B2520/B2540MFP
Maintenance Manual

071107A

Tech Reference Section

CONTENTS
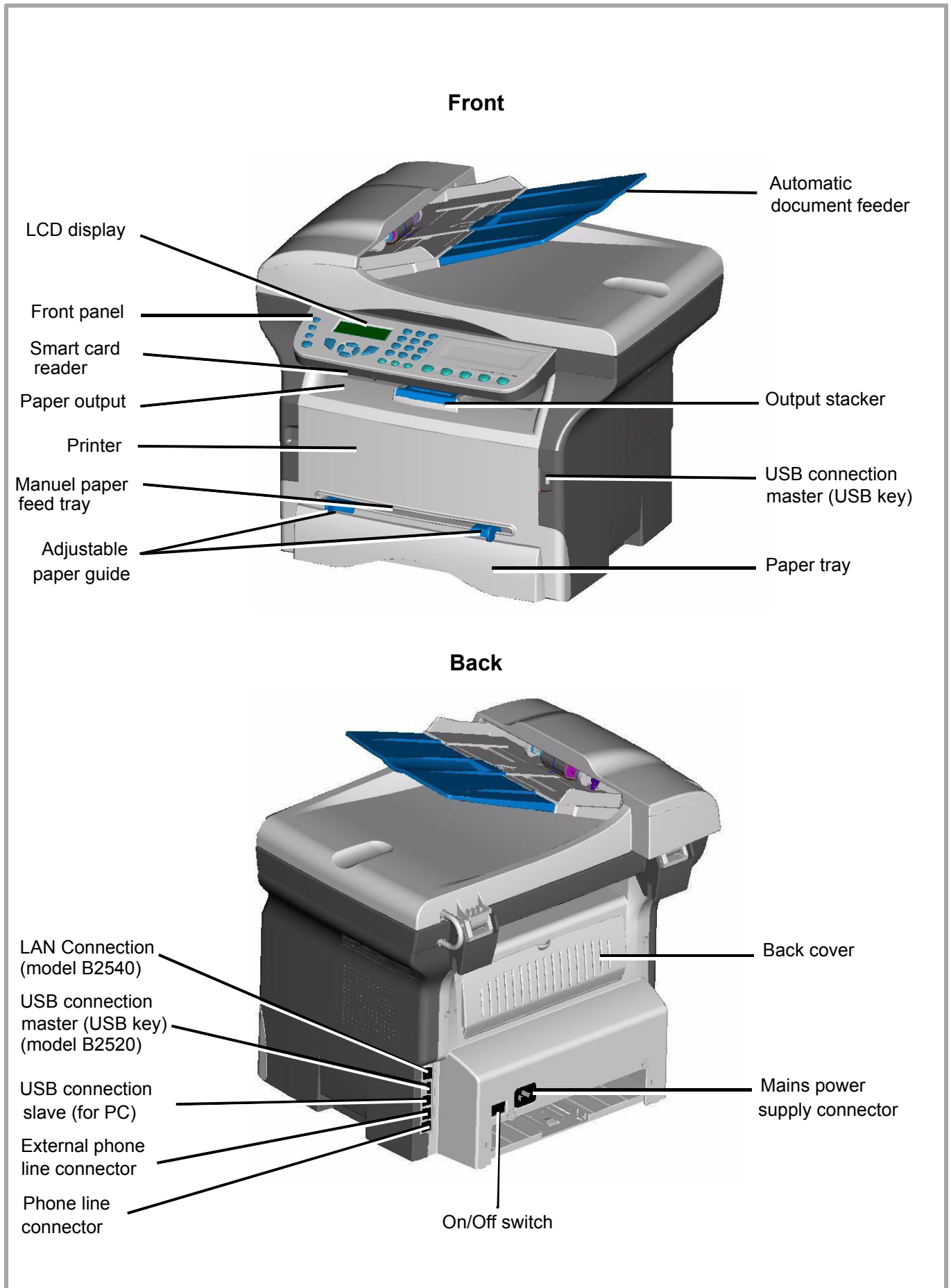
1. GENERAL INFORMATION

1.1 PRESENTATION

Front

LCD display

Front panel

Smart card reader

Paper output

Printer

Manuel paper feed tray

Adjustable paper guide

Automatic document feeder

Output stacker

USB connection master (USB key)

Paper tray

Back

LAN Connection (model B2540)

USB connection master (USB key) (model B2520)

USB connection slave (for PC)

External phone line connector

Phone line connector

On/Off switch

Back cover

Mains power supply connector

1.2 GENERAL DESCRIPTION

The terminal are part of a range of multi-function office equipment.

The product consists of a color scanner with a 600 Dpi resolution and a Black and White printer with a 600 Dpi resolution. These two components are integrated into a single compact terminal.

Documents are processed by a scanner using CIS (Contact Image Sensor) technology, via the ADF (Automatic Document Feeder) or via the exposition window for bulky documents.

The front panel consists of:

- an alphanumerical keyboard and function keys to control the terminal;
- an LCD display with 2 lines and a line of icons that allows users to view the command or alert messages;
- a smart card reader that allows validating consumables, depending on the model.

When replacing the printer assembly, it is recommended that the old consumable (toner cartridge) be transferred to the new printer assembly for further use.

When replacing the consumable, carry out the installation procedure for the new consumable (refer to the User Guide booklet).

2. CHARACTERISTICS

2.1 PHYSICAL CHARACTERISTICS

Environment

- Operating:
  - The machine should not be exposed to direct sunlight.
  - Power supply:
    - Europe 220-240 V/50-60 Hz.
    - United states 120V/60 Hz
  - Power consumption in power save mode: ≤ 12 W.
  - Typical consumption for printing: 340 W.
  - Temperature: 10 °C to 32 °C.r.
  - Humidity: 15 % to 80 % (RH without condensation).
  - Altitude: from 0 to 2500 meters (above sea level).
  - Ambient light: ≤ 3000 lux.

- Storage:

of the fax and consumable (toner cartridge):
  - Temperature: - 20 to 40 °C.
  - Humidity: 20 % to 80 % (RH without condensation).r

Maximum storage time: 18 months.

2.2 GENERAL TECHNICAL CHARACTERISTICS

	Terminal
General	
Measurements L-D-H in mm	386 x 447 x 412
Weight (in Kg)	13
Consumables	
Paper reference (PR)	
Type (for flatbed and ADF scanners)	Inapa tecno SPEED A4 - 80 g/m^2
Type (for printer)	Ricoh T6200 A4 - 70 g/m^2
Document reference (DR)	
Type	ITU #1 - A4
Black/white ratio	3 %
Resolution	Normal mode (200 x 100 DPI)
ADF scanner	
Type	CIS Color and B/W
Color analysis	Yes
Resolution in DPI	600
Grey scale	256
Color scale	36 bits/pixel
Paper size	A4 (210 x 297 mm)
• Maximum width	216 mm
• Minimum width	145 mm
• Maximum length	1 m
• Minimum length	120 mm
Paper weight	60 to 90 g/m²
Capacity of document feeder	50 pages (80 g/m²)
Effective scanner width	210 mm
Zoom in steps of 1 %	25 % to 400 %
Contrast	Yes (7 levels)
Brightness	Yes (7 levels)
Margin adjustment (left/right)	Yes
Origin adjustment	Yes
Flatbed scanner	
Type	CIS Color and B/W
Color analysis	Yes
Resolution in DPI	600 x 2400
Grey scale	256
Color scale	36 bits/pixel
Window size	220 mm x 304 mm
Maximum paper width	Letter (215.9 x 279.4)

	Terminal
Zoom in steps of 1 %	25 % to 400 %
Contrast	Yes (7 levels)
Brightness	Yes (7 levels)
Printer	
Type	Laser B/W
Printer language	GDI
Resolution in DPI	600 x 600
Maximum paper width (in mm)	Legal (215.9 x 355.6)
Paper feed tray	
• Page capacity (in pages)	250 (64g) / 200 (80g)
• Paper weight	60 to 105 g/m^2
Manual paper feed	
• Capacity of pages (in pages)	1
• Paper weight	52 to 162 g/m^2
• Transparent (laser printer compatible)	Yes
Page capacity of the output tray	50
Printing on enveloppes	Yes (Manual paper feed)
Printer speed	16 PPM
First page printed after	≤ 13 s
Printing time at start-up	21 s
Printing area (in mm)	201.54 x 287
Consumable for RD document	
• Maximum initial toner cartridge capacity (in pages A4 ratio 5 %)	2 200 / 4 000
• Management of consumables (depending on model)	By smart card
• Weight of toner cartridge (in Kg)	1.2
• Toner saving function	Yes
Copier	
Type	Black/White
Input resolution (optical) in DPI	300 x 300 (fast) or 600 x 600 (quality)
Output resolution in DPI	600 x 600
Maximum paper size (in mm)	Legal (215.9 x 355.6)
Maximum speed for 300 x 300 (RP) resolution	16 PPM
Maximum speed for 300 x 300 resolution (Legal)	14 PPM
First page printed after	13 s
Multicopy	1 to 99
Zoom	25 % to 400 %
Zoom steps	1 %
Collated copies	Yes
Keyboard and screen	
Keyboard	62 keys
Screen	2 lines de 16 characters + 7 icons

	Terminal
LAN Access (model B2540)	
Type	Ethernet 10/100 base T
Plug and Play configuration	DHCP & BOOTP
Internet Protocol	TCP / IP
DNS	2 DNS server access
Fax-Modem	
Type	PSTN-Super G3
Maximum speed in bps (V34Fax)	33 600
V34Fax capacity in bps	33 600 to 2 400
• Incrementation in bps	2 400
V17 capacity in bps	14 400, 12 000, 9 600, 7 200
V29 capacity in bps	9 600, 7 200
V27ter capacity in bps	4 800, 2 400
Fax communication	
Type	PSTN, ITU T-30, G3
Maximum speed in bps (V34Fax)	33 600
Coding	MH, MR, MMR, JBIG
ECM	T30 ECM
Time to transmit RD	2.5 s
Type of transmission	Memory and direct (ADF)
Max. send delay	24 hours
PSTN redial	last 10 numbers
SMS communication	
Transmission	Yes (V23)
Reception	No
Mailing	10 directly 249 from directory
Directory	
Capacity	250
Type	Name / PSTN and SMS number
Transmission list	32
Transmission list capacity	249
Alphabetical typing	Yes
Associated key	Yes
Import/export directory on PC	XML, EAB and CSV formats
Save directory on PC	XML format
Geographical settings	
Countries	19
Network	TTBR21
Languages	14

2.3 GENERAL CHARACTERISTICS OF THE CONSUMABLE

For the consumable (toner cartridge), a counter assigns the percentage of toner that can still be used.

For a new consumable, this counter is initialized to the capacity announced by the vendor.

The percentage displayed (remaining quantity) is calculated in relation to the initial capacity of the consumable (from 100 % to 1 %).

The values of the consumable's counter are regularly updated in the EEPROM memory. Each time the machine is switched on, the counter is read in the the EEPROM memory.

3. OPERATION

The equipment is a Group 3 multifunction fax functioning in accordance with the UIT-T T30 recommendation.

It consists of a laser printer, a CIS (Contact Image Sensor) color ADF scanner, a color flatbed scanner, a front panel with an alphanumerical keyboard and a LCD display with 2 lines of 16 characters (refer to the User Guide for a more complete description of the front panel).

It allows the following operations to be carried out:

- Fax transmission and reception on the switched telephone network using the V34 protocol (max. 33.6 kbits/s) and the V17 protocol (max. 14.4 kbits/s),

- SMS (Short Message Service) transmission on the switched telephone network using the V23 protocol,

- Network printer and scanner, via a local area network (LAN), E-mail transmission and reception on the local area network (model B2540).

- photocopying documents,

- local printing and scanning for PC via USB or WLAN connections.

The machine's electronics is made up of a front panel card and a CPU card. The power supply is provided by the printer.

Before performing any operations on the electronic CPU card, you should:

1 - Set the On/Off button to Off (position 0).

2 - Unplug all external connectors (phone line connectors, USB connectors master, slave, LAN).

3 - Unplug the power supply cord.
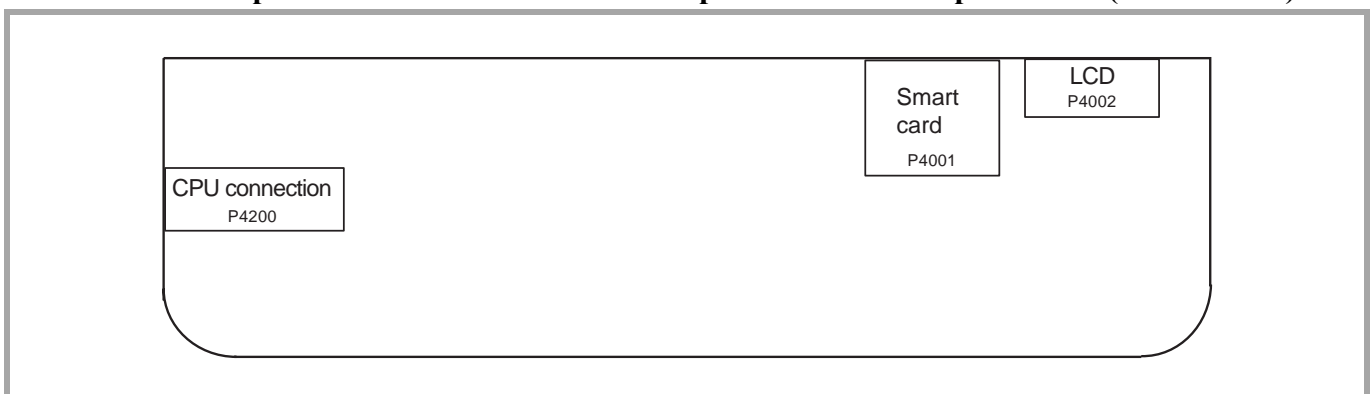
3.1 FRONT PANEL CARD

The front panel card interfaces with the keyboard keys and the LCD display.

The LCD has its own driver in COB (Chip On Board).

The card also has an external connector to the smart card which is managed by the CPU.

Oveview of the position of the connectors and captors for the front panel card (bottom view) :

List of connectors:

Connector	Topography	Number of points	Sex	Position
CPU Connection	P4200	16	Female	Elbow top contact
LCD	P4002	10	Female	Elbow, top contact
Smart card	P4001	10	Female	

• **CPU - P4200: CPU connection**

Pin	Signal	Input/Output	Utilization
1-7-8-10-15	GND	-	Ground
2	FERCAP	I	Detection of smart card
3	CVCC	I/O	Smart card power supply (3.3V) (controlled by I/O CVCC)
4	CLKPUCE	O	Smart card clock
5	RSTPUCE	I	Smart card reset
6	IOPUCE	I/O	Smart card data
9	SCLKPUP	O	Serial clock link for differential registers
11	RXPUP	I	Sending data from the front panel
12	TXPUP	O	Sending data from the CPU
13	STROB1	-	Out-of-register strobe to control the keyboard
14	STROB2	-	Out-of-register strobe to control the display
16	P5V	-	5V power supply

• **LCD - P4002: LCD interface**

Pin	Signal	Input/Output	Utilization
1	GND	-	Ground
2	V0	O	LCD contrast
3	RS	O	Selection of registers
4	R/W	O	Read or Write (driver configured to write in 0V)
5	LCD_E	O	Enable Signal (active at 1)
6	VCCLCD	-	Vcc: 4.5V to 5.5V
7	DB4	O	Data (Bit 4)
8	DB5	O	Data (Bit 5)
9	DB6	O	Data (Bit 6)
10	DB7	O	Data (Bit 7)

• **Smart card - P4001: connection with the smart card**

Pin	Signal	Input/Output	Utilization
1	CVCC	O	Smart card power supply (3.3V)
2	RSTPUCE	O	Smart card reset
3	CLKPUCE	O	Smart card clock
4	-	-	Not connected
5	GND	-	Ground
6	-	-	Not connected
7	IOPUCE	I/O	Smart card data (input/output)
8	-	-	Not connected
S1	GND	-	Ground
S2	FERCAP	I	Smart card detection

3.2 CPU CARD

The CPU card is based on the Digicolor2 circuit, which ensures the processor functions.

All the executable code is stored in the flash Z466.

This flash is divided into two zones: one zone is reserved for storing code and the other is reserved for storing documents.
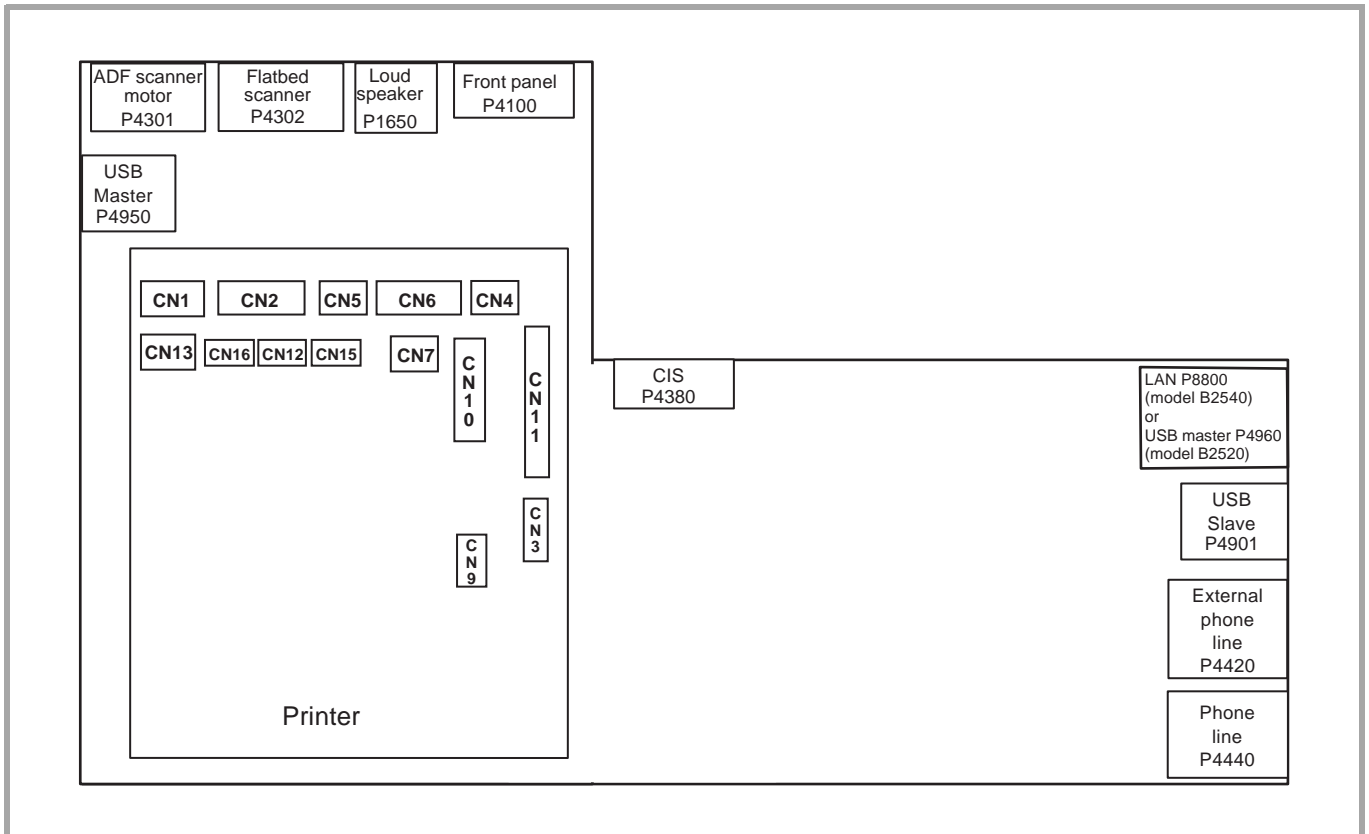
The code is loaded in SDRAM from this flash and the processor executes its instructions from the SDRAM. The SDRAM also serves as the operating memory for Digicolor2.

3.2.1 ELECTRONICAL ARCHITECTURE

Overview of the CPU electronical architecture :
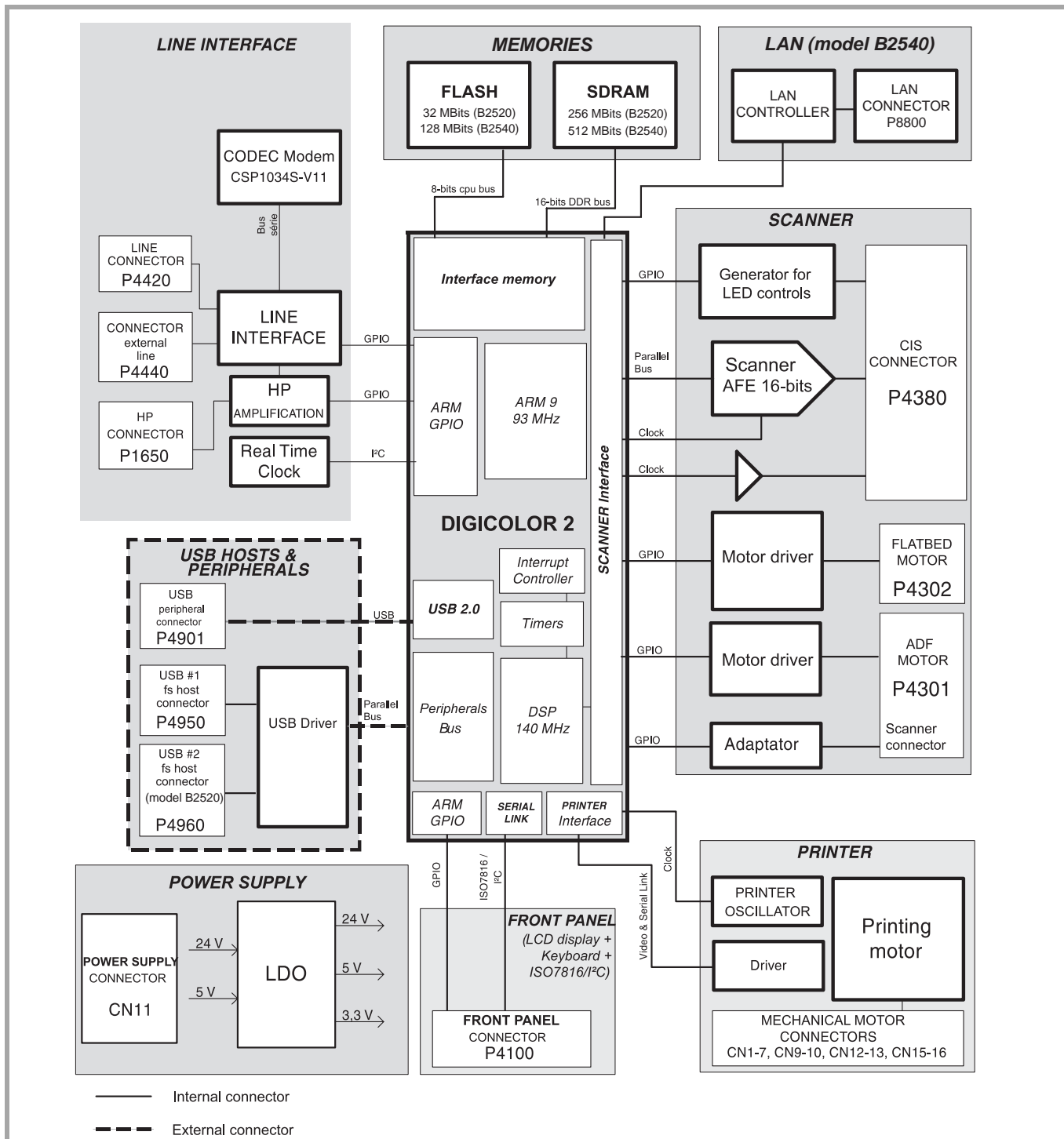
Overview of the CPU card connector positions:

List of connectors:

Connector	Topography	Number of points	Sex	Position
Printer	CNx			
Loudspeaker	P1650	2		
Front panel	P4100	16	Female	Straight, top contact
ADF scanner motor	P4301	15	Female	Straight
Flatbed scanner motor	P4302	5	Female	Straight
CIS	P4380	12	Female	Straight, top contact
Phone line	P4420	4	Female	
External phone line	P4440	4	Female	
LAN (model B2540)	P8800	8	Female	
USB Slave	P4901	4	External, type USB type B	
USB Master	P4950	4	External, type USB type A	
USB Master (model B2520)	P4960	4	External, type USB type A	

- **CNx: printer connectors**

Topography	Connector	Pin	Signal	Input/ Output	Utilization
CN1	Polygon motor				
		1	+24VS	-	24V power supply
		2	GND	-	Ground
		3	XPMENA	S	Starting the polygon motor
		4	XSCRDY	E	Locking the polygon motor
		5	PMCLK		Polygon motor clock
CN2	Diode laser				
		1	+5VLD	-	
		2	XLDENA	O	Activating the laser
		3	APCSH	O	Sampling
		4	XDETP	I	Ray beam detector
		5	GND	-	Ground
		6	XVD	O	Diode laser video
		7	NC	-	Not connected
CN3	Printer motor				
		1	P24VS	-	24V power supply
		2	GND	-	Ground
		3	P5V	-	
		4	XMMENA		
		5	MMCLK		
		6	MMCW		
		7	XMMLOCK		
		8	MMGAIN		
CN4	Fan				
		1	FANEMA	O	Fan in operation motor signal
		2	GND	-	Ground
		3	FANLOCK		
CN5	Paper output clutch				
		1	+24VS	-	24V power supply
		2	XFPCL	O	Electric paper clutch signal
CN6	Paper detection captors				
		1-4-7	GND	-	Ground
		2	XFEED	I	Paper feed signal captor
		3-6-9	+5V	-	5V power supply
		5	XREGIST	I	Register of signal captors
		8	XMANUAL	I	Manual paper feed signal captor
CN7	Paper output captor				
		1	GND	-	Ground
		2	XEXIT	I	Four paper output signal captors
		3	+5V	-	5V power supply
CN9	Debug				

