SL-C40 Series Service Training

2017.03.27

S-Printing Solution

Solution Consulting Group

V1.2

Contents

1. Product Overview

1.1.1 Product Concept

Concept

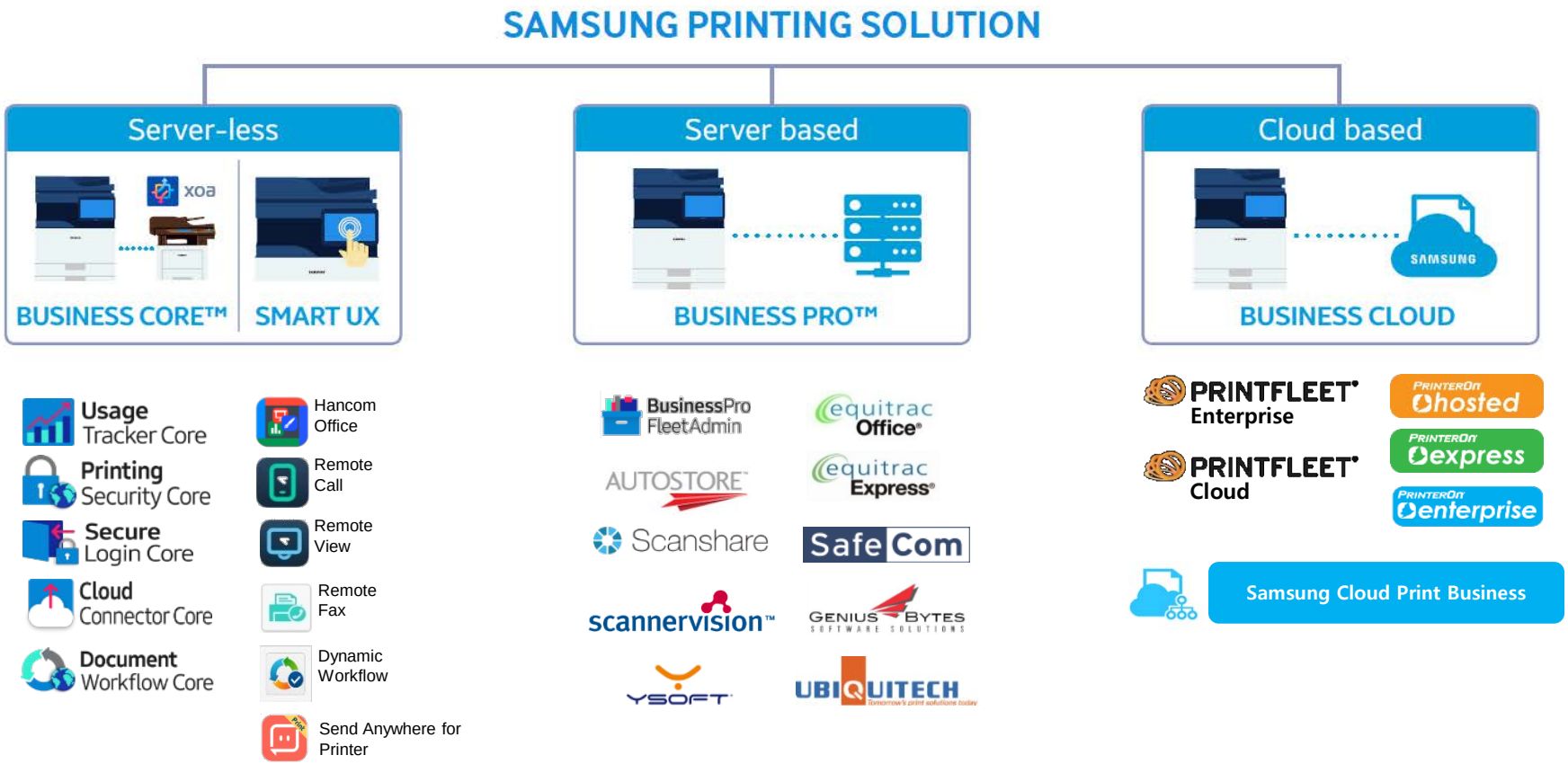
- **TCO competitiveness with long life supplies**
- **High Productivity & Performance**
- **The new first 7” IR type TSP**

- 15K/10K Max Toner Yield
- 1.5 GHz Quad Core CPU for performance (only MFP)
- Convenient access thru Smart UX, Better touch experience (Capacitive Type → IR Type) (only MFP)

※ IR : Infrared

1.1.2 Product Concept _ Solution

- **C40 Supports various Solutions and Apps that have compatibility for 10.1 inch and 7 inch models (Only MFP)**



1.2 Changes vs C30

- C30 series → C40 series

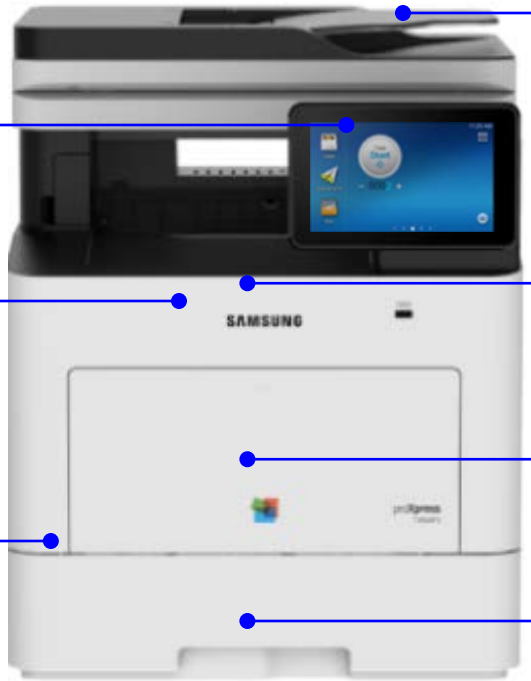
UI
- Conventional UI
  -> 7” Color Touch Screen LCD (MFP)

CPU
- PRT 800MHz (Same)
- MFP
  800MHz Dual -> 1.5GHz Quad core

Memory
- PRT : 256MB -> 512MB
- MFP : 512MB -> 3GB

Toner
- Consumable
  8K(M)/5K(C) -> 15K(M)/10K(C)

- Initial
  4K(M)/2.5K(C) (Same)



ADF
- RADF 30ipm(simplex)/14ipm(duplex)
  -> DSDF 40ipm(simplex)/60ipm(duplex)

Fuser
- IFS2 50K life
  -> IFS3 100K life

Speed
- 30ppm/31ppm (A4/LTR)
  -> 40ppm/42ppm (A4/LTR)

Paper
- Trya1 250 sheet
  -> Tray1 550 sheet
- Cassette Auto closing

1.3 Option configuration

Wireless/NFC Kit
(SL-NWE001X)

C4010

C4060/C4062

Wireless/NFC Kit
(SL-NWE001X)

Wireless/NFC Kit
(SL-NWE002X)

Memory
(SL-MEM0020)

SCF
(SL-SCF3001)

Short Stand
(SL-DSK003S)

Item Code	Compatible Project
SL-NWE001X	M40, M45, M53, MX3, MX4, MX7, C30, C40
SL-NWE002X	MX7, MX4, M53, C40
SL-DSK003S	C40, M40, M45, Harrier, Petrel
SL-SCF3001	C40, C30
SL-MEM0020	C40

NEW

1.4 General Specification

C4010

C4060

C4062

		PRT	MFP	
		SL-C4010ND	SL-C4060FX	SL-C4062FX
Print	Print Speed(A4)	40/42 ppm (A4/LTR)		
	FPOT(Color/Mono)	7.5sec / 7sec	8 sec / 8 sec	
	Print Resolution	Up to 9,600x600dpi effective output		
	Print language	SPLC / PCL5Ce / PCL6 / PS3 / PDF V1.7		
	Duplex print	Built - in		
Copy	FCOT (Color/Mono)	-	9 sec / 9 sec	
Scan / Fax	Scan Speed (Simplex/Duplex)	-	40/60 ipm	40/60 ipm
	Scan resolution	-	600 x 600 dpi(Optical), 4,800x4,800dpi(Enhanced)	
	Fax support	-	Yes	
Paper Handling	ADF Type & Capacity	-	DSDF, 50 Sheet Platen A4	DSDF, 50 Sheet Platen Legal
	Paper Capacity	(Std) 600 sheets / (Max) 2,250 sheets		
General	CPU	800MHz+400MHz (Dual CPU)	1.5GHz Quad Core	
	Memory	512MB (DDR3)	3GB (DDR3) / 5GB (Max)	
	HDD	-	320GB	
	GUI Type	2 Line Text LCD	7” Color Touch-Screen LCD (IR Type)	
Supplies	Toner Capacity (Standard)	(CMY) 10,000 / (Black) 15,000		
	Toner Capacity (Initial)	(CMY) 2,500 / (Black) 4,000		
	WTB	20,000 (Mono printing) / 5,000 (color printing)		
Option	General Option	SCF, short stand	SCF, short stand, Memory(2GB)	
	Network Option	Wireless/NFC Kit	Wireless/NFC Kit / BLE	

1.5 Print/Copy/Scan Specification

Item		Specification
Print C4010 C406x	Speed	Simplex : up to 40ppm in (A4)
		Duplex : up to 28ppm(A4)
	FPOT	Less than 8sec(from ready), Less than 14sec(from sleep)
	Feature	Secure Print, Stored Print, Booklet Print, N-up, Cover Page Print, Eco Print, Skip Blank Pages, Poster Print, Watermark, Direct Print from USB, Secure PDF Print
Copy C406x	Speed	Up to 40cpm in A4, 28cpm(A4/Duplex)
	FCOT	Less than 9sec(from ready@Platen), Less than 30sec(from sleep)
	Mode	Text, Text/Photo, Photo
	Feature	Multi copy 1~9,999, Reduce/Enlarge 25~400%, ID copy, N-up copy
Scan C406x	Speed	Simplex 40ipm (300dpi), duplex 60ipm (300dpi)
	Method	D-CIS
	Color mode	Mono / Gray / Color
	Resolution	Optical : up to 600 x 600dpi, Enhanced : up to 4,800 x 4,800dpi
	Function	Scan to Email, SMB ,FTP,BOX, USB, WSD, PC
	File format	JPEG, TIFF, XPS, PDF, PDF encryption, PDF/A, Searchable PDF

1.6 Paper handling specification

Item		Specification
MP (Multipurpose tray)	Capacity	50 sheets @ 75 g/m²
	Size	A4 / A5 / A6 / B5 / Legal / Oficio / Folio / Letter / Executive / Statement / 4x6 / No. 9 / No.10 / C5 / C6 / DL / Monarch / Custom (76 x 149 mm - 216 x356 mm (3" x 5" - 8.5" x 14"))/Index Card
	Weight	Simplex : 60 to 220 g/m²(16~58lb), Duplex : 60 to 120 g/m²(16~32lb)
	Type	Plain/Thin/Thick/Heavy weight/Extra heavy weight/Cotton/Colored/ Preprinted/ Recycled/Bond/Archive/Letterhead/Punched/Cardstock/Glossy photo/Envelope/Label
	Paper Empty Sensing	
Tray1	Capacity	550 sheets @ 75 g/m²
	Size	A4 / A5 / A6 / B5 / Legal / Oficio / Folio / Letter / Executive / Statement / 4x6 / No. 9 / No.10 / C5 / C6 / DL / Monarch / Custom (98 x 149 mm (3.86" x 5") - 216 x 356 mm (8.5" x 14"))
	Weight	Simplex : 60 to 220 g/m²(16~58lb), Duplex : 60 to 120 g/m²(16~32lb)
	Type	Plain/Thin/Thick/Heavy weight/Extra heavy weight/Cotton/Colored/Preprinted/ Recycled/ Bond/Archive/Letterhead/Punched/Cardstock/Glossy photo/Envelope/Label
	Paper empty sensing	
Tray2 / Tray3 / Tray4 (option)	Capacity	550 sheets @ 75 g/m²
	Size	A4 / A5 / B5 / Legal / Oficio / Folio / Letter / Executive / Statement / Custom 98 x 210 mm (3.86" x 8.3") - 216 x 356 mm (8.5" x 14")
	Weight	Simplex : 60 to 176 g/m² (16~47lb), Duplex : 60 to 120 g/m²(16~32lb)
	Type	Plain/Thin/Thick/Heavy weight/Cottoned/Color/Preprinted/Recycled/Bond/Archive /Letterhead/Punched/Cardstock
	Paper empty sensing	
Document feeder	Capacity	50 sheets @ 80 g/m²
	Size	Width: 105~216 mm / Length : 148 ~ 356 mm
	Weight	C4060 : 60 ~ 90g/m² C4062 : 60 ~ 120g/m²

1.7 Environment

Item	Specification	
Operating condition	16 ~ 30 °C (50 ~ 86°F), 20~80% RH	
Storage condition	-20 ~ 40 °C (-4 ~ 104 °F), 10~90% RH	
Power Supply	AC 220~240V, 50/60 Hz AC 110 - 127V, 50/60 Hz (Not dual voltage, power supply varies by country)	
Power consumption	Ready: 21W, Printing: 600W, Copying : 650W, Scanning : 40W Power Save/Power Off: 1.4W/0.3W, TEC:1.872KWh	
Acoustic Noise (Sound Power/ Pressure)	Print	Tray1 : 53 dBA, Tray2 : 54 dBA, Tray3 : 55 dBA, Tray4 : 56 dBA, MP : 55 dBA
	Copy	Tray1 : 56 dBA, Tray2 : 57 dBA, Tray3 : 58 dBA, Tray4 : 59 dBA, MP : 58 dBA
	Scanning	Platen : 49 dBA, ADF : 53 dBA
AMPV (Recommended Printing Volume)	2,700 sheets/month	
Max Monthly Printing Volume	80,000 sheets/month	

1.8 Supplies

Model	Item		Part Code	Life
C4010 C4060 C4062	Toner Cartridge	Yellow	CLT-Y603L	10,000 pages
		Magenta	CLT-M603L	
		Cyan	CLT-C603L	
		Black	CLT-K603L	15,000 pages
C4012/XAA C4062/XAA	Toner Cartridge	Yellow	CLT-Y604L	10,000 pages
		Magenta	CLT-M604L	
		Cyan	CLT-C604L	
		Black	CLT-K604L	15,000 pages
	Waste Toner Container		CLT-W506	20,000(M) / 5,000(C) pages

* 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 media size.

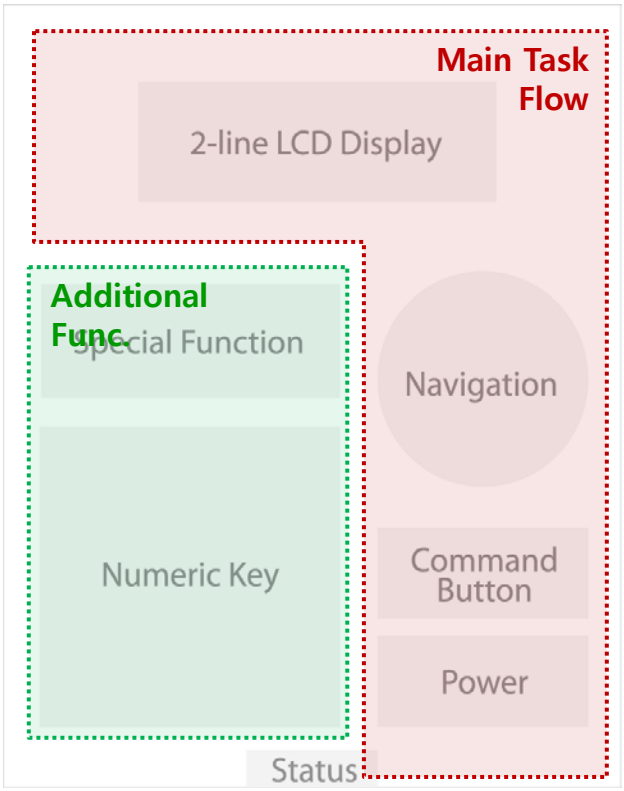
1.9 Maintenance Parts

Model	Item	Part Code	Life
SL-C4010 SL-C4060 SL-C4062	ITB unit	JC93-01348A	100,000 pages
	Transfer Roller Assy	JC95-02044A	100,000 pages
	Fuser Unit	JC91–01242A (220V)	100,000 pages
		JC91-01227A (110V)	
	Tray 1 Retard Roller	JC93–00794A	100,000 pages
	Pick up Roller (Tray1)	JC93-01337A	300,000 pages
	Tray 2 Retard Roller Tray 3 Retard Roller Tray 4 Retard Roller	JC90-01191A	100,000 pages
	Pick up Roller (Tray2,3,4)	JC90-01191A	200,000 pages

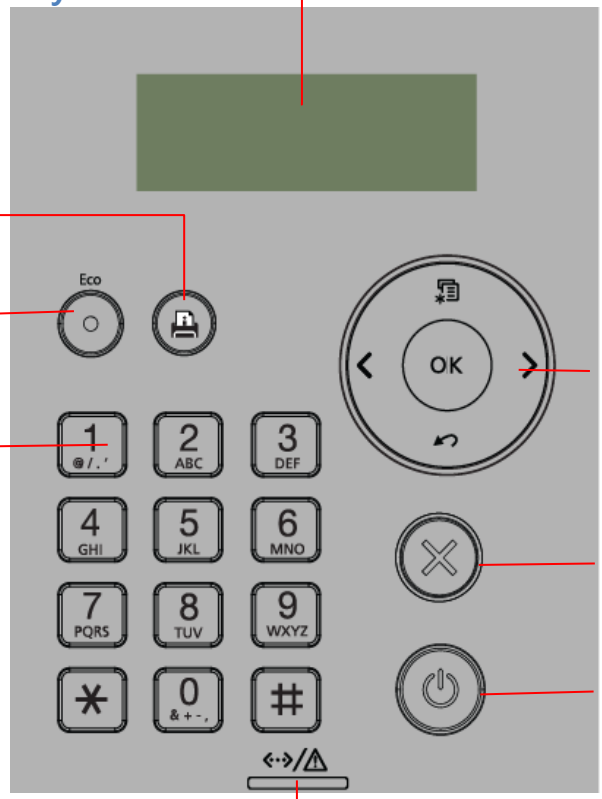
※ DSDF has not the maintenance part. Because the DSDF rollers yield of the C4060 is same with engine.

SL-C4060	DSDF Pick-Up/Forward Roller	JC97-04799A	100,000 pages
	DSDF Retard Roller	JC97-04799B	100,000 pages
	DSDF unit	JC97-04810A	100,000 pages
SL-C4062	DSDF Pick-Up/Forward Roller	JC82-00378A	100,000 pages
	DSDF Retard Roller	JC82-00380A	100,000 pages
	DSDF unit	JC97-04451A	100,000 pages

1.10.1 User interface_C4010



Layout



1.10.1 User interface_C4010

Eco (Green)

Navigation LED (ICE Blue)

Status LED (ICE Blue/Orange)

- **Off**
- **Job Progressing (Blink) ICE Blue**
- **Normal ICE Blue**
- **Warning(Blink) Orange**
- **Error Orange**

Soft Power LED (ICE Blue)

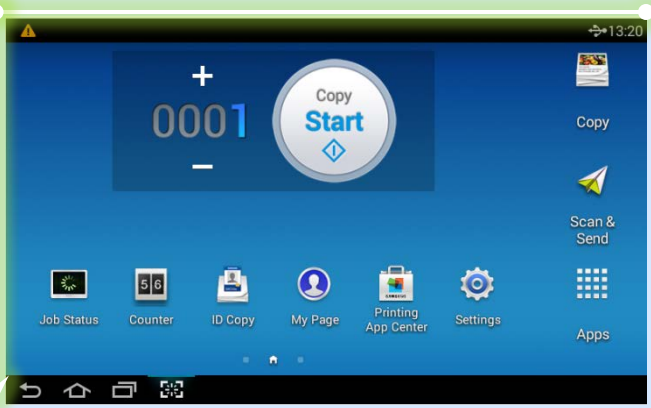
Off, Normal **Power Save**

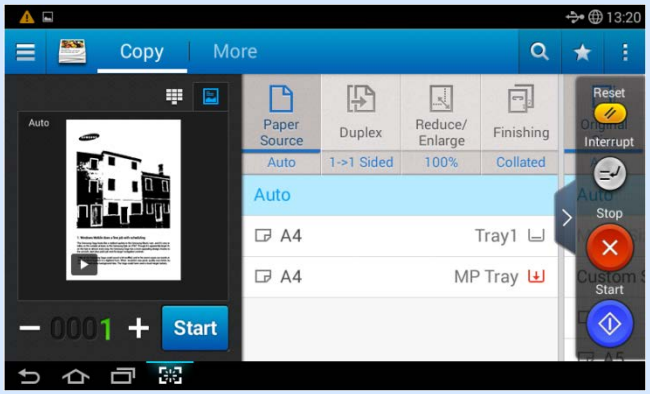
1.10.2 User interface_C4060,C4062

Users recognize IR (Infrared) type more sensitive to touch and faster to respond.

Also IR type touch screen is activated with various objects such as pen, glove hand, etc.

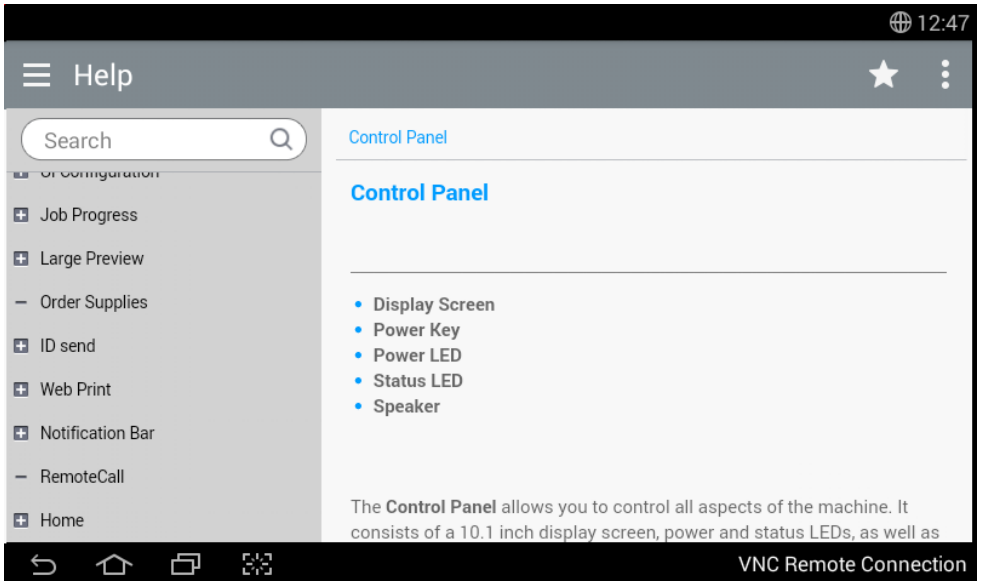
The new
7” Smart UX

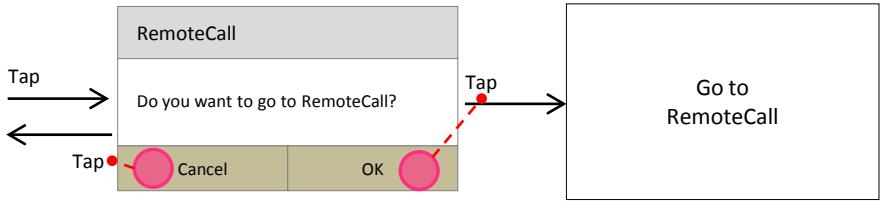




1.11 Pre-Installed app (RemoteCall)

C4060FX, C4062FX





RemoteCall app shall be pre-installed and DO NOT show the icon in home screen & All apps

Help app shall support "RemoteCall" category in the lowest position and If RemoteCall category is selected,

UI shall show pop-up (If OK, go to RemoteCall app)

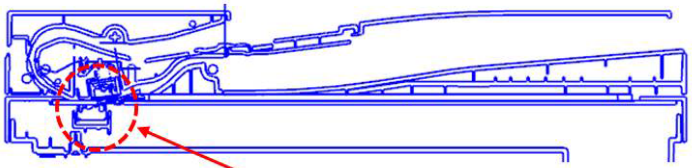
RemoteCall app shall be executed by not only admin but also normal users

RemoteCall app shall be managed by AMS same as other OOBs

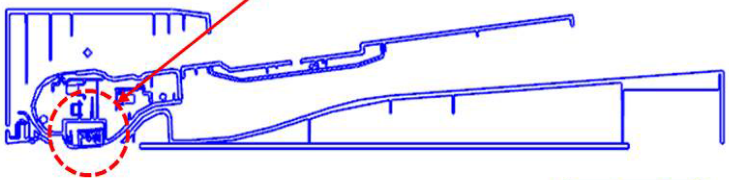
2. Hardware

2.1.1 System Layout

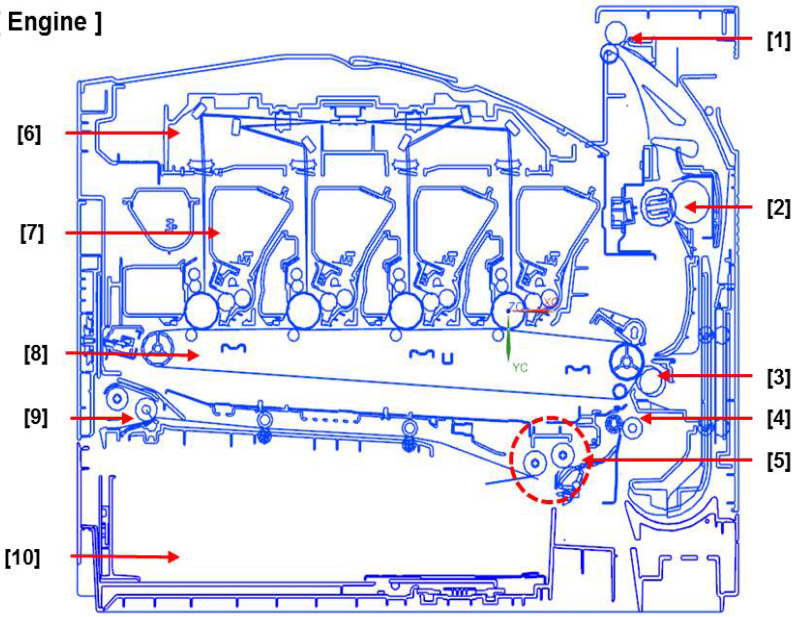
[A4 DSDF : C4060]



[Legal DSDF : C4062] [11]

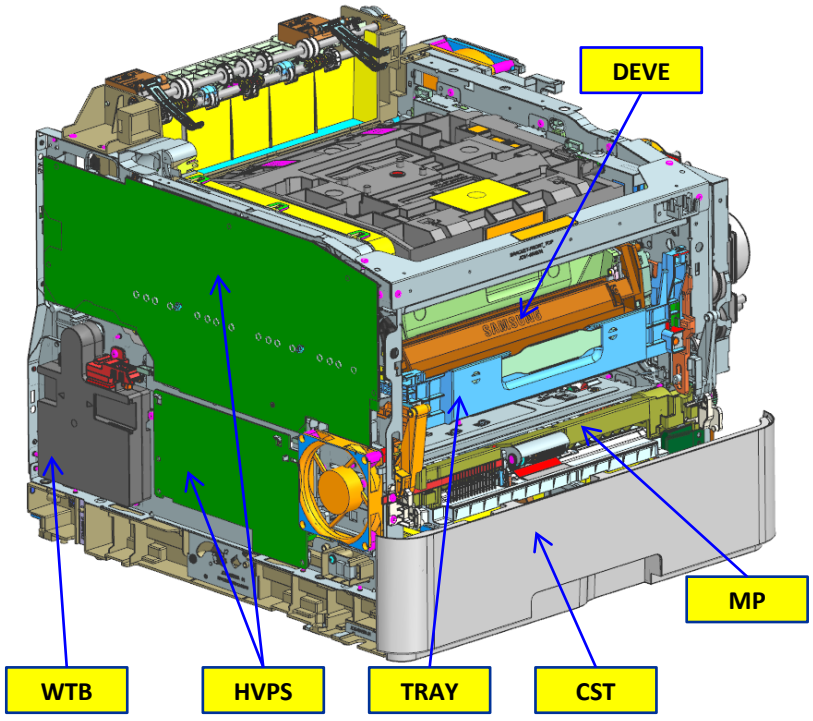


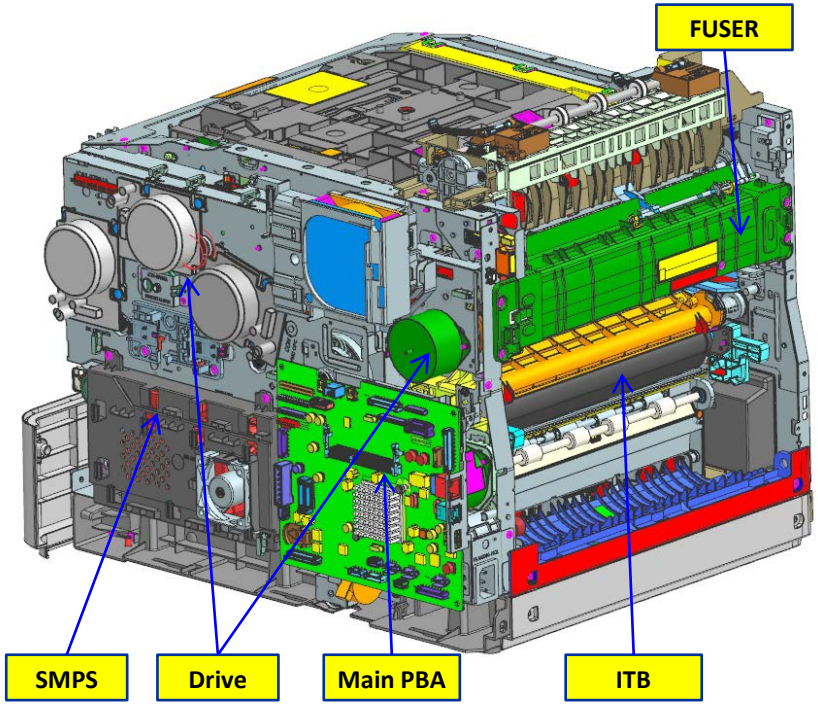
[Engine]



