Color Laser MFP

ProXpress C406x series
SL-C4060FX / SL-C4062FX

(Ver 1.01)

SERVICE MANUAL

Color Laser MFP

C4060 C4062

Contents

Refer to the service manual in the GSPN (see the rear cover) for more information.

Contents

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/EN 60825-1:2014. Class I laser products are not considered to be hazardous. The laser system and printer are designed so there is never any human access to laser radiation above a Class I level during normal operation, user maintenance or prescribed service condition.

   - Wavelength: 788 nm (-13/+12)
   - Beam divergence
     - Paraller: 8 degrees (-2/ +4)
     - Perpendicular: 31 degrees (-6/ +4)
   - Maximum power of energy output: 12 mW

WARNING

Never operate or service the printer 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 injury to persons:

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 on 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 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 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 specification and description

2.1. Product Specification

2.1.1. Product Overview

[**SL-C4060FX**]

[**SL-C4062FX**]

1) **Print Speed**
   - Mono : Up to 40 ppm in A4 (Up to 42 ppm in Letter)
   - Color : Up to 40 ppm in A4 (Up to 42 ppm in Letter)
2) **Processor**
   - 1.5 GHz (Quad Core)
3) **Printer Languages**
   - SPL / PCL5ce / PCL6 / PostScript3
4) **Memory**
   - Standard : 3 GB
   - Max : 5 GB
5) **Operational Panel**
   - 7” Color Touch Screen Panel
6) **Interface**
   - Standard : USB Device, USB Host x 2, Ethernet 10/100/1000 Base TX
7) **Supplies**
   - Toner (Black)
     - Approx. 15,000 pages
       * Declared Yield Value in accordance with ISO/IEC 19798
       * Ships with initial toner cartridges yield 4,000 pages
   - Toner (Color)
     - Yellow Toner : Approx. 10,000 pages
     - Magenta Toner : Approx. 10,000 pages
     - Cyan Toner : Approx. 10,000 pages
       * Declared Yield Value in accordance with ISO/IEC 19798
       * Ships with initial toner cartridges yield 2,500 pages
8) **Automatic Document Feeder Type**
   - C4060FX : DSDF (A4)
   - C4062FX : DSDF (Legal)

2.1.2. Specifications

Product Specifications are subject to change without notice.

NOTE

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

2.1.2.1. General specification

Item	Specification
Standard Functions	Print, Copy, Scan, Fax
Processor	1.5 GHz (Quad Core)
Operational Panel	7” Touch Screen Panel
Memory (Standard)	3 GB
Memory (Maximum)	5 GB
Hard Disk Drive	N/A
Interface (Standard)	USB Device, USB Host x 2, Ethernet 10/100/1000 Base TX

Interface (Optional)	• Wireless LAN / NFC
	  • IEEE 802.11b/g/n + NFC Active Type
	  • IEEE 802.11b/g/n/ac + BLE + NFC Active Type

Warm-up Time (From Sleep)	6 sec
Warm-up Time (From Power Off)	30 sec
Power Requirements	AC 220 - 240 V, 50 / 60 Hz AC 110 - 127 V, 50 / 60 Hz (Not dual voltage, power supply varies by country)
Power Consumption	• 21 W (Ready) • 650 W (Normal Operation) • 1100 W (Max/Peak) • 1.4 W (Sleep) • 1.87 kWh (TEC)
Noise Level	• Less than 53 dBA (Printing) • Less than 56 dBA (Copying) • Less than 37 dBA (Ready)
Dimension (W x D x H)	• C4060FX : 420 x 453 x 529 mm • C4062FX : 530 x 453 x 581 mm

Weight (SET Only / SET with Supplies)	• C4060FX
	  • Set Only : 25.6 Kg
	  • Set with Supplies : 28.5 Kg
	• C4062FX
	  • Set Only : 27.4 Kg
	  • Set with Supplies : 30.3 Kg

Max. Monthly Duty Cycle	80,000 pages
Recommended Monthly Print Volume	2,000~15,000 pages
Security	SSL/TLS, IPv6, IPSec, SNMPv3, IEEE 802.1x, Kerberos, SMB, LDAP, Protocol&Port Management, IP/MAC Filtering, Audit Log, Access Control

Item	Specification
Client OS Support	• Windows : XP (32/64 bit), 2003 Server (32/64 bit), Vista (32/64 bit), 2008 Server (32/64 bit), Windows 7 (32/64 bit), 2008 Server R2 (64 bit), Windows 8 (32/64 bit), Windows 8.1 (32/64 bit), Windows Server 2012 (64 bit), Windows Server 2012 R2 (64 bit), Windows 10 (32/64 bit) • Linux : RedHat Enterprise Linux 5, 6, Fedora 12, 13, 14, 15, 16, 17, 18, 19, 20, OpenSuSE 11.2, 11.3, 11.4, 12.1, 12.2, 12.3, 13.1, Ubuntu 10.04, 11.04, 11.10, 12.04, 12.10, 13.04, 13.10, 14.04, SuSE Linux Enterprise Desktop 10, 11, Debian 6, 7, Mint 13, 14, 15, 16 • Unix : Sun Solaris 9, 10, 11 (x86, SPARC), HP-UX 11.0, 11i v1, 11i v2, 11i v3 (PA-RISC, Itanium), IBM AIX 5.1, 5.2, 5.3, 5.4, 6.1, 7.1 (PowerPC) • Mac : OS 10.6 - 10.11
Network Protocols	TCP/IPv4, IPv6, DHCP, BOOTP, AutoIP, DNS, DDNS, WINS, Standard TCP/IP, LPR/LPD, IPP, ThinPrint, Google Cloud Print, AirPrint, WSD print, FTP print, HTTP, SNMP (v1/2c/3), Telnet, SLP, Bonjour, UPnP (SSDP), WSD Discovery, SMTP, FTP, LDAP, SMB, Kerberos

2.1.2.2. Print Specification

Item	Specification

Print Speed	• Simplex (Mono / Color)
	  • Up to 40 / 40 ppm in A4 (Up to 42 / 42 ppm in Letter)
	• Duplex (Mono / Color) (Simplex to Duplex)
	  • Up to 28 / 28 ipm in A4 (Up to 28 / 28 ipm in Letter)

First Print Out Time	• From Ready (Mono / Color)
	  • As fast as 8 / 8 sec
	• From Sleep (Mono / Color)
	  • As fast as 14 / 14 sec

Resolution	• Optical : 600 x 600 dpi • Enhanced : Up to 9600 x 600 dpi effective output (600x600x4 bit)
Print Languages	PCL5 / PCL6 / PS3 / PDF V1.7
Duplex Print	Built-in
Direct Print Support	JPEG, PDF, PRN, TIFF, XPS
Print Features	Secure Print, Stored Print, Booklet Print, N-up, Cover Page Print, Barcode Print, Eco Print, Skip Blank pages, Poster Print, Watermark, Tray Priority Settings, Auto Tray Switching, Tray Protection, Direct Print from USB, Secure PDF Print

2.1.2.3. Scan Specification

Item	Specification
Scan Speed (Mono)	Simplex 40 ipm (300 dpi), Duplex 60 ipm (300 dpi)
Scan Speed (Color)	Simplex 40 ipm (300 dpi), Duplex 60 ipm (300 dpi)
Compatibility	• Windows : TWAIN, WIA • Mac : TWAIN, ICDM • Linux : SANE
Method	Color CIS
File Format	TIFF-S/TIFF-M/JPEG/S-PDF/M-PDF/S-XPS/M-XPS
Resolution (Optical)	• ADF : Up to 600 x 600 dpi • Platen : Up to 600 x 600 dpi
Resolution (Enhanced)	• ADF : Up to 4,800 x 4,800 dpi • Platen : Up to 4,800 x 4,800 dpi
Scan Destinations	USB/Email/SMB/FTP/PC/HDD/I-FAX
Communication Protocol	SMTP, SMB, FTP, WSD

Scan Size	• ADF
	  • C4060FX : Max. 216 x 356 mm
	  • C4062FX : Max. 216 x 356 mm
	• Platen
	  • C4060FX : Max. 216 x 297 mm
	  • C4062FX : Max. 216 x 356 mm

2.1.2.4. Copy Specification

Item	Specification

Copy Speed	• SDMC (Single Document Multiple Copy) (Mono / Color)
	  • Up to 40 / 40 cpm in A4 (Up to 42 / 42 cpm in Letter)
	• MDMC (Multiple Document Multiple Copy)
	  • Up to 40 / 40 cpm in A4 (Up to 42 / 42 cpm in Letter)

First Copy Out Time	• From Ready (Mono / Color)
	  • Less than 9 / 9 sec @ Platen
	• From Sleep (Mono / Color)
	  • Less than 30 / 30 sec @ Platen

Resolution	• ADF(DSDF)
	  • 300 x 600 dpi (Optical Up to 300 x 600 dpi depending on Original Type)
	  Printing: Up to 9600x600 dpi Effective Output (600x600x4 bit)
	• Platen
	  • 600 x 600 dpi (Optical Up to 600 x 600 dpi depending on Original Type)
	  Printing: Up to 9600x600 dpi Effective Output (600x600x4 bit)

Reduce, Enlarge Range	25 - 400%
Darkness Control	11 Levels
Contrast Control	11 Levels
Multi Copy	9,999 pages
Duplex Copy	Built-in
Copy Features	ID Copy, N-Up, Auto Fit, Book Copy, Booklet, Poster Copy, Image Repeat, Overlay, Image Shift, Covers, Color Shift, Negative Image, Saturation, Under Color Removal, Fine Density, Watermark, Stamp, Edge Erase, Background Density, Background Image, Background Adjustment, Mirror Image, Copy to Edge, Program

2.1.2.5. Fax Specification

Item	Specification
Compatibility	ITU-T G3, Super G3
Communication System	PSTN / PABN
Modem Speed	33.6 kbps
TX Speed	3 Sec (Mono / Standard / ECM-MMR / MemoryTx / ITU-T G3 No.1 Chart)
Scan Speed	40 ipm/ 60 ipm
Resolution (Mono)	• Std : 203 x 98 dpi • Fine : 203 x 196 dpi • S.Fine : 300 x 300 dpi • U.Fine : 600 x 600 dpi
Compression Method	MH, MR, MMR, JBIG
Auto Dial	Yes
Fax Feature	Speed Dial, Group Dial, ECM, Caller ID, Auto Redial, On Hook Dial, Delay Send, Multi Send, Job Build, Secure Reception, Forwarding to Fax/Email/SMB/FTP, etc.

2.1.2.6. Paper Handling Specification

Item	Specification
Input Capacity (Cassette)	550 sheets
Input Capacity (Multipurpose Tray)	50 sheets
Input Capacity (Maximum)	2,250 sheets (Standard 600 sheets + Optional 550 sheet Second Cassette Feeder x 3)
Media Type (Cassette)	• Cassette 1 : Plain, Thin, Thick, Heavy weight, Extra Heavy weight, Cotton, Colored, Pre-Printed, Recycled, Bond, Archive, Letterhead, Hole Punched, Cardstock, Glossy Photo, Envelope, Label, Thick Envelope • Cassette 2 – 4 : Plain, Thin, Recycled, Bond, Archive, Letterhead, Hole Punched, Cardstock, Thick, Heavy weight, Cotton, Colored, Pre-printed
Media Type (Multipurpose Tray)	Plain, Thin, Thick, Cotton, Colored, Pre-Printed, Recycled, Bond, Archive, Letterhead, Hole Punched, Cardstock, Glossy Photo, Envelope, Label, Heavy weight, Extra Heavy weight, Thick Envelope
Media Size (Cassette)	• Cassette 1 : A4, A5, A6, B5(JIS), B5(ISO), Legal, Letter, Executive, Statement, Oficio, Folio, Envelope Monarch, Envelope DL, Envelope C5, Envelope C6, Envelope No. 10, Envelope No. 9, Postcard 4x6, Custom (98 x 127 mm - 216 x 356 mm (3.86" x 5" - 8.5" x 14")) • Cassette 2 – 4 : A4, A5, B5(JIS), B5(ISO), Legal, Letter, Executive, Statement, Oficio, Folio, Custom (98 x 210 mm - 216 x 356 mm (3.86" x 8.3" – 8.5" x 14"))
Media Size (Multipurpose Tray)	A4, A5, A6, B5(JIS), B5(ISO), Legal, Letter, Executive, Statement, Oficio, Folio, Envelope Monarch, Envelope DL, Envelope C5, Envelope C6, Envelope No. 10, Envelope No. 9, Postcard 4x6, Index Card 4x6, Custom (76 x 127 mm - 216 x 356 mm (3" x 5" - 8.5" x 14"))
Media Weights (Cassette)	• Cassette 1 : 60 – 220 g/m² • Cassette 2 – 4 : 60 – 176 g/m²
Media Weights (Multipurpose Tray)	60 – 220 g/m²
Output Capacity	250 sheets
Input Capacity (DSDF)	50 sheets
Media Size (DSDF)	• Width: 105 – 216 mm (4.1" – 8.5") • Length: 148 – 356 mm (5.8" – 14")
Media Weights (DSDF)	• C4060 : 60 – 90 g/m² • C4062 : 60 – 120 g/m²
Printing size	• Max. Size : 216 x 356 mm (8.5" x 14") • Min. Size : 76 x 127mm (3" x 5")
Duplex Printing	• Media sizes : A4 / Letter / Legal / Oficio / Folio / Custom [210 x 279 mm ("8.27 x 11") - 216 x 356 mm (8.5" x 14")] • Media types : Plain Paper / Thin Paper / Thick Paper / Recycled / Bond • Media weight : 60 – 120 g/m²

2.1.2.7. Software and Solution

Item		Specification
Application	Anyweb Print	Yes
	Easy Printer Manager	Windows / Mac
	Easy Color Manager	N/A
	Easy Document Creator	Windows
	Net PC Fax	Windows / Mac
	Direct Printing Utility	Windows
	Easy Deployment Manager	Windows
	Easy Eco Driver	Windows
	Universal Printer Driver	Windows
	Universal Scan Driver	Windows / Mac
Mobile Printing		Apple AirPrint, Mopria-certified, Google Cloud Print, Samsung Cloud Print, PrinterOn Cloud Print, Samsung Mobile Print, Samsung Print Plugin
Solution	Device Management	Fleet Admin Pro
	Billing & Supply Management	CounThru Enterprise / CounThru Pro
	Output Management(security)	SmarThruWorkFlow 3.0
	Document Management and Distribution	SecuThru Lite 2.0
	Mobility	SCP 1.0
Security		SSL/TLS, IPv6, IPSec, SNMPv3, IEEE 802.1x, Kerberos, SMB, LDAP, Protocol&Port Management, IP/MAC Filtering, HDD Overwrite, HDD Encryption, Common Criteria Certification (ISO 15408), Audit Log, Access Control

2.1.2.8. Supplies

Item		Model Name	Average yield	Remark
Toner Cartridge (Initial)	Black	-	Approx. 4,000 pages	
	Cyan Magenta Yellow	-	Approx. 2,500 pages	
Toner Cartridge	Black	CLT-K603L	Approx. 15,000 pages	
	Cyan	CLT-C603L	Approx. 10,000 pages	
	Magenta	CLT-M603L	Approx. 10,000 pages	
	Yellow	CLT-Y603L	Approx. 10,000 pages	
	Black	CLT-K604L	Approx. 15,000 pages	**NOTE** The toner cartridge is available only for C4062 series bought in the United States and Canada.
	Cyan	CLT-C604L	Approx. 10,000 pages	
	Magenta	CLT-M604L	Approx. 10,000 pages	
	Yellow	CLT-Y604L	Approx. 10,000 pages	
Waste Toner Container		CLT-W506	• Approx. 20,000 pages (Mono printing) • Approx. 5,000 pages (Color printing)	

NOTE

Declared yield value in accordance with ISO/IEC 19798. The number of pages may be affected by operating environment, printing interval, graphics, media type and size.

Depending on the options, percentage of image area and job mode used, the toner cartridge's lifespan may differ.

CAUTION

When purchasing new toner cartridges or other supplies, these must be purchased in the same country as the machine you are using. Otherwise, new toner cartridges or other supplies will be incompatible with your machine due to different configurations of toner cartridges and other supplies according to the specific country conditions.

2.1.2.9. Maintenance Parts

Item		Part Code	Life	Remark
Transfer(T2) Roller Assy		JC95-02044A	Approx. 100,000 pages	
Fuser Unit	220V	JC91-01242A	Approx. 100,000 pages	
	110V	JC91-01227A		
ITB Unit		JC93-01348A	Approx. 100,000 pages	
Pick-Up/Foward Roller for Tray1		JC66-02939B	Approx. 300,000 pages	
Separation Roller for Tray1		JC66-02939B	Approx. 100,000 pages	
Pick-Up/Foward Roller for Tray2,3,4		JC97-04099A	Approx. 200,000 pages	For Optional Tray
Separation Roller for Tray2,3,4		JC97-04099A	Approx. 100,000 pages	For Optional Tray
DSDF Pick-Up/Foward Roller (A/S ASSY-PICK UP HOUSING)		JC82-00378A	Approx. 100,000 pages	For C4062FX
DSDF separation roller (A/S ASSY-SEPARATE ROLLER)		JC82-00380A	Approx. 100,000 pages	For C4062FX

NOTE

DSDF for C4060FX has not the maintenance part. Because the DSDF rollers yield of the C4060FX is same with engine.

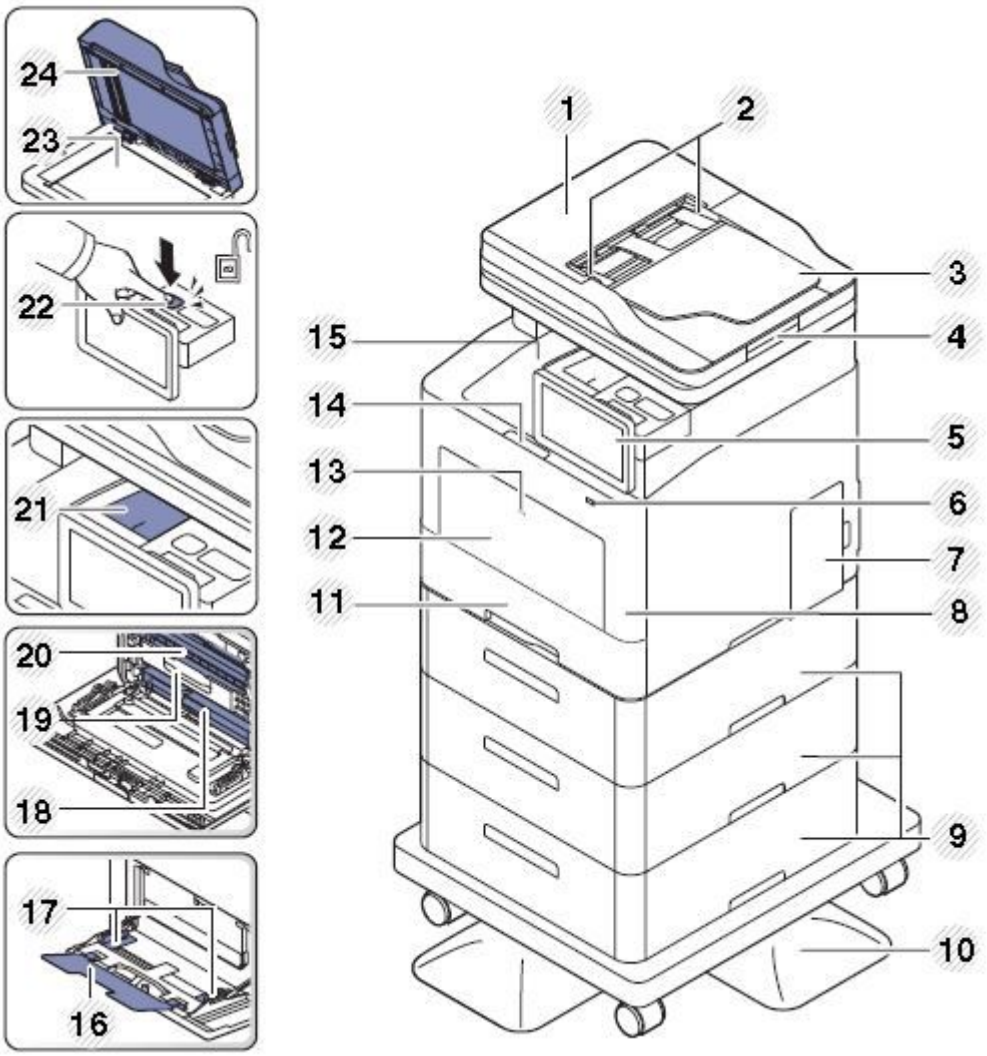
2.1.2.10. Option

Item	Model Name	Remark
Second Cassette Feeder (SCF)	SL-SCF3001/SEE	550 sheets @ 75 g/m²
Stand	SL-DSK003S/SEE	
Wireless LAN/NFC Kit	SL-NWE001X/SEE	
Wireless LAN/NFC/BLE Kit	SL-NWE002X/SEE	
Memory Upgrade Kit	SL-MEM0020/SEE	

2.2. System Overview

This chapter describes the functions and operating principal of the main component.

2.2.1. Front View



1	Dual Scan Document Feeder (DSDF) cover
2	Dual Scan Document Feeder (DSDF) width guide
3	Dual Scan Document Feeder (DSDF) stacker
4	Dual Scan Document Feeder (DSDF) output tray
5	Control panel
6	USB memory port
7	Control board cover
8	Front cover
9	Optional tray *
10	Stand **
11	Tray 1

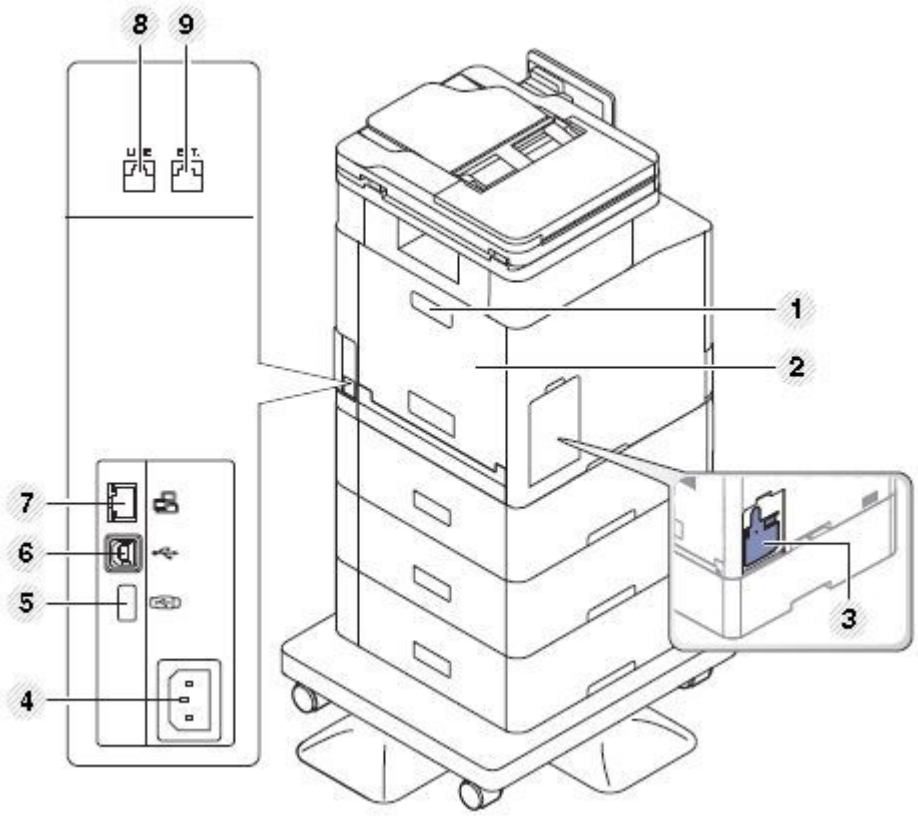
12	Multi-purpose tray
13	Push-release of multi-purpose tray
14	Front cover release button
15	Output tray
16	Multi-purpose support tray
17	Paper width guides on a multipurpose tray
18	Intermediate Transfer Belt (ITB)
19	Toner cartridges drawer handle
20	Toner cartridges
21	Output support tray
22	Control panel unlock button ***
23	Scanner glass
24	White-Bar and D-CIS

* Install the optional tray if it is necessary.

** Optional device.

*** Press the unlock button to adjust the angle of the control panel. This feature is not support on the C4062 series.

2.2.2. Rear View

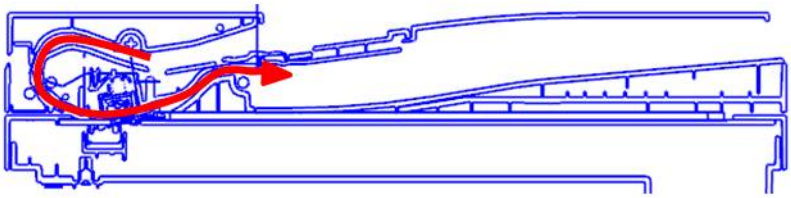


1	Rear cover handle
2	Rear cover
3	Waster toner container
4	Power receptacle
5	USB memory port
6	USB port
7	Network port
8	Telephone line socket (LINE)
9	Extension telephone socket (EXT.)

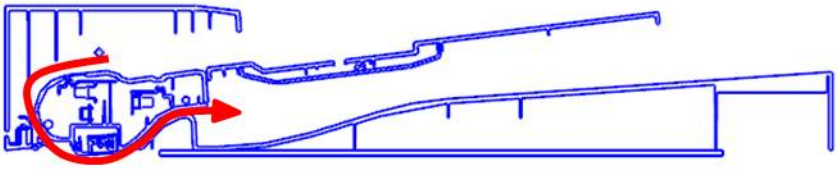
2.2.3. Paper Path

The following diagram displays the path that the paper follows during the printing process.

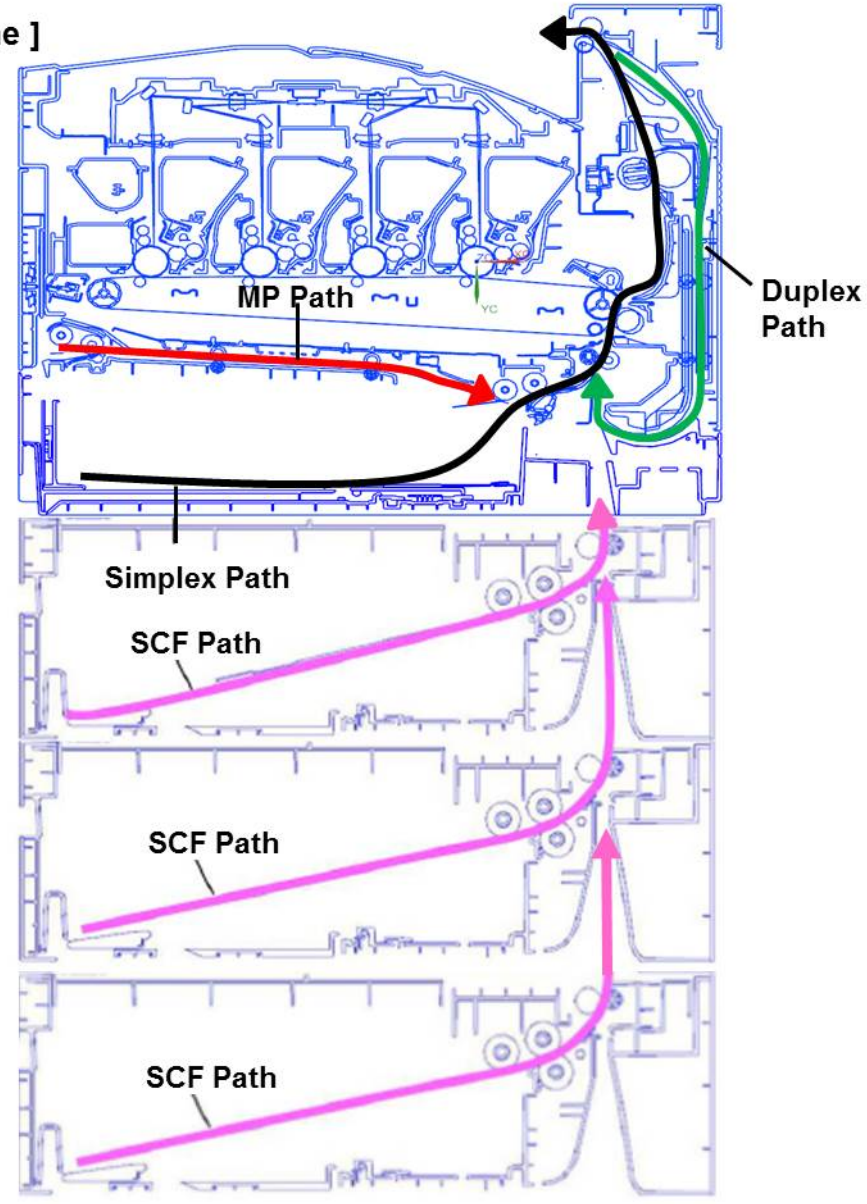
[A4 DSDF : C4060]



[Legal DSDF : C4062]

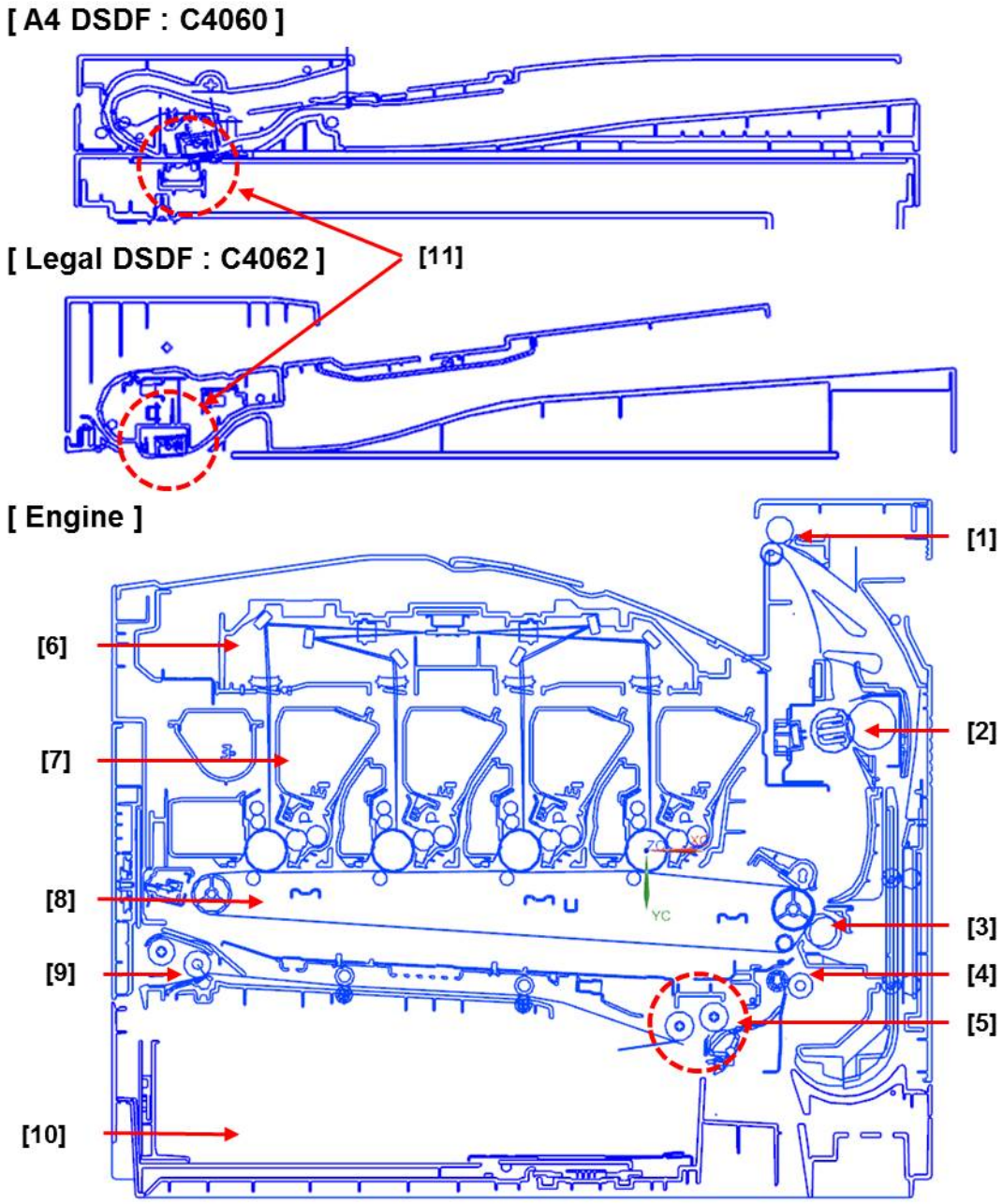


[Engine]



2.2.4. System Layout

This model consists of the scanner parts, engine parts, hardware parts, firmware. The scanner parts consists of DSDF and platen unit. The engine parts consists of the mechanical parts comprising Frame, Toner Cartridge, Drive Unit, Transfer roller, Pick up unit, Fuser unit, Cassette. The hardware parts consists of the main board, SMPS, HVPS board, OPE, PC interface.



1	Exit Unit
2	Fuser Unit
3	T2 (Second transfer) roller
4	Registration(Regi.) roller
5	Pickup/Forward/Separation roller
6	LSU

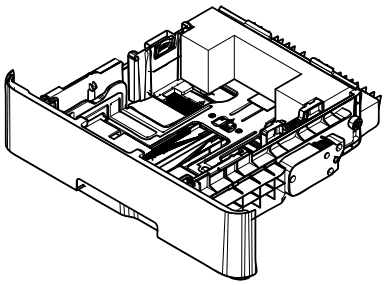
7	Toner Cartridge
8	ITB Unit
9	MP Unit
10	Cassette
11	CIS

2.2.4.1. Feeding Section

It is consists of a basic cassette, pickup/forward/separation [DFP] Double Feed Prevention Roller and parts related to paper feeding.

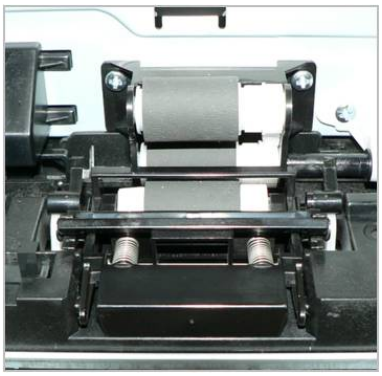
1) Cassette (Tray1)

This model has a tray that slides into the device. It has a paper empty sensing function, a paper storage function, and paper orientation function.



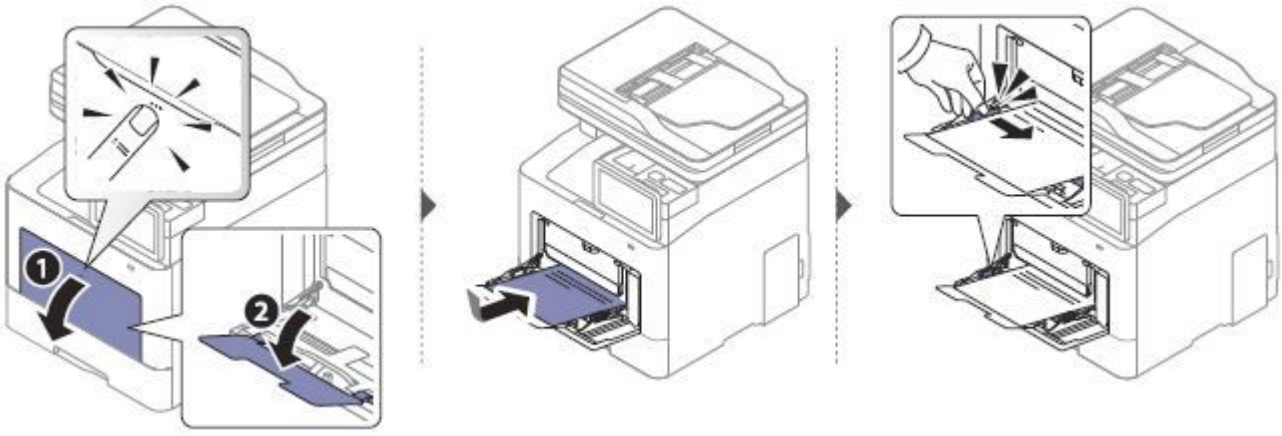
2) Pickup/Forward/Separation roller

They have functions such as a paper pickup function, driving control function, paper feeding function, and removing electronic static function.



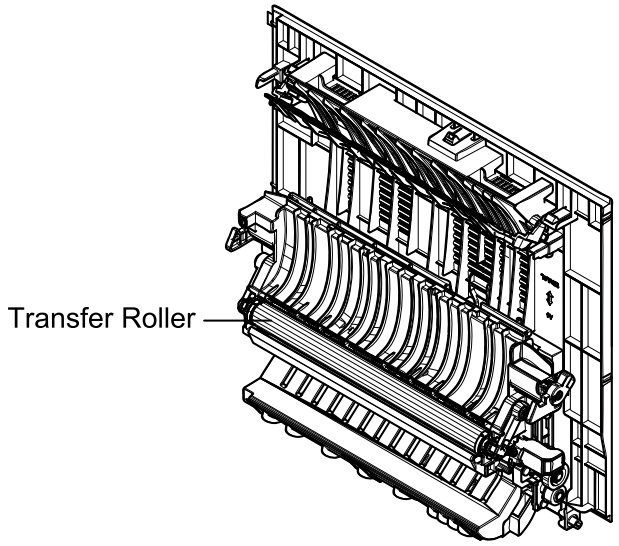
3) MP (Multi-Purpose) Tray

The MP (multi-purpose) tray can hold special sizes and types of print material, such as postcards, labels, and envelopes. It is useful for single page printing on letterhead or colored paper.



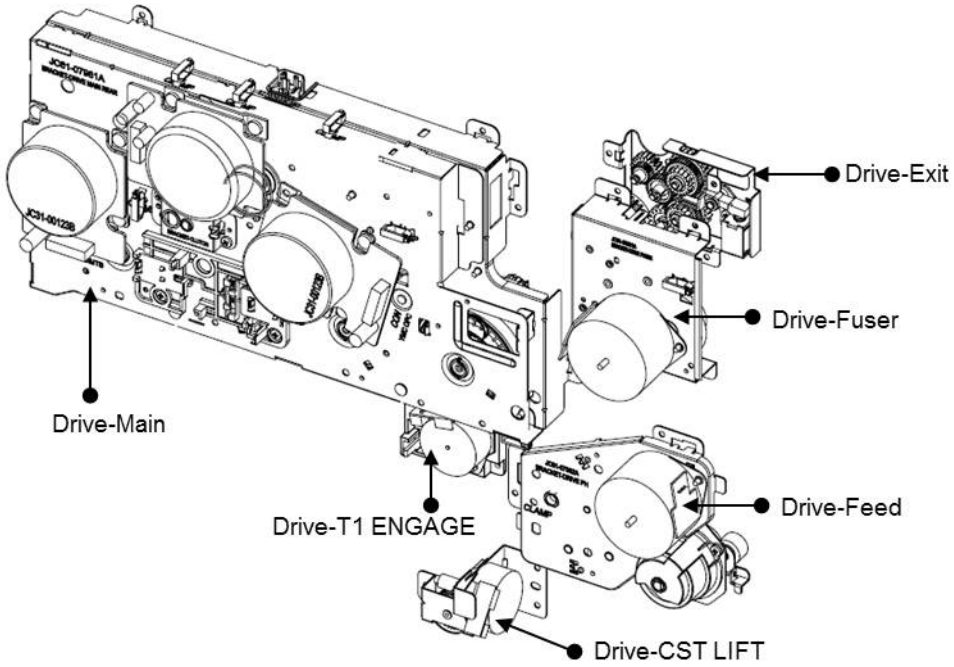
2.2.4.2. Transfer Roller

The transfer roller unit is attached to the rear cover. The transfer roller helps to carry the toner off the ITB to the paper.



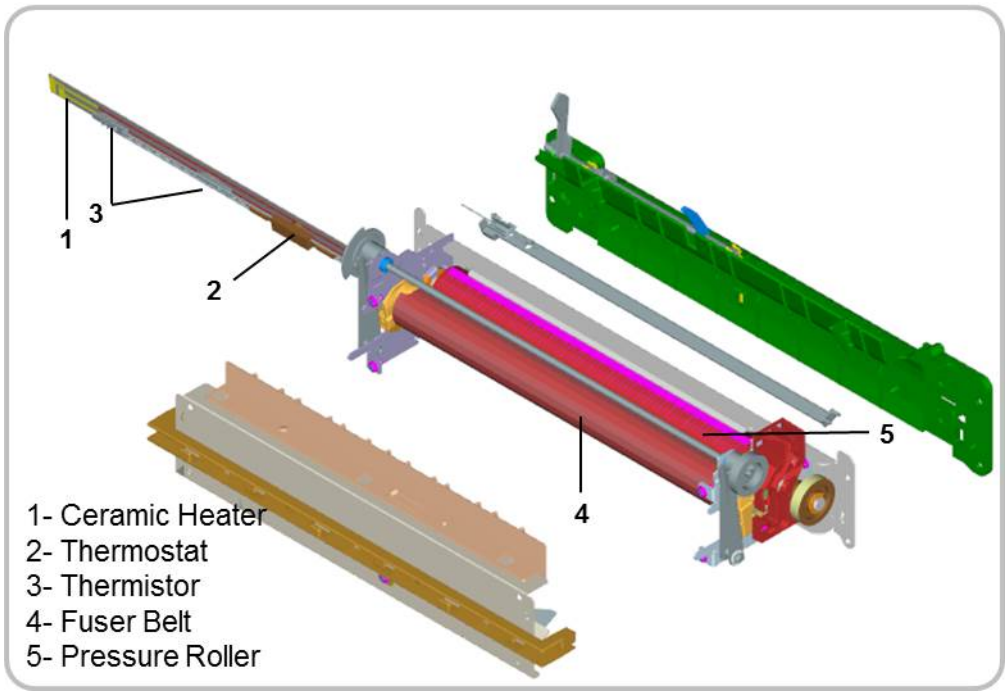
2.2.4.3. Drive Unit

This machine has various drive units. Each drive unit controls the operation for fuser, toner cartridge, pick up, regi roller by using motor and gear train.



2.2.4.4. Fuser Unit

The fusing belt gets heat from the ceramic heater which in turn fuses the toner to the paper. The thin fusing belt helps reduce warming up for modes such as (e.g. thick paper) by changing the speed of the fuser.



1) **Thermostat**

The fuser unit uses a thermostat which cuts off the main power in order to prevent an overheat condition.

- Thermostat Type : Contact type Thermostat
- Control Temperature : 250°C ± 7°C

2) **Thermistor**

It is a temperature detecting sensor.

- Temperature Resistance : 7 kΩ(180°C)

3) **Fusing Belt**

The fusing belt gets heat from the ceramic heater which in turn fuses the toner to the paper. The thin fusing belt helps reduce warming up and mode (e.g. thick paper) changing time.

4) **Pressure roller**

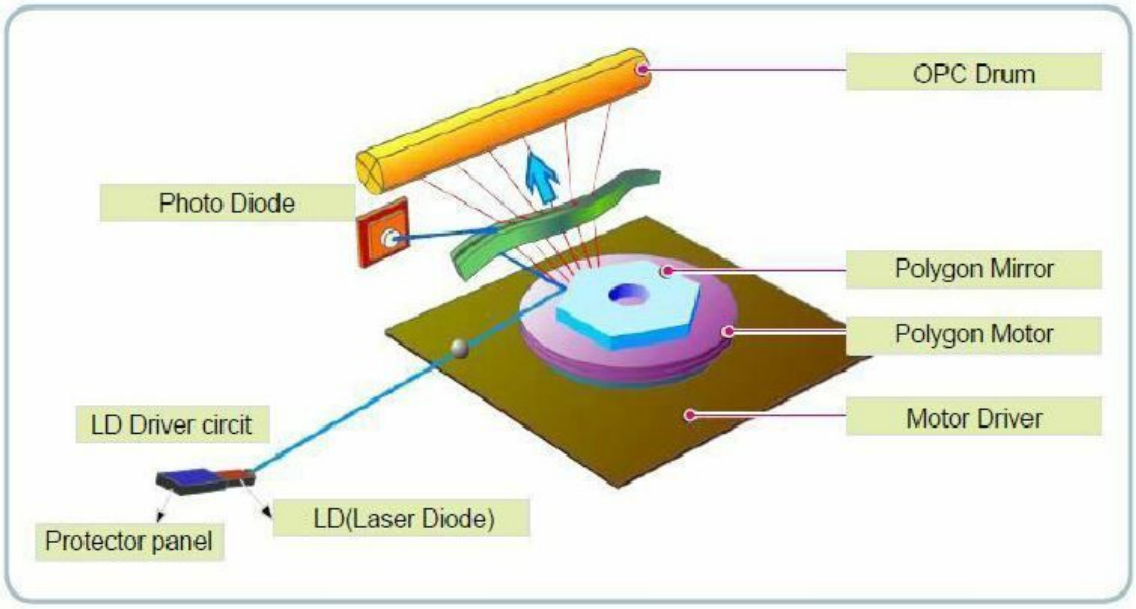
The pressure roller is a rubber roller which ensures proper nip width between the pressure roller and fusing belt. It is driven by the driving system and drives the fusing belt.

5) **Ceramic Heater**

- Voltage : 120 V (115 ± 5 %) / 220 V : 230 ± 5 %
- Capacity : 1100 Watt ± 55 W

2.2.4.5. LSU (Laser Scanner Unit)

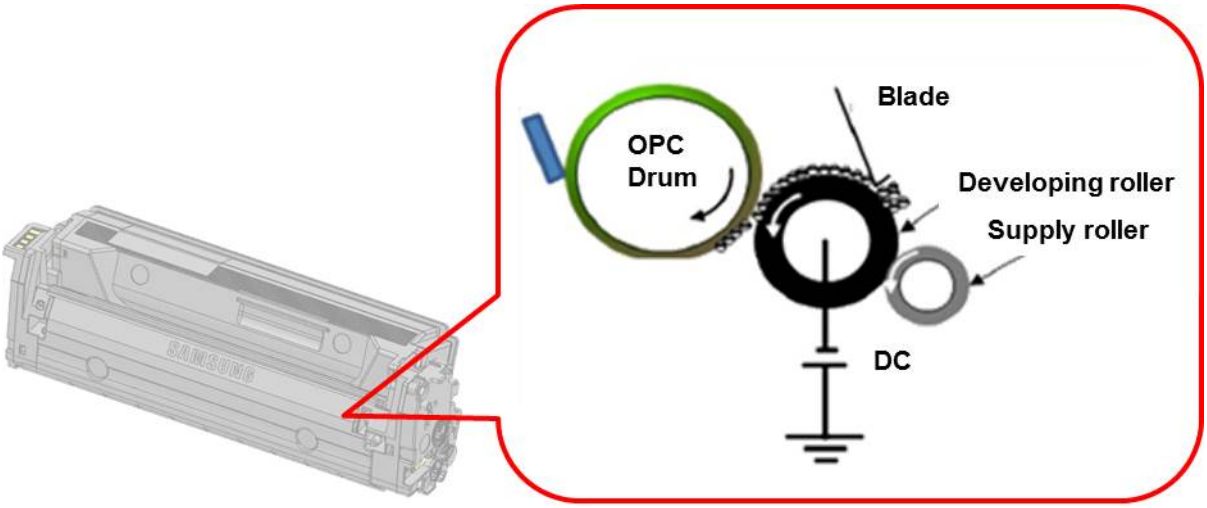
The LSU (Laser Scanner Unit) is a sealed factory assembly in which the video data received to the controller is used to form an electrostatic latent image on the OPC drum. It is accomplished by use of a polygon mirror and laser beam. The OPC drum is turned with the paper feeding speed. The HSYNC signal is created when the laser beam from LSU reaches the end of the polygon mirror and the signal is sent to the controller. The controller detects the HSYNC signal to adjust the vertical line of the image on paper. In other words, after the HSYNC signal is detected, the image data is sent to the LSU to adjust the left margin on paper. The one side of the polygon mirror is one line for scanning.



2.2.4.6. Toner Cartridge

By using the electronic photo process, it creates a visual image. In the toner cartridge, the OPC unit and the developing unit are in a body. The OPC unit has OPC drum and charging roller, and the developing unit has toner, supply roller, developing roller, and blade.

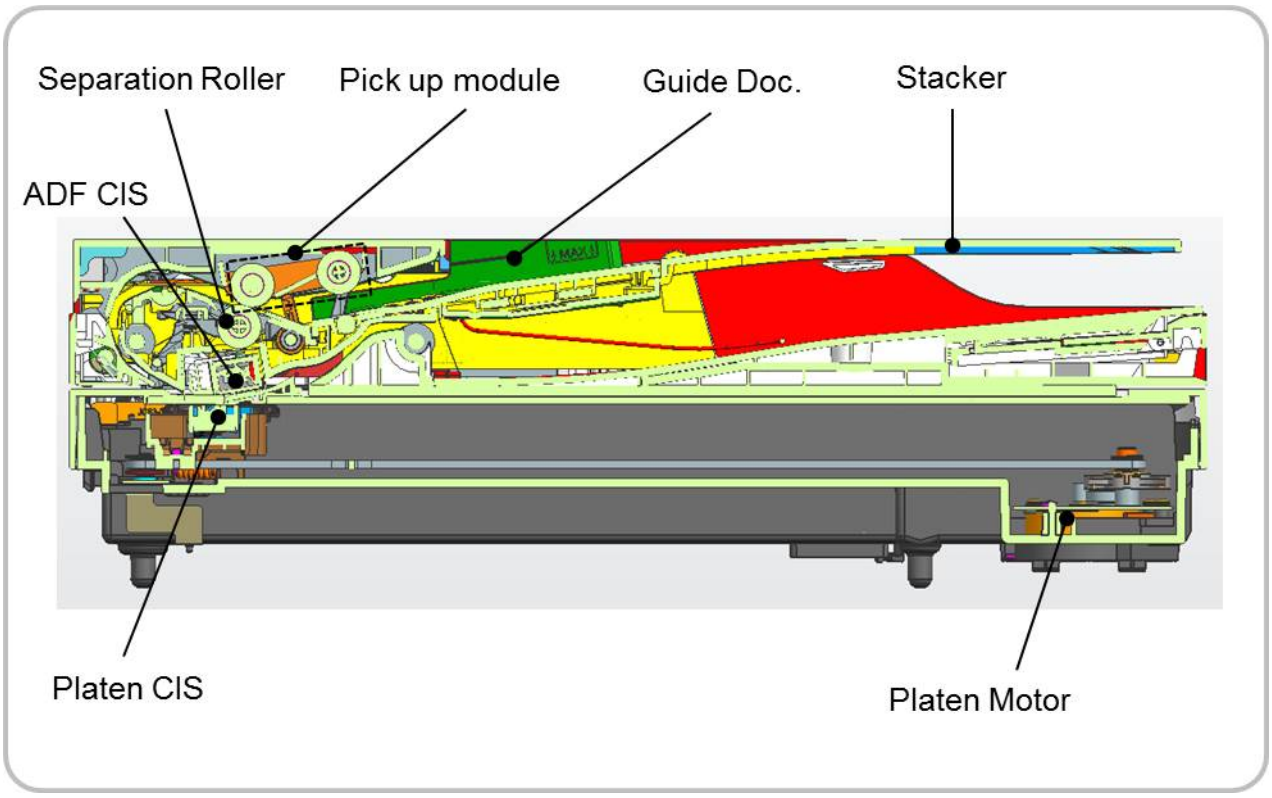
- Developing Method : Non magnetic single component contacting method
- Toner : Non magnetic single component polymerized type toner
- The life span of toner (ISO 19798 pattern / A4 standard)
  - Initial : Approx. 4,000 (K)/ 2,500(CMY) pages
  - Sales: Approx. 15,000 (K)/ 10,000(CMY) pages
- OPC Cleaning : Collect the toner by using cleaning blade
- Handling of wasted toner : Collect the wasted toner in the cleaning frame by using cleaning blade
- Classifying device for toner cartridge: ID is classified by CRUM



2.2.4.7. Scanner System

The paper surface is exposed by the platen CIS or ADF CIS and the reflected light is passed to the CIS sensor. The function of the CIS sensor is to change from the optical image data to the electrical (analog) signal. The analog signal is converted to the digital signal, and then the image process executes to make an image.

This machine uses the digitalized CIS for scan processing. This machine supports the dual scanning by using a platen CIS and a document feeder CIS.



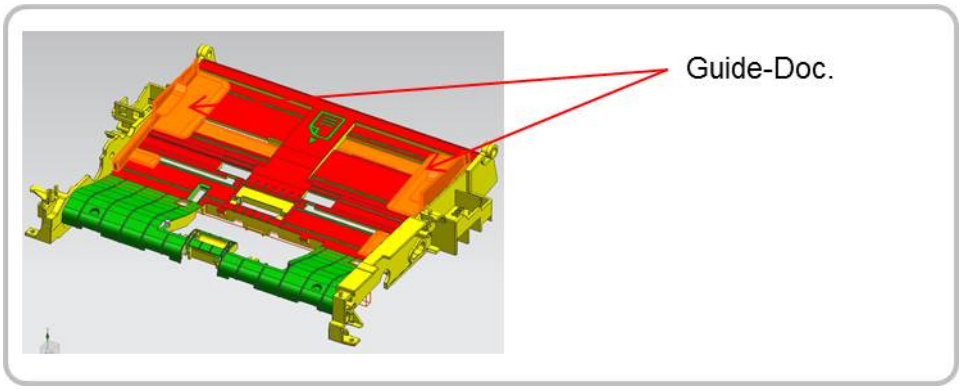
Scanner System Components

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

1) **Guide Document**

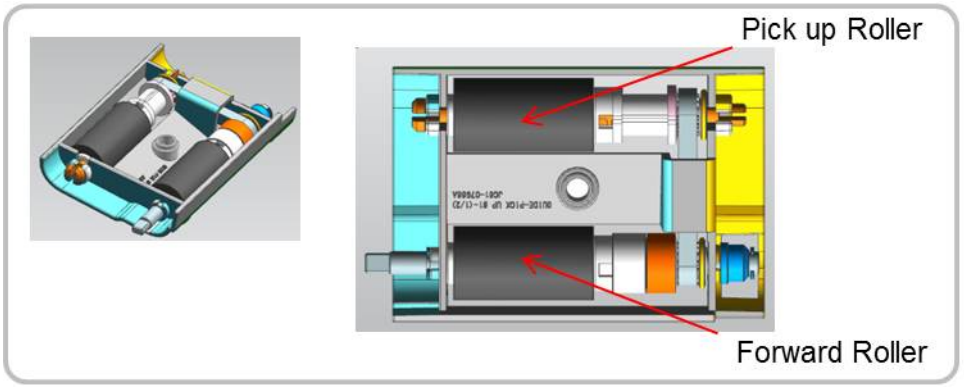
The guide document aligns the original when scanning or copying from DSDF unit.