Topography	Connector	Pin	Signal	Input/ Output	Utilization
		1	+5V	-	5V power supply
		2	DBGRXD	I	Debug receipt
		3	DBGTXD	O	Debug command
		4	GND	-	Ground
CN10	Signals of command High voltage				
		1	TRAPWM0	O	PWM signal for transfer of charger (+)
		2	TRAPWM1	O	PWM signal for transfer of charger (-)
		3	BIASPWM	O	PWM development signal
		4	CHEPWM	O	PWM signal charger
		5	XTRACTL	O	Charger signal transferred to On
		6	XBIASCTL	O	Development signal
		7	GND	-	Ground
		8	+24VS	-	24V power supply
CN11	Power supply				
		1	HTON	O	Phase Fuser control
		2	ZEROC	I	Control signal
		3	HTEN	O	Fuser relay (Activated to H)
		4	GND	-	Ground
		5	P24VS	O	24V power supply
		12-13	+24V	-	24V power supply
		6-7-10-11	GND	-	Ground
		8-9	+5V	-	5V power supply
CN12	Temperature captor of fusion unit				
		1	FTEMP	I	Fuser temperature detector
		2	GND	-	Ground
CN13	Opening of printer cover captor				
		1	P24V	I	24V power supply
		2	P24VS	O	24V power supply
CN15	IAO captor (presence of toner)				
		1	XAIO	I	Detection of cartridge
		2	GND	-	Ground
CN16	Motor temperature captor				
		1	TEMP	I	Detection of printer motor temperature
		2	GND	-	Ground

- **Loudspeaker - P1650: connection with the loudspeaker**

Pin	Signal	Input/Output	Utilization
1	HPP	O	Differentiated BF signal to HP
2	HPN	O	Differentiated BF signal to HP

- **Frontpanel - P4100: connection with the front panel card**

Pin	Signal	Input/Output	Utilization
1	P5V	-	5V power supply
2-7-9-10-16	GND	-	Ground
3	STROB2	-	Out-of-register strobe to control the display
4	STROB1	-	Out-of-register strobe to control the keyboard
5	TXPUP	O	Data emitted by the CPU
6	RXPUP	I	Data emitted by the front panel
8	SCLKPUP	O	Serial link clock for differentiated registers
11	IOPUCE	I/O	Smart card data (3.3V)
12	RSTPUCE	O	Smart card reset
13	CLKPUCE	O	Smart card clock
14	CVCC	O	Smart card power supply (3.3V) (controlled byr I/0 CVCC)
15	FERCAP	I	Detection of smart card

- **ADF scanner motor - P4301 : connection with the ADF scanner motor**

Pin	Signal	Input/Output	Utilization
1	P24V		24V power supply
2	ADF_BN	O	scanner motor coil BN
3	ADF_B	O	scanner motor coil B
4	ADF_AN	O	scanner motor coil AN
5	ADF_A	O	scanner motor coil A
6	GND		Ground
7	PSF	I	Sheet sensor
8	P5V		
9	GND		Ground
10	OUVCAP	I	ADF cover sensor
11	P5V		
12	GND		Ground
13	STSC	I	Document ready sensor
14	P5V		
15	NC		Not connected

- **Flatbed scanner motor - P4302: connection with the flatbed scanner motor**

Pin	Signal	Input/Output	Utilization
1	P24V	-	24V power supply
2	FTB_BN	O	scanner motor coil BN
3	FTB_B	O	scanner motor coil B
4	FTB_AN	O	scanner motor coil AN
5	FTB_A	O	scanner motor coil A

- **Phone line - P4420**

Pin	Signal	Input/Output	Utilization
1	R1	-	Loopback
2	L1	-	Phone line
3	L2	-	Phone line
4	R2	-	Loopback

- **External phone line - P4440**

Pin	Signal	Input/Output	Utilization
1	NC	-	
2	L1	-	Phone line
3	L2	-	Phone line
4	NC	-	

- **LAN - P8800 (model B2540)**

Pin	Signal	Input/Output	Utilzsation
1	TXLANP	O	Differential pair
2	TXLANN	O	Differential pair
3	RXLANP	I	Differential pair
4	REF1	O	Polarization 1
5	REF1	O	Polarization 1
6	RXLANN	I	Differential pair
7	REF2	O	Polarization 2
8	REF2	O	Polarization 2

- **CIS - P4380: connection with the CIS**

Pin	Signal	Input/Output	Utilization
1	VIDCIS	I	CIS video
2	CMD RESOL	O	300/600dpi resolution command
3	VREFCIS	O	CIS voltage reference
4	VIDEOGND	-	Mass
5	CLKCIS	O	CIS (synchro point) pixel clock
6	ALIMCIS	-	5V power supply
7	SPCIS	O	Start Pulse CIS (line synchro)
8	ALIMLED	O	leds power supply (in voltage)
9	GNDLEDB	O	Blue led cathod
10	GNDLEDV	O	Green led cathod
11	GNDLEDR	O	Red led cathod
12	GND	-	Ground

- **USB - P4901: USB slave interface**

Pin	Signal	Input/Output	Utilization
1	VBUS_USB	I	Power supply provided by the master
2	USBN	I/O	Differential pair
3	USBP	I/O	Differential pair
4	GND	I/O	Ground

- **USB - P4950: USB master interface**

Pin	Signal	Input/Output	Utilization
1	VBUS_USB_HOST	O	Power supply provided to the slave
2	USBN	I/O	Differential pair
3	USBP	I/O	Differential pair
4	GND	I/O	Ground

- **USB - P4960: USB master interface (model B2520)**

Pin	Signal	Input/Output	Utilization
1	VBUS_USB_HOST_2	O	Power supply provided to the slave
2	USBN	I/O	Differential pair
3	USBP	I/O	Differential pair
4	GND	I/O	Ground

3.2.2 POWER SUPPLY

The 24V and 5V power supply are provided by the printer.

Diagram of printer power supply connections:
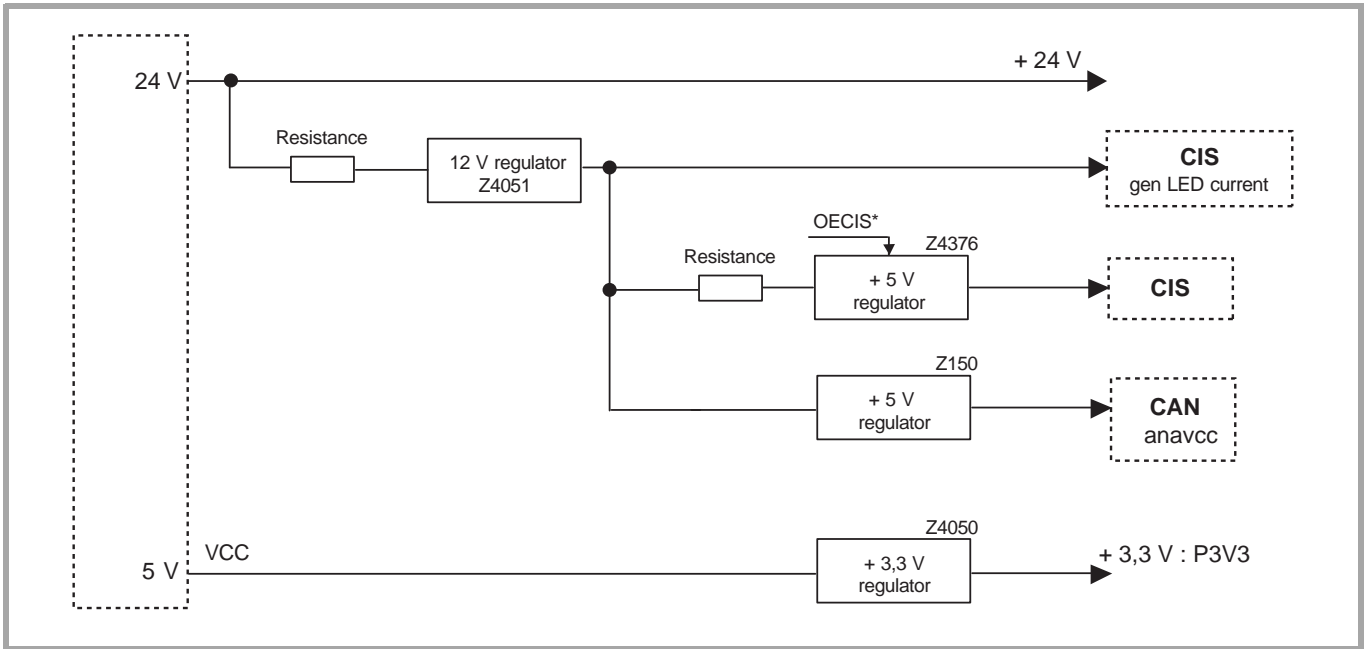
3.2.3 QUARTZ

Diagram of CPU card clocks:
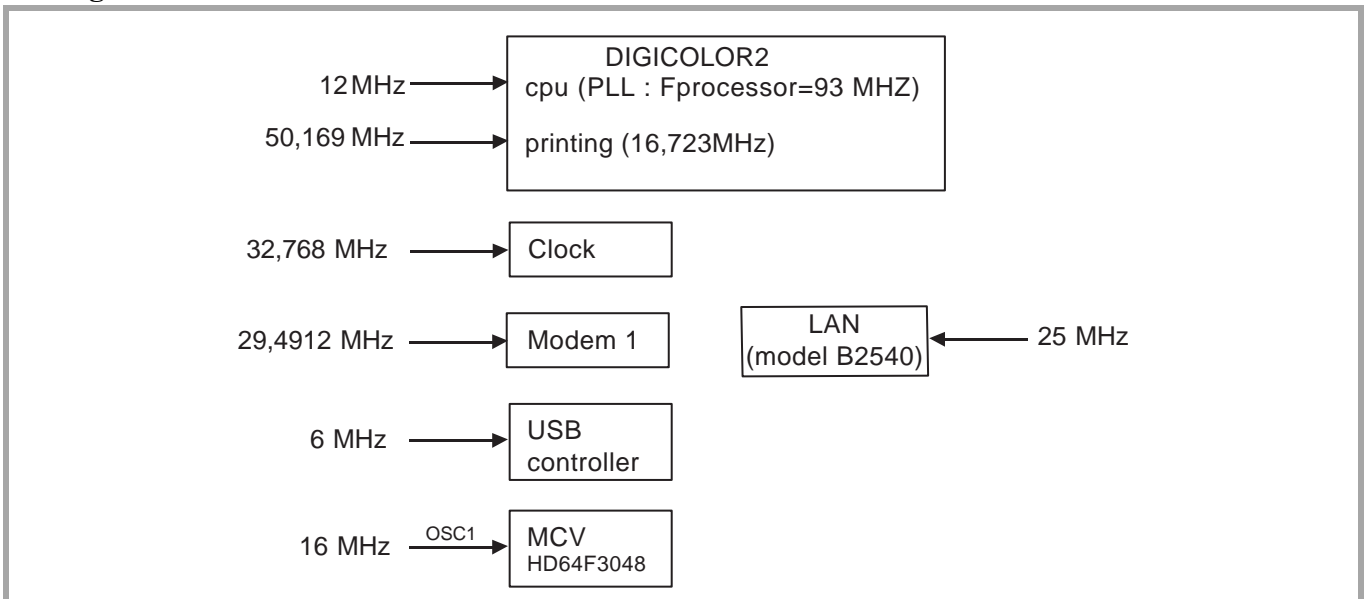
3.2.4 RESET

The reset is generated from 3.3V as all logical parts (DIGICOLOR2, memory, …) are supplied in 3.3V. The reset is active during at least 100ms.

Printer's reset diagram:

```
3.3 V ──── ┌─────────────────────┐        Reset USB  ───────►  ┌────────────┐
           │ Low voltage detection│                             │  USB Host  │
           │  MAX809 - T : 3,08 V │                             └────────────┘
           │        Z410          │        Reset modem ──────►  ┌────────────┐
           └─────────────────────┘                             │   Modem    │
                      │                                         └────────────┘
              /reset max 809
                      │                          ┌───────────► ┌──────────────────┐
                      │                          │             │ LAN (model B2540)│
                      │                          │             └──────────────────┘
                      └──────────────────────────┼───────────► ┌──────────────────┐
                                                 │             │   DIGICOLOR2     │
                                                 │             └──────────────────┘
                                                 └───────────► ┌──────────────────┐
                                                               │  Flash storage   │
                                                               └──────────────────┘

5 V ────── ┌─────────────────────┐        XRES  ───────────► ┌──────────────────┐
           │ Low voltage detection│                          │  MCV             │
           │    R3112N421C        │                          │  HD64F3048       │
           │        IC10          │                          └──────────────────┘
           └─────────────────────┘
```
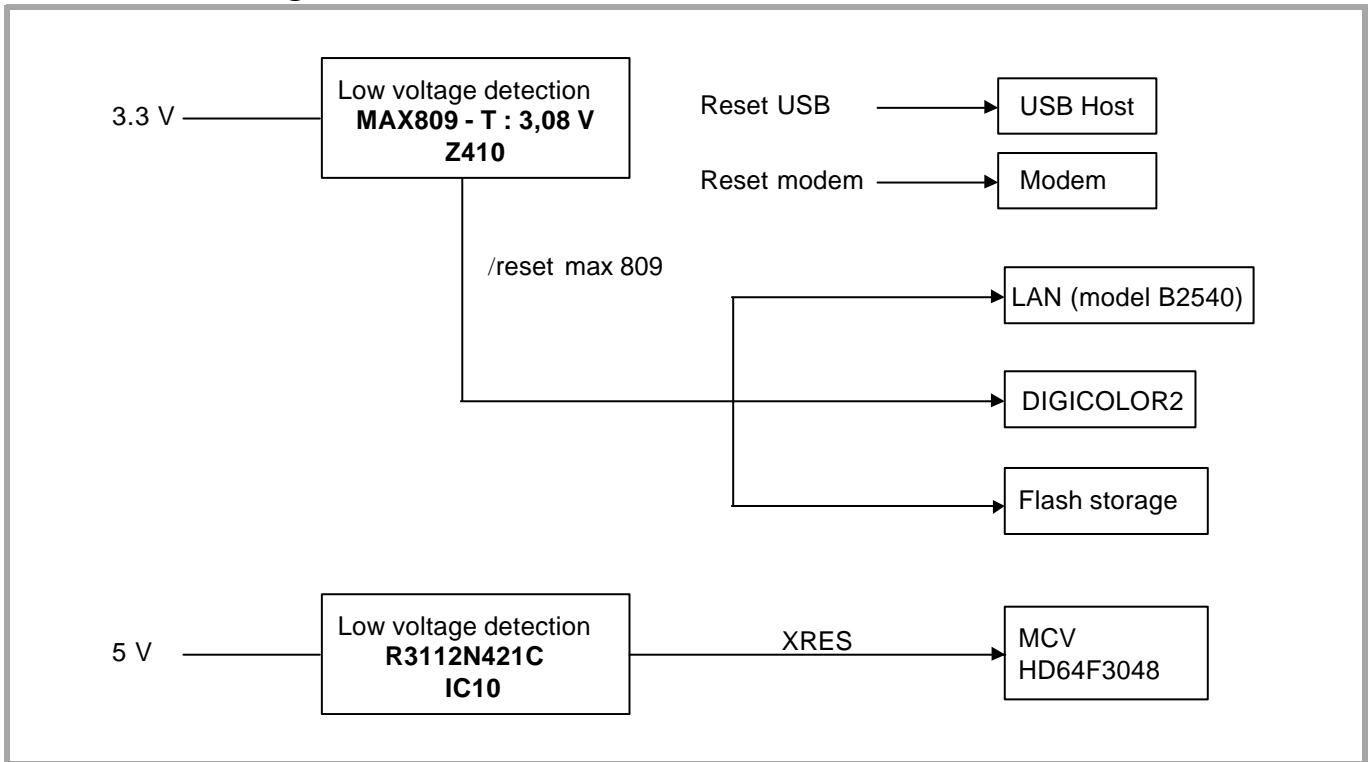
4. PRINTING

4.1 PRINTER LANGUAGE

The terminal uses the proprietary GDI printing language.

To install the drivers, carried out via the Companion Suite software installation, refer to the terminal User Guide.

Remark(s) :   The two-way PJL mode is supported.

4.2 INTERNAL FONTS LIST

The following list shows internal fonts as it is printed by the terminal (model B2540):

PCL Emulation Fonts			Page 1

Font ID	Font Name	Escape Sequence	Print Sample
I0	Internal 1000	<esc>(#<esc>(s0p*h0s0b4099T	ABCDEfghij#{}$£€@&0123%*+/ éèçùïô
I1	Internal 1001	<esc>(#<esc>(s1p*v0s0b4101T	ABCDEfghij#{}$£€@&0123%*+/ éèçùïô
I2	Internal 1002	<esc>(#<esc>(s1p*v0s3b4101T	ABCDEfghij#{}$£€@&0123%*+/ éèçùïô
I3	Internal 1003	<esc>(#<esc>(s1p*v1s0b4101T	ABCDEfghij#{}$£€@&0123%*+/ éèçùïô
I4	Internal 1004	<esc>(#<esc>(s1p*v1s3b4101T	ABCDEfghij#{}$£€@&0123%*+/ éèçùïô
I5	Internal 1005	<esc>(#<esc>(s1p*v0s0b4113T	ABCDEfghij#{}$£€@&0123%*+/é èçùïô
I6	Internal 1006	<esc>(#<esc>(s1p*v0s3b4113T	ABCDEfghij#{}$£€@&0123%*+/é èçùïô
I7	Internal 1007	<esc>(#<esc>(s1p*v1s0b4113T	ABCDEfghij#{}$£€@&0123%*+/é èçùïô
I8	Internal 1008	<esc>(#<esc>(s1p*v1s3b4113T	ABCDEfghij#{}$£€@&0123%*+/é èçùïô
I9	Internal 1009	<esc>(#<esc>(s1p*v1s0b4116T	ABCDEfghij#{}$£€@&0123%*+/éèçùïô
I10	Internal 1010	<esc>(#<esc>(s1p*v4s3b4140T	ABCDEfghij#{}$£€@&0123%*+/éèçùïô
I11	Internal 1011	<esc>(#<esc>(s1p*v0s0b4148T	ABCDEfghij#{}$£€@&0123%* +/ éèçùïô
I12	Internal 1012	<esc>(#<esc>(s1p*v0s3b4148T	ABCDEfghij#{}$£€@&0123%* +/ éèçùïô
I13	Internal 1013	<esc>(#<esc>(s1p*v1s0b4148T	ABCDEfghij#{}$£€@&0123%* +/ éèçùïô
I14	Internal 1014	<esc>(#<esc>(s1p*v1s3b4148T	ABCDEfghij#{}$£€@&0123%* +/ éèçùïô
I15	Internal 1015	<esc>(#<esc>(s1p*v4s0b4148T	ABCDEfghij#{}$£€@&0123%*+/éèçùïô
I16	Internal 1016	<esc>(#<esc>(s1p*v4s3b4148T	ABCDEfghij#{}$£€@&0123%*+/éèçùïô
I17	Internal 1017	<esc>(#<esc>(s1p*v5s0b4148T	ABCDEfghij#{}$£€@&0123%*+/éèçùïô
I18	Internal 1018	<esc>(#<esc>(s1p*v5s3b4148T	ABCDEfghij#{}$£€@&0123%*+/éèçùïô

: Symbol set   * : Font height

PCL Emulation Fonts			Page 2
I19	Internal 1019	<esc>(#<esc>(s1p*v0s0b4168T	ABCDEfghij#{}$£€@&0123%* +/éèçùïô
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I21	Internal 1021	<esc>(#<esc>(s1p*v1s0b4168T	*ABCDEfghij#{}$£€@&0123%* + /éèçùïô*
I22	Internal 1022	<esc>(#<esc>(s1p*v0s0b4197T	ABCDEfghij# {}$£€@&0123%*+/ éèçùïô
I23	Internal 1023	<esc>(#<esc>(s1p*v0s3b4197T	ABCDEfghij# {}$£ €@&0123%*+/ éèçùïô
I24	Internal 1024	<esc>(#<esc>(s1p*v1s0b4197T	*ABCDEfghij# {}$£ €@& 0123%*+/ éèçùïô*
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I26	Internal 1026	<esc>(#<esc>(s1p*v0s0b4297T	ABCDEfghij#{}$£€@&0123%*+/éèçùïô
I27	Internal 1027	<esc>(#<esc>(s1p*v0s1b4362T	ABCDEfghij#{}$£€@&0123%* + /éèçùïô
I28	Internal 1028	<esc>(#<esc>(s1p*v0s4b4362T	**ABCDEfghij#{}$£€@&0123% * +/éèçùïô**
I29	Internal 1029	<esc>(#<esc>(s1p*v0s0b16602T	ABCDEfghij#{}$£€@&0123%*+/ éèçùïô
I30	Internal 1030	<esc>(#<esc>(s1p*v0s3b16602T	**ABCDEfghij#{}$£€@&0123%*+/ éèçùïô**
I31	Internal 1031	<esc>(#<esc>(s1p*v1s0b16602T	*ABCDEfghij#{}$£€@&0123%*+/ éèçùïô*
I32	Internal 1032	<esc>(#<esc>(s1p*v1s3b16602T	***ABCDEfghij#{}$£€@&0123%*+/ éèçùïô***
I33	Internal 1033	<esc>(#<esc>(s1p*v0s0b16901T	ABCDEfghij#{}$£€@&0123%*+/ éèçùïô
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I37	Internal 1037	<esc>(19M<esc>(s1p*v0s0b16686T	ABXΔEφγηιφ#{}∃≤∈&0123%*+/⟨ ®⌈|⌉| |
I38	Internal 1038	<esc>(#<esc>(s1p*v0s0b45101T	✧✛·✚·✜✤ ✱ ✲ ✳✴ �照 ✶ ❝✂ ❣ ✠ ❍ ❦ ❧ ❖ ❞/❒ ❑ ❏ ❐ ❒ ➡➣➤➠ ❦ ❞➢❧

: Symbol set   * : Font height

PCL Emulation Fonts			Page 3

I39	Internal 1039	<esc>(#<esc>(s0p*h0s3b4099T	ABCDEfghij#{}$£€@&0123%*+ / éèçùïô
I40	Internal 1040	<esc>(#<esc>(s0p*h1s0b4099T	ABCDEfghij#{}$£€@&0123%*+ / éèçùïô
I41	Internal 1041	<esc>(#<esc>(s0p*h1s3b4099T	ABCDEfghij#{}$£€@&0123%*+ / éèçùïô
I42	Internal 1042	<esc>(#<esc>(s0p*h0s0b4102T	ABCDEfghij#[]$£€@&0123%*+/ éè çùïô
I43	Internal 1043	<esc>(#<esc>(s0p*h0s3b4102T	ABCDEfghij#[]$£€@&0123%*+/ éè çùïô
I44	Internal 1044	<esc>(#<esc>(s0p*h1s0b4102T	ABCDEfghij#[ ]$£€@&0123%*+/ éè çùïô
I45	Internal 1045	<esc>(#<esc>(s1p*v0s0b24607T	ABCDEfghij#{}$£€@&0123%*+/é èçùïô
I46	Internal 1046	<esc>(#<esc>(s1p*v1s0b24607T	ABCDEfghij#{}$£€@&0123%*+/é èçùïô
I47	Internal 1047	<esc>(#<esc>(s1p*v0s2b24607T	ABCDEfghij#{}$£€@&0123%*+/é èçùïô
I48	Internal 1048	<esc>(#<esc>(s1p*v1s2b24607T	ABCDEfghij#{}$£€@&0123%*+/é èçùïô
I49	Internal 1049	<esc>(#<esc>(s1p*v0s-3b24623T	ABCDEfghij#{}$£€@&0123%*+ /éèçùïô
I50	Internal 1050	<esc>(#<esc>(s1p*v1s-3b24623T	ABCDEfghij#{}$£€@&0123%*+/ éèçùïô
I51	Internal 1051	<esc>(#<esc>(s1p*v0s2b24623T	ABCDEfghij#{}$£€@&0123%* +/éèçùïô
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I53	Internal 1053	<esc>(#<esc>(s1p*v0s0b24703T	ABCDEfghij#{}$£€@&0123%*+/é èçùïô
I54	Internal 1054	<esc>(#<esc>(s1p*v1s0b24703T	ABCDEfghij#{}$£€@&0123%*+/ éèçùïô
I55	Internal 1055	<esc>(#<esc>(s1p*v0s3b24703T	ABCDEfghij#{}$£€@&0123%*+ /éèçùïô
I56	Internal 1056	<esc>(#<esc>(s1p*v1s3b24703T	ABCDEfghij#{}$£€@&0123%*+ /éèçùïô
I57	Internal 1057	<esc>(#<esc>(s0p*h0s0b24579T	ABCDEfghij#{}$£€@&0123%*+ /éèçùïô
I58	Internal 1058	<esc>(#<esc>(s0p*h0s3b24579T	ABCDEfghij#{}$£€@&0123%*+ /éèçùïô
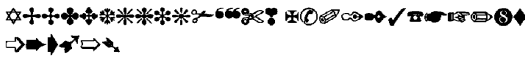
: Symbol set   * : Font height

