).
- 4) If the problem persists, check the Regi/MPdrive unit.
 - a) Enter SVC mode. Execute Regi./MP motor test.
(Diagnostics > Engine Diagnostics > Engine Test Routines > 100-0000)
 - b) Remove the rear cover.
 - c) Check if the motor harness is connected correctly.

- d) If the problem occurs, replace the Regi/MP Drive Unit([JC93-00443A](#)).



(Refer to 3.3.17. Regi_MP Drive unit)

▶ 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

- 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.

(Refer to 3.3.20. Auto Size sensor)

- 5) If the problem persists, replace the main board([JC92-02452A](#)).

▶ **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**

- 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.

(Refer to 3.3.20. Auto Size sensor)



- 5) If the problem persists, replace the main board([JC92-02452A](#)).

► **Error Code**

M1-4111

► **Error message**

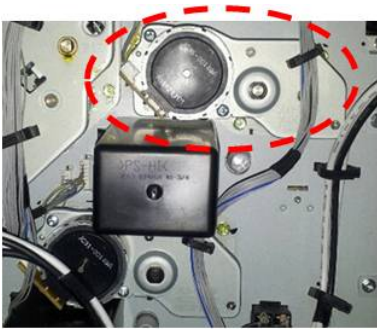
Input System Failure #M1-4111 : Pull Tray 1 out and insert it.

► **Symptom**

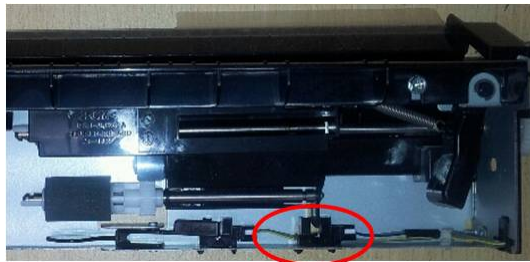
The paper is not fed from tray1.

► **Troubleshooting method**

- 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 > 100-0370)
- 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([JC93-00442A](#)).
(Refer to 3.3.15. Pick-up Drive Unit)
- 8) If the problem persists, check the pickup unit1.
(Refer to 3.3.24. Pick-Up Unit and Sensor)
 - a) Check if the photo sensor in the pickup unit1 is defective.



- b) If the sensor([0604-001393](#)) is defective, replace it.

► **Error Code**

M1-4211

► **Error message**

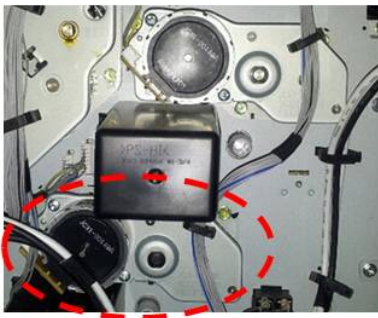
Input System Failure #M1-4211 : Pull Tray 2 out and insert it.

► **Symptom**

The paper is not fed from tray2.

► **Troubleshooting method**

- 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 > 100-0380)
- 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([JC93-00442A](#)).
(Refer to 3.3.15. Pick-up Drive Unit)
- 8) If the problem persists, check the pickup unit2.
(Refer to 3.3.24. Pick-Up Unit and Sensor)
 - a) Check if the photo sensor in the pickup unit2 is defective.



- b) If the sensor([0604-001393](#)) is defective, replace it.

▶ Error Code

M1-5111

M1-5112

▶ Error message

Paper is low in Tray 1. Load paper.

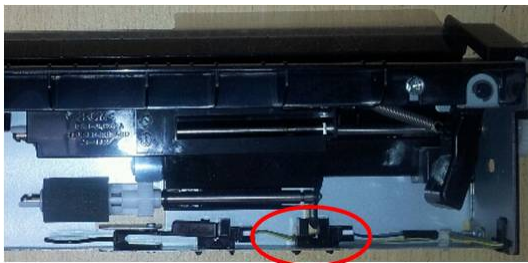
Paper is empty in Tray 1. Load paper.

▶ Symptom

Paper in the tray1 is less than 10%. / The photo sensor is defective.

▶ Troubleshooting method

- 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.
(Refer to 3.3.24. Pick-Up Unit and Sensor)
 - c) If the photo sensor is contaminated, clean it.



- d) If the photo sensor is defective, replace it([0604-001393](#)).
- e) If the actuator is defective, replace it([JC66-03199A](#)).

▶ **Error Code**

M1-5211

M1-5212

▶ **Error message**

Paper is low in Tray 2. Load paper.

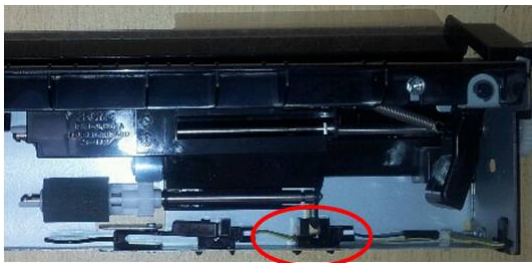
Paper is empty in Tray 2. Load paper.

▶ **Symptom**

Paper in the tray is less than 10% of specification. / The photo sensor is defective.

▶ **Troubleshooting method**

- 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.
(Refer to 3.3.24. Pick-Up Unit and Sensor)
 - c) If the photo sensor is contaminated, clean it.



- d) If the photo sensor is defective, replace it([0604-001393](#)).
- e) If the actuator is defective, replace it([JC66-03199A](#)).

▶ 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

- 1) Load the paper in the MP tray.
- 2) If paper is loaded but error message has not disappeared, check the following :

(Refer to 3.3.22.3. MP unit)

- a) If the photo sensor is contaminated, clean it.



- b) If the photo sensor is defective, replace it([0604-001393](#)).



- c) If the actuator is defective, replace it([JC66-03217A](#)).

▶ **Error Code**

M2-1124

M2-1125

▶ **Error message**

Paper jam inside of machine.

▶ **Symptom**

Paper jam has occurred inside the machine. (Feed drive unit is defective / Feed 1 sensor is defective.)

▶ **Troubleshooting method**

- 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 feed motor test. If the motor operation is normal, go to step d).
- b) Remove the rear cover. Check if the feed motor cable is connected correctly.
- c) If the connection is OK, replace the feed drive unit([JC93-00444A](#)).

(Refer to 3.3.16. Feed Drive unit)



d) If the feed motor operation is normal, check the feed 1 sensor.

e) If the sensor operation is abnormal, check the harness.



f) If the connection is OK, replace the feed sensor([0604-001381](#)).

(Refer to 3.3.25. Feed sensor)

▶ **Error Code**

M2-1134

M2-1135

▶ **Error message**

Paper jam inside of machine.

▶ **Symptom**

Paper jam has occurred inside the machine. (Feed drive unit is defective / Feed 2 sensor is defective.)

▶ **Troubleshooting method**

- 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 feed motor test. If the motor operation is normal, go to step d).
 - b) Remove the rear cover. Check if the feed motor cable is connected correctly.
 - c) If the connection is OK, replace the feed drive unit([JC93-00444A](#)).

(Refer to 3.3.16. Feed Drive unit)



- d) If the feed motor operation is normal, check the feed 2 sensor.
- e) If the sensor operation is abnormal, check the harness.



- f) If the connection is OK, replace the feed sensor 2 ([0604-001381](#)).

(Refer to 3.3.26. Feed Unit)

▶ **Error Code**

M2-1211

M2-1213

M2-1214

▶ **Error message**

Paper jam inside of machine.

▶ **Symptom**

Paper jam has occurred inside the machine. (Regi. roller drive is defective / Regi. sensor is defective.)

▶ **Troubleshooting method**

- 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 Regi. motor test. If the motor operation is normal, go to step d).
- b) Remove the rear cover. Check if the Regi./MP motor cable is connected correctly.
- c) If the connection is OK, replace the Regi./MP drive unit(*JC93-00443A*).

(Refer to 3.3.16. Regi./MP Drive unit)



d) If the motor operation is normal, check the regi. sensor.

e) If the sensor operation is abnormal, check the harness.



f) If the connection is OK, replace the regi. sensor (*0604-001381*).

(Refer to 3.3.27. Registration Unit)

▶ Error Code

M2-1331

M2-1333

M2-1334

M2-2111

M2-2113

M2-2114

▶ 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

- 1) Open the side cover. Remove jammed paper.
- 2) If the problem persists, check the following:
 - a) Check the Regi sensor harness. If the harness is normal, replace the Regi. sensor ([0604-001381](#)).
(Refer to 3.3.27. Registration Unit)
 - b) Check the sensors in the Side Unit. If the harness is normal, replace the defective sensor ([0604-001393](#)).
(Refer to 3.3.22.1. Fuser out sensor / 3.3.22.2. Duplex sensor and Curl sensor)

► Error Code

M3-1411

► Error message

Paper jam in exit area.

► Symptom

Paper jam has occurred around the fuser unit. (At power-on / warm up, the machine detected paper jam in Inner tray Exit Sensor.)

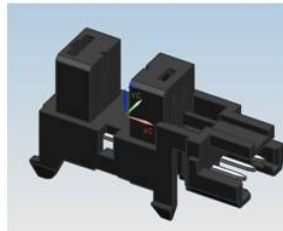
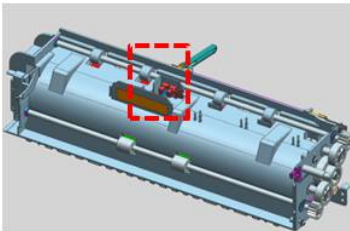
► Troubleshooting method

- M3-1413 : The leading edge of the paper has not reached the feed 1 sensor within the specified time.
- M3-1414 : The paper has not left from the feed 1 sensor within the specified time.

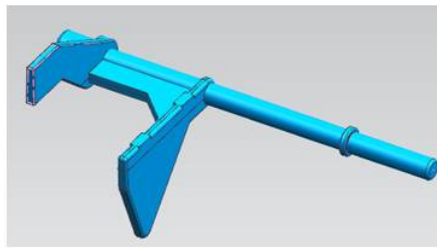
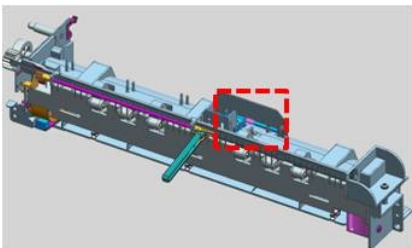
- 1) Open the side cover. Remove jammed paper.
- 2) If the problem persists, check the following:
 - a) Open the side cover. Check if the connector is connected correctly.



- b) Remove the JOB-SEPARATOR. Check if the photo sensor is assembled correctly.



- c) Check if ACTUATOR-EXIT is assembled correctly. If the ACTUATOR-EXIT ([JC66-02533A](#)) is deformed or broken, replace it.



- d) If the photo sensor ([0604-001393](#)) is defective, replace it.

► **Error Code**

M3-1413

M3-1414

► **Error message**

Paper jam in exit area.

► **Symptom**

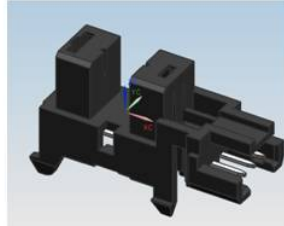
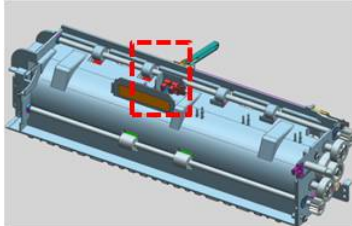
Paper jam has occurred around the fuser unit.(Job separator connection is defective. / Actuator-Exit is defective.)

► **Troubleshooting method**

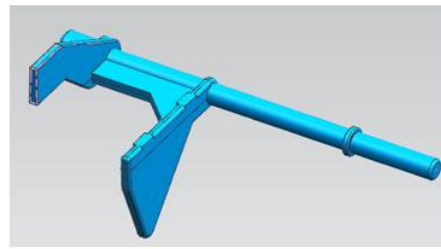
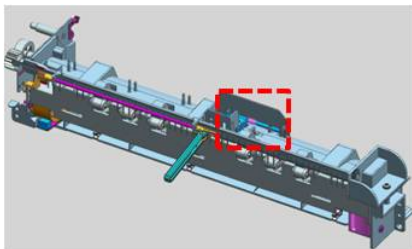
- 1) Open the side cover. Remove the jammed paper.
- 2) If the problem persists, check the following:
 - a) Open the side cover. Check if the connector is connected properly.



- b) Remove the JOB-SEPARATOR. Check if the photo sensor is assembled correctly.



- c) Check if ACTUATOR-EXIT is assembled correctly. If the ACTUATOR-EXIT ([JC66-02533A](#)) is deformed or broken, replace it.



- d) If the photo sensor([0604-001393](#)) 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.

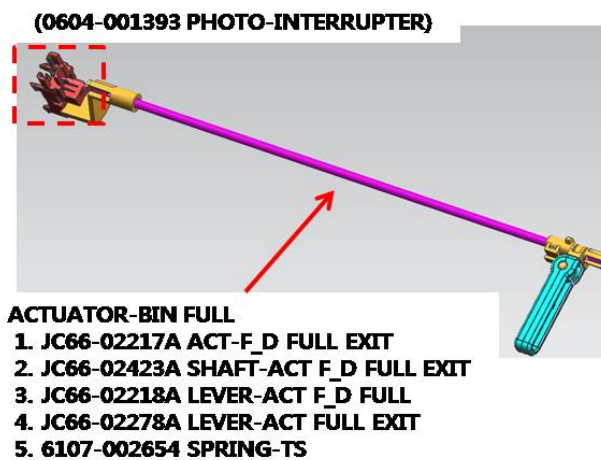
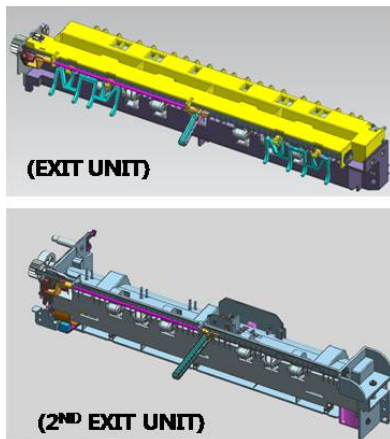
▶ **Troubleshooting method**

- 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(0604-001393) is defective.

4.5.6. Sx-xxxx type error code

▶ **Error Code**

S1-1113

▶ **Error message**

Video System Failure #S1-1113: Turn off then on.

▶ **Symptom**

The system has some problems due to CPU overheating.

▶ **Troubleshooting method**

- 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.
(Refer to 3.3.2 Rear Cover)
- 5) Replace the main board(*JC92-02429A*).
(Refer to 3.3.7 Main Board)



Insert the MSOK to the new main board.

- 6) Assemble the rear cover. Turn the machine on.

▶ **Error Code**

S1-1313

▶ **Error message**

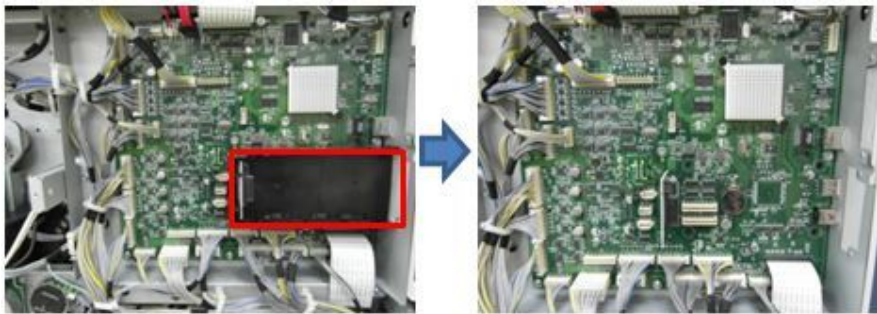
The clock became initial time. Set a time again.

▶ **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.
(Refer to 3.3.2 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([JC92-02429A](#)).

▶ 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

- 1) Turn the machine off then on.
- 2) If the problem persists, turn the machine off again.
- 3) Remove the rear cover.
(Refer to 3.3.2 Rear Cover)
- 4) Replace the main board([JC92-02429A](#)).
(Refer to 3.3.7 Main Board)



Insert the MSOK to the new main board.

- 5) Assemble the rear cover. Turn the machine on.

▶ **Error Code**

S1-2411

S1-2421

S1-2422

▶ **Error message**

HDD System Failure #S1-2411: Turn off then on.

HDD System Failure #S1-2421: Turn off then on.

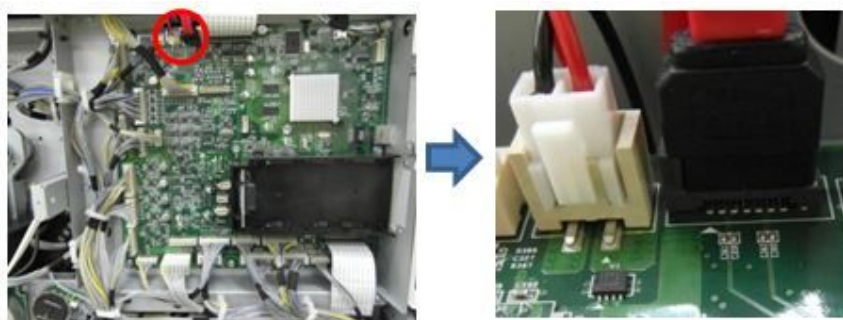
HDD System Failure #S1-2422: Turn off then on.

▶ **Symptom**

Hard Disk is not installed in the machine. / Hard Disk is defective.

▶ **Troubleshooting method**

- 1) Check if the HDD is installed correctly.
 - a) Remove the rear cover.
(Refer to 3.3.2 Rear Cover)
 - b) Check if the HDD cable is connected correctly.



- 2) If the problem persists, replace the HDD(*JC59-00035A*).
(Refer to 3.3.32 HDD)

▶ Error Code

S1-2433

S1-2443

S1-2444

S1-2445

S1-2446

S1-2447

S1-2448

S1-2449

▶ Error message

HDD System Failure #S1-2433: Turn off then on.

HDD System Failure #S1-2443: Turn off then on.

HDD System Failure #S1-2444: Turn off then on.

HDD System Failure #S1-2445: Turn off then on.

HDD System Failure #S1-2446: Turn off then on.

HDD System Failure #S1-2447: Turn off then on.

HDD System Failure #S1-2448: Turn off then on.

HDD System Failure #S1-2449: Turn off then on.

▶ Symptom

HDD partition is full or corrupted.

▶ Troubleshooting method

- 1) Enter SVC mode. Select "System Recovery" in Service Function menu.
(Refer to 4.4.6.8 System Recovery)
- 2) Execute hard disk format and firmware re-installation.
(Refer to 4.3. Updating Firmware)
- 3) If the problem persists, replace the HDD([JC59-00035A](#)).
(Refer to 3.3.32 HDD)

▶ Error Code

S1-2434

S1-2435

S1-2436

S1-2437

S1-2438

S1-2439

▶ Error message

HDD Error #S1-2434. Check users guide.

HDD Error #S1-2435. Check users guide.

HDD Error #S1-2436. Check users guide.

HDD Error #S1-2437. Check users guide.

HDD Error #S1-2438. Check users guide.

HDD Error #S1-2439. Check users guide.

▶ Symptom

HDD partition or memory is full.

▶ Troubleshooting method



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.

(Refer to 4.4.6.2 Hard Disk Maintenance)

2) Execute hard disk format.

3) If the problem persists, replace the HDD(*JC59-00035A*).

(Refer to 3.3.32 HDD)

▶ Error Code

S1-2510

S1-2511

S1-2520

S1-2521

S1-2523

S1-2540

▶ Error message

MSOK System Failure #S1-2510: Turn off then on.

MSOK System Failure #S1-2511: Turn off then on.

MSOK Failure: #S1-2520. Call for service.

MSOK Failure: #S1-2521. Call for service

PPM data is incorrect. Call for service & change MSOK

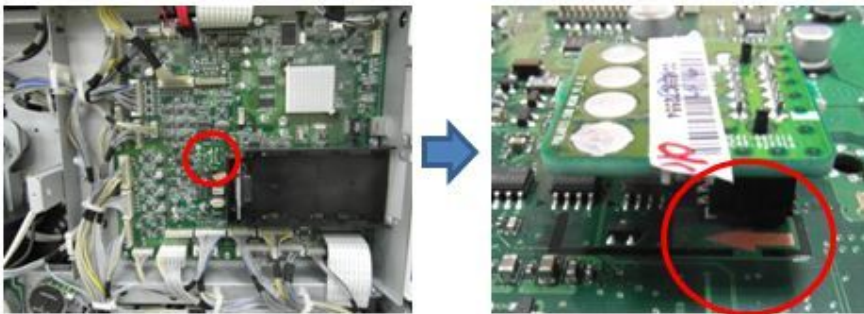
MSOK Failure: #S1-2540. Call for service & change MSOK

▶ Symptom

MSOK is not installed properly. / MSOK is defective.

▶ Troubleshooting method

- 1) Remove the rear cover.
(Refer to 3.3.2 Rear Cover)
- 2) Check if the MSOK is inserted correctly. Remove and reinstall it.



- 3) If the problem persists, replace the main board([JC92-02429A](#)).
(Refer to 3.3.7 Main Board)

▶ **Error Code**

S1-3110

▶ **Error message**

Video System Failure #S1-3110: Turn off then on.