This supports LGL, LTR, A4, A5, A6 size papers.



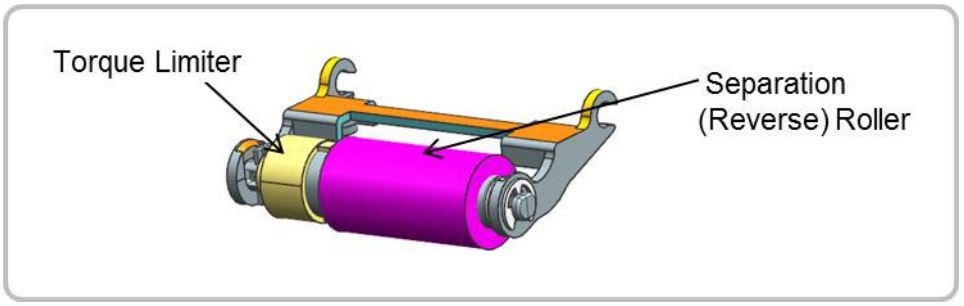
2) **Pickup Module**

The pickup module feeds the originals from the ADF Paper Feed Tray to the DSDF paper path; and a Separation Roller separates the underlining sheets of originals prevent multisheet feeding. When the unit's lifespan has expired, the module must be replaced as a complete assembly. The lifespan is 100,000 original feeds.



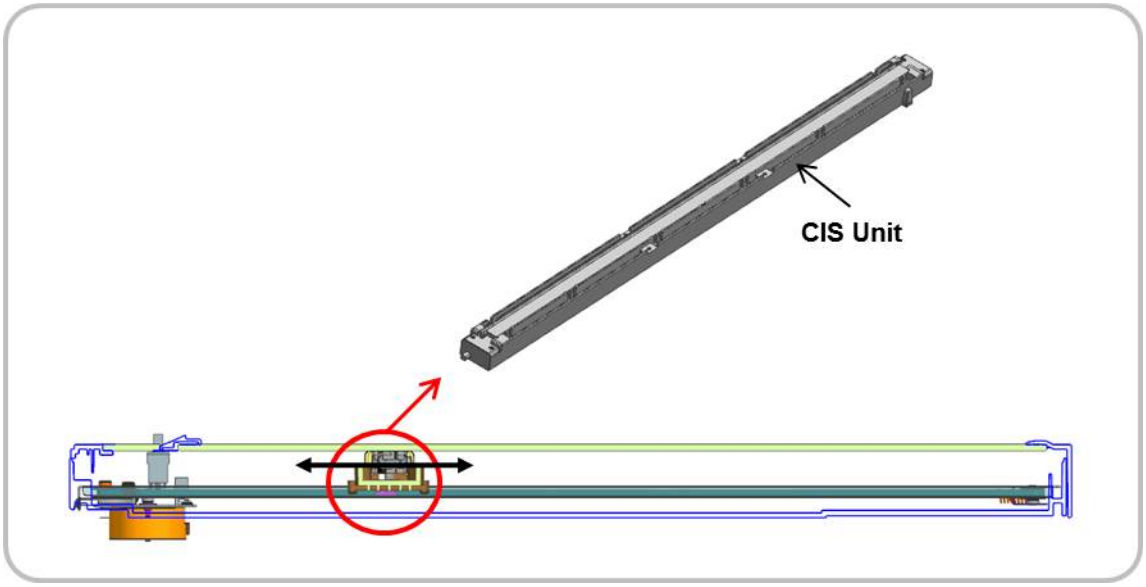
3) **Separation(Reverse) roller**

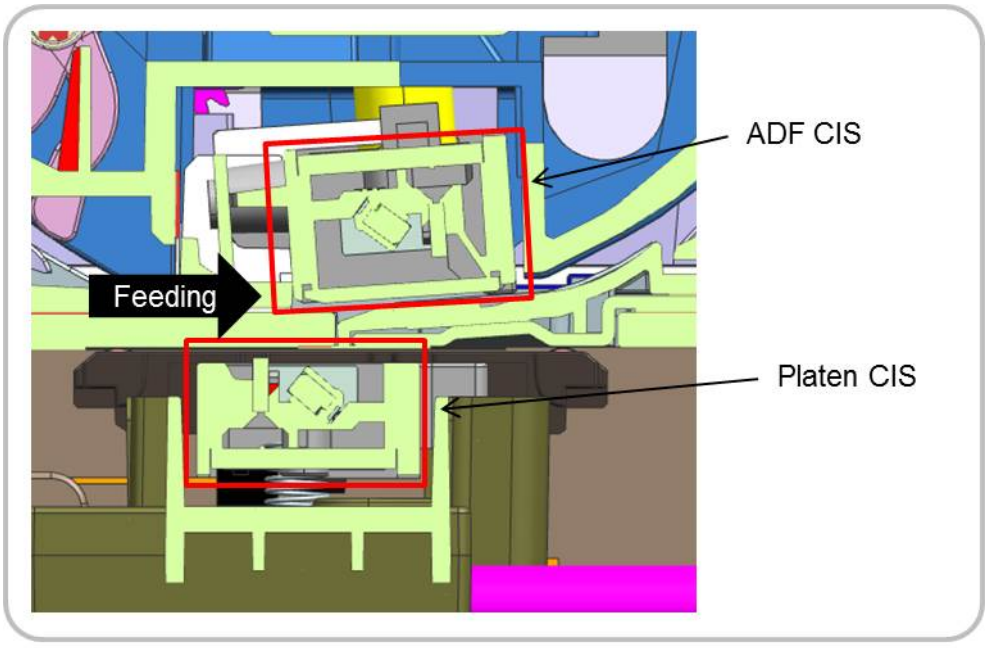
This machine uses the reverse roller system for the paper separation of the document feeder. The features of this system are the high yield, high reliability, lower noise in comparison to the pad system.



4) **CIS (Contact Image Sensor)**

CIS is a device to read the document on the scan glass. It consists of the R/G/B light source, subminiature Lens Array, and sensor. The light from the light source is illuminated on the document through the scan glass. This reflected light is sent to the Lens Array, the CIS sensor detects this and it is converted to color or mono electrical signal. The converted signal is used to scan image or print through image process.

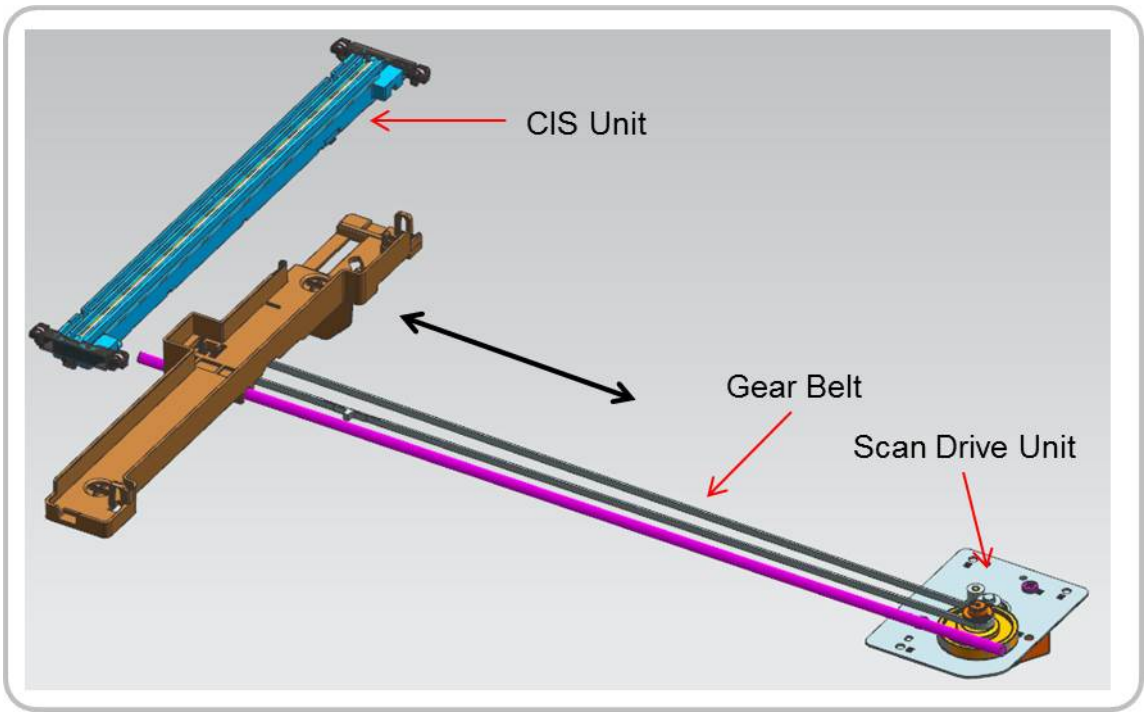




[Dual Scanning System]

5) **Scan Drive Unit**

The scan drive unit consists of a step motor, retardation gear, and gear-belt. The CIS unit is moved by the gear-belt. The document image is scanned by the CIS movement.

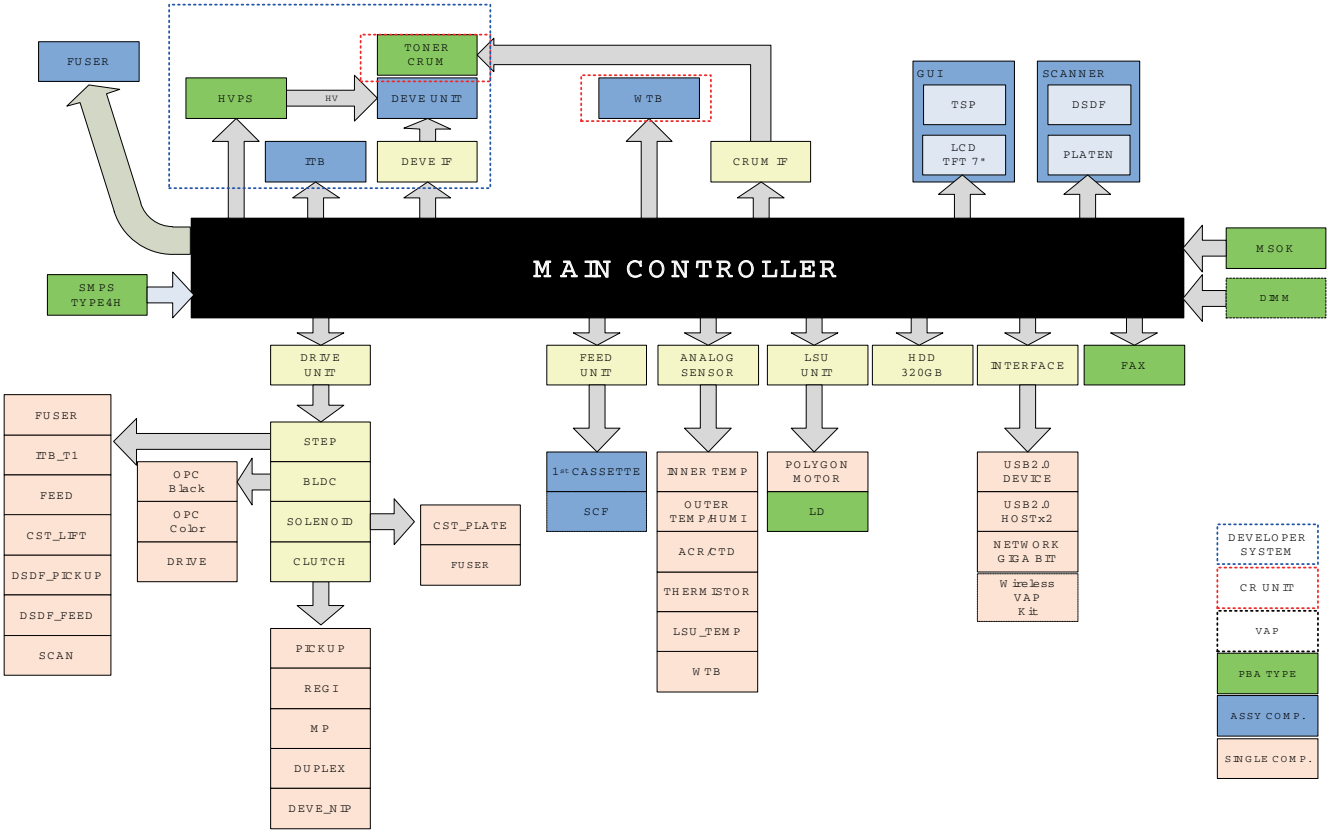


2.2.5. Hardware configuration

SL-C406x series Electrical Circuit System consists of the following:

- Main board (System board)
- OPE board
- SMPS board
- HVPS board

Diagram of the SL-C406x series Electrical Circuit



SL-C406x series has a system board of integrated engine controller and video controller.

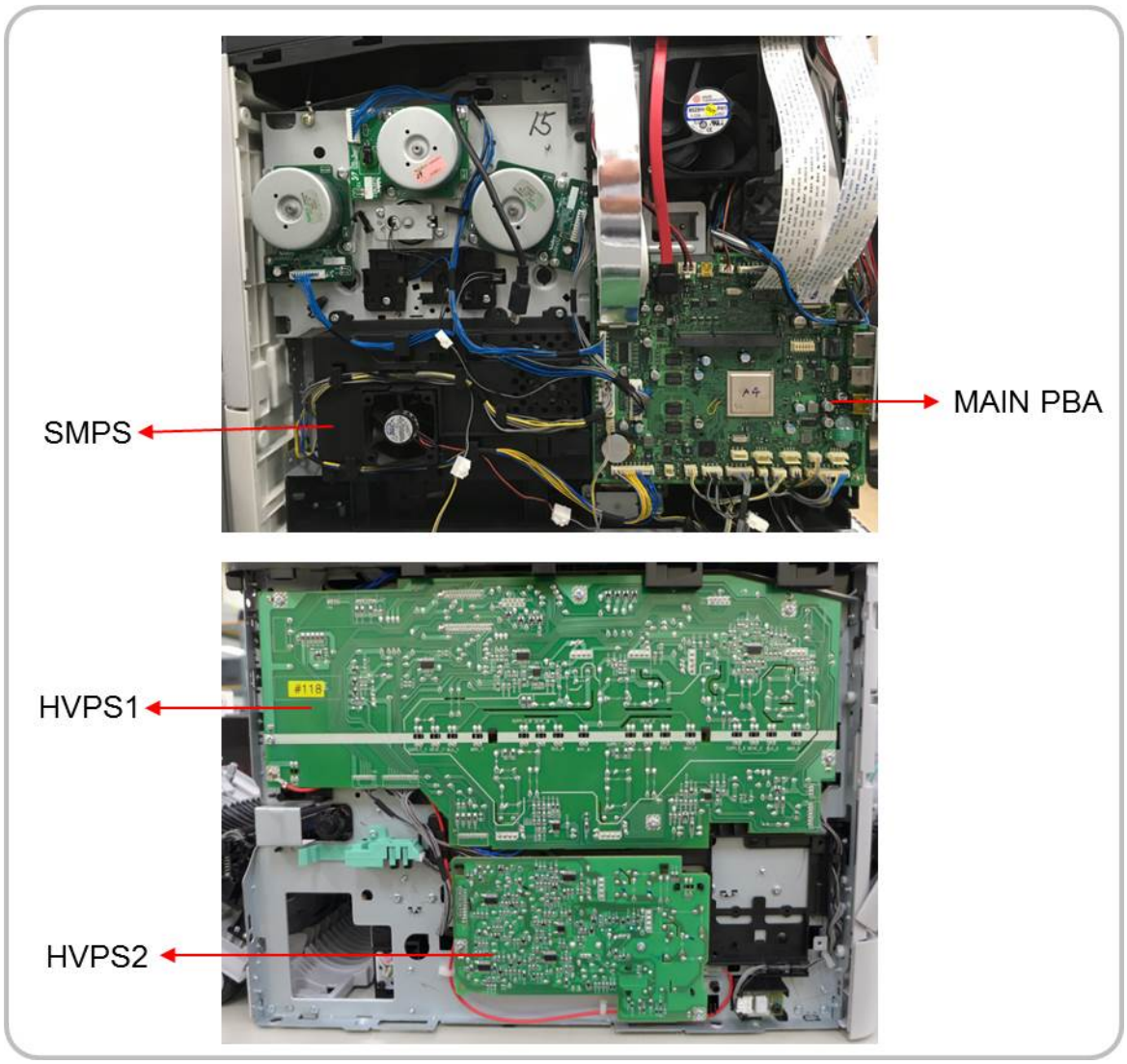
The engine controller controls all modules required to print, that is, LSU, HVPS/SMPS, Fuser, Motor etc. It communicates with the video control block inside CPU for printing. And it has the interface for all video sync signals to print out the video data.

The video controller receives print data from the host through network or USB Port. It takes this information and generates printable video bitmap data.

The main board is adopted 1.5GHz Quad Core CPU that is integrated with engine and video controller. It has 3GB (Max. 5GB) DDR3 memory.

Circuit board locations

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



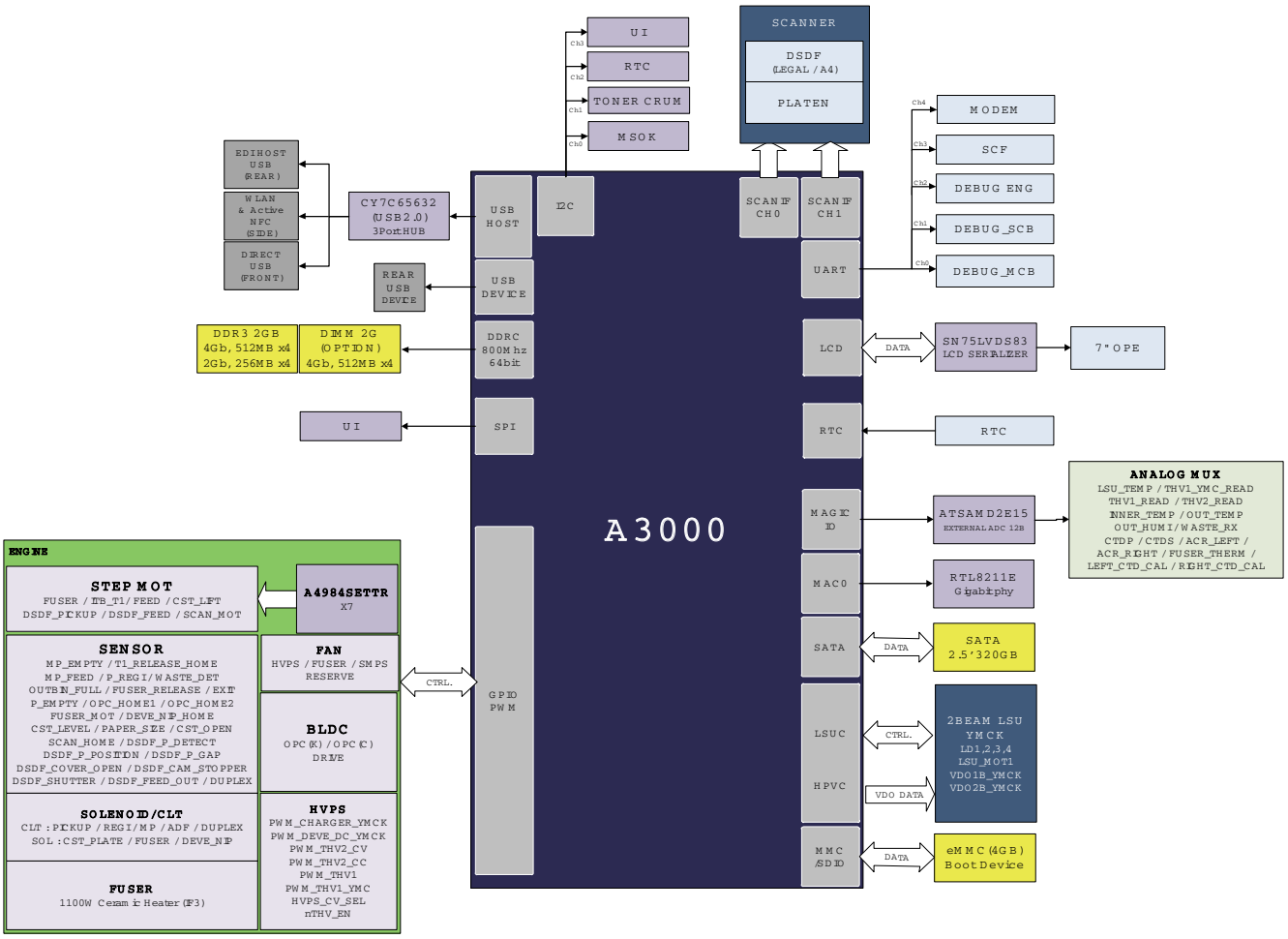
2.2.5.1. Main board

The main processor in main board is adopted 1.5GHz Quad Core CPU that is integrated with engine and video controller. It has 3GB (Max. 5GB) DDR3 memory.

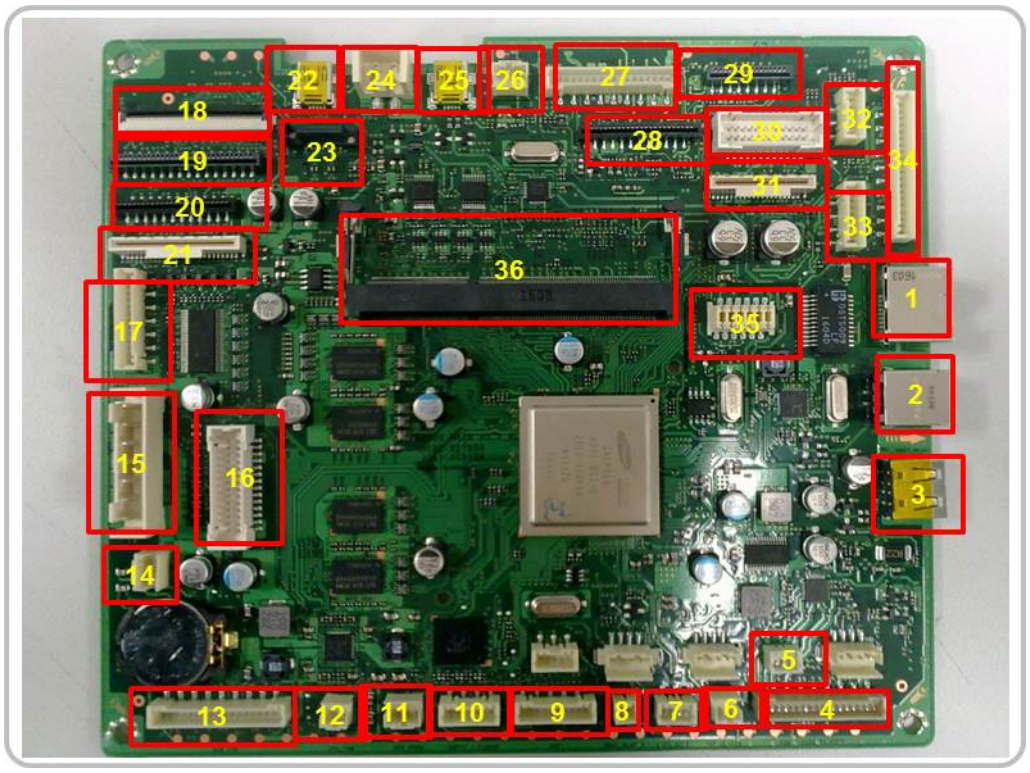
Boot adopted the 4GB eMMC and 320GB SATA HDD is used for data storage and supporting 7 inch OPE.

USB is the embedded type and wired network supports Gigabit Ethernet. And wireless network is optional.

[Main board diagram]



[Main board image]



- **Connection**

1	Network connector
2	USB Device connector
3	EDI Host connector
4	Feed / ITB Release Step Motor connector
5	Duplex Sensor connector
6	Duplex Clutch connector
7	Cassette Lift Step Motor connector
8	Regi Clutch connector
9	SCF connector
10	Pick up clutch / Paper Empty Sensor connector
11	Cassette Open Sensor connector
12	CPU FAN connector
13	ACR , CTD Sensor / MP Clutch / SMPS FAN
14	SMPS Signal connector
15	SMPS Power connector
16	Deve BLDC Motor connector
17	Drive BLDC Motor connector

18	LSU connector
19	HVPS1 connector
20	HVPS2 connector
21	OPE connector
22	WLAN option connector
23	HDD SATA Signal connector
24	HDD SATA Power connector
25	Direct USB connector
26	Fuser FAN connector
27	Fuser Step Motor / Inner Temp connector
28	Platen DCIS connector
29	Fax connector
30	ADF A4 DCIS connector (A4 Only)
31	ADF Legal DCIS connector (Legal only)
32	Out bin full sensor connector
33	Scan step motor connector
34	DSDF engine I/F connector
35	MSOK connector
36	DIMM Memory connector (optional)

- **Information**
  - Part Code :
    - SL-C4060FX/SEE : JC92–02795D

- SL-C4062FX/XAA : JC92–02795E

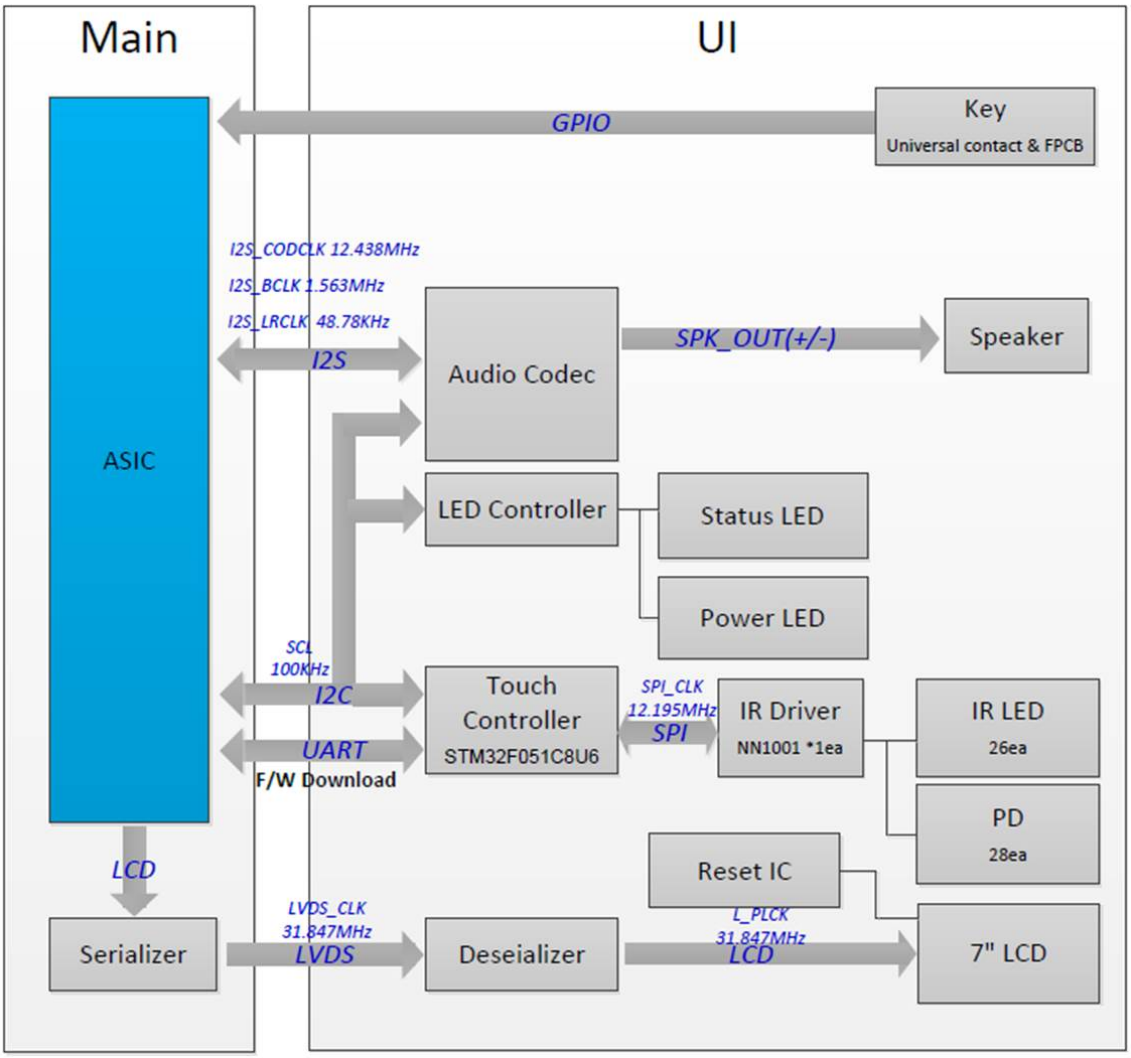
- Part Name : PBA-MAIN

2.2.5.2. OPE

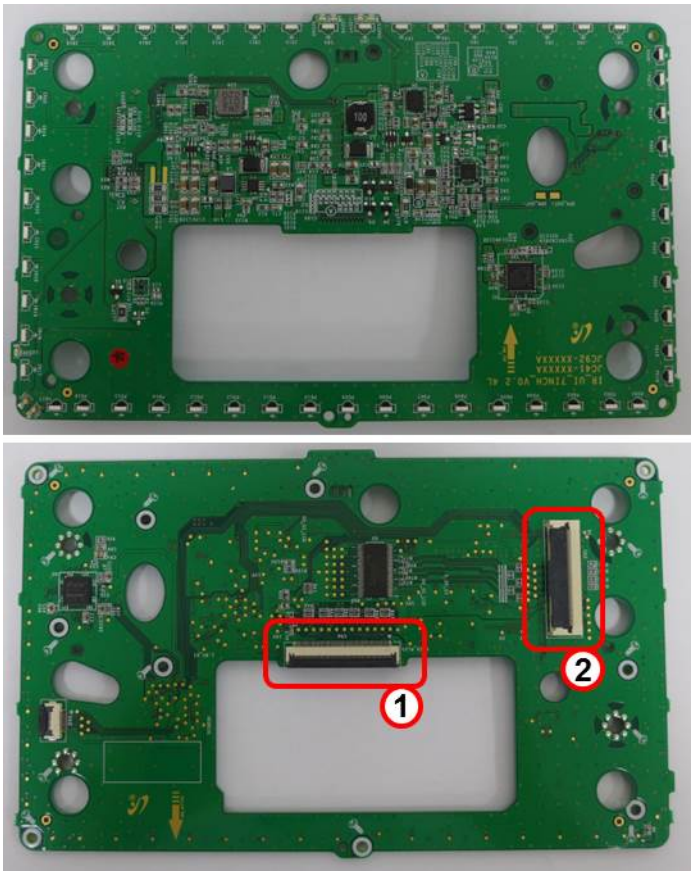
The OPE Unit is an IR TSP type consisting of infrared red LED, light guide, and 7 inch LCD touch panel.

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

[OPE controller diagram]



[OPE MAIN PBA]

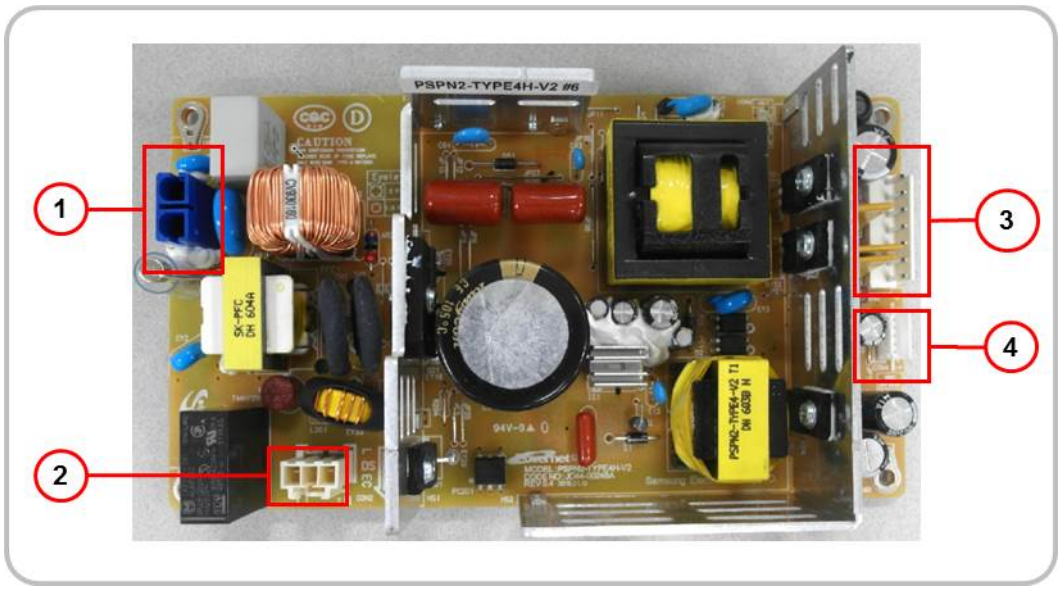


- **Information**
  - Part Code : JC92-02955A
  - Part Name : PBA-OPE
- **Connection**

No	Function	Connection
1	7” LCD Interface	Connect to 7” LCD
2	Main Interface	Connect to Main PBA (Thru OPE Sub PBA)

2.2.5.3. SMPS board

The SMPS (Switching Mode Power Supply) Board supplies electric power to the Main Board and other boards through a Main Controller. The SMPS board converts AC voltage 110V/220V to DC voltage +5V, +24V and transfers AC power to the fuser unit. It has safety protection modes for over current and overload.



- **Specification**
  - General Input/Output Voltage

    1) Input
       - AC 110V (90V ~ 135V)
       - AC 220V (187V ~ 275V) / 10A

    2) Output
       - DC +5V / 5.0A
       - DC +24V / 8.4A

    3) Output Power
       - DC +5V : 25W
       - DC +24V : 201.6W
       - FDB : 1100W Ceramic heater

- **Information**

	110V	220V
Part Code	JC44-00247A	JC44-00248A
PBA Name	SMPS-V1	SMPS-V2

- **Connection**

1	INPUT_AC
2	OUTPUT_AC(to Fuser)
3	OUTPUT_DC(to Main PBA)
4	Control Signal (from Main PBA)

- **Input / Output connector**
  - AC Input Connector(CON1)

PIN ASSIGN	PIN NO	Description
1	AC_L	AC Input
2	AC_N	

  - AC Input Connector(CON2)

PIN ASSIGN	PIN NO	Description
1	AC_L	AC Output for Heater Controller
2	AC_N	

  - DC Output Connector (CON3)

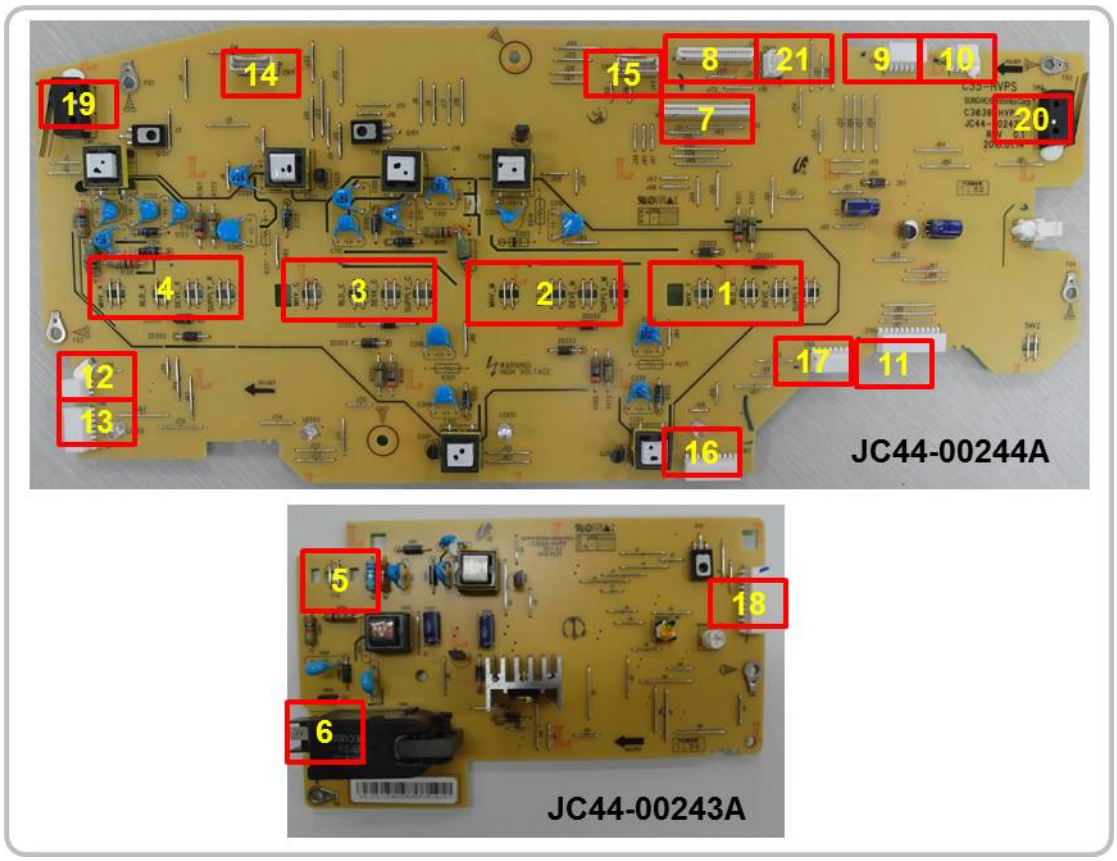
PIN ASSIGN	PIN Name	Description
1	+5V1	+5.1V Power
2	GND	Power Ground
3	+24V1	+24V Power
4	+GND	Power Ground
5	+24V2	+24V Power
6	GND	Power Ground
7	+24V3	+24V Power

  - Signal Connector2 (CON4)

PIN ASSIGN	PIN Name	Description
1	GND	Ground
2	24V_ON/OFF	24V ON/OFF
3	Relay on	Fuser Relay
4	24VS	Photo Triac Bias
5	Fuser on	Fuser on

2.2.5.4. HVPS board

The High Voltage Power Supply (HVPS) board generates high-voltage channels which includes MHV, DEV, Blade, SUP, THV1, and THV2.



- **Connection**

1	MHV/DEV/BLD/SUP Y
2	MHV/DEV/BLD/SUP M
3	MHV/DEV/BLD/SUP C
4	MHV/DEV/BLD/SUP K
5	THV1 YMCK
6	THV2
7	Main-HVPS I/F #2
8	Main-HVPS I/F #1

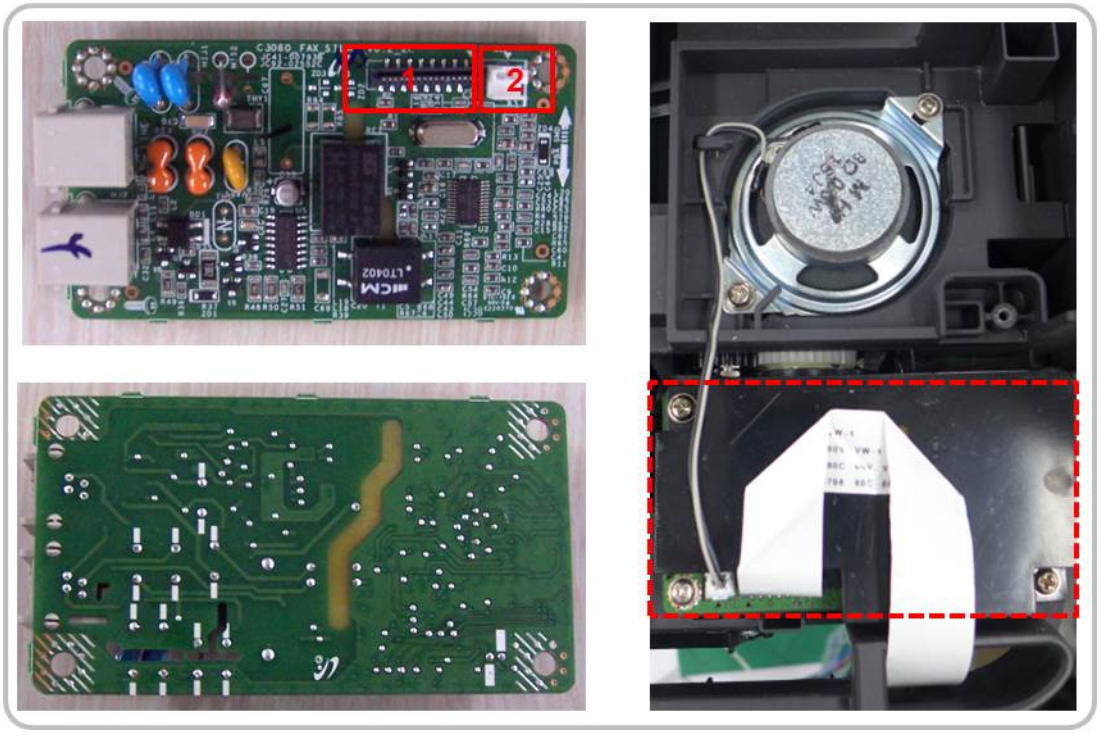
9	Paper exit, Outbin full
10	Fuser Release
11	HVPS1 – HVPS2
12	Fan
13	Ambient, Humidity
14	Crum C,K
15	Crum Y,M
16	Paper Regi

17	WTB interface
18	HVPS2 – HVPS1
19	Front cover open Switch
20	Rear cover open Switch
21	Fan

- **Information**
  - Part Code : JC44-00244A / JC44-00243A
  - PBA Name : HVPS

2.2.5.5. Fax Board

Fax controller (FCON) controls the fax sending and receiving.

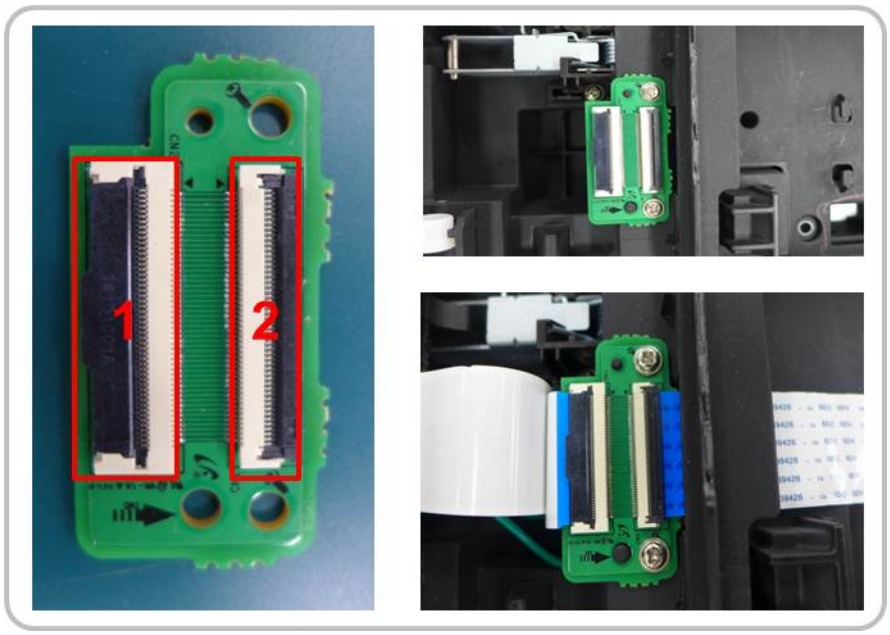


- **Information**
  - Part Code : JC92–02552C
  - PBA Name : PBA LIU
- **Connection**

1	Interface Connector to Main Board
2	Interface Connector to Speaker

2.2.5.6. OPE Joint Board

The OPE Joint Board is the relay board between OPE and Main board.

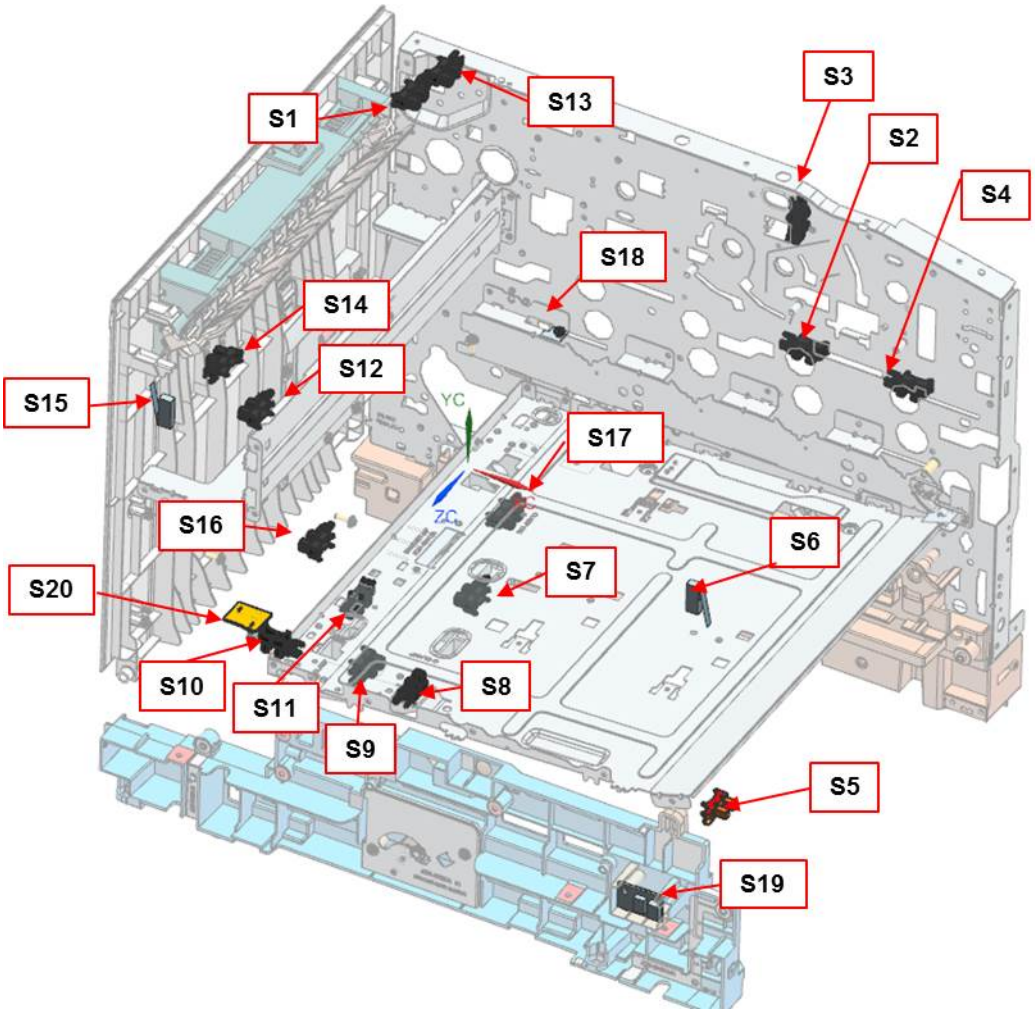


- **Information**
  - Part Code : JC92-02954A
  - PBA Name : PBA SUB
- **Connection**

1	OPE Connector
2	Main Connector

2.2.5.7. Electrical Parts Location

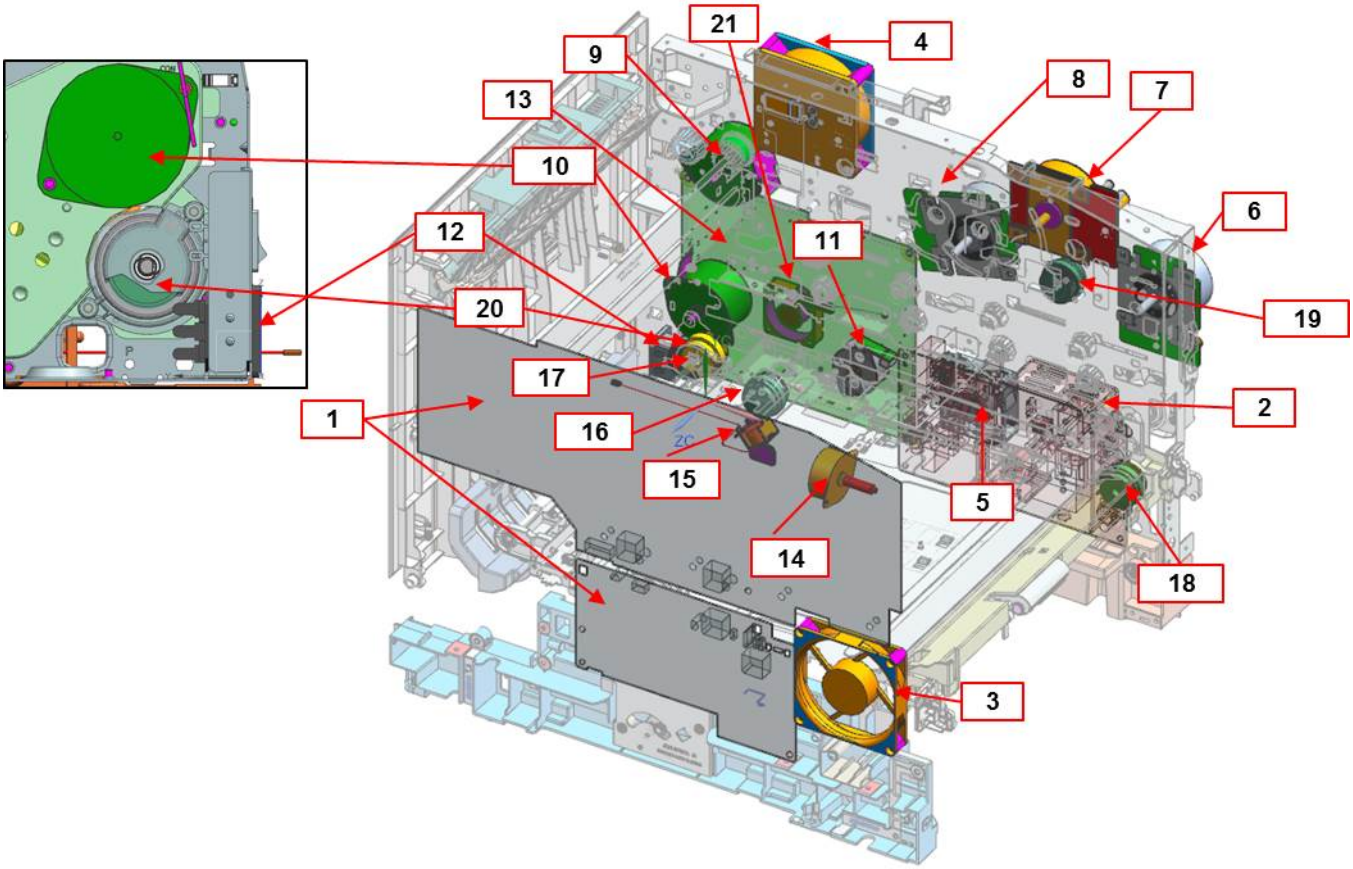
1) Sensors



No.	Description	Controller	Function
S1	Photo interrupter (Fuser Exit sensor)	Main board	Fuser Exit detection
S2	Photo interrupter (Drive OPC sensor)	Main board	Drive OPC detection
S3	Photo interrupter (Deve Nip sensor)	Main board	Deve Home sensor detection
S4	Photo interrupter (Drive OPC sensor)	Main board	Drive OPC detection
S5	Photo interrupter (MP empty sensor)	Main board	MP empty detection
S6	Switch Front Cover (Cover Front Open sensor)	HVPS board	Cover Open detection
S7	Photo interrupter (Pick up level sensor)	Main board	Pick up level detection
S8	Photo interrupter (ITB sensor)	Main board	ITB detection
S9	Photo interrupter (CST install sensor)	Main board	CST install detection
S10	Photo interrupter (WTB Open sensor)	Main board	WTB Open detection
S11	Photo interrupter (Regi sensor)	Main board	Paper detection
S12	Photo interrupter (Fuser Cam sensor)	Main board	Fuser Cam detection
S13	Photo interrupter (Binfull sensor)	Main board	Binfull detection
S14	Photo interrupter (Exit sensor)	Main board	Exit paper detection
S15	Switch Rear Cover (Cover Rear Open sensor)	HVPS board	Cover open detection

No.	Description	Controller	Function
S16	Photo interrupter (Duplex sensor)	Main board	Duplex paper detection
S17	Photo interrupter (Paper empty sensor)	Main board	Paper empty detection
S18	Thermistor sensor (Temp sensor)	Main board	Inner temperature detection
S19	Humidity sensor (Temp, humidity sensor)	HVPS board	Outside temperature and humidity detection
S20	PBA Waste sensor	HVPS board	WTB Full detection

2) Motor, Clutch, Solenoid, etc



No.	Description	Function
1	HVPS	High Voltage power supply
2	SMPS	Power supply and conversion
3	FAN TYPE-9	Toner cartridge cooling
4	FAN TYPE-7	Toner cartridge and LSU cooling
5	FAN TYPE-4	SMPS cooling
6	BLDC MOTOR	Black toner cartridge and ITB driving
7	BLDC MOTOR	DEVE driving
8	BLDC MOTOR	Color toner cartridges driving
9	STEP MOTOR	Fuser and Exit driving
10	STEP MOTOR	Feed unit driving
11	STEP MOTOR	T1 Engage driving

No.	Description	Function
12	Power inlet	Power input
13	MAIN-PBA	SET Control
14	STEP MOTOR	CST Lifting
15	SOLENOID	Pick up unit driving
16	Clutch-Electric	Pick up unit driving
17	Clutch-Electric	Registration unit driving
18	Clutch-Electric	MP pick up unit driving
19	Clutch-Electric	Deve color and black driving control
20	Clutch-Electric	Duplex driving control
21	FAN TYPE-1	CPU cooling

2.2.6. Engine Firmware Control Algorithm

2.2.6.1. Feeding

If feeding from a cassette, the drive of the pickup roller is controlled by controlling the solenoid. The on/off of the solenoid is controlled by controlling the general output port or the external output port. Provided below are the jam conditions for the device:

Item	Description
Paper jam in tray1	• After paper pick up initialization, the paper is not fed. • After picking up the paper the lead edge does not reach to the feed sensor within a predetermined period of time, due roller slippage, etc. • After picking up the paper from the cassette, if the feed sensor is not detected, a re-pick up initialization occurs. After re-picking up, if the feed sensor is still not on after a predetermined amount of time, jam occurs. • Even though the paper reaches to the feed sensor, the feed sensor doesn't be ON.
Paper jam inside of machine	• Even though the paper reaches to the feed sensor, the feed sensor doesn't not change state. • After the tail edge of the paper passes the feed sensor, the lead edge of paper is not detected by the exit sensor within a predetermined period of time.
Paper jam in exit area	The trail edge of the paper does not clear the exit sensor within a predetermined period of time.

2.2.6.2. Transfer

The charging voltage, developing voltage, and the transfer voltage are controlled by PWM (Pulse Width Modulation). Each output voltage is changeable due to the PWM duty. The transfer voltage admitted when the paper passes the transfer roller is decided by environment conditions. The resistance value of the transfer roller is changed when the Temperature and Humidity Sensor in the device senses a change in the environment. The current to the Transfer Roller is changed using an AD converter on the HVPS. The voltage value for impressing to the transfer roller is decided by the changed value.

