SAMSUNG

DIGITAL LASER MFP
SCX-4216F Series
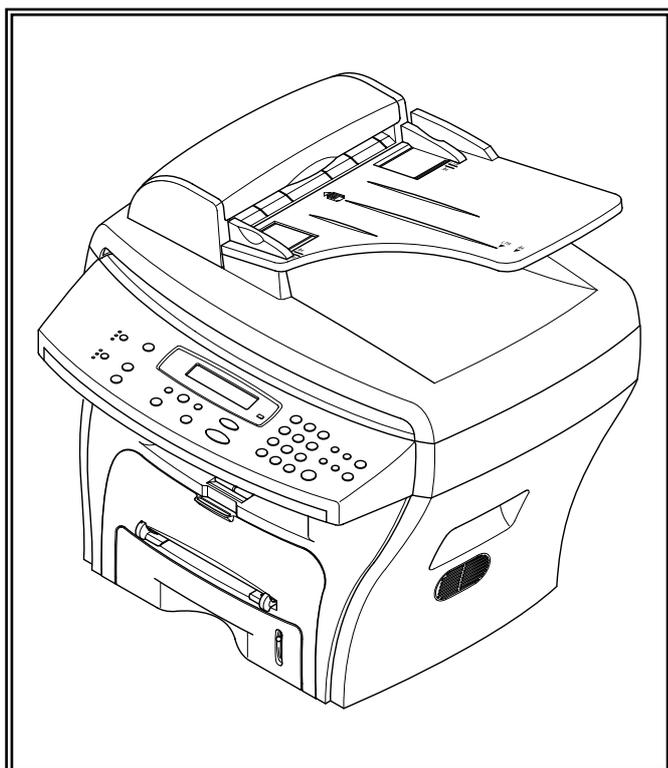## SCX-4216F
SCX-4116
SCX-4016

SERVICE *Manual*

1. Precautions

The cautions in the below are items needed to keep in mind when maintaining and servicing.
Please read carefully and keep the contents in mind to prevent accidents while servicing and to prevent that the machine gets damage.

1.1 Warning for safety

(1) Request the service by qualified service person.
The service for this machine must be performed by a service person who took the additional education of this field.
It is dangerous if unqualified service person or user tries to fix the machine.

(2) Do not rebuild it discretionary.
Do not attach or change pats discretionary. Do not dissemble, fix, and rebuilt it. If do, printer will abnormally work and electric shock or a fire can be occurred.

(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 1(1) laser products, and elsewhere, is certified as a Class I laser product conforming to the requirements of IEC 825. 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.

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.

⚠	CAUTION - INVISIBLE LASER RADIATION WHEN THIS COVER OPEN. DO NOT OPEN THIS COVER.
	VORSICHT - UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GE FFNET. NICHT DEM STRAHL AUSSETZEN.
ATTENTION -	RAYONNEMENT LASER INVISIBLE EN CAS D OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.
ATTENZIONE -	RADIAZIONE LASER INVISIBILE IN CASO DI APERTURA. EVITARE L ESPOSIZIONE AL FASCIO.
PRECAUCION -	RADIACION LASER IVISIBLE CUANDO SE ABRE. EVITAR EXPONERSE AL RAYO.
ADVARSEL. -	USYNLIG LASERSTR LNING VED BNING, N R SIKKERHEDSBRYDERE ER UDE AF FUNKTION. UNDG UDSAETTELSE FOR STR LNING.
ADVARSEL. -	USYNLIG LASERSTR LNING N R DEKSEL PNES. STIRR IKKE INN I STR LEN. UNNG EKSPONERING FOR STR LEN.
VARNING -	OSYNLIG LASERSTR LNING N R DENNA DEL R PPNAD OCH SP RREN R URKOPPLAD. BETRAKTA EJ STR LEN. STR LEN R FARLIG.
VARO! -	AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA N KYM TT M LLE LASER- S TEILYLLE L KATSO S TEESEEN.
注 意 -	严禁渴开此盖, 以免激光泄露灼伤
주 의 -	이 덮개를 열면 레이저광에 노출될 수 있으므로 주의하십시오.

1.2 Caution for safety

Caution 1>> Precaution related noxious material

There is a possibility to get harm from noxious material if you ignore the below information.

(1) Do not touch the damaged LCD. This MFP has LCD in control panel. Noxious liquid to human body exists in the LCD. If it is got into mouth, immediately see a doctor. If it is got into eyes or on skin, immediately wash off over 15 minutes with flowing water and see a doctor.

Caution 2>>Precaution related electric shock or fire

It is possible to get electric shock or burn by fire if you don't fallow the instructions of the manual.

(1) Use exact voltage. Please do use an exact voltage and wall socket. If not, a fire or an electric leakage can be caused.

(2) Use authorized power code. Do use the power code supplied with MFP. A fire can be occurred when over current flows in the power code.

(3) Do not insert many codes in an outlet. If do, a fire can be occurred due to flow over current in an outlet.

(4) Do not put water or extraneous matter in the MFP. Please do not put water, other liquid, pin, clip, etc. It can cause a fire, electric shock, or malfunction. If it is happened, turn off the power and remove the power plug from outlet immediately.

(5) Do not touch the power plug with wet hand. When servicing, do remove the power plug from outlet. And do not insert or take off it with wet hand. Electric shock can be occurred.

(6) Caution when inserting or taking off the power plug. The power plug has to be inserted completely. If not, a fire can be caused due to poor contact. When taking off the power plug, do grip the plug and take it off. If grip the line and pull over, it could be damaged. A fire or electric shock could cause.

(7) Management of power code. Do not bend, twist, or bind it and place other materials on it. Also, do not fix it with staples. If the power code gets damage, a fire or electric shock can be caused. A damaged power code must be replaced immediately. Do not repair the damaged part and reuse it. A repaired part with plastic tape can be occurred a fire or electric shock. Do not spread chemicals on the power code. Do not spread insecticide on the power code. A fire or electric shock can be occurred due to thinner(weak) cover of the power code.

(8) Check whether the power outlet and the power plug are damaged, pressed, chopped, or blazing fire or not. When such inferiorities are found, repair it immediately. Do not make it pressed or chopped when moving the machine.

(9) Caution when thundering, and being flash of lightening. It causes a fire or electric shock. Take the power plug off when thundering. Do not touch cable and device when thundering and being flash of lightening.

(10) Do avoid the place where is moisture or has dust. Do not install the MFP in where have lots of dust or around humidifier. A fire can be occurred. A plug part need to clean well with dried fabric to remove dust. If water drops are dripped on the place covered with dust, a fire can be occurred.

(11) Avoid direct sunlight. Do not install the MFP near to window where directly contacts to the sunlight. If the machine contacts sunlight long time, the machine cannot work properly because inner temperature of the machine is getting higher. A fire can be caused.

(12) Turn off the power and take off the plug when a smoke, strange smell, or sound from the machine. If you keep using it, a fire can be occurred.

(13) Do not insert steel or metal piece inside/outside of the machine. Do not put steel or metal piece into a ventilator. An electric shock could be happened.

Caution 3>>Precaution related handling the machine.

If you ignore this information, you could get harm and machine could be damaged.

(1) Do not install it on the different levels, or slanted floor.
Please confirm whether it is balanced or not after installation. If it is unbalanced, an accident can be happened due to the machine fell over.

(2) Be careful not to insert a finger or hair in the rotating unit.
Be careful not to insert a finger of hair in the rotating unit (motor, fan, paper feeding part, etc) while the machine is operating. Once it happens, you could harm.

(3) Do not place a pot contains water/chemical or small metals. If those are got into the inner side of machine, a fire or electric shock can be occurred.

(4) Do not install it in where lots of moisture or dust exists or where raindrop reaches. A fire or electric shock can be caused.

(5) Do not place a candlelight, burning cigarette, and etc. on the machine. Do not install it near to heater. A fire can be occurred.

Caution 4>>Precaution when assembly/disassembly

When replace parts, do it very carefully. Do memorize the location of each cable before replace parts for reconnecting it afterwards. Do memorize. Please perform the below before replace or disassembly the parts.

(1) Check the contents stored in the memory. All the information will be erased after replace main board. The information needed to keep has to be written down.

(2) Before servicing or replacing electric parts, take off a plug.

(3) Take off MFP cables and power code connected to MFP.

(4) Do use formal parts and same standardized goods when replacing parts.Must check the product name, part code, rated voltage, rated current, operating temperature, etc.

(5) Do not give an over-force when release or tighten up the plastic parts.

(6) Be careful not to drop the small parts such as screws in the MFP.

(7) Be careful not to change the location of small parts such as screws when assembling and disassembling.

(8) Do remove dust or foreign matters completely to prevent fire of tracking, short, or etc.

(9) After finished repair, check the assembling state whether it is same as before the repair or not.

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 electro-static 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.
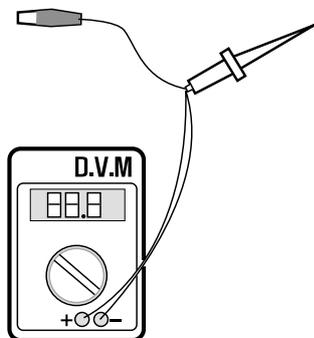
1.4 Tool for Troubleshooting

The following tools are recommended for safe and smooth troubleshooting described in this service manual.

1 **DVM(Digital Volt Meter)**
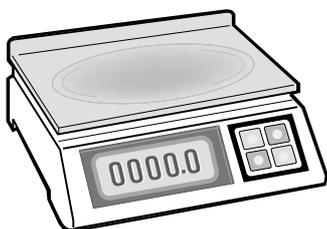Standard: Indicates more than 3 digits.

2 **Electronic Scale**
Standard: Equipment to check the weight of consumables supplied by Samsung Electronics.
(The gram unit can be measured.)

3 **Driver**
Standard : "-" type, "+" type (M3 long, M3 short, M2 long, M2 short).

4 **Pinset**
Standard: For general home use, small type.

5 **Cotton Swab**
Standard : For general home use, for medical service.

6 **Cleaning Equipments a IPA (Isopropyl Alcohol)dry cloth or a soft stuff neutral detergent.**
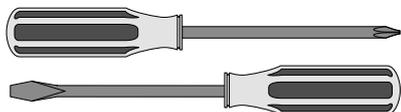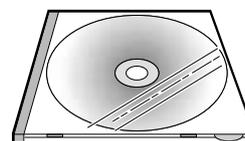
7 **Software(Driver) installation CD ROM**

⚠ *Caution>>* Mind your hands not to be touched when you disassemble and reassemble PBA ASS'Y, such as the main board.

1.5 Acronyms and Abbreviations

The table in the below explains abbreviations used in this service manual.
The contents of this service manual are declared with abbreviations in many parts. Please refer to the table.

AC	Alternating Current	IDE	Intelligent Drive electronics or Imbedded Drive Electronics
ADF	Automatic Document Feeder	IEEE	Institute of Electrical and Electronics Engineers. Inc
ASIC	Application Specific Integrated Circuit	IPA	Isopropy Alcohol
ASSY	assembly	IPM	Images Per Minute
BIOS	Basic Input Output System	LAN	local area network
CCD	Charge Coupled Device	lb	pound(s)
CMOS	Complementary Metal Oxide Semiconductor	LBP	Laser Beam Printer
CN	connector	LCD	Liquid Crystal Display
CON	connector	LED	Light Emitting Diode
CPU	Central Processing Unit	LSU	Laser Scanning Unit
dB	decibel	MB	Megabyte
dbA	decibelampere	MHz	Megahertz
dBM	decibel milliwatt	NVRAM	Nonvolatile random access memory
DC	direct current	OPC	Organic Photo Conductor
DCU	Diagnostic Control Unit	PBA	Printed Board Assembly
DPI	Dot Per Inch	PCL	Printer Command Language , Printer Control Language
DRAM	Dynamic Random Access Memory	PDL	Page Discription Language
DVM	Digital Voltmeter	PPM	Page Per Minute
ECP	Enhanced Capability Port	PTL	Pre-Transfer Lamp
EEPROM	Electronically Erasable Programmable Read Only Memory	Q-PID	Quick Printer Initiating Device
EMI	Electro Magnetic Interference	Q'ty	Quantity
EP	electrophotographic	RAM	Random Access Memory
EPP	Enhanced Parallel Port	ROM	Read Only Memory
F/W	firmware	SCF	Second Cassette Feeder
GDI	graphics device interface	SMPS	Switching Mode Power Supply
GND	ground	SPGP	Samsung Printer Graphic Processor
HBP	Host Based Printing	SPL	Samsung Printer Language
HDD	Hard Disk Drive	Spool	Simultaneous Peripheral Operation Online
HV	high voltage	SW	Switch
HVPS	High Voltage Power Supply	Sync	Synchronous or synchronization
I/F	interface	USB	Universal Serial Bus
I/O	Input and Output		
IC	integrated circuit		

2. Specifications

Specfications are correct at the time of printing. Product specifications are suject to change witth noticae.
See below for product sspecifications.

2.1 General Specification

Items		Descriptions	Remarks
Major Features		SCX-4016 : Copier, Print, Scan	Without ADF
		SCX-4116 : Copier, Print, Scan	With ADF
		SCX-4216F : Copier, Print, Scan, Fax	With ADF
Size (W*D*H) w/o Hand Set		SCX-4016 :(TBD)	
		SCX-4116 :445x419x405mm(TBD)	
		SCX-4216F :445x419x405mm(TBD)	
Weight		15Kg(TBD)	
LCD		16*2 Char	
I/O Interface		USB1.1 & IEEE1284	
Power Consumption	Avg operation	320W(TBD)	
	Sleep Mode	Energy Star Compliant	
	Power Switch	Yes	
Noise	Operating	55 dBA (TBD)	
	Standby	39 dBA (TBD)	
	Warm Up	Less than 30 seconds	
Approval		Class B	
Device Memory		16MB	
Internal N/W Connectivity		N/A	

2.2 Print Specification

Items		Descriptions	Remarks
Print Speed		16ppm	Letter size, 5% Character Pattern
Print Method		Laser Scanning Unit + Electro Photography	
Print Language		GDI	
Power Save		Yes(5/10/15/30/45min.)	
Resolution	Normal	600 *600dpi	
	RET	No	
Toner Save		Yes	
Memory		8MB	
FPOT	Stand by	Approx. 12 seconds	
	Power Save	Less than 42 seconds	
Duplex Print		Manual (driver support provided)	
Printable Area		208 x 273 mm (Letter)	
Toner Save		Yes	

2.3 Scan Specification

Items		Descriptions	Remarks
Halftone(Gray Scale)		256 level	
Scan Method		Color CCD	ITU-T #1 Chart
Scan Speed (seconds/scan)	ADF (SCX-4216F/4116)	25 sec (TBD)	Text/Mixed Mode : B/W Letter & 300dpi. (USB)
		72 sec (TBD)	Photo Mode : Gray Letter & 300dpi. (USB)
	Platen (SCX-4016)	23 sec (TBD)	
		23 sec (TBD)	
Resolution	Optical	600*600 dpi	
	Enhanced	4800*4800 dpi	
Halftone		256 level	
Scan Width	Widh	Max.216mm (8.5")	
	Length(Adf)	Max. 356mm (14.0")	
	Length(Platen)	Max. 297mm (11.7")	
Scan-to		E-mail, Image, OCR, FAX, WEB	

2.4 Copy Specification

Items		Descriptions	Remarks
Copy Quality Selection or Original Image type selection Mode	Text	600x300dpi	
	Auto	600x300dpi	
	Photo	600x600dpi for Platen / 600x300dpi for ADF	
	Other		
FCOT	Power Save	Approx. 42 seconds(TBD)	
	Stand by	Approx. 12 seconds(TBD)	
	Power Save	Approx. 42 seconds(TBD)	
	Stand by	Approx. 17 seonds(TBD)	
Copy Speed / Letter	SDMC	16 cpm	
	MDMC	7 cpm	
	SDMC	16 cpm	
	MDMC	4(TBD) cpm	
Resolution		Scan:600*600dpi	
		Print:600*600dpi	
Zoom Range		25% to 400 %	
Multi Copy		1~99	
Preset		Yes	
Contrast Control		SCX-4016/SCX-4116 : 3 level(by LED)	
		SCX-4216F : 5 level"	
Copy Mode		AUTO/TEXT/PHOTO	
Collation Copy		Yes(300dpi only)	
Auto return to default mode		Yes(after 1 minute)	
N-up copy		2-up, 4-up	
AutoFit Copy		Yes	
Clone		Yes	
Poster		Yes	

2.5 Telephone Specification (SCX-4216F Only)

Items		Descriptions	Remarks
Handset		No	
On hook Dial		Yes	
Search		Yes (Phone Book)	
1-Touch Dial		10EA (3*4 Numeric Key)	
Auto dial		50 locations (Using 3*4 buttons)	
TAD I/F		No	
Tone/Pulse		Selectable in Tech Mode	
Pause		No	
Auto Redial		Yes	
Last Number Redial		Yes	
Distinctive Ring		No	
Caller ID		No	
External Phone Interface		No	
Report & List Print out	Tx/Rx Journal	Yes	
	Confirmation	2 types available (with Image TCR, w/o image TCR)	
	Help List	No	
	Auto Dial List	Yes	
	System Data List	List all user setting	
Sound Control	Ring Volume	Yes(Off,Low,MED,HIGH)	
	Key Volume	Yes(On,Off)	
	Speaker	Yes(On,Off)	
Junk Fax barrier		Yes	
Security Mode		Yes	
Battery Backup		No	

2.6 Fax Specification (SCX-4216F Only)

Items		Descriptions	Remarks
Compatibility		ITU-T G3	
Communication System		PSTN/PABX	
Modem Speed		33.6Kbps	
TX Speed		3sec	
Compression		MH/MR/MMR/JPEG	
ECM		Yes	
Resolution	Std	203*98dpi	
	Fine	203*196dpi	
	S.Fine	300*300dpi	
Scan Speed(ADF)	Std	Approx. 5sec/LTR	
	Fine	Approx.7.5sec/LTR	
	S.Fine	Approx.7.5sec/LTR	
Rx fax duplex print out		No	
Multiple page scan speed		Approx. 7 ppm/LTR	
Receive Mode		Fax, TEL	
Memory	Capacity	2MB (160 pages)	
	Optional Memory	No	
	Max locations to store to 1 Group Dial	49 locations	
	Fax Forward	Yes(On/Off)	
	Broadcasting	59 locations	
	Forced Memory TX	Yes	
	Cover page	No	
	Delayed fax	Yes	
	Memory RX	Yes	
Functions	Voice Request	No	
	TTI	Yes	
	RTI	Yes	
	Polling	No	
	Earth/Recall	No	
	Auto Reduction	Yes	
	RDC	No	

2.7 Paper Handling

Items		Descriptions	Remarks
Capacity (20lbs)	Main Tray	250sheets	
	Bypass	Single Sheet	
Optional Cassette		No	
Output Capacity		150Sheets/20lb	
Output Control		Face down	
Paper Size	Main Tray	CST: A4,Letter,Legal Folio,Executive,B5	
	Bypass	Bypass:Envelope6 3/4, 7 3/4,#9, #10,DL,C5,B5	
Paper Weight	Main Tray	16~28 lb.	
	Bypass	16~43 lb.	
Paper Path	Standard output	Bottom to Middle Front	
	Straight Through	Face up, Single Sheet	
Paper Size	Max	216 x 356mm(8.5"x14")	
	Min	76 x 127mm(3"x5")	
Output Stacker	Paper	Extension	
	Document	Fixed	
Input Guide	Bypass Tray	Adjustable	
	Main Tray	Universal	
	Document	Adjustable	
ADF	Paper Weight	12.5~28lb	
	Capacity	30 sheets	
	Document Size Widtth	148mm - 216mm(5.8" - 8.5")	
	Document Size Length	127 mm - 356mm(5" - 14.0")	

2.8 Software

Items		Descriptions	Remarks
Compatibility	DOS	No	
	Win 3.x	No	
	Win 95	Yes	
	Win 98&WinME	Yes	
	Win NT 4.0	Yes	
	Win 2000	Yes	
	Win XP	Yes	
	Mac	Yes	Mac Printer Only
	Linux	No	
Driver	Printer	GDI	
	TWAIN	Yes	PC Fax is only available through PC Modem
	PC-FAX	No	

2.9 Accessory

Items	Descriptions	Remarks
Quick setup guide	Yes	
Owner's manual	Yes(Electronic)	
S/W CD ROM	1 CD for User Guide and MFP S/W	
Toner Cartridge	1 EA	
Drum Unit	N/A	
Power Cable	1 EA	
Telephone Jack	1 EA	
In/Out Guide	No	
Printer Cable	No	

2.10 Consumables

Items		Descriptions	Remarks
Type		Single Cartridge	
How to install		Front door open and front loading	
Toner	Life	Initial 1,000 sheets	Letter size, 5%
		running 3,500 sheets	Character Pattern
	Level Sensor	No	
Toner Count		Yes	

3. Disassembly and Reassembly

3-1 General Precautions on Disassembly

When you disassemble and reassemble components, you must use extreme caution. The close proximity of cables to moving parts makes proper routing a must.

If components are removed, any cables disturbed by the procedure must be restored as close as possible to their original positions. Before removing any component from the machine, note the cable routing that will be affected.

Whenever servicing the machine, you must perform as follows:

1. Check to verify that documents are not stored in memory.
2. Be sure to remove the toner cartridge before you disassemble parts.
3. Unplug the power cord.
4. Use a flat and clean surface.
5. Replace only with authorized components.
6. Do not force plastic-material components.
7. Make sure all components are in their proper position.

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.
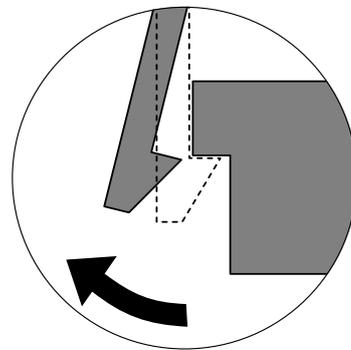
3-2 Rear Cover

1. Remove the four screws securing the Rear Cover.

2. Remove the Rear Cover from the Frame Ass'y and
   Scanner Ass'y.

Rear Cover

3. Unlatch the (Cover Face Up) securing the Rear cover,
   as shown below.Then lift the (Cover Face Up) out.

Cover Face Up
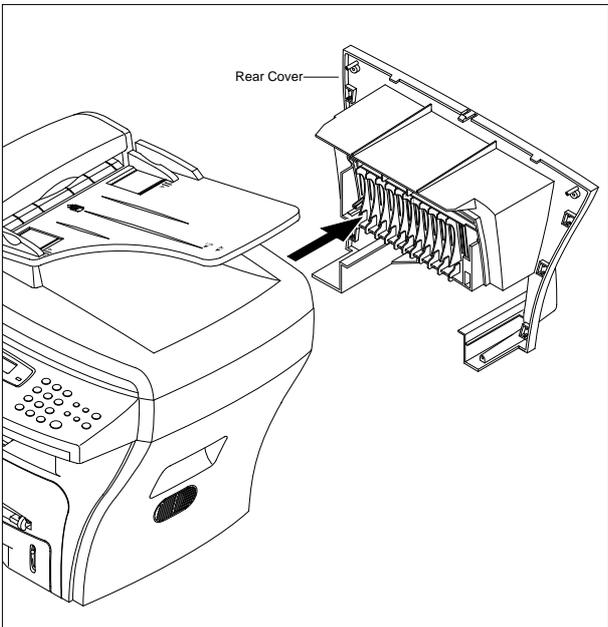
3-3 Engine Shield Ass'y

1. Before you remove the Engine Shield Ass'y, you should remove:
   - Rear Cover (see page 3-2)

2. Remove the ten screws securing the Engine Shield Ass'y and remove it. Then unplug the all connectors from the Main PBA and SMPS.
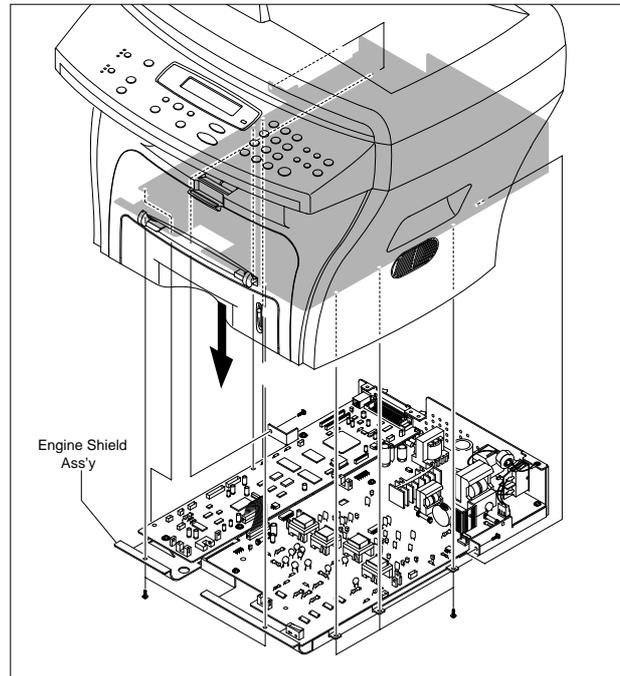
Engine Shield Ass'y

3-4 Main PBA

1. Before you remove the Main PBA, you should remove:
   - Rear Cover (see page 3-2)
   - Engine Shield Ass,y (see page 3-3)

2. Unplug the one connector and remove the five screws securing the Main PBA. Then lift the Main PBA out, as shown below.

Main PBA
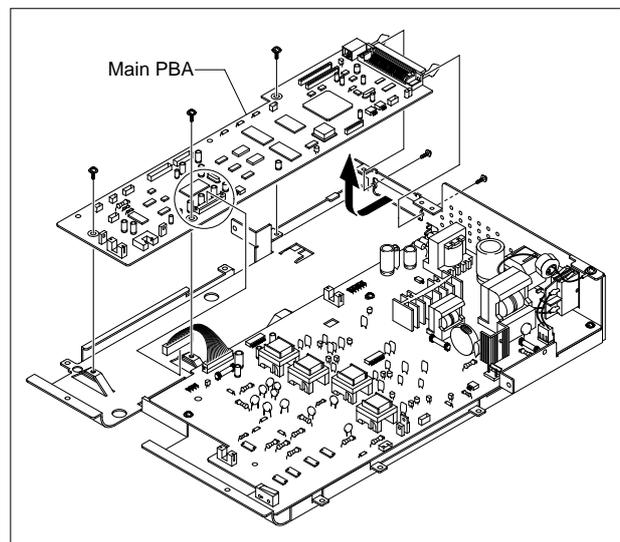
3-5 SMPS

1. Before you remove the SMPS, you should remove:
   - Rear Cover (see page 3-2)
   - Engine Shield Ass,y (see page 3-3)

2. Unplug the one connector and remove the one screw securing the Inlet Ass'y
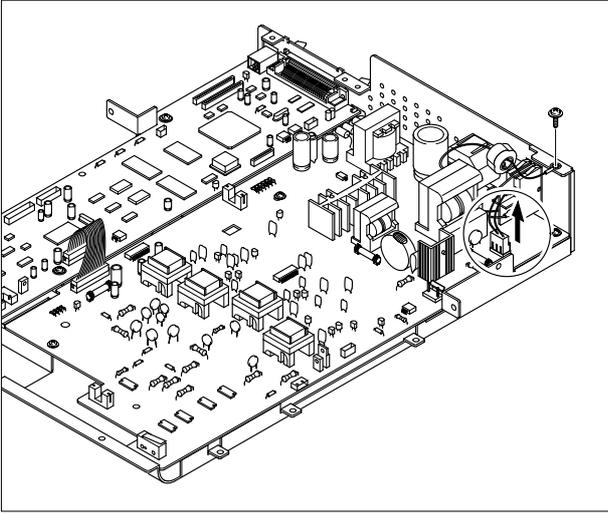
3. Unlatch the Inlet Ass'y and remove it, as shown below.

