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Service Manual



WorkCentre[®] PE120/120i

Service Manual

Warning

The following servicing instructions are for use by qualified service personnel only. To avoid personal injury, do not perform any servicing other than that contained in the operating instructions, unless you are qualified to do so.

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MD/SH

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1 Precautions

In order to prevent accidents and to prevent damage to the system, please read the precautions listed below carefully before servicing the system.

1.1 Safety Warnings

1. Only to be serviced by appropriately qualified service engineers.
High voltages and lasers inside this product are dangerous. This system should only be serviced by a suitably trained and qualified service engineer.
2. Use only Xerox replacement parts.
There are no user serviceable parts inside the system. Do not make any unauthorized changes or additions to the system, these could cause the system to malfunction and create electric shock or fire hazards.
3. Laser Safety Statement: The system is certified in the U.S. to conform to the requirements of DHHS 21 CFR, chapter 1 Subchapter J for Class 1 laser products, and elsewhere, it is certified as a Class 1 laser product conforming to the requirements of IEC 825. Class 1 laser products are not considered to be hazardous. The laser system and system are designed so there is never access to laser radiation above a Class 1 level during normal operation, user maintenance, or prescribed service condition.

Warning

Never operate or service the system with the protective cover removed from Laser assembly. The reflected beam, although invisible, can damage your eyes. When using this product, these basic safety precautions should always be followed to reduce the risk of fire, electrical shock, and bodily injury.



CAUTION - INVISIBLE LASER RADIATION
WHEN THIS COVER OPEN.
DO NOT OPEN THIS COVER.

VORSICHT - UNSICHTBARE LASERSTRAHLUNG,
WENN ABDECKUNG GEÖFFNET.
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 LASERSTRÅLNING VED ÅBNING, NÅR
SIKKERHEDSBRYDERE ER UDE AF FUNKTION.
UNDGÅ UDSÆTTELSE FOR STRÅLNING.

ADVARSEL - USYNLIG LASERSTRÅLNING NÅR DEKSEL
ÅPNES. STIRR IKKE INN I STRÅLEN.
UNNGÅ EKSPONERING FOR STRÅLEN.

VARNING - OSYNLIG LASERSTRÅLNING NÅR DENNA DEL
ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD.
BETRAKTA EJ STRÅLEN. STRÅLEN ÄR FARLIG.

VARO! - AVATTAESSA JA SUOJALUKITUS OHITETTAESSA
OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASER-
SÄTEILYLLE ÄLÄ KATSO SÄTEESEEN.

注 意 - 严禁揭开此盖, 以免激光泄露灼伤

주 의 - 이 덮개를 열면 레이저광에 노출될 수 있으므로
주의하십시오.

1.2 Safety Cautions

1.2.1 Toxic Material

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

1. Please keep toner cartridges away from children. The toner powder contained in the toner cartridge can be harmful and if swallowed you should contact a doctor immediately.

1.2.2 Electric Shock and Fire Safety Precautions

Failure to use the following instructions can cause electric shock or potentially cause a fire:

1. Use only the correct voltage, failure to do so could damage the system and potentially cause a fire or electric shock.
2. Use only the power cable supplied with the system. Use of an incorrectly specified cable could cause the cable to overheat and potentially cause a fire hazard.
3. Do not overload the power socket, this can lead to overheating of the cables inside the wall and could lead to a fire hazard.
4. Do not allow water or other liquids to spill into the system, this can cause electric shock. Do not allow paper clips, pins, or other foreign objects to fall into the system as these could cause a short circuit leading to electric shock or fire hazard.
5. Never touch the plugs on either end of the power cable with wet hands, this can cause electric shock. When servicing the system, remove the power plug from the wall socket.
6. Use caution when inserting or removing the power connector. The power connector must be inserted completely otherwise poor contact could cause overheating possibly leading to a fire. When removing the power connector, grip it firmly and pull.
7. Do not allow the power cable to become twisted, bent sharply around corners or become damaged. Do not place objects on top of the power cable. If the power cable is damaged, it can overheat and cause a fire or exposed cables can cause electrical shock. Replace a damaged power cable immediately, do not reuse or repair the damaged cable. Some chemicals can eat through the coating on the power cable, weakening the cover, or exposing cables causing fire and shock risks.
8. Ensure that the power sockets and plugs are not cracked or broken in any way. Any defects should be repaired or replaced immediately. Take care not to cut or damage the power cable or plugs when moving the system.
9. Use caution during thunder or lightening storms. Xerox recommends that this system be disconnected from the power source when these weather conditions are present. Do not touch the system or the power cord if it is still connected to the wall socket in these weather conditions.
10. Avoid damp or dusty areas, install the system in a clean well ventilated location. Do not position the system near a humidifier. Damp and dust build up inside the system can lead to overheating and cause a fire.
11. Do not position the system in direct sunlight. This will cause the temperature inside the system to rise leading to the system failing to work properly and in extreme conditions could lead to a fire.
12. Do not insert any metal objects into the system through the ventilator fan or other parts of the casing, it could come into contact with a high voltage conductor inside the system and cause an electric shock.

1.2.3 Handling Precautions

The following instructions are for personal safety, to avoid injury, and to avoid damaging the system:

1. Ensure the system is installed on a level surface, capable of supporting its weight. Failure to do so could cause the system to tip or fall.
2. The system contains many rollers, gears, and fans. Take great care to ensure that you do not catch your fingers, hair, or clothing in any of these rotating devices.
3. Do not place any small metal objects, containers of water, chemicals, or other liquids close to the system which if spilled could get into the system and cause damage, electric shock, or a fire hazard.
4. Do not install the system in areas with high dust or moisture levels, beside an open window, or close to a humidifier or heater.
5. Do not place candles or burning cigarettes on the system. These can cause a fire.

1.2.4 Assembly and Disassembly Precautions

Always use Xerox parts. Take care to note the exact location of parts and cable routing before disassembling any part of the system. Ensure all parts and cables are replaced correctly.

Please use the following procedures before disassembling or replacing any parts:

1. Check the contents of the system memory and make a note of any user settings. These will be erased if the mainboard or network card is replaced.
2. Ensure that power is disconnected from the wall socket before servicing or replacing any electrical parts.
3. Disconnect system interface cables and power cables before servicing or replacing any parts.
4. Only use approved spare parts. Ensure that part number, product name, any voltage, current, or temperature rating are correct.
5. When removing or re-fitting any parts do not use excessive force, especially when fitting screws into plastic.
6. Take care not to drop any small parts into the system.

Handling of the OPC Drum

The OPC Drum can be irreparably damaged if the following instructions are not used:

- Exposure to light. Take care not to expose the OPC Drum either to direct sunlight or to fluorescent or incandescent room lighting. Exposure for as little as 5 minutes can damage the surface photoconductive properties and will result in print quality degradation. Take extra care when servicing the system. Remove the OPC Drum and store it in a black bag or other lightproof container.
- Take care when working with the covers open, as light is admitted to the OPC area and can damage the OPC Drum.
- Take care not to scratch the green surface of OPC Drum Unit.
- If the green surface of the Drum Cartridge is scratched or touched, the print quality will be compromised.

1.2.5 Bodily Injury Warnings

- 1.** Use caution around internal components.
The fuser unit works at a high temperature. Use caution when working on the system. Wait for the fuser to cool down before disassembly.
- 2.** Use caution when working around rotating parts or moving gears.
When operating the system, do not put your hands into any moving parts (Paper feeding entrance, motor, fan, etc.). Remove jewelry and loose clothing before servicing the system.
- 3.** This system weighs 15.6 kg. Use safe lifting and handling techniques. Use the lifting handles located on each side of the system. Back injury could result if you do not lift the system properly.
- 4.** Ensure the system is installed properly.
- 5.** Ensure the system is installed on a flat, level surface, capable of supporting its weight. Failure to do so could cause the system to tip or fall possibly causing personal injury or damaging the system.
- 6.** Do not install the system on a sloping or unstable surface. After installation, double check that the system is stable.

1.3 ESD Precautions

Some semiconductor components, and the respective sub-assemblies that contain them, are vulnerable to damage by Electro-Static Discharge (ESD). These components include Integrated Circuits (ICs), Large-Scale Integrated circuits (LSIs), field-effect transistors, and other semiconductor chip components. The following techniques will reduce the occurrence of component damage caused by static electricity.

Be sure the power is off to the chassis or circuit board, and observe all other safety precautions.

- Immediately before handling any semiconductor components assemblies, drain the electrostatic charge from your body. This can be accomplished by touching an earth ground source or by wearing a wrist strap device connected to an earth ground source. Wearing a wrist strap will also prevent accumulation of additional bodily static charges. Be sure to remove the wrist strap before applying power to the unit under test to avoid potential shock.
- After removing a static sensitive assembly from its anti-static bag, place it on a grounded conductive surface. If the anti-static bag is conductive, you may ground the bag and use it as a conductive surface.
- Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage some devices.
- Do not remove a replacement component or electrical sub-assembly from its protective package until you are ready to install it.
- Immediately before removing the protective material from the leads of a replacement device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
- Minimize body motions when handling unpackaged replacement devices. Motion, such as your clothes brushing together, or lifting a foot from a carpeted floor, can generate enough static electricity to damage an electro-statically sensitive device
- Handle IC's and EPROM's carefully to avoid bending pins.
- Pay attention to the direction of parts when mounting or inserting them on Printed Circuit Boards (PCB's).

Precautions

2 Reference Information

This section contains a tools list, list of abbreviations used in this manual, and a clearance required specification when installing the WorkCentre PE120/120i.

2.1 Tools for Troubleshooting the system

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

- Digital Voltage Meter (DVM)
- Screwdrivers
- Tweezers
- Cotton swabs
- Cleaning equipment: dry, lint-free cloth and/or mild detergent
- Type II Toner Vacuum
- Soft bristle brush

2.2 Common Acronyms and Abbreviations

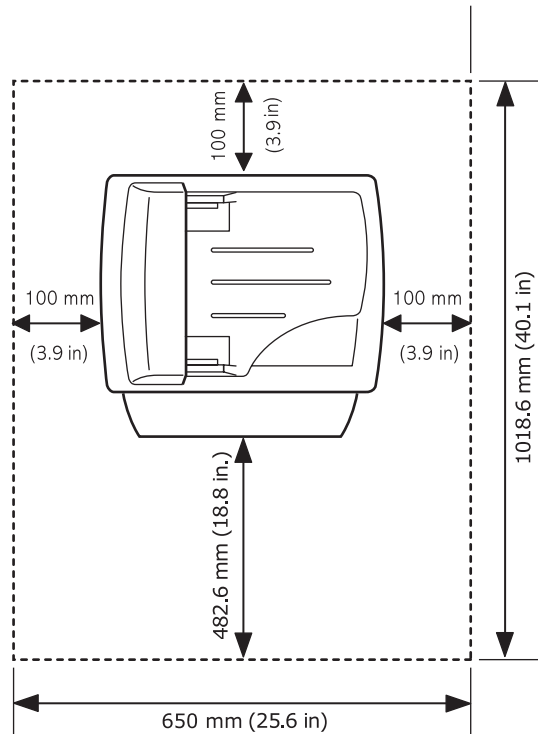
The following table covers the acronyms and abbreviations that may be used in this manual.

	Definition		Definition
AC	Alternating Current	EP	Electro Photographic
ADC	Analog-to-Digital Converter	EPP	Enhanced Parallel Port
AP	Access Point	F/W	Firmware
ASIC	Application Specific Integrated Circuit	FCF/FCT	Tray 1 or First Cassette Feeder
Ass'y	Assembly	FIFO	First In First Out or Front In Front Out
BIOS	Basic Input Output System	FISO	Front In Side Out
BLDC	Motor Brushless Dc Motor	FPOT	First Print Out Time
CMOS	Complementary Metal Oxide Semiconductor	GDI	Graphic Device Interface
		GIF	Graphic Interchange Format
		GND	Ground
CN or CON	Connector	HBP	Host Based Printing
CPU	Central Processing Unit	HDD	Hard Disk Drive
CRUM	Customer Replaceable Unit Memory	HTML	Hyper Text Markup Language
dB	Decibel	HV	High Voltage
dBa	A Weighted Decibel	HVPS	High Voltage Power Supply
dBm	Decibel Milliwatt	I/F	Interface
DC	Direct Current	I/O	Input/Output
DCU	Diagnostic Control Unit	IC	Integrated Circuit
DIMM	Dual In-line Memory Module	ICC	International Color Consortium
DPI	Dots Per Inch	IDE	Intelligent/integrated Drive Electronics
DRAM	Dynamic Random Access Memory	IEEE	Institute of Electrical and Electronics Engineers, Inc.
DVM	Digital Voltmeter	IIT	Image Input Terminal (Scanner)
ECM	Error Correction Mode	IOT	Image Output Terminal (Print Engine)
ECP	Enhanced Capability Port	IPA	Isopropyl Alcohol
ECU	Engine Control Unit	IPC	Inter Process Communication
EEPROM	Electrically Erasable Programmable Read Only Memory	IPM	Images Per Minute
EMI	Electro Magnetic Interference	ITB	Image Transfer Belt (Transfer Belt)

	Definition		Definition
LAN	Local Area Network	PPM	Pages Per Minute
lb.	Pound(s)	PS	PostScript
LBP	Laser Beam system	PTL	Pre-Transfer (Erase) Lamp
LCD	Liquid Crystal Display	PWM	Pulse Width Moduration
LED	Light Emitting Diode	Q'ty	Quantity
LSU	Laser Scanner Unit	RAM	Random Access Memory
LVPS	Low Voltage Power Supply		
MB	Megabyte	RET	Resolution Enhancement Technology
MDMC	Multiple Document Multiple Copies	ROM	Read Only Memory
MHz	Megahertz	SDMC	Single Document Multiple Copies
MPBF	Mean Prints Between Failure	SCF/SCT	Tray 2 Or Second Cassette Feeder
MPF/MPT	Multi-Purpose Tray	SMPS	Switching Mode Power Supply
MPU	Main Processing Unit	SPGPM	Samsung system Graphic Processor
NIC	Network Interface Card	SPL	Samsung Printing Language
NPC	Network system Card	Spool	Simultaneous Peripheral Operation Online
NVRAM	Non-volatile Random Access Memory	SURF	Surface Rapid Fusing
OPC	Organic Photo Conductor	SW	Switch
OPE	Operator Control Panel	Sync	Synchronous
PABX/PSTN	Public Telephone Network	T1	ITB or Transfer Belt Imaging
PBA	Print Board Assembly	T2	Transfer Roller Imaging
PCI	Peripheral Component Interconnect	TAD	Telephone Answering Device
PCL	system Command Language	TRC	Toner Reproductive Curve
PDF	Portable Document Format	URL	Uniform Resource Locator
PDL	Page Description Language	USB	Universal Serial Bus
Ping	Packet Internet or Inter-network Grouper	WHQL	Windows Hardware Quality Lab
PnP	Plug-n-Play		
PPD	PostScript Printer Description		

2.3 Selecting a Location for the system

- Leave enough room to open the ADF, system trays, covers, and allow for proper ventilation
- Provide the proper environment
- A sturdy, level surface
- Away from the direct airflow of air conditioners, heaters, or ventilators
- Free from extreme fluctuations in temperature, sunlight, or humidity
- Clean, dry, and free from excessive dust



3 Specifications

The specifications in this manual are correct at the time of printing. Product specifications are subject to change without notice.

3.1 General Specifications

Item	Specification
Major Functions	Fax, Copy, Print, Scan, ADF, Direct Print, Scan-to-USB Memory, Scan to PC
Width	450 mm (17.7 in.)
Depth	423 mm (16.7 in.)
Height	456 mm (18 in.)
Weight w/ Toner Cartridge	15.6 kg
User Interface	Control Panel (OPE) with LCD display
I/O Interface	Parallel, USB 2.0
MPU	SPGPm / 166 Mhz
Warm-up time	from cold: < 42 seconds from standby:
Operating System	Windows: 98 / ME / NT 4.0 / 2000 / XP MAC: Supports printing only, english only, user must download drivers from the world wide web.
WHQL	Windows 2000 and XP only
Driver	Printer: GDI, PCL6, PCL5e (std), PostScript Level 3 (PE120i only)
Network Printing - PE120i only	Protocol: SPX/IPX, TCP/IP, Ethertalk, SNMP, HTTP 1.1, DLC/LLC
Memory*	*Upgrading to more than the standard 32 MB of memory will only improve print functions. The memory allocation for other system components is as follows: <ul style="list-style-type: none"> ■ 12 MB PostScript ■ 4 MB Fax ■ 2 MB System ■ 2 MB Scan
Standard	32 MB standard
Optional	16, 32, 64, and 128 SDRAM DIMM, 100 pin

3.2 Electrical Specifications

Item	Specification	
Input Voltage	110 ~ 127 VAC	220 ~ 240 VAC
Input Range	90 ~ 135 VAC	180 ~ 270 VAC
Input Frequency:	50/60 Hz	50/60 Hz
Frequency tolerance	±3 Hz	±3 Hz
Power Consumption	Ready: 70 Watts Average: 370 Watts Maximum: 700 Watts Sleep Mode: 30 Watts	
Power Saver Mode	User settings available	ON/OFF
Noise	Printing	54 dBA
	Copy	55 dBA
	Standby	33 dBA

3.3 Environmental Specifications

Item	Operating	Storage	Optimum
Temperature	10 ~ 32° C (50 ~ 90° F)	0 ~ 40 ° C (32 ~ 104° F)	20 - 25° C
Humidity	10 - 80% RH	20 - 95% RH	30 - 70% RH
Altitude	2,500 meters (8,200 feet) maximum		

3.4 Routine Maintenance Items and Consumables

Items	Life	Item	Life
System Life	150,000 pages	Standard Toner Cartridge	3,500
Pick Roller	150,000 pages	High Capacity Toner	5,000
Friction Pad (Tray)	150,000 pages	No Toner level sensing. Toner pixel counter	
Friction Pad (ADF)	20,000 pages		
Transfer Roller	60,000 pages	Maximum Monthly Volume Print: 15,000 pages Scan : 1,000 pages ADF : 1,000 pages	
Fuser	80,000 pages		

3.5 Media Specifications

For more information on sizes, weights and approved media support for this system see the user manual..

Item	Specification	
Input Capacity	Tray 1 Optional Tray 2	250 sheets
	MP/Bypass Tray	50 sheets
	ADF	50 sheets
Output Capacity	Face Down	150 sheets 20 lb. bond
	Face Up	1 sheet
Media Sizes	Tray 1 Optional Tray 2	A4, Letter, Legal, Folio, Executive, B5
	MP/Bypass Tray	Envelope 6 3/4, 7 3/4, #9, #10, DL, C5, B5
	Minimum	76 x 127 mm (3 x 5 in.)
	Maximum	216 x 356 mm (8.5 x 14 in.)
ADF Size	Width: 142 x 216 mm (5.6 x 8.5 in.)	Length: 148 x 356 mm (5.8 x 14 in.)
Media Weight	Tray 1 Optional Tray 2	16 ~ 24 lb (60 ~ 90 g/m ²)
	MP/Bypass Tray	16 ~ 43 lb (60 ~ 163 g/m ²)
	ADF	12.5 ~ 28 lb
Paper Path	Standard output	Bottom to middle front (FIFO)
	Straight through (Bypass)	Face up, single sheet
Print Skew	Top	Tray 1: 1.5/177.8 mm Tray 2: 2.0/177.8 mm
	Side	Tray 1: 2/243.5 mm Tray 2: 2.5/243.5 mm
Copy Skew	Top	Tray 1: 2.5/190 mm Tray 2: 3.0/190 mm
	Side	Tray 1: 3.5/277 mm Tray 2: 4.0/277 mm

3.6 Print Engine Specifications

Item	Specification	
Print Speed	Up to 22 ppm/Ltr, 20 ppm/A4 (600 dpi)	
Print emulation	GDI, PCL6, PCL5e (std), PostScript Level 3 (PE120i only)	
Auto Emulation Sensing	Yes	
Font	Type	
	Number	45 Scalable, 1 bitmap
Power Save	Yes	ON/OFF
Resolution	Normal	600 x 600 dpi
	RET	Yes (1200 x 1200 dpi)
Toner Save	Yes	Dedicated control panel button
Dedicated Print Memory	16 MB	Upgradeable
FPOT	From Standby/Ready	approx. 10 seconds from laser "ON"
	From Cold status	less than 50 seconds
Printable Area	Letter	208 x 273 mm
Halftone (Gray scale)	128 levels	

3.7 Scan Specifications

Item	Specification	
Scan Method	Color, single CCD	
Scan Speed ADF	USB 1.1, 300 dpi, Letter, 128 MB RAM, all speeds are approximate	
	Line art	75 seconds
	Grayscale	75 seconds
	Color	150 seconds
Scan Speed on Platen	Lineart	75 seconds
	Grayscale	75 seconds
	Color (75 / 300 dpi)	150 seconds
Resolution	Optical	600 x 1200 dpi
	Enhanced	4800 x 4800 dpi
Halftone	256 level	
Scan Size	Max media width	216 mm (8.5 in.)
	Effective scan width	208 mm (8.2 in.)
Scan-to	Image, OCR, FAX, Direct Scan-to-USB memory, Application	
Scan depth	Color	24 bit
	Mono	1 bit for lineart, 8 bit for grayscale

3.8 Copy Specifications

Item	Specification	
Copy quality selection or image type selection modes	Text	600 x 300 dpi
	Text/Photo	600 x 300 dpi
	Photo	600 x 600 dpi
FCOT	Standby/Ready	approx. 10 seconds from platen approx. 15 seconds from ADF
	Cold status	50 seconds
Copy Speed	SDMC all modes	22 cpm/Ltr, 20 cpm/A4
	MDMC text mode (600 x 300 dpi)	14 cpm
	MDMC photo mode (600 x 600 dpi)	8 cpm
Origin Alignment	Platen	Rear left
	ADF	Center
Resolution	Scan	600 x 300 dpi, 600 x 600 dpi
	Print	600 x 600 dpi
Zoom range	Platen	25% to 400%
	ADF	25% to 100%
Multi-copy	1 - 99 sheets	
Preset	Yes	
Collation Copy	Yes	600 x 300 dpi
Darkness Control	3 levels	
Auto return to default mode	Yes	15, 30, 60, 180 seconds, or OFF
Changeable default modes	Contrast, Image, Reduce/Enlarge, Number of copies	
Special Copy	N-up	Yes, ADF only
	Collation Copy	Yes, ADF only
	AutoFit Copy	Yes, Platen only
	2-sided Copy	Yes, Platen only
	Clone	Yes, Platen only
	Poster	Yes, Platen only

3.8.1 Telephone Specification

Item	Specification	
Handset	No	
On-hook dial	Yes	
Search	Yes (phonebook)	
1-touch Dial	40 each: 20 dedicated buttons plus shift	
Speed Dial	200 locations (00 - 99), including 1-touch dials	
TAD I/F	Yes	
Tone/pulse	Selectable in technical mode	
Pause	Yes	
Auto Redial	Yes	
Last Number Redial	Yes	
Distinctive Ring*	Yes	*If available by local telephone service provider
Caller ID	No	
External Phone Interface	Yes	
Report and List Print Out	Tx/Rx Journal	Yes
	Confirmation	Yes
	Help List	No
	Auto Dial List	Yes
Sound Control	Ring Volume	Low, Medium, High, OFF
	Key Sound	ON or OFF
	Alarm Sound	ON or OFF
	Speaker	ON or OFF

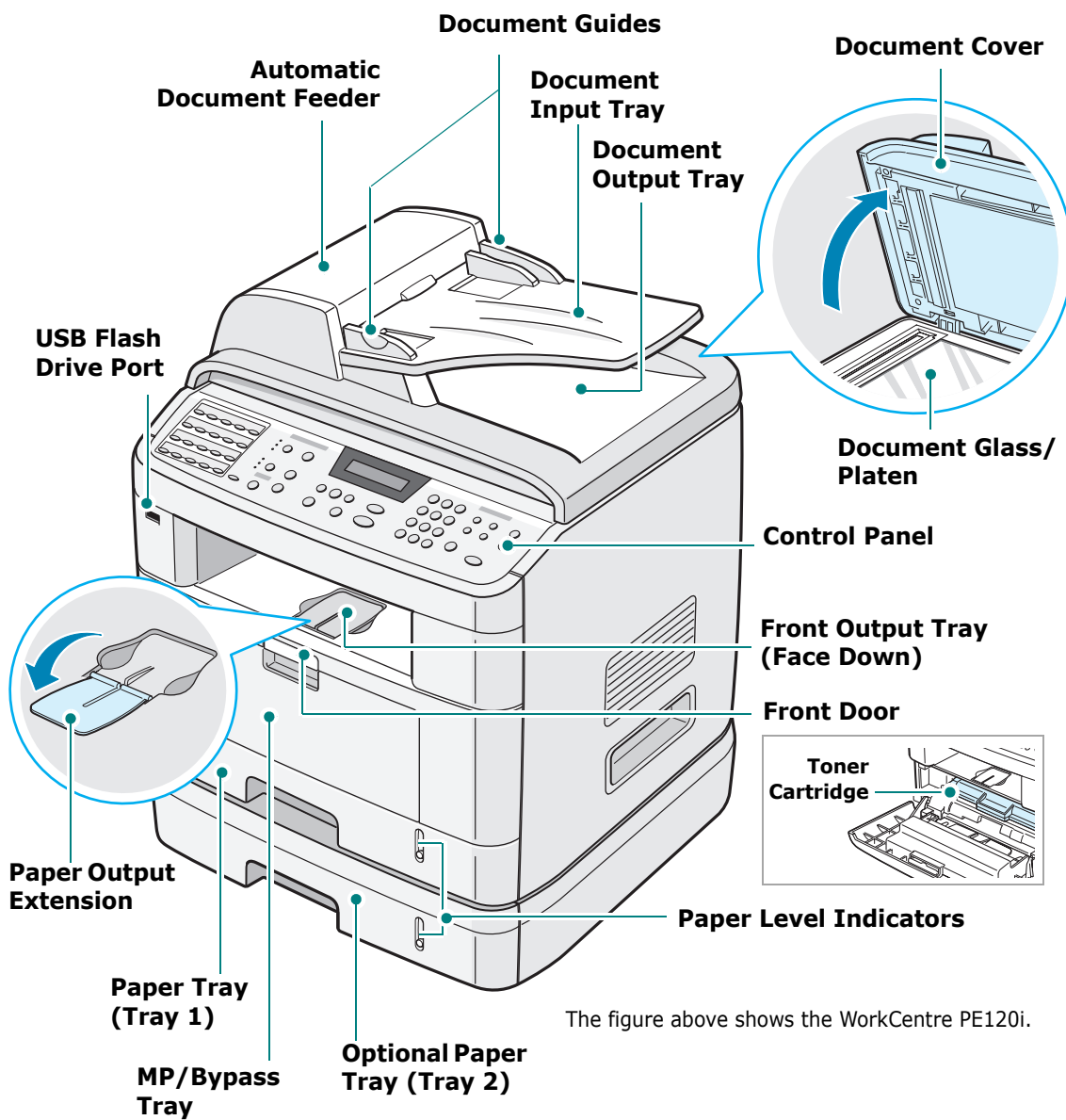
3.9 Fax Specification

Item	Specification	
Compatibility	ITU-T G3	
Communication System	PSTN/PABX	
Modem Speed	33.6 Kbps	
TX Speed	3 seconds	
Compression	MH/MR/MMR/JBIG/JPEG	
Color Fax	Yes; Send only	
ECM	Yes	
Resolution	Standard	203 x 96 dpi
	Fine	203 x 196 dpi
	Super Fine	300 x 300 dpi
Scan Speed	Standard	2.5 sec/Ltr
	ADF Fine/S. Fine	5 sec/Ltr
Rx Fax Duplex Print Out	No	
Multiple Page Scan Speed	Standard	14 ppm/ Ltr
Receive Mode	Fax, TEL, Answer/Fax, DRPD	
Memory	Capacity	4 MB
	Optional Memory Upgrade	No
	Max locations to store 1 group dial	199 locations
	Fax Forward	Yes (ON/OFF)
	Broadcasting	up to 209 locations
	Cover Page	Yes
	Delayed Fax	Yes
	Memory RX	Yes
Functions	Voice Request	No
	TTI and RTI	Yes
	Polling	No
	Recall	No
	Auto Reduction	Yes
Junk Fax Barrier	Yes	
Secure Receive	Yes	
Memory Back-up	Yes	43 hours maximum

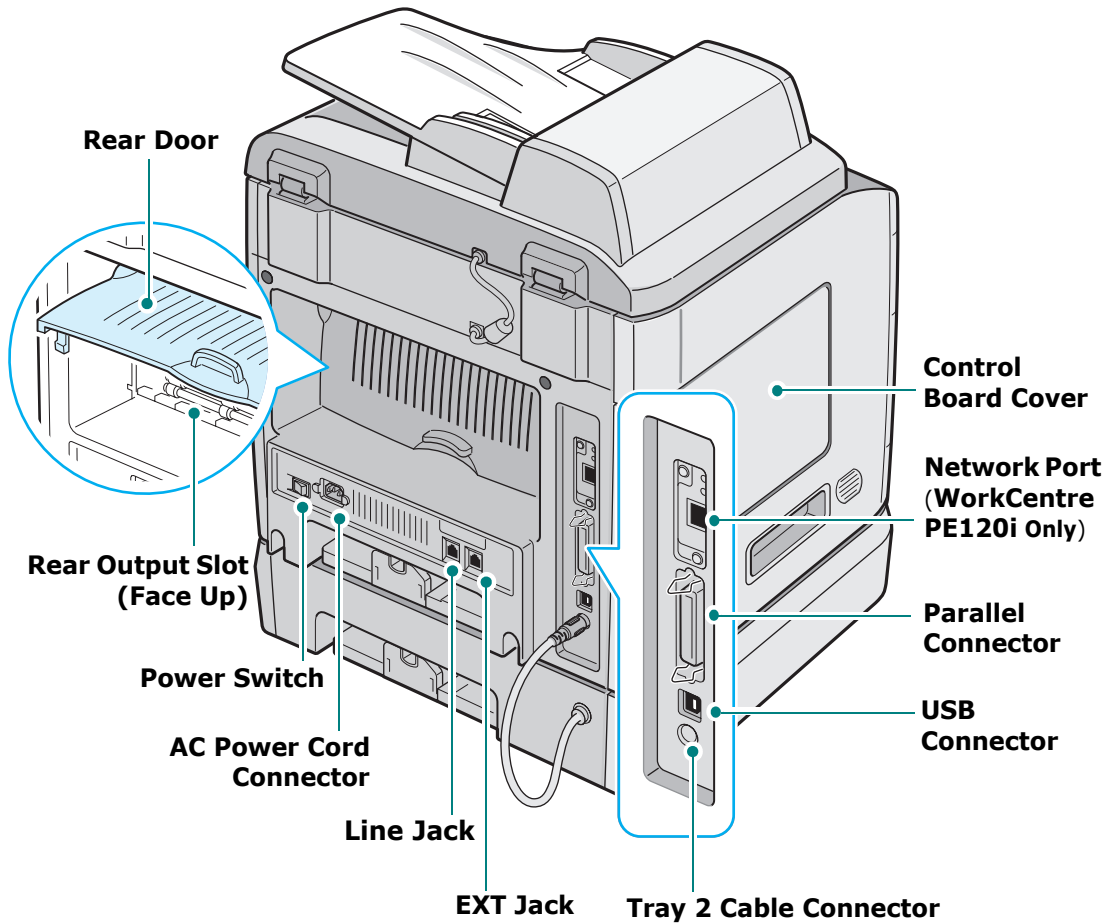
4 Product Summary

This section describes the functions and operating principals of the systems main components.

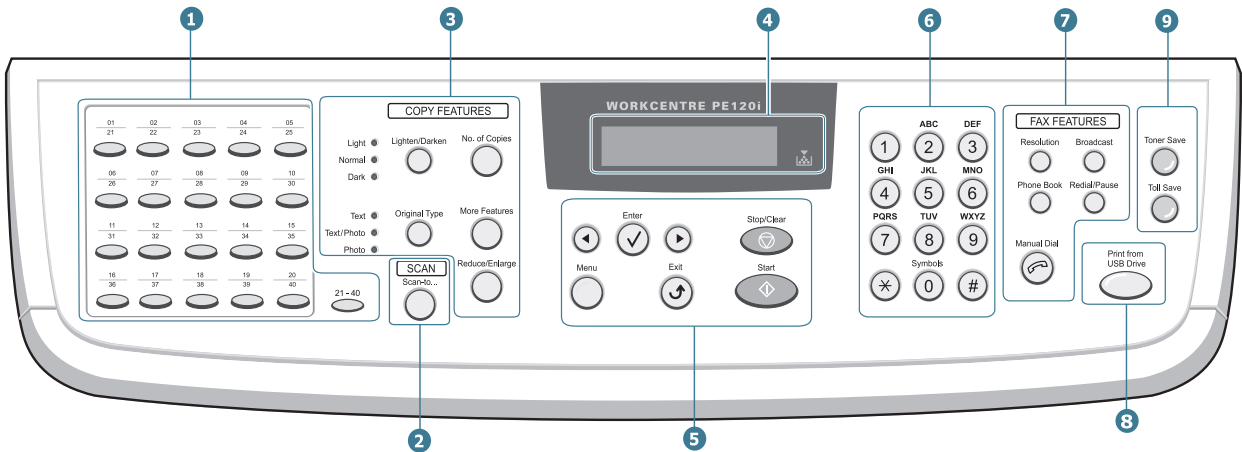
4.1 Printer Components - Front View



4.1.2 Rear View


















The figure above shows the WorkCentre PE120i.



4.1.3 Control Panel

1		Allows you to store frequently-dialed fax numbers and dial them with the touch of a few buttons.
		Allows you to shift the one-touch buttons to the numbers 21 through 40.
2 Scan		Allows you to access a list of your PC software programs that an image can be scanned to. You must create the scan list using the Xerox software (ControlCentre) provided with this machine. Also allows you to scan and save documents in a USB flash drive, and manage it when it is inserted into the USB port of your machine. See Chapter 10, Installing a USB Flash Drive.
3 Copy		Adjusts the density of the documents for the current copy job.
		Selects the document type for the current copy job.
		Selects the number of copies.
		Allows you to use special copy features, such as Clone, Collation, Auto Fit, 2 Sides on 1 page, 2-/4-Up (multiple pages on a sheet), and Poster Copying.
		Makes a copy smaller or larger than the original.
4		Displays the current status and prompts during an operation.
		Turns on when the toner cartridge is empty.

4.1.3 Control Panel (Continued)

5		Uses to scroll through the available options for the selected menu item.
		Confirms the selection on the display.
		Enters Menu mode and scrolls through the menus available.
		Sends you back to the upper menu level.
		Stops an operation at any time. In Standby mode, clears/cancels the copy options, such as the darkness, the document type setting, the copy size, and the number of copies.
		Starts a job.
6		Dials a number or enters alphanumeric characters.
7 Fax		Adjusts the resolution of the documents for the current fax job.
		Allows you to send a fax to multiple destinations.
		Allows you to store frequently-dialed fax numbers as one or two-digit speed dial or group dial numbers for automatic dialing and edit the stored numbers. Also allows you to print a Phonebook list.
		In Standby mode, redials the last number or in Edit mode, inserts a pause into a fax number.
		Engages the telephone line.
8		Allows you to directly print files stored on a USB flash drive when it is inserted into the USB port in the front of your machine.
9 Save		Allows you to save on toner by using less toner to print a document.
		Allows you to save on call costs by sending a fax at a preset toll-saving time. Using this feature, you can take advantage of lower long distance rates at night, for example.

- Effective pixel: 5,400 pixel *3
- Voltage: 24 V and 5 V
- Pre-heating time: Maximum 30 seconds (70% of light output reached)
- The life span of a lamp: 30,000 hours (25°C)

Image Processor Specification

- Operating frequency: 66MHz
- Image sensor interface: 200/300/600 dpi CIS or CCD
- Line time: Copy, FAX, Binary (Lineart, Halftone) PC Scan: 1.5ms/Line Color PC Scan (Grey, 256 Color, True Color): 4.5ms/Line
- A/D conversion: 10 bit conversion

Note

For more information about scan settings, review the Scanning sections of the WorkCentre PE120 User Guide and the Multifunction Basics Prerequisite Training.

3) The Print Engine

1. Engine Frame

2. Paper Feed

The paper feed system consists of a 250-sheet main paper tray, a bypass tray (MP), pickup rollers, friction pads, and feed rollers. The rollers and sensors in the paper feed path control paper registration and guide the paper through the image transfer, image development, image fusing and exit assemblies. The paper path has an anti-static connection to ground to eliminate problems due to static charge on the paper.

3. Main drive mechanism

The main drive is a bi-polar, two phase motor. It drives the drum, paper pick, and paper feed rollers using a gear train mechanism.

4. Image development unit

Using a Laser Scanner Unit (LSU), this portion of the mechanism creates the image on the OPC drum (part of the integrated toner cartridge).

5. Image transfer unit

This unit uses the high voltages supplied by the HVPS to move the image from the OPC drum onto the paper.

6. Image fusing unit

This unit permanently fixes the toner image onto the paper. This is achieved using a temperature controlled heating unit (the fuser).

7. Electronic boards include:

- a. The Main control board, consisting of:
 - Main processor asic (166 MHz SPGPm)
 - Memory (Flash ROM containing the control program and DRAM for working memory)
 - Engine interface parts (motor control, fuser control, HVPS control, and sensors)
 - PC Interface (USB , Parallel, Network)
 - Bus, DMA and I/O handling
- b. PC Interface

4.3.1 Paper Feed

The paper feed system consists of an automatic document feeder, a 250-sheet main paper tray, bypass tray (MP), pickup rollers, friction pads and feed rollers. The rollers and sensors in the paper feed path control paper registration and guide the paper through the image transfer, image development, image fusing and exit assemblies. The paper path has an anti-static connection to ground to eliminate problems due to static charge on the paper.

1. Paper Separation Method

Individual sheets are separated into each tray using the 'friction pad' method. When paper feeds into the system it passes over a spring loaded friction pad that separates the sheets of paper.

2. Paper Tray (cassette)

The paper trays use a 'center loading' method. There are no paper size sensors, instead a software process is used to detect the size of the first sheet of paper as it is fed through the printer. Both the rear and side paper guides are adjustable for various paper sizes.

There is a 'Paper Empty' sensor which detects the presence of paper (Capacity: 250 sheets).

There is an indicator flag on the front of the tray which indicates the amount of paper remaining.

3. Pick-Up Roller

The pick-up roller is used to pick and feed paper into the printer. It also is used to remove any static charge on the paper.

4. Bypass Tray (MP)

The multi-purpose tray is used to hold non-standard or custom paper sizes and special media (envelopes, transparencies, etc.). There is a bypass tray paper empty sensor. The Bypass Tray uses a friction pad method to ensure paper separation and can hold a maximum of 50 sheets of paper or envelopes.

5. Lower Tray Assembly (Tray 2)

The optional tray unit is universal with the main tray and also has a capacity of 250 sheets.

4.2.4 Transfer Assembly

The transfer roller transfers toner from the OPC drum to the paper. Toner is transferred from the OPC drum onto the paper using a PTL (Pre-Transfer Lamp) and a transfer roller. The PTL shines light onto the OPC, reducing the electrical charge on the OPC surface improving the efficiency of the transfer.