2.2.6.3. Fusing

The temperature change of the heat roller's surface is changed to the resistance value through the use of a thermistor. The Main Board uses the resistance value of a negative coefficient Thermistor and converts it to a voltage value through the use of an AD converter; the temperature is decided based on the voltage value read. The AC power is controlled by comparing the target temperature to the value from the thermistor. If the value from the thermistor is out of controlling range, or does not change after a predetermined amount of time an error is displayed and the Fuser Power is cut off. Errors occur based on the bullets below:

- Open Heat Error

  When the engine operates the warm-up process, if the temperature of the fixing unit is not higher than a specified temperature, the engine defines Open Heat Error. When this error is detected, the engine stops all functions and keeps the error state. Also, the engine informs the error status of the main system, so it can take appropriate action; and then the error message is displayed at LCD window or LED informing the error status of the user.

- Low Heat Error

  When the engine is at stand-by, printing or warm-up mode, if the temperature of the fixing unit is lower than the specified temperature at each state and the lower temperature state is maintained during the specified time, the engine defines Low Heat Error. When this error is detected, the engine stops all functions and keeps it at the error state. Also, the engine informs the error status of the main system, so it can take appropriate action; and then the error message is displayed at LCD window or LED informing the error status of the user.

- Over Heat Error

  For overall engine state, if the temperature of the fixing unit is higher than the specified temperature and the temperature state is detected for a specific duration, then the engine defines Over Heat Error. When this error is detected, the engine stops all functions and keeps it at the error state. Also, the engine informs the error status of the main system, so it can take appropriate action; and then the error message is displayed at LCD window or LED informing the error status of the user.

2.2.6.4. LSU

LSU receives the image data from PVC or HPVC and make the latent image on OPC surface. It uses the single beam, LD. The errors related to LSU are as follows:

- By Lready

  When the printing is started, the engine drives the polygon motor of LSU. After the specified time is elapsed, if the motor is not in a ready status, the engine detects the error that the polygon motor is not in a ready status. If this error happens, the engine stops all functions and keeps it at the error state. Also, the engine informs the error status of the main system and the error message is displayed at LCD window to inform the error status of the user.

- By Hsync

  When the polygon motor is ready, the LSU sends out the signal called Hsync and used to synchronize with each image line. So, if the engine does not detect consecutively the signal for a fixed time, it defines the Hsync Error. If this error happens, the engine stops all functions and keeps it at the error state. Also, the engine informs the error status of the main system and then the error message is displayed at LCD window to inform the error status of the user. LSU Error Recovery: If the LReady or Hsync error happens, the paper is exited before the error code is initiated. The engine mode is changed to recovery mode and the engine informs the main system of the engine mode. And the engine checks the LSU error. If the error doesn't happen, the printing job resumes.

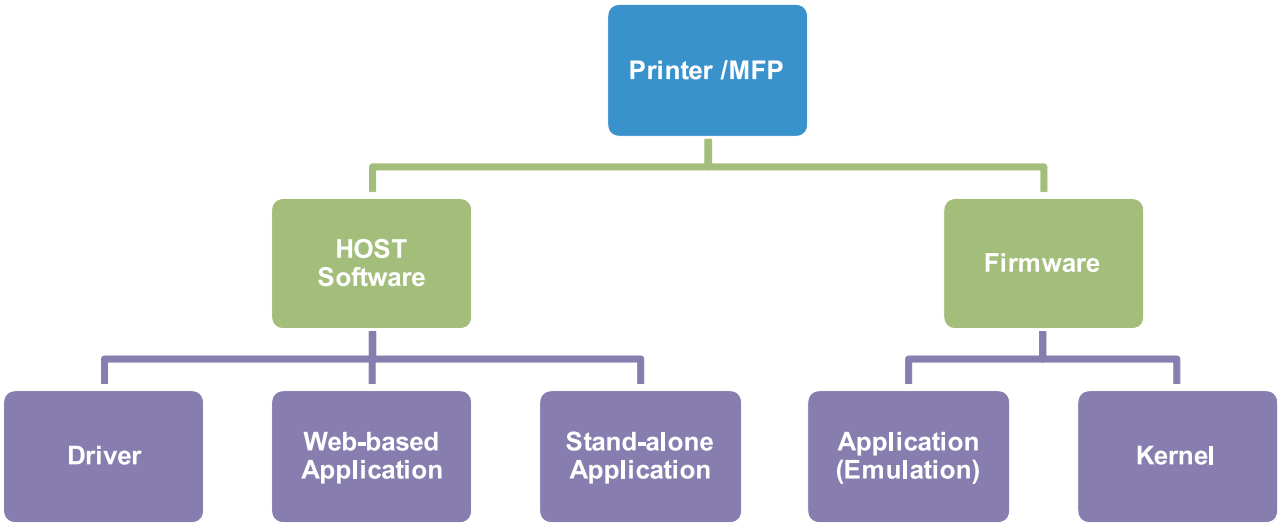
2.2.7. Software Descriptions

2.2.7.1. Software system overview

The software system of this model is constructed in the following manner:

- Host Software part that the application software operated in Window and Web Environment
- Firmware parts that is an Embedded software controls printing job.

2.2.7.2. Architecture



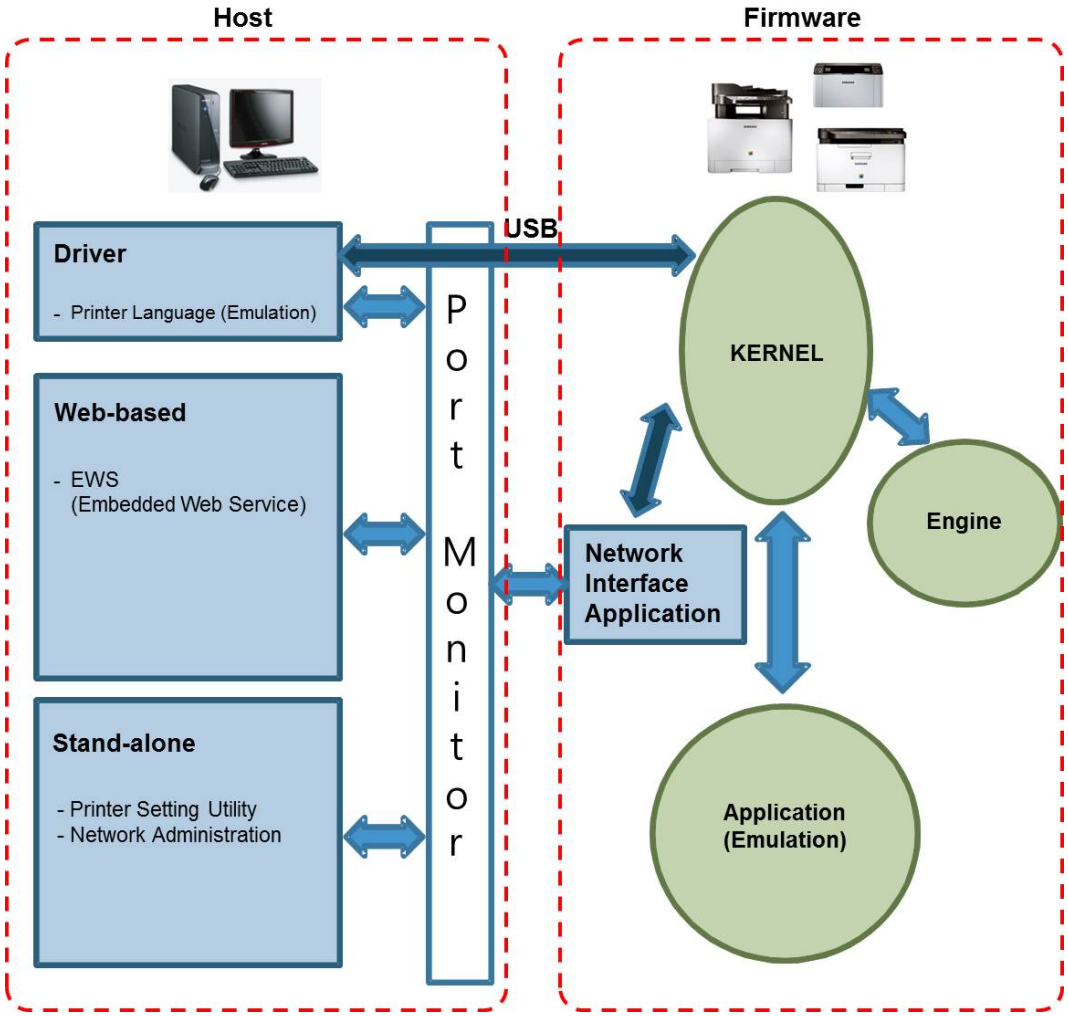
Host Software is made up of

1) Graphic User Interface offers the various editing functions to user in Host.
2) Driver translates the received document to a Printing Command language which printer can understand and transfers data to spooler.
3) Stand-alone Application offers the various printing application such as Easy Printer Manager, Printer Status in Window system.
4) Web-based-Application offers the same functions as Stand-alone Application in Web environment.

Firmware is made up of

1) The Application (Emulation) interprets and translates data received from the Host to a printing language to complete the users job.
2) The Kernel controls and manages the whole procedure including Control flow and the Printing Job before transferring it to the Engine for printing.

2.2.7.3. Data and Control Flow



The above Block Diagram is explained that:

Host Side is made up of

1) A driver that is a Windows based application software translates the printed data to printer language in order to create a spooler file.
2) A Web-based Application that offers various additional printer functions such as management of printing job, printer administration, and monitoring the printer status by real time in web independent environment on OS.
3) Stand-alone Application that is a similar Window software as same as above 2.
4) The Port Monitor facilitates the flow of information between the Host and Firmware.

Firmware Side is made up of

1) The Network Interface is used to relay the communication between Host and Kernel using various network protocol.
2) The Kernel is manages the flow control emulation as it receives data from Host or Network ; then manges the printing of the image by the engine.
3) The Application Layer containing the Emulation portion interprets the data from the selected emulation [PCL, PS], and transfers the data to the Kernel Layer.
4) The Engine prints the rendered bit-map data to paper with required size and type by Kernel.

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

3.1.2. Precautions when handling PBA

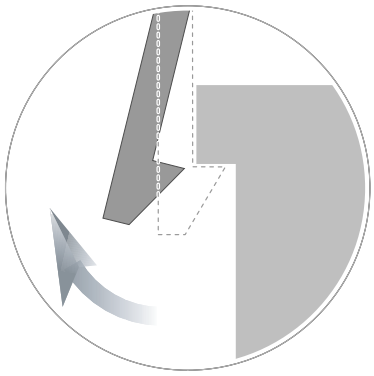
Static electricity can damage a PBA, always used approved anti-static precautions when handling or storing a PBA.

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

3.1.3. Releasing Plastic Latches

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

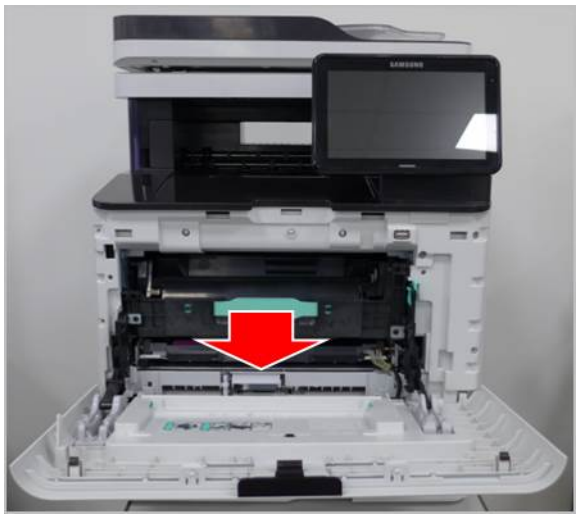
To remove such parts, press the hook end of the latch away from the part to which it is latched.



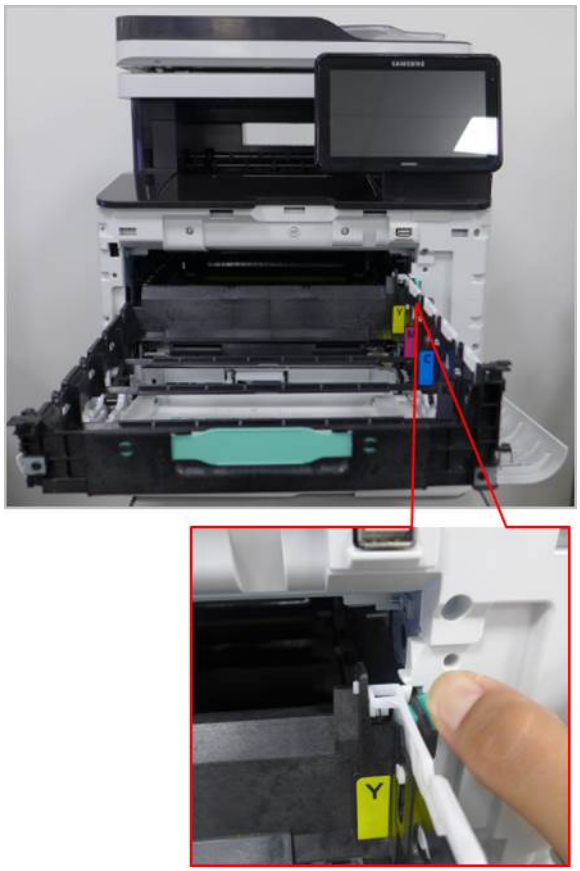
3.2. Replacing the maintenance parts

3.2.1. ITB Unit

1. Open the front cover. Pull out the guide-cartridge. And then, remove all toner cartridges.



2. Remove the guide-cartridge by releasing the right hook.



3. Remove the cassette.

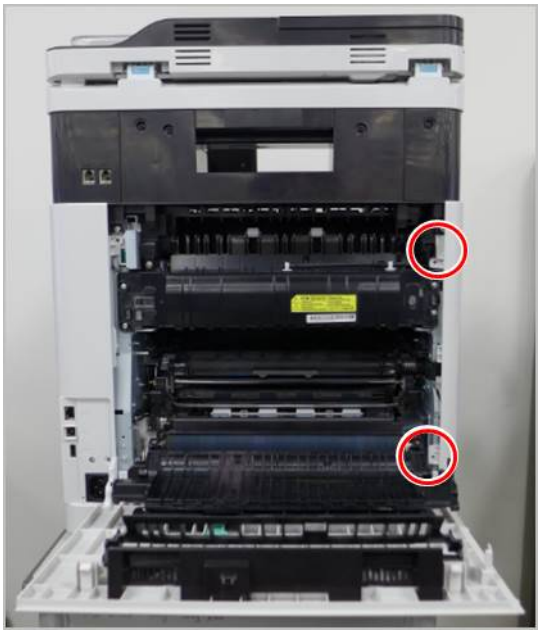
4. Remove the harness cover after removing 1 screw.

5. Disconnect the harness.

6. Open the front cover. Pick out the connector that is unplugged in step 5.

7. Remove 2 screws.

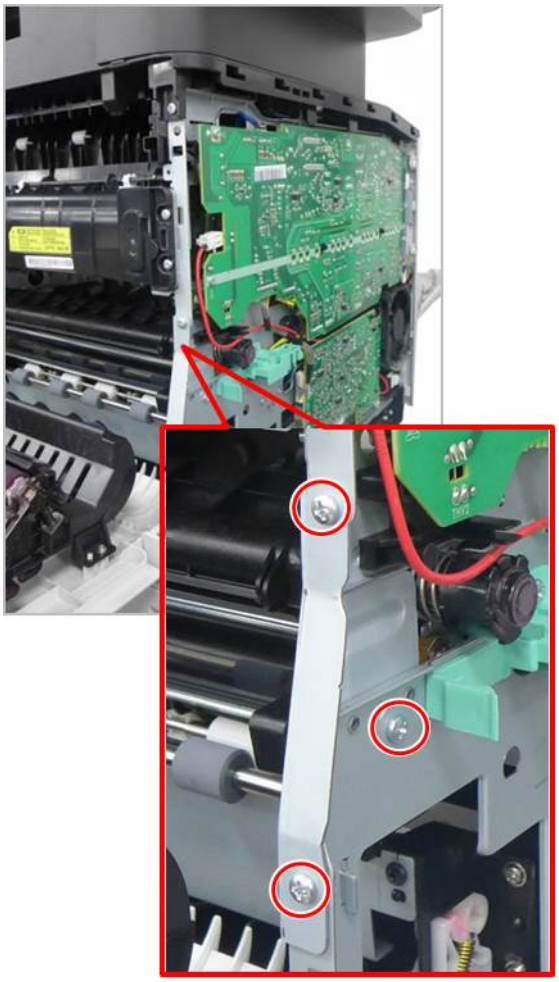
8. Open the rear cover. And then, remove 2 screws.



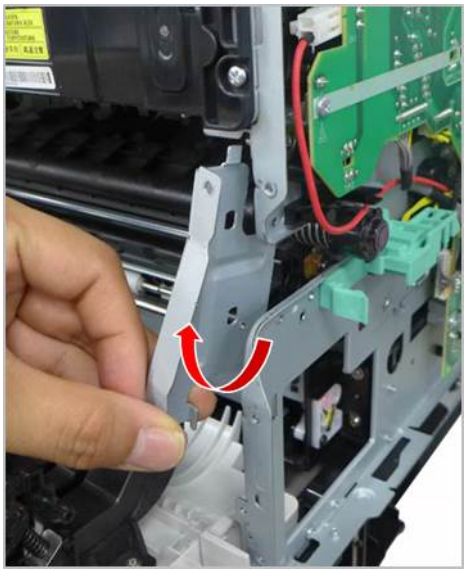
9. Remove the waste toner container.

10. Release the left cover by pulling it to the direction of arrow.

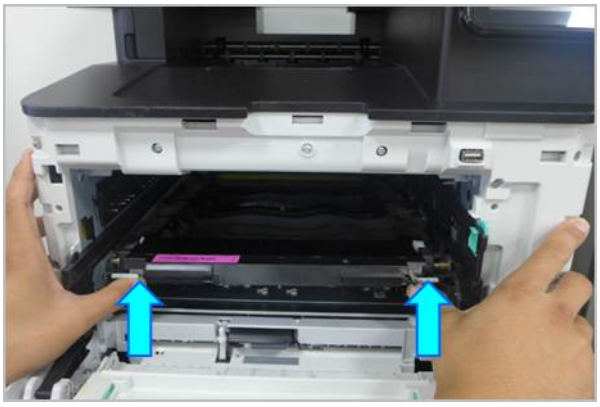
11. Remove 3 screws.



12. Pull and release the bracket.



13. Pull up both sides of the ITB Unit slightly.



14. Pull out the ITB Unit while holding its handles.

15. Install the ITB Unit with a new one.

16. Reassemble in reverse order of disassembly.

17. After reassembling the new ITB Unit, reset the count as followings :

1) Enter SVC mode.

2) Select the menu. (**Information > Supply Status > Field Replacement Unit > Transfer > Transfer Unit**)

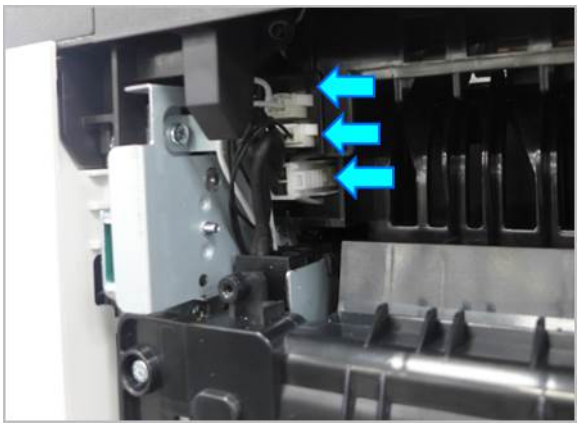
3) Push “Reset” button to reset the current count to 0

3.2.2. Fuser Unit

1. Open the rear cover.

2. Remove 5 screws. And then, remove the harness cover located in the left side.

3. Unplug 3 connectors, and then remove the Fuser Unit.



4. Install the Fuser Unit with a new one.

5. Reassemble in reverse order of disassembly.

6. After reassembling the new Fuser Unit, reset the count as followings :

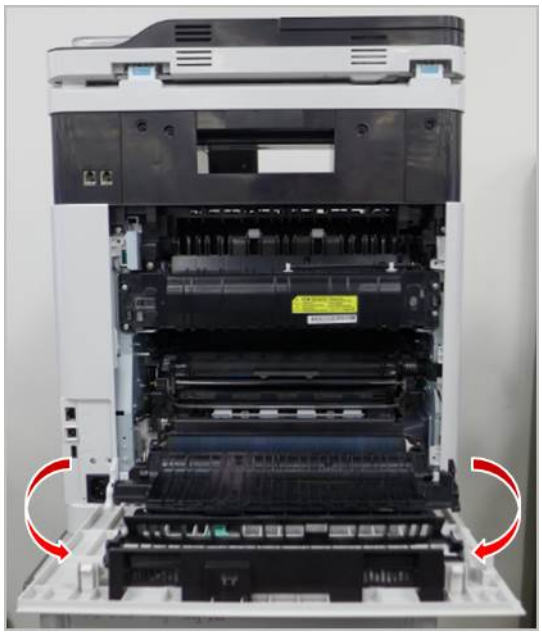
1) Enter SVC mode.

2) Select the menu. (**Information > Supply Status > Field Replacement Unit > Fuser**)

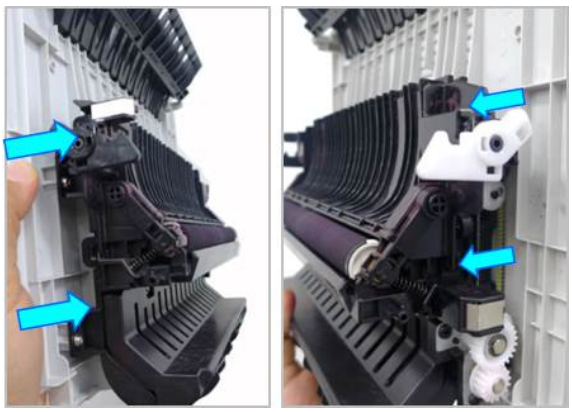
3) Push “Reset” button to reset the current count to 0

3.2.3. Transfer(T2) Roller Assy

1. Open and remove the rear cover.



2. Remove the Transfer Roller Assy by releasing 4 hooks.



3. Install the transfer roller with a new one.

4. Reassemble in reverse order of disassembly.

5. After reassembling the new transfer roller, reset the count as followings :

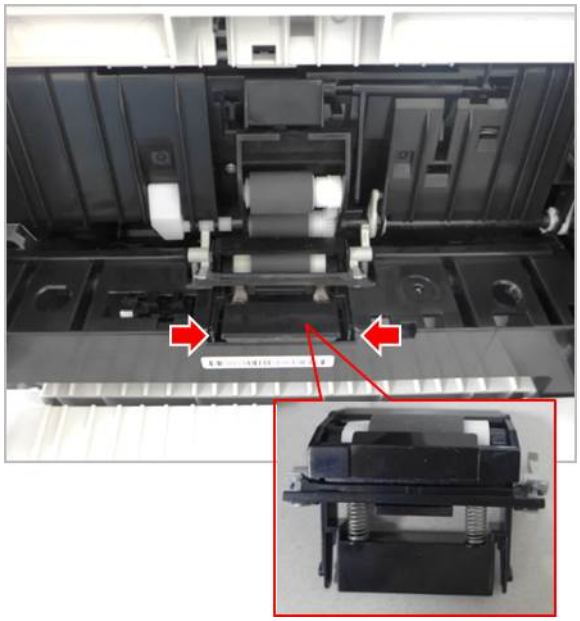
1) Enter SVC mode.

2) Select the menu. (**Information > Supply Status > Field Replacement Unit > Transfer > T2 Roller**)

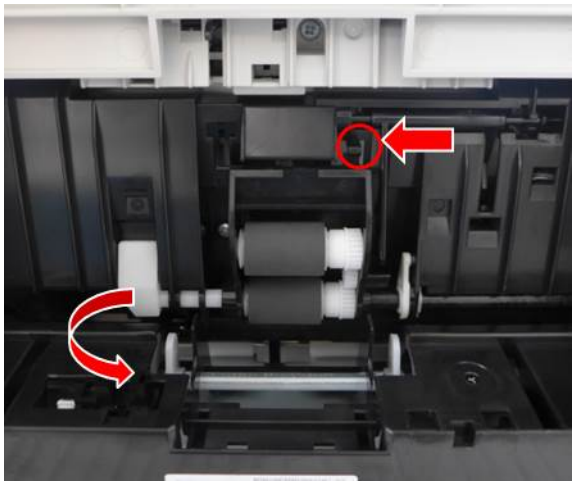
3) Push “Reset” button to reset the current count to 0

3.2.4. Pick up_Forward_Separation roller

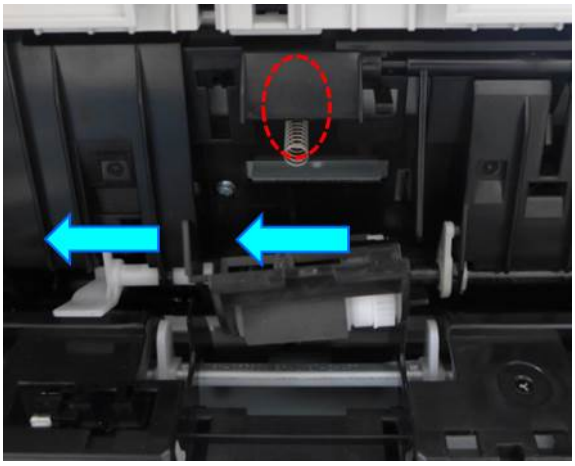
1. Remove the cassette. Stand the machine to see the bottom.
2. Release the Reverse roller Assy by pushing both hooks.



3. Rotate the lever and release the hook by pushing it to the direction of arrow.



4. Move the Roller Assy to the left and release it while pulling the lever to the left.



NOTE

Be careful not to lose the spring.

NOTE

When removing the Roller Assy, hold the right shaft with one hand. Be careful not to deviate the clutch.

5. Install the Pick up/Forward/Separation roller with a new one.
6. Reassemble in reverse order of disassembly.
7. After reassembling the new rollers, reset the count as followings :
   1) Enter SVC mode.
   2) Select the menu. (**Information > Supply Status > Field Replacement Unit > Roller**)
   3) Push “Reset” button to reset the current count to 0

3.3. Replacing the main SVC parts

NOTE

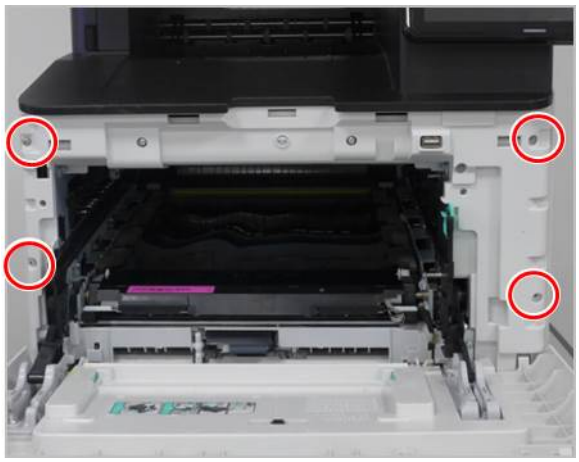
Before service, remove all toner cartridges and guide-cartridge.

3.3.1. Left and Right cover

1. Open the rear cover.

2. Remove 4 screws.

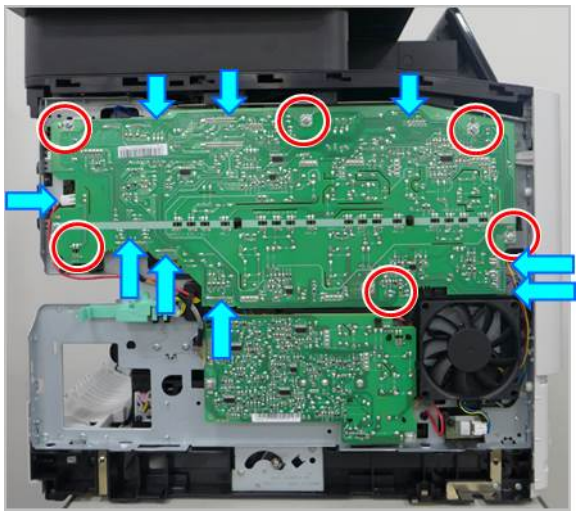
3. Open the front cover. And then, remove 4 screws.



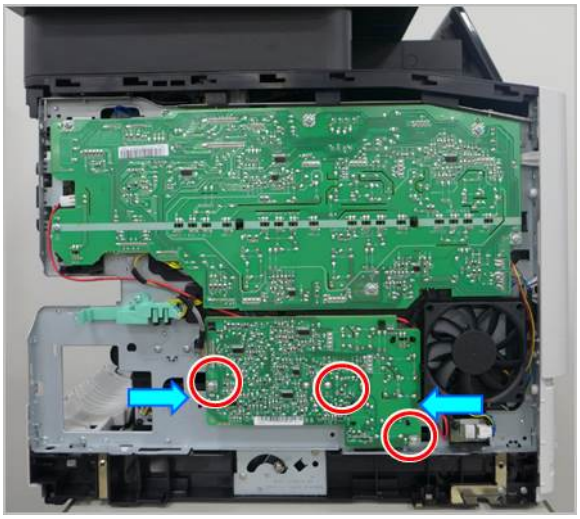
4. Pull and release the right and left cover.

3.3.2. HVPS board

1. Remove the left cover. (**Refer to 3.3.1.**)
2. Remove 6 screws. Unplug all harness connecting the board. And release the HVPS_1 board.

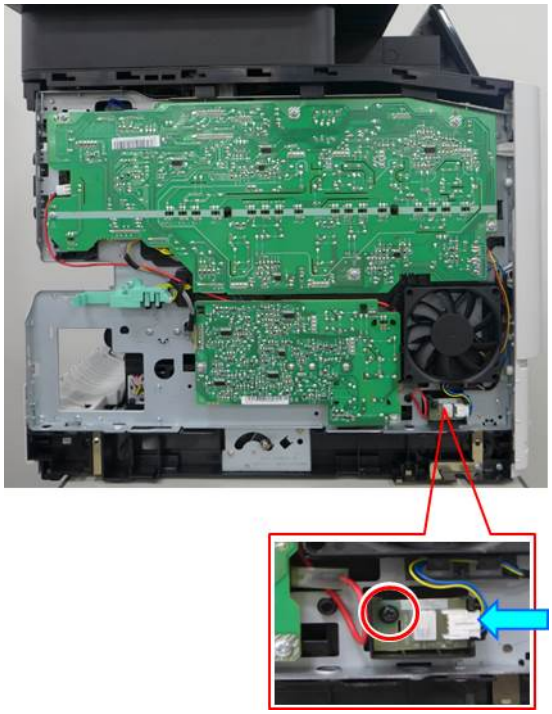


3. Remove 3 screws. Unplug all harness connecting the board. And release the HVPS_2 board.



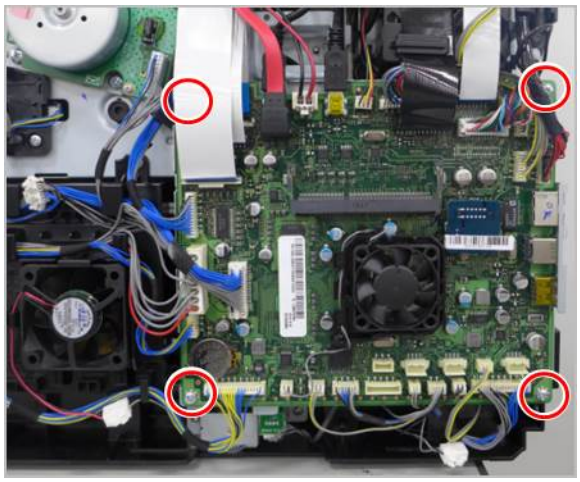
3.3.3. Outer Temperature Sensor

1. Remove the left cover. (**Refer to 3.3.1**)
2. Remove 1 screw. Unplug the harness. And then, remove the outer temperature sensor.



3.3.4. Main Board

1. Remove the right cover. (**Refer to 3.3.1**)
2. Unplug all harness. Remove 4 screws. And then, remove the main board.

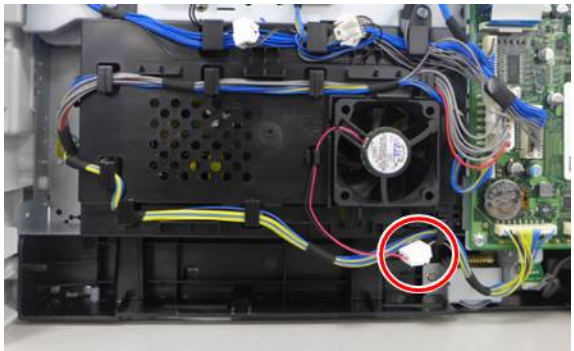


CAUTION

Be careful not to damage the connector when disconnecting the harness.

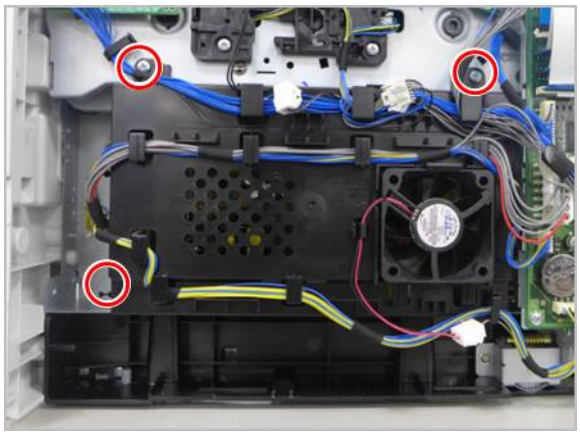
3.3.5. SMPS Fan

1. Remove the right cover. (**Refer to 3.3.1**)
2. Unplug the fan connector.
3. Release the hook. And then, remove the SMPS fan.



3.3.6. SMPS board

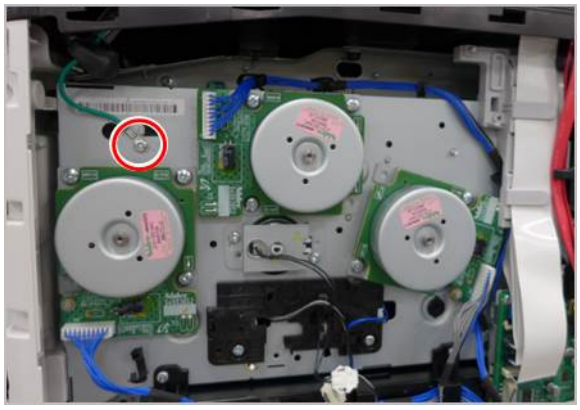
1. Remove the right cover. (**Refer to 3.3.1**)
2. Remove the SMPS board cover after removing 3 screws.



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

3.3.7. OPE Unit

1. Remove the right cover. (**Refer to 3.3.1.**)
2. Remove 1 screw on the main drive unit.

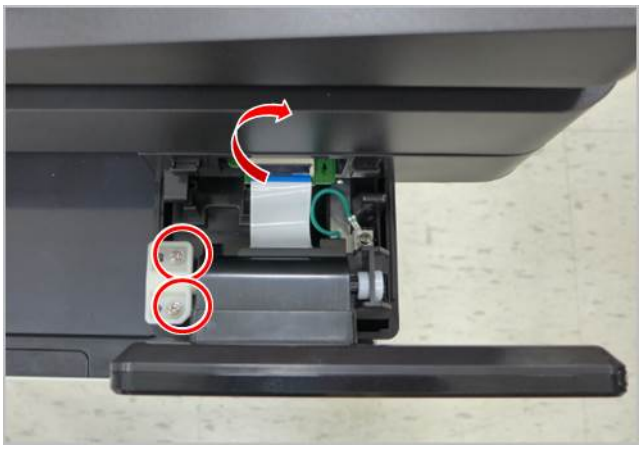


3. Remove 1 screw-hole cap and 1 screw.

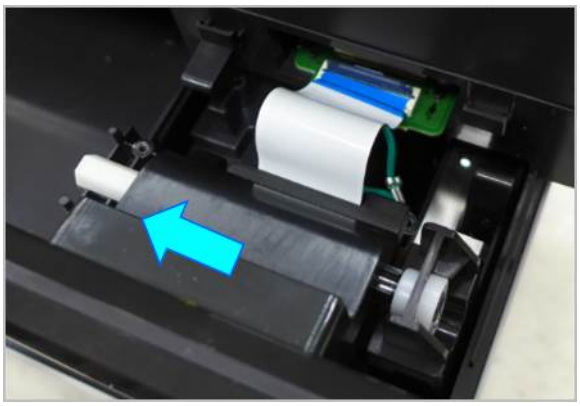
4. Remove 1 screw-hole cap and 1 screw.

5. Remove the cover.

6. Remove 2 screws and unplug the harness.



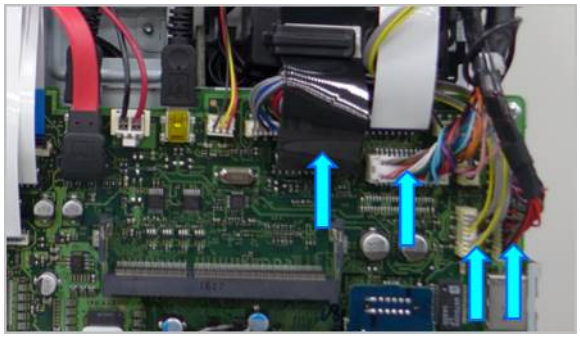
7. Push the OPE Unit to the left and release it.



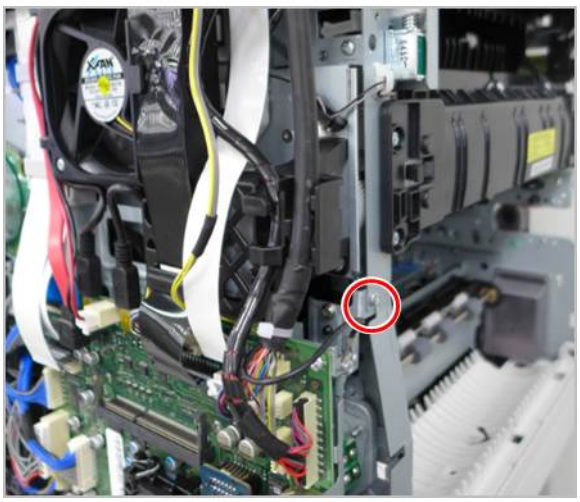
3.3.8. Scanner Unit (C4060)

1. Remove the right cover. (**Refer to 3.3.1**)
2. Open the ADF Unit. And then, remove 2 screw-hole caps and 2 screws.

3. Unplug the harness connecting the scanner from the main board.



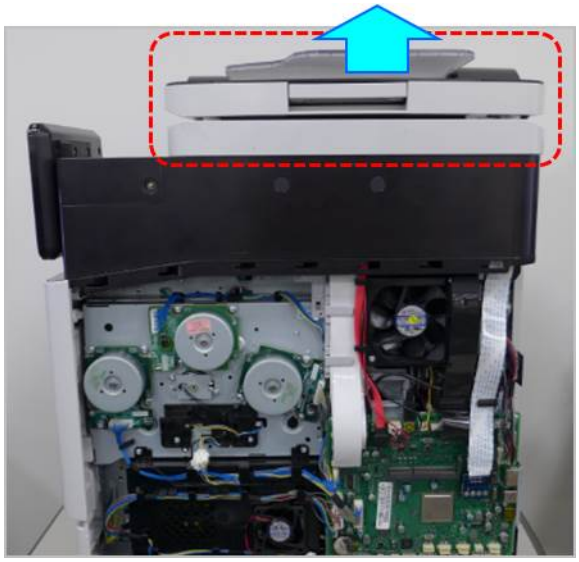
4. Remove 1 screw securing the frame from the rear side.



5. Remove 2 screws from the rear side.

6. Remove 2 screw-hole caps and 2 screws from the right side.

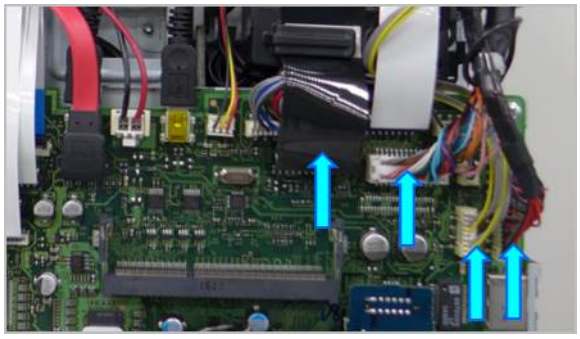
7. Lift up and release the scanner unit.



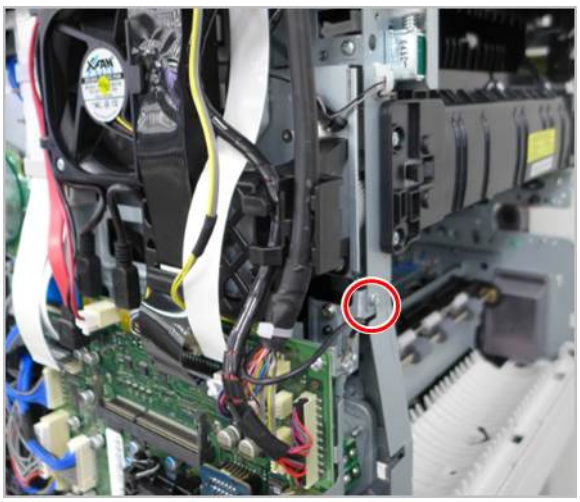
3.3.9. Scanner Unit (C4062)

1. Remove the right cover. (**Refer to 3.3.1**)
2. Open the ADF Unit. And then, remove 4 screw-hole caps and 4 screws.

3. Unplug the harness connecting the scanner from the main board.

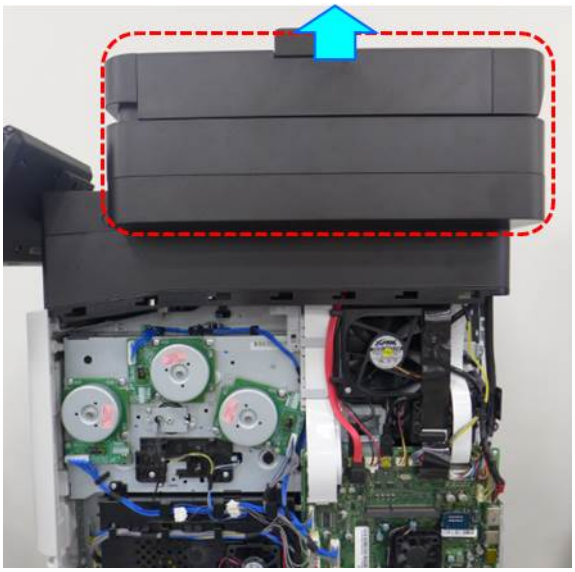


4. Remove 1 screw securing the frame from the rear side.



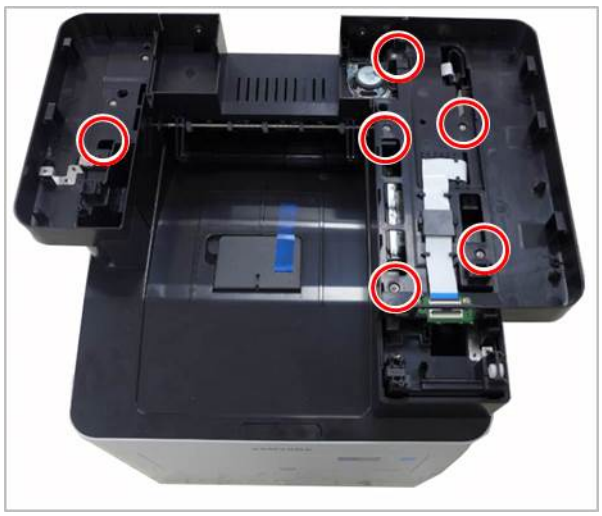
5. Remove 2 screws.

6. Lift up and release the scanner unit.

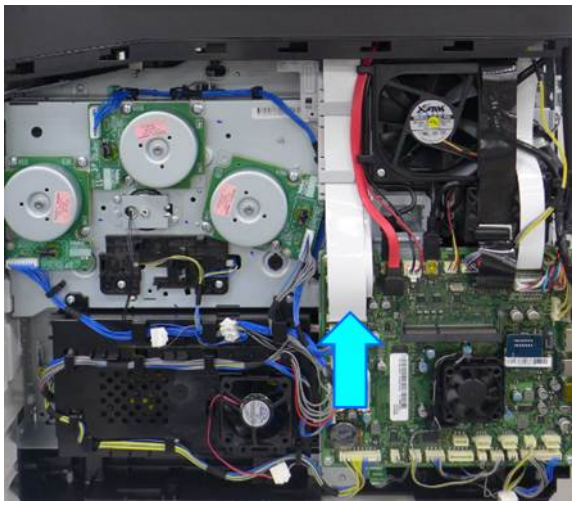


3.3.10. Middle Cover

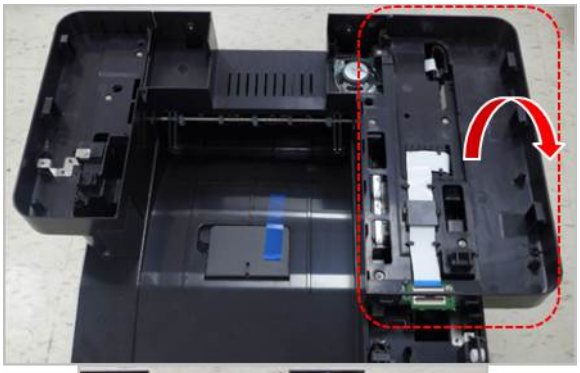
1. Remove the right and left cover. (**Refer to 3.3.1**)
2. Remove the OPE unit. (**Refer to 3.3.7**)
3. Remove the scanner unit. (**Refer to 3.3.8~9**)
4. Remove 6 screws on the middle cover.

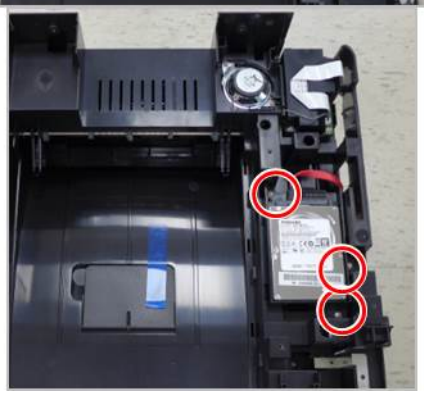


5. Unplug the OPE harness.



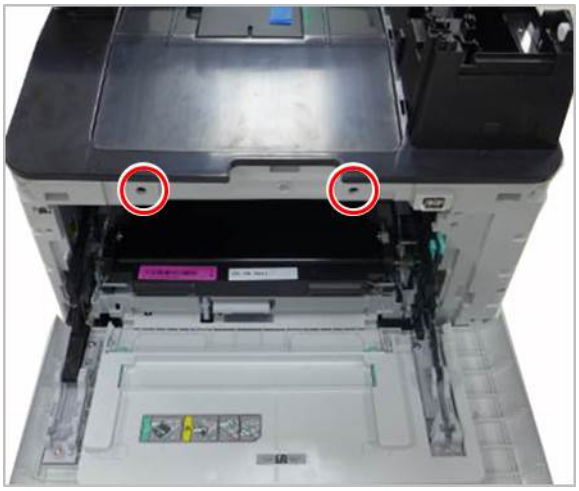
6. Remove the right cover. And then, remove 3 screws securing the HDD.





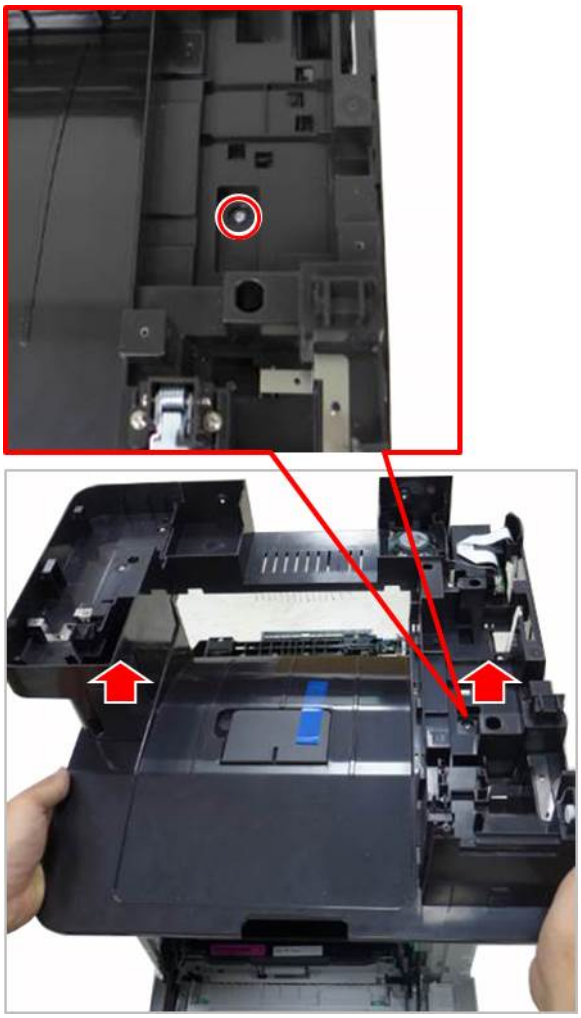
7. Unplug 2 HDD cables from the main board.

8. Remove 2 screws from the front side.



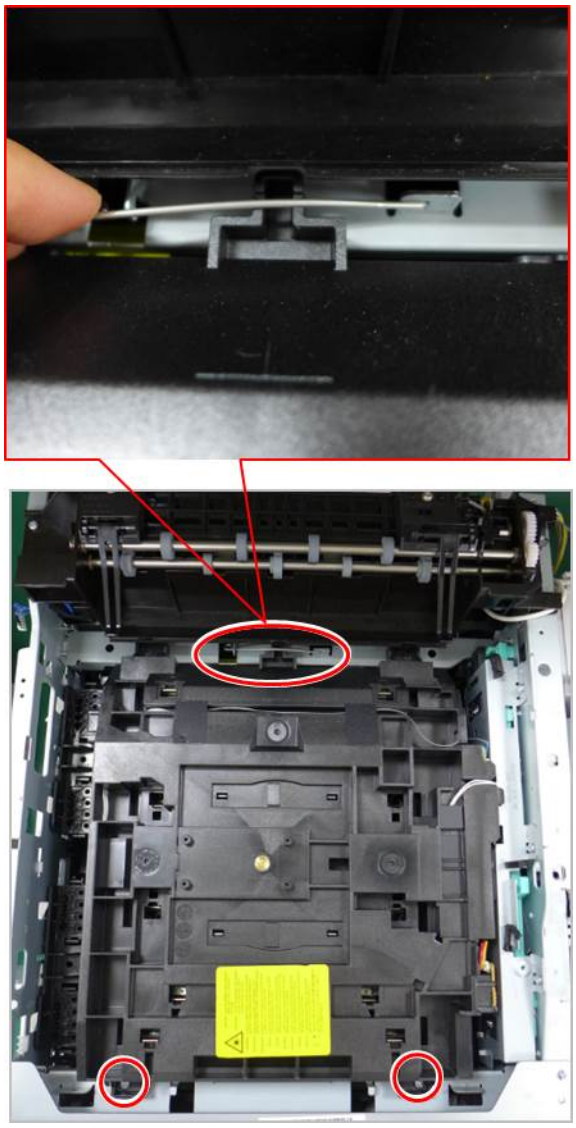
9. Remove 2 screws from the rear side.

10. Remove 1 screw. And then, lift up and release the middle cover.



3.3.11. LSU

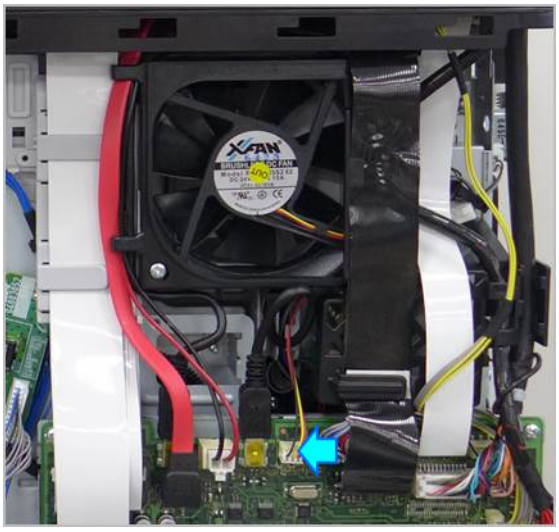
1. Remove the middle cover. (**Refer to 3.3.10**)
2. Remove 2 screws and 1 spring securing the LSU.



3. Unplug all harness from the LSU. And then, remove the LSU.

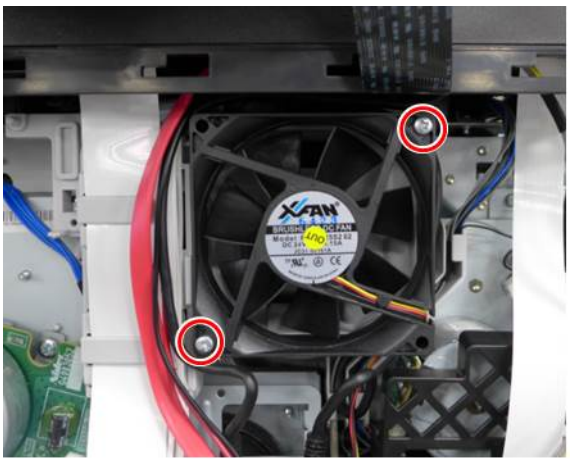
3.3.12. Fuser Fan

1. Remove the right cover. (**Refer to 3.3.1.**)
2. Unplug the fan connector on the main board.



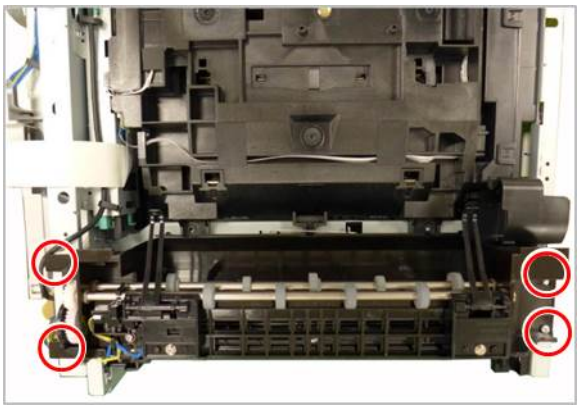
3. Remove the fan cover by releasing 2 hooks.