Inlet Ass'y
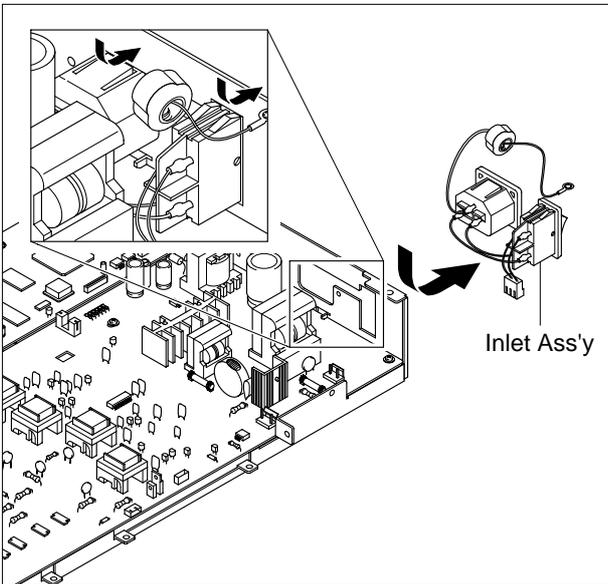
4. Unplug the one connector and remove the three screws securing the SMPS. Then lift the SMPS out, as shown below.
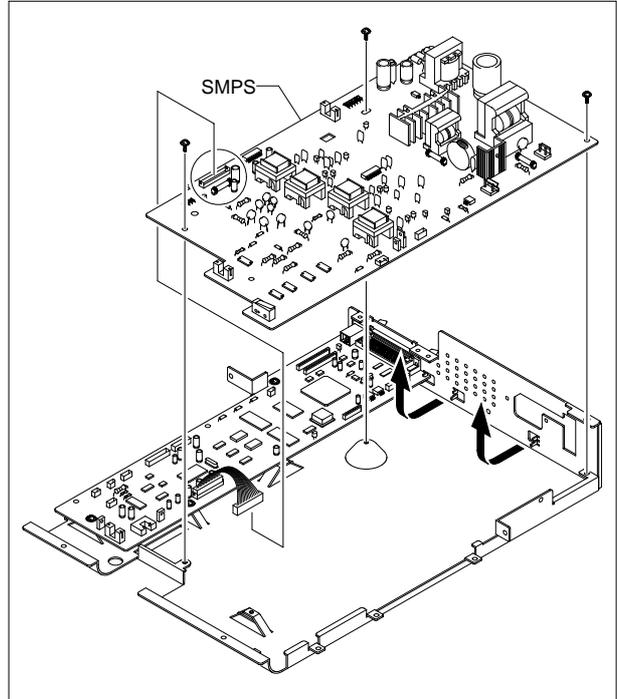
SMPS

3-6 Fuser Ass'y

1. Before you remove the Fuser Ass'y, you should remove:
   - Rear Cover (see page 3-2)
   - Engine Shield Ass,y (see page 3-3)

2. Unplug the two connectors from the Main PBA and SMPS, as shown below. Then remove the four screws securing the Fuser Ass'y and remove it.
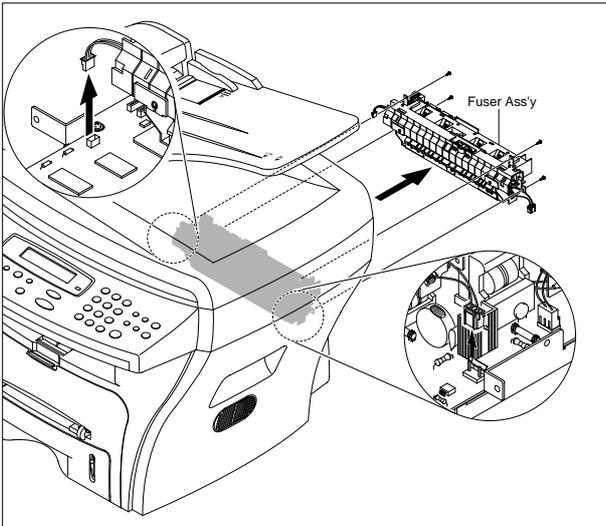
3. Remove the two screws securing the Thermostat. Then lift the Thermostat out
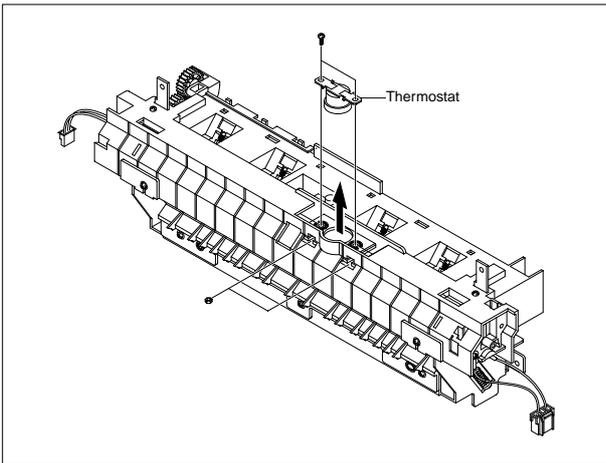
4. Remove the two screws securing the Halogen Lamp. Then take out the Halogen Lamp from the Heat
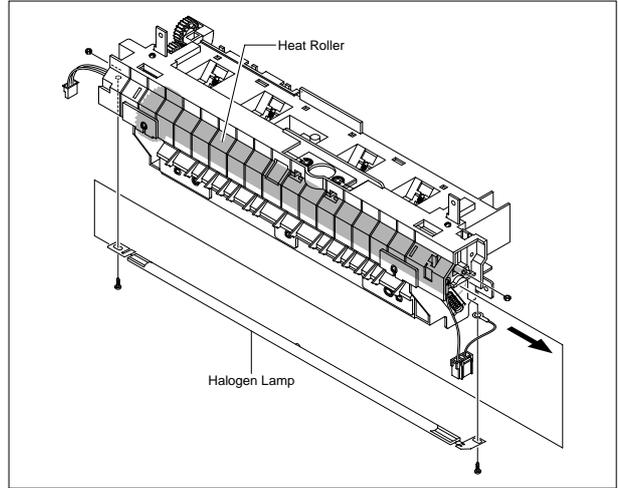
5. Remove the one screw securing the Idle Gear and remove it.
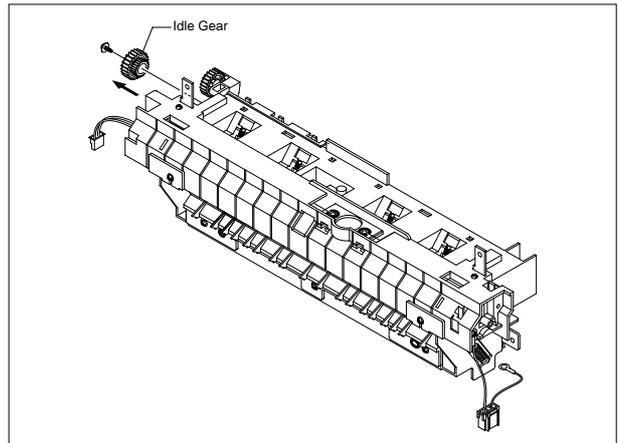
6. Remove the four screws securing the Fuser Cover and remove it, as shown below.
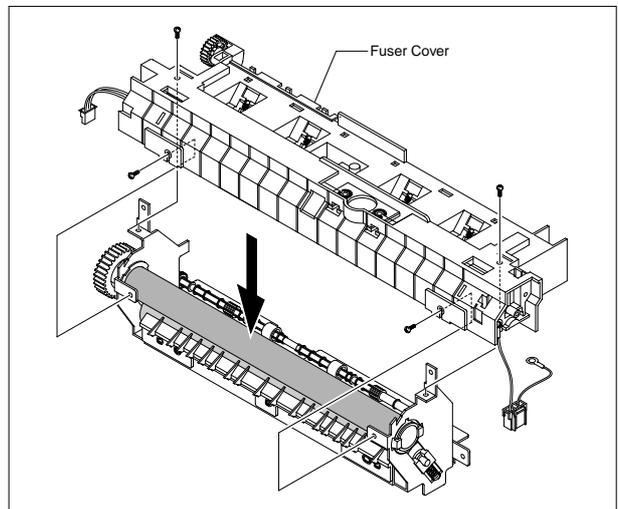
7. Unwrap the Thermister Harness, as shown below.
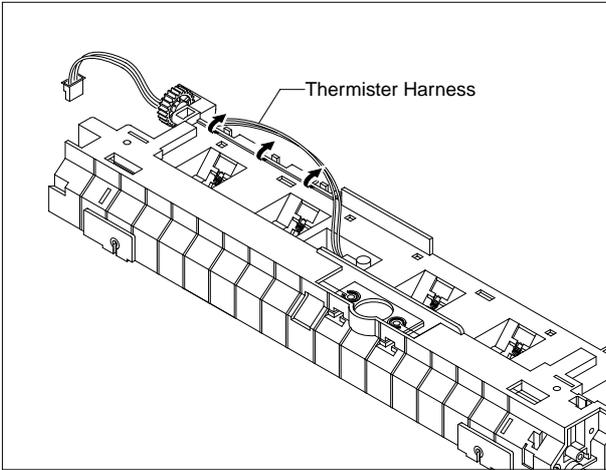
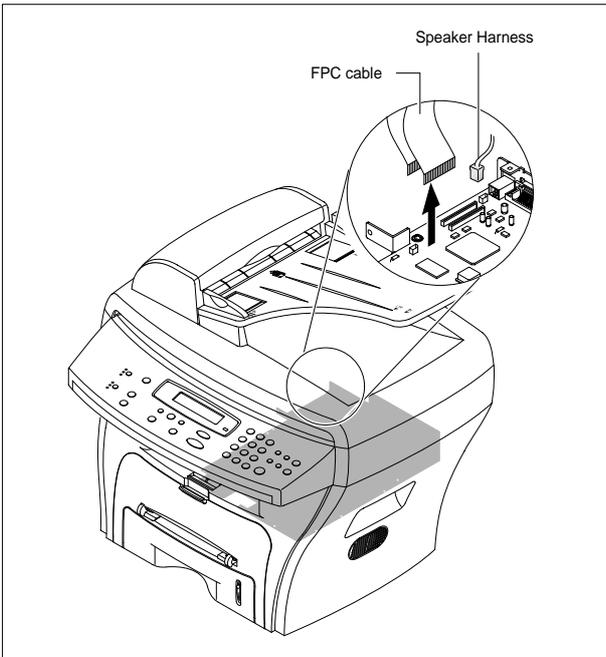8. Remove the one screw securing the Thermister and remove it, as shown below.
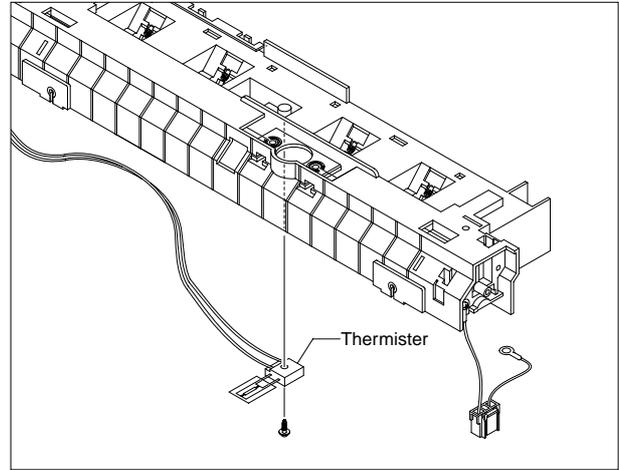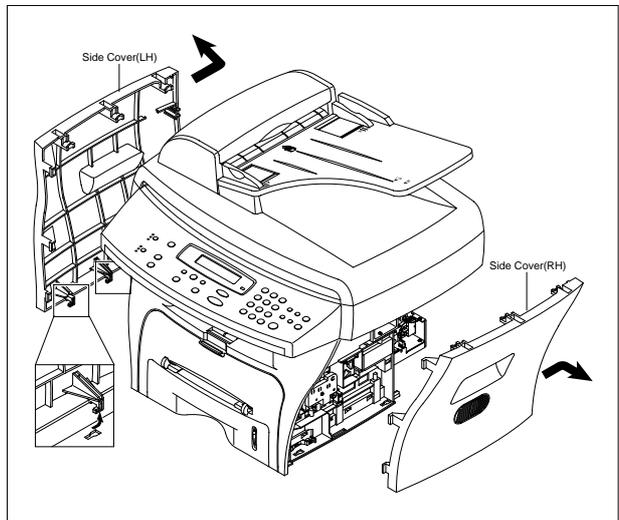

3-7 Side Cover (LH, RH)

1. Before you remove the Side Cover (LH, RH), you should remove:
   - Rear Cover (see page 3-2)

2. Unplug the FPC Cables and Speaker Harness, as shown below.

Note : You should connector remove the FPC Cable vertically to avoid the FPC cable pin damage.

3. Lift the LH and RH Side Cover out in the direction of arrow.
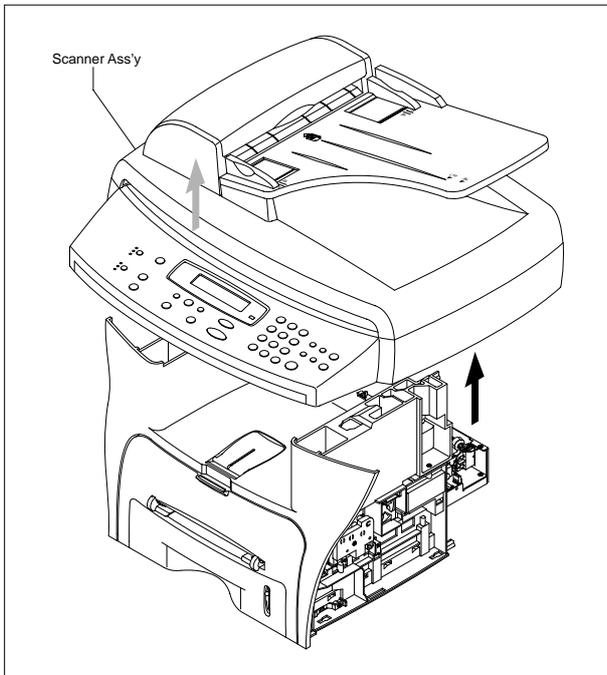
3-8 Scanner Ass'y

1. Before you remove the Scanner Ass'y, you should
   remove:
   - Rear Cover (see page 3-2)
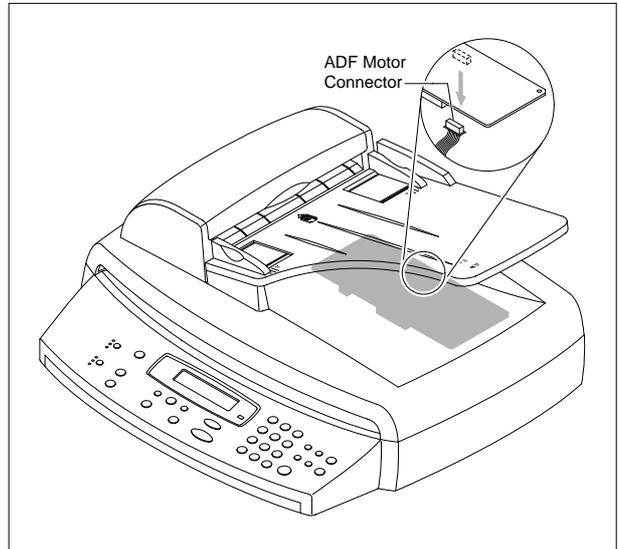   - Side Cover (LH, RH) (see page 3-6)

2. Remove the two screws securing the Scanner Ass'y,
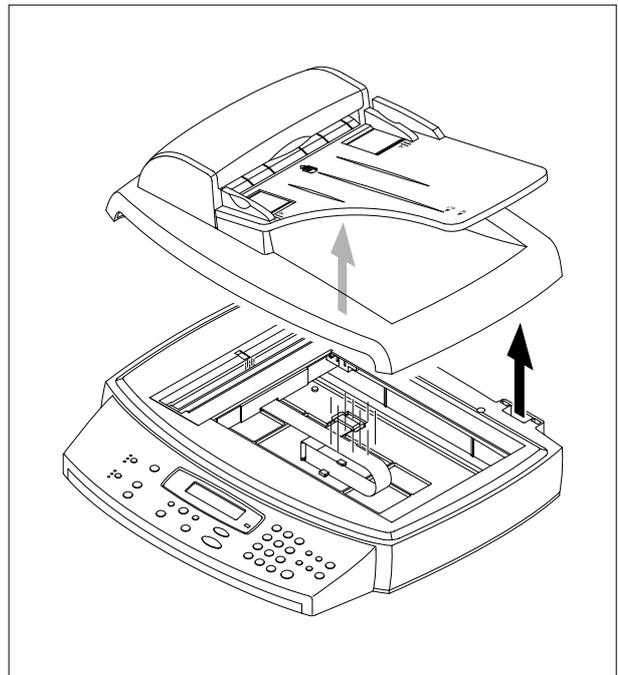   as shown below.
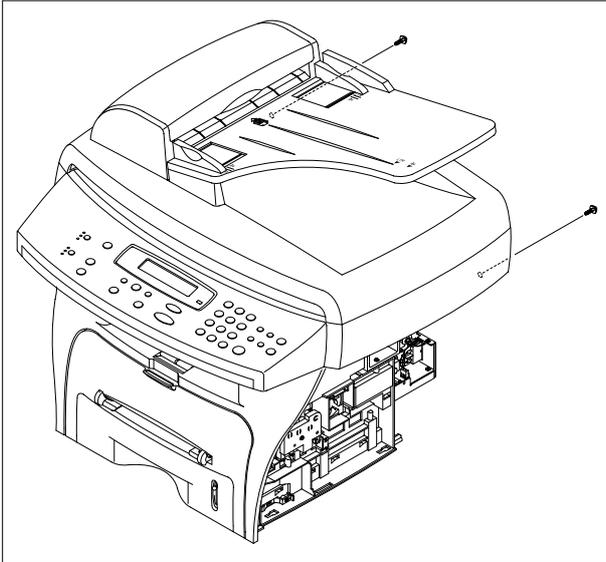
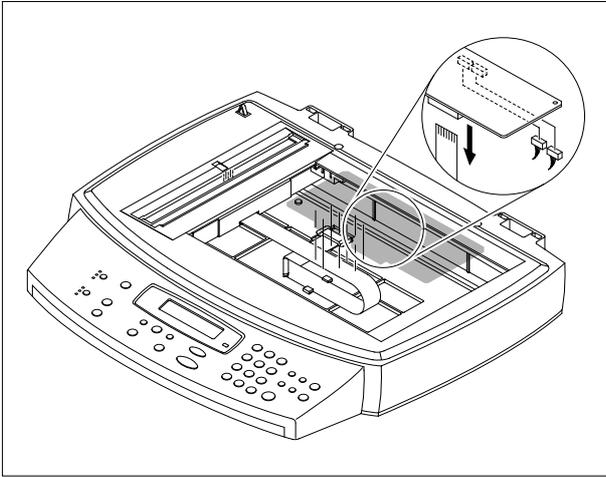3. Pull up the Scanner Ass'y, as shown below.

4. Remove the ADF Motor connector from the Scanner
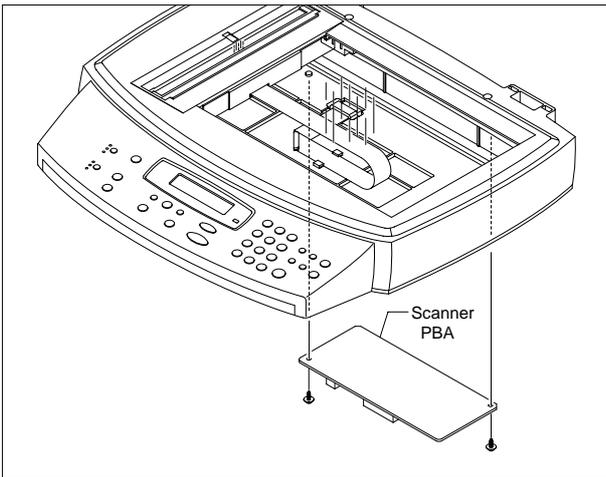   PBA, as shown below.

5. Pull the Platen Cover upward and remove it..

6. Unplug the two connectors and CCD Cable from the Scanner PBA.

7. Remove the two screws securing the Scanner PBA and remove it.

Scanner PBA

8. Remove the three screws securing the Scan Lower Ass'y.
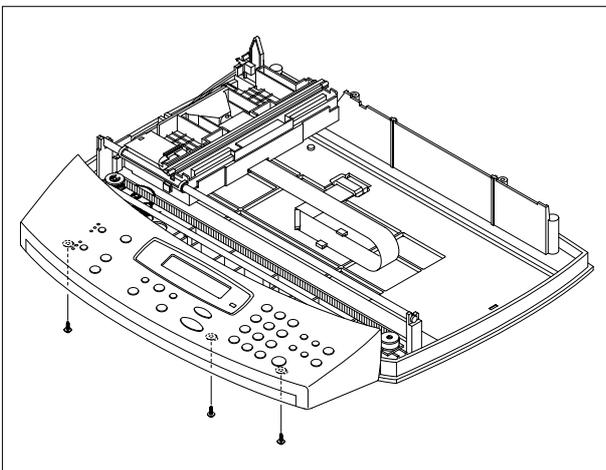
9. Lift the OPE Unit out. Then unplug the two connectors from the OPE Unit and remove it.

OPE Unit

10. Remove the two screws securing the Window Cover.
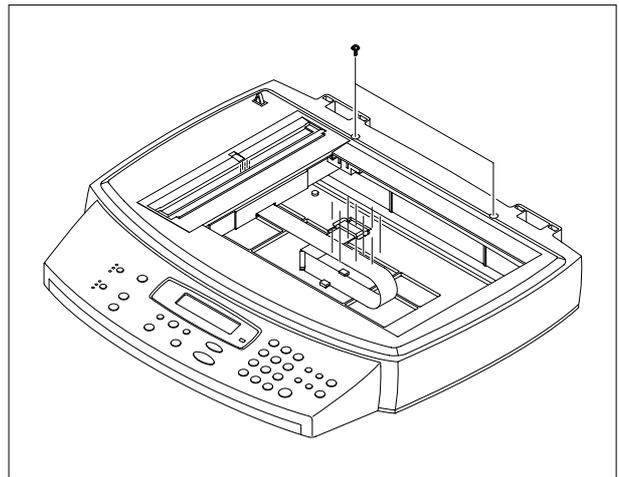
11. Unlatch the Window Cover securing the Scan Lower Ass'y Then pull the Window Cover upward and remove it..

Window Cover

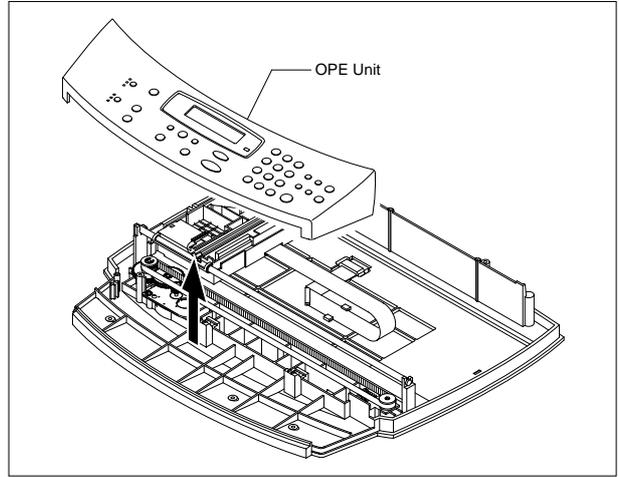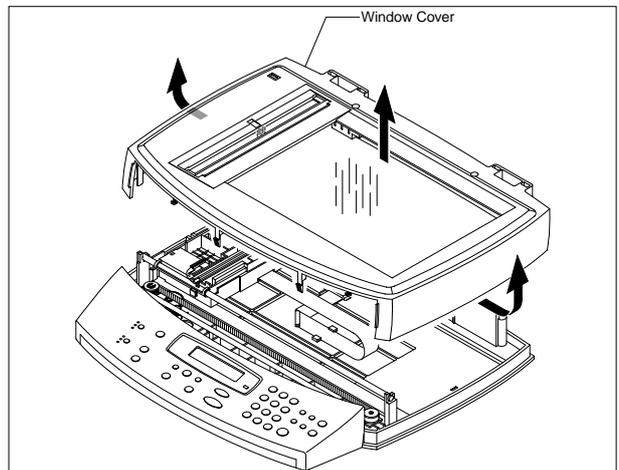12. Remove the CCD Cable, as shown below.

CCD Cable

13. Push the Belt Holder and take out the Belt, as shown below.

Belt

14. Pull up the CCD Shaft and take out the Scanner Module.

Scanner Module

CCD Shaft

Belt Holder
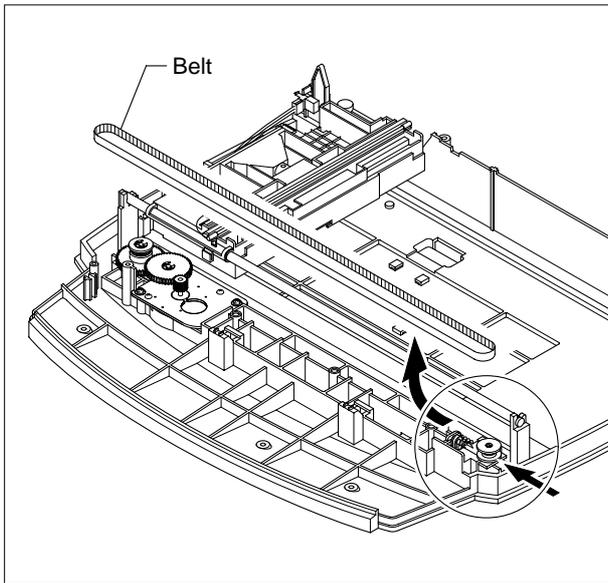
15. Remove the Reduction Gear and Idle Gear, as shown below.

Reduction Gear

Idle Gear
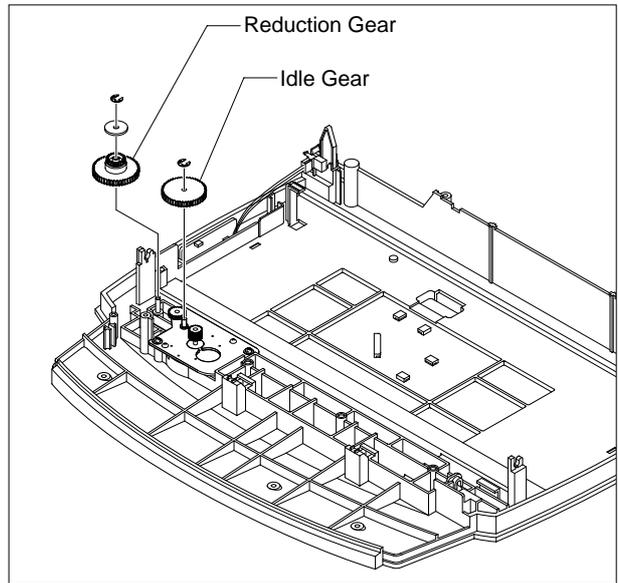
16. Remove the two screws and take out the Motor Bracket.

Motor Bracket

17. Unplug the one connector from the Open Sensor Ass'y.

18. Unlatch the Open Sensor and remove it, as shown below.

Open Sensor
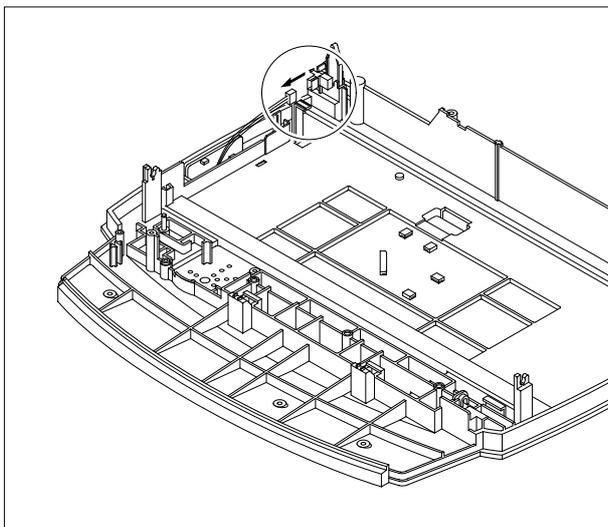
3-9 ADF Motor Ass'y

1. Before you remove the ADF Motor Ass'y, you should remove:
   - Rear Cover (see page 3-2)
   - Side Cover (LH, RH) (see page 3-6)
   - Scanner Ass'y (see page 3-7)

2. Remove the two screws securing the ADF Ass'y and remove it.

ADF Ass'y

3. Remove the Open Cover, as shown below.

Open Cover

4. Pull the White Bush, then rotate it until reaches the slot, as shown below. Then lift the Pick up Ass'y out.

White Bush

Pick up Ass'y

5. Remove the two screws securing the Upper Cover and remove it, as shown below.

Upper Cover
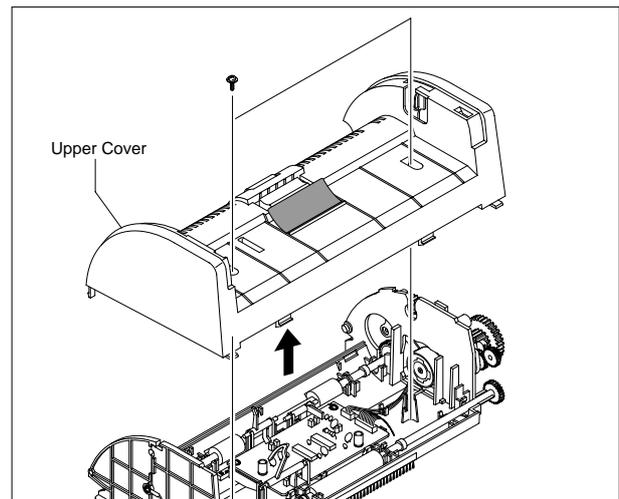
6. Unplug the one connector and remove four screws securing the ADF Motor Ass'y. Then take out the ADF Motor Ass'y.