4.2.5 Drive Assembly

The drive assembly receives power from the main controller board. The main motor powers the paper feed, toner cartridge, fuser unit and all pick-up, feed, and exit rollers.

4.2.6 Fuser Assembly

The fuser assembly uses a heat lamp process. This consists of a heat lamp, heat roller, pressure roller, thermistor, and thermostat. By use of heat and pressure, toner is melted to adhere to the paper surface in order to complete the printing process.

4.2.6.1 Thermistor and Thermostat

The thermistor is used to detect the temperature of the heating unit and feeds this information into the main processor.

If the heat lamp becomes too hot, the thermostat cuts off the power to the lamp in order to prevent overheating and any potential fire hazard is removed.

4.2.6.2 Heat Roller

The heat roller transfers the heat from the heat lamp to the paper. The surface of the heat roller is coated with Teflon so that toner does not stick to the surface.

4.2.6.3 Pressure Roller

A pressure roller, mounted under the heat roller, is made of a silicon resin and the surface is also coated with Teflon. When paper passes between the heat roller and the pressure roller the toner powder is melted and permanently fixed to the surface of the paper.

4.2.6.4 Safety Features

To prevent overheating:

- 1st protection device: Hardware cuts off when overheated.
- 2nd protection device: Software cuts off when overheated.
- 3rd protection device: Thermostat cuts off main power to the lamp.

Safety device

- Fuser power is cut off when the front cover is opened.
- Laser power is cut off when the front cover is opened.
- The temperature of the fuser cover's surface is maintained at less than 80° C to protect the user. A caution label is attached where the customer can see it easily when the rear cover is opened.

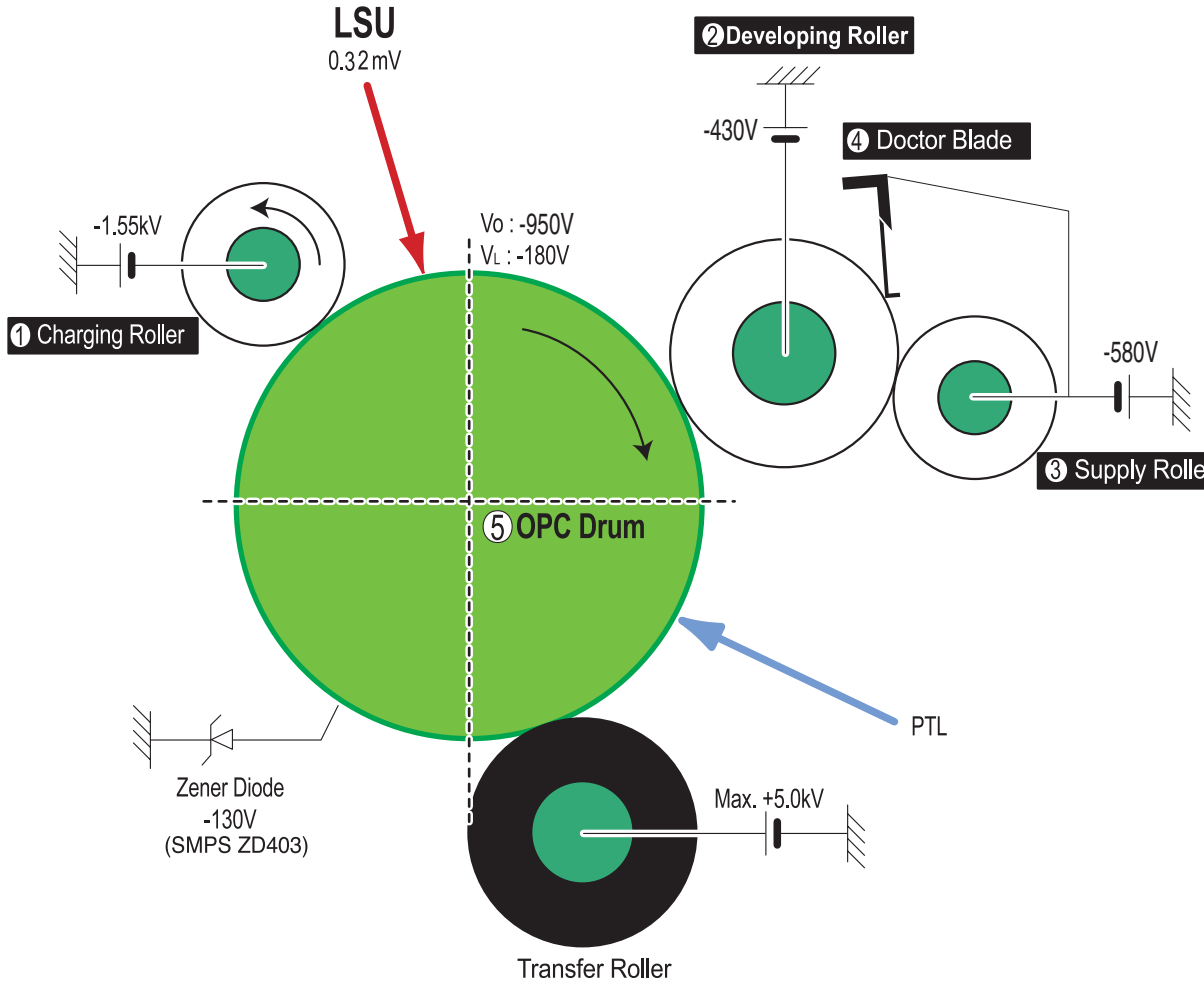
4.2.7 Laser Scanner Unit (LSU)

This is the core of the laser printer. It converts the video data received from the computer into an electrostatic latent image on the surface of the OPC drum. This is achieved by controlling the laser beam and exposing the surface of the OPC drum to the laser light. A rotating polygon mirror reflects the laser light onto the OPC. Each face of the mirror produces one scan line. As the OPC drum turns, the laser scans, to create the full page image.

The HSYNC signal is created when the laser beam from the laser unit reaches the end of the polygon mirror and this signal is sent to the controller. The controller detects the HSYNC signal to adjust the vertical line of the image on paper. In other words after the HSYNC signal is detected the image data is sent to the laser unit to adjust the left margin on the paper.

4.2.8 Toner Cartridge

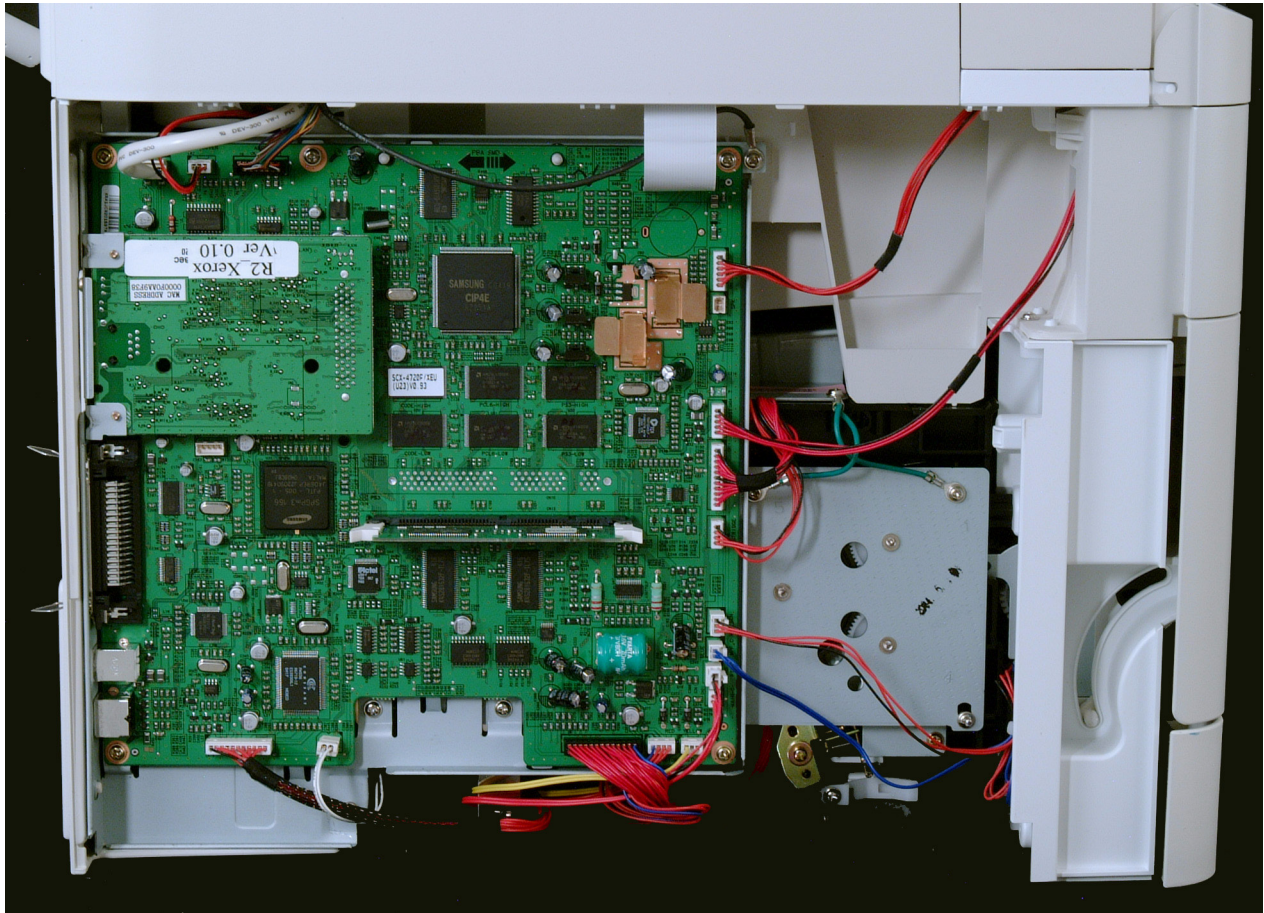
The toner cartridge is an integral unit containing the OPC unit and toner unit. The OPC unit consists of the OPC drum and charge roller. The toner cartridge unit consists of the toner, supply roller, developing roller, and blade (doctor blade).



Developing Method	Non magnetic 1 element contacting method
Toner	Non magnetic 1 element shatter type toner
Toner Life	3,500 sheets / 5,000 sheets (ISO19752 standard)
Toner remaining sensor	No
OPC Cleaning	Film OPC using an electro-static cleaning process
Management of waste toner	Collected using an electro-static process and retained within the toner cartridge. No waste toner to dispose of.
OPC Drum protecting shutter	No
Toner CRUM Reader	Identifies whether toner is Xerox branded toner or whether a Non-Xerox toner cartridge is installed in the printer

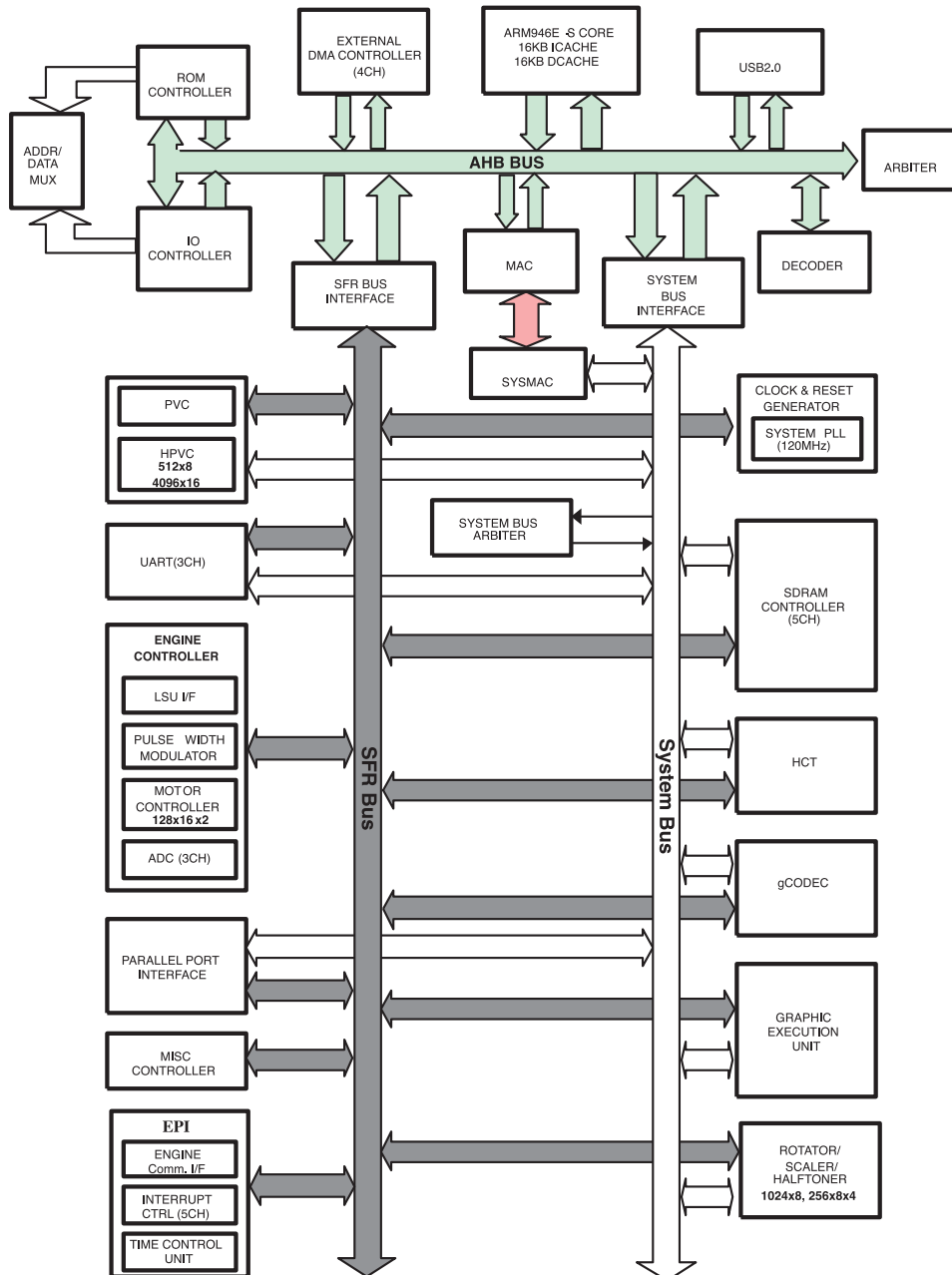
4.3 Main Controller Board (PBA)

The engine board and controller board have been integrated into a single board consisting of the CPU and printer control functions. The CPU functions as the bus controller, I/O handler, motor driver and PC interface. The main board sends the current image video data to the laser unit and manages the electrophotographic printing process. Circuits on the main board drive the main motor (paper feed, cartridge, fuser), clutch, pre-transfer lamp, heat-lamp and fan. The signals from the paper feed jam sensor and paper empty sensor are inputted to the main board from the power supply board. Network Card shown in illustration, not available on the PE 120.



4.3.1 ASIC

- Completely integrated system for embedded applications
- 32 bit RISC architecture, efficient and powerful ARM9 core
- LSU interface module for interfacing PVC or HPVC with LSU
- 2 channel general purpose DMA controller for high speed I/O
- Dual memory bus architecture
- Operation frequency: AHB Bus: 60 Mhz, Internal system bus: 120 Mhz
- Operation voltage: 3.3 V
- Power on reset time: below 5.6 ms



4.3.2 Memory

The board has Flash ROM and DRAM memory units. There is 1 SODIMM socket to enable extra DRAM.

4.3.3 Flash Memory

Record system program and download system program by PC interface.

Fax for Journal list, and memory for One Touch Dial, Speed Dial List.

- Capacity: 4 MB
- Access Time: 70 nsec

4.3.4 SDRAM

SDRAM is used as swath buffer during printing, scan buffer during scanning, ECM buffer in fax receiving, and system working memory area

- Capacity: 32 MB
- Max frequency: 133 Mhz
- Store fax receive memory data by using a battery

4.3.5 Battery Backup

Backup power is provided by a 3.6 V rechargeable lithium battery. It provides power to the SDRAM to retain any faxes in memory when the main power is lost. Typically, backup power will last up to 43 hours. The battery requires 48 hours to charge.

4.3.6 Sensor Input Circuit

4.3.6.1 Paper Empty Sensing

The Paper Empty sensor (Photo Interrupter) on the SMPS/HVPS PBA (CON2-2) is monitored by the CPU on signal. When the cassette is empty, the system displays a message on the LCD.

4.3.6.2 MP/Bypass Tray Sensing

Presence of paper in the bypass tray is detected by the MP sensor (photo interrupter) on the SMPS/HVPS PBA (CON2-14). The CPU monitors this sensor to recognize paper in tray, and paper feed if there is paper present.

4.3.6.3 Paper Feed Sensor

When paper passes the actuator on the feed sensor (CON2-1), it is detected by the photo interrupter. The CPU monitors the signal and starts the process of creating the image after a specified delay time. If the feed sensor is not detected within one second after paper is fed, a paper jam0 occurs and is reported on the LCD. When a toner cartridge is inserted it also operates the paper feed sensor. A message is displayed on the LCD if no cartridge is detected.

4.3.6.4 Toner Remaining Sensing

The printer does not have a toner remaining sensor.

4.3.5.5 Paper Exit Sensing

This detects paper exiting from the system using an exit sensor on the engine board (CON2-24) and actuator on the frame. The CPU detects the on/off time of the exit sensor during normal operation or a jam2 is reported on the LCD.

4.3.6.6 Cover Open Sensing

The cover open actuator is located on the front cover and the sensor is on the main frame. When the front cover is open the +24 V and +5 V supplies to the DC fan, solenoid, main motor, polygon motor in the laser unit, HVPS and laser diode are cut off. The CPU monitors the cover open signal and reports an open state on the LCD.

4.3.6.7 DC Fan/Solenoid Driving Circuit

A fan is driven by a transistor and controlled by a signal from the CPU (FAN (SMPS CON2-23)). When the signal is high, the fan is activated by turning on the transistor, and is off when the system is in sleep mode. There are two solenoids driven by the paper pick and MP signals. The drive time is 300ms. The diode protects the driving transistor from the back EMP pulse which is generated when the solenoid is de-energized.

4.3.6.8 Motor Driving Circuit

The main motor drives the paper feed, developing unit, fuser, and exit assembly. The circuit is driven by software which controls the acceleration, constant speed, and deceleration profiles. The Motor is driven using an A3977 driver IC.

4.3.6.9 Transfer

The charging voltage, developing voltage, and the transfer voltage are controlled by pulse width modulation (PWM). Each output voltage is changeable according to the PWM duty cycle. The transfer voltage used when the paper passes the transfer roller is decided by environment recognition. The resistance value of the transfer roller changes due to the environment of the room or within the printer. This change in resistance in turn changes the value of the voltage due to loading. This voltage is fed back into the printer through the A/D converter. Based on the value fed back the PWM cycle is changed to maintain the required transfer voltage.

4.3.6.10 Fusing

The temperature of the heat roller's surface is detected according to the resistance value of the thermistor. The thermistor resistance is measured using the A/D converter and thus the CPU can determine the temperature of the heat roller. The AC power is controlled by comparing the target temperature to the value from the thermistor. If the value from the thermistor is out of the controlled range while controlling the fusing process, an error is reported.

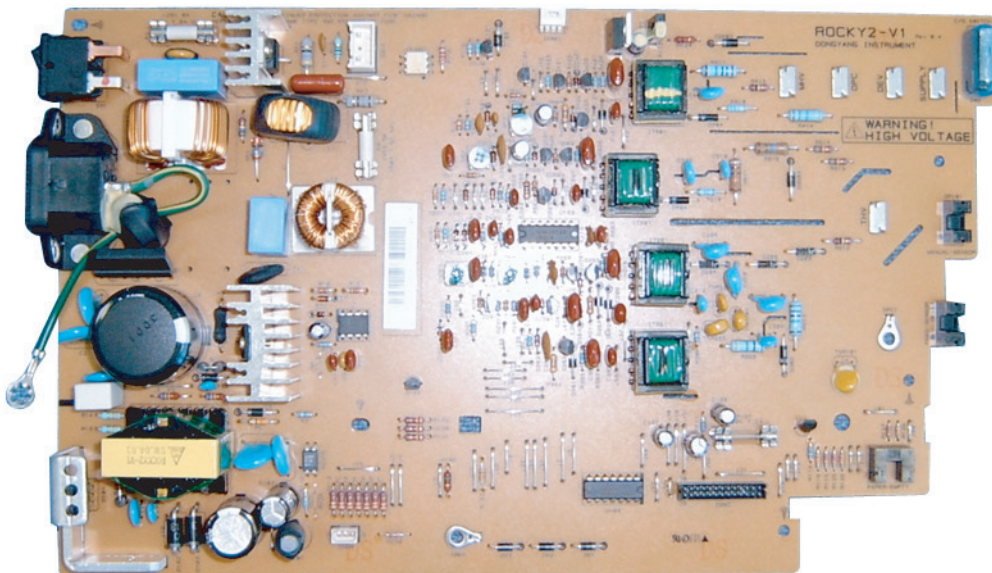
4.4 Switching Mode Power Supply (SMPS) and High Voltage Power Supply (HVPS)

The SMPS and HVPS are on one integrated board.

The SMPS supplies the DC power to the printer. It takes either 110 V or 220 V and outputs the +5 V and +24 V supplies to the main board.

The HVPS creates the high voltage for the THV/MHV/Supply/Dev and supplies it to the toner cartridge. The CPU is used to modify some of these voltage settings to provide the ideal voltages to create the image.

The HVPS uses the 24 V and outputs the high voltage for THV/MHV/BIAS and the outputted high voltage is then supplied to the toner, OPC cartridge, and transfer roller.



4.4.1 High Voltage Power Supply

1) Transfer High Voltage (THV+)

High voltage is used to transfer toner from the OPC Drum to the paper.

- Output Voltage: +1300 V DC \pm 50 V
- Error Indicators: If the high voltage is not present, low density printing occurs due to toner on the OPC Drum not being transferred to the paper. It is possible that waste toner over-flow can occur if this condition persists. Ghost images may appear which repeat at 76 mm intervals.

2) Charge Voltage (MHV)

The charge voltage charges the surface of the OPC Drum to -900V ~ -1000V.

- Output voltage: -1550 V DC \pm 50 V
- Error Indicators: If MHV is not present the OPC drum surface has no charge and toner is attracted to the entire OPC surface. A black page is printed out when this happens.

3) Cleaning Voltage (THV-)

The cleaning voltage removes toner contamination from the rear side of the paper by sending (-) polarity to the transfer roller, forcing toner to transfer back to the OPC drum.

- Output Voltage: -1200V, +300V/-150V
- Error Indicators: Smudges and toner contamination on the reverse side of the printed page.

4) Developing Voltage (DEV)

The developing voltage develops toner on the section of the OPC drum surface exposed by the LSU. When printing, the exposed voltage on the OPC is -180V, unexposed is -900~-1000V, and the exposing voltage on the DEV is -430V. Therefore toner with (-) polarity is developed onto an exposed section of the OPC.

- Output Voltage: -430V DC \pm 20V
- Error Indicators:
 - a. If DEV is GND, print density gets extremely low.
 - b. When DEV is floating due to a poor connection between the frame and cartridge contacts, print density is too high.

5) Supply

The supply voltage supplies toner to the developing roller.

- Output voltage: -580V DC \pm 50V (Use ZENER, DEV Gear)
- Error Indicators:
 - a. When SUP is GND print density gets extremely low.
 - b. If SUP is floating due to a poor connection between the frame and cartridge contacts, density is extremely low printing blank or very light prints.

6) OPC Ground ZENER Voltage

The OPC ground voltage prevents image contamination under low temperature and low humidity environmental conditions. When the system prints without an output voltage, -130V DC \pm 15V is maintained on the OPC ground. (-103V, ZENER diode is connected to the OPC ground).

- Error Indicators:
 - a. When the ZENER diode is at -0 V image problems in the proper environment generally do not occur, but in low temperatures and low humidity environments, it is possible that contamination can occur on the entire printed image
 - b. When the ZENER diode is disconnected, a blank page is printed out. (It is the same when a ZENER diode is disconnected from OPC ground.)

4.4.2 Switching Mode Power Supply

The SMPS is the power source for the entire printer system. The SMPS supplies DC power for driving the printer, and the AC heater control which supplies power to fuser. The SMPS has two output channels: 3.3 V and +24 V.

1) AC Input

Input Rated Voltage: AC 220 V ~ 240 V, AC 120 V ~ AC 220 V (EXP version)

Input Voltage Range: AC 198 V ~ 264 V, AC 90 V ~ 135 V, AC 198 V ~ 264 V (EXP version)

Rated Frequency: 50/60 Hz

Frequency Range: 47 ~ 63 Hz

Input Current: Under 4.0A RMS/2.0A RMS (When the fuser lamp is off and input / output voltages are in range)

2) Rated Output Power

No	Item	CH2	CH3	Remark
1.	Channel name	+5 V	+24.0 V	
2.	CONNECTOR PIN	CON 23 5 V PIN: 3, 4 GND PIN: 5, 6, 7	CON 3 24 V PIN: 11, 12, 13 GND: 9, 10, 18	
3.	Rated output	+5 V \pm 5% (4.75 ~ 5.25 V)	+24 V \pm 10% (21.6 ~ 26.4 V)	
4.	Max output current	0.14A	2.0 A	
5.	Peak loading current	0.14A	2.5 A	1ms
6.	Ripple noise voltage	100mVp-p	Under 500mVp-p	
7.	Maximum output	0.35 W	48 W	
8.	Peak output	0.7 W	60 W	1ms
9.	Protection for loading shortage and overflowing current		-	

3) Power Consumption

No	Item	CH2 +5 V	CH3 +24.0 V	Remark
1.	Standby	0.07 A	0.4 A	AVG: 55 Wh
2.	Printing	0.14 A	2.0 A	AVG: 280 Wh
3.	Sleep Mode	0.01 A	0.4 A	AVG: 20 Wh

4) EMI Requirement:

CISPR, FCC, CE, MIC, C-Tick

5) Safety Requirement:

IEC950, C-UL, TUV, Semko, iK, CB, CCC, EPA

4.4.3 Fuser AC Power Control

The Fuser (HEAT LAMP) is heated using AC power. The AC power is controlled by a triac (THY1), a semiconductor switch. 'On/Off control' is achieved when the gate of the Triac is turned ON/OFF by a photo triac (PC1), this is an insulting part. The AC control is a passive circuit. It turns the heat lamp ON/OFF by taking a signal from the engine control section. When the 'HEATER ON' signal is activated by the engine, the LED of PC1 (Photo Triac) flashes. The flashing light causes the Triac (PC1) to switch and voltage is supplied to the gate of Triac THY1. As a result, AC current flows to the heat lamp, and heat is produced.

When the signal is OFF, PC1 is OFF, and the voltage is cut off at the gate of triac THY1, this triac is off, and in turn the heat lamp is turned off.

1) Triac (THY1) feature:

- 12A, 600V SWITCHING

2) Phototriac Coupler (PC3)

- Turn On If Current : 15mA ~ 50mA(Design: 16mA)
- High Repetive Peak Off State Voltage : Min 600V

4.5 Engine F/W

4.5.1 Feeding

While feeding from the universal trays, the drive for the pickup roller is controlled by the pick-up solenoid. The printer feeds the paper from the bypass tray according to the information provided by the MP sensor, and by driving the main motor, inserts the paper in front of the feed sensor.

Jam	Description
Jam 0	<p>This is an indication that the leading edge of the paper did not pass the feed sensor.</p> <ul style="list-style-type: none"> ■ After paper pick, paper does not enter the printer due to a misfeed. ■ After paper pick, the paper enters the printer but it does not reach the feed sensor in the specified amount of time. ■ If paper has been picked, and the feed sensor is not ON, the printer will re-pick. If after re-picking the feed sensor is still not reported as ON, this error will occur. ■ Even though the paper reaches the feed sensor, the feed sensor is not ON.
Jam 1	<p>This is an indication that the leading edge of the paper has already passed the feed sensor.</p> <ul style="list-style-type: none"> ■ After the leading edge of the paper passes the feed sensor, the trailing edge of the paper does not pass the feed sensor within the specified time. (The feed sensor cannot be OFF during this time.) ■ After the leading edge of the paper passes the feed sensor, the paper does not reach the exit sensor within the specified time. (The exit sensor cannot be ON during this time.)
Jam 2	<p>The paper is between the feed sensor and the exit sensor.</p> <ul style="list-style-type: none"> ■ After the trailing edge of the paper passes the feed sensor, the trailing edge of the paper does not pass the exit sensor within the specified time.

4.5.2 Drive

The main motor drives the paper feed, developing unit, and the fuser. It is driven by software which controls the acceleration, constant speed and deceleration profiles. The motor is managed with an A3977 driver IC and controlled by step and enable signals from the CPU.

4.5.3 Transfer

The charging voltage, developing voltage and the transfer voltage are controlled by PWM (Pulse Width Modulation). Each output voltage is changeable according to the PWM duty cycle. The transfer voltage used when the paper passes the transfer roller is decided by environment recognition. The resistance value of the transfer roller changes due to the surrounding environment in the room or within the set, this change in resistance in turn changes the value of the voltage due to loading. This voltage is fed back into the set through the A/D converter. Based on this fed back value the PWM cycle is changed to maintain the required transfer voltage.

4.5.4 Fusing

The temperature of the heat roller's surface is detected according to the resistance value of the thermistor. The thermistor resistance is measured using the A/D converter and thus the CPU can determine the temperature of the heat roller. The AC power is controlled by comparing the target temperature to the value from the thermistor. If the value from the thermistor is out of the controlling range while controlling the fusing process, the error stated in the table occurs.

Error Description

Open Heat Error:

When warming up: it has been lower than 68 °C over 25 sec

Lower Heat Error:

Standby: It has been lower than 100°C over 25 sec

Printing: 2 consecutive pages: it has been lower than 145°C over 5 sec, 3 consecutive page: it has been 40°C lower than the fixed fusing temperature over 4 seconds.

Over Heat Error:

It has been higher than 220°C over 3 seconds.

4.5.5 LSU

The LSU consists of the LD (Laser Diode) and the polygon motor control. When the printing signal occurs, the LD is turned on and the polygon motor is enabled. When the light sensor detects the beam, Hsync occurs. When the polygon motor speed becomes a normal, LReady occurs. If these two conditions are satisfied, the status bit of the LSU controller register becomes 1 and the LSU is judged to be ready. If the two conditions are not satisfied, the error shown in the table below occurs.

Error Description

Polygon Motor Error:

The polygon motor's speed isn't normal.

Hsync Error:

The polygon motor's speed is normal, but the Hsync signal is not created.

4.6 OPE (Control Panel) PBA

The control panel board consists of various function keys and an LCD to display system status, operator messages, menu items, and errors. Communication between the OPE and the CPU on the main board is serial.

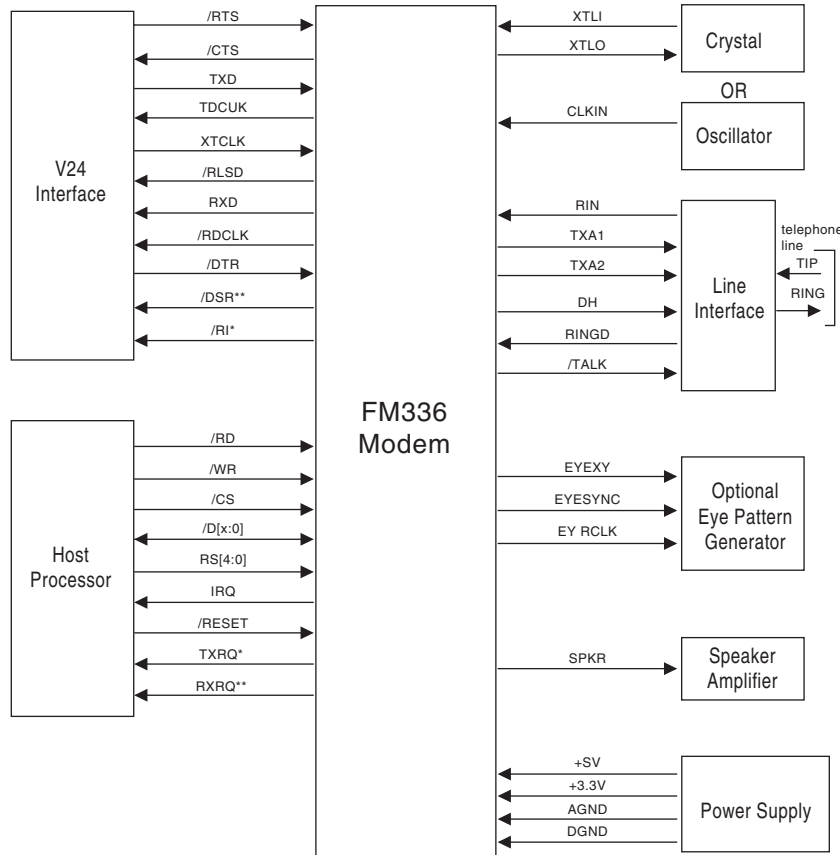
4.7 USB Host

The USB host board provides power to the USB connector to enable USB memory drive, used in conjunction with the USB direct printing and Scan to USB functions.

4.8 Fax Section

4.8.1 Modem

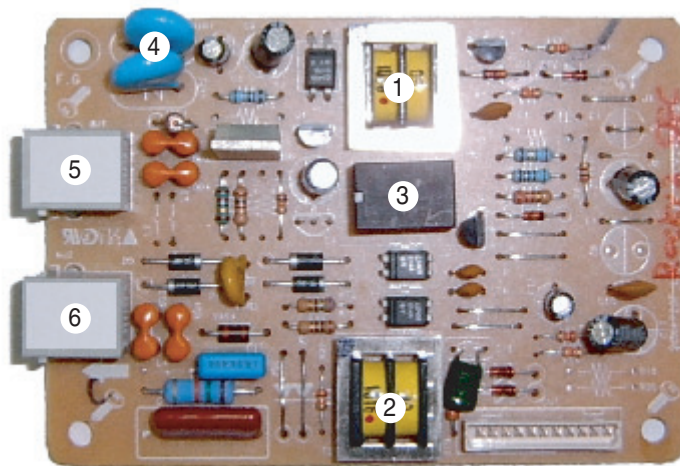
- Group3 Facsimile Modem (Entire FM336/314 Family)
- External Handset Support (not implemented on SCX4720F)
- Requires Discrete Line Interface Unit (LIU)
- V.34 Half-Duplex Mode
- V.90 PCM/V.34 Duplex Data Modes



4.8.2 LIU PBA

The LIU board is the Line Interface Unit. It consists of a Tel_line Interface circuit and Telephone circuit. The Tel_Line circuit consists of a matching transfer to conform to the impedance of the receiving telephone line and a circuit to isolate the fax machine from the PSTN, and a surge absorber to protect against lightning strike surges on the incoming line.

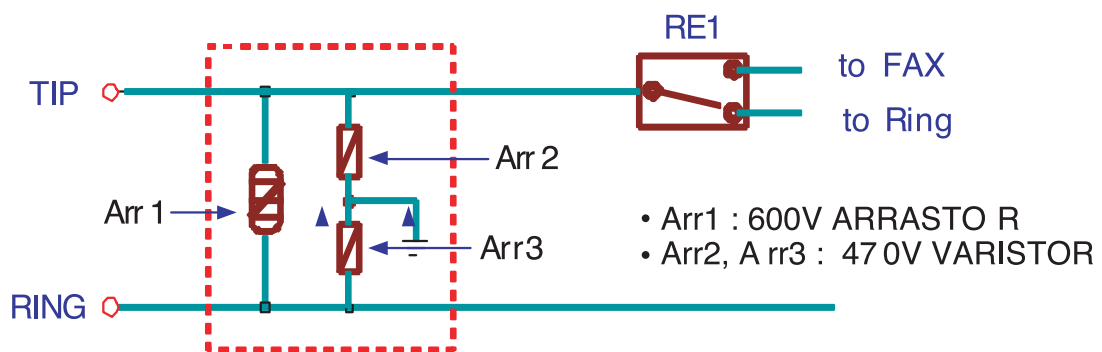
The Telephone circuit consists of a ring detection circuit, speech circuit, external hook detection circuit, and recall circuit.



1. TRANS MATCHING T1
2. TRANS MATCHING T2
3. RELAY RE1
4. VARISTOR VAR1/VAR2
5. JACK MODULAR(TEL) MJ1
6. JACK MODULAR(EXT) MJ2

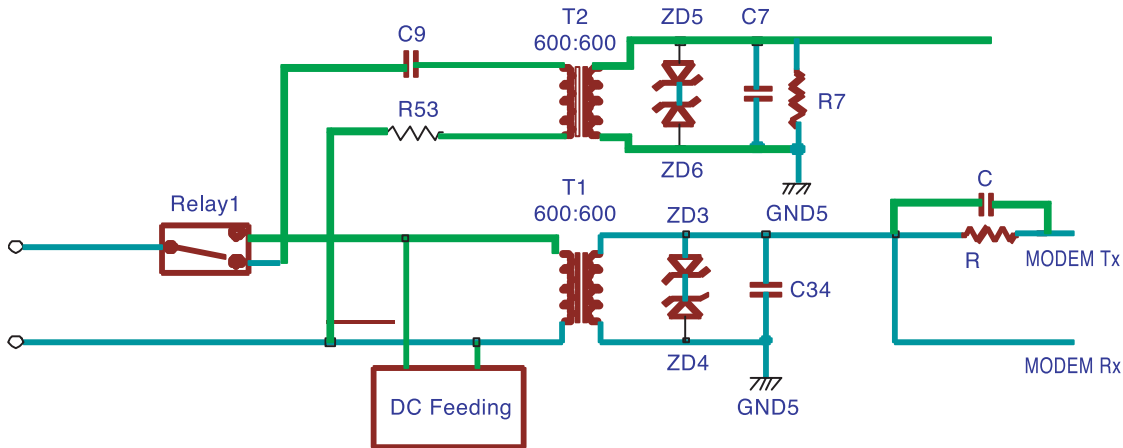
4.8.3 Tel-Line Connection Circuit

- The Tel-Line Connection Circuit connects the fax machine to the PSTN using Tip and Ring terminals.
- Use Modular Plug : RJ-11C
- Arr1, Arr2 and Arr3 are protection components to prevent damage due to overvoltage surges, e.g. lightning.



4.8.4 Transformer Circuit

- The Transformer circuit is a line impedance matching circuit which matches the internal impedance of the fax machine to the external -48Volt DC impedance of the PSTN system.
- The Transformer circuit insulates the fax machine electrically from the PSTN.