4. Remove 2 screws. And then, release the fan.



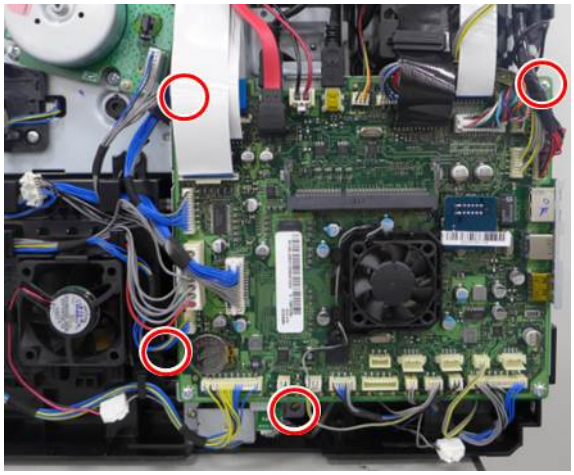
3.3.13. Exit Unit

1. Remove the right cover. (**Refer to 3.3.1.**)
2. Remove the middle cover. (**Refer to 3.3.9.**)
3. Unplug the exit unit harness from the main board.
4. Release the exit unit after removing 4 screws.

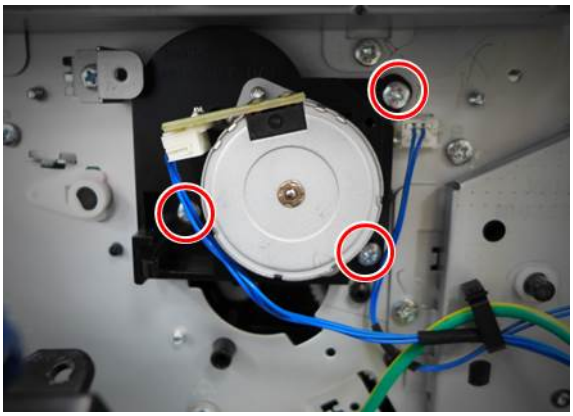


3.3.14. DRIVE-T1

1. Remove the right cover. (**Refer to 3.3.1.**)
2. Remove the SMPS board. (**Refer to 3.3.6.**)
3. Remove the main board bracket after removing 4 screws.

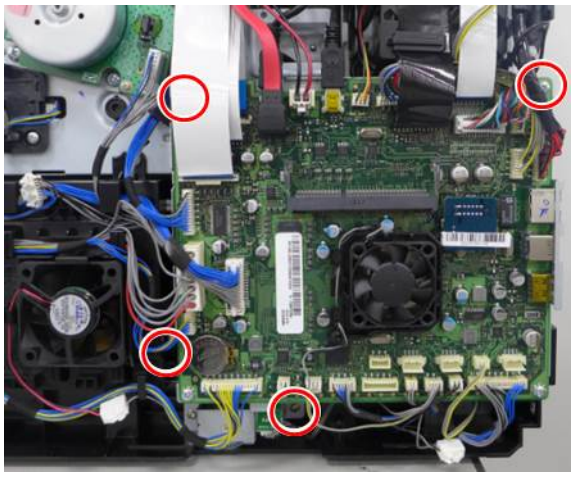


4. Release the BRACKET-T1 after removing 3 screws.

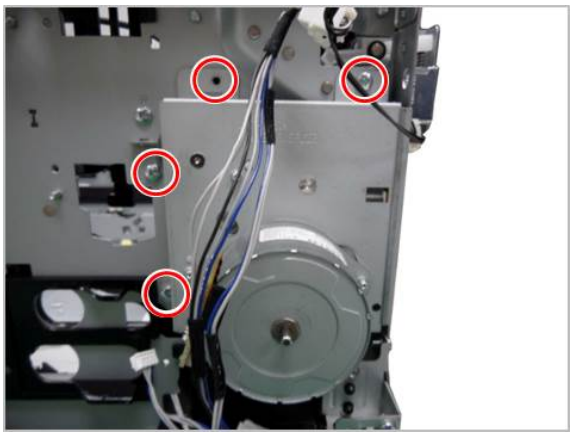


3.3.15. Fuser Drive Unit

1. Remove the right cover. (**Refer to 3.3.1.**)
2. Remove the main board bracket after removing 4 screws.

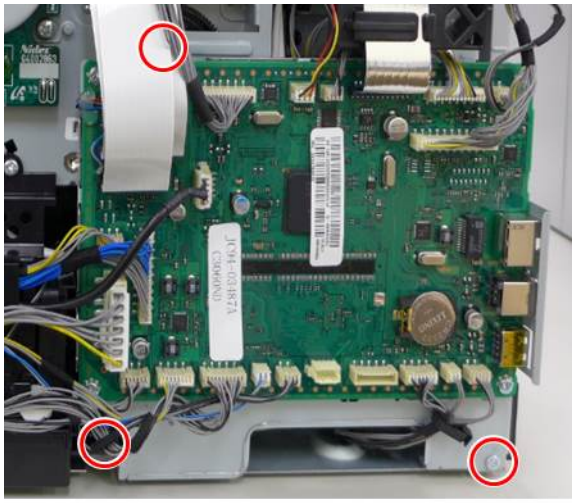


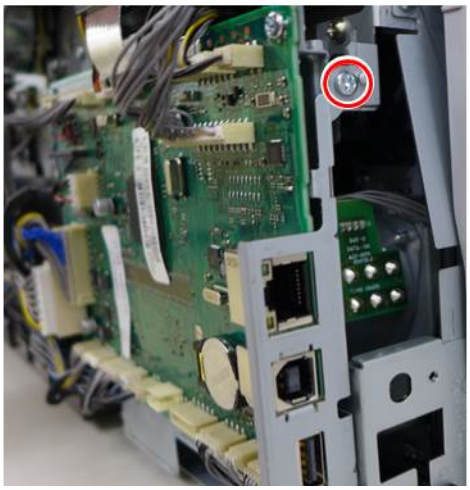
3. Remove the Fuser Drive Unit after removing 4 screws.



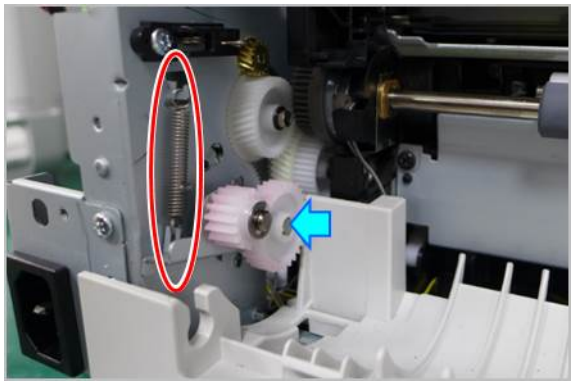
3.3.16. PH (Paper Handling) Drive Unit

1. Remove the right cover. (**Refer to 3.3.1**)
2. Remove the main board bracket after removing 4 screws.

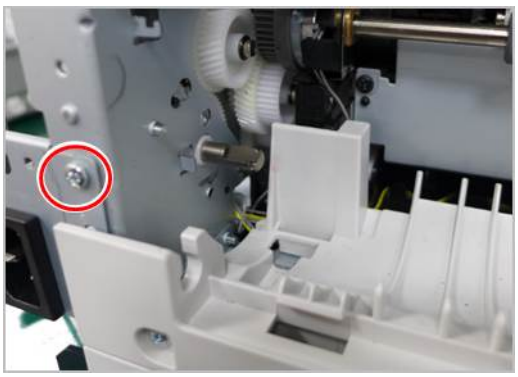




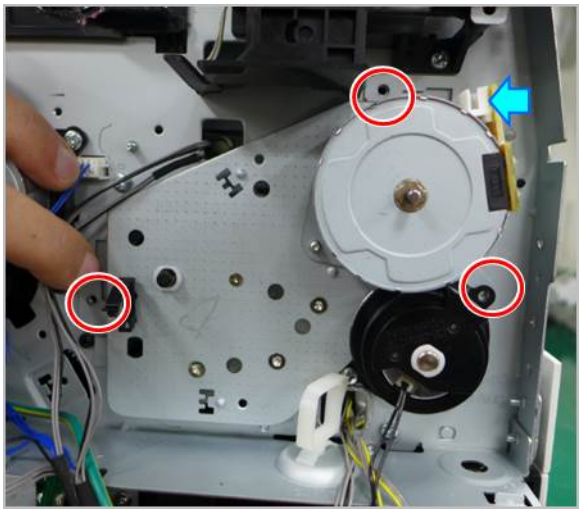
3. Remove the rear cover.
4. Remove the spring. And then, remove the gear Assy while pushing the hook.



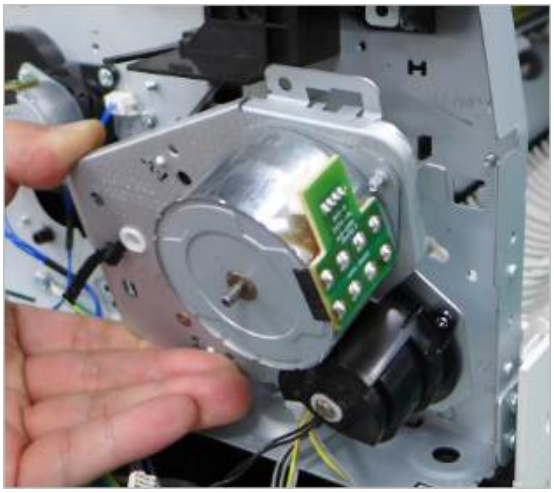
5. Remove 1 screw. And then, remove the Inlet Assy.



6. Remove 3 screws and unplug the motor harness.

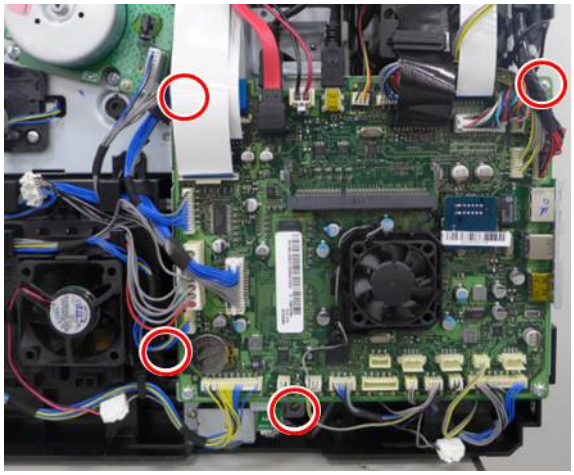


7. Remove the PH Drive Unit.

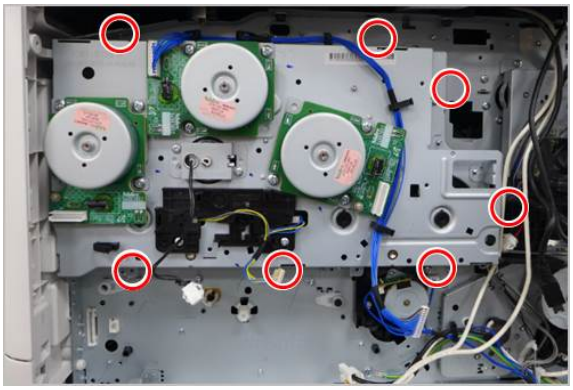


3.3.17. Main Drive Unit

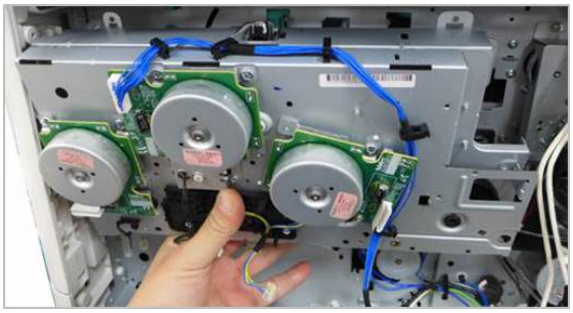
1. Remove the right cover. (**Refer to. 3.3.1.**)
2. Remove the SMPS board. (**Refer to. 3.3.6.**)
3. Remove the main board bracket after removing 4 screws.



4. Remove 7 screws securing the main drive unit.

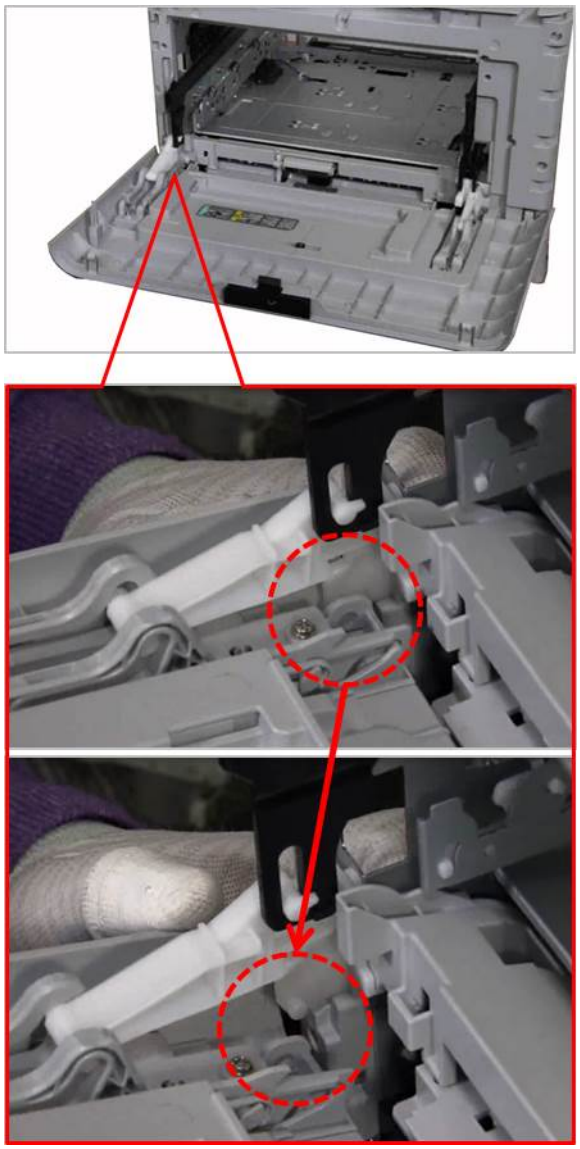


5. Release the main drive unit.

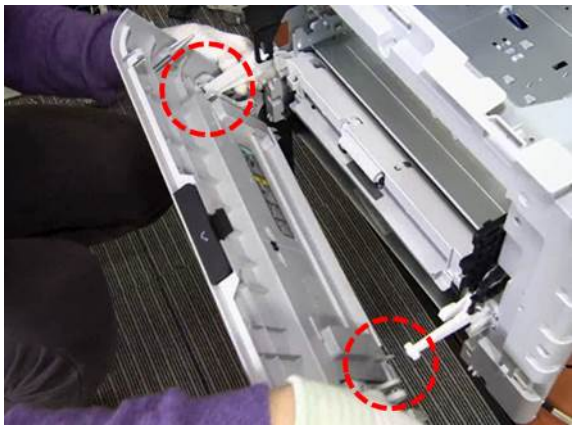


3.3.18. MP Pick-Up Unit

1. Remove the left cover and right cover. (**Refer to 3.3.1.**)
2. Open the front cover. And then release the hook from the left.

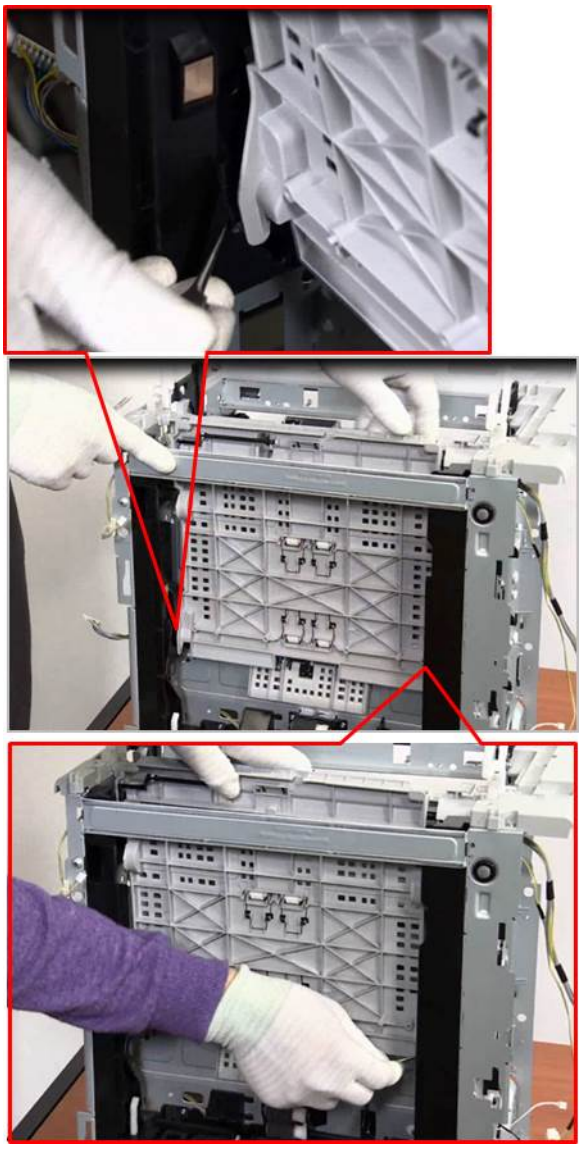


3. Remove the front cover from the machine after releasing both linkers.

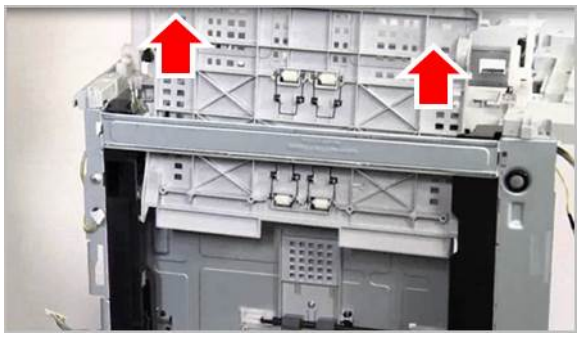


4. Stand the machine to see the bottom. And then, push the MP tray into the bottom.

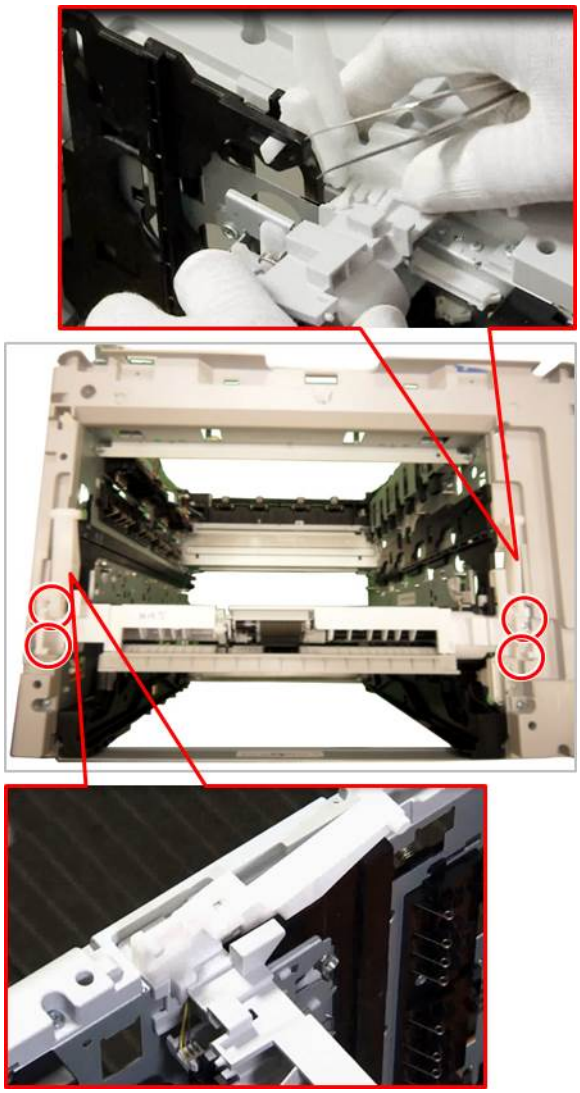
5. Release both hooks with tweezer.



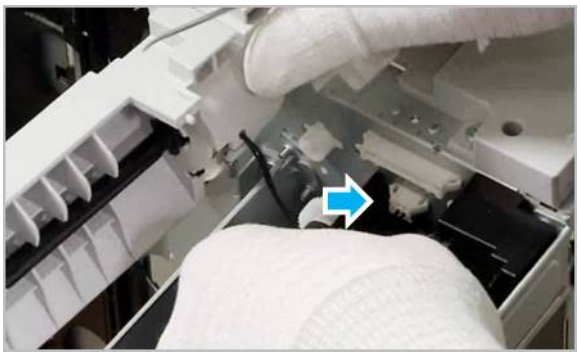
6. Lift and release the MP tray.



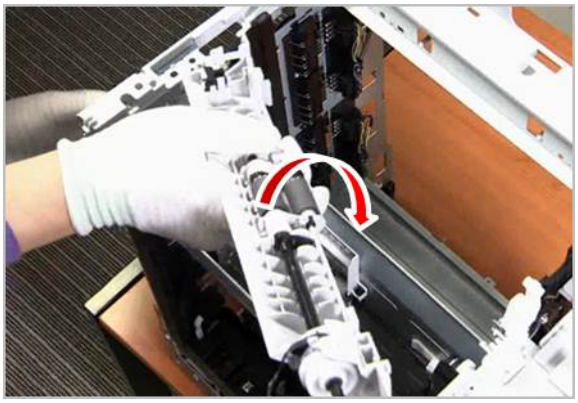
7. Remove 4 screws. And then, release both linkers.



8. Unplug the harness.

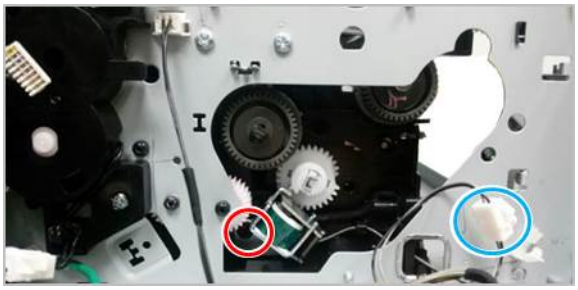


9. Release the MP pick up unit.



3.3.19. Solenoid

1. Remove the PH drive unit. (**Refer to 3.3.16**)
2. Remove 1 screw. Unplug the harness. And then, remove the solenoid.



3.3.20. FRAME-SEPARATION UNIT

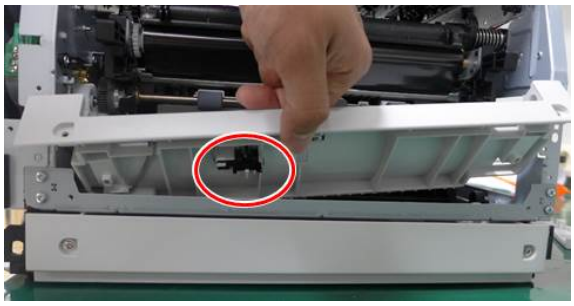
1. Remove the cassette.

2. Remove the rear cover.

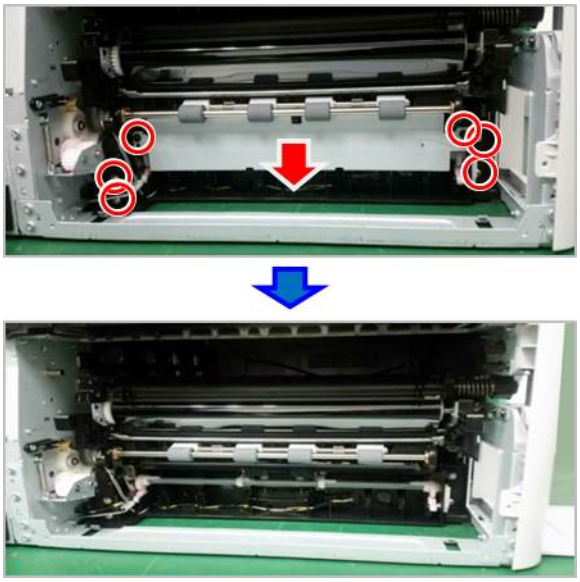
3. Remove the waste toner container.

4. Remove 2 screws securing the Cover-Rear Bottom.

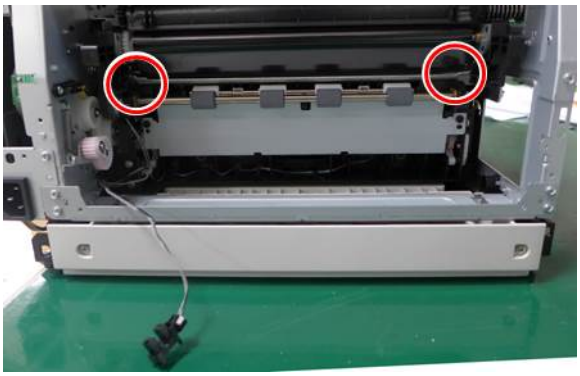
5. Release the sensor from the Cover-Rear Bottom. And then, release the Cover-Rear Bottom.



6. Remove 6 screws. And then, release the Inlet Assy[B].

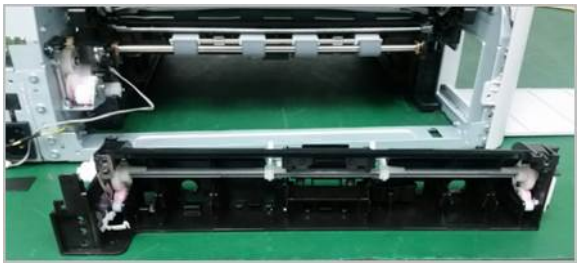


7. Remove 2 screws.



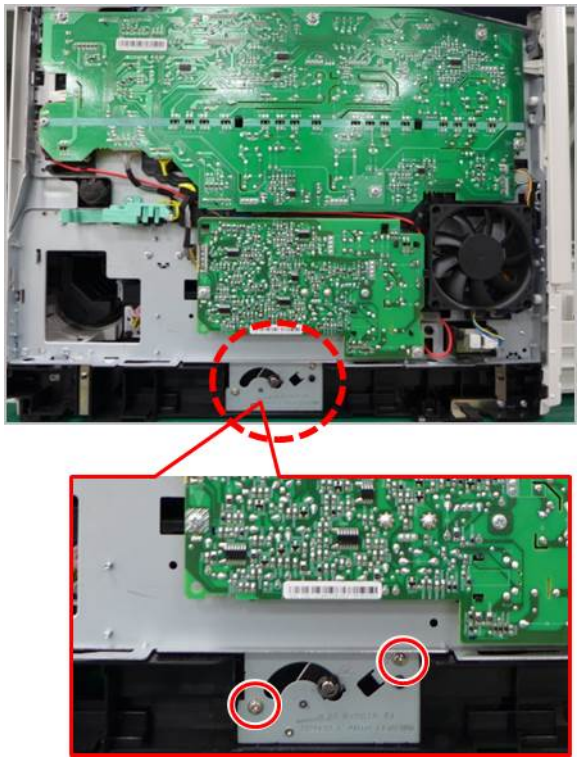
8. Pull out the right side of the FRAME-SEPARATION.

9. Unplug the harness. And the release the FRAME-SEPARATION Unit.

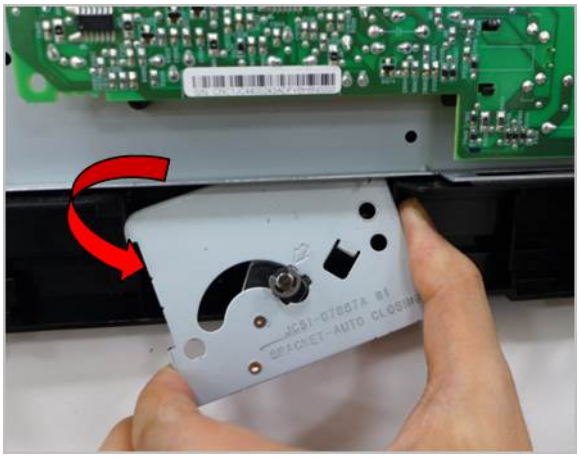


3.3.21. Auto Closing Unit

1. Remove the waste toner container and left cover. (**Refer to 3.3.1.**)
2. Remove 2 screws.

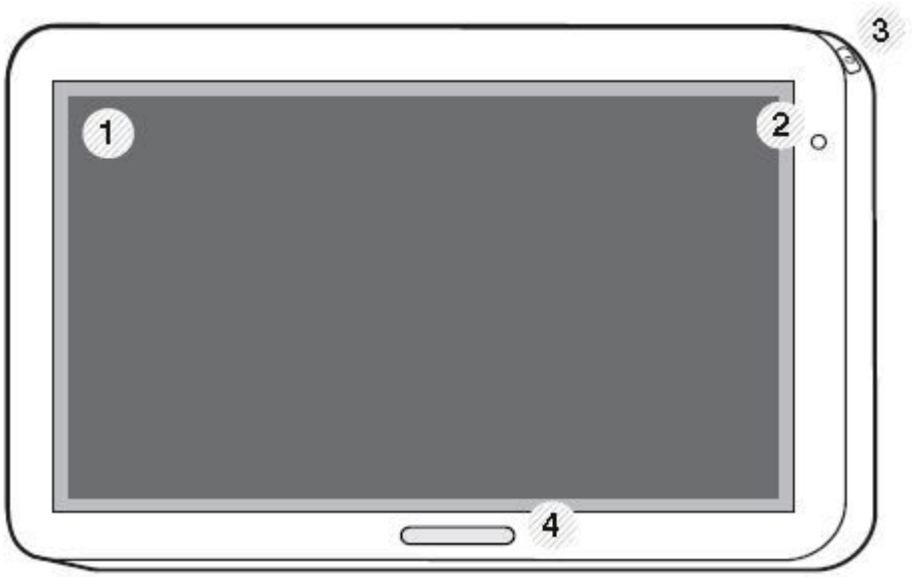


3. Pull down and release the Auto Closing Unit.



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	Power LED	Shows the power status of your machine.
3	Power / Wakeup button	Turn the power on or off. When the blue LED is on, the machine is powered on and you can use it. If you turn the machine off, press this button for more than two seconds. Then, confirmation window appears.
4	Status LED	Shows the status of your machine.

4.2. Understanding the status LED

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

NOTE

- To resolve the error, look at the error message and its instructions from the troubleshooting part.
- You also can resolve the error with the guideline from the computers' Samsung Printer Status program window.

Status LED

Status		Description	
Off		• 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.	
Blue	On	The machine is on-line and can be used.	
	Blinking	Fax	The machine is sending or receiving faxes.
		Copy	The machine is copying documents.
		Scan	The machine is scanning documents.
		Print	• 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.
Orange	On	• A toner cartridge has almost reached its estimated cartridge life*. It is recommended to replace the toner cartridge. • The cover is opened. Close the cover. • There is no paper in the tray. Load paper in the tray. • The machine has stopped due to a major error. • A paper jam has occurred. • The waste toner container is not installed in the machine or it is full.	
	Blinking	• 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.	

NOTE

* Estimated cartridge life means the expected or estimated toner cartridge life, which indicates the average capacity of print-outs and is designed pursuant to ISO/IEC 19798. The number of pages may be affected by operating environment, printing interval, media type, and media size. Some amount of toner may remain in the cartridge even when the orange LED is on and the printer stops printing.

Power LED

Status		Description
Off		The machine is off-line.
Blue	On	• The machine is on-line and can be used. • The machine is in power save mode. When data is received, or any screen is pressed, it switches to on-line automatically.

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 USB cable.
- Update the firmware by using the network.

NOTE

Please do not turn off the printer/MFP and your computer until firmware update finishes.

If you are using USB connection, disconnect all other USB printers from the PC.

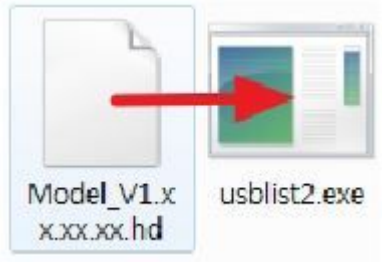
The firmware update you are about to install has been tested for compatibility with Samsung toner cartridge products ONLY. Installing The upgrade may cause a non-Samsung toner cartridge to malfunction.

Do not run your printer during the firmware update.(Do not have any print job)

4.3.1. Update the firmware by using the USB port

How to update the firmware using a USB cable

1) Make sure that the machine is connected to the PC with a USB cable. Check if the printer is the ready status.
2) Download the firmware file to your PC. Unzip the file.
3) Drag the firmware file(*.hd) and drop down it on the usblist2.exe.



And then firmware update will be started automatically.

4) Once the firmware update is complete, the machine will be rebooted automatically.

4.3.2. Updating from the Network

WARNING

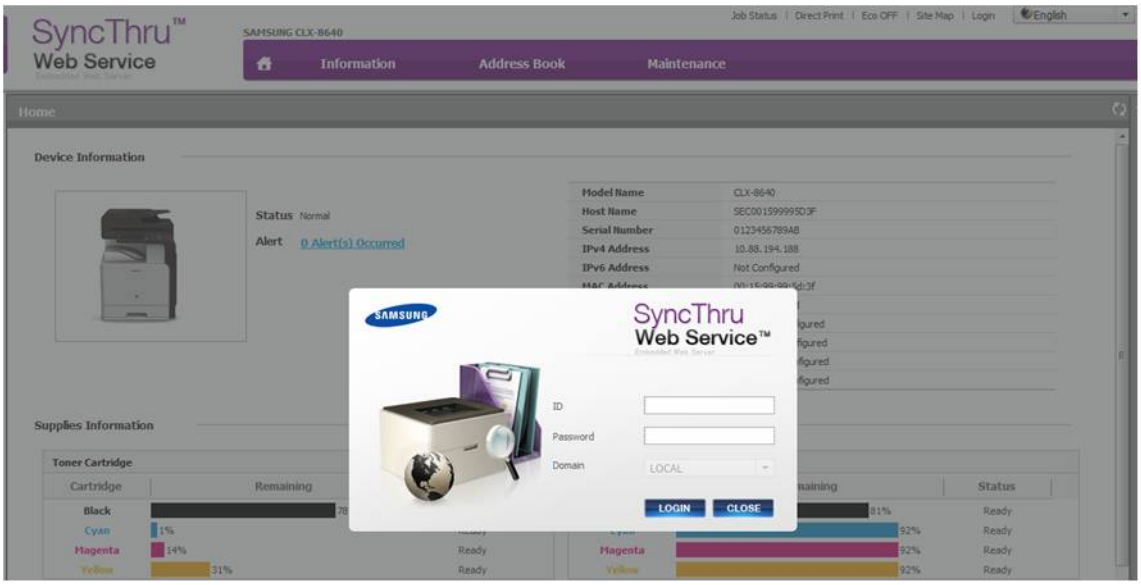
Failure to follow these instructions could lead to corruption issues and prevent the proper operation of this MFP. Follow all of the instructions carefully.

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

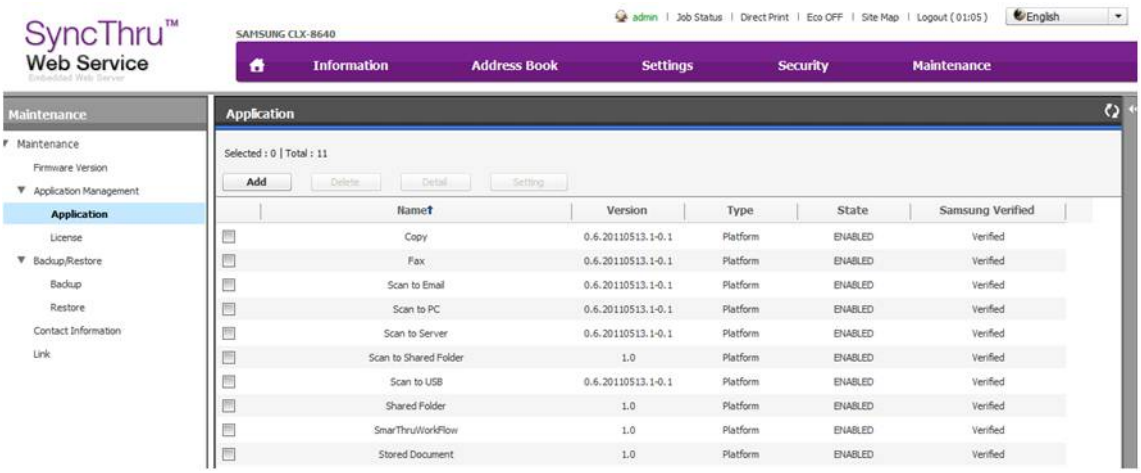
1) Go to the SyncThruWeb Service (SWS) main home page. Login as Admin in Sync Thru Web Service.

NOTE

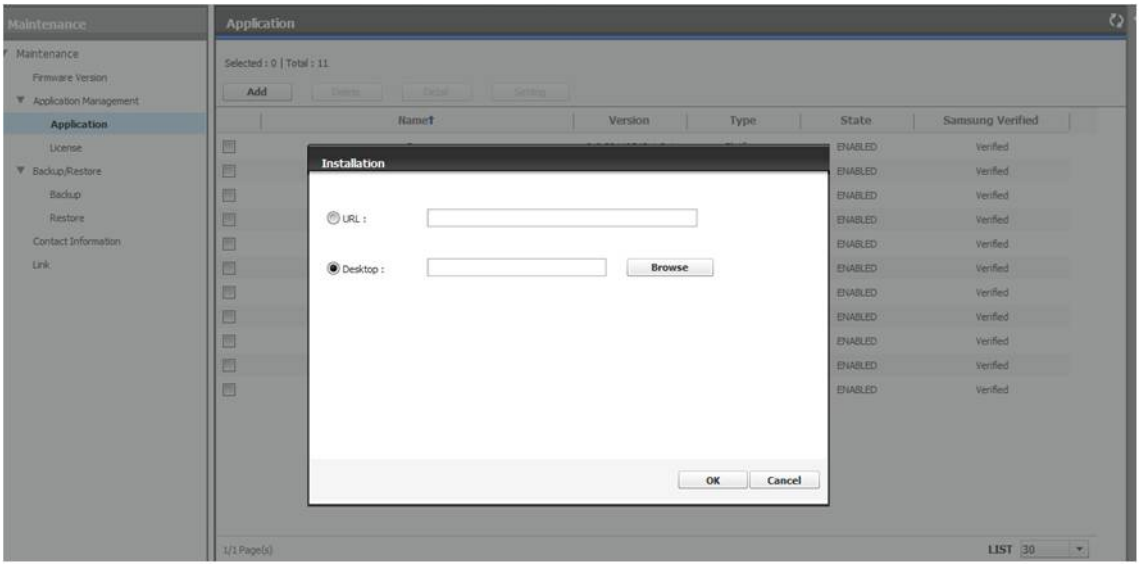
Login using the Administrator ID and Password established during initial machine setup.



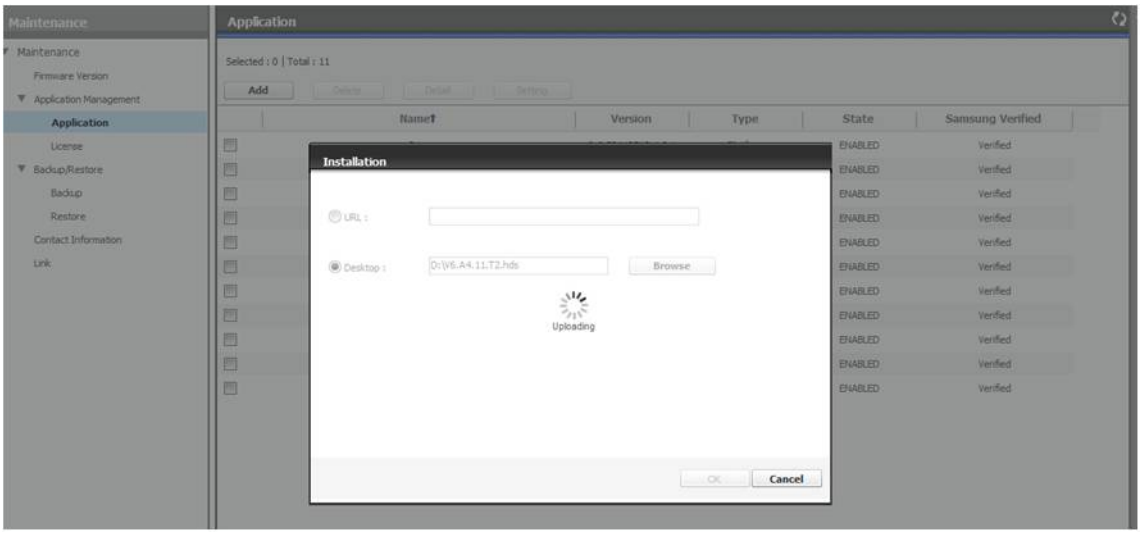
2) Click on **Maintenance > Application Management > Application > Add**.



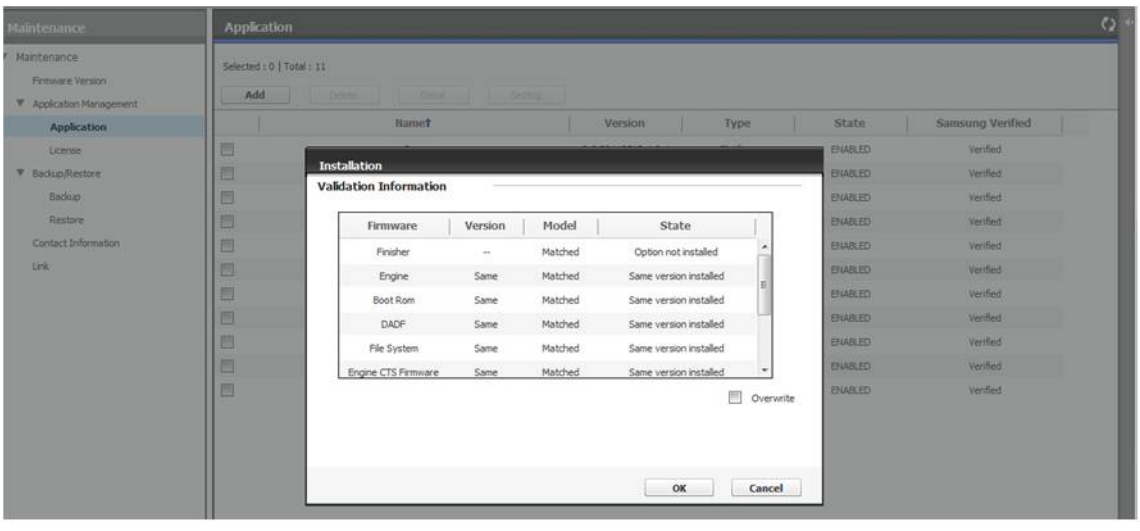
3) Choose installation file (F/W file) by browsing the file system and click [**OK**].



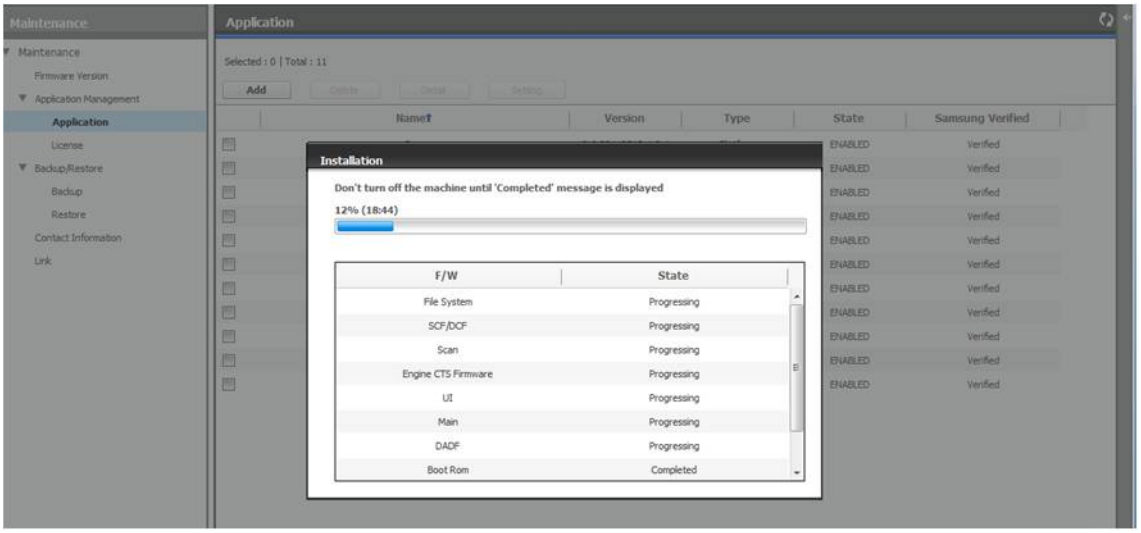
4) The uploading step will start.



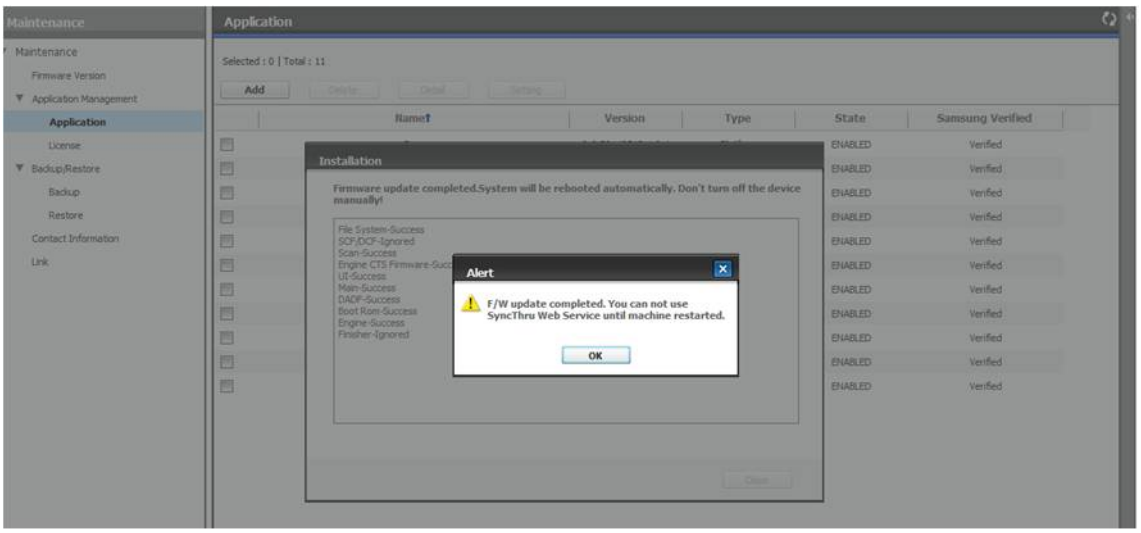
5) After uploading the f/w file on MFP, validation information will appear. Check the [**Overwrite**] check-box if you want to force the firmware update even if the firmware version to be installed is lower or same with the currently installed firmware in the device. Press [**OK**] to start the firmware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



6) The firmware update will start.



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



4.4. Clearing paper jams

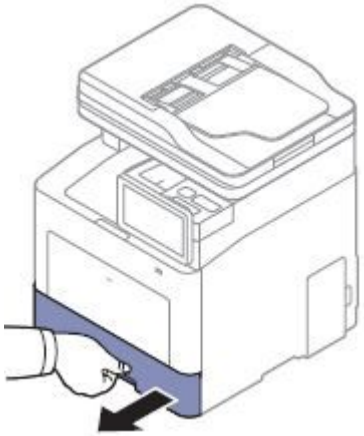
4.4.1. Clearing paper jams

NOTE

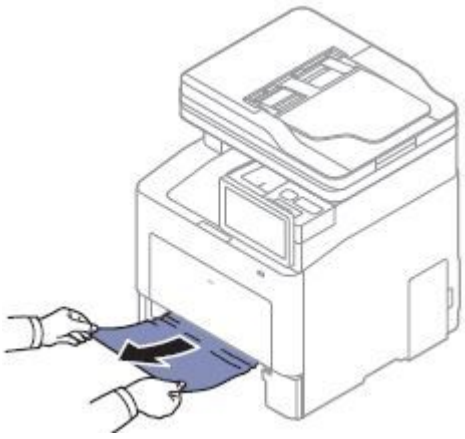
To avoid tearing the paper, pull the jammed paper out slowly and gently.

In tray1

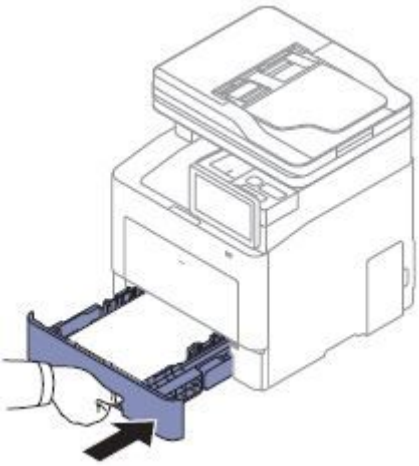
1) Take off the cassette.



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

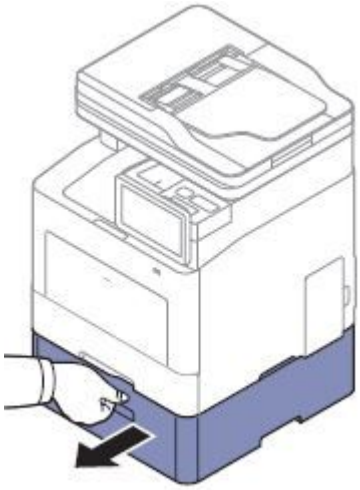


3) Reinstall the cassette.

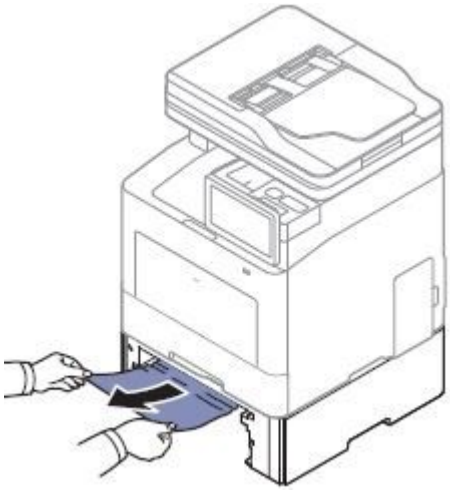


In optional tray

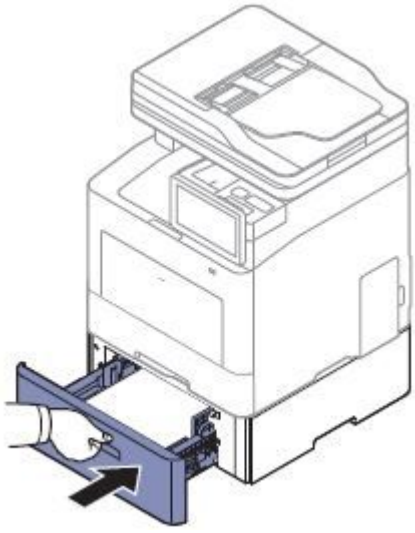
1) Take off the optional cassette.



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

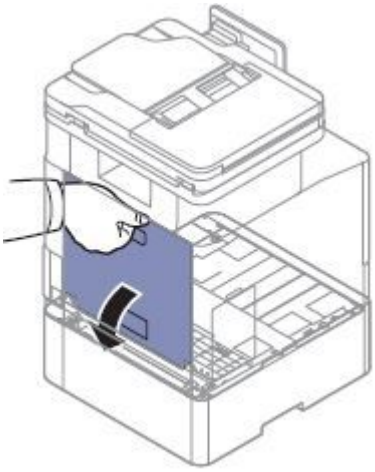


3) Reinstall the optional cassette.

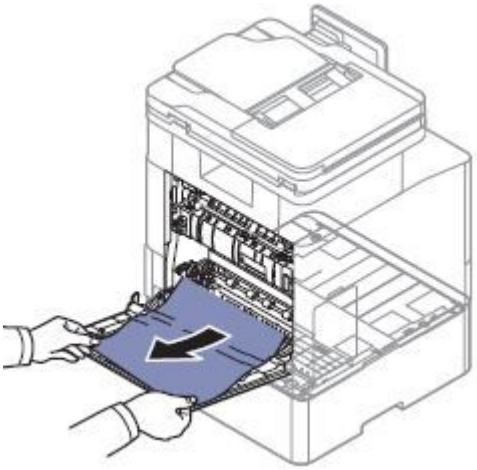


If you do not see the paper in this area, stop and go to next step:

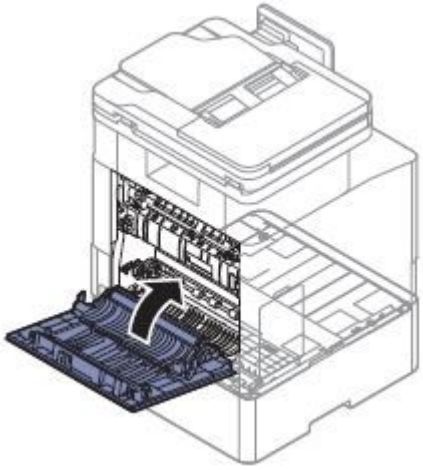
4) Open the rear cover.



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

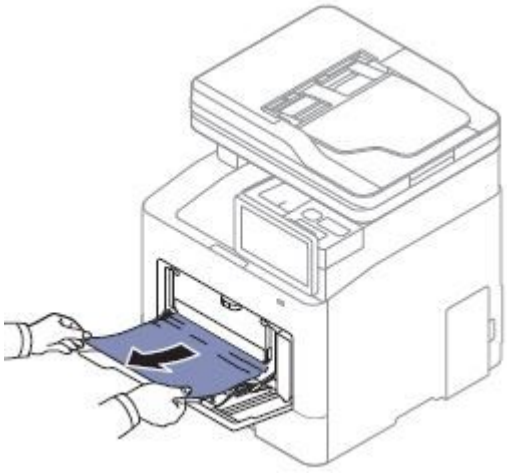


6) Close the rear cover.



In the multi-purpose tray

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

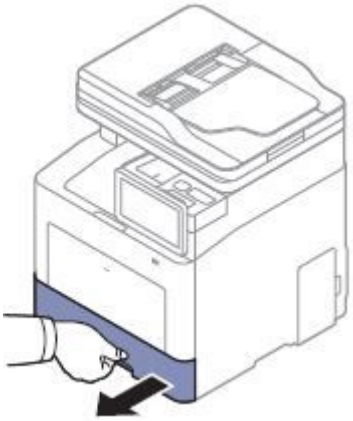


If you do not see the paper in this area, stop and go to next step:

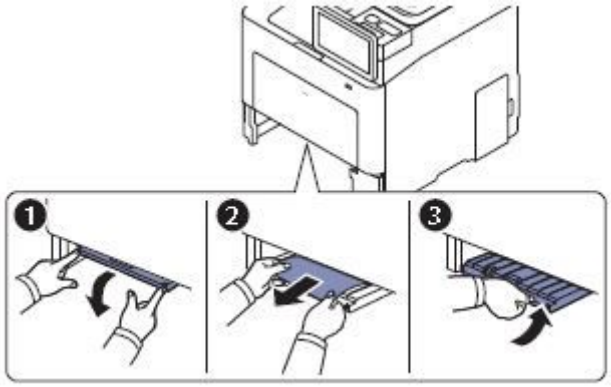
2) Close the MP tray support.