ADF Motor Ass'y

ADF Lower Ass'y
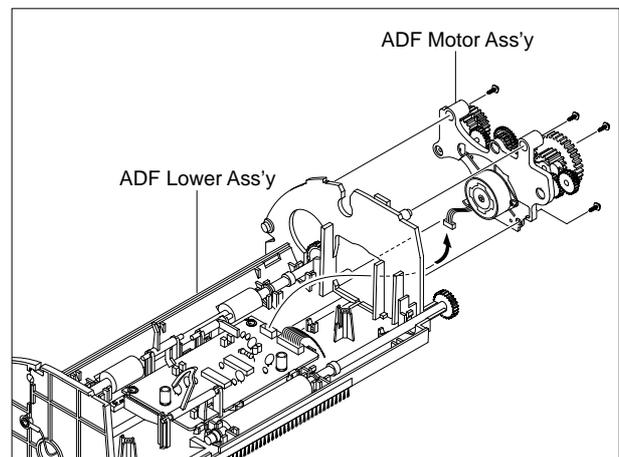
3-10 OPE Unit

1. Before you remove the OPE Unit, you should remove:
   - Rear Cover (see page 3-2)
   - Side Cover (LH, RH) (see page 3-6)
   - Scanner Ass'y (see page 3-7)

2. Remove the six screws securing the OPE PBA from the OPE Cover.

3. Remove the Contact Rubber from the OPE Cover.

4. Remove the Key Pad from the OPE Cover.

3-11   Exit Roller

1. Before you remove the Exit Roller, you should
   remove:
   - Rear Cover (see page 3-2)
   - Scanner Ass'y (see page 3-7)
   - Side Cover (LH, RH) (see page 3-6)

2. Remove the two screws securing the Cover-Rear
   Upper, as shown below.
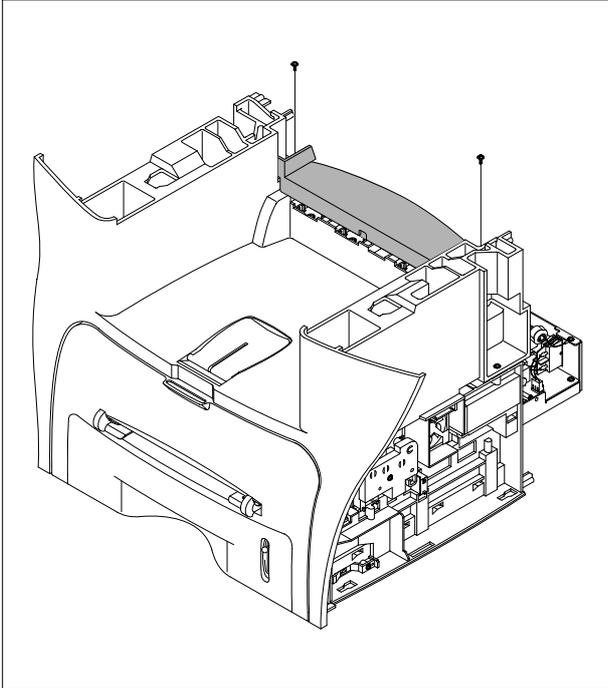
3. Remove the Exit Gear and Bearing, as shown below.
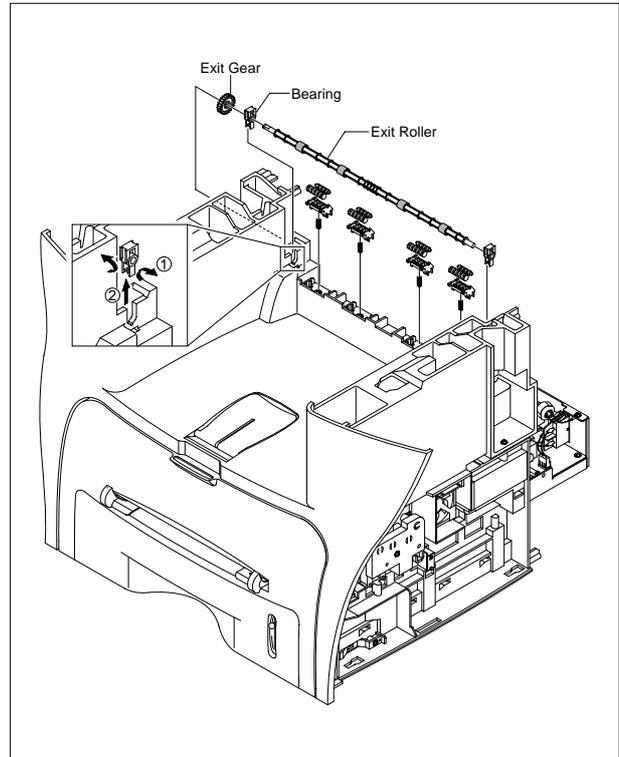
3-12 Front Cover

1. Take out the Cassette.

Cassette
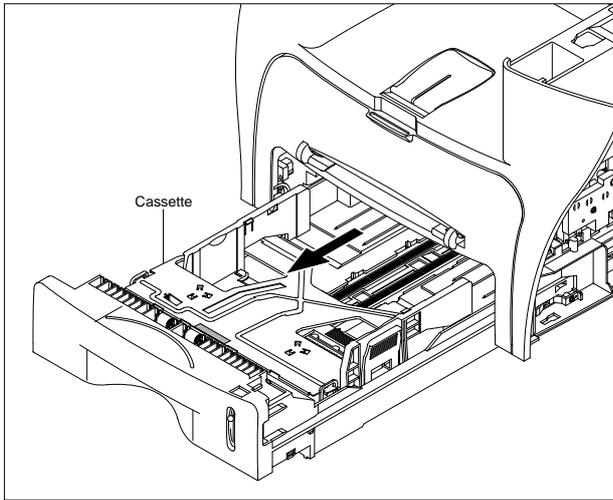
2. OPen the Front Cover.
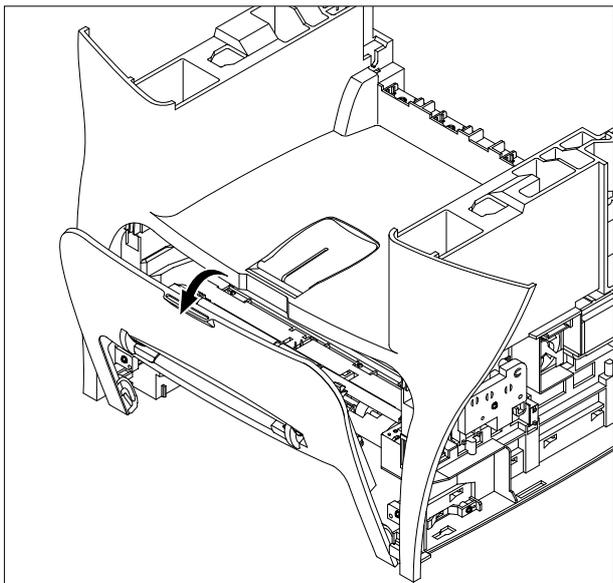
3. Unlatch the Front Cover securing the Frame Ass'y.
   Then remove the Front Cover, as shown below.
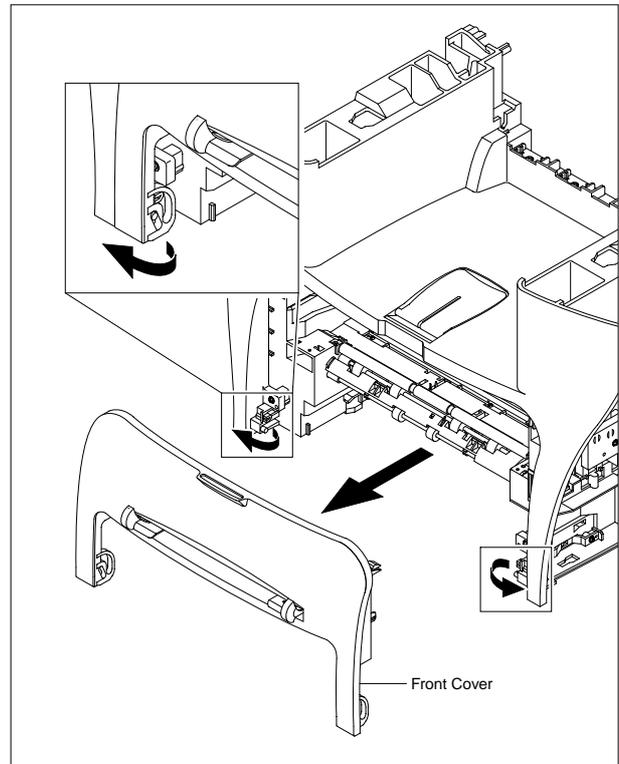
Front Cover

3-13 Middle Cover

1. Before you remove the Middle Cover, you should remove:
   - Rear Cover (see page 3-2)
   - Side Cover (LH, RH) (see page 3-6)
   - Scanner Ass'y (see page 3-7)
   - Front Cover (see page 3-14)

2. Remove the six screws securing the Top Cover and remove it.
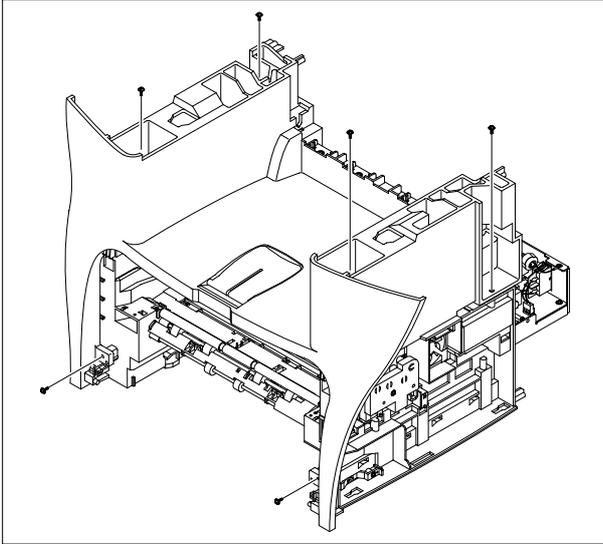
3. Unlatch the Top Cover Securing the Frame Ass'y, using a proper tool as shown below. Then lift the Top Cover out.
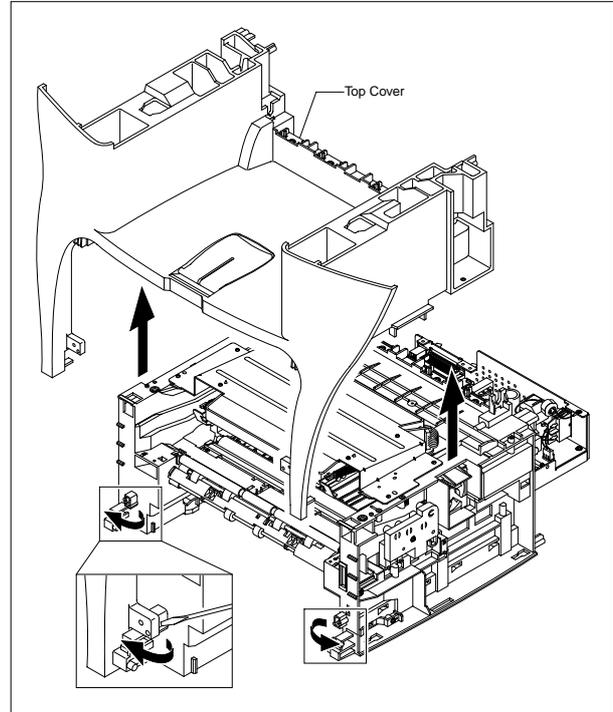
3-14 Fan

1. Before you remove the Fan, you should remove:
   - Rear Cover (see page 3-2)
   - Side Cover (RH) (see page 3-6)

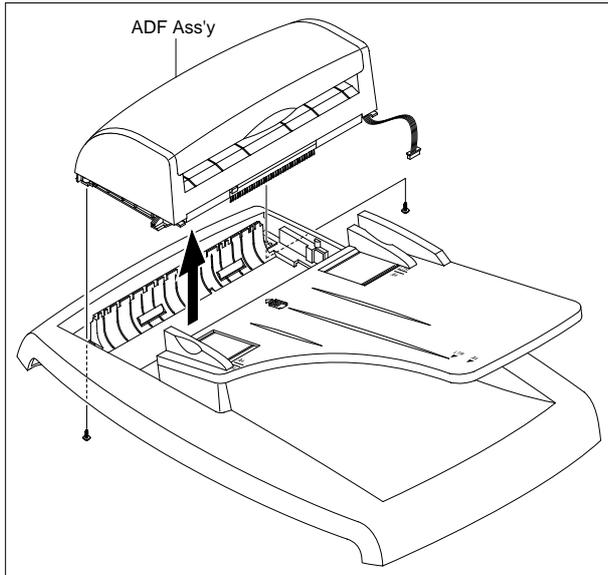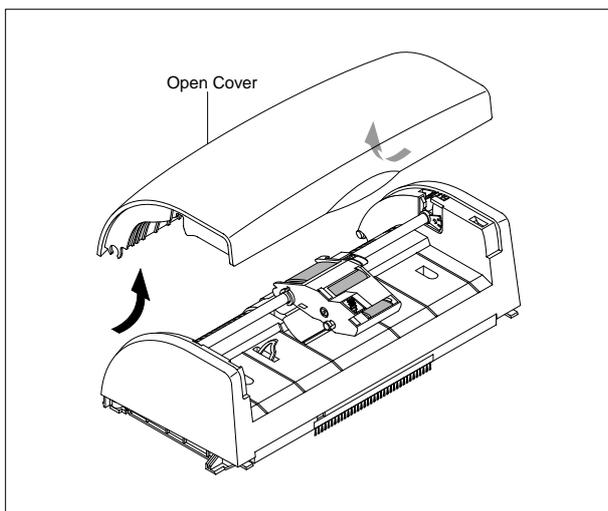2. Unplug the connector from the SMPS and remove the one screw. Then take out the Fan.
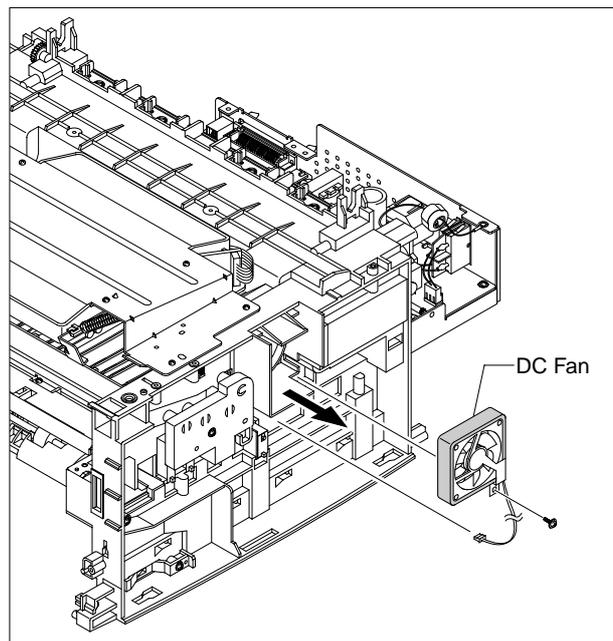
3-15 LSU

1. Before you remove the LSU, you should remove:
   - Rear Cover (see page 3-2)
   - Side Cover (LH, RH) (see page 3-6)
   - Scanner Ass'y (see page 3-7)
   - Front Cover (see page 3-14)
   - Middle Cover (see page 3-15)

2. Unplug the two connectors.
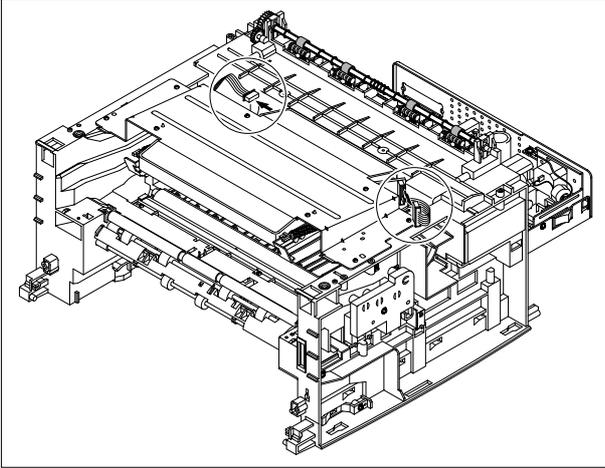
3. Remove the four screws securing the LSU and remove it.
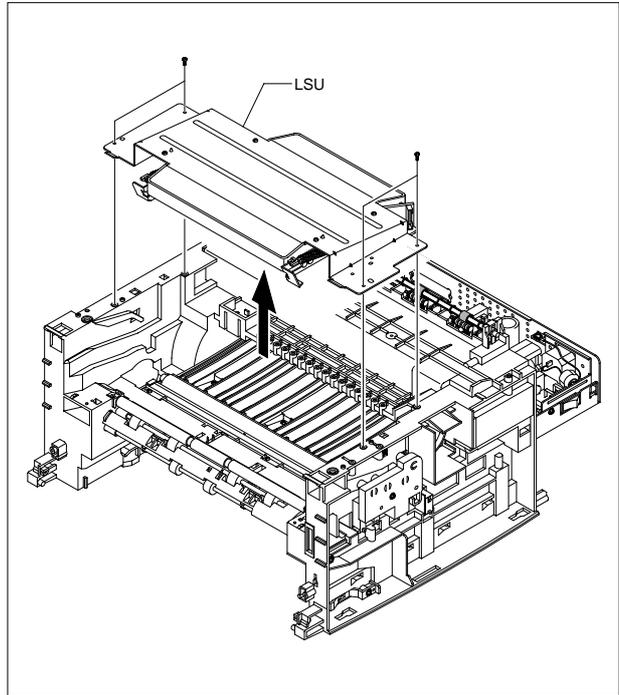
3-16 Drive Ass'y

1. Before you remove the Drive Ass'y, you should remove:
   - Rear Cover (see page 3-2)
   - Side Cover (LH) (see page 3-6)

2. Remove the six screws securing the Drive Ass'y.
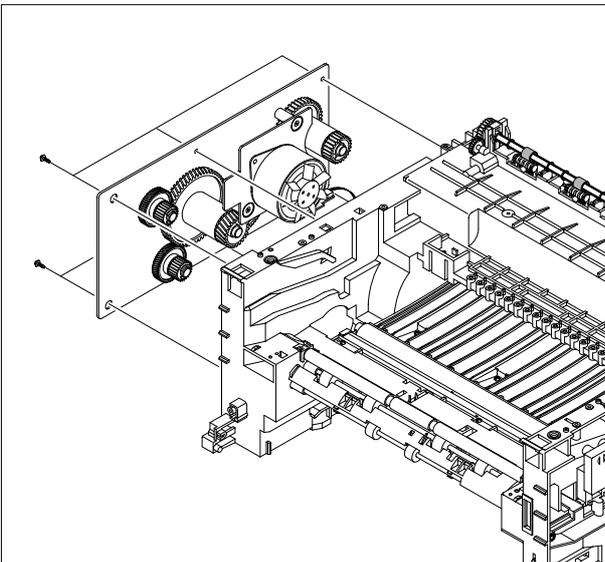
3. Take out the Drive Ass'y, then unplug the connector from the Main PBA, as shown below.
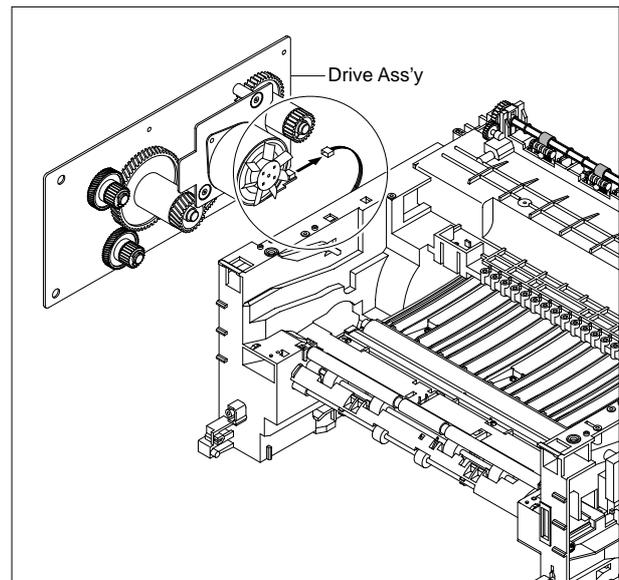
3-17 Transfer Ass'y

1. Before you remove the Transfer Ass'y, you should
   remove:
   - Rear Cover (see page 3-2)
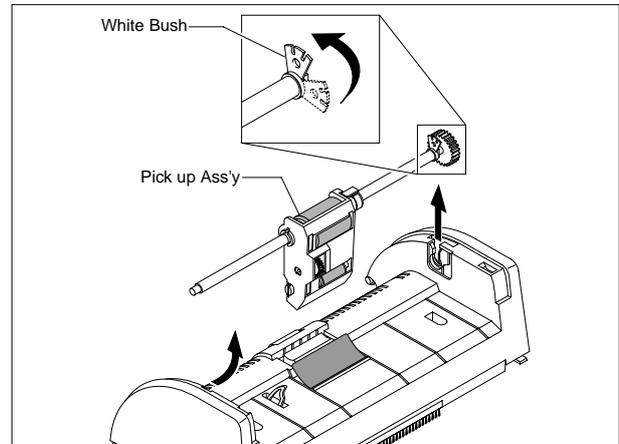   - Side Cover (LH, RH) (see page 3-6)
   - Scanner Ass'y (see page 3-7)
   - Front Cover (see page 3-14)
   - Middle Cover (see page 3-15)

2. Remove the three screws securing the Transfer Earth
   and remove it.
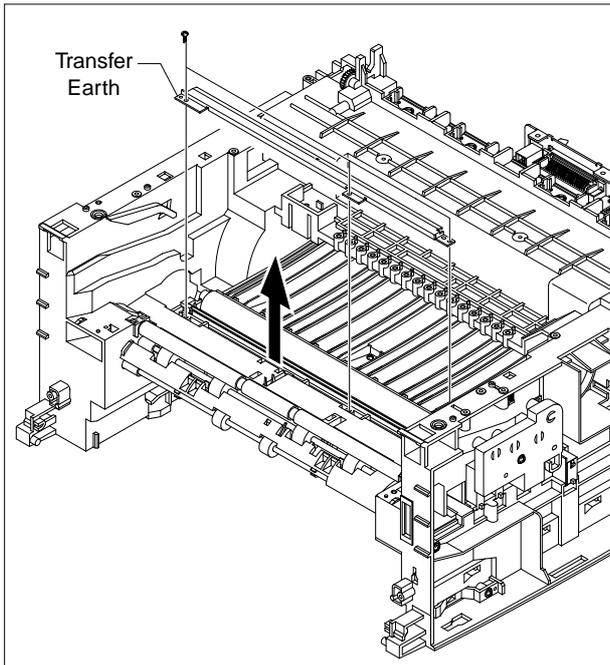
3. Unplug the PTL Holder connector, then remove the
   PTL Holder and PTL Lens, as shown below.
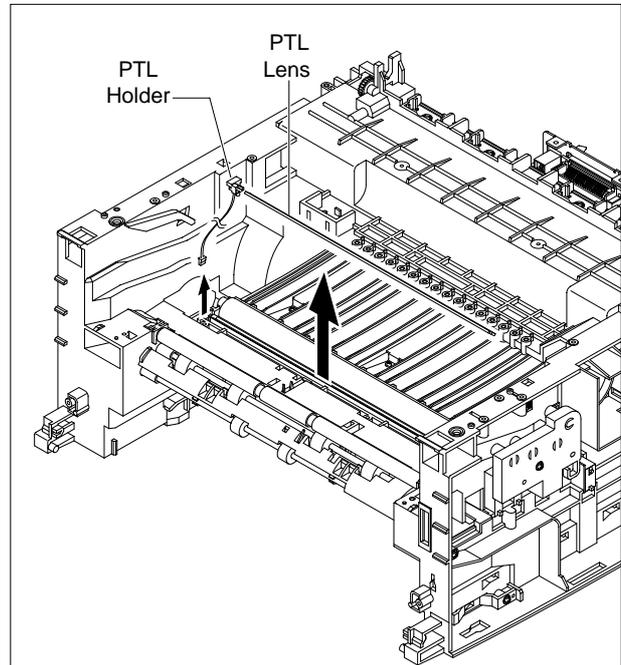
4. Unlatch the Bush and remove it. Then lift the Transfer
   Roller out, as shown below.
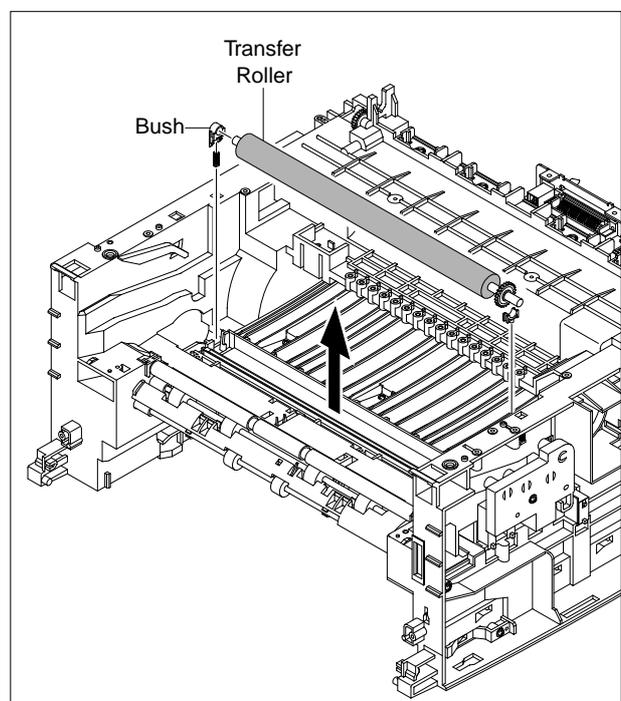
3-18 Feed Ass'y
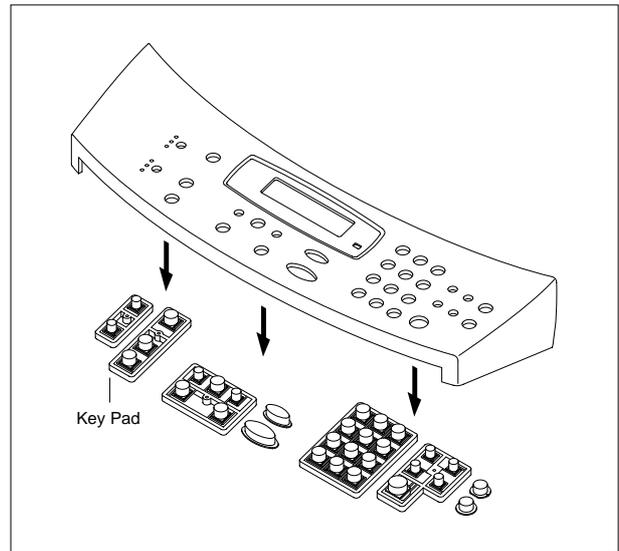
1. Before you remove the Feed Ass'y, you should remove:
   - Rear Cover (see page 3-2)
   - Side Cover (LH, RH) (see page 3-6)
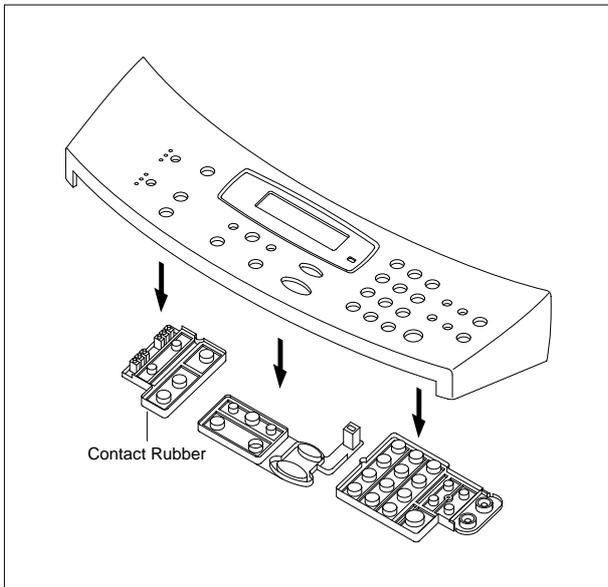   - Scanner Ass'y (see page 3-7)
   - Front Cover (see page 3-14)
   - Middle Cover (see page 3-15)

2. Remove the two screws securing the Guide Paper and remove it.

Guide paper
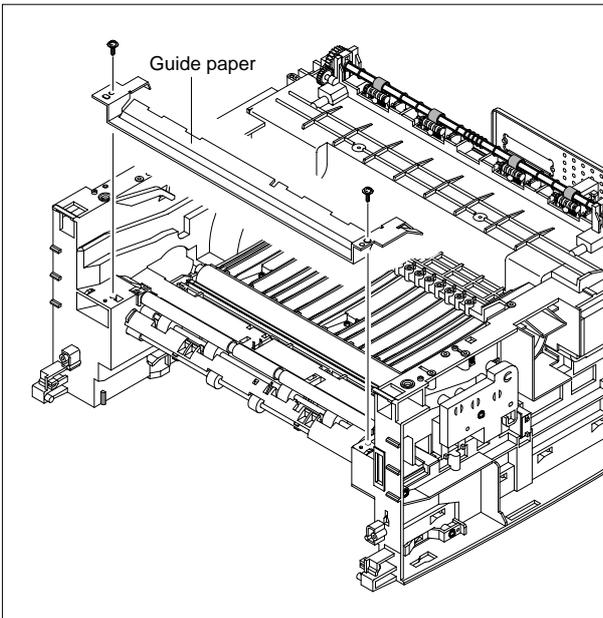
3. Pull up the Feed Idle Bush and Feed Idle Shaft, as shown below.