4.8.5 On Hook State

- DC10V ~ DC100V, DC Resistance: 5M. and over
- DC150V ~ DC200V, DC Resistanc : 30K. and over

Ring Sensitivity

- Ring detection voltage: 40Vrms ~ 150Vrms
- Ring detection frequency: 15.3Hz ~ 68Hz
- Ring detection current: 20mA ~ 100mA

Pseudo Ring Sound

- Ring frequency: 750Hz + 1020Hz
- Ring Interrupt period: Mark/Space controlled by CPU/Modem

4.8.6 Off Hook State

DC Resistance

- DP Dial Mode (DC 30mA) : 50 ~ 220 .
- DTMF Dial Mode (DC 20mA) : 50 ~ 300 .
- DTMF Dialing (DC 20mA) : 50 ~ 540 .
- Matching (Input AC Impedance): 600 \pm 30% for 300Hz ~ 3.4KHz
- Minimum Line Current detecting Off Hook:
 - 20mA (Handset Hook Off)
 - 15mA (External Handset Hook Off)
- Minimum Line Current for DP Dial transmission: 20mA ~ 120mA, Product Margin : 20mA and over

4.8.7 Signal

- Input Signal Level Range : - 0dBm ~ - 48dBm
- DP (Dial Pulse) Dial
 - Make / Brake Ratio : 40 : 60
 - Pulse Speed : 10 ± 0.8 pps, Minimum Pause : above 60 msec
- DTMF Signal
 - Coding Format

L	H	1209 Hz	1446 Hz	1477 Hz
697 Hz		1	2	3
770 Hz		4	5	6
852 Hz		7	8	9
941 Hz		*	0	#

- Transmission Level

L	H	Level	Typical
	High	-6 ± 2 dBm	-6.7 dBm
	Low	-8 ± 2 dBm	-6.7 dBm
	Twist	± 2 dBm	2.0 dBm

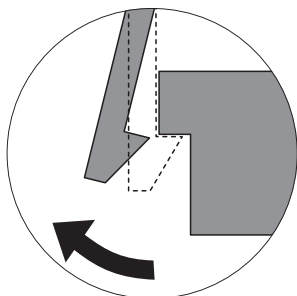
5 Disassembly

5.1 Precautions for Disassembly/Reassembly

- Use only approved Xerox spare parts. Ensure that the part number, product name, any voltage, current or temperature ratings are correct. Failure to do so could result in damage to the printer, circuit overload, fire or electric shock.
- Do not make any unauthorized changes or additions to the printer, this could cause the printer to malfunction and create electrical shock or fire hazards.
- When disassembling the printer, note where each screw goes. Using the wrong screw could lead to printer failure, short circuits, or electrical shock.
- Do not disassemble the laser unit. Once it is disassembled dust is admitted to the mirror chamber and will seriously degrade print quality. There are no serviceable parts inside.
- Regularly check the condition of the power cord, plug and socket. Bad contacts could lead to overheating and fire. Damaged cables could lead to electric shock or component malfunctions.

Caution

Many of the parts are held in place with plastic latches. The latches break easily; Remove them carefully. To remove such parts, gently pull the hook end of the latch away from the part where it is latched.



Caution

To prevent damaging the toner cartridge and degrading print quality, protect the toner cartridge from light when removing it from the printer.

5.1.1 Precautions When Removing Circuit Boards

Static electricity can damage a board, follow the ESD precautions in Section 1 of this manual when handling or storing a board.

Precautions when moving and storing boards:

- Place boards in an approved anti-static discharge bag.
- Do not store a board where it is exposed to direct sunlight.

Precautions when replacing boards:

- Disconnect power connectors first, before disconnecting other cables.
- Do not touch any soldered connections, connector terminals, or other electronic parts when handling insulated parts.

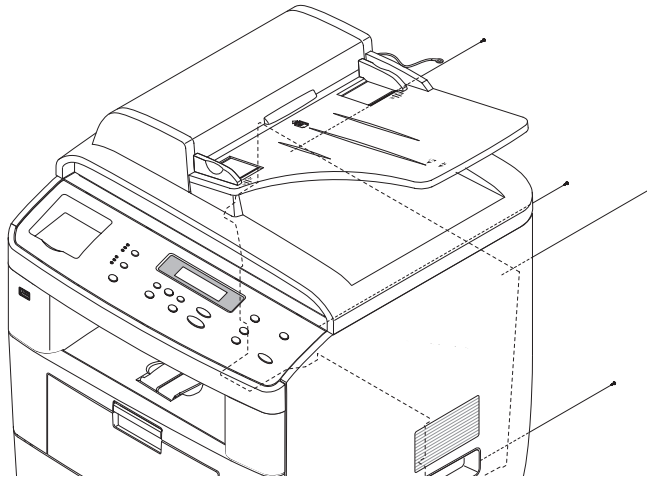
Precautions when checking boards:

- Before touching a board, touch a grounded area on the printer chassis to discharge any static electrical charge on the body or wear an anti-static wrist strap.
- Do not touch the board with your bare hands or metal objects, this can create a short circuit or cause an electrical shock. Take extra care when handling boards containing sensors, motors or lamps as they may get hot.
- Take care when fitting, or removing, screws. Check for hidden screws. Always ensure that the correct screw is used. When toothed washers are removed, ensure they are refitted in their original positions

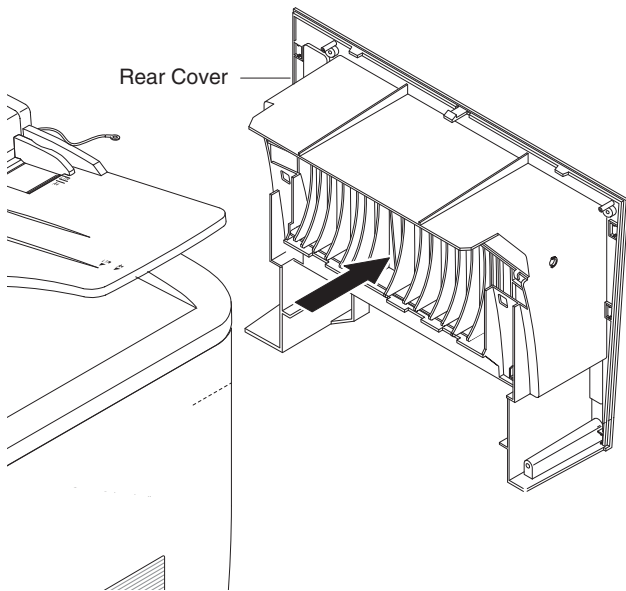
5.2 Rear Cover

(PL 8.1.23)

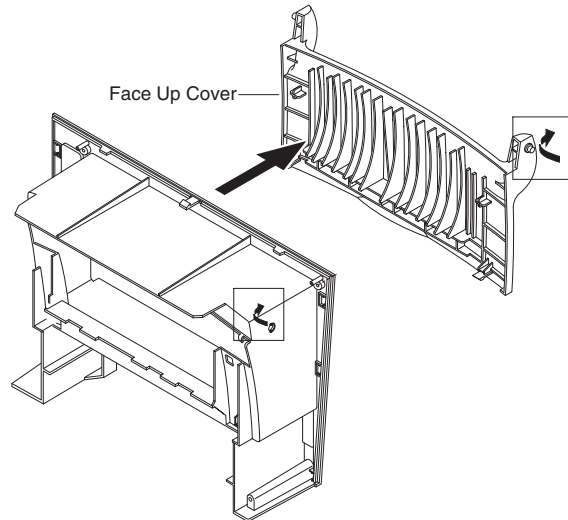
1. Remove 4 screws securing the rear cover.



2. Remove the rear cover from the frame and scanner assembly.



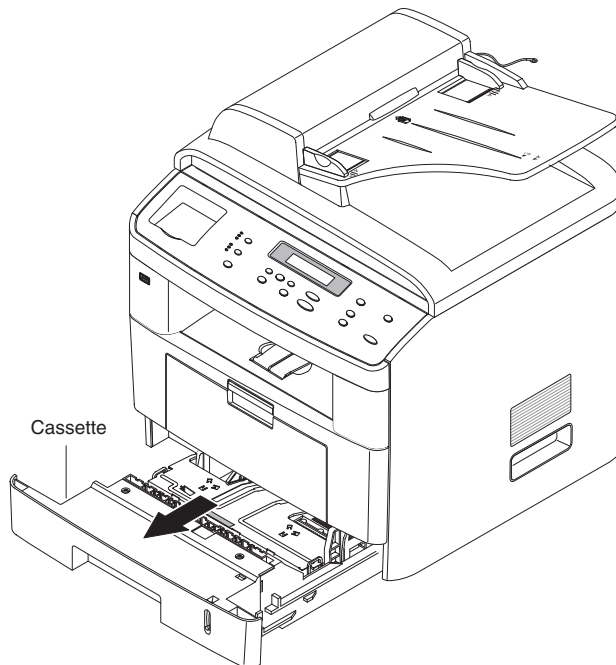
3. Unclip the face up cover from the rear cover, as shown, then lift the face up cover out.



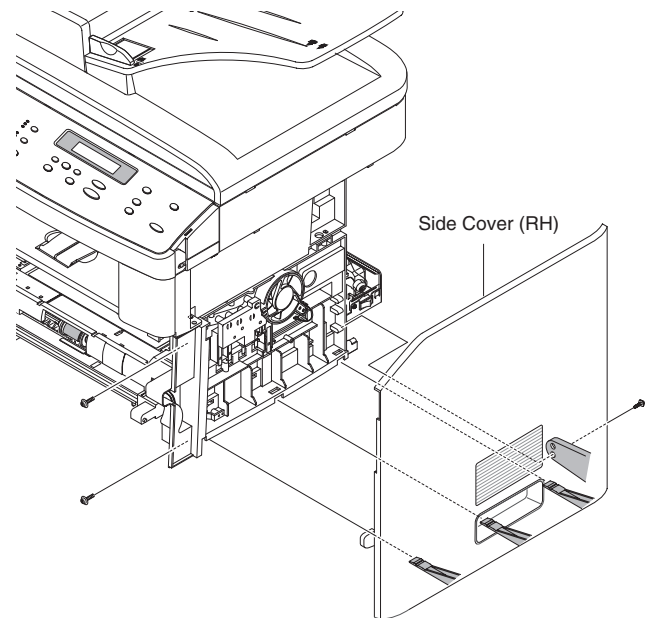
5.3 Side Covers Right and Left

(PL 8.1.14, 21)

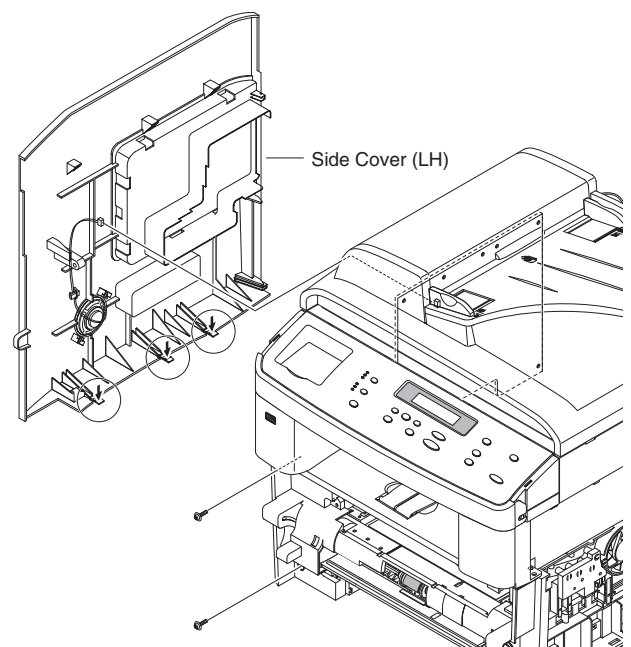
1. First remove:
 - a. Rear cover, see page 5-2.
 - b. Paper tray.



2. Open the front cover.
3. For the right side cover, remove 2 screws from the front and 1 screw on the back.
4. Release the 3 clips underneath the cover and ease the rear screw bracket over its locating pin. Pull the cover to the right and remove it from the frame.



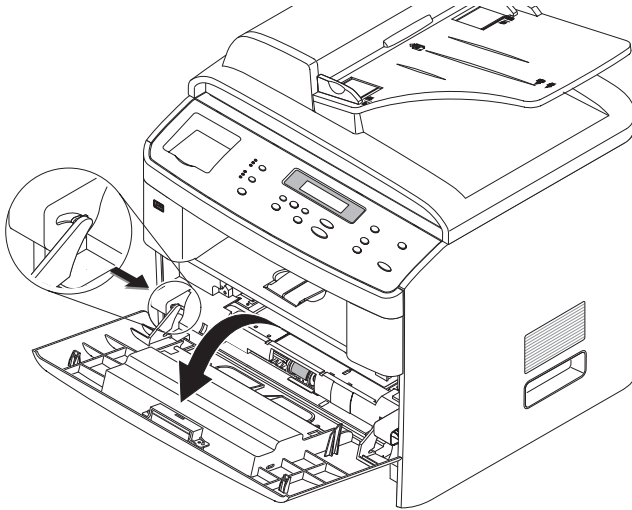
5. For the left side cover repeat steps 3 ~ 5, except disconnect the loudspeaker wiring harness if equipped



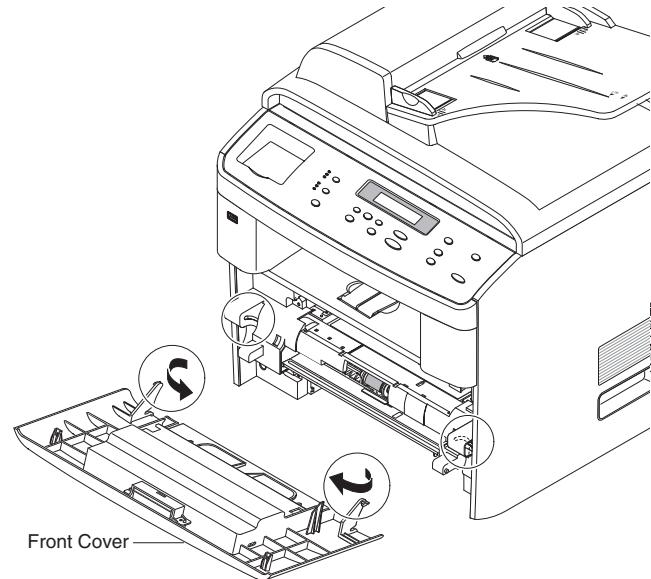
5.4 Front Cover

(PL 8.1.22)

1. Open the front cover and remove the toner cartridge.



2. Unclip the front cover from the frame and remove.

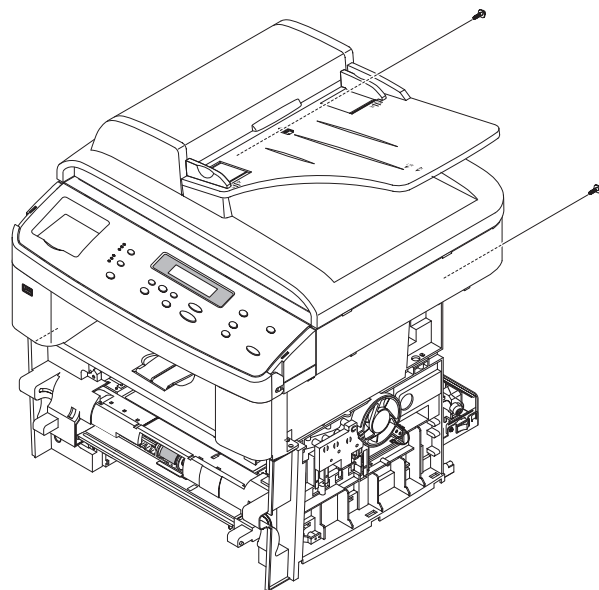


5.5 Scanner Assembly

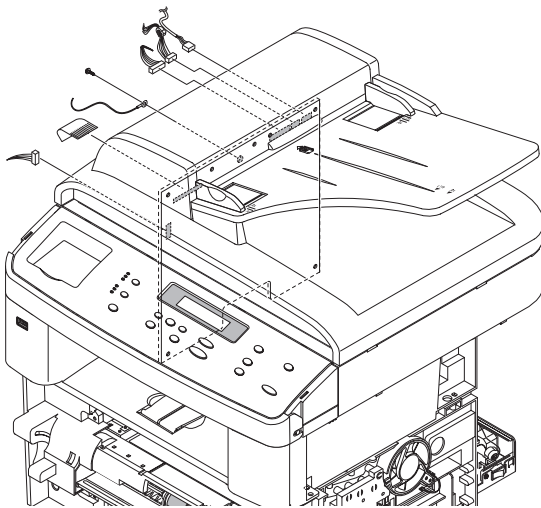
(PL 8.5)

1. First remove:
 - a. Rear cover, see page 5-2.
 - b. Side covers, see page 5-3.
 - c. To replace the OPE (Control Panel) Assembly, do steps 6 and 7 only.
 - d. To remove the Scan Upper, remove the ADF then do steps 8 and 9 only.
 - e. To remove the CCD Module, remove the ADF then do steps 10 through 11.
 - f. To remove the Drive Motor, remove the ADF then do steps 8, 9, 12 and 14.
 - g. To remove the Open Sensor, remove the ADF then do steps 8, 9, 15 and 16.

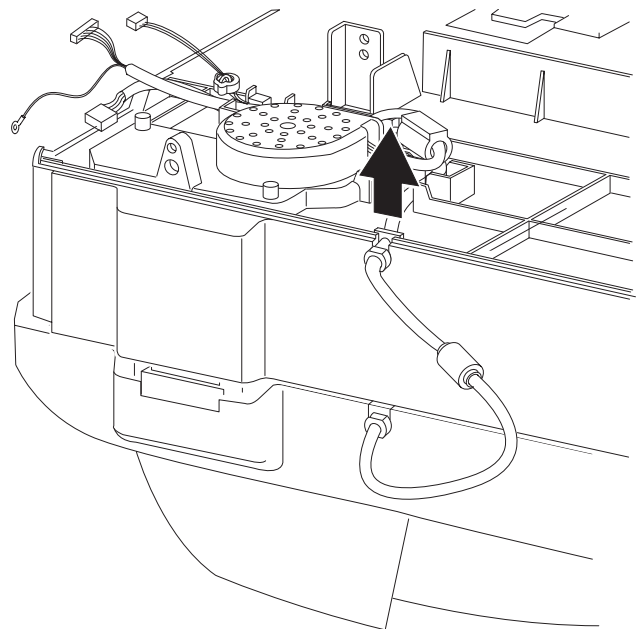
2. Remove 2 screws securing the scanner assembly.



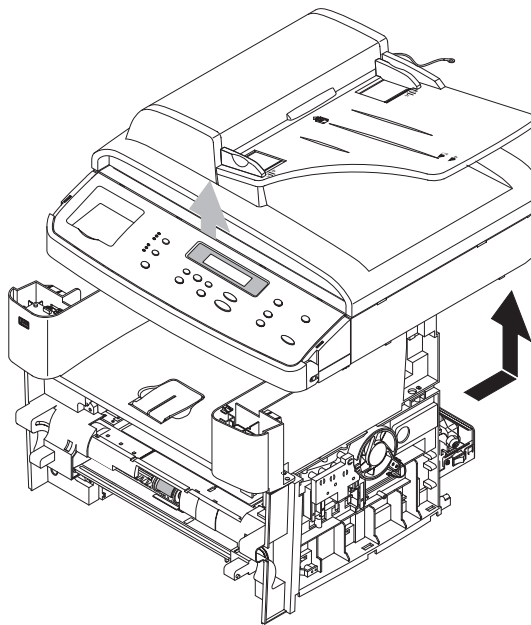
3. Disconnect 5 connectors and the ground wire screw from the PBA (main board).



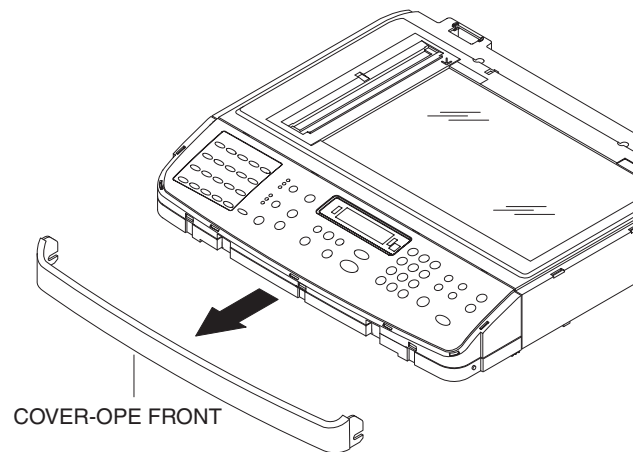
5. Free the scanner cable harness from the clips underneath to remove the scanner from the frame



4. Pull up on the scanner assembly to remove it partially from the print engine.

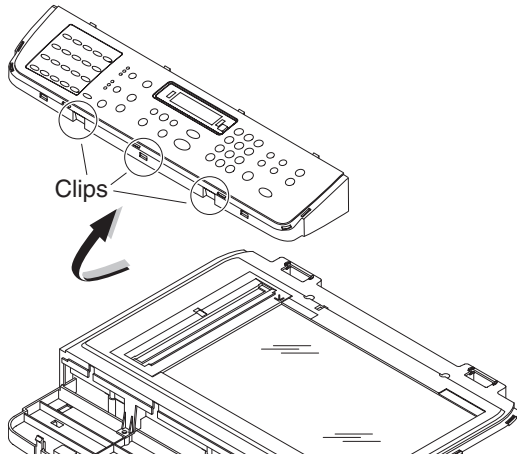


6. Lift the front part of the OPE front cover to release the tabs securing it to the scanner.

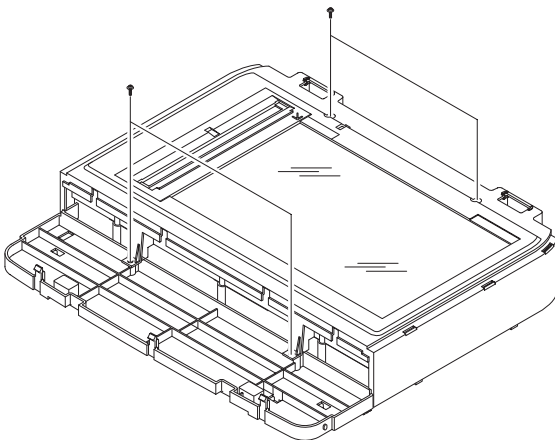


Disassembly

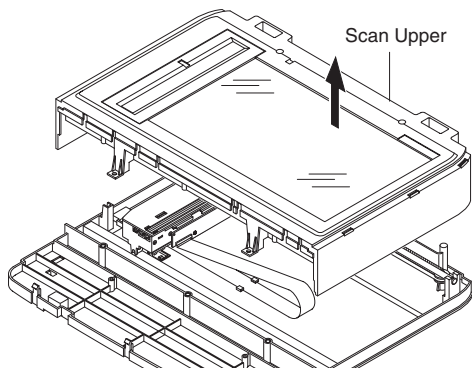
- 7.** Release the 3 clips on the front of the control panel, unroute the wiring harness through the frame, and remove the control panel (OPE).



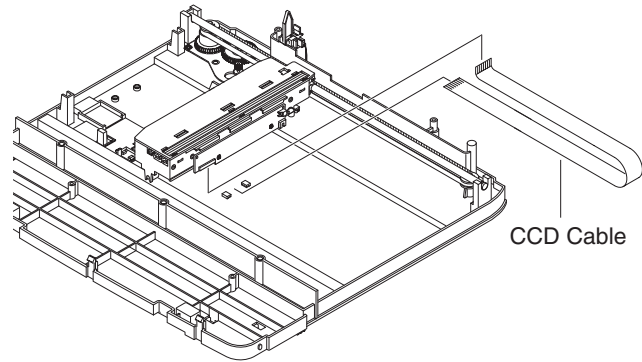
- 8.** Remove 4 screws securing the scan upper.



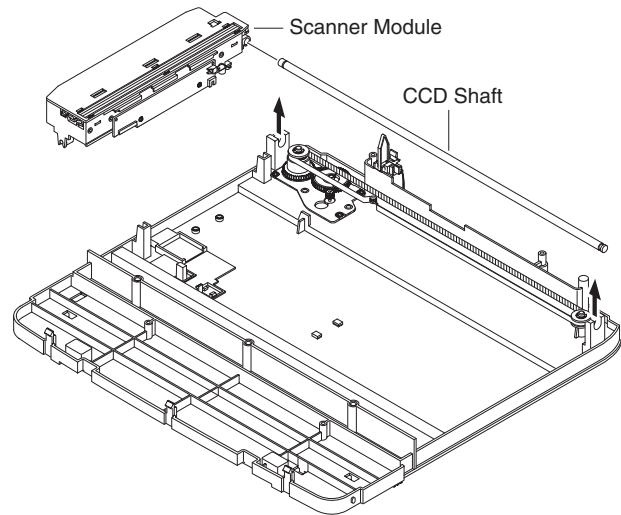
- 9.** Unclip the scan upper from the scan assembly by releasing 2 clips on each side, then pull the scan upper straight up to remove.



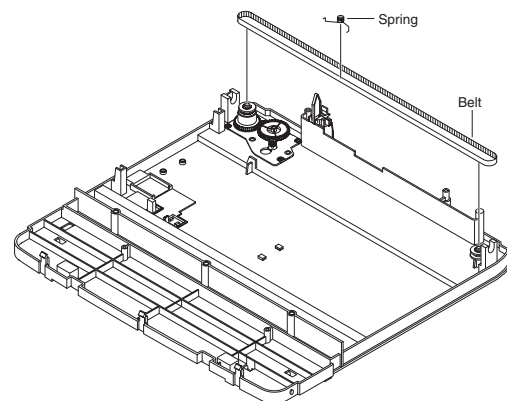
- 10.** Remove the CCD cable as shown.



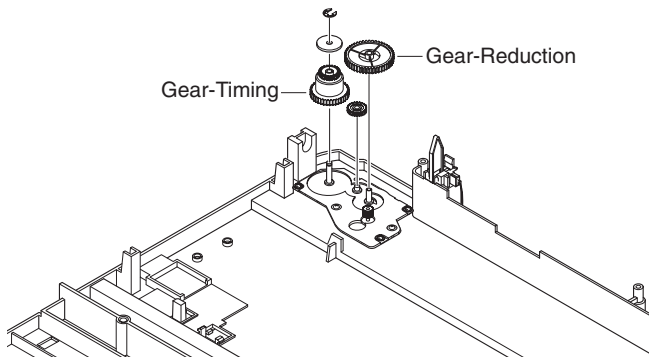
- 11.** Pull up on the CCD shaft to remove it from the scanner.



- 12.** Squeeze the spring to release the tension on the belt and lift the belt from the pulley. The belt should still be attached to the scan module.



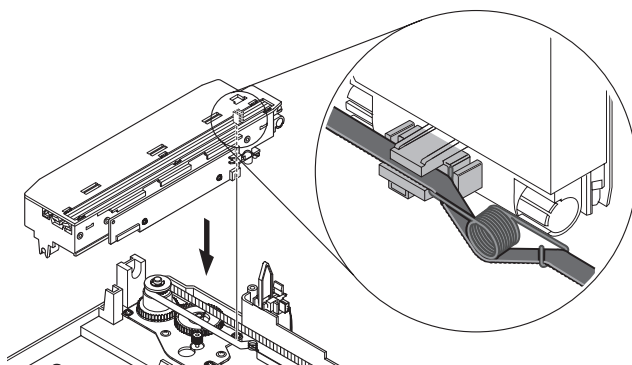
13. Remove the reduction gear and idle gear.



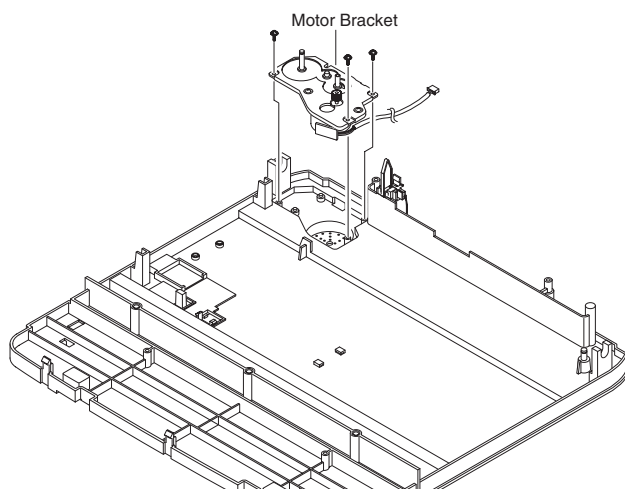
Caution

When reassembling the scanner module: Place the belt tension spring as close to the right side of the scanner as possible.

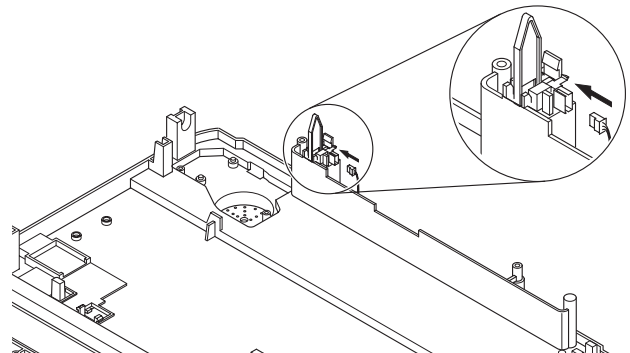
When refitting the scan upper cover take care to ensure that the cover open switch is not trapped.



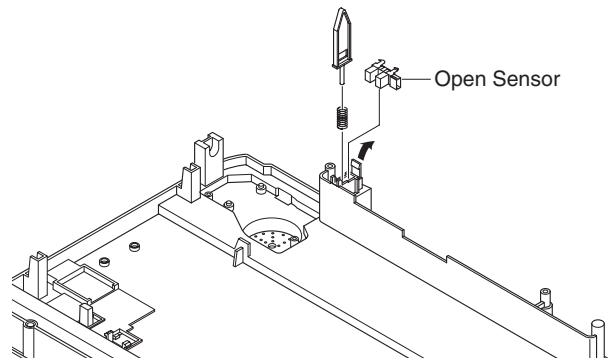
14. Remove 3 screws from the motor bracket and remove the motor.



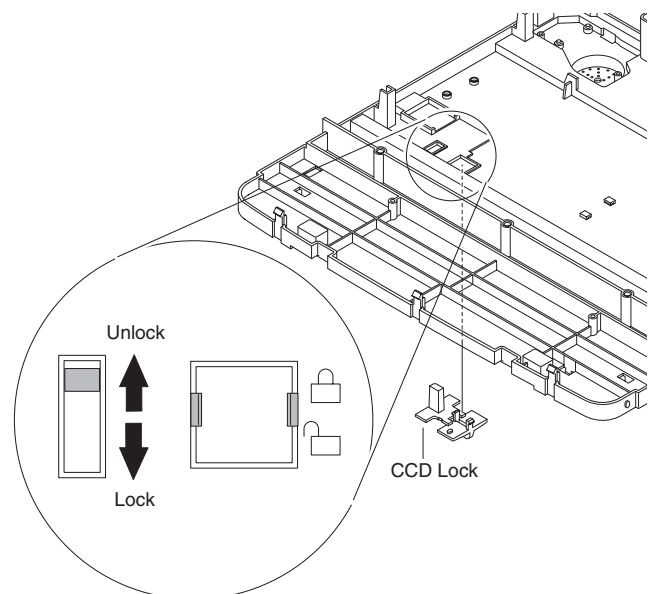
15. Unplug the connector from the open sensor assembly.



16. Unlatch the open sensor and remove.



17. Remove the CCD lock.



5.6 ADF Motor Assembly

(PL 8.3.3)

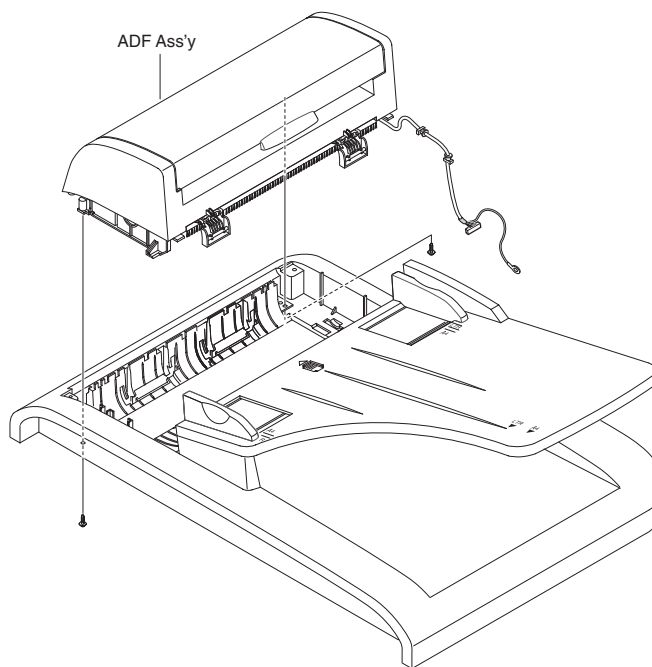
1. First remove:

- a. Rear cover, see page 5-2.
- b. Left side cover, see page 5-3.

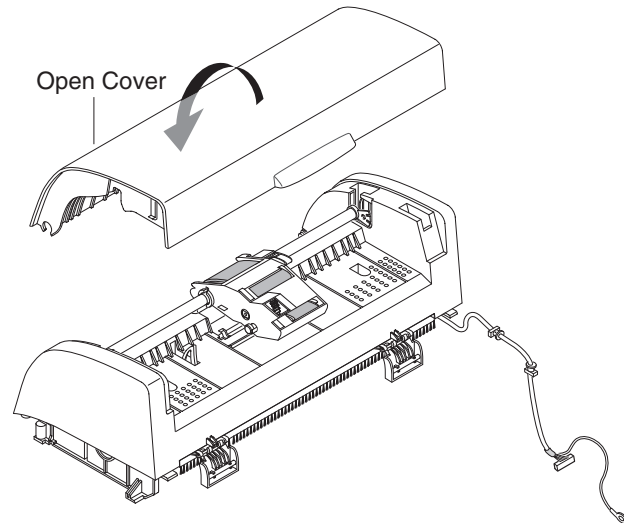
Note

It is not necessary to disassemble the ADF to replace the separator pad, simply open the cover and remove the pick up assembly.

1. Unclip the harness from the platen cover and remove 2 screws securing the ADF assembly.
2. Lift up on the ADF assembly and thread the harness out of the frame, then remove the ADF.



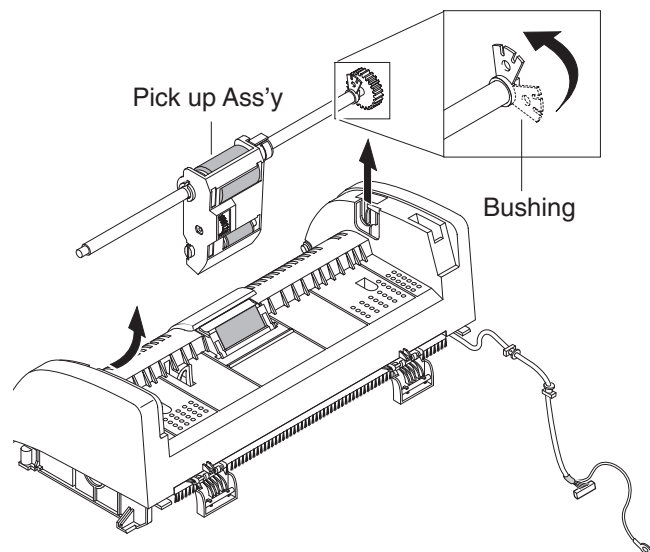
3. Remove the open cover.



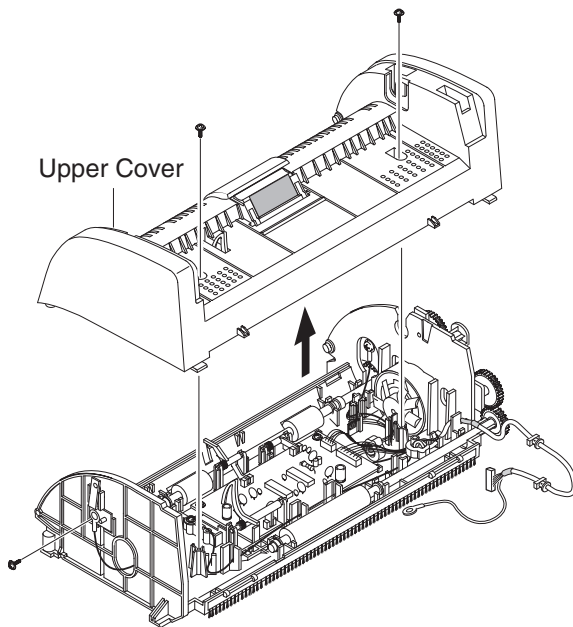
Caution

When working on the ADF motor, do not contaminate any of the rubber surfaces with grease or oil.

4. Release the bushing and rotate the pick up assembly until it reaches the slot as shown below. then lift the pick up assembly out.



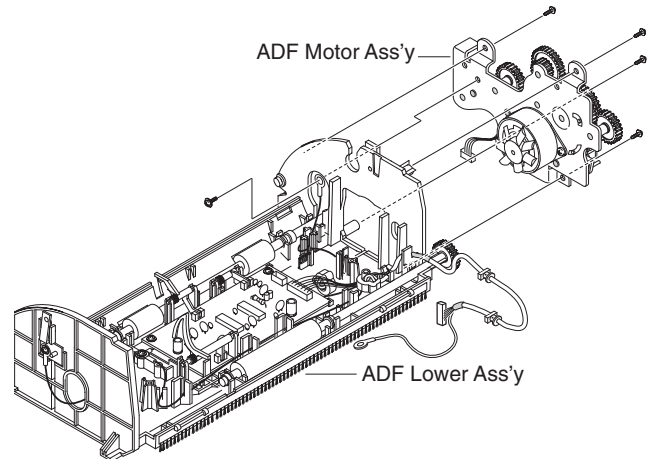
5. Remove 2 screws securing the upper cover, and remove the cover.



6. Unplug 1 connector and remove 5 screws securing the ADF motor assembly. Remove the motor.

Note

Before removing the motor assembly, note the position of the ferrite and harness routing.



Replacement Notes:

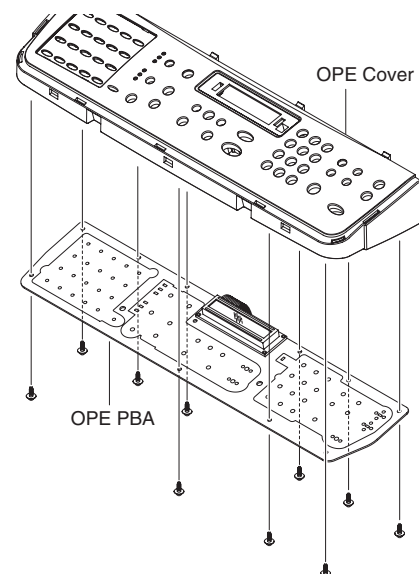
Caution

When refitting the ADF motor assembly, ensure the harness and ferrite are properly located and clear of the motor fan and white bar clip.

5.7 OPE (Control Panel)

(PL 8.4)

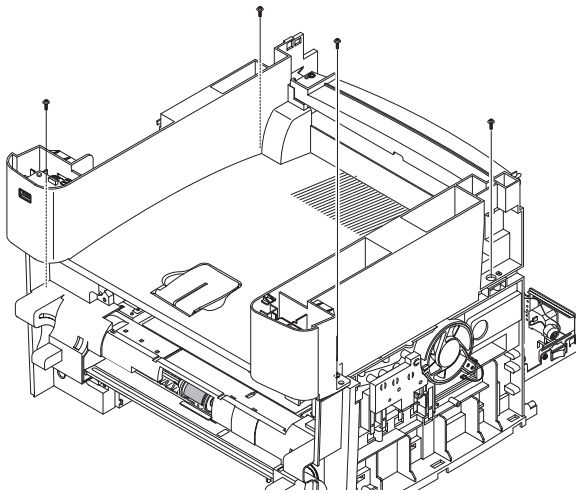
1. First remove:
 - a. Rear cover, see page 5-2.
 - b. Side covers, see page 5-3.
 - c. Steps 6 and 7 on page 5-4.
2. Remove 10 screws securing the control panel cover to the control panel board.