3) Close the MP tray.

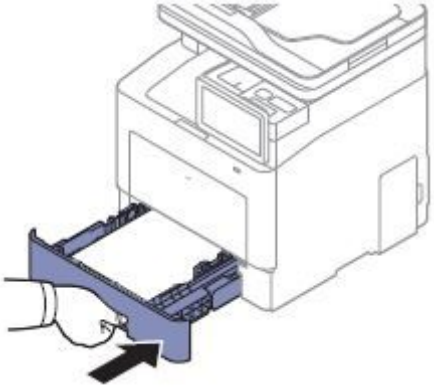
4) Take off the cassette.



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



6) Reinstall the cassette.

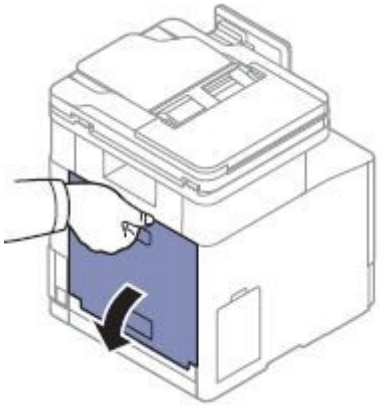


Inside the machine

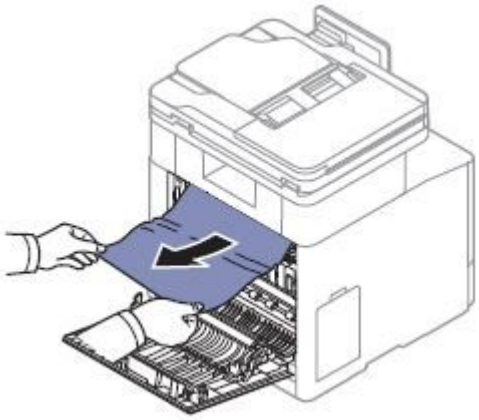
CAUTION

The fuser area is hot. Turn the machine off and let the machine cool before removing paper from the Fuser Unit area. Failure to take care when removing paper from this area may cause injury.

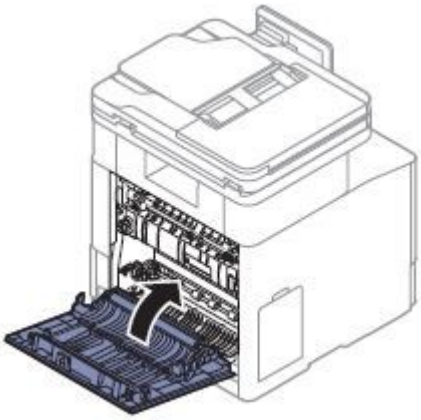
1) Open the rear cover.



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



3) Close the rear cover.

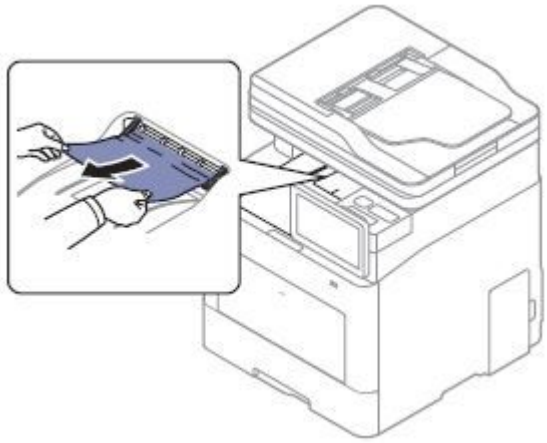


In the exit area

CAUTION

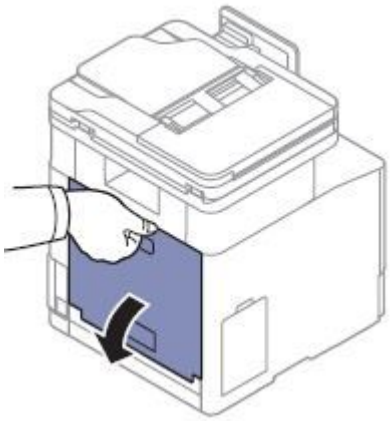
The fuser area is hot. Turn the machine off and let the machine cool before removing paper from the Fuser Unit area. Failure to take care when removing paper from this area may cause injury.

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

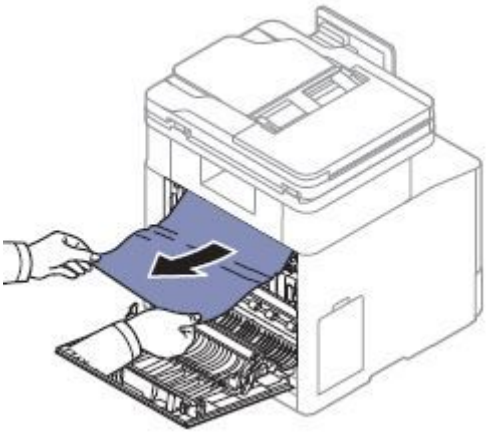


If you do not see the paper in this area, stop and go to next step:

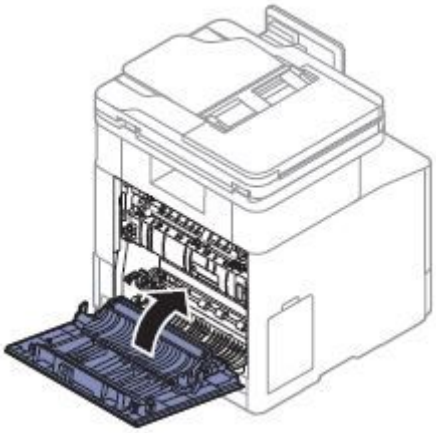
2) Open the rear cover.



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



4) Close the rear cover.



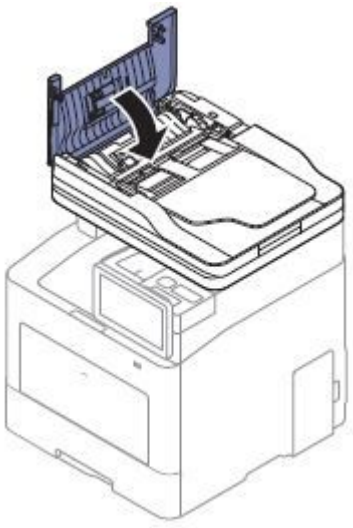
4.4.2. Clearing original document jams

Original paper jam in front of scanner

1) Open the document feeder cover.

2) Gently remove the jammed originals from the document feeder.

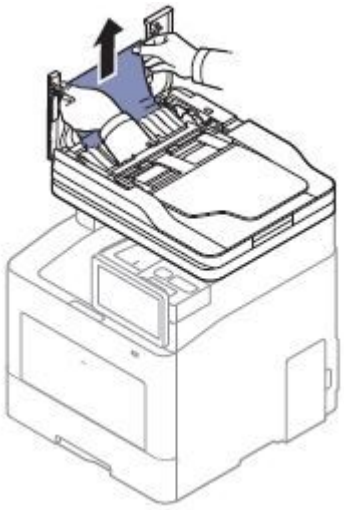
3) Close the document feeder cover.



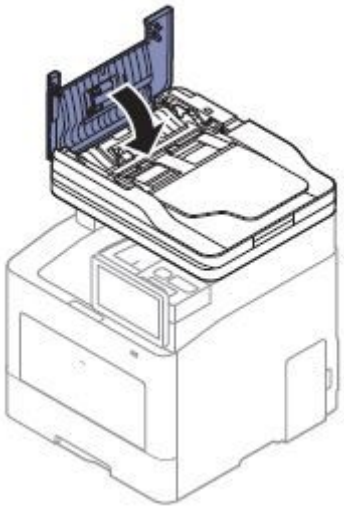
Original paper jam inside of scanner

1) Open the document feeder cover.

2) Gently remove the jammed originals from the document feeder.

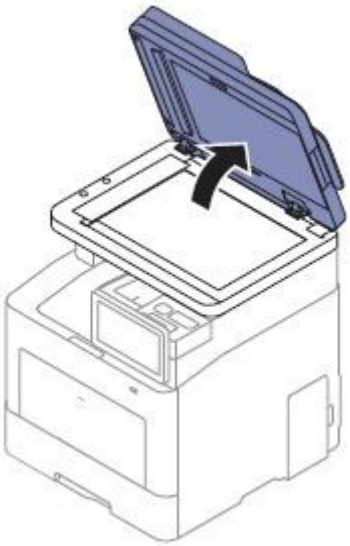


3) Close the document feeder cover.

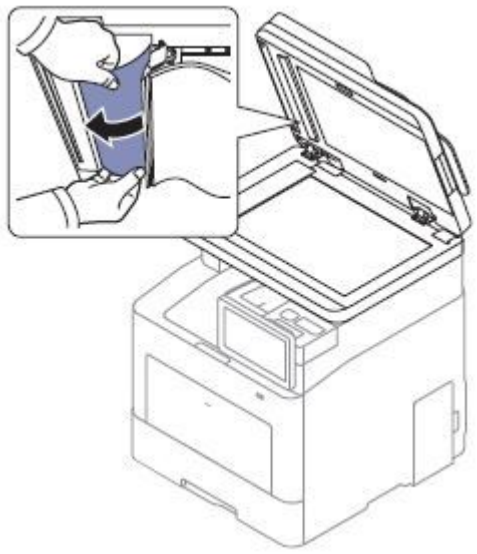


If you do not see the paper in this area, stop and go to next step:

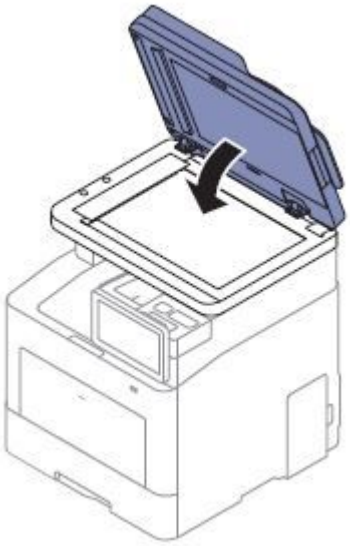
4) Open the document feeder unit.



5) Gently remove the jammed originals from the bottom of the document feeder.

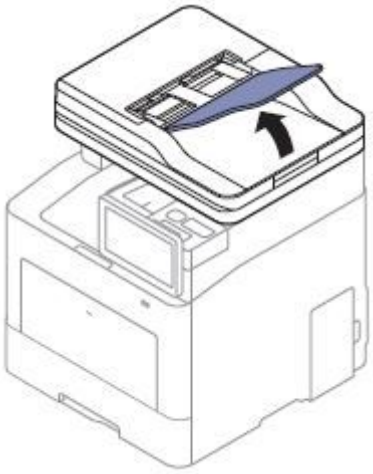


6) Close the document feeder unit.

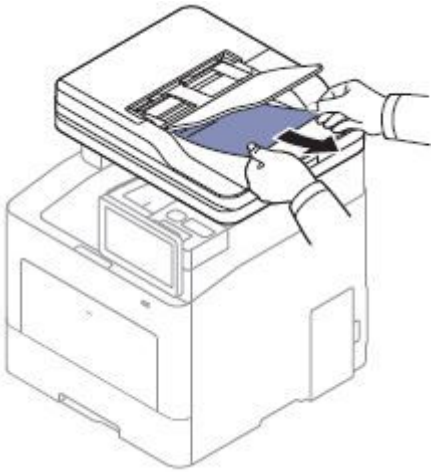


Original paper jam in exit area of scanner

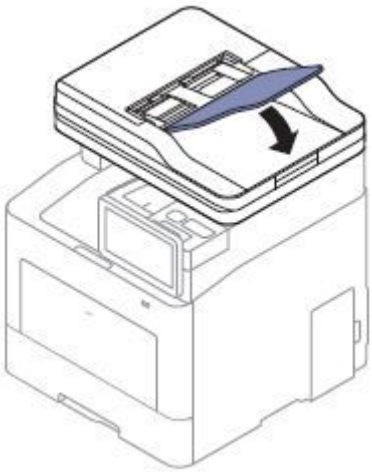
1) Remove any remaining pages from the document feeder.
2) Open the stacker up.



3) Gently remove the jammed originals from the document feeder.



4) Close the stacker.



4.5. Useful management tools

4.5.1. SyncThru™ Web Service

This chapter gives you step-by-step instructions for setting up the network environment through SyncThru™ Web Service.

NOTE

- Internet Explorer 8.0 or higher is the minimum requirement for SyncThru™ Web Service.
- Some menus may not appear on the display screen depending on the settings or models. If so, it is not applicable to your machine.

What is SyncThru™ Web Service?

If you have connected your machine to a network and set up TCP/IP network parameters correctly, you can manage the machine via SyncThru™ Web Service. Use SyncThru™ Web Service to :

- View the machine's device information and check its current status.
- Change TCP/IP parameters and set up other network parameters.
- Change the printer preference.
- Get support for using the machine.
- Upgrade machine firmware.

Accessing SyncThru™ Web Service

1) Access a web browser, such as Internet Explorer, from Windows. Enter the machine IP address of your printer (http://xxx.xxx.xxx.xxx) in the address field and press the Enter key or click Go.
2) Your machine's SyncThru™ Web Service website opens.

Logging into SyncThru™ Web Service

Before configuring options in SyncThru™ Web Service, you need to log-in as an administrator. You can still use SyncThru™ Web Service without logging in but you won't have access to Settings tab and Security tab.

1) Click Login on the upper right of the SyncThru™ Web Service website.
2) Type in the ID and Password then click Login.

NOTE

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

Information tab

This tab gives you general information about your machine. You can check things, such as remaining amount of toner. You can also print reports, such as an error report.

- **Active Alerts**: Shows the alerts that have occurred in the machine and their severity.
- **Supplies**: Shows how many pages are printed and amount of toner left in the cartridge.
- **Usage Counters**: Shows the usage count by print types: simplex and duplex.

- **Current Settings**: Shows the current settings of the machine and network.
  - Machine Information: Shows the current machine settings.
  - Network Information: Shows the current network settings. Use this page as a reference and change the necessary settings needed for using the network.
- **Security Information**: Shows the current security settings of the machine and network.

Settings tab

Settings tab has sub menus, Machine Settings and Network Settings. You cannot view or access this tab if you do not log-in as an administrator.

- **Machine Settings**: You can set machine settings.
  - System: You can set machine related settings.
  - Printer: You can set print related settings such as darkness or adjust the background. This feature is also available from the machine.
  - Email Notification: When an error occurs or the consumables are running out, the machine sends a notification to the administrator via email. You can set whether to use this feature or not. You can also select which alerts to receive and when.
- **Network Settings**: You can set up the network environment to use your machine as a network machine. You can also set the settings from the machine. Refer to the network setup chapter.
  - General: You can set general machine information to use in the network and set ethernet settings. This feature is also available from the machine.
  - TCP/IPv4, TCP/IPv6, Raw TCP/IP, LPR/LPD, IPP, Telnet, WSD, SLP, UPNP, mDNS, CIFS (Shared Folder), SNMPv1/v2, SNMPv3, FTP Print Server, AirPrint, ThinPrint®, Google Cloud Print: You can set protocol settings.
  - Outgoing Mail Server (SMTP): You can set server settings for outgoing emails. If this setting is not configured, you cannot use scan to email feature. Outgoing emails will be sent through SMTP server you set here.
  - HTTP: You can allow or block users from accessing the SyncThru™ Web Service.
  - Proxy: You can set proxy settings and enable authentication.
  - Restore Default: Clicking the Clear button under the Restore Default section will clear security and network configurations. Restoring the settings will take effect after the system is rebooted.

Security tab

The security tab has System Security, Network Security, User Access Control, and System Log. You cannot access this tab if you do not log-in as an administrator.

- **System Security**: From the SyncThru™ Web Service, select the Security tab > System Security.
  - System Administrator: Enter the system administrator's information. The machine sends email notification to the email address set here. This feature is also available from the machine.
  - Feature Management: Specifies the services, PC application security, physical ports, and network protocol features to use. Select the features to use, and then click Apply.
  - Information Hiding: Specifies which information to hide. Select the amount of information that you want to hide, and then click Apply.
  - Restart Device: You can reboot your machine. Click the Restart Now button to reboot.
- **Network Security**: From the SyncThru™ Web Service, select the Security tab > Network Security.
  - Digital Certificate: You can manage digital certificates. A digital certificate is an electronic certificate that verifies the secure association between communication nodes. You need to add the certificate for SSL communication.
  - Secure Connection: You can enable or disable secure connection to use more enhanced secure network channel. For secure communication, using the Secure Connection feature is recommended.
  - SNMPv3: You can set SNMPv3.
  - IP Security: You can set IP security settings.
  - IP/MAC Filtering: You can set filtering options for IP and MAC addresses. If the administrator does not add a filtering rule for IPv4, IPv6, and MAC addresses, nothing is filtered. If the administrator has added a filtering rule, filtering will be applied to the entered IPv4, IPv6, and MAC addresses.
    - IPv4 Filtering: You can enable/disable IPv4 filtering as well as manage filtering rules.
    - IPv6 Filtering: You can enable/disable IPv6 filtering as well as manage filtering rules.
    - MAC Filtering: You can enable/disable Mac filtering as well as manage filtering rules.
    - 802.1x(External): You can enable/disable 802.1x Security as well as manage filtering rules.
    - External Authentication Server: Set the servers for authentication.
- **User Access Control**: You can restrict users from accessing the machine or application. You can also give permissions for users to only use certain features of the machine. For example, you can allow user A to only use print feature. In this case, user A will not be able to scan, copy or fax with the machine.
  - Authentication: You can choose the authentication method for user authentication. Select a mode and click on the Options button.
  - Authorization (Giving rights): You can give permissions to a user to only use certain features of the machine.
    - Authority Management: You can give different rights to different users. For example, you can allow user A to use all the machine's functions while giving user B only the right to print.
    - External User Authority: Set the servers for authentication.
  - Accounting: You can manage accounts.
  - User profile: You can store user information on the machine's hard drive. You can use this feature to manage the users using the machine. You can also group the users and manage them as a group. You can make a maximum of 2000 individual users and 200 user groups. User identified by user ID and password are allowed to modify their password. They are allowed to view all of their profile information. When it comes to the role, users are allowed to see only the role they belong to but not its permissions.
- **System Log**: You can keep logs of events that have happened in the machine. The administrator can record and manage the machine usage information by keeping the system log files. The system log files are stored on the machine's mass storage device (hard disk), and when it is full, it will erase old data. Export and save the important audit data separately using the exporting feature.
  - Log configuration: You can enable or disable keeping logs. You can also backup log files by periods and transfer to a repository server.
  - Log Viewer: You can view, delete, and search log files.

Maintenance tab

This tab allows you to maintain your machine by upgrading firmware, managing applications, and setting contact information for sending emails. You can also connect to the Samsung website or download manuals and drivers by selecting the Link menu.

- **Firmware Upgrade** : You can check the firmware version used in the machine. Check the version and update it if necessary.
- **Application Management**: You can add or delete applications/license. If you add an application, you need to activate the license of the installed application. Some applications may not have a license.
- **Contact Information** : You can view contact information.
- **Link** : You can view links to useful websites where you can:
  - view product information and get support (Samsung website).
  - download manuals and drivers.
  - order consumable supplies.
  - register your machine on-line.
- **Samsung MIB Version**: The version number of the MIB(Management Information Base).
- **License Management**: License Management provides settings managing the licenses for installed applications.
- **Cloning**: The machine prints multiple original images on a single page. The number of images is automatically determined by the original image and the paper size. You can enable or disable the clone menu.
- **Wi-Fi Interface**: You can enable or disable the Wi-Fi menu.

4.5.2. Samsung Easy Printer Manager

Samsung Easy Printer Manager is an application that combines Samsung machine settings into one location. Samsung Easy Printer Manager combines device settings as well as printing environments, settings/actions, and launching. All of these features provide a gateway to conveniently use your Samsung machine.

NOTE

- Available for Windows and Mac OS users only.
- For Windows, Internet Explorer 6.0 or higher is the minimum requirement for Samsung Easy Printer Manager.

Understanding Samsung Easy Printer Manager

To open the program :

For Windows,

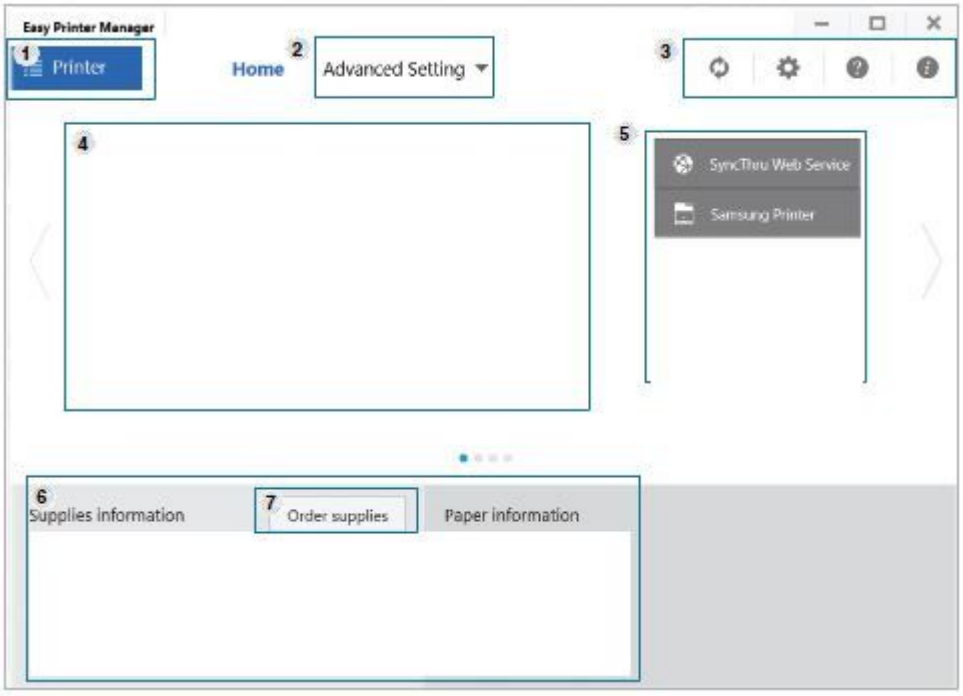
Select Start > Programs or All Programs > Samsung Printers > Samsung Easy Printer Manager .

For Mac,

The Samsung Easy Printer Manager interface is comprised of various basic sections as described in the table that follows:

NOTE

The screenshot may differ depending on operating system you are using.



1	Printer list	The Printer List displays printers installed on your computer and network printers added by network discovery (Windows only).
2	Advanced Setting	The advanced user interface is intended to be used by the person responsible for managing the network and machines. **NOTE** Some menus may not appear in the display depending on options or models. If so, it is not applicable to your machine. • **Device Settings** : You can configure various machine settings such as machine setup, paper, layout, emulation, network, and print information. **NOTE** If you connect your machine to a network, the SyncThru™ Web Service icon is enabled. • **Alert Settings (Windows only)** : This menu includes settings related to error alerting. • **Printer Alert** : Provides settings related to when alerts will be received. • **Email Alert** : Provides options relating to receiving alerts via email. • **Alert History** : Provides a history of device and toner related alerts.
3	Application information	Includes links for changing to the refresh, preference setting, help, and about.
4	Printer information	This area gives you general information about your machine. You can check information, such as the machine's model name, IP address (or Port name), and machine status. **NOTE** This button opens the Troubleshooting Guide when an error occurs. You can directly open the troubleshooting section in the user's guide.
5	Quick links	Displays Quick links to machine specific functions. This section also includes links to applications in the advanced settings. **NOTE** If you connect your machine to a network, the SyncThru™ Web Service icon is enabled.
6	Contents area	Displays information about the selected machine, remaining toner level, and paper. The information will vary based on the machine selected. Some machines do not have this feature.
7	Order supplies	Click on the Order button from the supply ordering window. You can order replacement toner cartridge(s) from online.

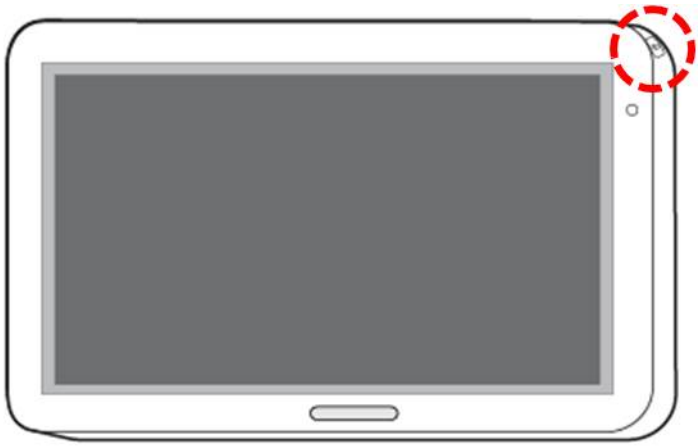
4.6. Service Mode (Tech Mode)

In service (tech) mode, the technician can check the machine and perform various tests to isolate the cause of the particular malfunction. While in Tech mode, the machine still performs all normal operations.

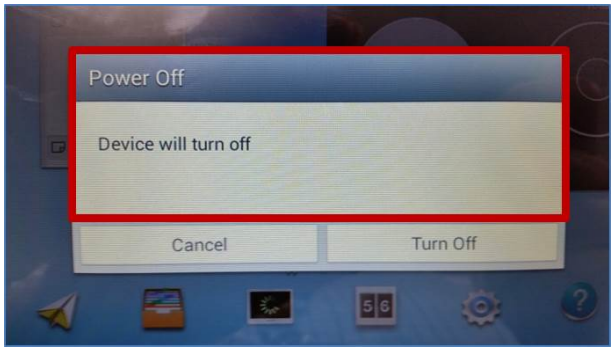
4.6.1. Entering the Service Mode

To enter the service mode,

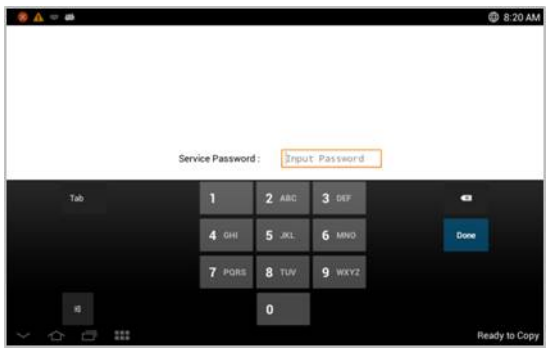
1) Press "Power button".



2) When the pop-up window is displayed, press pop-up area except “Cancel” and “Turn Off” button until the password window will be displayed.



3) Enter “**1934**” and press the “Done” button.



4.6.2. Service Mode Menu Table

1) Information Tab

Level 1	Level 2	Level 3	Level 4
General	Machine Serial Number		
	Ethernet IP Address		
	Ethernet Mac Address		
	Wi-Fi IP Address		
	Wi-Fi Mac Address		
	Total Printed Impressions		
	Machine Installed Date & Time		
Supply Status	Customer Replacement Unit	Toner	Yellow
			Magenta
			Cyan
			Black
	Field Replacement Unit	Waste Toner Container	Waste Toner Container
		Transfer	Transfer Unit
			T2 Roller
		Fuser	Fuser
		Roller	Tray 1 Retard Roller
			Tray 2 Roller
			Tray 2 Retard Roller
			Tray 3 Roller
			Tray 3 Retard Roller
			Tray 4 Roller
			Tray 4 Retard Roller
		ADF Roller	ADF Roller
			ADF Rubber Pad
Software Version			
Service Hours	Power On Hours		
	Power Save Hours		
Fault Log			
Print Reports	Supplies Information		
	Usage Counter		
	Error Information		
	Fax Protocol Dump		
	Fax Diagnostics		
	Auto Color Registration		
	Job Duty		
	Auto Toning History		
	ID Calibration History		

Level 1	Level 2	Level 3	Level 4
	Maintenance		
	Toner Event		
Export Reports	Export	1. Select Destination	USB Memory
			Box/Download
		2. Select Format	RTF Format
			XML Format
			PDF Format

2) Maintenance Counts Tab

Level 1	Level 2	Level 3	Level 4
Fault Count			
Jam Count	Print Jam	Pick-up Jam	
		Feed Jam	
		Duplex Jam	
		Exit Jam	
	Scan Jam	Scan Jam	
Part Replacement Count	Toner Cartridge	Toner (Yellow)	
		Toner (Magenta)	
		Toner (Cyan)	
		Toner (Black)	
	Transfer	Transfer Unit	
		T2 Roller	
	Fuser	Fuser	
	Roller	Tray 1 Retard Roller	
		Tray 2 Roller	
		Tray 2 Retard Roller	
		Tray 3 Roller	
		Tray 3 Retard Roller	
		Tray 4 Roller	
		Tray 4 Retard Roller	
	ADF Roller	ADF Roller	
		ADF Rubber Pad	

3) Diagnostics Tab

Level 1	Level 2	Level 3	Level 4
Engine Diagnostics	Engine NVM Initialization		
	Engine NVM Read/Write		
	Engine Test Routines		
Fax Diagnostics	Fax NVM Read/Write		
	Fax Test Routines		

Level 1	Level 2	Level 3	Level 4
HDD Diagnostics			
Scanner Diagnostics	Shading Test	Shade and Print Report	
		Print Last Shade Report	
		Shade and Print Report (ADF)	
		Print Last Shade Report (ADF)	
	Scanner/ADF Test Routines		
Adjustment	Print Adjustment	Automatic Adjustment	
		Image Position	
		Print Test Patterns	
	Copy Adjustment	Image Position	
	Scan Area Adjustment	Manual Adjustment	Image Position
			Magnification
	ADF Adjustment	Manual Adjustment	Front
			Back
ACS	ACS Level Adjustment	[1~5] : 3*	
	ACS Page Adjustment	[1~5] :	
Image Management	ACR Reference Adjustment	OK	
		Cancel	
	Cancel ACR Reference Adjustment	OK	
		Cancel	
	Auto Color Registration	Off	
		On	Page Condition
			Inner Temperature
			LSU Temperature
	Auto Tone Adjustment Activation	Normal	
		Full	
	Auto Tone Adjustment	Normal	
		Full	
Print Test Patterns	Skew Pattern		
	Grid Pattern		
	CMYK Combine Pattern		
	Color Registration Pattern		
	Color Gradation Pattern		
	Solid/Halftone Pattern		
	Halftone Pattern		

4) Service Functions Tab

Level 1	Level 2	Level 3	Level 4
Main Memory Clear			
Hard Disk Maintenance	Device Configuration Data Clear		
	Temporary & Spool Data Clear		
	User Saved Data & Log Clear		
	All Saved Data Clear		
	HDD Encryption	Off	
		On	
Debug Log	Off		
	Job Status		
	Details		
	Activation for Boot Logs	Off	
		On	
Capture Log	1. Select Destination	USB Memory	
		Box/Download	
	2. Select Period	All	
		Specific Period	Start Date
			End Date
Network Packet Capture	1. Select Destination	USB Memory	
		Box/Download	
	Capture Packets	Start/Stop	
	Export Capture File	Export	
	Delete Capture File	Clear	
System Recovery	SYS		
	ALL		
Hibernation	ON		
	OFF		
	CREATE NEW		
Part Replacement Alert	Toner Cartridge	Off	
		On	
	Fuser	Off	
		On	
	Transfer Unit	Off	
		On	
SFE	SFE Code List	Off	
		On	
	Export		
	Import		
	Print	SFE Configuration Report	
	OK		

Level 1	Level 2	Level 3	Level 4
Dealer ID	Off		
	On	Continent	
		Branch	
		Dealer ID	
Envelope Rotate	Off		
	90 degrees		
	180 degrees		
System Monitor	Java Thread Monitor	Off	
		On	
	Java Thread Dump		
	Java Heap Dump		
UI Defragmentation	Start		
Scheduled Restart	Off		
	On	Frequency	
		Day	
		Week	
		Time	
Coring	Level	[0~20] : variable	
	Pattern	[1~5] : variable	
	CMS	[0~2] : 1	
Check ID Sensing	Off		
	On		
Restore Background Image	Off		
	On		

4.6.3. Information Tab

- **Information > General**

  This menu display shows all versions of software installed on the system in detail. e.g. Date & Time, IP Address, etc.

- **Information > Supply Status**

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

- **Information > Software Version**

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

- **Information > Service Hours**

  This menu displays two items, "Power on Hours", "Power Save Hours".

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

- **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.

- **Information > Report**

  You can print the various report that is stored in system.

  - **Supplies Info**

    Supplies Information report shows toner cartridge information such as toner remaining, toner capacity, toner product date etc.

  - **Usage Counter**

    Usage Counter report shows the information for amount of printing usage.

  - **Error Info**

    Error Information report shows error records.

- **Information > Export Reports**

  This menu exports report to usb stick or stroage box in UI. Error Information, Supplies Information, Usage Counter Reports are exported as the form of selected format.

4.6.4. Maintenance Counts Tab

- **Maintenance Counts > Fault Count**

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

- **Maintenance Counts > Jam Count**

  This menu displays the jam Counts of the system. Technician 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.

- **Maintenance Counts > Part Replacement Count**

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

4.6.5. Diagnostics Tab

- **Diagnostics > Engine Diagnostics > Engine NVM Initialization**
  This menu initializes all engine NVM value to the default.
- **Diagnostics > Engine Diagnostics > Engine NVM Read/Write**
  This menu changes a configuration value for engine firmware.

Code	Display	Meaning	Default	Max / Min
105-0030	MHV DC K	Charger HV Black DC Duty	10	20 / 0 (21Steps)
105-0031	MHV DC Color	Charger HV Color DC Duty	10	20 / 0 (21Steps)
106-0000	Deve DC Y	Deve DC Yellow	10	20 / 0 (21Steps)
106-0010	Deve DC M	Deve DC Magenta	10	20 / 0 (21Steps)
106-0020	Deve DC C	Deve DC Cyan	10	20 / 0 (21Steps)
106-0030	Deve DC K	Deve DC Black	10	20 / 0 (21Steps)
106-0121	Yellow Blade DC	Blade DC Yellow	10	20 / 0 (21Steps)
106-0122	Magenta Blade DC	Blade DC Magenta	10	20 / 0 (21Steps)
106-0123	Cyan Blade DC	Blade DC Cyan	10	20 / 0 (21Steps)
106-0124	Black Blade DC	Blade DC Black	10	20 / 0 (21Steps)
107-0030	THV K	Transfer1 HV Black Duty	10	20 / 0 (21Steps)
107-0080	THV	Transfer2 HV	10	20 / 0 (21Steps)
109-0010	Print Temp	Target Temperature during run mode.	10	20 / 0 (21Steps)
110-0040	LD Power Y	Yellow LD Power at Normal Speed	10	20 / 0 (21Steps)
110-0050	LD Power M	Magenta LD Power at Normal Speed	10	20 / 0 (21Steps)
110-0060	LD Power C	Cyan LD Power at Normal Speed	10	20 / 0 (21Steps)
110-0070	LD Power K	Black LD Power at Normal Speed	10	20 / 0 (21Steps)

- **Diagnostics > Engine Diagnostics > Engine Test Routines**
  This menu performs test routines for the engine.

Code	Display	Meaning	State Displayed
100-0020	K OPC Motor	Black OPC/DEV BLDC Motor is On/Off	On[Off]
100-0030	K OPC Motor Rdy	Detect if Black OPC/DEV BLDC Motor runs at normal speed	High[Low]
100-0040	Color OPC	Color OPC BLDC Motor is On/Off	On[Off]
100-0050	Color OPC Rdy	Detect if Color DEV BLDC Motor runs at normal speed	High[Low]
100-0120	Exit Mot Fwd	Exit Motor Forward Fast On/Off	On[Off]
100-0131	Exit Mot Bwd	Exit Motor Forward Backward On/Off	On[Off]
100-0260	SMPS Fan	Start/Stop SMPS Fan run	On[Off]
100-0340	Feed Mot	Feed Motor is On/Off	On[Off]
101-0000	MP Feed Clutch	Engages drive to pick up a paper from bypass Tray(MP Tray).	On[Off]
101-0010	Tray1 Pickup	Engages drive to pick up a paper from tray1.	On[Off]

Code	Display	Meaning	State Displayed
101-0020	Tray2 Pickup	Engages drive to pick up a paper from tray2. (Optional)	On[Off]
101-0030	Tray3 Pickup	Engages drive to pick up a paper from tray3. (Optional)	On[Off]
101-0050	Registration	Engages drive to registartion rolls.	On[Off]
101-0070	Dup Gate	Engages drive to convert paper direction into duplex path.	On[Off]
101-0090	T2 Feed Clutch	T2 Feed Clutch On/Off	On[Off]
101-0100	T3 Feed Clutch	T3 Feed Clutch On/Off	On[Off]
101-0130	T2 Feed Mot	T2 Feed Motor On/Off	On[Off]
101-0131	T2 Feed Slow	T2 Feed Motor Slow On/Off	On[Off]
101-0140	T3 Feed Mot	T3 Feed Motor On/Off	On[Off]
101-0141	T3 Feed Slow	T3 Feed Motor Slow On/Off	On[Off]
101-0190	OutBin Full	Detect when a paper is at Out-Bin Full Sensor	High[Low]
101-0230	T1 Release	T1 Nip Release	On[Off]
101-0240	DR Release	DR Nip Release	On[Off]
101-0250	Knock Up Plate	Knock Up Plate	On[Off]
102-0010	Tray1 Empty	Detect when paper is in Tray1.	High[Low]
102-0080	Tray2 Empty	Detect when paper is in tray2.	High[Low]
102-0150	Tray3 Empty	Detect when paper is in tray3.	High[Low]
102-0280	MP Empty	Detects when paper is in Bypass Tray(MP Tray).	High[Low]
102-0291	MP Feed Sens	Detect when a paper is at MP Feed sensor.	High[Low]
102-0360	Regi Sens	Detect when a paper is at Regi. sensor.	High[Low]
102-0370	Exit Sens	Detect when a paper is at Exit. sensor.	High[Low]
105-0030	K MHV Bias	Black MHV bias voltage on at normal drive level	On[Off]
105-0031	Color MHV Bias	Color MHV bias voltage on at normal drive level	On[Off]
106-0000	Y Dev Bias	Yellow Dev bias voltage on at normal drive level	On[Off]
106-0010	M Dev Bias	Magenta Dev bias voltage on at normal drive level	On[Off]
106-0020	C Dev Bias	Cyan Dev bias voltage on at normal drive level	On[Off]
106-0030	K Dev Bias	Black Dev bias voltage on at normal drive level	On[Off]
106-0060	DR Nip Home	Detect DR Nip Home position	High[Low]
106-0070	Y Blade DC	Yellow Blade DC	On[Off]
106-0080	M Blade DC	Magenta Blade DC	On[Off]
106-0090	C Blade DC	Cyan Blade DC	On[Off]
106-0100	K Blade DC	Black Blade DC	On[Off]

Code	Display	Meaning	State Displayed
107-0071	YMCK THV Bias	THV bias voltage on at normal drive level	On[Off]
107-0072	YMCK THV BiasR	Detect what the THV value is on the THV Roller	Numeric 3 digits
107-0073	YMCK THV- Bias	THV bias voltage on at normal drive level	On[Off]
107-0080	THV +	iTHV plus bias voltage on at normal drive level	On[Off]
107-0090	THV + R	Detect what the THV value is on the iTHV Roller	Numeric 3 digits
107-0160	Erase Lamp	Erase Lamp 1	On[Off]
107-0161	Erase Lamp 2	Erase Lamp 2	On[Off]
107-0190	T1 Nip Home	Detect T1 Nip Home position	High[Low]
109-0000	Temp A	Detects what the temperature A is on fuser.	Numeric 3 digits
109-0011	LSU Temp	LSU Temperature	Numeric 3 digits
109-0012	Inner Temp	Inner Temperature	Numeric 3 digits
109-0013	Outer Temp	Outer Temperature	Numeric 3 digits
109-0014	Humidity	Humidity	Numeric 3 digits
109-0020	Fuser Fan Rdy	Detects if Fuser Fan Motor runs at normal speed.	High[Low]
109-0034	Fuser Mot Rdy	Detect if Fuser Motor runs at each speed	High[Low]
109-0040	Fuser Fan Run	Fuser Fan Motor On/Off	On[Off]
109-0140	Fuser Home	Detect if the fuser press is located Home position.	High[Low]
110-0000	LSU Mot1 Rdy	Detects if LSU motor1 runs at normal speed.	High[Low]
110-0060	LSU Mot1 Run	LSU Motor1 On/Off	On[Off]
110-0080	LD Power1	LSU LD1 Power On/Off (yellow)	On[Off]
110-0090	LD Power2	LSU LD2 Power On/Off (magenta)	On[Off]
110-0100	LD Power3	LSU LD3 Power On/Off (cyan)	On[Off]
110-0110	LD Power4	LSU LD4 Power On/Off (black)	On[Off]
110-0140	LSU HSync1	Detect LSU HSync1 (yellow)	High[Low]
110-0150	LSU HSync2	Detect LSU HSync2 (magenta)	High[Low]
110-0160	LSU HSync3	Detect LSU HSync3 (cyan)	High[Low]
110-0170	LSU HSync4	Detect LSU HSync4 (black)	High[Low]
111-0080	ID Sensor	Start ID sensor sensing On/Off	On[Off]
111-0090	IC Sensor Chk	Display ID sensor reading value	Numeric 3 digits

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

  This menu changes a configuration value for fax.

Code	Name	Description	Default	Range
20-200	Pause Dial Time	Pause Time (value * 1000ms)	Country Value	0~200
20-210	Dial Pul. M/B	33 / 66 40 / 60	Country Value	0=OPTION_DP_33 1=OPTION_DP_40 2=OPTION_DP_37 3=OPTION_DP_50
20-220	AutoDial P-Time	Pause time before auto-dialing (second)	1	0~10
20-300	Ring On Time	Ring On Time (ms)	170	90~800
20-310	Ring Off Time	Ring Off Time (ms)	560	90~800
20-320	Ring Det. Freq	sets the Call Indication frequency range that will be detected by LIU	1	1=12-80hz 2=16-55hz 3=20-55hz 4=22-55hz
20-330	Ring On Max Time	Ring On Max Time (ms)	5100	3000~12000
20-340	Ring Off Max Time	Ring Off Max Time (ms)	11100	9000~22000
20-400	DTMF H-Freq Lv	DTMF High-Freq. Level (dBm)	Country Value	0~15
20-410	DTMF L-Freq Lv	DTMF Low-Freq. Level (dBm)	Country Value	0~15
20-420	DTMF Timing	DTMF duration of on/off output (Ms)	8	1=80/80 2=70/70 3=70/150 4=60/60 5=80/100 6=150/50 7=150/240 8=100/100 9=100/80
20-500	Dial Mode	Select Tone / Pulse	Country Value	0=OPTION_TONE MODE 1=OPTION_PULSE MODE
20-520	Error Rate	Adjust Error Rate (Off / 5% / 10% / 20%)	2	0=OPTION_RATE OFF 1=OPTION_RATE 5 2=OPTION_RATE 10 3=OPTION_RATE 20
20-530	Dial tone detect	detect dial tone prior to sending	Country Value	0=OPTION_OFF 1=OPTION_ON

Code	Name	Description	Default	Range
20-540	Loop cur. det.	detect if loop current is present prior to sending	Country Value	0=OPTION_OFF 1=OPTION_ON
20-550	Busy sngl det.	detect busy signal to allow redials	Country Value	0=OPTION_OFF 1=OPTION_ON
20-560	TCF Duration	Adjust TCF duration (ms)	1500	1000~3000
20-570	Continuous Frame	disables continuous TX frame command in Phase B. (DCS Only)	1	0=OPTION_OFF 1=OPTION_ON

Code	Name	Description	Default	Range
20-800	Modem Speed	Select Modem Start Speed	24	0=MODEM_V21 300BPS 1=MODEM_V27 2400BPS 2=MODEM_V27 4800BPS 3=MODEM_V29 7200BPS 4=MODEM_V29 9600BPS 5=MODEM_V33 12000BPS 6=MODEM_V33 14400BPS 7=MODEM_V17 7200BPS 8=MODEM_V17 9600BPS 9=MODEM_V17 12000BPS 10=MODEM_V17 14400BPS 11=MODEM_V34 2400BPS 12=MODEM_V34 4800BPS 13=MODEM_V34 7200BPS 14=MODEM_V34 9600BPS 15=MODEM_V34 12000BPS 16=MODEM_V34 14400BPS 17=MODEM_V34 16800BPS 18=MODEM_V34 19200BPS 19=MODEM_V34 21600BPS 20=MODEM_V34 24000BPS 21=MODEM_V34 26400BPS 22=MODEM_V34 28800BPS 23=MODEM_V34 31200BPS 24=MODEM_V34 33600BPS

Code	Name	Description	Default	Range
20-810	Fax Trans. Lv	Adjust Fax Transmission Level (dBm)	Country Value	Country Value
20-830	AutoDialTimeout	Adjust Auto Dial Timeout (second)	Country Value	30~150
20-920	CNG Det. Cnt	CNG Tone Detection check count during ANS/FAX mode.	2	1~15
20-930	Caller ID	This option is needed to guide Caller ID off for user environment.	Country Value	0=OPTION_OFF 1=OPTION_ON
20-940	Ext. Phone	Ext. Phone Detection Enable/Disable (Default : Enable 1) If disabled, Ext. Phone cannot be detected by the device.	1	0=Disable 1=Enable

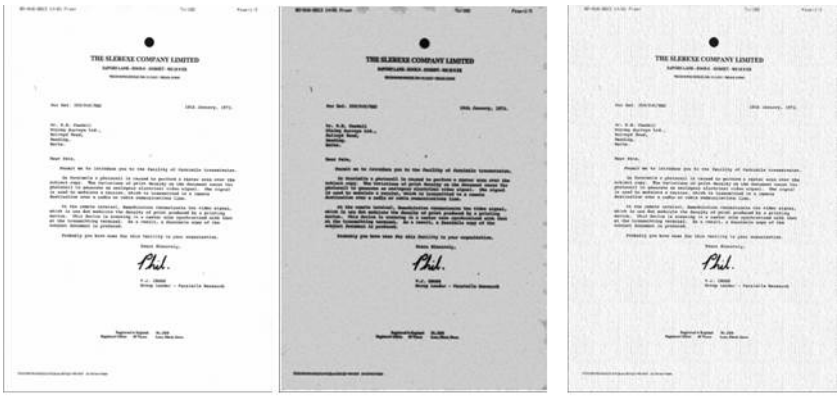
- **Diagnostics > Fax Diagnostics > Fax Test Routines**

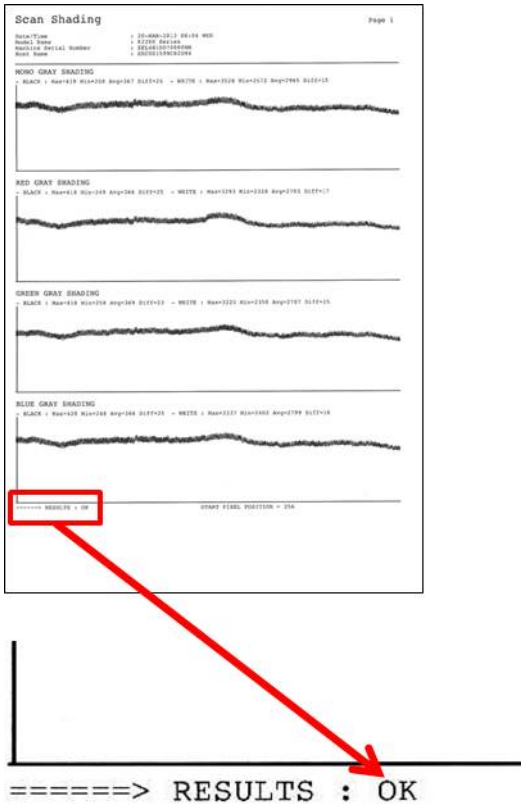
  This menu performs test routines for the fax.

Code	Name	Description	State Displayed
20-012	Sngl T 1100 L1	Emits single tone 1100Hz on line 1	On / Off
20-014	Sngl T 1650 L1	Emits single tone 1650Hz on line 1	On / Off
20-015	Sngl T 1850 L1	Emits single tone 1850Hz on line 1	On / Off
20-016	Sngl T 2100 L1	Emits single tone 2100Hz on line 1	On / Off
20-020	DTMF # L1	Emits DTMF # on line 1	On / Off
20-021	DTMF * L1	Emits DTMF * on line 1	On / Off
20-022	DTMF 0 L1	Emits DTMF 0 on line 1	On / Off
20-023	DTMF 1 L1	Emits DTMF 1 on line 1	On / Off
20-024	DTMF 2 L1	Emits DTMF 2 on line 1	On / Off
20-025	DTMF 3 L1	Emits DTMF 3 on line 1	On / Off
20-026	DTMF 4 L1	Emits DTMF 4 on line 1	On / Off
20-027	DTMF 5 L1	Emits DTMF 5 on line 1	On / Off
20-028	DTMF 6 L1	Emits DTMF 6 on line 1	On / Off
20-029	DTMF 7 L1	Emits DTMF 7 on line 1	On / Off
20-030	DTMF 8 L1	Emits DTMF 8 on line 1	On / Off
20-031	DTMF 9 L1	Emits DTMF 9 on line 1	On / Off
20-040	V.21 300 L1	Emits V.21 300 bps Line1	On / Off
20-041	V.27ter2400 L1	Emits V.27ter 2400 bps Line1	On / Off
20-042	V.27ter4800 L1	Emits V.27ter 4800 bps Line1	On / Off
20-043	V.29 7200 L1	Emits V.29 7200 bps Line1	On / Off
20-044	V.29 9600 L1	Emits V.29 9600 bps Line1	On / Off
20-045	V.17 7200 L1	Emits V.17 7200 bps Line1	On / Off
20-046	V.17 9600 L1	Emits V.17 9600 bps Line1	On / Off
20-047	V.17 12000 L1	Emits V.17 12000 bps Line1	On / Off
20-048	V.17 14400 L1	Emits V.17 14400 bps Line1	On / Off
20-049	V.34 2400 L1	Emits V.34 2400 bps Line1	On / Off
20-050	V.34 4800 L1	Emits V.34 4800 bps Line1	On / Off

Code	Name	Description	State Displayed
20-051	V.34 7200 L1	Emits V.34 7200 bps Line1	On / Off
20-052	V.34 9600 L1	Emits V.34 9600 bps Line1	On / Off
20-053	V.34 12000 L1	Emits V.34 12000 bps Line1	On / Off
20-054	V.34 14400 L1	Emits V.34 14400 bps Line1	On / Off
20-055	V.34 16800 L1	Emits V.34 16800 bps Line1	On / Off
20-056	V.34 19200 L1	Emits V.34 19200 bps Line1	On / Off
20-057	V.34 21600 L1	Emits V.34 21600 bps Line1	On / Off
20-058	V.34 24000 L1	Emits V.34 24000 bps Line1	On / Off
20-059	V.34 26400 L1	Emits V.34 26400 bps Line1	On / Off
20-060	V.34 28800 L1	Emits V.34 28800 bps Line1	On / Off
20-061	V.34 31200 L1	Emits V.34 31200 bps Line1	On / Off
20-062	V.34 33600 L1	Emits V.34 33600 bps Line1	On / Off

- **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. • To check quality problem as shown below  Normal Image Defected Image Defected Image
Operation Procedure	**[For Platen Unit]** Press "Shade and Print report“ to see if the current shading value is correct. Mono, red, green, blue gray shading values will be shown on the printed report. When the previous shading value is needed, press “Print Last Shade Report”. **[For ADF(DSDF) Unit]** 1) Load the shading sheet on the DSDF tray. 2) Enter Service Mode. Select the following menu. (**Diagnostics > Scanner Diagnostics > Shading Test > Shade and Print Report(ADF)**) (When the previous shading value is needed, press “Print Last Shade Report(ADF)”.) 3) Check if RESULTS on the sheet is OK.

Verification	

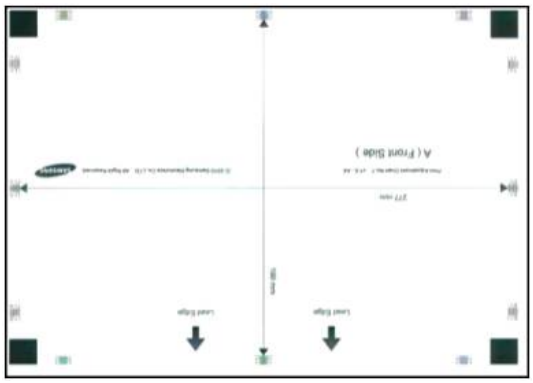
- **Diagnostics > Scanner Diagnostics > Scanner/ADF Test Routines**

  This menu performs test routines for the scanner and ADF.

Code	Displayed Name	Value
06-0020	Scanner Platen Motor Forward	Start/Stop
06-0030	Scanner Platen Motor Backward	Start/Stop
06-0040	Scanner Platen Home Position Sensor	High/Low
05-0040	Document Detect Sensor	High/Low
05-0070	Document Scan Read Sensor1	High/Low
05-0110	Document Motor Forward	Start/Stop
05-0111	Document Motor Backward	Start/Stop
05-0130	Document Pickup Motor Forward	Start/Stop
05-0131	Document Pickup Motor Backward	Start/Stop

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

Purpose	To calibrate/adjust the lengths of the vertical & horizontal image, and image position automatically in print engine.
Operation Procedure	1) Press “Paper Supply” button and select a tray. 2) Press “Paper Size” button and select a paper size of the previously selected tray. 3) Press “Print” button. A test pattern will be printed out.



4) Place the printed pattern on platen.
   - The words “front side” on the chart face the glass
   - The arrows face left edge of the platen
   - Press “Scan 1”
5) Place the printed pattern on platen.
   - The words “back side” on the chart face the glass
   - The arrows face left edge of the platen
   - Press “Scan 2”
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.

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

Purpose	Manually adjust printed image position on paper in print engine
Operation Procedure	1) Select a tray required adjustment. 2) Change the adjustment value with ”+”, “-” then press “OK” button to save changes. • Simplex Leading Edge • Simplex Side Edge • Duplex Leading Edge • Duplex Side Edge **NOTE** - Adjustment must be done for each tray (tray1, tray2, tray3, tray4, MP). - It is recommended not to choose “ALL” for tray selection. - It is always better to adjust for a particular tray at each time. - Adjustment range : ± 4.0 mm 3) Print out the test pattern and check if the image is moved as you want. If not, repeat stpe2.