▶ **Symptom**

The main board is defective.

▶ **Troubleshooting method**

- 1) Turn the machine off then on.
- 2) If the problem persists, turn the machine off again.
- 3) Replace the main board([JC92-02429A](#)).
- 4) Turn the machine on.

▶ **Error Code**

S1-4111

▶ **Error message**

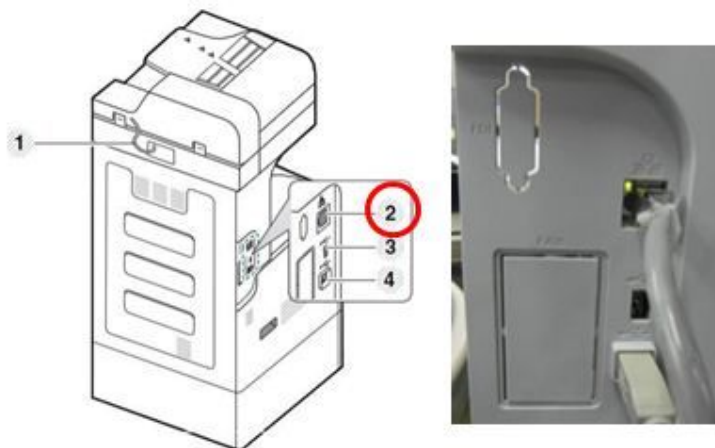
Video System Failure #S1-4111: Turn off then on.

▶ **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([JC92-02429A](#)).
(Refer to [3.3.7 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

- 1) Turn the machine off then on.
- 2) If the problem persists, turn the machine off again.
- 3) Remove and disassemble the OPE unit.
(Refer to 3.3.6 OPE Unit)
- 4) Replace the OPE main board([JC92-02436A](#)).
- 5) Assemble the OPE unit.
- 6) Turn the machine on.

▶ Error Code

S1-5521

▶ Error message

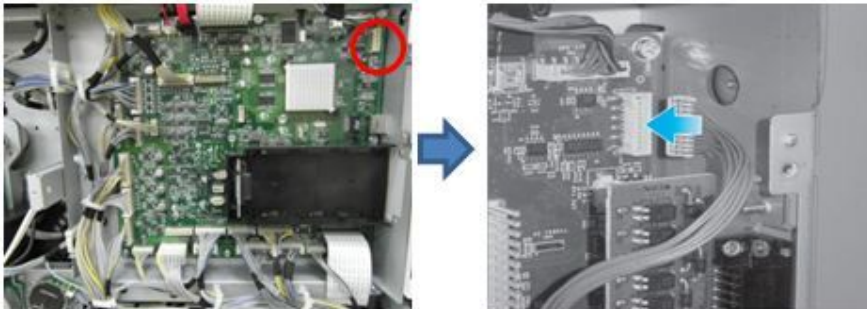
FDI device is not installed. Install the device.

▶ Symptom

The machine can't detect the FDI device.

▶ Troubleshooting method

- 1) Install the FDI device.
- 2) If the FDI device is already installed, update the firmware for main board.
(Refer to 4.3. Updating Firmware)
- 3) Remove the rear cover.
(Refer to 3.3.2 Rear Cover)
- 4) Check the connection between FDI device and main board.



- 5) If the FDI device([CLX-KIT10F](#)) is defective, replace it..
- 6) If the problem persists, replace the main board([JC92-02429A](#)).

▶ Error Code

S2-1211

S2-2311

S2-3110

▶ Error message

Engine System Failure: #S2-1211. Turn off then on

Engine System Failure: #S2-2311. Turn off then on

Engine System Failure: #S2-3110. Turn off then on

▶ Symptom

The main board is defective.

▶ Troubleshooting method

- 1) Turn the machine off then on.
- 2) If the problem persists, turn the machine off again.
- 3) Replace the main board([JC92-02429A](#)).
- 4) Turn the machine on.

▶ Error Code

S2-3114

▶ Error message

Engine System Failure #S2-3114: Turn off then on.

▶ Symptom

ACR error has occurred.

▶ Troubleshooting method

- 1) Execute “ACR calibration” manually.
(**Machine Setup > General Settings > Image Management > Auto Color Registration**)
- 2) Clean the ACR sensor.
(**Refer to 3.2.1.1. Cleaning the ACR/CTD sensor window**)
- 3) If the problem persists, replace the main board([JC92-02429A](#)).

▶ **Error Code**

S2-4210

▶ **Error message**

Front door is open. Close it.

▶ **Symptom**

Front cover or Side cover is opened.

▶ **Troubleshooting method**

- 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.

(Refer to 3.3.30. Side Cover Open Switch.)

▶ Error Code

S2-4410

▶ Error message

Right door is open. Close it.

▶ Symptom

Front cover or Side cover is opened.

▶ Troubleshooting method

- 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.

(Refer to 3.3.31. Front Cover Open Switch.)

▶ Error Code

S2-5111 / S2-5112 / S2-5120 / S2-5131 / S2-5132 / S2-5133 / S2-5135 / S2-5136 / S2-5161 / S2-5164 / S2-5210 / S2-5240

▶ Error message

Failed to adjust the color registration

▶ Symptom

ACR execution is failed.

▶ Troubleshooting method

- 1) Turn the machine off then on.
- 2) If the problem persists, check the followings.
 - Check if the ACR sensor is contaminated or defective. Clean the ACR sensor or replace it.
 - Remove and reinstall the ITB unit. If the problem persists, replace the ITB unit.

▶ **Error Code**

S3-3121

▶ **Error message**

Scanner is locked.

▶ **Symptom**

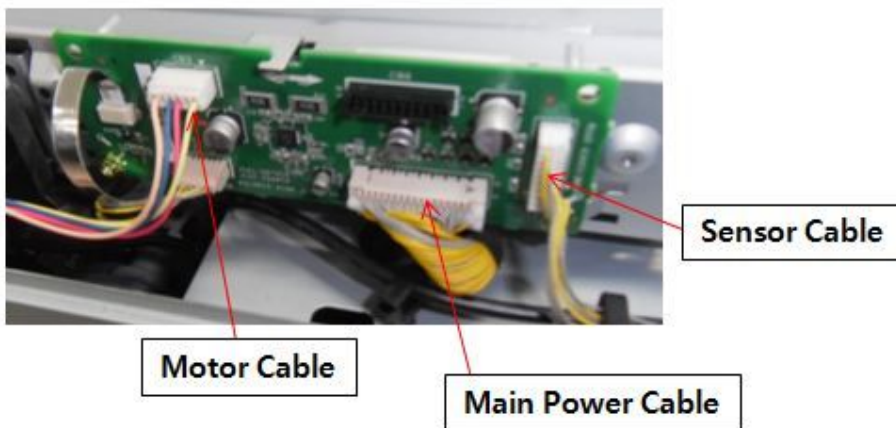
Scanner module does not move.

▶ **Troubleshooting method**

- 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.
(Refer to 3.3.29.2. 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([JC92-02447A](#)).
(Refer to 3.3.29.1. Scanner joint board)

▶ Error Code

S3-3211

▶ Error message

Scan System Failure #S3-3211: Turn off then on.

▶ Symptom

DADF is not connected or communication error occurs with CIP6 board.

▶ Troubleshooting method

- 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 DADF rear cover. Check if the connector on DADF board is connected correctly.
(Refer to 3.3.28.4. DADF main board)



- 5) If the connection is OK, replace the DADF board([JC92-02446A](#)).

▶ **Error Code**

S4-3111

▶ **Error message**

Fax System Failure: #S4-3111. Install fax modem card again

▶ **Symptom**

Fax card is not installed properly. / Fax card is defective.

▶ **Troubleshooting method**

- 1) Remove and reinstall the fax card.
- 2) If the fax card is defective, replace it.

▶ Error Code

S5-3111

▶ Error message

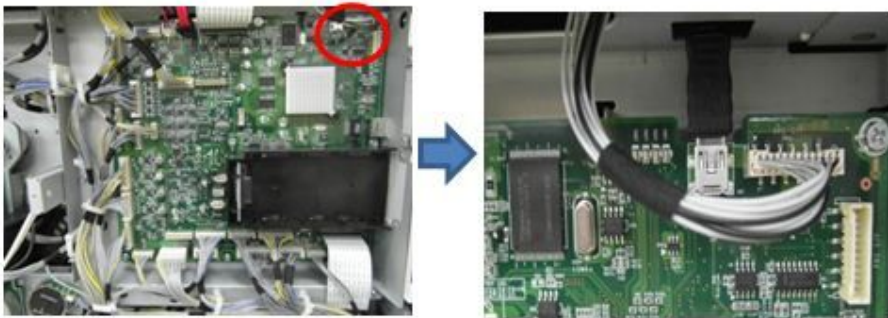
UI System Failure #S5-3111: Turn off then on.

▶ Symptom

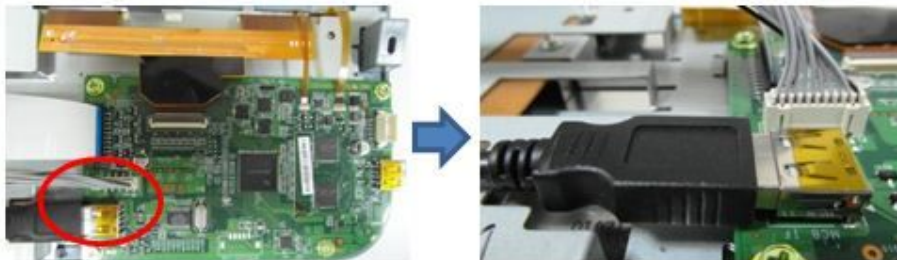
Communication error between main board and OPE board has occurred.

▶ Troubleshooting method

- 1) Remove the rear cover.
(Refer to 3.3.2 Rear Cover)
- 2) Check if the OPE cable is connected to the main board correctly.



- 3) Remove and disassemble the OPE Unit.
(Refer to 3.3.6 OPE Unit)
- 4) Check if the OPE cable is connected to the OPE board correctly.



- 5) If the connection is OK, replace the main board(JC92-02429A).

▶ **Error Code**

S6-3122

▶ **Error message**

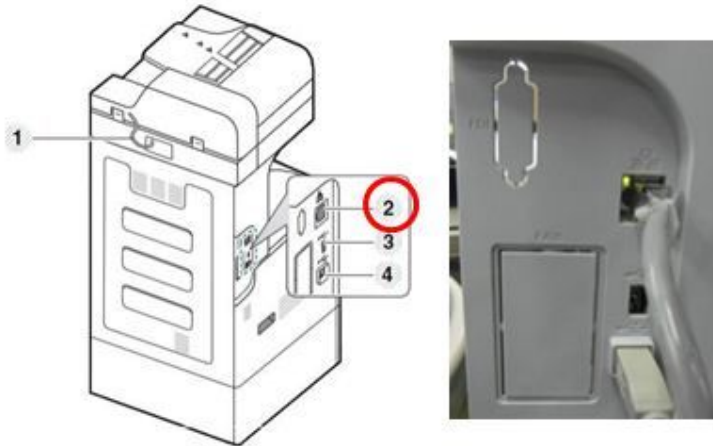
Network cable is disconnected. Check it.

▶ **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([JC92-02429A](#)).
(Refer to 3.3.7 Main Board)

▶ Error Code

S6-3123

S6-3128

S6-3229

S6-322A

▶ Error message

This IP address conflicts with that of other system. Check it.

802.1x authentication failed. Please Contact the System Administrator.

The IPv4 address assigned to wireless LAN conflicts with that of other system. Check it.

The IPv6 address assigned to wireless LAN conflicts with that of other system. Check it.

▶ 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**

S6-3224

S6-3225

S6-3226

S6-3227

▶ **Error message**

This IP address conflicts with that of other system. Check it.

802.1x authentication failed. Please Contact the System Administrator.

▶ **Symptom**

BOOTP or DHCP server has a problem or IP address assignment is abnormal.

▶ **Troubleshooting method**

- Check the BOOTP or DHCP server.
- If the server is normal, check the network setting.

▶ **Error Code**

S7-1110

▶ **Error message**

Engine System Failure: #S7-1110. Turn off then on

▶ **Symptom**

24V power is abnormal.

▶ **Troubleshooting method**

- 1) Check the 24V pin on SMPS board. If it is abnormal, replace the SMPS board.
- 2) Check the related cable.
- 3) If the SMPS is normal, replace the main board.

▶ **Error Code**

S7-2110

▶ **Error message**

Fuser Failure: #S7-2110. Turn off then on

▶ **Symptom**

Heater control relay is abnormal.

▶ **Troubleshooting method**

- 1) Turn the machine off. Re-install the fuser unit, then turn the machine on.
- 2) If the problem persists, replace the Fuser unit(*110V : JC91-01064A, 220V : JC91-01063A*).

(Refer to 3.2.2.5 Fuser unit)

4.5.7. U1-xxxx type (Fuser) error code

▶ **Error Code**

U1-2113

U1-2119

▶ **Error message**

Fuser Unit Failure: #U1-2113.

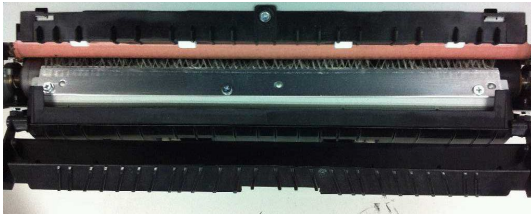
Fuser Unit Failure: #U1-2119.

▶ **Symptom**

The thermistor can't measure temperature. The hear-roller will not heat-up.

▶ **Troubleshooting method**

- 1) Turn the machine off. Re-install the fuser unit, then turn the machine on.
(Refer to 3.2.2 Fuser unit)
- 2) Remove the fuser unit. After opening the jam cover, check if jammed or wrapped paper is in the fuser unit.



- 3) If the problem persists, check the following :

(Refer to 3.3.23. Fuser unit)

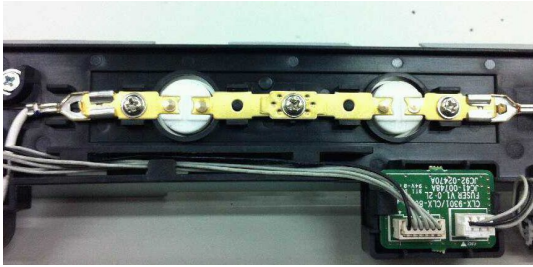
- a) Check if the Halogen lamp (*110V : 4713-001630 / 220V : 4713-001631*) is broken or disconnected.
- b) Check if the AC connection of the Halogen lamp is disconnected or contaminated.



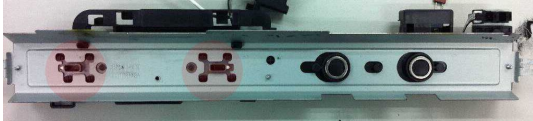
Red or Blue	Black
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4. Troubleshooting

- c) Check if the thermostat(4712-001098) is disconnected.



- d) Check if the non-contact type thermistor(1404-001453)is broken.



- 4) If the problem persists, replace the Fuser unit(110V : JC91-01064A, 220V : JC91-01063A).
- 5) If the problem persists, replace the Main board(JC92-02429A) or FDB board(110V : JC44-00210A, 220V : JC44-00211A), SMPS(110V : JC44-00093A, 220V : JC44-00100A)

▶ 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

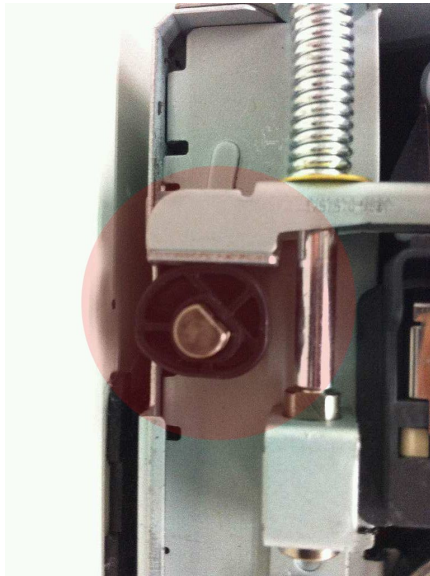
- 1) Turn the machine off. Re-install the fuser unit, then turn the machine on.

(Refer to 3.2.2. Fuser Unit)

- 2) If the problem persists, check the following :

(Refer to 3.3.23. Fuser Unit)

- 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([JC66-03299A](#)) is broken.
 - Check if there are abnormal parts of the pressure control unit.



- c) Check if the fuser-motor is abnormal via SVC mode.

(Diagnostics > Engine Diagnostics > Engine Test Routines > 109-0140)

- 3) If the problem persists, replace the Fuser unit([110V : JC91-01064A](#), [220V : JC91-01063A](#))
- 4) If the problem persists, replace the pressure control unit or cam-motor or Main board([JC92-02452A](#)).

▶ **Error Code**

U1-2132

U1-2135

▶ **Error message**

Fuser Unit Failure: #U1-2132.

Fuser Unit Failure: #U1-2135.

▶ **Symptom**

Temperature of the fuser increases abnormally.

▶ **Troubleshooting method**

- 1) Turn the machine off. Re-install the fuser unit, then turn the machine on.

(Refer to 3.2.2. Fuser unit)

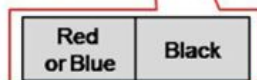
- 2) Check if the power voltage is normal. (Is the voltage during the operation $\pm 10\%$ of the rated voltage?)
- 3) Remove the fuser unit. After opening the jam cover, check if jammed or wrapped paper is in the fuser unit.



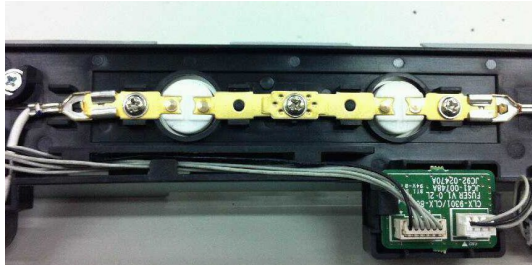
- 4) If the problem persists, Check the following :

(Refer to 3.3.23. Fuser unit)

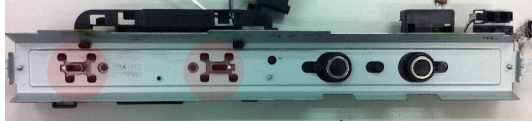
- a) Check if the Halogen lamp (*110V : 4713-001630 / 220V : 4713-001631*) is broken or disconnected.
- b) Check if the AC connection of the Halogen lamp is disconnected or contaminated.



- c) Check if the thermostat(4712-001098) is disconnected.



- d) Check if the non-contact type thermistor(1404-001453) is broken.



- 5) If the problem persists, replace the Fuser unit(110V : JC91-01064A, 220V : JC91-01063A).
- 6) If the problem persists, replace the Main board(JC92-02429A) or FDB board(110V : JC44-00210A, 220V : JC44-00211A), SMPS(110V : JC44-00093A, 220V : JC44-00100A)

▶ **Error Code**

U1-2141

U1-2142

▶ **Error message**

Fuser Unit Failure: #U1-2141.

Fuser Unit Failure: #U1-2142.

▶ **Symptom**

Temperature of the thermistor is higher than the maximum allowable temperature.

▶ **Troubleshooting method**

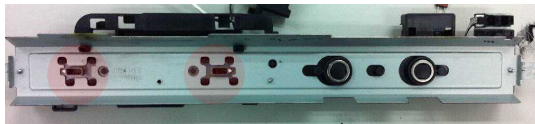
- 1) Turn the machine off. Re-install the fuser unit, then turn the machine on.
(Refer to 3.2.2. Fuser unit)
- 2) Check if the power voltage is normal. (Is the voltage during the operation $\pm 10\%$ of the rated voltage?)
- 3) Remove the fuser unit. After opening the jam cover, check if jammed or wrapped paper is in the fuser unit.



- 4) If the problem persists, Check the following :

(Refer to 3.3.23. Fuser unit)

- a) Check if the non-contact type thermistor(1404-001453) is broken.



- 5) If the problem persists, replace the Fuser unit(110V : JC91-01064A, 220V : JC91-01063A).
- 6) If the problem persists, replace the Main board(JC92-02429A) or FDB board(110V : JC44-00210A, 220V : JC44-00211A), SMPS(110V : JC44-00093A, 220V : JC44-00100A)

► **Error Code**

U1-2316

U1-2317

► **Error message**

Fuser Unit Failure: #U1-2316.

Fuser Unit Failure: #U1-2317.

► **Symptom**

Temperature of the fuser changes abnormally.

► **Troubleshooting method**

- 1) Turn the machine off. Re-install the fuser unit, then turn the machine on.

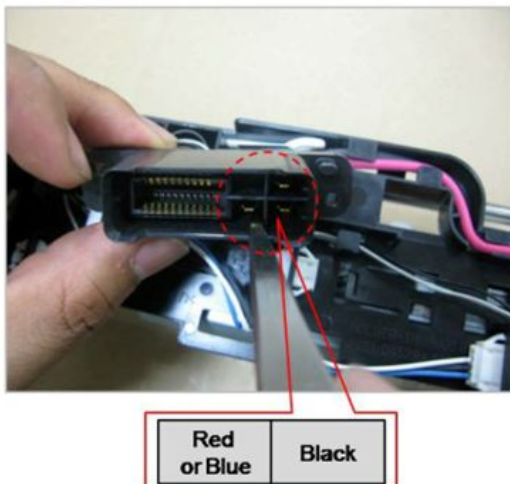
(Refer to 3.2.2. Fuser unit)

- 2) Check if the power voltage is normal. (Is the voltage during the operation $\pm 10\%$ of the rated voltage?)