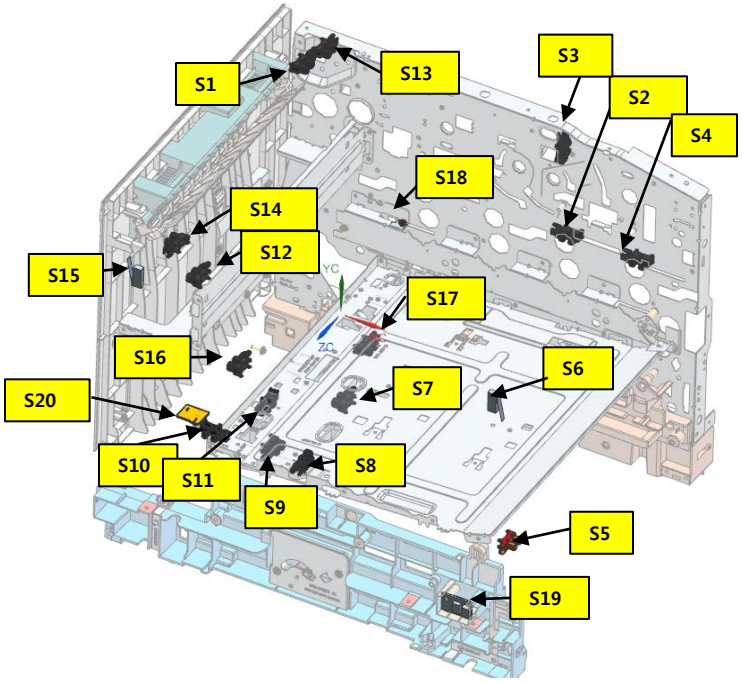
1	Exit unit
2	Fuser unit
3	T2 (second transfer) roller
4	Registration roller
5	Pickup/Forward/Separation roller
6	LSU
7	Toner Cartridge
8	ITB unit
9	MP unit
10	Cassette
11	CIS

2.1.2 System Layout_Main frame architecture



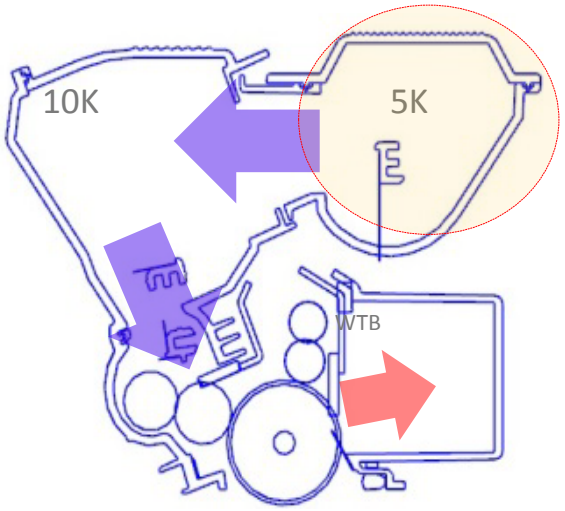


2.1.3 Sensor



No.	Description	Controller	Function
S1	Photo interrupter (Fuser Exit sensor)	MainBoard	Fuser Exit Detection
S2	Photo interrupter (Drive OPC sensor)	MainBoard	Drive OPC Detection
S3	Photo interrupter (Deve Nip sensor)	MainBoard	Deve Home Detection
S4	Photo interrupter (Drive OPC sensor)	MainBoard	Drive OPC Detection
S5	Photo interrupter (MP empty sensor)	MainBoard	MP empty Detection
S6	Switch Front Cover (Cover Front Open sensor)	HVPS	Cover Open Detection
S7	Photo interrupter (Pick up level sensor)	MainBoard	Pick up level
S8	Photo interrupter (ITB sensor)	MainBoard	ITB Detection
S9	Photo interrupter (CST install sensor)	MainBoard	CST intall Detection
S10	Photo interrupter (WTB Open sensor)	MainBoard	WTB Open Detection
S11	Photo interrupter (Regi sensor)	MainBoard	Paper Feed Detection
S12	Photo interrupter (Fuser Cam sensor)	MainBoard	Fuser Cam Detection
S13	Photo interrupter (Binfull sensor)	MainBoard	Binfull Detection
S14	Photo interrupter (Exit sensor)	MainBoard	Exit Detection
S15	Switch Rear Cover (Cover Rear Open sensor)	HVPS	Rear Cover Detection
S16	Photo interrupter (Duplex sensor)	MainBoard	Duplex Detection
S17	Photo interrupter (Paper empty sensor)	MainBoard	Paper Empty Detection
S18	Thermistor sensor (Temp sensor)	MainBoard	Temp Detection(inside)
S19	Humidity sensor(Temp, humidity sensor)	HVPS	Temp,Humidity Detection
S20	PBA Waste sensor	HVPS	WTB Full Detection

2.2 Toner cartridge



Toner 15K High Yield
(Multi toner supply structure)

- Developing Method :
  Non magnetic single component contacting method

- Toner :
  Non magnetic single component polymerized type toner

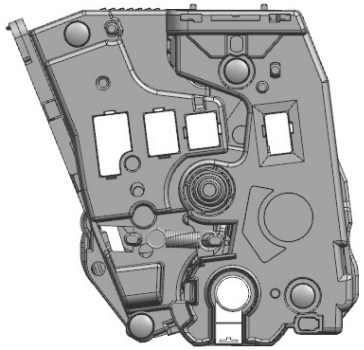
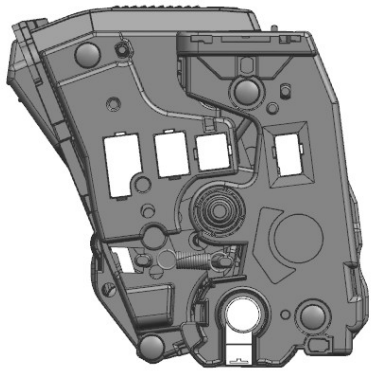
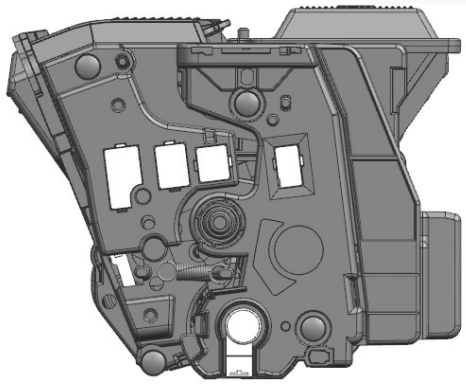
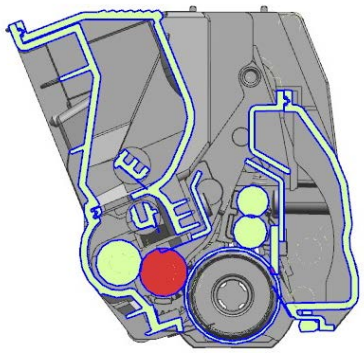
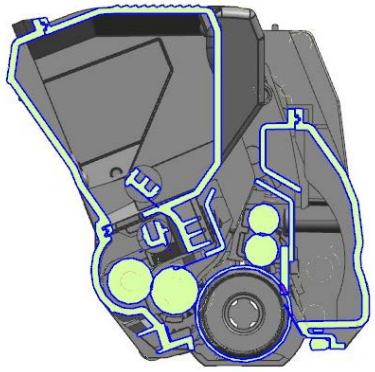
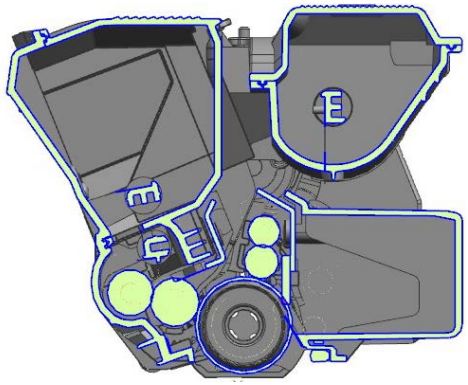
- The life span of toner (ISO 19798 pattern / A4 standard)
  - Initial : Approx. 4,000 (K)/ 2,500(CMY) pages
  - Sales : Approx. 15,000 (K)/ 10,000(CMY) pages

- 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

2.2.1 Toner cartridge_Layout

Left Side View			
Section View			
	Initial C/M/Y (2.5k) Initial K (4k)	Consumable C/M/Y (10k)	Consumable K (15k)

2.2.2 Toner cartridge_Electrod

SR

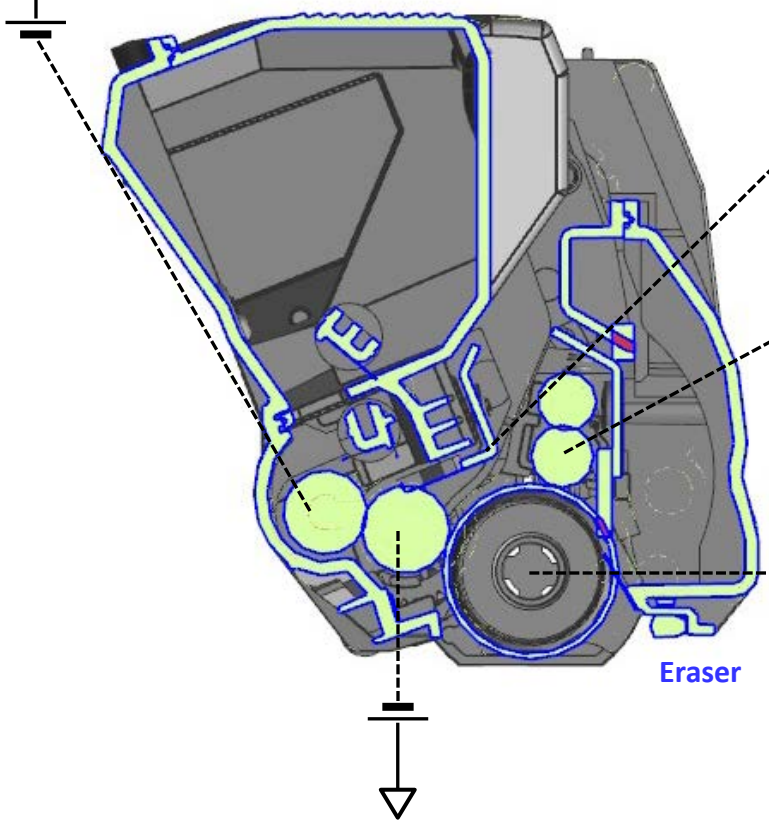
- Supply roller : Φ11.45 Sponge roller
- Supply voltage : DC -300V ~ -600V

Dr.BLADE

- Blade material : stainless
- Blade voltage : DC -300 ~ -600 V

CR

- Charge roller : Φ 8.5 Contact rubber roller
- Charge voltage : DC -1000V ~ -1200V

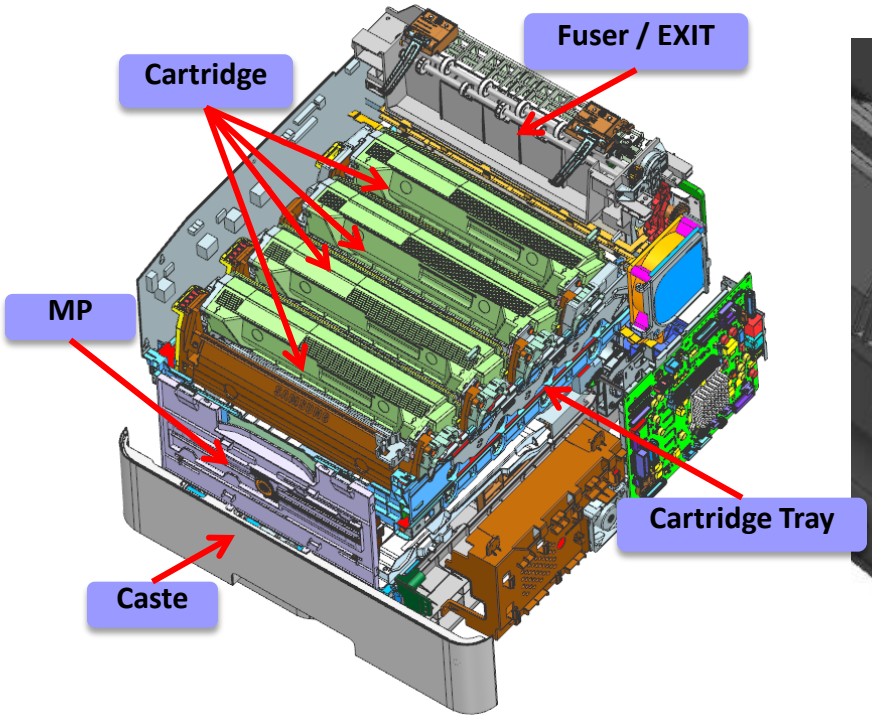


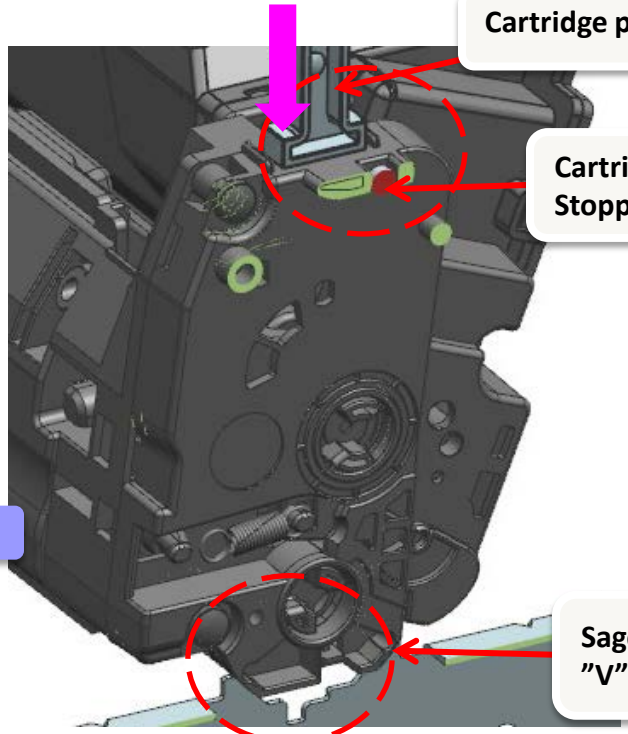
- Developing roller : Φ12 Rubber roller
- Developing voltage : DC -200V ~ -500V

2.2.3 Toner cartridge_Arrival mechanism

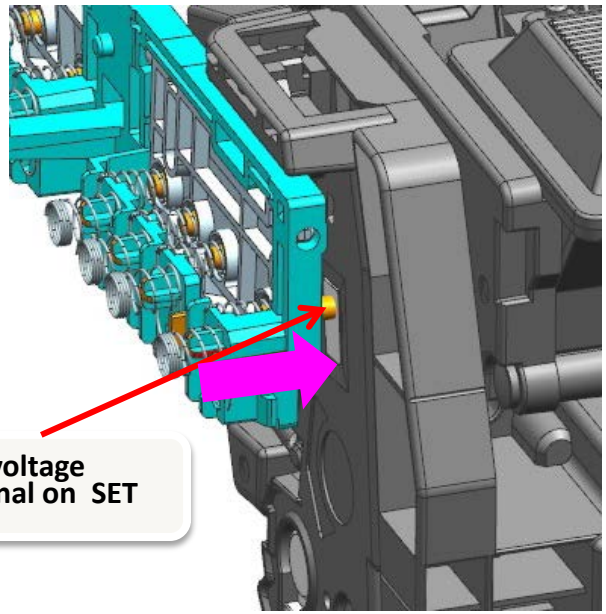
1. Insert the cartridge in sliding tray, and arming in Set

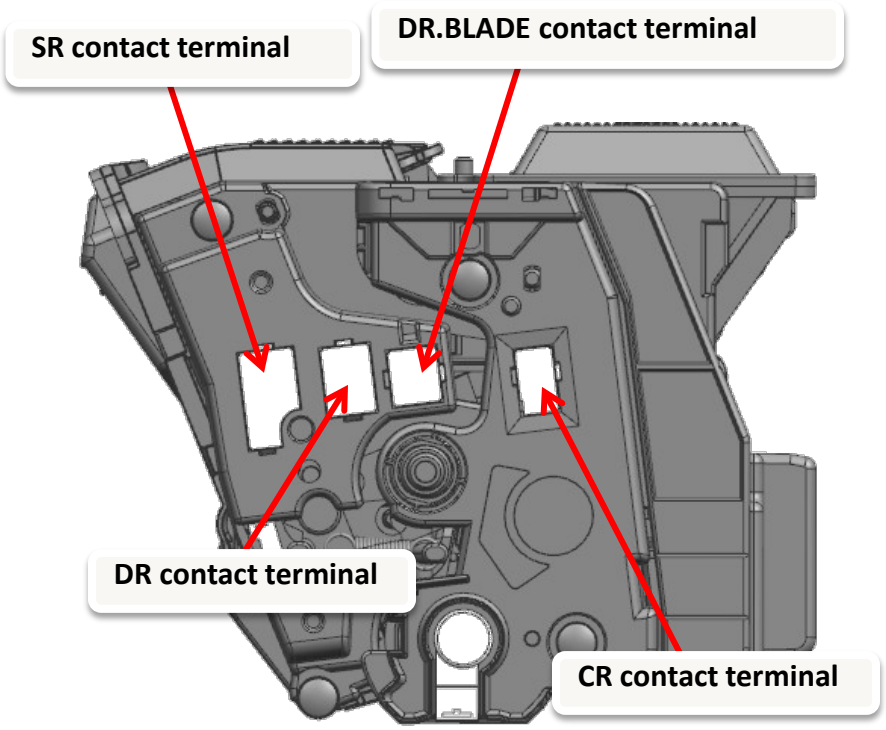
2. The cartridge being fixed in constant position by Set inside safe receipt device





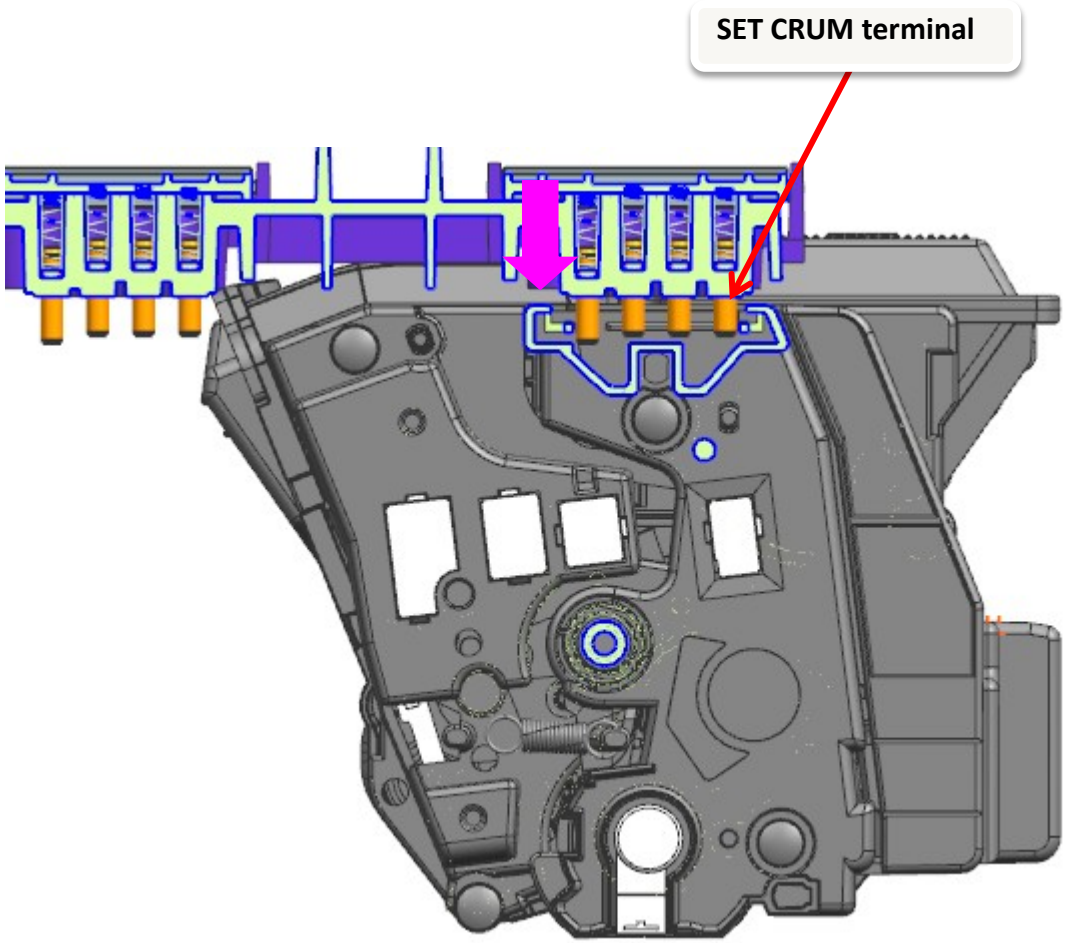
2.2.4 Toner cartridge_voltage contact point





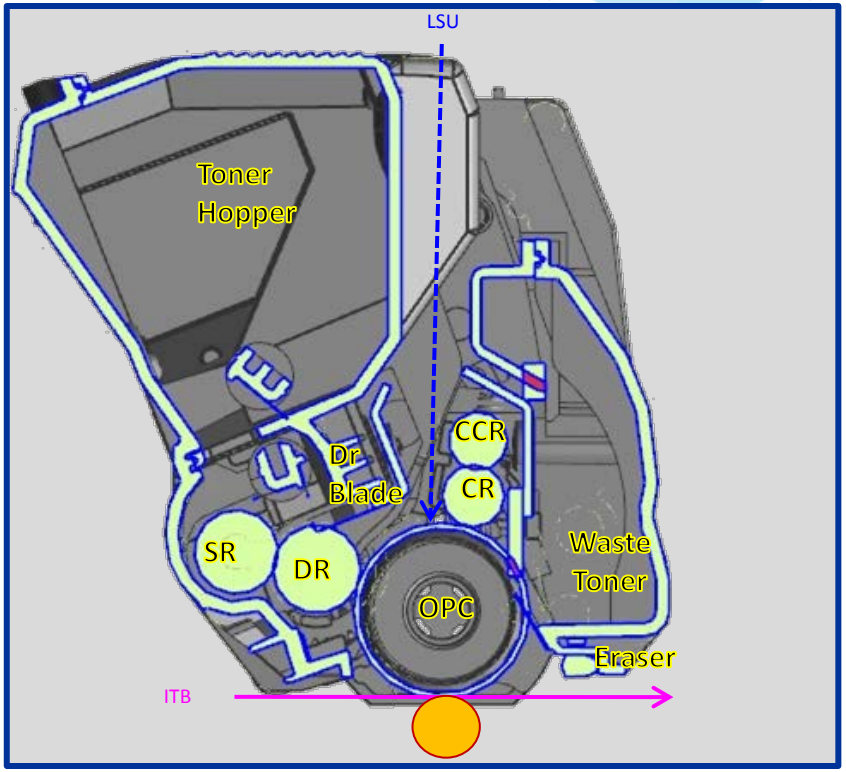
Push the tray with the cartridge all the way, and high pressure terminal of cartridge contact with the spring contact point that inside the printer set.

2.2.5 Toner cartridge_CRUM contact point



Spring terminal moves towards the cartridge when tray is installed.

2.2.6 Toner cartridge_Roller Diameter

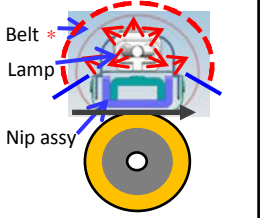


No.	Roller	Outside diameter	Cycle
1	OPC drum	Ø 24	75.47 mm
2	Developing roller (DR)	Ø 12	29.92 mm
3	Supply roller (SR)	Ø 11.45	38.39 mm
4	Charge roller (CR)	Ø 8.5	26.70 mm

2.3 Fuser unit

Performance		AS-IS (SL-C30xx)	TO-BE (SL-C40xx)	Remarks
Thermal efficiency	Power	115V : 850W 230V : 800W	115V : 1100W 230V : 1100W	
	Power source	Halogen lamp	Ceramic Heater	
	FPOT	As fast as 9/10 sec (Mono/Color)	As fast as 8/8 sec (Mono/Color)	
Usability	Pressure control	Automatic	Automatic	Easy to remove

IFS2



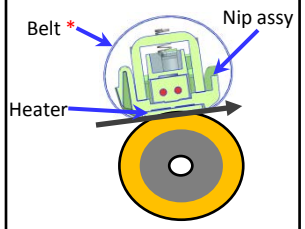
Technical features

Heat the Fuser belt

Specifications

- Belt Φ 24mm
- PR Φ 22mm
- Heater 115V 850W / 230V 800W

IFS3

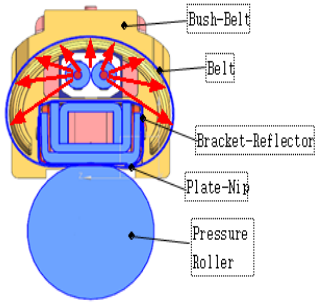


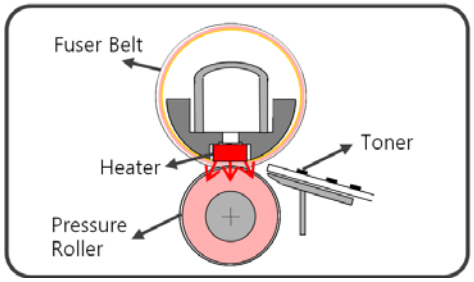
Technical features

On Demand Fusing system (ODF)

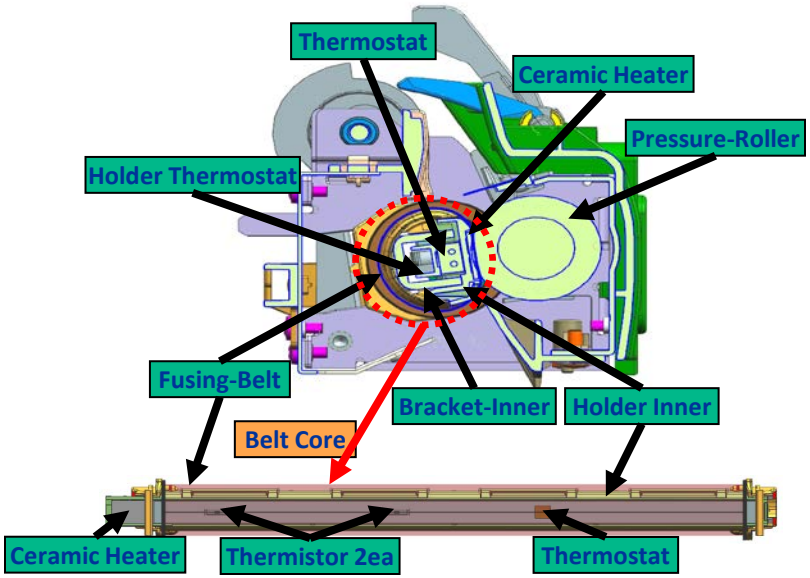
Specifications

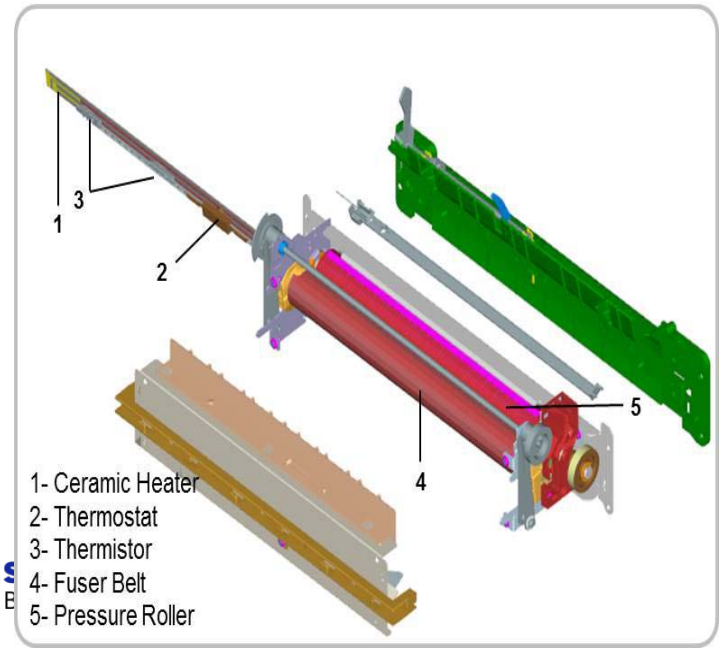
- Belt Φ 24mm
- PR Φ 27mm
- Heater 115V 1100W / 230V 1100W





2.3 Fuser unit





1) Thermostat
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.