	PCL Emulation Fonts		Page 5

I79	Line Printer	<esc>(1U<esc>(s0p16.67h8.5v0s0b0T	A B C D E f g h i j # § · $ ∂ & 0 1 2 3 % * + /
I80	Line Printer	<esc>(2N<esc>(s0p16.67h8.5v0s0b0T	A B C D E f g h i j # { } $ Ł ∂ & 0 1 2 3 % * + / áâéčçůďô
I81	Line Printer	<esc>(5N<esc>(s0p16.67h8.5v0s0b0T	A B C D E f g h i j # { } $ £ ∂ & 0 1 2 3 % * + / áâéèçùïô
I82	Line Printer	<esc>(8U<esc>(s0p16.67h8.5v0s0b0T	A B C D E f g h i j # { } $ È ∂ & 0 1 2 3 % * + / Ãāõòóªÿ¶
I83	Line Printer	<esc>(10U<esc>(s0p16.67h8.5v0s0b0T	A B C D E f g h i j # { } $ ú ∂ & 0 1 2 3 % * + / ßΓΘΦτ·∩⌠
I84	Line Printer	<esc>(11U<esc>(s0p16.67h8.5v0s0b0T	A B C D E f g h i j # { } $ ú ∂ & 0 1 2 3 % * ┼ / ßΓΘΦτ·∩⌠
I85	Line Printer	<esc>(12U<esc>(s0p16.67h8.5v0s0b0T	A B C D E f g h i j # { } $ ú ∂ & 0 1 2 3 % * + / ßÔÚÞþ¨´¶

: Symbol set   * : Font height

SG Script Fonts		Page 1

Font ID	Font Name	Print Sample
I0	Internal 0	ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô
I1	Internal 1	ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô
I2	Internal 2	ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô
I3	Internal 3	ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô
I4	Internal 4	ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô
I5	Internal 5	ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô
I6	Internal 6	ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô
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I8	Internal 8	ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô
I9	Internal 9	ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô
I10	Internal 10	ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô
I11	Internal 11	ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô
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I13	Internal 13	ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô
I14	Internal 14	ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô
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I16	Internal 16	ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô
I17	Internal 17	ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô
I18	Internal 18	ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô
I19	Internal 19	ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô
I20	Internal 20	ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô
I21	Internal 21	ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô
I22	Internal 22	ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô

SG Script Fonts		Page 2
I23	Internal 23	ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô
I24	Internal 24	**ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô**
I25	Internal 25	*ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô*
I26	Internal 26	*ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô*
I27	Internal 27	ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô
I28	Internal 28	ABXΔEφγηιφ#{}∃≤ ≅&0123%∗+/⎮ ♥⎡⟨⎮⏋⎮⎮
I29	Internal 29	**ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô**
I30	Internal 30	*ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô*
I31	Internal 31	*ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô*
I32	Internal 32	ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô
I33	Internal 33	*ABCDEfghij#{}$£€@&0123%*+/½©éèçùïô*
I34	Internal 34	✫✚⬩✜✤✦✱✳✴✳✷✲✰⟍‘‘‛✂✄ ✠✇✎✑✐➡✓✜✆☞✈☺✆❾◆ ⇨➡▶✦⇨✎

4.3 PAPER FORMAT

The following is a list of compatible paper formats:

Supports		Paper trays		
Media sizes	Dimensions (mm)	Main	Manual	Feeder
Legal	215.9 x 355.6	**yes**	**yes**	**yes**
A4	210 x 297	**yes**	**yes**	**yes**
Letter	215.9 x 279.4	**yes**	**yes**	**yes**
A5	148 x 210	**yes**	**yes**	**yes**
B5 (JIS)	182 x 257	no	**yes**	no
Executive	184.2 x 266.7	no	**yes**	no
A6	176 x 250	no	**yes**	no
Capacities		250	1	50

MAINTENANCE SECTION

CONTENTS

1. SCANNER AND COMMUNICATION

1.1 PREVENTIVE MAINTENANCE

To keep the terminal in good working condition, the following operations should be carried out regularly:

- Cleaning the paper transport rollers of the ADF scanner.
- Cleaning the paper separator.
- Cleaning the CIS window of the flatbed scanner.
- Cleaning the front panel keys and the printer covers.
- Printer maintenance (refer to chapter **Laser printer**, page 43).
- Cleaning the printer with a soft cloth, **never use abrasives or detergents**.

1.1.1 PAPER TRANSPORT ROLLERS
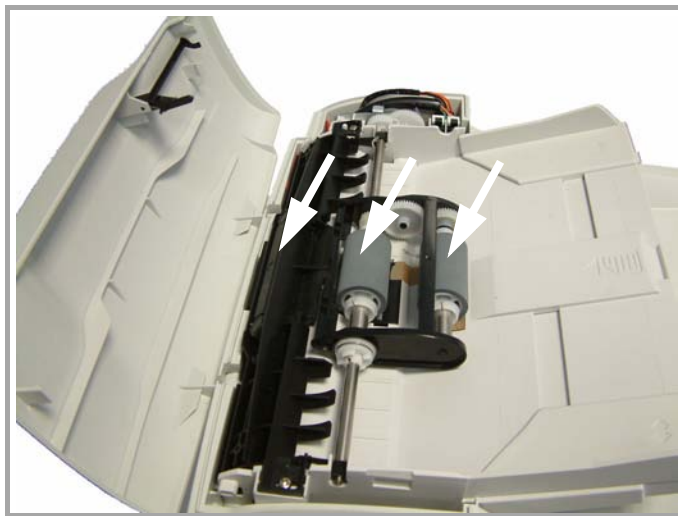
1 - Set the On/Off switch to Off (position 0).

2 - Open the ADF scanner cover.

3 - Clean the rollers of the document feeder and feed shafts, and also the two idler rollers located on the mobile part of the scanner, with a lint-free cloth moistened in isopropyl alcohol. To clean them, rotate them in the same direction as during paper transport.

Recommended interval: from 2 to 6 months, depending on utilization.

1.1.2 PAPER SEPARATOR MODULE
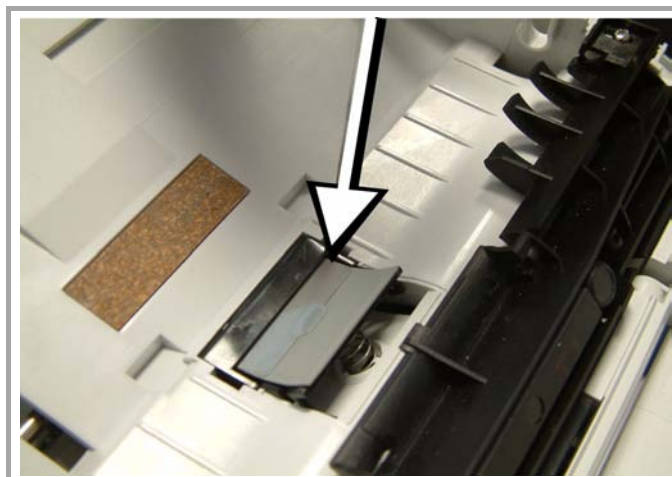
1 - Set the On/Off switch to Off (position 0).

2 - Open the ADF scanner cover.

3 - Disassemble the ADF feeder (see Worksheet D4, page 17).

4 - Wipe the elements of the paper separator module with a lint-free cloth soaked with isopropyl alcohol.

Recommended interval: from 2 to 6 months, depending on utilization.

1.1.3 CIS AND FLATBED WINDOW

1 - Set the On/Off switch to Off (position 0).

2 - Open the flatbed scanner cover.

3 - Clean the CIS window with a lint-free cloth moistened with isopropyl alcohol or use anti-static paper used for cleaning optic glass.

Recommended interval: depending on utilization; it is advisable to make a local copy to check if the window is clean.

1.1.4 FRONT PANEL KEYS AND COVERS

1.1.4.1 Cleaning the front panel keys

1 - Set the On/off switch to Off (position O).

2 - Clean the top of the front panel and the keys with a lint-free cloth moistened with isopropyl alcohol or a spray-on cleaning product.

3 - Leave the product on for a few seconds before wiping it off.

Recommended interval: to be defined depending on utilization.

1.1.4.2 Cleaning the covers

It is advisable to clean all the covers during a maintenance visit.

1 - Set the On/Off switch to Off (position O).

2 - Clean the external areas of the covers with a lint-free cloth moistened with isopropyl alcohol or a spray-on cleaning product.

3 - Leave the product on for a few seconds before wiping it off.

1.2 SCANNING AND COMMUNICATION ERROR CODES

1.2.1 COMMUNICATION ERROR CODES

The communication error codes appear in the logs (printed using key sequence ▼ **5 2**) and in the transmission reports.

1.2.2 GENERAL CODES

The following table presents and details for each error code displayed by the terminal its cause and when required the corrective action to perform.

Code	Error	Cause	Action
01	**Engaged or no fax tone**	This code appears after 6 failed attempts.	Restart the transmission at a later time.
03	**Stopped by operator**	Communication stopped by the operator by pressing the ⊘ key.	
04	**Programmed number invalid**	Invalid programmed single-key or quick-dial number (Example : a delayed transmission has been programmed with a single key and this key has been deleted).	Check the validity of the programmed number and/or the single-key associated to the programmed number.
05	**Scanning fault**	An incident has occurred at the location of the document to be transmitted (Example: the sheet is jammed).	Check the ADF module.
06	**Printer not available**	An incident has occurred on the printer (Example: out of paper, paper jam or cover open). In the case of a reception, this incident code only appears if the **RECEPTION WITHOUT PAPER** parameter is set to **WITHOUT PAPER**.	Check the printer.
07	**Disconnect**	The communication has been cut (bad connection).	Check the called number.
08	**Quality**	The document that you have transmitted has not been received correctly.	Contact your correspondent to check whether it is necessary to retransmit the document: the interference may have occurred in an unimportant area of the document.
0A	**No document to recover**	You have attempted to recover a document from a correspondent, but the latter has not prepared (stored) the document or the password that was entered is wrong.	Contact your correspondent to check whether the document to recover has been prepared or to check the validity of the password.
0B	**Wrong number of pages**	There is a difference between the number of pages indicated when the document was prepared for transmission and the number of pages actually transmitted.	Check the number of pages of the document.

Code	Error	Cause	Action
0C	**Received document faulty.**	The document is too long to be received in its entirety.	Ask the correspondent to check/reduce the length of his document.
0D	**Document transmission fault**	Document reception error.	Ask the correspondent to retransmit his document.
13	**Memory full**	The terminal memory is full (there are too many documents that have been received but not yet printed, or waiting to be transmitted).	Print the received documents. Delete or transmit in immediate mode the documents waiting to be transmitted.
14	**Memory full**	Received document memory saturated.	Print the received documents.
15	**Mailbox number x unknown**	Failure to deposit a document in your correspondent mailbox (the mailbox with this number does not exist with this correspondent).	Check the mailbox number of your correspondent.
16	**List number x not retransmitted**	Failure to retransmit a document via a remote fax (the requested list of recipients is not programmed on the remote fax).	Check that the list of recipients is programmed on the remote fax.
17	**Mailbox number x unknown**	Failure to recover a document in your correspondent mailbox (the mailbox with this number does not exist with this correspondent).	Check the mailbox number of your correspondent.
18	**Retransmission impossible**	Failure to retransmit a document via a remote fax (the remote fax does have a retransmit function).	
19	**Stopped by correspondent**	Communication stopped by your correspondent (Example: a fax attempts to recover a document from your fax, while there is no document waiting for this correspondent).	
1A	**Disconnect**	Transmission has not started (the phone line is too noisy).	Check the quality of the phone line or restart the transmission at a later time.
1B	**Document transmission fault**	Document transmission error.	Transmission: restart the transmission. Reception: ask your correspondent to retransmit the document.
50	**Server Error**	Invalid parameterized SMS server number or a communication error occured during data transfer.	Check the parameterized SMS server number and/or restart transmission.

1.3 MAINTENANCE-TUNING

1.3.1 SUPPLY VOLTAGES: CONNECTIONS BETWEEN THE POWER SUPPLY BOARD AND CPU BOARD

CPU board pin CN°	Values	Function
8-9	+ 5 V	5V Supply
10-11	GND	Ground
12-13	+ 24 V	24V Supply

Remark(s) :   The mains input of the power supply is protected by a fuse.

1.3.2 CHECKING THE QUALITY OF PRINTS AND TUNING THE SCANNER

To check or improve the quality of prints, you should first tune the scanner. Follow this procedure:

1 - Place a blank A4 sheet of paper in the loading tray of the ADF scanner.

2 - Press ▼ , enter ***** then **A** on the keyboard and confirm with **OK**.
The terminal reboots.

3 - Start making copies of documents on the CIS window of the flatbed scanner and check the quality of the copies.

If the problem persists and if it is related to the scanner:

• Repeat the tuning procedure (step **1**).

If the problem persists and if it is related to the printer (the scanner still provides unsatisfactory results):

1 - Press ▼ then enter **54** on the keyboard.
The terminal prints the list of printer tunings.

2 - Check the printer's printing and copying parameters.

3 - Check the consumable.

1.4 DISASSEMBLY/ASSEMBLY WORKSHEETS

Attention -   BEFORE DISASSEMBLING/ASSEMBLING, MAKE SURE THE TERMINAL IS
SWITCHED OFF.
DISCONNECT ALL CORDS AT THE FRONT AND BACK OF THE TERMINAL
(LINE, USB AND POWER SUPPLY).

Remark(s) :   Depending on the model, remove the front panel.

1.4.1 LIST OF TOOLS

- Cross-threaded (Philips) screwdriver
- Flat screwdriver (medium size)

1.4.2 LIST OF WORKSHEETS

- D1= Equiped front panel
- D2= ADF Scanner cover and white panel
- D3= Printer front door and side covers
- D4= Inside paper way assembly
- D5= CPU Module
- D6= Loud speaker
- D7= Flatbed scanner assembly
- D8= Equiped scanner - Scanner window frame - cis - cis ribbon cable - CIS support - Scanner motor
- D9= Back cover
- D10= Equiped Interface
- D11= Printer

1.4.3 WORKSHEET CHART

```
                              ┌─────────────────┐
                              │ B2520 / B2540   │
                              │ basic assembly  │
                              └─────────────────┘
```

- B2520 / B2540 basic assembly
  - Front panel support assy (Worksheet D1)
  - ADF scanner cover + White panel (Worksheet D2)
  - Printer front door + Side covers (Worksheet D3)
    - CPU module (Worksheet D5)
      - CPU card (Worksheet D5)
      - Loud speaker (Worksheet D6)
    - Back cover (Worksheet D9)
      - Interface equiped (Worksheet D10)
        - Printer (Worksheet D11)
    - Flat bed scanner assembly (Worksheet D7)
      - Equiped scanner (Worksheet D8)
        - Scanner window frame (Worksheet D8)
        - CIS (Worksheet D8)
        - CIS flap cable (Worksheet D8)
        - CIS support (Worksheet D8)
        - Scanner motor (Worksheet D8)
      - Inside paper way assembly (Worksheet D4)
        - Upper paper guide assembly (Worksheet D4)
        - Feeder assembly (Worksheet D4)
        - Rocking plate (Worksheet D4)
        - White frame plate/ Analysis roller (Worksheet D4)
        - ADF Slider right/left (Worksheet D4)

D1	OBJECT : EQUIPED FRONT PANEL

Requirements

• None.

Preliminary steps

• None.

Disassembly

   1 - Stand in front of the terminal.

   2 - Unlock the three clips of the front panel (**A**, **B** and **C**).
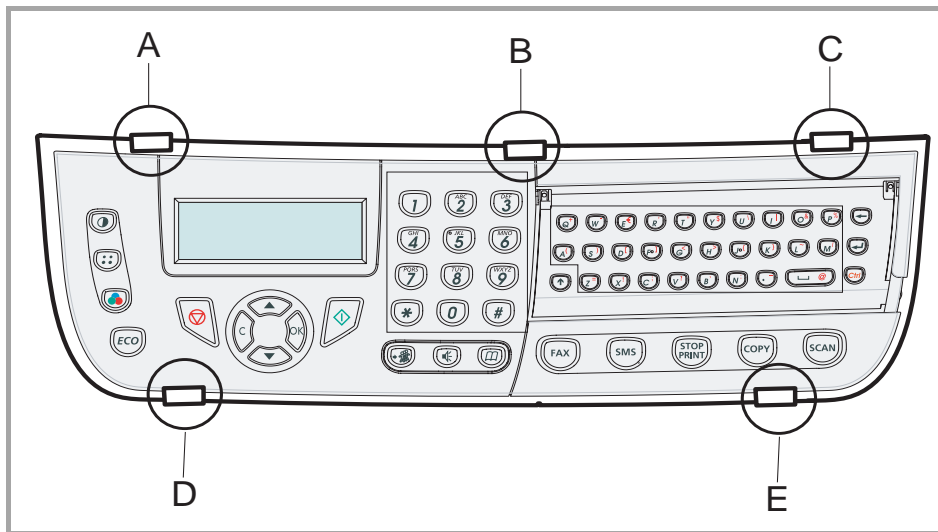
   3 - Push the panel towards the back to release it from the two bottom slots (**D** and **E**).

   4 - Disconnect the panel ribbon cable from the panel card connector.
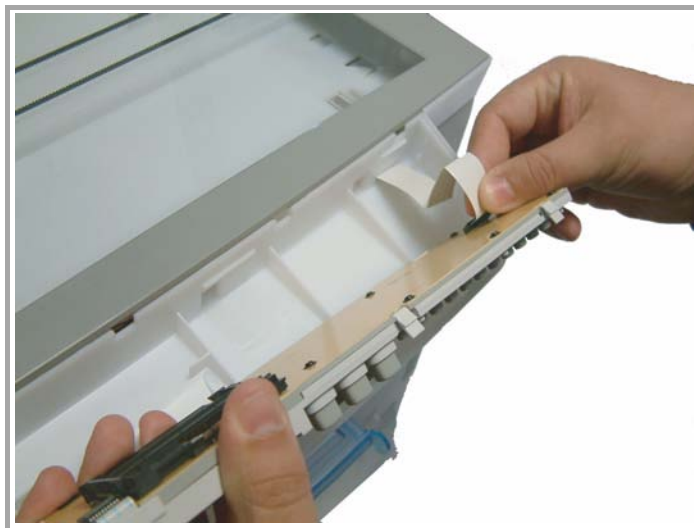
   5 - Disassemble the equiped front panel.

Assembly

   1 - Unpack and check all new components.

   2 - Connect the panel ribbon cable to the panel card connector.

   3 - Position the panel by inserting the two lower bearings (**D** and **E**) into their slots then clip the upper part into place.

D2	**OBJECT :** ADF SCANNER COVER AND WHITE PANEL

Requirements

- Flat screwdriver (medium size).
- Cross-threaded (Philips) screwdriver.

Preliminary steps

- None.

Disassembly

White panel

1 - Stand in front of the terminal and open the ADF scanner cover.

2 - Pull out the white panel located inside the ADF scanner cover.

ADF scanner cover

1 - Close the ADF scanner cover and open the ADF cover assembly.

2 - Remove the ADF motor cover from its two slots using a flat screwdriver then disassemble the ADF motor cover.
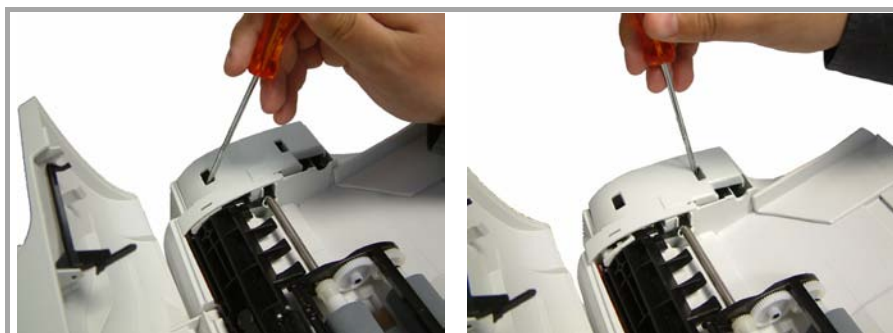
D2	
	OBJECT :ADF SCANNER COVER AND WHITE PANEL *(CONTINUED)*

3 - Unscrew the mounting screw of the ground cable.
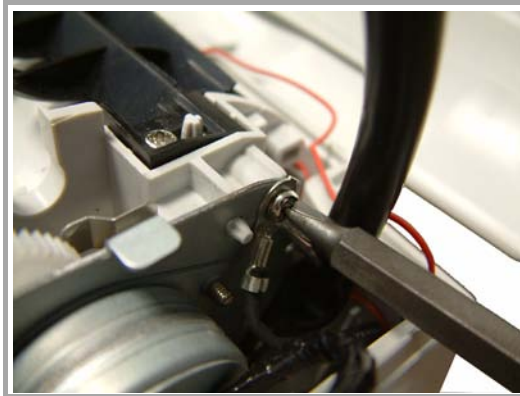
4 - Disconnect the ADF scanner cover sensor connector (**A**) and the paper sensor connector (**B**).
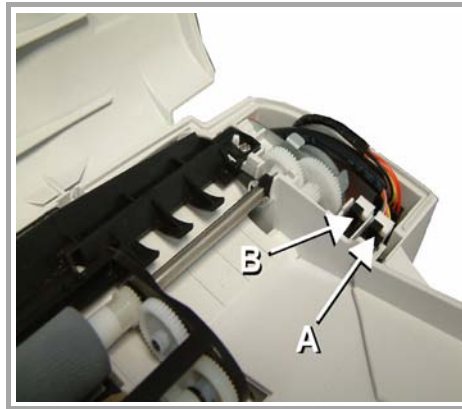
5 - Open the ADF scanner cover, unscrew the two mounting screws of the cable cover and remove the cable cover.
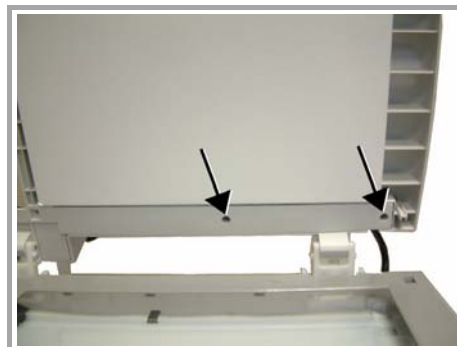
6 - Remove the ground cable, the ADF cover sensor connector and the paper sensor connector from their cable guide then slide them out of the ADF scanner cover.
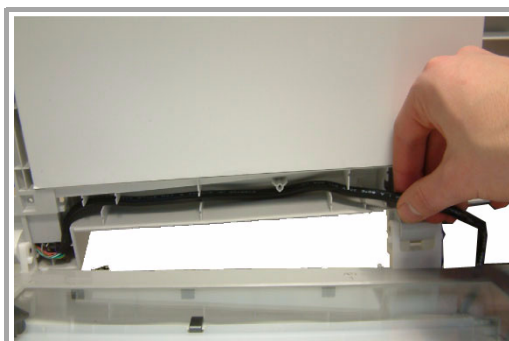
D2	OBJECT : ADF Scanner cover and white panel *(Continued)*

7 - Insert a flat screwdriver in each slot of the two ADF scanner cover hinges.

| Left slot of the left hinge | Right slot of the left hinge |
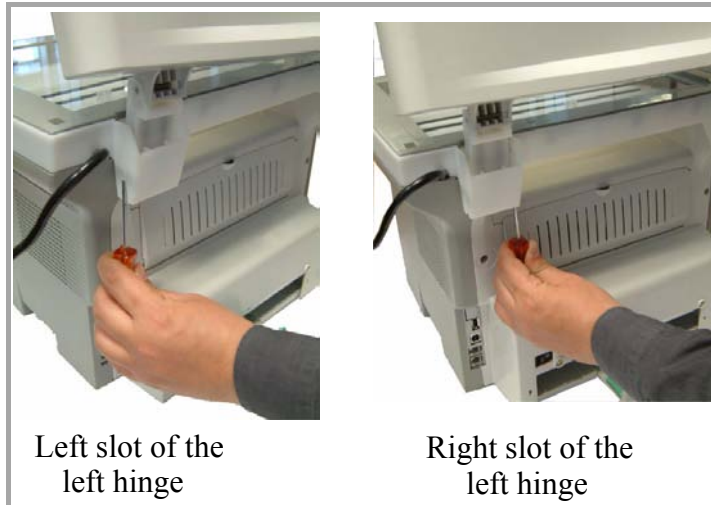
8 - Lift and remove the ADF scanner cover, do not forget the mounting screws of the hinges.
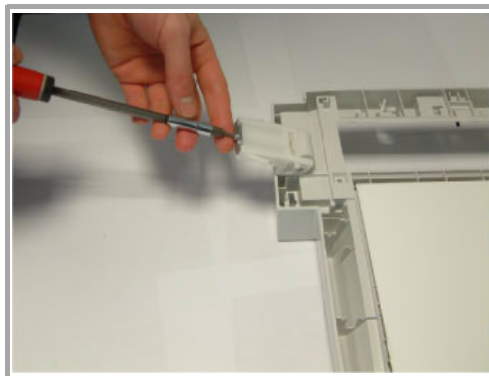
Assembly

1 - Unpack and check all new components.

2 - Screw the mouting screws of the two hinges and position the ADF scanner cover by inserting the two hinges in their slots.