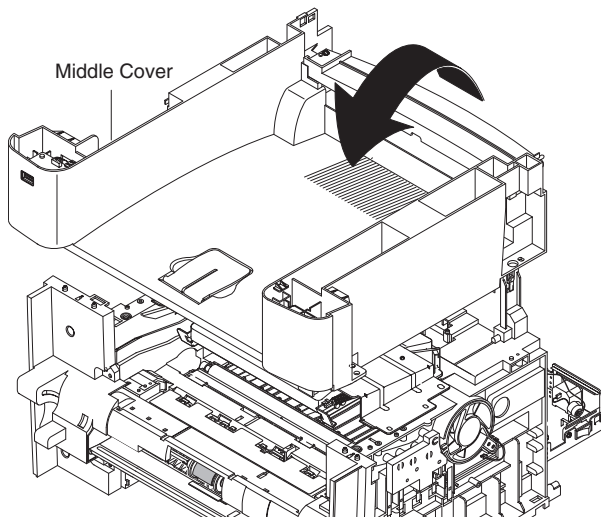
5.8 Middle Cover and Exit Roller

(PL 8.6) and (PL 8.7.63)

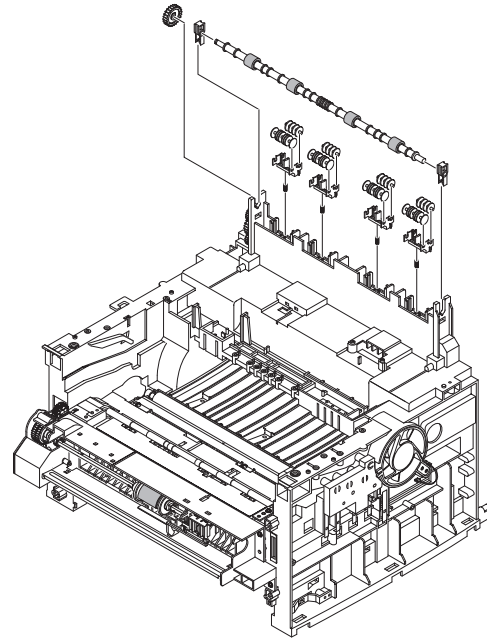
1. First remove:
 - a. Rear cover, see page 5-2.
 - b. Left and right side covers, see page 5-3.
 - c. Scanner assembly, see page 5-4.
2. Remove 4 screws securing the middle cover.



3. Remove 2 screws securing the controller shield to the middle cover, see 5.9 step 2. Unclip the middle cover from the frame, be sure and release the shield assembly locator pegs, then lift the cover off.



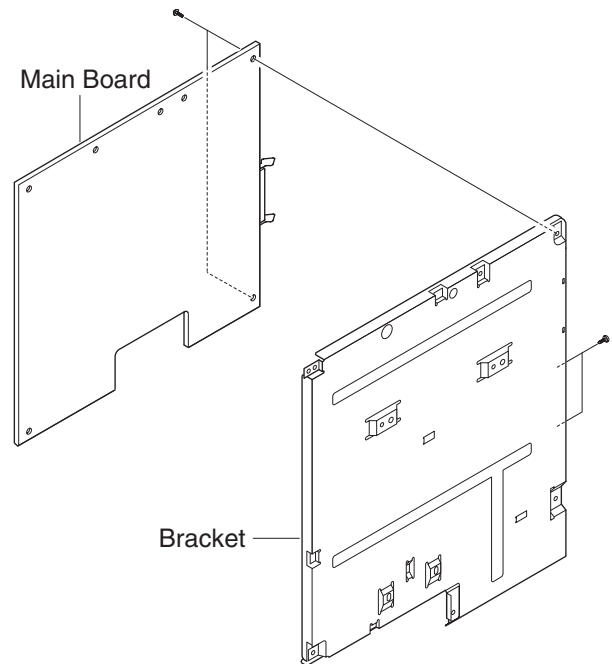
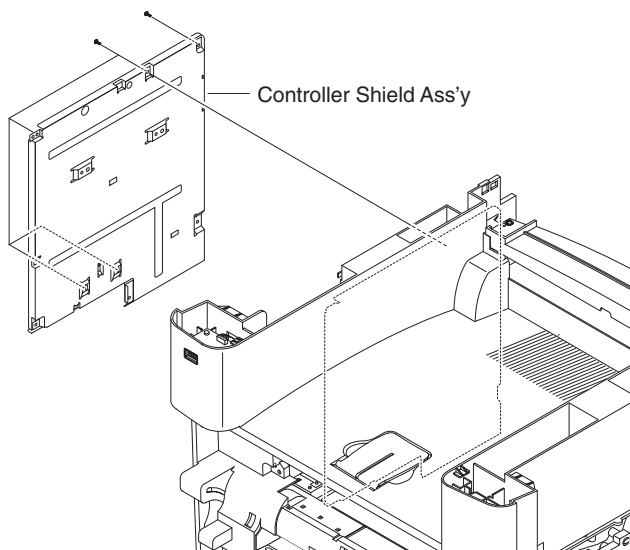
4. Remove the exit gear and bearing to remove the exit roller.



5.9 Controller Shield Assembly

(PL 8.1.7)

1. First remove:
 - a. Rear cover, see page 5-2.
 - b. Right side cover, see page 5-3.
2. Remove all the connectors and 5 screws. Remove the shield.

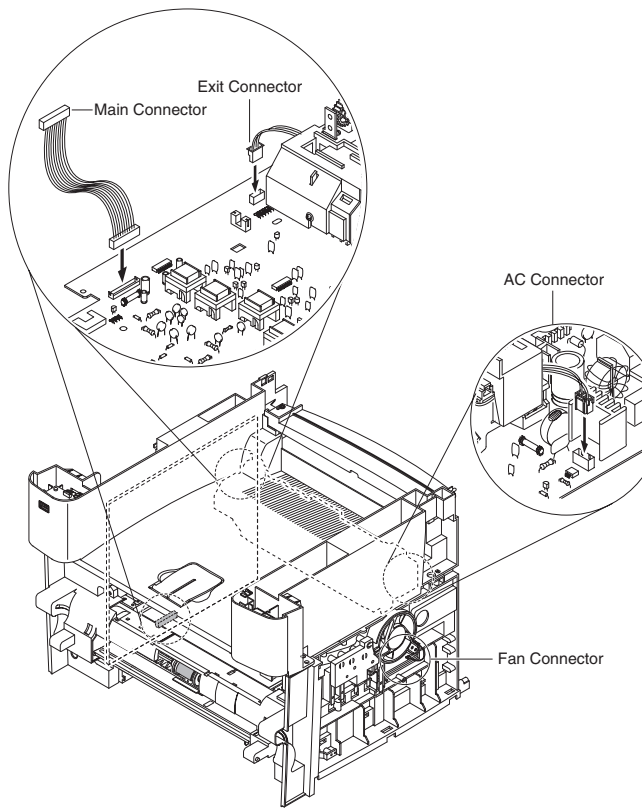


3. Remove the network card if equipped (2 screws).
4. Remove 3 screws to remove the bracket from the main board.

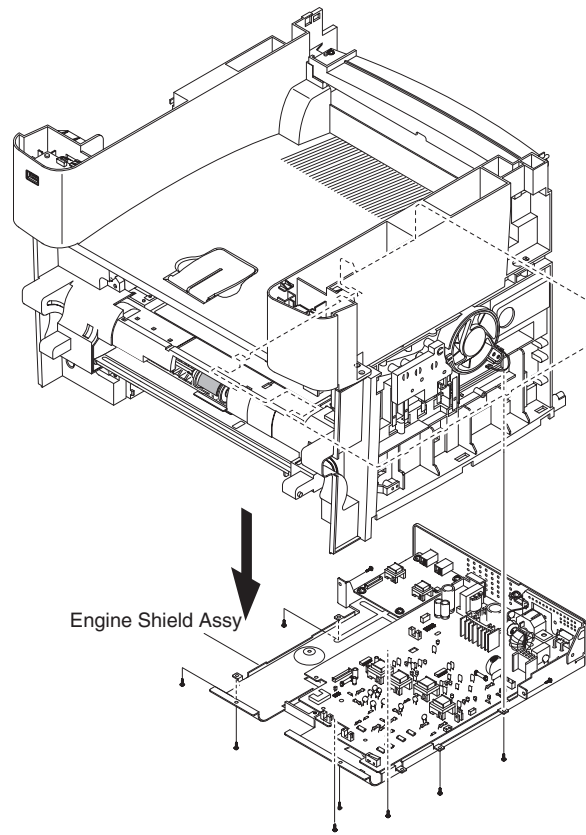
5.10 Engine Shield and Exit Board

(PL 8.1.10)

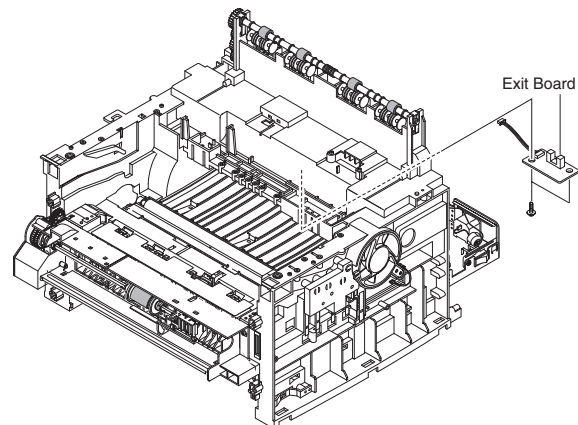
1. First remove:
 - a. Rear cover, see page 5-2.
 - b. Left and right side covers, see page 5-3.
2. Unplug the exit, AC, LIU, and fan connectors.



3. Remove 11 screws securing the engine shield and tilt to one side.
4. Unplug all the HVPS and SMPS harnesses.



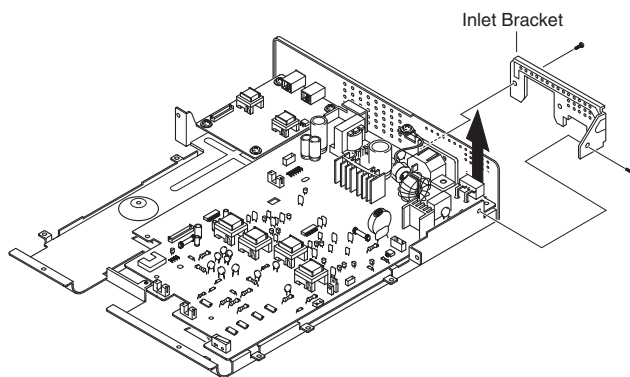
5. Remove 2 screws to remove the exit board.



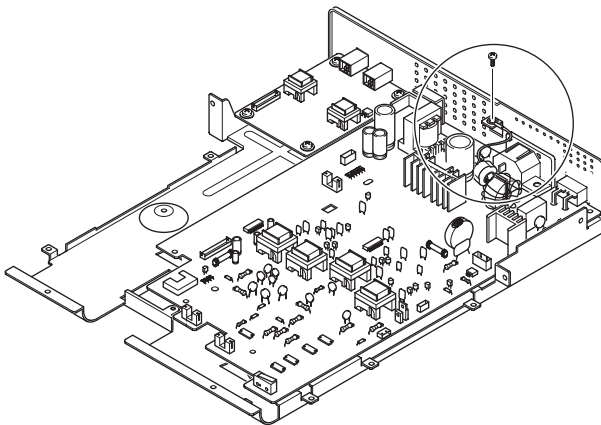
5.11 SMPS and LIU

(PL 8.1.6 and PL 8. 1.13)

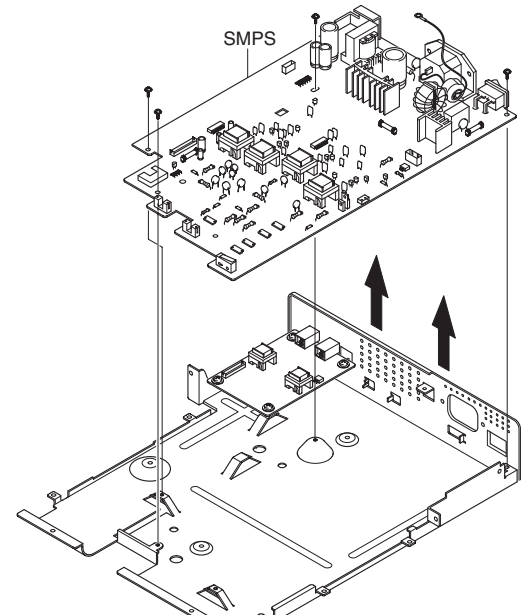
1. First remove:
 - a. Rear cover, see page 5-2.
 - b. Left and right side covers, see page 5-3.
 - c. Engine shield assembly, see page 5-12.
2. Remove 2 screws securing the inlet bracket.



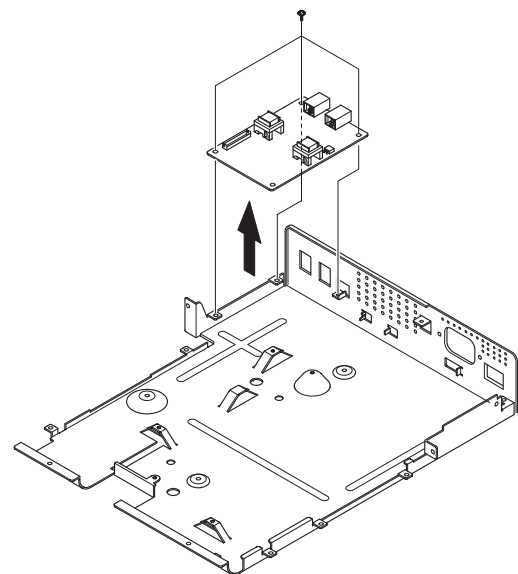
3. Remove 1 screw from the engine shield ground wire.



4. Remove 3 screws securing the SMPS and lift out the SMPS.



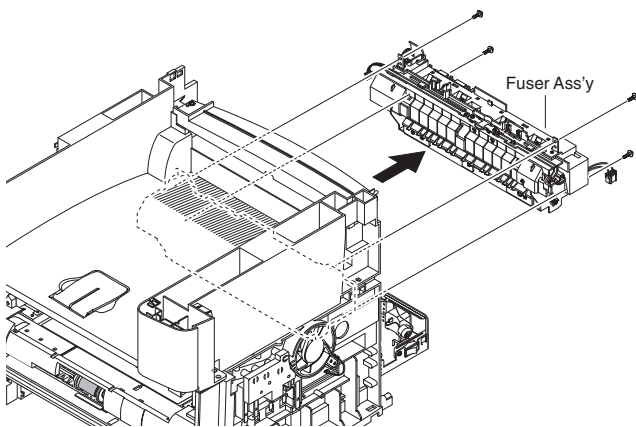
5. Remove 3 screws securing the LIU and lift out the LIU.



5.12 Fuser Assembly

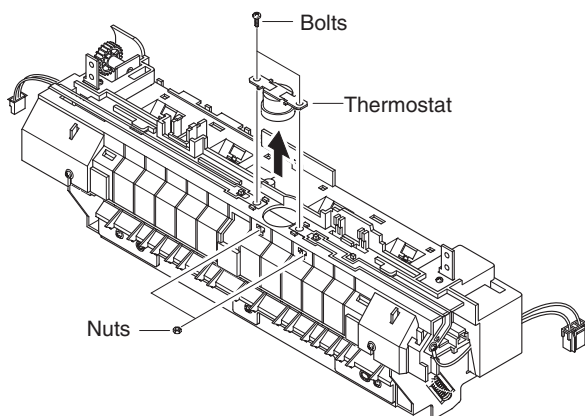
(PL 8.8)

1. First remove:
 - a. Rear cover, see page 5-2.
2. Unplug 2 connectors, one to the main board and one to the SMPS.
3. Remove 4 screws securing the fuser assembly.



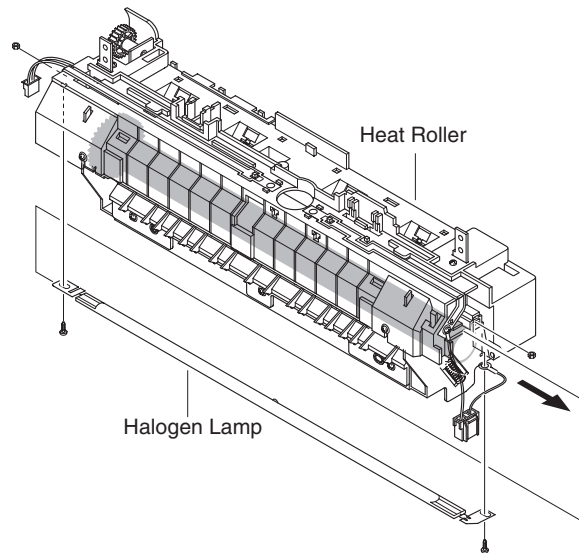
Thermostat

1. Remove 2 bolts securing the thermostat, take care not to lose the nuts. Remove the thermostat.



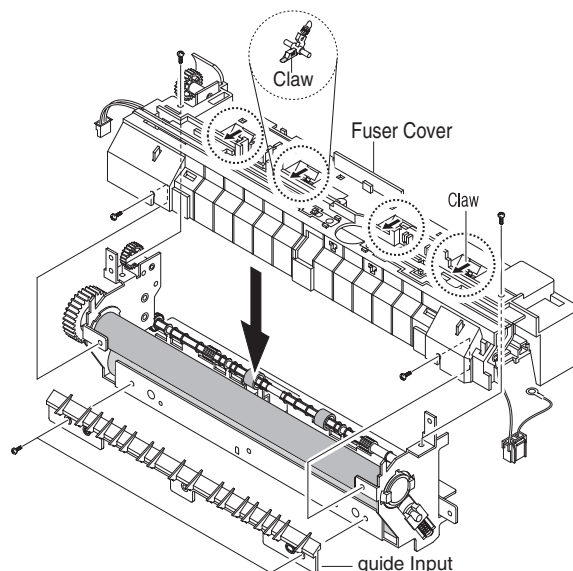
Heat Roller and Halogen Lamp

1. Remove 2 screws securing the halogen lamp then separate the lamp from the heat roller.



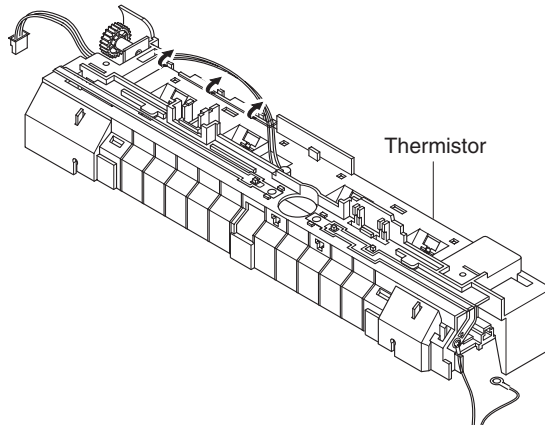
Guide and Fuser Cover

1. Remove 4 screws to remove the fuser cover.
2. Remove 2 screws from the input guide.

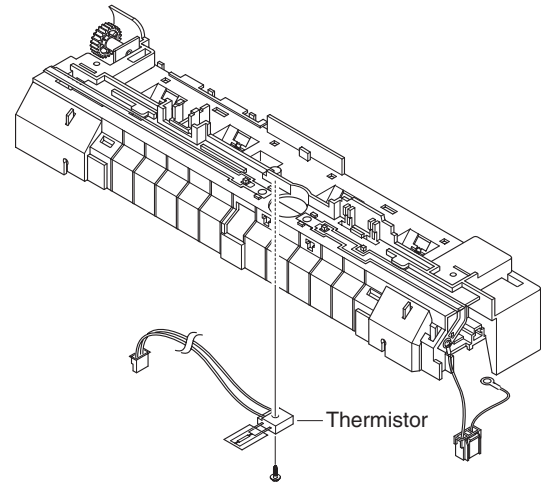


Thermistor

1. Unroute the thermistor wiring harness.



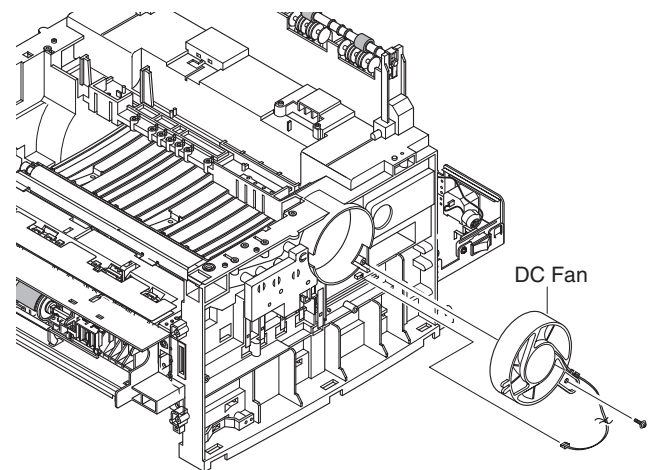
2. Remove 1 screw securing the thermistor.



5.13 Fan

(PL 8.1.27)

1. First remove:
 - a. Rear cover, see page 5-2.
 - b. Right side cover, see page 5-3.
2. Unplug the connector from the SMPS to the exhaust fan.
3. Remove 1 screw and take out the fan.

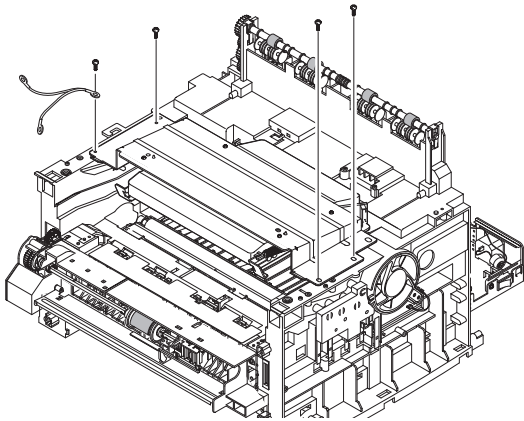


- 1.

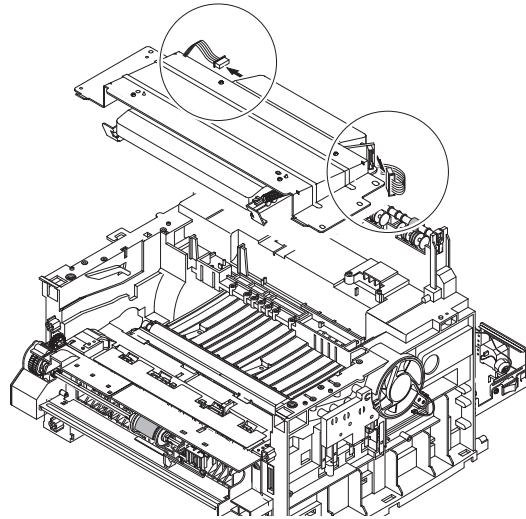
5.14 Laser Scanner Unit (LSU)

(PL 8.1.4)

1. First remove:
 - a. Rear cover, see page 5-2.
 - b. Left and right side covers, see page 5-3.
 - c. Scanner assembly, see page 5-4.
 - d. Front cover, see page 5-4.
 - e. Middle cover, see page 5-10.
2. Remove 4 screws securing the LSU to remove it from the frame.



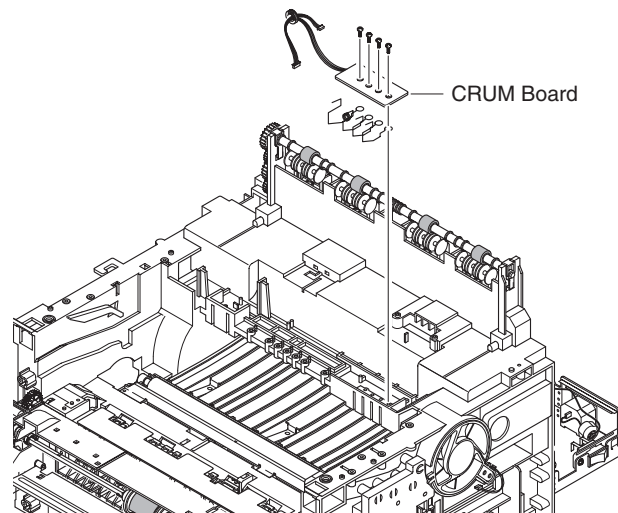
3. Unplug the 2 connectors.



5.15 CRUM Board

(PL 8.7)

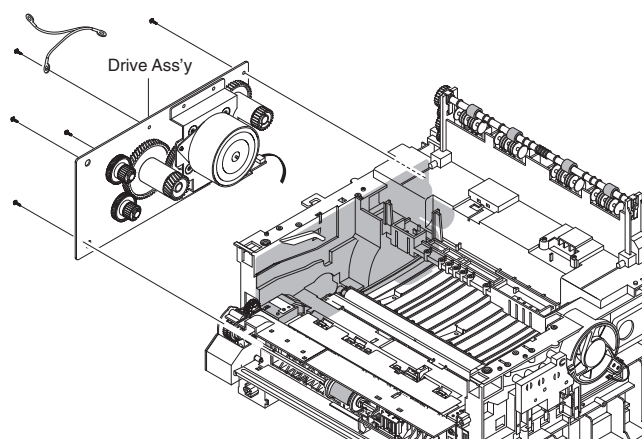
1. First remove:
 - a. Laser unit, see page 5-16.
2. Remove 4 screws to separate the CRUM board from the main frame. **Do not lose the springs.**



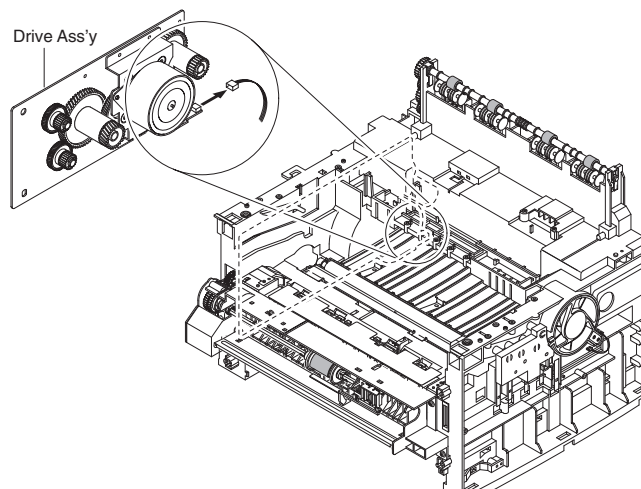
5.16 Drive Assembly

(PL 8.2)

1. First remove:
 - a. Rear cover, see page 5-2.
 - b. Side cover, see page 5-3.
 - c. Controller shield, see page 5-11.
2. Remove 5 screws securing the drive assembly.



3. Take out the drive assembly then unplug the connector from the motor board.



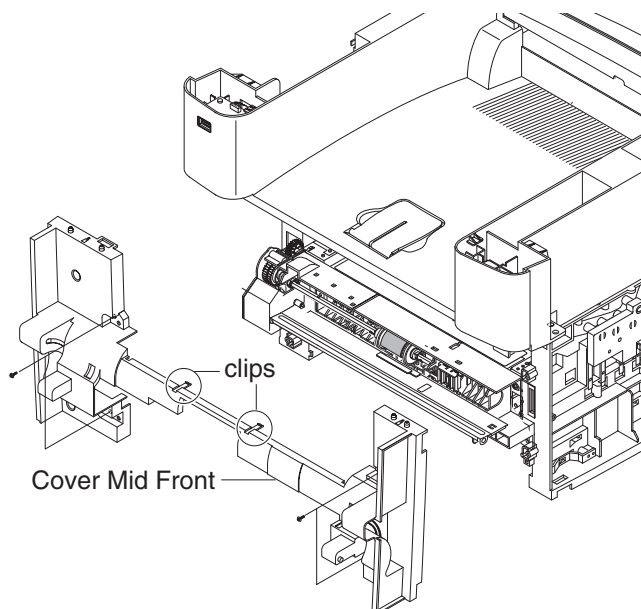
Caution

The 6 screw holes have numbers stamped into the base plate, when reinstalling the drive assembly the screws must be tightened in the order they are numbered. Screw 6 is fitted with the controller shield.

5.17 Cover Mid Front

(PL 8.1.19)

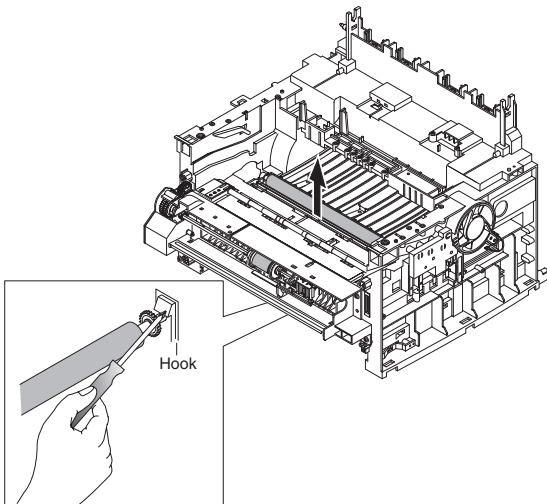
1. First remove:
 - a. Rear cover, see page 5-2.
 - b. Side cover, see page 5-3.
 - c. Middle cover, see page 5-10.
2. Remove 4 screws securing the cover mid front and release 2 clips from the center as shown.



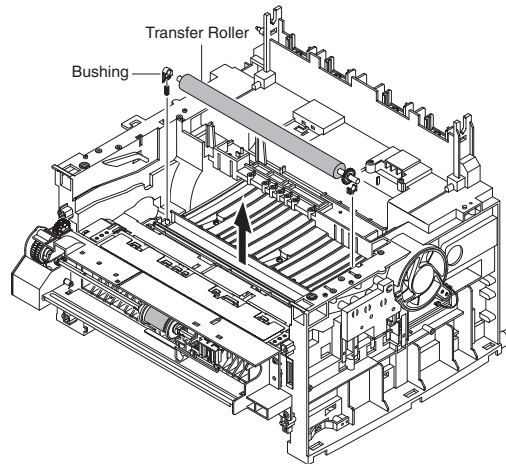
5.18 Transfer Assembly

(PL 8.1.7)

1. First remove:
 - a. Rear cover, see page 5-2.
 - b. Left and right side covers, see page 5-3.
 - c. Scanner assembly, see page 5-4.
 - d. Front cover, see page 5-4.
 - e. Middle cover, see page 5-10.
 - f. Laser unit, see page 5-16.
2. Remove the transfer roller by pressing the latch with a small screwdriver.



3. Unlatch the bushing and remove. Lift the transfer roller out as shown.



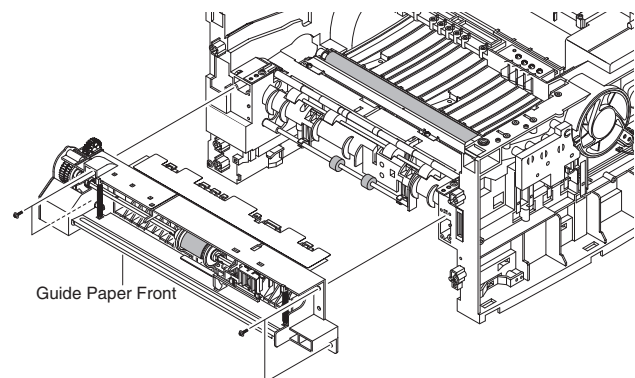
Note

Experienced technicians may be able to remove the transfer roller by performing step 2 only.

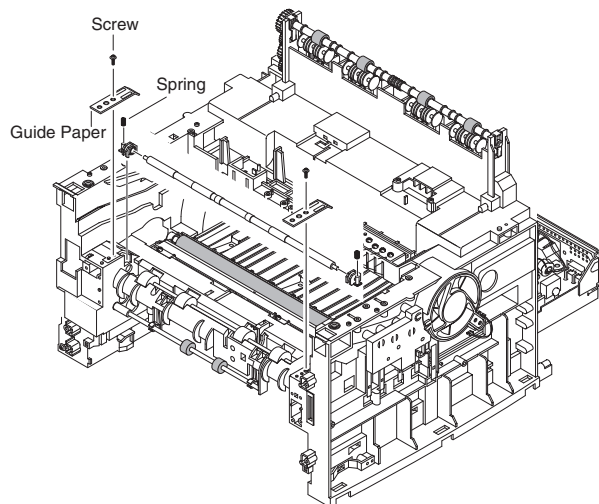
5.19 Feed Assembly

(PL 8.1.15)

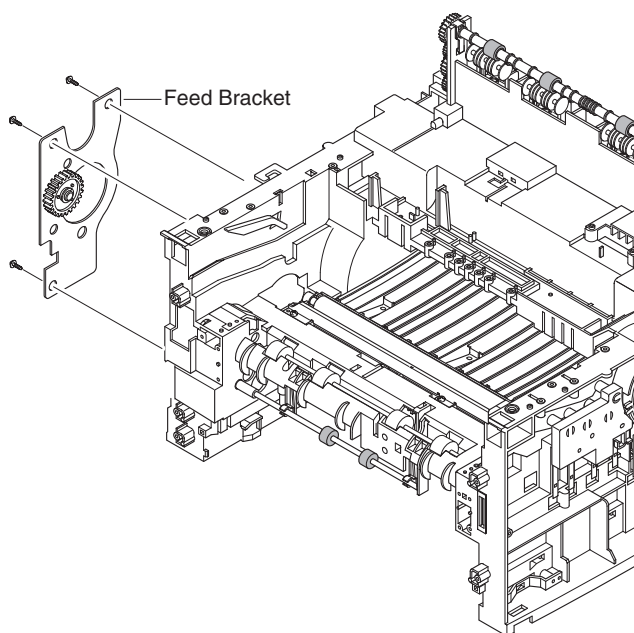
1. First remove:
 - a. Rear cover, see page 5-2.
 - b. Left and right side covers, see page 5-3.
 - c. Front cover, see page 5-4.
 - d. Scanner assembly, see page 5-4.
 - e. Middle cover, see page 5-10.
 - f. Controller shield, see page 5-11.
 - g. Drive assembly, see page 5-17.
2. Remove 4 screws securing the guide paper front.



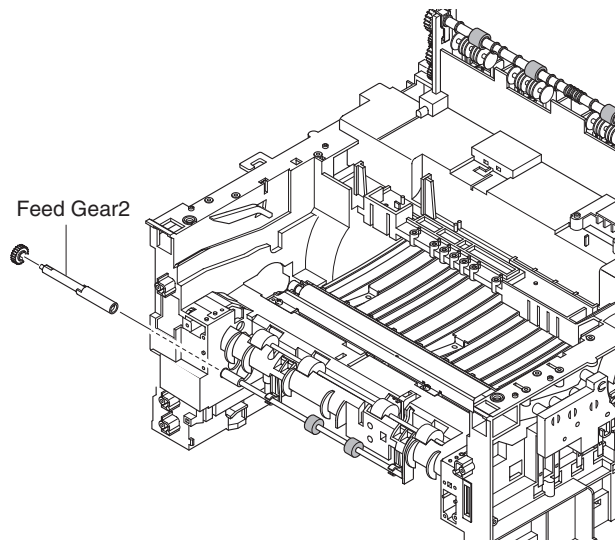
3. Remove the screws on the left and right sides of the paper guide to remove the guides and the spring as shown.



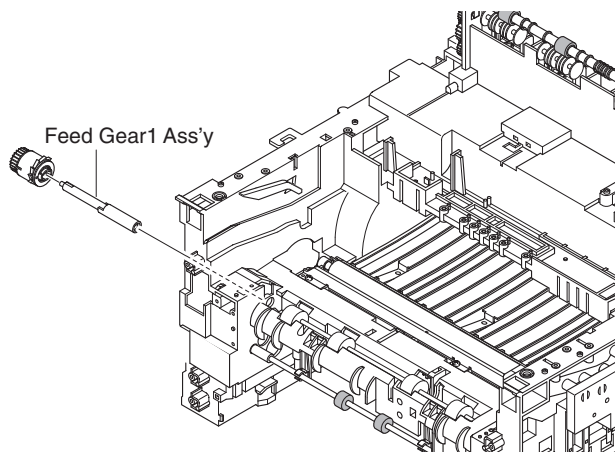
4. Remove the 3 screws securing the feed bracket and remove the bracket.



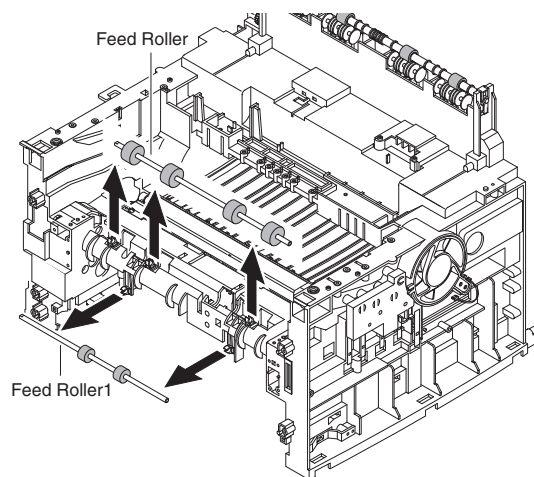
5. Remove the feed gear 2.