- 3) If the problem persists, Check the following :

(Refer to 3.3.23. Fuser unit)

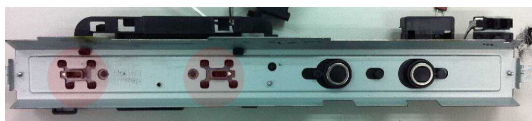
- a) Check if the Halogen lamp (*110V : 4713-001630 / 220V : 4713-001631*) is broken or disconnected.
- b) Check if the AC connection of the Halogen lamp is disconnected or contaminated.



- c) Check if the thermistor (*4712-001098*) is disconnected.



- d) Check if non-contact type thermistor (*1404-001453*) is broken.



- 4) If the problem persists, replace the Fuser unit (*110V : JC91-01064A, 220V : JC91-01063A*).

4. Troubleshooting

- 5) If the problem persists, replace the Main board(*JC92-02429A*) or FDB board(*110V : JC44-00210A, 220V : JC44-00211A*), SMPS(*110V : JC44-00093A, 220V : JC44-00100A*)

▶ Error Code

U1-2335

U1-233A

▶ Error message

Fuser Unit Failure: #U1-2335.

Fuser Unit Failure: #U1-233A.

▶ Symptom

Temperature of the thermistor is abnormally low.

▶ Troubleshooting method

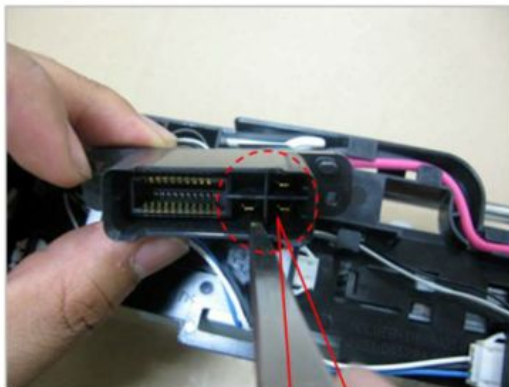
- 1) Turn the machine off. Re-install the fuser unit, then turn the machine on.
(Refer to 3.3.2. Fuser unit)
- 2) Check if the power voltage is normal. (Is the voltage during the operation $\pm 10\%$ of the rated voltage?)
- 3) Remove the fuser unit. After opening the jam cover, check if jammed or wrapped paper is in the fuser unit.



- 4) If the problem persists, Check the following :

(Refer to 3.3.23. Fuser unit)

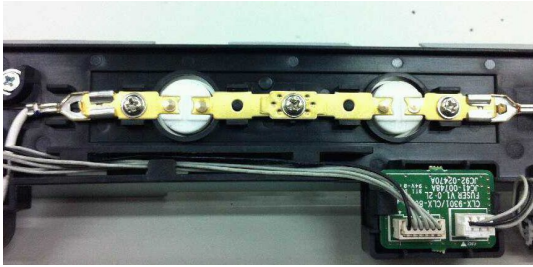
- a) Check if the Halogen lamp (*110V : 4713-001630 / 220V : 4713-001631*) is broken or disconnected.
- b) Check if the AC connection of the Halogen lamp is disconnected or contaminated.



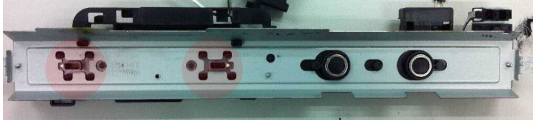
Red or Blue	Black
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4. Troubleshooting

- c) Check if the thermostat([4712-001098](#)) is disconnected.



- d) Check if the non-contact type thermistor([1404-001453](#)) is broken.



- 5) If the problem persists, replace the Fuser unit([110V : JC91-01064A](#), [220V : JC91-01063A](#)).
- 6) If the problem persists, replace the Main board([JC92-02429A](#)) or FDB board([110V : JC44-00210A](#), [220V : JC44-00211A](#)), SMPS([110V : JC44-00093A](#), [220V : JC44-00100A](#))

▶ Error Code

U1-2337

U1-233D

▶ Error message

Fuser Unit Failure: #U1-2337.

Fuser Unit Failure: #U1-233D.

▶ Symptom

When the fuser warms-up, the temperature of the thermistor is abnormally low.

▶ Troubleshooting method

- 1) Turn the machine off. Re-install the fuser unit, then turn the machine on.
(Refer to 3.2.2 Fuser unit)
- 2) Check if the power voltage is normal. (Is the voltage during the operation $\pm 10\%$ of the rated voltage?)
- 3) Remove the fuser unit. After opening the jam cover, check if jammed or wrapped paper is in the fuser unit.



- 4) If the problem persists, Check the follows.

(Refer to 3.3.23. Fuser unit)

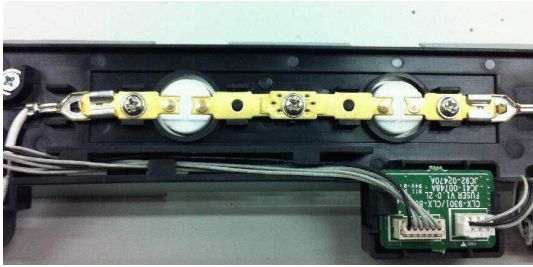
- a) Check if the Halogen lamp (*110V : 4713-001630 / 220V : 4713-001631*) is broken or disconnected.
- b) Check if the AC connection of the Halogen lamp is disconnected or contaminated.



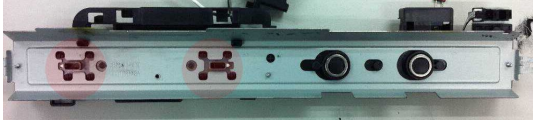
Red or Blue	Black
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4. Troubleshooting

- c) Check if the thermostat([4712-001098](#)) is disconnected.



- d) Check if the non-contact type thermistor([1404-001453](#)) is broken.



- 5) If the problem persists, replace the Fuser unit(*110V : JC91-01064A, 220V : JC91-01063A*).
- 6) If the problem persists, replace the Main board(*JC92-02429A*) or FDB board(*110V : JC44-00210A, 220V : JC44-00211A*), SMPS(*110V : JC44-00093A, 220V : JC44-00100A*)

4.5.8. U2-xxxx type (LSU) error code

► **Error Code**

U2-6121

U2-6122

U2-6123

► **Error message**

LSU Failure #U2-6121: Turn off then on.

LSU Failure #U2-6122: Turn off then on.

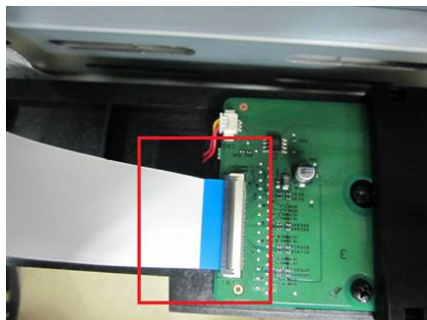
LSU Failure #U2-6123: Turn off then on.

► **Symptom**

LSU motor does not operate or it operates abnormally. Motor ready signal is abnormal.

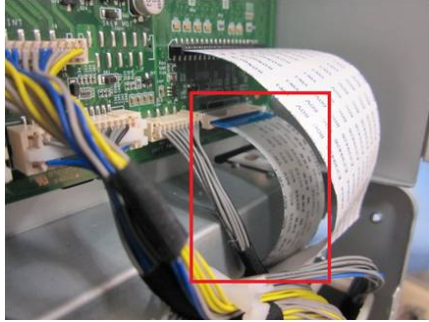
► **Troubleshooting method**

- 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**)
 - Press 1,2,3 number keys simultaneously. When the password dialog box appears, enter “1934” and press the “OK” button.
 - ii) Select “LSU Motor1 Run Ready”. (**Diagnostics > Engine Diagnostics > Engine Test Routines > 110-0000**)
 - 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. ([JC97-04010A](#)) (**Refer to 3.3.5. LSU in chapter 3**)
 - b) If the LSU motor does not makes 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.



4. Troubleshooting

- 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([JC39-01688A](#)) 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([JC97-04010A](#)).

▶ Error Code

U2-6142

U2-6143

▶ Error message

LSU Failure #U2-6142: Turn off then on.

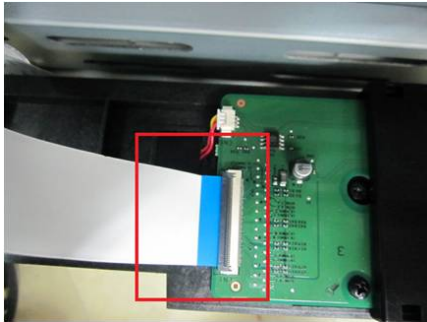
LSU Failure #U2-6143: Turn off then on.

▶ Symptom

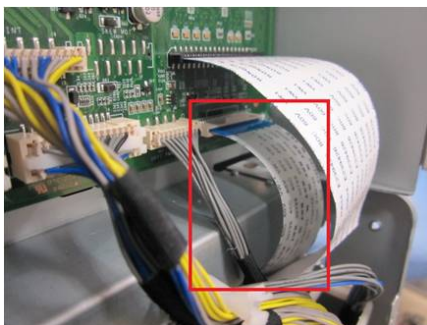
Hsync signal of the LSU is abnormal.

▶ Troubleshooting method

- 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([JC39-01688A](#)) 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([JC97-04010A](#)).

4.5.9. U3-xxxx type error code

▶ **Error Code**

U3-3211

U3-3213

U3-3214

U3-3311

U3-3313

U3-3314

▶ **Error message**

Original paper jam inside of scanner

▶ **Symptom**

Jam has occurred inside the DADF unit.

▶ **Troubleshooting method**

- 1) Open the DADF cover. If there is jammed paper, remove it.
- 2) If this error occurs continually, check the DADF regi. sensor([0604-001393](#)) and regi actuator([JC66-03148A](#)). If their operation is abnormal, replace the defective part.



- 3) If the regi sensor is OK, check the scan sensor([0604-001393](#)) and scan actuator([JC66-03210A](#)). If their operation is abnormal, replace the defective part.



- 4) Check if the regi. clutch operates normally. Check if the clutch cable is connected correctly. If the clutch([JC47-00033A](#)) is defective, replace it.

▶ Error Code

U3-3413

U3-3414

▶ Error message

Original paper jam inside of scanner.

▶ Symptom

Jam has occurred inside the DADF unit.

▶ Troubleshooting method

- 1) Open the DADF cover. If there is jammed paper, remove it.
- 2) If this error occurs continually, check the following:
 - a) Check if the Regi. actuator([JC66-03148A](#)) operates normally.



- b) Check if the Regi. sensor cable is connected correctly.
 - c) If the connection is OK, replace the Regi. sensor([0604-001393](#)).

4. Troubleshooting

▶ **Error Code**

U3-3513

U3-3514

▶ **Error message**

Original paper jam inside of scanner.

▶ **Symptom**

Jam has occurred inside the DADF unit.

▶ **Troubleshooting method**

- 1) Open the DADF cover. If there is jammed paper, remove it.
- 2) If this error occurs continually, check the following:
 - a) Check if the scan actuator([JC66-03210A](#)) operates normally.



- b) Check if the scan sensor cable is connected correctly.
 - c) If the connection is OK, replace the scan sensor([0604-001393](#)).

▶ Error Code

U3-3611

U3-3613

U3-3614

U3-3713

▶ Error message

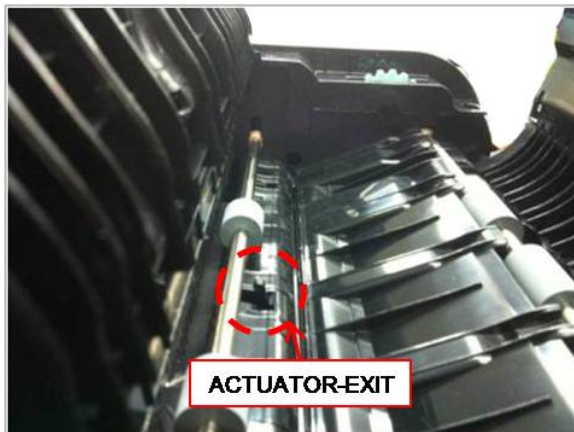
Original paper jam in the exit area of scanner

▶ Symptom

Jam has occurred inside the DADF unit.

▶ Troubleshooting method

- 1) Open the DADF cover. If there is jammed paper, remove it.
- 2) If this error occurs continually, check the following:
 - a) Check if the exit actuator([JC66-03184A](#)) operates normally.



- b) Check if the exit sensor cable is connected correctly.
 - c) If the connection is OK, replace the exit sensor([0604-001393](#)).

▶ **Error Code**

U3-4210

▶ **Error message**

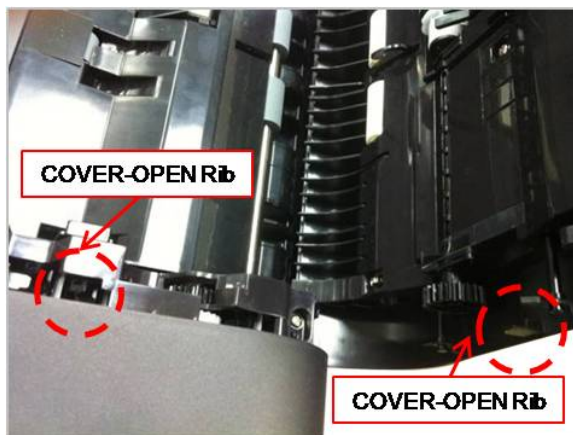
Top door of scanner is open.

▶ **Symptom**

DADF cover is open.

▶ **Troubleshooting method**

- 1) Close the DADF cover properly.
- 2) If this error occurs continually, Check the following:
 - a) Check the DADF cover open sensor([0604-001393](#)) and its harness. If there is a defective part, replace it.
 - b) If both of them are normal, check the Cover-Open Rib. If it is broken, replace the Cover-Open([JC63-03273A](#)).



4.6. Image quality problems and solutions

Print-quality defects can be attributed to printer components, consumables, media, internal software, external software applications and environmental conditions.

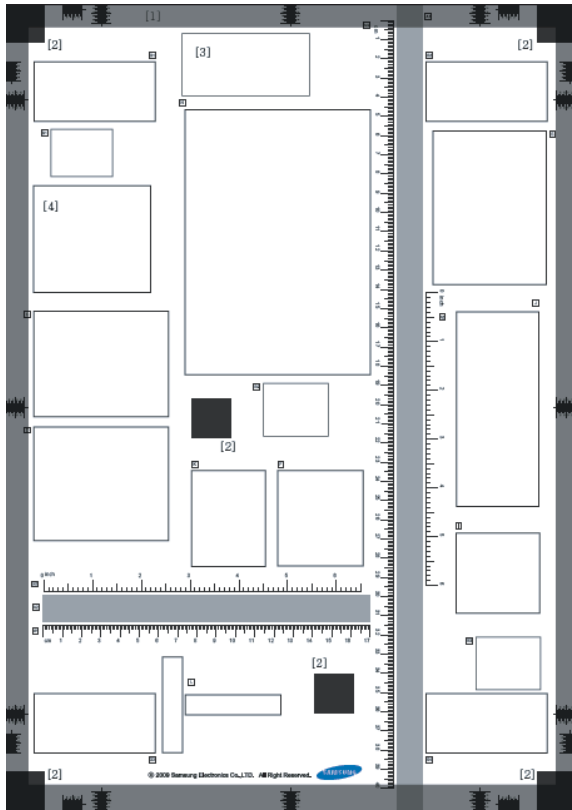
To successfully troubleshoot print-quality problems, as many variables as possible must be eliminated.

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)

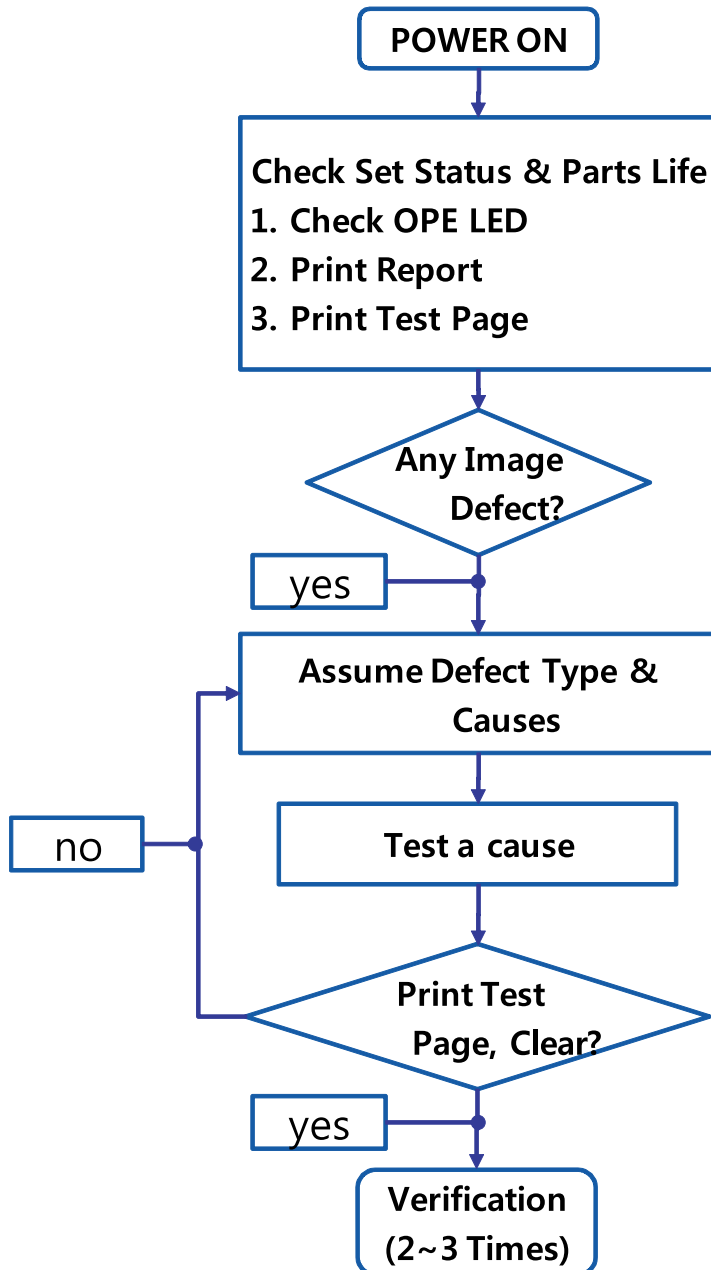
How to analysis the defect image

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.