3 - Insert the ground cable, the ADF cover sensor cable and the paper sensor cable in the cable guide.
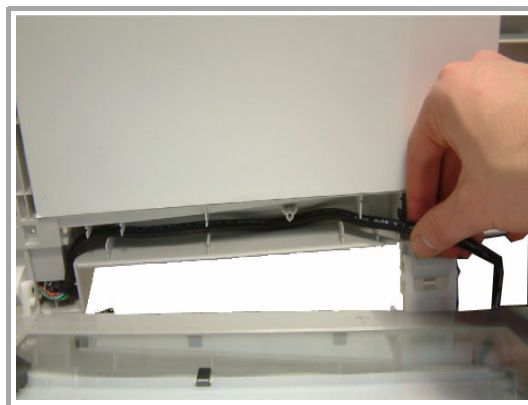
D2	**OBJECT :** ADF SCANNER COVER AND WHITE PANEL *(CONTINUED)*

4 - Position the cable cover, screw the two mouting screws then close the ADF scanner cover.
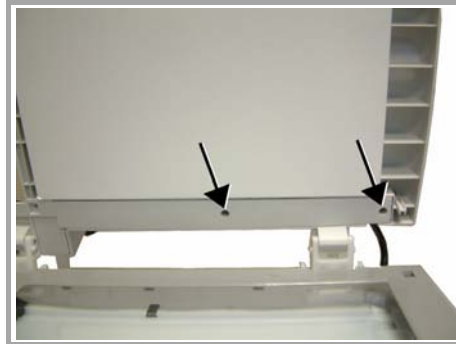
5 - Connect the paper sensor connector (black end) and the ADF cover sensor connector (white end).

ADF cover sensor   Paper sensor

6 - Screw the mouting screw of the ground cable.
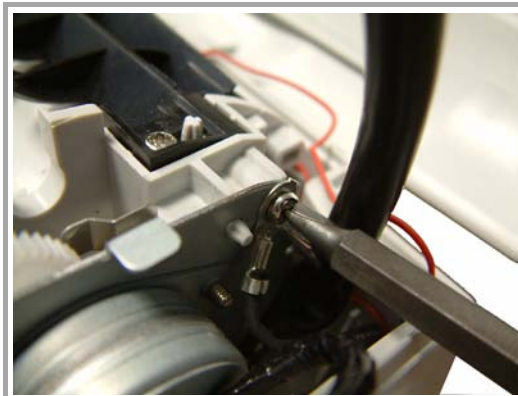
7 - Clip the ADF motor cover in its slots and close the ADF feeder cover.

8 - Stick the white panel inside the ADF scanner cover.

D3	**OBJECT :** PRINTER FRONT DOOR AND SIDE COVERS

Requirements

- Cross-threaded (Philips) screwdriver.
- Flat screwdriver.

Preliminary steps

- None.

Disassembly

Printer front door

1 - Stand in front of the terminal.

2 - Push the left and right side of the printer front door and simultaneously pull it towards yourself.

3 - Move the arms away from each other and remove the printer front door.

Side covers

1 - Open the printer's paper tray.

2 - Unscrew the two mounting screws on the front and back of the side covers.

Front mounting screw of the right hand side cover

Back mounting screw of the right-hand side cover

D3	**SUBJECT:**PRINTER FRONT DOOR AND SIDE COVERS *(CONTINUED)*

3 - Using a flat screwdriver, unscrew the side covers from their slots located under the terminal.

4 - Unclip the side covers from the top slots located at the back of the terminal and pivot them towards yourself to remove them.

5 -Remove the side covers.

Assembly

1 - Unpack and check all new components.

2 - Assemble the covers, in first put the front part of the cover then the back part.

3 - Assemble the printer front door by reversing the steps for the disassembly procedure.

D4	**OBJECT :** INSIDE PAPER WAY ASSEMBLY

Requirements

- Cross-threaded (Philips) screwdriver.
- Flat screwdriver.

Preliminary steps

- None.

Feeder assembly

Disassembly

  1 - Open the ADF cover.
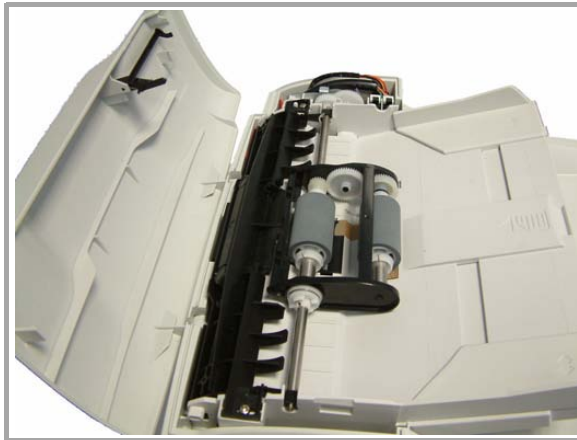
  2 - Lift the roller bearing..

  3 - Lift the roller bearing from the other end of the feeder.
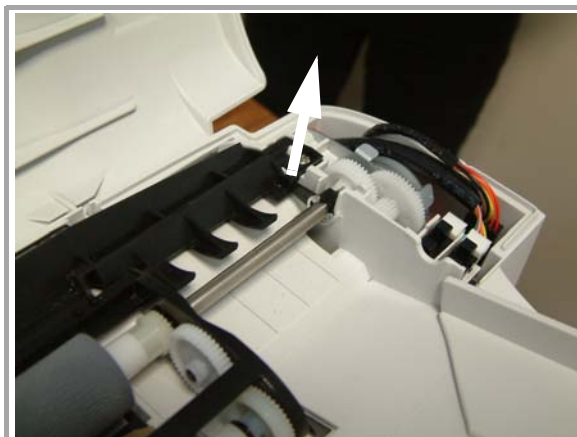
D4	OBJECT :INSIDE PAPER WAY ASSEMBLY *(CONTINUED)*

    4 - Lift the feeder and remove the feeder.

Assembly

    1 - Unpack and check all new components.

    2 - Position the feeder in its slot, positionning correctly the teeth gear in the motor assembly.

    3 - Lower the two roller bearings.

<p align="center">LFX Rocking plate and cork</p>

Preliminary steps

- Disassemble the feeder aseembly.

Disassembly

- Rocking plate

    1 - Insert a screwdriver in the right slot as shown below and make a pivoting movement downwards without strain to remove the rocking plate.

    2 - Repeat the previous step for the left slot of the rocking plate.
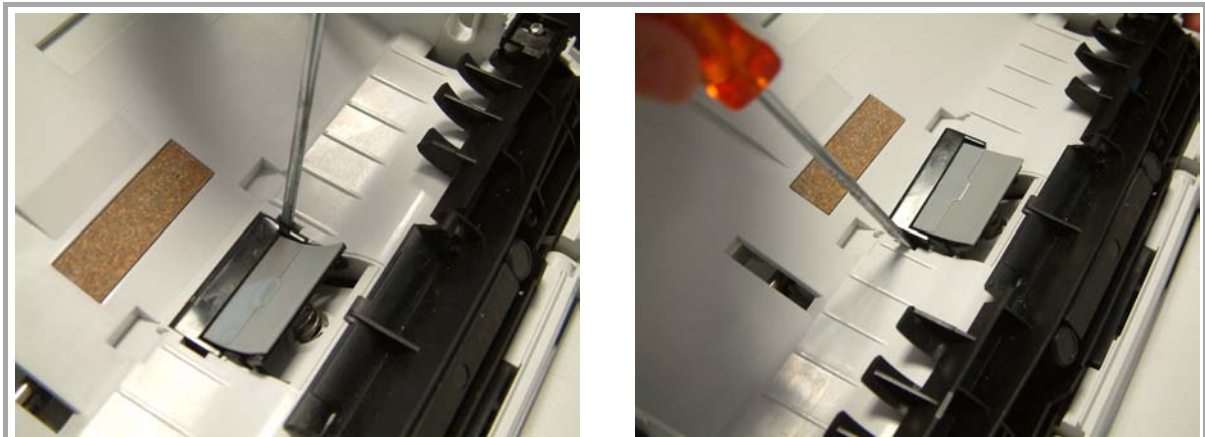
    3 - Remove the feeder shoe, the rocking plate and the rocking lever spring.

- LFX Cork

    1 - From the upper part of the ADF scanner.

    2 - Insert a screwdriver in the right slot as shown below and make a pivoting movement downwards without strain to remove the LFX cork.
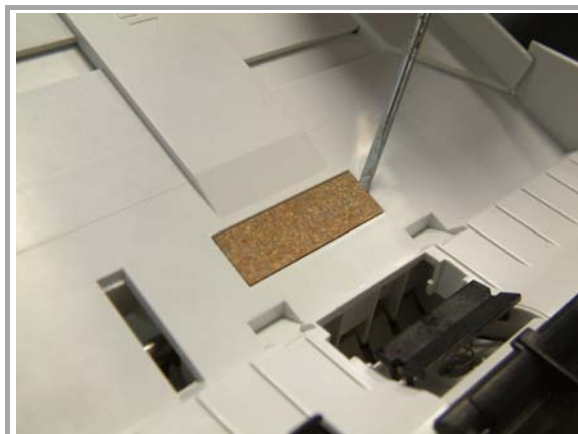
    3 - Remove the LFX cork.

D4	**OBJECT :**INSIDE PAPER WAY ASSEMBLY *(CONTINUED)*

Assembly

- LFX Cork

    1 - Make sure that the slot of the cork on the paper input guide is clean.

    2 - Unpack and check all new components.

    3 - Remove the adhesive from the cork and place the cork in its slot.

- Rocking plate

    1 - Unpack and check all new components.

    2 - Equip the rocking plate with the rocking lever spring.

    3 - Position the assembly in its slot.

    4 - Place the feeder shoe on the rocking plate respecting the assembly structure then press on the right and left sides until it reaches its final position.

Inside paper way assembly

Preliminary steps

- None.

Disassembly

    1 - Lift the ADF cover and unscrew the two mouting screws of the inside paper way assembly.
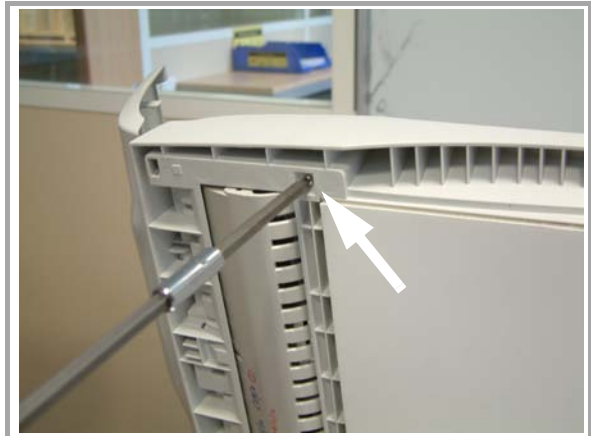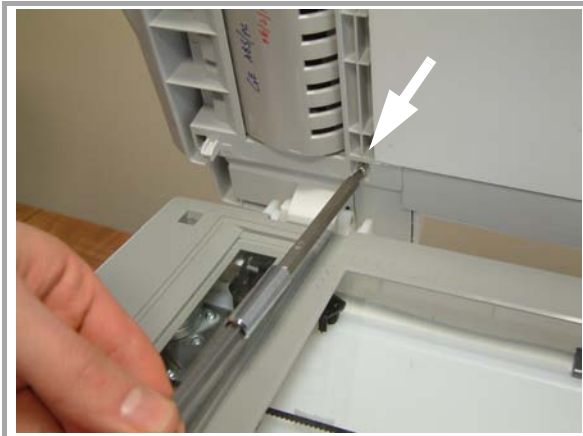
    2 - Lift the inside paper way assembly and remove it from its slot without disassembling it.
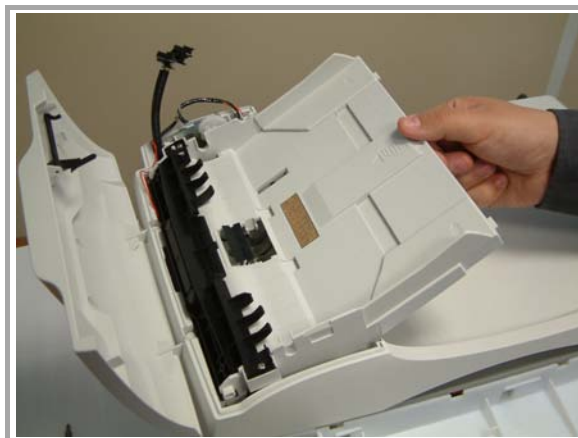
D4	OBJECT :INSIDE PAPER WAY ASSEMBLY*(CONTINUED)*

3 - Remove the motor frame cable from its cable guide.
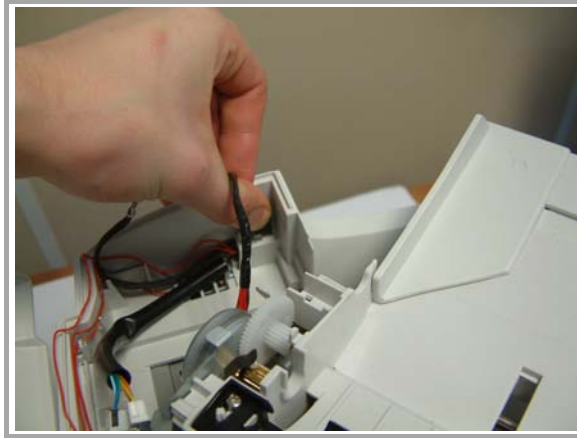
4 - Disconnect the connector reaching the ADF cover and remove the inside paper way assembly.
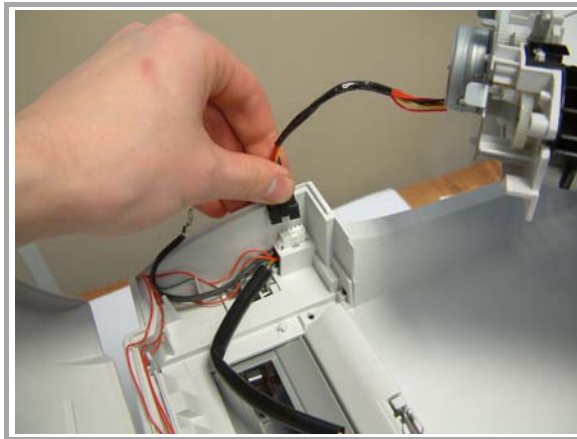
Assembly

1 - Unpack and check all new components.

2 - Position the inside paper way assembly near its final slot.

3 - Connect the motor frame connector to its connector.

4 - Hold the inside paper way assembly, open the ADF cover. Screw the two mounting screws.

Upper paper guide assembly

Preliminary steps

• Disassemble the feeder assembly.

Disassembly

1 - Open the ADF cover.

D4	**OBJECT :**INSIDE PAPER WAY ASSEMBLY *(CONTINUED)*

    2 - Unscrew the two mounting screws of the paper guide assembly.
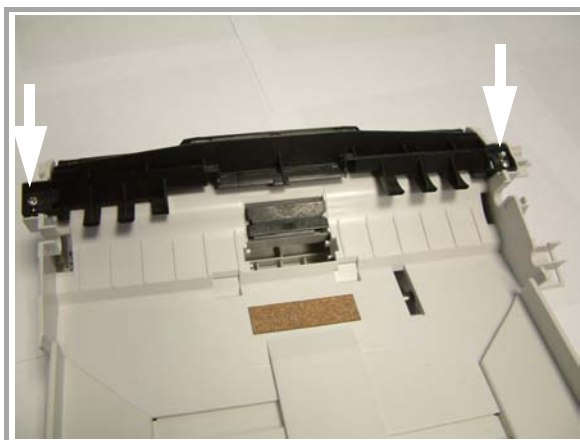
    3 - Make a forward movement and remove the paper guide assembly.
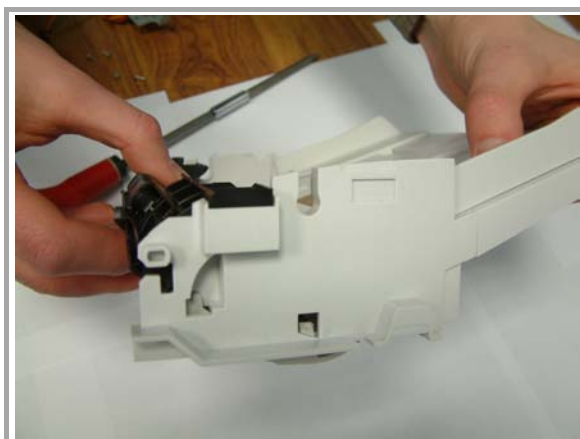
Assembly

    1 - Unpack and check all new components.

    2 - Insert the paper guide assembly forward in the paper input guide.

    3 - Screw the two mounting screws.

Motor frame

Preliminary steps

• Disassemble the inside paper way assembly.

D4	OBJECT : INSIDE PAPER WAY ASSEMBLY *(CONTINUED)*

DIsassembly

    1 - Unscrew the mounting screw of the motor frame.
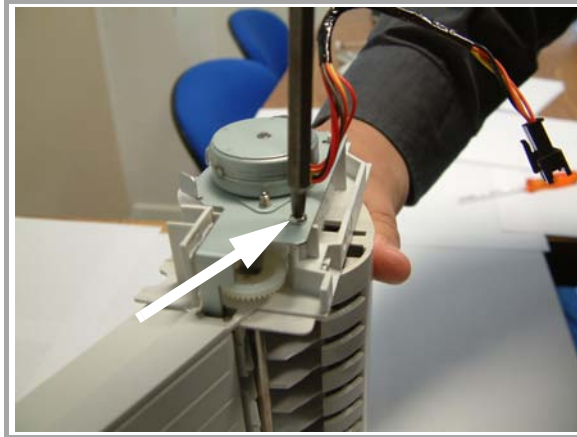
    2 - Lift and remove the motor frame. Locate the teeth gears and remove them.
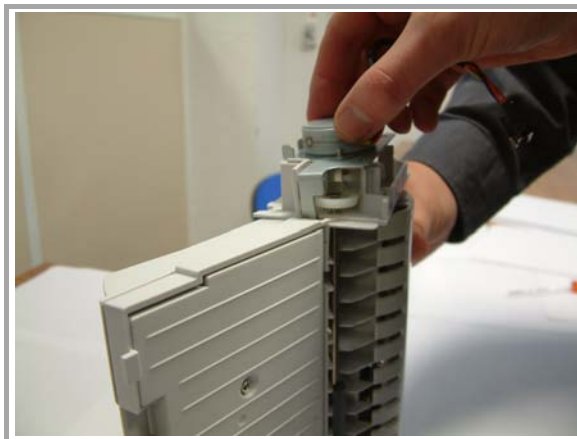
Motor

Disassembly

    1 - Unscrew the two mounting screws of the motor and remove the motor.
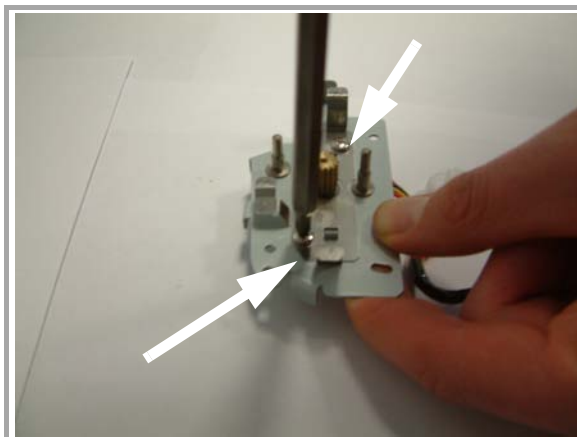
Assembly

    1 - Position the motor on its frame and screw the two mounting screws.

D4	**OBJECT :**INSIDE PAPER WAY ASSEMBLY *(CONTINUED)*

Motor frame assembly

    1 - Unpack and check all new components.

    2 - Position the teeth gears respecting their location identified during disassembly.
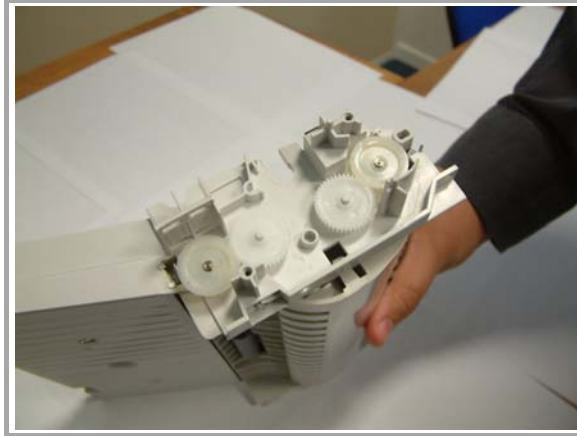
    3 - Position the equiped motor frame in its slot on the inside paper way assembly.
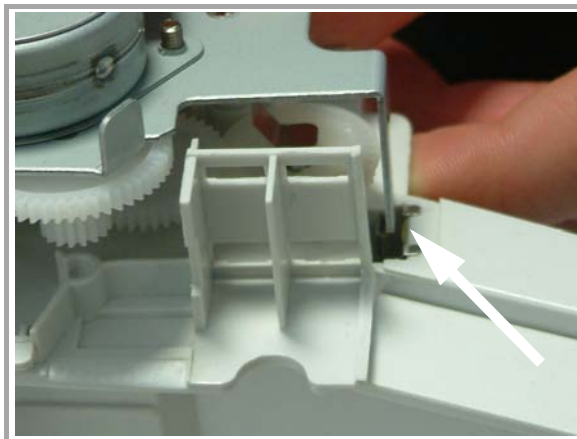
    4 - Screw the mounting screw of the motor frame.

        White frame plate / Analysis roller / Brosse antistatique / ADF Sliders

Preliminary steps

• Disassemble the inside paper way assembly and motor frame for analysis rollers.

White frame plate disassembly

    1 - Turn the inside paper way assembly upside down.

D4	**OBJECT :** INSIDE PAPER WAY ASSEMBLY *(CONTINUED)*

2 - Lift the white frame plate to disassemble it from the inside paper way assembly and remove it.
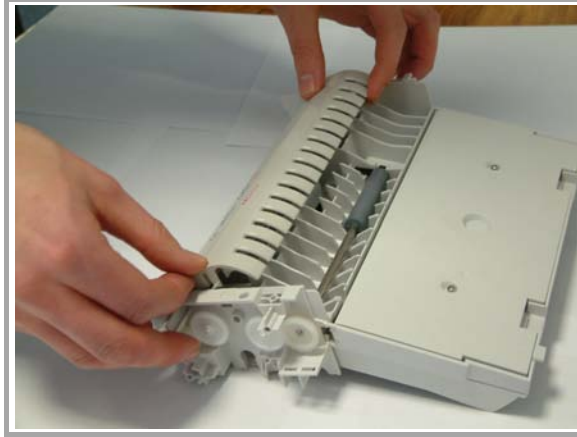
D4	**OBJECT :**INSIDE PAPER WAY ASSEMBLY *(CONTINUED)*

White frame plate assembly

   1 - Unpack and check all new components.

   2 - Position the white frame plate on the inside paper way assembly and press on the white frame plate to clip it on the inside paper way assembly.

Analysis roller assembly

   1 - Turn the inside paper way assembly upside down.

   2 - Turn the roller bearing turning of each one of the analysis rollers.
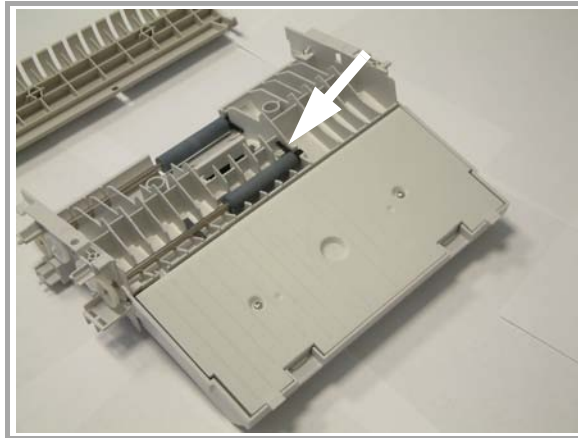
   3 - Remove the roller bearing turnings of the analysis rollers and remove the rollers.

Analysis roller assembly

   1 - Unpack and check all new components.

   2 - Position the analysis rollers in their slots.

   3 - Position the roller bearing turnings on the ends of the analysis rollers and fix them with the roller bearing turnings.

ADF sliders and brosse antistatique disassembly

   1 - Turn the inside paper way assembly upside down.