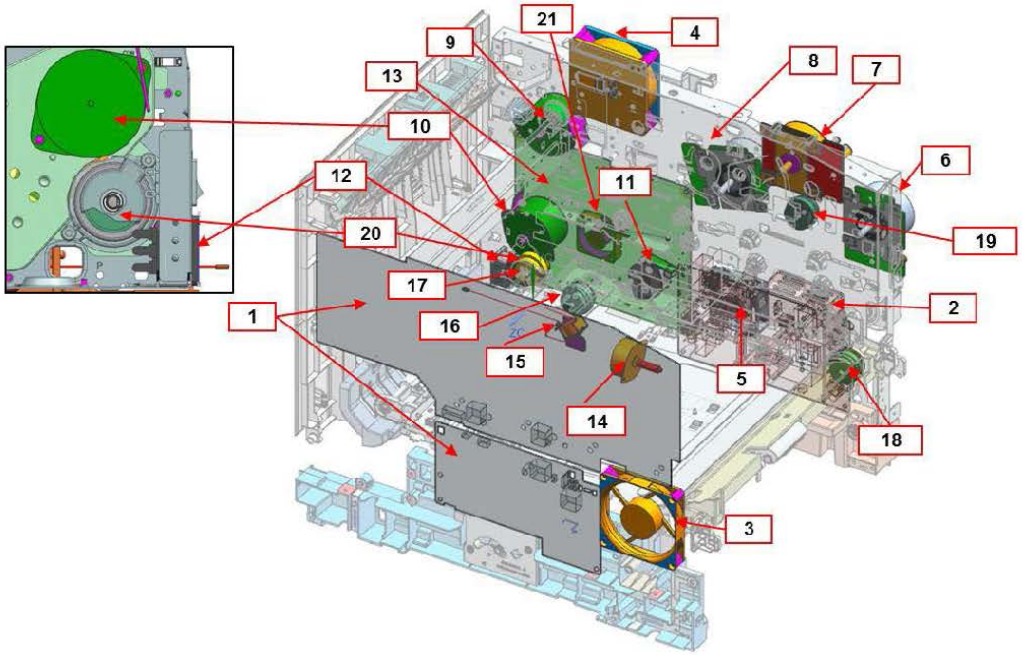
3) Fusing Belt
The fusing belt gets heat from the ceramic heater which in turn fuses the toner to the paper.

4) Pressure roller
The pressure roller is a rubber roller which ensures proper nip width between the pressure roller and fusing belt.

5) Ceramic Heater

SAMSUNG

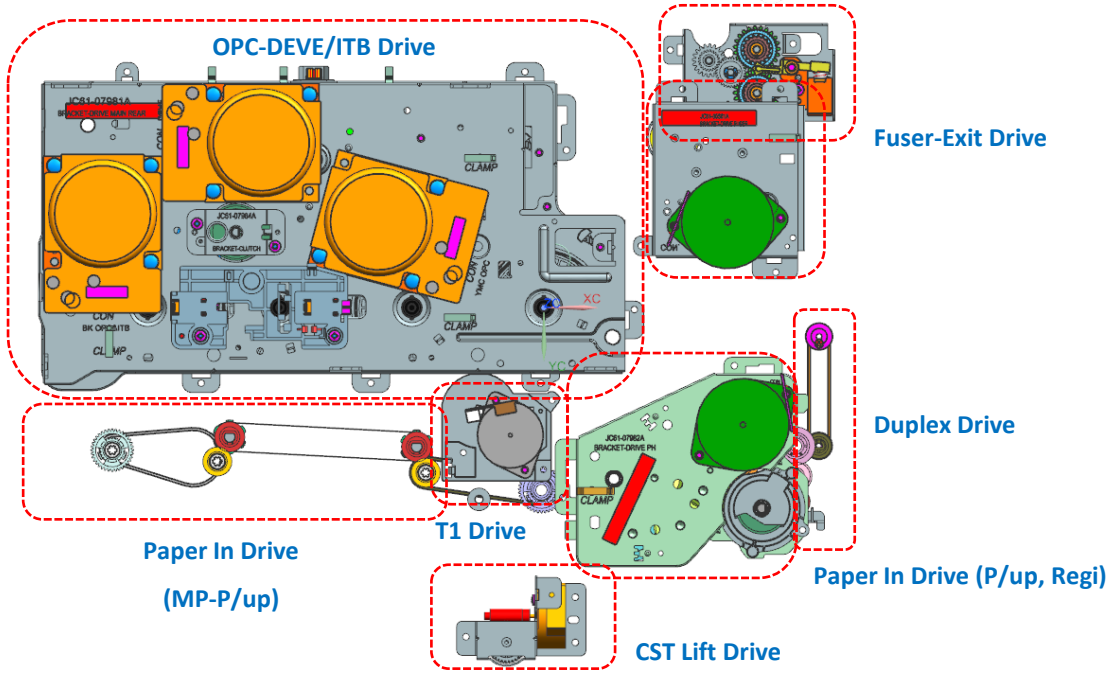
2.4 Drive unit



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

2.4 Drive unit

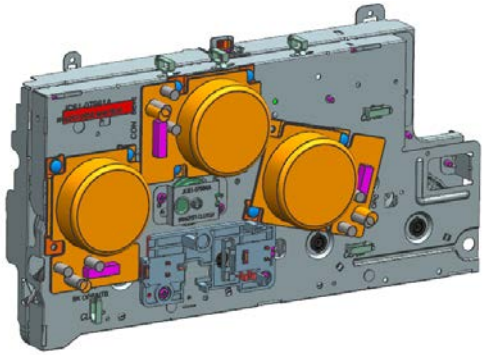


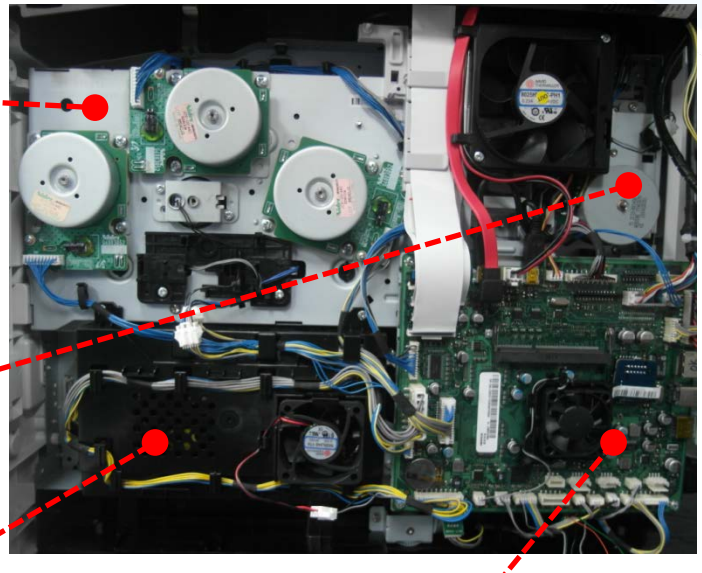
Function	Driving Source	Remark
Color OPC driving (YMC)	1-BLDC motor	
Mono OPC & ITB driving	1-BLDC motor	
DEVE driving	1-BLDC motor	Mono-Color mode
Paper driving	1-STEP motor	MP,CST,DUPLEX
Fuser driving & Pressure Roller release mode	1-STEP motor	
T1 engage driving	1-STEP motor	Engage-Disengage mode
Cassette Lift driving	1-STEP motor	

2.4 Drive unit

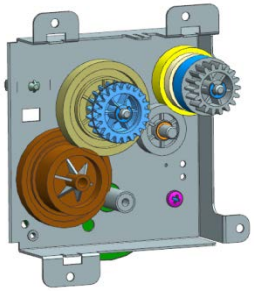
1) Power Supplier : By gear

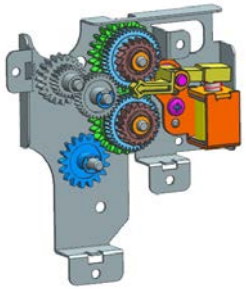
Using three BLDC motor ; power supply to developing and transfer belt.



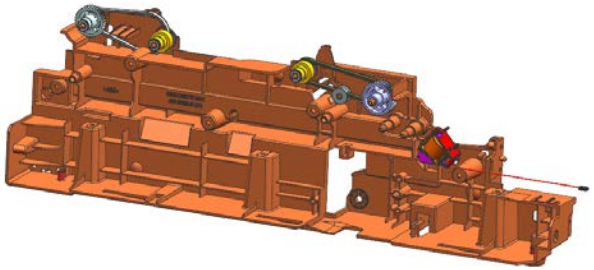


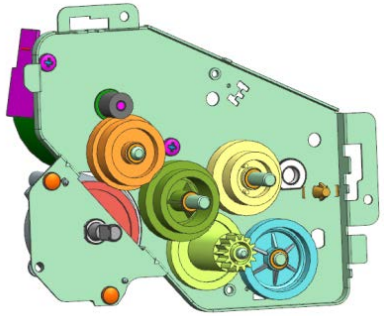
2) One STEP motor ; power supply to Fuser and Output Unit.





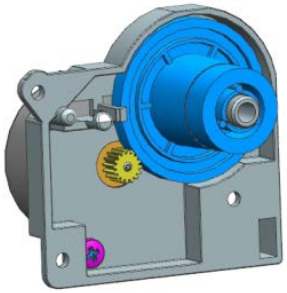
3) One STEP motor ; power supply to Feeding section (MP, DUPLEX, REGI)



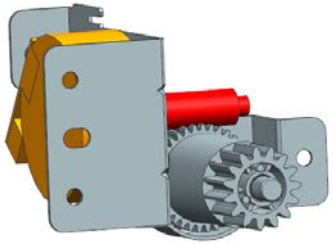


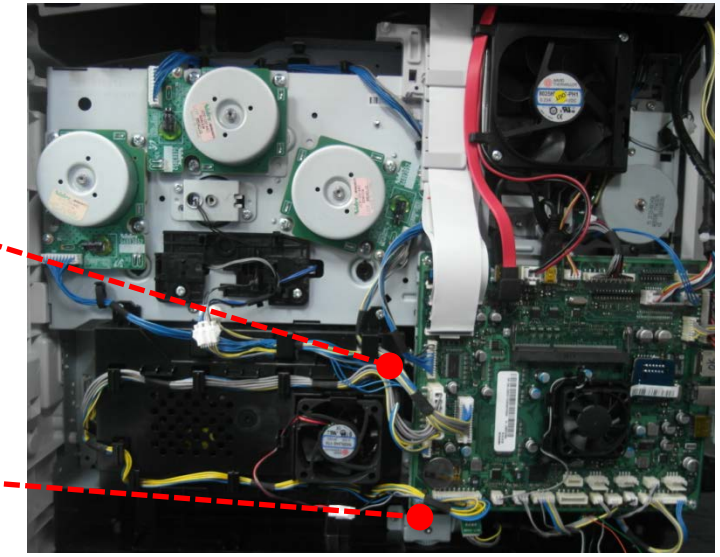
2.4 Drive unit

4) One STEP motor ; power supply to T1 engage/disengage.



5) One STEP motor ; power supply to cassette lifting.

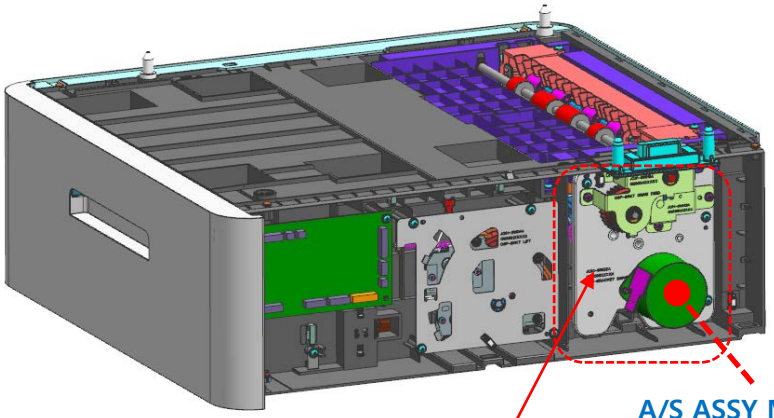




2.4 Drive unit_SCF

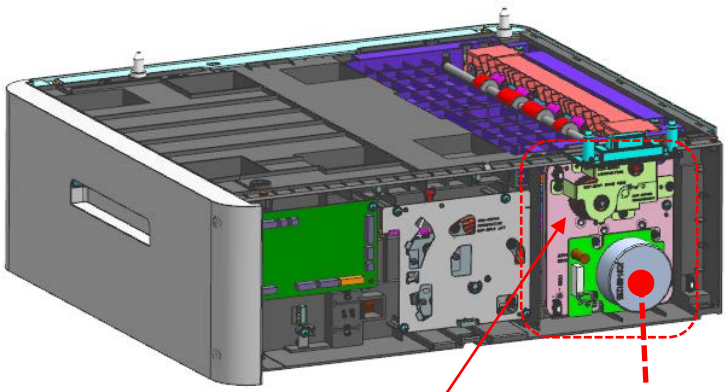
STEP MOTOR → BLDC MOTOR : Using BLDC motor ; Power supply to SCF drive

C4010/4060 SCF

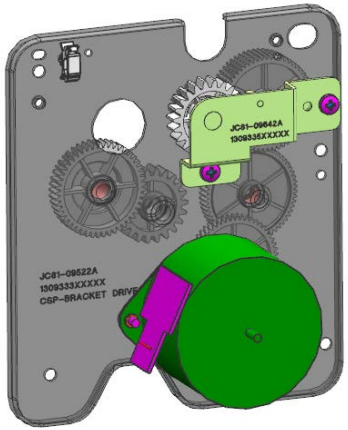


A/S ASSY MOTOR

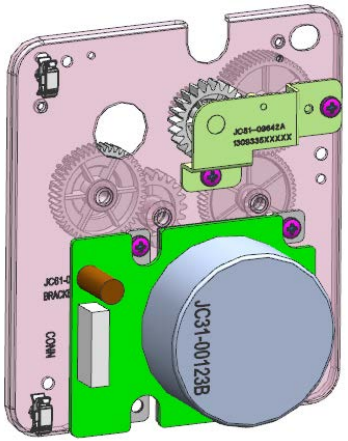
JC82-00319A (STEP MOTOR)



JC31-00123B BLDC MOTOR

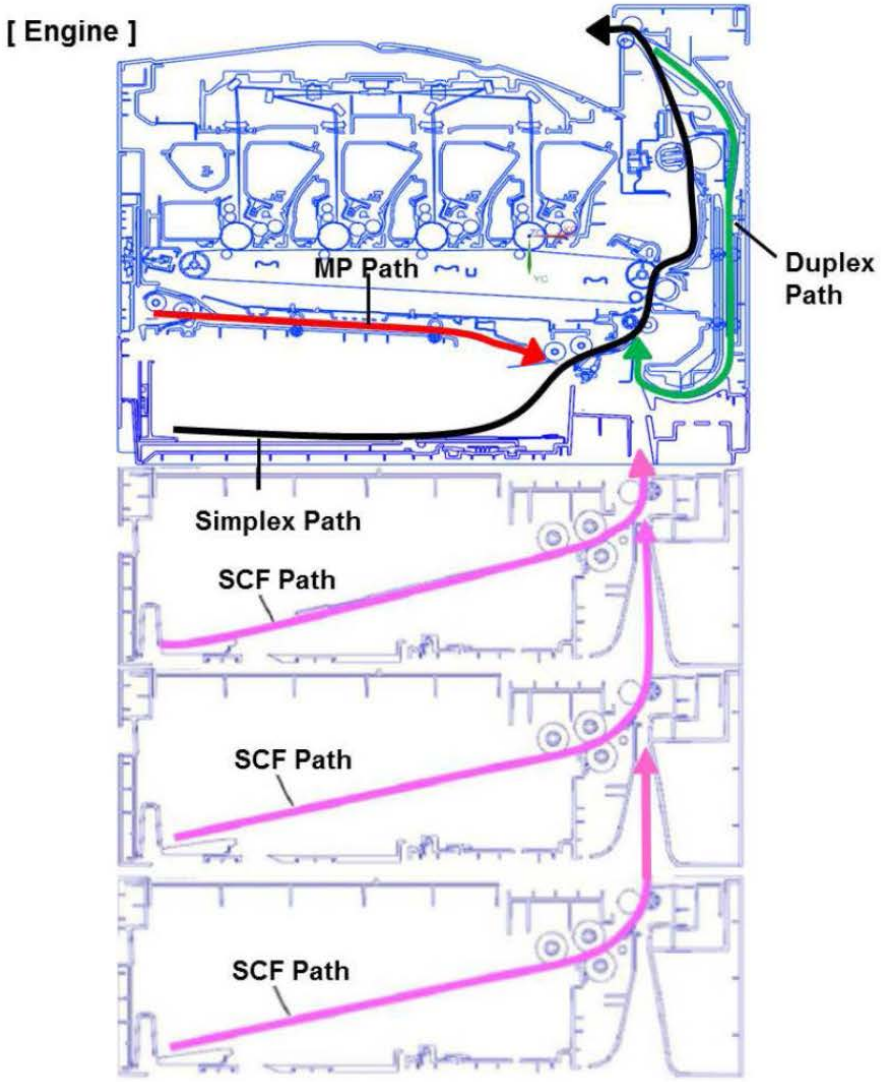


JC82-00316A A/S ASSY-DRIVE



JC93-01288A DRIVE-SCF

2.5.1 Feeding system



2.5.2 Feeding unit

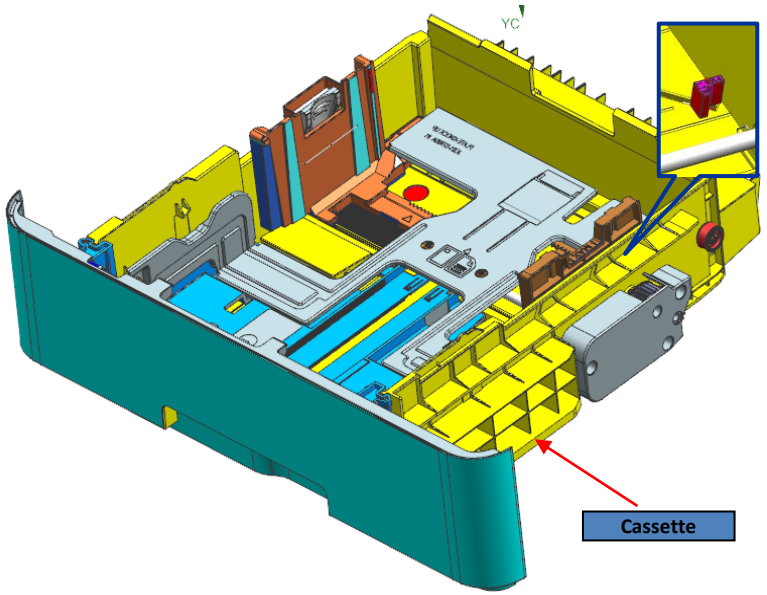
-. Feeding system

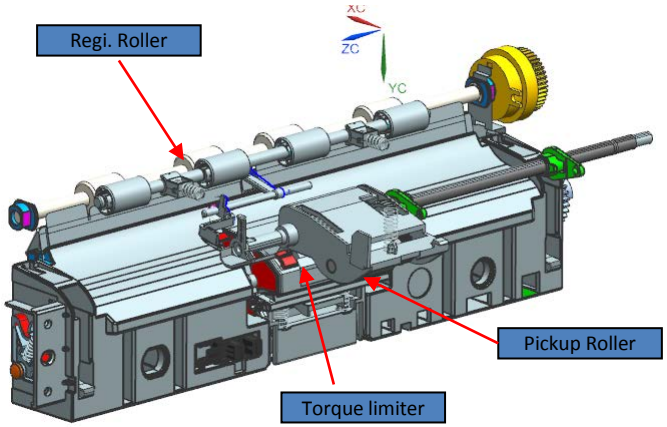
1) Using Torque Limiter(Semi-retard), it's possible to handle the special papers (perforated paper/ recycled paper, etc)

2) Media Weight : 16~58lb

3) A6 Size & other Special Medias could be supported in Cassette.

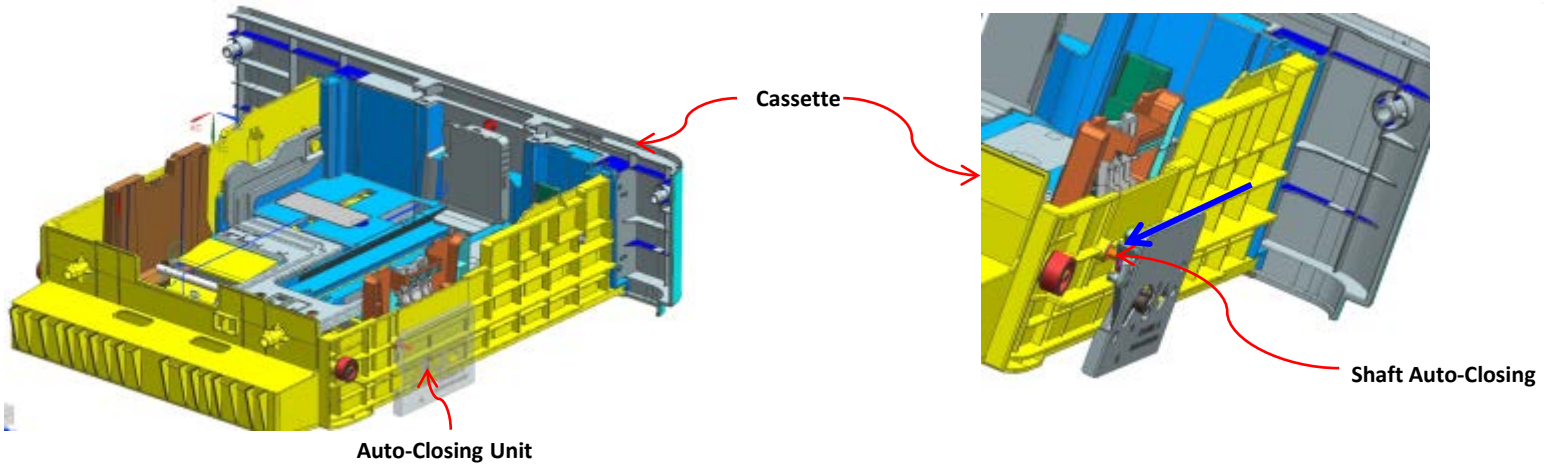
4) Possible to make lifetime longer by the structure of Retard roller engage/disengage



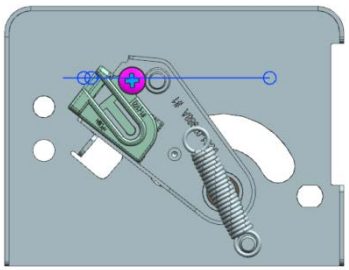


2.5.3 Feeding unit (Auto-Closing Unit)

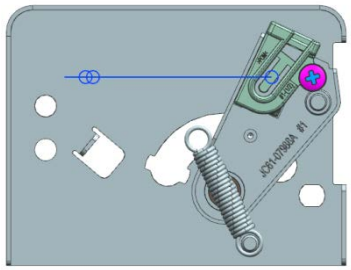
- Auto-Closing Stroke: 41mm

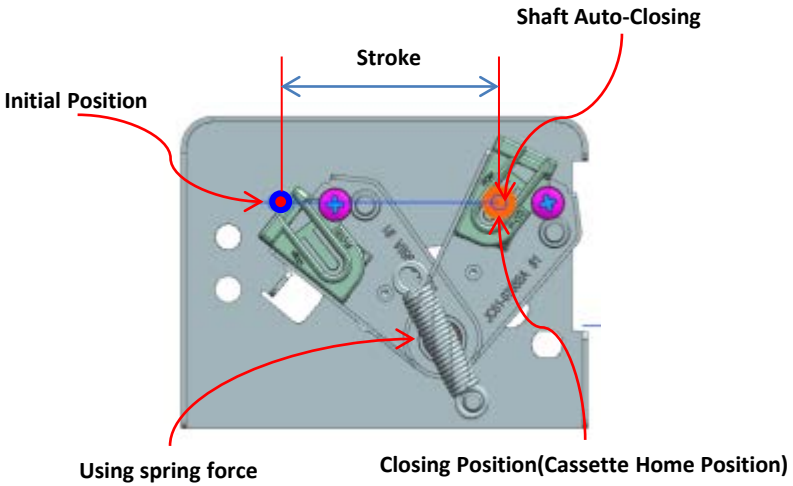


Initial Position



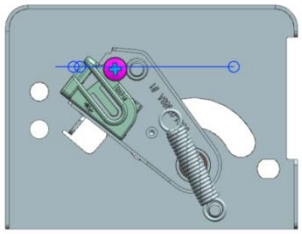
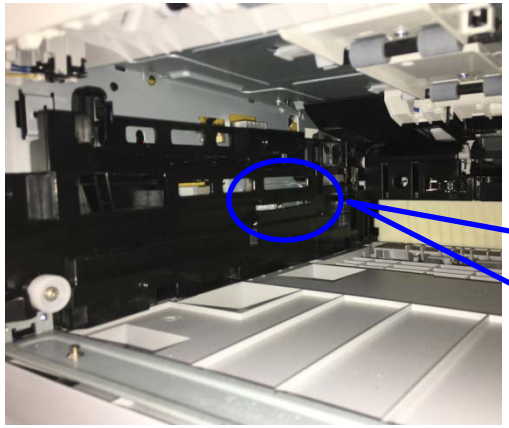
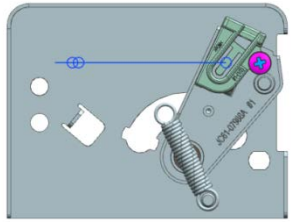
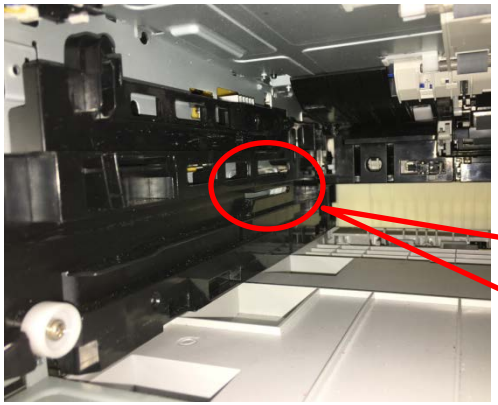
Home Position





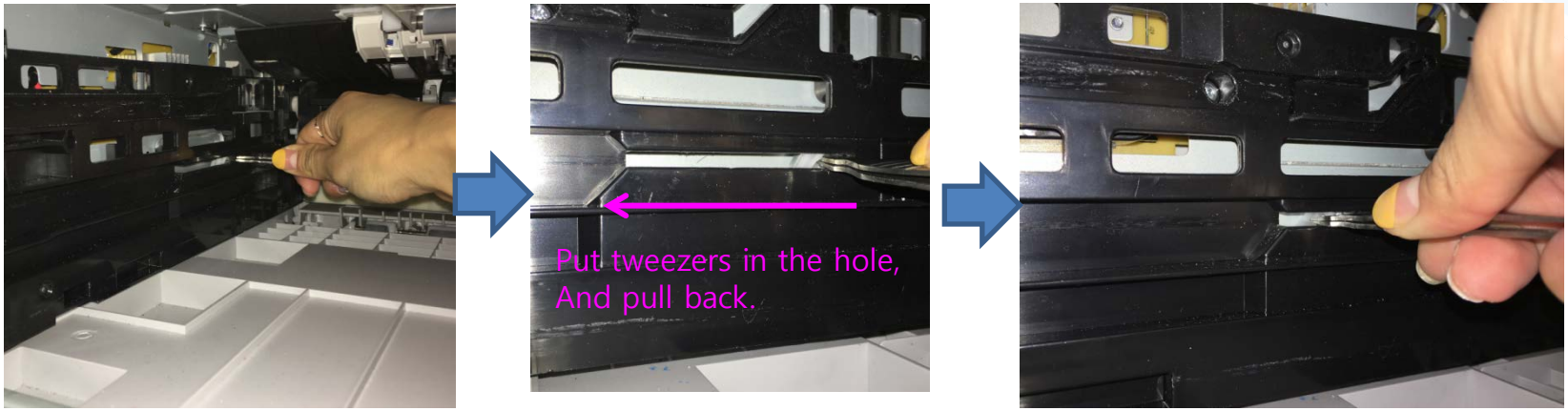
2.5.3 Feeding unit (Auto-Closing Unit)

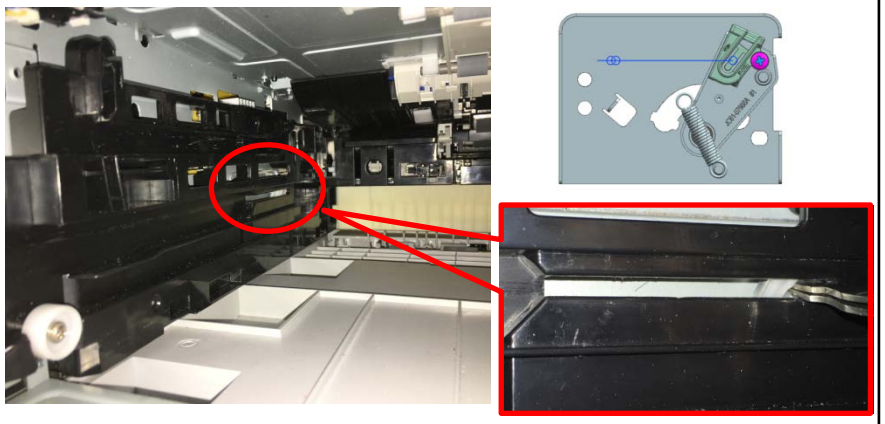
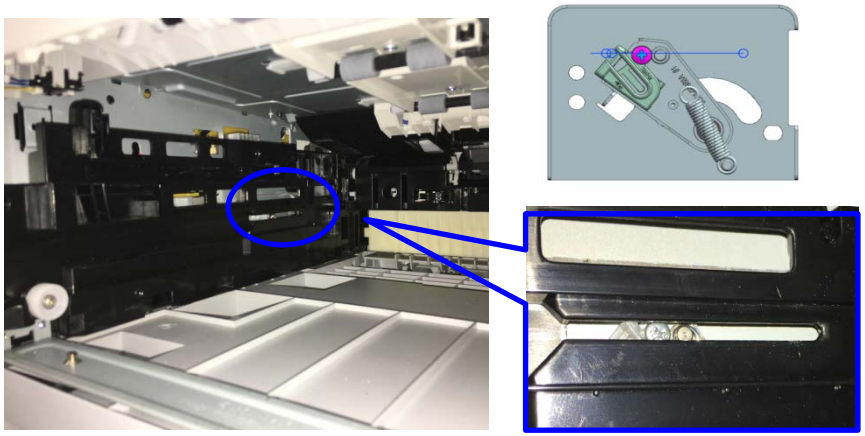
- When a cassette is not closed, after opening a cassette and check.