Feed Idle Shaft

Bush
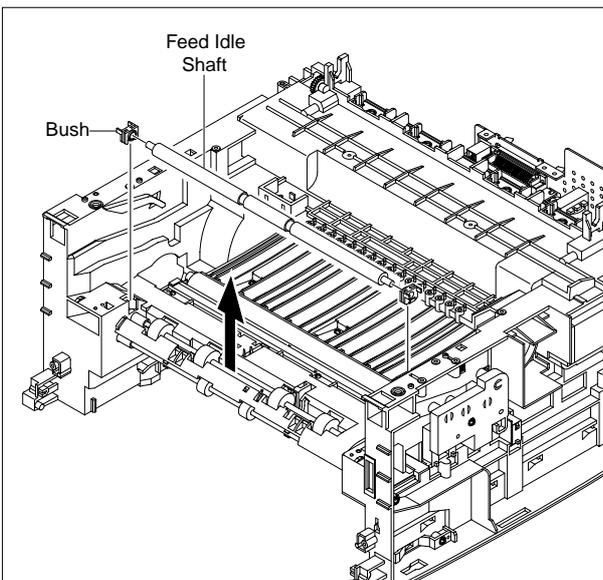
4. Remove the three screws securing the Feed Bracket and remove it.

Feed Bracket
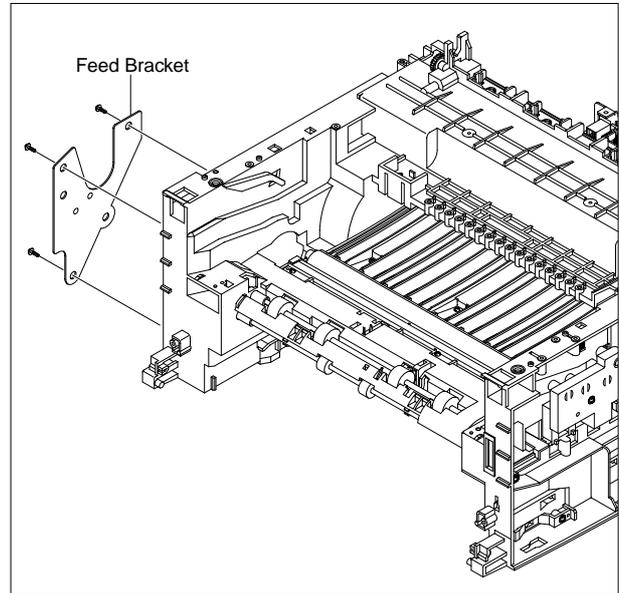
5. Remove the Idle Gear and Feed Gear2.

Feed Gear2

Idle Gear
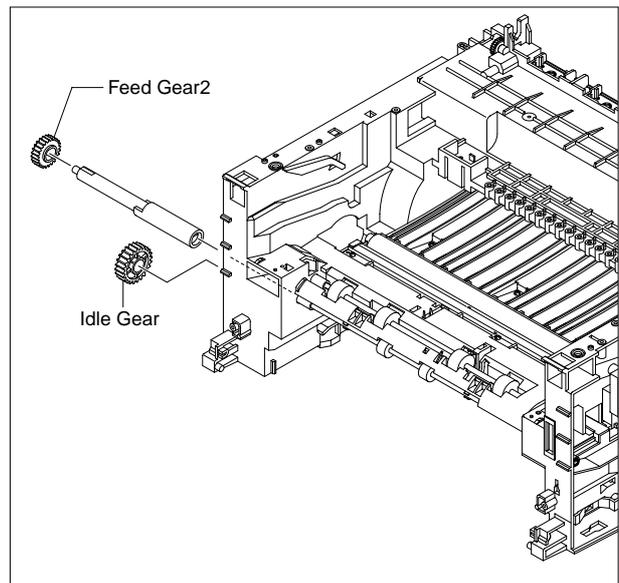
6. Remove the Feed Gear1 Ass'y.

Feed Gear1
Ass'y
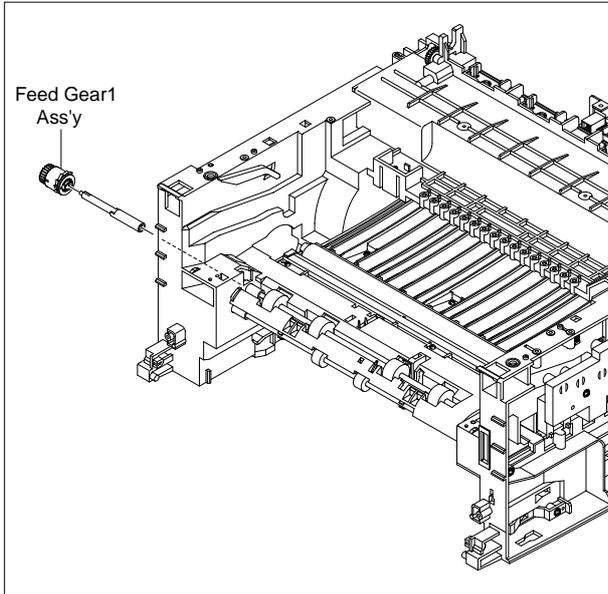
7. Pull up the Feed Roller and Feed Roller1.

Feed Roller

Feed Roller1
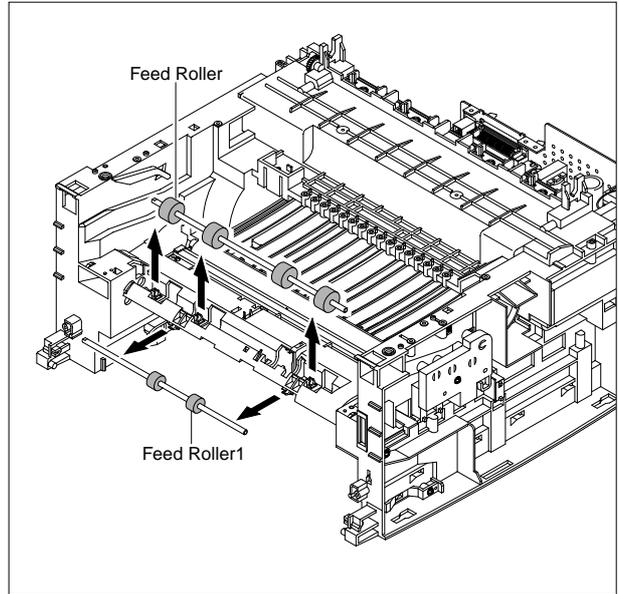
3-19 Pick up Ass'y & Solenoid

1. Before you remove the Pick up Ass'y, you should remove:
   - Rear Cover (see page 3-2)
   - Engine Shield Ass,y (see page 3-3)
   - Side Cover (LH, RH) (see page 3-6)
   - Scanner Ass'y (see page 3-7)
   - Front Cover (see page 3-14)
   - Middle Cover (see page 3-15)
   - Drive Ass'y (see page 3-16)

2. Remove the three screws securing the Feed Bracket and remove it.

Feed Bracket
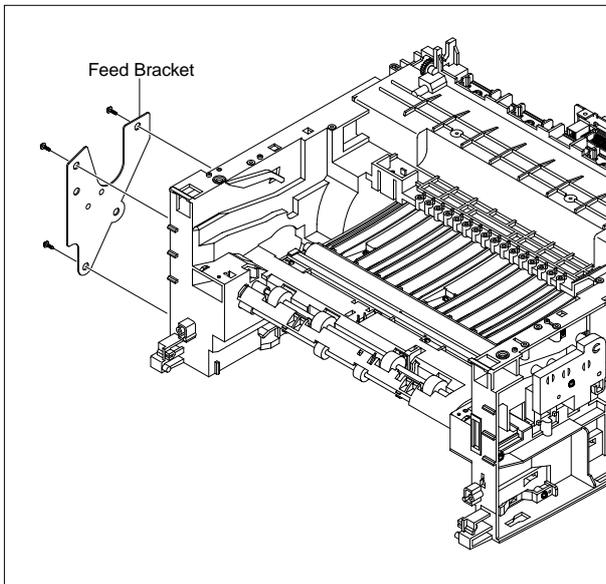
3. Remove the Pick up Gear Ass,y.

Pick up Gear Ass'y
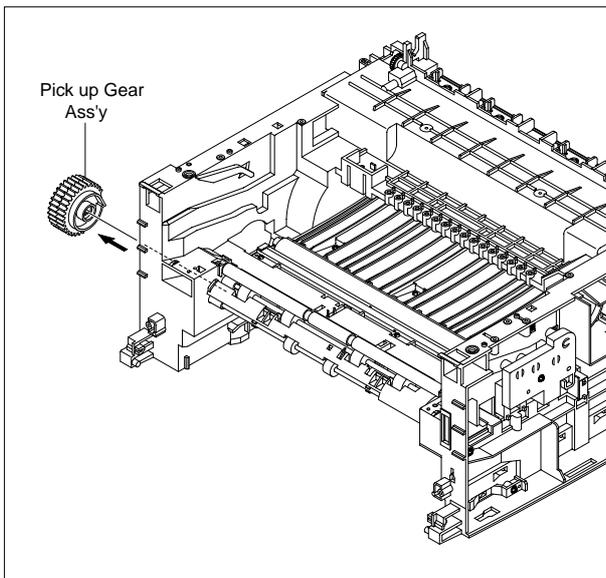
4. Take out the Pick up Ass'y, as shown below.

Bush

Pick up Ass'y
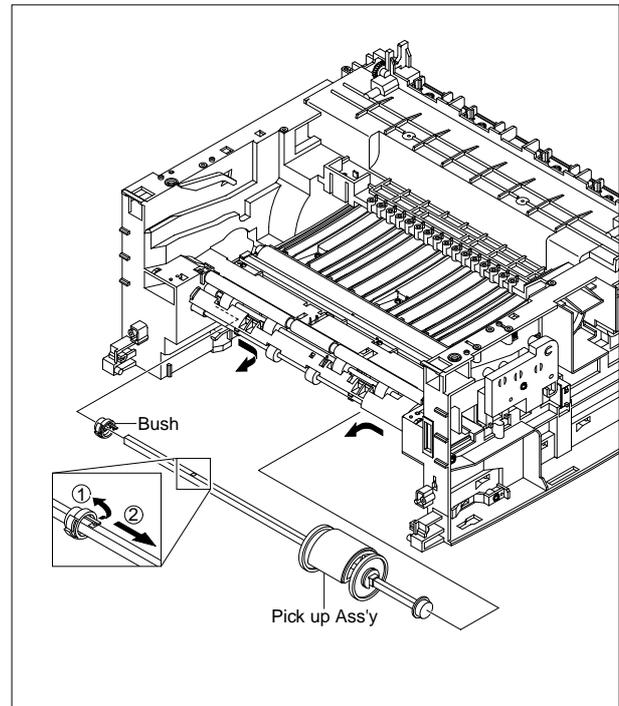
5. Remove the two screws securing the Manual Solenoid and Pick up Solenoid. Then remove Manual Solenoid and Pick up Solenoid.

(Pick up) Solenoid

(Manual) Solenoid
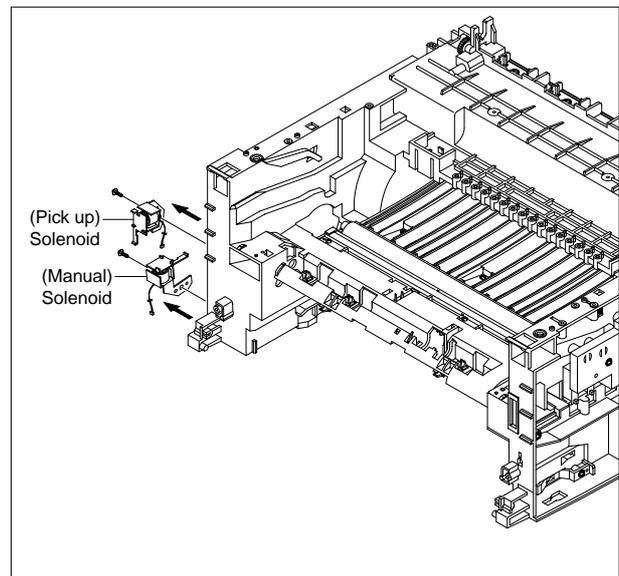
4. Troubleshooting

4.1 Clearing Jams

4.1.1 Clearing Document Jams(For SCX-4114F only)

If a document jams while it is feeding through the ADF (Automatic Document Feeder),"DOCUMENT JAM " appears on the display.

4.1.1.1 Input Misfeed

1) Open the ADF top cover.

3) Close the ADF top cover.Then load the documents back into the ADF.

NOTE : *To prevent document jams,use the document glass for the thick,thin or mixed documents.*

2) Pull the document gently to the right and out of the ADF.
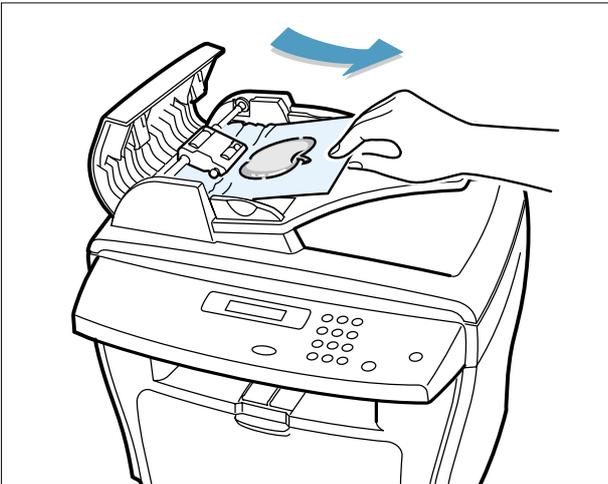
4.1.1.2 Exit Misfeed

1) Open the document cover and turn the release knob to remove the misfed documents from the exit area.

2) Close the document cover.Then load the documents back into the ADF.

4.1.1.3 RollerMisfeed

1) Open the document cover.
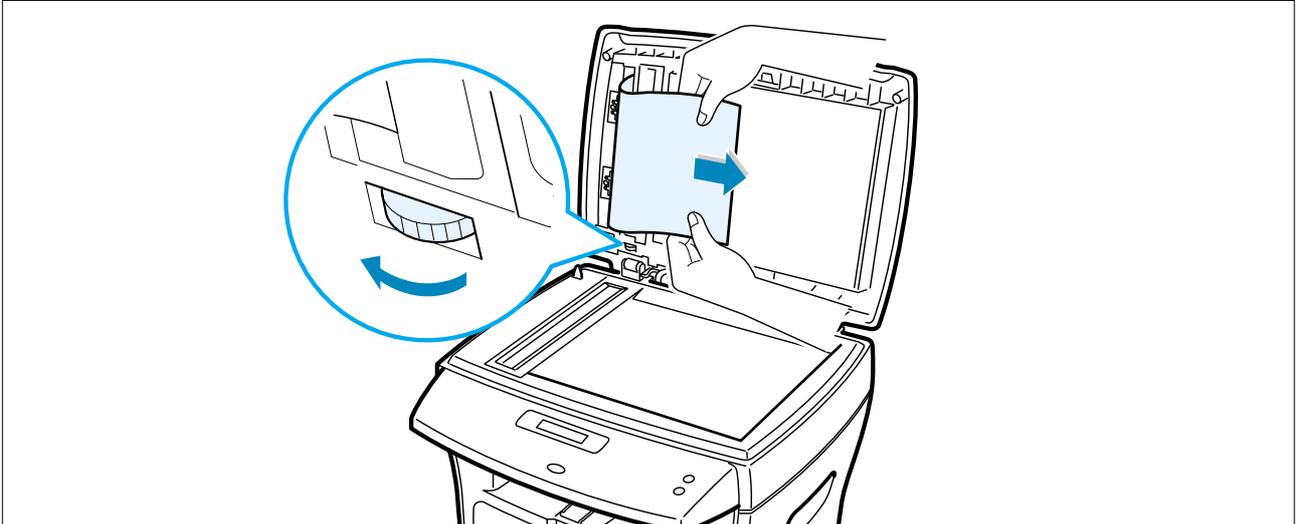
2) Turn the release knob so that you can easily seize the misfed document,and remove the document from the ADF or the feed area by carefully pulling it rightwards by using both hands.
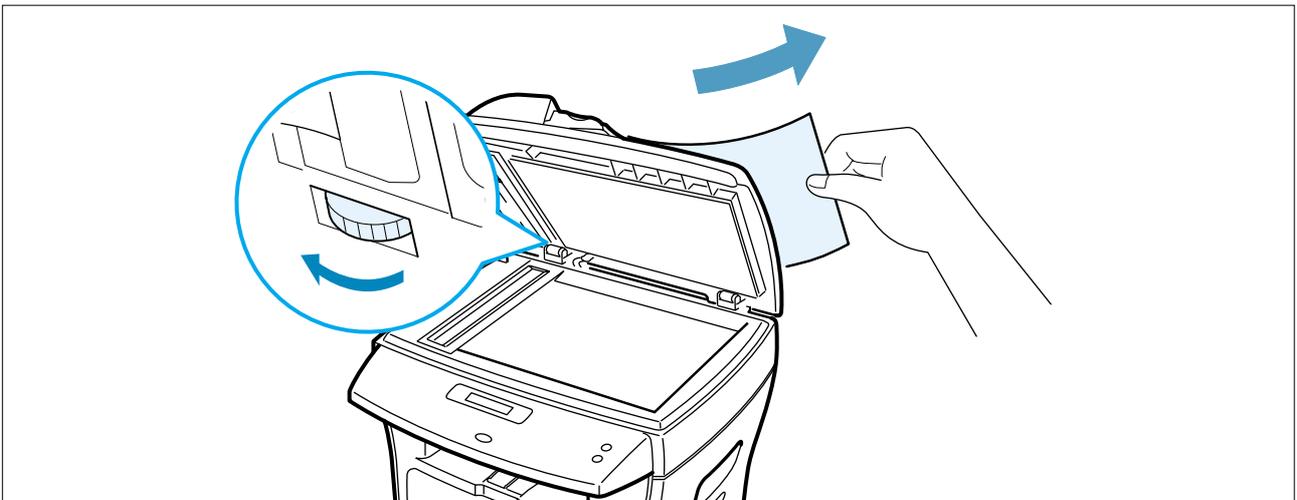
3) Close the document cover.Then load the documents back into the ADF.

4.1.2 Clearing Paper Jams

If paper jams occur,"PAPER JAM " appears on the display..Refer to the table below to locate and clear the paper jam.

PAPER JAM 0   : In the paper feed area
PAPER JAM 1   : In the paper exit area
PAPER JAM 2   : In the fuser area or around the toner cartridge
BYPASS JAM   : In the Bypass tray

Follow the steps below to clear a jam.To avoid tearing the paper, pull the jammed paper out gently and slowly.

4.1.2.1 JAM0 (In the Paper Feed Area)

1) Open and close the front cover.The jammed paper automatically exits the machine.
   If the paper does not exit,continue to Step 2.

2 Pull the paper tray open.
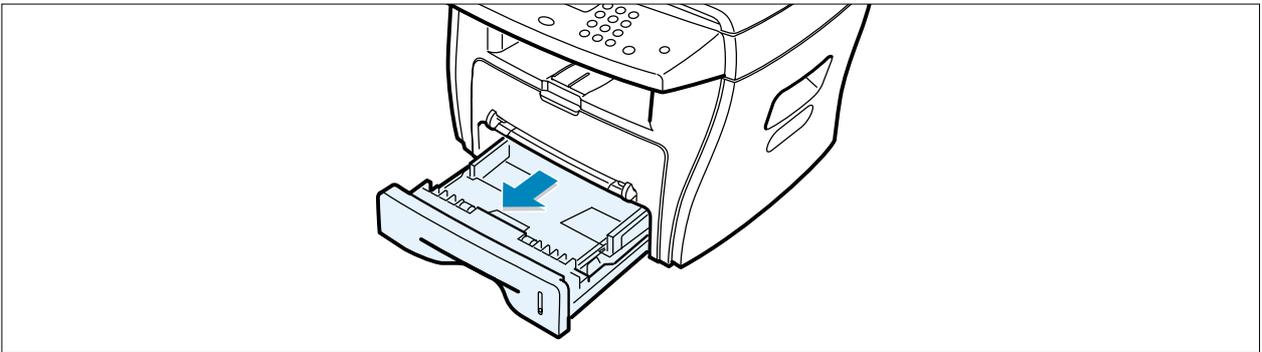
3) Remove the jammed paper by gently pulling it straight out.
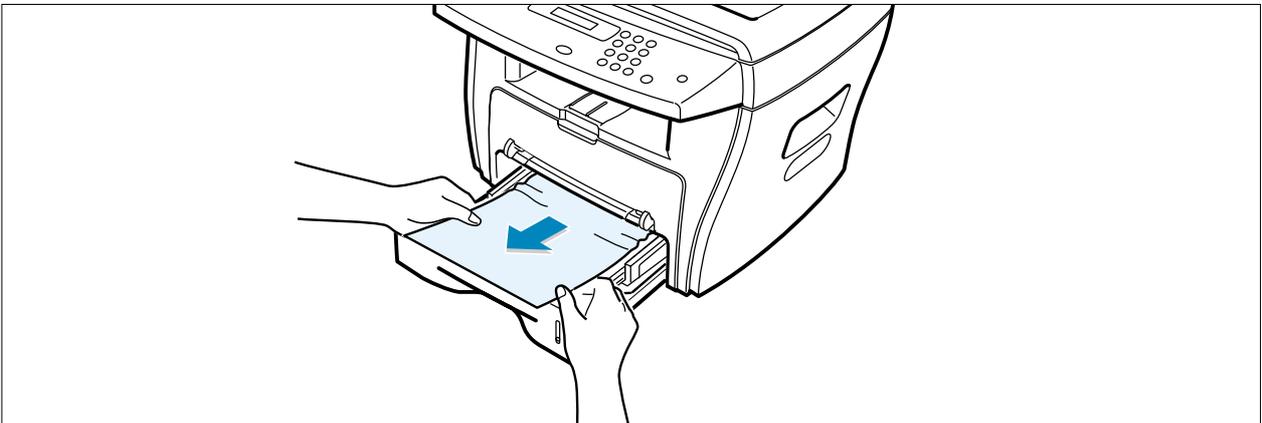
If there is any resistance when you pull the paper or the paper is not seen in this area,skip to the fuser area around the toner cartridge

4) Insert the paper tray into the machine until it snaps into place.
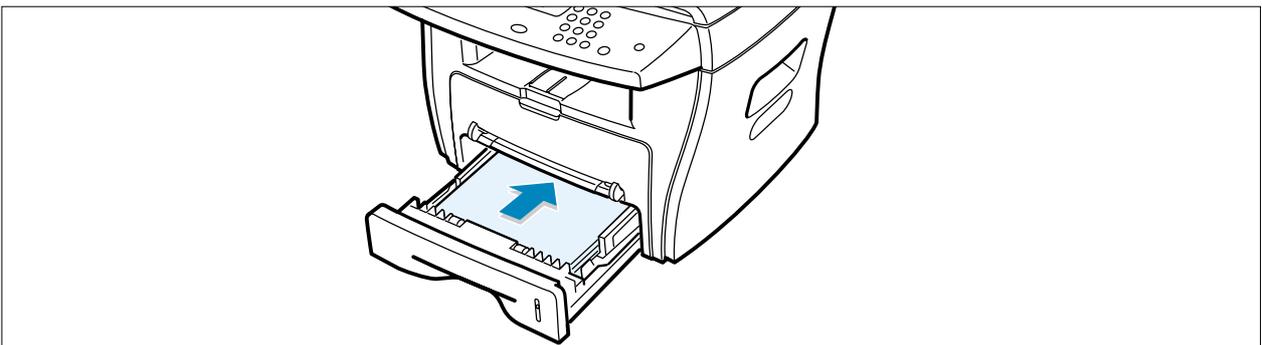
4.1.2.2 JAM1 (In the Paper Exit Area)

1) Open and close the front cover.The jammed paper automatically exits the machine.
   If the paper does not exit,continue to Step 2.

2) Gently pull the paper out of the front output tray.
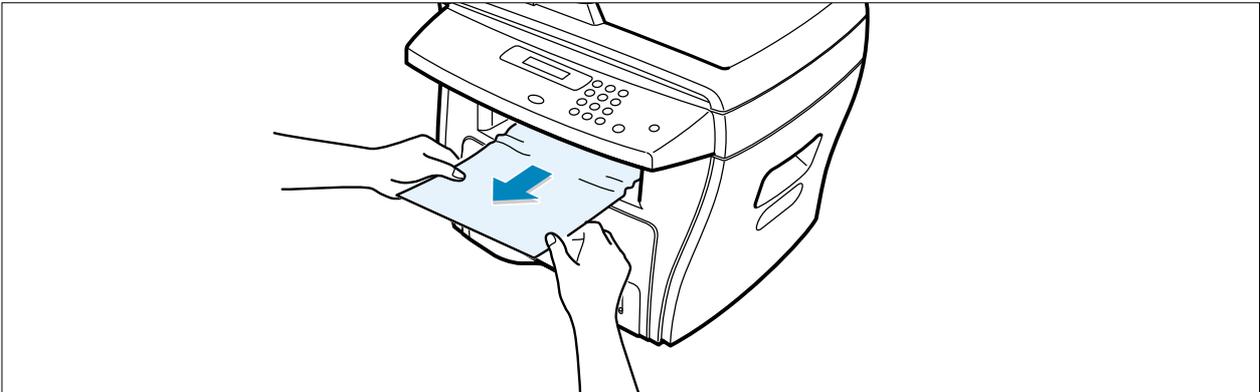
3) If there is any resistance when you pull the paper or the paper is not seen in the front output tray,open the rear cover.
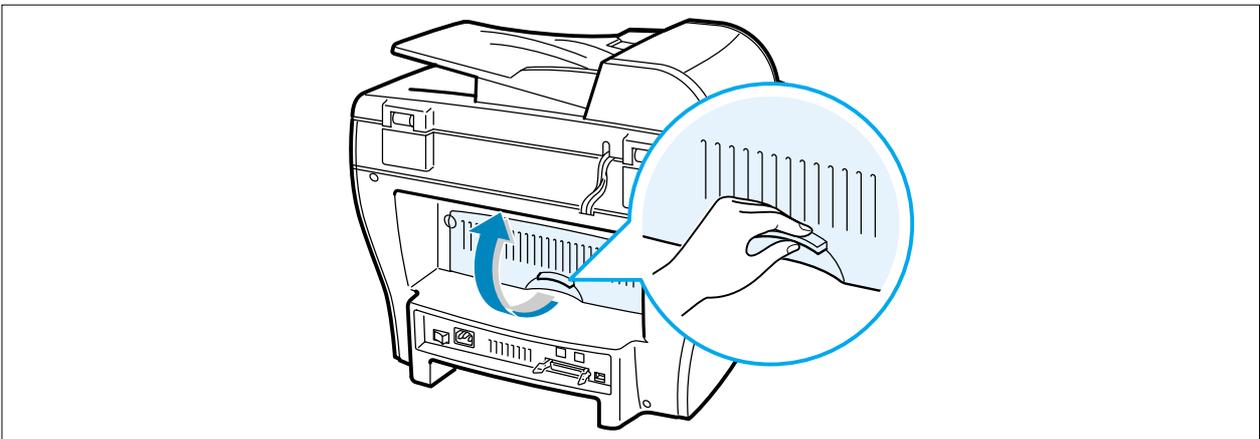
4) Remove the jammed paper by gently pulling it straight out..
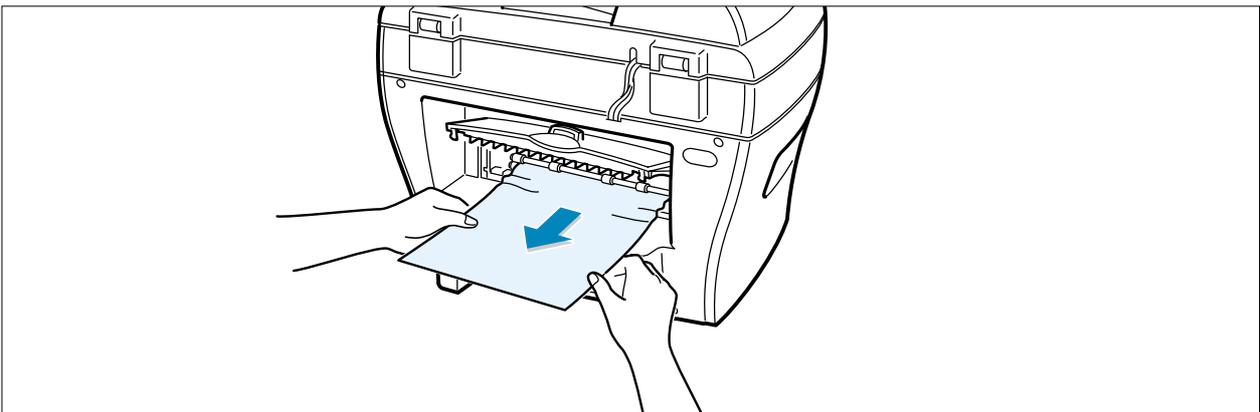
5) Close the rear cover.

6) Open and close the front cover to resume printing.