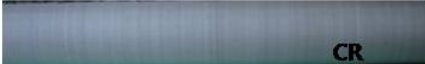


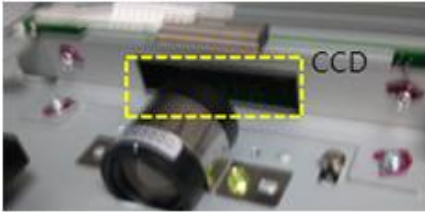



4.6.1. Vertical Black Band

A. Typical faulty images



B. Troubleshooting procedure


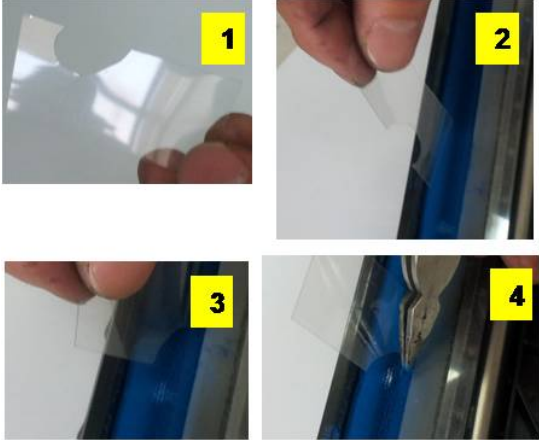
Step	Cause	Action
1	Charge Roller(CR) is contaminated. 	Check if CR is contaminated or not.  If there are some problems, replace Drum unit. (Refer to 3.3.2.1.)
2	ITB belt is contaminated. <ul style="list-style-type: none"> ITB cleaning is poor. ITB Cleaning-Blade is partially broken. 	Check if ITB belt is contaminated or not.  If there are some problems, replace the ITB Cleaner. (Refer to 3.2.2.3.)
3	Scanner unit is contaminated. <ul style="list-style-type: none"> Scan glass contamination. Mirror contamination. CCD sensor contamination. 	Wipe the contaminated part surface with a soft cloth. (Refer to 3.3.29.4.) <div style="background-color: #cccccc; padding: 5px; margin-top: 10px;">  CAUTION Fragile parts! </div>

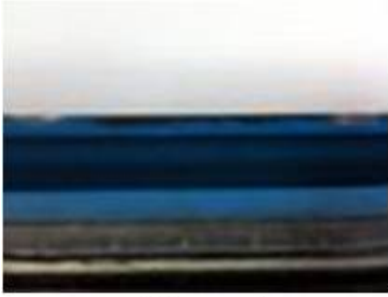
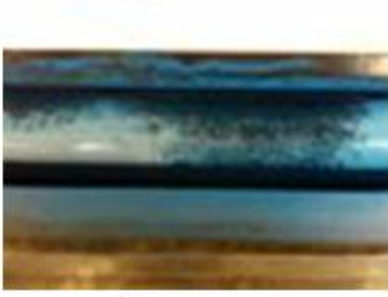
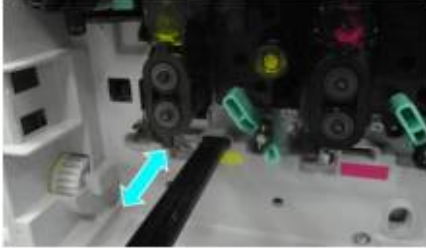
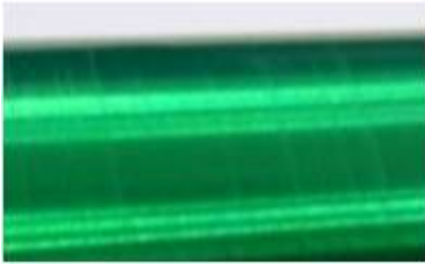
4.6.2. Vertical White Band, Light Band

A. Typical faulty images



B. Troubleshooting procedure

Step	Cause	Action
1	<p>A foreign substance is stuck between Developing Roller(DR) and Blade.</p> <ul style="list-style-type: none"> The toner on Magnetic-roller is empty partially. 	<p>Pull out a foreign substance.</p> <ul style="list-style-type: none"> Make the hook shape sheet. (Transparency sheet is recommended.) Put the hook into the gap between DR and Blade. Pull out a foreign substance. 
2	<p>The Carrier of Developer unit is insufficient.</p>	<p>Replace the Developer Unit.</p> <ul style="list-style-type: none"> Check the toner remain. Check the toner layer on Roller-Magnetic of Developer Unit is uniform or not. <p>(Refer to 3.3.2.2.)</p>


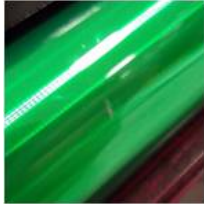
Step	Cause	Action
		 <p style="text-align: center;">Normal</p>  <p style="text-align: center;">Abnormal</p>
3	<p>The path of laser beam is blocked. Foreign substance is on the LSU window.</p>	<p>Clean the LSU window. (Refer to 3.2.1.2.)</p> 
4	<p>OPC is scratched.</p> 	<p>Replace the Drum Unit. (Refer to 3.2.2.1.)</p>

4.6.3. Horizontal periodic Black Band or Dot

A. Typical faulty images

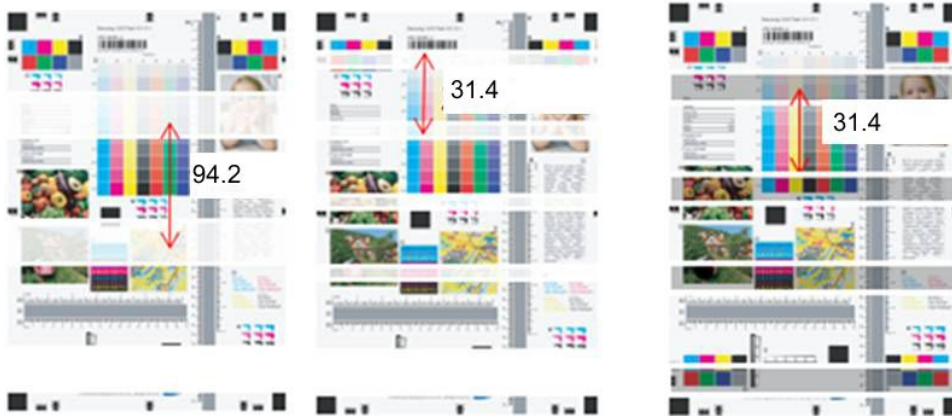


B. Troubleshooting procedure

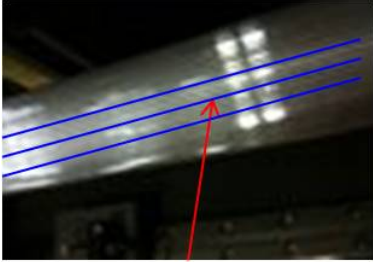
Step	Cause	Action
1	Horizontal periodic dot. (CR, 37.7mm) <ul style="list-style-type: none"> The surface of the charge roller(CR) is contaminated. CR is scratched. 	Wipe the surface of contaminated part with a soft cloth and alcohol. Replace the Drum unit. <u>(Refer to 3.3.2.1.)</u>
2	Horizontal periodic black band.(CR, 37.7mm) <ul style="list-style-type: none"> CR is inferior in quality. 	Replace the Drum Unit. <u>(Refer to 3.3.2.1.)</u>
3	OPC is damaged. 	Replace the Drum Unit. <u>(Refer to 3.3.2.1.)</u>

4.6.4. Horizontal periodic Light/Dark Band or Dot

A. Typical faulty images



B. Troubleshooting procedure

Step	Cause	Action
1	Horizontal periodic band (OPC, 94.2 mm) <ul style="list-style-type: none"> • OPC was exposed for a long time. • OPC is damaged by high voltage in a short time. 	As some time passes, most of this trouble will disappear. If not, replace the Drum Unit. (Refer to 3.3.2.1.)
2	Horizontal periodic light/dark band (Roller-magnetic, 31.4mm) <ul style="list-style-type: none"> • Roller-magnetic is inferior in quality. • V-groove of Roller-magnetic surface is not uniform.  <p>V-groove in Roller-Magnetic</p>	Replace the Developer Unit. (Refer to 3.2.2.2.)

4.6.5. Foggy Image

A. Typical faulty images

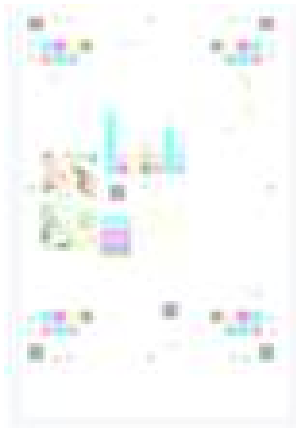


B. Troubleshooting procedure

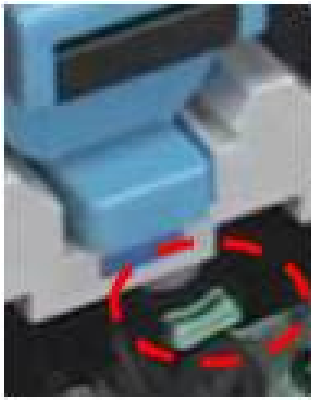
Step	Cause	Action
1	Voltage of OPC is abnormally low.	Replace Drum unit. (Refer to 3.3.2.1.)
2	HVPS operates abnormally. <ul style="list-style-type: none"> HVPS is damaged or broken. 	Replace HVPS board. (Refer to 3.3.3.)
3	Toner is over supplied. <ul style="list-style-type: none"> TC-sensor operates abnormally. 	Replace Toner cartridge. (Refer to 3.2.2.2.)
4	Voltage of OPC is abnormally low. <ul style="list-style-type: none"> T1 Voltage is abnormally high. 	Check the T1 connection in HVPS. Check if T1-roller spring in ITB is connected correctly. Replace HVPS board. (Refer to 3.3.3.)

4.6.6. Light Image

A. Typical faulty images



B. Troubleshooting procedure

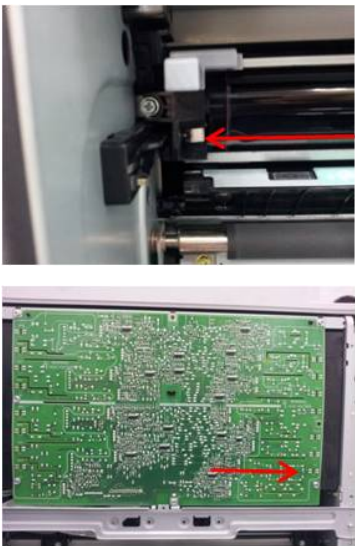
Step	Cause	Action
1	TRC operates abnormally.	Perform TRC 3~4 times. (Refer to 4.4.5.6.)
2	Poor transfer has occurred.	Make the jam artificially during print job. Check the image on transfer belt. If the image on transfer belt is normal, refer to the Blurred image section.
3	Toner is empty. Toner is abnormally supplied.	Check if the toner is remained efficiently. If not, Replace Toner cartridge. (Refer to 3.2.2.2.) Check if the Toner supply shutter is opened. 
4	Output voltage of HVPS is abnormally low. • Color density becomes low.	Replace HVPS board. (Refer to 3.3.3.)
5	TC down and Toner spills	Replace developer unit. (Refer to 3.2.2.2.)
6	Toner spills by Eraser.	Check if Eraser is contaminated. Replace Drum Unit or Developer Unit. (Refer to 3.2.2.2.)

4.6.7. Blurred Image

A. Typical faulty images



B. Troubleshooting procedure

Step	Cause	Action
1	Humidity of the circumstances and paper.	Change the paper with new and better grade.
2	T2 transfer voltage is low.	Turn up the T2 transfer voltage. (Refer to 4.4.6.9.)
3	Connection between HVPS and THV is incorrect.	<p>Check if the connection between T2 high voltage terminal and HVPS THV terminal is correct.</p> <p>Check if the connection of HVPS and ITB is correct.</p>  <p>If not, replace HVPS or ITB.</p>
4	HVPS operates abnormally.	Replace HVPS (Refer to 3.3.3.)

4.6.8. Incorrect color registration

A. Typical faulty images



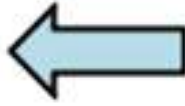
B. Troubleshooting procedure

Step	Cause	Action
1	ACR sensor is contaminated.	Clean the ACR sensor. (Refer to 3.2.1.1.)
2	Circumstances is changed.	Perform the OPC-ACR. (Refer to 4.4.5.6.)
3	Check if the skew is occurs at the cassette or feeding rollers.	Adjust the skew manually. (Refer to 4.7.)

4.6.9. Uneven pitch and jitter image

A. Typical faulty images

Paper feeding
direction



B. Troubleshooting procedure

Step	Cause	Action
1	Under 3 mm periodic jitters or horizontal bands has occurred.	<p>Check if the foreign substance at the drive gears. Grease the gears.</p> <ul style="list-style-type: none"> • Developer unit gears. • Drum unit gears. • Main drive unit gears. <p>If the problem persists, replace the abnormal units.</p> <ul style="list-style-type: none"> • Developer unit. • Drum unit. • Main drive unit.
2	Under 1 mm periodic jitter or horizontal bands has occurred.	<p>Check if the LSU is assembled correctly. If not, remove and tighten the screws. (Refer to 3.3.5.)</p> <p>If the problem persists, replace LSU (Refer to 3.3.5.)</p>

4.6.10. Skewed image

A. Typical faulty images



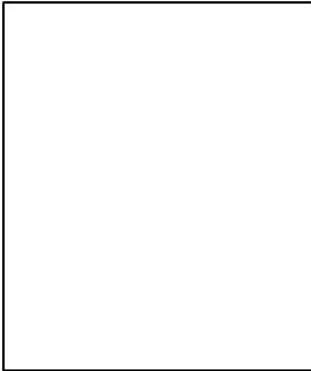
B. Troubleshooting procedure

Step	Cause	Action
1	<ul style="list-style-type: none"> • Cassette is not installed properly. • Too much paper is loaded in the cassette. • The cassette guide is not set properly. 	Reinstall the cassette properly.
2	The surface of pick up/ reverse/ forward roller is contaminated or worn out.	Clean or replace the contaminated roller. (Refer to 3.2.2.7.)
3	If the skewed image occurs for copy job, check the DADF installation.	Reinstall the DADF unit. Adjust DADF skew. (Refer to 4.8.)



4.6.11. Blank copy

A. Typical faulty images

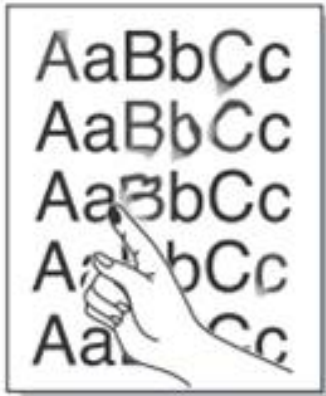


B. Troubleshooting procedure

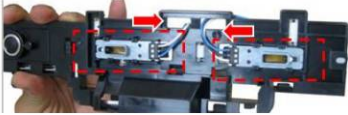
Step	Cause	Action
1	LSU operation error	Check LSU connector for proper connection.
2	All connectors on HVPS board are connected correctly.	Reconnect.
3	Check if the related parts are broken.	Replace the HVPS board or Main board or LSU.
4	Check if the connection between scan joint board and main board is OK.	Reconnect the harness. If the connection is OK, replace the main board.

4.6.12. Poor fusing performance

A. Typical faulty images

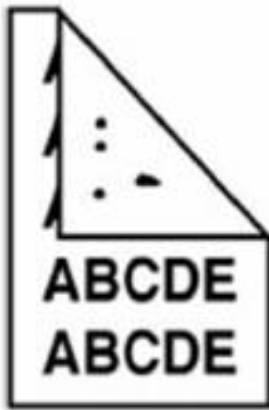


B. Troubleshooting procedure


Step	Cause	Action
1	<p>Check the paper type.</p> <p>Depending on what type of paper used, print speed varies.</p> <p>(ex)</p> <ul style="list-style-type: none"> • Plain (71~90g/), Thick (91~105g/): Full Speed • Heavy weight (106~175g/): Half Speed • Envelope (75~90 g/), Label (120~150 g/): Half Speed 	<p>Check the paper type on control panel is same as paper user uses.</p> <p>(Refer to 2.2.7.)</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>(Refer to 4.5.7. U1-2113)</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>(Refer to 4.5.7. U1-2115)</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>

4.6.13. Stain on the paper back side

A. Typical faulty images

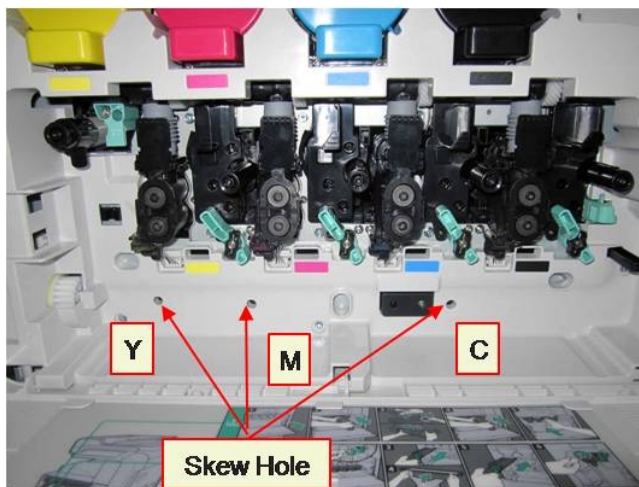


B. Troubleshooting procedure

Step	Section	Check item	Result	Action
1	Transfer Roller Assy	Is the transfer roller dirty or worn out?	Yes	Clean or replace the Transfer roller Assembly. 
2	ITB Unit	Is there any stain caused by a poor cleaning, etc. on the transfer belt?	Yes	Clean the transfer belt. If the problem persists, replace ITB unit. (Refer to 3.2.2.6.)
3		Is the transfer belt cleaning blade in proper contact with the transfer belt?	Yes	Take off the transfer belt and check if the transfer belt cleaning blade pressure spring and the pressure hook are installed properly. (Refer to 3.2.2.6.)
4	Fuser Unit	Are the fuser belt and pressure roller dirty?	Yes	Clean the fuser belt and pressure roller.
5		Check the pressure roller surface is damaged or scratched.	Yes	Replace Fuser unit. (Refer to 3.2.2.5.)

4.7. Adjusting the LSU skew error

- 1) Check the skew error
 - a) Execute the ACR.
(Machine Setup > General Settings > Image Management > Auto Color Registration)
 - b) Print the ACR report.
(SVC(Tech) mode > Information > Print Reports > Auto Color Registration)
 - c) Check [Y] [M] [C] Skew Data in ACR report.
- 2) Adjusting the skew error
 - a) Open the front cover. Remove the waste toner container.
 - b) There are 3 skew holes for YMC color. Insert the (+) screw driver and adjust CW, CCW referred to adjustment amount

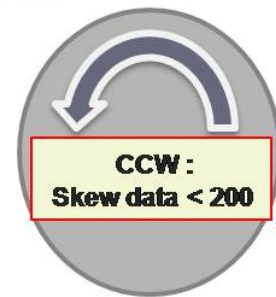


- i) The standard value for skew is 200. If the skew data in ACR report, the skew adjustment is unnecessary.
- ii) Adjustment method
 - Skew Data <200 : Rotate the driver in a counterclockwise direction.
 - ex) Skew Data is 192. : $200-192=8$ Click CCW rotation
 - Skew Data = 200 : No need to adjustment.
 - Skew Data > 200 : Rotate the driver in a clockwise direction.
 - ex) Skew Data is 213. : $213-200=13$ Click CW rotation



NOTE

1 Click is equal to 1/7 dot.



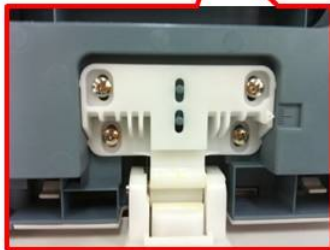
- 3) Check the skew error again.
 - a) Execute the ACR after the skew adjustment.
 - b) Print the ACR Report.
 - c) Check the [Y] [M] [C] skew error.
 - d) If the value for YMC is in 200 ± 7 , complete the skew adjustment.

 **NOTE**

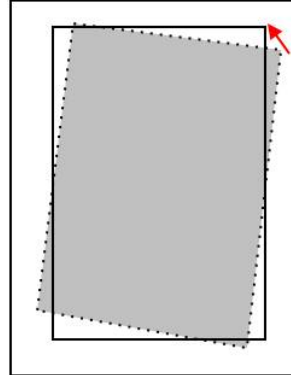
If value can not meet the target, repeat the step1~3.

4.8. Adjusting the DADF skew

- 1) Stand the DADF unit. Loosen 4 screws securing the right hinge unit slightly.

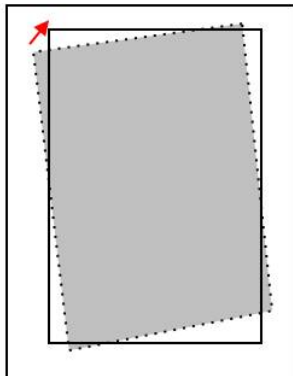
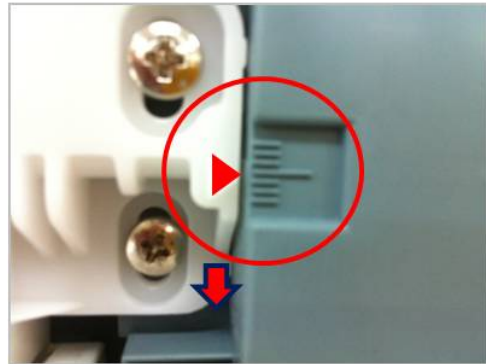


- b) If the skew image is like a below sample, adjust the hinge unit down. (1 scale => 0.9 mm skew adjustment)



- 2) Adjust the position of the DADF hinge as the skew status.

- a) If the skew image is like a below sample, adjust the hinge unit upward. (1 scale => 0.9 mm skew adjustment)



- 3) Detach the DADF sponge after adjusting the skew. Place the DADF sponge on platen glass. And then close the DADF unit to stick the sponge.