Normal	Abnormal (not be closed)
   	   

2.5.3 Feeding unit (Auto-Closing Unit)

- When a cassette is not closed, how to solve



AS IS (Abnormal)	TO BE (Normal)
	

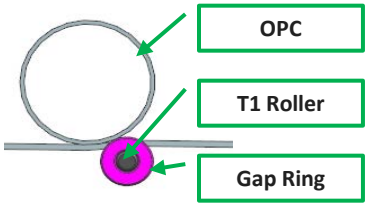
2.6 ITB unit

1. Apply Color/Mono mode conversion (Improve the lifetime of toner)
   - BK T1 fixed, only color (Y,M,C) T1 Roller engage/disengage

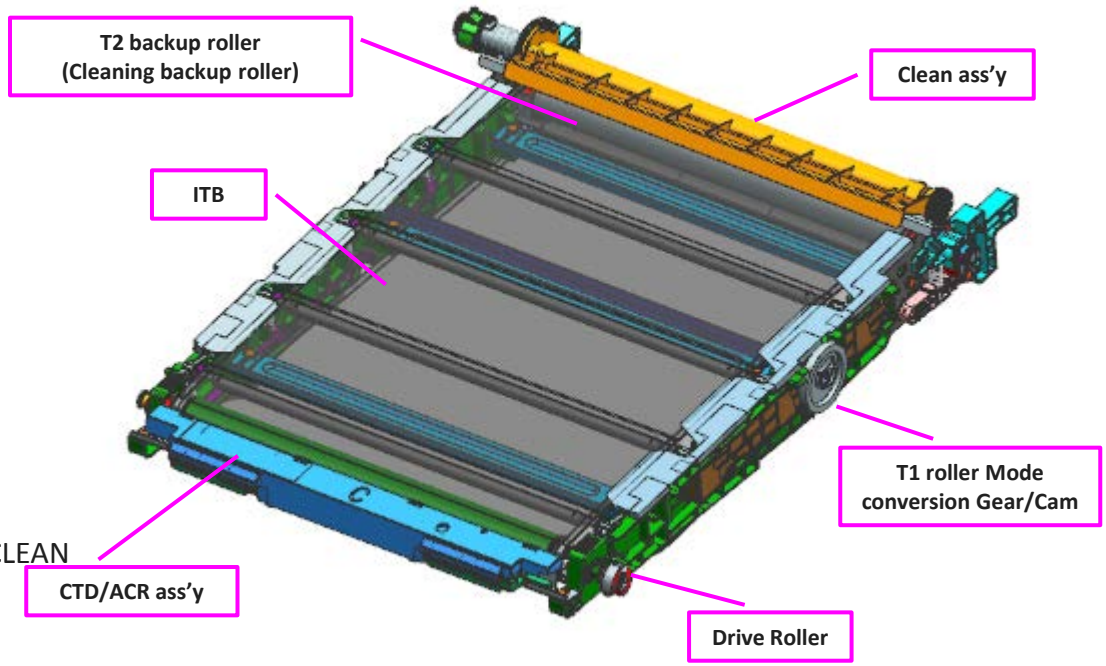
2. Driving system : Coupling

3. ITB → Main Frame : Improve Assembly precision
   - Drive Roller, T2 backup roller are set to Frame directly

4. T1 nip Structure : Apply Indirect method
   Secure the precision of Nip → Apply Gap ring



5. Module Design
   - Be comprised of clearly separated sub unit - FRAME / CLEAN



2.7 LSU unit

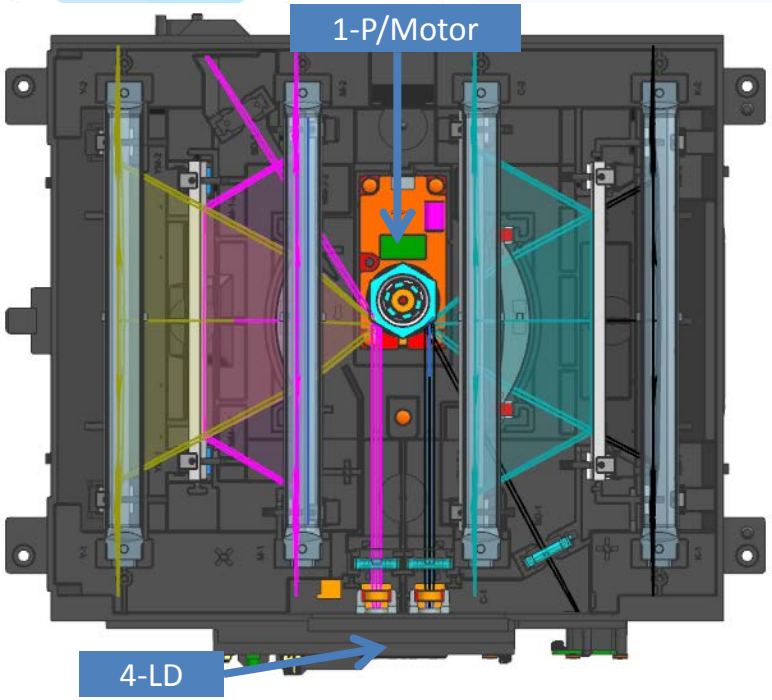
-. Composition of LSU System

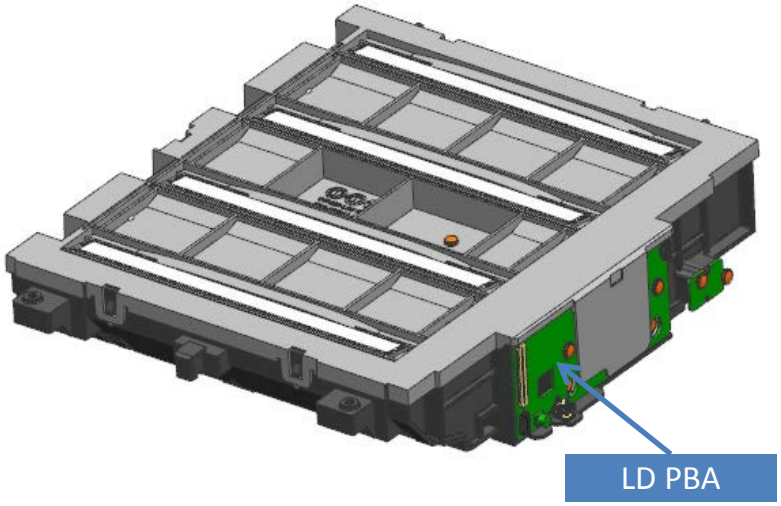
1) Optical System : A4 Slope Optical System

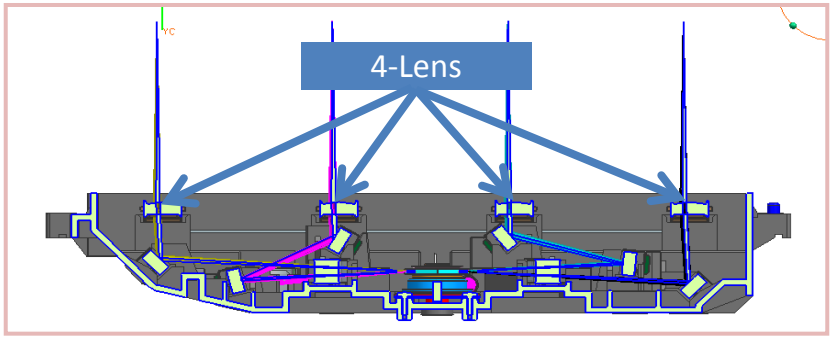
2) P/motor : 6f 30pi, CCW

3) LD : 780nm Dual Beam Laser Diode

(C30 is applied single beam)

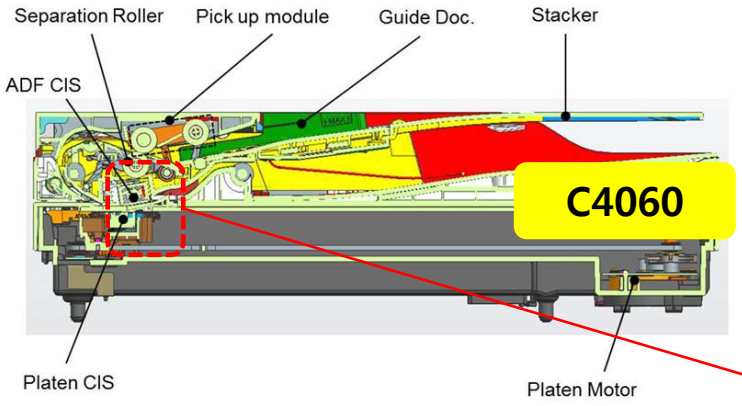


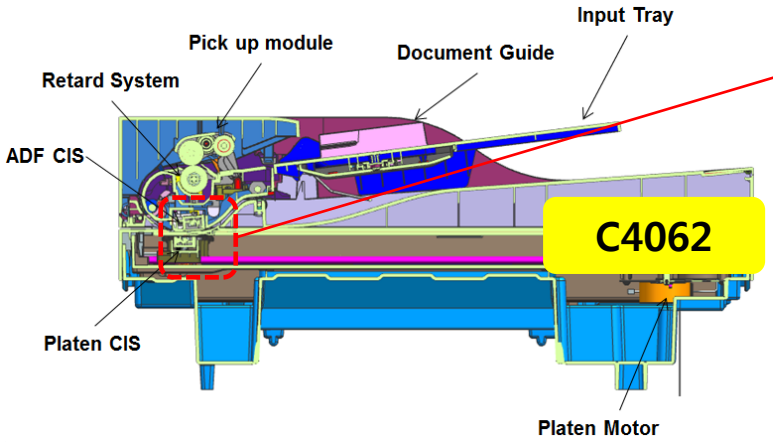


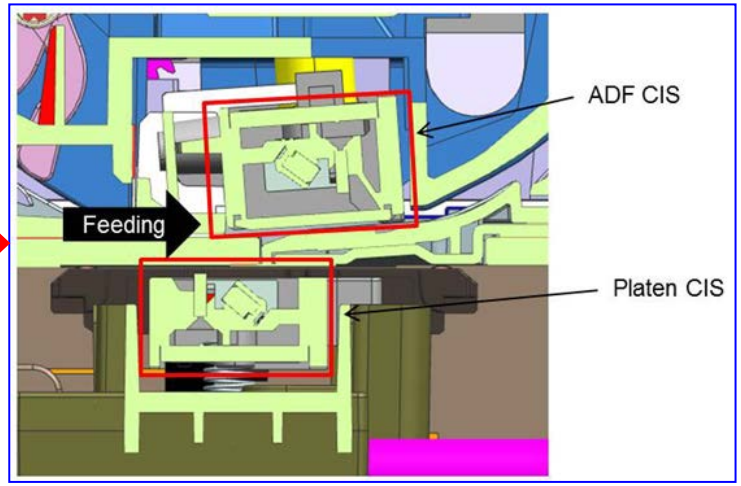


1 Motor Slope Optical system

2.8 Scan unit







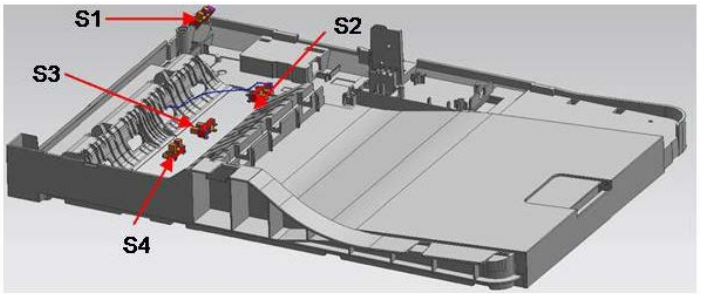
The paper surface is exposed by the platen CIS or ADF CIS and the reflected light is passed to the CIS sensor.
The function of the CIS sensor is to change from the optical image data to the electrical(analog) signal.
The analog signal is converted to the digital signal, and then the image process executes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

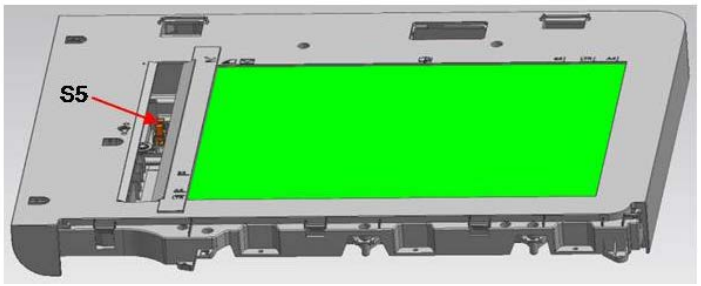
2.8.1 Scan unit_sensor

[C4062]

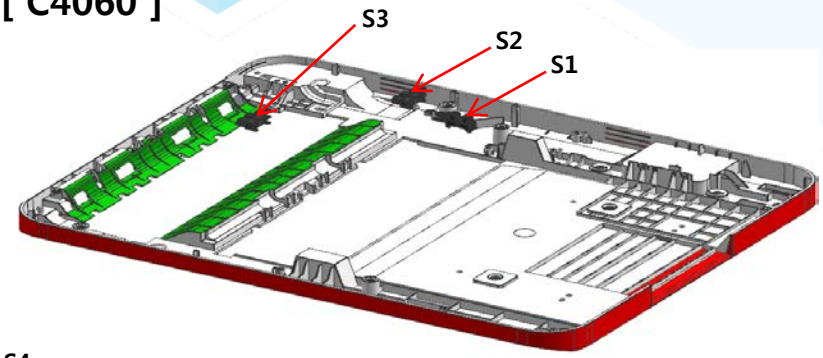
DSDF

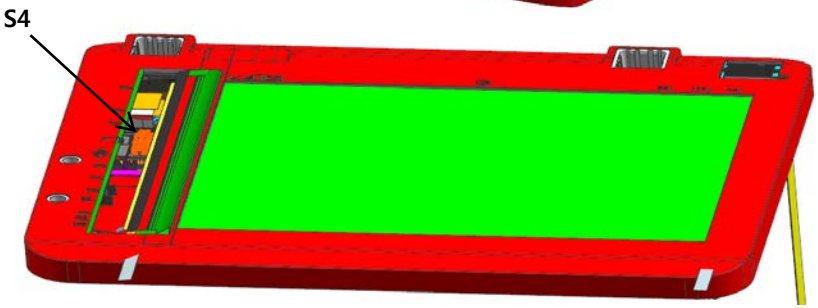


Platen



[C4060]

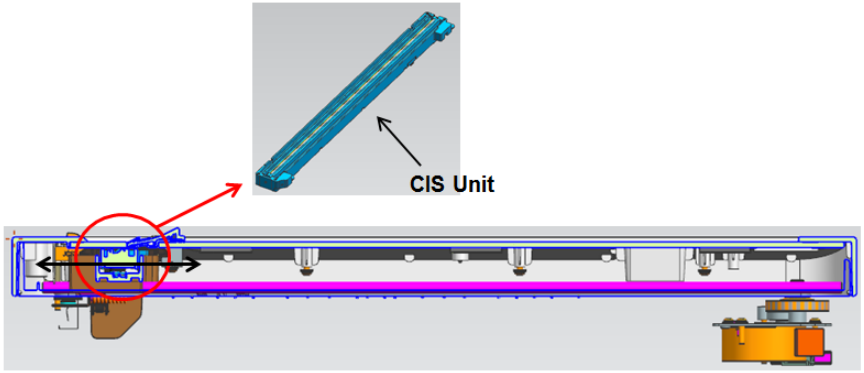


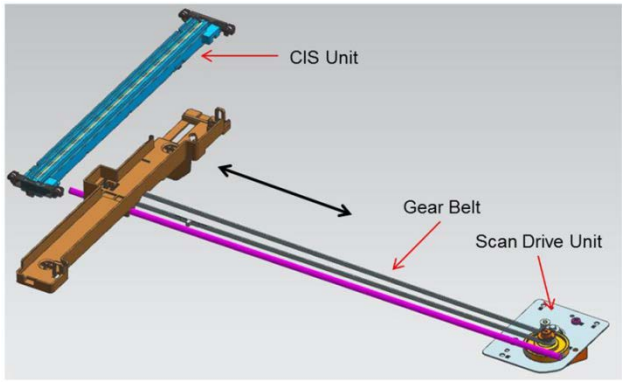


No.	Description	Controller	Function
S1	Photo interrupter (DADF Cover Open sensor)	MainBoard	Cover Open detection
S2	Photo interrupter (Paper empty sensor)	MainBoard	Paper detection
S3	Photo interrupter (Feed sensor)	MainBoard	Paper detection
S4	Photo interrupter (Regi sensor)	MainBoard	Paper detection
S5	Photo interrupter (Home Position sensor)	MainBoard	CIS Home detection

No.	Description	Controller	Function
S1	Photo interrupter (DADF Cover Open sensor)	MainBoard	Cover Open detection
S2	Photo interrupter (Paper empty sensor)	MainBoard	Paper detection
S3	Photo interrupter (Scan in sensor)	MainBoard	Paper detection
S4	Photo interrupter (Home Position sensor)	MainBoard	CIS Home detection

2.8.2 Scan unit_Platen





[Platen Drive Unit]

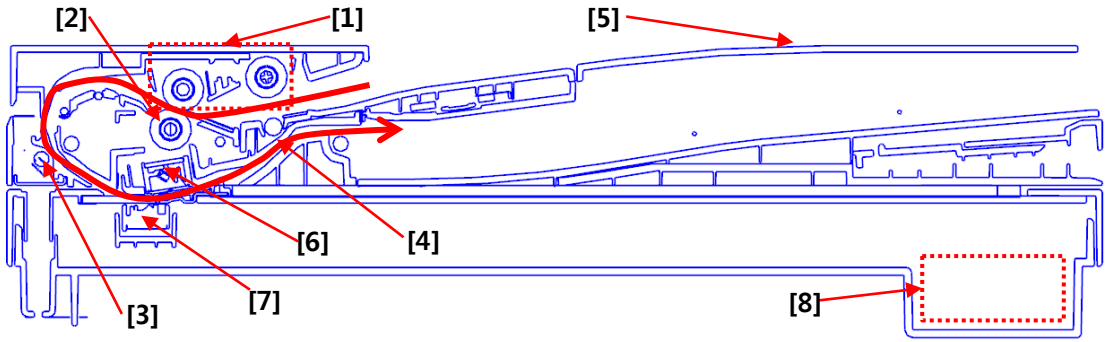
The scan drive unit consists of a step motor, retardation gear and gear-belt.
The CIS unit is moved by the gear-belt. The document image is scanned by the CIS movement.

[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.

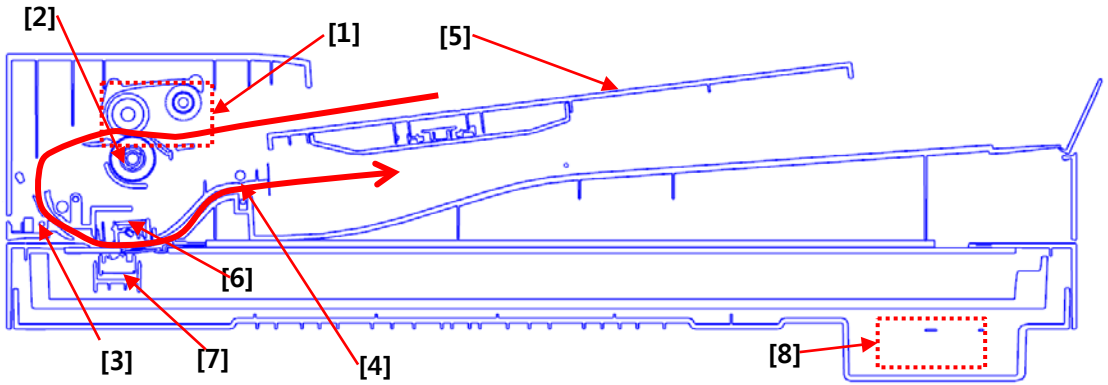
2.8.3 Scan unit_DSDF

[A4:C4060]



1	Pickup Module
2	Retard Roller
3	Scan in Roller
4	Exit Roller
5	Stacker
6	DSDF CIS
7	Platen CIS
8	Platen Motor

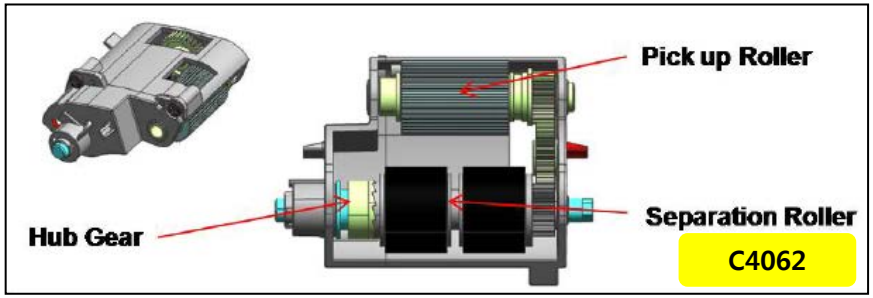
[Legal:C4062]

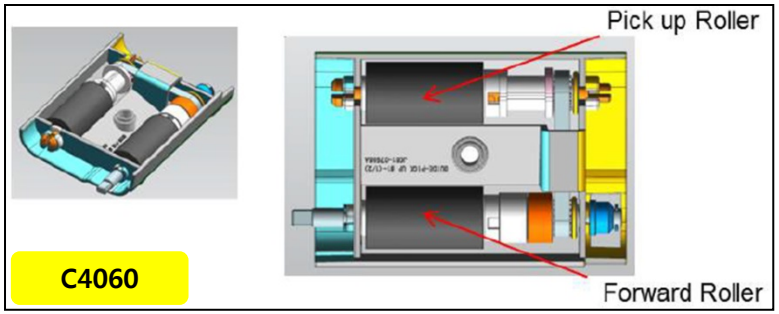


2.8.2 Scan unit_DSDF

[Pickup Module]

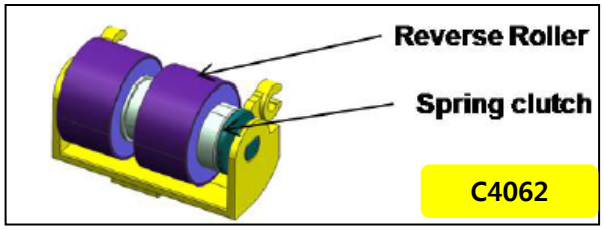
The pick up module transfers the paper from the input tray to the DSDF inside and separates the paper.

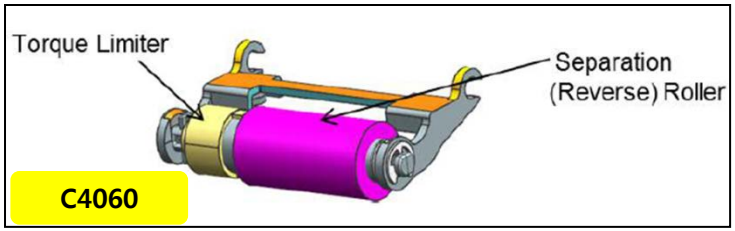




[Retard Module]

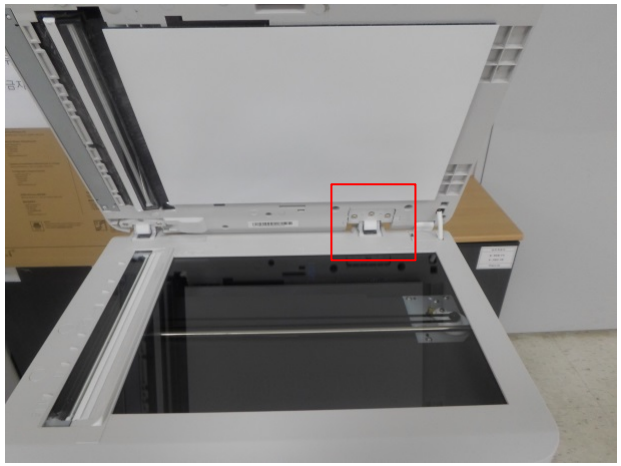
This machine uses the reverse roller system for the paper separation of the document feeder.
The features of this system are the high yield, high reliability, lower noise in comparison to the pad system.