4.1.3 JAM2 (In the Fuser Area of Around the Toner Cartridge Area)

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

1) Open the front cover and remove the toner cartridge.
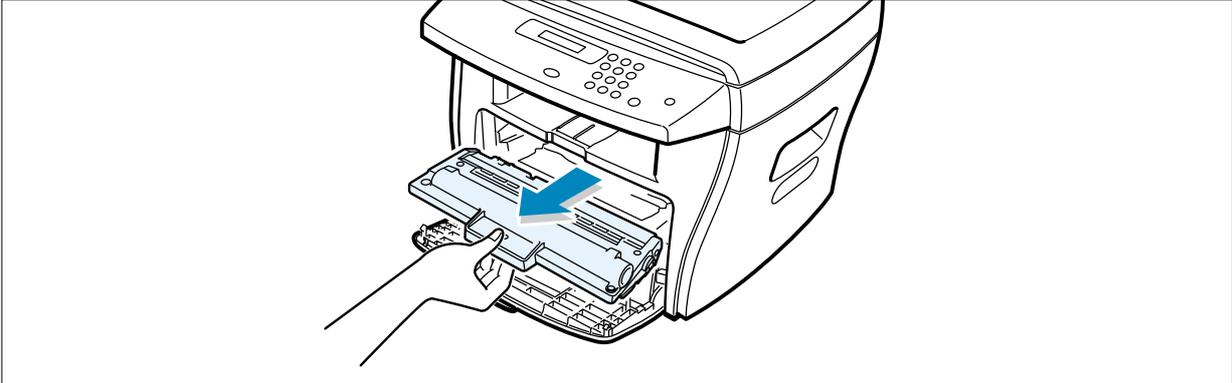
2) Remove the jammed paper by gently pulling it straight out.
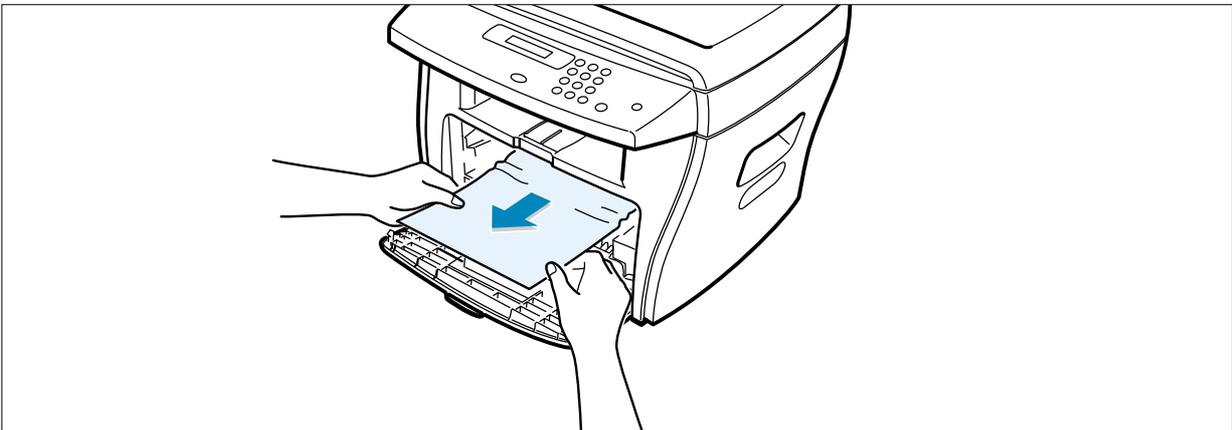
3) Replace the toner cartridge and close the front cover. Printing automatically resumes.
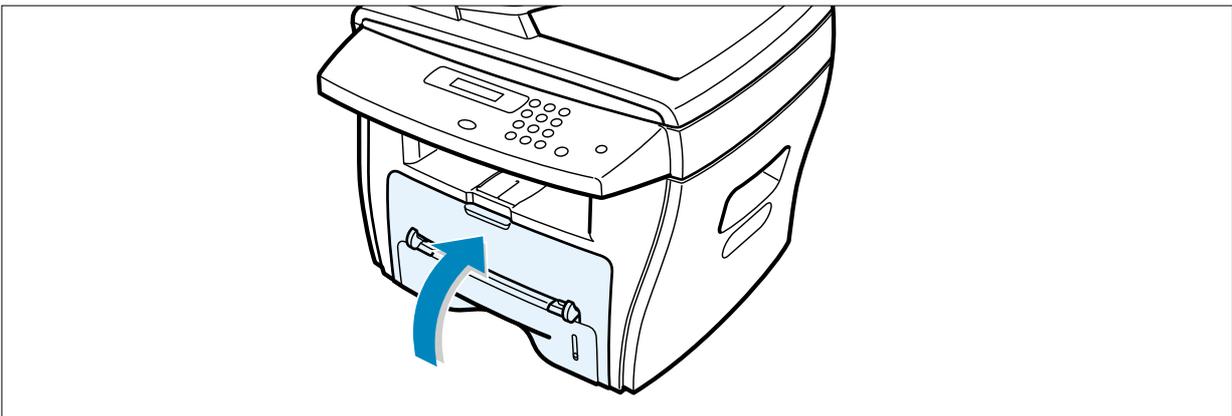
4.1.2.4 BYPASS JAM (In the Bypass Tray)

"BYPASS JAM " appears on the display when the machine does not detect paper in the Bypass tray due to no paper or improper paper loading when you try to print using the Bypass tray.

"BYPASS JAM " also may occur when the paper is not properly fed into the machine through the Bypass tray.In that case,pull the paper out of the machine.
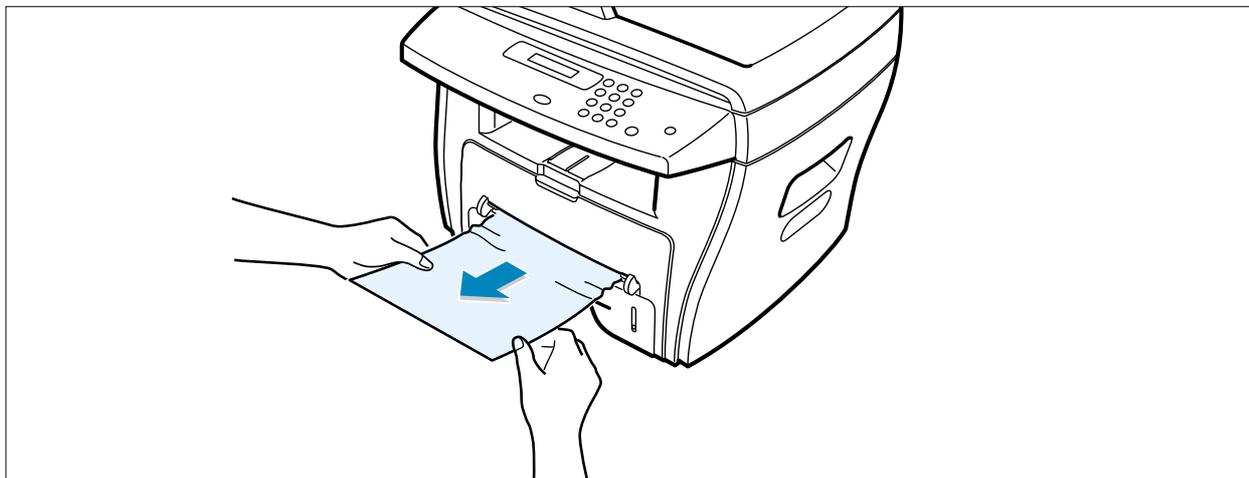
4.1.2.5 Tips for Avoiding Paper Jams

By selecting the correct paper types,most paper jams can be avoided.If a paper jam occurs,follow the steps outlined in "Clearing Paper Jams "

- Follow the procedures in "Loading Paper " .Ensure that the adjustable guides are positioned correctly.
- Do not overload the paper tray..Ensure that the paper is below the paper capacity mark on the inside wall of the paper tray.
- Do not remove the paper from the tray while printing..
- Flex,,fan and straighten the paper before loading.
- Do not use creased,,damp or highly curled paper.
- Do not mix paper types in the paper tray..
- Use only recommended print materials..See "Paper Specifications "
- Ensure that the recommended print side is facing down when loading paper in the paper tray and facing up in the Bypass tray.

4.2 Consumables and Replacement Parts

The cycle period outlined below is a general guideline for maintenance.
The example list is for an average usage of 50 transmitted and received documents per day.
Environmental conditions and actual use will vary these factors.
The cycle period given below is for reference only.

COMPONENT	REPLACEMENT CYCLE
ADF Rubber	20,000 Pages
ADF Roller	50,000 Pages
Pick-up Roller	60,000 Pages
Friction Pad	60,000 Pages
Transfer Roller	60,000 Pages
Fuser	60,000 Pages
Toner Cartridge	3,000 Pages

4-3 Abnormal Image Printing and Defective Roller

If abnormal image prints periodically, check the parts shown below.
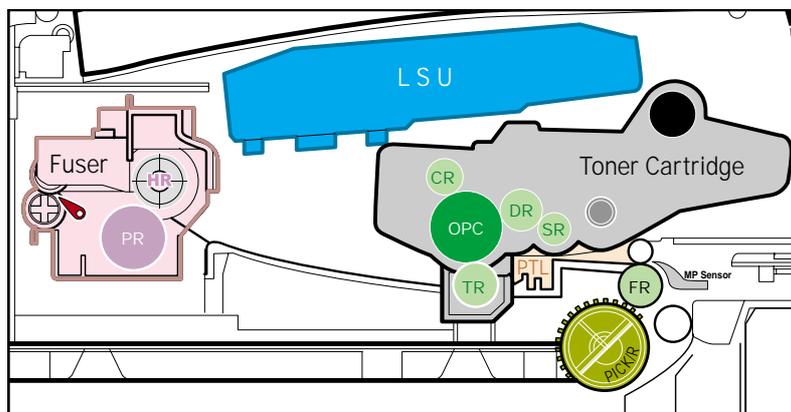
❶	OPC Drum	❺	Transfer Roller
❷	Charge Roller	❻	Heat Roller
❸	Supply Roller	❼	Pressure Roller
❹	Developing Roller		

No	Roller	Abnormal image period	Kind of abnormal image
1	OPC Drum	75.5mm	White spot, Block spot
2	Charge Roller	37.7mm	Black spot
3	Supply Roller	37.0mm	Horizontal density band
4	Develop Roller	35.2mm	Horizontal density band
5	Transfer Roller	45.3mm	Black side contamination/transfer fault
6	Heat Roller	64.1mm	Black spot and fuser ghost
7	Pressure Roller	75.5mm	Black side contamination

Paper Paht
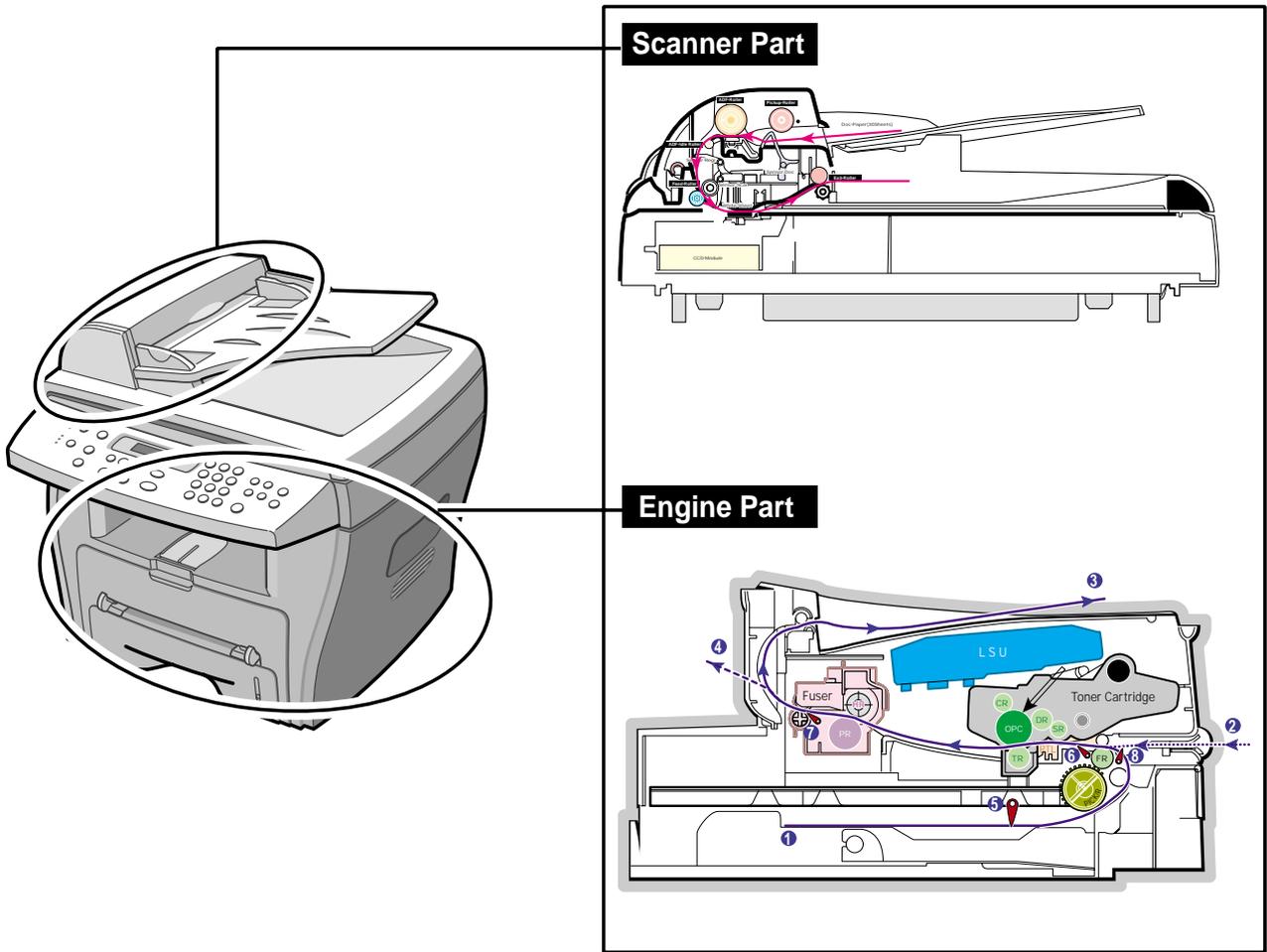
4.4 Error Messages

The display on the front panel shows the messages to indicate the printer 's status or errors.Refer to the tables below to understand the message 's meaning and clear the problem if necessary.Messages and their meanings are listed in alphabetical order,with numbered messages following.

BYPASS JAM

Meaning : When the machine detected the non-feeding from BYPASS Tray.
Solution : Open the side Cover and clear the jam.

COMM. ERROR

Meaning : A problem with the facsimile communications has occurred.
Solution : Try again.

DOCUMENT JAM

Meaning : Loaded document has Jammed in the feeder When Document Jam aeeurred at AD
Solution : Clear the document Jam.

DOOR OPEN

Meaning : The side cover is not securely latched.
Solution : Clear the cover until it clicks in place.

DRUM WARNING

Meaning : When the machine has encountered the drum life,14000 print pages.
Solution : Use little more change if "REPLACE DRUM" is marked in LCD window.

GROUP NOT AVAILABLE

Meaning : You have tried to select a group location where only a single location number can be used, such as when adding locations for a multi-dial operation.
Solution : Try again, check location for group.

Heating Error

Meaning : During operation, Temperatare does not go up.
Solution : Check thermister contact point & Heating Lamp.

LINE BUSY

Meaning : The remote FAX didn't answer
Solution : Try again.

LINE ERROR

Meaning : Your unit cannot connect with the remote machine, or has lost contact because of a problem on the phone line. When the mechine has a problem in cause of fax data reception step
Solution : Try again. If failure persists, wait an hour or so for the line to clear then try again.

LOAD DOCUMENT

Meaning : You have attempted to set up a sending operation with no document loaded. Load a document and try again.
Solution : Try again. Make sure the remote machine is OK.

MEMORY FULL

Meaning : The memory has become full.
Solution : Either delete unnecessary documents, or retransmit after more memory becomes available, or split the transmission into more than one operation.

NO ANSWER

Meaning : The remote machine was not answered after all the redial attempts.
Solution : Try again. Make sure the remote machine is OK.

NO CARTRIDGE

Meaning : When the machine detected the toner cartridge has not been installed.
Solution : Install the Cartridge.

NO. NOT ASSIGNED

Meaning : The speed dial location you tried to use has no number assigned to it.
Solution : Dial the number manually with the keypad, or assign the number.

NO PAPER [ADD PAPER]

Meaning : The recording paper has run out. The printer system stops.
Solution : Load the recording paper in the paper feeder.

OPEN HEAT EROR

Meaning : Thermister does not connected to main board or contact point is not coupled tightly in power on.
Solution : Check thermister contact point, Heating Camp & Thermostat.

OVERHEAT

Meaning : The printer part has overheated.
Solution : Your unit will automatically return to the standby mode when it cools down to normal operating temperature. If failure persists, call service.

PAPER JAM 0
OPEN/CLOSE DOOR

Meaning : Recording paper has jammed in paper feeding area. Recording paper is jammed in pick-up unit
Solution : Press STOP and clear the jam.

PAPER JAM 1/2
OPEN/CLOSE DOOR

Meaning : Recording paper has jammed inside the unit. Recording paper has jammed in paper exit unit.
Solution : Clear the jam.

RETRY REDIAL?

Meaning : The machine is waiting for the programmed interval to automatically redial.
Solution : You can press START to immediately redial, or STOP to cancel the redial operation.

TONER EMPTY

Meaning : When the machine has encountered the Toner Empty.
Solution : Replace the Toner Cartridge.

TONER LOW

Meaning : Toner may be low
Solution : Toner may be unevenly distributed. Remove the toner cartridge and shake it gently to evenly distribute the toner. Then replace the toner cartridge.

Scanner Locked

Meaning : Scanner is locked by locker.
Solution : Check locker. Connect the Flat-Cable.

4.5 User Mode

The table in the bellow explains the possible setting functions by user. The details about the ways to use are explained in the user manual.
In the service manual, the items are about the possible set-up by user.

4-5-1 SCX-4216F

Function	Item	Content
SYSTEM DATA	CASSETTE PAPER	LETTER / A4 / LEGAL
	BYPASS PAPER	LETTER / A4 / LEGAL
	MESSAGE CONF.	ON / OFF / ERROR
	AUTO JOURNAL	ON / OFF
	RECEIVE CODE	0-9
	POWER SAVE	ON / OFF
	ECM MODE	ON / OFF
	RX REDUCTION	ON / OFF
	DISCARD SIZE	0-30mm
	REDIAL INTERVAL	1-15
	REDIALS	1-13
	ANSWER ON RING	1-7
	SEND FROM MEMORY	ON / OFF
	LOCAL ID	ON / OFF
	CLOCK MODE	12 / 24 HOUR
SYSTEM ID	FAX / ID	
DATE & TIME		
SYSTEM SETUP	PREFIX DIAL NO.	
	RINGER VOLUME	LOW / HIGH (10 STEPS)
	ALARM SOUND	ON / OFF
	KEY SOUND	ON / OFF
	SPEAKER CONTROL	COM / ON /OFF
	SELECT LANGUAGE	ENG/GER/FRE/ITA/SPA/POR/DUT
	USB MODE	FAST / SLOW
	FAX DUPLEX	OFF / LONG EDGE / SHORT EDGE
	IMAGE QUALITY	NORMAL / TEXT / IMAGE
MEMORY CLEAR	SYSTEM ID	
	SYSTEM DATA	
	PHONE BOOK / MEMORY	
	TX-RX JOURNAL	
DELAY TX		
MEMORY TX		
PRIORITY TX		
POLLING		
ADD/CANCEL	ADD / CANCEL	
GROUP DIAL		
MAINTENANCE	CLEAN DRUM	
	NEW DRUM	
	NOTIFY TONER LOW	ON / OFF

Function	Item	Content
TX CONFIRM		
SCHEDULE JOB		
PHONE BOOK		
SYSTEM LIST		
TX JOURNAL		
RX JOURNAL		
HELP LIST		HELP LIST

4-5-2 SCX-4116

Function	Item	Content
SYSTEM DATA	CASSETTE PAPER	LETTER / A4 / LEGAL
	BYPASS PAPER	LETTER / A4 / LEGAL
	POWER SAVE	ON / OFF
	SELECT LANGUAGE	ENG/GER/FRE/ITA/SPA/POR/DUT
	USB MODE	FAST / SLOW
HELP LIST	HELP LIST	PRINTOUT
MAINTENANCE	CLEAN DRUM	
	NEW DRUM	
REPORTS	SYSTEM DATA	
	HELP LIST	HELP LIST

4.6 Tech Mode

4.6.1 How to Enter Service Mode

In service mode (tech) mode, the technician can check the machine and perform various test to isolate the cause of a malfunction.

To enter the Tech mode, press **MENU, #, 1, 9, 3, 4** in sequence, and the LCD briefly displays **'T',** the machine has entered service (tech) mode.

While in Tech mode, the machine still performs all normal operations.

To return to normal user mode, press **MENU, #, 1, 9, 3, 4** in sequence again, or turn the power off, then on by unplugging and plugging the power cord.

Options changed while in service mode do not remain changed unless you clear the machine's memory.

4.6.2 Setting-up System in Tech Mode

4.6.2.1 SCX-4216F (SETUP : #, 1, 9, 3, 4)

Function	Item	Content
SYSTEM DATA	DIAL MODE	TONE / PULSE
	MODEM SPEED	
	ERROR RATE	5% /10%
	SET TX LEVEL	09-15
	SILENCE TIME	12 / NU / OFF
SYSTEM ID	The same as User Mode	
DATE & TIME	The same as User Mode	
SYSTEM SETUP	The same as User Mode	
MEMORY CLEAR	CLEAR ALL MEMORY	
DELAY TX	The same as User Mode	
MEMORY TX	The same as User Mode	
PRIORITY TX	The same as User Mode	
POLLING	The same as User Mode	
ADD/CANCEL	The same as User Mode	
GROUP DIAL	The same as User Mode	
MAINTENANCE	CLEAN DRUM	
	NEW DRUM	
	NOTIFY TONER LOW	ON / OFF
	SWITCH TEST	
	MODEM TEST	
	SRAM TEST	
	DRAM TEST	
	ROM TEST	FLASH / ENGINE
	PATTERN TEST	PATTERN1-7, QAPATTERN1-4, ALL"1-7 , ALL"
	CLEAR COUNT	PASSWORD
		CRU PRINTS COUNT
		FLT SCAN COUNT
		ADF SCAN COUNT
		USED DRUM COUNT
		USED TONER COUNT
		TOTAL PAGE COUNT
	ANSWER ON CNG	1-4
	ADJUST SHADING	
	FLASH UPGRADE	LOCAL
		REMOTE : USER PROGRAM ,
		EMULATION ,BOOT PROGRAM
	PROGRAM DIAL	
TX CONFIRM	The same as User Mode	
SCHEDULE JOB	The same as User Mode	
PHONE BOOK	The same as User Mode	
SYSTEM LIST	USER MODE	
TX JOURNAL	The same as User Mode	
RX JOURNAL	The same as User Mode	

Function	Item	Content
REPORTS	MSG. CONFIRM	
	SCHEDULE JOB	
	PHONE BOOK	
	SYSTEM DATA	
	TRANSMISSION	
	RECEPTION	
	HELP LIST	
	PROTOCOL	
	ERROR CODE	

4.6.2.2 SCX-4116

Function	Item	Content
SYSTEM DATA	CASSETTE PAPER	LETTER / A4 / LEGAL
	BYPASS PAPER	LETTER / A4 / LEGAL
	POWER SAVE	ON / OFF
	SELECT LANGUAGE	ENG/GER/FRE/ITA/SPA/POR/DUT
	USB MODE	FAST / SLOW
MAINTENANCE	CLEAN DRUM	
	MODEM TEST	
	NEW DRUM	
	SWITCH TEST	
	SRAM TEST	
	DRAM TEST	
	ROM TEST	FLASH / ENGINE
	PATTERN TEST	PATTERN1-7, QAPATTERN1-4 , ALL
	CLEAR COUNT	PASSWORD
		CRU PRINTS COUNT
		FLT SCAN COUNT
		ADF SCAN COUNT
		USED DRUM COUNT
		USED TONER COUNT
		TOTAL PAGE COUNT
	ADJUST SHADING	
	FLASH UPGRADE	
REPORTS	SYSTEM DATA	
	HELP LIST	HELP LIST
	ERROR CODE	

4.6.3 SYSTEM DATA

DIALING MODE

Select the dialing mode according to the user's line status.
TONE: Electrical type of dial
PULSE: Mechanical type of dial

SILENCE TIME

In ANS/FAX mode, after a call is picked up by the answering machine, the machine monitors the line. If a period of silence is detected on the line at any time, the call will be treated as a fax message and the machine begins receiving.
Silence detection time is selectable between limited (about 12 seconds) and unlimited time.
When '12 sec' is selected, the machine switches to receiving mode as soon as it detects a period of silence.
When 'unlimited'is selected, the machine waits until the answering operation is concluded even though a period of silence is detected. After the answering operation is concluded, the machine switches to receiving mode.

SEND FAX LEVEL

You can set the level of the transmission signal. Typically, the Tx level should be under -12 dBm.

Caution: The Send Fax Level is set at the best condition in the shipment from factory. Never change settings arbitrarily.

ERROR RATE

When the error rate is about to be over the setting value, the Baud rate automatically lowers up to 2400 bps to make the error rate remain below the setting value.
You can select the rate between 5% and 10%.

MODEM SPEED

You can set the maximum modem speed.
Communication is done with modem speed automatically set at lower speed when communicating with the modem with lower speed since communication is done on the standard of the side where modem speed is low for transmission/reception. It is better set 33.6Kbps as default setting.

4.6.4 MEMORY CLEAR

CLEAR ALL MEMORY

The function resets the system as its very first condition as setting in at the factory.
This function is needed to operate to reset the system to the initial value when the product is abnormally operated or malfunction. All the values are returned to the default values, and all the information, which set in by user, will be erased.

< Method >
1. Select the [MEMORY CLEAR] at the TECH MODE.
2. Push the ENTER button.
3. Select you country.
4. Push the ENTER button then it will be all memory clear. .

NOTICE : Always perform the memory clear after replace the main board. Otherwise, the system may not operate properly.
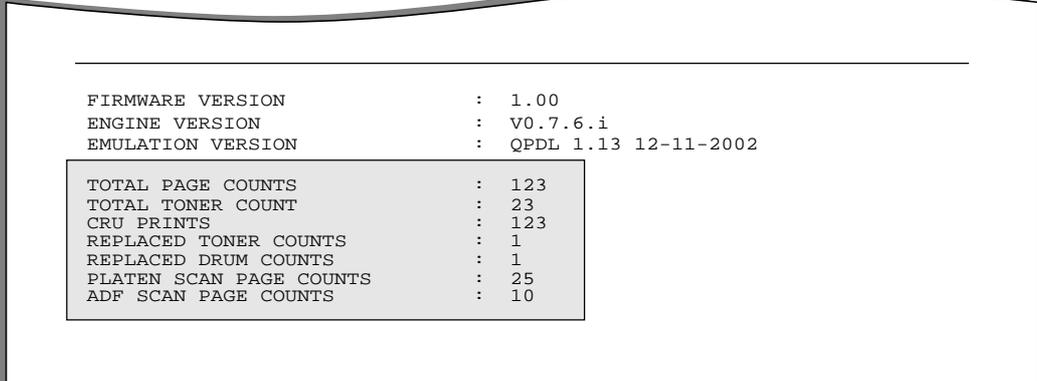
```
FIRMWARE VERSION            :  1.00
ENGINE VERSION              :  V0.7.6.i
EMULATION VERSION           :  QPDL 1.13 12-11-2002

TOTAL PAGE COUNTS           :  123
TOTAL TONER COUNT           :  23
CRU PRINTS                  :  123
REPLACED TONER COUNTS       :  1
REPLACED DRUM COUNTS        :  1
PLATEN SCAN PAGE COUNTS     :  25
ADF SCAN PAGE COUNTS        :  10
```

< SYSTEM DATA LIST >

4.7 Engine Test Mode

The Engine Tests Mode supplies useful functions to check conducting condition of engine. It tests the conducting condition of each device and displays the result of the test at the LCD. It is classified in 6. items (0~5), and the functions of items are as bellows.
4-5-1   To enter the Engine Test Mode

Press ME**NU, #, 1, 9, 3, 1**   in sequence, and the LCD briefly displays '**T**', the machine has entered service (tech) mode.

No.	Sub No.	Engine test	Remark
0	1	Motor Test	1: On, 2: Off
	2	PTL Test	1: On, 2: Off
	3	Fan Test	1: On, 2: Off
	4	Fuser Test	1: On, 2: Off If its temperature is lower than the Standby (160 C), the fuser is on, but if it is higher than the Standby, the fuser is off.
1	1	LSU Motor Test	1: On, 2: Off
	2	LSU Hsync Test	1: On, 2: Off
	3	LD On Test	1: On, 2: Off
	4	LSU Operation	1: On, 2: Off
2	1	Feed Sensor Test	Sensor On : FEED SENSOR ON Display
			Sensor Off : FEED SENSOR OFF Display
	2	Exit Sensor Test	Sensor On : EXIT SENSOR ON Display
			Sensor Off : EXIT SENSOR OFF Display
	3	Cover Sensor Test	Sensor On : COVER SENSOR ON Display
			Sensor Off : COVER SENSOR OFF Display
	4	1st CAST Empty Test	Sensor On : 1st PAPER Empty Display
			Sensor Off : 1st PAPER No Empty Display
	5	MP Empty Sen Test	Sensor On : MP PAPER Empty Display
			Sensor Off : MP PAPER No Empty Display
	6	BIN FULL Sen TEST	Sensor On : BIN FULL SEN ON Display
			Sensor Off : BIN FULL SEN OFF Display
3	1	1st CAST Solenoid Test	1: On, 2: Off
	2	MP Solenoid Test	1: On, 2: Off
	3	Duplex Solenoid Test	1: On, 2: Off
4	1	MHV Test	1: On, 2: Off (-1450v)
	2	DevBias Test	1: On, 2: Off (-450v)
	3	THV EN/NEG Test	1: On, 2: Off
	4	THV Test	1: On, 2: Off (1300v)
	5	THV Trigger Test	1: On, 2: Off
5	1	All Function Test	For SMD Test, Push up key : Next function All Function : No.0~4

4.8 Paper Feeding Problems

4.8.1 Wrong Print Position

• **Description**   Printing begins at wrong position on the paper.