4.9. Troubleshooting Guide



NOTE

The service engineer can download all troubleshooting guides in this section from TSP(Technical Support Portal) site.
(<http://tsp.samsung.com>)

No	Problem Description	Troubleshooting Page
1	Noise of DADF Hinge / Crack of DADF Hinge / DADF can't be fixed as open	4-226
2	Job pause problem	4-228
3	Toner cartridge detection error	4-229
4	Scan to PC login failure	4-231
5	OPE Panel operation failure	4-232
6	Machine makes noise when paper print out	4-233
7	DADF paper jam (Multi-feed)	4-234
8	Scanner Locked / #U1-2115 error	4-235
9	Job blocking problem	4-236
10	Recognition error of the side cover problem	4-237
11	LCD touch problem	4-238
12	ACR fail problem	4-239
13	Loud noise sound of LSU motor	4-240
14	Script error in Internet Explorer	4-241
15	Tray1, Tray2, MP Tray can not pick up the paper.	4-242
16	Exit DADF Jam	4-243
17	Paper source setting problem in Visio program	4-244
18	Acoustic noise in Fuser unit	4-246
19	SMPS output voltage drop error	4-247
20	HDD makes a loud noise.	4-248
21	Machine can not feed the paper.	4-249
22	Networking is not working.	4-251
23	LCD is blinking when turning on the power.	4-252
24	Device does not perform initial setup	4-253
25	TC Calibration Error Occurs	4-254
26	How to adjust image distortion	4-255
27	Incorrect time setting when a device's language is Chinese, French, Finnish, or Danish	4-256
28	94 mm periodic jitter occurs in printed document	4-257
29	Line Skew occurs due to internal module of scanner	4-258
30	706 Error(Paper Jam) occurs	4-259
31	Image registration problem occurs after ACR (Auto Color Registration)	4-260
32	How to handle TRC error & ACR	4-261
33	Paper Jam occurs due to Registration ROLLER-IDLE of DADF	4-262
34	Polaris Color - Removing debris from the Developer Unit.	4-263

4. Troubleshooting

No	Problem Description	Troubleshooting Page
35	DADF is not recognized and an S3-3211 error occurs or copying must be performed from the platen.	4-264
36	The ADF does not recognize a piece of paper.	4-265
37	Blur occurs on Color printout	4-266
38	"toner cartridge is not installed." error occurs	4-267
39	The soft keyboard window doesn't display in ACR	4-268

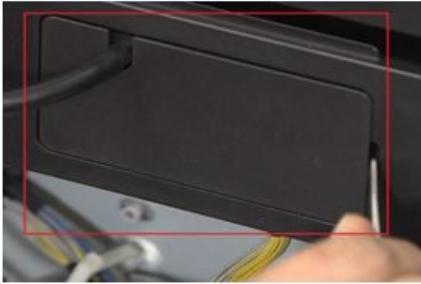
1) Noise of DADF Hinge / Crack of DADF Hinge / DADF can't be fixed as open

- **Symptom :**

- When ADF is opened or closed, the noise from its hinge happened.
- DADF hinge is cracked.
- When the DADF unit is lifted to access the platen glass, the unit should remain at a 50° angle ($\pm 10^\circ$). DADF unit does not remain open as expected.

- **Troubleshooting**

- 1) Remove the DADF connector cover.



- 2) Remove the connector and 1 screw.



- 3) Lift up and remove the DADF unit.



- 4) Remove 4 screws from the each hinge unit. And then replace the hinge unit with new one.



5) Reassemble the DADF unit again.

• **Part Code Information**

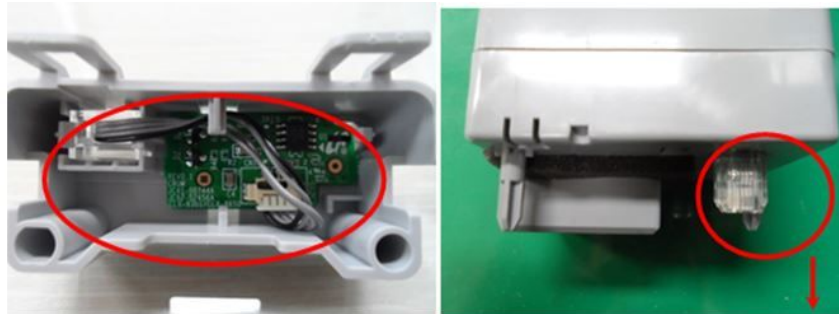
Part Code	Description
JC97-03995A	DADF-HINGE L
JC97-03996A	DADF-HINGE R

2) Job pause problem

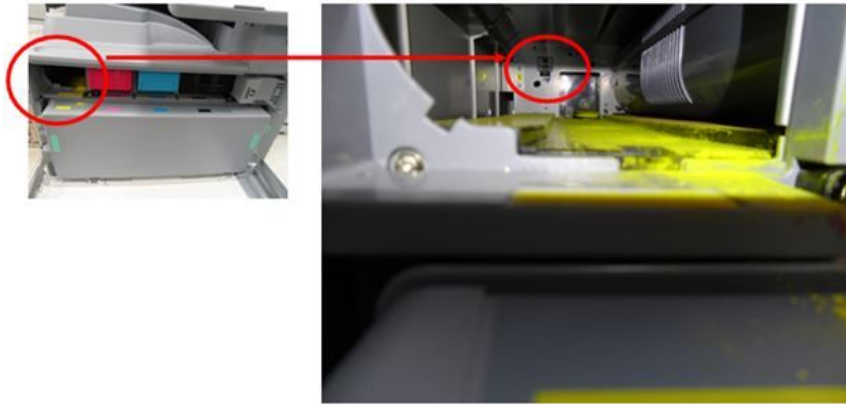
- **Symptom** : Job is paused.
- **Cause** :
 - User press the stop key.
 - During job pausing process, job status is wrong.
- **Troubleshooting**
 - 1) During job pausing process, keep valid state of pause process.
 - a) Pausing → Paused
 - b) If user press cancel, paused → canceling → canceled.
 - c) If user press continue, paused → resuming → progressing.

3) 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 rear cover and re-install.

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.

4) Scan to PC login failure

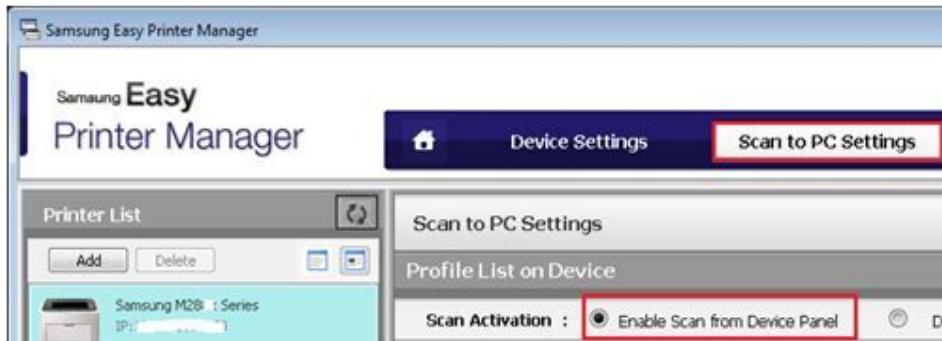
- **Symptom** : Login failure popup is displayed when the user selects their Scan ID in the Scan to PC menu.
- **Cause** :
 - Anti-virus program blocks executable files if it tries to communicate with external device but it is not digitally signed.
 - Due to 3rd part library, boost ASIO does not work in certain user environment, EPM is not able to receive login event from MFP.



NOTE

If any network security device blocks SNMP protocol communication, login will be failed

- **Troubleshooting**
 - 1) If Login Failure problem is happened and Easy Printer Manager lower than 1.03.45.01 version is installed on customer PC, please update Easy Printer Manager to the latest version (from Download Center of Samsung web site)
 - 2) Launch Easy Printer Manager and check whether 'Enable Scan from Device Panel' is checked in the Scan to PC Settings menu.



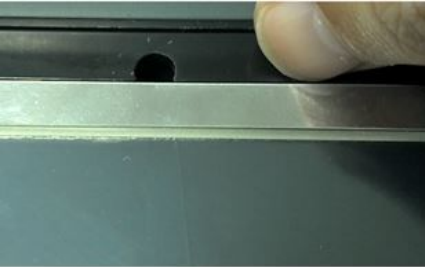
- 3) Even though 'Enable Scan from Device Panel' is checked but still Login Failure is occurred, please check SNMP communication between PC and MFP has been blocked or not and then allow SNMP communications.
- 4) If your EPM is equal or higher than 1.05.10.00 but you faced Login Failure issue, Please execute attached S2PCTroubleshooter and then click the 'Run diagnose' button in the 'diagnose' tab. Once diagnose is performed, click the 'Save Log As' to get debug log. This debug log would be great help for us to analyze the problem.

5) OPE Panel operation failure

- **Symptom** : Numeric key pad operation is abnormal.



- **Cause** : The burr direction of the ground OPE is wrong. There is a tendency that the burr pushes the touch screen panel.



- **Troubleshooting**
 - Replace the Ground OPE.

6) 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.
Press the 1, 2, 3 keys simultaneously, and enter the password '1934'.
- 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.

Model	Part Code
CLX-9201/9251/9301 Series	JC93-00441A
SCX-8123/8128 Series	JC93-00449A

- 5) If not, replace the fuser unit.

7) DADF paper jam (Multi-feed)

- **Symptom** : Paper stops between the ADF roller and the registration roller of the DADF and a paper jam occurs.

- **Troubleshooting**

Guide pickup replacement is required when a Regi Out Jam occurs during multi-feeding. This also stabilizes paper path.



NOTE

The friction pad is also replaced when the Guide Pickup is replaced.

[Replacement Procedure]

- 1) Open the Cover-Open Assembly.



- 2) Remove the DADF separation pad then replace it with new one.
- 3) Remove the Guide Pickup by pressing the side as shown below.

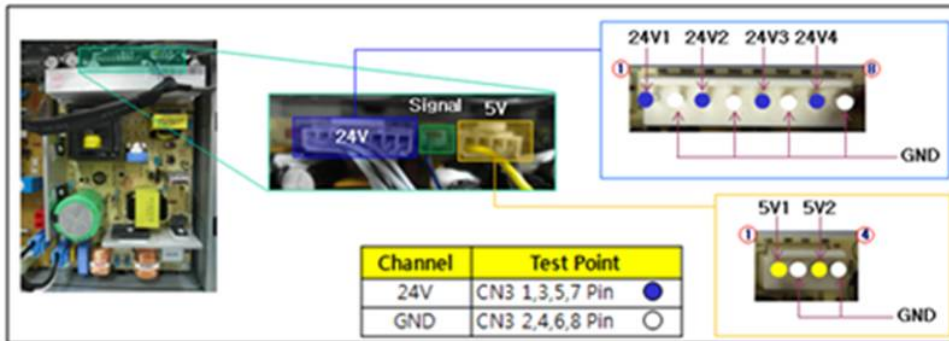


- 4) Assemble the new Guide Pickup.
- 5) Update the firmware as the latest version.

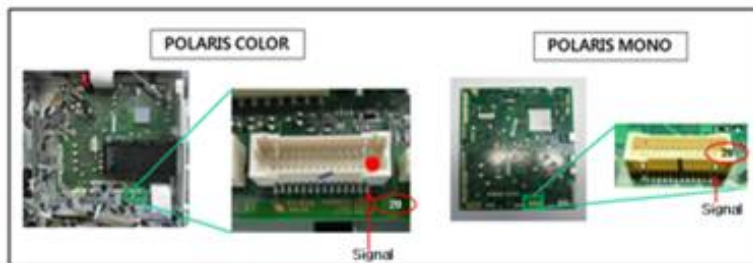
8) Scanner Locked / #U1-2115 error

- **Symptom** : Paper stops between the ADF roller and the registration roller of the DADF and a paper jam occurs.
- **Cause** : All 24V channels output voltage is off (24V output voltage is nearly 0V) 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.



- The voltage at '24V on/off signal pin' is 0V. → Main board and signal is normal.
 - The voltage at signal pin is 4~5.3V → Main board and signal is abnormal.
- 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.
 - 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.
 - If Main board and signal is abnormal and all 24V output channels are nearly 0V, inspect the harness, connector and main board.

9) Job blocking problem

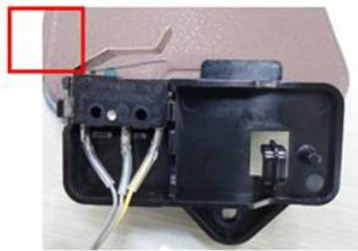
- **Symptom** : Job is blocking (in case of scanning completion)
- **Cause** :
 - User press stop key during scanning.
 - During job pausing process, scanning is completed.
- **Troubleshooting**
 - 1) During job pausing process, lock the state, check whether scanning or printing is completed.

10) Recognition error of the side cover problem

- **Symptom** : The side cover is closed, but the open message of the side cover displays on LCD.
- **Cause** : The spring plate of the side cover open sensor is deformed by the deformation of the stopper of the side cover.



<The stopper of the side cover>



< the spring plate of the side cover sensor>

- **Troubleshooting**

- 1) Replace the side cover open sensor Assy or deform the spring plate to normal shape.



< Normal Part>



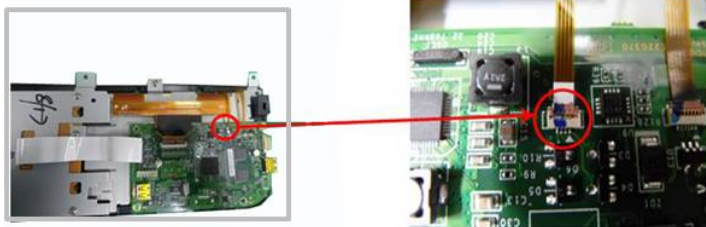
<Defective Part>

11) LCD touch problem

- **Symptom** : During Ready or Job processing , Touch LCD does not work.
- **Cause** :
 - Touch screen panel calibration problem
 - Touch screen panel connection interface problem
 - UI PBA problem
- **Troubleshooting**
 - 1) Execute the touch screen calibration.
 - a) Turn off the machine.
 - b) While pressing the number 0 on numeric keys, turn the machine on. Wait until calibration screen appears.



- c) Press centre of mark + following order 1~5. Use your finger. Perform 2 times.
 - d) If there is no problem, “Complete” will appear on LCD and reboot the machine. When making a mistake, start again from the step 1.
- 2) Check the touch screen panel flat cable connection on UI PBA.



- 3) If the connection is OK, replace the UI PBA with new one.

12) ACR fail problem

- **Symptom** : Set UI indicates ACR fail message.
- **Cause** : The brokenness of reflection mirror



- **Troubleshooting**
 - 1) Check the assembly condition inside of LSU.
 - 2) If the reflection mirror is deviated, replace the LSU.

13) Loud noise sound of LSU motor

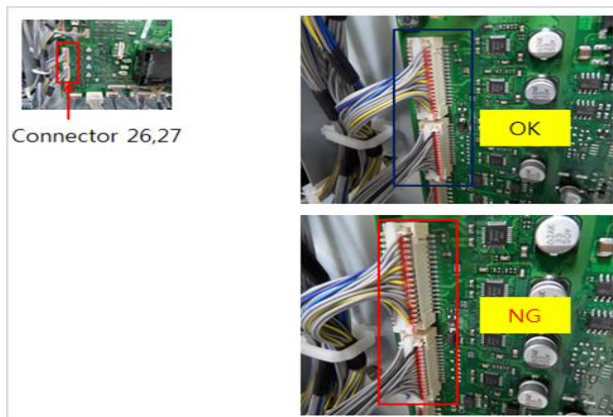
- **Symptom** : The machine makes some noise like a siren from LSU motor in printing mode.
- **Cause** : LSU motor defect
- **Troubleshooting**
 - 1) Enter the service mode and execute the LSU motor test.
 - 2) If the LSU motor run sound is loud, replace the LSU.
 - 3) If not, check the other unit.

14) Script error in Internet Explorer

- **Symptom** : Some script error occurs and the machine can not print anything. – IE 9 or later version.
- **Cause** : In protected mode, the “RegOpenCurrentUser” function with write authority returns error or access denied.
Can not write on the HKEY_CURRENT_USER registry.
- **Troubleshooting**
 - 1) Download the latest driver and install it.

15) Tray1, Tray2, MP Tray can not pick up the paper.

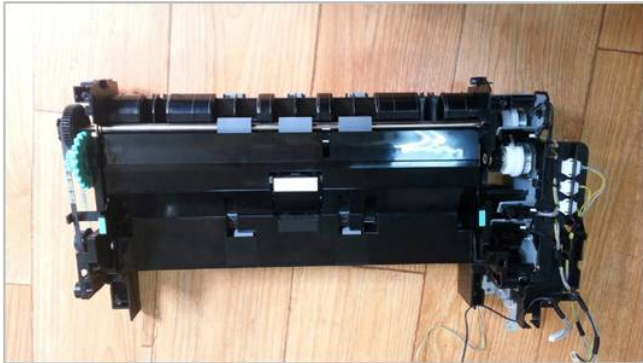
- **Symptom** : Tray1, Tray2, MP Tray can not pick up the paper.
- **Cause** :
 - Bad harness connection on the main board
 - Connector defect of the main board
- **Troubleshooting**
 - 1) Check the harness connection. If the harness is not connected correctly, reconnect it.



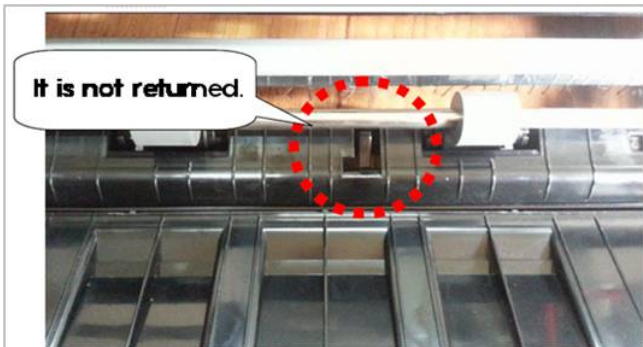
- 2) Check the connector 26 & 27 on main board.
If the connector has some problem of soldering, replace the main board.

16) Exit DADF Jam

- **Symptom** : When copy or scan images using DADF, exit jam is occurred even if there is no jam.
- **Cause** :
 - Exit actuator is not returned. (Low resetting force of exit actuator spring.)
- **Troubleshooting**
 - 1) Remove the DADF rear cover, DADF front cover, DADF cover-open Assy, Stacker.
(Refer to the disassembly chapter in service manual.)



- 2) Replace the exit actuator spring.



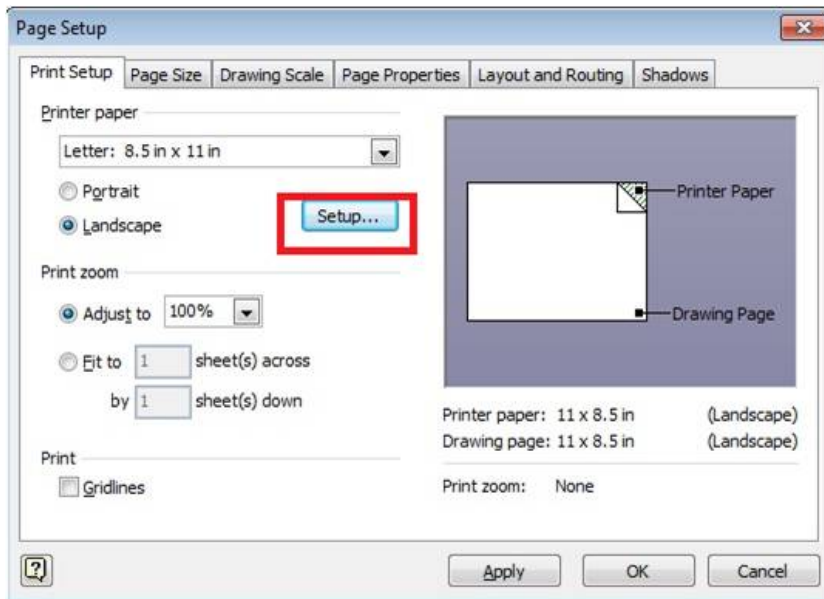
17) Paper source setting problem in Visio program

- **Symptom** : In Visio program, the setting of paper source is not affected though the paper source of print driver is changed to Tray1, Tray2 etc
- **Cause** :
 - Visio program set the source in application setting.
 - Application setting is have more priority than print driver setting (Another Vendor is same behavior)

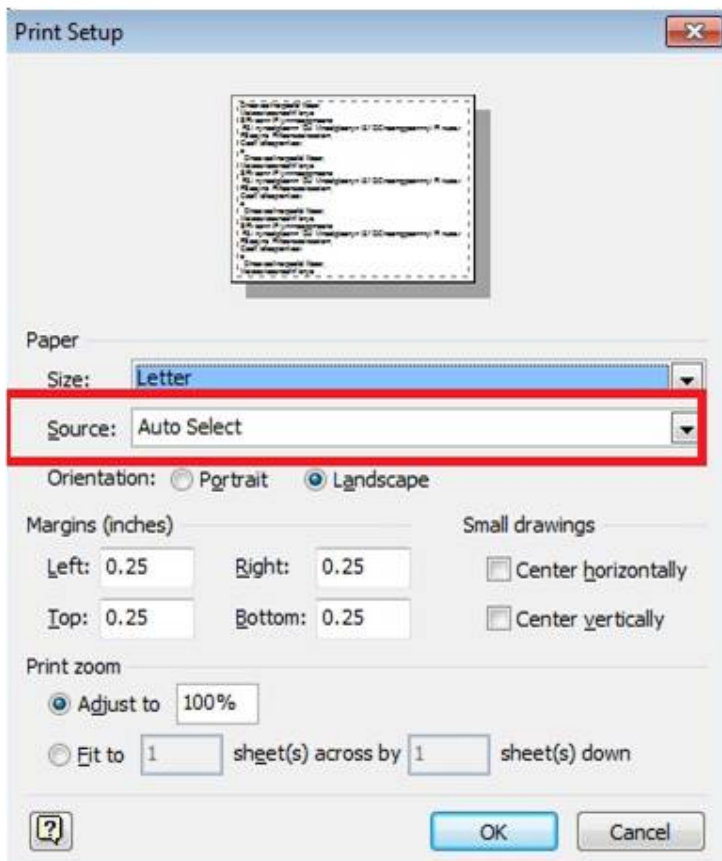
4. Troubleshooting

- **Troubleshooting**

- 1) Click the “Page setup” in file menu in Visio application.
- 2) Click the “Setup” button.



- 3) Change the Paper source which you want to use.



18) Acoustic noise in Fuser unit

- **Symptom** : Acoustic noise from fuser assembly in early stage of printing
- **Cause** : Fuser belt edges is damaged.