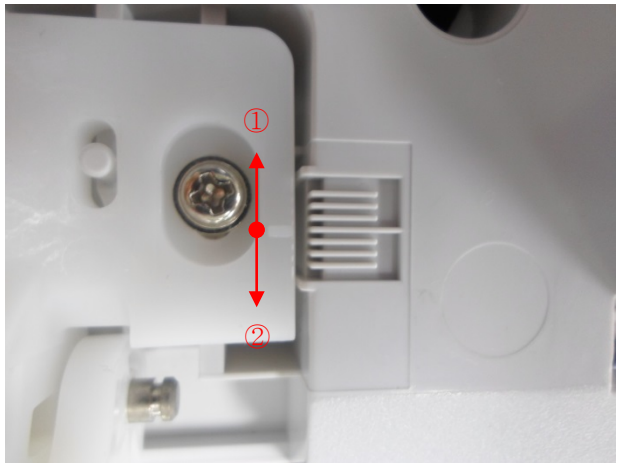


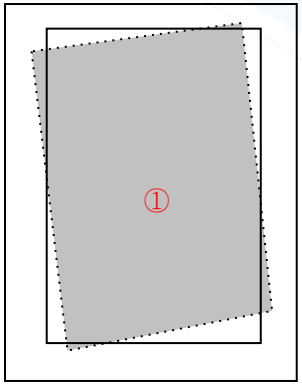
2.8.3 Scan unit_DSDF Skew

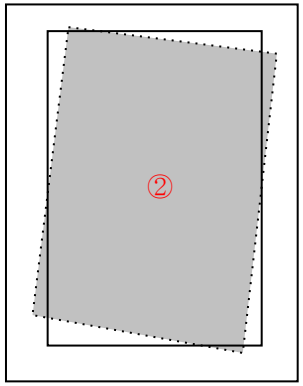
1. Loosen slightly the three right hinge screw (Red box)



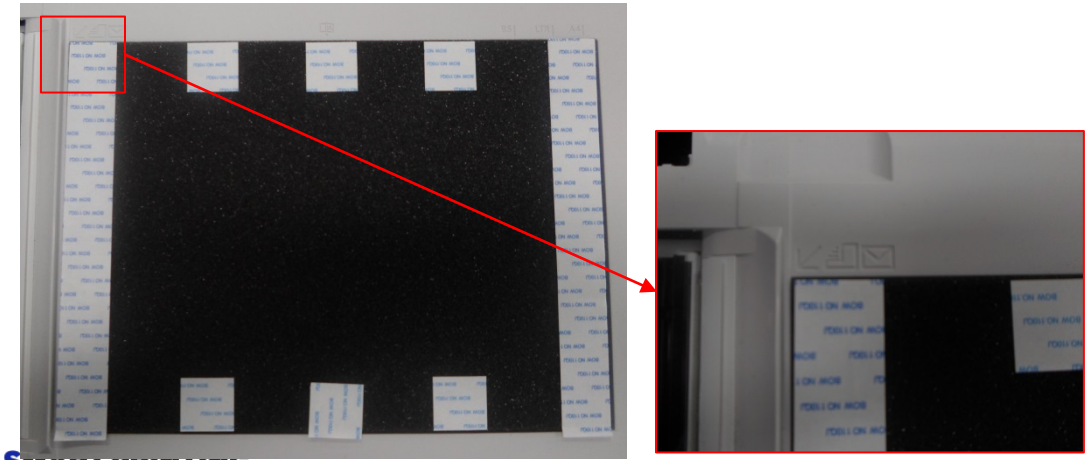
2. Adjust the hinge position following the skew image then fasten Hinge screw



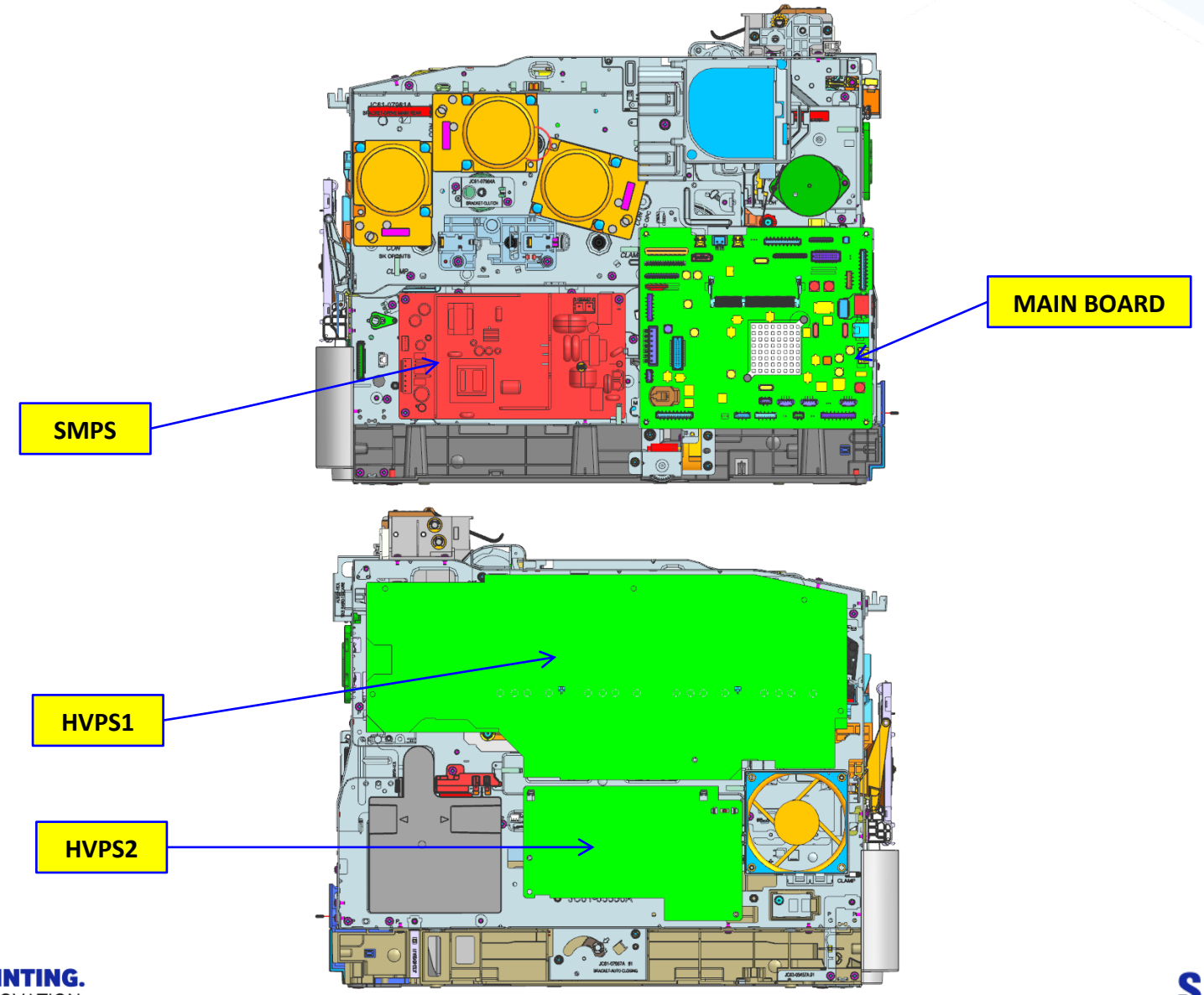




3. After finishing Skew Adjustment, Take off SPONGE ADF and Place it on the Flatbed Again. Then reattach the sponge with closing the ADF



2.9.1 Board Layout

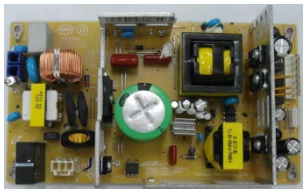


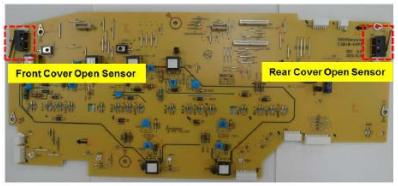
2.9.1 Board Layout_C4010

OPE

Main Controller

OPTION WIFI MODULE

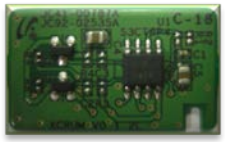




[JC44-00242A]

[JC44-00243A]

CRUM



Power (SMPS/HVPS)

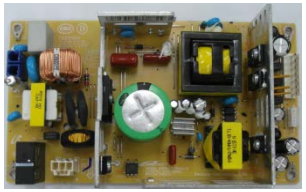
2.9.1 Board Layout_C406x

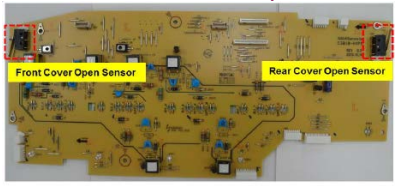
OPE

Main Controller

OPTION
WIFI
MODULE

FAX



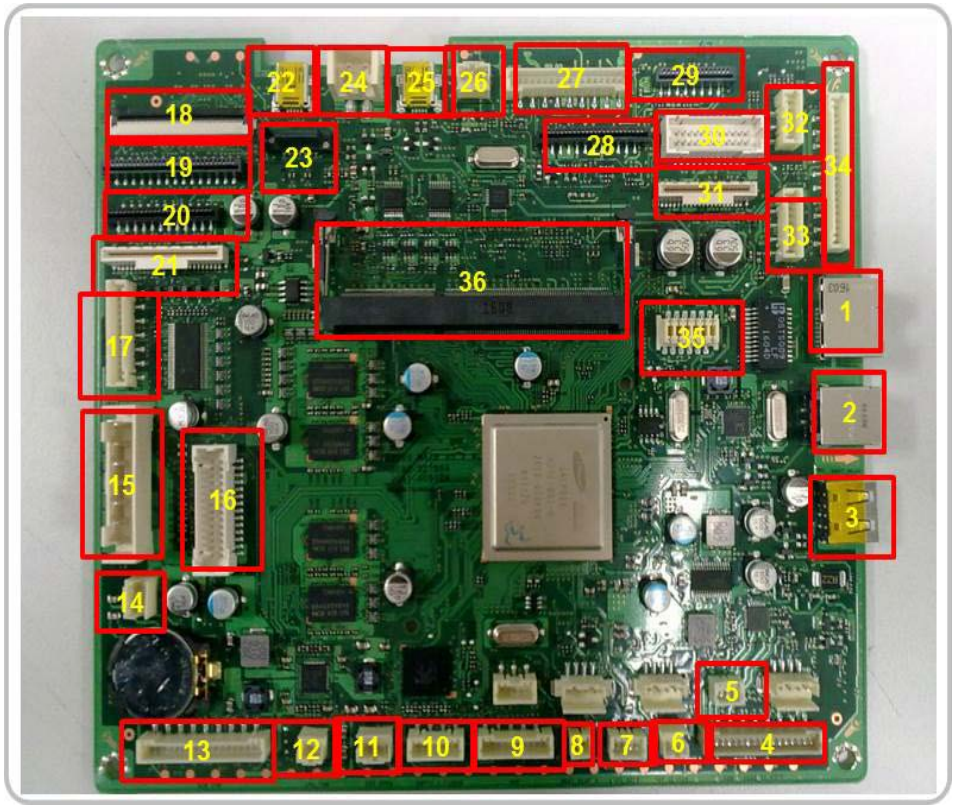


CRUM

Power (SMPS/HVPS)

2.9.2 Main Board_C406x series

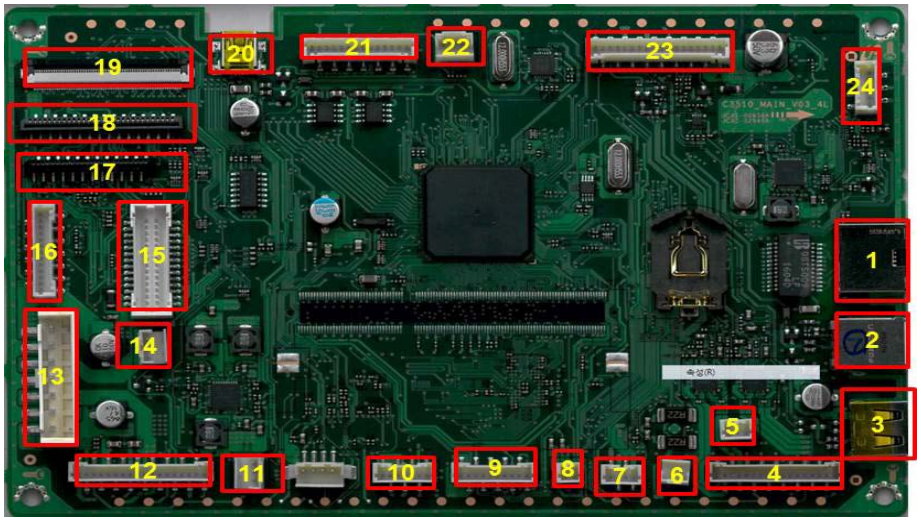
The main processor in main board is adopted 1.5GHz Quad Core CPU that is integrated with engine and video controller. It has 3GB(Max. 5GB) DDR3 memory.
USB is the embedded type and wired network supports gigibit ethernet. And wireless network is optional.



1	Network connector	18	LSU connector
2	USB Device connector	19	HVPS1 connector
3	EDI Host connector	20	HVPS2 connector
4	Feed / ITB Release Step Motor connector	21	OPE connector
5	Duplex Sensor connector	22	WLAN option connector
6	Duplex Clutch connector	23	HDD SATA Signal connector
7	Cassette Lift Step Motor connector	24	HDD SATA Power connector
8	Regi Clutch connector	25	Direct USB connector
9	SCF connector	26	Fuser FAN connector
10	Pick up clutch / Paper Empty Sensor connector	27	Fuser Step Motor / Inner Temp connector
11	Cassette Open Sensor connector	28	Platen DCIS connector
12	CPU FAN connector	29	Fax connector
13	ACR , CTD Sensor / MP Clutch / SMPS FAN	30	ADF A4 DCIS connector[A4 Only)
14	SMPS Signal connector	31	ADF Legal DCIS connector[Legal only]
15	SMPS Power connector	32	Out bin full sensor connector
16	Deve BLDC Motor connector	33	Scan step motor connector
17	Drive BLDC Motor connector	34	DSDF engine I/F connector
		35	MSOK connector
		36	DIMM Memory connector [optional]

2.9.2 Main Board_C4010 series

The process speed of the main processor is 800+400 MHz. It is integrated engine controller and video controller.
DDR3 512MB is adopted for high speed data processing. Boot adopted the 128MB NAND Flash.
USB is the embedded type and wired network supports Gigabit Ethernet.

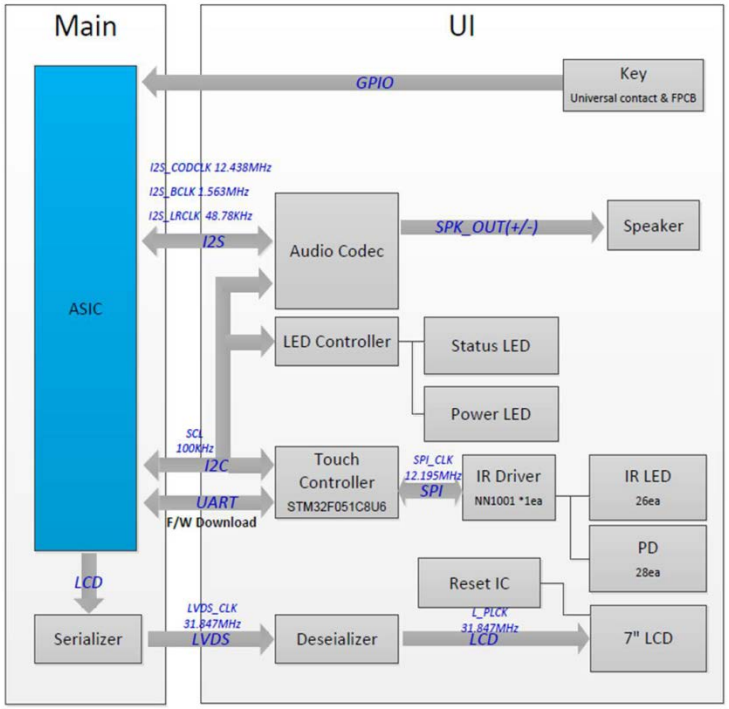


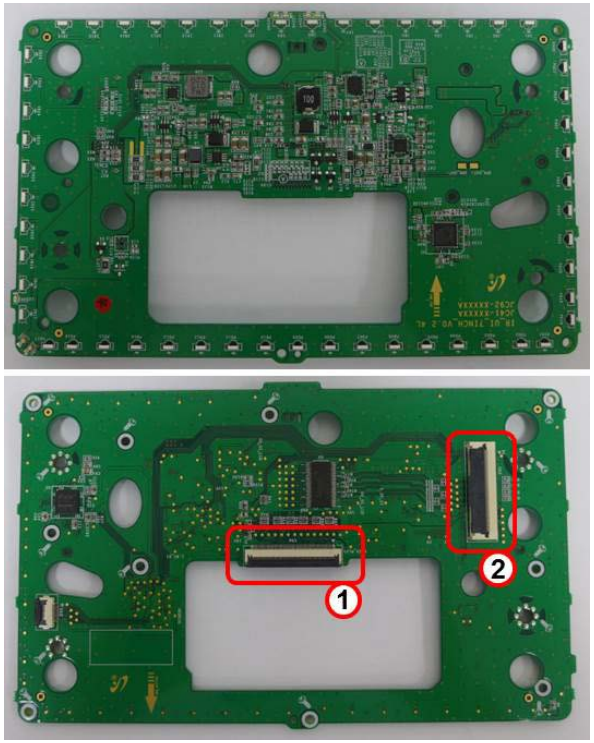
1	NETWORK connector
2	USB Device connector
3	NFC Option connector
4	Feed / ITB Release Step Motor connector
5	Duplex Sensor connector
6	Duplex Clutch connector
7	Cassette Lift Step Motor connector
8	Regi Clutch connector
9	SCF connector
10	Pickup clutch / Paper Empty Sensor connector
11	Cassette Open Sensor connector
12	ACR , CTD Sensor / MP Clutch / SMPS FAN

13	SMPS Power connector
14	SMPS Signal connector
15	Deve BLDC Motor connector
16	Drive BLDC Motor connector
17	HVPS2 connector
18	HVPS1 connector
19	LSU connector
20	Direct USB connector
21	OPE connector
22	Fuser FAN connector
23	Fuser Step Motor / Inner Temp connector
24	Out bin full sensor connector

2.9.3 OPE board_C406x series

The OPE Unit is IR TSP type, consist of infrared ray LED, light guide, 7 inch touch LCD.
The IR type is used to interface with users through the touch screen.

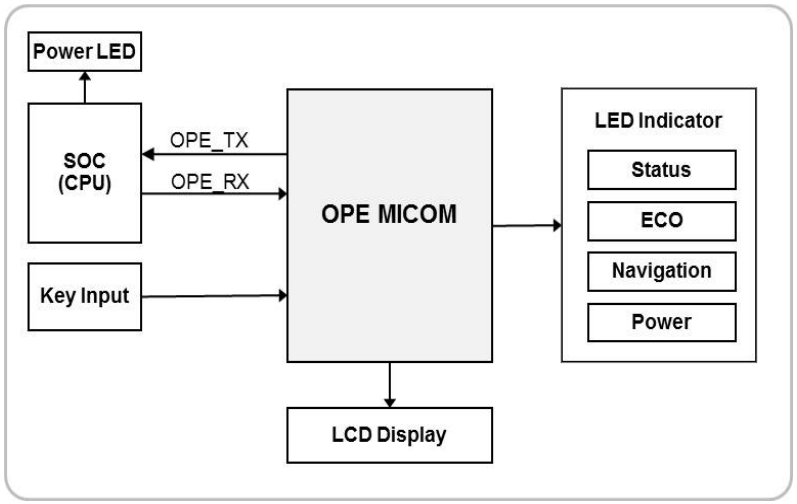


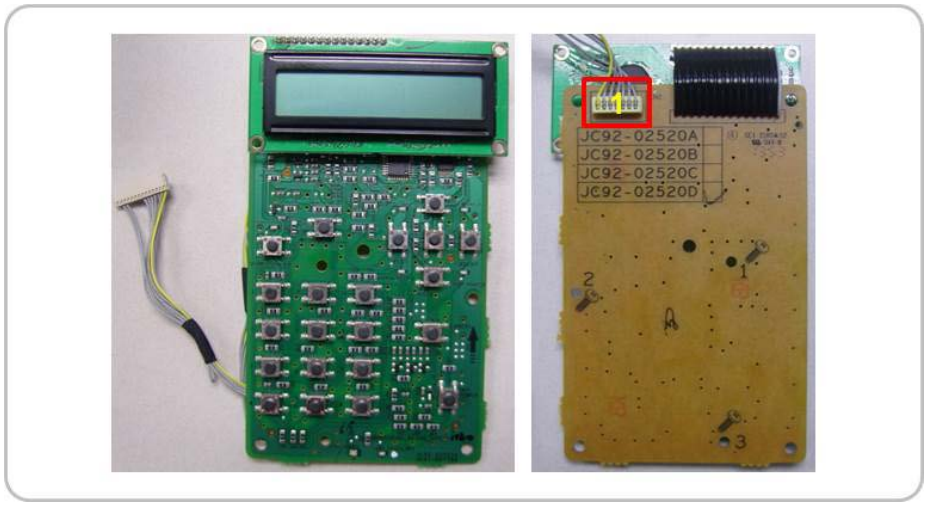


No	Function	Connection
1	7” LCD Interface	Connect to 7” LCD
2	Main Interface	Connect to Main PBA (Thru OPE Sub PBA)

2.9.3 OPE board_C4010 series

The OPE controller is composed of an MICOM, Status LED, Eco LED, Power LED, Navigation LED, 2 line LCD, and buttons
The OPE controller communicates with main controller via UART. The power LED is controlled by the main board.

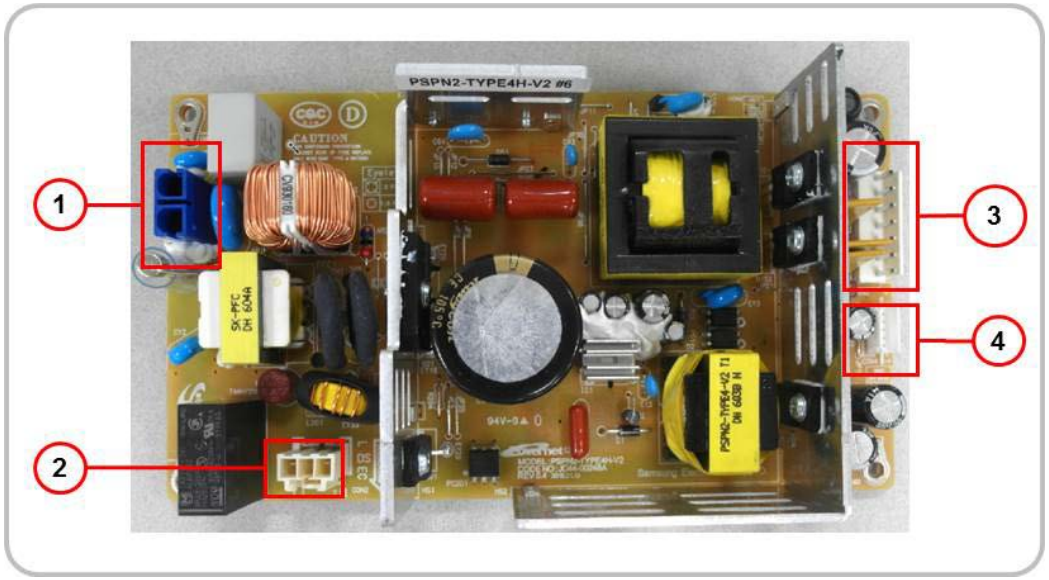




1	Interface Connector to Main board

2.9.4 SMPS

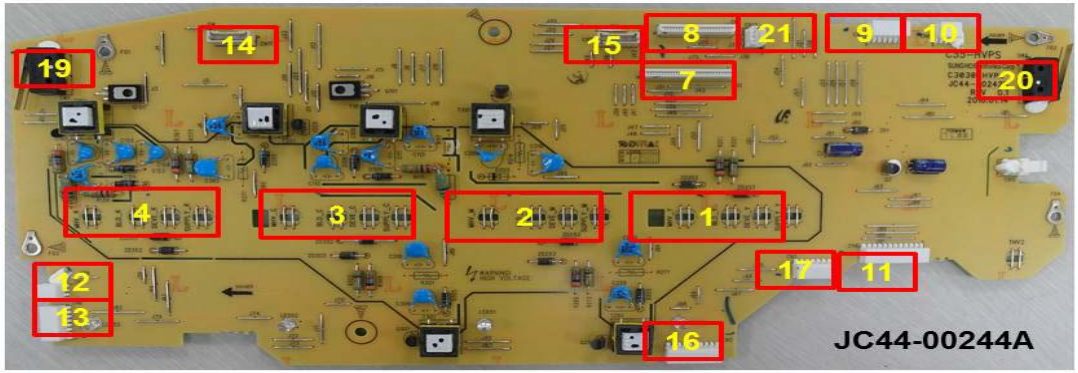
The SMPS (Switching Mode Power Supply) Board supplies electric power to the Main Board and other boards through a Main Controller. The SMPS board converts AC voltage 110V/220V to DC voltage +5V, +24V and transfers AC power to the fuser unit.. It has safety protection modes for over current and overload.