Check and Cause	Solution
Wrong sense time caused by defective feed sensor actuator.	Replace the defective actuator

4.8.2 JAM 0

• **Description**	1. Paper is not exited from the cassette. 2. Jam-0 occurs if the paper feeds into the printer.
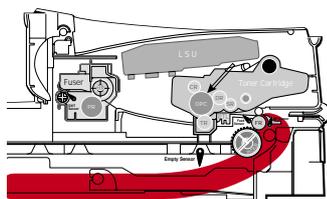
Check and Cause	Solution
1. Check the Solenoid by using DCU diagnostic mode 06.	1. Replace the solenoid.
2. Check if the pad is loose due to bad sealing of the side-pad.	2. Replace the side-pad Assembly L or R, if necessary.
3. Check the surface of the roller-pick-up for foreign matter.	3. Clean with soft cloth dampened with IPA(Isopropyl Alcohol) or water.
4. If continuous clusters occur, check whether the assembly slot between shaft-pickup and housing-pickup become open or is broken away.	4. Replace the Housing-Pickup and/or Shaft-Pickup.
5. If the paper feeds into the printer rand Jam 0 occurs, perform DCU to check feed-sensor of the engine board.	

4.8.3 JAM 1

• Description	1. Recording paper is jammed in front of or inside the fuser. 2. Recording paper is stuck in the discharge roller and in the fuser just after passing through the Actuator-Feed.

Check and Cause	Solution
1. If the recording paper is jammed in front of or inside the fuser. (Perform DCU diagnostic code of)	1. Replace the SMPS.
2. If the recording paper is stuck in the discharge roller and the fuser just after passing through the Actuator-Feed, Feed Actuator may be defective.	2. Reassemble the Actuator-Feed and Spring-Actuator if the returning is bad.

4.8.4 JAM 2

• Description	1. Recording paper is jammed in front of or inside the fuser. 2. Recording paper is stuck in the discharge roller and in the fuser just after passing through the Actuator-Feed.

Check and Cause	Solution
1. If the paper is completely fed out of the printer, but Jam 2 occurs : Exit sensor is defective. • After the paper is completely discharged, actuator Exit should return to the original position to shut the photo-sensor. Sometimes it takes longer hour than it should and does not return.	1. Check if the exit sensor actuator is defective. • Check if the actuator exit is unformed (Check if the lever part is unformed in shape). • Check whether burrs occur in the assembly part of the actuator exit or not and if the actuator is smoothly operated. • Check if foreign matters and wire get caught in the actuator exit's operation.
2. If the paper is rolled in the Fuser Roller: • This occurs when a Guide claw is broken away or transformed. • It occurs when the Spring of a Guide claw is broken away or transformed. • It occurs when the Heat-Roller or Pressure-Roller is seriously contaminated with the toner.	2. If the paper is stuck in the fuser : disassemble the fuser and remove the jammed paper, and clean the surface of the pressure roller with dry gauze.
3. Paper is accordion in the fuser.	3. Remove the jammed paper after disassembling the fuser : Clean the surface of the pressure roller with dry gauze. • Remove the toner particles stained on the rib. • Check the assemblage and performance of the exit.

4.8.5 Multi-Feeding

• **Description**   Multiple sheets of paper are fed at once.

Check and Cause	Solution
1. Solenoid malfunction(the solenoid does not work properly): Perform DCU mode : solenoid check 06.	1. Replace the solenoid if necessary.
2. Pad-Friction is contaminated with foreign matter.(oil...)	2. Clean the pad friction with soft clothe dampened with IPA(Isopropyl Alcohol).
3. The face of paper is blended.	3. Use the smooth paper.

4.8.6 Paper rolled in the fuser

• **Description**   If contaminated at intervals of 57mm on the back of a paper.

Check and Cause	Solution
1. Contamination of the pressure roller. (Background, Hot off set)	1. Disassemble the fuser, clean the area between the Heat-roller and Thermistor and remove the foreign matter of the pressure roller. 2. If background appears badly in the printing, fix it by referring to the solutions for background. (See 4.5.8 Background)

4.8.7 Paper rolled in the OPC

> • **Description**   Paper is rolled up in the OPC.

Check and Cause	Solution
1. Paper is too much thin.	1. Recommend to use normal paper.
2. The face of paper is curled.	2. How to remove the rolled paper in the OPC. • Remove the paper while turning the OPC against the ongoing direction. • Clean fingerprints on the OPC softly with soft cloth dampened with IPA(Isopropyl Alcohol) or tissue.

4.8.8 Defective ADF

> • **Description**   ADF (Automatic document Feeder) is not properly operated.

Check and Cause	Solution
1. Check if ADF rubber and HOLDER rubber are damaged.	1. Replace the contaminated or damaged part.
2. Check if the document sensors of OPE ASS'Y (2 paper sensors) are normal.	2. If you cannot confirm the damaged part with the naked eye, try to replace the OPE ASS'Y.

4.9 Printing Problems (malfunction)

4.9.1 Defective Operation (LCD WINDOW ▤▤▤) Display

> • **Description**   Strange characters are displayed on the OPE Panel and buttons are not operated.

Check and Cause	Solution
1. Clear the memory.	1. Try again after clearing the memory.
2. Check if OPE HARNESS is connected to the Main Board correctly.	2. After confirming that OPE HARNESS is connected to the Main Board correctly, if it is so, then replace the OPE ASS'Y and Main Board in sequence.

4.9.2 Defective LCD Operation

> • **Description**   **Defective LCD Operation**

Check and Cause	Solution
1. Clear the memory. (See page).	1. The key is wrong itself or wrongly assembled.
2. Confirm to catch a click sound, while a key on the OPE panel is pressed on.	2. Even after the key has been replaced, it is still wrong, try to replace the OPE ASS'Y and the Main B'D in sequence.

4.9.3 Not function of the gear of the fuser due to melting away

> • **Description**   The motor breaks away from its place due to gear melting away.

Check and Cause	Solution
DCU Mode : Check if the Error States '60' '62' '68' occur. Check the operation of Fuser Erasing Lamp On/Off with the Error Code Check -10-.	1. Replace the Fuser. 2. Replace the Main Control board.

4.9.4 Paper Empty

> • **Description**   The paper lamp on the operator panel is on even when paper is loaded in the cassette.

Check and Cause	Solution
1. Bending or deformation of the actuator of the paper sensor. 2. The function of the engine board is defective Perform DCU mode: Perform DCU diagnostic code 8.	1. Replace the defective actuator. 2. Replace the engine board.

4.9.5 Paper Empty without indication

> • **Description**   The paper lamp on the operator panel does not come on when the paper cassette is empty.

Check and Cause	Solution
1. Bending or deformation of the actuator of the paper sensor. 2. The function of the engine board is defective Perform. DCU mode : Perform DCU diagnostic code 8.	1. Replace the defective actuator. 2. Replace the engine board.

4.9.6 Cover Open

> • **Description**   The ERROR lamp is on even when the print cover is closed.

Check and Cause	Solution
1. The hook lever in the top cover may be defective.	1. Replace the hook lever, if defective.
2. Check the connector (CN1 : Engine B'd↔HVPS) and circuit of the cover switch department in the Main Control board. Perform DCU mode : If Error state '64' occurs, Check the related codes of the Cover Open Error.	2. Check the insertion of the Cover Open S/W Connect. 3. Replace the Main Control board or Cover Open S/W.

4.9.7 No lamp on when the cover is open

> • **Description**   The ERROR lamp does not come on even when the printer cover is open

Check and Cause	Solution
1. Check the connector(CN8) and circuit of the cover switch department in the Main Control board. Perform DCU mode : If Error state '64' occurs, Check the related codes of the Cover Open Error	1. Check the insertion of the Cover Open S/W Connect. 2. Replace the Main Control board or Cover Open S/W.

4.9.8 Defective motor operation

> **• Description**   Main motor is not driving when printing, and paper does not feed into the printer, resulting 'Jam 0'.

Check and Cause	Solution
1. Motor harness or sub PCB may be defective.	1. Check the motor harness, replace it, if defective.
2. Perform DCU diagnostic code 00 and Check the motor operation.	2. Replace the SMPS, if necessary.

4.9.9 No Power

> **• Description**   When system power is turned on, all lamps on the operator panel do not come on.

Check and Cause	Solution
1. Check if the power input and SMPS output are normal.	1. Replace the power supply cord or SMPS.
2. Check the inferiority of LED-Panel on the front-cover if the LED of Panel does not appear after normal warming-up.	2. Replace the control board.
	3. Replace the LED-panel.

4.9.10 Vertical Line Getting Curved

• **Description**   When printing, vertical line gets curved.

Check and Cause	Solution
1. If the supply of +24v is unstable in the Main Control board linking with LSU, check drive by DCU Mode: LSU Check -05- LSU Motor on.	1. Replace LSU. 2. Replace the Main Control board.

4.10 Printing Quality Problems

4.10.1 Vertical Black Line and Band

• Description	1. Straight thin black vertical line occurs in the printing. 2. Dark black vertical band occur in the printing.

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

Check and Cause	Solution
1. Damaged develop roller in the Developer. Deformed Doctor-blade or cleaning-blade.	1. If causes 1 and 2 occur in the developer cartridge, replace the developer and try to print out.
2. Scratched surface of the discharge roller in the developer.	2. Replace the transfer roller if occurred as No. 3.
3. Partly depression or deformation on the surface of the transfer roller.	

4.10.2 Vertical White Line

• Description	White vertical voids in the image.

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

Check and Cause	Solution
1. Foreign matter stuck onto the window of internal lenses of LSU mirror.	1. Foreign matter stuck onto the window : Clean the LSU window with recommended cleaner(IPA) Clean the window with a clean cotton swab.
2. Foreign matter or toner particles between the developer roller and blade. (In case the life of the developer has been expired, white lines or light image occur in front of the image.)	2. Foreign matter in the LSU : Open the cover of LSU and clean with a cotton swab on the surface of the reflex mirror.
3. It may occur when Burr and foreign substances are on the window of the developer frame.	3. No 3. : Remove the foreign matter and burr of the exposure window. (Developer cartridge)
4. If the fuser is defective, voids occur periodically at the top of a black image.	4. No. 4. : Open the front cover and check ribs that corresponds to the position of the voids. Remove if found.
	5. If the problems are not solved, replace the developer cartridge.

4.10.3 Horizontal Black Band

• Description	1. Dark or blurry horizontal stripes occur in the printing periodically. (They may not occur periodically.)

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

Check and Cause	Solution
1. Bad contacts of the voltage terminals to developer.	1. Clean each voltage terminal of the Charge, Supply, Develop and Transfer roller. (remove the toner particles and paper particles)
2. The rollers of developer may be stained. Charge roller = 38.5mm Supply roller = 51mm Develop roller = 50mm Transfer roller = 56.8mm	2. Clean the right Gear that has relatively small gap of the teeth in the OPC.
	3. If the malfunction persists, replace the developer.

4.10.4 Black/White Spot

• Description	1. Dark or blurry black spots occur periodically in the printing. 2. White spots occur periodically in the printing.

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

Check and Cause	Solution
1. If dark or blurry black spots occur periodically, the rollers in the Developer may be contaminated with foreign matte or paper particles. (Charge roller : 38.5 mm interval OPC drum : 96 mm interval)	1. Run OPC cleaning Mode Print and run the Self-test 2 or 3 times.
2. If faded areas or voids occur in a black image at intervals of 96 mm, or black spots occur elsewhere, the OPC drum surface is damaged.	2. In case of 96 mm interval unremovable in 1, cleanly remove foreign substances stuck on the OPC location equivalent to black spots and white spots with a dry duster.
3. If a black image is partially broken, the transfer voltage is abnormal or the transfer roller's life has expired.	3. The transfer roller guarantees 125,000 sheets printing. If the roller's life is expired, replace it.
	4. In case of 38.5 mm interval unremovable in 1, take measures as to replace the developer cartridge and try to print out.
	5. Clean the inside of the set against the paper particles and foreign matter in order not to cause the trouble.

4.10.5 Light Image

• **Description**   The printed image is light, with no ghost.

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

Check and Cause	Solution
1. Develop roller is stained when the toner of developer cartridge is almost consumed.	1. Check if the Toner Save mode is off.
2. Ambient temperature is below than 10°C.	2. No 1 : Replace the developer cartridge and try to print out.
3. Bad contact caused by the toner stains between the high voltage terminal in the HVPS and the one in the set.	3. No 2 : Wait 30 minutes after printer is powered on before you start printing.
4. Abnormal output from the HVPS. (Run self-test and check 1~4)	4. No3 : Clean up the contaminated area by the toner.
	5. Replace the HVPS if the problems are not solved by the above four directions.

4.10.6 Dark Image or a Black

• **Description**   The printed image is dark.
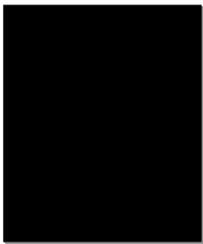
Check and Cause	Solution
1. No charge voltage in the engine board. (Perform DCU diagnostic code 01)	1. Clean the high voltage charge terminal.
2. Charge voltage is not turned on due to the bad contacts between power supply in the side of the Developer and charge terminal of HVPS.	2. Check the state of the connector which connects the engine board and HVPS.
	3. Replace the HVPS if not solved by the above direction 1 and 2.

4.10.7 Uneven Density

• **Description**   Print density is uneven between left and right.

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

Check and Cause	Solution
1. The pressure force on the left and right springs of the transfer roller is not even, the springs are damaged, the transfer roller is improperly installed, or the transfer roller bushing or holder is damaged.	1. Replace both the left and right Spring Holder.
2. The life of the Developer has expired.	2. Occur in the developer cartridge, replace the developer and try to print out.
3. The toner level is not even on the developer roller due to the bad blade.	

4.10.8 Background

• **Description**   Light dark background appears in whole area of the printing.

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

Check and Cause	Solution
1. Recycled recording paper has been used.	1. B/S is not guaranteed when using recycled paper.
2. The life of the Developer has expired.	2. Replace the Developer that has expired.
3. The up-to-down movement of the transfer roller is swift?	3. Clean the busing part of the transfer roller.
4. The HVPS is normal? (Perform DCU diagnostic code 01~04)	4. Replace the Developer if not solved by the above direction 1~3.

4.10.9 Ghost (1)

• **Description**	Ghost occurs at 96 mm intervals of the OPC drum in the whole printing.

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

95.6 mm

Check and Cause	Solution
1. Bad contacts caused by contamination from toner particles between high voltage terminal in the main body and the electrode of the Developer.	1. Clean the terminals when contaminated by toner particles.
2. Bad contacts caused by contamination from toner particles between high voltage terminal in the main body and the one in the HVPS board.	2. Occur in the developer cartridge, replace the developer and try to print out.
3. The life of developer is expired.	3. Replace the engine board if not solved by the above directions 1-2.
4. Transfer roller lifetime(125,000 sheets) has expired.	4. If not solved by the direction 3, check the transfer roller lifetime and replace it.
5. Abnormal low temperature(below 10°C).	5. Wait about 1 hour after power on before using printer.
6. Damaged cleaning blade in the developer.	6. Occur in the developer cartridge, replace the developer and try to print out.

4.10.10 Ghost (2)

• **Description**	Ghost occurs at 96 mm intervals of the OPC drum in the whole printing. (When printing on card stock or transparencies using manual feeder)

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

95.6 mm

Check and Cause	Solution
When printing on card stock thicker than normal paper or transparencies such as OHP, higher transfer voltage is required.	Select 'Thick Mode' on paper type menu from the software application and after using returning to the original mode is recommended.

4.10.11 Ghost (3)

• **Description**   White ghost occurs in the black image printing at 51mm intervals.

Check and Cause	Solution
1. The life of the developer may be expired.	1. Occur in the developer cartridge, replace the developer and try to print out.
2. The abnormal voltage and bad contact of the terminal of the supply roller	2. Check the approved voltage of the supply roller and contact of the terminal and adjust if necessary.

4.10.12 Ghost (4)

• **Description**   Ghost occurs at 70 mm intervals.
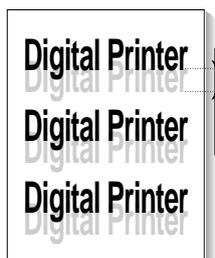
Check and Cause	Solution
The temperature of the fuser is maintained high.	1. Disassemble the fuser and remove the contaminated toner particles on the roller and clean the foreign matter between Thermistor and Heat roller. (⚠ Caution: can be deformed)

4.10.13 Satins on the Face of Page

• **Description**   The background on the face of the printed page is stained.

Check and Cause	Solution
1. Toner leakage due to improperly sealed developer.	1. Replace the developer cartridge.
2. If the transfer roller is contaminated, satins on the face of page will occur.	2. If the transfer roller is contaminated, run PC Cleaning Mode Print 2 or 3 times. And perform Self-Test 2 or 3 times to remove contamination.

4.10.14 Satins on Back of Page

> • **Description**   The back of the page is stained at 56.1 mm intervals.

Digital Printer
Digital Printer
Digital Printer
Digital Printer

56.1 mm

Check and Cause	Solution
1. Transfer roller is contaminated.	1. Perform the OPC Cleaning Mode Print 2 or 3 times. Run Self-Test to remove the contamination of the transfer roller.
2. Pressure roller is contaminated.	2. Replace the transfer roller if contaminated severely.
	3. Disassemble the fuser and clean the H/R(Heat Roller) and P/R(Pressure roller). And check the area between H/R and Thermistor. If contaminated, clean the area not to be deformed.

4.10.15 Blank Page Print out (1)

> • **Description**   Blank page is printed.
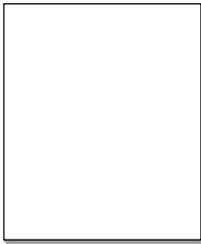
Check and Cause	Solution
Bad ground contacts in OPC and/or developer.	Remove contamination of the terminals of the developer and the unit.

4.10.16 Blank Page Print out (2)

> • **Description**   1. Blank page is printed.
> 2. One or several blank pages are printed.
> 3. When the printer turns on, several blank pages print.
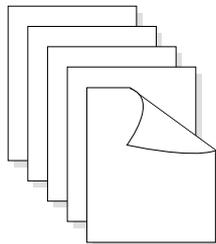
Check and Cause	Solution
1. Bad ground contacts in OPC and/or developer.	1. Remove contamination of the terminals of the developer.
2. Abnormal solenoid.	2. Perform the engine self test using DCU to check if the Solenoid is normal.(refer to code 06)
	3. If not solved by the above directions 1-2, Replace the engine board.
	4. Turn the power off, delete the data of PC and try printing again.

4.11 Fax & PhoneProblems

4.11.1 No Dial Tone

• **Description**   While on-hook button is pressed, there is no dial tone.

Check and Cause	Solution
1. Check if the telephone line cord is connected to TEL LINE correctly.	1. If the telephone cord is normal but there is no dial tone, then try to replace the LIU B'D.
2. Check if it makes CLICK sound while OHD key is pressed.	2. If you cannot hear the OHD CLICK sound, the OPE ASS'Y may be defective. Try to replace the OPE ASS'Y.
3. Check the connection of HARNESS between the LIU and the Main B'D.	3. Check the connection of Speaker, and try to replace it.
4. Check if the SPEAKER is connected correctly.	4. Lastly, try to replace the Main B'D.

4.11.2 Defective MF DIAL

• **Description**   The MF DIAL is not functioning.

Check and Cause	Solution
1. Check if the telephone line is connected correctly.	1. If you cannot catch the OHD CLICK sound, the OPE ASS'Y may be defective. Try to replace the OPE ASS'Y.
2. Wile the BUTTON KEY is pressed, check to catch a CLICK sound.	2. If you can catch a CLICK sound, after checking the connection of HARNESS between the LIU and the Main PBA, try to replace the HARNESS.
3. Check the connection of HARNESS between the LIU and the Main PBA.	3. The problem still persists, then replace the LIU and the main B'D in sequence.
	Notes: Product supports the MF DIAL type only.

4.11.3 Defective FAX FORWARD/RECEIVE

• **Description**   The FAX FORWARD/RECEIVE is not functioning.

Check and Cause	Solution
1. Check if you can catch a dial tone by pressing OHD. 2. Check if you can catch a RECEIVE tone while MODEM testing in the TECH mode.	1. If the MODEM testing is normal and there is no dial tone, then try to replace the LIU B'D. 2. If the MODEM testing is abnormal, try to replace the Main B'D.

4.11.4 Defective FAX FORWARD

• **Description**   RECEIVE is functioning, but FORWARD is not functioning or the received data are broken.

Check and Cause	Solution
1. Check if there is NOISE when pressing on-hook dial. 2. Check the RECEIVE condition by trying to forward a FAX to another fax machine from the forwarding side FAX. 3. Check if the telephone line connected to the Product is contaminated or gets stripped off or down.	1. If it makes NOISE while on-hooking, replace or repair the telephone line.

4.11.5 Defective FAX RECEIVE (1)

• **Description**   FORWARD is functioning, but RECEIVE is not functioning or the received data are broken.

Check and Cause	Solution
1.Check if there is NOISE when pressing on-hook dial. 2.Check the RECEIVE condition by trying to receive a FAX at another fax machine.	1.If it makes NOISE while on-hooking, replace or repair the telephone line.

4.11.6 Defective FAX RECEIVE (2)

• **Description**   The received data are lengthened or cut in the printing.

Check and Cause	Solution
1. Check if there is NOISE when pressing on-hook dial. 2. Ask to the forwarding side, check the image quality of another machine receiving a FAX additionally sent to.	1. If it makes NOISE, rearrange the telephone line. (Refer to 'Defective FAX RECEIVE'.) 2. Check if the FAX status of the forwarding side is also normal.

4.11.7 Defective FAX RECEIVE (3)

• **Description**   The phone is ringing continuously, but it cannot receive.

Check and Cause	Solution
Check if the RECEIVE mode is TEL MODE or FAX MODE.	Even when the RECEIVE mode is changed to FAX MODE, it cannot receive, then replace the LIU and the Main B'D in sequence.

4.11.8 Defective FAX RECEIVE (4)

• **Description** The received data is reduced by more than 50% in the printing.

Check and Cause	Solution
Check the FAX status of the forwarding side.	After checking the data of the forwarding side, correct the FAX of the forwarding side.

4.11.9 Defective Automatic Receiving

• **Description** The automatic receiving function is not working.

Check and Cause	Solution
1. Check if the RECEIVE mode is TEL MODE or FAX MODE.	1. If the RECEIVE mode is set to the TEL MODE, reset it to the FAX MODE. 2. Even after the RECEIVE mode is changed to the FAX mode, it cannot receive, then try to replace the LIU and the Main B'D in sequence.

4.12 Copy Problems

4.12.1 White Copy

• **Description**   Blank page is printed out when receiving.

Check and Cause	Solution
1. Check if the recording papers are inserted reversely.	1. Insert the paper with the copy side to be faced down.
2. Perform the Adjust Scanner in the TECH MODE. (See page ??	2. In case the output waveform is abnormal in the Adjust Scanner, replace the CCD Module, while replace the Main B'D in normal.

4.12.2 Block Copy

• **Description**   Black page is printed out when receiving..

Check and Cause	Solution

4.12.3 Vertical Black Line

• **Description**　　Vertical black lines occur in the printing.

Check and Cause	Solution
1. Check if there are substance materials on CCD Modual.	1. If there are some stains on the surface of CIS, wipe them off with alcohol (IPA).
2. Perform a Adjust Scanner to check if the waveform is normal. (See page ??)	2. If the CIS waveform is abnormal, replace the CIS ASS'Y.
3. Clean the cartridge nozzle.	3. Clean the nozzle and confirm again.
	4. After confirming the CIS waveform and cleaning the nozzle, if the vertical black lines still occur, then try to replace the Main B'D.

4.12.4 Defective image quality

• **Description**　　The copied image is light or bad.

Check and Cause	Solution

4.13 Scanning Problems

4.13.1 Defective PC Scan

> • **Description**   The PC Scan is not functioning at all.

Check and Cause	Solution
1. Check the Cable (USB or Parallel)	1. If the PC and the cable are not connected properly, reconnect it.
2. Check if the driver is installed properly.	2. After confirming that it is proper by performing a PC printing test related to driver setup, if it is not so, reinstall it. (Refer to User's Manual.)
3. Check if copy function operation normally.	3. If copy function works, replace the Main PBA. If copy function doesn't work, replace the CCD Ass'y and try again.

4.13.2 Defective Image Quality of PC Scan

> • **Description**   The image PC scanned is not clear or bad.

Check and Cause	Solution
1. Check the waveform form by performing a CCD test in TECH mode. (Refer to ???)	1. If the CCD waveform form is abnormal, try to replace the CCD ASS'Y.
2. Check if the resolution is set too low in PC Scan options. (Refer to User's Manual.)	2. If the resolution is set to low, let the user be acquainted with the using method well.

4.14 Toner Cartridge Service

It is not guaranteed for the default caused by using other toner cartridge other than the cartridge supplied by the Samsung Electronic or caused by non-licensed refill production.

4.14.1 Precautions on Safe-keeping of Toner Cartridge

Excessive exposure to direct light more than a few minutes may cause damage to the cartridge.

4.14.2 Service for the Life of Toner Cartridge

If the printed image is light due to the life of the toner, you can temporarily improve the print quality by redistributing the toner(Shake the toner cartridge), however, you should replace the toner cartridge to solve the problem thoroughly.

4.14.3 Service for Judgement of Inferior Expendables and the Standard of Guarantee

Please refer to User's Manual or Instructions on Fax/Printer Expendables SVC for the judgement of inferior expendables and the standard of guarantee besides this service manual.

4.14.4 Signs and Measures at Poor toner cartridge

Fault	Signs	Cause & Check	Solution
Light image and partially blank image (The life is ended.)	• The printed image is light or unclean and untidy. • Some part of the image is not printed. • Periodically a noise as "tick tick" occurs.	1. If the image is light or unclean and untidy printed image - Shake the developer and then recheck. 　(1)NG: Check the weight of the developer 　(2)OK: Lack of toner, so the life is nearly closed. 2. Some part of image is not printed - Shake the developer and then recheck. 　(1)NG: Check the weight of the developer and clean the LSU window with a cotton swab, then recheck. 　(2)OK: Lack of toner, so the life is nearly closed. 3. Periodically a noise as "tick tick" occurs - Measure the cycle and the weight of the developer. 4. White vertical stripes on the whole screen or partly : Check the weight of the developer.	1. All of 1, 2, 3 above- 　(1)The weight of the developer ended: 800g ± 20g 　(2)If it become better by shaking, replace with a new developer after 50-100 sheets in the closing state of the life span. 2. In case of 2- 　If it becomes better after cleaning the LSU window, then the developer is normal. 　(Because of foreign substance on the LSU window, the image has not been printed partly.) 3. In case of 3- 　If the cycle of noise is about 2 seconds, the toner inside the developer has been nearly exhausted.(Purchase and replace with a new developer after using about 200 sheets at the point of occurrence) 4. In case of 3- 　This is a phenomenon caused by lack of toner, so replace with a new developer.
Toner Contamination	• Toner is fallen on the papers periodically. • Contaminated with toner on prints partly or over the whole surface.	1. Toner is fallen on the paper periodically. 　(1)Check the cycle of the falling of the toner. 　(2)Check the appearance of both ends of the developer OPC drum. 2.The center of the printed matter is contaminated with toner. 　(1)Check whether foreign substances or toner are stuck to the terminal (contact point) of the developer. 　(2)Check whether the state of the terminal assembly is normal.	1. If both ends of the OPC drum are contaminated with toner: Check the life of the developer. (In case of less than 820g, the life may be expired.) 2. Check whether it could be recycled. 3. If it cannot be recycled: Replace the developer.

Fault	Signs	Cause & Check	Solution
White Black spot	• Light or dark black dots on the image occur periodically. • White spots occur in the image periodically.	1. If light or dark periodical black dots occur, this is because the developer rollers are contaminated with foreign substance or paper particles. (1)35mm interval : Charged roller (2)75mm interval : OPC cycle 2. If white spots occur in a black image at intervals of 75mm, or black spots occur elsewhere, the OPC drum is damaged or foreign substance is stuck to the surface. 3. If a black and white or graphic image is partially broken at irregular intervals, the transfer roller's life has been expired or the transfer voltage is abnormal.	1. In case of 1 above - Run OPC Cleaning Mode Print 4-5 times repeatedly to remove. Especially check foreign substance on the OPC surface, then remove them with a clean gauze moistened with IPA(Isopropyl Alcohol) not to damage OPC if necessary. **Never use usual alcohol.** 2. In case of 2 If they are not disappeared by running OPC Cleaning Mode Print 4-5 times. : at intervals of 37mm - Replace the developer. : at intervals of 75mm - Remove foreign substance. : Broken image - Replace the developer according to carelessness. 3. In case of 3 - Exchange the transfer roller because the life of the transfer roller in use has been expired. (Check the transfer voltage and readjust if different.)
Recycled product	• Poor appearance of the developer. • Unclean and rough printouts. • Bad background in the image.	1. Poor appearance of the developer. (1)Check the damage to label and whether different materials are used. (2)Check the appearance of parts of the developer, such as frame, hopper. 2. Unclean and rough printouts. (1)Check whether foreign substance or toner are stuck to the terminal (contact point) of the developer. (2)Check whether the state of the terminal assembly is normal.	1. In case of 1 - (1)If there is an evidence of disassembling the developer. (2)If materials other than normal parts of the developer are added or substituted. 2. In case of 2 - If there are any abnormals in connection with the situation of 1. (1)It occurs when the developer is recycled over 2 times. (2)If toner nearly being expired are collected to use, it is judged as the recycled developer.