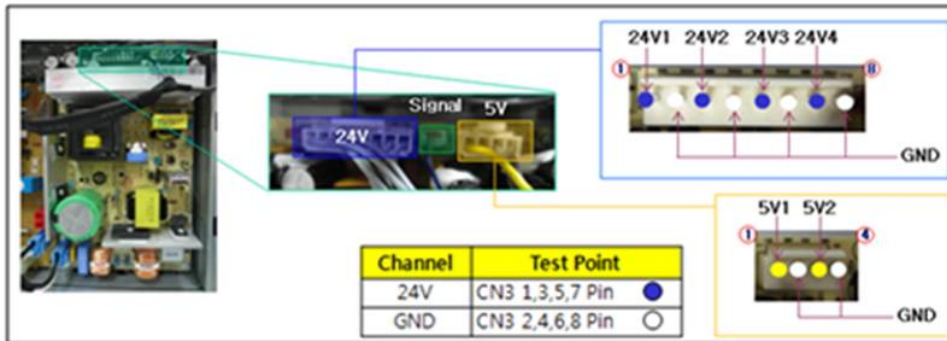


- **Troubleshooting**
 - 1) Replace the fuser unit with new one.

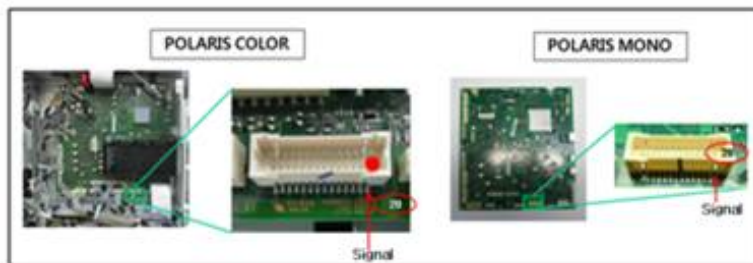
19) SMPS output voltage drop error

- **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.

20) 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.

21) 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.

(Press the 1, 2, 3 keys simultaneously and enter the password (1934).)

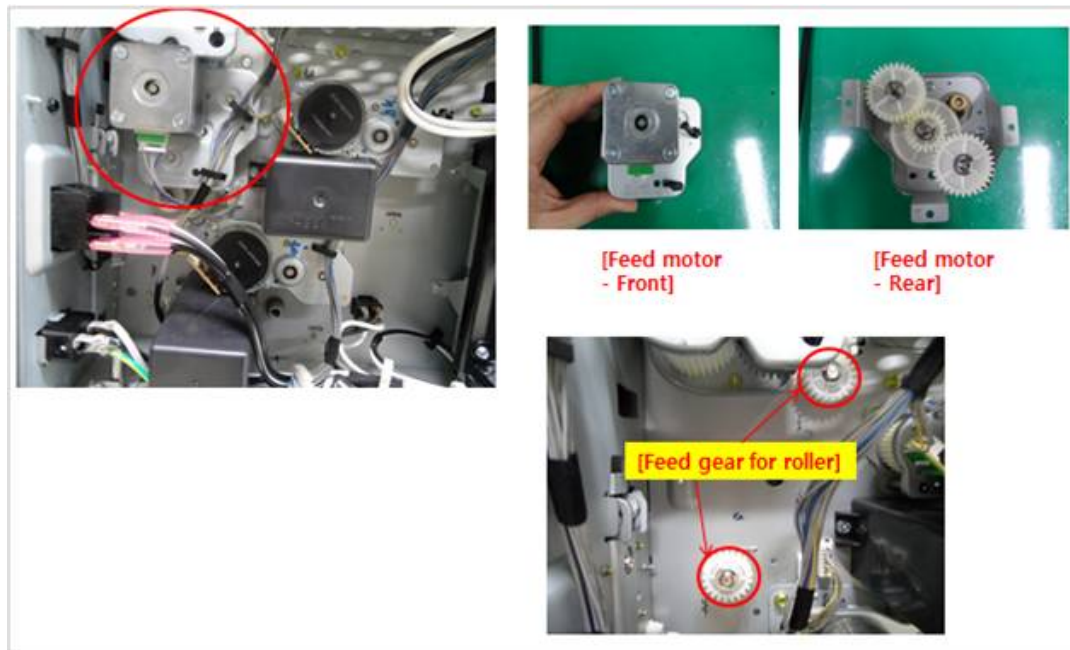
c) Select the menu below.

(EDC Mode > Diagnostics > Engine Diagnostics > Engine Test Routine > Feed motor > on/off)

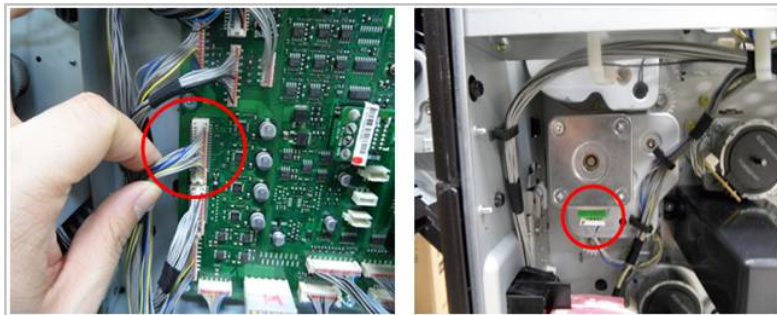
Check the two feed rollers operating status.



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(CN27) and feed motor.



- 3) If the problem persists, replace the main board.

22) 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.

23) LCD is blinking when turning on the power.

- **Symptom** : LCD is blinking when turning on the power.
- **Cause** : OPE board defect



- **Troubleshooting**
 - 1) Check assembling the LCD harness.
 - 2) Replace the OPE board with new one.

24) Device does not perform initial setup

- **Symptom** : Factory clear or memory clear is performed. Device does not perform initial setup after rebooting.
Firmware version with problem
 - UI : V5.08.10.04_20120605.19 or earlier
 - Main F/W: V11.11.06.02 06-29-2012 or earlier
- **Cause** : S/W defect
- **Troubleshooting**
 - 1) Turn off the device.
 - 2) Open side cover.
 - 3) Turn on the device as Power Key of UI is pressed.
 - 4) Complete System Recovery (HDD format) and reboot the device.

25) TC Calibration Error Occurs

- **Symptom :**

The error shown below occurs when engine firmware V1.20.26 or later is applied:

- C8-2210 (Y) / C8-3210 (M) / C8-4210 (C) /C8-5210 (K)

- **Troubleshooting**

1) Download the PRN file from TSP site.

(<http://tsp.samsung.com> > Knowledge > Technical Resource > Troubleshooting Guide > TG-12070009)

2) Send the PRN file to the device.

- ipsend: Ipsend IP_Address CLEAR_TC_CAL_ERROR.prn
- Usblist2: Usblist2 CLEAR_TC_CAL_ERROR.prn

3) Wait about 10 seconds after sending PRN file. Perform Power Off and On.

26) How to adjust image distortion

- **Symptom :**

Image distortion occurs when paper is fed from DADF.

- **Troubleshooting**

- 1) Loosen the 4 screws of the left hinge then loosen the 4 screws of the right side. Adjust the DADF.
- 2) Perform a copy job from the DADF and see if image distortion occurs. Repeat steps 1 and 2 if there is distortion.
- 3) If image distortion is removed then tighten the hinges' screws.

27) Incorrect time setting when a device's language is Chinese, French, Finnish, or Danish

- **Symptom :**
Time setting is incorrect after initial setting when a device's language is Chinese, French, Finnish, or Danish.
- **Cause :**
Time is not correct by the same time length as the gap from GMT due to wrong time zone function.
- **Troubleshooting**
During initial settings, change time zone to (GMT) UK before date and time setting.
 - 1) If you select Chinese, French, Finnish, or Danish as the language from Initial Settings, you have to change the Time Zone to (GMT) UK before date and time setting.
 - 2) Click "Timezone" during the Device Date/Time step of Initial Setting.



Date and time setting should be done after timezone settings.

- 3) Select (GMT) UK.
- 4) Set date and time.



If you have already done initial setting with these 4 languages,
change Time Zone to (GMT) UK
and set the date and time again from Machine Setup > General Settings > Date & Time > Date & Time.

28) 94 mm periodic jitter occurs in printed document

- **Symptom :**
94 mm periodic jitter occurs in printed document.
- **Troubleshooting**
 - 1) Perform a printout for each color with “Check Drum Prn” file.
 - 2) Check the period of jitter with a ruler and figure out the type of fault.
 - 3) Switch the organic photo conductor drum (OPC) with another OPC of another color.
If this resolves the problem, replace the OPC only.
 - 4) Check the gear of the main drive is changed (damaged) or if there is an alien substance.
If the gear is changed (damaged) then replace the main drive.
If an alien substance is found then remove it.
 - 5) Replace the imaging unit that causes the problem.

29) Line Skew occurs due to internal module of scanner

- **Symptom :**

Line skew occurs when platen copy is performed.

- **Troubleshooting**

- 1) Open DADF. Remove 5 screws. Remove Scan glass.
- 2) Use vernier calipers to check & record difference between Front and Rear of FR Module from Scan left exterior.
- 3) Use vernier calipers to check & record difference between Front and Rear of HR Module from Scan left exterior.
- 4) As the result,
 - If difference of FR is +4 mm and HR is +2mm, (or -4 / -2),
 - a) Remove pulley screw slightly with allen wrench with size 2mm.
 - b) Measure length from left-right exterior of FR module with vernier calipers and make it the same and lock it.
 - c) Make difference of left-right smaller than 0.5mm.

It is OK if difference is smaller than 1mm after locking the screw. (HR needs to be checked)



CAUTION

4 screws (2 front pulleys, 2 rear pulleys) need to be tightly locked. Need to be locked with 7kgf*cm torque. If it is too strong then pulley can be broken, if it is too weak it can be unlocked.

- If difference of FR is +4 mm and HR is -1mm ~ +1mm
 - a) Where front screw is located when it is seen from the front of device. /
Where rear screw is located when it is seen from the rear of device.
 - b) Normally distance between head of screw and Heat Sink is about 1mm. Loosen screw and align FR.
Tighten screw and verify alignment with vernier calipers.

30) 706 Error(Paper Jam) occurs

- **Symptom :**
706 Error(Paper Jam) occurs while using Polaris inner finisher.
- **Troubleshooting**
 - 1) Refer to the guide from the TSP site.
(<http://tsp.samsung.com> > **Knowledge** > **Technical Resource** > **Troubleshooting Guide** > **TG-13020002**)

31) Image registration problem occurs after ACR (Auto Color Registration)

- **Symptom :**

Image registration problem occurs after ACR.

- **Cause :**

LSU (Laser Scanning Unit)

- **Troubleshooting**

- 1) Perform ACR.

(Home > Machine Setup > General Settings > Image Management > Auto Color Registration)

- 2) Print ACR Report.

(Service Mode > Information > Print Reports > Auto Color Registration)

Succeed or Failed for ACR: [1152] → Registration cannot be adjusted by ACR.

- a) Check if Skew data of ACR Report is changed.
- b) Check if OPC surface of Y/M/C is OK. → Check if it is scratched or torn.
- c) Print and check separated Y/M/C color and see if it is OK.
- d) Find “Succeeded or Failed for ACR” from ACR report.
 - If the value is 1152 like the above report, ACR cannot be done. LSU need to be replaced.
 - Succeeded or Failed for ACR: [0] → ACR was performed OK [OK]
 - Succeeded or Failed for ACR: [1] → ACR was not performed OK [Fail]

32) How to handle TRC error & ACR

- **Symptom :**

Abnormal color density (thick, thin) / Color registration is wrong.

- **Troubleshooting**

- 1) If color density of print is wrong, perform TRC and print out TRC report.
- 2) Check the TRC error from the TRC report.
 - Mode column format :
 - F = Full TRC
 - S = Normal TRC
 - Error column format : 1X0 where the last digit indicates the color that is out of range.
 - 1X0 : Sensed value from Y is abnormal.
 - 1X1 : Sensed value from M is abnormal.
 - 1X2 : Sensed value from C is abnormal.
 - 1X3 : Sensed value from K is abnormal.
- 3) Check the followings for the corresponding color.
 - Check if the toner motor is working normally.
 - Enter Tech Mode (press 1, 2, 3 simultaneously then type in 1934)
(Diagnostics > Engine > Diagnostics > Engine Test Routines > Toner Dispense Motor On/Off)
111-0000(Y), 111-0010(M), 111-0020(C), 111-0030(K)
 - Check if toner supply is blocked.
 - Check if toner seal is removed.
 - Check if the transfer roller is installed properly.
 - Print the ACR report. Check the ACR is succeeded.

Succeeded or Failed for ACR	ACR Result - 0 = Success - 256 = LED calibration failed which is performed before ACR for pattern sensing. → ACR sensor is contaminated or ACR sensor is defective.
PWM of sensor LED	LED Calibration Result (LED value, max- 255, min – 0) If ACR result is 256 and PWM value is 179 then it is a sensor fault or a control board fault.
Skew	Number of clicks to adjust for LSU skew (Default: 200 → does not need to be adjusted) 7 clicks = 1 dot. Too low - 190: needs to be adjusted counter-clockwise by 10 clicks Too high - 210: needs to be adjusted clockwise by 10 clicks If the value is between 193~217 then it does not need to be adjusted

33) Paper Jam occurs due to Registration ROLLER-IDLE of DADF

- **Symptom :**

Paper Jam occurs due to Registration ROLLER-IDLE of DADF

When a document jam occurs during original document scanning, the registration sensor and spring tension need to be checked. Otherwise the Registration ROLLER-IDLE needs to be checked.

- **Cause :**

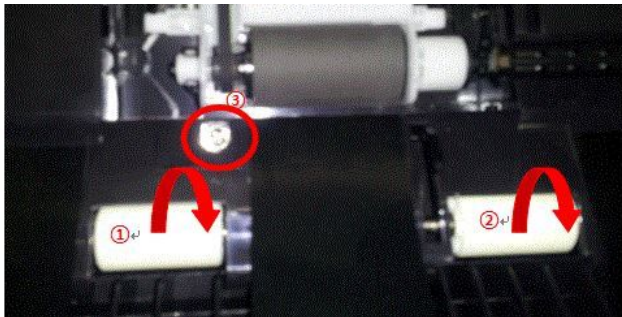
Screw was tightened too much during DADF COVER assembly. Cover plastic presses Registration ROLLER-IDLE and it cannot rotate smoothly, causing a paper jam.

- **Troubleshooting**

1) Open DADF Cover.

2) Rotate "Registration ROLLER-IDLE" by hand.

At this time which is close to screw does not rotate smoothly and rotates smoothly.



3) If roller does not rotate smoothly, loosen screw until roller does rotate smoothly.

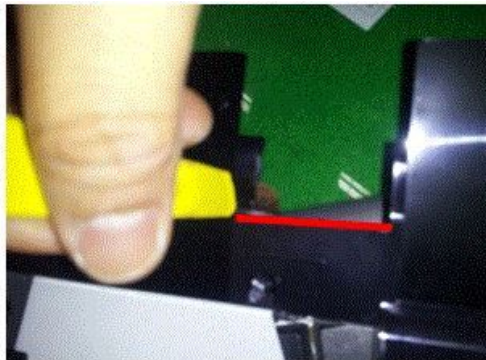
4) When loosening screw still does not allow roller to rotate well, remove DADF cover and scrape away contact point with a knife until roller rotates smoothly. Install DADF and adjust screw.

[How to perform above step 4]

a) Remove the DADF cover.

b) Remove the DADF pick up Assy.

c) Use a razor knife to shave the cover area which is binding with the Registration ROLLER-IDLE.



34) Polaris Color - Removing debris from the Developer Unit.

- **Symptom :**

Line occurs on the paper moving direction.

- **Cause :**

Debris on developer unit causes line on print

- **Troubleshooting**

1) Remove the developer unit.

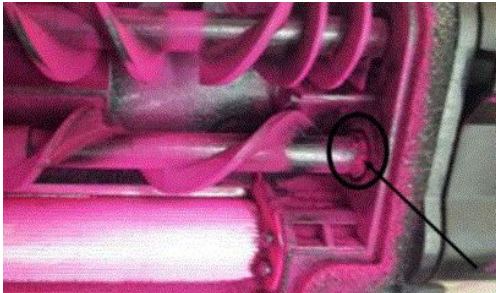
(Refer to 3.2.2.2. Developer Unit)

2) Disassemble the developer unit cover (pay attention not to destroy lock) Empty developer out on clean paper.



3) Remove lumps with the Jig from mag roller.

4) Pay attention & clean the circled area where oil can cause build-up in the Fuser.



35) DADF is not recognized and an S3-3211 error occurs or copying must be performed from the platen.**• Symptom :**

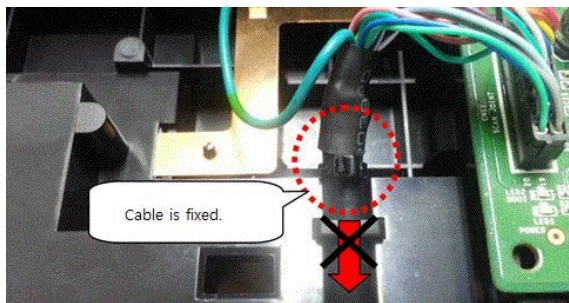
- DADF installation is not recognized.
- Polaris Color Model (which has HDD) - S3-3211 error occurs and copy must be performed using the platen.
- Polaris Monochrome Model - copy must be performed using the platen.

• Cause :

DADF power cable fails.

• Troubleshooting

- 1) Reassemble the DADF power cable and if it does not solve the problem, replace the cable ([JC39-01867A](#))
- 2) Adjust harness and make it fixed with cable tie.



36) The ADF does not recognize a piece of paper.

- **Symptom** : An original document does not feed when loaded on the ADF. (Scan is started from platen glass.)
- **Troubleshooting**
 - 1) Open the DADF cover-open
 - 2) Pull the DADF pick up Assy to the front.
 - 3) Remove the old STOPPER.
 - 4) Assemble the new STOPPER.

37) Blur occurs on Color printout

- **Symptom** : Blur occurs on the color printout.
- **Troubleshooting**
 - 1) Enter EDC Mode → Service Functions → TR Control Mode.
 - 2) Select [T2 Control Mode].
 - 3) Select the paper setting based on the site. (Paper Group, Paper Side, Paper Direction)
 - 4) Raise value for T2 PWM and see if blur problem is resolved.
 - 5) When the problem persists after changing the [T2 Control Mode] values , change the [T1 Control Mode] values.
 - 6) Decrease the value for each color and see whether the symptom disappears.
In this case, [-4] was applied and solved the blur.
 - 7) As there can be variation for each device, change T1, T2 and observe the results.

38) "toner cartridge is not installed." error occurs

- **Symptom :**

Error Report shows "Toner Not Install (C1-x411)"

- C1-5411 - "Black toner cartridge is not installed. Install it"
- C1-2411 - "Yellow toner cartridge is not installed. Install it"
- C1-3411 - "Magenta toner cartridge is not installed. Install it"
- C1-4411 - "Cyan toner cartridge is not installed. Install it"

- **Cause :**

Toner does not fit in the device as the size of the toner container is too small.

- **Troubleshooting**

1) Change the parts below.

- Toner Cartridge Latch(Black) : JC96-08350A
- Toner Cartridge Latch(Cyan) : JC96-08349A
- Toner Cartridge Latch(Magenta) : JC96-08347A
- Toner Cartridge Latch(Yellow) : JC96-08348A

39) The soft keyboard window doesn't display in ACR

- **Symptom :**

Soft Keyboard is not shown when ACR is configured.

- **Troubleshooting**

- 1) Procedure

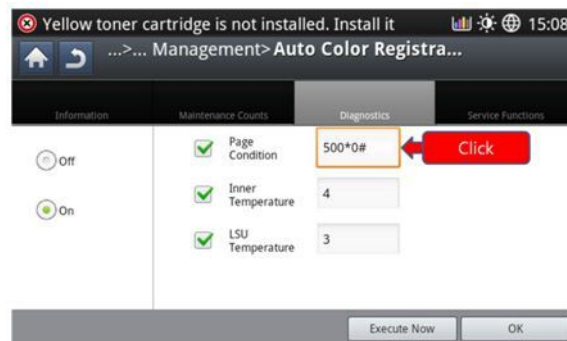
- a) Go to service mode.
- b) Do not use the soft keyboard when logging on to the service mode.
- c) Click the Editbox of ACR.
- d) Confirm Keyboard.

- 2) Root Cause

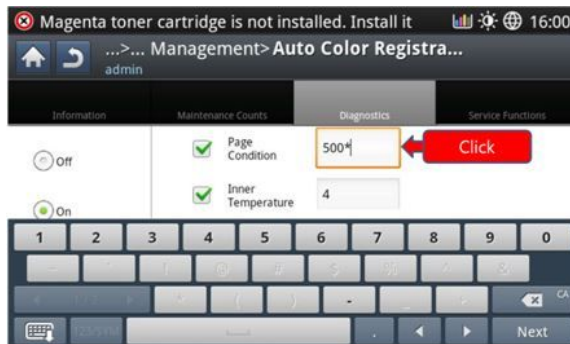
- a) The Keyboard type of ACR editbox is set up in the wrong way
- b) There is no default settings value of the Keyboard.