   2 - Unscrew the two mounting screws of the ADFwheelbox and remove it.
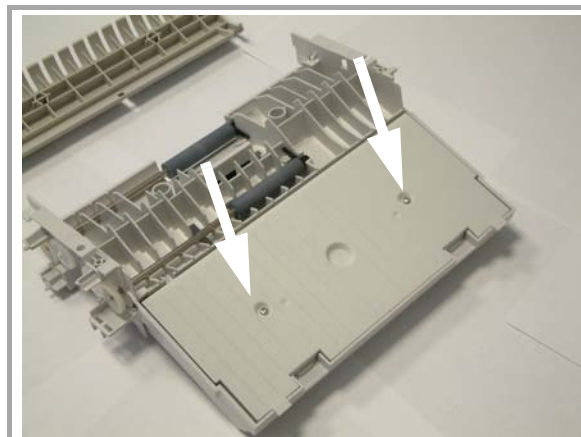
D4	**OBJECT :**INSIDE PAPER WAY ASSEMBLY *(CONTINUED)*

3 **-** Lift vertically the ADF sliders and remove them from the inside paper way assembly.
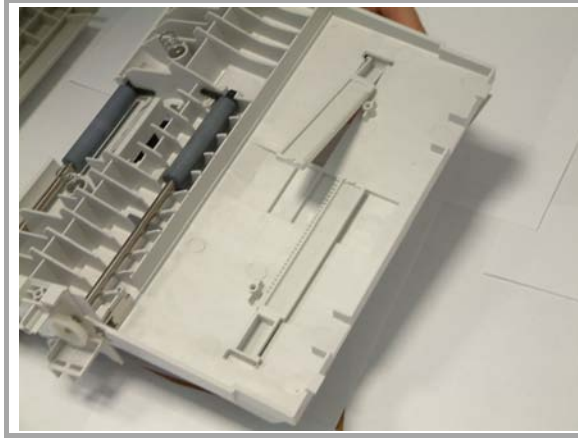
4 **-** Remove gently the brosse antistatique.
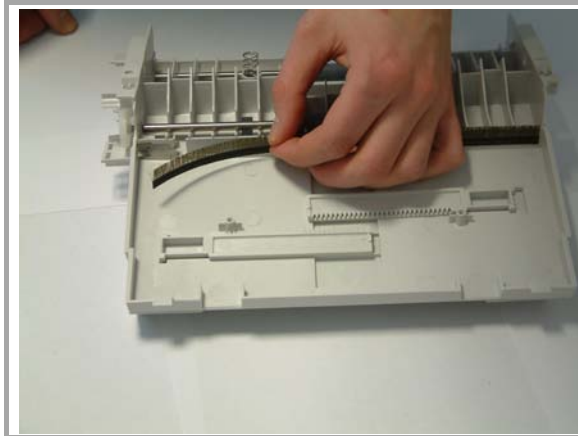
ADF sliders and brosse antistatique assembly

   1 **-** Unpack and check all new components.

   2 **-** Check that the slot of the brosse antistatique is clean.

   3 **-** Position the brosse antistatique in its slot and press on the lower part to make sure the adhesives are strongly fixed.

   4 **-** Position the ADF sliders in their slots.

   5 **-** Position the ADF wheelbox on the inside paper way assembly.

   6 **-** Screw the two mounting screws.

D5	**OBJECT :**CPU MODULE

Requirements

• Cross-threaded (Philips) screwdriver.

 Preliminary steps

• Disassembling the printer front door and the right side cover (see worksheet D3).

Disassembly

1 - Unscrew the three mounting screws of the CPU board armour plate.

2 - Pull the CPU board armour plate towards yourself and remove it.

3 - Unscrew the mounting screw of the CPU card ground connector and disconnect it.

4 - Disconnect all incoming cords and leads from the CPU module connectors.

Attention - MEMORIZE ALL CONNECTIONS FOR REASSEMBLY.

D5	**OBJECT :** CPU MODULE *(CONTINUED)*

5 - Unscrew the eight mounting screws and remove the CPU board.
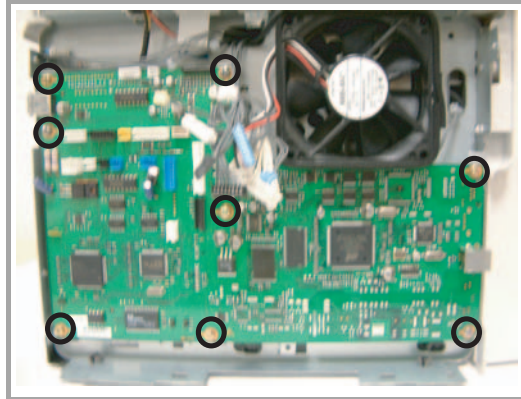
Assembly

   1 - Unpack and check all new components.

   2 - Place the CPU board in the rack, screw in and tighten the eight mounting screws.

   3 - Connect all the cords and leads to their corresponding CPU board connectors.

   4 - Position and screw the ground connector to the CPU card.

   5 - Position the CPU board armour plate, screw and tighten the three mounting screws.

   6 - Position the right-hand side cover and the front door. (see Worksheet D3).

D6	**OBJECT :**LOUD SPEAKER

Requirements

• None.

Preliminary steps

• Disassembling the front door and the right-hand side cover (see Worksheet D3).

• Disassembling the CPU armour plate (see Worksheet D5).

Disassembly

    1 - Disconnect the loudspeaker connector from the CPU board.

    2 - Remove the loudspeaker connector from its ferrite tube and cable guide.
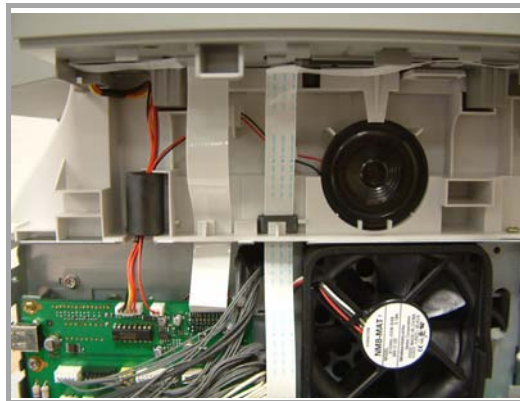
Attention -   MEMORIZE THE CABLE GUIDE FOR REASSEMBLY.

    3 - Press the top clip inwards until it unclips and pull the loudspeaker towards yourself.
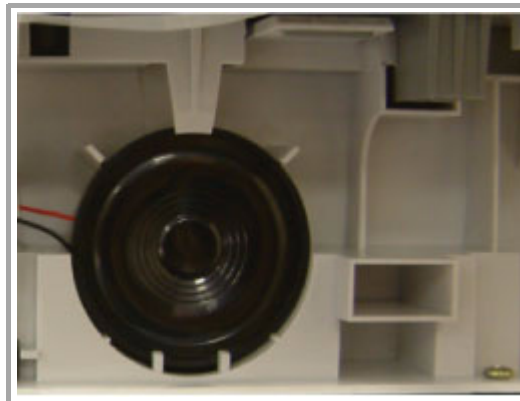
    4 - Disassemble the loudspeaker.

Assembly

    1 - Unpack and check all new components.

    2 - Position the loudspeaker in front of its slot and insert the lower part.

    3 - Press the top part of the loudspeaker until it clicks into place.

    4 - Place the loudspeaker connector into its cable guide, do not forget the ferrite tube.

    5 - Connect the loudspeaker connector to the CPU board.

    6 - Put the CPU board armour plate into place (see Worksheet D5).

    7 - Put the right-hand side cover and the front door into place (see Worksheet D3).

D7	**OBJECT :** FLATBED SCANNER ASSEMBLY

Requirements

- Cross-threaded (Philips) screwdriver.

- Flat screwdriver.

Preliminary steps

- Disassemble the flatbed scanner cover (see Worksheet D2).

- Disassemble the front door and the side covers (see Worksheet D3).

- Disassemble the CPU board armour plate (see Worksheet D5).

Disassembly

   1 - Disconnect the scanner connector from the CPU board and remove it from its ferrite tube and cable guide.

   2 - Disconnect the front panel ribbon cable and the CIS ribbon cable from the CPU board.

Connexion nappe pupitre   Connexion nappe CIS
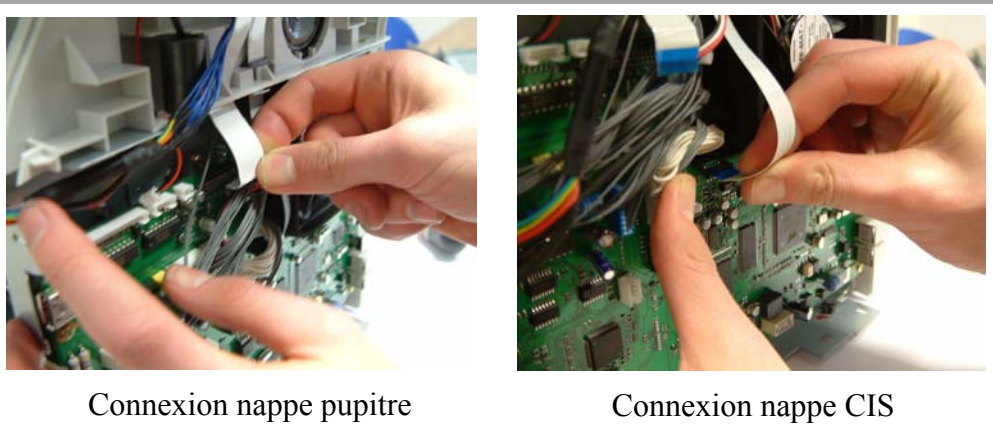
Attention -   MEMORIZE THE CONNECTIONS FOR REASSEMBLY.

   3 - Remove the front panel and CIS ribbon cables from their cable guide.
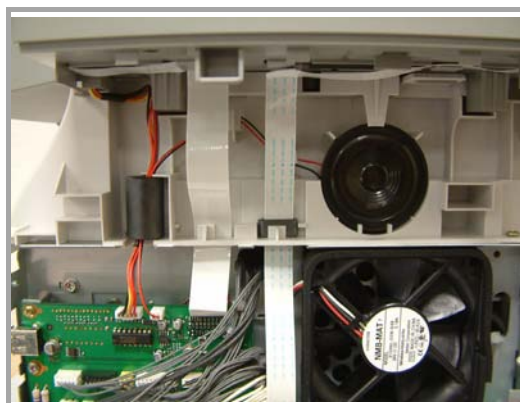
Attention -   MEMORIZE THE CONNECTIONS FOR REASSEMBLY.

D7	**OBJECT :**FLATBED SCANNER ASSEMBLY *(CONTINUED)*

 4 - Unlock the assembled flatbed scanner with a flat screwdriver and pull it towards yourself.
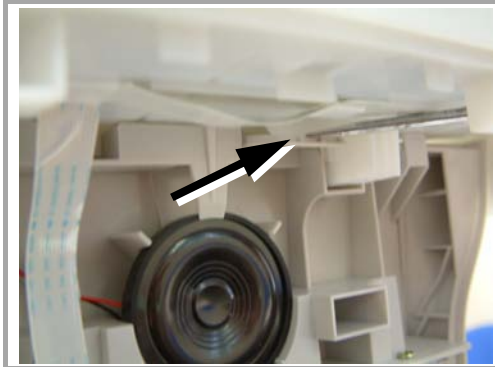
 5 - Lift the assembled flatbed scanner and disassemble it.

 Assembly

 1 - Unpack and check all new components.

 2 - Stand in front of the terminal.

 3 - Position the assembled flatbed scanner on the equiped printer and slide it towards the left until it clicks into place.

 4 - Place the front panel and CIS ribbon cables into their cable guide.

 5 - Connect the front panel and CIS ribbon cables to the CPU board.

 6 - Connect the scanner connector to the CPU board, do not forget the ferrite tube.

 7 - Position the CPU board armour plate (see Worksheet D5).

 8 - Position the side covers and the printer front door (see Worksheet D3).

 9 - Position the ADF scanner cover (see Worksheet D2).

D8	**OBJECT :** EQUIPED SCANNER - SCANNER WINDOW FRAME - CIS - CIS RIBBON CABLE - CIS SUPPORT - SCANNER MOTOR

Requirements

- Cross-threaded (Philips) screwdriver.
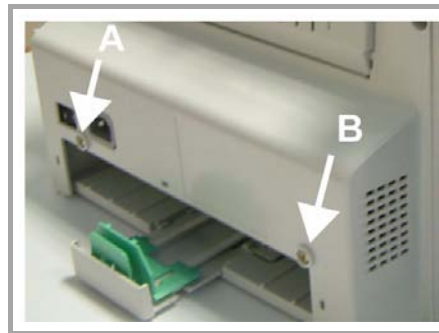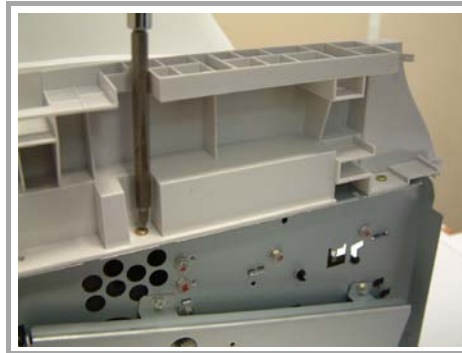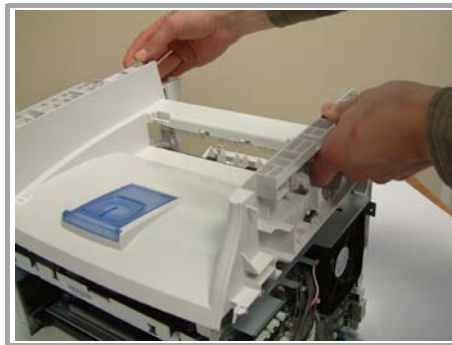- Flat screwdriver.

Preliminary steps

- Disassemble the scanner cover (see Worksheet D2).
- Disassemble the printer front door and the side covers (see Worksheet D3).
- Disassemble the CPU board armour plate (see Worksheet D5).
- Disassemble the assembled flatbed scanner (see Worksheet D7).

Disassembly

- Scanner window frame

  1 - Unscrew the two mounting screws on the equiped scanner (**A** and **B**) and turn it upside down.
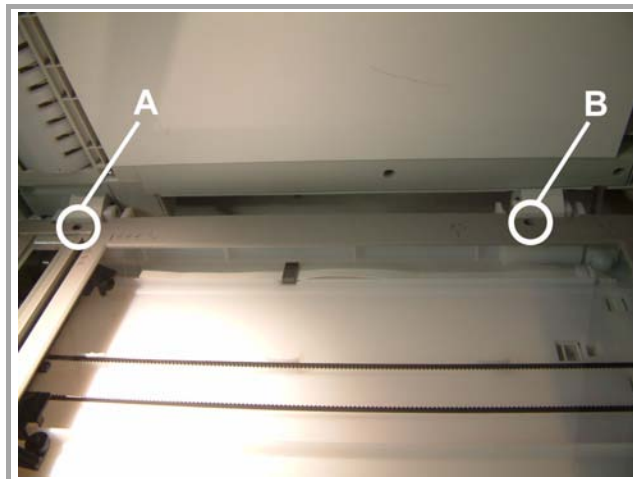
  2 - Unscrew the seven mounting screws at the back of the equiped scanner and turn it upside down.
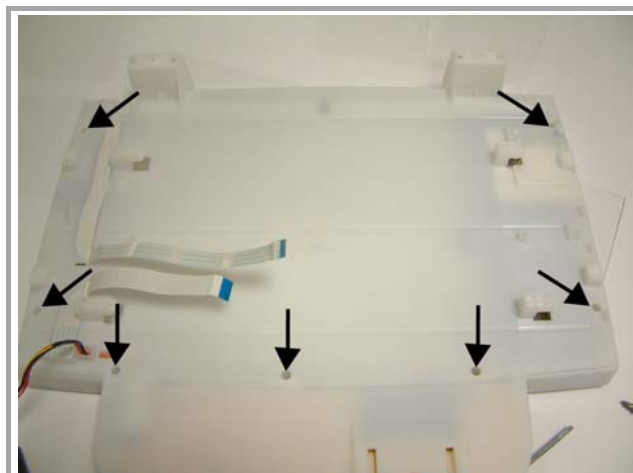
D8	**OBJECT :**Equiped scanner - Scanner window frame - cis - cis ribbon cable - CIS support - Scanner motor *(CONTI-*

3 - Lift the front part of the scanner window panel and disassemble it.

- CIS

  1 - Lift the CIS backwards.
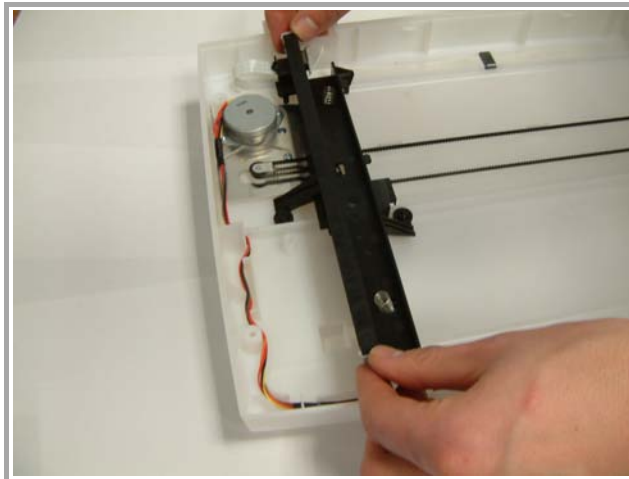
2 - Disconnect the CIS ribbon cable and disassemble it from its two side slots.

Attention - KEEP THE CIS SUPPORT SPRINGS AND SLIDES.
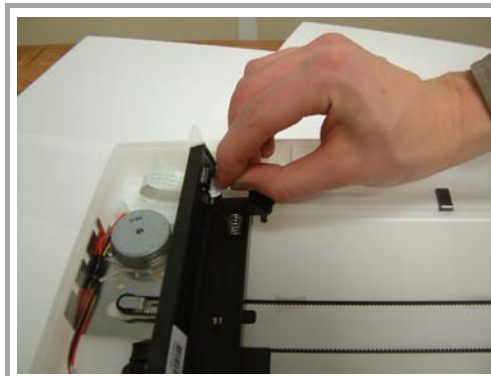
3 - Disassemble the CIS.

D8	**OBJECT :** EQUIPED SCANNER - SCANNER WINDOW FRAME - CIS - CIS RIBBON CABLE - CIS SUPPORT - SCANNER MOTOR *(CONTI-*

- CIS ribbon cable

  1 - Unfold the end of the CIS ribbon cable and remove it from its slot.
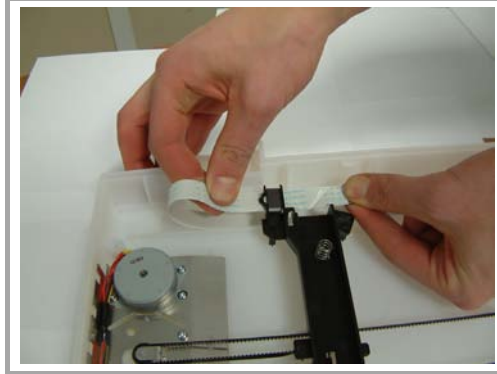
  2 - Slide the CIS ribbon cable out of its ferrite tube which is fixed to the CIS panel and remove it from the scanner.

  3 - Remove the CIS ribbon cable from its cable guides located above and below the scanner bottom then slide it to extract it from the scanner bottom.

Attention - MEMORIZE THE CABLE GUIDE FOR REASSEMBLY.

  4 - Disasssemble the CIS ribbon cable.

- CIS support

  1 - Lift the CIS drive pulley and the drive to extract the CIS drive pulley from its slot.
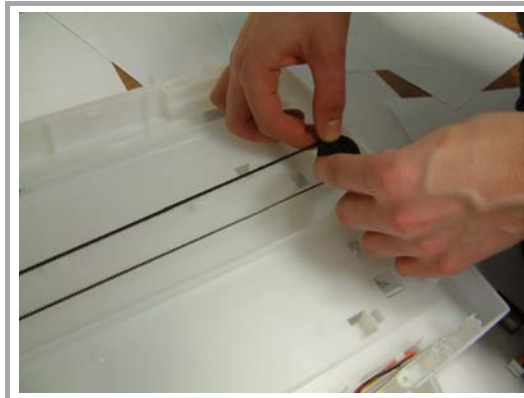
  2 - Remove the belt from the drive pulley.
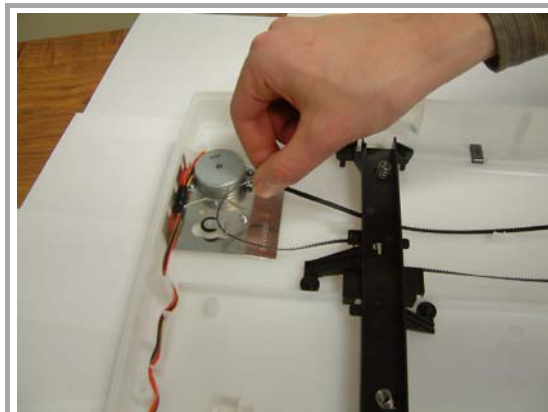
  3 - Lift then disassemble the CIS panel.

D8	
	OBJECT :EQUIPED SCANNER - SCANNER WINDOW FRAME - CIS - CIS RIBBON CABLE - CIS SUPPORT - SCANNER MOTOR *(CONTI-*

- Scanner motor

    1 - Unscrew the two mounting screws of the scanner motor (**A** et **B**).
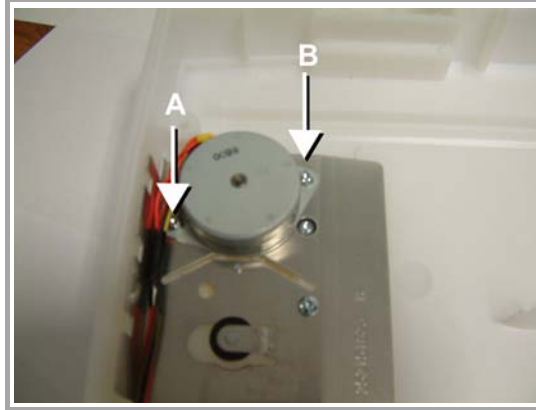
    2 - Remove the end of the scanner motor connector from its ferrite tube.

    3 - Remove the CIS motor connector from its cable guide.

    4 - Disassemble the scanner motor.

Assembly

    1 - Unpack and check all new components.

    2 - Position the scanner motor and screw in the two mounting screws.

    3 - Place the motor connector into it cable guide, without forgetting the ferrite tube.

    4 - Position the CIS support, place the belt in the CIS drive pulley, do not forget the CIS support springs.

    5 - Check that there is enough grease on the pulley motor axis.

    6 - Place the CIS ribbon cable in its cable guide, do not foget the ferrite tube, then connect it to the CIS.

    7 - Place the CIS, do not forget its slides and support springs.

    8 - Position the scanner window frame by first inserting the back part, then insert the front part. Screw in the two mounting screws for the scanner window frame.

    9 - Turn the equiped scanner around and screw in the seven mounting screws.

    10 - Assemble the assembled flatbed scanner (see Worksheet D7).

    11 - Assemble the CPU board armour plate (see Worksheet D5).

D8	**OBJECT :**EQUIPED SCANNER - SCANNER WINDOW FRAME - CIS - CIS RIBBON CABLE - CIS SUPPORT - SCANNER MOTOR *(CONTI-*

12 - Assemble the side covers and the printer front door (see Worksheet D3).

13 - Assemble the ADF scanner cover (see Worksheet D2).

D9	**OBJECT :**Back cover

Requirements

• Cross-threaded (Philips) screwdriver.

Preliminary steps

• Disassemble the ADF scanner cover (see Worksheet D2).

• Disassemble the printer front door and the side covers (see Worksheet D3).

• Disassemble the CPU board armour plate (see Worksheet D5).

• Disassemble the assembled flatbed scanner (see Worksheet D7).

Disassembly

  1 - Stand behind the terminal.

  2 - Unscrew the two back mounting screws on the back cover (**A** et **B**).

  3 - Unscrew the two top mounting screws on the back cover (**C** et **D**).

  4 - Pull the back cover towards yourself and remove it.

Assembly

  1 - Unpack and check all new components.

  2 - Place the back cover and screw in the four mounting screws (**A**, **B**, **C** et **D**).

  3 - Assemble the assembled flatbed scanner (see Worksheet D7).

  4 - Assemble the CPU board armour plate (see Worksheet D5).

  5 - Assemble the printer front door and the side covers (see Worksheet D3).

  6 - Assemble the ADF scanner cover (see Worksheet D2).

D10	**OBJECT :**Equiped Interface

Requirements

- Cross-threaded (Philips) screwdriver..

Preliminary steps

- Disassemble theADF scanner cover (see Worksheet D2).
- Disassemble the printer front door and the side covers (see Worksheet D3).
- Disassemble the CPU board armour plate (see Worksheet D5).
- Disassemble the loudspeaker (see Worksheet D6).
- Disassemble the assembled flatbed scanner (see Worksheet D7).
- Disassemble the back cover (see Worksheet D9).

Disassembly

1 - Unscrew the two mounting screws on the left and right side on the equiped interface.

2 - Lift and remove the equiped interface.

Assembly

1 - Unpack and check all new components.

2 - Position the equiped interface and screw in the four mounting screws on both sides.

3 - Assemble the back cover (see Worksheet D9).

4 - Assemble the assembled flatbed scanner (see Worksheet D7).

5 - Assemble the loudspeaker (see Worksheet D6).

6 - Assemble the CPU board armour plate (see Worksheet D5).

7 - Assemble the printer front door and the side covers (see Worksheet D3).

8 - Assemble the ADF scanner cover (see Worksheet D2).

D11	**OBJECT :** PRINTER

Requirements

• Cross-threaded (Philips) screwdriver.

Preliminary steps

• None.

Disassembly

   1 - Stand in front of the terminal.

   2 - Disassemble the equiped front panel (see Worksheet D1) and the ADF scanner cover (see Worksheet D2).

   3 - Disassemble the printer front door and the side covers (see Worksheet D3).

   4 - Disassemble the CPU module (see Worksheet D5) and the loudspeaker (see Worksheet D6).

   5 - Disassemble the assembled flatbed scanner (see Worksheet D7).

   6 - Disassemble the back cover (see Worksheet D9) and the equiped interface (see Worksheet D10).

Assembly

   1 - Unpack and check all new components.

   2 - Assemble the equiped interface (see Worksheet D10) and the back cover (see Worksheet D9).

   3 - Assemble the flatbed scanner assembly (see Worksheet D7).