Fault	Signs	Cause & Check	Solution
Ghost & Image Contamination	• The printed image is too light or dark, or partially contaminated black. • Totally contaminatedblack. (Black image printed out) • The density of printouts is too dark and ghost occurs.	1. The printed image is too light or dark, or partially contaminated black. (1)Check whether foreign substance or toner are stuck to the terminal(point of contact) of the developer. (2)Check whether the terminal assembly is normal.	1. All of 1, 2, 3 above (1)Remove toner and foreign substances adhered to the contact point of the developer. (2)The contact point of the unit facing that of the developer also must be cleaned. (3)If the terminal assembly is unsafe: • Fully stick the terminal to or reassemble it after disassembling. • Disassemble the side plate and push the terminal to be stuck, then reassemble it.
		2. Totally contaminated black. (Black image printed out) (1)Check whether foreign substances are stuck to the terminal(point of contact) of the developer and the state of assembly. (Especially check the charged roller terminal.)	2. In case of 2 It is a phenomenon when the OPC drum of the developer is not electrically charged. Clean the terminals of the charged roller, then recheck it.
		3. The printed image is dark and ghost occurs. (1)Check foreign substance attached to the terminal (point of contact) of the developer and the state of assembly. (Especially check the developing roller terminal.)	3. In case of 3 It is a phenomenon as the developing bias voltage of the developer. Clean the terminals of the developing roller, then recheck it.

5. Exploded Views and Parts List

- Deal drawings and service parts are declared for the items with higher rate of inferiority and replaceable in the level of service description only.

- If inferiority occurs, you can replace the parts by the unit declared in deal drawings and service items.

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Way to observe Part Code & Description

Part code and Description is quoted and controlled by determined standard. Refer to this determined standard, it will help with ordering Part.

· **There are two kinds of Part code inscription type.**

●●●● − ●●●●●●	ex) 2007-007961 R-CHIP
■■●●─●●●●●■	ex) JB96-01268A ELA UNIT-COVER TOP

└ It shows part specific
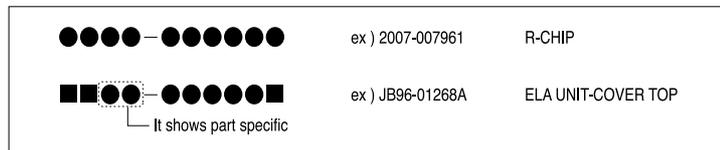
(● : figure,   ■ : character (alphabet))

Type 1 : Controlled by Company : It can be commonly used for all kinds of product SEC produce. Mostly, electronics Parts.

Type 2 : Controlled by Division : It is used or one produce. Mostly, Mostly, mechanical Parts.

· **A/S privately used part :** It is only used for A/S **.**

· **Ass'y part :** Assembled by more than 2 Parts. If necessary part is not A/S Part, Ass'y part including necessary par can be used. It is shown in the diagram and drawing of SVC manual.

· Ass'y part and A/S privately used Part is distinguished by part Code and Description. The are inscription type 2. It is recognized by Part character and front side of description.

DIVISION	PART CODE	DESCRIPTION
A/S Private	**81-****** (JB81-00039A)	AS-***** (AS-USE)
ASS'Y Part	**75-****** (JB75-00068A)	MEC-***** (MEC-CHUTE)
ASS'Y Part	**92-****** (JB92-01131A)	PBA ****** (PBA MAIN-CONTROLLER)
ASS'Y Part	**97-****** (JB97-01089A)	MEA ****** (MEA UNIT-PULLEY IDLE)

5-1 Main Assembly Exploded view
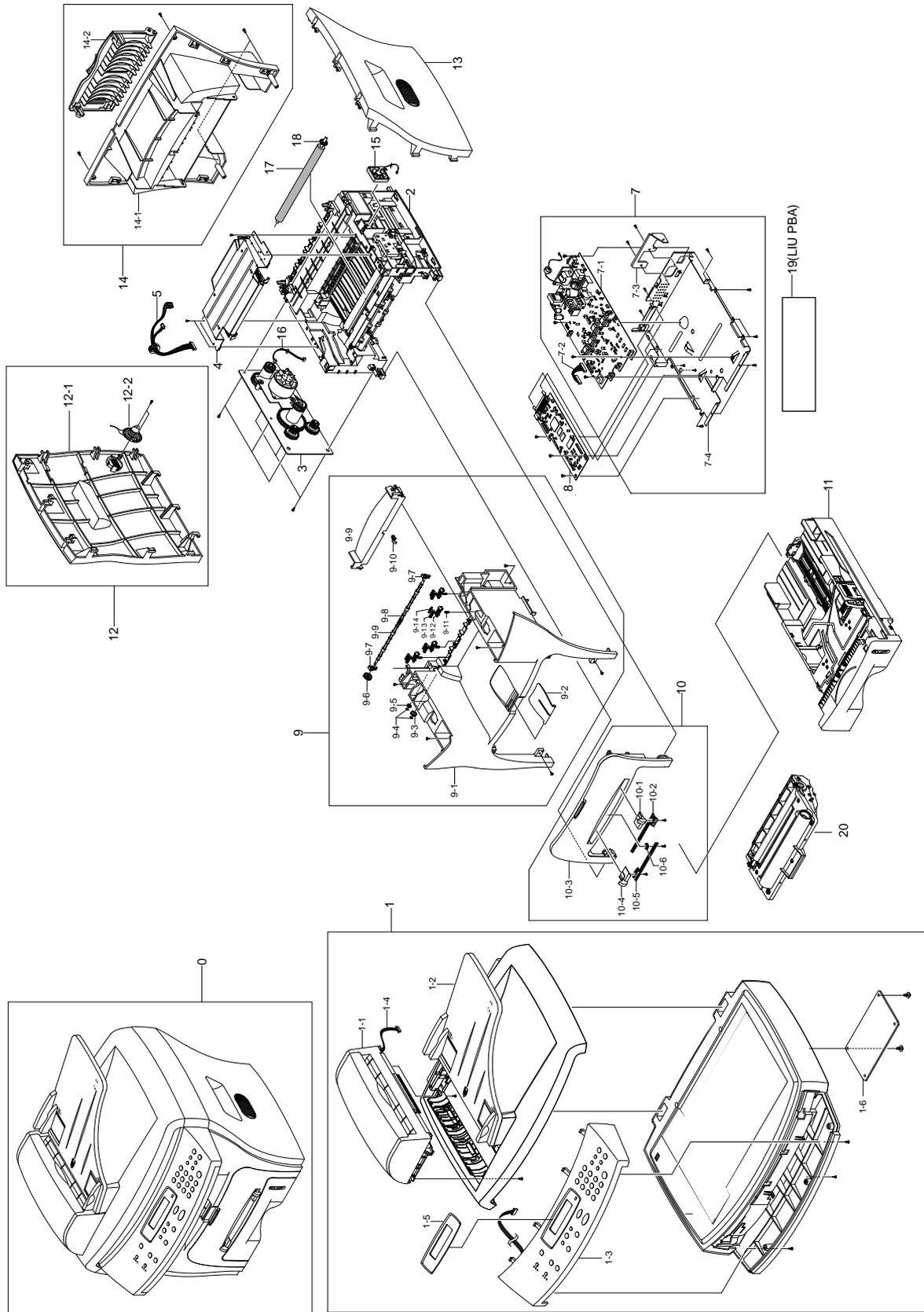
< Main Assembly Parts List >

SA. : Service Available

NO	DESCRIPTION	SEC CODE	Q'TY	SA	REMARK
1	UNIT-SCAN ASSY	TBD	1		
1-1	ELA HOU-ADF	JC96-02654A	1		
1-2	ELA HOU-PLATEN	JC96-02657A	1		
1-3	ELA HOU-OPE	JC96-02658A	1		
1-4	CBF-ROCKY_ADF_HARNESS	ADF_HARNESS	1		
1-5	PMO-COVER WINDOW	COVER WINDOW	1		
1-6	ROCKY_CONN_PBA	CONN_PBA	1		
2	ELA HOU-FRAME(220V)	JC96-02710A	1		
3	ELA HOU-RX DRIVE 1400	NEW-DRIVE ASSY	1		
4	UNIT-LSU	N202	1		
5	CBF HARNESS-LSU 1400	NH3	1		
7	SHIELD	TBC	1		
7-1	SMPS-110V	SMPS	1		
7-2	CBF HARNESS-MAIN_SMPS	K1	1		
7-3	BRACKET-P-INLET, ROCKY	JC61-00693A	1		
7-4	SHIELD-ENGINE, ROCKY	JC63-00144A	1		
8	PBA MAIN-MAIN	JC92-01431A	1		
9	ELA UNIT-COVER MIDDLE	JC97-01723A	1		
9-9	COVER-M-REAR UPPER	JC63-00143A	1		
9-1	COVER-M-MIDDLE	JC63-00141A	1		
9-2	PMO-STACKER_RX	JC72-00973A	1		
9-3	RING-CS	6044-000001	2		
9-4	GEAR-IDLE 23	JC66-00396A	1		
9-5	PMO-GEAR_EXIT_DRV16	JC72-00143A	1		
9-6	GEAR-EXIT F/DOWN	JC66-00038A	1		
9-7	MEC-BEARING,EXIT	JC75-10529A	2		
9-8	ROLLER-EXIT_F/DOWN	JC66-00378A	1		
9-9	RMO-RUBBER EXIT	JC73-40915A	1		
9-10	TBD				
9-11	SPRING-EXIT_F/DOWN	JC33-00010A	4		
9-12	HOLDER-EXIT_F/DOWN	JC61-00582A	4		
9-13	PMO-ROLLER_EXIT,MAIN	JC72-41081A	4		
9-14	PMO-ROLLER_EXIT,FR	JC72-41082A	4		

O: Service available X: Service not available

< Main Unit Parts List >

SA. : Service Available

NO	DESCRIPTION	SEC CODE	Q'TY	SA	REMARK
10	MEA ETC-COVER FRONT	TBD	1		
10-1	ADJUST-MANUAL R	JC70-00303A	1		
10-2	ADJUST RACK-MANUAL	JC70-00304A	1		
10-3	COVER-FRONT	JC63-00103A	1		
10-4	ADJUST-MANUAL L	JC70-00302A	1		
10-5	GEAR-RACK_PINION	JC66-00387A	1		
11	MEA ETC-CASSETTE 1400	TBD	1		
12	ELA HOU COVER SIDE L	JC96-02709A	1		
12-1	COVER-M-SIDE L	JC63-00137A	1		
12-2	SPEAKER	3001-001293	1		
13	COVER-M-SIDE R	JC63-00138A	1		
14	MEA UNIT- COVER REAR	JC97-01724A	1		
14-1	COVER-M-REAR	JC63-00140A	1		
14-2	COVER-M-FACE UP	JC63-00142A	1		
15	FAN-DC	TBD	1		
TBD	IPR-PLATE_CHANNEL	JC61-00606A	1		
16	CBF HARNESS-MOTOR	NH4	1		
17	ROLLER-TRANSFER ROLLER	JC66-00528A	1		
18	PMO-GEAR TRANSFER	JC66-00395A	1		
TBD	ROCKY_SCAN_FFC	SCAN_FFC	1		
TBD	CABLE-FLAT	3809-001161	1		
TBD	SUPPORTER	6103-001048	1		
20	ELA TONER UNIT,ROCKY	JC96-02707A	1		
19	ROCKY_LIU_PBA	LIU_PBA	1		

O: Service available X: Service not available

5-2 ADF Unit Exploded view
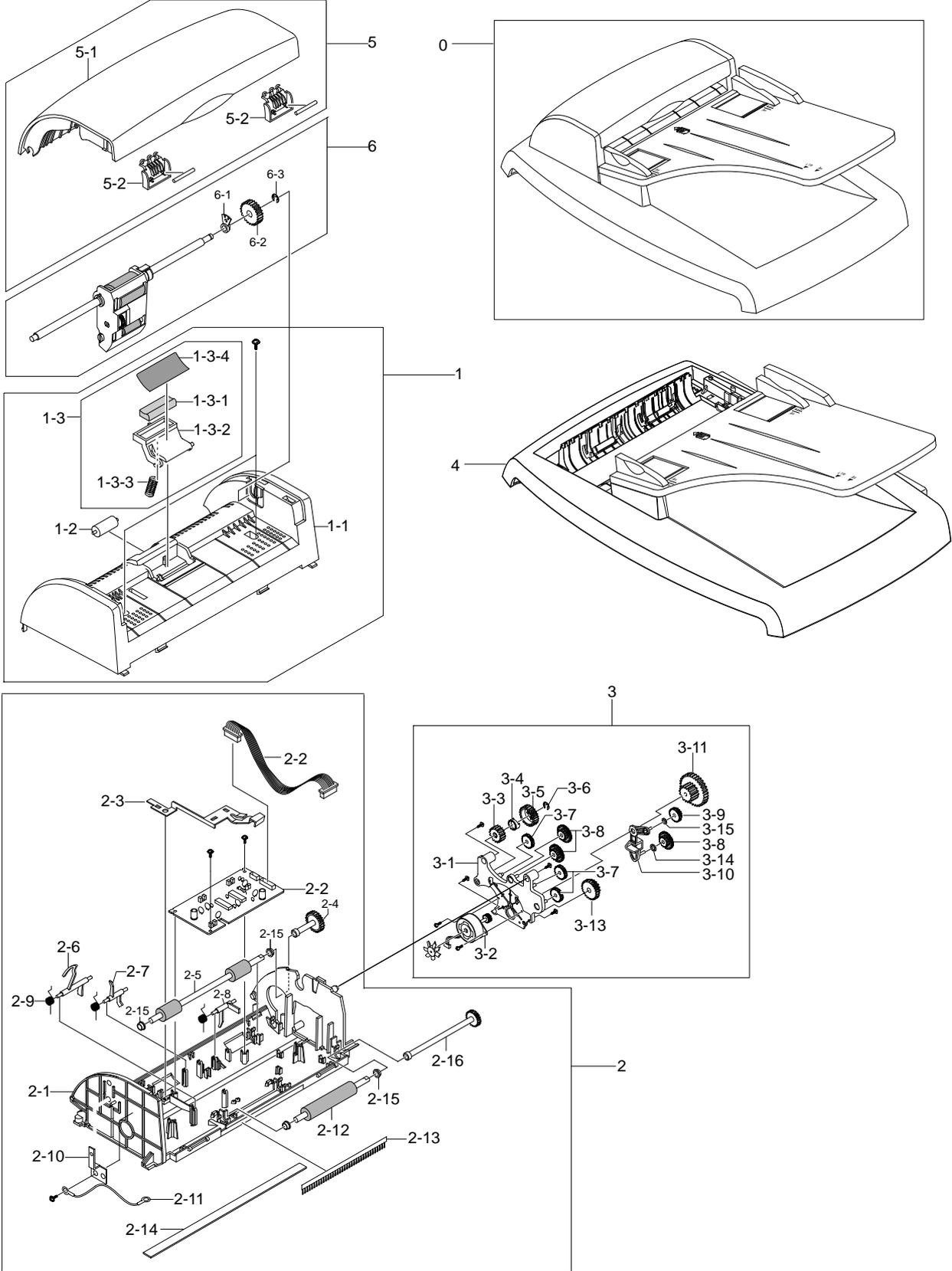
< ADF Unit Parts List >

SA. : Service Available

NO	DESCRIPTION	SEC CODE	Q'TY	SA	REMARK
0	ELA HOU-ADF	JC96-02654A	1		
1	MEA UNIT-ADF UPPER ASS`Y	TBD	1		
1-1	COVER-M-ADF UPPER	JC63-00145A	1		
1-2	ROLLER-M-ADF IDLE	JC66-00461A	1		
1-3	HOLDER-ADF ASSY	JC97-01709A	1		
1-3-1	RMO-ADF RUBBER	JB73-00052A	1		
1-3-2	HOLDER-M-ADF	JC61-00694A	1		
1-3-3	SPRING ETC-PAD	JC61-00387A	1		
1-3-4	SHEET-ADF	SHEET-ADF	1		
2	ELA UNIT-ADF LOWER ASS`Y	JC96-02668A	1		
2-1	COVER-M-ADF LOWER	JC63-00148A	1		
2-2	CBF D SUB CABLE-ADF_MAIN CABLE	JC39-00190A	1		
2-3	GROUND-P-ADF	JC63-00149A	1		
2-4	SHAFT-M-FEED GEAR 38	JC66-00460A	1		
2-5	ROLLER-DRIVE	JC66-00560A	1		
2-6	PMO-ACTUATOR DOC SENSOR	JC72-01009A	1		
2-7	PMO-ACTUATOR REGI SENSOR	JC72-01010A	1		
2-8	PMO-ACTUATOR SCAN SENSOR	JC72-01011A	1		
2-9	SPRING ETC-TORSION DOC (CC2-F)	JB61-00076A	3		
2-10	IPR-GROUND_ROLLER	JC70-10467A	1		
2-11	CBF HARNESS-DRIVER GND	JB39-00065A	1		
2-12	ROLLER-EXIT	JC66-00559A	1		
2-13	MEC-BRUSH ANTISTATIC	JC75-00161A	1		
2-14	SHEET-WHITE BAR	JC63-00154A	1		
2-15	PMO-BUSH	JB72-00819A	4		
2-16	SHAFT-M-EXIT GEAR 27	JC66-00459A	1		
3	ELA HOU-ADF MOTOR	JC96-02652A	1		
3-1	BRACKET-M-GEAR, ADF	JC61-00692A	1		
3-2	MOTOR BLOWER-ADF	JC31-00023A	1		
3-3	GEAR-CLUTCH 29	JB66-00101A	1		
3-4	PMO-WHITE CLUTCH SUB 29	JB72-00844A	1		
3-5	GEAR-CLUTCH 39	JC66-00322A	1		
3-6	RING-C	6044-000159	1		
3-7	GEAR-IDLE 35 ADF	JC66-00458A	3		
3-8	GEAR-40/21 ADF	JC66-00456A	3		
3-9	GEAR-SWING 31/20 ADF	JC66-00457A	1		
3-10	LINK-M-SWING ADF	JC66-00454A	1		
3-11	GEAR-58/25 ADF	JC66-00455A	1		
3-12	IMPELLER-ADF	JC66-00556A	1		

O: Service available X: Service not available

< ADF Unit Parts List >

SA. : Service Available

NO	DESCRIPTION	SEC CODE	Q'TY	SA	REMARK
3-13	GEAR-REMOVE ADF	JC66-00557A	1		
3-14	WASHER-PLAIN	6031-000023	1		
3-15	SPRING ETC CLUTCH	JB61-70922A	1		
4	MEA-COVER PLATEN(4IN1)	JC97-01708A	1		
5	MEA-COVER OPEN	JC97-01706A	1		
5-1	COVER-M-OPEN	JC63-00147A	1		
5-2	PMO-GUIDE PAPER	JB72-00843A	2		
5-3	TBD		2		
5	ROCKY_ADF_PBA	ADF_PBA	1		
6	MEA UNIT-PICKUP ASS`Y	TBD	1		
6-1	PMO-BUSHING WHITE	JF72-41306A	1		
6-2	GEAR-ADF 38	JB66-00103A	1		
6-3	RING-C	6044-000159	1		

O: Service available X: Service not available

5-3 COVER PLATEN Exploded view
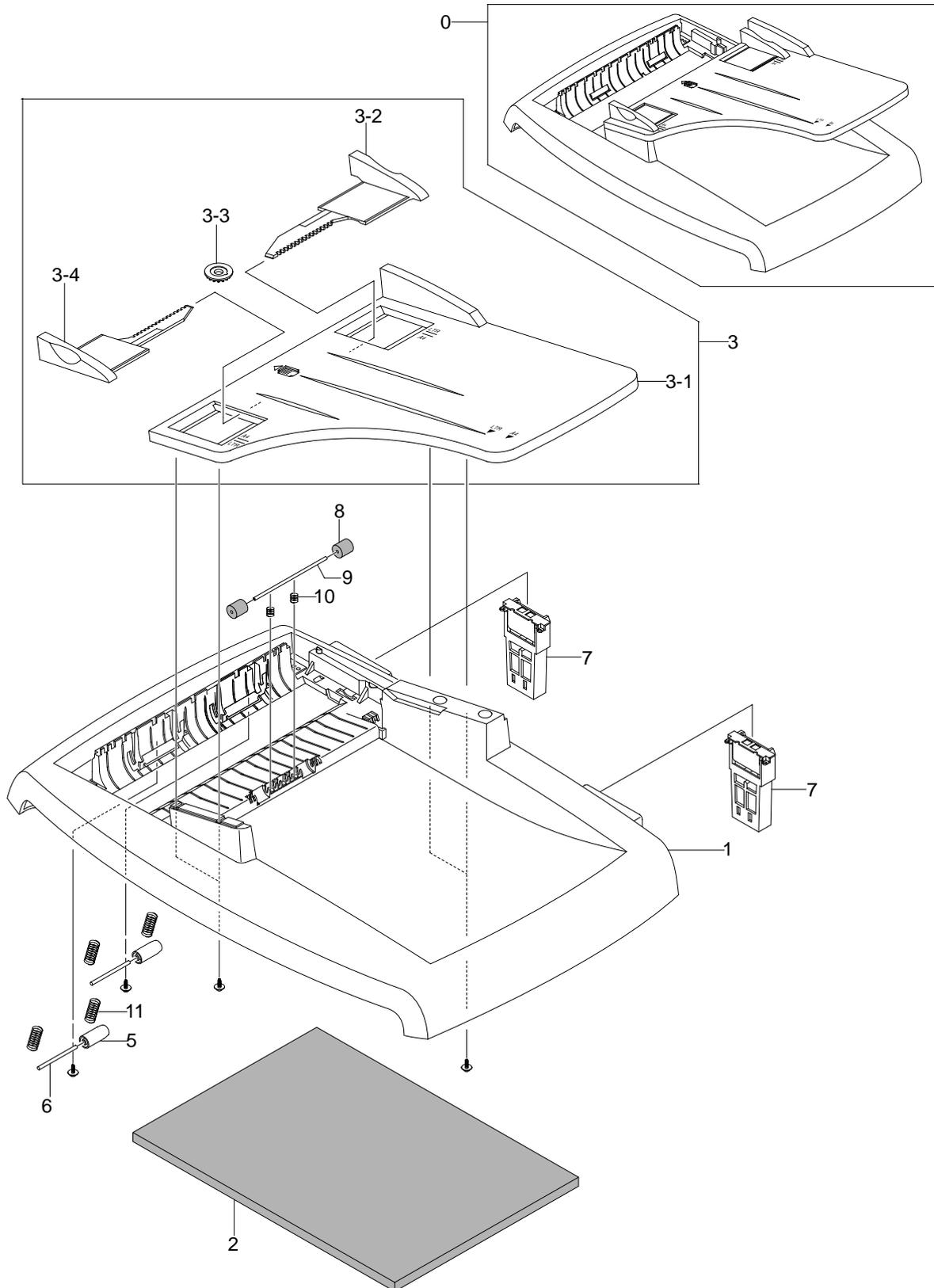
< COVER PLATEN Unit Parts List >

SA. : Service Available

NO	DESCRIPTION	SEC CODE	Q'TY	SA	REMARK
0	MEA-COVER PLATEN(4IN1)	JC97-01780A	1		
1	COVER-M-PLATEN(4IN1)	JC63-00146A	1		
2	WHITE SPONGE	WHITE SPONGE	1		
3	MEA-TX STACKER ASS'Y	JB97-01544A	1		
3-1	PMO-TX STACKER	JB72-01166A	1		
3-2	PMO-DOC GUIDE(L)	JB72-01171A	1		
3-3	GEAR-PINION	JG66-40003A	1		
3-4	PMO-DOC GUIDE(R)	JB72-01170A	1		
5	ROLLER-M-EXIT IDLE	JC66-00462A	2		
6	SHAFT-STACKER	TBD	2		
7	MEA-RACK HINGE(4IN1)	JC97-01707A	2		
8	PMO-ROLL PINCH	JG72-40663A	2		
9	ICT-SHAFT PINCH	JF70-40521B	1		
10	SPRING ETC-FEED	JC61-00011A	2		
11	SPRING ETC-EXIT LOWER IDLE	JC61-00484A	4		
?	SHAFT-IDLE FEED	JC66-00558A	1		
?	GUIDE-STACKER SUB	JC61-00712A	1		

O: Service available X: Service not available

5-4 OPE Unit Exploded view
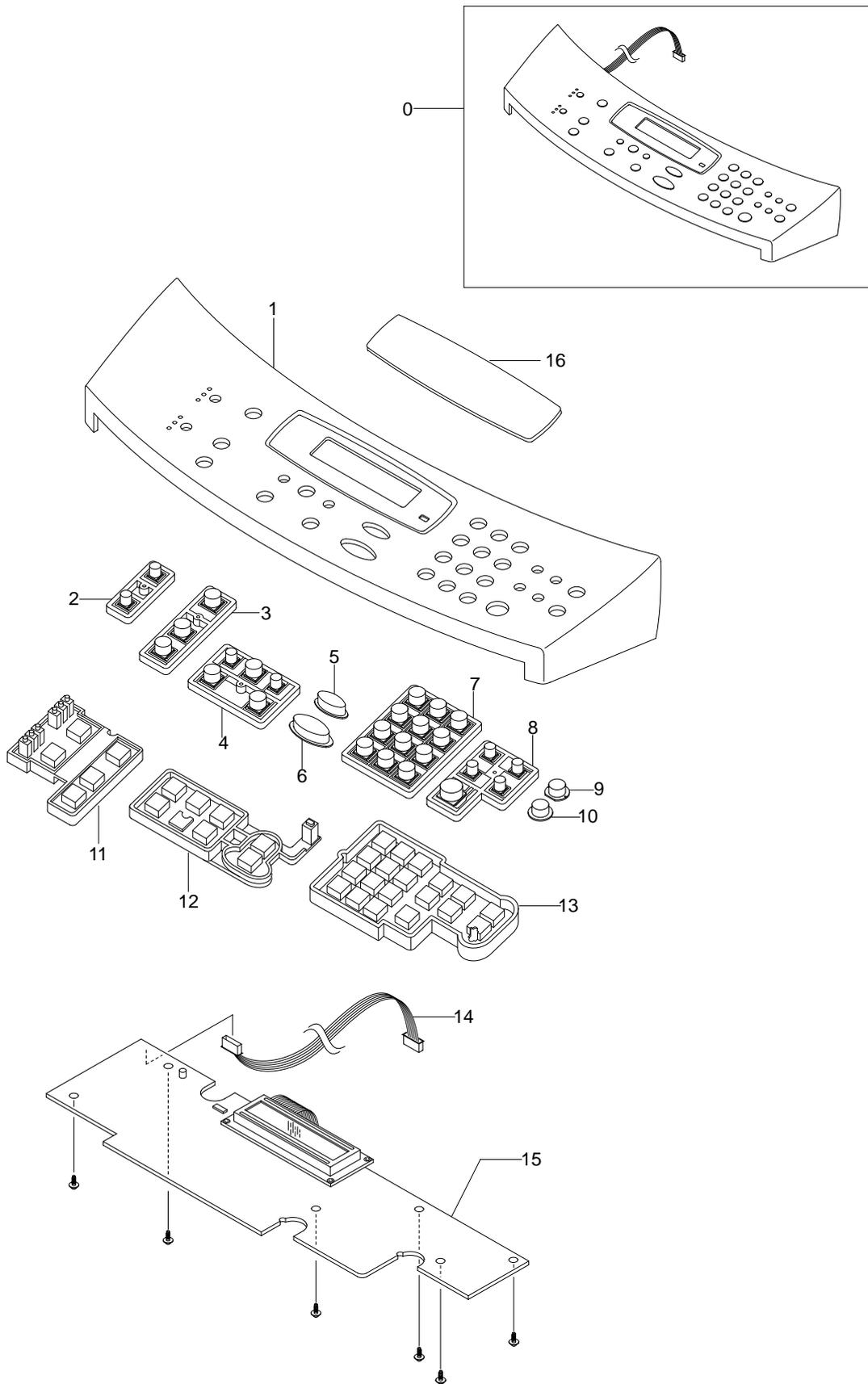
< OPE Unit Parts List >

SA. : Service Available

NO	DESCRIPTION	SEC CODE	Q'TY	SA	REMARK
0	ELA HOU-OPE	JC96-02658A	1		
1	COVER-M-OPE(4IN1)	JC63-00153A	1		
2	KEY-M-RESOLUTION	JC64-00059A	1		
3	KEY-M-COPY	JC64-00054A	1		
4	KEY-M-SCROLL	JC64-00056A	1		
5	KEY-M-STOP	JC64-00055A	1		
6	KEY-M-START	JC64-00057A	1		
7	KEY-M-TEL	JC64-00053A	1		
8	KEY-M-FAX	JC64-00060A	1		
9	KEY-M-TONER SAVE	JC64-00058A	1		
10	KEY-M-TOLL SAVE	JC64-00061A	1		
11	RUBBER-COPY	JC73-00139A	1		
12	RUBBER-SCROLL	JC73-00137A	1		
13	RUBBER-TEL/FAX	JC73-00138A	1		
15	ROCKY_OPE_PBA	OPE_PBA	1		
16	SHEET-LCD	JC63-00155A	1		