- 3) Resolution

- a) Setting the defined keyboard value.
 - i) Before



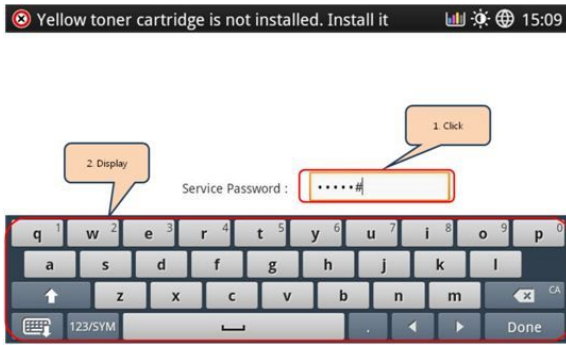
- ii) After



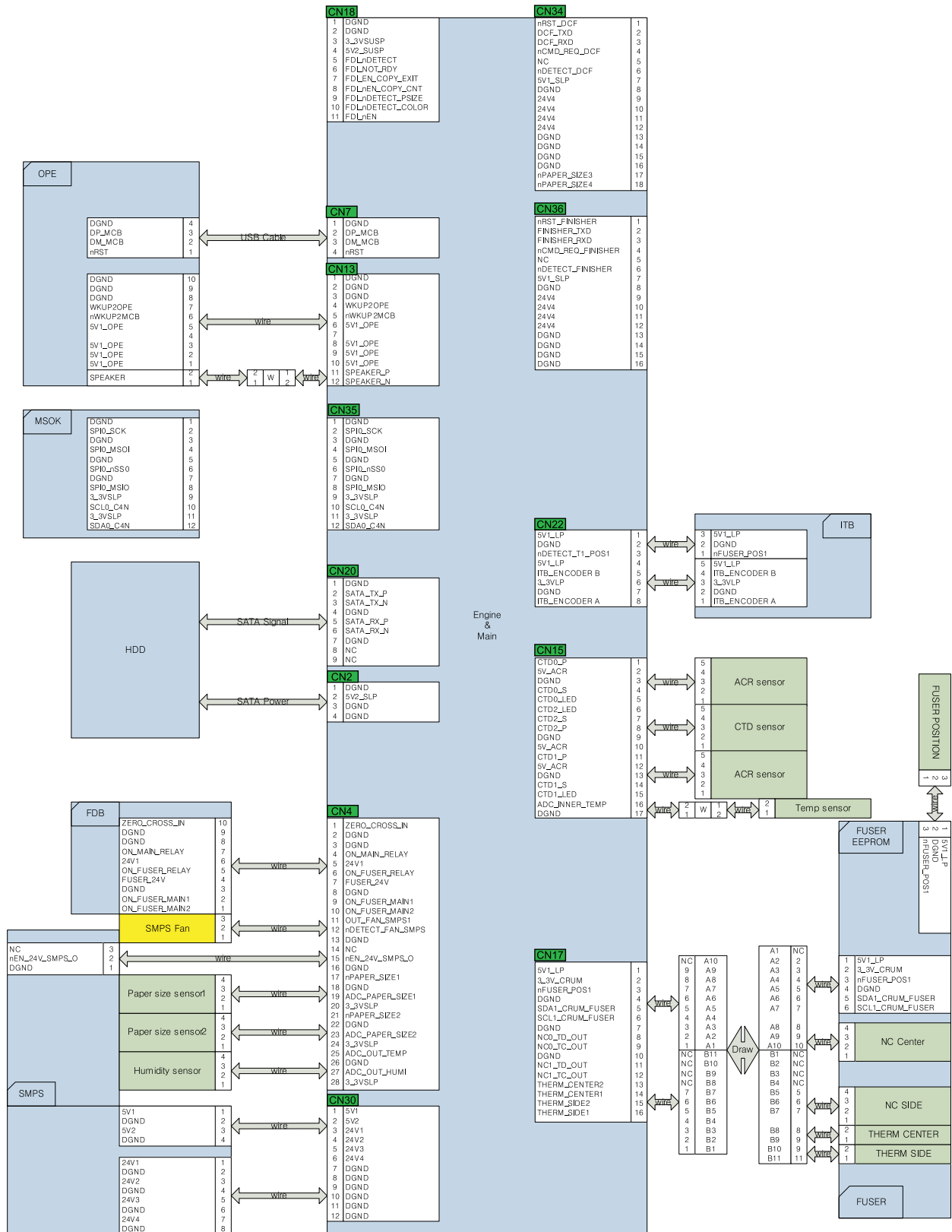
- 4) Self-solution

- a) Click editbox when logging in.

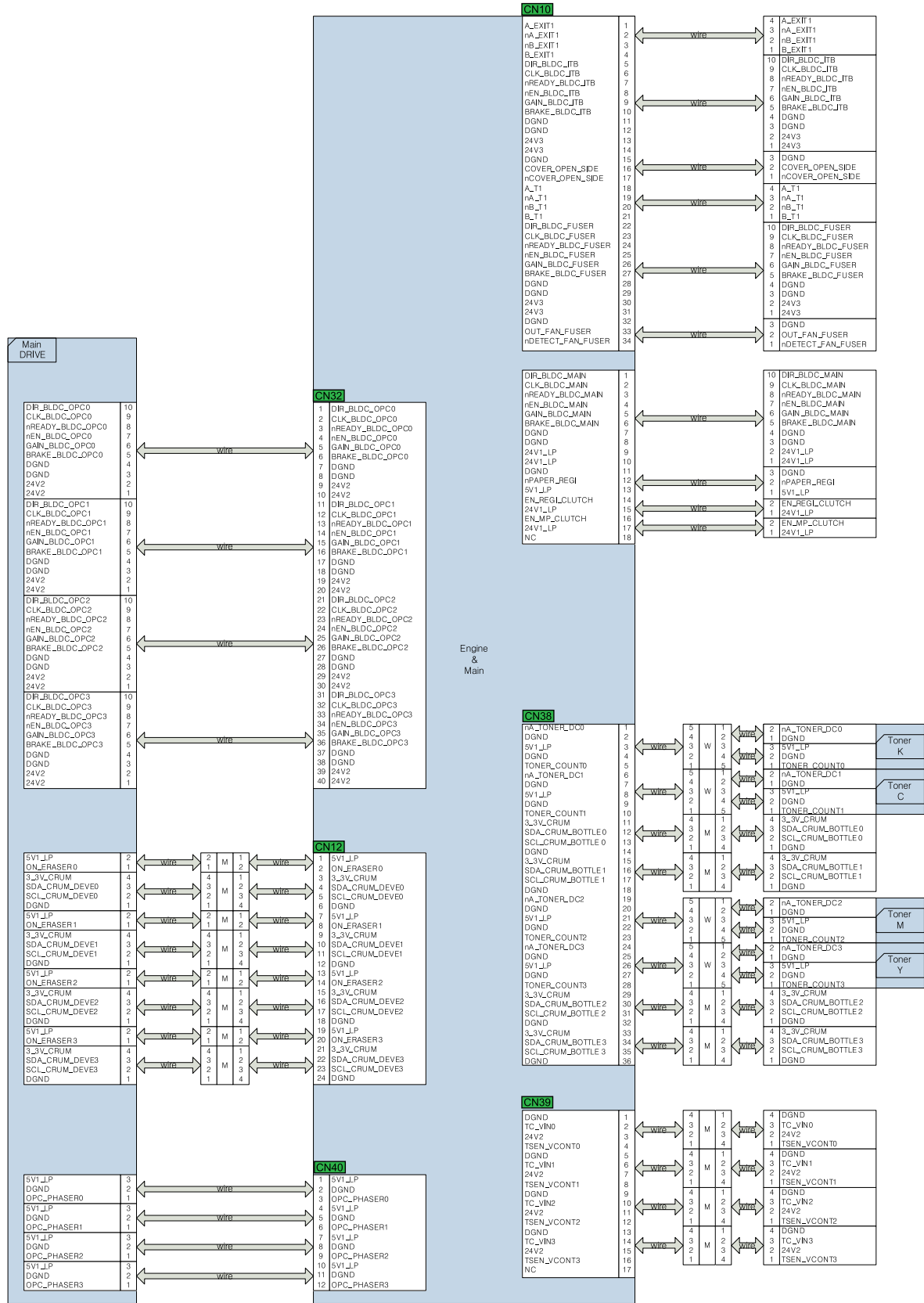
4. Troubleshooting

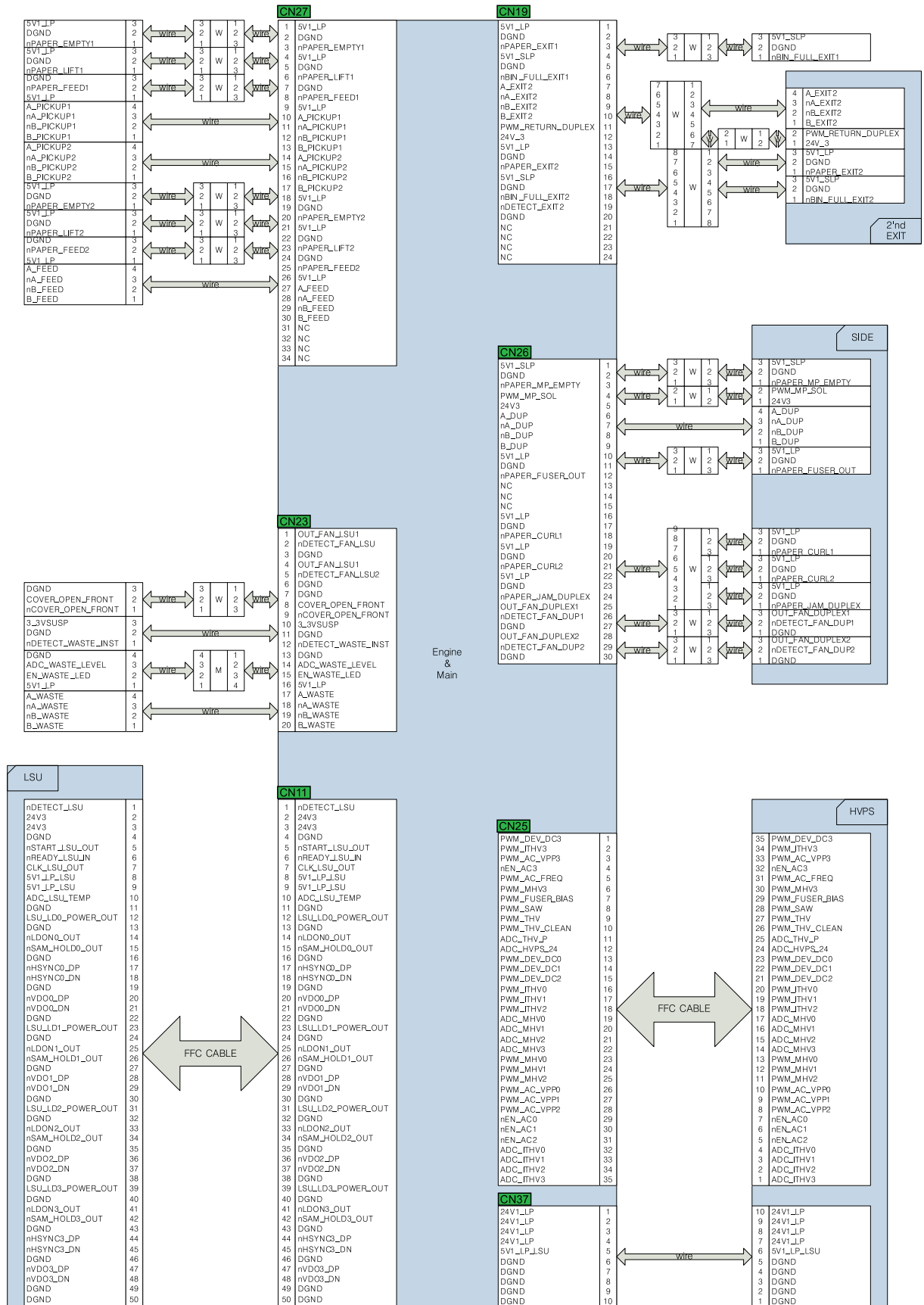


5. System Diagram

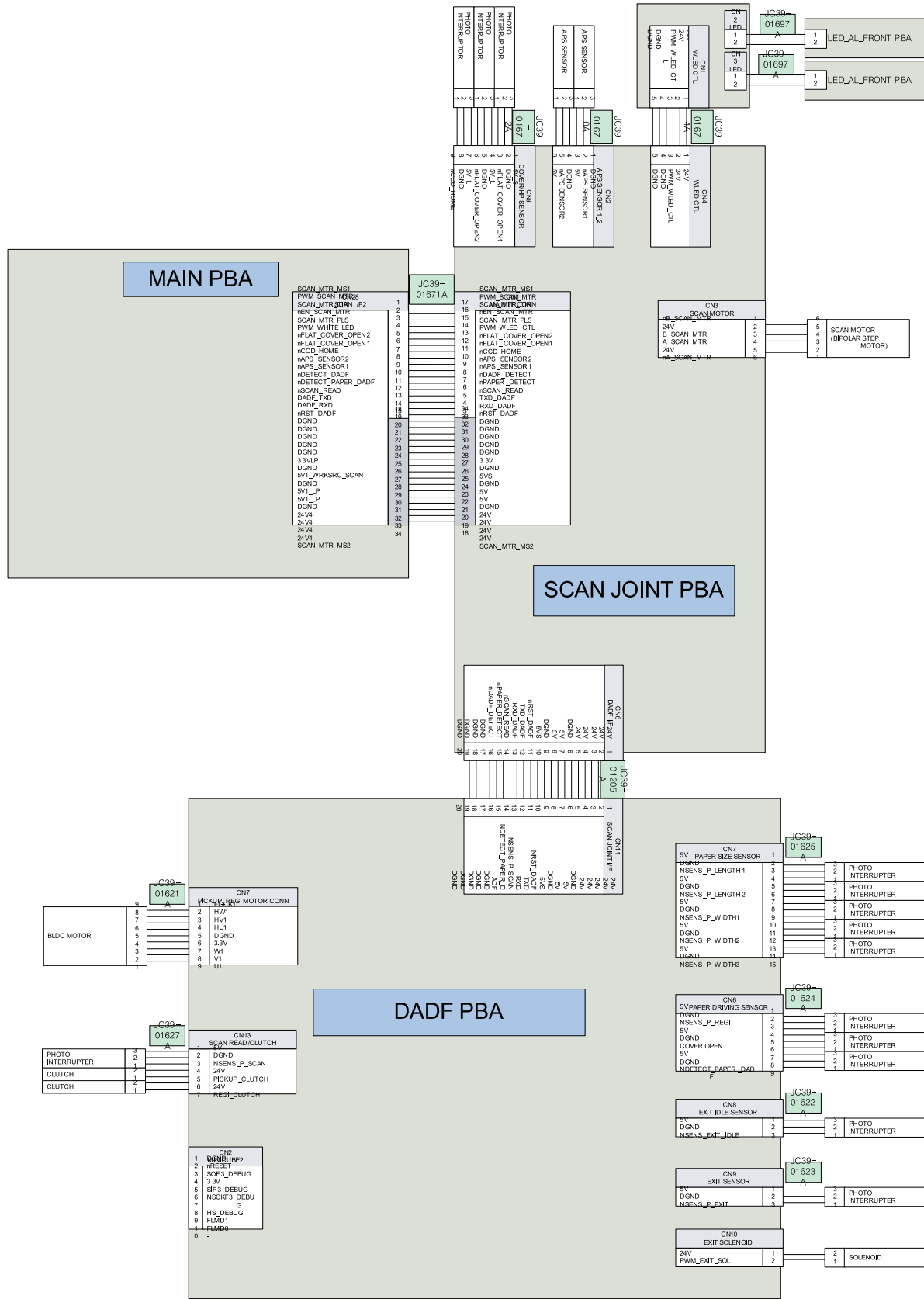


5. System Diagram





5. System Diagram

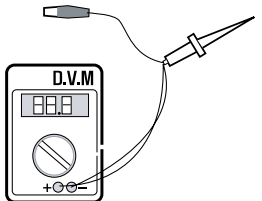


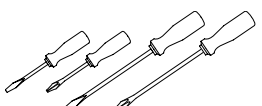
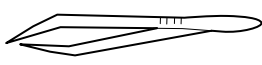



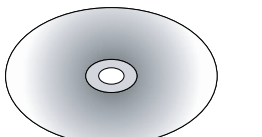


6. Reference Information

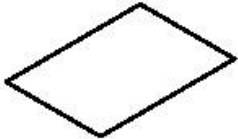

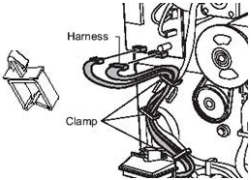
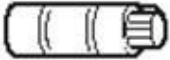
This chapter contains the tools list, list of abbreviations used in this manual, and a guide to the location space required when installing the printer. A definition of test pages and Wireless Network information definition is also included.

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.

6. Reference Information

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 fuser belt 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.

6. Reference Information

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. Polaris Training Frequently Asked Questions


< Index >

- 1) Training material shows different warm-up times from that of product specification.
- 2) Why is an ozone filter present in SCX-8128 Series, and not in CLX-9301 Series?
- 3) Is the initialization process such as color calibration necessary after initial set-up?
- 4) Why is Tray1 unable to accommodate A3/ledger size?
- 5) What is AMPV of CLX-9301 Series and SCX-8128 Series?
- 6) Why is wireless connectivity not supported on Polaris models?
- 7) Can you use a drum beyond its life expectancy?
- 8) Cosmos produces copies almost identical to originals, but Polaris shows deviation in color feel. Copy is more frequently used than image print.
- 9) You say that power consumption is lower than competitors' copiers, but how low is it compared to other electronic products?
- 10) Is Polaris' durability good?
- 11) According to experience with previous models, lifecycle of Toner Cartridge is satisfactory, but actual printable sheet count seems lower than that of competitors. Is there a baseline for Toner Cartridge lifecycle?
- 12) What can happen if I add documents to the DADF while it is in use?
- 13) Is it possible to disable ACR ?
- 14) Can you install a 3rd party HDD drive to these machines?
- 15) For Polaris Mono Models, HDD is not a default option. Are storage related functions not supported? What features are not supported?
- 16) When copying, can mono print be set as default color mode?
- 17) Compared to HP, oblique lines/thin lines and gray did not show properly. Is this improved in Polaris?
- 18) Do CLX-9301 Series and SCX-8128 Series support Super A3(SRA3) paper format?
- 19) Information on CRU, FRU & PM Parts lifecycle?
- 20) Will an empty toner cartridge or service item at end-of-life cause a hard error?
- 21) Can you print/copy if any one of the toner cartridges is empty?
- 22) Can the interval at which you receive an end-of-life message for service items be changed?
- 23) Will the machine display a hard error code when a service item reaches its expected life?
- 24) Will you receive a warning when a consumable or service item is nearing its life expectancy?
- 25) How is consumable or service item life tracked?
- 26) Will I lose counter information if the main board is replaced?
- 27) What is the interchangeable Drum Unit's advantage?
- 28) What are the environment test conditions?
- 29) Do all Polaris models of Polaris support XOA?

6. Reference Information

- 30) HDD is option for SCX-8128 Series. Who is the target customer and what is the benefit of installing an HDD to this series?
- 31) It is hard to separate faxes from copies because they are stacked in the same tray.
- 32) Can I move the shortcuts for copy/scan/fax to a specific page of the home screen?
- 33) Is there automatic paper size detection in a MP tray?
- 34) Is there a force-firmware mode for Polaris?
- 35) Does Polaris mono ship with the HDD SATA and power cables or will the connections come with the optional HDD?