   4 - Assemble the CPU module (see Worksheet D5) and the loudspeaker (see Worksheet D6).

   5 - Assemble the side covers and the printer front door (see Worksheet D3).

   6 - Assemble the ADF scanner cover (see Worksheet D2) and the equiped front panel (see Worksheet D1).

Flatbed   Loudspeaker

Power supply and sensors
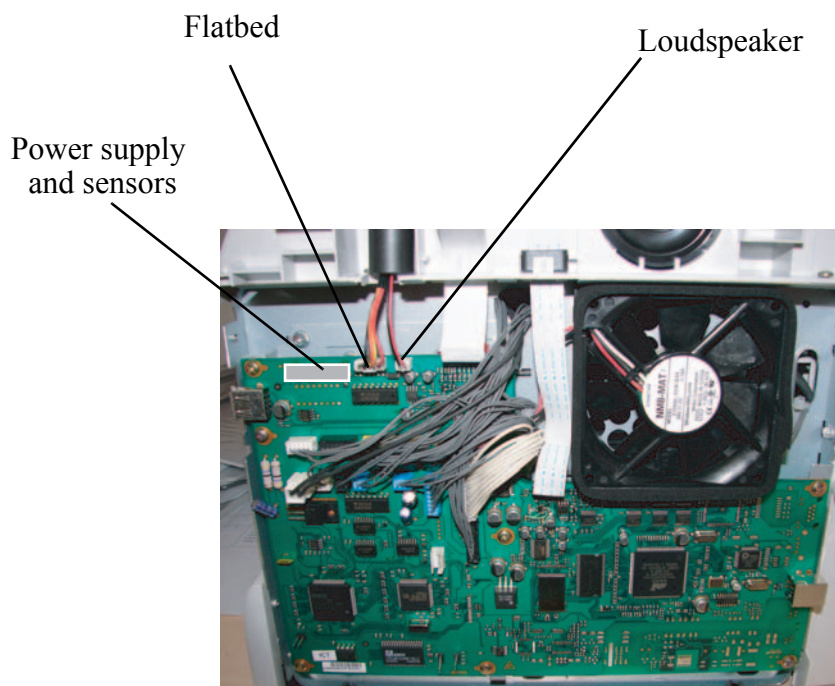
1.5 ADMINISTRATOR FUNCTIONS

Each one of the administrator functions described here can be accessed via a specific succession of keys.

The alphabetic keys are available via the navigation keys ▼ and ▲ via the keyboard.

For example, to enter a sequence ▼ * **A** (launching scanner tuning):

> **1** - Press the following key ▼.
>
> **2** - Press the following key *****.
>
> **3** - Press ▼ to display all the options available until you reach **A**.
> Confirm your choice with **OK**.

1.5.1 Initializing and erasing memory

Before you start, set the 8 bit parameter installation configuration 1 to 1.

- Reset all parameters (user, installer or technical) to the default configuration (factory configuration):

  ▼ (#) (0)

- Erase the directory:

  ▼ (#) (1)

- Erase the logs :

  ▼ (#) (2)

- Erase the printer counters:

  ▼ (#) (3)

- Erase the consumable counters (▼ 85):open the printer front door then:

  ▼ (#) (4)

  To see the initialization message (this requires inserting the smart card **INIT**), switch On then Off.

- Reinitialize the flash data (erases all):open the printer front door then :

  ▼ (#) (5)

- Erase mailboxes (internal) only:

  ▼ (#) (6)

- Erase all.
  Reset to default configuration (combination of functions 0 and 8):

  ▼ (#) (7)

- Erase all documents stored in memory:

  ▼ (#) (8)

- Erase the first element of the printer queue:

▼　(＊)　(I)

- Erase Printer Error:

▼　(＃)　(T)

Then switch ON/OFF the machine

1.5.2 OTHER FUNCTIONS

Before you start, position the Soft-switch 1 bit n°8 to 1.

- Printing all parameters (including installation and technical parameters):

▼　(＊)　(1)

- Switching to forced standby mode regardless of the clock:

▼　(＊)　(2)

- Switching to software download via a phone line:

▼　(＊)　(3)

- Switching to software download via a computer link :

▼　(＊)　(4)

- Save the directory and parameters on I2C card:

▼　(＊)　(5)

- Save the directory and parameters via STN:

▼　(＊)　(7)

- Accept directory and parameters download via STN:

▼　(＊)　(8)

- Restore the directory and parameters from I2C card:

▼　(＊)　(9)

- Launching scanner tuning:

▼　(＊)　(A)

- Displaying miniboot version:

▼　(＊)　(B)

- Displaying the state of the applications, traffic and drivers:

▼　(＊)　(E)

- Display PCL/SG Script fonts checksum:

▼　(＊)　(F)

- Retransmission of faxes to print to rerouting mail:

▼ (*) (G)

- Activating the RAM dump:

▼ (*) (K)

- Display modem software version:

▼ (*) (M)

- Entering the serial number (with the SOS 1 bit 8 at 1):

▼ (*) (N)

- Displaying the internal counters:

▼ (*) (O)

- Displaying the GDI throughput:

▼ (*) (P)

- Rebooting the machine manually (with the SOS 1 bit 8 at 1):

▼ (*) (R)

- Displaying main software version, cheksum:

▼ (*) (V)

- Displaying the printer firmware version:

▼ (*) (W)

- Printing internal counters:

▼ (*) (Y)

- Tuning the level of PDL symbols:

▼ (*) (Z)

1.6 REPLACING THE CPU BOARD

To replace the terminal's CPU board, follow this procedure:

    1 **-** Print the terminal's parameters (user, administrator and technical) and the activity counter values in order to keep a record (▼ **5 4**).

    2 **-** Replace the CPU board (see Worksheet D5).

    3 **-** Tune the scanner (▼ **8 0**).

1.7 REPLACING THE SCANNER

To replace the scanner, follow this procedure:

    1 **-** Print the terminal's parameters (user, administrator and technical) and the activity counter values in order to keep a record (▼ **5 4**).

2 - Replace the scanner (see Worksheet D7).

3 - Tune the scanner (▾ **8 0)** only if the quality of the copy is unsatisfactory.

2. LASER PRINTER

Refer to the printer's technical manual.

2.1 REPLACING THE PRINTER

To replace the printer, follow this procedure:

1 - Set the On/Off button to Off (position 0).

2 - Disconnect the USB cables and the power supply cable located at the back of the printer.

3 - Disassemble the consumable (it belongs to the client).

4 - Disassemble the printer (see Worksheet D11, page 39).

5 - Reassemble all the elements of the new printer (see Worksheet D11, page 39).

6 - Reassemble the client's consumable.

7 - Reconnect the USB and power supply cable.

8 - et the On/Off button to On (position I).

Remark(s) : During repairs, it may be necessary to set the toner counter to 100% (▾ **# 4**). As a result, the remaining capacity indicated by the machine (▾ **8 6**) will not correspond to the user's actual toner cartridge capacity. In particular, the user may reach the end of the toner (poor quality of prints) before the remaining capacity displayed by the machine reaches 0%.

TABLE OF CONTENTS

1. DETAILED SECTION DESCRIPTIONS

1.1 COMPONENT LAYOUT

1.1.1 MECHANICAL COMPONENTS

G182D101.WMF
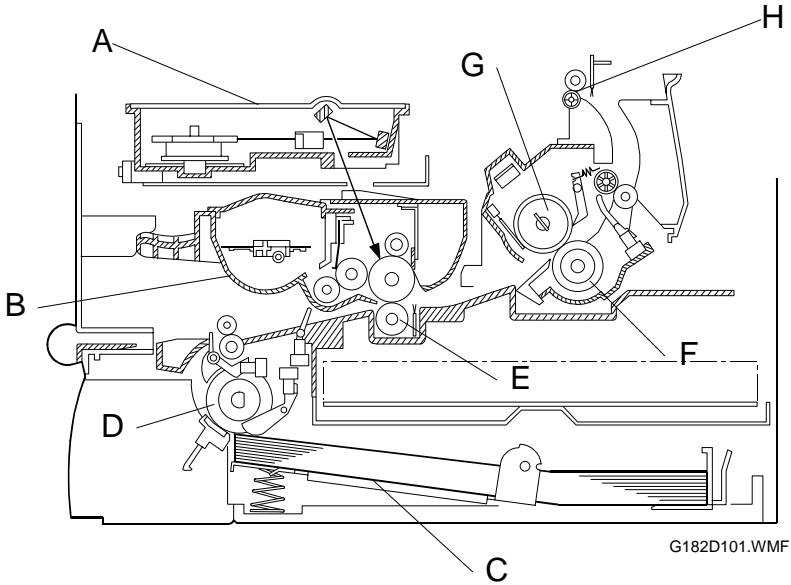
No.	Name	Description
A	Laser Unit	Consists of the laser diode unit, cylindrical lens, f-theta lens, polygon mirror motor, and other laser optical components.
B	Toner Cassette	Consists of the OPC drum, toner, toner application roller, development roller, charge brush roller, cleaning blade, and other development components.
C	Upper Tray Bottom Plate	Presses paper stacked in the upper paper tray against the paper feed roller.
D	Paper Feed Roller	Picks up the top sheet of paper from the stack in the upper paper tray and feeds it into the transfer area.
E	Transfer Roller	Applies a charge to the paper to pull the toner off the drum and onto the copy paper.
F	Pressure Roller	Applies pressure to the paper during fusing.
G	Hot Roller	Fuses the toner to the copy paper.
H	Paper Exit Roller	Feeds the paper out of the printer.

1.2 PRINTING

1.2.1 PRINTING PROCESSES AROUND THE DRUM

G182D010.WMF
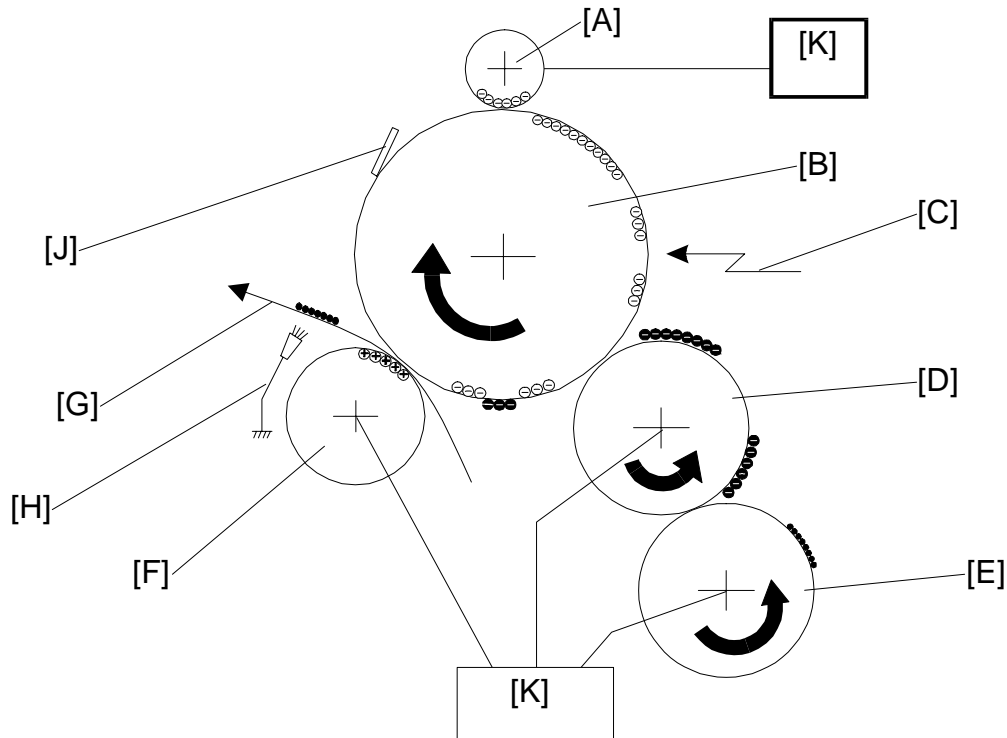
This machine uses a "write to black" system, using negative toner.

Charge: The charge brush roller [A] gives the OPC drum [B] surface a negative charge.

Exposure: A laser [C] writes a latent image on the drum. The charge in the area exposed by the laser beam drops.

Development: The development roller [D] carries toner to the drum and develops the latent image on the drum. The following charges are applied.
Development bias (during printing):
Toner application roller [E]
Development roller [D]
Switching bias (At the start and the end of any print process):
Toner application roller [E]
Development roller [D]

Image Transfer: The transfer roller [F] pulls the toner from the drum onto the paper [G].

Paper Separation: The antistatic brush [H] removes the charge on the underside of the paper to help the paper separate from the drum.

Drum Cleaning: The cleaning blade [J] removes any toner remaining on the drum after the image is transferred to paper.

The high voltages [K] are supplied from the Power Supply Unit board.

1.2.2 CHARGE

[B]

[A]
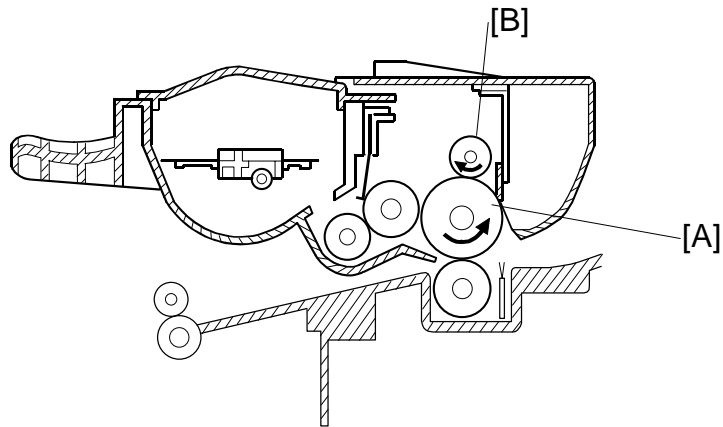
G182D102.WMF

The OPC (Organic Photoconductor) drum [A] used in this machine is small in diameter. This allows a very compact design.

A charge roller [B] charges the photoconductor. The charge roller has the advantage of not generating ozone. A large negative voltage is applied from the Power Supply Unit board to the charge roller. This charge roller gives the OPC drum surface a negative charge.

[C]
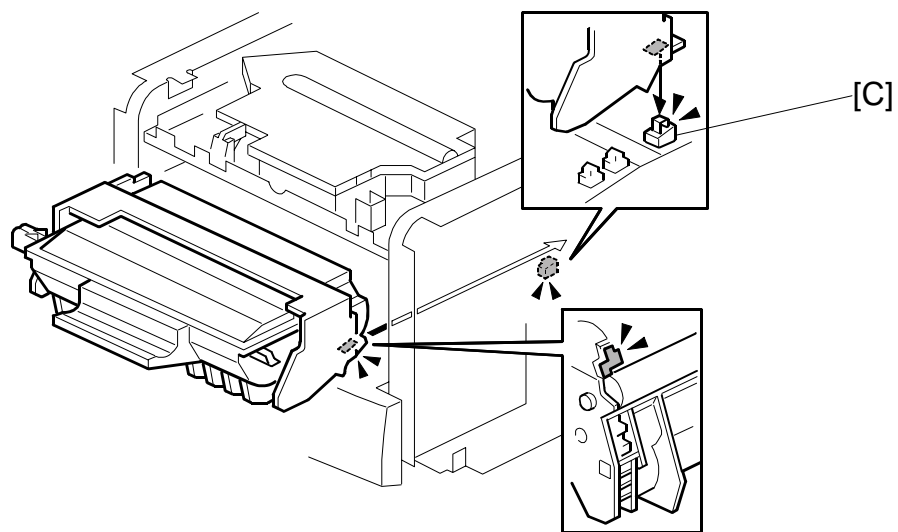
G182D003.WMF

The voltage to the charge roller is supplied through the terminal [C] from the Power Supply Unit board.

1.2.3 LASER EXPOSURE

Overview

[A] [F] [H] [C] [D] [E] [J] [G] [B]
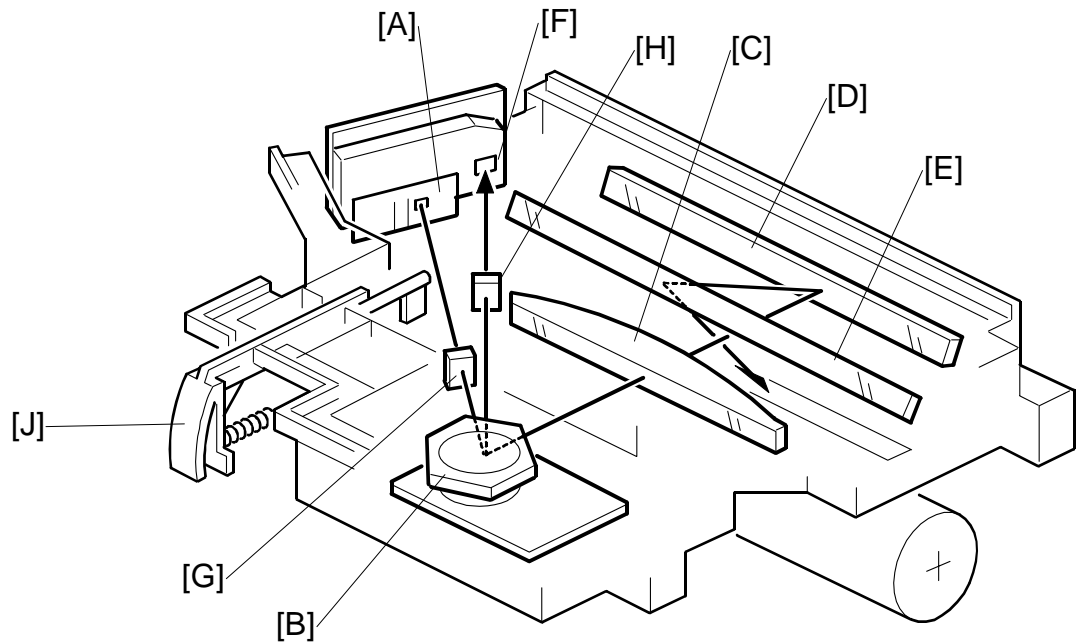
G182D004.WMF

Laser Unit Layout

A : Laser Diode Unit   F : Laser Synchronization Detector
B : Polygon Mirror Motor   G : Cylindrical Lens
C : F-theta Lens   H : Synchronization Detector Lens
D : First Mirror   J : Shutter
E : Second Mirror

This machine uses a laser diode to produce an electrostatic latent image on the OPC drum. The laser diode unit converts image data into laser pulses, and the optical components direct these pulses to the OPC drum.

As a mechanical safety feature, the shutter [J] closes to block the laser beam path whenever the front door is opened.

Block Diagram
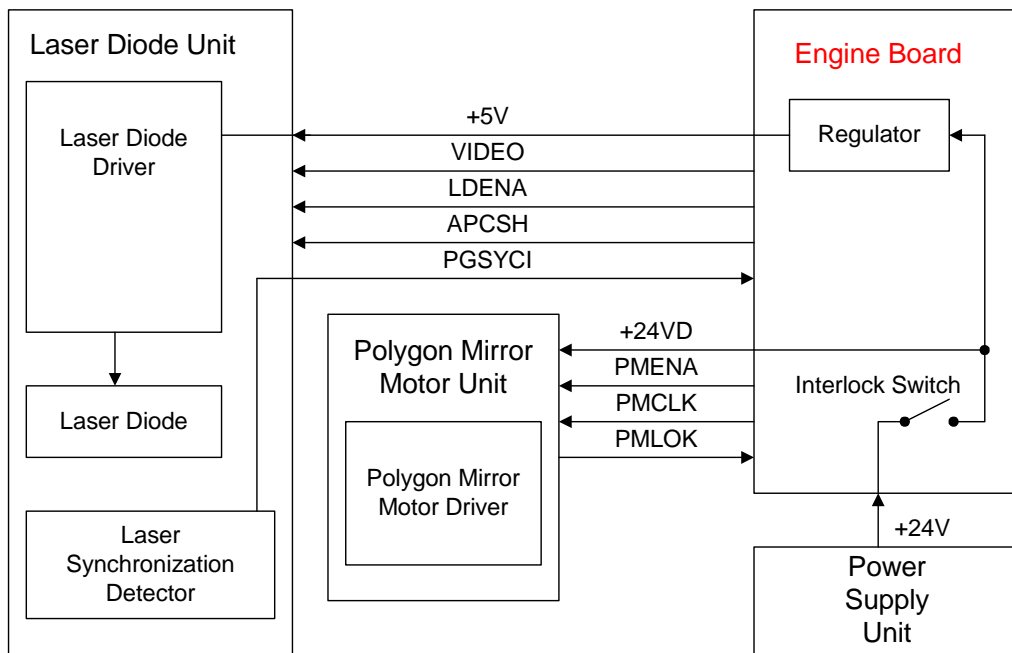
G182D012.WMF

The Engine Board controls the laser diode power (APCSH) and transfers data for printing to the laser diode (VIDEO). As an electrical safety feature, there is an interlock switch on the Engine Board. This switch cuts +24 volts whenever the front door is opened.

Error Conditions

Laser Error

The machine detects laser synchronization signal pulses (PGSYCI) 70 milliseconds after the (LDENA) signal is sent. It detects a laser error if the pulse count does not reach the specified number within 400 milliseconds.

When this occurs, the machine warns the customer on the LCD panel (Error 56).

Polygon Mirror Motor Error

The machine detects a polygon mirror motor error when the (PMLOK) signal does not go low within 3.5 seconds of the (PMENA) signal. When this occurs, the machine warns the customer on the LCD panel (Error 57).

1.2.4 DEVELOPMENT

Overview
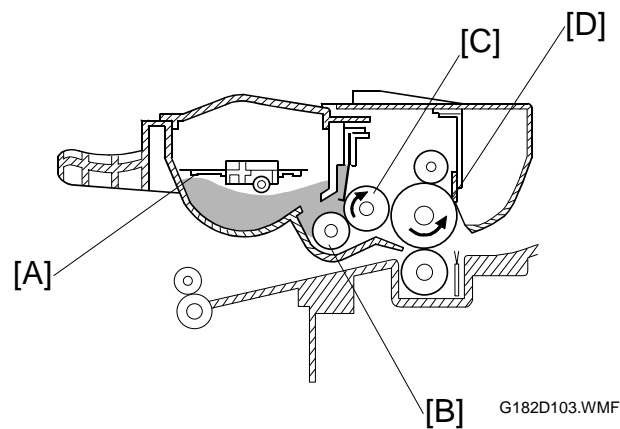
This machine uses mono-component toner, which is composed of resin and ferrite. The toner mixing bar [A] stirs and carries toner to the toner application roller [B]. The toner application roller supplies toner to the development roller [C]. As the development roller turns past the toner metering blade [D], only a thin coating of negatively charged toner particles stays adhered to the development roller.

During printing, a bias voltage is applied to the toner application roller and another bias voltage is applied to the development roller. The toner is transferred from the toner application roller to the development roller by the potential difference between these two rollers.

The development roller applies toner to the exposed areas of the latent image as they turn past the drum.
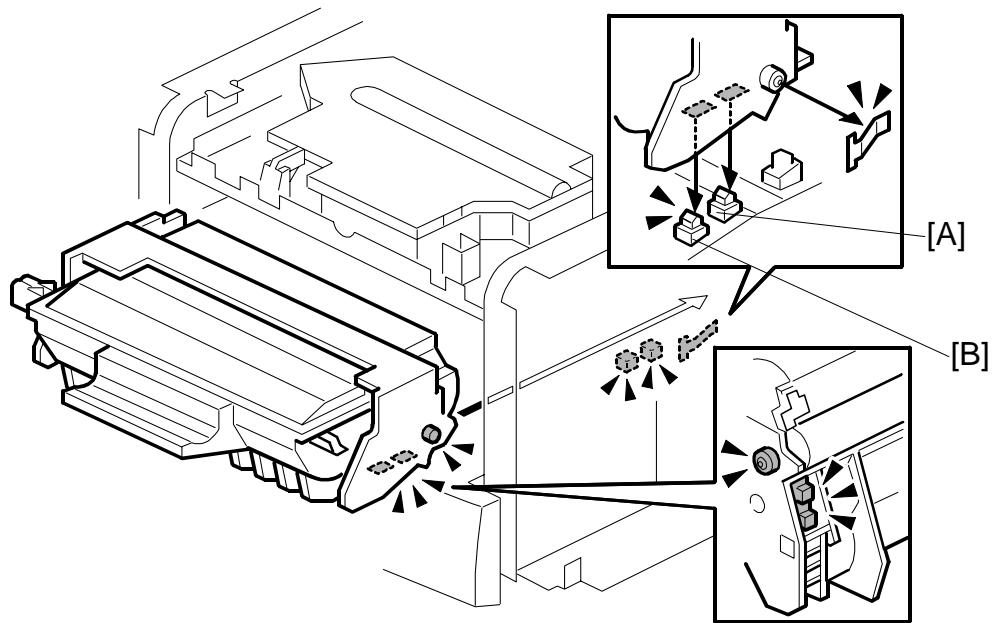
G182D005.WMF

The voltage to the development roller and the toner application roller is supplied through the terminals ([A] for the development roller and [B] for the toner application roller) from the Power Supply Unit board.

PRINTING

Toner End Detection

This machine does not have toner end detection.