O: Service available X: Service not available

5-5 Scanner Assembly Exploded view
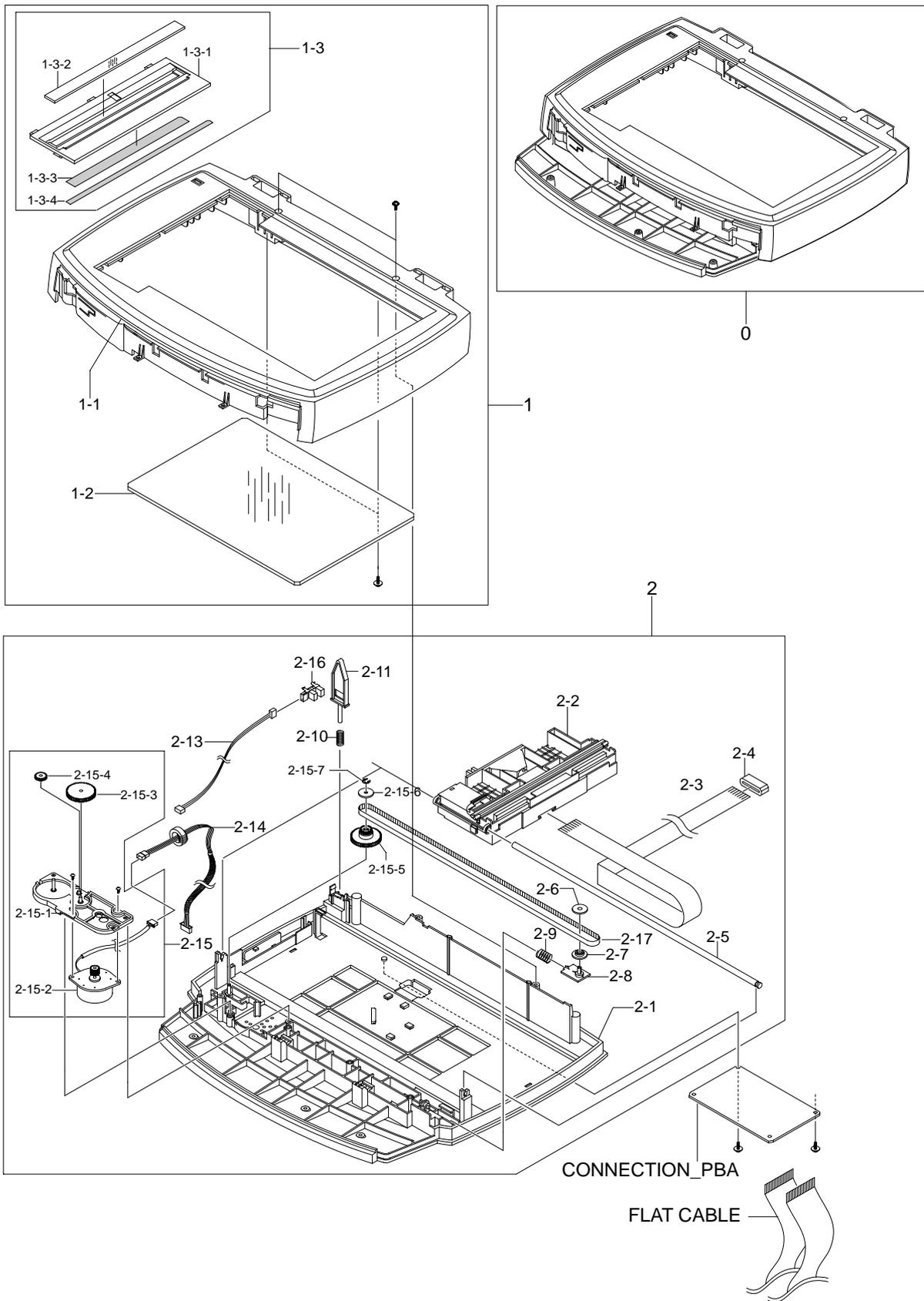
< Scanner Assembly Parts List >

SA. : Service Available

NO	DESCRIPTION	SEC CODE	Q'TY	SA	REMARK
0	ELA HOU-PLATEN	JC96-02657A	1		
1	SCAN UPPER ASSY	JC97-01712A	1		
1-1	COVER-M-SCAN UPPER	JC63-00151A	1		
1-2	GLASS-SCAN	JC01-00001A	1		
1-3	MEA-SCAN DUMMY(4IN1)	JC97-01711A	1		
1-3-1	COVER-M-SCAN DUMMY(4IN1)	JC63-00152A	1		
1-3-2	MCT-GLASS ADF	JC74-00019A	1		
1-3-3	LABEL(P)-SHADING	JB68-00644A	1		
1-3-4	TAPE-DOUBLE FACE	0203-001266	1		
2	ELA HOU-SCAN LOWER	JC96-02656A	1		
2-1	COVER-M-SCAN LOWER	JC63-00150A	1		
2-2	MODULE-SCANNER	0605-001080	1		
2-3	CBF FLAT CABLE-CCD	JB39-00132A	1		
2-4	ELA UNIT-CORE	JB96-01381A	1		
2-5	ICT-SHAFT CCD	JB70-00145A	1		
2-6	PMO-HOLDER BELT	JB72-00764A	1		
2-7	PMO-PULLEY	JB72-00763A	1		
2-8	PMO-HOLDER BELT	JB72-01136A	1		
2-9	SPRING ETC-BELT	JB61-00109A	1		
2-10	SPRING-CS	6107-001135	1		
2-11	PMO-LEVER SENSOR	JC72-00755A	1		
2-13	CBF HARNESS-SCAN COVER SENSOR	JB39-00137A	1		
2-14	CBF HARNESS -SCAN MOTOR	HARNESS MOTOR	1		
2-15	ELA HOU-SCAN MOTOR	JC96-02655A	1		
2-15-1	BRACKET-M-SCAN MOTOR	JC61-00698A	1		
2-15-2	MOTOR-PLATEN	MOTOR-FLATEN	1		
2-15-3	GEAR-REDUCTION	JB66-00084A	1		
2-15-4	GEAR-IDLE	JB66-00083A	1		
2-15-5	GEAR-TIMING	JB66-00082A	1		
2-15-6	PMO-HOLDER BELT	JB72-00764A	1		
2-15-7	RING-E	6044-000125	1		
2-16	PHOTO-INTERRUPTER	0604-001050	1		
2-17	BELT-TIMING GEAR	6602-001067	1		
2-18	CBF HARNESS-MAIN OPE	JB39-00130A	1		

O: Service available X: Service not available

5-6 Frame Ass'y Exploded view
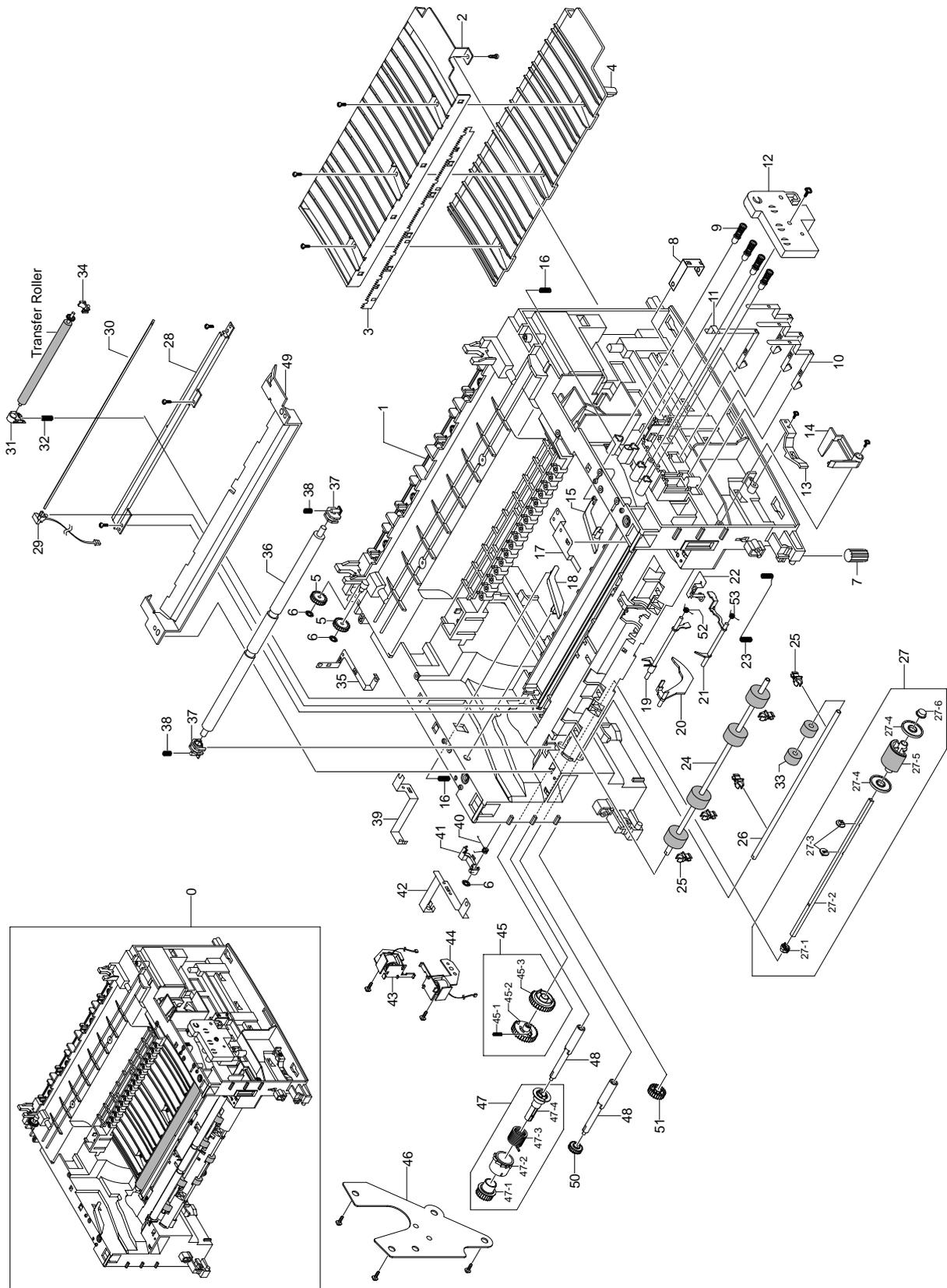
< Frame Ass'y Parts List >

SA. : Service Available

NO	DESCRIPTION	SEC CODE	Q'TY	SA	REMARK
0	ELA UNIT-FRAME ASSY 220V	TBD	1		
1	FRAME-Base	JC61-00579A	1		
2	GUIDE-TR	JC61-00607A	1		
3	PLATE-SAW	JC61-00604A	1		
4	GUIDE-TR RIB	JC61-00594A	1		
5	PMO-GEAR_EXIT_DRV16	JC72-00143A	1		
6	RING-CS	6044-000001	1		
7	RMO-RUBBER_FOOT	JC73-00027A	1		
8	IPR-GROUND TR	JC70-00311A	1		
9	MEC-TERMINAL	JC75-00049A	1		
10	IPR-TERMINAL CON	JC70-00312A	1		
11	IPR-TERMINAL CR	JC70-00313A	1		
12	HOUSING-TERMINAL	JC61-00592A	1		
13	PMO-Locker cst	JC72-00983A	1		
14	PMO-ACTUATOR CVR OPEN	JC72-00974A	1		
15	PMO-PLATE GUIDE DEVE_R	JC72-00985A	1		
16	SPRING-GUIDE DEVE	JC61-00038A	2		
17	IPR-GROUND_ROLLER IDLE	JC70-00315A	1		
18	PMO-PLATE GUIDE DEVE_L	JC72-00984A	1		
19	PMO-ACTUATOR FEED	JC72-00976A	1		
20	PMO-ACTUATOR EMPTY	JC72-00975A	1		
21	PMO-ACTUATOR MANUAL	JC72-00977A	1		
22	IPR-GROUND EARTH TR	JC70-00309A	1		
23	SPRING-TR_R	TBD	1		
24	ROLLER-FEED	JC66-00379A	1		
25	PMO-BUSHING TX	JC72-00382A	1		
26	SHAFT-FEED	JC66-00398A	1		
27	TBD		1		
27-1	BUSH-PICK_UP_L	JC61-00586A	1		
27-2	SHAFT-PICK_UP	JC66-00399A	1		
27-3	STOPPER-PICK_UP	JC61-00593A	1		
27-4	PMO-IDLE PICK_UP	JC72-00982A	1		
27-5	HOUSING-PICK_UP	JC61-00591A	1		
27-6	BUSH-PICK_UP_R	JC61-00587A	1		
28	IPR-EARTH TRANSFER	JC70-00307A	1		
29	HOLDER-PTL	JC61-00583A	1		
30	LENS-PTL	JC67-00027A	1		
31	BUSH-TR_L	JC61-00588A	1		
32	SPRING-TR_L	JC61-00024A	1		
33	ROLLER-FEED ROLLER 1	TBD	1		
34	PMO-BUSHING TR_L	JC72-00102A	1		
35	IPR-GROUND FUSER	JC70-00310A	1		
36	SHAFT-FEED IDLE	JC66-00527A	1		

O: Service available X: Service not available

< Frame Ass'y Parts List >

SA. : Service Available

NO	DESCRIPTION	SEC CODE	Q'TY	SA	REMARK
37	BUSH-FEED IDLE	JC61-00585A	1		
38	SPRING-FEED IDLE	TBD	1		
39	IPR-P_GROUND_DRIVE2	JC70-00335A	1		
40	SPRING-CAM PICK-UP	TBD	1		
41	CAM-PICK_UP	JC66-00377A	1		
42	IPR-GROUND DRIVE	JC70-00308A	1		
43	SOLENOID-HB (PICK-UP)	JC33-00009A	1		
44	SOLENOID-HB (MANUAL)	JC33-00010A	1		
45	TBC		1		
45-1	PMO-GEAR PICK_UP B	JC72-00980A	1		
45-2	PMO-GEAR PICK_UP A	JC72-00979A	1		
45-3	SPRING-PICK_UP GEAR	TBD	1		
46	BRACKET-FEED	JC61-00602A	1		
47	TBC				
47-1	GEAR-FEED 1	JC66-00393A	1		
47-2	PMO-COLLAR_SPRING	JC72-00978A	1		
47-3	SPRING-CLUTCH	TBD	1		
47-4	PMO-HUB CLUTCH	JC72-00981A	1		
48	TBD		1		
49	GUIDE-PAPER	JC61-00718A	1		
50	GEAR-FEED 2	JC66-00394A	1		
51	GEAR-IDLE 23	JC66-00396A	1		
52	SPRING-ACT_FEED	TBD	1		
53	SPRING-ACT,MANUAL	TBD	1		

O: Service available X: Service not available

5-7 RX Drive Ass'y Exploded view

HARNESS-MOTOR
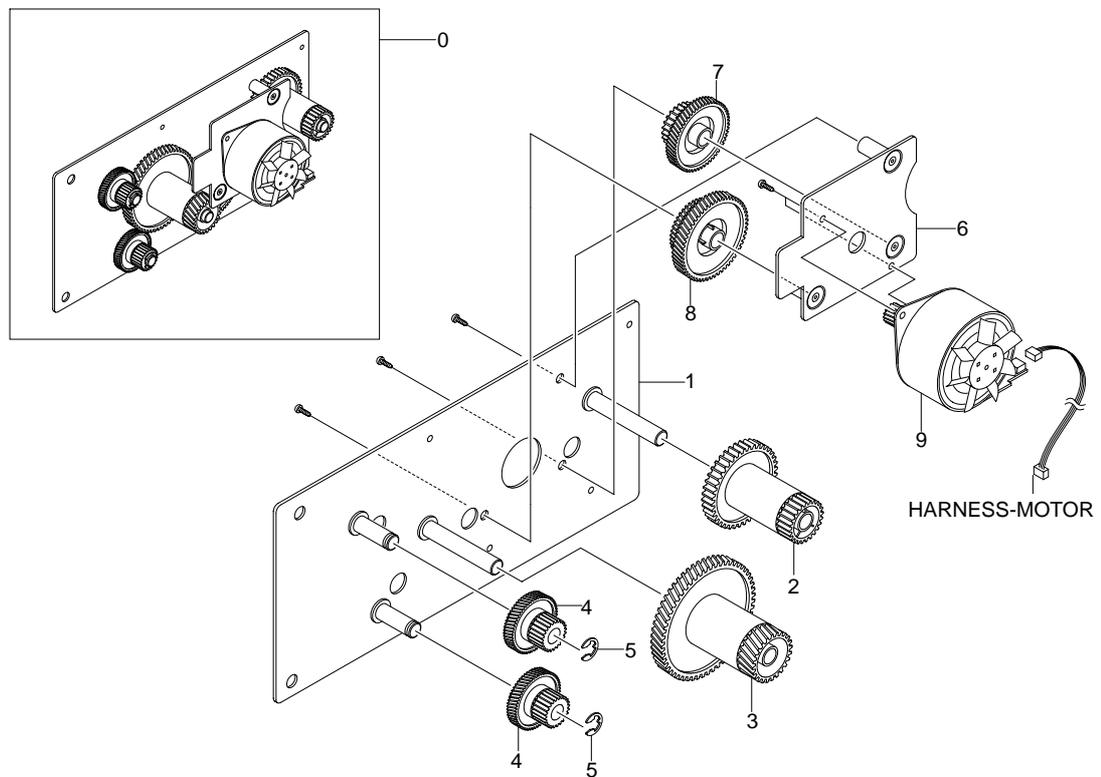
< RX Drive Ass'y Parts List >

SA. : Service Available

NO	DESCRIPTION	SEC CODE	Q'TY	SA	REMARK
0	ELA HOU-RX DRIVE 1400	JC96-02733A	1	O	
1	BRACKET-GEAR 1400	JC61-00598A	1	X	
2	GEAR-FUSER DRV	JC66-00388A	1	X	
3	GEAR-RDCN Z132/19	JC66-00391A	1	X	
4	GEAR-PICK_UP DRV	JC66-00389A	2	X	
5	RING-E	6044-000231	2	X	
6	BRACKET-MOTOR 1400	JC61-00599A	1	X	
7	GEAR-RDCN Z7128	JC66-00390A	1	O	
8	GEAR-RDCN Z7322	JC66-00392A	1	O	
9	MOTOR STEP-7.5	JC31-00028A	1	O	

O: Service available X: Service not available

5-8 Fuser Ass'y Exploded view
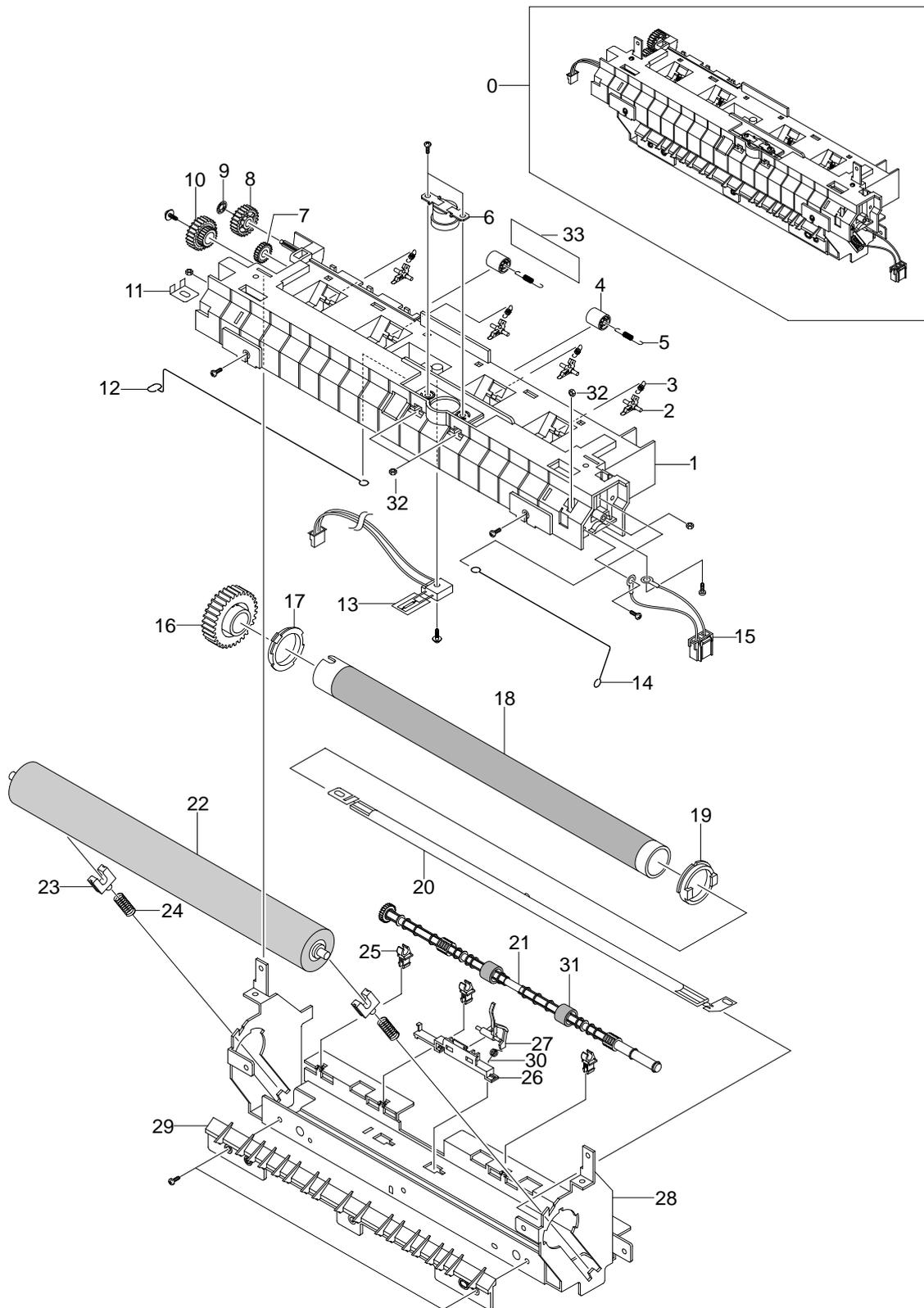
< Fuser Ass'y Parts List >

SA. : Service Available

NO	DESCRIPTION	SEC CODE	Q'TY	SA	REMARK
0	ELA HOU-FUSER 110V	JC96-	1		
1	COVER-FUSER J	C63-00105A	1		
2	HOLDER-PLATE CLAW	JC61-00584A	4		
3	SPRING ETC-CLAW	JC61-00064A	4		
4	PMO-ROLLER EXIT	JC72-60059A	2		
5	SPRING-EXIT F_UP	JC61-70976A	2		
6	THERMOSTAT-150	JC47-00005A	1		
7	PMO-GEAR_EXIT_DRV16	JC72-00143A	1		
8	GEAR-IDLE 23	JC66-00396A	1		
9	RING-CS	6044-000001	1		
10	GEAR-RDCN 2515	JC66-00397A	1		
11	IPR-ELECTRODE_LAMP	JC70-00275A	1		
12	ELECTRODE-WIRE_L	JC70-00450A	1		
13	THERMISTER-NTC HF	1404-001298	1		
14	ELECTRODE-WIRE_R	JC70-00449A	1		
15	CBF HARNESS-FUSER(1)	JC39-00239A	1		
16	GEAR-FUSER_HTN	JC66-00564A	1		
17	BUSH-HR_L	JC61-00589A	1		
18	NPR-ROLLER_HEAT	JC66-00601A	1		
19	BUSH-HR_R	JC61-00590A	1		
20	LAMP-HALOGEN(110V)	4713-001155	1	110V	
21	ROLLER-EXIT F_UP	JC66-00380A	1		
22	MEC-ROLLER_PR(1400)	JC66-00600A	1		
23	BEARING-PRESSURE	JC66-10901A	2		
24	SPRING-PR(1400)	6107-001168	2		
25	PMO-BUSHING TX	JC72-00382A	3		
26	HOLDER-ACTUATOR	JC61-00581A	1		
27	PMO-ACTUATOR_EXIT	JC72-00987A	1		
28	IPR-FRAME_FUSER	JC70-00317A	1		
29	GUIDE-INPUT	JC61-00595A	1		
31	RMO-RUBBER_EXIT	JC73-00017A	2		
33	LABEL(P)-CAUTION, HOT_FUSER	JC68-30928D	1		
30	SPRING ETC-ACT_EXIT	6107-001165	1		
32	NUT-HEXAGON	6021-000222	5		
??	NEW-CLAW ASSY	TBD			
??	PLATE-CLAW	JC61-00605A 4			

O: Service available X: Service not available

5-9 Cassette Ass'y Exploded view

< Cassette Ass'yu Parts List >

SA. : Service Available

NO	DESCRIPTION	SEC CODE	Q'TY	SA	REMARK
0	CASSETTE	JC96-01750A	1		
1	FRAME-CASSETTE	JC61-00578A	1		
2	PMO-EXTENSION LARGE	JC72-00970A	1		
3	PMO-EXTENSION SMALL	JC72-00971A	1		
4	PLATE-KNOCK_UP	JC61-00603A	1		
5	SPRING-KNOCK_UP	6107-001166	2		
6	HOLDER-PAD	JC61-00580A	1		
7	SPRING-FRICTION PAD	JC61-70911A	1		
8	ROLLER-IDLE FEED	JC66-00529A	2		
9	SPRING-FEED	6107-001047	2		
10	PMO-PLATE_LOCKER	JC72-00972A	1		
11	SPRING-LOCKER	JG61-70531A	1		
12	ADJUST-CASSETTE_L	JC70-00300A	1		
13	ADJUST-CASSETTE_R	JC70-00301A	1		
14	GEAR-PINION	JG66-40003A	1		
15	INDICATOR-LEVER INDICATOR	JC64-00040A	1		
16	RPR-FRICTION PAD	JC73-00140A	1		
17	IPR-PLATE PAD	JC70-00314A	1		
18	RPR-PAD CASSETTE	JC73-00141A	3		

O: Service available X: Service not available

5-10 Screw

NO	DESCRIPTION	SEC CODE	SPEC	
S1	6001-000485	SCREW-MACHINE	PH,+,M2.6,L4,ZPC(YEL),SM20	
S2	6002-000101	SCREW-TAPPING	BH,+,2,M3,L10,ZPC(BLK),SM2	
S3	6002-000175	SCREW-TAPPING	PWH,+,2,M3,L8,ZPC(YEL),SM2	
S4	6002-000308	SCREW-TAPPING	PH,+,2,M2.6,L6,ZPC(YEL),SM	
S5	6002-001065	SCREW-TAPPING	PWH,+,2,M2.5,L5,ZPC(YEL),SM2	
S6	6003-000196	SCREW-TAPTITE	PWH,+,B,M3,L10,NI PLT,SWRC	
S7	6003-000269	SCREW-TAPTITE	BH,+,S,M3,L6,ZPC(YEL),SWRC	
S8	6009-001251	SCREW-SPECIAL	SM20C,P12,+,M3,L8,ZPC(YEL),MACHIN	
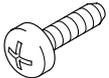
5-11 SMPS Parts Lists

DESCRIPTION	SEC. CODE	Q'TY	SPECIFICATION	LOCATION NO.
TR-SMALL SIGNAL	0501-000010	2	KSC1008,NPN,800mW,TO-92,TP,120-240	Q3,Q4
AS-FET	JB81-00229A	1	SCX-1100,FQU2N60,600V, 2A ,-,-,-,-,-	Q2
AS-DIODE_SCHOTTKY	JB81-00231A	1	SCX-1100,SR204,40V, 2A,-,-,-,-,-	D4
AS-DIODE_FR	JB81-00232A	1	SCX-1100,ER502,200V, 5A,-,-,-,-,-	D5
AS-DIODE_ZENER	JB81-00233A	1	SCX-1100,MTZ9.1B,500MW (8.57V~9.01V),-,-,-,-,-	ZD1
AS-DIODE_ZENER	JB81-00234A	1	SCX-1100,1N4753A,1W 36V,-,-,-,-,-	ZD4
AS-DIODE_BRIDGE	JB81-00235A	1	SCX-1100,2KBP06M,600V, 2A,-,-,-,-,-	BD1
AS-TRANSFORMER	JB81-00237A	1	SCX-1100,MAGIC-V3,EE2525W ; MAGIC-V3,-,-,-,-,-	T1
AS-FUSE	JB81-00239A	1	SCX-1100,50T,250V 2.0A,-,-,-,-,-	F1
AS-FET CHIP SILICON	JC81-00020A	1	ML-7000,IRF9540(N),TO-220,-100V,-17A,0.2OHM,-,-	FOR_Q1
REACTOR-INR 10D-561K	JC81-00407A	1	SF-5100,INR 10D-561K,VARISTOR,-,-,-,-,-	TNR1
AS-R WIRE WOUND	JC81-11404A	2	SF6000,RWN1W 0.42J,-,-,-,-,-	R17,R4
AS-Q1	JF81-10908A	1	ALPS-V2,SSP5N80A,800V,5A,-,-,-	Q1

6. Block Diagram

7. Connection Diagram

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