< Answers >

Question No.1	Training material shows different warm-up times from that of product specification.																		
Answer	<p>Polaris warm-up time and booting time are as below.</p> <ul style="list-style-type: none"> • Warm-up(Sleep To Ready) : Polaris Color 25 sec/Mono 25 sec • Booting Time(Power on to Ready) : Polaris Color 34 sec/Mono 25 sec <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p> NOTE</p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th></th> <th>CLX-9201</th> <th>CLX-9251</th> <th>CLX-9301</th> <th>SCX-8123</th> <th>SCX-8128</th> </tr> </thead> <tbody> <tr> <td>FCOT(B/C)</td> <td>7.9/9.5</td> <td>7.5/8.5</td> <td>6.9/8.0</td> <td>6.7</td> <td>5.7</td> </tr> <tr> <td>FPOT(B/C)</td> <td>10/12</td> <td>9.5/11.5</td> <td>9.5/11</td> <td>9</td> <td>8</td> </tr> </tbody> </table> </div>		CLX-9201	CLX-9251	CLX-9301	SCX-8123	SCX-8128	FCOT(B/C)	7.9/9.5	7.5/8.5	6.9/8.0	6.7	5.7	FPOT(B/C)	10/12	9.5/11.5	9.5/11	9	8
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Reference	The Detail Specification Sheet																		

Question No.2	Why is an ozone filter present in SCX-8128 Series (Mono), and not in CLX-9301 Series (Color)?												
Answer	<p>Corona charging method is non-contact type which emits ions generated by Corona-discharging in air to OPC surface. In this process, ozone (ions) is generated in developer unit area. After charging process, ozone filter collects ozone from developer unit. On the other hand, contact charging type like roller-charging has no need to implement ozone filter, because there is no ozone produced in developer unit.</p> <p>※ Charging type</p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Class1</th> <th>Class 2</th> <th>Remark</th> <th>Model</th> </tr> </thead> <tbody> <tr> <td>Non-Contact Charging Type (Corona Type)</td> <td>Scorotron</td> <td>- Mainly used in discharging negative polarity - Mainly used in charging system in printing process.</td> <td>Cosmos Mono Cosmos Color Polaris mono</td> </tr> <tr> <td>Contact charging Type</td> <td>Roller</td> <td>Charging type generally used in recent models</td> <td>Polaris color</td> </tr> </tbody> </table>	Class1	Class 2	Remark	Model	Non-Contact Charging Type (Corona Type)	Scorotron	- Mainly used in discharging negative polarity - Mainly used in charging system in printing process.	Cosmos Mono Cosmos Color Polaris mono	Contact charging Type	Roller	Charging type generally used in recent models	Polaris color
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Reference	Service Manual 2.5.2 Imaging Unit												

Question No.3	Is the initialization process, such as color calibration necessary after initial set-up?
Answer	When setting up initially, initializing process like TRC, ACR calibration is automatically performed. So there is no need for the installer to do an extra initializing run. But installer should manually adjust LSU Skew in case of left and right color-registration misalignment. Please refer to Service Manual for details.
Reference	<ul style="list-style-type: none"> • Calibration process in Polaris color : TRC ->ACR • Calibration process in Polaris mono : No TRC, ACR * Service Manual 4.4.5.6 Image Management 1) ACR(Auto Color Registration) 2) MCR(Manual Color Registration) 3) TRC(Auto Color Tone Adjustment)

Question No.4	Why is Tray 1 unable to accommodate A3/ledger size?
Answer	In order to reduce the size of machine, MP Pick-up/Feeding Unit is moved inside the unit. It takes some space of tray 1 area so it is shorter / narrower. (Percentage of A3 users: below 2%). It is able to feed A3 format from tray2 by default. ※ Canon C2020 uses same method.
Reference	

Question No.5	What is AMPV of CLX-9301 Series and SCX-8128 Series?																								
Answer	Recommended AMPV is as follows. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Product</th> <th>AMPV</th> <th>Product</th> <th>AMPV</th> </tr> </thead> <tbody> <tr> <td>CLX-9301NA</td> <td>7,500 Sheets</td> <td>SCX-8128NA</td> <td>5,000 Sheets</td> </tr> <tr> <td>CLX-9251NA</td> <td>5,000 Sheets</td> <td>SCX-8123NA</td> <td>3,500 Sheets</td> </tr> <tr> <td>CLX-9201NA</td> <td>3,500 Sheets</td> <td></td> <td></td> </tr> <tr> <td>CLX-9350ND</td> <td>10,000 Sheets</td> <td>SCX-8040ND</td> <td>10,700 Sheets</td> </tr> <tr> <td>CLX-9250ND</td> <td>7,500 Sheets</td> <td>SCX-8030ND</td> <td>7,000 Sheets</td> </tr> </tbody> </table>	Product	AMPV	Product	AMPV	CLX-9301NA	7,500 Sheets	SCX-8128NA	5,000 Sheets	CLX-9251NA	5,000 Sheets	SCX-8123NA	3,500 Sheets	CLX-9201NA	3,500 Sheets			CLX-9350ND	10,000 Sheets	SCX-8040ND	10,700 Sheets	CLX-9250ND	7,500 Sheets	SCX-8030ND	7,000 Sheets
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Reference	Service Manual 2.2.1 General Specification																								

Question No.6	Why is wireless connectivity not supported on Polaris models?
Answer	Stats show only about 1% of the users select wireless options.
Reference	

Question No.7	Can you use a drum beyond its life expectancy?
Answer	Drum Cartridge has no machine stop. So it is possible to use Drum Cartridge after end of life if there is no problem with image quality. But if you want to limit Drum Cartridge's usage until its life cycle to ensure image quality, you can turn-on the EIUL (End of Imaging Unit Life) function in service mode. And then machine will stop after Drum Cartridge's end of life. ※ Polaris Color and Mono each ensures image quality until 50k (Color), 100k (Mono) impressions.
Reference	Service Manual 2.2.8 Consumables

6. Reference Information

Question No.8	Cosmos produces copies almost identical to originals, but Polaris shows deviation in color feel. Copy is more frequently used than image print.
Answer	It is a problem that happens in initial products. And it was resolved by correcting of CMS table giving similar color feel to Cosmos. ※ You can use color simulation function to control color feel when you print.
Reference	

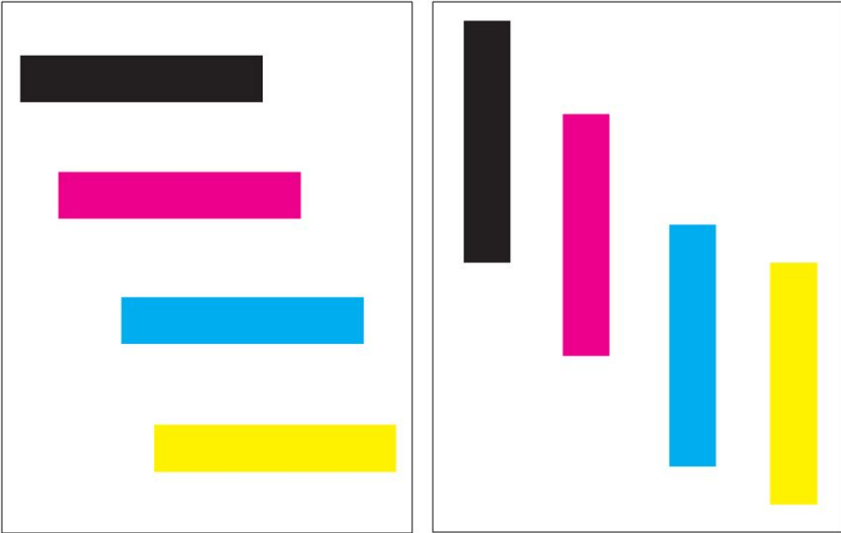
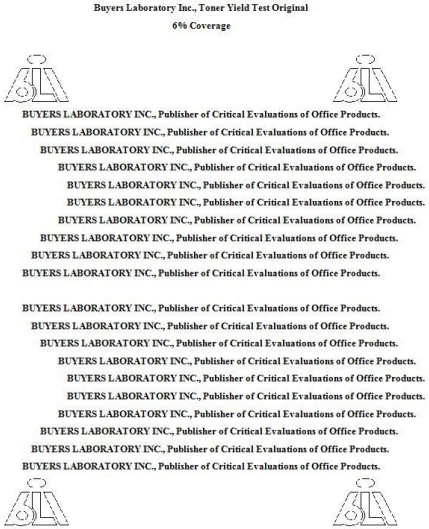
Question No.9	You say that power consumption is lower than competitors' copiers, but how low is it compared to other electronic products?
Answer	For reference, power consumptions at power save are as follows: <ul style="list-style-type: none"> • Polaris power consumption : 1.1-1.6W (Power save mode) • Set-top box : 12.3 W • TV : 1.3 W • Internet Modem : 6 W • Stand Air-conditioner : 5.8 W • Heater : 5.8 W • Audio Speaker : 5.6 W • Home Theater : 5.1 W • Video : 4.9 W • Computer : 2.6 W • General Printers : 2.2 W <p>It is useful to say that our product is highly efficient in electricity consumption comparing to competitors', but it is better to point out just how good it is compared to other electric products, so they can compare it to other devices as well.</p>
Reference	We received inputs that compared to HP auto on/off, Samsung's Sleep Mode Power does not show much difference. HP CP1025 model specifies under 1W electricity consumption at Auto Off. Samsung CLP-365 also specifies under 1W at Sleep Mode, so there is no real advantages in Power Consumption.

Question No.10	Is Polaris' durability good?
Answer	You can refer to the test result of the Buyer's Lab.


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Question No.11	According to experience with previous models, lifecycle of Toner Cartridge is satisfactory, but actual printable sheet count seems lower than that of competitors. Is there a baseline for Toner Cartridge lifecycle?
Answer	<p>For Copiers, Color uses 5 % BLI Patterns, and Mono uses 6 % BLI Patterns.</p> <p>Minimum baseline for lifecycle is defined such as test conditions, set count, imaging unit count, etc.</p> <p>In Korea, this Spec. is inspected by a third-party. Korea Customer Agency conducts its own tests, and if it does not meet the Spec, it requests the company to rectify the spec.</p> <p>In Toner Save Mode, it is saved up to approximately. 20 % and text only mode may be used by printing after activating Save Mode. Configure Method: Eco Button Press, Default setting change in EPM and SWS.</p>

6. Reference Information

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Reference	<p>< BLI Color 5% Pattern ></p>  <p>< BLI Mono 6% Pattern ></p> 

Question No.12	What can happen if I add documents to the DADF while it is in use?
Answer	It may cause skew or jams to DADF
Reference	

Question No.13	Is it possible to disable ACR?												
Answer	<p>Yes, it may be disabled. It can be disabled per each execution condition. But it is not recommended because default setting comes optimized.</p> <ul style="list-style-type: none"> • Page: 200 ~ 5000 (Default: 500) • LSU Temp: 1 ~ 100 (Default: 3 degree Celsius) • Ambient Temp: 1 ~ 100 (Default: 4) <p> NOTE ACR Operating Time</p> <table border="1"> <thead> <tr> <th colspan="2">Samsung</th> <th colspan="2">Competitors</th> </tr> </thead> <tbody> <tr> <td>CLX-9301 Series</td> <td>21.6 sec.</td> <td>Fuji Xerox</td> <td>7~20 sec.</td> </tr> <tr> <td>CLX-9350 Series</td> <td>30.4 sec.</td> <td>Ricoh</td> <td>20~30 sec.</td> </tr> </tbody> </table>	Samsung		Competitors		CLX-9301 Series	21.6 sec.	Fuji Xerox	7~20 sec.	CLX-9350 Series	30.4 sec.	Ricoh	20~30 sec.
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Reference	Service Manual 4.4.5.6 Image Management												
Question No.14	Can you install a 3rd party HDD to these machines?												
Answer	Since compatibility test has not been performed, it may cause problems to the unit. Samsung does not provide service support for unauthorized modifications to the device.												
Reference													
Question No.15	For Polaris Mono 23/28 PPM Models, HDD is not a default option. Are storage related functions not supported? What features are not supported												
Answer	<p>If there is no HDD, Share Folder function is not supported.</p> <p>FAX's storage size reduction from 157 GB on HDD to 4 MB on flash memory. But 4 MB is enough because 80 sheets FAXs is as 1 MB by ITU-T No.1 Chart standard.</p>												
Reference	Service Manual 2.2.3 Controller and Software Specification, Service Guide												
Question No.16	When copying, can mono print be set as default color mode? It needs to be fixed even after power On/Off.												
Answer	<p>Default settings may be modified in Machine Setup. Alternatively, 'Short Cut' feature may be used to create custom default setting. User Authorities must be configured through Job Account to prevent them from changing settings.</p> <p>It may be changed in Copy Setting within Machine Setup.</p> <p>Detailed location is as follows: "1. Menu overview and advanced features > Machine setup > Other settings > application settings > Copy Settings > Color Mode" value: Auto > Mono".</p> <p>Then, the setting change will remain even after power On/Off. This only changes the default setting, but users still can change the setting before starting the jobs.</p>												
Reference	Search in Admin Guide By "Color Mode"												
Question No.17	Compared to HP, oblique lines/thin lines and gray did not show properly. Is this improved in Polaris?												
Answer	Oblique lines/Thin lines expression has been much improved, and it is currently equal to HP or better.												
Reference	Implementation of ReCP Technology (Edge Enhancement for Clean Page : Thin line expression improvement, Resolution Enhancement : Oblique line expression improvement)												

Question No.18	Do CLX-9301 Series and SCX-8128 Series support the Super A3 (SRA3) paper format?
Answer	CLX-9301 Series and SCX-8128 Series do not support the Super A3(SRA3) paper format. Banner print is not supported either. * SRA3: Supplementary Raw Type A3
Reference	(Service Manual 2.2.7 Paper Handling Specification) Polaris Specification : Ledger, A3, Letter, Legal, Oficio, Folio, A3, A4, JIS B5, ISO B5, Executive, A5, Statement, Custom

Question No.19	Information on CRU, FRU and PM Parts life cycle?																																										
Answer	<ul style="list-style-type: none"> CLX-9201/9251/9301 series <table border="1"> <tr> <td>Toner Cartridge(B/C)</td> <td>20,000/15,000 impressions</td> </tr> <tr> <td>Drum Unit</td> <td>50,000 impressions</td> </tr> <tr> <td>Waste Toner Container</td> <td>50,000 impressions</td> </tr> <tr> <td>Developer Unit</td> <td>300,000 impressions</td> </tr> <tr> <td>ITB</td> <td>300,000 impressions</td> </tr> <tr> <td>ITB Cleaner</td> <td>150,000 impressions</td> </tr> <tr> <td>Transfer Roller Assembly</td> <td>150,000 impressions</td> </tr> <tr> <td>Fuser Unit</td> <td>150,000 impressions</td> </tr> <tr> <td>Pick-up/Reverse/Forward Roller</td> <td>200,000 impressions</td> </tr> <tr> <td>DADF Pick-up Roller Assembly</td> <td>200,000 impressions</td> </tr> <tr> <td>DADF Friction Pad</td> <td>100,000 impressions</td> </tr> </table> SCX-8123/8128 series <table border="1"> <tr> <td>Toner Cartridge</td> <td>25,000 impressions</td> </tr> <tr> <td>Drum Unit and Developer</td> <td>100,000 impressions</td> </tr> <tr> <td>Waste Toner Container</td> <td>100,000 impressions</td> </tr> <tr> <td>Developer Unit</td> <td>300,000 impressions</td> </tr> <tr> <td>Transfer Roller Assembly</td> <td>300,000 impressions</td> </tr> <tr> <td>Fuser Unit</td> <td>150,000 impressions</td> </tr> <tr> <td>Pick-up/Reverse/Forward Roller</td> <td>200,000 impressions</td> </tr> <tr> <td>DADF Pick-up Roller Assembly</td> <td>200,000 impressions</td> </tr> <tr> <td>DADF Friction Pad</td> <td>100,000 impressions</td> </tr> <tr> <td>Ozone Filter</td> <td>150,000 impressions</td> </tr> </table> 	Toner Cartridge(B/C)	20,000/15,000 impressions	Drum Unit	50,000 impressions	Waste Toner Container	50,000 impressions	Developer Unit	300,000 impressions	ITB	300,000 impressions	ITB Cleaner	150,000 impressions	Transfer Roller Assembly	150,000 impressions	Fuser Unit	150,000 impressions	Pick-up/Reverse/Forward Roller	200,000 impressions	DADF Pick-up Roller Assembly	200,000 impressions	DADF Friction Pad	100,000 impressions	Toner Cartridge	25,000 impressions	Drum Unit and Developer	100,000 impressions	Waste Toner Container	100,000 impressions	Developer Unit	300,000 impressions	Transfer Roller Assembly	300,000 impressions	Fuser Unit	150,000 impressions	Pick-up/Reverse/Forward Roller	200,000 impressions	DADF Pick-up Roller Assembly	200,000 impressions	DADF Friction Pad	100,000 impressions	Ozone Filter	150,000 impressions
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Question No.20	Will an empty toner cartridge or service item at end-of-life cause a hard error?
Answer	<ul style="list-style-type: none"> • There is no machine stop in consumables or PM part except Toner Cartridge. • Toner Cartridges become Hard Stop mode when Toner Cartridge is empty. <p>If there is no machine stop in Toner cartridge, developer unit will be out of control due to toner density error.</p>
Reference	
Question No.21	Can you print/copy if any one of the toner cartridges is empty?
Answer	<p>No. If one of the color Toner cartridges become Hard Stop mode, the engine is not working. Both Cosmos and Polaris have the same Hard Stop algorithm. So In case of Hard Stop, both engines are not working.</p>
Reference	
Question No.22	Can the interval at which you receive an end-of-life message for service items be changed?
Answer	All the PM parts including consumables have default warning time. And it can be adjusted in the range 5-30% in 1% increments (Threshold).
Reference	Service Manual 4.4.3.2 Supply Status
Question No.23	Will the machine display a hard error code when a service item reaches it expected life?
Answer	Consumables and PM part except Toner Cartridge have no Hard Stop mode. So they can work regardless of machine's malfunction. On the other hand, because Toner Cartridge has Hard Stop mode to protect engine from error, It is not allowed that User removes the Hard Stop mode of Toner Cartridge.
Reference	
Question No.24	Will you receive a warning when a consumable or service item is nearing it's life expectancy?
Answer	Toner Cartridge brings pre-warning up based on the life information of its memory and there is machine stop mode. OPC unit brings pre-warning up based on the life information of its memory and there is no machine stop mode. PM Parts except Toner, — and OPC brings pre-warning up based on the life information of machine memory and there is no machine stop mode.
Reference	Service Manual 4.4.3.2 Supply Status (Pre-Warning Information)
Question No.25	How is consumable an service item life tracked?
Answer	Toner Cartridge and Drum Units record life-cycle information in its memory. And PM Parts records life-cycle information based on page count in machine memory.
Reference	
Question No.26	Will I lose counter information if the main board is replaced?
Answer	<p>No, you will not. Life cycle information of machine is recorded on MSOK in a slot of main board. And you should use existing MSOK even after the main board replacement. So life-cycle information is unaffected by main board replacement.</p> <p>※ MSOK: Master System Operator Key</p>
Reference	

6. Reference Information

Question No.27	What is the interchangeable Drum Unit's advantage?
Answer	Users generally use Black image more than color yellow, magenta, and cyan when they are printing. So users can delay replacement cycle of black drum unit by interchanging black with color Drum Unit. Spare Drum Units' storage such as money and space is minimized to one unit only.
Reference	

Question No.28	What are the environment test conditions?
Answer	<ul style="list-style-type: none"> • HH(High temperature and humidity): 30°C, 85% • LL(Low temperature and humidity): 10°C, 10% • NN(Normal temperature and humidity): 23°C, 55% • Cycle Test : 15°C 15% ↔ 26°C 20% ↔ 20°C 10% ↔ 26°C 80% ↔ 23°C 55%
Reference	

Question No.29	Do all Polaris models support XOA?
Answer	All Polaris Color models (CLX-9301NA, CLX-9251NA, CLX-9201NA) support XOA. But only SCX-8128NX supports XOA among Polaris Mono models. SCX-8128NA and SCX-8123NA do not support XOA.
Reference	

Question No.30	HDD is option for SCX-8128 Series. Who is the target customer and what is the benefit of installing an HDD to this series?
Answer	<p>If the HDD is not installed in SCX-8128 Series, it does not support the Shared Folder, Job Log and HDD Spooling because that function need huge data memory. But general function that Scan to E-mail/SMB/FTP is supported by using RAM. In case of FAX, it uses 4 MB flash memory without HDD. 4 MB is enough because 80 sheets FAXs is 1 MB as ITU-T No.1 Chart standard.</p> <p>Therefore, the target customer is</p> <ol style="list-style-type: none"> 1) The customer who must save and scan the job log; government or security concerning company. 2) The customer who wants to use device as a file server. 3) The customer who wants print in LINUX and UNIX environment. LINUX and UNIX's print process is to print after store whole job to HDD. 4) The customer who sends/receives FAXES more than 200 sheets at one time.
Reference	

Question No.31	It is hard to separate faxes from copies because they are stacked in the same tray.
Answer	You can separate faxes from copies by installing Job Separator (CLX-JST100). Then you can print faxes to basic stacker and copies to inner tray respectively.
Reference	

Question No.32	Can I move the shortcuts for copy/scan/fax to a specific page of the home screen?
Answer	<p>No, you cannot. It is possible to adjust the priority of functions like copy and scan. But it will be made possible by a firmware update.</p> <p>※ Setting: Machine setup > General Settings > Home Settings > Priority</p>
Reference	

Question No.33	Is there automatic paper size detection in a MP tray?
Answer	There is no automatic paper size detection in a MP tray. You should manually select the MP tray's paper format of the original. ※ Setting: Machine Setup > Tray Settings > Settings > MP Tray
Reference	

Question No.34	Is there a force-firmware mode for Polaris?
Answer	There is a force-firmware mode for Polaris Color only. You can go into force-firmware mode by turning on the machine while opening the front door and right door and pushing the power button.
Reference	

Question No.35	Does Polaris mono ship with the HDD SATA and power cables or will the connections come with the optional HDD?
Answer	The SATA cable and power cable are shipped with the optional HDD package. So you should assemble those cables on the main board when you install the HDD.
Reference	Service Manual 3.3.32.1 Installing the HDD



GSPN (GLOBAL SERVICE PARTNER NETWORK)

Area	Web Site
Europe, MENA, CIS, Africa	https://gspn1.samsungcportal.com
E.Asia, W.Asia, China, Japan	https://gspn2.samsungcportal.com
N.America, S.America	https://gspn3.samsungcportal.com

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