6. Remove the feed gear 1.



7. Remove feed roller and feed roller 1 as shown.



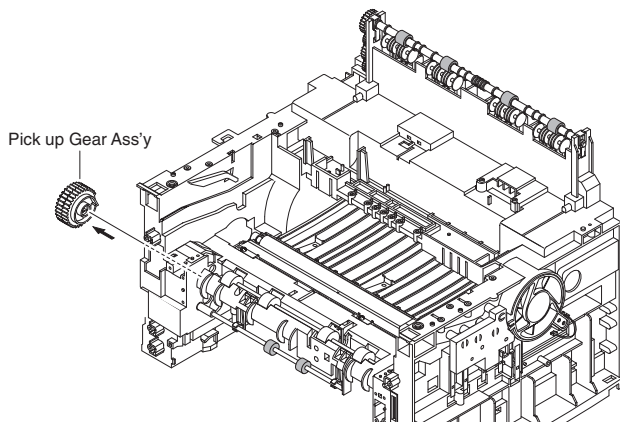
5.20 Pick Up Assembly

(PL 8.7)

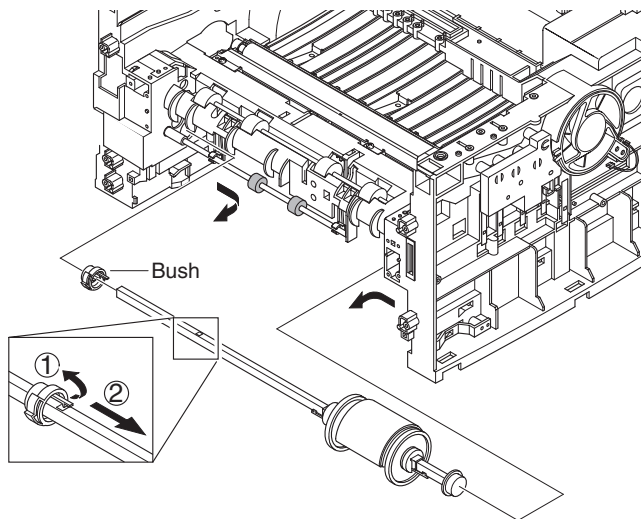
1. First remove:

- a. Rear cover, see page 5-2.
- b. Left and right side covers, see page 5-3.
- c. Front cover, see page 5-4
- d. Scanner assembly, see page 5-4.
- e. Middle cover, see page 5-10.
- f. Controller shield, see page 5-11.
- g. Engine shield, see page 5-12
- h. Drive assembly, see page 5-17.
- i. Feed assembly, see page 5-18

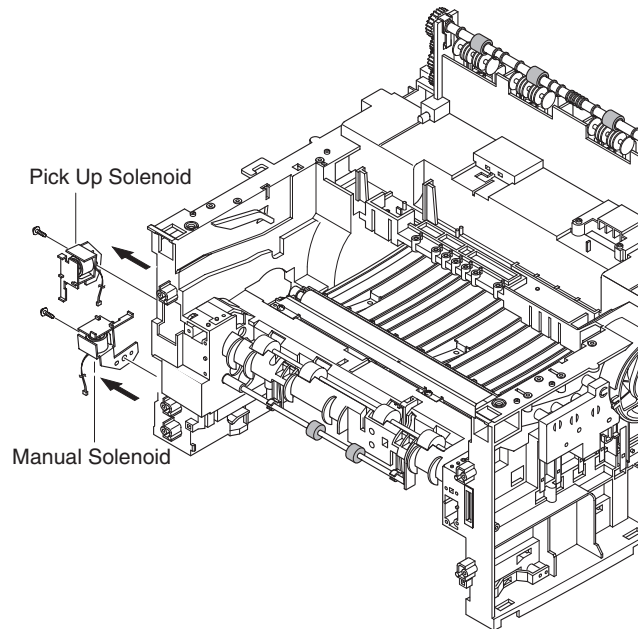
2. Remove the pick up gear assembly.



3. Take out the pick up assembly as shown.

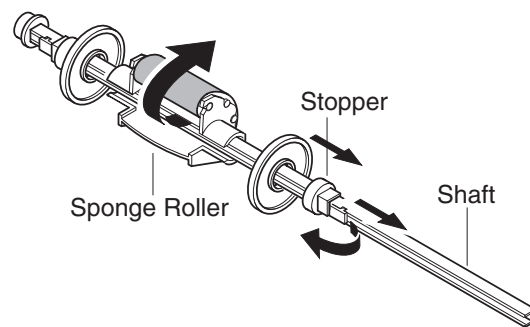


4. Remove the 2 screws securing the manual solenoid and pick up solenoid.



Replacement

1. To replace the pick up roller, slide the stopper securing the sponge roller to the right and then turn the sponge roller to remove from the shaft.



Note

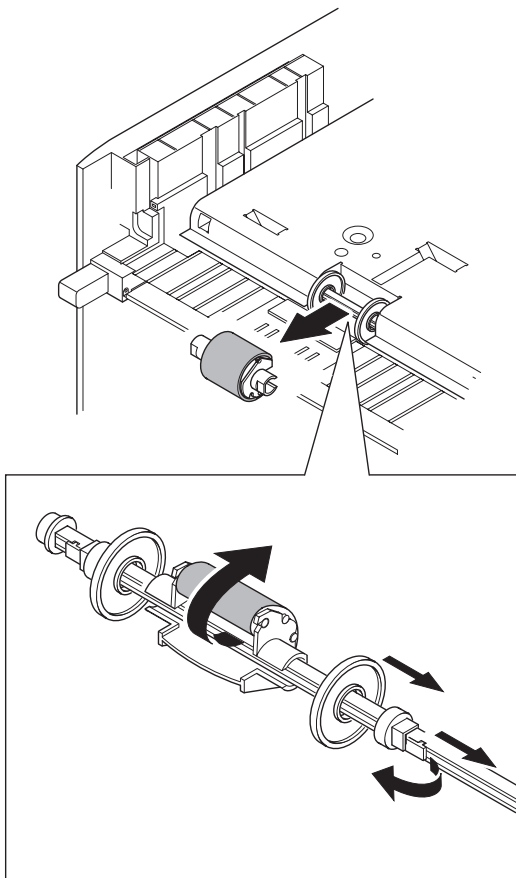
It is not necessary to disassemble the system to replace the MP or Main cassette pick rollers.

MP or Main Cassette Pick Rollers

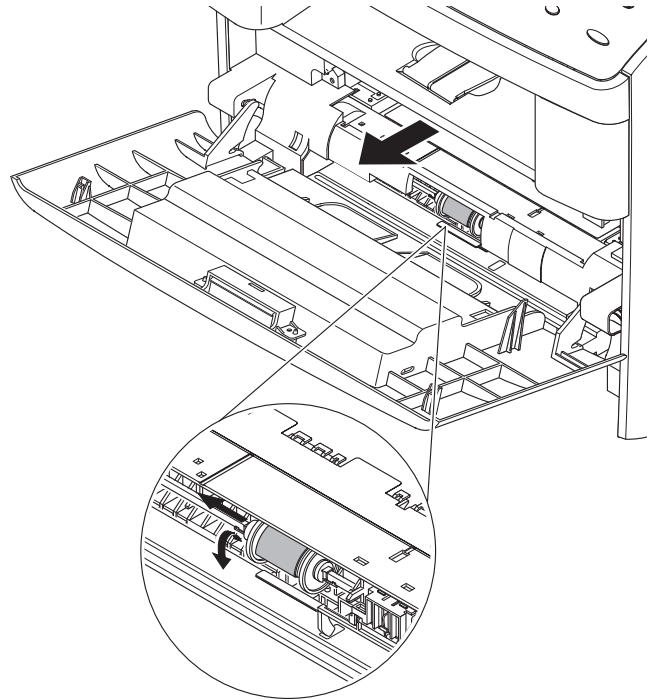
1. Remove the main paper tray, toner cartridge, and front cover, see page 5-4.

Main Cassette

1. Release the white catch and slide the locking piece as far to the side as possible.
2. Slide the white collar as far to the side as possible.
3. Slide the pick up roller until it is free from the white collar on the opposite end.
4. Rotate the pickup roller around the drive shaft until it can be removed.



2. Slide the white collar as far to the side as possible.
3. Slide the pick up roller until it is free from the white collar on the opposite end.
4. Rotate the pickup roller around the drive shaft until it can be removed.



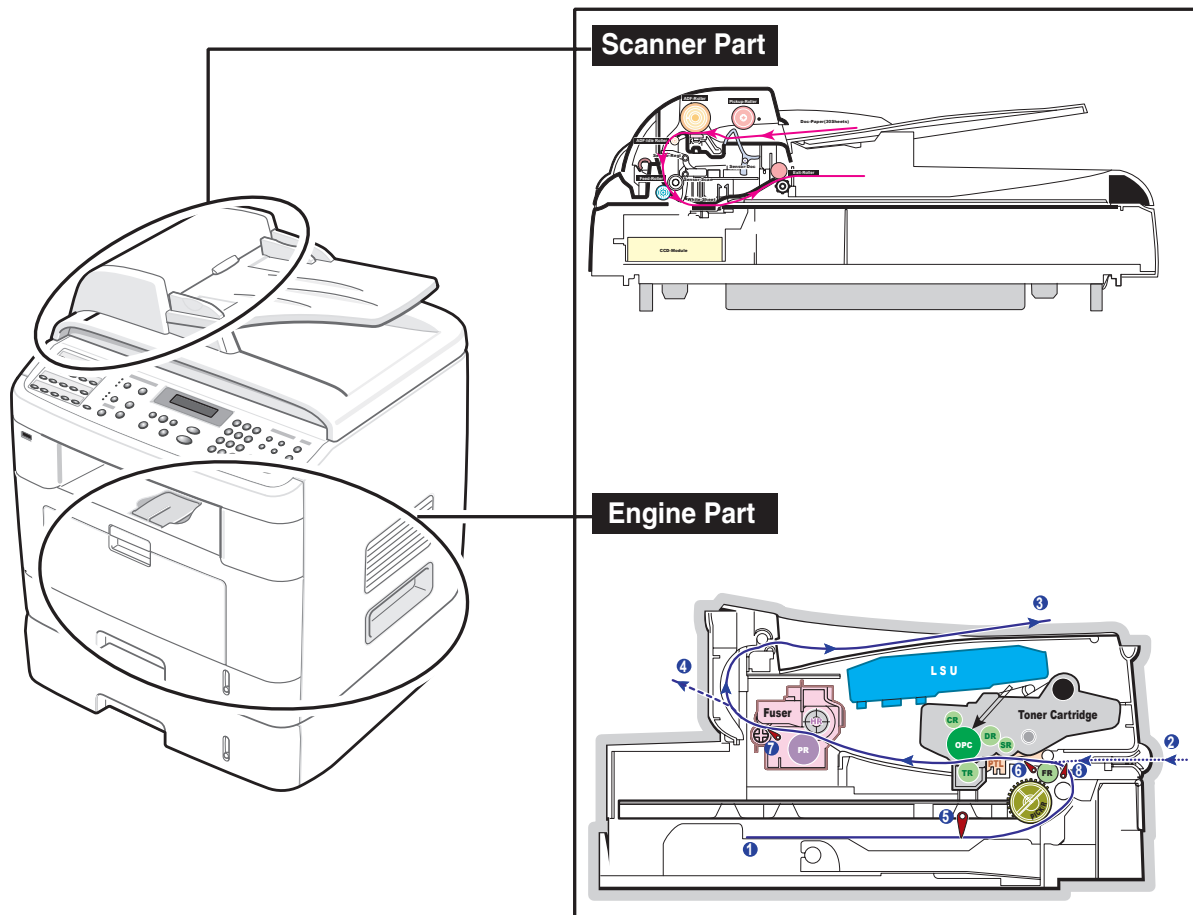
MP Pick Roller

1. Release the white catch and slide the locking piece as far to the side as possible.

6 Alignment and Adjustments

This chapter describes some of the main service procedures including: Using EDC mode, clearing paper jams and test patterns. Much of this chapter is also included in the user's guide.

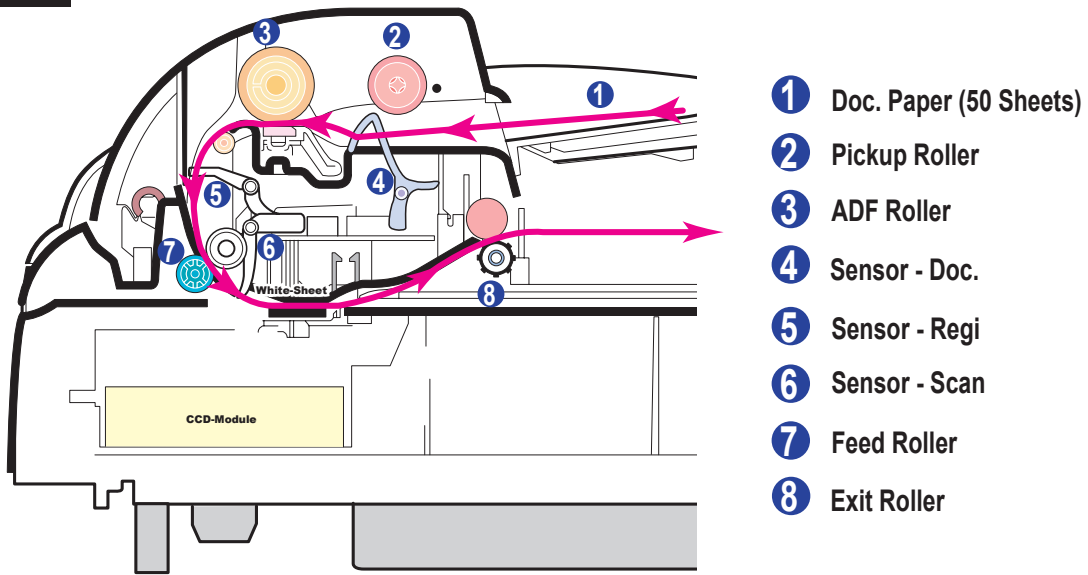
6.1 Paper Path



1. After receiving a print command, the printer feeds paper from the main cassette or the bypass tray.
2. The paper being fed passes the paper feed sensor. (Jam 0 occurs if the sensor is not actuated within a specified amount of time).
3. Having passed the paper feed sensor the paper moves to the paper exit sensor via the print process. (Jam 1 occurs if the sensor is not actuated within a specified amount of time)
4. The paper then passes through the paper exit sensor and out of the system. (Jam 2 occurs if the trailing edge of the paper does not pass the exit sensor within the specified time between the papers leading edge activating the exit sensor).

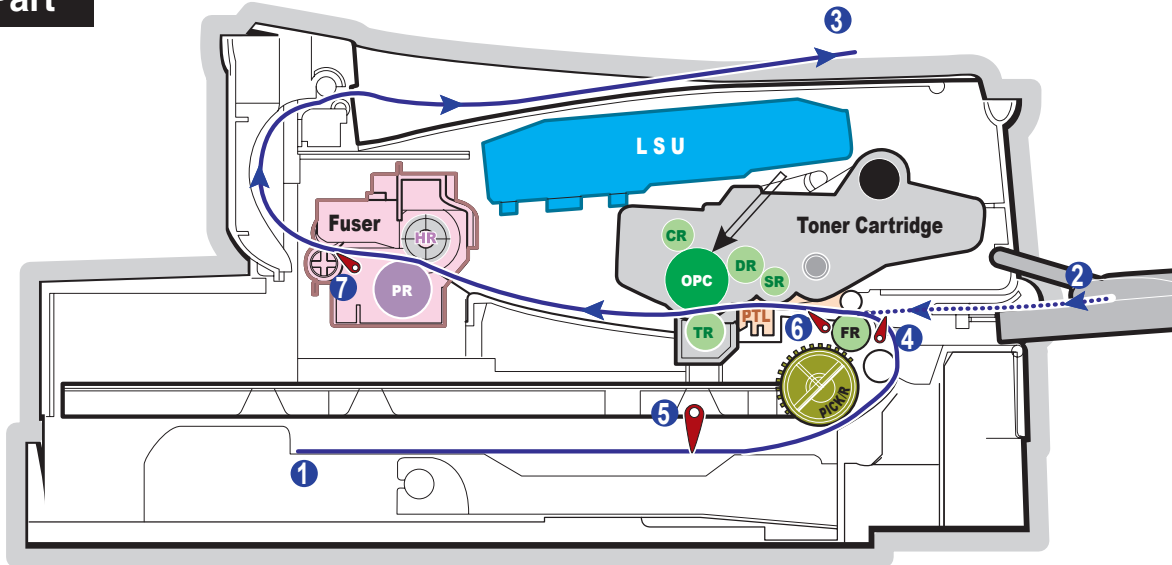
6.1.2 Copy and Scan Paper Path

Scanner Part



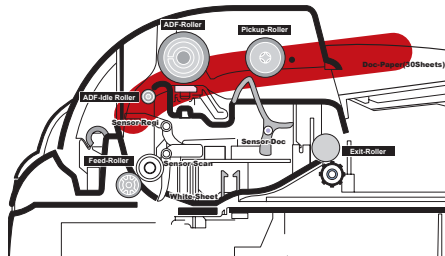
6.1.3 Printer Paper Path

Engine Part

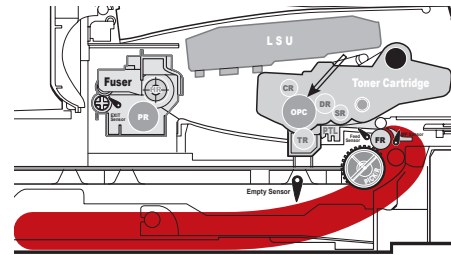


- 1 Paper Input (Cassette)
- 2 Paper Input (Manual Feeder)
- 3 Paper Out (Face Down)
- 4 Paper Empty Sensor (Manual)
- 5 Paper Empty Sensor (Cassette)
- 6 Paper Feeding Sensor
- 7 Paper Exit Sensor

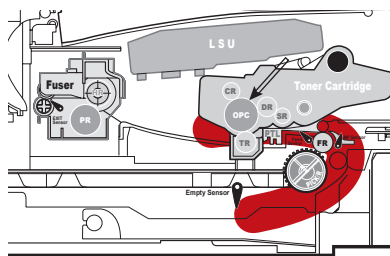
6.2 Clearing Paper Jams



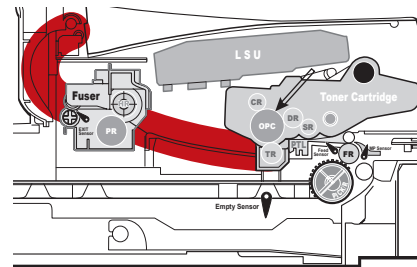
Document Jam (in the ADF area)



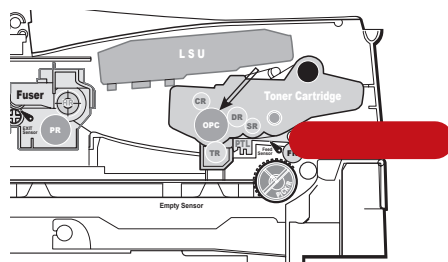
Paper Jam 0 (in the paper feed area)



Paper Jam 1 (around the fuser or toner cartridge)



Paper Jam 2 (in the fuser or exit path)



MP Tray Jam (in the bypass tray area)

The leading causes of paper jams are:

- The tray is loaded improperly or overfilled.
- The tray has been pulled out during a print job.
- The front cover has been opened during a print job.
- Paper that does not meet specifications has been used.
- Paper that is outside of the supported size range has been used.

If a paper jam occurs, an error message appears on the LCD display. Remove any visible jammed paper in the system. If there is no paper visible, look inside the printer. If the paper tears while removing a jam, ensure that ALL fragments of paper are removed from within the system.

Caution

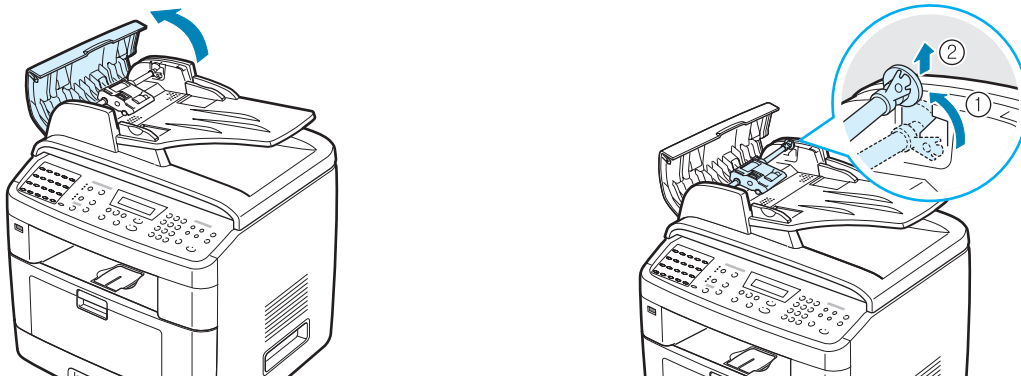
Do not use tweezers or other sharp metal tools when removing a paper jam. You can damage the toner cartridge, fuser rollers, or damage wiring leading to the potential for electric shock.

6.2.1 Clearing ADF Jams

“Document Jam” appears on the display if a jam has occurred while feeding paper through the ADF.

6.2.1.1 ADF Misfeed

1. Open the top cover and gently pull the document gently to the right and out the ADF



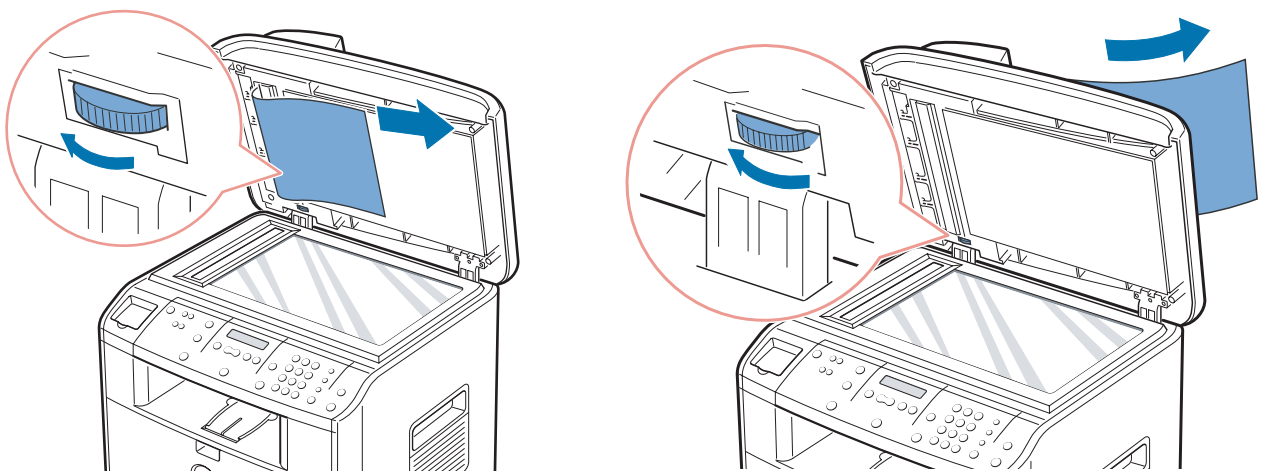
2. Close the ADF top cover and reload the document(s).

Note

To prevent ADF document jams, use the platen for thick, thin or mixed document media.

6.2.1.2 ADF Exit Misfeed or ADF Roller Misfeed

1. Lift the document cover.
2. Turn the release knob to remove misfeeds from the feed or exit area.
3. Close the document cover and reload the documents.

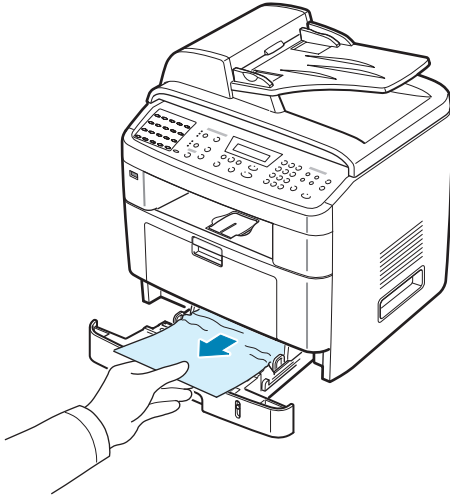


6.2.2 Jam 0 - Paper in the Feed Area

1. Open and close the front cover, this causes the jammed paper to automatically exit the system.
2. If the paper does not exit the system, open the paper tray and remove pulling the media straight out.
3. Open and close the front cover to resume printing.

Note

If there is too much resistance, the paper does not move when pulling on it or if the paper is not visible, go to Jam 1, fuser or toner cartridge jam.

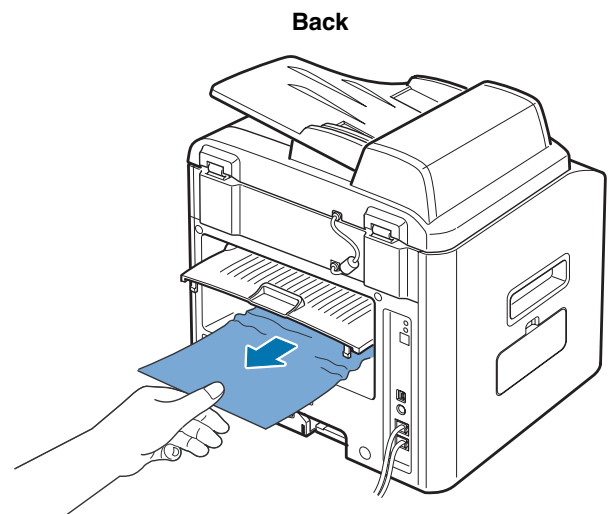
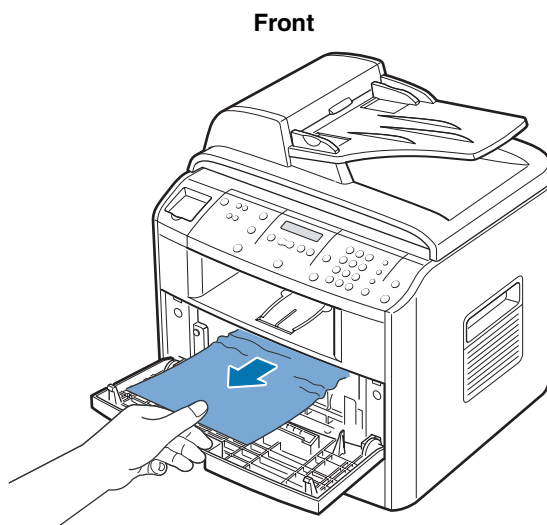


6.2.3 Jam 1 - Paper in the Fuser Area or Around the Toner Cartridge

Caution

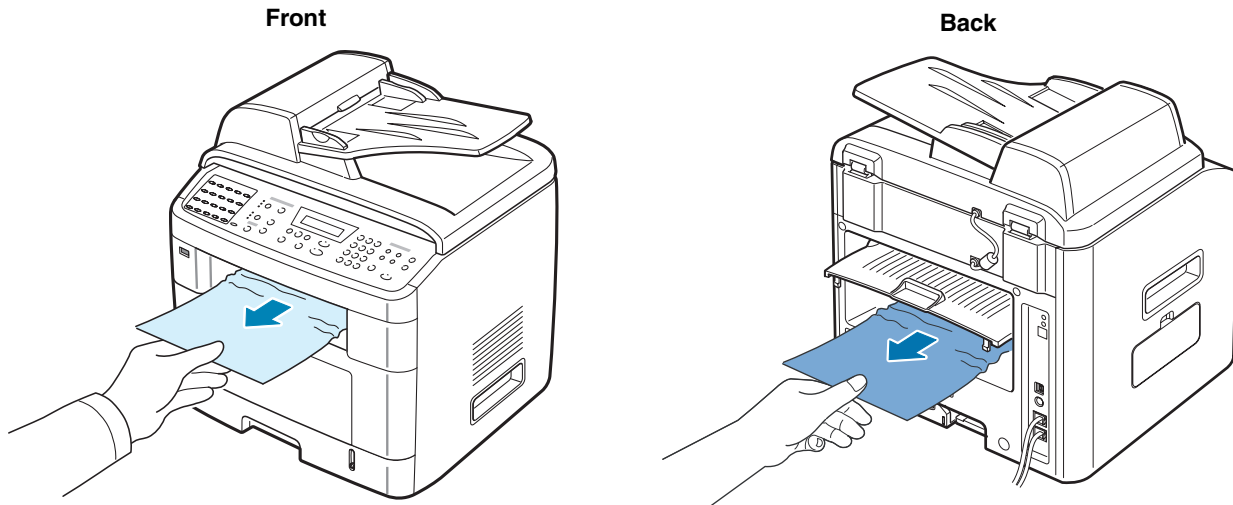
The fuser area is HOT. Be careful when removing paper.

1. Open the front cover and remove the toner cartridge.
2. Remove the jammed paper by pulling it straight out.
3. Replace the toner cartridge and close the front cover to continue printing.



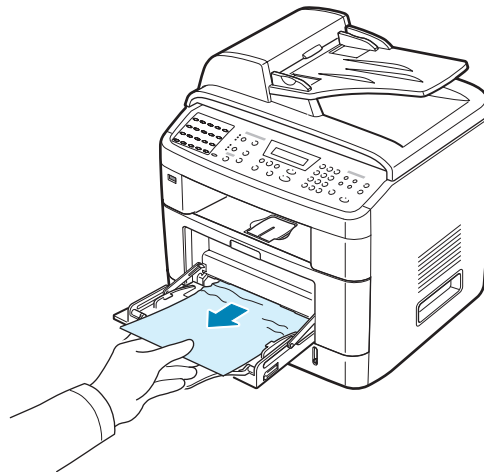
6.2.4 Jam 2 - Paper in the Exit Area

1. Open and close the front cover, this causes the jammed paper to automatically exit the system.
2. Remove the jammed paper by pulling it straight out.
3. If there is any resistance, open the rear cover and and remove the jammed paper from the back of the system.



6.2.5 MP Tray Jam - Paper in the Bypass Tray

This jam occurs when using the MPT or bypass tray. The system does not detect paper in the tray due to the absence of media or improper loading.



6.3 Control Panel Menu

1. Paper Setting

Copy Tray
Fax Tray
Paper Tray
Paper Size

2. Machine Setup

Machine ID
Date&Time
Clock Mode
Language
Power Save
Scan Power Save
Import Settings
Export Settings
USB Mode

3. Copy Setup

Change Default
Timeout

4. Fax Setup

Receive Mode
Ring to Answer
Lighten/Darken
Redial Term
Redials
MSG Confirm.
Auto Report
Auto Reduction
Discard Size
RCV Start Code
DRPD Mode

5. Fax Feature

Delay Fax
Priority Fax
Add Page
Cancel Job

6. Advanced Fax

Send Forward
RCV Forward
Toll Save
Junk Fax Setup
Secure Receive
Prefix Dial
Stamp RCV Name
ECM Mode

7. Reports

Phone Book
Sent Report
RCV Report
System Data
Scheduled Jobs
MSG Confirm
Junk Fax List

8. Network Setup

Reset Network
Config Network
Set to Default
Print Net CFG

9. Sound/Volume

Speaker
Ringer
Key Sound
Alarm sound

0. Maintenance

Clean Drum
Auto Cleaning
Notify toner
Clear Settings

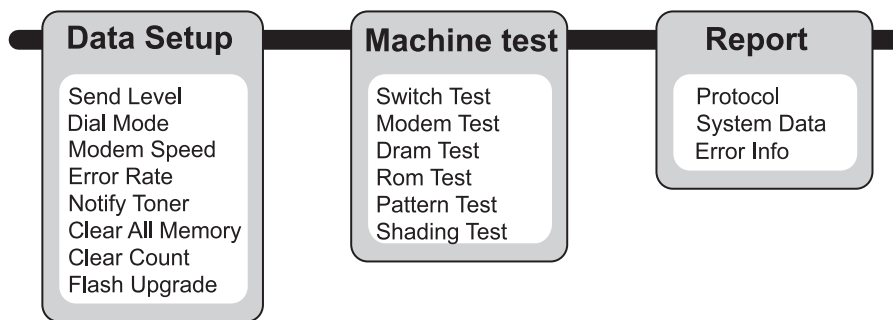
6.4 Tech Mode

In Tech (service) Mode the technician can check the system and perform various tests to help with diagnosing problems. While in Tech Mode the system still performs all normal operations.

6.4.1 Entering Tech Mode

1. Press the following buttons in order: Menu, #, 1, 9, 3, 4
2. The LCD displays 'TECH' and the system is now in Tech Mode.

6.4.2 Tech Mode Menu



6.4.3 Data Setup

SEND LEVEL:

This sets the fax send level for the transmission signal. Typically, the transmission (send) level should be under -12 dBm.

Note

The send fax level is set for optimal performance at the factory. Do not change this setting unless it is needed for troubleshooting.

DIAL MODE:

This function chooses the dialing method for Tone or Pulse. The default is Tone.

MODEM SPEED

This sets the modem speed.

When the fax establishes communication with a remote set, the value of the maximum modem speed is checked for both transmitter and receiver. The lowest value is used. It is best set to the default setting of 33.6Kbps.

ERROR RATE

When the error rate is about to exceed the set value, the Baud rate automatically adjusts to 2400 bps, this ensures that the error rate remains below the set value. You can select a rate between 5% and 10%.

CLEAR ALL MEMORY

All the values are returned to default, and all the information which was set by the user will be erased.

1. Select **Clear All Memory** in TECH MODE.
2. Push the **ENTER** button.
3. Select your country group. (There are four country groups. Refer to the table below.)
4. Push the **ENTER** button again, the system will now clear all memory.

Caution

If the main board is replaced, a memory clear needs to be performed for the system to operate properly.

Country Group	USA/Canada	UK	Russia	South Africa		
Country	USA/Canada	UK	Russia	South Africa		
	Mexico	Germany	India			
	Brazil	France	Oman			
		Italy	Poland			
		Spain	Bangladesh			
		Austria	Kuwait			
		Netherlands	Moroco			
		Belgium	Algeria			
		Portugal	Pakistan			
		Sweden	UAE			
		Norway	Bahrain			
		Denmark	Srilanka			
		Finland	Saudi Arabia			
		Switzerland	Chile			
		Greece	Peru			
		Ireland	Argentina			
		Turkey	Hungary			
			Romania			
			Bulgaria			
			Czech			

6.4.4 Machine Test

SWITCH TEST

This feature is used to test all the buttons/keys on the control panel. The results are displayed on the LCD each time a button/key is pressed.

MODEM TEST

This is used to hear various transmission signals to the telephone line from the modem. It is also used to check the modem, amplifier and speaker. If no transmission signal sound is heard, the modem piece on the main board, amplifier, speaker or speaker harness is faulty.

DRAM TEST

This tests the systems DRAM. The results appear on the LCD. If all memory is working properly the LCD reports <OK>.

ROM TEST

This tests the systems ROM. The result and the software version appear on the LCD:

- FLASH VER: #.##V
- ENGINE VER: #.##V

PATTERN TEST

This prints a test pattern to verify the system is function properly. **This is a factory use only test.**

SHADING TEST

This prints a test pattern to see if the scan quality, determined by characteristics in the CCD, are optimal. If image quality is noticeably poor the CCD may need replacement. **This is a factory use only test.**

6.4.5 Report

PROTOCOL LIST

This list shows the sequence of the CCITT group 3 T:30 protocol during the most recent sending or receiving operation. Use this list to check for send and receive errors.

SYSTEM DATA

This list provides the user system data settings and tech mode settings.

6.5 Engine Test Mode

The engine test mode supplies functions to check the condition of each device in the print engine and displays the result of the test on the LCD. It is divided into 5 functions (0 - 4).

6.5.1 Entering Engine Test Mode

1. Press the following buttons in order: Menu, #, 1, 9, 3, 1
2. The LCD briefly displays 'ENGINE TEST' and the system is now in Engine Test Mode.
3. Press 0, 1, 2, 3, or 4 to select the test number.

Test Number	Sub Number	Engine Test	Results
0	1	Motor Test	1 : On, 2 : Off – next test selected
	2	Pick Up Test	1 : On, 2 : Off – next test selected
	3	Fan Test	1 : On, 2 : Off – next test selected
	4	Manual Clt Test	1 : On, 2 : Off – next test selected
	5	PTL Test	1 : On, 2 : Off – next test selected
1	1	LSU Motor Test	1 : On, 2 : Off – next test selected
	2	LSU Hsync Test	1 : On, 2 : Off – next test selected
	3	LD Test	1 : On, 2 : Off – next test selected
2	1	Feed Sensor Test	1. Check : read the sensor 2. Next : Next Sensor test
	2	Exit Sensor Test	1. Check : read the sensor 2. Next : Next Sensor test
	3	Cover Sensor Test	1. Check : read the sensor 2. Next : Next Sensor test
	4	Empty Sensor Test	1. Check : read the sensor 2. Next : Next Sensor test
	5	Manual Sensor Test	1. Check : read the sensor 2. Next : Next Sensor test
3	1	Therm ADC 180	1 : On, 2 : Off (maintain the fusing temp. 80PC)
	2	Therm ADC 140	1 : On, 2 : Off (maintain the fusing temp. 135PC)
	3	Therm ADC 120	1 : On, 2 : Off (maintain the fusing temp. 160PC)
	4	Therm ADC 100	1 : On, 2 : Off (maintain the fusing temp. 191PC)
4	1	MHV Test	1 : On, 2 : Off (-1550V ± 50V)
	2	Dev Bias Test	1 : On, 2 : Off (-430V ± 20V)
	3	THV EN/NEG Test	1 : On, 2 : Off (-1200V +300V/-150V)
	4	THV ON (1300V)	1 : On, 2 : Off (+1300V ± 20V)
	5	THV ADC 1300V	1 : On, 2 : Off (ADC Value : 101 ± 5)
	6	THV ADC 600V~3500V	1 : On, 2 : Off (Compare each ADC Value)

6.5.3 Detailed Description Engine Test Mode

Function Name	Description	Display
01. Motor Test	The main motor starts when executed and stops when the stop key is pressed.	Main Motor On/Off
02. Pick Up Test	Automatically stops, when the execution key is chosen.	Tray 1, 2 Solenoid On/Off
03. Fan Test	The fan starts at execution and stops when the stop key is pressed.	Fan On/Off
04. Manual Clutch Test	The tray 2,3 clutch is on for 1second at execution and then automatically stops. The main motor runs for 2 seconds from the time of the clutch ON, in order to check the clutch state.	Tray 2, 3 Clutch On/Off
05. PTL Test	PTL(Pre-Transfer Lamp) turns on at execution and stops when the stop key is pressed.	PTL On/Off
11. LSU Motor	The laser motor starts when executed and stops when the stop key is pressed.	Laser Motor On/Off
12. LSU Hsync Test	The LSU motor starts and "Laser Ready" is displayed if the motor spins at the correct speed, otherwise a "Laser Error" will display.	Laser Leady On/Off
13. LD Test	"Diode On" is displayed, when the laser diode is on. Otherwise "Diode Off" is displayed.	Diode On/Off
21. Feed Sen Test	These functions allow the current state of the sensor to be displayed.	"Sensor Off" or " Sensor On "
22. Exit Sen Test		
23. Cover Sen Test	This allows the current state of the cover sensor to be displayed. Actuate the sensor and confirm that the message changes: "Cover Open" /" Cover Close"	"Cover Open" or "Cover Close"
24. Empty Sen Test	These functions allow the current state of the sensor to be	"Sensor Off" or " Sensor On "
25. Manual Sen Test	displayed.	
31. Therm ADC 180	"Current value" is displayed on the upper line of the LCD, and "Target value" is displayed on the bottom line. Target value is limited from "191°C" to "80°C"	
32. Therm ADC 140		
33. Therm ADC 120		
34. Therm ADC 100		
41. MHV Test	These functions are provided to check whether the control of the HVPS is functioning correctly.	MHV On/Off
42. Dev Bias Test		Dev Bias On/Off
43. THV EN/NEG Test		THV EN/NEG On/Off
44. THV ON(1300V)		THV On/Off
45. THV ADC 1300V		ADC value displayed.
46. THV ADC 600V~3500		ADC value displayed.

6.6 Identify Sale Date

This function confirms the date that the consumer bought the product and used the product for the first time. When the consumer first operates the system, it will start the scan and page counters. The time the system was first used is also displayed.