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

Purpose	Manually adjust copied image position on paper in copy engine
Operation Procedure	**NOTE** Before copy adjustment, 1) Please make sure that the initial values of the margin adjustment are the same as the values of the print adjustment. 2) It is recommended to perform adjustment for each tray at a time. i.e. do not select “All” for tray selection. It often causes confusing for the adjustment. 3) The Procedure for copy adjustment is almost same as “Print Adjustment”. **NOTE** - Adjustment must be done for each tray (tray1, tray2, tray3, tray4, MP). - It is recommended not to choose “ALL” for tray selection. - It is always better to adjust for a particular tray at each time. - Adjustment range : ± 4.0 mm 1) Select a tray required adjustment. 2) Change the adjustment value with ”+”, “-” then press “OK” button to save changes. • Simplex Leading Edge • Simplex Side Edge • Duplex Leading Edge • Duplex Side Edge 3) Print out the test pattern and check if the image is moved as you want. If not, repeat stpe2.

- **Diagnostics > Adjustment > Scan Area Adjustment > Manual Adjustment**

Purpose	To correct image position and magnification of scanned images manually.
Operation Procedure	1) Choose one item from the table. There are three items to choose. • Image Position - Leading Edge (Unit : mm, Scale : 0.1, Min/Max : -3.0/+3.0) • Image Position - Side Edge (Unit : mm, Scale : 0.1, Min/Max : -3.0/+3.0) • Magnification - Vertical Direction (Unit : %, Scale: 0.1(0.42mm), Min/Max: 98.5/101.5) 2) Select one item and press the “Edit” button. 3) Change the adjustment value with arrow button. 4) Image Position (a, b) : If the current value is smaller than the specification, press “+”. Otherwise, press “-”. 5) Magnification (c) : If the current value is smaller than the specification, press “-”. Otherwise, press “+”. 6) Press the “OK” button to apply the new value to the system. 7) Scan the Scanner A/S Chart and send it to a PC. Scanning must be occur from the scan glass. 8) To check the image position, compare the position of scale marks (a,b) of the chart to the copy. 9) To check the magnification, compare the length of line “c” of the chart to the copy.

	NOTE Specification - a,b : 10, ± 1.5 mm - c: 190, ± 1.5 mm

- **Diagnostics > Adjustment > ADF Adjustment > Manual Adjustment**

Purpose	To correct image position and magnification of scanned images manually.
Operation Procedure	1) Choose one item from the table. There are three items to choose. • Image Position - Leading Edge (Unit : mm, Scale : 0.1, Min/Max : -3.0/+3.0) • Image Position - Side Edge (Unit : mm, Scale : 0.1, Min/Max : -3.0/+3.0) • Magnification - Vertical Direction (Unit : %, Scale: 0.1(0.42mm), Min/Max: 98.5/101.5) 2) Select one item and press the “Edit” button. 3) Change the adjustment value with arrow button. 4) Image Position (a, b) : If the current value is smaller than the specification, press “+”. Otherwise, press “-”. 5) Magnification (c) : If the current value is smaller than the specification, press “-”. Otherwise, press “+”. 6) Press the “OK” button to apply the new value to the system. 7) Scan the Scanner A/S Chart and send it to a PC. Scanning must be occur from the DSDF. 8) To check the image position, compare the position of scale marks (a,b) of the chart to the copy. 9) To check the magnification, compare the length of line “c” of the chart to the copy. **NOTE** Specification - a,b : 10, ± 1.5 mm - c: 190, ± 1.5 mm

- **Diagnostics > ACS**

Purpose	To set the color coverage ratio of auto color mode in copy function. • Color Coverage Ratio : The ratio of color contents in the original document.
Operation Procedure	Change the level from 1 to 5. • 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.

- **Diagnostics > Image 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	1) Select “On” or “Off” or “Execute Now” for ACR execution. • If you select “Off”, ACR will not execute. • If you select “On”, ACR will execute as the determined conditions. • **If you select “Execute Now”, ACR will execute now.** 2) After selecting “On”, change execution condition(s) of the Automatic Color Registration. • Page Condition : The system executes ACR based on the count of printed pages since the last ACR execution. • Inner Temperature : The system executes ACR when inner temperature of the device increases or decreases by the configured value 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. **NOTE** - ACR execution occurs when one of the ACR option meets the condition.
Verification	Compare the original with a copy after an execution of Auto Color Registration.
Specification	• Page Condition - Range : 100 ~ 5000 - Default : 120 • Inner Temperature - Range : 2 ~ 10 - Default : 6 • LSU Temperature - Range : 1 ~ 10 - Default : 3

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

Purpose	To correct image quality when density of the image is poor. Normal TRC Control is recommended to be performed after changing a unit, such as toner cartridge, imaging unit, and ITB, and reboot.
Operation Procedure	1) Select “On” or “Off” for Normal TRC Control execution. • 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. • Page Count: The system executes Normal TRC Control based on the count of printed pages since the last execution. • Time Left Alone: The system executes Normal TRC Control when the system returns from a power save mode and the rest time exceeds the configured value.
Verification	Print out a test job and make sure the image quality has recovered.

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

Purpose	To correct image quality when any OPC drum is replaced or the life of the OPC drum is changed. replacing any OPC drum or density of the image is poor. And this function will be performed when temperature and/or humidity in the room changes suddenly.
Operation Procedure	1) Select “On” or “Off” for Full TRC Control execution. • If you select “Off”, Full TRC Control will not execute. • If you select “On”, Full TRC Control will execute as the determined conditions. 2) Change execution condition(s) of Full TRC Control. • Page Count: The system executes Full TRC Control based on the count of printed pages since the last execution. • Time Left Alone: The system executes Full TRC Control when the system returns from a power save mode and the rest time exceeds the configured value.
Verification	Print out a test job and make sure the image quality has recovered.

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

Purpose	To correct image quality when density of the image is poor. Normal TRC Control is recommended to be performed after changing a unit, such as toner cartridge, imaging unit, and ITB, and reboot.
Operation Procedure	When selecting “OK”, Normal TRC will execute now.
Verification	Print out a test job and make sure the image quality has recovered.

- **Diagnostics > Image Management > Auto Tone Adjustment > 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	When selecting “OK”, Full TRC will execute now.
Verification	Print out a test job and make sure the image quality has recovered.

- **Diagnostics > Print Test Patterns**

  This menu prints the pattern stored in the machine.

4.6.6. Service Functions Tab

- **Service Functions > Main Memory Clear**

  The function resets the system to factory default settings. This function is used to reset the system to the initial value when the product is functioning abnormally . All the values are returned to the default values, and all the information, which was set by the user, will be erased.

  NOTE

  Always perform a memory clear after replacing the main board. Otherwise, the system may not operate properly.

- **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.
  - Temporary and Spool Data Clear : This function formats all temporary and spool data saved on the hard disk.
  - 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.
  - 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 > Network Port**

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

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

  Since enabling those ports can creates 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.

- **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.

- **Service Functions > Capture Log**

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

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

> **NOTE**
>
> If the system log size becomes considerably large, it will take a longer time to print.

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

- **Service Functions > Network Packet Capture**

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

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

   - Packet Size
     - Show the file size captured

2) Export Capture File
   - Export button
     - Export network packet capture file to USB memory stick

3) Delete Capture File
   - Delete button
     - Clear network packet capture file in a device

- **Service Functions > System Recovery**

> **NOTE**
>
> There are 3 methods for entering System Recovery mode.
> - In case of normal booting,
>   - Enter SVC mode and select **System Recovery** menu.
> - In case of abnormal booting,
>   - If the HDD is broken, the machine will enter System Recovery at booting.
>   - When turning the machine on while pushing the power button on OP panel, you can enter System Recovery forcibly.

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

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

1) From the system recovery UI, Choose “SYS” to recover only the system partition of the HDD or “ALL” to recover all the partition of the HDD.

2) When the system recovery UI is appeared after reboot, choose “HDD Repair” to repair any corrupted data in the selected partition or choose “HDD Format” to format the data in the selected partition.
   a) HDD Format
      - Hidden Partition : This can format and reinstall the only System Binary in HDD. User data is not deleted.

- USB : This can format the HDD using USB stick. All data except the stored in MSOK will be deleted.
- Network : This can format the HDD using network. All data except the stored in MSOK will be deleted.

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

3) When pushing “Next” button, the login page for authentication will be displayed. The password will be **1934** as the factory setting password.

4) When pushing “Next” button, the following page will be displayed.

- In case of selecting USB option :

  The Next button is pressed after inserting the USB stick.

  The system will check for the required packages in the USB stick. If all the packages are present in the USB stick then the system will be directed to the confirmation page otherwise an Error page will be displayed with an appropriate error message.

- In case of selecting Network option :

  This page contains two sections :

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

  The Next button is pressed after providing the above information.

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

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

5) When pushing “Next” button on option selection page, the confirmation page will be displayed.

6) When pushing “Next” button, progress page will be displayed.

7) When completing HDD Recovery or HDD Repair successfully, reboot the machine.

8) After rebooting, the machine will start the system initialization.

NOTE

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

If not, the machine may not work normally.

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

- **Service Functions > Hibernation**

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

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

- **Service Functions > SFE**

  Special Feature Enablement (SFE) means to provide the configurable options (On/Off) in service mode for technicians or dealers to satisfy the requirements from B2B sites easily without changing the firmware installed in a device.

SFE Code	Description
001	In case of printing in directional media (Letterhead/Preprinted/Punched), the device prints as the same output direction regardless of simplex or duplex.
002	The device always prints output as mono about PC printing.
003	Confidential
006	The device support only user's own email address for scan to email.
007	The device prints as original 1 dot line without 2 dot line compensation.
008	The device ignores paper size command in PRN and prints as paper size in tray.
009	PJL readback response is changed with HPOS. 1) Add <CR><LF> to EOJ response. 2) No EOJ job but EOJ response occurs. 3) Device uses Job name instead of EOJ name.
010	Maximum value of 'Power save time' is increased as 240 min.
012	If the device is in jam status, all print jobs except secure or stored jobs are deleted automatically.
013	The device ignores the USB memory stick and detects only card reader.
014	When the authenticated user uses scan to email, user's email address is added automatically.
015	Ths device supports to connect to LDAPs server without any certificate.
016	The device fits image appearance in report page
018	The device blocks apk installation.
019	User ID is not case-sensitive for login
020	Confidential
023	The device rotates copy output 180 degrees when executed on flatbed.
024	The device executes copy job as only mono even though color copy is started.
025	Confidential
026	The device maintains HDD encryption as a default.
029	If this SFE option is enabled, user can use 3 digit password for SMB features like Scan to Server(SMB), SMB auth and Fax forward to SMB.
031	This option will show detail information in the job status such as total pages and printing options.
032	If this SFE option is enabled, the image processor shall not omit line that is less than 1 dot. By PCL 6 command rule, the device shall not print less than 1 dot line. But this SFE is enabled, the device shall print it.
033	If this SFE option is enabled, the image processor shall draw Letter Gothic font as previous thickness(Bitstream) thicker than URW++.
035	The device shall provide auto scale for A3/Leger to A4/Letter in case of A4 Models that doesn't support A3/Ledger size.

SFE Code	Description
038	The device shall provide 0 margin printable area. It just applies engine masking. This SFE code is just for SW margin. To support borderless printing, the engine FW also change the masking value.
054	If this SFE is enabled, UI shall keep jam animation pop-up until error is cleared.

- **Service Functions > Dealer ID**

  The SFE functions related to the dealer will be enable.

- **Service Functions > Envelope Rotate**

  This menu is enabling rotate when printing on envelope. The machine usually guides to load envelope with SEF direction. If this function is enabled, the user can load envelope with LEF direction and the machine shall rotate image for printing exactly on envelope.

  This function shall provide the setting options as follows:

  - Off (default) : Load envelope SEF direction
  - 90 degrees : Load envelope LEF direction
  - 180 degrees : Load envelope SEF direction with flap is bottom side

NOTE

1) If the paper source is 'Auto', the device shall feed from MP Tray. Because the LEF envelope can be loaded only in MP Tray according to Paper Specification.

2) If the length of envelope is over max size of custom width, the device shall not rotate image and just determine the direction of envelope is SEF.
   For example, the A4 model support custom size like W 98-216 ~ L148-356. This model doesn't support C5 Env.(162x229) DL Env.(110x220), No9 Env.(98x225), No10 Env.(105x241) rotation.

- **Service Functions > Restore Background Image**

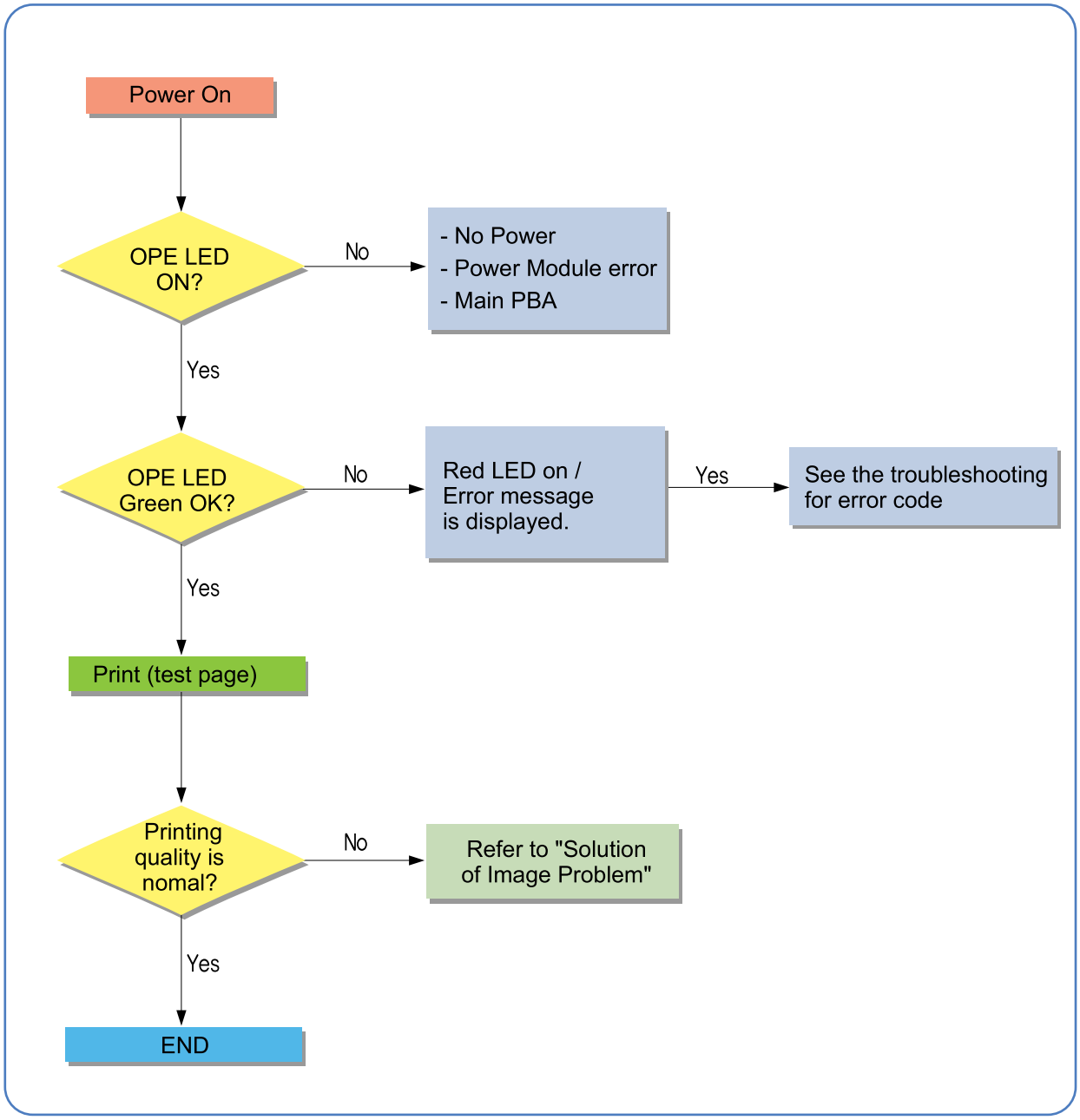
  When the system recognizes that the installed toner cartridge is a refill one, the system shall automatically change the wallpaper with the message on the display panel. A user can change the previous used wallpaper via gallery or long press on home screen in user mode temporarily. But, the non-genuine toner wallpaper shall be shown again at every 12:00AM.

  When "Restore Background Image" in service mode is on, the system shall restore the previous used wallpaper and do not show non-genuine toner wallpaper until toner is changed.

4.7. Troubleshooting

4.7.1. Procedure of checking the symptoms

Before attempting to repair the printer first obtain a detailed description of the problem from the customer.



4.7.2. 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
11-2T01	Tray paper mismatch	P.4–59
11-2T11	Tray 1 paper mismatch	P.4–59
11-2T21	Tray 2 paper mismatch	P.4–59
11-2T31	Tray 3 paper mismatch	P.4–59
11-2T41	Tray 4 paper mismatch	P.4–59
11-2T61	MP tray paper mismatch	P.4–59
31-1A01	Job is completed with error: Authentication Error	P.4–60
31-1A02	Job is completed with error: Authentication Required	P.4–60
31-1A03	Job is completed with error: Could not Connect to configured SMTP server	P.4–61
31-1A04	Job is completed with error: Mail size exceeds the server limits	P.4–61
31-1A05	Job is completed with error: Mail size too large	P.4–62
31-1A06	Job is completed with error: Network Error	P.4–62
31-1A07	Job is completed with error: Send Failed	P.4–62
31-1A08	Job is completed with error: DNS resolution failure	P.4–63
31-1A09	Job is completed with error: Not support SSL encryption method	P.4–63
31-1A0A	Job is completed with error: Wrong email address(es)	P.4–63
31-1A21	Job is completed with error: POP3 Authentication Failure	P.4–64
31-1A22	Job is completed with error: POP3 Authentication Required	P.4–64
31-1A23	Job is completed with error: POP3 Connection Error	P.4–65
31-1A24	Job is completed with error: POP3 Error	P.4–65
31-1E01	Job is completed with error: Invalid Server Address	P.4–66
31-1E02	Job is completed with error: Authentication Failure	P.4–66
31-1E03	Job is completed with error: Communication Error	P.4–67
31-1E04	Job is completed with error: File Existed	P.4–67
31-1E05	Job is completed with error: Over limit File name	P.4–68
31-1E06	Job is completed with error: File Access Denied	P.4–68
31-1E07	Job is completed with error: Network Error	P.4–69
31-1E08	Job is completed with error: Exceed maximum connection of SMB server	P.4–69
41-1111	Job is completed with error: Communication Error	P.4–70
41-1112	Job is completed with error: No Answer	P.4–70
41-1113	Job is completed with error: Line Busy	P.4–71
41-1114	Job is completed with error: Communication Error	P.4–71
41-1115	Job is completed with error: Communication Error	P.4–72
41-1116	Job is completed with error : Communication Error	P.4–72

Error Code	Error Message	Troubleshooting Page
41-1121	Job is completed with error: Communication Error	P.4–73
41-1122	Job is completed with error: No Answer	P.4–73
41-1123	Job is completed with error: Line Error	P.4–74
41-1124	Job is completed with error: Communication Error	P.4–74
41-1125	Job is completed with error: Communication Error	P.4–75
41-1126	Job is completed with error: Communication Error	P.4–75
41-1127	Job is completed with error: Line Error	P.4–76
41-1128	Job is completed with error: Line Error	P.4–76
41-1F01	Job is completed with error: Junk Fax Blocked	P.4–77
51-1D01	Software Integrity Failure: #51-1D01. Please call for service	P.4–77
61-1111	Booting Failure: #61-1111. Turn off then on. Call for service if the problem persists	P.4–78
61-1500	Unverified application(s) installed. Please contact administrator	P.4–78
61-1Y70	Scanner Failure: #61-1Y70. Turn off then on. Call for service if the problem persists	P.4–79
61-C401	Job is completed with error: DNS Error	P.4–79
A1-1210	Fuser Motor Failure: #A1-1210. Turn off then on. Call for service if the problem persists	P.4–80
A1-3610	Development Motor Failure: #A1-3610. Turn off then on. Call for service if the problem persists	P.4–81
A1-3621	Development Motor Failure: #A1-3621. Turn off then on. Call for service if the problem persists	P.4–81
A1-3622	Development Motor Failure: #A1-3622. Turn off then on. Call for service if the problem persists	P.4–81
A1-4310	Engage Motor Failure: #A1-4310. Turn off then on. Call for service if the problem persists	P.4–81
A2-1210	SMPS Fan Failure: #A2-1210. Turn off then on. Call for service if the problem persists	P.4–82
A2-2110	Fuser Fan Failure: #A2-2110. Turn off then on. Call for service if the problem persists	P.4–82
A2-2610	Development Fan Failure: #A2-2610. Turn off then on. Call for service if the problem persists	P.4–82
A3-2113	The CTD sensor is dirty. Please clean it with soft cloth or paper	P.4–83
A3-3211	Temperature Sensor Failure: #A3-3211. Turn off then on. Call for service if the problem persists	P.4–84
A3-3212	Temperature Sensor Failure: #A3-3212. Turn off then on. Call for service if the problem persists	P.4–84
A3-3311	Temperature Sensor Failure: #A3-3311. Turn off then on. Call for service if the problem persists	P.4–84
A3-3312	Temperature Sensor Failure: #A3-3312. Turn off then on. Call for service if the problem persists	P.4–84
A3-3320	The room temperature is not suitable for this set use. Please adjust room temperature	P.4–85
A3-4114	The ACR sensor is dirty. Please clean it with soft cloth or paper	P.4–85

Error Code	Error Message	Troubleshooting Page
A3-6110	Development Cam Sensor Failure: #A3-6110. Turn off then on. Call for service if the problem persists	P.4–85
C2-2110	Yellow toner is low	P.4–86
C2-2120	Yellow toner is very low	P.4–86
C2-2140	End of life, Replace with new yellow toner cartridge	P.4–86
C2-2150	Yellow toner is very low	P.4–86
C2-2160	Yellow toner is very low	P.4–86
C2-2170	End of life, Replace with new yellow toner cartridge	P.4–86
C2-2410	Install yellow toner cartridge	P.4–86
C2-2512	Yellow toner cartridge is not compatible. Check the user guide	P.4–87
C2-2515	Yellow toner cartridge is not available in the country set in the machine. Install a toner cartridge that is compatible with your country	P.4–87
C2-2517	Yellow Toner Cartridge Failure: #C2-2517. Call for service	P.4–87
C2-2518	Yellow Toner Cartridge Failure: #C2-2518. Call for service	P.4–87
C2-2526	Toner mismatch on yellow toner cartridge position. Install again in the proper position.	P.4–87
C2-2711	Toner Cartridge Failure: #C2-2711. Yellow toner cartridge is not installed. Install the cartridge	P.4–87
C2-2712	Toner Cartridge Failure: #C2-2712. Call for service	P.4–87
C2-2713	Yellow Toner Cartridge Failure: #C2-2713. Call for service	P.4–87
C2-2714	Yellow Toner Cartridge Failure: #C2-2714. Call for service	P.4–87
C2-3110	Magenta toner is low	P.4–88
C2-3120	Magenta toner is very low	P.4–88
C2-3140	End of life, Replace with new magenta toner cartridge	P.4–88
C2-3150	Magenta toner is very low	P.4–88
C2-3160	Magenta toner is very low	P.4–88
C2-3170	End of life, Replace with new magenta toner cartridge	P.4–88
C2-3410	Install magenta toner cartridge	P.4–88
C2-3512	Magenta toner cartridge is not compatible. Check the user guide	P.4–89
C2-3515	Magenta toner cartridge is not available in the country set in the machine. Install a toner cartridge that is compatible with your country	P.4–89
C2-3517	Magenta Toner Cartridge Failure: #C2-3517. Call for service	P.4–89
C2-3518	Magenta Toner Cartridge Failure: #C2-3518. Call for service	P.4–89
C2-3526	Toner mismatch on magenta toner cartridge position. Install again in the proper position.	P.4–89
C2-3711	Toner Cartridge Failure: #C2-3711. Magenta toner cartridge is not installed. Install the cartridge	P.4–89
C2-3712	Toner Cartridge Failure: #C2-3712. Call for service	P.4–89
C2-3713	Magenta Toner Cartridge Failure: #C2-3713. Call for service	P.4–89
C2-3714	Magenta Toner Cartridge Failure: #C2-3714. Call for service	P.4–89
C2-4110	Cyan toner is low	P.4–90
C2-4120	Cyan toner is very low	P.4–90

Error Code	Error Message	Troubleshooting Page
C2-4140	End of life, Replace with new cyan toner cartridge	P.4–90
C2-4150	Cyan toner is very low	P.4–90
C2-4160	Cyan toner is very low	P.4–90
C2-4170	End of life, Replace with new cyan toner cartridge	P.4–90
C2-4410	Install cyan toner cartridge	P.4–90
C2-4512	Cyan toner cartridge is not compatible. Check the user guide	P.4–91
C2-4515	Cyan toner cartridge is not available in the country set in the machine. Install a toner cartridge that is compatible with your country	P.4–91
C2-4517	Cyan Toner Cartridge Failure: #C2-4517. Call for service	P.4–91
C2-4518	Cyan Toner Cartridge Failure: #C2-4518. Call for service	P.4–91
C2-4526	Toner mismatch on cyan toner cartridge position. Install again in the proper position.	P.4–91
C2-4711	Toner Cartridge Failure: #C2-4711. Cyan toner cartridge is not installed. Install the cartridge	P.4–91
C2-4712	Toner Cartridge Failure: #C2-4712. Call for service	P.4–91
C2-4713	Cyan Toner Cartridge Failure: #C2-4713. Call for service	P.4–91
C2-4714	Cyan Toner Cartridge Failure: #C2-4714. Call for service	P.4–91
C2-5110	Black toner is low	P.4–91
C2-5120	Black toner is very low	P.4–92
C2-5140	End of life, Replace with new black toner cartridge	P.4–92
C2-5150	Black toner is very low	P.4–92
C2-5160	Black toner is very low	P.4–92
C2-5170	End of life, Replace with new black toner cartridge	P.4–92
C2-5410	Install black toner cartridge	P.4–92
C2-5512	Black toner cartridge is not compatible. Check the user guide	P.4–93
C2-5515	Black toner cartridge is not available in the country set in the machine. Install a toner cartridge that is compatible with your country	P.4–93
C2-5517	Black Toner Cartridge Failure: #C2-5517. Call for service	P.4–93
C2-5518	Black Toner Cartridge Failure: #C2-5518. Call for service	P.4–93
C2-5526	Toner mismatch on black toner cartridge position. Install again in the proper position.	P.4–93
C2-5711	Toner Cartridge Failure: #C2-5711. Black toner cartridge is not installed. Install the cartridge	P.4–93
C2-5712	Toner Cartridge Failure: #C2-5712. Call for service	P.4–93
C2-5713	Black Toner Cartridge Failure: #C2-5713. Call for service	P.4–93
C2-5714	Black Toner Cartridge Failure: #C2-5714. Call for service	P.4–93
C5-1110	Prepare new transfer belt unit	P.4–94
C5-1120	Replace with new transfer belt unit	P.4–94
C5-1310	Install image transfer belt unit.	P.4–94
C5-1410	Image transfer belt unit is not compatible. Check the user guide.	P.4–94
C5-1710	Sensor Failure: #C5-1710. Turn off then on	P.4–95
C6-1110	Prepare new fuser unit	P.4–95

Error Code	Error Message	Troubleshooting Page
C6-1120	Replace with new fuser unit	P.4–95
C7-1110	Waste toner container is almost full. Order new one	P.4–95
C7-1130	Waste toner container is full. Replace it	P.4–95
C7-1311	Waste toner container is not installed. Install it	P.4–96
C9-1115	Replace with new tray 1 retard roller	P.4–96
C9-1122	Replace with new tray 2 pickup roller	P.4–96
C9-1125	Replace with new tray 2 retard roller	P.4–97
C9-1132	Replace with new tray 3 pickup roller	P.4–97
C9-1135	Replace with new tray 3 retard roller	P.4–97
H1-1210	Paper jam in tray 2. Please open the door and remove paper, then close the door.	P.4–98
H1-1211	Paper jam in tray 2. Please open the door and remove paper, then close the door.	P.4–98
H1-1222	Tray 2 cassette is pulled out. Insert it properly	P.4–99
H1-1252	Paper is empty in tray 2. Load paper	P.4–99
H1-1253	Tray Failure: #H1-1253. Pull tray 2 out and insert it. Call for service if the problem persists	P.4–100
H1-1310	Paper jam in tray 3. Please open the door and remove paper, then close the door.	P.4–101
H1-1311	Paper jam in tray 3. Please open the door and remove paper, then close the door.	P.4–101
H1-1322	Tray 3 cassette is pulled out. Insert it properly	P.4–102
H1-1352	Paper is empty in tray 3. Load paper	P.4–102
H1-1353	Tray Failure: #H1-1353. Pull tray 3 out and insert it. Call for service if the problem persists	P.4–103
H1-1410	Paper jam in tray 4. Please open the door and remove paper, then close the door.	P.4–104
H1-1411	Paper jam in tray 4. Please open the door and remove paper, then close the door.	P.4–104
H1-1422	Tray 4 cassette is pulled out. Insert it properly	P.4–105
H1-1452	Paper is empty in tray 4. Load paper	P.4–105
H1-1453	Tray Failure: #H1-1453. Pull tray 4 out and insert it. Call for service if the problem persists	P.4–106
M1-1110	Paper jam in tray 1. Please remove the paper	P.4–107
M1-1610	Paper jam in MP tray. Please remove the paper	P.4–109
M1-3122	Tray 1 cassette is pulled out. Insert it properly	P.4–109
M1-4111	Tray Failure: #M1-4111. Pull tray 1 out and insert it. Call for service if the problem persists	P.4–110
M1-5112	Paper is empty in tray 1. Load paper	P.4–111
M1-5113	Paper is empty in tray 1. Load paper	P.4–111
M1-5120	Paper is empty in all tray. Load paper	P.4–111
M1-5612	Paper is empty in MP tray. Load paper	P.4–112
M2-1111	Paper jam inside of machine. Please remove the paper	P.4–113

Error Code	Error Message	Troubleshooting Page
M2-1114	Paper jam inside of machine. Please remove the paper	P.4–113
M2-2210	Paper jam inside of duplex path. Please remove the paper	P.4–113
M2-2214	Paper jam inside of duplex path. Please remove the paper	P.4–113
M2-2310	Paper jam at the bottom of duplex path. Please remove the paper	P.4–113
M3-1110	Paper jam in exit area. Please remove the paper	P.4–114
M3-1112	Paper jam inside of machine. Please remove the paper	P.4–114
M3-2130	Paper in output bin is full. Remove printed paper	P.4–115
S1-1113	Video System Failure: #S1-1113. Turn off then on	P.4–116
S1-1114	Video System Failure: #S1-1114. Turn off then on	P.4–116
S1-1411	Video System Failure: #S1-1411. Turn off then on	P.4–116
S1-2000	Video System Failure: #S1-2000. Call for service	P.4–117
S1-2433	System Failure: #S1-2433 . Call for service	P.4–117
S1-2434	There is not enough space on the hard disk. Please delete the information stored in the address book	P.4–118
S1-2435	There is not enough space on the hard disk. Please delete the stored file	P.4–118
S1-2436	There is not enough space on the hard disk. Please delete the stored file	P.4–118
S1-2437	There is not enough space on the hard disk. Please wait a moment	P.4–118
S1-2438	There is not enough space on the hard disk. Please check your printer	P.4–118
S1-2439	There is not enough space on the hard disk. Please check your printer	P.4–118
S1-2443	HDD System Failure: #S1-2443. Call for service	P.4–117
S1-2444	HDD System Failure: #S1-2444. Call for service	P.4–117
S1-2445	HDD System Failure: #S1-2445. Call for service	P.4–117
S1-2446	HDD System Failure: #S1-2446. Call for service	P.4–117
S1-2447	HDD System Failure: #S1-2447. Call for service	P.4–117
S1-2448	HDD System Failure: #S1-2448. Call for service	P.4–117
S1-2449	HDD System Failure: #S1-2449. Call for service	P.4–117
S1-2450	HDD Failure: #S1-2450. Call for service.	P.4–118
S1-2510	MSOK Failure: #S1-2510. Call for service and change MSOK	P.4–118
S1-2520	MSOK Failure: #S1-2520. Call for service	P.4–118
S1-2521	MSOK Failure: #S1-2521. Call for service	P.4–118
S1-2550	MSOK Failure: #S1-2550. Call for service and change MSOK	P.4–118
S1-3110	Video System Failure: #S1-3110. Turn off then on	P.4–119
S2-1110	Engine Failure: #S2-1110. Call for service if the problem persists	P.4–119
S2-1210	Engine System Failure: #S2-1210. Call for service if the problem persists	P.4–119
S2-4120	Door is open. Close it	P.4–120
S3-3122	Scanner is locked. Please try to release scanner lock	P.4–121
S5-3111	UI System Failure: #S5-3111. Turn off then on. Call for service if the problem persists	P.4–122
S5-3113	UI System Failure: #S5-3113. Turn off then on. Call for service if the problem persists	P.4–122

Error Code	Error Message	Troubleshooting Page
S6-3113	Network Failure: #S6-3113. Turn off then on. Call for service if the problem persists	P.4–124
S6-3114	Network Failure: #S6-3114. Turn off then on. Call for service if the problem persists	P.4–124
S6-3122	Network cable is disconnected. Check it	P.4–124
S6-3123	This IP address conflicts with that of other system. Check it	P.4–125
S6-3128	802.1x authentication failed. Please contact the system administrator	P.4–125
S7-1110	Engine System Failure: #S7-1110. Turn off then on	P.4–126
S7-1120	The lack of AC source capacity: #S7-1120. Open the door, then close it. Call for service if the problem persists	P.4–126
S7-2110	Fuser Unit Failure: #S7-2110. Turn off then on. Call for service if the problem persists	P.4–127
U1-2113	Fuser Unit Failure: #U1-2113. Turn off then on	P.4–127
U1-2115	Fuser Unit Failure: #U1-2115. Turn off then on. Call for service if the problem persists	P.4–127
U1-2116	Fuser Unit Failure: #U1-2116. Turn off then on. Call for service if the problem persists	P.4–127
U1-2119	Fuser Unit Failure: #U1-2119. Turn off then on	P.4–127
U1-2132	Fuser Unit Failure: #U1-2132. Turn off then on. Call for service if the problem persists	P.4–128
U1-2135	Fuser Unit Failure: #U1-2135. Turn off then on. Call for service if the problem persists	P.4–128
U1-2316	Fuser Unit Failure: #U1-2316. Turn off then on. Call for service if the problem persists	P.4–128
U1-2317	Fuser Unit Failure: #U1-2317. Turn off then on. Call for service if the problem persists	P.4–128
U1-2320	Fuser Unit Failure: #U1-2320. Turn off then on. Call for service if the problem persists	P.4–128
U1-2330	Fuser Unit Failure: #U1-2330. Turn off then on. Call for service if the problem persists	P.4–128
U1-2334	Fuser Unit Failure: #U1-2334. Turn off then on. Call for service if the problem persists	P.4–128
U1-2336	Fuser Failure: #U1-2336. Turn off then on	P.4–128
U1-2338	Fuser Failure: #U1-2338. Turn off then on	P.4–128
U1-2339	Fuser Unit Failure: #U1-2339. Turn off then on. Call for service if the problem persists	P.4–128
U1-233C	Fuser Failure: #U1-233C. Turn off then on	P.4–128
U1-233E	Fuser Failure: #U1-233E. Turn off then on	P.4–128
U1-233F	Fuser Unit Failure: #U1-233F. Turn off then on. Call for service if the problem persists	P.4–128
U1-233G	Fuser Unit Failure: #U1-233G. Turn off then on. Call for service if the problem persists	P.4–128
U1-233H	Fuser Unit Failure: #U1-233H. Turn off then on. Call for service if the problem persists	P.4–128

Error Code	Error Message	Troubleshooting Page
U1-233J	Fuser Unit Failure: #U1-233J. Turn off then on. Call for service if the problem persists	P.4–128
U1-233K	Fuser Unit Failure: #U1-233K. Turn off then on. Call for service if the problem persists	P.4–128
U1-233M	Fuser Unit Failure: #U1-233M. Turn off then on. Call for service if the problem persists	P.4–128
U1-233N	Fuser Unit Failure: #U1-233N. Turn off then on. Call for service if the problem persists	P.4–128
U1-2340	Fuser Unit Failure: #U1-2340. Turn off then on. Call for service if the problem persists	P.4–128
U1-234H	Fuser Unit Failure: #U1-234H. Turn off then on. Call for service if the problem persists	P.4–128
U1-234K	Fuser Failure: #U1-234K. Turn off then on	P.4–128
U1-234M	Fuser Failure: #U1-234M. Turn off then on	P.4–128
U1-234N	Fuser Failure: #U1-234N. Turn off then on	P.4–128
U1-234Q	Fuser Failure: #U1-234Q. Turn off then on	P.4–128
U1-234R	Fuser Unit Failure: #U1-234R. Turn off then on. Call for service if the problem persists	P.4–128
U1-234S	Fuser Failure: #U1-234S. Turn off then on	P.4–128
U1-234T	Fuser Unit Failure: #U1-234T. Turn off then on. Call for service if the problem persists	P.4–128
U1-234U	Fuser Unit Failure: #U1-234U. Turn off then on. Call for service if the problem persists	P.4–128
U2-2113	Yellow LSU Failure: #U2-2113. Turn off then on	P.4–129
U2-5113	Black LSU Failure: #U2-5113. Please turn off then on	P.4–129
U2-6121	LSU Failure: #U2-6121. Please turn off then on	P.4–129
U2-6122	LSU Failure: #U2-6122. Turn off then on. Call for service if the problem persists	P.4–129
U2-6123	LSU Failure: #U2-6123. Please turn off then on	P.4–129
U3-3113	Original paper jam in front of the scanner	P.4–130
U3-3213	Original paper jam inside the scanner	P.4–130
U3-3214	Original paper jam inside the scanner	P.4–130
U3-3313	Original paper jam inside the scanner	P.4–130
U3-3314	Original paper jam inside the scanner	P.4–130
U3-3413	Original paper jam inside the scanner	P.4–130
U3-3513	Original paper jam inside the scanner	P.4–130
U3-3514	Original paper jam inside the scanner	P.4–130
U3-4210	Top door of scanner is open	P.4–130

4.7.2.1. 11–2Txx (Paper Mismatch error)

► **Error Code**

11-2T11

11-2T21

11-2T31

11-2T41

11-2T61

► **Error message**

Tray 1 Paper Mismatch

Tray 2 Paper Mismatch

Tray 3 Paper Mismatch

Tray 4 Paper Mismatch

MP Paper Mismatch

► **Symptom**

Paper in tray is not matched to the machine paper setting.

► **Troubleshooting method**

1) Check and change the paper setting of the corresponding tray properly.

4.7.2.2. 31–xxxx_41–xxxx_51–xxxx_61–xxxx (Scan to_Fax communication error)

► **Error Code**

31-1A01

► **Error message**

Job is completed with error: Authentication Error

► **Symptom**

Scan to Email job is completed with error. “Authentication Error” or same meaning message appears.

► **Troubleshooting method**

1) Access SyncThru Web Service with administrator account.
2) Make sure valid login ID or password in SyncThru Web Service Network Settings Outgoing Mail Server (SMTP) SMTP Login Information.
3) Press Test button for connection test.

► **Error Code**

31-1A02

► **Error message**

Job is completed with error: Authentication Required

► **Symptom**

Scan to Email job is completed with error. “Authentication Required” or same meaning message appears.

► **Troubleshooting method**

1) Access SyncThru Web Service with administrator account.
2) Make SyncThru Web Service Network Settings Outgoing Mail Server (SMTP) SMTP Requires Authentication enabled and type login ID and password.
3) Press Test button for connection test.

► **Error Code**

31-1A03

► **Error message**

Job is completed with error: Could not Connect to configured SMTP server

► **Symptom**

Scan to Email job is completed with error. “Could not connect to configured SMTP server” or same meaning message appears.

► **Troubleshooting method**

1) Connect network cable. Or, connect Wi-Fi.
2) Access SyncThru Web Service with administrator privilege. Make Ethernet or Wi-Fi enabled in SyncThru Web Service System Security Feature Management Physical Ports.
3) Make sure valid SMTP server address (IP address or Host name) in SyncThru Web Service Network Settings Outgoing Mail Server (SMTP). When the above address is described with the Hostname, check that the DNS server is prope

► **Error Code**

31-1A04

► **Error message**

Job is completed with error: Mail size exceeds the server limits

► **Symptom**

Scan to Email job is completed with error. “Mail size exceeds the server limits” or same meaning message appears.

► **Troubleshooting method**

1) Contact SMTP server administrator to check maximum mail size.
2) Access SyncThru Web Service with administrator privilege. Decrease Maximum Message Size in SyncThru Web Service Network Settings Outgoing Mail Server (SMTP).
3) Change low resolution in scan original or mono in color mode.

► **Error Code**

31-1A05

► **Error message**

Job is completed with error: Mail size too large

► **Symptom**

Scan to Email job is completed with error. “Mail size too large” or same meaning message appears.

► **Troubleshooting method**

1) Change scan options to reduce scanned image in resolution or color mode and so on.
2) Access SyncThru Web Service with administrator privilege. Increase Maximum Message Size in SyncThru Web Service Network Settings Outgoing Mail Server (SMTP).
3) Change low resolution in scan original or mono in color mode.

► **Error Code**

31-1A06

► **Error message**

Job is completed with error: Network Error

► **Symptom**

Scan to Email job is completed with error. “Mail size too large” or same meaning message appears.

► **Troubleshooting method**

1) Send email job again. Power off then on if the problem persists.

► **Error Code**

31-1A07

► **Error message**

Job is completed with error: Send Failed

► **Symptom**

Scan to Email job is completed with error. “Send Failed” or same meaning message appears. Condition: Scan to Email job terminated.

► **Troubleshooting method**

1) Access SyncThru with administrator account.
2) Make SyncThru Web Service Network Settings Outgoing Mail Server (SMTP) SMTP Requires Authentication enabled and type login ID and password. Additionally, you can test server connection with ‘Test’ button.

► **Error Code**

31-1A08

► **Error message**

Job is completed with error: DNS resolution failure

► **Symptom**

Scan to Email job is completed with error. “DNS Resolution Failure” or same meaning message appears. Condition: Scan to Email job terminated.

► **Troubleshooting method**

1) Access SyncThru Web Service with administrator account.
2) Make sure valid Domain Name or Primary DNS server address in SyncThru Web Service Network Setting Interface Ethernet TCP/IPv4 Domain Name. Or Input Secondary DNS server address in SyncThru Web Service Network Setting Interface Ethernet TCP/IPv4 Domain Name.
3) Then test connection of the DNS server. Try same job again after few minutes. Or Input any server address as IP address type.

► **Error Code**

31-1A09

► **Error message**

Job is completed with error: Not support SSL encryption method

► **Symptom**

Scan to Email job is completed with error. ″Not supported SSL encryption” or same meaning message appears.

► **Troubleshooting method**

1) Please contact SMTP server administrator in order to change SSL encryption method. Press Test button to try to connect SMTP Server.

► **Error Code**

31-1A0A

► **Error message**

Job is completed with error: Wrong email address(es)

► **Symptom**

Scan to Email job is completed with error.

► **Troubleshooting method**

1) Check the left side and right side of @ in the e-mail addresses.

► **Error Code**

31-1A21

► **Error message**

Job is completed with error: POP3 Authentication Failure

► **Symptom**

Scan to Email job is completed with error. “POP3 Authentication Failure” or same meaning message appears.

► **Troubleshooting method**

1) Access SyncThru Web Service with administrator account.
2) Make sure valid login ID and password in SyncThru Web Service Network Setting Outgoing Mail Server (SMTP) POP3 Authentication. Additionally, you can test server connection with ‘Test’ button.

► **Error Code**

31-1A22

► **Error message**

Job is completed with error: POP3 Authentication Required

► **Symptom**

Scan to Email job is completed with error. “POP3 Authentication Required” or same meaning message appears.

► **Troubleshooting method**

1) Access SyncThru Web Service with administrator account.
2) Make SMTP Requires POP3 Before SMTP Authentication as enabled in SyncThru Web Service Network Setting Outgoing Mail Server (SMTP) POP3 Authentication. Then, Input Login ID and Password. Additionally, you can test server connection with ‘Test’ button

► **Error Code**

31-1A23

► **Error message**

Job is completed with error: POP3 Connection Error

► **Symptom**

Scan to Email job is completed with error. “POP3 Connection Error” or same meaning message appears.

► **Troubleshooting method**

1) Access SyncThru Web Service with administrator account.
2) Make sure valid IP address of POP3 server in SyncThru Web Service Network Setting Outgoing Mail Server (SMTP) POP3 Authentication. Additionally, you can test server connection with ‘Test’ button.
3) If host name is used in POP3 server address, Make sure valid DNS server in SyncThru Web Service Network Setting Interface Ethernet TCP/IPv4 Domain Name.
4) If problem persists, contact network administrator.

► **Error Code**

31-1A24

► **Error message**

Job is completed with error: POP3 Error

► **Symptom**

Scan to Email job is completed with error. “POP3 Error” or same meaning message appears. Condition: Scan to Email job terminated.

► **Troubleshooting method**

1) Access SyncThru Web Service with administrator account.
2) Make sure valid IP address of POP3 server in SyncThru Web Service Network Setting Outgoing Mail Server (SMTP) POP3 Authentication. Additionally, you can test server connection with ‘Test’ button.
3) If host name is used in POP3 server address, Make sure valid DNS server in SyncThru Web Service Network Setting Interface Ethernet TCP/IPv4 Domain Name.
4) If problem persists, contact network administrator.

► **Error Code**

31-1E01

► **Error message**

Job is completed with error: Invalid Server Address

► **Symptom**

Scan to Server job is completed with error. ″Invalid Server Address” or same meaning message appears.

► **Troubleshooting method**

1) Access SyncThru Web Service with administrator account.
2) Make sure valid IP address of server in SyncThru Web Service Address Book Individual Select the contact Click Edit SMB or FTP Server Address. Additionally, you can test server connection with ‘Test’ button.
3) If host name is used in server address, Make sure valid DNS server in SyncThru Web Service Network Setting Interface Ethernet TCP/IPv4 Domain Name.
4) If problem persists, contact network administrator.

► **Error Code**

31-1E02

► **Error message**

Job is completed with error: Authentication Failure

► **Symptom**

Scan to Server job is completed with error. ″Authentication Failure” or same meaning message appears. Condition: Scan to Server job terminated.

► **Troubleshooting method**

1) There are 2 ways to input server ID/PW. The one way is to input ID/PW in SyncThru Web Service. Access SyncThru Web Service with administrator privilege. Make sure valid ID/Password of server in SyncThru Web Service Address Book Individual Select the contact Click Edit SMB or FTP Login ID and Password. Additionally, you can test server connection with ‘Test’ button. The other way is to input ID/PW in Local UI. Execute application for server job. Then select the contact. When Local UI prompts window for ID/PW, input valid ID/PW. If problem persists, contact SMB or FTP server administrator.

► **Error Code**

31-1E03

► **Error message**

Job is completed with error: Communication Error

► **Symptom**

Scan to Server job is completed with error. ″Communication Error” or same meaning message appears. Condition: Scan to Server job terminated.

► **Troubleshooting method**

1) To make protocol support.

   • Access SyncThru Web Service with administrator privilege. - Make sure SMB or FTP protocol enabled in SyncThru Web Service Machine Settings Scan&Send or Scan SMB or FTP.

2) To change port number.

   • Contact SMB or FTP server administrator to get valid port number.

   • Access SyncThru Web Service with administrator privilege.

   • Change port number in SyncThru Web Service Address Book Individual Select the contact Click Edit SMB or FTP Server Port.

► **Error Code**

31-1E04

► **Error message**

Job is completed with error: File Existed

► **Symptom**

Scan to Server job is completed with error. ″File Existed” or same meaning message appears. Condition: Scan to Server job terminated.

► **Troubleshooting method**

1) Access SyncThru Web Service with administrator privilege.

2) Change Filing policy from Cancel to Overwrite or Change Name in SyncThru Web Service Address Book Individual Select the contact Click Edit SMB or FTP.

   Additionally, you can test server connection with ‘Test’ button. If problem persists, contact SMB or FTP server administrator.

► **Error Code**

31-1E05

► **Error message**

Job is completed with error: Over limit File name

► **Symptom**

Scan to Server job is completed with error. ″Over limit File Name” or same meaning message appears. Condition: Scan to Server job terminated.

► **Troubleshooting method**

1) Change short file name in Local UI Scan&Send or Scan to Server File Name.

2) Or, Change short file name in SyncThru Web Service Address Book Individual Select the contact Click Edit SMB or FTP after access SyncThru Web Service with administrator privilege.

   Additionally, you can test server connection with ‘Test’ button. If problem persists, contact SMB or FTP server administrator.

► **Error Code**

31-1E06

► **Error message**

Job is completed with error: File Access Denied

► **Symptom**

Scan to Server job is completed with error. ″File Access Denied” or same meaning message appears. Condition: Scan to Server job terminated.

► **Troubleshooting method**

1) This issue is out of device system scope. Contact SMB or FTP server administrator to get file write access. After you get file write access, Try to create new file in the server.

► **Error Code**

31-1E07

► **Error message**

Job is completed with error: Network Error

► **Symptom**

Scan to Server job is completed with error. ″Network Error” or same meaning message appears. Condition: Scan to Server job terminated.

► **Troubleshooting method**

1) Send server job again. Power off then on if the problem persists.

► **Error Code**

31-1E08

► **Error message**

Job is completed with error: Exceed maximum connection of SMB server

► **Symptom**

Scan to Server job is completed with error. ″Exceed Maximum Connection” or same meaning message appears.

► **Troubleshooting method**

1) This issue is out of device system scope. Contact SMB or FTP server administrator to get connection or to increase amount of connection.

► **Error Code**

41-1111

► **Error message**

Job is completed with error: Communication Error

► **Symptom**

Fax line condition has some errors.

► **Troubleshooting method**

1) Check after setting up the menu Smart Fax Diag - VoIP - Noise - Big Noise
2) Check after changing ECM config: On - Off or Off - On
3) Check after Service Mode - Fax Diagnostics - Continuous Frame: Off
4) Check after Service Mode - Fax Diagnostics - TCF duration: 3sec.
5) Change Tel. line
6) Contact commoncarrier

► **Error Code**

41-1112

► **Error message**

Job is completed with error: No Answer

► **Symptom**

No answer when transmission

► **Troubleshooting method**

- Error of dialing
  1) Check the prefix config.
  2) Check after Service Mode - Fax Diagnostics - DTMF Timing: 7sec.
  3) Check after Service Mode - Fax Diagnostics - Autodial Start Pause Time: 5sec.
- Error of fax line
  1) Check after setting up the menu Smart Fax Diag - VoIP - Noise - Big Noise
  2) Check after Service Mode - Fax Diagnostics - Continuous Frame: Off
  3) Check after Service Mode - Fax Diagnostics - TCF duration: 3sec.
  4) Change Tel. line
  5) Contact commoncarrier

► **Error Code**

41-1113

► **Error message**

Job is completed with error: Line Busy

► **Symptom**

Line is busy

► **Troubleshooting method**

1) Check the phone number
2) Check the prefix config.
3) Check after Service Mode - Fax Diagnostics - Busy Signal Detect: Off
4) Change Tel. line

► **Error Code**

41-1114

► **Error message**

Job is completed with error: Communication Error

► **Symptom**

Communication error occurs when transmission

► **Troubleshooting method**

1) If the same error occurs, refer to the followings (User Config. menu)
2) Change the setting of Smart Fax Diag VoIP- Noise - Big Noise (Service Config. menu)
3) Check after Service Mode - Fax Diagnostics - TCF duration: 3sec.
4) Check after Service Mode - Fax Diagnostics - Continuous Frame: Off

► **Error Code**

41-1115

► **Error message**

Job is completed with error: Communication Error

► **Symptom**

Communication error occurs when transmission

► **Troubleshooting method**

1) Check after setting up the menu Smart Fax Diag - VoIP - Noise - Big Noise
2) Check after changing ECM config: On - Off or Off - On
3) Check after changing resolution to standard

► **Error Code**

41-1116

► **Error message**

Job is completed with error : Communication Error

► **Symptom**

Direct TX Communication error occurs

► **Troubleshooting method**

1) If there is simultaneous job, try to send the fax after finish it.
2) Try to send fax after power reboot.

► **Error Code**

41-1121

► **Error message**

Job is completed with error: Communication Error

► **Symptom**

Fax receiving error

► **Troubleshooting method**

1) Check after setting up the menu Smart Fax Diag - VoIP - Noise - Big Noise
2) Check after changing ECM config: On - Off or Off - On
3) Check after Service Mode - Fax Diagnostics - Continuous Frame: Off - Check after Service Mode - Fax Diagnostics - TCF duration: 3sec.
4) Change Tel. line
5) Contact commoncarrier

► **Error Code**

41-1122

► **Error message**

Job is completed with error: No Answer

► **Symptom**

No answer when receiving

► **Troubleshooting method**

1) Check after setting up the menu Smart Fax Diag - VoIP - Noise - Big Noise
2) Change Tel. line
3) Contact commoncarrier

► **Error Code**

41-1123

► **Error message**

Job is completed with error: Line Error

► **Symptom**

Fax line error and no printout

► **Troubleshooting method**

1) Check after setting up the menu Smart Fax Diag - VoIP - Noise - Big Noise
2) Check after changing ECM config: On - Off or Off - On
3) Change Tel. line

► **Error Code**

41-1124

► **Error message**

Job is completed with error: Communication Error

► **Symptom**

Communication error occurs when receiving

► **Troubleshooting method**

1) If the same error occurs, refer to the followings (User Config. menu)
2) Change the setting of Smart Fax Diag VoIP- Noise - Big Noise

► **Error Code**

41-1125

► **Error message**

Job is completed with error: Communication Error

► **Symptom**

Communication error occurs when receiving

► **Troubleshooting method**

1) Check after setting up the menu Smart Fax Diag - VoIP - Noise - Big Noise
2) Check after changing ECM config: On - Off or Off - On
3) Change Tel. line
4) Contact commoncarrier

► **Error Code**

41-1126

► **Error message**

Job is completed with error: Communication Error

► **Symptom**

Communication error occurs when receiving

► **Troubleshooting method**

1) Check after setting up the menu Smart Fax Diag - VoIP - Noise - Big Noise
2) Check after changing ECM config: On - Off or Off - On
3) Change Tel. line
4) Contact commoncarrier

► **Error Code**

41-1127

► **Error message**

Job is completed with error: Line Error

► **Symptom**

Line error with blank printout

► **Troubleshooting method**

1) Check after setting up the menu Smart Fax Diag - VoIP - Noise - Big Noise
2) Check after changing ECM config: Off - On

► **Error Code**

41-1128

► **Error message**

Job is completed with error: Line Error

► **Symptom**

Line error with blank printout or data

► **Troubleshooting method**

1) Check after setting up the menu Smart Fax Diag - VoIP - Noise - Big Noise
2) Check after changing ECM config: On - Off or Off - On
3) Check after Service Mode - Fax Diagnostics - Continuous Frame: Off
4) Check after Service Mode - Fax Diagnostics - TCF duration: 3sec.
5) Change Tel. line
6) Contact commoncarrier

► **Error Code**

41-1F01

► **Error message**

Job is completed with error: Junk Fax Blocked

► **Symptom**

Line disconnection & Junk Fax Blocking before ringing and fax receiving

► **Troubleshooting method**

1) Check the Fax number at job status or Fax Received Report

2) Delete the Fax number at the Junk Fax config. menu of Fax Settings

► **Error Code**

51-1D01

► **Error message**

Software Integrity Failure: #51-1D01. Please call for service

► **Symptom**

SW integrity verification is failed inside machine.