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

2.9.5 HVPS

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



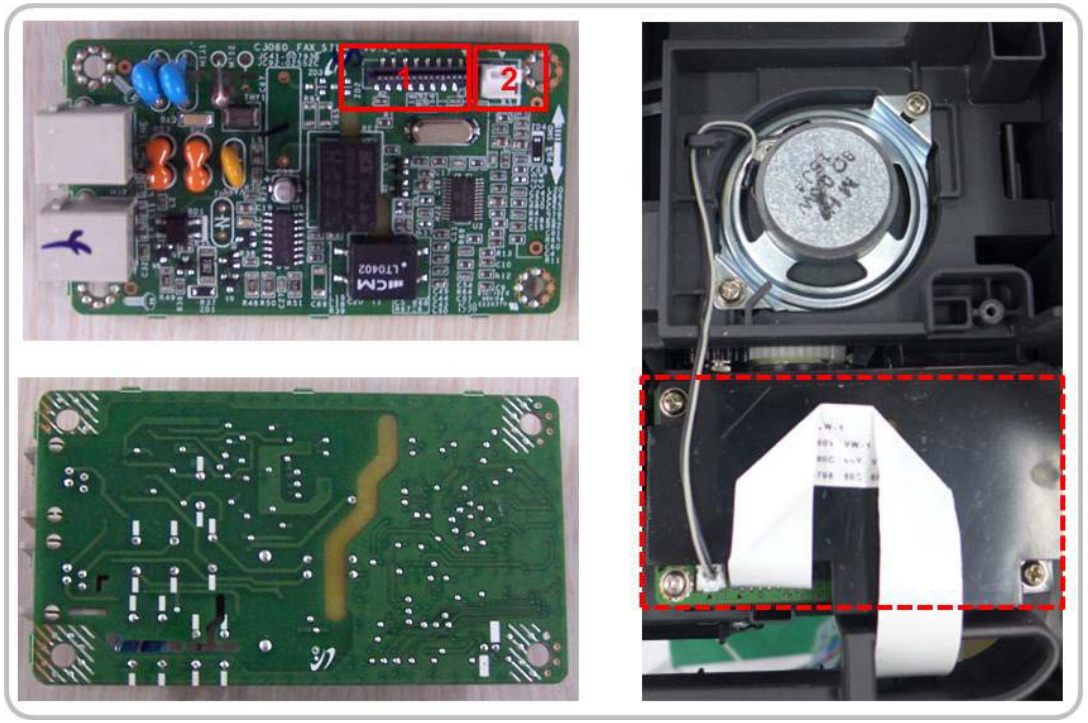
1	MHV/DEV/BLD/SUP Y
2	MHV/DEV/BLD/SUP M
3	MHV/DEV/BLD/SUP C
4	MHV/DEV/BLD/SUP K
5	THV1 YMCK
6	THV2
7	Main-HVPS I/F #2
8	Main-HVPS I/F #1

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

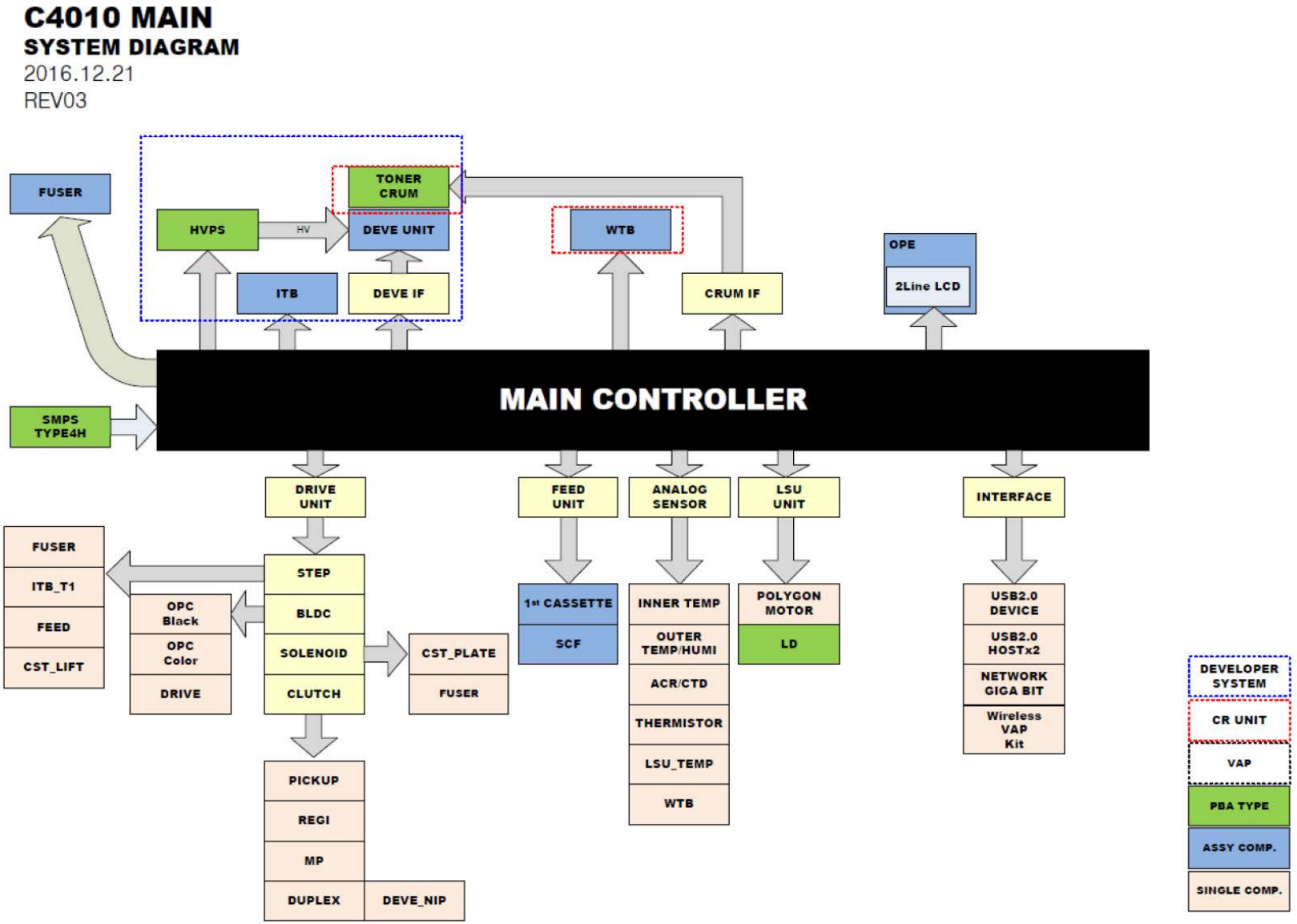
2.9.6 Fax board

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

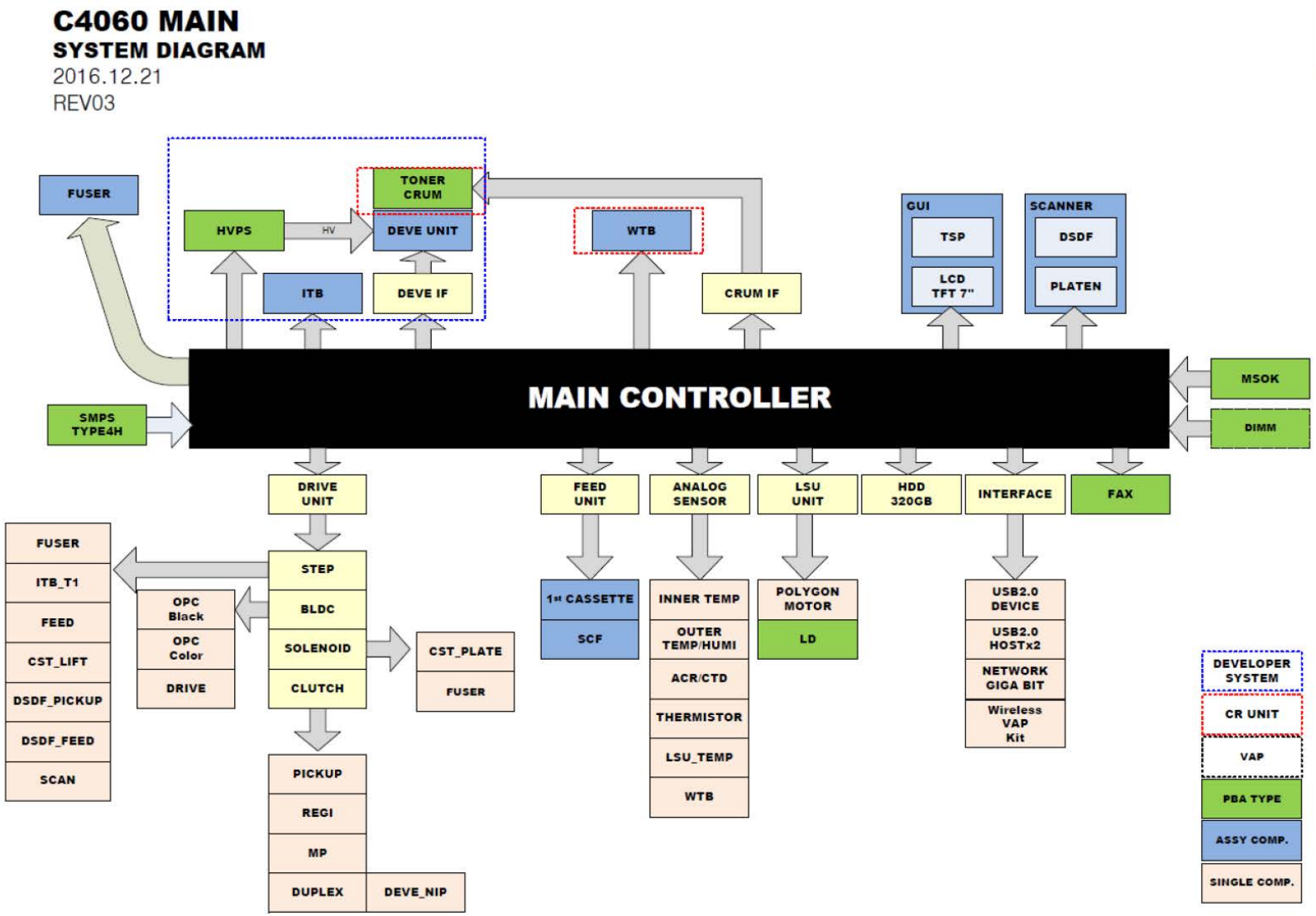


1	Interface Connector to Main Board
2	Interface Connector to Speaker

2.10.1 System block diagram

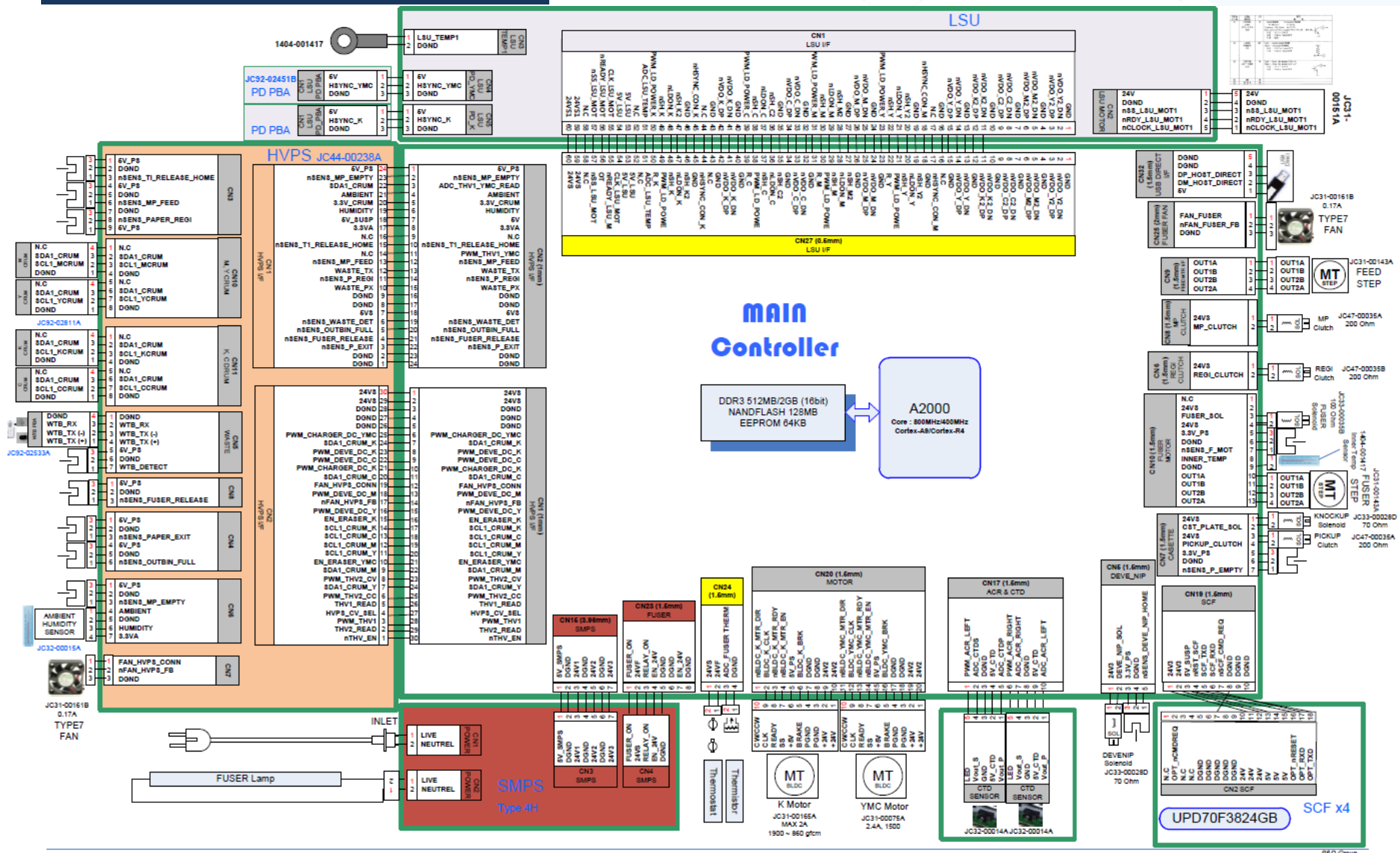


2.10.1 System block diagram



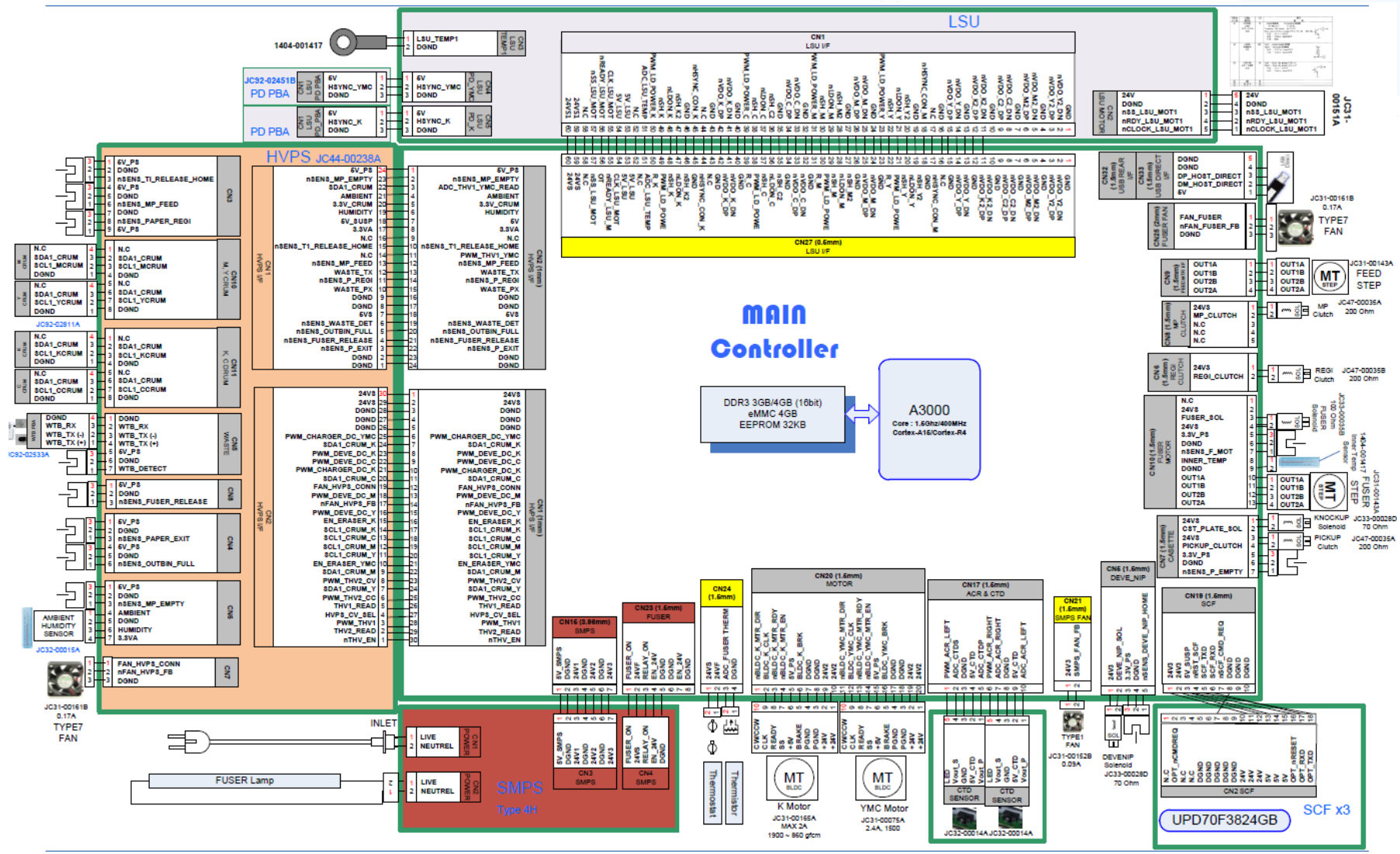
2.10.2 System connection diagram

C4010



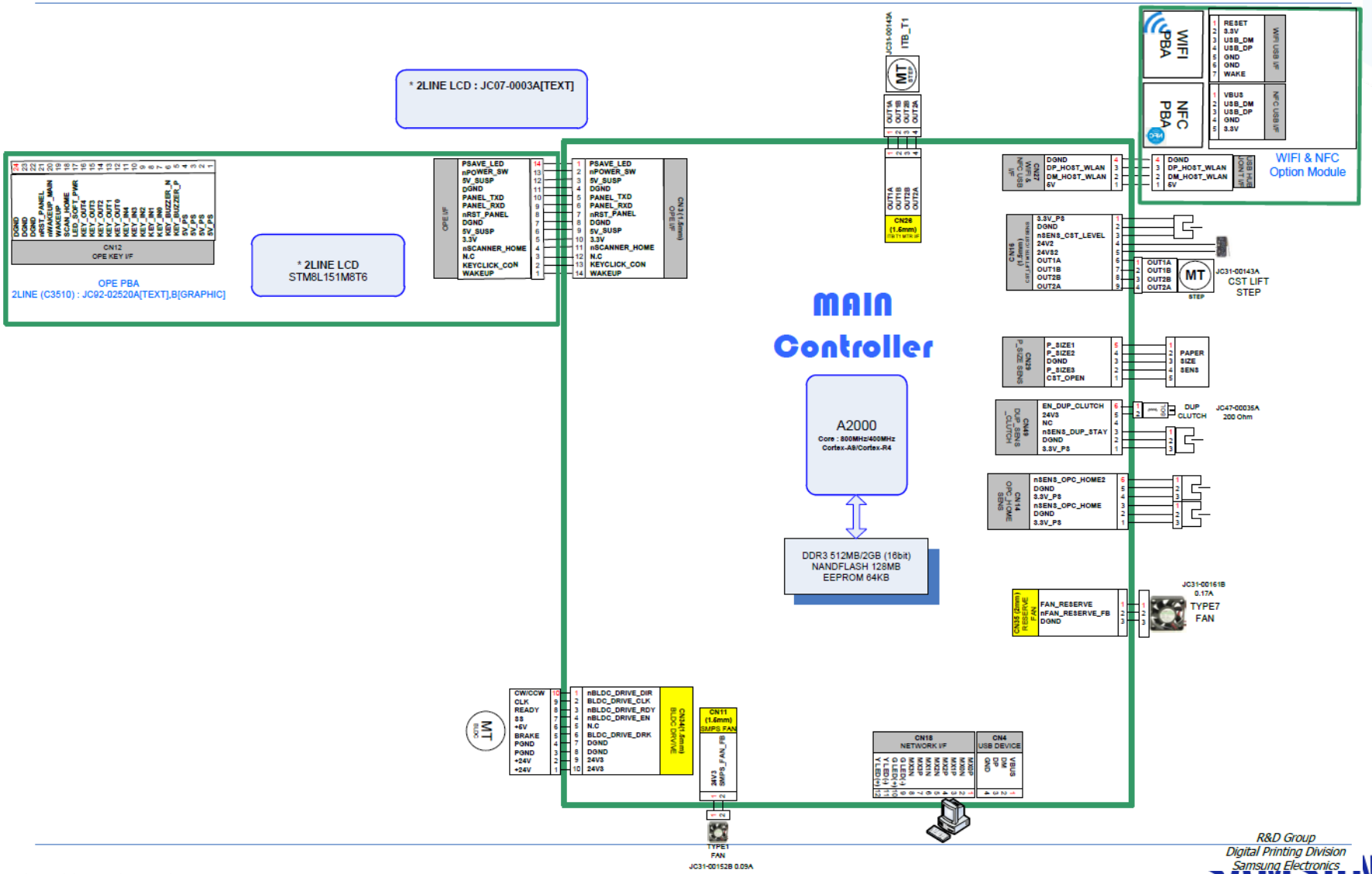
2.10.2 System connection diagram

C4060



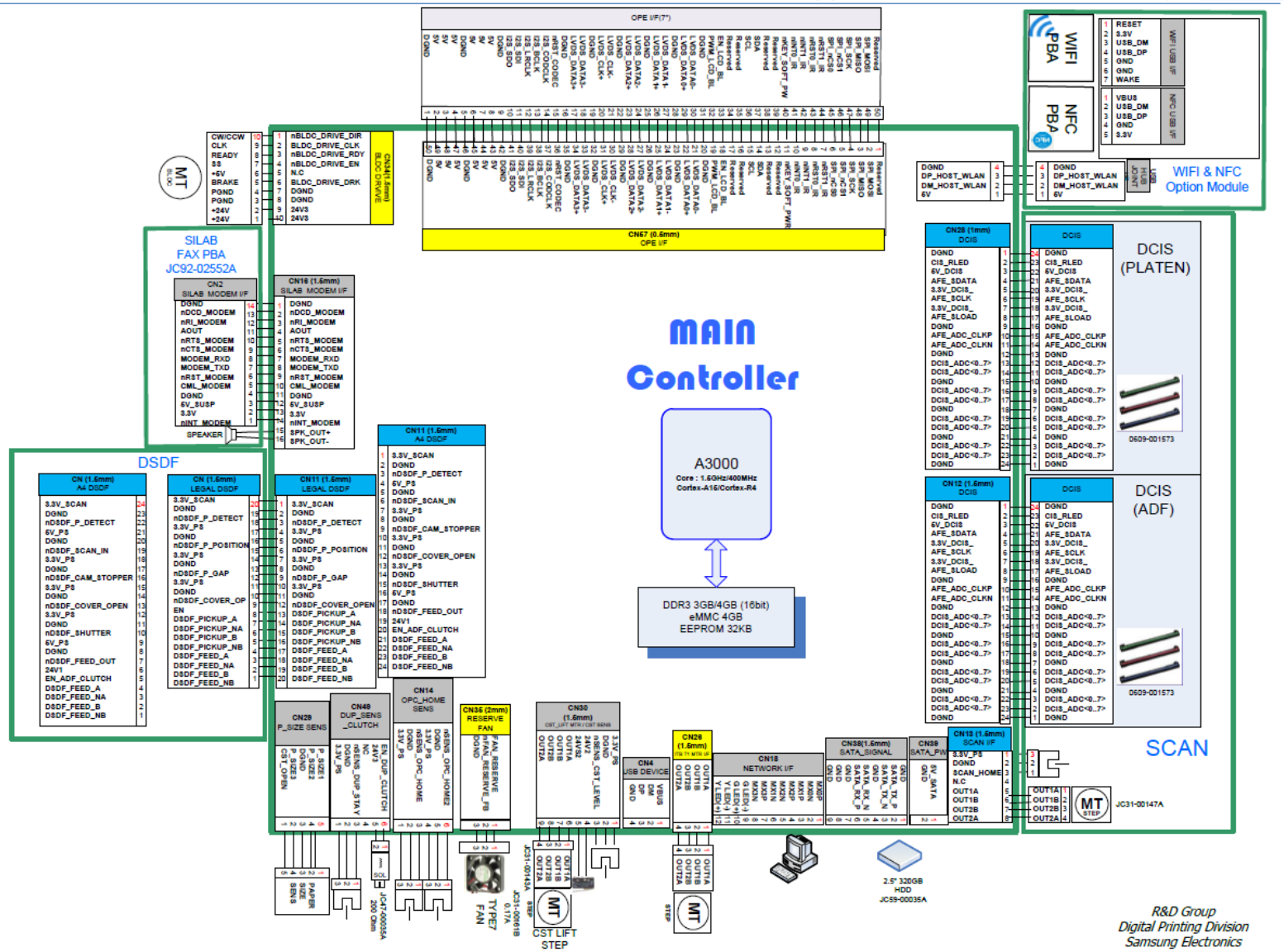
2.10.2 System connection diagram

C4060



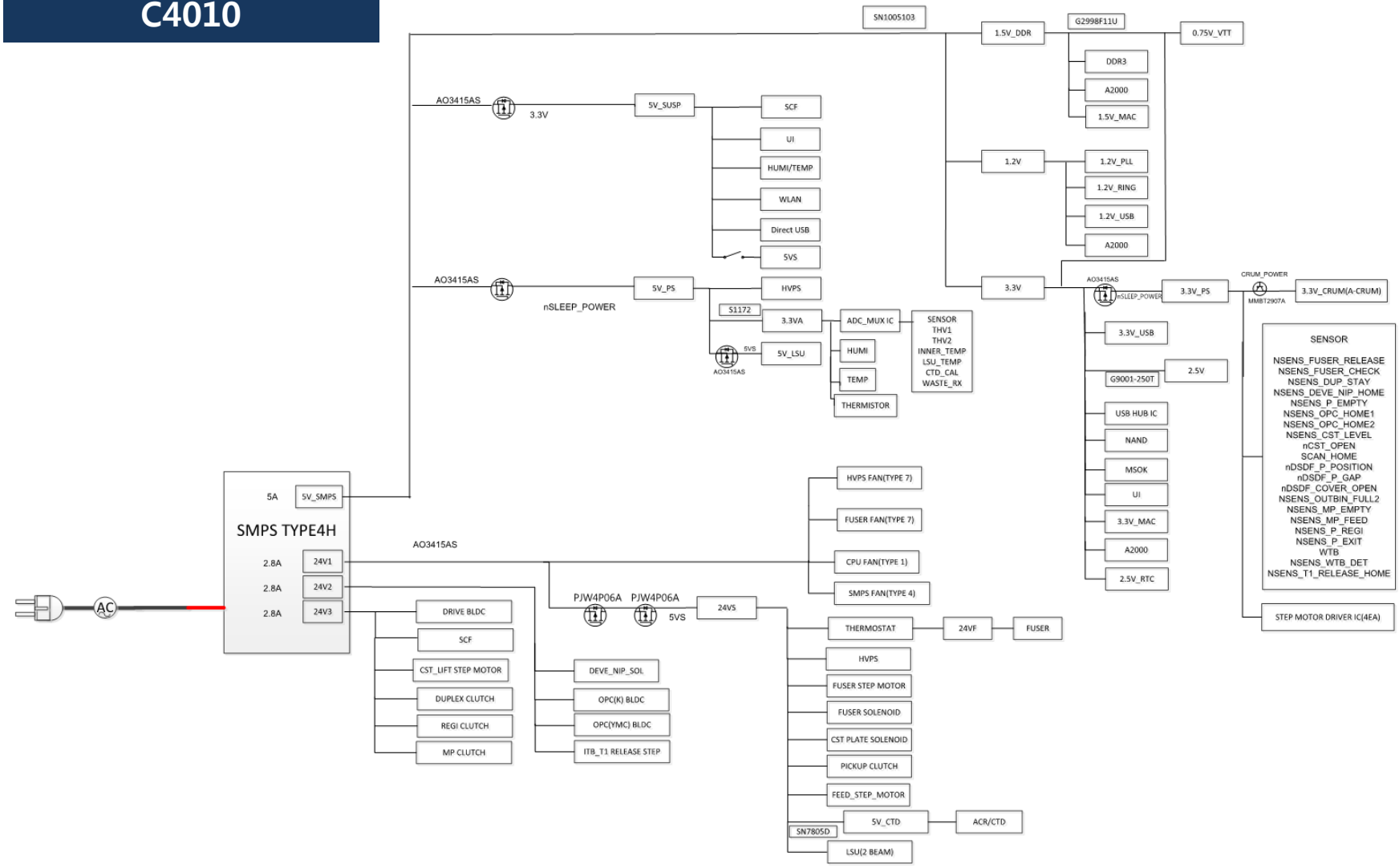
2.10.2 System connection diagram

C4060



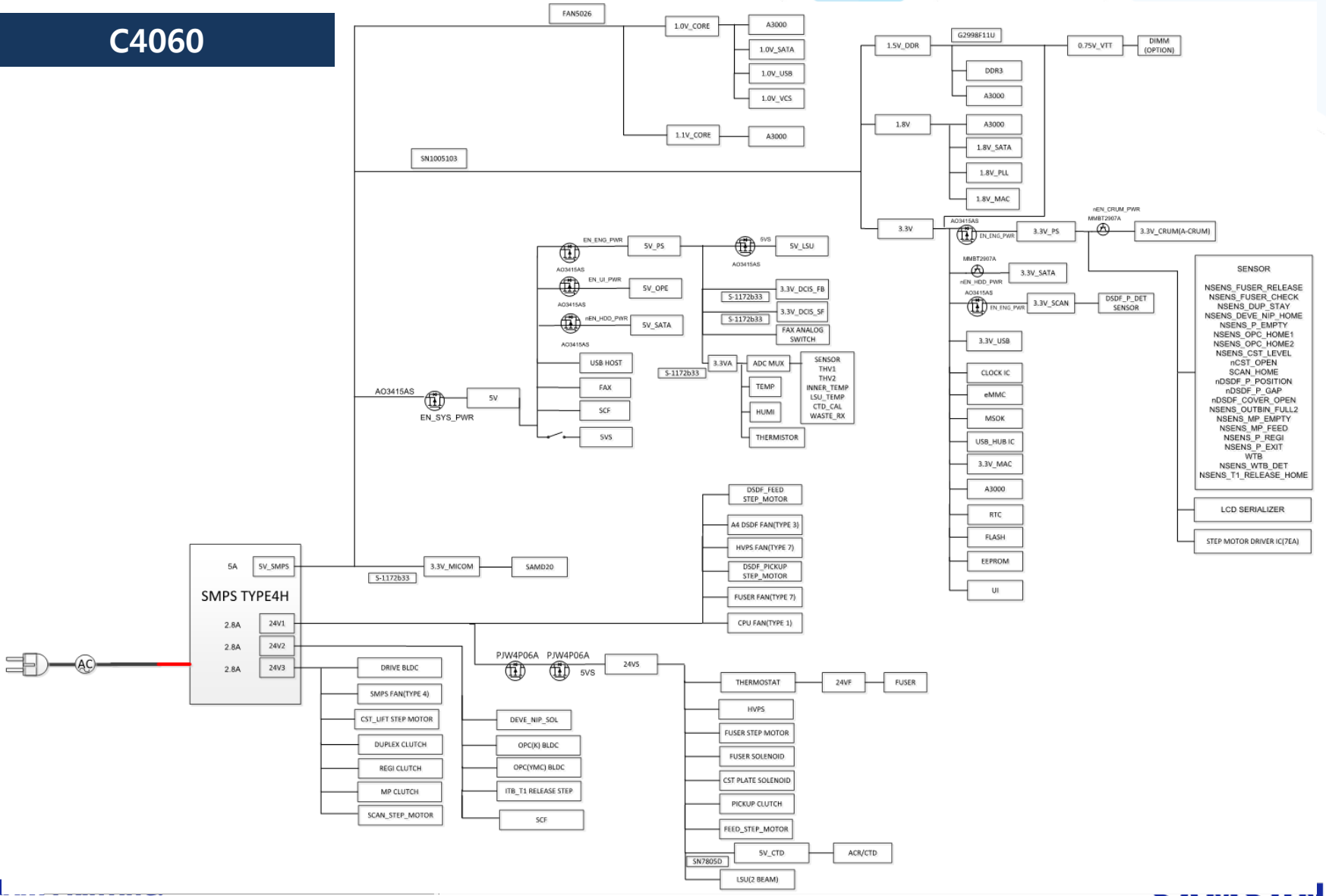
2.10.3 System power map

C4010



2.10.3 System power map

C4060

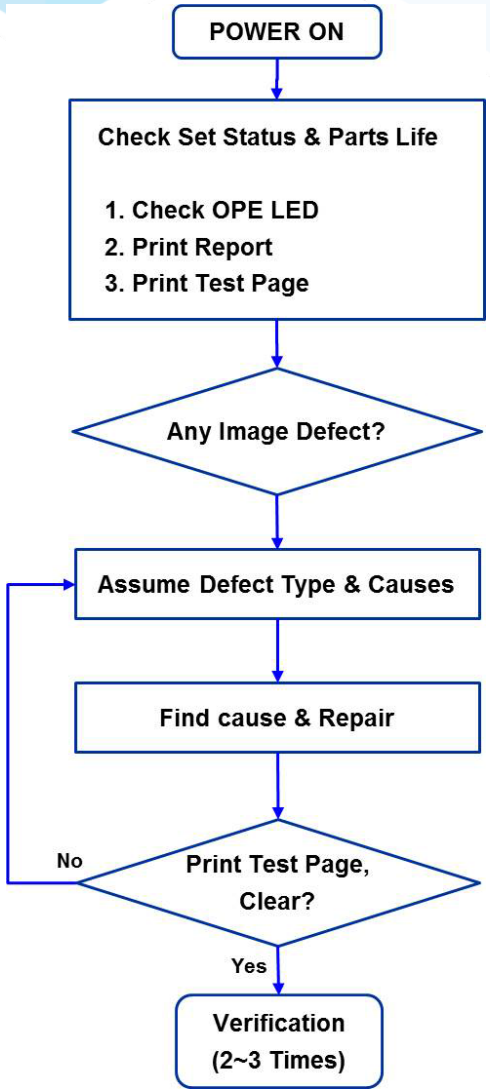


3. Troubleshooting

3.1.1 Image defect_How to analysis

- In this chapter, you can learn about
  - How to analysis the defect image

- See the next flow chart.