1.2.5 TRANSFER AND SEPARATION

Overview

G182D104.WMF
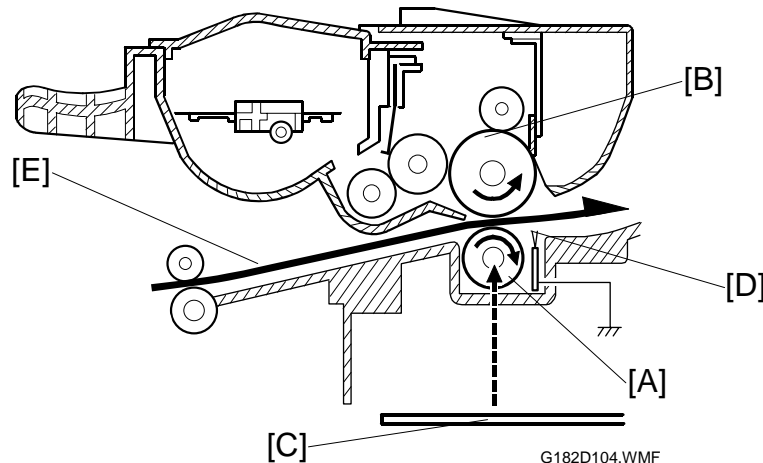
This machine uses a transfer roller [A], which touches the OPC drum [B] surface. A constant current is applied to the transfer roller from the power supply unit board [C]. The positively-biased transfer roller pulls negatively-charged toner off the drum. The curvature of the drum, and the antistatic brush [D], help the paper [E] to drop away from the drum.

Cleaning Mode

If a paper jam occurs during printing, toner may be transferred to the transfer roller surface. To prevent this toner from transferring to the underside of the paper, the transfer roller must be cleaned before the next printing run.

While the machine is in the cleaning mode, the Power Supply Unit board applies a negative voltage to the transfer roller.

The negatively charged toner on the transfer roller is then transferred back to the drum.

The machine goes through the cleaning mode at the following times.

- At power-up: The process starts when the fusing temperature reaches the standby temperature.
- When the cover is opened and then closed during the printing process.
- After a printer jam has been cleared.

Detailed
Descriptions
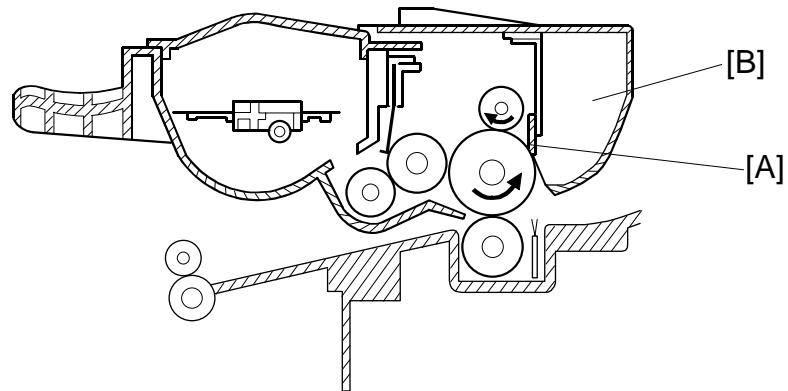
1.2.6 DRUM CLEANING

G182D102.WMF

The cleaning blade and the used toner tank are contained in the toner cartridge.

A counter blade system is used for drum cleaning. The cleaning blade [A] removes any toner remaining on the drum after the image is transferred to the paper. This removed toner is stored in the used toner tank [B].

There is no used toner overflow detection mechanism, because the used toner tank is large enough for the lifetime of the toner cassette.

1.2.7 PAPER FEED AND REGISTRATION

Overview

G182D105.WMF

Paper Feed System:	Feed roller [A] and Friction pad [B]
Paper Lift Mechanism:	Bottom plate with spring [C]
Sheet feeder	1 sheet feeder [D]
Tray Capacity:	250 sheets [E]
Paper End Detection:	Paper end sensor
Paper Size Detection:	None
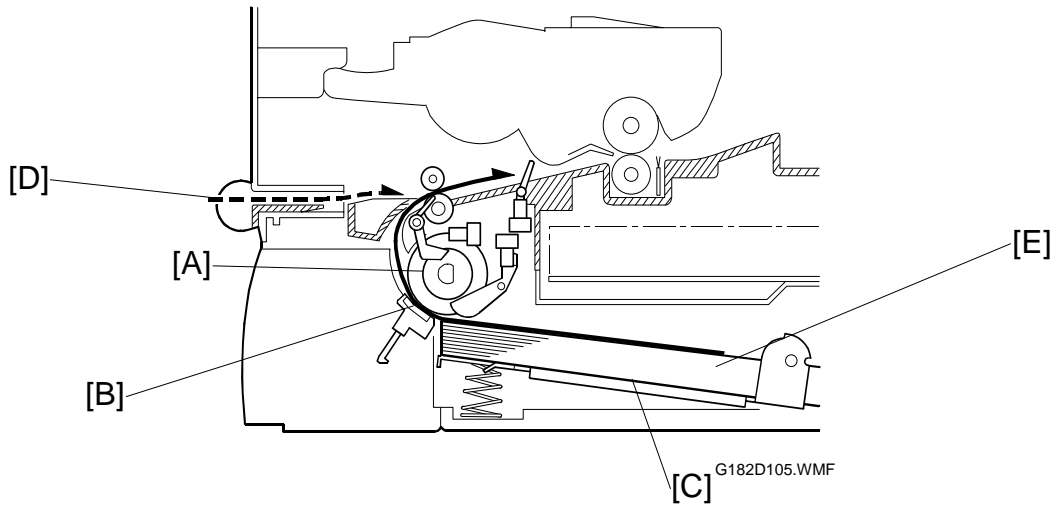
Detailed
Descriptions

Paper Feed Drive Mechanism

G182D006.WMF
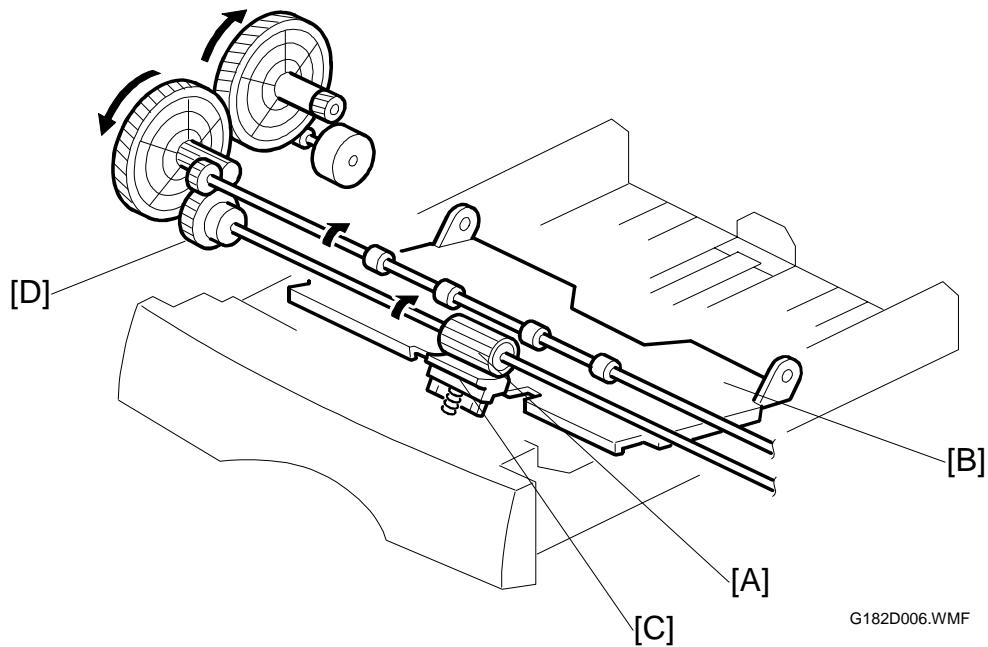
The feed roller [A] is located above the upper tray bottom plate [B], and the friction pad [C]. It allows only one sheet to feed from the paper tray. They are controlled by the paper feed clutch [D]. The registration sensor detects the leading edge of the paper and synchronizes paper feed with the activation of the laser diode to write the image on the OPC drum.

Paper Feed Operation
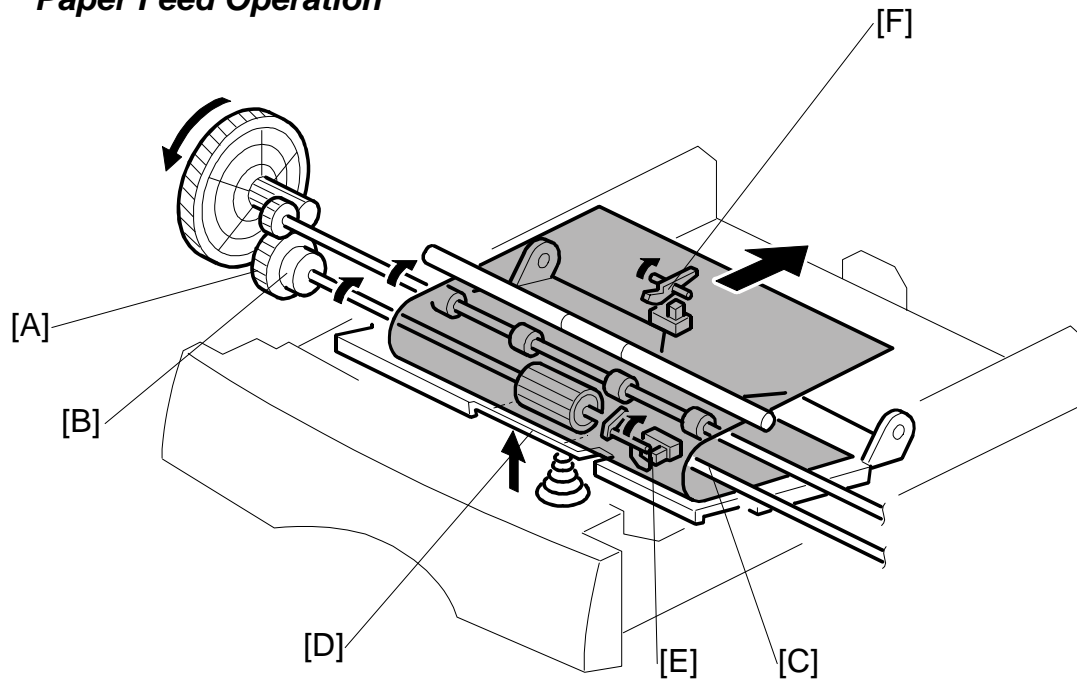
G182D007.WMF

A : Paper feed drive gear   D : Friction pad
B : Paper feed clutch   E : Paper feed sensor
C : Paper feed roller   F : Registration sensor

The paper feed drive gear [A] always rotates while the main motor rotates, since the paper feed clutch (magnet clutch) [B] is energized to turn the paper feed roller [C].

When the paper feed clutch [B] is energized to turn the feed roller, the paper feed roller feeds one sheet of paper from the tray. The paper is fed into the machine by the registration roller.
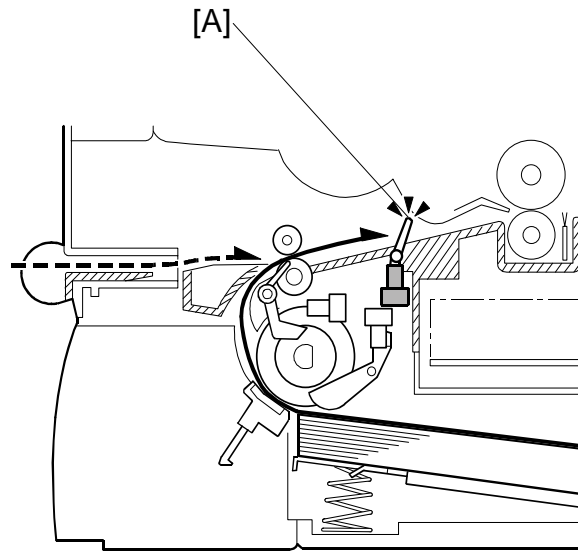
Registration

G182D107.WMF

The registration sensor [A] detects the leading edge of the paper and synchronizes paper feed with the writing of the image on the drum, so that the image and paper match up properly. This sensor also detects paper feed jams.

Paper End Detection
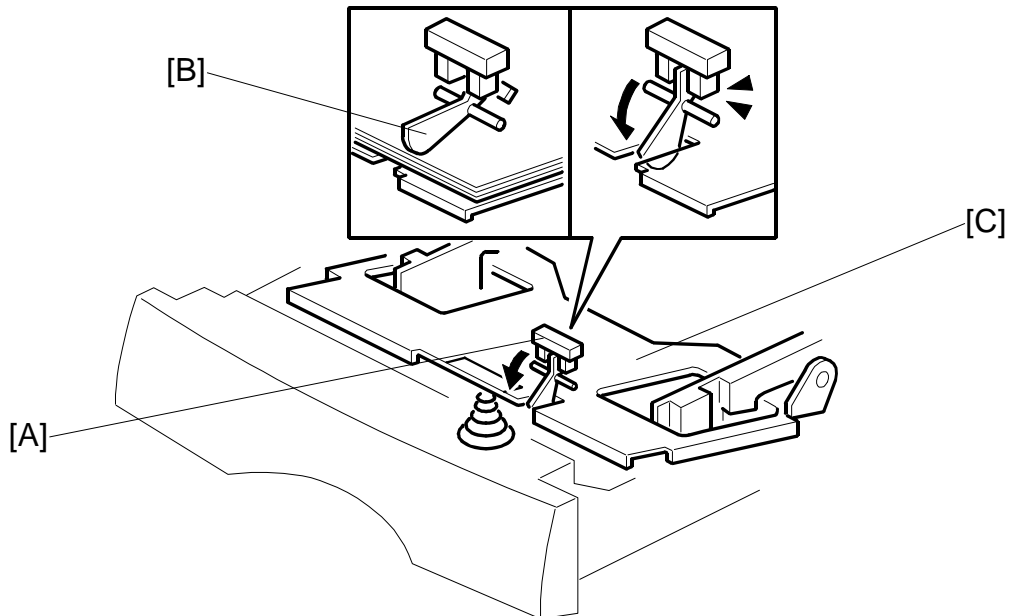
G182D008.WMF

The laser unit [A] has the paper end sensor [B] built into it. The paper end sensor detects the presence or absence of paper. The sensor has an actuator that extends through a slot in the paper tray bottom plate [C], so that the sensor is actuated when paper is placed in the upper tray.

When the upper tray runs out of paper, the actuator of the paper end sensor moves into the slot in the upper tray bottom plate. This informs the CPU that paper has run out.

PRINTING

Jam Detection

Jam 1. Paper jam at the paper cassette

When the registration sensor does not turn on within 2.65 seconds after the paper pick-up clutch for the paper cassette turns on.

Jam 2. Paper did not pass the registration sensor

When the registration sensor does not turn off within the specified time for passing each paper size (see below) + 3 seconds after the registration sensor turns on.

Paper Size	A4SEF	A5SEF	A5LEF	A6SEF	B5SEF	B6SEF	Letter SEF	Legal SEF	Envelope (91x191mm)
Specified Time (msec)	2830	2000	1410	1410	2450	1740	2660	3400	1820

Jam 3. Paper did not reach the fusing unit

When the paper exit sensor does not turn on within 2.1 seconds after the registration sensor turns on.

Jam 4. Paper jam in the fusing exit area

When the paper exit sensor does not turn off within 3.0 seconds after the registration sensor turns off.

Jam 5. Paper no feed jam in the bypass tray

When the registration sensor does not turn on within 1.6 seconds after the main motor starts.

1.2.8 FUSING

Overview
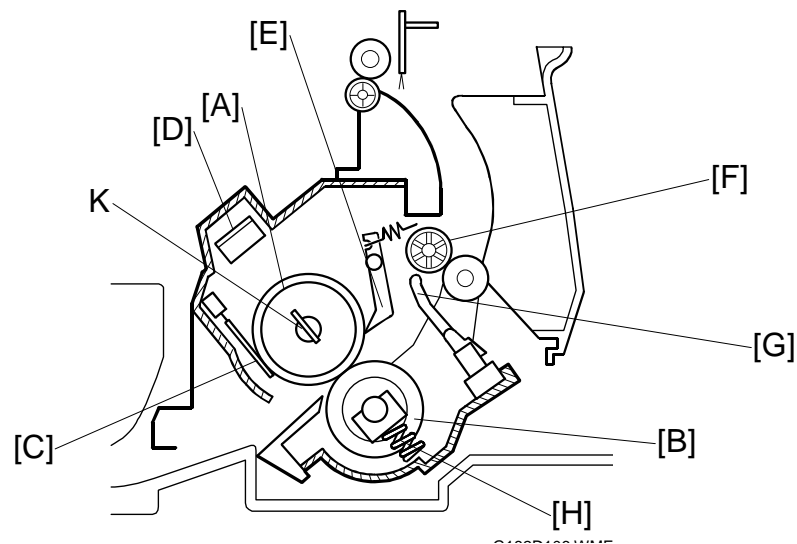
After the image is transferred, the copy paper enters the fusing unit. The image is fused to the copy paper by applying heat and pressure through the use of a hot roller [A] and pressure roller [B].

The CPU monitors the hot roller temperature through a thermistor [C] that is in contact with the hot roller surface. A thermostat [D] protects the fusing unit from overheating.

The hot roller strippers [E] separate the copy paper from the hot roller and direct it to the exit rollers [F]. The paper feed/exit sensor [G], which is under the fusing unit, monitors the progress of the copy paper through the fusing unit and detects misfeeds. The exit rollers [F] drive the copy paper to the paper output tray.

Springs [H] at the front and rear apply the proper fusing pressure between the hot roller and pressure roller.

The fusing lamp [K] is located in the hot roller.

Power Save Control

When the main switch is turned on, the machine turns on the fusing lamp. For printing, the machine raises the fusing temperature to 170°C. The fusing temperature is kept at 170°C during printing.
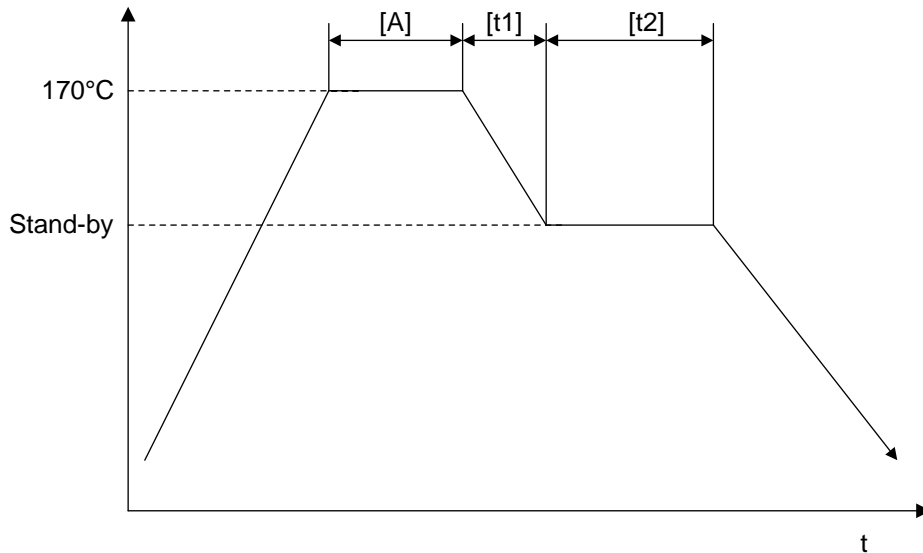
G182D013.WMF

When the power saver timer expires, the machine automatically goes into energy saver mode.

Power saver timer

t1 = ? minutes.

- After time interval t1 passes following printing, copying, scanning, or key-in [A], the LCD and all LED's go off.

t1 + t2 = ? minutes or ? minutes (selectable)

- The default value is ? minutes. (Economy Mode)

- Pressing the Clear Modes key for more than one second will change this condition.

- When the Economy Mode LED is lit, t1 + t2 = ? minutes.

- When the Economy Mode LED is not lit, t1 + t2 = ? minutes.

1.2.9 COVER SWITCH

When the front door is opened, the interlock switch will be opened and power supply to the following parts will be cut.

G182D014.JPG

- Power pack
- Laser diode driver
- Fan motor
- Main motor
- Polygon mirror motor
- Fusing lamp

1.2.10 PAPER FEED DRIVE RELEASE AND FUSING DRIVE RELEASE
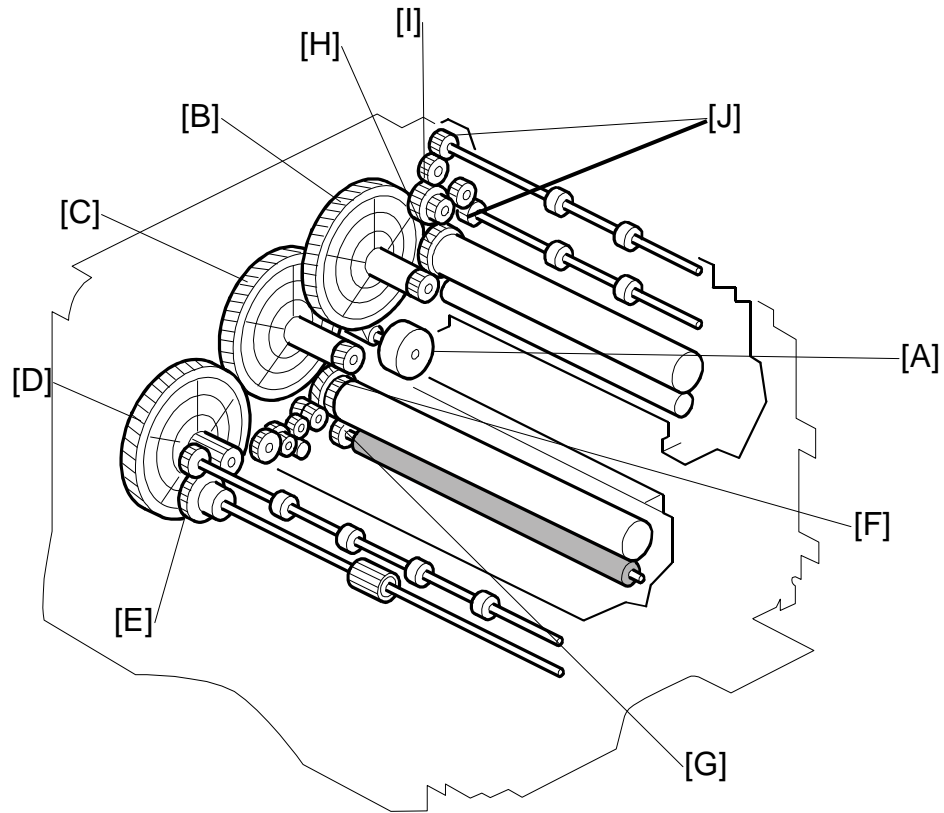
G182D009.WMF

The main motor drives the paper feed unit, the transfer roller, the toner cassette, and fusing unit through a series of gears as follows.

Main motor [A]

Idle gear 1[B]

Idle gear 2 [C]

Idle gear 3 [D]

Hot roller gear [H]

OPC drum gear [F]

Paper feed drive gear [E]

Idle gear 4 [I]

Transfer roller gear [G]

Exit roller gear [J]
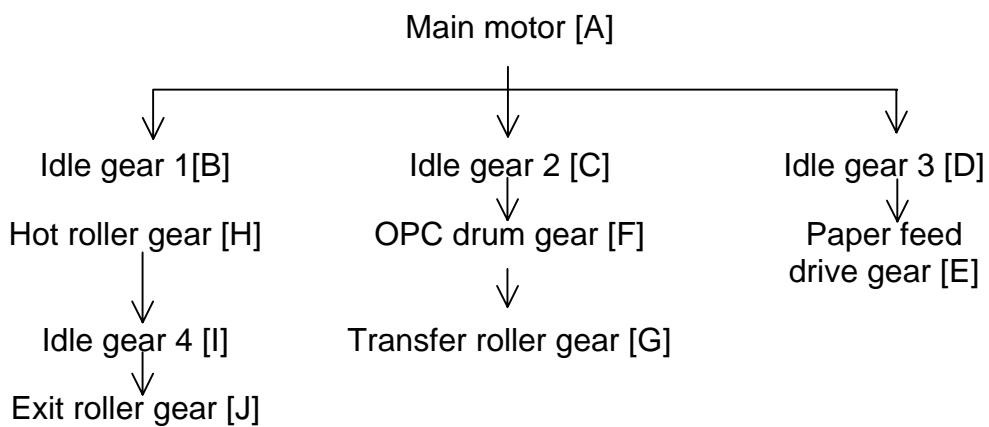
2. REPLACEMENT AND ADJUSTMENT

The following table shows the part replacement rank, which explains the difficulty of each replacement procedure.

Definition:
A: Replacement in the field cannot be recommended.
   (It takes time and needs space.)
B: Replacement in the field is recommended. (It should take less than 10 minutes.)
C: Replacement in the field is recommended. (It should take less than 5 minutes.)

Part unit	Part Name	Rank
Paper cassette	Side fence	C
	Side fence gear	C
	Bottom plate	C
	Friction pad	C
Laser	Laser unit	C
Fusing	Fusing unit	C
	Paper exit area	C
	Hot roller	B
	Pressure roller	B
	Fusing lamp	B
	Thermistor	B
	Thermostat	B
Paper feed	Paper feed roller	B
Registration	Registration roller	A
Transfer	Transfer roller	C
Motors	Main motor	A
	Fan motor	C
PSU	PSU	A

Replacement Adjustment

2.1 PAPER CASSETTE

2.1.1 PAPER CASSETTE

[A]: Paper cassette

[A]

G182R001.JPG

Side Fence

[B]: Side fence gear (pull it out)

[B]

[C]

G182R002.JPG

[C]: Side fence – Left
Unhook at the rear.

[D]: Side fence – Right
Unhook at the rear.

> **NOTE:** Lift the bottom plate before removing the side fences.

G182R003.JPG

[D]

Bottom Plate

[E]: Bottom plate

Unhook at both sides of the cassette [F].

Detach from the pin [G] at both sides.

[G]

[E]

G182R004.JPG

[F]

G182R005.JPG

Friction Pad

[H]: Friction pad (two hooks)

    NOTE: Be careful not to lose the spring [I].

[H]

G182R006.JPG

[I]

Replacement Adjustment

2.2 LASER UNIT

I WARNING FOR THE LASER UNIT

This machine contains a laser beam generator. Laser beams can cause permanent eye damage. Do not open the laser unit or look along the laser beam path while the main power is on.

Preparation:

    1) Remove the upper unit. (See Upper Unit Removal.)

G182R007.JPG
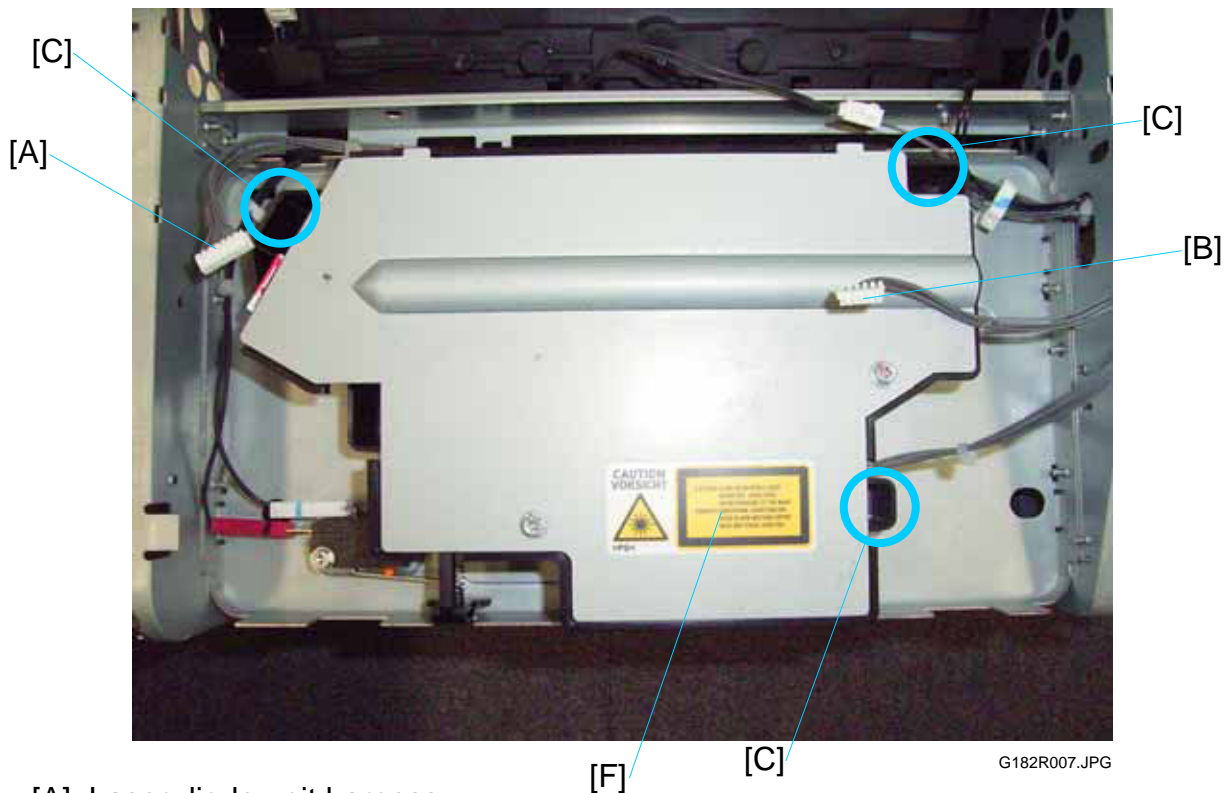
[A]: Laser diode unit harness
[B]: Polygon mirror motor harness
[C]: Laser unit (3 screws [circled in blue above])

NOTE: When re-assembling, make sure to set the positioning pin [D] in the hole [E].

G182R008.JPG

Warning Labels [F]

CAUTION
VORSICHT

CATION-CLASS 3B LASER RADIATION
WHEN OPEN
AVOID EXPOSURE TO THE BEAM
VORSICHT-LASERSTRAHLUNG KLASSE 3B
WENN ABDECKUNG GEOFFNET
NICHT DEM STRAHL AUSSETZEN

>PS<
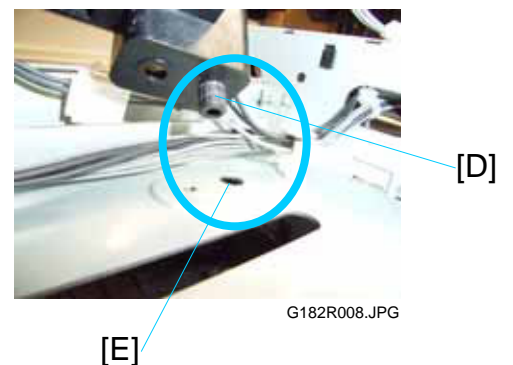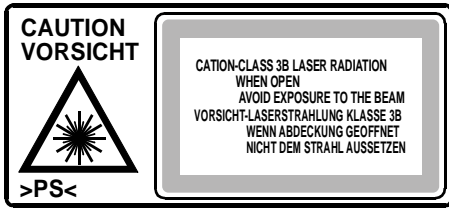
3BLASERCAUTION.WMF

Replacement Adjustment

2.3 FUSING AREA

2.3.1 FUSING UNIT

Preparation:

1) Remove the upper unit. (See Upper Unit Removal.)

G182R009.JPG
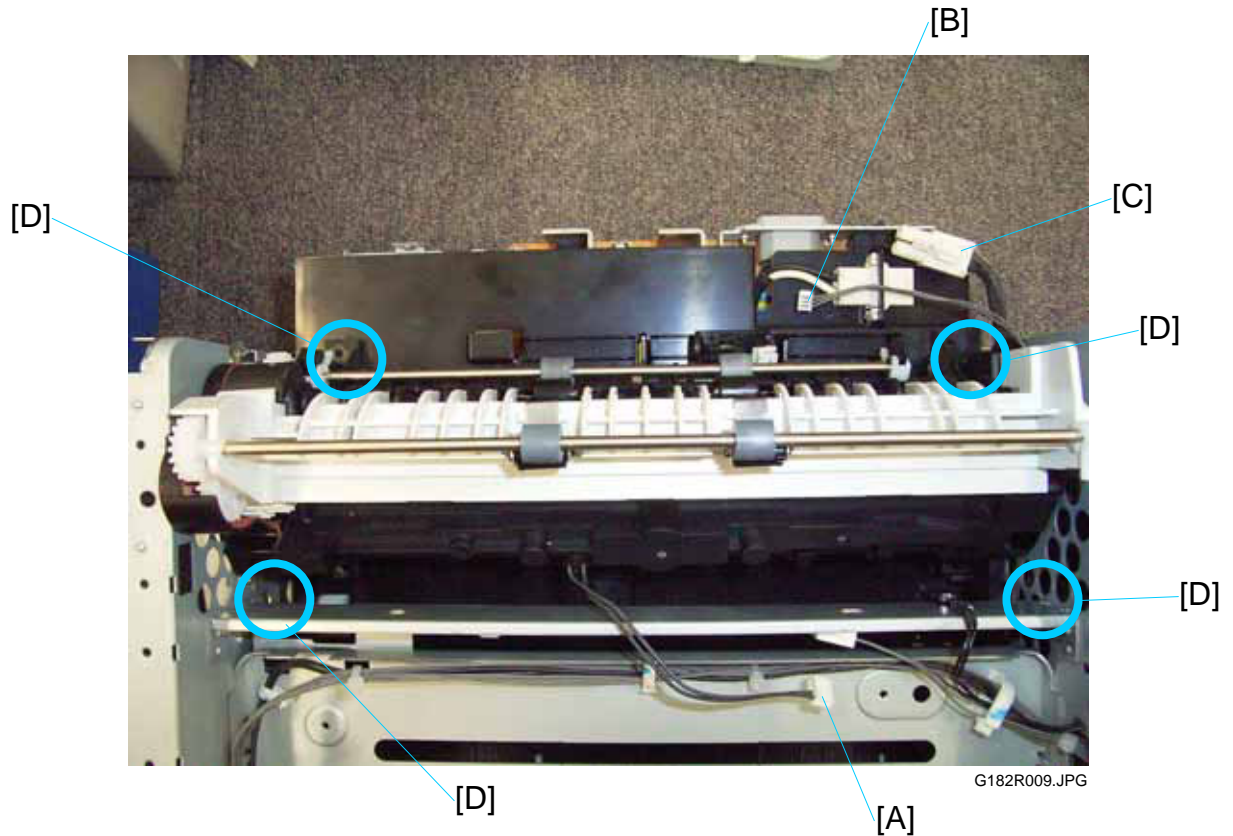
[A]: Thermistor harness
[B]: Paper exit sensor harness
[C]: Fusing lamp harness
[D]: Fusing unit (4 screws [circled in blue above])

2.3.2 PAPER EXIT ASSEMBLY

[A]: Fusing cover (1 screw)

[A]

G182R010.JPG

[B]: Paper exit assembly (2 screws [circled in blue in the lower diagram])
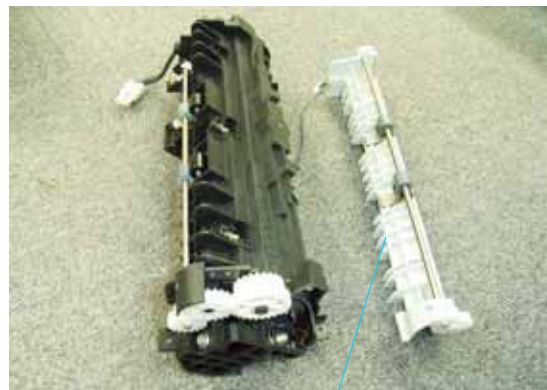
[B]   G182R012.JPG
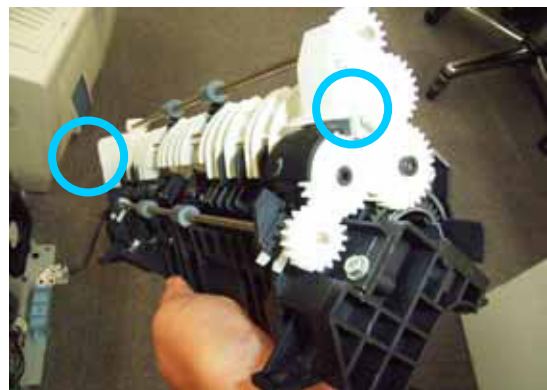
G182R011.JPG

Replacement Adjustment

2.3.3 FUSING LAMP AND HOT ROLLER

Preparation:

- Remove the paper exit assembly (∗ 2.3.2).

Fusing Lamp

[A]: Fusing lamp (2 screws)
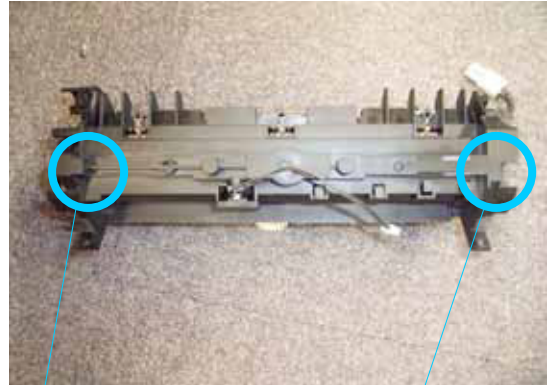
G182R013.JPG

G182R014.JPG   G182R015.JPG

NOTE: Do not touch the surface of the fusing lamp with bare hands.

[A]
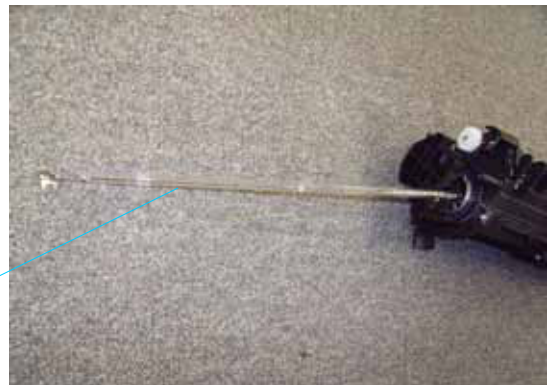
Reassembly

When reassembling, be careful to set the fusing lamp on the frame first, then set the terminals [B] and [C].

G182R018.JPG

[C]

[B]
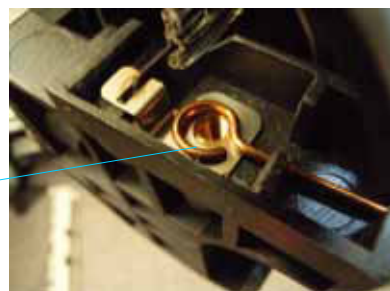
G182R017.JPG   G182R016.JPG

Hot Roller

[A]: Electrode (1 screw)
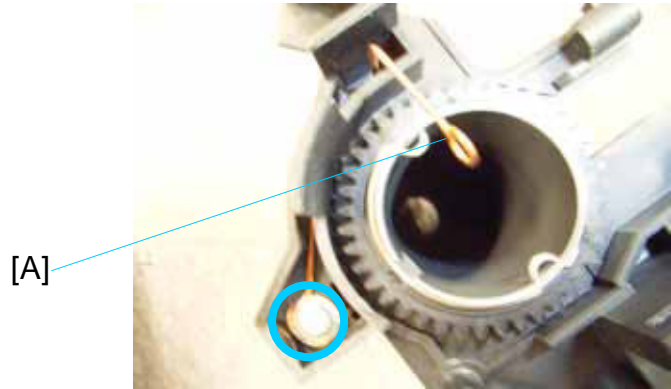
G182R019.JPG

[B]: Hot roller (pull it out)

NOTE: Do not touch the surface of the hot roller with bare hands.

G182R020.JPG

NOTE: When re-assembling, be careful not to damage the hot roller strippers [C].

Replacement
Adjustment

2.3.4 PRESSURE ROLLER

Preparation:

- Remove the paper exit assembly (∗ 2.3.2).
- Remove the fusing lamp and hot roller (∗ 2.3.3).

[A]: Pressure roller (1 bushing [B] and 1 spring [C] at each side)

[A]

G182R046.JPG

[B]

[C]

G182R048.JPG

[B]

NOTE: When re-assembling, be careful to set the bushing [B] and spring [C] in the correct position.

[C]

G182R047.JPG

2-10
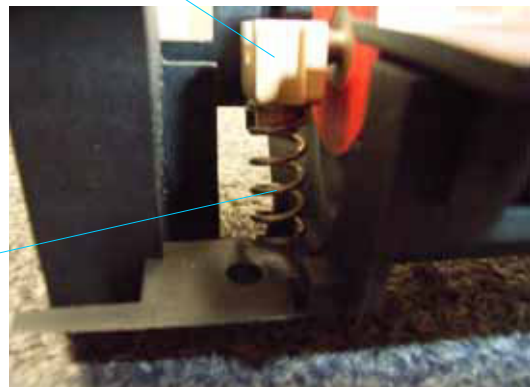
2.3.5 THERMISTOR

Preparation:

- Remove the paper exit assembly (∗ 2.3.2).

[A]: Thermistor (1 screw)

NOTE: When reassembling, do not damage the thermistor, and check that the element touches the hot roller.

[A]
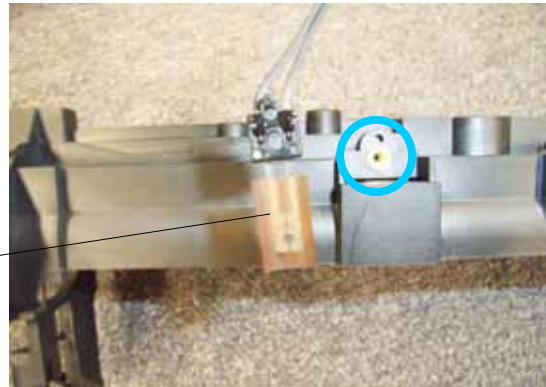
G182R023.JPG

2.3.6 HOT ROLLER STRIPPERS

Preparation:

- Remove the paper exit assembly (∗ 2.3.2).
- Remove the fusing lamp and hot roller (∗ 2.3.3).

There are 3 hot roller strippers [A] in the fusing unit.

[B]: Hot roller stripper (1 spring [B] each)

NOTE: When reassembling, be careful not to lose the spring [B].

Replacement Adjustment

G182R022.JPG

[A]
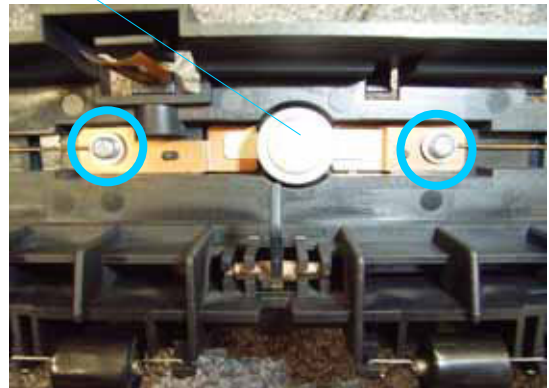
[B]

[A]

G182R021.JPG

2-11
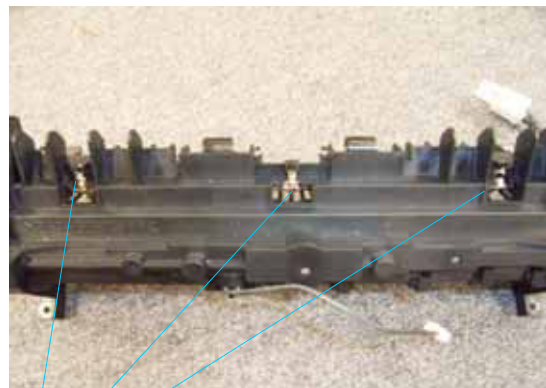
2.3.7 THERMOSTAT

Preparation:

- Remove the paper exit assembly (∗ 2.3.2).
- Remove the fusing lamp and hot roller (∗ 2.3.3).

[A]: Thermostat (2 screws)

[A]

G182R024.JPG

G182R025.JPG

2.4 PAPER FEED

2.4.1 PAPER FEED ROLLER REMOVAL

Preparation:

1) Remove the upper unit. (See Upper Unit Removal.)

[A]: Drive assembly (4 screws)

G182R026.JPG

[B]: Electromagnetic clutch assembly (1 clip)

G182R027.JPG

G182R028.JPG

[C]: Paper feed roller (2 clips, one at the left side [D], and one at the right side)

G182R030.JPG

G182R030.JPG

Replacement
Adjustment

2-13

PAPER FEED

Remove the paper feed roller [C] from the shaft.

G182R031.JPG

2.4.2 REGISTRATION ROLLER

(ALSO KNOWN AS 'ROLLER DRIVEN' IN THE PARTS CATALOG)

Preparation:
1) Remove the upper unit. (See Upper Unit Removal)
2) Remove the paper tray
3) Remove the toner cartridge

[A]: Paper tray guides (2 screws)

[B]: Left shield (13 screws & 2 screws at the bottom)

[C]: Right shield (9 screws)

[D]: Laser shield (4 screws)
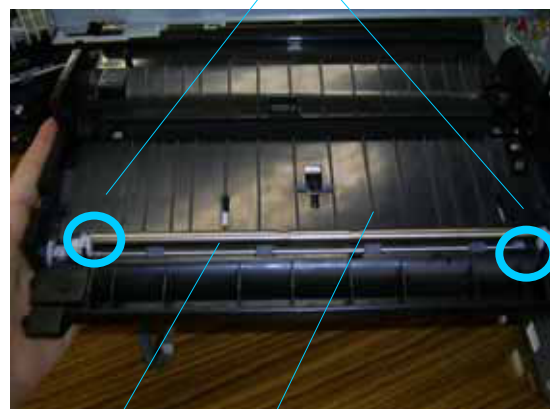
[E]: Guide shield (4 screws)

G182R035.JPG

G182R040.JPG

[F]: Plate (2 screws)

[G]: White bushings

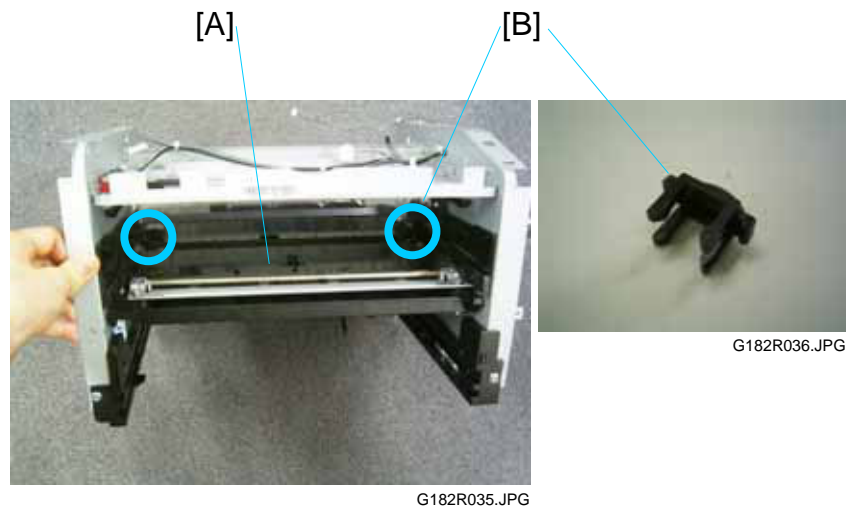[H]: Registration roller (lift it out)

G182R034.JP

2-15

2.5 OTHERS

2.5.1 TRANSFER ROLLER

Preparation:
1) Remove the upper unit. (See Upper Unit Removal.)
2) Remove the toner cartridge.

[A]: Transfer roller
[B]: Black bushing

G182R036.JPG

G182R035.JPG

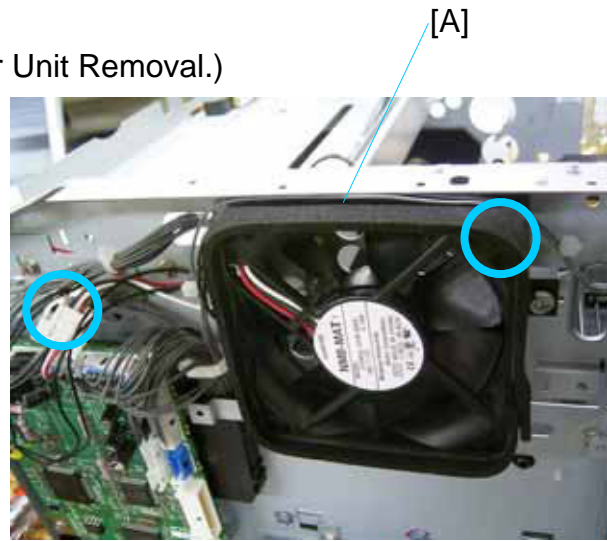Remove the transfer roller with a flat-head (-) screwdriver.

G182R037.JPG

2-16

2.5.2 FAN MOTOR

Preparation:

1) Remove the upper unit. (See Upper Unit Removal.)

[A]: Fan motor (1 screw & 1 harness)

[A]

G182R038.JPG

Replacement
Adjustment

2-17

2.5.3 MAIN MOTOR REMOVAL

Preparation:

1) Remove the upper unit. (See Upper Unit Removal.)
2) Remove the paper tray.
3) Remove the toner cartridge.
4) Remove the laser unit (∗ 2.2).

[A]: Paper tray guides (2 screws)

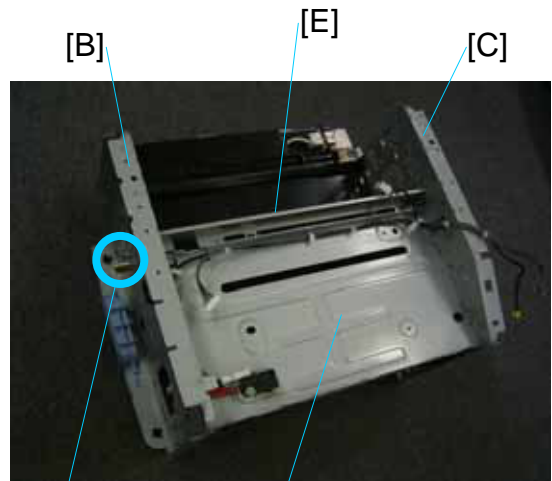[B]: Left shield (13 screws & 2 screws at the bottom)

[C]: Right shield (9 screws)

[D]: Laser shield (4 screws)

[E]: Guide shield (4 screws)

[F]: Main motor (3 screws and 1 harness)

G182R035.JPG

G182R040.JPG

G182R041.JPG

2.6 PSU (KNOWN AS 'POWER SUPPLY UNIT' IN THE PARTS CATALOG)

2.6.1 PSU REMOVAL

Preparation

1) Remove the upper unit. (See Upper Unit Removal.)
2) Remove the paper tray.
3) Remove the toner cartridge.
4) Remove the right & left shield (∗ 2.5.3).

[A]: PSU (9 screws & 4 connectors)

G182R042.JPG