► **Troubleshooting method**

- Backup user data at the HDD and system configuration.

  1) Enter the service mode

  2) HDD format

  3) Restore the backup date after system booting

► **Error Code**

61-1111

► **Error message**

Booting Failure: #61-1111. Turn off then on. Call for service if the problem persists

► **Symptom**

The printer failed to create the hibernation image.

► **Troubleshooting method**

- Boot the printer in service mode - Select hibernation on.
- If the error continues to occur, then turn the printer off and then back on. Impact: The printer cannot use the set.

► **Error Code**

61-1500

► **Error message**

Unverified application(s) installed. Please contact administrator

► **Symptom**

When unverified 3rd party solution is installed, user or administrator is not easily noticed for the unverified solution, which might cause market issue sooner or later.

► **Troubleshooting method**

- Access SyncThru Web Service. You can check up Samsung Verified information in SyncThru Web Service Maintenance Application Management Application. If necessary, only administrator can delete the unverified application(s) or make them disabled. Unverified soution doesnt contain V&V key, but there is no way to get information for it by HQ or administrator, it requires to get client site user to inform or reach administrator for it. After that client or dealer/reseller end up contacting ISV to get it right. Then ISV should follow V&V process guided by HQ sinc

► **Error Code**

61-1Y70

► **Error message**

Scanner Failure: #61-1Y70. Turn off then on. Call for service if the problem persists

► **Symptom**

A white or black line or band appears on an image scanned, copied, or transmitted by fax with the dual scanner.

► **Troubleshooting method**

- If the problem persists after the printer is turned off and then back on, perform shading again on the Diagnostics mode. (A technician visit is required for Tech mode.)

► **Error Code**

61-C401

► **Error message**

Job is completed with error: DNS Error

► **Symptom**

Scan to Email job is completed with error. “DNS Error” or same meaning message appears.

► **Troubleshooting method**

1) Access SyncThru Web Service with administrator priviliage. Make sure valid Domain Name or Primary DNS server address in SyncThru Web Service Network Setting Interface Ethernet TCP/IPv4 Domain Name.
2) Input Secondary DNS server address in SyncThru Web Service Network Setting Interface Ethernet TCP/IPv4 Domain Name. Then test connection of the DNS server. Try same job again after few minutes.
3) Input any server address as IP address type.

4.7.2.3. Ax-xxxx (Motor_Fan_Sensor error)

► **Error Code**

A1-1210

► **Error message**

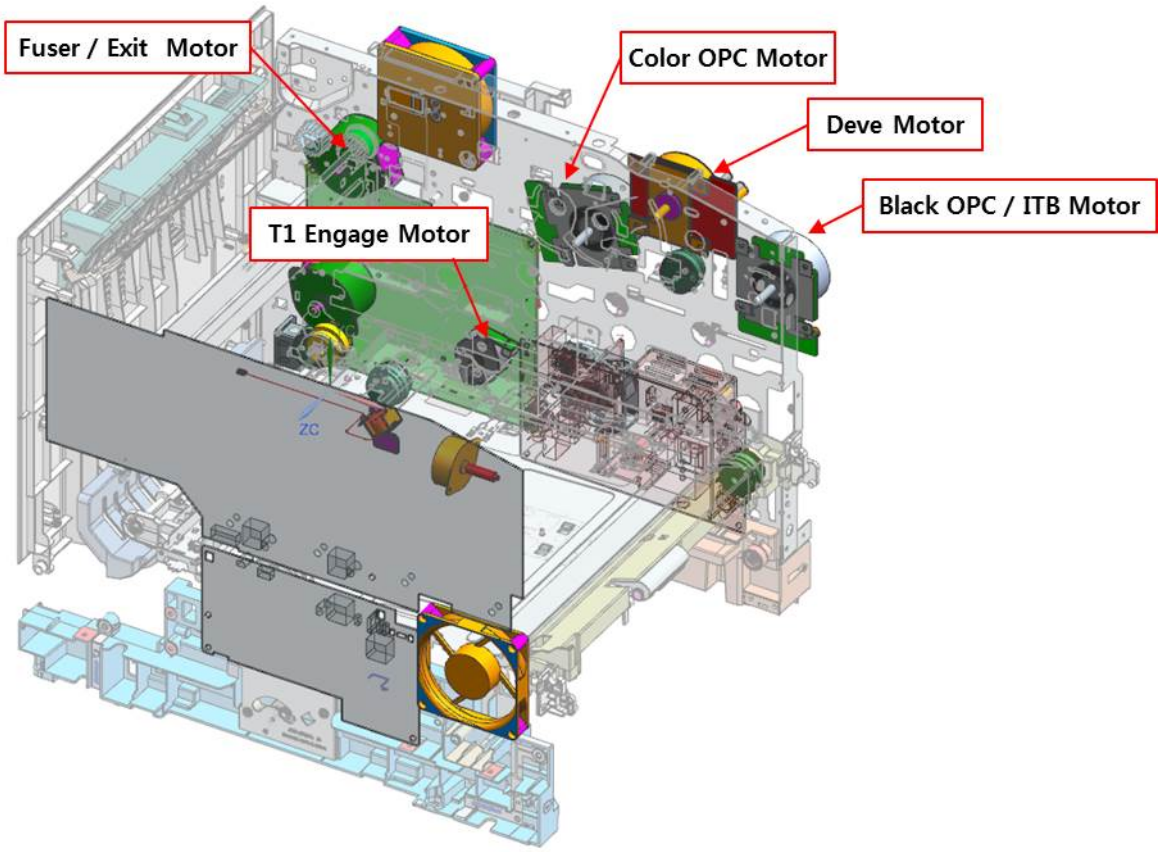
Fuser Motor Failure: #A1-1210. Turn off then on. Call for service if the problem persists

► **Symptom**

The fuser motor does not operate. / The fuser motor is operating but is recognized as stop status.

► **Troubleshooting method**

1) Turn the machine off then on. If the error persists, turn the machine off again.
2) Remove the rear and right cover.
3) Check if there are any obstacles or paper around the fuser unit.
4) Check if the connection between main board and fuser motor is correct.
5) If the connection is OK, replace the fuser motor.



6) If there is a motor test for this component, please try it first. If the problem persists, replace the main board.

► **Error Code**

A-3610 / A1-3621 / A1–3622 / A1–4310

► **Error message**

Development Motor Failure: #A1-36xx. Turn off then on. Call for service if the problem persists

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

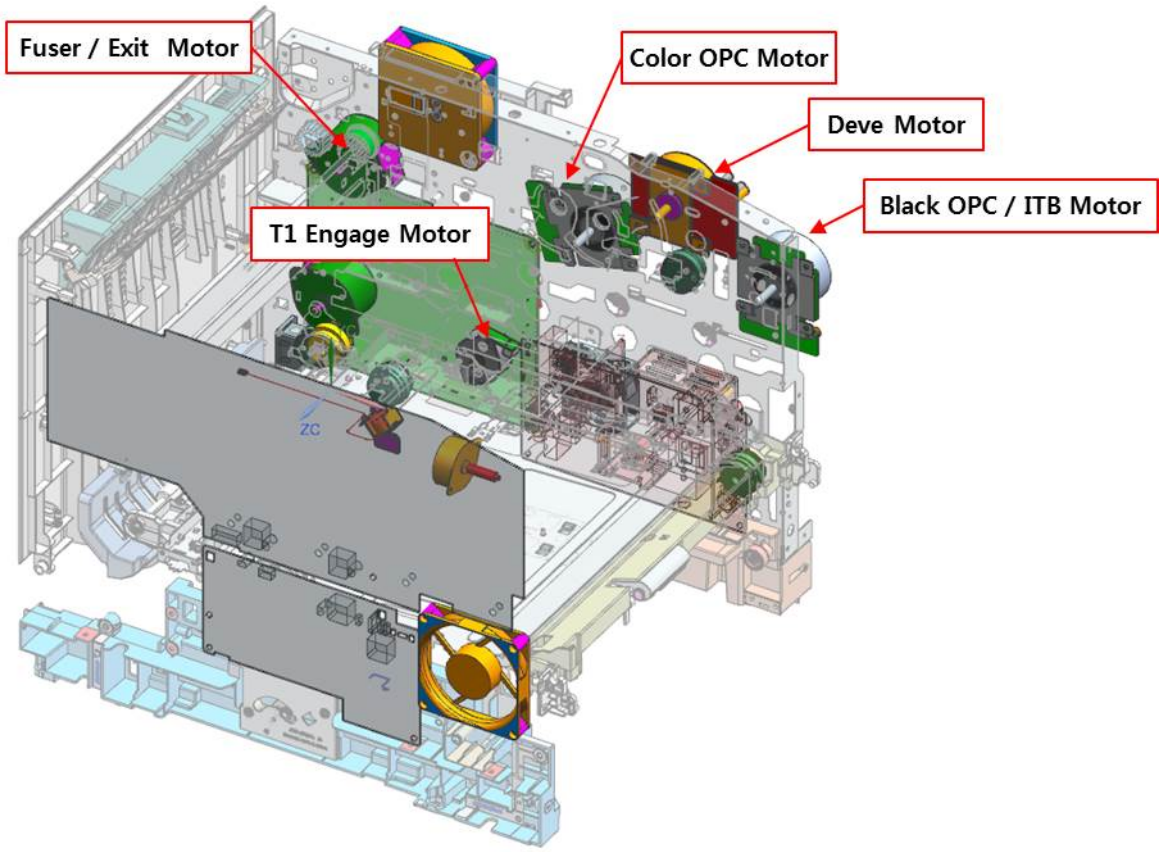
► **Symptom**

The motor for OPC/Deve/ITB/Engage does not operate normally.

► **Troubleshooting method**

- A1-3610 : The developer motor for the color printing system does not operate correctly.
- A1-3621 : The developer black motor for the color printing system does not operate correctly.
- A1-3622 : The developer color motor for the color printing system does not operate correctly.
- A1-4310 : The motor that moves the ITB transfer1 roller operates, but the position of the ITB transfer1 roller does not change.

1) Turn the machine off then on. If the error persists, turn the machine off again.
2) Remove the right cover.
3) Check if the connection between main board and related motor is correct.
4) If the motor is defective, replace it.



5) If there is a motor test for this component, please try it first. If the problem persists, replace the main board.

► **Error Code**

A2-1210 / A2–2110 / A2-2610

► **Error message**

SMPS Fan Failure: #A2-1210. Turn off then on. Call for service if the problem persists

Fuser Fan Failure: #A2-2110. Turn off then on. Call for service if the problem persists

Development Fan Failure: #A2-2610. Turn off then on. Call for service if the problem persists

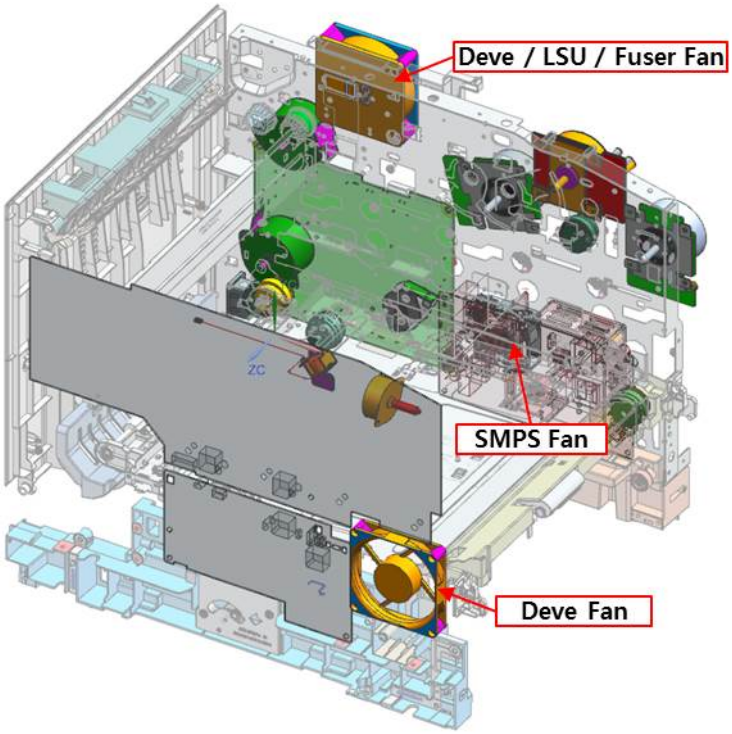
► **Symptom**

The fan for SMPS/Fuser/Deve does not operate normally.

► **Troubleshooting method**

- A2–1210 : SMPS fan error
- A2–2110 : Fuser fan error
- A2–2610 : Deve fan error

1) Turn the machine off then on. If the error persists, turn the machine off again.
2) Remove the side cover.
3) Check if the connection between main board and the related fan is correct.
4) If the connection is OK, replace the defective fan.



► **Error Code**

A3-2113 / A3–4114

► **Error message**

Clean the CTD sensor

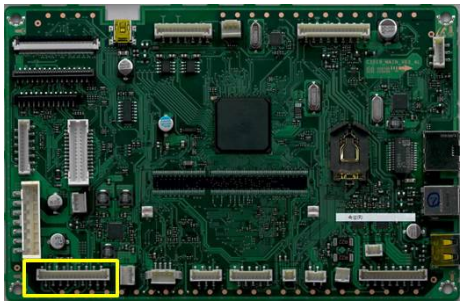
Clean the ACR sensor

► **Symptom**

The ACR/CTD sensor is contaminated. / The calibration value for ACR/CTD sensor is abnormal.

► **Troubleshooting method**

1) Check if the ACR/CTD sensor harness on the main board is connected correctly.

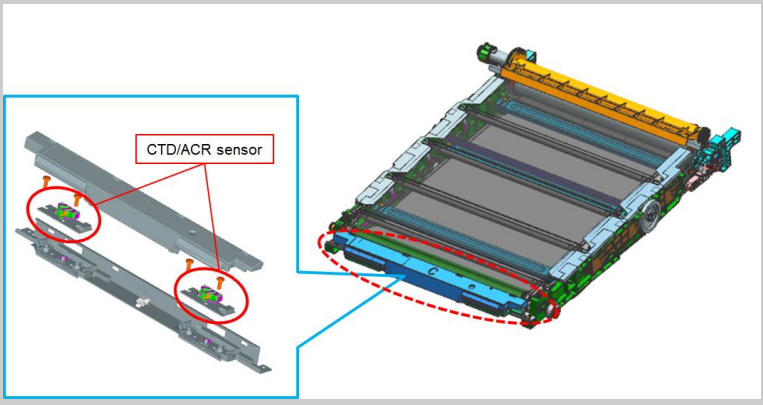


2) Remove and reinstall the ITB unit.

3) If the problem continues to occur, replace the ITB unit.

NOTE

Location of ACR/CTD sensor in ITB unit



4) If the ITB unit is normal, replace the main board.

► **Error Code**

A3–3211 / A3–3212 / A3–3311 / A3–3312

► **Error message**

Temperature Sensor Failure: #A3-32xx. Turn off then on. Call for service if the problem persists

Temperature Sensor Failure: #A3-33xx. Turn off then on. Call for service if the problem persists

► **Symptom**

The inner or outer temperature sensor is defective.

► **Troubleshooting method**

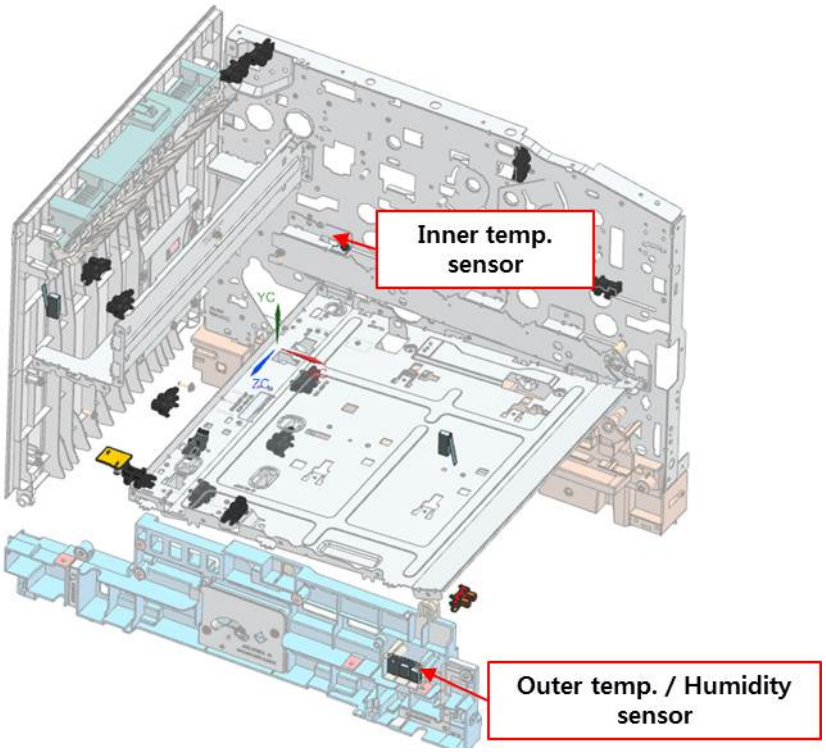
- A3–3211 : This error indicates that the inner temperature sensor has a short circuit.
- A3–3212 : This error indicates that the inner temperature sensor has an open circuit.
- A3–3311 : This error indicates that the outer temperature sensor has a short circuit.
- A3–3312 : This error indicates that the outer temperature sensor has an open circuit.

1) Turn the machine off then on. If the error persists, turn the machine off again.

2) Enter the tech mode. Check the temperature sensor output.

3) Check if the sensor connector is connected correctly.

4) If the sensor is defective, replace it.



5) If the temperature sensor is OK, replace the main board.

► **Error Code**

A3–3320

► **Error message**

Not proper room temp. Move set

► **Symptom**

The value of the outer temperature sensor is out of normal area.

► **Troubleshooting method**

1) Check if the machine is installed in the proper area.

2) If the temperature sensor is defective, replace it.

► **Error Code**

A3-6110

► **Error message**

Error: #A3-6110 Turn off then on

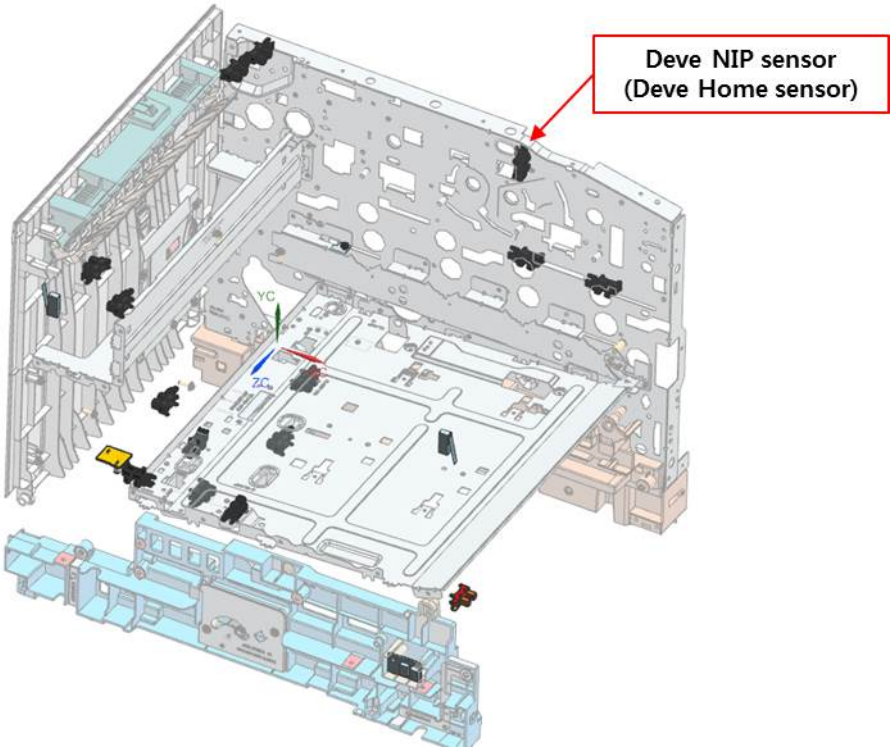
► **Symptom**

The sensor output of the developer-driven CAM is abnormal.

► **Troubleshooting method**

1) Turn the machine off, and then remove and reinstall the toner cartridge.

2) Check if the Deve NIP sensor harness is connected correctly.



3) If the Deve NIP sensor is defective, replace it.

4.7.2.4. Cx-xxxx (Supplies and Maintenance Parts error)

► **Error Code**

C2-2110

► **Error message**

Yellow toner is low

► **Symptom**

There is not enough toner in the yellow toner cartridge

► **Troubleshooting method**

1) Print the supply information report. Check the life remaining of the toner cartridge.
2) If its life is at the end, turn the machine off and replace the toner cartridge with new one.

► **Error Code**

C2-2120 / C2-2140 / C2-2150 / C2–2160 / C2–2170

► **Error message**

Yellow toner is very low

End of life, Replace with new yellow toner cartridge

► **Symptom**

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

► **Troubleshooting method**

1) If its life is at the end, turn the machine off and replace the yellow toner cartridge with new one.

► **Error Code**

C2-2410

► **Error message**

Install yellow toner cartridge

► **Symptom**

The yellow toner cartridge is not installed or the CRUM has some problem.

► **Troubleshooting method**

1) Check if the yellow toner cartridge is installed properly. Turn the machine off then on.
2) If the error message is not disappear, remove the yellow toner cartridge. Thoroughly roll the cartridge five or six times to distribute the toner evenly inside the cartridge. And reinstall the toner cartridge.
3) If the problem persists, check that the CRUM contact area is contaminated. Clean it.
4) If the problem persists, replace the yellow toner cartridge with new one.

► **Error Code**

C2-2512 / C2-2515 / C2–2517 / C2–2518 / C2–2526

► **Error message**

Yellow toner cartridge is not compatible. Check the user guide

Yellow toner cartridge is not available in the country set in the machine. Install a toner cartridge that is compatible with your country

Yellow Toner Cartridge Failure: #C2-2517. Call for service

Yellow Toner Cartridge Failure: #C2-2518. Call for service

Toner mismatch on yellow toner cartridge position. Install again in the proper position.

► **Symptom**

The yellow toner cartridge is not compatible.

► **Troubleshooting method**

1) If the toner cartridge is not a Samsung genuine toner cartridge, replace with new one.

► **Error Code**

C2–2711 / C2–2712 / C2–2713 / C2–2714

► **Error message**

Toner Cartridge Failure: #C2-2711. Yellow toner cartridge is not installed. Install the cartridge

Toner Cartridge Failure: #C2-2712. Call for service

Yellow Toner Cartridge Failure: #C2-271x. Call for service

► **Symptom**

The yellow toner cartridge is not installed or the CRUM has some problem.

► **Troubleshooting method**

1) Check if the yellow toner cartridge is installed properly. Turn the machine off then on.
2) If the error message is not disappear, remove the yellow toner cartridge. Thoroughly roll the cartridge five or six times to distribute the toner evenly inside the cartridge. And reinstall the toner cartridge.
3) If the problem persists, check that the CRUM contact area is contaminated. Clean it.
4) If the problem persists, replace the yellow toner cartridge with new one.

► **Error Code**

C2-3110

► **Error message**

Magenta toner is low

► **Symptom**

There is not enough toner in the magenta toner cartridge

► **Troubleshooting method**

1) Print the supply information report. Check the life remaining of the toner cartridge.
2) If its life is at the end, turn the machine off and replace the magenta toner cartridge with new one.

► **Error Code**

C2–3120 / C2-3140 / C2-3150 / C2–3160 / C2–3170

► **Error message**

Magenta toner is very low

End of life, Replace with new magenta toner cartridge

► **Symptom**

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

► **Troubleshooting method**

1) If its life is at the end, turn the machine off and replace the magenta toner cartridge with new one.

► **Error Code**

C2-3410

► **Error message**

Install magenta toner cartridge

► **Symptom**

The magenta toner cartridge is not installed or the CRUM has some problem.

► **Troubleshooting method**

1) Check if the magenta toner cartridge is installed properly. Turn the machine off then on.
2) If the error message is not disappear, remove the magenta toner cartridge. Thoroughly roll the cartridge five or six times to distribute the toner evenly inside the cartridge. And reinstall the toner cartridge.
3) If the problem persists, check that the CRUM contact area is contaminated. Clean it.
4) If the problem persists, replace the magenta toner cartridge with new one.

► **Error Code**

C2-3512 / C2-3515 / C2-3517 / C2-3518 / C2-3526

► **Error message**

Magenta toner cartridge is not compatible. Check the user guide

Magenta toner cartridge is not available in the country set in the machine. Install a toner cartridge that is compatible with your country

Magenta Toner Cartridge Failure: #C2-3517. Call for service

Magenta Toner Cartridge Failure: #C2-3518. Call for service

Toner mismatch on magenta toner cartridge position. Install again in the proper position.

► **Symptom**

The magenta toner cartridge is not compatible.

► **Troubleshooting method**

1) If the toner cartridge is not a Samsung genuine toner cartridge, replace with new one.

► **Error Code**

C2–3711 / C2–3712 / C2–3713 / C2–3714

► **Error message**

Toner Cartridge Failure: #C2-3711. Magenta toner cartridge is not installed. Install the cartridge

Toner Cartridge Failure: #C2-3712. Call for service

Magenta Toner Cartridge Failure: #C2-371x. Call for service

► **Symptom**

The magenta toner cartridge is not installed or the CRUM has some problem.

► **Troubleshooting method**

1) Check if the magenta toner cartridge is installed properly. Turn the machine off then on.
2) If the error message is not disappear, remove the magenta toner cartridge. Thoroughly roll the cartridge five or six times to distribute the toner evenly inside the cartridge. And reinstall the toner cartridge.
3) If the problem persists, check that the CRUM contact area is contaminated. Clean it.
4) If the problem persists, replace the magenta toner cartridge with new one.

► **Error Code**

C2-4110

► **Error message**

Cyan toner is low

► **Symptom**

There is not enough toner in the cyan toner cartridge

► **Troubleshooting method**

1) Print the supply information report. Check the life remaining of the toner cartridge.
2) If its life is at the end, turn the machine off and replace the cyan toner cartridge with new one.

► **Error Code**

C2–4120 / C2–4140 / C2-4150 / C2–4160 / C2–4170

► **Error message**

Cyan toner is very low

End of life, Replace with new cyan toner cartridge

► **Symptom**

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

► **Troubleshooting method**

1) If its life is at the end, turn the machine off and replace the cyan toner cartridge with new one.

► **Error Code**

C2-4410

► **Error message**

Install cyan toner cartridge

► **Symptom**

The cyan toner cartridge is not installed or the CRUM has some problem.

► **Troubleshooting method**

1) Check if the cyan toner cartridge is installed properly. Turn the machine off then on.
2) If the error message is not disappear, remove the cyan toner cartridge. Thoroughly roll the cartridge five or six times to distribute the toner evenly inside the cartridge. And reinstall the toner cartridge.
3) If the problem persists, check that the CRUM contact area is contaminated. Clean it.
4) If the problem persists, replace the cyan toner cartridge with new one.

► **Error Code**

C2-4512 / C2-4515 / C2-4517 / C2-4518 / C2-4526

► **Error message**

Cyan toner cartridge is not compatible. Check the user guide

Cyan toner cartridge is not available in the country set in the machine. Install a toner cartridge that is compatible with your country

Cyan Toner Cartridge Failure: #C2-4517. Call for service

Cyan Toner Cartridge Failure: #C2-4518. Call for service

Toner mismatch on cyan toner cartridge position. Install again in the proper position.

► **Symptom**

The cyan toner cartridge is not compatible.

► **Troubleshooting method**

1) If the toner cartridge is not a Samsung genuine toner cartridge, replace with new one.

► **Error Code**

C2–4711 / C2–4712 / C2–4713 / C2–4714

► **Error message**

Error: #C2-4711 Install C toner

Error: #C2-471x Call for Service

► **Symptom**

The cyan toner cartridge is not installed or the CRUM has some problem.

► **Troubleshooting method**

1) Check if the cyan toner cartridge is installed properly. Turn the machine off then on.
2) If the error message is not disappear, remove the cyan toner cartridge. Thoroughly roll the cartridge five or six times to distribute the toner evenly inside the cartridge. And reinstall the toner cartridge.
3) If the problem persists, check that the CRUM contact area is contaminated. Clean it.
4) If the problem persists, replace the cyan toner cartridge with new one.

► **Error Code**

C2-5110

► **Error message**

Black toner is low

► **Symptom**

There is not enough toner in the black toner cartridge

► **Troubleshooting method**

1) Print the supply information report. Check the life remaining of the toner cartridge.
2) If its life is at the end, turn the machine off and replace the black toner cartridge with new one.

► **Error Code**

C2-5120 / C2-5150 / C2–5160 / C2–5170

► **Error message**

Black toner is very low

End of life, Replace with new black toner cartridge

► **Symptom**

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

► **Troubleshooting method**

1) If its life is at the end, turn the machine off and replace the black toner cartridge with new one.

► **Error Code**

C2-5410

► **Error message**

Install black toner cartridge

► **Symptom**

The black toner cartridge is not installed or the CRUM has some problem.

► **Troubleshooting method**

1) Check if the black toner cartridge is installed properly. Turn the machine off then on.
2) If the error message is not disappear, remove the black toner cartridge. Thoroughly roll the cartridge five or six times to distribute the toner evenly inside the cartridge. And reinstall the toner cartridge.
3) If the problem persists, check that the CRUM contact area is contaminated. Clean it.
4) If the problem persists, replace the black toner cartridge with new one.

► **Error Code**

C2-5512 / C2-5515 / C2-5517 / C2-5518 / C2-5526

► **Error message**

Black toner cartridge is not compatible. Check the user guide

Black toner cartridge is not available in the country set in the machine. Install a toner cartridge that is compatible with your country

Black Toner Cartridge Failure: #C2-5517. Call for service

Black Toner Cartridge Failure: #C2-5518. Call for service

Toner mismatch on black toner cartridge position. Install again in the proper position.

► **Symptom**

The black toner cartridge is not compatible.

► **Troubleshooting method**

1) If the toner cartridge is not a Samsung genuine toner cartridge, replace with new one.

► **Error Code**

C2–5711 / C2–5712 / C2–5713 / C2–5714

► **Error message**

Toner Cartridge Failure: #C2-5711. Black toner cartridge is not installed. Install the cartridge

Toner Cartridge Failure: #C2-5712. Call for service

Black Toner Cartridge Failure: #C2-571x. Call for service

► **Symptom**

The black toner cartridge is not installed or the CRUM has some problem.

► **Troubleshooting method**

1) Check if the black toner cartridge is installed properly. Turn the machine off then on.
2) If the error message is not disappear, remove the black toner cartridge. Thoroughly roll the cartridge five or six times to distribute the toner evenly inside the cartridge. And reinstall the toner cartridge.
3) If the problem persists, check that the CRUM contact area is contaminated. Clean it.
4) If the problem persists, replace the black toner cartridge with new one.

► **Error Code**

C5-1110 / C5-1120

► **Error message**

Prepare new transfer belt unit

Replace with new transfer belt unit

► **Symptom**

The ITB unit is at the end of its life.

► **Troubleshooting method**

1) Print the supply information report. Check the life remaining of the ITB unit.

2) If its life is at the end, turn the machine off and replace the ITB unit with new one.

► **Error Code**

C5-1310

► **Error message**

Install image transfer belt unit.

► **Symptom**

The ITB unit is not installed properly.

► **Troubleshooting method**

1) Turn the machine off. Remove and reinstall the ITB unit.

2) Turn the machine on. If the problem persists, replace the ITB unit.

► **Error Code**

C5-1410

► **Error message**

Image transfer belt unit is not compatible. Check the user guide.

► **Symptom**

The ITB unit is not compatible.

► **Troubleshooting method**

1) Print the supply information report. Check information of the ITB Unit.

2) If the toner cartridge is not a Samsung genuine ITB Unit, replace with new one.

► **Error Code**

C5-1710

► **Error message**

Sensor Failure: #C5-1710. Turn off then on

► **Symptom**

The ITB home position sensor has the problem.

► **Troubleshooting method**

1) Turn the machine off. Replace the ITB Unit.

► **Error Code**

C6-1110 / C6-1120

► **Error message**

Prepare new fuser unit

Replace with new fuser unit

► **Symptom**

The fuser unit is at the end of its life.

► **Troubleshooting method**

1) Print the supply information report. Check the life remaining of the fuser unit.

2) If its life is at the end, turn the machine off and replace the fuser unit with new one.

► **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 waste toner container is at the end of its life.

► **Troubleshooting method**

1) Print the supply information report. Check the life remaining of the waste toner container.

2) If its life is at the end, turn the machine off and replace the waste toner container with new one.

► **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) Check if the waste toner container is installed properly.
2) Remove and reinstall the waste toner container.

► **Error Code**

C9-1115

► **Error message**

Replace with new tray 1 retard roller

► **Symptom**

The pick up / forward / separation rollers for tray1 are at the end of its life.

► **Troubleshooting method**

1) Turn the machine off.
2) Replace the pick up roller Ass'y and separation roller Ass'y for Tray1.
3) Enter the service mode and then, reset its count.

► **Error Code**

C9-1122 / C9-1125

► **Error message**

Replace with new tray 2 pickup roller

Replace with new tray 2 retard roller

► **Symptom**

The pick up / forward / separation rollers for tray2 are at the end of its life.

► **Troubleshooting method**

1) Turn the machine off.
2) Replace the pick up/forward/separation rollers for Tray2.
3) Enter the service mode and then, reset its count.

► **Error Code**

C9-1132 / C9-1135

► **Error message**

Replace with new tray 3 pickup roller

Replace with new tray 3 retard roller

► **Symptom**

The pick up / forward / separation rollers for tray3 are at the end of its life.

► **Troubleshooting method**

1) Turn the machine off.
2) Replace the pick up/forward/separation rollers for Tray3.
3) Enter the service mode and then, reset its count.

4.7.2.5. H1-xxxx (Optional Cassette error)

► **Error Code**

H1–1210 / H1–1211

► **Error message**

Paper jam in tray 2. Please open the door and remove paper, then close the door.

► **Symptom**

The jammed paper has occurred in the tray2.

► **Troubleshooting method**

1) Remove the jammed paper.

2) If the jammed paper occurs continually, check the followings.
   a) Check if the pickup/forward/separation roller for tray2 are worn out or contaminated. Clean the contaminated part or replace it.
   b) Check if the tray2 feed actuator is assembled correctly. If it is broken or deformed, replace it with new one.
   c) Check if the tray2 feed sensor connector is connected correctly. If the feed sensor is defective, replace it.
   d) If there is a service test for this component, perform it first. If the tray2 pickup clutch is found to be defective, replace it.

► **Error Code**

H1–1222

► **Error message**

Tray 2 cassette is pulled out. Insert it properly

► **Symptom**

Tray2 cassette is not installed correctly.

► **Troubleshooting method**

1) Remove and reinstall the tray2 cassette.

2) If the error persists, check the followings.
   a) Check if the cassette empty sensor harness is connected correctly.
   b) Check if the cassette empty sensor is contaminated. If necessary, clean it.
   c) If the cassette empty sensor is defective, replace it.

► **Error Code**

H1–1252

► **Error message**

Paper is empty in tray 2. Load paper

► **Symptom**

Paper is empty in Tray2.

► **Troubleshooting method**

1) Take off the cassette. If there is no paper on the tray2, load the paper.

2) If the problem persists, check the following.
   a) Check if the paper empty actuator is assembled correctly. If it is broken or deformed, replace it with new one.
   b) Check if the paper empty sensor connector is connected correctly. If the paper empty sensor is defective, replace it.

► **Error Code**

H1–1253

► **Error message**

Tray Failure: #H1-1253. Pull tray 2 out and insert it. Call for service if the problem persists

► **Symptom**

The paper in tray 2 (optional cassette) failed to be fed.

► **Troubleshooting method**

1) Remove and reinstall the tray2 cassette.

2) If the error persists, check the followings.
   a) Check if the cassette2 lift motor harness is connected correctly. Reconnect it.
   b) If the lift motor is defective, replace it.
   c) Check if the cassette2 lift sensor harness is connected correctly. Reconnect it.
   d) If the cassette2 lift sensor is defective, replace it.

► **Error Code**

H1–1310 / H1–1311

► **Error message**

Paper jam in tray 3. Please open the door and remove paper, then close the door.

► **Symptom**

The jammed paper has occurred in the tray3.

► **Troubleshooting method**

1) Remove the jammed paper.

2) If the jammed paper occurs continually, check the followings.
   a) Check if the pickup/forward/separation roller for tray3 are worn out or contaminated. Clean the contaminated part or replace it.
   b) Check if the tray3 feed actuator is assembled correctly. If it is broken or deformed, replace it with new one.
   c) Check if the tray3 feed sensor connector is connected correctly. If the feed sensor is defective, replace it.
   d) If the tray3 pickup clutch is defective, replace it.

► **Error Code**

H1–1322

► **Error message**

Tray 3 cassette is pulled out. Insert it properly

► **Symptom**

Tray3 cassette is not installed correctly.

► **Troubleshooting method**

1) Remove and reinstall the tray3 cassette.

2) If the error persists, check the followings.
   a) Check if the cassette empty sensor harness is connected correctly.
   b) Check if the cassette empty sensor is contaminated. If necessary, clean it.
   c) If the cassette empty sensor is defective, replace it.

► **Error Code**

H1–1352 / H1–1354

► **Error message**

Paper is empty in tray 3. Load paper

► **Symptom**

Paper is empty in Tray3.

► **Troubleshooting method**

1) Take off the cassette. If there is no paper on the tray3, load the paper.

2) If the problem persists, check the following.
   a) Check if the paper empty actuator is assembled correctly. If it is broken or deformed, replace it with new one.
   b) If there is a service test for this component perform it first. If the paper empty sensor is found to be defective, replace it.

► **Error Code**

H1–1353

► **Error message**

Tray Failure: #H1-1353. Pull tray 3 out and insert it. Call for service if the problem persists

► **Symptom**

The paper in tray 3 (optional cassette) failed to be fed.

► **Troubleshooting method**

1) Remove and reinstall the tray3 cassette.

2) If the error persists, check the followings.
   a) Check if the cassette3 lift motor harness is connected correctly. Reconnect it.
   b) If the lift motor is defective, replace it.
   c) Check if the cassette3 lift sensor harness is connected correctly. Reconnect it.
   d) If the cassette3 lift sensor is defective, replace it.

► **Error Code**

H1–1410

► **Error message**

Paper jam in tray 4. Please open the door and remove paper, then close the door.

► **Symptom**

The jammed paper has occurred in the tray4.

► **Troubleshooting method**

1) Remove the jammed paper.

2) If the jammed paper occurs continually, check the followings.
   a) Check if the pickup/forward/separation roller for tray4 are worn out or contaminated. Clean the contaminated part or replace it.
   b) Check if the tray4 feed actuator is assembled correctly. If it is broken or deformed, replace it with new one.
   c) Check if the tray4 feed sensor connector is connected correctly. If the feed sensor is defective, replace it.
   d) If the tray4 pickup clutch is defective, replace it.

► **Error Code**

H1–1422

► **Error message**

Tray 4 cassette is pulled out. Insert it properly

► **Symptom**

Tray3 cassette is not installed correctly.

► **Troubleshooting method**

1) Remove and reinstall the tray3 cassette.

2) If the error persists, check the followings.
   a) Check if the cassette empty sensor harness is connected correctly.
   b) Check if the cassette empty sensor is contaminated. If necessary, clean it.
   c) If the cassette empty sensor is defective, replace it.

► **Error Code**

H1–1452 / H1–1454

► **Error message**

Paper is empty in tray 4. Load paper

► **Symptom**

Paper is empty in Tray4.

► **Troubleshooting method**

1) Take off the cassette. If there is no paper on the tray4, load the paper.

2) If the problem persists, check the following.
   a) Check if the paper empty actuator is assembled correctly. If it is broken or deformed, replace it with new one.
   b) If there is a service test for this component perform it first. If the paper empty sensor is found to be defective, replace it.

► **Error Code**

H1–1453

► **Error message**

Error: #H1-1453 Check tray 4

► **Symptom**

The paper in tray 4 (optional cassette) failed to be fed.

► **Troubleshooting method**

1) Remove and reinstall the tray4 cassette.

2) If the error persists, check the followings.
   a) Check if the cassette4 lift motor harness is connected correctly. Reconnect it.
   b) If the lift motor is defective, replace it.
   c) Check if the cassette4 lift sensor harness is connected correctly. Reconnect it.
   d) If the cassette4 lift sensor is defective, replace it.

4.7.2.6. Mx-xxxx (Jam_Paper handling error)

► **Error Code**

M1–1110

► **Error message**

Paper jam in tray 1. Please remove the paper

► **Symptom**

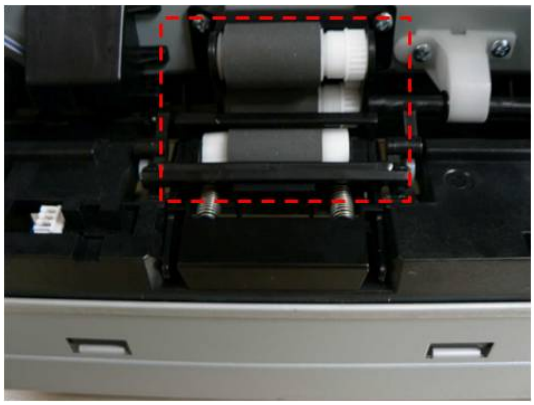
The jammed paper has occurred in the tray1.

► **Troubleshooting method**

1) Remove the jammed paper.

2) If the jammed paper occurs continually, check the followings.

a) Check if the pickup/forward/separation rollers are worn out or contaminated. Clean the contaminated part or replace it.

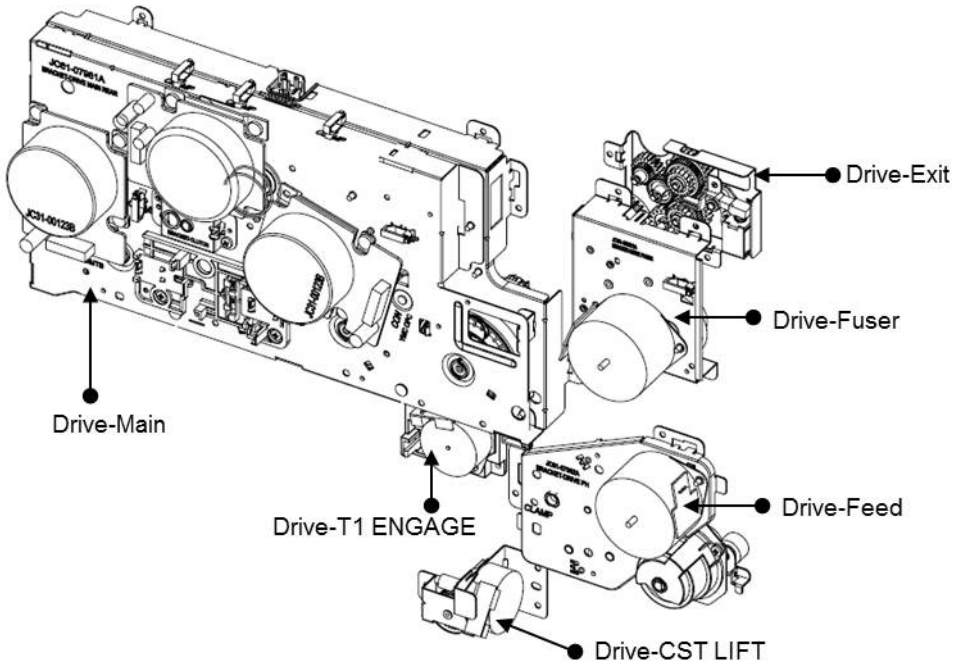


b) Check if the actuator is assembled correctly.

c) Check if the pickup clutch and solenoid connectors are connected correctly.

d) Check the pickup clutch and solenoid operation. If there is any defective parts, replace it.

3) Check the feed motor operation, by checking if there is a service test for this component, perform it first. If there is any defective parts, replace it or feed drive unit.



► **Error Code**

M1–1610

► **Error message**

Paper jam in MP tray. Please remove the paper

► **Symptom**

The jammed paper has occurred in the MP tray.

► **Troubleshooting method**

1) Remove the jammed paper.

2) If the jammed paper occurs continually, check the followings.
   a) Check if the MP pickup/forward/separation rollers are worn out or contaminated. Clean the contaminated part or replace it.
   b) Check if the actuator is assembled correctly.
   c) If there is a service test for the pickup, perform it first. If the clutch is defective, replace it.
   d) If the problem persists, replace the MP unit.

► **Error Code**

M1–3122

► **Error message**

Tray 1 cassette is pulled out. Insert it properly

► **Symptom**

Tray1 cassette is not installed correctly.

► **Troubleshooting method**

1) Remove and reinstall the tray1 cassette.

2) If the error persists, check the followings.
   a) Check if the cassette empty sensor harness is connected correctly.
   b) Check if the cassette empty sensor is contaminated. If necessary, clean it.
   c) If the cassette empty sensor is defective, replace it.

► **Error Code**

M1-4111

► **Error message**

Tray Failure: #M1-4111. Pull tray 1 out and insert it. Call for service if the problem persists

► **Symptom**

The paper in tray 1 (optional cassette) failed to be fed.

► **Troubleshooting method**

1) Remove and reinstall the tray1 cassette.

2) If the error persists, check the followings.
   a) Check if the cassette1 lift motor harness is connected correctly. Reconnect it.
   b) If the lift motor is defective, replace it.
   c) Check if the cassette1 lift sensor harness is connected correctly. Reconnect it.
   d) If the cassette1 lift sensor is defective, replace it.

► **Error Code**

M1–5112 / M1–5113 / M1–5120

► **Error message**

Paper is empty in tray 1. Load paper

Paper is empty in all tray. Load paper

► **Symptom**

Paper is empty in tray1 or all trays.

► **Troubleshooting method**

1) Take off the cassette. If there is no paper on the tray1, load the paper.

2) If the problem persists, check the following.
   a) Check if the paper empty actuator is assembled correctly. If it is broken or deformed, replace it with new one.
   b) Check if the paper empty sensor connector is connected correctly. If the paper empty sensor is defective, replace it.

► **Error Code**

M1–5612

► **Error message**

Paper is empty in MP tray. Load paper

► **Symptom**

Paper is empty in MP tray.

► **Troubleshooting method**

1) If there is no paper on the MP tray, load the paper.

2) If the problem persists, check the following.
   a) Check if the MP paper empty actuator is assembled correctly. If it is broken or deformed, replace it with new one.
   b) Check if the MP paper empty sensor connector is connected correctly. If the paper empty sensor is defective, replace it.

► **Error Code**

M2–1111 / M2–1114 / M2–2210 / M2–2214 / M2–2310

► **Error message**

Paper jam inside of machine. Please remove the paper

Paper jam inside of duplex path. Please remove the paper

► **Symptom**

The jammed paper has occurred inside machine.

► **Troubleshooting method**

1) Open the rear cover. Remove the jammed paper.

2) If the problem persists, check the following.
   a) Check if there is any obstacles or paper on the paper path. Remove it.
   b) Check if the FRAME-REGI unit and FRAME-SEPARATION unit are assembled properly. If there is any defective part in these units, replace it or Assy.
   c) Check the feed motor operation, gear in the feed drive unit. If there is any defective parts, replace it or feed drive unit.
   d) Check the duplex motor operation, gear in the duplex drive unit. If there is any defective parts, replace it or feed drive unit.

► **Error Code**

M3–1110 / M3–1112

► **Error message**

Paper jam in exit area. Please remove the paper

Paper jam inside of machine. Please remove the paper

► **Symptom**

The jammed paper has occurred in the exit area.

► **Troubleshooting method**

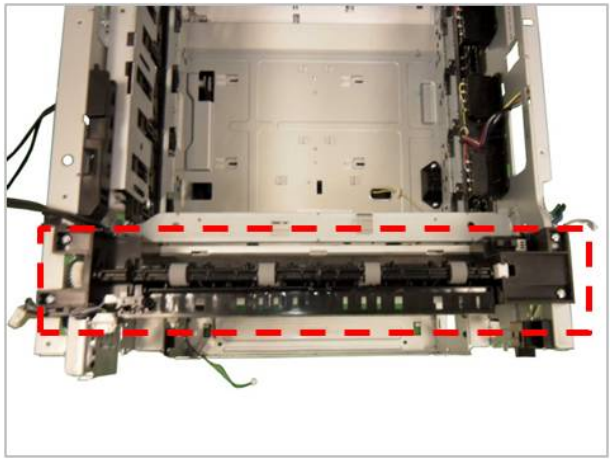
1) Remove the jammed paper.

2) If the problem persists, check the following.

   a) Check if there is any obstacles or paper on the paper path. Remove it.

   b) Check if the fuser unit is assembled properly. If the fuser unit is defective, replace it.

   c) Check if the exit unit has any defective parts. Replace the exit unit.



► **Error Code**

M3–2130

► **Error message**

Paper in output bin is full. Remove printed paper

► **Symptom**

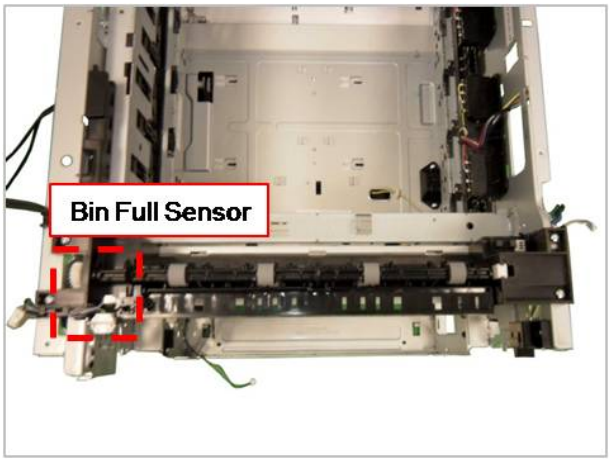
The machine detected that the output tray has got full or the bin-full sensor is defective.

► **Troubleshooting method**

1) Remove the paper on the output tray.

2) Check if the Bin-full Sensor connector is connected properly. Reconnect it.

3) If the sensor is defective, replace it.



4.7.2.7. Sx-xxxx (System error)

► **Error Code**

S1-1113

► **Error message**

Video System Failure: #S1-1113. Turn off then on

► **Symptom**

The machine stopped operating because the temperature of the CPU is too high.

► **Troubleshooting method**

1) Turn off the printer and cool the fan for a while.
2) If the problem persists, replace the main board.

► **Error Code**

S1-1114

► **Error message**

Video System Failure: #S1-1114. Turn off then on

► **Symptom**

The CPU fan does not operate.

► **Troubleshooting method**

1) Turn the machine off then on.
2) If the problem persists, replace the main board or CPU fan.

► **Error Code**

S1-1411

► **Error message**

Video System Failure: #S1-1411. Turn off then on

► **Symptom**

The machine cannot operate or recognize the VPU.

► **Troubleshooting method**

1) Turn the machine off then on.
2) If the problem persists, replace the main board.

► **Error Code**

S1-2000

► **Error message**

Error: #S1-2000 Call for service

► **Symptom**

The initial settings of supplies have not been carried out inside Main board.

► **Troubleshooting method**

1) Turn the machine off then on.
2) If the problem persists, replace the main board.

► **Error Code**

S1–2433 / S1–2443 / S1–2444 / S1–2445 / S1–2446 / S1–2447 / S1–2448 / S1–2449

► **Error message**

System Failure: #S1-2433 . Call for service

HDD System Failure: #S1-244x. Call for service

► **Symptom**

HDD partition is full or corrupted.

► **Troubleshooting method**

1) Enter SVC mode. Select “System Recovery” in Service Function menu.
2) Execute hard disk format and firmware re-installation.
3) If the problem persists, replace the HDD.

► **Error Code**

S1–2434 / S1–2435 / S1–2436 / S1–2437 / S1–2438 / S1–2439

► **Error message**

There is not enough space on the hard disk. Please check your printer

► **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.
2) Execute hard disk format.
3) If the problem persists, replace the HDD.

► **Error Code**

S1–2510 / S1–2520 / S1–2521 / S1–2550

► **Error message**

MSOK Failure: #S1-25xx. Call for service and change MSOK

MSOK Failure: #S1-25xx. Call for service

► **Symptom**

There is an error in the data received from the MSOK./ MSOK is not installed properly. / MSOK is defective.

► **Troubleshooting method**

1) Remove the rear cover.
2) Check if the MSOK is inserted correctly. Remove and reinstall it.
3) If the problem persists, replace the main board.

► **Error Code**

S1-3110

► **Error message**

Error: #S1-3110 Turn off then on

► **Symptom**

The main board does not operate.

► **Troubleshooting method**

1) Turn the machine off then on.
2) If the problem persists, replace the main board.

► **Error Code**

S2-1110 / S2–1210

► **Error message**

Error #S2-1110 Call for service

Error #S2-1210 Call for service

► **Symptom**

CPU or Power Micom chip in the main board has some problem.

► **Troubleshooting method**

1) Turn the machine off then on.
2) If the problem persists, replace the main board.

► **Error Code**

S2–33xx

► **Error message**

No message

► **Symptom**

This error shows the engine status.

► **Troubleshooting method**

- S2–3313 : The engine is in the power save state.

When these errors display, wait until the message will be disappeared or turn the machine off then on.