*** Important Tip ***

1. Refer to the parts life, cause can be vary.
2. Check the defect whether periodic or not.

3.1.2 Image defect _Background knowledge

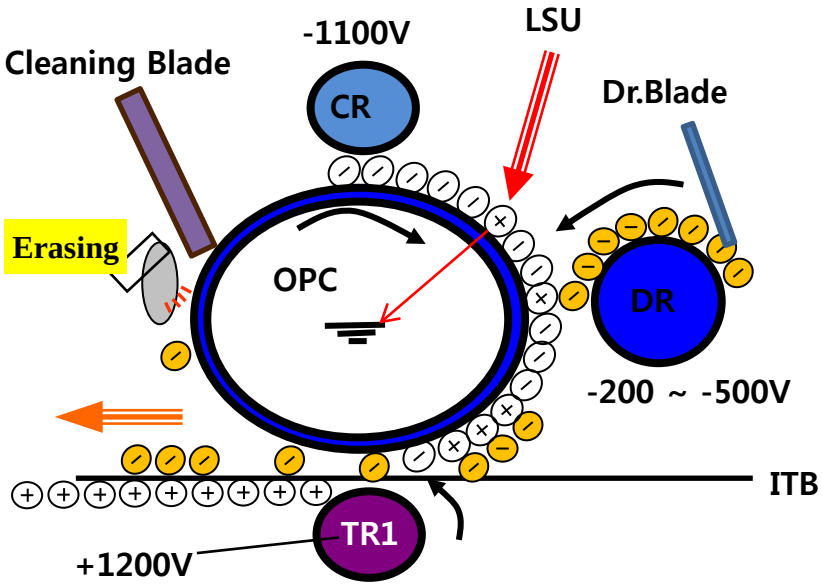
- **Electrophotography Process 7steps.**

Before you start to analyze, you have to understand below steps

Process → Roller Period → Connected Voltage Source

And let's learn about 'Electrophotography Process'.

Charging → Exposure → Development → Transfer → Fusing → Erasing → Cleaning



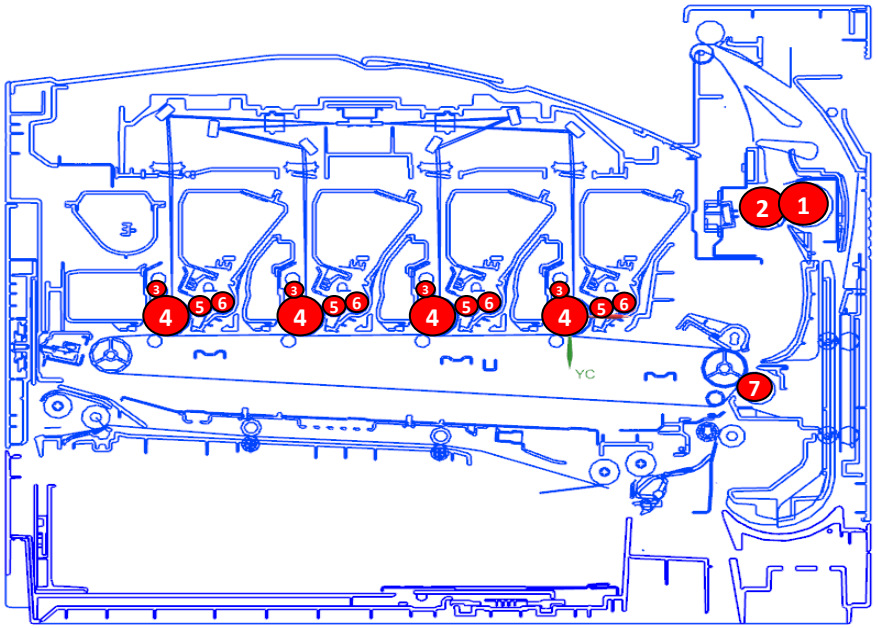
3.1.3 Image defect _Background knowledge

- **Voltage Source**

  Let's know Parts and Voltage Source.

	Parts	Voltage Source
1. Charging	Charge Roller (CR)	HVPS
2. Exposure	LSU	Main Board
3. Development	Dr. Blade Developing Roller Supply Roller	HVPS
4. Transfer	Transfer Roller	HVPS
5. Erasing	Eraser	HVPS
6. Cleaning	Cleaning Blade	
7. Fusing	Fuser	SMPS, FDB

3.1.4 Image defect_Roller Period

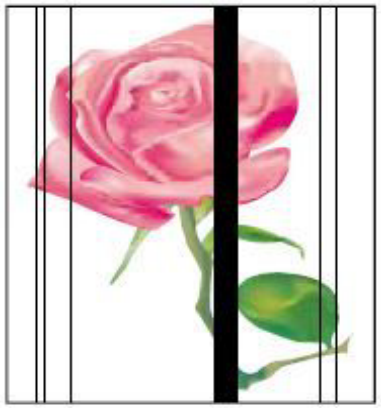


	Roller	Period	Phenomenon	Defective part
1	Pressure Roller	69.08mm	Background	Fuser
2	Fuser belt	75.36mm	Black spot and image ghost	
3	Charging Roller	26.7mm	Black spot and line and periodic band	Toner Cartridge
4	OPC Drum	75.5mm	White and Black Spots	
5	Developing Roller	28.6mm	White spot, Horizontal black band	
6	Supply Roller	38.4mm	Periodic Band by little difference of density	
7	Transfer Roller (T2)	56.6mm	Ghost, Damaged image by abnormal transfer	Transfer roller
8	ITB Drive roller	69.7mm		ITB
9	T1 Roller	25.1mm		

3.1.5 Image defect

1) **Vertical Black Line and Band**

: 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.

3.1.5 Image defect

2) **Vertical White Line**

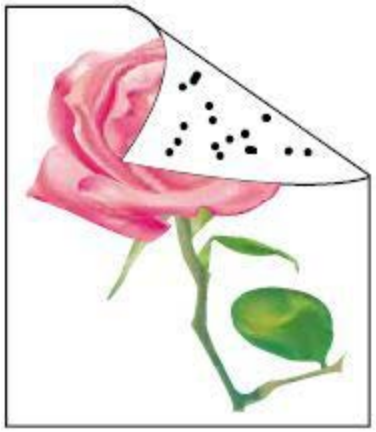
: White vertical voids in the image.

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.

3.1.5 Image defect

3) **Contamination on back of page**

: The back of the page is contaminated.

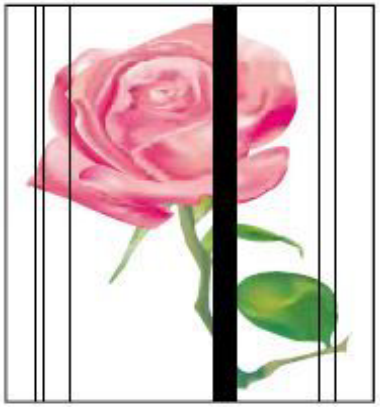


Cause and Check Point	Solution
Dirty registration roller, pressure roller, feed roller, etc. Any dirty rollers through the path of the paper.	Identify the roller which may cause the problem by comparing the period of the contamination on images with the size of rollers. Clean any dirt from the roller 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.

3.1.5 Image defect

4) **Dark or Black image**

: The black page is printed out..

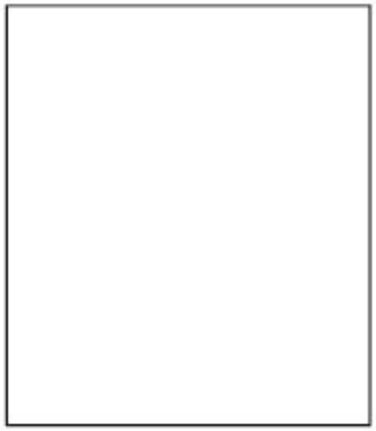


Cause and Check Point	Solution
No charging voltage in the HVPS.	Check the connecting state between the Main PBA and HVPS. Reconnect the harness.
Poor contact between toner cartridge and set contacts.	Clean the contacts as necessary. Replace any deformed or damaged contacts.
HVPS1 is defective.	Replace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

3.1.5 Image defect

5) **Blank Page**

: 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. *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)

3.1.5 Image defect

6) **Uneven Density**

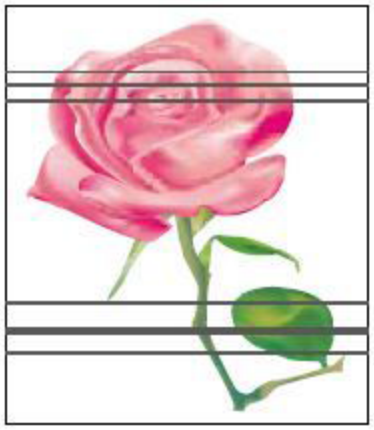
: Print Density is uneven between left and right.

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

3.1.5 Image defect

7) **Horizontal Bands**

: Dark or white horizontal stripes appear in the page.

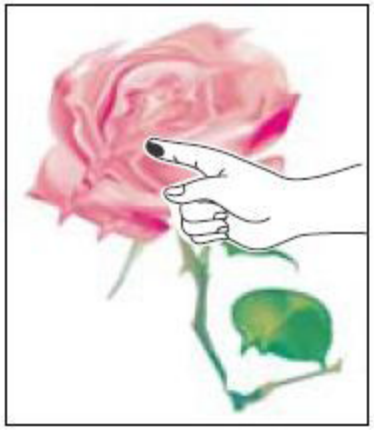


Cause and Check Point	Solution
The developing roller, OPC drum or other rollers in the toner cartridge may be contaminated or deformed.	Replace the corresponding toner cartridge.
Bad contacts of HV terminals of the toner cartridge with high voltage terminals from printer set.	Clean all HV terminals in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

3.1.5 Image defect

8) **Poor Fusing**

: 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.

3.1.5 Image defect

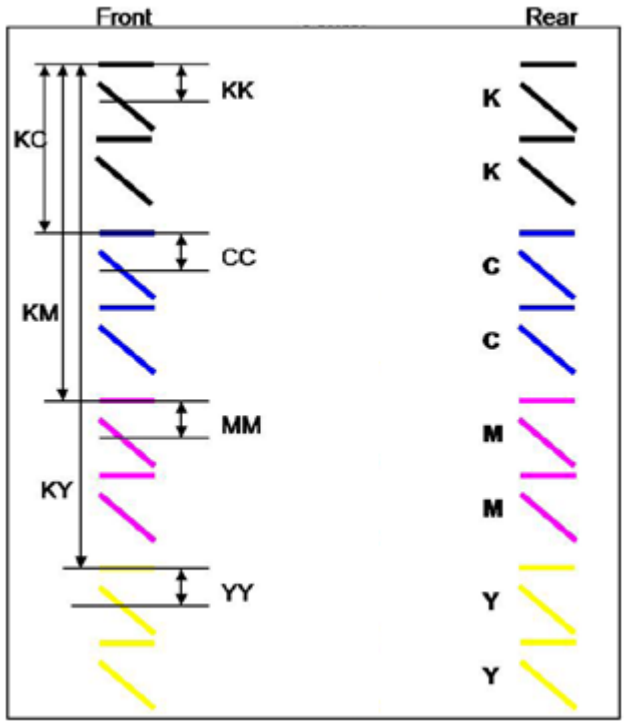
9) **Light Image**

• 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. *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)

3.2.1 ACR (Auto color registration)

(1) Basic Algorithm for ACR



ACR Adjustment Conditions

1. Interval During Printing Job

1) ΔT > Temperature threshold

- LSU temperature: [default: 3°C]
- Inner Temp[default: 6℃]

2) Pages > Output threshold for all outputs (default: 120pages)

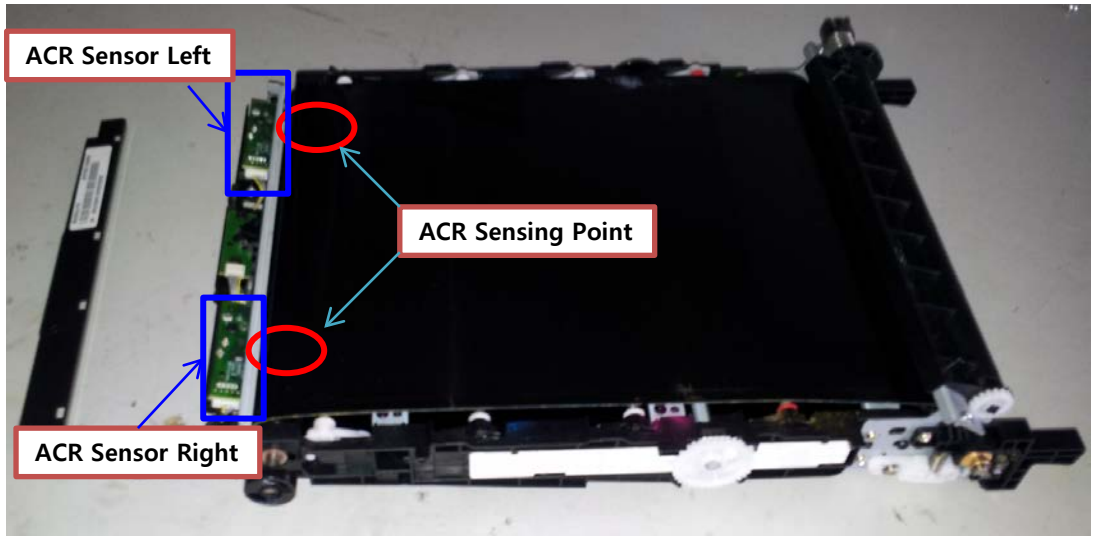
2. Toner Cartridge Replaced

3. ITB Replaced

4. Cover on/off

3.2.2 ACR (Auto color registration)

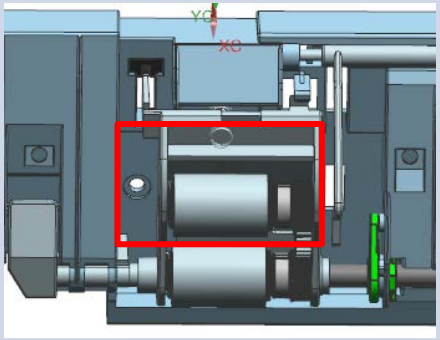
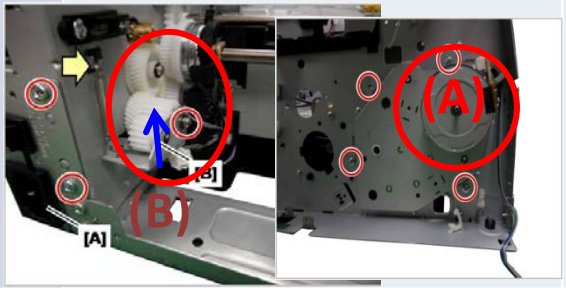
Defect	Case	Cause	To Do
Poor Color Registration	1. Just one color is poor.	1.The toner cartridge has problem.	1. Check toner residual quantity. 2. Try to manual ACR with replacing that toner
	2. All colors are poor	1. First check Black toner 2. Second check other all color toners 3. Thirdly, some contaminations on sensing point(red circle) of ITB belt. 4. Check ACR sensor itself.	1. Try to manual ACR with replacing the Black toner 2. Try to manual ACR with replacing the other toners step by step. 3. Check ACR sensor sensing point on ITB belt 4. Replace ACR sensor



3.3.1 Jam troubleshooting

(1) JAM0

1) After picking up, paper cannot be entered because to paper is not fed.
2) After picking up, paper entered but it cannot reach to the feed sensor in predetermined period of time. due to slip, etc.
3) After picking up, if the feed sensor is not on, re-pick up. After re-picking up, if the feed sensor is not on after certain time, it is JAM 0.
4) Even though the paper reaches to the feed sensor, the feed sensor doesn't be ON.

Defect	Case	Cause	To Do
JAM0	Roller & Path 	1. Pick up Roller is worn out. 2. Small partial of paper is stocked on paper path.	1. Check the life of pick up roller. 2. Remove the paper.
	Motor & Clutch 	1. Check Feed Motor(A) 2. Check Pick up Clutch	1. Check some gears moving(B). (Go to EDC Mode in Tech mode to test the Feed Motor alone) 2. Check Pick up clutch works well.

3.3.2 Jam troubleshooting

(2) JAM inside of Machine

1) After the leading edge of the paper passes the feed sensor, the trailing edge of the paper cannot pass the feed sensor after predetermined period of time.
2) After the leading edge of the paper passes the feed sensor, the paper cannot reach the exit sensor after predetermined period of time.
(* The paper exists between the feed sensor and the exit sensor.)

Defect	Case	Cause	To Do
JAM1	Make sure paper is jammed in the fuser's front and inside. 1. Before Fuser => between a fuser and feed sensor		1. Check the life of pick up roller. 2. Remove the paper.
	2. If Paper is rolled on the fuser roller,	1. It occurs when the heat roller or press roller is seriously polluted. 2. 2. It occurs when spring of Guide claw or Guide-Claw is leaving or have been transformed.	1. Make sure that the fuser roller has been damaged. 2. If yes, replace the fuser unit.
	3. If paper is jammed at the same position but before exit sensor.	Please check first feed & registration sensor work well.	After disassembly Fuser Unit, remove the jammed paper and wipe the surface of roller with a dry gauze. -Remove contaminated with toner be contaminated by lib. -Check the assembled state of Exit.

3.3.3 Jam troubleshooting

(3) JAM in Exit Area

1) After the trailing edge of the paper passes the feed sensor, the paper cannot pass the exit sensor predetermined period of time.

Defect	Case	Cause	To Do
JAM in Exit Area	Jammed paper is damaged	1. Paper path has some problem.	1. Check the paper path especially fuser unit. 2. Remove the paper.
	No damage on the paper and jam at same position.	1. Exit sensor & Feed sensor.	1. Check exit & Feed sensor works well. (Go to EDC Mode in Tech mode to test the Exit sensor)

3.3.4 Jam troubleshooting

(4) Original paper jam in front of scanner

1) After picking up, paper cannot be entered because to paper is not fed.
2) After picking up, paper entered but it cannot reach to the scan in SNR(Sensor) in predetermined period of time. due to slip, etc.
3) Even though the paper reaches to the scan in sensor, the scan in sensor doesn't be ON.

Defect	Case	Cause	To Do
ADF Jam (Scan in)	Jammed paper is damaged or no damaged.	1. Pick up Roller or Retard Roller is worn out. 2. Small partial of paper is shocked on paper path.	1.Check the life of pick up roller & retard roller. 2. Remove the paper.
	Jammed paper is damaged or no damaged.	1. Scan in SNR. 2. Check the contact condition of harness.	1. Check Scan in sensor works well. (Test Scan in SNR in Tech mode.) 2. Check the contact condition of harness well. 3. Remove the paper.
	 [C4060]  [C4062]		 [C4060]  [C4062]

3.3.5 Jam troubleshooting

(5) Original paper jam in exit area of scanner

1) After the trailing edge of the paper passes the scan in sensor, the paper cannot pass the exit sensor predetermined period of time.

Defect	Case	Cause	To Do
ADF Jam (Exit)	Jammed paper is damaged or no damaged.	1. Small partial of paper is shocked on paper path. 2. The wrong assembly of the Scan in Spring.	1. Check the paper path and Scan in Spring. 2. Remove the paper.
	Jammed paper is damaged or no damaged.	1. Scan in SNR 2. Check the contact condition of harness.	1. Check Scan in sensor works well. (Test Scan in SNR in Tech mode.) 2. Check the contact condition of harness well. 3. Remove the paper.
	 [C4060]  [C4062]		 [C4060]  [C4062]

3.4.1 Service mode

(1) Entering service mode Mode

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

[LCD Model – C4010ND]
1) Press "Menu > # > 1 > 9 > 3 > 4 " on the control panel continuously.
2) Press Menu.
3) Select "Tech Mode".

[GUI Model – C4060FX,C4062FX]
1) Press "Power" button until the pop-up will be displayed
2) Long press pop-up area except "Cancel" and "Turn Off" buttons until the password window will be displayed
3) Enter "1934" and press "Done" button

① ② ③

3.4.2 Service mode_Menu map – C4010

Depth 1	Depth 2	Depth 3	Depth 4	Depth 5
Tech Menu	Information	Report	Configuration	
			Supplies Info.	
			Usage Counter	
			Error Info.	
			AutoColor Reg.	
			Auto Toning H.	
			Excep. History	
			TonerEventLog	
		Export Reports	Export	
	Counts	Clear Counts	Enter Passcode	Fuser
				Transfer Unit
				T2 Roller
				T1RetardRoller
				Tray 2 Roller
				T2RetardRoller
				Tray 3 Roller
				T3RetardRoller
				Tray 4 Roller
				T4RetardRoller
	Diagnostics	Engine	NVM Initialize	
			NVM Read/Write	
			Test Routine	
		ACS	ACS Page Adj.	[1 ~ 5] :
		RestartMachine		

3.4.2 Service mode_Menu map – C4010

Depth 1	Depth 2	Depth 3	Depth 4	Depth 5	Depth 6
Tech Menu	Service Func.	Clear All Mem.			
		TonerLow Level	[1-30]%		
		Engine Footer	**Off**		
			On		
		F/W Upgrade	**Off**		
			On		
		PartRep. Alert	Toner	Off	
				On	
			Fuser	Off	
				On	
			Transfer Unit	Off	
				On	
		Capture Log			
		SFE	SFE Code List	**Off**	
				On	
			Export		
			Import		
			Print		
		Chk ID Sensing	Off		
			On		
		Coring	Level	[0~20] : variable	
			Pattern	[1~5] : variable	
			CMS	[0~2] : variable	
		Dealer ID	**Off**		
			On	Continent	Asia
					Europe
					North America
					South America
					Middle East
					Africa
					Oceania

3.4.2 Service mode_Menu map – C4060,C4062

Depth 1	Depth 2	Depth 3
Information	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
	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
		Maintenance
		Toner Event
	Export Reports	1. Select Destination
		2. Select Format
Maintenance Counts	Fault Count	
	Part Replacement Count	Toner Cartridge
		Transfer
		Fuser
		Roller
		ADF Roller

3.4.2 Service mode_Menu map – C4060,C4062

Depth 1	Depth 2	Depth 3
Diagnostics	Engine Diagnostics	Engine NVM Initialization
		Engine NVM Read/Write
		Engine Test Routines
	Fax Diagnostics	Fax NVM Read/Write
		Fax Test Routines
	HDD Diagnostics	
	Scanner Diagnostics	Shading Test
		Scanner/ADF Test Routines
	Adjustment	Print Adjustment
		Copy Adjustment
		Scan Area Adjustment
		ADF Adjustment
	ACS	ACS Level Adjustment
		ACS Page Adjustment
	Image Management	ACR Reference Adjustment
		Cancel ACR Reference Adjustment
		Auto Color Registration
		Auto Tone Adjustment Activation
		Auto Tone Adjustment
	Print Test Patterns	Skew Pattern
		Grid Pattern
		CMYK Combine Pattern
		Color Registration Pattern
		Color Gradation Pattern
		Solid/Halftone Pattern
		Halftone Pattern
	MSOK Test	EEPROM Test

3.4.2 Service mode_Menu map – C4060,C4062

Depth 1	Depth 2	Depth 3
Service Functions	Main Memory Clear	USA
	Hard Disk Maintenance	Device Configuration Data Clear
		Temporary & Spool Data Clear
		User Saved Data & Log Clear
		All Saved Data Clear
		HDD Encryption
	Debug Log	Off
		Job Status
		Details
		Activation for Boot Logs
	Capture Log	1. Select Destination
		2. Select Period
	Network Packet Capture	1. Select Destination Capture Packets
		Export Capture File
		Delete Capture File
	System Recovery	SYS
		ALL
	Hibernation	**ON**
		OFF
		CREATE NEW
	Vertical Streak Correction	Level
	Part Replacement Alert	Toner Cartridge
		Fuser
		Transfer Unit

3.4.2 Service mode_Menu map – C4060,C4062

Depth 1	Depth 2	Depth 3
Service Functions	SFE	*SFE Code List*
		Export
		Import
		Print
		OK
	Dealer ID	**Off**
		On
	Envelope Rotate	**Off**
		90 degrees
		180 degrees
	System Monitor	Java Thread Monitor
		Java Thread Dump
		Java Heap Dump
	UI Defragmentation	Start
	Scheduled Restart	**Off**
		On
	Coring	Level
		Pattern
		CMS
	Restore Background Image	**Off**
		On
	Check ID Sensing	Off
		On
	Change Fuser Capacity (XEN only)	Low
		High

3.4.3 Service mode_Engine Diagnostic

◆ Engine Diagnostic Mode

; To diagnose Printer status mainly about 6 parts.

1. Sensor Part (Feed, Width)

– The Status of various Sensors can be diagnosed.

2. Motor Part (Main motor)

– The Status of various motors can be diagnosed.

3. Clutch Part (Pickup)

– Associated with Feeding clutch can diagnose the condition.

4. Fixing Part (ADC, Fuser unit)

– Associated with Fixing the Status of various devices can be diagnosed.

5. LSU Part (LD, P-Motor, Ready)

– Exposure associated with the status of various devices can be diagnosed.

6. HVPS Part (THV, DEV, MHV)

– HVPS concerning the status of various devices can be diagnosed.

3.4.3 Service mode_Engine Diagnostic

(1) Table – Trouble Shooting using EDC mode (1/3)

Code-Sec	Displayed Name	Meaning	Input / Output	State Displayed	Related Component
100-0020	Black OPC/DEV Motor	Black OPC/DEV BLDC Motor is On/Off	Output	On[Off]	Engine
100-0030	Black OPC/DEV Motor Ready	Detect if Black OPC/DEV BLDC Motor runs at normal speed	Input	High[Low]	Engine
100-0040	Color OPC Motor	Color OPC BLDC Motor is On/Off	Output	On[Off]	Engine
100-0050	Color OPC Motor Ready	Detect if Color DEV BLDC Motor runs at normal speed	Input	High[Low]	Engine
100-0072	DEV Motor	DEV BLDC Motor is On/Off	Output	On[Off]	Engine
100-0073	DEV Motor Ready	Detect if DEV BLDC Motor runs at normal speed	Input	High[Low]	Engine
100-0120	Exit Motor Forward Fast	Exit Motor Forward Fast On/Off	Output	On[Off]	Engine
100-0193	HVPS Fan Run	Start/Stop HVPS Fan run	Output	On[Off]	Engine
100-0194	HVPS Fan Run Ready	Detects if HVPS Fan runs at normal speed.	Input	High[Low]	Engine
100-0200	T1 Elevating Motor	T1 Elevate Motor On/Off	Output	On[Off]	Engine
100-0260	SMPS Fan Run	Start/Stop SMPS Fan run	Output	On[Off]	Engine
100-0270	SMPS Fan Run Ready	Detects if SMPS Fan runs at normal speed.	Input	High[Low]	Engine
100-0340	Feed Motor	Feed Motor is On/Off	Output	On[Off]	Engine
100-0450	ITB Motor	ITB Motor is On/Off	Output	On[Off]	Engine
101-0000	Bypass Feed Clutch	Engages drive to pick up a paper from bypass Tray(MP Tray).	Output	On[Off]	Engine
101-0010	T1 Pick-Up Clutch	Engages drive to pick up a paper from tray1.	Output	On[Off]	Engine
101-0020	T2 Pick-Up Clutch	Engages drive to pick up a paper from tray2. (Optional)	Output	On[Off]	Engine
101-0030	T3 Pick-Up Clutch	Engages drive to pick up a paper from tray3. (Optional)	Output	On[Off]	Engine
101-0040	T4 Pick-Up Clutch	Engages drive to pick up a paper from tray4. (Optional)	Output	On[Off]	Engine
101-0050	Registration Clutch	Engages drive to registartion rolls.	Output	On[Off]	Engine
101-0060	Duplex Feed Clutch	Engages drive to feed a paper into duplex path.	Output	On[Off]	Engine
101-0070	Duplex Gate Clutch	Engages drive to convert paper direction into duplex path.	Output	On[Off]	Engine
101-0090	T2 Feed Clutch	T2 Feed Clutch On/Off	Output	On[Off]	Engine
101-0100	T3 Feed Clutch	T3 Feed Clutch On/Off	Output	On[Off]	Engine
101-0110	T4 Feed Clutch	T4 Feed Clutch On/Off	Output	On[Off]	Engine
101-0130	T2 Feed Motor	T2 Feed Motor On/Off	Output	On[Off]	Engine
101-0131	T2 Feed Motor Slow	T2 Feed Motor Slow On/Off	Output	On[Off]	Engine
101-0140	T3 Feed Motor	T3 Feed Motor On/Off	Output	On[Off]	Engine
101-0141	T3 Feed Motor Slow	T3 Feed Motor Slow On/Off	Output	On[Off]	Engine
101-0150	T4 Feed Motor	T4 Feed Motor On/Off	Output	On[Off]	Engine
101-0151	T4 Feed Motor Slow	T4 Feed Motor Slow On/Off	Output	On[Off]	Engine

3.4.3 Service mode_Engine Diagnostic

(1) Table – Trouble Shooting using EDC mode (2/3)

Code-Sec	Displayed Name	Meaning	Input / Output	State Displayed	Related Component	Remarks
101-0171	Cover Open Sensor	Detect if the front cover is opened or closed.	Input	High[Low]	Engine	
101-0190	Out-Bin Full Sensor	Detect when a paper is at Out-Bin Full Sensor	Input	High[Low]	Engine	08-720
101-0206	Dev Suction Fan Run	Start/Stop Dev Suction Fan run	Output	On[Off]	Engine	
101-0207	Dev Suction Fan Run Ready	Detects if Dev Suction Fan runs at normal speed.	Input	High[Low]	Engine	
101-0250	Knock Up Plate	Knock Up Plate	Output	On[Off]	Engine	
102-0000	Tray1 Home Position	Detect when tray1 is closed.	Input	Closed[Opened]	Engine	07-100
102-0010	T1 Paper Empty Sensor	Detect when paper is in Tray1.	Input	High[Low]	Engine	07-110
102-0050	T1 Stack Height Sensor	Detects if paper in tray1 is elevated to the sensor.	Input	High[Low]	Engine	07-150
102-0070	Tray2 Home Position	Detect when tray2 is closed.	Input	Closed[Opened]	Engine	07-200
102-0080	T2 Paper Empty Sensor	Detect when paper is in tray2.	Input	High[Low]	Engine	07-210
102-0140	Tray3 Home Position	Detect when tray3 is closed.	Input	Closed[Opened]	Engine	07-300
102-0150	T3 Paper Empty Sensor	Detect when paper is in tray3.	Input	High[Low]	Engine	07-310
102-0210	Tray4 Home Position	Detect when tray4 is closed.	Input	Closed[Opened]	Engine	07-400
102-0220	T4 Paper Empty Sensor	Detect when paper is in tray4.	Input	High[Low]	Engine	07-410
102-0280	Bypass Paper Empty Sensor	Detects when paper is in Bypass Tray(MP Tray).	Input	High[Low]	Engine	07-510
102-0291	Bypass Feed Sensor	Detect when a paper is at MP Feed sensor.	Input	High[Low]	Engine	
102-0360	Regi. Sensor	Detect when a paper is at Regi. sensor.	Input	High[Low]	Engine	08-500
102-0370	Exit Sensor	Detect when a paper is at Exit. sensor.	Input	High[Low]	Engine	08-600
102-0380	Duplex Jam1 Sensor	Detect when a paper is at Duplex Jam1 sensor.	Input	High[Low]	Engine	08-700
105-0030	Black MHV Bias	Black MHV bias voltage on at normal drive level	Output	On[Off]	Engine	09-100
105-0031	Color MHV Bias	Color MHV bias voltage on at normal drive level	Output	On[Off]	Engine	
106-0000	Yellow Dev Bias	Yellow Dev bias voltage on at normal drive level	Output	On[Off]	Engine	
106-0010	Magenta Dev Bias	Magenta Dev bias voltage on at normal drive level	Output	On[Off]	Engine	
106-0020	Cyan Dev Bias	Cyan Dev bias voltage on at normal drive level	Output	On[Off]	Engine	
106-0030	Black Dev Bias	Black Dev bias voltage on at normal drive level	Output	On[Off]	Engine	09-200
106-0040	Black OPC Home Sensor	Detect Black OPC Home position	Input	High[Low]	Engine	
106-0050	Color OPC Home Sensor	Detect Color OPC Home position	Input	High[Low]	Engine	
106-0060	DR Nip Home Sensor	Detect DR Nip Home position	Input	High[Low]	Engine	
107-0071	THV Bias	THV bias voltage on at normal drive level	Output	On[Off]	Engine	
107-0072	THV Bias Read	Detect what the THV value is on the THV Roller	Input	Numeric 3 digits	Engine	
107-0073	THV(-) Bias	THV bias voltage on at normal drive level	Output	On[Off]	Engine	
107-0080	iTHV(+) Bias	iTHV plus bias voltage on at normal drive level	Output	On[Off]	Engine	

3.4.3 Service mode_Engine Diagnostic

(1) Table – Trouble Shooting using EDC mode (3/3)

Code-Sec	Displayed Name	Meaning	Input / Output	State Displayed
107-0090	iTHV Bias Read	Detect what the THV value is on the iTHV Roller	Input	Numeric 3 digits
107-0160	Erase Lamp1	Erase Lamp 1	Output	On[Off]
107-0161	Erase Lamp2	Erase Lamp 2	Output	On[Off]
107-0190	T1 Nip Home Sensor	Detect T1 Nip Home position	Input	High[Low]
109-0000	Fuser Temperature A	Detects what the temperature A is on fuser.	Input	Numeric 3 digits
109-0010	Fuser Temperature B	Detects what the temperature B is on fuser.	Input	Numeric 3 digits
109-0011	LSU Temperature	LSU Temperature	Input	Numeric 3 digits
109-0012	Inner Temperature	Inner Temperature	Input	Numeric 3 digits
109-0013	Outer Temperature	Outer Temperature	Input	Numeric 3 digits
109-0014	Huminity	Huminity	Input	Numeric 3 digits
109-0020	Fuser Fan Run Ready	Detects if Fuser Fan Motor runs at normal speed.	Input	High[Low]
109-0034	Fuser Motor Ready	Detect if Fuser Motor runs at each speed	Input	High[Low]
109-0040	Fuser Fan Run	Fuser Fan Motor On/Off	Output	On[Off]
109-0140	Fuser Gap Home Sensor	Detect if the fuser press is located Home position.	Input	High[Low]
110-0000	LSU Motor1 Run Ready	Detects if LSU motor1 runs at normal speed.	Input	High[Low]
110-0060	LSU Motor1 Run	LSU Motor1 On/Off	Output	On[Off]
110-0080	LSU LD Power1	LSU LD1 Power On/Off (yellow)	Output	On[Off]
110-0090	LSU LD Power2	LSU LD2 Power On/Off (magenta)	Output	On[Off]
110-0100	LSU LD Power3	LSU LD3 Power On/Off (cyan)	Output	On[Off]
110-0110	LSU LD Power4	LSU LD4 Power On/Off (black)	Output	On[Off]
110-0140	LSU HSync1	Detect LSU HSync1 (yellow)	Input	High[Low]
110-0150	LSU HSync2	Detect LSU HSync2 (magenta)	Input	High[Low]
110-0160	LSU HSync3	Detect LSU HSync3 (cyan)	Input	High[Low]
110-0170	LSU HSync4	Detect LSU HSync4 (black)	Input	High[Low]
111-0080	ID Sensor	Start ID sensor sensing On/Off	Output	On[Off]
111-0090	ID Sensor Check	Display ID sensor reading value	Input	Numeric 3 digits

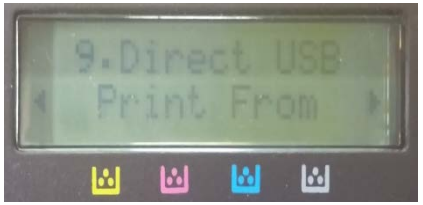
3.5.1 Firmware Upgrade

(1) Via USB Memory Stick (C4010)

- Apply Firmware Upgrade Menu to On

- SL-C4010 Series : Tech mode(1934) -> Service Function->F/W Upgrade->F/W Upgrade On

Push the Ok Button



Push the Ok Button

Select Rom & push the Ok Button

Push the Ok Button

Push the Ok Button

Push the Ok Button

Push the Ok Button

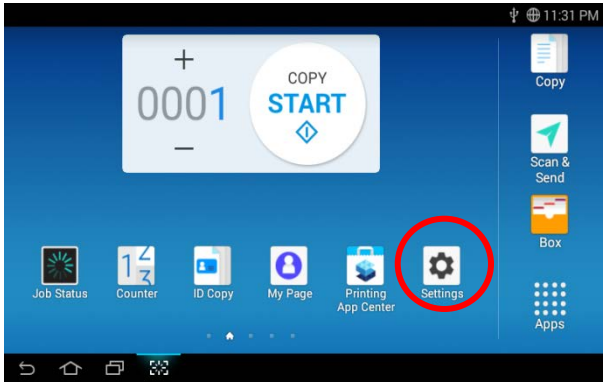
Push the Ok Button

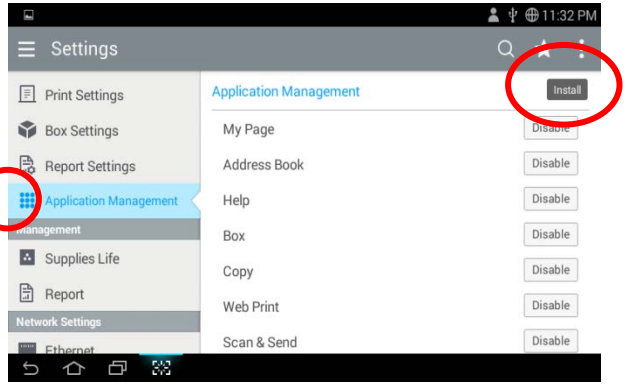
Push the Ok Button

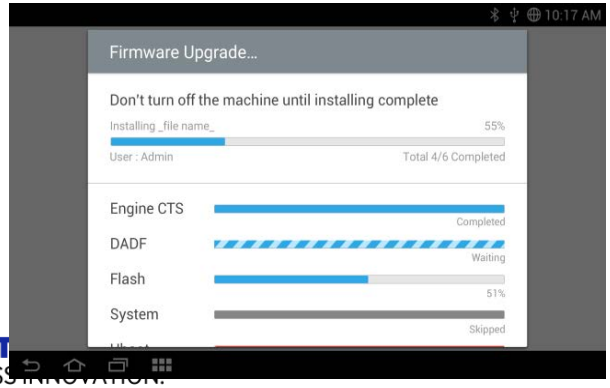
3.5.1 Firmware Upgrade

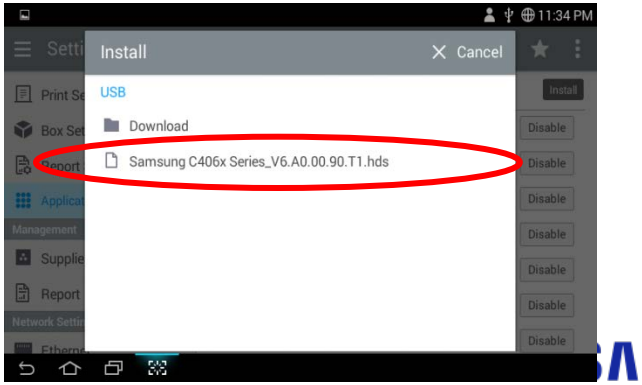
(2) Via USB Memory Stick (C4060,C4062)

- Insert USB
- Go to **Settings > Application Management** : Install









3.5.2 Firmware Upgrade

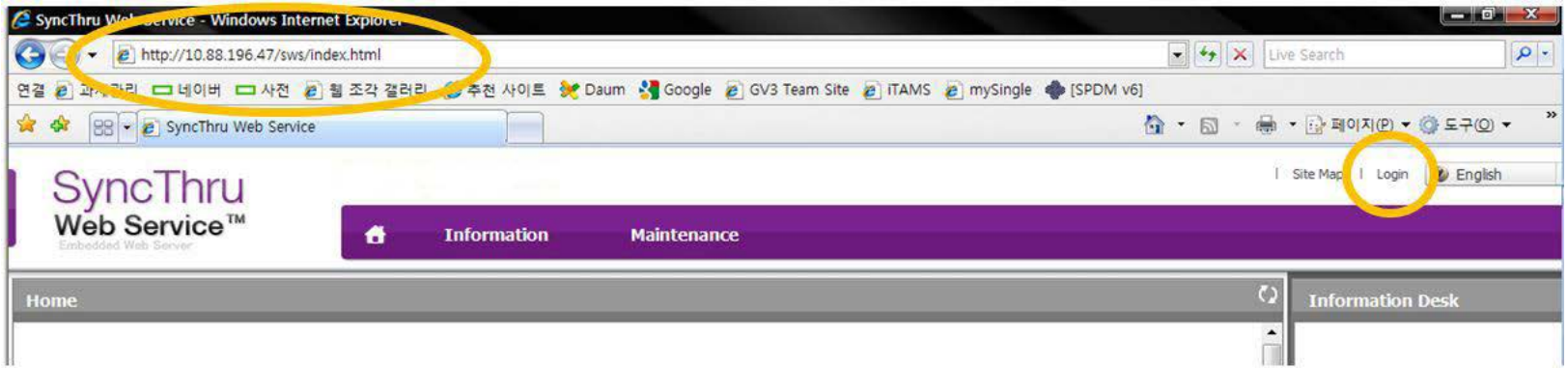
(3) Via SWS(SyncThru Web Service)

Upgrading preparations

- Wired or Wireless Network connection is established.
- Firmware file to update

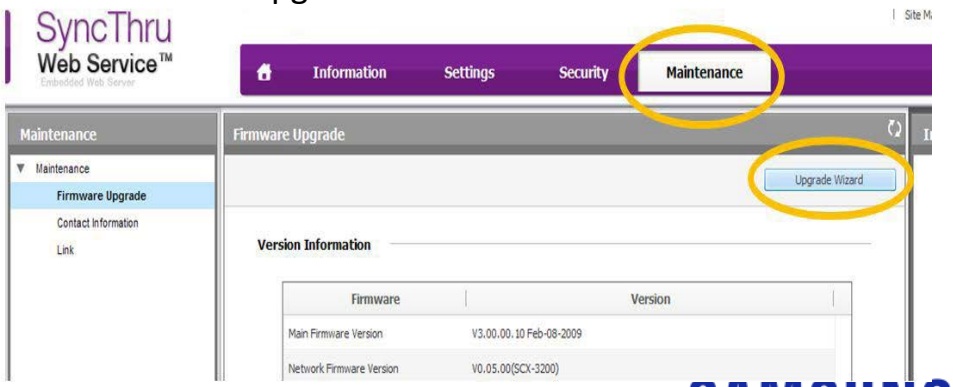
Upgrade Procedure

1) Open the Web-browser and input IP address of machine. Click “Login”.



2) Log-in Admin Mode.
(ID: admin, PW: ********)

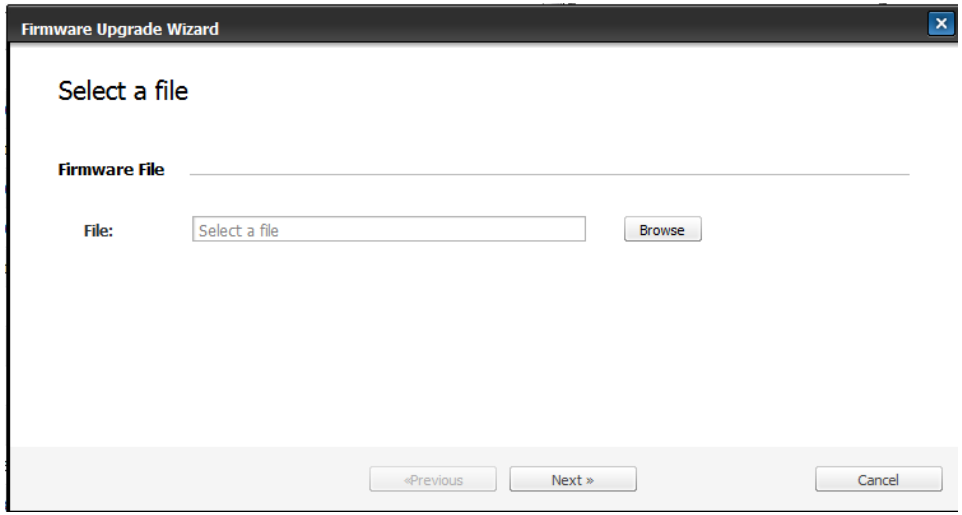
3) Select Maintenance menu and click “upgrade wizard”



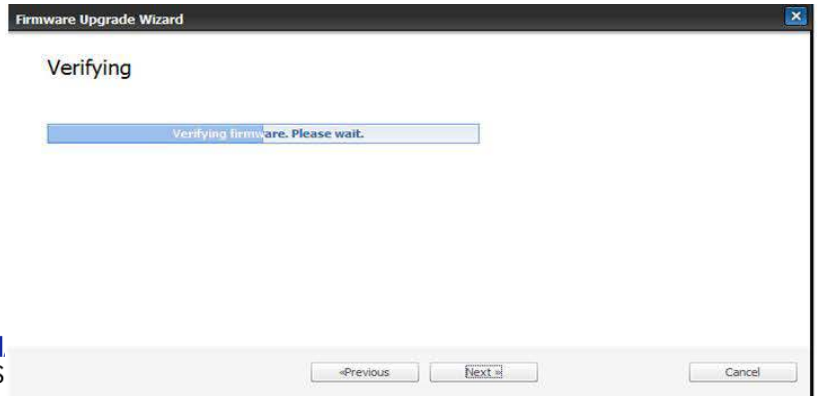
3.5.2 Firmware Upgrade

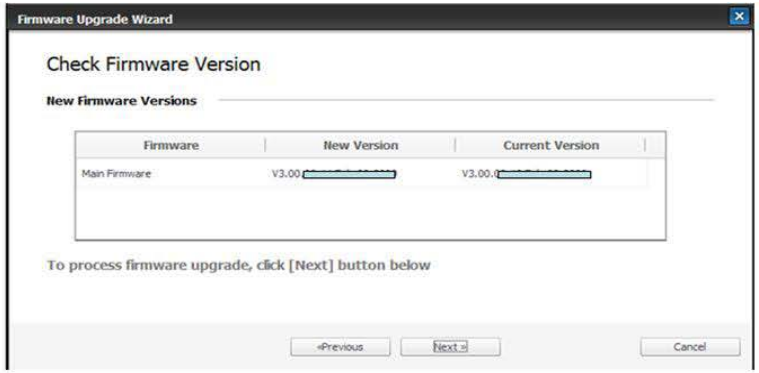
(3) Via SWS(SyncThru Web Service)

4) Select firmware file using “browser” button and press next button.



5) SyncThru will check verify firmware file and compare version and press next button.

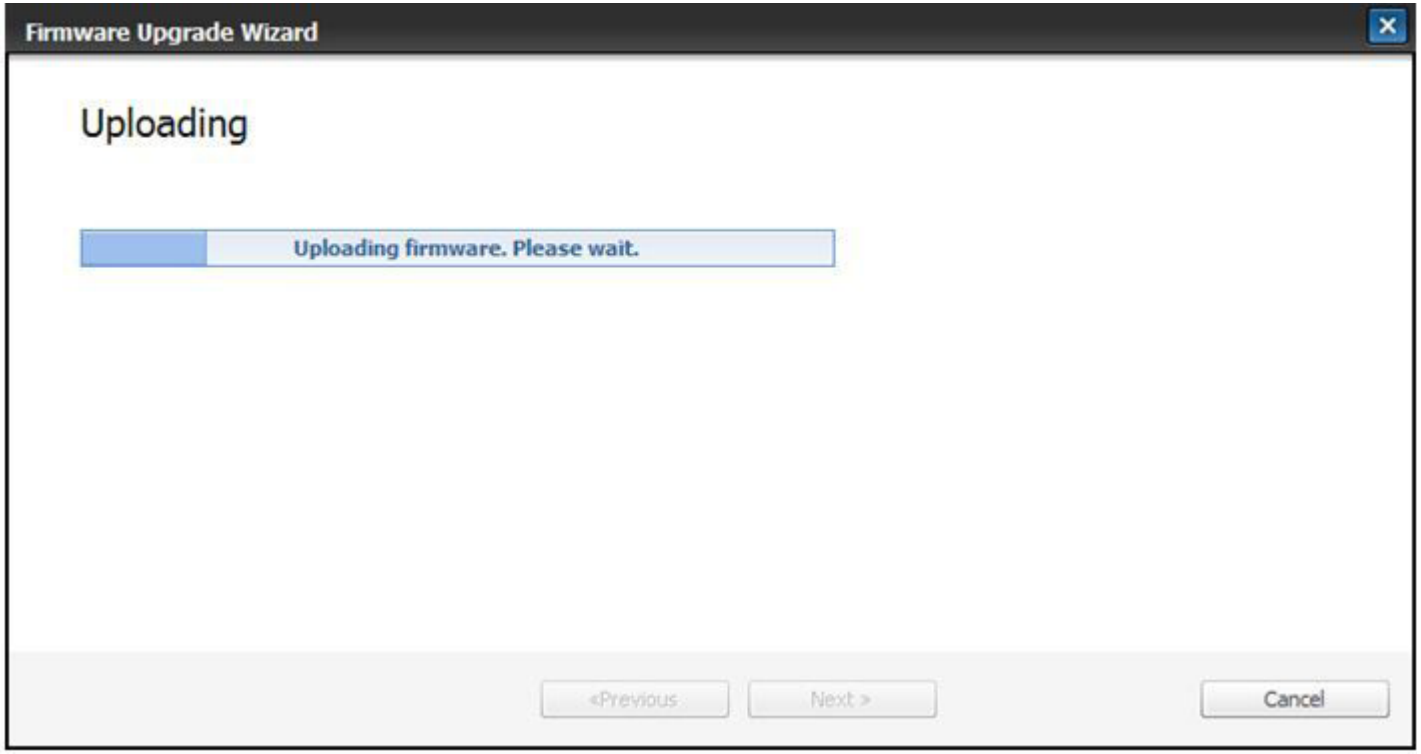




3.5.3 Firmware Upgrade

(3) Via SWS(SyncThru Web Service)

6) Machine starts upgrading. SyncThru will return home page after upgrading is completed.

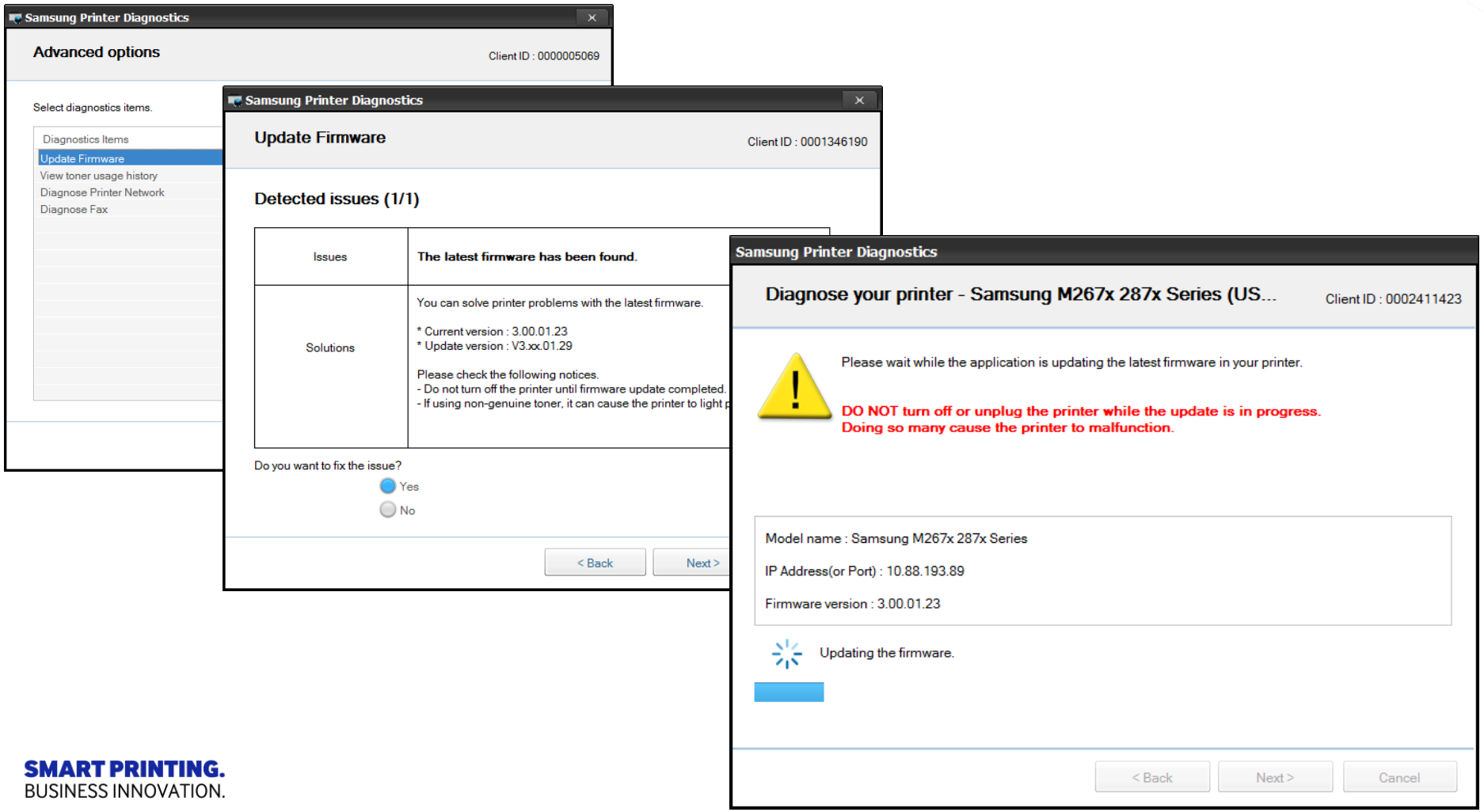


3.5.3 Firmware Upgrade

(4) Via SPD(Samsung Printer Diagnostics

>> Precondition : The target model that f/w upgrade is needed is managed by CS.

>> Step : Advanced options – Update Firmware



Thank you