Note

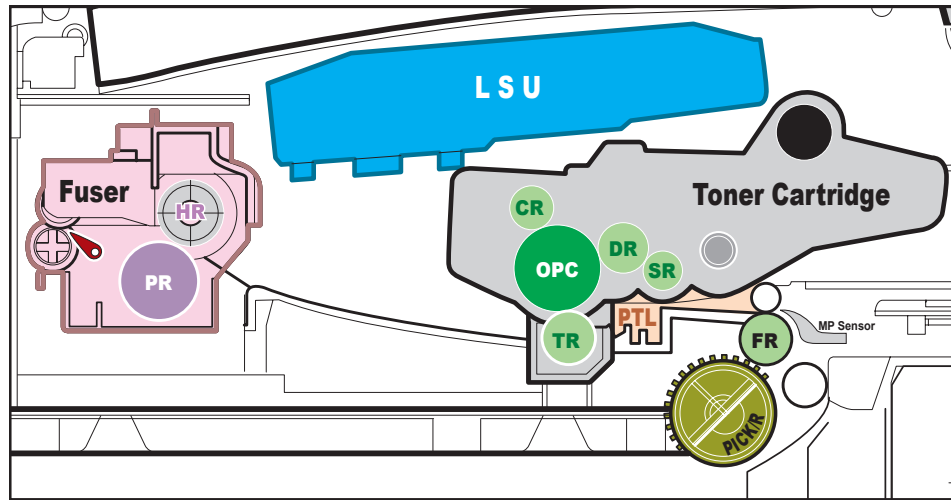
These settings are stored even after a memory delete (Clear All Memory).

To use this function:

1. Press MENU, #, 1, 9, 3, # in sequence. The Firmware version is displayed on the LCD.
2. Press 1 (on the number keypad) : The LCD display shows "Updated date"
3. Press 2 (on the number keypad) : The LCD display shows "Product first use date"

6.8 Periodic Defective Image or Abnormal Printing

If a mark or other printing defect occurs at regular intervals down the printed page it may be caused by a damaged or contaminated roller. Measure the repeating defect and refer to the table below to identify the problem component.



- | | |
|---------------------|-------------------|
| ① OPC Drum | ⑤ Transfer Roller |
| ② Charge Roller | ⑥ Heat Roller |
| ③ Supply Roller | ⑦ Pressure Roller |
| ④ Developing Roller | |

No	Roller	Defective image	Typical defect
1	OPC Drum	75.5 mm	white spot on black image or black spot
2	Charge Roller	37.7 mm	black spot
3	Supply Roller	44.9 mm	light or dark horizontal density image band
4	Developing Roller	35.2 mm	horizontal density band
5	Transfer Roller	47.1 mm	Back side contamination/transfer fault
6	Heat Roller	77.8 mm	black spot and fuser ghost
7	Pressure Roller	75.4 mm	black spot on the backside

6.9 Error Messages

The front panel displays the printer's status or error messages. Refer to the list below for an explanation of these messages and how to clear problems.

MP TRAY JAM [DOOR OPEN]

A paper jam has occurred in the bypass feeder or the media has been improperly fed.

Solution: Clear the paper jam. Load paper in the bypass feeder correctly.

Cancel ? 1. Yes 2. No

While storing the document in memory the memory has become full.

Solution: To cancel the fax job, press the '1' button to accept "Yes." If you want to send the pages that were stored press the '2' button to accept "No." This will send ONLY the pages stored. The remaining pages should be sent later when more memory becomes available.

[COMM. Error]

The multi-function printer has a communication problem.

Solution: Ask the sender to try again.

Low Heat Error / Open Heat Error

There is a problem in the fuser unit.

Solution: Check thermostat, thermister contact point & Heating Lamp.

[Over Heat]

The printer has overheated.

Solution: The system will automatically return to standby mode when it cools down to a normal operating temperature. If this error persists, check the Fuser assembly and wiring.

Delayed Function Full

The delayed fax job list or memory space is full.

Solution: Cancel any unnecessary delayed fax jobs.

Document Jam

The loaded document has jammed in the Automatic Document Feeder (ADF).

Solution: Clear the document jam.

[Door Open]

The front or rear cover is not securely latched.

Solution: Close the cover until it locks into place.

Enter Again

Unavailable item entered.

Solution: Enter the correct item again.

Function Impossible

A combination of printer functions that can not be used at the same time.

Solution: Reduce the number of selected functions or use only one function at a time.

Group Not Available

Selected a group location number where only a single location number can be used, such as when adding locations for a broadcasting operation.

Solution: Use a speed dial number or dial the number manually using the number keypad.

[LSU Error]

A problem has occurred in the Laser Scanning Unit (LSU).

Solution: Use Engine Test mode to test LSU. Replace the LSU

Invalid Cartridge or No Cartridge

A non-Xerox brand toner cartridge is installed.

Solution: You must use a Xerox toner cartridge.

[Line Error]

The system cannot connect with the remote machine or has lost contact because of a problem with the phone line.

Solution: Try again. If the problem persists, wait an hour or so for the line to clear and try again. Or, turn the ECM on.

Memory Full

The memory is full.

Solution: Delete any unnecessary documents (delayed transmission, broadcast or polling jobs) or retransmit after more memory becomes available. This can also be caused when a large complex document with many pages is being sent, try splitting the job into more than one operation.

[No Answer]

The remote fax machine has not answered after several redial attempts.

Solution: Try again. Verify the number to make sure a fax can be received.

No. Not Assigned

The speed dial location used has no number assigned to it.

Solution: Dial the number manually using the number keypad or assign the number.

No. Not Available

The user tried to delete the number for a delayed fax job.

Solution: Verify the number to be deleted and try again. Or Delete the number after the delayed fax job is completed or deleted.

[No Paper] Add Paper

The paper in the paper tray has run out.

Solution: Load paper in the paper tray.

Operation Not Assigned

The user is performing an Add / Cancel operation, but there are no jobs waiting.

Solution: Check the display to see if there are any scheduled jobs. The display should indicate if any scheduled jobs are in Standby mode, for example, Delay Fax.

[Paper Jam 0] Open/Close Door

Paper has jammed in the feeding area of the paper tray.

Solution: Clear the jam.

[Paper Jam 2] Check Inside

Paper has jammed in the paper exit area.

Solution: Clear the jam.

[Power Failure]

The power has been turned off and then on and the printer's memory has not been saved.

Solution: The printer's memory was not saved due to a power failure. The job will need to be started over.

Registered

The group dial location is already registered with another speed dial number.

Solution: Select another group dial location.

[Retry Redial?]

The multi-function printer is waiting for a specified time interval to redial a previously busy station.

Solution: You can press <Select> to immediately redial, or <Cancel> to cancel the redial operation.

[Toner Low]

The toner is almost empty.

Solution: Take out the toner cartridge and gently shake it. By doing this, you can temporarily reestablish printing operations. Or Replace the toner cartridge with a new one for the best print quality.

Priority Fax Function Full

The priority fax job queue is full.

Solution: Cancel any unnecessary priority fax jobs.

[Incompatible]

The remote machine did not have the requested feature, such as a sending a color fax. This message also occurs if the remote machine does not have enough memory space to complete the operation you are attempting.

Solution: Reconfirm the remote machine's features.

[Jam 1] or [No Cartridge]

Paper has jammed in the paper exit area. Or, the toner cartridge is not installed.

Solution: Clear the jam. Or, install the toner cartridge.

[Line Busy]

The receiving party did not answer or the line is already engaged.

Solution: Try again after a few minutes.

Load Document

The user attempted to set up a copy or fax operation with no document loaded into the ADF.

Solution: Load a document into the ADF and try again.

Scanner Locked

The scanner module is locked

Solution: Unlock the scanner and press Stop/Clear.

[Stop Pressed]

The Stop/Clear button has been pressed during a copy or fax operation.

Solution: Try again.

[Toner Empty] Replace Toner

The toner cartridge has run out. The machine stops printing.

Solution: Replace the toner cartridge with a new one.

[Retry Redial?]

The system is waiting for a specified time interval to redial a previously busy station.

Solution: You can press Enter to immediately redial, or Stop/Clear to cancel the redial operation.

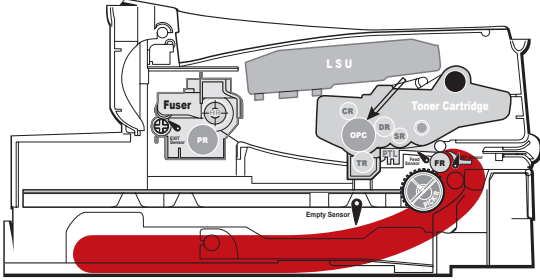
7 Troubleshooting

7.1 Paper Feed Problems

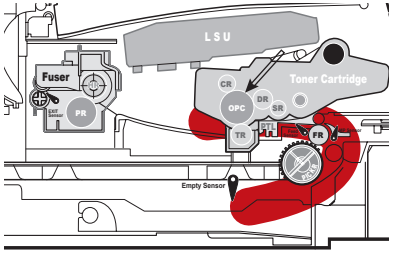
7.1.1 Wrong Print Position

Printing begins at the wrong position on the paper.	
Possible Cause	Solution
1. Defective feed sensor.	a. Replace the defective acutator/sensor.

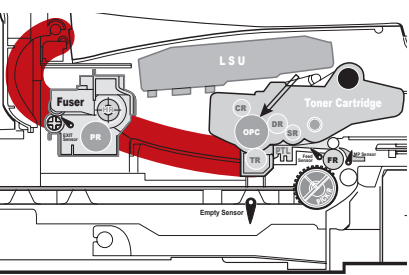
7.1.2 Jam 0

	<p>Description: Paper does not leave the tray. Jam 0 occurs if the paper is fed into the printer.</p>
Possible Cause	Solution
<ol style="list-style-type: none"> 1. Defective solenoid. 2. Defective tray or bypass knock up plate and springs. 3. Defective or damage paper separator pad. 4. Contaminated pick rollers. 	<ol style="list-style-type: none"> a. Use Tech Mode to test the solenoid. Replace the solenoid if defective. b. Check the cassette or bypass tray knock up plate. Repair or replace as required. c. Clean the separator pad, or replace as required. d. Replace the tray if defective. e. Clean the pick rollers. Replace if defective. f. Ensure all rollers are free from debris and rotating freely. g. Check the SMPS, main board and all connections. Replace any defective parts.

7.1.3 Jam 1

	<p>Description: There is a paper jam in front of or inside the fuser. There is a paper jam stuck in the discharge roller and in the fuser, just after passing the feed actuator.</p>
<p>Possible Cause</p>	<p>Solution</p>
<ol style="list-style-type: none"> 1. Defective exit sensor/actuator. 2. Defective feed actuator. 	<ol style="list-style-type: none"> a. Replace the exit sensor, SMPS, or main board. b. Replace the feed actuator and spring if defective.

7.1.4 Jam 2

	<p>Description: There is a jam in front of or inside the fuser. Paper is stuck in the discharge roller and in the fuser just after passing through the feed actuator..</p>
<p>Possible Cause</p>	<p>Solution</p>
<ol style="list-style-type: none"> 1. If the paper has exited the printer and a Jam2 occurs the exit sensor is defective: <ul style="list-style-type: none"> ■ After paper passes the exit sensor, the flag should return to its normal position. The flag may stick or return too slowly due to contamination or foreign objects obstructing its path. 2. If there is an accordion paper jam in the fuser: <ul style="list-style-type: none"> ■ The guide claw is damaged. ■ The spring on the guide is damaged. ■ The heat roller or pressure roller is contaminated with toner. 	<ol style="list-style-type: none"> a. Look for debris or contamination around the exit sensor and actuator. b. Check the exit sensor and actuator for damage. c. Replace if defective. d. Replace the fuser.

7.2.5 Multiple Pick

Description: Multiple sheets of paper are picked from the tray at the same time.	
Possible Cause	Solution
<ol style="list-style-type: none"> 1. The paper guides are set incorrectly. 2. The paper has a rough surface. 3. The friction pad is damaged or contaminated. 4. The solenoid is not functioning properly. 	<ol style="list-style-type: none"> a. Adjust the guides so they fit snugly against the paper in the tray. b. Make sure the paper size selected in the print driver is the same as the paper in the tray. c. Use the appropriate supported paper type for this printer. Try a paper with a smoother surface. d. Clean the friction pad or replace if damaged. e. Replace the solenoid.

7.2.6 Paper Rolled in the Fuser

Description: There is an accordion jam in the fuser.	
Possible Cause	Solution
<ol style="list-style-type: none"> 1. The pressure roller or heat roller is damaged or not functioning properly. 2. The paper guides or springs are damaged. 	<ol style="list-style-type: none"> a. Replace the fuser.

7.2.7 Paper Rolled in the OPC Drum

Description: Paper is caught or rolled up in the OPC.	
Possible Cause	Solution
<ol style="list-style-type: none"> 1. The paper is too thin. 2. The paper is curled. 	<ol style="list-style-type: none"> a. Use the appropriate supported paper type for this printer. b. Load a fresh ream of paper. <p>NOTE: To remove paper rolled up in the OPC:</p> <ul style="list-style-type: none"> ■ Remove the toner cartridge from the printer, take care not to touch the green surface. use the gear on the side to rotate the OPC drum and pull the paper from the toner cartridge. ■ Clean any fingerprints on the OPC gently with a soft, lint free cloth, using caution not to scratch the surface.

7.2.8 Defective ADF

Description: The ADF does not operate correctly	
Possible Cause	Solution
<ol style="list-style-type: none">1. The ADF rubber or holder rubber are damaged or contaminated.2. The ADF document sensors (3 paper sensors) are not working correctly.	<ol style="list-style-type: none">a. Replace the contaminated or damaged part.b. Replace the sensors or ADF.

7.2 System Malfunction

7.2.1 LCD Display is Defective

Description: Strange characters are displayed on the LCD window and the control panel buttons do not work.	
Possible Cause	Solution
<ol style="list-style-type: none"> 1. Memory needs to be cleared. 2. The control panel or harness may be defective. 	<ol style="list-style-type: none"> a. Use Clear All Memory from Tech Mode. b. Try reseating the control panel harness. Replace the harness or control panel if defective. c. Replace the main board.

7.2.2 Defective Control Panel Keypad

Description: The buttons on the control panel do not work, or respond incorrectly.	
Possible Cause	Solution
<ol style="list-style-type: none"> 1. Memory needs to be cleared. 2. The control panel or harness may be defective. 	<ol style="list-style-type: none"> a. Use Clear All Memory from Tech Mode. b. Try reseating the control panel harness. Replace the harness or control panel if defective. c. Replace the main board.

7.2.3 Fuser Gear Melted Due to Overheating, Causing a Paper Jam

Description: Constant jam where paper is entering the fuser unit or the fuser rollers are not turning.	
Possible Cause	Sequence of Repair Actions
<ol style="list-style-type: none"> 1. The heat lamp, thermistor, thermostat, or fuser rollers are damaged. 	<ol style="list-style-type: none"> a. Verify the fuser is running at optimal temperatures. b. Run a cleaning page. c. Replace the fuser unit. d. Replace the SMPS. e. Replace the main board.

7.2.4 Paper Empty Error

Description: Paper empty is displayed even when paper is loaded in the tray.	
Possible Cause	Sequence of Repair Actions
<ol style="list-style-type: none"> 1. The paper empty sensor or actuator is damaged or faulty. 2. The SMPS or main board is faulty. 3. Faulty cable or connector. 	<ol style="list-style-type: none"> a. Replace the defective actuator or sensor. b. Replace the SMPS. c. Replace the main board.

7.2.5 Paper Empty Error Without Indication

Description: The tray is empty but not being reported on display.	
Possible Cause	Sequence of Repair Actions
<ol style="list-style-type: none"> 1. The paper empty sensor or actuator is damaged or faulty. 2. The SMPS or main board is faulty. 3. Faulty cable or connector. 	<ol style="list-style-type: none"> a. Replace the defective actuator or sensor. b. Check and replace the wiring to the control panel if faulty. c. Replace the SMPS. d. Replace the main board.

7.2.6 Cover Open

Description: A cover open message is displayed, even though the cover is closed.	
Possible Cause	Sequence of Repair Actions
<ol style="list-style-type: none"> 1. The interlock may be stuck or faulty. 2. The interlock tab on the front cover may be damaged. 3. The sensor switch on the main board may be defective. 	<ol style="list-style-type: none"> a. Use Tech Mode to run the Cover Sensor Test to check the cover switch operation. b. Replace the interlock switch if faulty. c. Replace the front cover. d. Replace the main board.

7.2.7 No Error Message when the Cover is Open

Description: The front cover is open, but nothing is reported on the display.	
Possible Cause	Sequence of Repair Actions
<ol style="list-style-type: none"> 1. The interlock may be stuck or damaged. 2. The control panel LED may be faulty. 3. The sensor switch on the main board may be faulty. 	<ol style="list-style-type: none"> a. Use Tech Mode to run the Cover Sensor Test to check the cover switch operation. b. Replace the interlock if faulty. c. Replace the front cover. d. Replace the cabling or control panel. e. Replace the main board.

7.2.8 Defective Motor Operation

Description: The main motor is faulty and paper does not feed into the printer, resulting in a Jam0.	
Possible Cause	Sequence of Repair Actions
<ol style="list-style-type: none"> 1. The main motor harness or motor board may be faulty. 2. The main board may be faulty. 	<ol style="list-style-type: none"> a. Check motor operation. b. Replace the motor or harness if faulty. c. Replace the main board.

7.2.9 No Power

Description: When the printer is powered ON the LEDs on the control panel do not come on.	
Possible Cause	Sequence of Repair Actions
<ol style="list-style-type: none"> 1. The SMPS or power input are faulty. 2. Control panel doesn't come on, but other normal start-up sounds are heard. 3. After replacing the SMPS, the lamps do not come on and no start up sounds are heard. 	<ol style="list-style-type: none"> a. Replace the power supply cable. b. Check the power fuse on the SMPS, replace the SMPS if necessary. c. Check the control panel wiring. Replace the harness or control panel if faulty. d. Replace the main board.

7.2.10 Printed Vertical Lines Become Curved


Description: When printing the vertical lines are not straight.	
Possible Cause	Sequence of Repair Actions
<ol style="list-style-type: none"> 1. The +24 V supply to the laser unit is faulty. 	<ol style="list-style-type: none"> a. Use the DCU test 05 to test the laser motor. b. If the voltage is stable, replace the laser unit. c. If the voltage is not 24 volts, replace the SMPS. d. Replace the main board.

7.3 Print Quality Problems


7.3.1 Wrong Print Position

Example	Possible Cause	Sequence of Repair Actions
Printing begins with the paper in the wrong position.		
	1. Defective feed sensor.	a. Replace the defective actuator.


7.3.2 Vertical White Lines

Example	Possible Cause	Sequence of Repair Actions
There are white, vertical voids in the printed image.		
	<ol style="list-style-type: none"> Contamination on the window or internal lens of the laser mirror. Foreign object inside the toner cartridge. Low toner. If the fuser is defective, voids occur periodically at the top of a black image. Contamination on the OPC drum. Depression or deformation on the surface of the transfer roller. 	<ol style="list-style-type: none"> Clean the laser window with a recommended cleaner (IPA) and a clean cotton swab. If dirt is inside the laser unit, replace it. Replace the toner cartridge. Open the front cover and check/remove any contamination inside the printer that corresponds to the position of the voids. If the problem is not solved, replace the toner cartridge. Replace the transfer roller.


7.3.3 Horizontal Black Band

Example	Possible Cause	Sequence of Repair Actions
Dark or blurry horizontal stripes periodically appear on the printed image.		
	<ol style="list-style-type: none"> Bad contacts on the toner cartridge high voltage terminals. The rollers in the toner cartridge may be contaminated. <ul style="list-style-type: none"> Charge roller = 37.7 mm Supply roller = 44.9 mm Develop roller = 35.3 mm Transfer roller = 47.1 mm 	<ol style="list-style-type: none"> Clean all HV contacts on the cartridge and printer frame. Ensure all toner or paper dust particles are removed. Clean the Gear that has a relatively small tooth gap on the OPC drum. If the problem persists replace the toner cartridge.

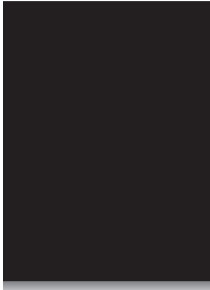
7.3.4 Black/White Spot

Example	Possible Cause	Sequence of Repair Actions
Dark or blurry spots are randomly spread on the page, or white spots are randomly on the page.		
	<ol style="list-style-type: none"> 1. If dark or blurry black spots appear, the rollers in the developer may be contaminated. <ul style="list-style-type: none"> ■ Charge roller: 37.7 mm ■ OPC drum: 75.5 mm 2. If faded areas or voids appear every 75.5 mm or if black spots occur elsewhere, the OPC drum surface is damaged. 3. If a black image is partially broken, the transfer voltage is incorrect or the transfer roller is at its end of life. 4. If the spots appear at 78 mm, the fuser heat roller is contaminated. 	<ol style="list-style-type: none"> a. Print several OPC cleaning mode prints and then run the self-test 2 or 3 times. b. 75.5 mm repeating defect: Examine the surface of the OPC drum and clean with a soft, lint free cloth. c. 37.7 mm repeating defect: Replace the toner cartridge. d. If the transfer roller is at its end of life, replace the transfer roller. e. 78 mm defect: Replace the fuser. <p>NOTE: Cleaning the inside of the printer to remove excess toner or paper dust will reduce the occurrence of this problem.</p>


7.3.5 Light Image

Example	Possible Cause	Sequence of Repair Actions
The printed image is too light, with no ghosting.		
	<ol style="list-style-type: none"> 1. Toner Save mode is enabled. 2. The developer roller is contaminated or the toner cartridge is almost empty. 3. The ambient temperature is below 10° C. 4. Bad contact caused by dirty terminals on the toner cartridge or inside the printer. 5. Abnormal output voltage from the HVPS. 	<ol style="list-style-type: none"> a. Turn Toner Save mode off. b. Replace the toner cartridge and re-test. c. Cycle power to the printer and wait 30 minutes then try printing again. d. Clean the cartridge and printer contacts. e. Clean the inside of the printer. f. Replace the HVPS if none of the above procedures fix the problem.

7.3.6 Dark Image or Completely Black Print

Example	Possible Cause	Sequence of Repair Actions
The printed image is dark or the page is entirely black.		
	<ol style="list-style-type: none"> 1. Charge voltage fault due to bad contact between the toner cartridge and printer contacts. 2. No charge voltage in the engine board. 3. VD0 signal on the main board is in a LOW state. 	<ol style="list-style-type: none"> a. Clean the high voltage contact terminals. b. Check the state of the connector between the main board and the HVPS. c. Replace the HVPS. d. Replace the laser unit. e. Replace the main board.

7.3.7 Uneven Density

Example	Possible Cause	Sequence of Repair Actions
Print density is uneven from left to right.		
	<ol style="list-style-type: none"> 1. The toner level is not even on the toner cartridge roller due to a damaged blade or low toner. 2. The life of the toner cartridge has expired. 3. The pressure force on the left and right springs of the transfer roller are not even or the springs are damaged. 4. The transfer roller is improperly installed. 5. The transfer roller bearings or holders are damaged. 6. Laser window is dirty. 	<ol style="list-style-type: none"> a. Remove the toner cartridge and gently shake it to loosen toner. b. Replace the toner cartridge and retest. c. Replace the left and right bushings and spring assemblies. d. Clean the laser window.

7.3.8 Background Contamination

Example	Possible Cause	Sequence of Repair Actions
Light or dark background contamination appears all over the paper.		
<p>Digital Printer Digital Printer Digital Printer Digital Printer Digital Printer</p>	<ol style="list-style-type: none"> 1. Using unsupported media. 2. Printing large quantities of low coverage (2%) pages or not using the printer for a long period of time. 3. The toner cartridge life has expired. 4. The transfer rollers up/down movement is off. 5. There is a problem with the HVPS. 	<ol style="list-style-type: none"> a. Use only approved media. b. The toner cartridge is designed to print 5,000 sheets at 5% coverage. If 2% is consistently used, background contamination can occur. c. Replace the toner cartridge. d. Clean the transfer roller bushings. e. Clean the high voltage terminals. f. Replace the HVPS.

7.3.9 Ghosting 1

Example	Possible Cause	Sequence of Repair Actions
There is ghosting at 75.5 mm intervals from the OPC drum while printing on card stock, transparencies or using the MPT.		
<p>Digital Printer Digital Printer Digital Printer Digital Printer Digital Printer</p>	<ol style="list-style-type: none"> 1. When printing on card stock, thick paper or transparencies a higher transfer voltage is required. 	<ol style="list-style-type: none"> a. Ensure supported media is being used and the corrency type is selected in the printer driver and software application.


7.3.10 Ghosting 2

Example	Possible Cause	Sequence of Repair Actions
Ghosting appears at 75.5 mm on the whole print.		
<p>Digital Printer Digital Printer Digital Printer Digital Printer Digital Printer</p>	<ol style="list-style-type: none"> 1. Bad contacts caused by contamination from toner particles between the high voltage terminals, the printer, and the electrodes of the toner cartridge. 2. Bad contacts caused by contamination from toner particles between the high voltage terminals the printer, and the one on the high voltage supply board. 3. The toner life has expired. 4. The transfer life has expired. 5. The ambient temperature is too low. 6. There is a damaged cleaning blade in the toner cartridge. 	<ol style="list-style-type: none"> a. Clean all high voltage contacts. b. Replace the HVPS. c. Replace the toner cartridge. d. Replace the transfer roller. e. Replace the main board.


7.3.11 Ghosting 3

Example	Possible Cause	Sequence of Repair Actions
Ghosting occurs at 47 mm intervals.		
<p>Digital Printer Digital Printer Digital Printer Digital Printer Digital Printer</p>	<ol style="list-style-type: none"> 1. The temperature of the fuser is too high. 	<ol style="list-style-type: none"> a. Replace the fuser.

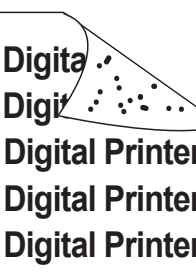
7.3.12 Ghosting 4

Example	Possible Cause	Sequence of Repair Actions
White ghosting occurs every 32 mm on a black image.		
	<ol style="list-style-type: none"> 1. The life of the toner cartridge may be expired. 2. Abnormal output from the HVPS. 	<ol style="list-style-type: none"> a. Replace the toner cartridge. b. Check the HVPS supply voltage. c. Clean all high voltage terminals on the cartridge and in the printer. d. Replace the HVPS.

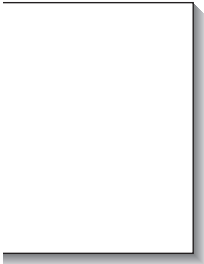
7.3.13 Contamination on the Front of the Page

Example	Possible Cause	Sequence of Repair Actions
There is contamination on the front side of the printed page (toner speckles).		
	<ol style="list-style-type: none"> 1. Toner leakage due to an improperly sealed toner cartridge. 2. The charge roller may be contaminated. 	<ol style="list-style-type: none"> a. Run the PC cleaning mode print 2 to 3 times and perform the self test 2 to 3 times to remove contamination. b. Replace the toner cartridge.

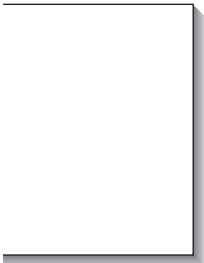
7.3.14 Contamination on the Back of the Page

Example	Possible Cause	Sequence of Repair Actions
The back of the page is stained at 47 mm intervals.		
	<ol style="list-style-type: none"> 1. Transfer roller is contaminated. 2. Pressure roller is contaminated. 	<ol style="list-style-type: none"> a. Run the OPC cleaning mode print 2 to 3 times then run the self test to remove contamination from the transfer roller. b. Replace the transfer roller. c. Replace the fuser.

7.1.15 Blank Page is Printed 1

Example	Possible Cause	Sequence of Repair Actions
The printed page is blank.		
	<ol style="list-style-type: none"> 1. Bad ground contacts in the OPC and/or toner cartridge. 	<ol style="list-style-type: none"> a. Clean the ground terminals on the toner cartridge and inside the printer. b. Check the OPC ground or the OPC diode for defects or an open circuit (inside left side of printer).

7.3.16 Blank Page is Printed 2

Example	Possible Cause	Sequence of Repair Actions
Blank page is printed, one or several blank pages are printed, or when the printer is first powered on several blank pages are printed.		
	<ol style="list-style-type: none"> 1. Bad ground contacts in the OPC and/or toner cartridge. 2. Defective solenoid. 	<ol style="list-style-type: none"> a. Clean the ground terminals on the toner cartridge and inside the printer. b. Check the OPC ground or the OPC diode for defects or an open circuit (inside left side of printer). c. Perform the engine self test using Tech Mode to verify the solenoid is working correctly. d. Replace the main board.

7.4 Fax and Phone Problems

7.4.1 No Dial Tone

Description: There is no dial tone when the On-Hook dial button is pressed	
Possible Cause	Sequence of Repair Actions
<ol style="list-style-type: none"> 1. The telephone line cord is incorrectly connected. 2. The speaker may not be operating correctly. 3. The harness between the LIU and main board may be defective. 	<ol style="list-style-type: none"> a. Check the connection setup. b. Listen for a CLICK sound when the OHD key is pressed. If you don't hear a CLICK, the control panel needs to be replaced. c. Use the Tech Mode "Modem Test" to verify the speaker and amplifier are working. d. Check the LIU to main board wiring, replace if defective. e. Replace the main board.

7.4.2 Defective MF Dial

Description: The MF DIAL is not working.	
Possible Cause	Sequence of Repair Actions
<ol style="list-style-type: none"> 1. Check that the telephone line cord supplied with the set is connected to TEL LINE correctly. 2. Listen for a CLICK sound when the key is pressed. 3. Check the connection of the HARNESS between the LIU and the main board. 4. Check that the SPEAKER is connected correctly. 	<ol style="list-style-type: none"> a. If the telephone cord is OK but there is no dial tone, try plugging a normal telephone into the wall socket. If this is OK then replace the LIU. b. Listen for a CLICK sound when the OHD key is pressed. If you don't hear a CLICK, the control panel needs to be replaced. c. Check the Speaker connection and the harness between the LIU and the main board, replace as necessary. d. Use the Tech mode "Modem Test" to check that the speaker and amplifier are working e. Replace the LIU f. Replace the main board.

7.4.3 Defective FAX FORWARD/RECEIVE

Description: FAX FORWARD/RECEIVE is not working.	
Possible Cause	Sequence of Repair Actions
<ol style="list-style-type: none"> 1. Check that you can hear a dial tone by pressing OHD. 2. Check that you can hear a RECEIVE tone when MODEM testing in TECH Mode. 	<ol style="list-style-type: none"> a. If MODEM testing is normal and there is no dial tone, then try replacing the LIU. b. If testing the MODEM shows a fault replace the main board.

7.4.4 Defective FAX FORWARD

Description: RECEIVE is functioning by FORWARD is not or the data is corrupt.	
Possible Cause	Sequence of Repair Actions
<ol style="list-style-type: none"> 1. Check for NOISE on the line by pressing the On-Hook dial and listening. 2. Check that the destination fax machine can receive forwarded faxes. 	<ol style="list-style-type: none"> a. If you can hear noise on the line, replace the telephone line. b. Try faxing to another machine from this system. c. Replace the LIU.

7.4.5 Defective FAX RECEIVE 1

Description: FORWARD is working but RECEIVE is not functioning or the data received is corrupt.	
Possible Cause	Sequence of Repair Actions
<ol style="list-style-type: none"> 1. Check for NOISE on the line by pressing the On-Hook dial and listening. 2. Check that the destination fax machine can receive forwarded faxes. 	<ol style="list-style-type: none"> a. If you can hear noise on the line, replace the telephone line. b. Try faxing to another machine from this system. c. Replace the LIU. d. Replace the main board.

7.4.6 Defective FAX RECEIVE 2

Description: Receive data is lengthened or cut off during printing.	
Possible Cause	Sequence of Repair Actions
<ol style="list-style-type: none"> 1. Check for NOISE on the line by pressing the On-Hook dial and listening. 2. 	<ol style="list-style-type: none"> a. If you can hear noise on the line, replace the telephone line. b. Try receiving a fax from another machine. c. Replace the LIU. d. Replace the main board.

7.4.7 Defective FAX RECEIVE 3

Description: The phone is ringing continuously, but the system will not answer the call.	
Possible Cause	Sequence of Repair Actions
1. Verify Receive mode is set to FAX mode.	<ol style="list-style-type: none"> a. Replace the LIU. b. Replace the main board.

7.4.8 Defective FAX RECEIVE 4

Description: Received data is reduced by more than 50% while printing.	
Possible Cause	Sequence of Repair Actions
1. Check the settings from the machine sending the fax.	<ol style="list-style-type: none"> a. Correct the problem on the sending machine first. b. Replace the main board.

7.4.9 Defective Automatic Receiving

Description: The automatic receiving function is not working.	
Possible Cause	Sequence of Repair Actions
1. Verify that Receive mode is set to FAX mode.	<ol style="list-style-type: none"> a. If receive mode is set to TEL mode, rese to FAX mode. b. Replace the LIU. c. Replace the main board.

7.5 Copy Problems

7.5.1 White Copies

Description: A blank page prints out when copying.	
Possible Cause	Sequence of Repair Actions
<ol style="list-style-type: none"> 1. The scanner cover is open. 2. Shade profile is incorrect. 3. Reference voltage on the main board is faulty. 	<ol style="list-style-type: none"> a. Close the scanner cover. b. Test the shade profile in Tech Mode. c. Replace the main board.

7.5.2 Black Copies

Description: The page printed when copied is black.	
Possible Cause	Sequence of Repair Actions
<ol style="list-style-type: none"> 1. See, black prints in the Print Quality troubleshooting section of this chapter. 	

7.5.3 Abnormal Noise

Description: There is noise coming from the ADF when copying.	
Possible Cause	Sequence of Repair Actions
<ol style="list-style-type: none"> 1. The scanner motor, gearbox or rollers are defective. 2. Check the motor driver connection to the main board. 	<ol style="list-style-type: none"> a. Check the ADF paper path for dirt, debris, or faulty operation. b. Replace parts as required. c. Replace the main board.

7.5.4 Defective Image Quality

Description: See the Print Quality Problems in section 7.3.	

7.6 Scanning Problems

7.6.1 PC Scanning Problems

Description: Unable to Scan using a PC.	
Possible Cause	Sequence of Repair Actions
<ol style="list-style-type: none"> 1. Faulty cable communication between the system and computer. 2. Driver is improperly installed. 	<ol style="list-style-type: none"> a. Reconnect the PC and system. Replace any faulty cables. b. Re-install the driver and settings. c. Check that the copy functions work correctly to isolate the scan problem. d. Replace the main board.

7.6.2 Poor Quality Output of PC Scanned Images

Description: The image scanned through the PC is not clear or is poor print quality.	
Possible Cause	Sequence of Repair Actions
<ol style="list-style-type: none"> 1. Incorrect driver or application settings. 	<ol style="list-style-type: none"> a. Check the driver and application settings resolution. b. Check the user guide for the proper settings. c. See the Print Quality troubleshooting section.

7.7 Toner Cartridge Servicing

Use only Xerox toner cartridges in the printer. Non-Xerox toner or Third Party toner refills are not guaranteed to work with this printer and can cause malfunctions, print-quality problems, and jamming to occur.

7.7.1 Precautions for Toner Cartridges

Excessive exposure to direct light for more than a few minutes can cause damage to the cartridge and degrade print quality.

7.7.2 Toner Cartridge Life

If the printed image is light due low toner life remaining, 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.

7.7.3 Redistributing Toner

When toner is low, faded or light areas may appear on a printed page. You may be able to temporarily improve the print quality by redistributing the toner. The following procedures can allow you to finish the current print job before replacing the toner cartridge.

1. Grasp the front cover and pull it toward you to open.
2. Remove the toner cartridge from the printer.

Warning

Avoid reaching too far into the printer. The fuser area may be hot.

3. Gently shake the toner cartridge from side to side five or six times to redistribute the toner.
4. Reinsert the toner cartridge into the printer. Ensure that the toner cartridge snaps into place.
5. Close the front cover. Make sure that the cover is securely closed.

Note

If the toner gets on your clothing, wipe it off with a dry cloth and wash clothing in cold water. Hot water sets the toner in the fabric.

7.9 Software Problems

7.9.1 The Printer is Not Responding to the Print Command

The printer is on, but not operating in print mode.

1. Run Self-Test Mode using the menu buttons, press Menu, Enter, Enter:
 - a. If the test print works, there are no hardware problems within the printer and the user should check the application settings.
 - b. If the test print did not print, the system is faulty, continue troubleshooting.
2. Check that the computer and the printer are properly connected.
 - a. Reconnect or replace the connection from printer to computer if faulty or damaged.
 - b. If the connection is sound, continue troubleshooting.
3. The printer is not printing from Windows.
 - a. If you use windows, check that the printer driver in the is set up correctly, the correct port is selected and **Use On-line** is selected in the driver.
 - b. If the printer driver is properly set up, try printing a test page from the driver properties window.
 - c. Verify which program is not printing.
 - d. If no programs can print, try opening Notepad and printing from there.
 - e. If the problem is within a single application, adjust the printing properties within that program.
 - f. If changing the properties in the application print dialog box does not solve the problem, uninstall and reinstall a new driver.
 - g. If the printer is not printing from all programs, and the user is printing using the parallel port, check the port settings. Ensure the following settings:
 - CMOS is on ECP
 - the address is IRQ 7
 - 378 (for parallel port 1).
 - h. Try using USB instead.

7.8.2 The Printer is Not Responding to a Print Command or Strange Fonts are Printing

After receiving a print command, there is no reponse from the printer.

1. Ensure there is sufficient hard disk space for the temporary work files created during printing.
 - a. The message “insufficient printer memeory” means there is a hard disk space problem, rather than a printer RAM problem. Free up space on the hard disk. Use the disk utilities program to delete unnecessary files.
2. The error occurs even though there is plenty of hard disk space.
 - a. The connection or communication between the printer port and computer is incorrect.
 - b. Verify the cable is properly connected and configured for printing. Make sure the CMOS settings are correctly set. For the printer port:
 - Select ECP which supports 12-bit data transfer or SPP which supports 8-bit data transfer.

7.8.3 SPOOL Error

Simultaneous Peripheral Operations Online (SPOOL) is the process Windows uses to manage print jobs. Jobs are processed and then stored on the hard disk until the printer is ready to accept them.

1. Insufficient space on the hard disk in the directory assigned for the basic spool.
 - a. Delete any unnecessary files to provide more space for spool storage.
2. If previous printing errors were not solved.
 - a. There may be files from previous failed print jobs on the hard disk with the name in the form '*.jnl'. Delete these files and reboot Windows to restart the printer.
3. There may be a conflict with other drivers or programs.
 - a. Shut down all other programs except the current one, if possible.
4. When an application program or the printer driver is damaged.
 - a. Delete the printer driver completely and reinstall it.
5. When some files related to the OS are damaged or virus infected.
 - a. After rebooting the computer, check for viruses, restore the damaged files and reinstall the application program which is not working properly.
6. Computer memory is insufficient to support printing.
 - a. Add up more memory to the PC.

How to delete the data in the spool manager.

In the spool manager, the installed drivers and the list of the documents waiting to be printed are shown. Select the document to be deleted and check delete in the menu.

If the job you are deleting is the current job any job data that has already been transferred to the printer's memory will still be printed. If there is a problem with the printer (out of toner, offline, out of paper, etc.) the job may take a long time to delete as it must wait for a time out.

7.9 Networking Problems

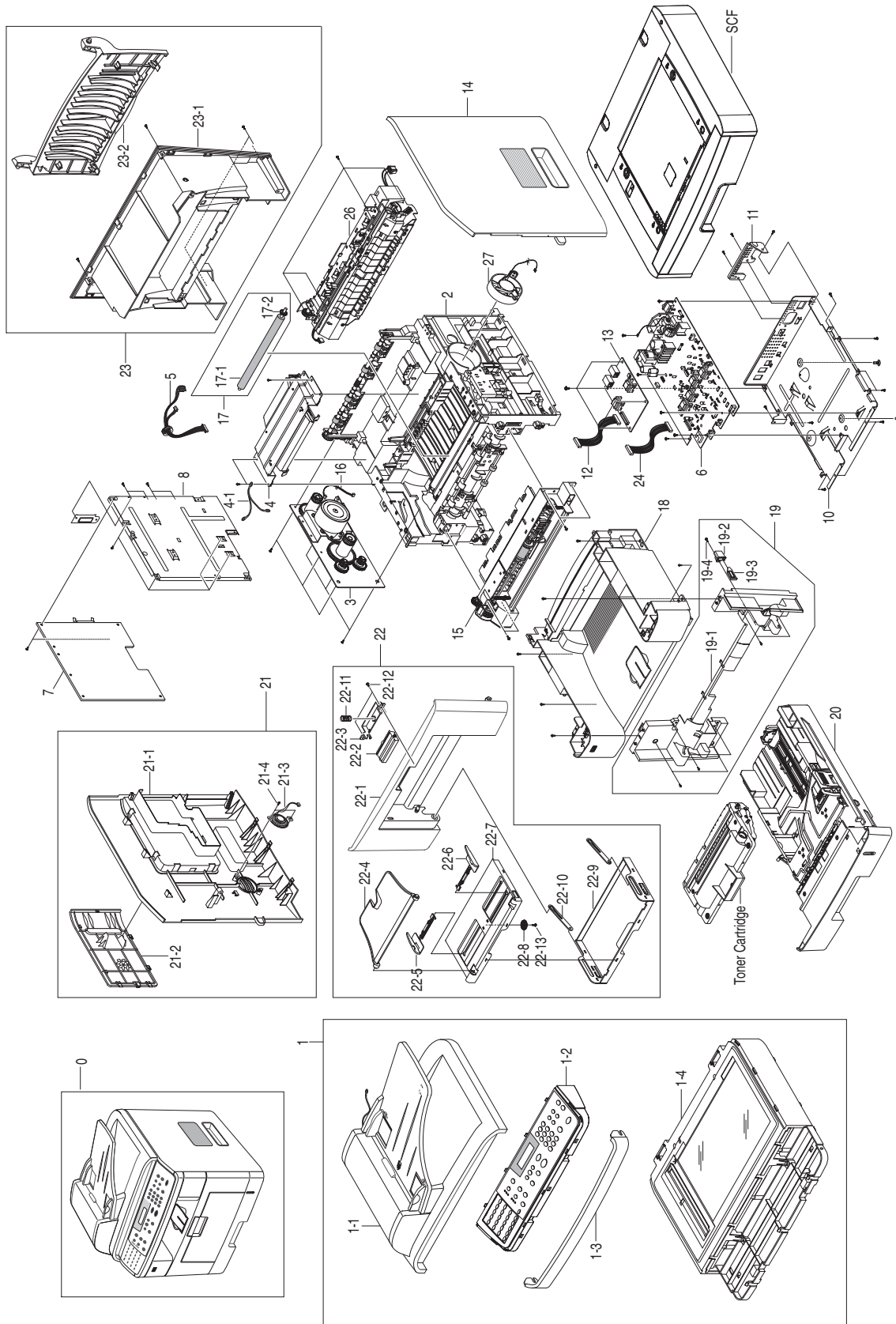
See the User Guide.

8 Parts List

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- 8.2 Main Drive Assembly
- 8.3 ADF Assembly
- 8.4 Control Panel OPE Assembly
- 8.5 Scanner Assembly
- 8.6 Middle Cover Assembly
- 8.7 Frame Assembly
- 8.8 Fuser Unit Assembly
- 8.9 MP Assembly
- 8.10 Tray 1 (Cassette) Unit Assembly
- 8.11 Tray 2 (SCF - Optional Cassette) Unit Assembly

8.1 Main Assembly



Main Assembly Parts List 8.1

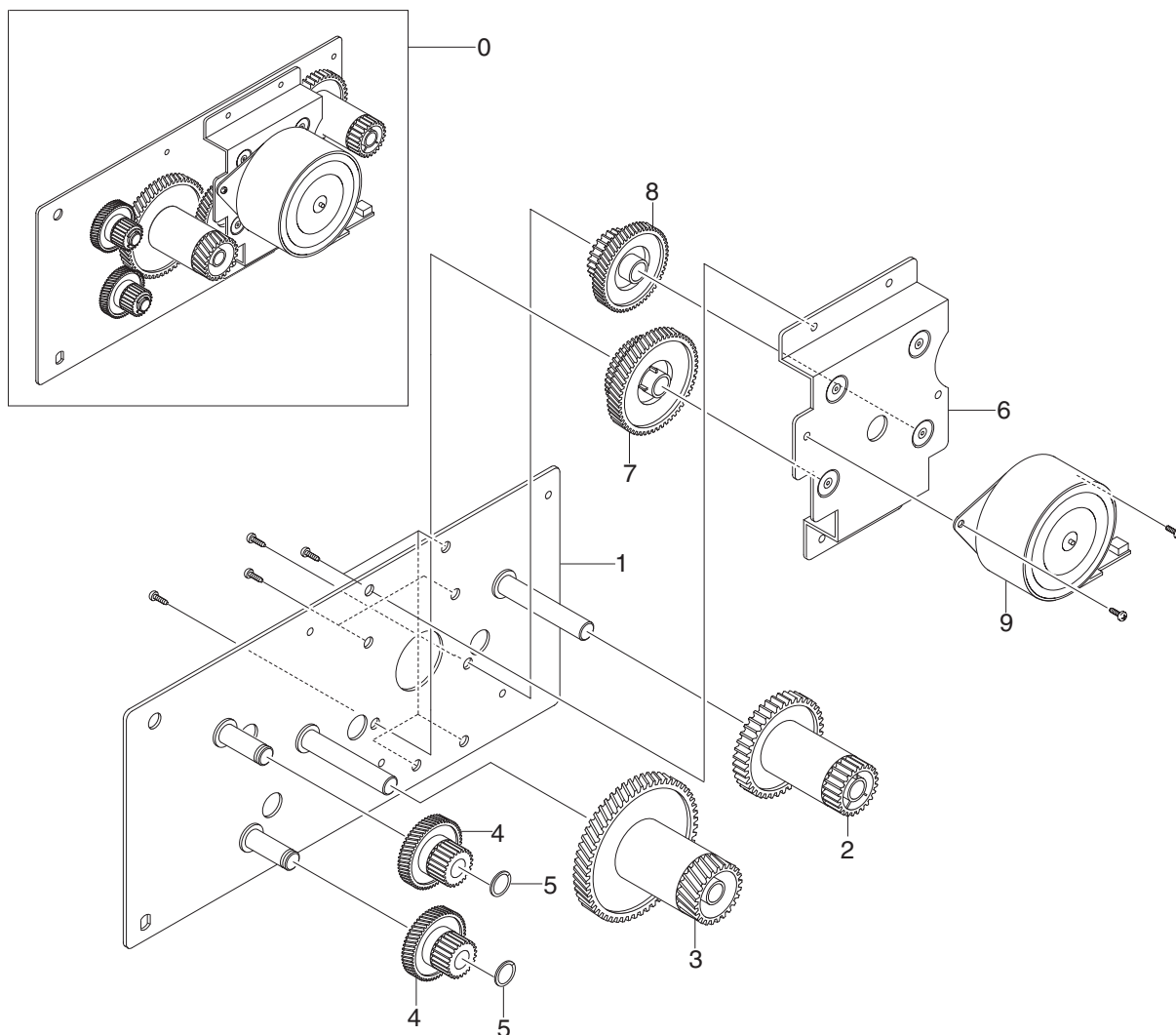
No.	Part Name and (part description)	Qty	Part number	Remark
0	WorkCentre PE120/120i SYSTEM	1		N/S
1	ELA HOU-SCAN	1		N/S
1-1	ELA HOU-ADF	1	002N02331	
1-2	ELA HOU-OPE (XEROX CONTROL PANEL)	1	002N02332	
1-3	COVER-M-OPE FRONT	1		N/S
1-4	ELA HOU PLATEN	1	002N02333	
2	ELA HOU-UNIT FRAME 110_V	1	002N02353	110 V
	ELA HOU-UNIT FRAME 220_V	1	002N02352	220 V
3	ELA HOU RX DRIVE (see PL 8.2)	1	007N01270	
4	UNIT LSU (Laser)	1	122N00258	
4-1	CBF HARNESS-LSU GROUND	1		N/S
5	CBF-HARNESS LSU	1	152N11572	
6	SMPS-HVPS-110_V	1	105N02044	
	SMPS-HVPS-220_V	1	105N02043	
7	PBA MAIN-MAIN CONTROLLER 4 IN 1	1	140N62941	
	PBA MAIN-MAIN CONTROLLER 5 IN 1	1	140N62942 - (includes NIC: 140N63004)	
8	SHIELD-P-CONTROLLER	1		N/S
9	BRACKET-P-DUMMY CTRL	1		N/S
10	MEA UNIT-SHIELD ENGINE	1		N/S
11	BRACKET-P-INLET	1	030N00654	
12	CBF HARNESS-HIGH LIU	1	152N11573	
13	PBA LIU USA/Canada/Eastern Europe/Saudi Arabia/ India/South America	1	140N62943	
13	PBA LIU Western Europe	1	140N62947	
13	PBA LIU Australia	1	140N62948	
13	PBA LIU South Africa	1	140N62949	
14	COVER-M-SIDE-R	1	002N02334	
15	ELA UNIT-MP	1	022N02085	
16	CBF-HARNESS-MOTOR	1	152N11577	
17	MEA ETC-TR (Bias Transfer Roller)	1	022N02079	
17-1	ROLLER TRANSFER R2	1		N/S
17-2	GEAR TRANSFER	1		N/S
18	MEA UNIT-COVER MIDDLE	1	002N02335	
19	MEA UNIT COVER MID FRONT	1	002N02336	
19-1	COVER M MID FRONT	1		N/S
19-2	CAP M SUB ACTUATOR	1		N/S
19-3	PMO M SUB ACTUATOR	1		N/S
19-4	SCREW TAPTITE	1		N/S
20	MEA UNIT-CASSETTE (USA)	1	050N00451	USA
21	ELA HOU COVER SIDE L	1	002N02337	
21-1	COVER SIDE L	1		N/S
21-2	COVER DIMM	1		N/S
21-3	SPEAKER	1		N/S
21-4	SCREW TAPTITE	2		
22	MEA COVER FRONT	1	002N02336	
22-1	COVER M FRONT	1		N/S
22-2	KNOB M LOCKER	1		N/S
22-3	HOLER M LOCKER	1		N/S

Revised
0000011 10/17/2019Revised
0000011 10/20/2019Revised
0000011 10/24/2019Revised
0000011 10/21/2019

Parts List

No.	Part Name and (part description)	Qty	Part number	Remark
22-4	TRAY M EXIT MP	1		N/S
22-5	ADJUST M MP L	1		N/S
22-6	ADJUST M MP R	1		N/S
22-7	TRAY M COVER MP	1		N/S
22-8	GEAR PINION	1		N/S
22-9	TRAY M CASE MP	1		N/S
22-10	TRAY M LINK MP	2		N/S
22-11	SPRING CIS (2)	1		N/S
22-12	SCREW TAPTITE	2		N/S
22-13	SCREW TAPTITE	1		N/S
23	MEA UNIT COVER REAR	1	002N02338	
23	MEA UNIT COVER REAR, 3 IN 1	1	002N02339	
23-1	COVER M REAR	1		N/S
23-2	COVER FACE UP	1		N/S
24	CBF HARNESS-ENGINE	1	152N11574	
25	CBF HARNESS MODULAR JACK	1	152N02000	
26	ELA HOU-FUSER 110_V	1	126N00233	110 V
26	ELA HOU-FUSER 220_V	1	126N00232	220 V
27	FAN DC	1	127N07328	
	ELA TONER UNIT (IMAGING UNIT/ DEVELOPER	1		

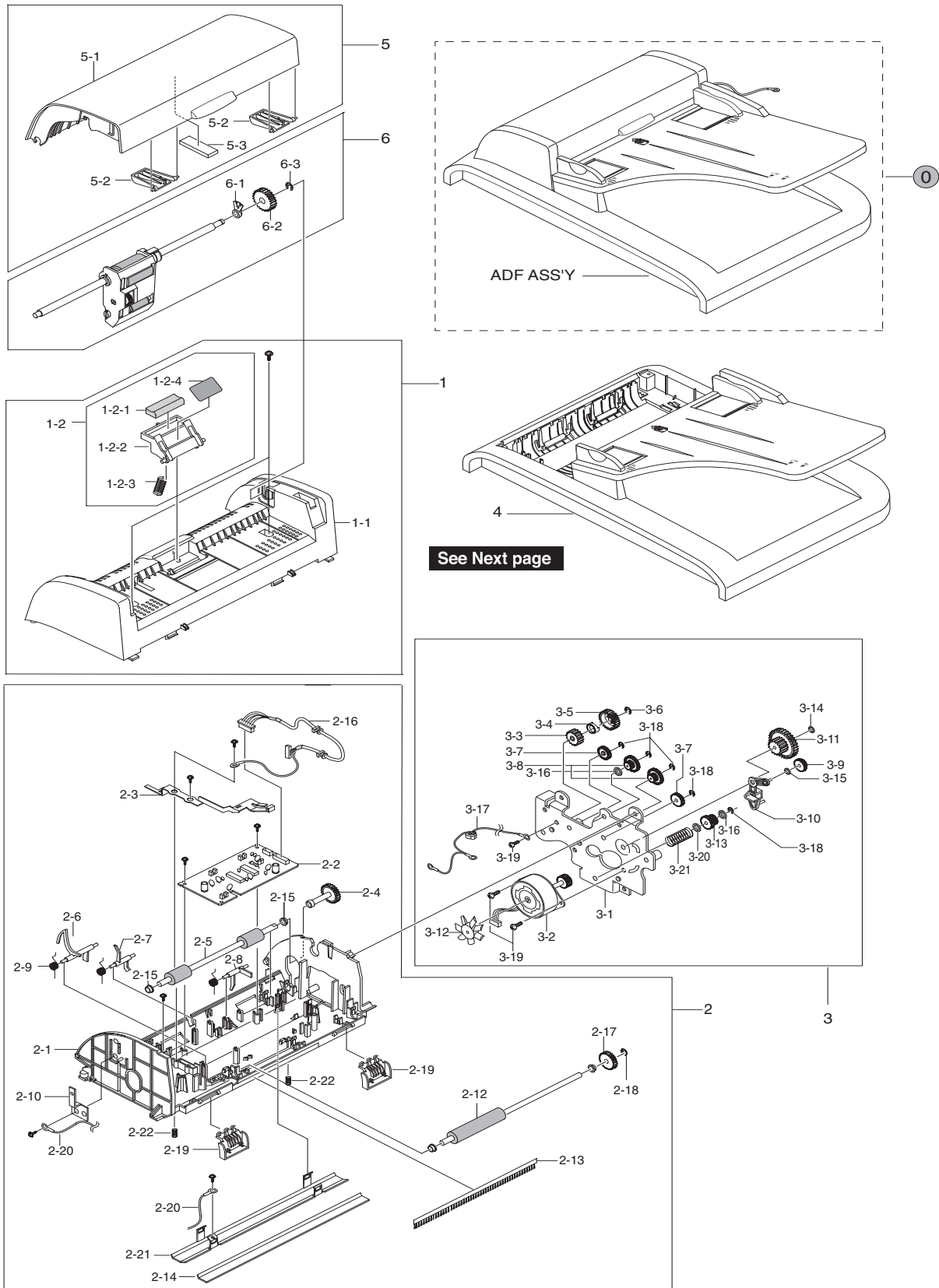
8.2 Main Drive Assembly

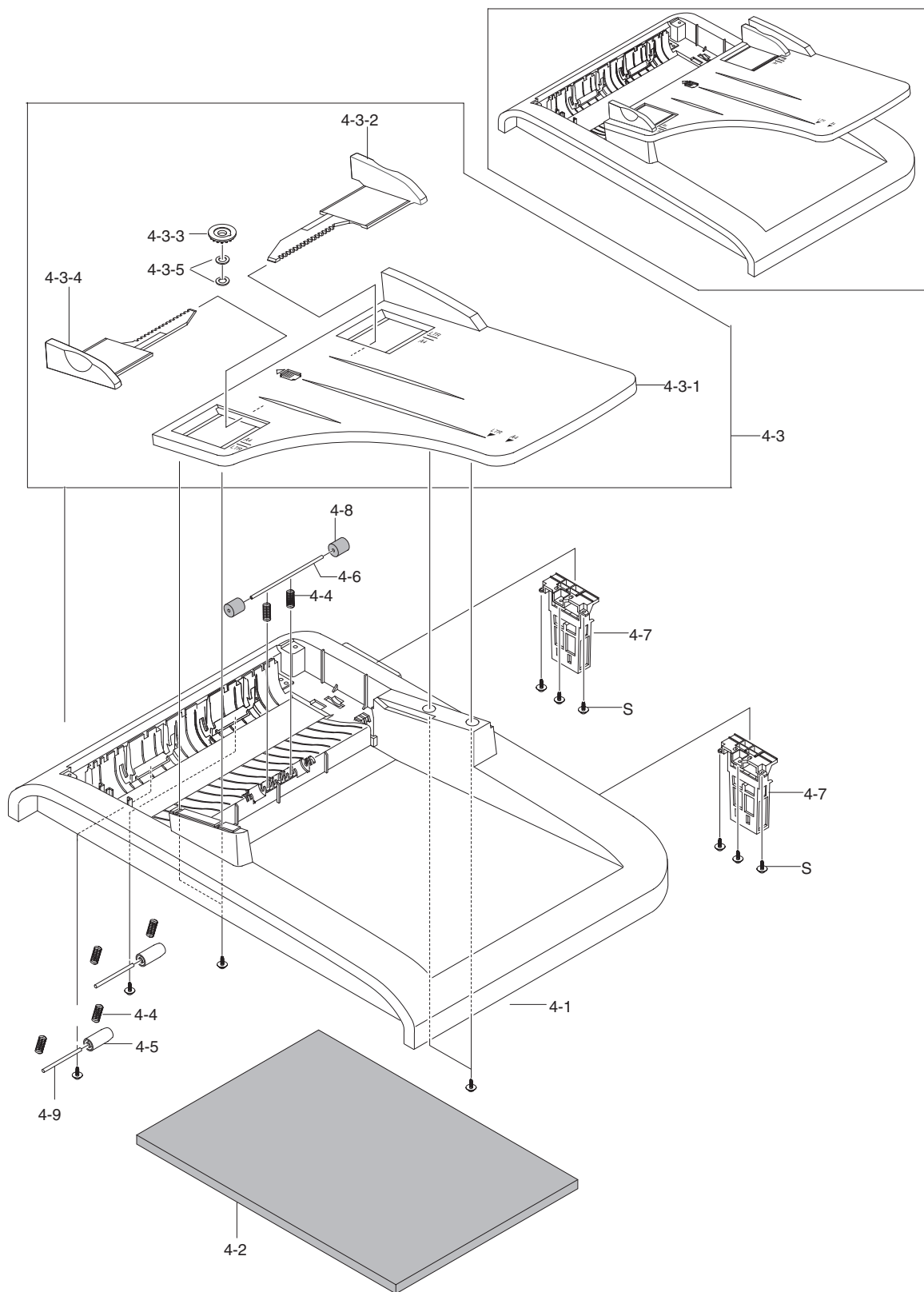


Main Drive Unit Assembly Parts List 8.2

No.	Part Name and (part description)	Qty	Part number	Remark
0	ELA UNIT- DRIVE	1		N/S
1	BRACKET-GEAR MAIN	1		N/S
2	GEAR-RDCN 53/26	1		N/S
3	GEAR-RDCN 113/33	1		N/S
4	GEAR-RDCN 57/18	2		N/S
5	WASHER-PLAIN	2		N/S
6	BRACKET-MOTOR MAIN R2	1		N/S
7	GEAR-RDCN 103/41	1		N/S
8	GEAR-RDCN 90/31	1		N/S
9	MOTOR STEP-MAIN	1		N/S

8.3 ADF Assembly



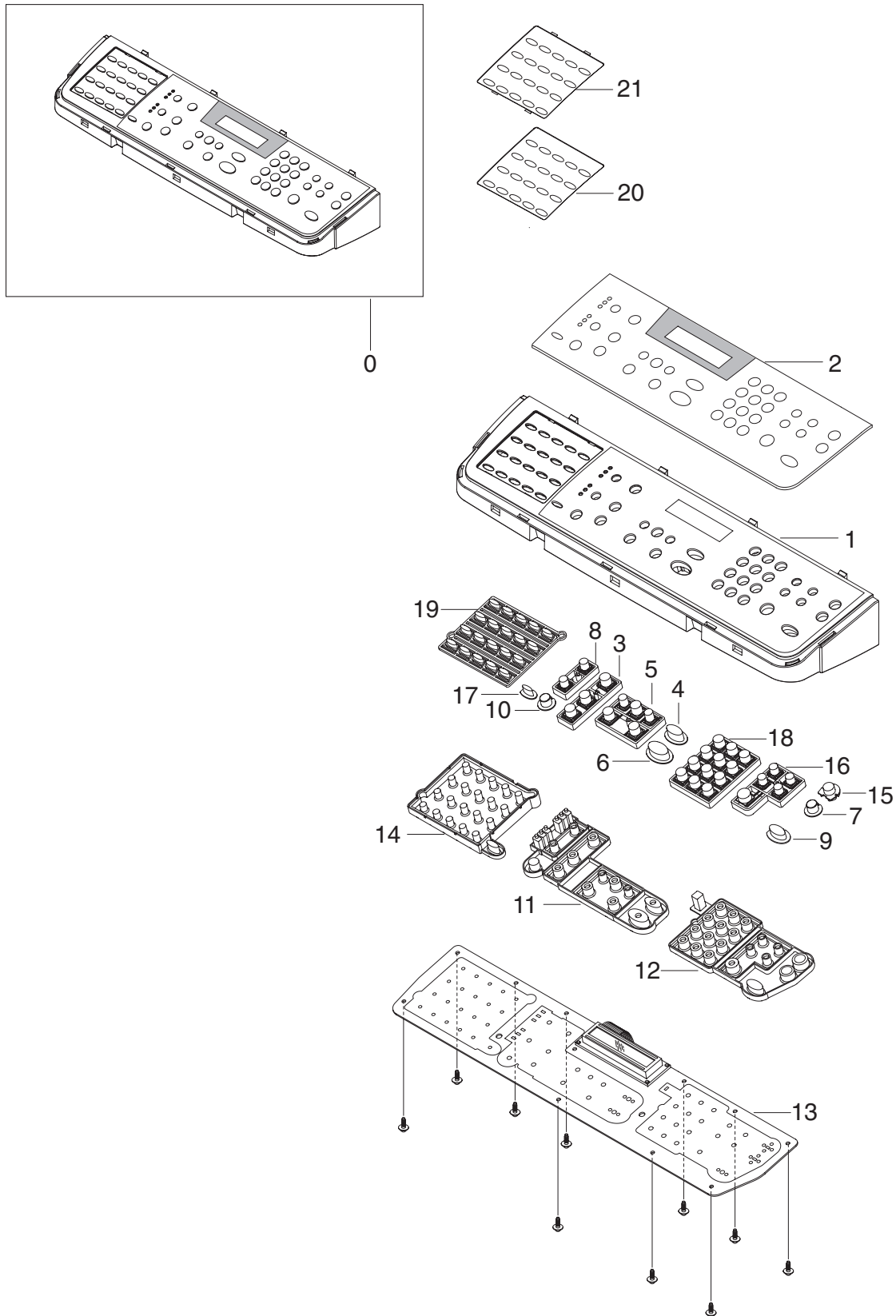


ADF Assembly Parts List 8.3

No.	Part Name and (part description)	Qty	Part number	Remark
0	ELA HOU ADF - SYSTEM	1		N/S
1	MEA UNIT ADF UPPER	1	022N02094	
1 -1	COVER ADF UPPER	1		N/S
1-2	MEA UNIT HOLDER ADF	1	019N00809	
1-2-1	RMO ADF RUBBER	1	019N00566	
1-2-2	HOLDER PAD ADF	1		N/S
1-2-3	SPRING ETC PAD	1		N/S
1-2-4	SHEET ADF HOLDER	1		N/S
2	ELA HOU ADF LOWER	1	002N02340	
2-1	COVER M ADF LOWER	1		
2-2	PBA SUB ADF	1		N/S
2-3	GROUND P ADF	1		N/S
2-4	SHAFT M FEED GEAR 38	1		N/S
2-5	ROLLER DRIVE	1		N/S
2-6	PMO ACT EMPTY ADF	1		N/S
2-7	PMO ACTUATOR REGI SENSOR	1		N/S
2-8	PMO ACTUATOR SCAN SENSOR	1		N/S
2-9	SPRING ETC TORSION DOC (CC2-F)	3		N/S
2-10	IPR GROUND ROLLER	1		N/S
2-12	ROLELR EXIT	1		N/S
2-13	MEC BRUSH ANTISTATIC	1		N/S
2-14	PPR WHITE BAR SHEET	1		N/S
2-15	BMO BUSH	4		N/S
2-16	CBF HARNESS ADF	1		N/S
2-17	GEAR AGITATOR 2	1		N/S
2-18	RING C	1		N/S
2-19	GUIDE STACKER SUB	2		N/S
2-20	CBF HARNESS ADF ROLLER GRD	1		N/S
2-21	IPR BRKT WHITE BAR	1		N/S
2-22	SPRING ETC WHITE BAR	1		N/S
3	ELA HOU ADF MOTOR	1	002N02341	
3-1	BRACKET GEAR ADF	1		N/S
3-2	MOTOR STEP ADF	1		N/S
3-3	GEAR CLUTCH 29	1		N/S
3-4	PMO WHIT CHUTCH SUB 29	1		N/S
3-5	GEAR CLUTCH 39	1		N/S
3-6	RING C	1		N/S
3-7	GEAR IDLE 35 ADF	2		N/S
3-8	GEAR 40/21 ADF	1		N/S
3-9	GEAR SWING 31/20 ADF	1		N/S
3-10	LINK M SWING ADF	1		N/S
3-11	GEAR 58/25 ADF	1		N/S
3-12	IMPELLER ADF	1		N/S
3-13	GEAR REMOVE ADF	1		N/S
3-14	WASHER PLAIN	1		N/S
3-15	IPR WASHER WAVE	1		N/S
3-16	WASHER PLAIN	2		N/S

No.	Part Name and (part description)	Qty	Part number	Remark
3-17	CBR HARNESS ADF GND	1		N/S
3-18	RING E	6		N/S
3-19	SCREW TAPTITE	3		
3-20	WASHER PLAIN	1		N/S
3-21	SPRING ETC	1		N/S
4	MEA COVER PLATEN	1		
4-1	COVER M PLATEN 4 IN 1	1	002N02342	
4-2	SHEET WHITE SPONGE	1	019N00810	
4-3	MEA TX STACKER (ADF Feed Tray Assembly)	1	050N00452	
4-3-1	PMO TX STACKER	1		N/S
4-3-2	PMO DOC GUIDE L	1		N/S
4-3-3	GEAR PINION	1		N/S
4-3-4	PMO DOC GUIDE R	1		N/S
4-3-5	IPR WASHER SPRING CU	2		N/S
4-4	SPRING ETC FEED	6	009N01489	
4-5	PMO ROLL PINCH	2	022N01511	
4-6	ICT SHAFT PINCH - (SHAFT STACKER)	1	006N01218	
4-7	MEA UNIT HINGE	2	003N00888	
4-8	RPR ROLLER EXIT IDLE	2	022N02019	
4-9	SHAFT IDLE FEED	2	006N01252	
5	MEA UNIT COVER OPEN	1	002N02343	
5-1	COVER M ADF OPEN	1		N/S
5-2	PMO GUIDE PAPER	2		N/S
5-3	DAMPER PICKUP ADF	1		N/S
6	MEA UNIT PICKUP	1	130N01364	
6-1	STOPPER M PICKUP ADF	1		N/S
6-2	GEAR ADF 38	1		N/S
6-3	RING C	1		N/S

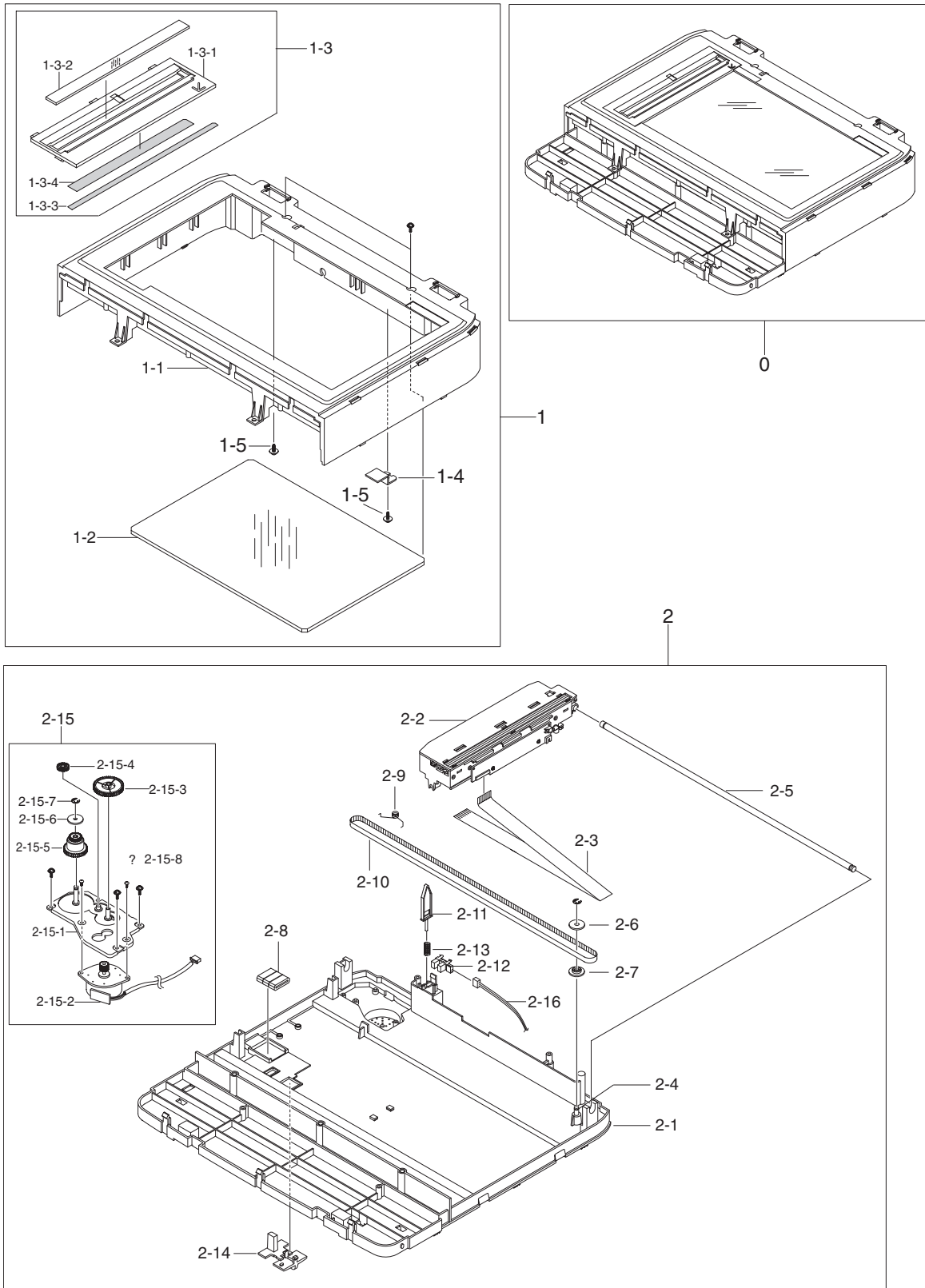
8.4 Control Panel OPE Assembly



Control Panel (OPE) Assembly Parts List 8.4

No.	Part Name and (part description)	Qty	Part number	Remark
0	ELA HOU OPE 4 IN 1	1		N/S
1	COVER M OPE	1		N/S
2	SHEET OVERLAY OPE 4 IN 1 English Spanish Brazilian Portuguese French	1 ea	091N80214 091N80215 091N80216 091N80217	
	SHEET OVERLAY OPE 5 IN 1 English Spanish Brazilian Portuguese French	1 ea.	091N80218 091N80219 091N80220 091N80221	
3	KEY M COPY	1		N/S
4	KEY M STOP	1		N/S
5	KEY M START	1		N/S
6	KEY M START	1		N/S
7	KEY M TOLL SAVE	1		N/S
8	KEY M RESOLUTION	1		N/S
9	KEY M DIRECT PRINT	1		N/S
10	KEY M SCAN TO	1		N/S
11	RUBBER COPY/SCROLL	1		N/S
12	RUBBER TEL/FAX	1		N/S
13	PBA SUB OPE 4 IN 1	1	140N62950	
14	RUBBER ONE TOUCH	1		N/S
15	KEY M TONER SAVE	1		N/S
16	KEY M FAX	1		N/S
17	KEY M SHIFT	1		N/S
18	KEY M TEL	1		N/S
19	PMO KEY OT	1		N/S
20	LABEL (P) ONE TOUCH	1		N/S
21	MPR COVER ADDRESS	1		N/S
S	SCREW TAPTITE	10		

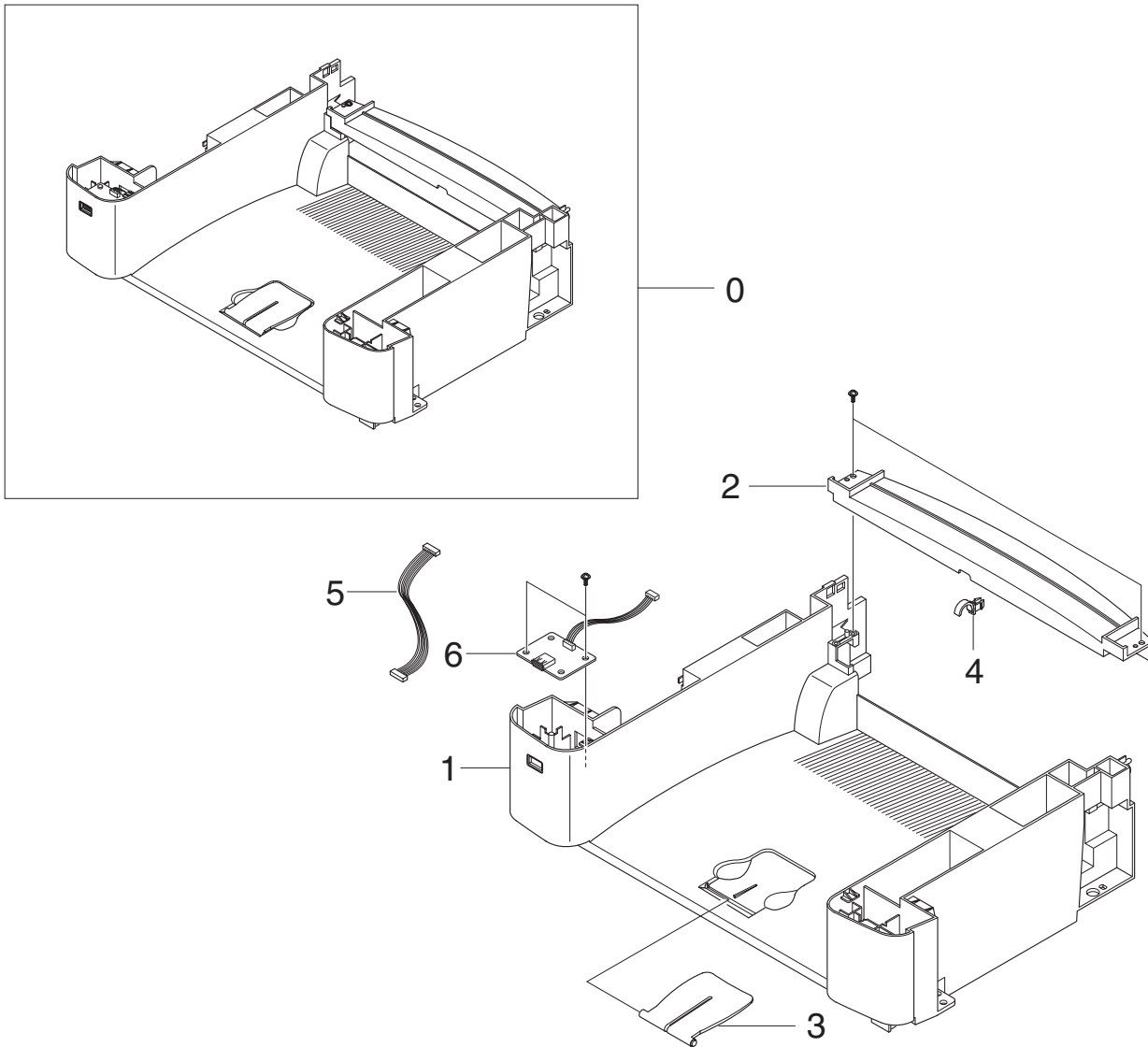
8.5 Scanner Assembly



Scanner Assembly Parts List 8.5

No.	Part Name and (part description)	Qty	Part number	Remark
0	ELA HOU PLATEN			
1	MEA UNIT SCAN UPPER	1		
1-1	COVER M SCAN UPPER	1	002N02344	
1-2	GLASS SCAN	1	118N00500	
1-3	MEA SCAN DUMMY (Constant Velocity (CVT) Window Assembly)	1	002N02354	
1-3-1	COVER M SCAN DUMMY	1		N/S
1-3-2	MCT GLASS ADG	1		N/S
1-3-3	TAPE DOUBLE FACE	1		N/S
1-3-4	LABEL (P) SHADING	1		N/S
1-4	IPR HOLDER GLASS	2		N/S
1-5	SCREW TAPPING	2		N/S
2	ELA HOU SCAN LOWER	1	002N02345	
2-1	COVER SCAN LOWER	1		N/S
2-2	ELA HOU CCD MODULE	1	002N02346	
2-3	CBF SIGNAL CCD FFC (Scanner Ribbon Cable)	1	117N01665	
2-4	ICT INSERT SHAFT	1		N/S
2-5	ICT SHAFT CCD	1		N/S
2-6	PMO HOLER BELT	1		N/S
2-7	PMO PULLEY	1		N/S
2-8	ELA UNIT CORE	3		N/S
2-9	SPRING ETC BELT	1		N/S
2-10	BELT TIMING GEAR	1	109N00542	
2-11	PMO LEVER SENSOR	1	011N00473	
2-12	PHOTO INTERRUPTER	1	130N01274	
2-13	SPRING CS	1		N/S
2-14	HOLDER CCD	1		N/S
2-15	ELA HOU SCAN MOTOR	1	101N01345	
2-15-1	BRACKET SCAN MOTOR	1		N/S
2-15-2	MOTOR STEP SCAN	1		N/S
2-15-3	GEAR REDUCTION	1		N/S
2-15-4	GEAR IDLE	1		N/S
2-15-5	GEAR TIMING	1		N/S
2-15-6	PMO HOLDER BELT	1		N/S
2-15-7	RING E	1		N/S
2-16	CBF HARNESS PLATEN	1		N/S

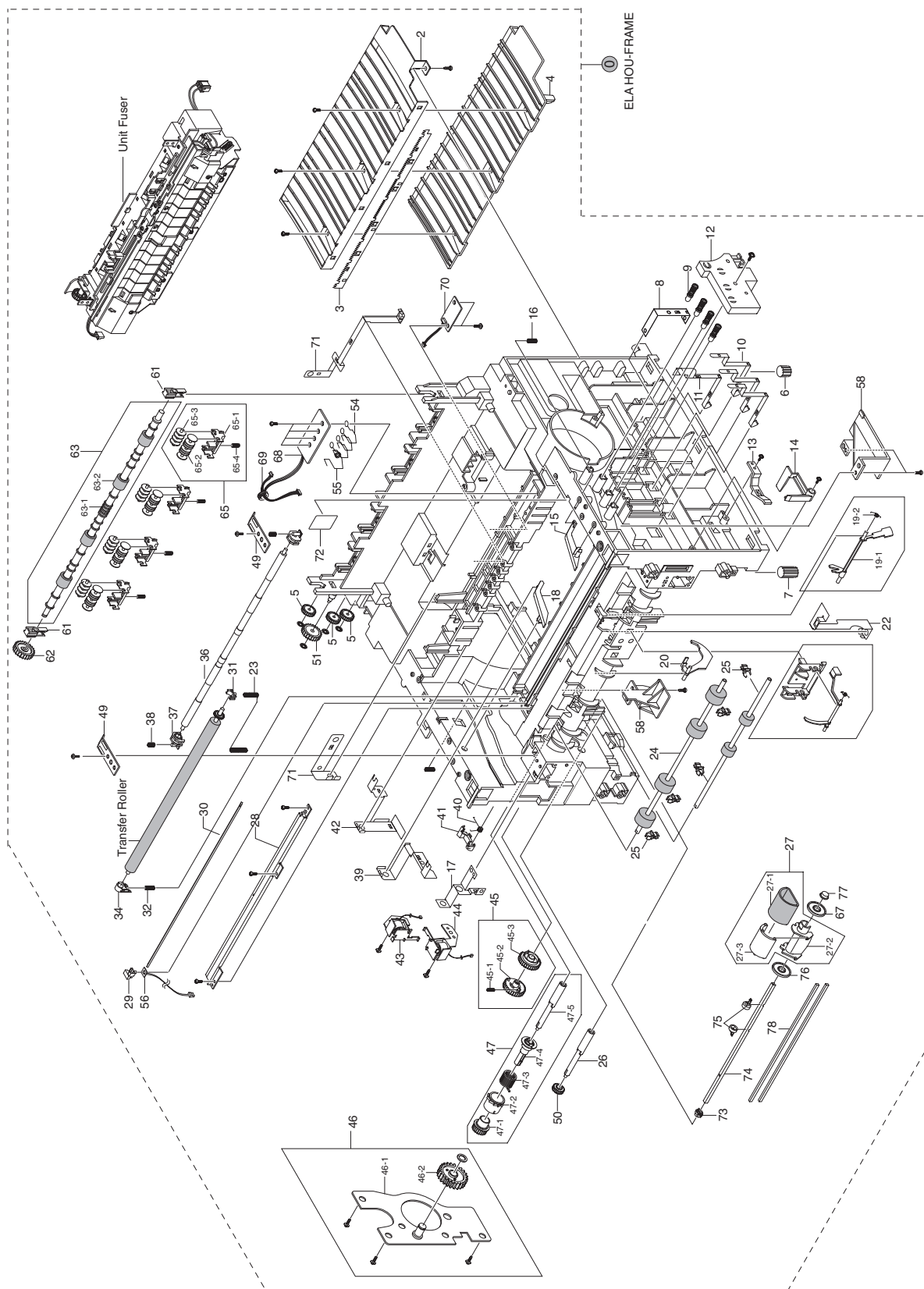
8.6 Middle Cover Assembly



Middle Cover Assembly Parts List 8.6

No.	Part Name and (part description)	Qty	Part number	Remark
0	ELA HOU COVER MIDDLE	1		N/S
1	COVER M MIDDLE	1		N/S
2	COVER REAR UPPER	1		N/S
3	PMO STACKER RX	1		N/S
4	BUSH F/DOWN	1		N/S
5	CBF HARNESS OPE	1	152N11575	
6	PBA SUB USB HOST	1	140N62944	

8.7 Frame Assembly

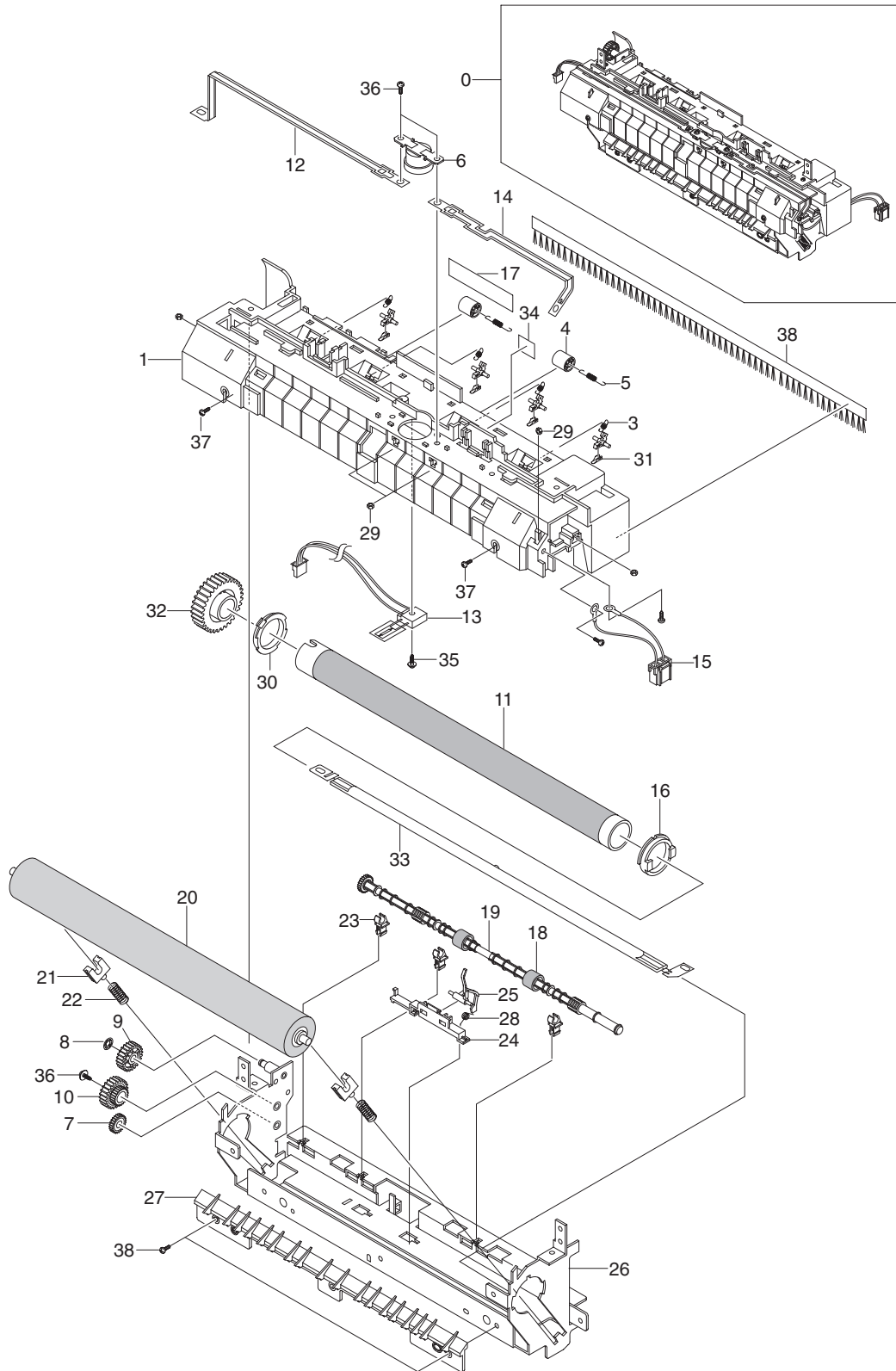


Frame Unit Assembly Parts List 8.7

No.	Part Name and (part description)	Qty	Part number	Remark
0	ELA UNIT-FRAME 110V	1	002N02353	110V
0	ELA UNIT-FRAME 220V	1	002N02352	220V
1	FRAME-BASE R2	1		N/S
2	GUIDE-P-TR	1	038N00407	
3	PLATE-P-SAW	1	015N00500	
4	GUIDE-M-TR RIB	1	038N00408	
5	PMO-GEAR_EXIT_DRV16	3		N/S
6	FOOT-BACK	2		N/S
7	FOOT-FRONT	2		N/S
8	GROUND-GUDIE TR R2	1		N/S
9	MEC-TERMINAL	4		N/S
10	PLATE-TERMINAL CON R2	3		N/S
11	PLATE-TERMINAL CR R2	1		N/S
12	HOUSING-TERMINAL R2	1	101N01346	
13	PMO-LOCKER CST	2	120N00427	
14	PMO-ACTUATOR CVR OPEN	1	120N00423	
15	PMO-PLATE GUIDE DEVE_R	1	032N00390	
16	SPRING ETC-GUIDE DEVE	2		N/S
17	GROUND-PUSH BUSHING	1		N/S
18	PMO-PLATE GUIDE DEVE_L	1	032N00391	
19	PMO-ACT FEED R2	1	022N02092	
20	PMO-ACTUATOR EMPTY	1	120N00425	
21-1	PMO-ACT MANUAL (Switch Actuator for MPT)	1	120N00453	
22	GROUND-EARTH TR R2	1		N/S
23	GROUND-TERMINAL TR	1	116N00240	
24	ROLLER-FEED ROLLER 1	1	022N02080	
25	PMO-BUSHING FEED	5	016N00274	
26	SHAFT-FEED	1	006N01253	
27	MEA UNIT-PICKUP	1	022N02084	
27-1	SPRING-ROLLER PICK_UP	1		N/S
27-2	HOUSING-PICK UP_R2	1		N/S
27-3	HOUSING-PICK UP2_R2	1		N/S
28	IPR-P-EARTH TRANSFER	1	117N01616	
29	HOLDER-PTL R2	1		N/S
30	LENS-PTL	1	062N00246	
31	PMO-BUSHING_TR(L)	1	016N00254	
32	SPRING ETC-TR L HAWK	1		N/S
33	ROLLER-FEED	1	022N01607	
34	BUSH-M-TR L	1	016N00261	
35	GROUND-FUSER R2	1		N/S
36	SHAFT-FEED IDLE	1		N/S
37	BUSH-M-FEED IDLE	2		N/S
38	SPRING ETC-TR	2		N/S
39	GROUND-DRIVE2 R2	1		N/S
40	SPRING-TS	1		N/S
41	CAM-M-PICK_UP	1	008N01738	
42	GROUND-DRIVE R2	1		

No.	Part Name and (part description)	Qty	Part number	Remark
43	SOLENOID-FEED R2	1	121N01077	
44	SOLENOID-HB (MANUAL)	1	700N00094	
45	MEA UNIT-GEAR PICKUP	1	007N01271	
45-1	GEAR-PICK UP B_R2	1		N/S
45-2	GEAR-PICK UP A_R2	1		N/S
45-3	SPRING-CS	1		N/S
46	MEA UNIT-BRACKET FEED	1	030N00690	
46-1	BRACKET-FEED R2	1		N/S
46-2	GEAR-Z35 IDLE	1		N/S
47	MEA UNIT-CLUTCH	1	022N01609	
47-1	GEAR-FEED 1	1		N/S
47-2	PMO-COLLAR_SPRING	1		N/S
47-3	SPRING-TS	1		N/S
47-4	PMO-HUB CLUTCH	1		N/S
47-5	SHAFT-FEED	1		N/S
48	ELA HOU-FUSER 110V	1	126N00214	110V
48	ELA HOU-FUSER 220V	1	126N00215	220V
49	PLATE-PUSH BUSHING (GUIDE P PAPER)	2	038N00451	
50	GEAR-FEED 2	1		N/S
51	GEAR-IDLE 23	1		N/S
52	SPRING-TS	1		N/S
53	SPRING-TS	1		N/S
54	IPR-P-TERMINAL DEVE KEY	3		N/S
55	GROUND TERMINAL DEVE	1		N/S
56	PBA SUB -PTL	1	140N62945	
58	HOLDER-TERMINAL R2	1		N/S
59	HOLDER ACT MANUAL R2	1		N/S
61	HOLDER-BEARING, EXIT	2	019N00811	
62	GEAR-EXIT F/DOWN	1		N/S
63	ROLLER-EXIT F/DOWN	1	022N02093	
64	RMO-RUBBER EXIT	4		N/S
65	MEA RACK-EXIT ROLLER	4	022N02081	
65-1	PMO-HOLDER EXIT ROLL	1		N/S
65-2	PMO-ROLLER FD F	1		N/S
65-3	PMO-ROLLER FD R	1		N/S
65-4	SPRING ETC-EXIT ROLL FD	1		N/S
66	GUIDE-SUB FRONT	1		N/S
69	CBF HARNESS CRUM2	1	152N11576	
68	PBA SUB CRUM	1	140N62946	
70	PBA SUB-EXIT SENSOR	1	130N01360	
72	LABEL(R)-HOT CAUTION,KME	1		N/S
73	BUSH M PICK UP L	1		N/S
74	SHAFT P PICK UP	1	006N01254	
75	STOPPER PICK UP R2	2	003N00945	
76	PMO IDLE PICK UP	2		N/S
77	BUSH M PICK UP R	1		N/S
78	SHAFT CORE	2	006N01255	

8.8 Fuser Unit Assembly

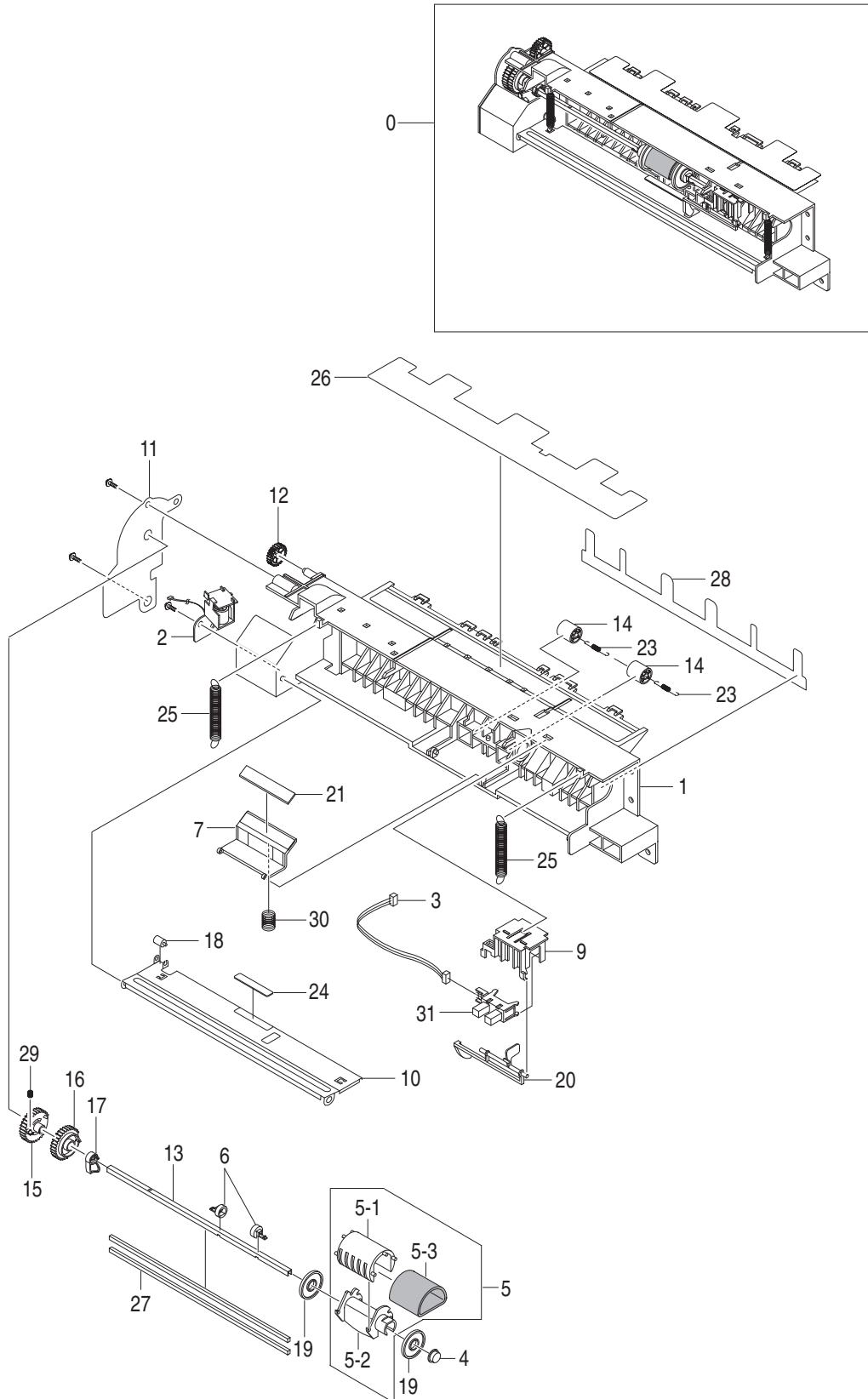


Fuser Assembly Parts List 8.8

No.	Part Name and (part description)	Qty	Part number	Remark
0	ELA HOU-FUSER 110V	1	126N00233	110V
0	ELA HOU-FUSER 220V	1	126N00232	220V
1	COVER-FUSER R2	1		
2	HOLDER-PLATE CLAW R2	4		
3	SPRING ETC-CLAW	4		
4	PMO-ROLLER_EXIT	2		
5	SPRING ETC-FUSER EXIT	2		
6	THERMOSTAT-150	1		
7	PMO-GEAR_EXIT_DRV16	1		
8	GEAR-IDLE 23	1		
9	RING-E	1		
10	GEAR-RDCN 25/15	1		
11	ROLLER-HEATER	1		
12	ELECTRODE-LFET R2	1		
13	THERMISTOR-NTC	1		
14	ELECTRODE-RIGHT R2	1		
15	CBF HARNESS-FUSER 110V	1		WHITE
	CBF HARNESS-FUSER 220V	1		BLACK
16	BUSH-HR R_R2	1		
17	LABEL(P)-CAUTION, HOT_FUSER	1		
18	RMO-RUBBER_EXIT	2		
19	ROLLER-M-EXIT F/UP	1		
20	ROLLER-PRESSURE	1		
21	BEARING-PRESSURE/R	2		
22	SPRING-CS	2		
23	PMO-BUSHING TX	3		
24	HOLDER-ACTUATOR	1		
25	PMO-ACTUATOR EXIT R2	1	120N00445	
26	FRAME-FUSER R2	1		
27	GUIDE-INPUT R2	1		
28	SPRING-TS	1		
29	NUT-HEXAGON	5		
30	BUSH-HR L_R2	1		
31	PLATE-P-CLAW	4		
32	GEAR-FUSER R2	1		
33	LAMP-HALOGEN 110V	1	122N00231	110V
33	LAMP-HALOGEN 220V	1	122N00229	220V
34	LABEL(R)-HV FUSER	1		
35	SCREW-TAPTIEE	1		
36	SCREW-ASS'Y MACH	6		
37	SCREW-TAPTIEE	6		
38	BRUSH-ANTISTAIC	1		

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8.9 MP Assembly

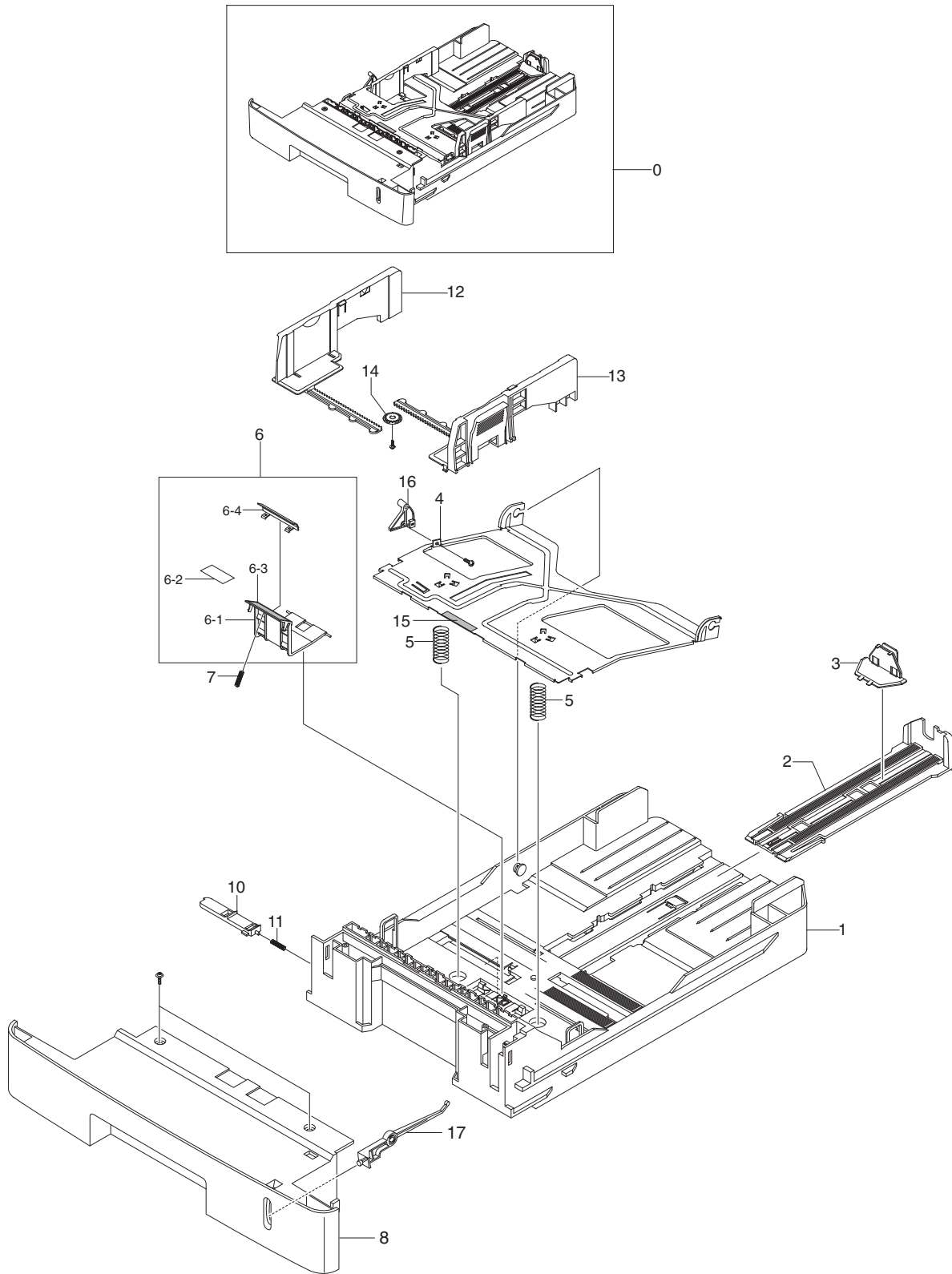


MP Assembly Parts List 8.9

No.	Part Name and (part description)	Qty	Part number	Remark
0	ELA UNIT-MP	1	022N02257	
1	FRAME-17-MP	1		N/S
2	SOLENOID-MP	1	121N01078	
3	CBF HARNESS-MPF SEN	1		N/S
4	BUSH-M-PICK-UP R	1		N/S
5	MEA UNIT PICK UP MP	1	130N01366	
5-1	HOUSING-M-PICK UP2_R2	1		N/S
5-2	HOUSING-M-PICK UP2_R2	1		N/S
5-3	SPONGE ROLLER PICK UP	1		N/S
6	STOPPER-M-PICK UP_R2	2		N/S
7	HOLDER-M-PAD_MP	1		N/S
9	HOLDER-M-SENSOR_MP	1		N/S
10	PLATE-P-KNOCK UP_MP	1		N/S
11	BRACKET-P-PICK UP_MP	1		N/S
12	GEAR-IDLE 23	1		N/S
13	SHAFT-P-PICK_UP	1		N/S
14	ROLLER-M-IDLE FEED	2		N/S
15	GEAR-M-PICK UP_MP	1		N/S
16	GEAR-M-HOLDER_MP	1		N/S
17	CAM-M-PICK UP_MP	1		N/S
18	PMO-ROLLER CAM_MP	1		N/S
19	PMO-IDLE PICK UP	2		N/S
20	PMO-M-ACT EMPTY MP (Switch Actuator for MPT Tray)	1	120N00454	
21	RPR-FRICTION PAD	1	019N00742	
23	SPRING-ETC-EXIT ROLL FD	2		N/S
24	RPR-PAD CASSETTE	1		N/S
25	SPRING-ES	2		N/S
26	SHEET GUIDE PAPER R2	1		N/S
27	SHAFT-P-CORE	2		N/S
28	SHEET GUIDE MP	1		N/S
29	SPRING-CS	1		N/S
30	SPRING-ES	1		N/S
31	PHOTO INTERRUPTER	1		N/S

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8.10 Tray 1 (Cassette) Unit Assembly



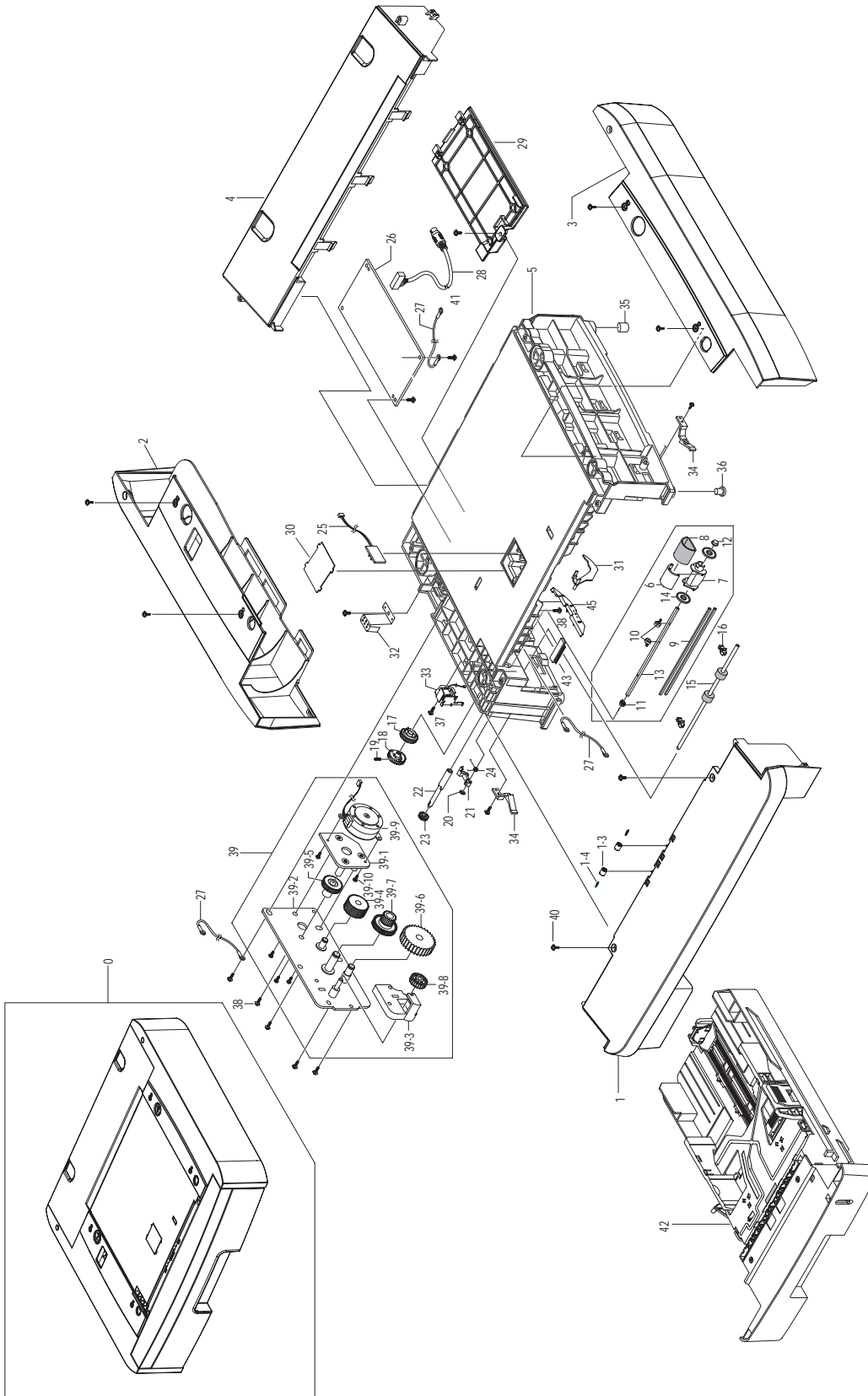
Tray 1 (Cassette) Unit Assembly Parts List 8.10

No.	Part Name and (part description)	Qty	Part number	Remark
0	MEA UNIT-CASSETTE, USA	1	050N00451	(Letter size)
1	FRAME-M-CASSETTE	1		N/S
2	GUIDE-M-EXTENSION LARGE	1		N/S
3	GUIDE-EXTENSION SMALL	1		N/S
4	PLATE-P-KNOCK_UP	1		N/S
5	SPRING-CS	2		N/S
6	MEA UNIT-HOLDER PAD	1		N/S
6-1	HOLDER-M-PAD	1		N/S
6-2	SHEET-HOLDER PAD R2	1		N/S
6-3	RPR-FRICTION PAD	1		N/S
6-4	IPR-PLATE PAD	1		N/S
7	SPRING ETC-EXIT ROLL FD	1		N/S
8	COVER-SUB CASSETTE R2	1		N/S
10	PMO-PLATE_LOCKER	1		N/S
11	SPRING ETC-LOCKER,PLATE	1		N/S
12	ADJUST-M-CASSETTE_L	1		N/S
13	ADJUST-M-CASSETTE_R	1		N/S
14	GEAR-PINION	1		N/S
15	RPR-PAD CASSETTE	1		N/S
16	CAM-KNOCK UP	1		N/S
17	INDICATOR CST PAPER	1		N/S

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8.11 Tray 2 (SCF - Optional Cassette) Unit Assembly



Tray 2 (SCF - Optional Cassette) Assembly Parts List 8.11

No.	Part Name and (part description)	Qty	Part number	Remark
0	ELA HOU-SCF	1	497N00203	
1	COVER-M-FRONT SCF R2	1	002N02347	
2	COVER-M-LEFT SCF	1	002N02348	
3	COVER-M-RIGHT SCF	1	002N02349	
4	COVER-M-REAR SCF	1	002N02350	
5	FRAME-M-SCF	1		N/S
6	HOUSING-M-PICKUP _R2	1		N/S
7	HOUSING-M-PICKUP2 _R2	1		N/S
8	SPONGE-ROLLER PICK_UP	1		N/S
9	SHAFT-P-CORE	2		N/S
10	PMO BUSHING FEED	2		N/S
11	BUSH M-PICK_UP L	1		N/S
12	BUSH M-PICK_UP R	1		N/S
13	SHAFT-P-PICK_UP	1		N/S
14	PMO-IDLE PICK_UP	2		N/S
15	ROLLER-FEED	1		N/S
16	PMO-BUSHING TX	2		N/S
17	PMO-GEAR PICK_UP A	1		N/S
18	PMO-GEAR PICK_UP B	1		N/S
19	SPRING-CS	1		N/S
20	RING-CS	1		N/S
21	CAM-M-PICK_UP	1		N/S
22	SHAFT-FEED	1		N/S
23	GEAR-FEED 2	1		N/S
24	SPRING-TS	1		N/S
25	PCB-SENSOR	1	130N01367	
26	PBA SUB-SCF	1	140N62874	
27	CBF HARNESS-SCF GND	2		N/S
28	CBF HARNESS-SCF	1		N/S
29	COVER-M-SIMM R2	1		N/S
30	SHEET-COVER SENSOR	1		N/S
31	PMO-ACTUATOR EMPTY	1	120N00425	
32	IPR-GND TOP	1		N/S
33	SOLENOID-HB (MANUAL)	1		N/S
34	PMO-LOCKER CST	2		N/S
35	FOOT-BACK	2		N/S
36	FOOT-FRONT	2		N/S
37	SCREW-ASS'Y TAPT	1		N/S
38	SCREW-TAPTITE	4		
39	ELA HOU-MOTOR SCF	1	002N02351	
39-1	BRKT-P-MOTOR SCF	1		
39-2	BRKT-P-GEAR SCF	1		
39-3	BRKT-M-FEED SCF	1		
39-4	GEAR 61/47 IDLE	1		
39-5	GEAR 59 IDLE	1		
39-6	GEAR 35 IDLE	1		
39-7	GEAR-RDCN 57/18	1		

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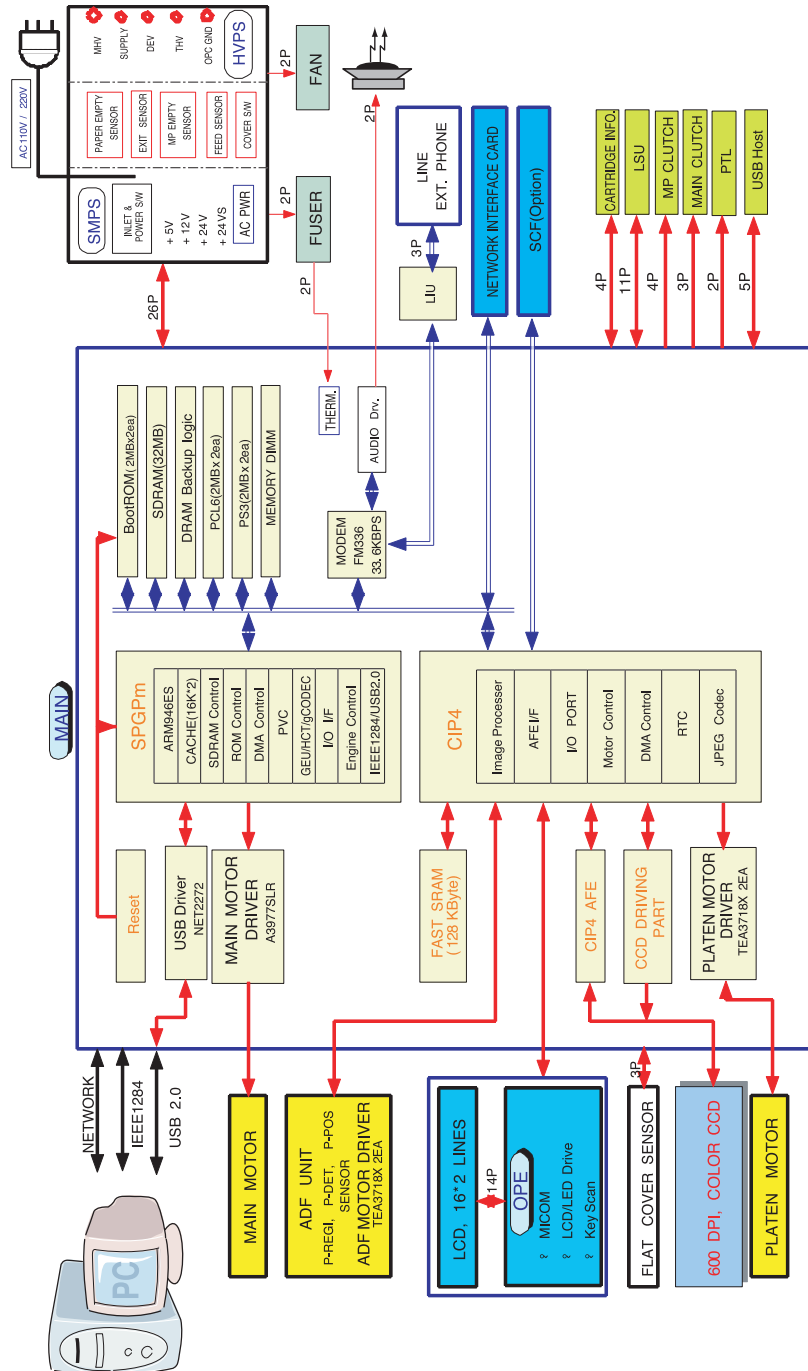
Parts List

No.	Part Name and (part description)	Qty	Part number	Remark
39-8	GEAR-IDLE 23	1		N/S
39-9	MOTOR STEP(SCF)	1		N/S
39-10	SCREW-MACHINE	5		N/S
39-11	CORE-FERRITE	1		N/S
39-12	CABLE TIE	1		N/S
40	BUSH CABLE	1		N/S
42	MEA CASSETTE	1	050N00451	
43	MEC BRUSH ANTISTATIC	.25		N/S
44	SHEET BRUSH	1		N/S
45	GUIDE CAM KNOCK UP	1		N/S

Xerox Options and Accessories

Part Name and (part description)	Qty	Part number	Remark
AC POWER CORD, 110 V USA	1	117N01602	USA
USB CABLE	1	117N01313	
MEMORY	1		
32 MB		097N01434	
64 MB		097N01435	
128 MB		097N01436	
SCREW TAPTITE	10	026N00758	
SCREW TAPTITE	10	026N00759	
SCREW TAPTITE	10	026N00760	
BOX(P) MAIN (Shipping box)	1	TBD	
CD ROM Driver	1	TBD	
CD ROM ScanSoft/Paper Port	1	TBD	
CD ROM EUG (English User Guide)	1	TBD	
AC POWER CORD (All European countries EXCEPT the ones listed below)	1	152S6000	
AC POWER CORD (UK/Ireland)	1	152S6001	UK/Ireland
AC POWER CORD (Denmark)	1	152S6002	Denmark
AC POWER CORD (Switzerland)	1	152S6003	Switzerland
Telephone Line USA	1	117N01620	USA
Telephone Line UK	1	117K26560	UK
Telephone Line Spain/Portugal	1	117S26638	Spain/Port
Telephone Line Finland	1	117S26658	Finland
Telephone Line Italy	1	117S26660	Italy
Telephone Line Belgium	1	117S26663	Belgium
Telephone Line Austria	1	117S26664	Austria
Telephone Line Switzerland	1	117S26665	Switzerland
Telephone Line Sweden	1	117S26672	Sweden
Telephone Line France	1	117S26678	France
Telephone Line Denmark	1	117S26679	Denmark
Telephone Line Norway	1	117S26680	Norway
Telephone Line Germany	1	117S26682	Germany
Telephone Line Netherlands	1	117S26684	Netherlands
Telephone Line Generic (Ireland/Turkey/Russia)	1	117S26687	Generic

9 Block Diagram



Block Diagram

Connection Diagram