► **Error Code**

S2–4120

► **Error message**

Door open Close it

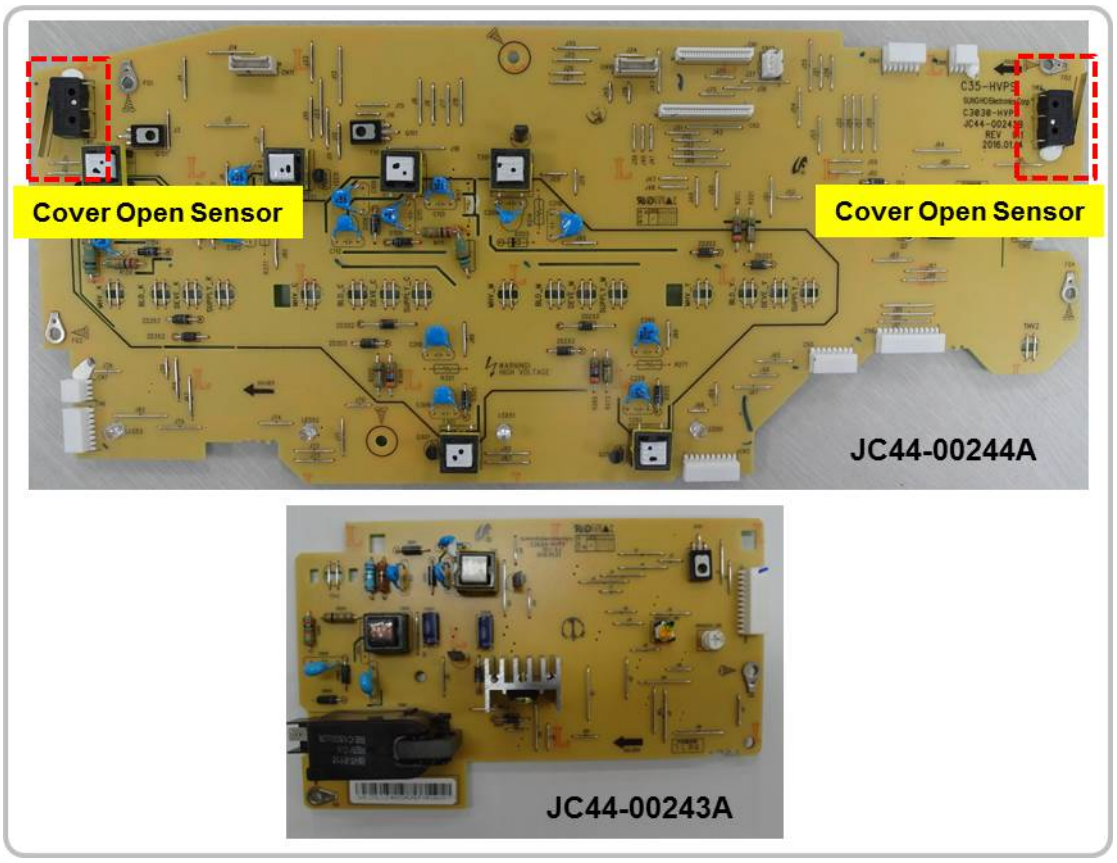
► **Symptom**

Door is open or the cover open switch is defective.

► **Troubleshooting method**

1) Check if the front cover is closed perfectly.

2) If the error persists, check that the cover-open sensor is working normally. If it is defective, replace the HVPS board.



► **Error Code**

S3–3122

► **Error message**

Scanner is locked. Please try to release scanner lock

► **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.
4) Check if the home position sensor cable is connected correctly.
5) Remove the scan rear cover. Check if all cables on scan joint board are connected correctly.
6) If the connection is OK, replace the scan joint board.

► **Error Code**

S5–311x

► **Error message**

UI System Failure #S5-311x:Turn off then on.

► **Symptom**

USB connection between main board and OPE has some problem.

► **Troubleshooting method**

- S5-3111 : The UI can display messages, but data communication with the video/main board is unavailable.

  NOTE

  S5-3114~3117 are the sub errors of the S5-3111. These occurs with S5-3111.

  - S5-3114 : USB hub controller on Main Board is not working
  - S5-3115 : There is a USB hub board, but the board can't be recognized.
  - S5-3116 : System can recognize USB hub board but, it can't recognize OPE(UI Board) through USB.
  - S5-3117 : Bad USB device is connected then it can't recognize OPE(UI Board). Status: WIFI or NFC option kit connects through usb

- S5-3112 : The video board cannot communicate with the UI board.
- S5-3113 : A critical error where the set malfunctions due to a problem in HDD may occur.

1) Turn off and turn on. And check if the problem disappears.
   a) If yes, go to step 2)-a).
   b) If no, go to step 2)-b).

2) Check the following procedure.
   a) Print the Error Information Report.
      - Service Mode → General → Print Reports → Error Information
      - Check the error code which is printed on the report.
        - If S5-3111 has occurred, go to step 4).
        - If S5-3112 has occurred, go to step 5)-c).
        - If S5-3113 has occurred, go to step 5)-d).

   b) Enter into System Recovery Mode.
      - How to enter System Recovery Mode : Turn on the machine with side cover open and power button on OPE is pressed state.
      - Check if entering System Recovery Mode is possible or not.
        - If entering System Recovery Mode is successful, go to step 3).
        - If entering System Recovery Mode fails, go to step 5)-c).

3) Execute the System Recovery.
   - Insert USB memory stick which has recovery one rom and execute recovery(HDD format).
   - Check if the problem disappears after system recovery(format complete).
     - If yes, go to step 4).
     - If no, go to step 5)-d).

4) Execute the firmware update.

- Check if the problem disappears after one rom update.
  - If the problem disappears, go to step 5)-a).
  - If the problem happens sometimes, go to step 5)-b).

5) Check the following procedure.
   a) No more action is required because machine is recovered from S5-3111 error state. Please monitor the machine if S5-3111 happens again.
   b) Detailed analysis is required. Please capture the log and send it to development team in HQ.
   c) It seems that there is some critical issue in the USB connection between main board and OPE. Please try below steps.
      i) If WiFi module is installed, replace WiFi module with new one.
      ii) Check USB cable state between main board and OPE.
      iii) Replace the main board with new one.
      iv) Replace the OPE board with new one.
   d) It seems that HDD or main board has some problem. Please replace HDD or main board with new one and check if the problem disappears.

► **Error Code**

S6–3113 / S6–3122

► **Error message**

Network Failure: #S6-3113. Turn off then on. Call for service if the problem persists

Network cable is disconnected. Check it.

► **Symptom**

Network PHY chip is defective./ Network cable is disconnected.

► **Troubleshooting method**

1) Check if the green LED of the network port is on.
2) If not, unplug and reconnect the network cable.
3) If the problem persists, replace the main board.

► **Error Code**

S6–3114

► **Error message**

Network Failure: #S6-3114. Turn off then on. Call for service if the problem persists

Network cable is disconnected. Check it.

► **Symptom**

Network chip is defective.

► **Troubleshooting method**

1) Check the network cable connection.
   a) Remove and reconnect the network cable.
   b) Check if the network port LED is on.
2) Reinstall the network kit.
3) If the problem persists, replace the network kit.
4) If the problem persists, replace the main board.

► **Error Code**

S6–3123

► **Error message**

Network Problem: IP Conflict

► **Symptom**

IP address conflicts with that of other system. / There is no response when checking the ping test.

► **Troubleshooting method**

Change the machine's IP address.

- Set-up the IP address in this order, Network -> TCP/IP (IPv4) -> STATIC.
- In case of DHCP or Bootp, reboot the machine to receive a new IP address.

► **Error Code**

S6–3128

► **Error message**

802.1x Network Error

► **Symptom**

The confirmation was requested for wired port, the server has rejected. / The confirmation protocol is not the same or user information (ID/Password) is wrong.

► **Troubleshooting method**

Check the setting-up for 802.1x confirmation server.

- Re-enter the server information and confirmation protocol.
- Re-enter the user information.

► **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**

S7–1120

► **Error message**

The lack of AC source capacity: #S7-1120. Open the door, then close it. Call for service if the problem persists

► **Symptom**

The product fails to operate properly due to a lack of input voltage capacity

► **Troubleshooting method**

1) Replace the power supply line with an exclusive line. (This prevents other devices from connecting to the multi-outlet.)
2) Check whether the input voltage is within the operable and permissible voltage. (For permissible voltage, refer to the manual.)

4.7.2.8. U1-xxxx (Fuser error)

► **Error Code**

U1–211x / U1–213x / U1–231x / U1–232x / U1–233x / U1–234x

► **Error message**

Error: #U1-2xxx Turn off then on

► **Symptom**

The temperature control of the fuser is abnormal.

► **Troubleshooting method**

- U1–2113 (Open Heat Error) : The fuser unit(center) can not be warmed up.
- U1–2119 (Open Heat Error) : The fuser unit(side) can not be warmed up.
- U1–2132 (Open Heat Error) : A FSA error of center thermistor's temperature slope occurred.
- U1–2135 (Open Heat Error) : A FSA error of side thermistor's temperature slope occurred.
- U1–2316 : The temperature of the center of the fuser changed suddenly (abnormal ADC).
- U1–2317 : The temperature of the side of the fuser changed suddenly (abnormal ADC).
- U1–2320 (Open Heat Error) : The temperature control of the fuser is abnormal.
- U1–2330 (Low Heat Error) : The temperature control of the fuser is abnormal.
- U1–2334 (Low Heat Error) : The temperature of the fuser is less than the minimum temperature permitted.
- U1–233x (Low Heat Error) : The temperature of the fuser is low.
- U1–234x (Over Heat Error) : The printer detected that the temperature of the fuser is higher than the permitted limit.

1) Check the incomplete insertion of harness and other defects (damage of harness tube or wire, depression, etc.).
2) Check the Triac (SMPS).
3) Check the short circuit of thermistor in main board.
4) Check the damage of Fuser (Thermostat, Thermistor, Heater).
5) Check the input power.
6) Replace the fuser unit with a new one if the above-mentioned items are in normal condition.

► **Error Code**

U1–2115

► **Error message**

Error: #U1-2115 Turn off then on

► **Symptom**

The pressurized control of the fuser is not operating correctly.

► **Troubleshooting method**

1) Check whether there is a problem in the harness connection of boosting motor, photo sensor and sensor boards.
2) Check whether there is a problem like breakage or mis-construction of encoder or cam in the fuser.
3) Replace the fuser unit with a new one if the above-mentioned items are in normal condition.

► **Error Code**

U1–2116

► **Error message**

Error: #U1-2116 Turn off then on

► **Symptom**

The pressurized device of the fuser did not change from envelope mode to general mode.

► **Troubleshooting method**

1) Check whether there is a problem in the harness connection of boosting motor, photo sensor and sensor boards.
2) Check whether there is a problem like breakage or mis-construction of encoder or cam in the fuser.
3) Replace the fuser unit with a new one if the above-mentioned items are in normal condition.

4.7.2.9. U2-xxxx (LSU error)

► **Error Code**

U2-2113 / U2–5113 / U2–6121 / U2–6122 / U2–6123

► **Error message**

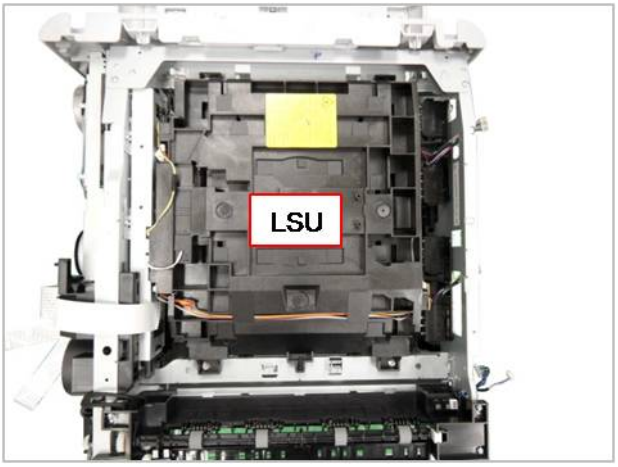
LSU Failure: #U2-xxxx. Please turn off then on

► **Symptom**

LSU Motor does not work normally or LSU H Sync signal is abnormal.

► **Troubleshooting method**

1) Execute the LSU motor test in SVC mode. Check LSU motor operation sound.
2) If there is no sound, remove the right cover. Check if the LSU harness is connected on the main board properly.
3) If it is OK, remove the top cover. Check if the LSU harness is connected on LSU board properly.
4) Check if the LSU harness is defective.
5) Reconnect the LSU harness and then execute the LSU motor test again.
6) If the problem persists, replace the LSU.



7) If the problem persists after replacing LSU, replace the main board.

4.7.2.10. U3-xxxx (ADF error)

► **Error Code**

U3-3113 / U3–3213 / U3–3214 / U3–3313 / U3–3314 / U3–3414 / U3–3513 / U3–3514

► **Error message**

Original paper jam in front of the scanner

Original paper jam inside the scanner

► **Symptom**

A document jam was detected in the ADF unit.

► **Troubleshooting method**

1) Remove the jammed paper from ADF unit.
2) If the error persists, turn the machine off then on.
3) If the document jam occurs continually, open the ADF cover-top. Check if the ADF pick up roller is contaminated or worn out. Clean or replace it.
4) If the pickup roller is OK, check the followings.
   a) Check if the ADF motor is working normally.
   b) Check if the connector on the ADF joint board is connected correctly.
5) If the problem persists, replace the ADF unit.

► **Error Code**

U3-4210

► **Error message**

Top door of scanner is open

► **Symptom**

ADF top cover is opened.

► **Troubleshooting method**

1) Close the ADF top cover.
2) If the problem persists, check the followings.
   a) Check if the cover open sensor is connected correctly. Reconnect the harness. If the sensor is defective, replace it.
   b) Check if the rib of the cover open is deformed or broken. If necessary, replace the cover open.

4.7.3. Image quality problems

Print-quality defects can be attributed to printer components, supplies, media, internal software, external software applications, and environmental conditions.

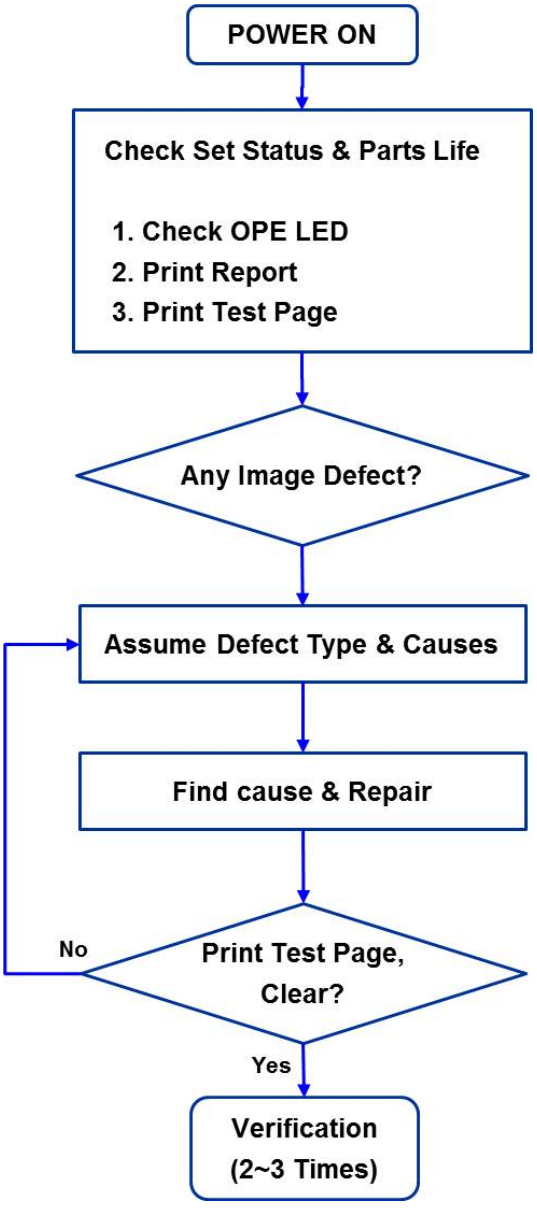
To successfully troubleshoot print-quality problems, as many variables as possible must be eliminated.

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.

How to analysis the defect image

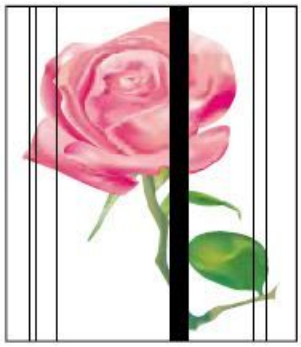
TIP

- According to the part remain life, cause can vary. Check the part remain life.
- Check the defect whether periodic or not.



1) **Vertical Black Line and Band**

- Description : Straight thin black vertical line occurs in the printed image.



Cause and Check Point	Solution
Check if the surface of the charge roller is scratched or contaminated.	Replace the corresponding toner cartridge and test again.
Check if there are grooves on the circumference of the OPC drum.	Replace the corresponding toner cartridge and test again.
Check if the cleaning blade is damaged	Replace the corresponding toner cartridge and test again.
Check if paper transfer belt is damaged or contaminated.	Replace the ITB unit and test again.

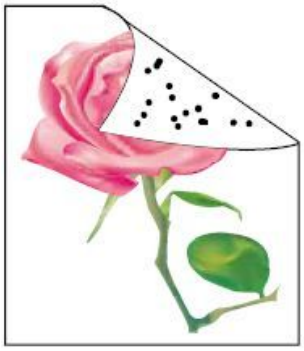
2) **Vertical White Line**

- Description : White vertical voids in the image.

Cause and Check Point	Solution
Check if the LSU window or internal lenses of LSU is contaminated.	Clean the LSU window with recommended cleaner (IPA). Clean the window with a clean cotton swab. If dirt is inside the LSU, replace the LSU.
Check if there are scratches on the circumference of the OPC drum.	Replace the corresponding toner cartridge and test again.
Check if there are scratches on the circumference of the developing roller.	Replace the corresponding toner cartridge and test again.
Check if paper transfer belt is damaged or contaminated.	Replace the ITB unit and test again.

3) **Contamination on back of page**

- Description : The back of the page is contaminated.



Cause and Check Point	Solution
Dirty registration roller, pressure roller, feed roller, etc. Any dirty rollers through the path of the paper.	Identify the roller which may cause the problem by comparing the period of the contamination on images with the size of rollers. Clean any dirt from the roller or replace the dirty roller.
Check if the transfer roller is damaged or contaminated.	Replace the transfer roller and test again.
Check if paper transfer belt is damaged or contaminated.	Replace the ITB unit and test again.

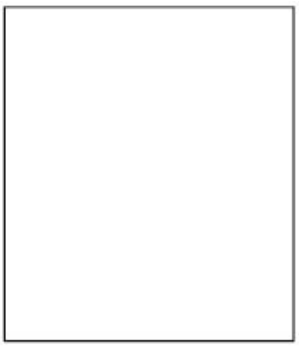
4) **Dark or Black image**

- Description : The black page is printed out.

Cause and Check Point	Solution
No charging voltage in the HVPS.	Check the connecting state between the Main PBA and HVPS. Reconnect the harness.
Poor contact between toner cartridge and set contacts.	Clean the contacts as necessary. Replace any deformed or damaged contacts.
HVPS1 is defective.	Replace the HVPS1.

5) **Blank Page**

- Description : Blank page is printed.



Cause and Check Point	Solution
Bad contacts from OPC drum and/or toner cartridge to ground.	Check the terminal of Ground-OPC.
Not working the LSU.	Check the connector of LSU.
Not working the developing bias voltage on HVPS.	Replace the defective HVPS. **NOTE** HVPS output information - If the output for MHV, DEV is abnormal, replace the HVPS1 (JC44–00244A). - If the output for 1THV, 2THV is abnormal, replace the HVPS2 (JC44–00243A).

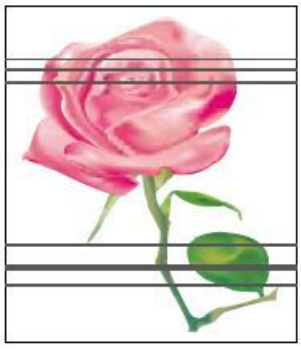
6) **Uneven Density**

- Description : Print Density is uneven between left and right.

Cause and Check Point	Solution
The rear cover is not closed correctly.	Open and remove the rear cover correctly.
The life of the Toner Cartridge has expired.	Replace the corresponding toner cartridge.
The pressure force in the left and right springs of the ITB unit is not even.	Replace the ITB Unit

7) **Horizontal Bands**

- Description : Dark or white horizontal stripes appear in the page. (These may occur at regular intervals down the page.)



Cause and Check Point	Solution
The developing roller, OPC drum or other rollers in the toner cartridge may be contaminated or deformed.	Replace the corresponding toner cartridge.
Bad contacts of HV terminals of the toner cartridge with high voltage terminals from printer set.	Clean all HV terminals in the cartridge and on the set frame. Ensure all toner or paper dust, particles are removed.

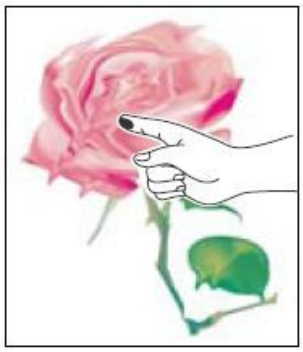
NOTE

Roller Period for Horizontal Problem

Roller Description	Band Period (mm)	Defective part
Pressure Roller	69.08 mm	Fuser Unit
Charge roller	26.7 mm	Toner Cartridge
OPC drum	75.4 mm	
Developing roller	30 mm	
Supply roller	40.3 mm	

8) **Poor Fusing**

- Description : Toner is not properly fixed on paper.



Cause and Check Point	Solution
The media doesn't meet specification	Use the proper media in specifications.
Fuser is defective	Replace the fuser unit.

9) **Light Image**

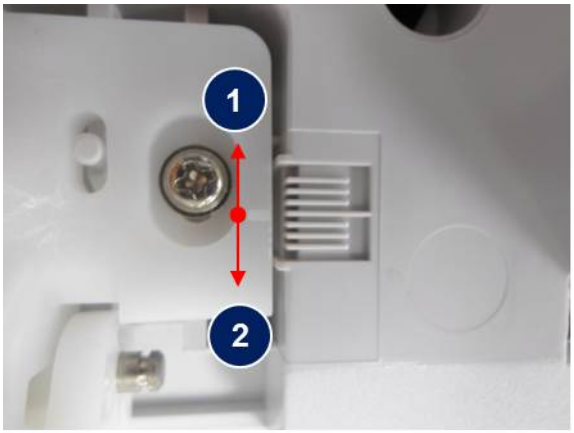
- Description : The printed image is light, with no ghost.

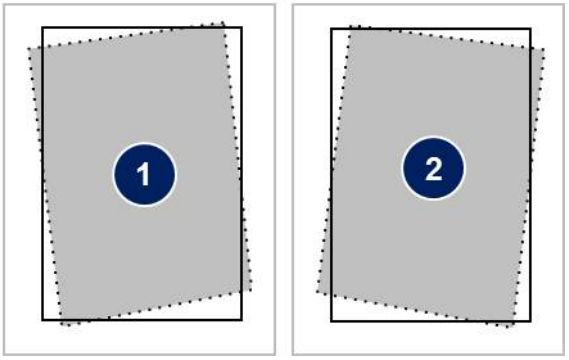
Cause and Check Point	Solution
The toner cartridge life is expired.	Check the toner remaining and replace the related toner cartridge.
HVPS terminal is contaminated.	Clean the contaminated terminal.
The output from the HVPS is abnormal.	Replace the defective HVPS. **NOTE** HVPS output information - If the output for MHV, DEV is abnormal, replace the HVPS1 (JC44–00244A). - If the output for 1THV, 2THV is abnormal, replace the HVPS2 (JC44–00243A).

4.7.4. DSDF skew adjustment for C4060FX

1) Open the DSDF unit. Loosen 3 screws securing the right hinge.

2) Check the copy skew status. And then, adjust the position of the ADF hinge as shown below and tighten 3 screws.

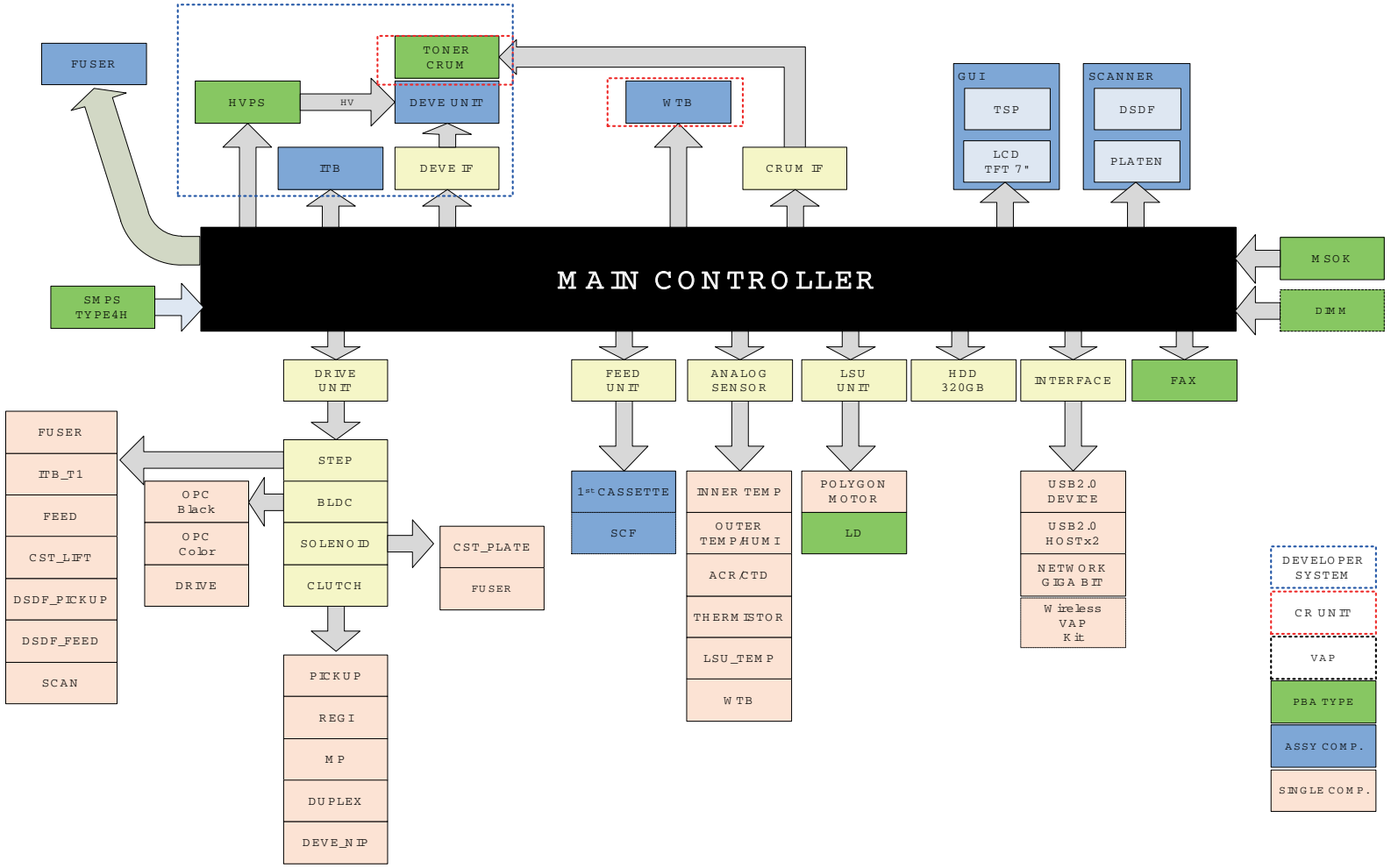




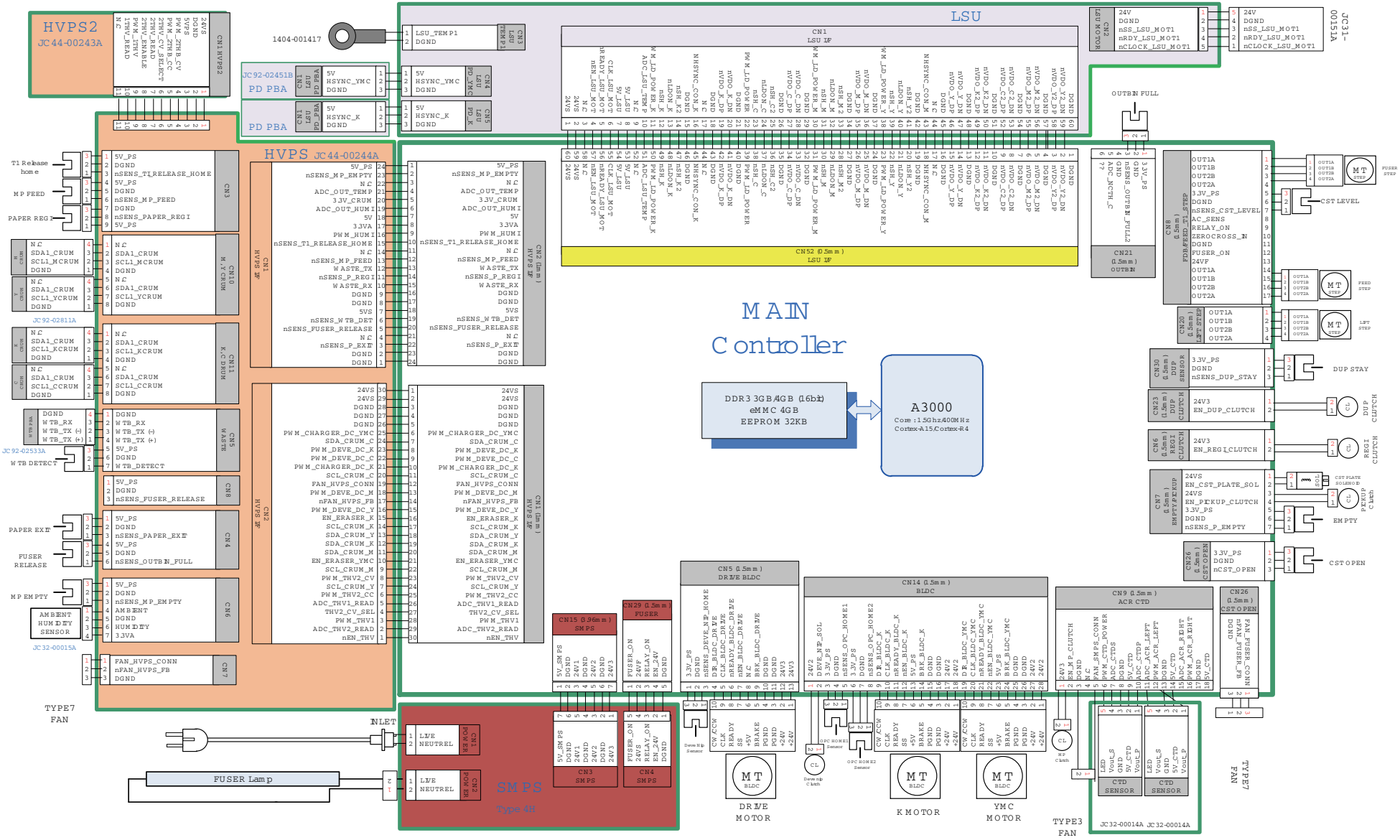
3) Detach the white-sponge(white-sheet) after adjusting the skew. Place the sponge on platen glass. And then, close the DSDF unit to stick the sponge.

5. System Diagram

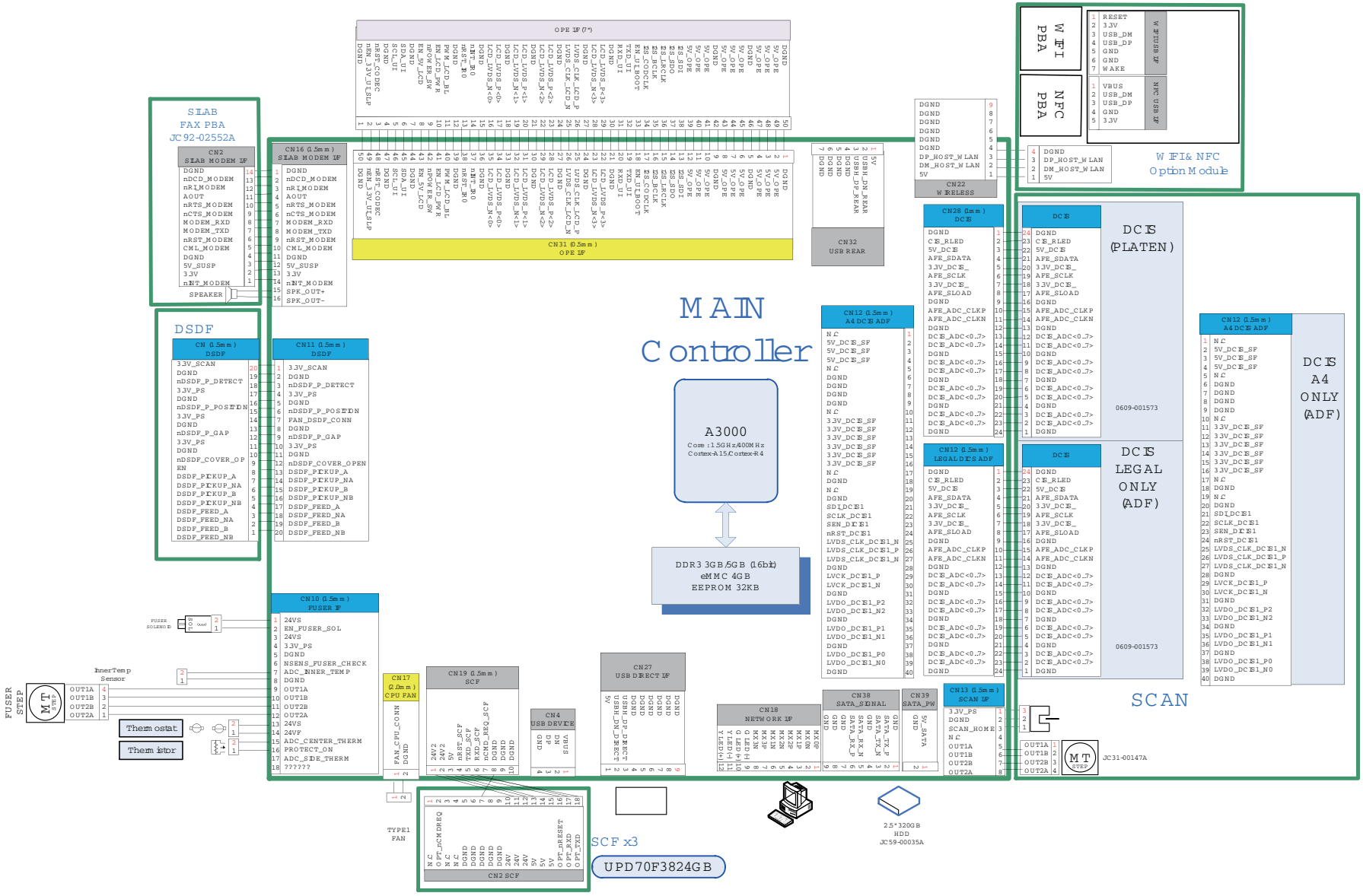
5.1. Block Diagram



5.2. Connection Diagram 1



5.3. Connection Diagram 2



5.4. Harness Connection Table

No	Terminal 1	to Termianl 2	Harness Part Code	Harness Description
1	MAIN PBA, CN27	USB DIRECT	JC39-02512A	WIRE HARNESS-USB HOST
2	MAIN PBA, CN22	USB NFC	JC39-02513A	WIRE HARNESS-USB HOST NFC
3	MAIN PBA, CN39	HDD Power	JC39-02510A	WIRE HARNESS-SATA POWER
4	MAIN PBA, CN38	HDD Signal	JC39-02511A	WIRE HARNESS-SATA SIGNAL
5	MAIN PBA, CN25	FUSER FAN	JC31-00161A	FAN
6	MAIN PBA, CN10	FUSER Solenoid / FUSER Sensor / Inner Temp / FUSER Step Motor / Center Thermistor / Side Thermistor	JC39-02501A	WIRE HARNESS-FUSER IF
7	MAIN PBA, CN21	Outbin Full Sensor		
8	MAIN PBA, CN28	Platen DCIS	JC39-02531A (C4060)	CBF FLAT CABLE-CIS
			JC39-02534A (C4062)	
9	MAIN PBA, CN16	FAX PBA	JC39-02459A	FLAT CABLE-FAX_FFC
10	MAIN PBA, CN3	ADF DCIS	JC39-02530A (C4060)	CBF FLAT CABLE-CIS
11	MAIN PBA, CN12		JC97-04451B (C4062)	ADF(Assy includes harness.)
12	MAIN PBA, CN13	Scan Home / Scan Motor	JC39-02106A	HARNESS-SCAN_HOME/MOTOR
13	MAIN PBA, CN11	DSDF	JC97-04451B	ADF(Assy includes harness.)
14	MAIN PBA, CN30	Duplex Sensor	JC39-02504A	WIRE HARNESS-DUPLEX SEN
15	MAIN PBA, CN8	Feed Step Motor / LEVEL Sensor / ITB T1 Step Motor	JC39-02500A	WIRE HARNESS-FDB LEVEL STEP MOTOR
16	MAIN PBA, CN23	Duplex Clutch	JC47-00035C	CLUTCH-ELECTRIC
17	MAIN PBA, CN20	CST Lift Step Motor	JC39-02503A	WIRE HARNESS-CST LIFT MOTOR
18	MAIN PBA, CN6	Regi Clutch	JC47-00035B	CLUTCH-ELECTRIC
19	MAIN PBA, CN19	SCF	JC39-01957A	HARNESS-SCF TO MAIN

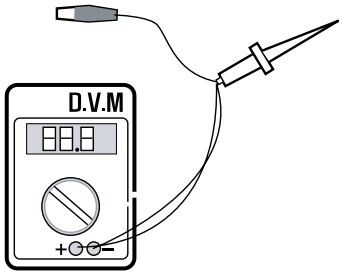
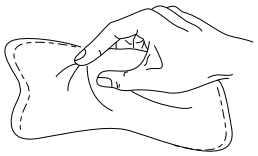
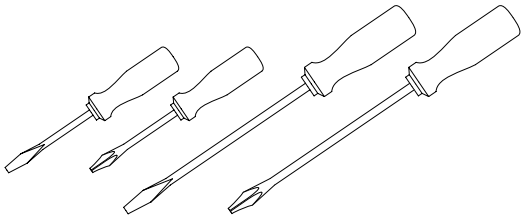
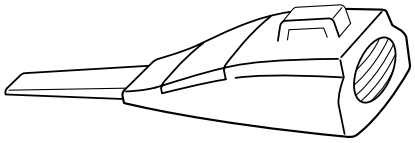
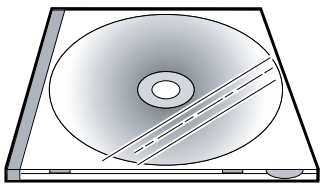
No	Terminal 1	to Termianl 2	Harness Part Code	Harness Description
20	MAIN PBA, CN7	CST Plate Solenoid / Pick Up Clutch / Paper Empty Sensor	JC39-02509A	WIRE HARNESS-CLUTCH SOL
21	MAIN PBA, CN26	CST Open Sensor	JC39-02502A	WIRE HARNESS-CST OPEN SEN
22	MAIN PBA, CN9	MP Clutch / ACR, CTD Sensor Relay Connector / SMPS FAN	JC39-02499A	WIRE HARNESS-SMPS FAN MP ACR
23	MAIN PBA, CN29	SMPS, CON4	JC39-02523A	WIRE HARNESS-SMPS
24	MAIN PBA, CN13	SMPS, CON3		
25	MAIN PBA, CN5	Deve Nip Home Sensor / BLDC Motor Middle	JC39-02498A	WIRE HARNESS-BLDC DRIVE UNIT2
26	MAIN PBA, CN14	Deve Nip Solenoid / OPC Home Sensor Relay Connector / BLDC Motor Left / BLDC Motor Right	JC39-02497A	WIRE HARNESS-BLDC DRIVE UNIT1
27	MAIN PBA, CN31	OPE Joint PBA, CN1	JC39-02514A	CBF FLAT CABLE-OPE JOINT
28	MAIN PBA, CN1	HVPS(Upper), CN2(30P)	JC39-02527A	CBF FLAT CABLE-HVPS S
29	MAIN PBA, CN2	HVPS(Upper), CN1(24P)		
30	MAIN PBA, CN52	LSU, CN1(60P)	JC39-02516A	CBF FLAT CABLE-LSU
31	OPE PBA, CN3	OPE Joint PBA, CN2	JC39-02526A (C4060)	CBF FLAT CABLE-UI A4 JOINT
			JC39-02515A (C4062)	CBF FLAT CABLE-UI LEGAL JOINT
32	SMPS, CON1	Power Cord	JC39-02507A	WIRE HARNESS-INLET
33	SMPS, CON2	FUSER	JC39-01850A	HARNESS-FUSER SMPS
34	ACR, CTD Sensor	ACR, CTD Sensor Relay Connector	JC39-02464A	WIRE HARNESS-ACR CTD SEN
35	OPC Home Sensor	OPC Home Sensor Relay Connector	JC39-02508A	WIRE HARNESS-OPC HOME SEN
36	HVPS(Upper), CN4	Paper Exit Sensor / Fuser Release Sensor	JC39-01821A	HARNESS-EXIT OUTBIN SEN
37	HVPS(Upper), CN10	M, Y CRUM	JC39-01818A	HARNESS-CRUM
38	HVPS(Upper), CN11	K, C CRUM	JC39-01818A	HARNESS-CRUM
39	HVPS(Upper), CN6	Humidity Sensor / MP sensor	JC39-02461A	WIRE HARNESS-HUMIDITY MP SEN
40	HVPS(Upper), CN3	Paper Regi Sensor / MP Feed Sensor / T1 Release Sensor	JC39-01823A	HARNESS-FEED REGI T1 SEN
41	HVPS(Upper), CN5	WTB	JC39-02462A	WIRE HARNESS-WTB SEN
42	HVPS(Upper), CN9	HVPS(Lower), CN12	JC39-02463A	WIRE HARNESS-HVPS HYBRID

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. Tool for Troubleshooting

The following tools are recommended safe and easy troubleshooting as described in this service manual.

DVM (Digital Volt Meter) Standard : Indicates more than 3 digits. 	**Cleaning Equipments** Standard : An IPA (Isopropyl Alcohol) dry wipe tissue or a gentle neutral detergent and lint-free cloth. 
Driver Standard : "-" type, "+" type (M3 long, M3 short, M2 long, M2 short). 	**Vacuum Cleaner** 
Tweezers Standard : For general home use, small type. 	**Spring Hook** Standard : For general use 
Cotton Swab Standard : For general home use, for medical service. 	**Software (Driver) installation CD ROM** 

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.
DSDF	A DSDF (Dual Scan Document Feeder) is a scanning unit that will automatically feed an original sheet of paper so that the machine can scan on both sides of the paper.
Default	The value or setting that is in effect when taking a printer out of its box state, reset, or initialized.
DHCP	A Dynamic Host Configuration Protocol (DHCP) is a client-server networking protocol. A DHCP server provides configuration parameters specific to the DHCP client host requesting, generally, information required by the client host to participate on an IP network. DHCP also provides a mechanism for allocation of IP addresses to client hosts.
DIMM	Dual Inline Memory Module (DIMM), a small circuit board that holds memory. DIMM stores all the data within the machine like printing data, received fax data.

DLNA	The Digital Living Network Alliance (DLNA) is a standard that allows devices on a home network to share information with each other across the network.
DNS	The Domain Name Server (DNS) is a system that stores information associated with domain names in a distributed database on networks, such as the Internet.
Dot Matrix Printer	A dot matrix printer refers to a type of computer printer with a print head that runs back and forth on the page and prints by impact, striking an ink-soaked cloth ribbon against the paper, much like a typewriter.
DPI	Dots Per Inch (DPI) is a measurement of resolution that is used for scanning and printing. Generally, higher DPI results in a higher resolution, more visible detail in the image, and a larger file size.
DRPD	Distinctive Ring Pattern Detection. Distinctive Ring is a telephone company service which enables a user to use a single telephone line to answer several different telephone numbers.
Duplex	A mechanism that will automatically turn over a sheet of paper so that the machine can print (or scan) on both sides of the paper. A printer equipped with a Duplex Unit can print on both sides of paper during one print cycle.
Duty Cycle	Duty cycle is the page quantity which does not affect printer performance for a month. Generally the printer has the lifespan limitation such as pages per year. The lifespan means the average capacity of print-outs, usually within the warranty period. For example, if the duty cycle is 48,000 pages per month assuming 20 working days, a printer limits 2,400 pages a day.
ECM	Error Correction Mode (ECM) is an optional transmission mode built into Class 1 fax machines or fax modems. It automatically detects and corrects errors in the fax transmission process that are sometimes caused by telephone line noise.
Emulation	Emulation is a technique of one machine obtaining the same results as another. An emulator duplicates the functions of one system with a different system, so that the second system behaves like the first system. Emulation focuses on exact reproduction of external behavior, which is in contrast to simulation, which concerns an abstract model of the system being simulated, often considering its internal state.
Ethernet	Ethernet is a frame-based computer networking technology for local area networks (LANs). It defines wiring and signaling for the physical layer, and frame formats and protocols for the media access control (MAC)/data link layer of the OSI model. Ethernet is mostly standardized as IEEE 802.3. It has become the most widespread LAN technology in use during the 1990s to the present.
EtherTalk	A suite of protocols developed by Apple Computer for computer networking. It was included in the original Macintosh (1984) and is now deprecated by Apple in favor of TCP/IP networking.
FDI	Foreign Device Interface (FDI) is a card installed inside the machine to allow a third party device such as a coin operated device or a card reader. Those devices allow the pay-for-print service on your machine.
FTP	A File Transfer Protocol (FTP) is a commonly used protocol for exchanging files over any network that supports the TCP/IP protocol (such as the Internet or an intranet).
Fuser Unit	The part of a laser printer that fuses the toner onto the print media. It consists of a heat roller and a pressure roller. After toner is transferred onto the paper, the fuser unit applies heat and pressure to ensure that the toner stays on the paper permanently, which is why paper is warm when it comes out of a laser printer.
Gateway	A connection between computer networks, or between a computer network and a telephone line. It is very popular, as it is a computer or a network that allows access to another computer or network.
Grayscale	A shades of gray that represent light and dark portions of an image when color images are converted to grayscale; colors are represented by various shades of gray.
Halftone	An image type that simulates grayscale by varying the number of dots. Highly colored areas consist of a large number of dots, while lighter areas consist of a smaller number of dots.
HDD	Hard Disk Drive (HDD), commonly referred to as a hard drive or hard disk, is a non-volatile storage device which stores digitally-encoded data on rapidly rotating platters with magnetic surfaces.

IEEE	The Institute of Electrical and Electronics Engineers (IEEE) is an international non-profit, professional organization for the advancement of technology related to electricity.
IEEE 1284	The 1284 parallel port standard was developed by the Institute of Electrical and Electronics Engineers (IEEE). The term "1284-B" refers to a specific connector type on the end of the parallel cable that attaches to the peripheral (for example, a printer).
Intranet	A private network that uses Internet Protocols, network connectivity, and possibly the public telecommunication system to securely share part of an organization's information or operations with its employees. Sometimes the term refers only to the most visible service, the internal website.
IP address	An Internet Protocol (IP) address is a unique number that devices use in order to identify and communicate with each other on a network utilizing the Internet Protocol standard.
IPM	The Images Per Minute (IPM) is a way of measuring the speed of a printer. An IPM rate indicates the number of single-sided sheets a printer can complete within one minute.
IPP	The Internet Printing Protocol (IPP) defines a standard protocol for printing as well as managing print jobs, media size, resolution, and so forth. IPP can be used locally or over the Internet to hundreds of printers, and also supports access control, authentication, and encryption, making it a much more capable and secure printing solution than older ones.
IPX/SPX	IPX/SPX stands for Internet Packet Exchange/Sequenced Packet Exchange. It is a networking protocol used by the Novell NetWare operating systems. IPX and SPX both provide connection services similar to TCP/IP, with the IPX protocol having similarities to IP, and SPX having similarities to TCP. IPX/SPX was primarily designed for local area networks (LANs), and is a very efficient protocol for this purpose (typically its performance exceeds that of TCP/IP on a LAN).
ISO	The International Organization for Standardization (ISO) is an international standard-setting body composed of representatives from national standards bodies. It produces world-wide industrial and commercial standards.
ITU-T	The International Telecommunication Union is an international organization established to standardize and regulate international radio and telecommunications. Its main tasks include standardization, allocation of the radio spectrum, and organizing interconnection arrangements between different countries to allow international phone calls. A -T out of ITU-T indicates telecommunication.
ITU-T No. 1 chart	Standardized test chart published by ITU-T for document facsimile transmissions.
JBIG	Joint Bi-level Image Experts Group (JBIG) is an image compression standard with no loss of accuracy or quality, which was designed for compression of binary images, particularly for faxes, but can also be used on other images.
JPEG	Joint Photographic Experts Group (JPEG) is a most commonly used standard method of lossy compression for photographic images. It is the format used for storing and transmitting photographs on the World Wide Web.
LDAP	The Lightweight Directory Access Protocol (LDAP) is a networking protocol for querying and modifying directory services running over TCP/IP.
LED	A Light-Emitting Diode (LED) is a semiconductor device that indicates the status of a machine.
MAC address	Media Access Control (MAC) address is a unique identifier associated with a network adapter. MAC address is a unique 48-bit identifier usually written as 12 hexadecimal characters grouped in pairs (e. g., 00-00-0c-34-11-4e). This address is usually hard-coded into a Network Interface Card (NIC) by its manufacturer, and used as an aid for routers trying to locate machines on large networks.
MFP	Multi Function Peripheral (MFP) is an office machine that includes the following functionality in one physical body, so as to have a printer, a copier, a fax, a scanner and etc.
MH	Modified Huffman (MH) is a compression method for decreasing the amount of data that needs to be transmitted between the fax machines to transfer the image recommended by ITU-T T.4. MH is a codebook-based run-length encoding scheme optimized to efficiently compress white space. As most faxes consist mostly of white space, this minimizes the transmission time of most faxes.
MMR	Modified Modified READ (MMR) is a compression method recommended by ITU-T T.6.

Modem	A device that modulates a carrier signal to encode digital information, and also demodulates such a carrier signal to decode transmitted information.
MR	Modified Read (MR) is a compression method recommended by ITUT T.4. MR encodes the first scanned line using MH. The next line is compared to the first, the differences determined, and then the differences are encoded and transmitted.
NetWare	A network operating system developed by Novell, Inc. It initially used cooperative multitasking to run various services on a PC, and the network protocols were based on the archetypal Xerox XNS stack. Today NetWare supports TCP/IP as well as IPX/SPX.
OPC	Organic Photo Conductor (OPC) is a mechanism that makes a virtual image for print using a laser beam emitted from a laser printer, and it is usually green or rust colored and has a cylinder shape. An imaging unit containing a drum slowly wears the drum surface by its usage in the printer, and it should be replaced appropriately since it gets worn from contact with the cartridge development brush, cleaning mechanism, and paper.
Originals	The first example of something, such as a document, photograph or text, etc, which is copied, reproduced or translated to produce others, but which is not itself copied or derived from something else.
OSI	Open Systems Interconnection (OSI) is a model developed by the International Organization for Standardization (ISO) for communications. OSI offers a standard, modular approach to network design that divides the required set of complex functions into manageable, self-contained, functional layers. The layers are, from top to bottom, Application, Presentation, Session, Transport, Network, Data Link and Physical.
PABX	A private automatic branch exchange (PABX) is an automatic telephone switching system within a private enterprise.
PCL	Printer Command Language (PCL) is a Page Description Language (PDL) developed by HP as a printer protocol and has become an industry standard. Originally developed for early inkjet printers, PCL has been released in varying levels for thermal, dot matrix printer, and laser printers.
PDF	Portable Document Format (PDF) is a proprietary file format developed by Adobe Systems for representing two dimensional documents in a device independent and resolution independent format.
PostScript(PS)	PostScript (PS) is a page description language and programming language used primarily in the electronic and desktop publishing areas. - that is run in an interpreter to generate an image.
Printer Driver	A program used to send commands and transfer data from the computer to the printer.
Print Media	The media like paper, envelopes, labels, and transparencies which can be used in a printer, a scanner, a fax or, a copier.
PPM	Pages Per Minute (PPM) is a method of measurement for determining how fast a printer works, meaning the number of pages a printer can produce in one minute.
PRN file	An interface for a device driver, this allows software to interact with the device driver using standard input/output system calls, which simplifies many tasks.
Protocol	A convention or standard that controls or enables the connection, communication, and data transfer between two computing endpoints.
PSTN	The Public-Switched Telephone Network (PSTN) is the network of the world's public circuit-switched telephone networks which, on industrial premises, is usually routed through the switchboard.
RADIUS	Remote Authentication Dial In User Service (RADIUS) is a protocol for remote user authentication and accounting. RADIUS enables centralized management of authentication data such as usernames and passwords using an AAA (authentication, authorization, and accounting) concept to manage network access.
Resolution	The sharpness of an image, measured in Dots Per Inch (DPI). The higher the dpi, the greater the resolution.
SMB	Server Message Block (SMB) is a network protocol mainly applied to share files, printers, serial ports, and miscellaneous communications between nodes on a network. It also provides an authenticated Interprocess communication mechanism.

SMTP	Simple Mail Transfer Protocol (SMTP) is the standard for e-mail transmissions across the Internet. SMTP is a relatively simple, text based protocol, where one or more recipients of a message are specified, and then the message text is transferred. It is a client server protocol, where the client transmits an email message to the server.
SSID	Service Set Identifier (SSID) is a name of a wireless local area network (WLAN). All wireless devices in a WLAN use the same SSID in order to communicate with each other. The SSIDs are case-sensitive and have a maximum length of 32 characters.
Subnet Mask	The subnet mask is used in conjunction with the network address to determine which part of the address is the network address and which part is the host address.
TCP/IP	The Transmission Control Protocol (TCP) and the Internet Protocol (IP); the set of communications protocols that implement the protocol stack on which the Internet and most commercial networks run.
TCR	Transmission Confirmation Report (TCR) provides details of each transmission such as job status, transmission result and number of pages sent. This report can be set to print after each job or only after failed transmissions.
TIFF	Tagged Image File Format (TIFF) is a variable-resolution bitmapped image format. TIFF describes image data that typically come from scanners. TIFF images make use of tags, keywords defining the characteristics of the image that is included in the file. This flexible and platform-independent format can be used for pictures that have been made by various image processing applications.
Toner Cartridge	A kind of bottle or container used in a machine like a printer which contains toner. Toner is a powder used in laser printers and photocopiers, which forms the text and images on the printed paper. Toner can be fused by a combination of heat/pressure from the fuser, causing it to bind to the fibers in the paper.
TWAIN	An industry standard for scanners and software. By using a TWAINcompliant 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 WIAcompliant 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.

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. Document Revision List

Version	Date	Page	Description
1.00	12/Apr/2017	-	Release
1.01	24/May/2017	P.2–11	Change the pick up roller code for optional tray.

GSPN (GLOBAL SERVICE PARTNER NETWORK)

Area	Web Site
Europe, MENA, CIS, Africa	https://gspn1.samsungcsportal.com
E.Asia, W.Asia, China, Japan	https://gspn2.samsungcsportal.com
N.America, S.America	https://gspn3.samsungcsportal.com

Printed in Korea
Code No.: