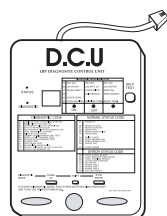# 7. Reference Information

This chapter contains the tools list, list of abbreviations used in this manual, and a guide to the location space required when installing the printer. A definition of tests pages and Wireless Network information definition is also included.

7.1 Tool for Troubleshooting

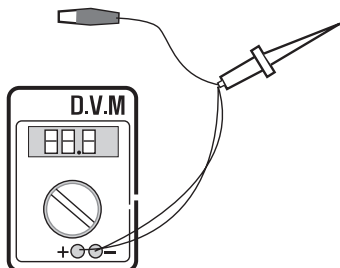The following tools are recommended safe and easy troubleshooting as described in this service manual.

· **DCU (Diagnostic Control Unit)**
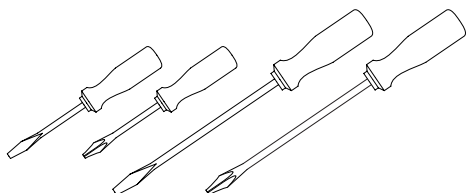Standard : Test equipment to diagnose the Laser printer supplied by Samsung Electronics.

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

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

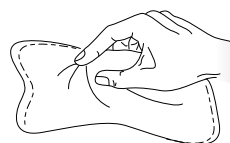· **Tweezers**
Standard : For general home use, small type.

· **Cotton Swab**
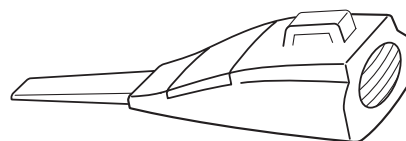Standard : For general home use, for medical service.
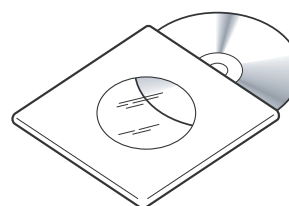
· **Cleaning Equipments**
Standard : An IPA(Isopropyl Alcohol)dry wipe tissue or a gentle neutral detergent and lint-free cloth.

· **Vacuum Cleaner**

· **Software (Driver) installation CD ROM**

7.2 Acronyms and Abbreviations(1)

The table below explains the abbreviations and acronyms used in this service manual. Where abbreviations or acronyms are used in the text please refer to this table.

Abbreviations	Explanation
AP	Access Point
AC	Alternating Current
APC	Auto Power Control
ASIC	Application Specific Integrated Circuit
ASSY	assembly
BIOS	Basic Input Output System
BLDC	Brush-less Direct Current
CMOS	Complementary Metal Oxide Semiconductor
CN	connector
CON	connector
CPU	Central Processing Unit
dB	decibel
dbA	decibel A
dBM	decibel milliwatt
DC	direct current
DCU	Diagnostic Control Unit
DPI	Dot Per Inch
DRAM	Dynamic Random Access Memory
DVM	Digital Voltmeter
ECP	Enhanced Capability Port
EDC	Embedded Diagnostic control
EEPROM	Electronically Erasable Programmable Read Only Memory
EMI	Electro Magnetic Interference
EP	electrophotographic
EPP	Enhanced Parallel Port
FPOT	First Printout Time
F/W	firmware
GDI	graphics device interface
GND	ground
HBP	Host Based Printing
HDD	Hard Disk Drive
H/H	High temperature and high marshy place
HV	high voltage
HVPS	High Voltage Power Supply
I/F	interface
I/O	Input and Output
IC	integrated circuit
IDE	Intelligent Drive electronics or Imbedded Drive Electronics

Acronyms and Abbreviations(2)

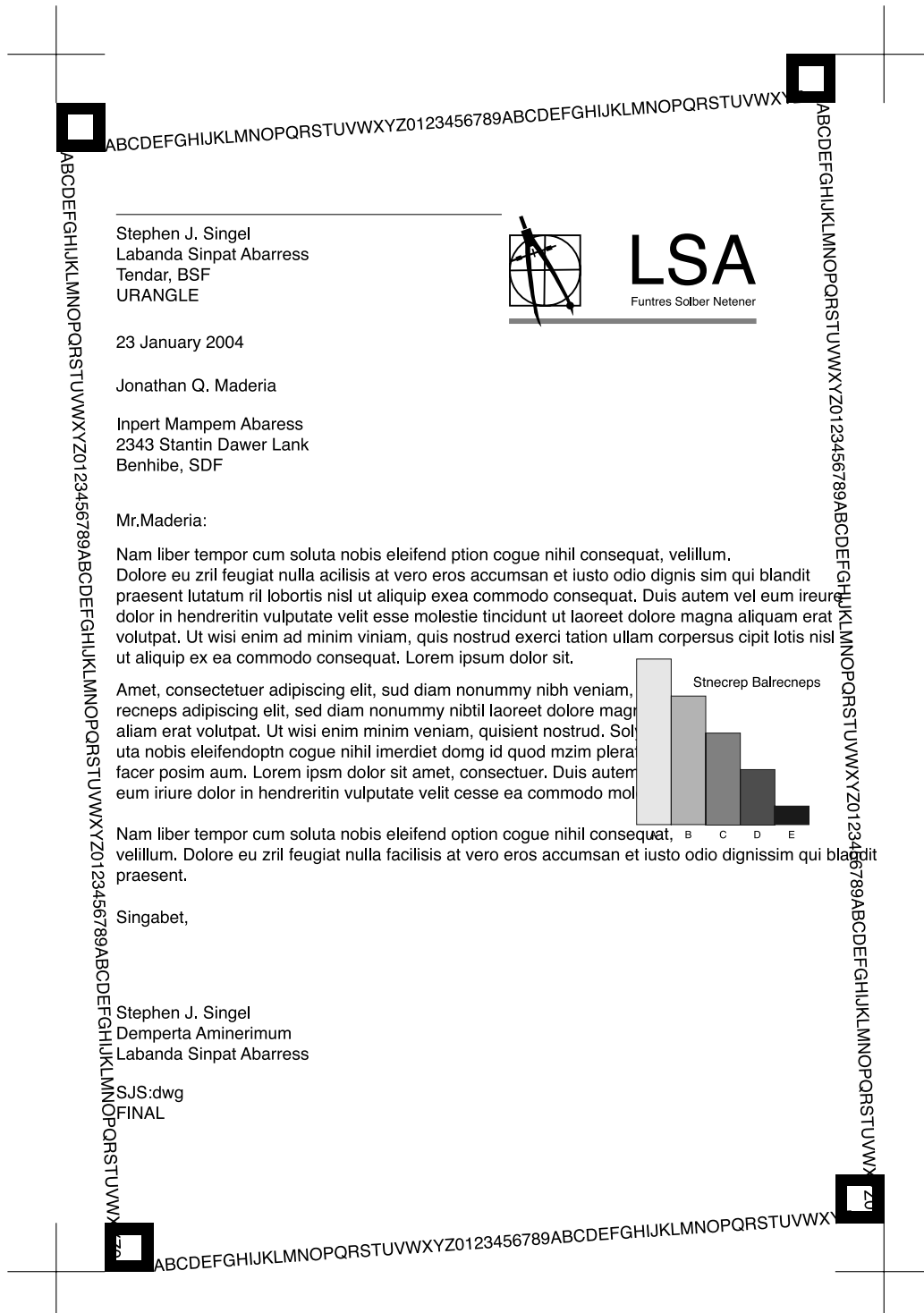| Abbreviations	Explanation
IEEE	Institute of Electrical and Electronics Engineers. Inc
IPA	Isopropy Alcohol
IPM	Images Per Minute
LAN	local area network
lb	pound(s)
LBP	Laser Beam Printer
LCD	Liquid Crystal Display
LED	Light Emitting Diode
L/L	Low temperature and low marshy place
LSU	Laser Scanning Unit
MB	megabyte
MHz	megahertz
MPF	Multi Purpose Feeder
NIC	Network Interface Card
N/N	Normal temperature and normal marshy place
NVRAM	nonvolatile random access memory
OPC	Organic Photo Conductor
OPE	Operate Panel Equipment
PBA	Printed Board Assembly
PCL	Printer Command Language , Printer Control Language
PDL	Page Discription Language
PPM	Page Per Minute
PPS	Pulse Per Second
PS	Post Script
PTL	Pre-Transfer Lamp
PWM	Pulse Width Modulation
Q-PID	Quick Printer Initiating Device
Q'ty	quantity
RAM	Random Access Memory
ROM	Read Only Memory
SCF	Second Cassette Feeder
SMPS	Switching Mode Power Supply
SPGP	Samsung Printer Graphic Processor
SPL	Samsung Printer Language
Spool	Simultaneous Peripheral Operation Online
SW	switch
sync	synchronous or synchronization
USB	Universal Serial Bus
WECA	Wireless Ethernet Compatibility Alliance

7.3 Selecting printer locations

• Leave enough room to open the printer trays, covers, and allow for proper ventilation. (see diagram below)

• Provide the proper environment :
- A firm, level surface
- Away from the direct airflow of air conditioners, heaters, or ventilators
- Free of extreme fluctuations of temperature, sunlight, or humidity
- Clean, dry, and free of dust

7.4 Sample Tests Patterns

The sample patterns shown below are the standard test patterns used in the factory.
The life of the toner cartridge, developer cartridge and printing speed are measured with the pattern shown below (5%). The A4 ISO 19752 standard pattern samples are reproduced reduced to 70% of the actual A4 size.

A4 ISO 19752 Standard Patterns

ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789ABCDEFGHIJKLMNOPQRSTUVWXY

LSA
Funtres Solber Netener

Stephen J. Singel
Labanda Sinpat Abarress
Tendar, BSF
URANGLE

23 January 2004

Jonathan Q. Maderia

Inpert Mampem Abaress
2343 Stantin Dawer Lank
Benhibe, SDF

Mr.Maderia:

Nam liber tempor cum soluta nobis eleifend ption cogue nihil consequat, velillum.
Dolore eu zril feugiat nulla acilisis at vero eros accumsan et iusto odio dignis sim qui blandit praesent lutatum ril lobortis nisl ut aliquip exea commodo consequat. Duis autem vel eum ireure dolor in hendreritin vulputate velit esse molestie tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim viniam, quis nostrud exerci tation ullam corpersus cipit lotis nisl ut aliquip ex ea commodo consequat. Lorem ipsum dolor sit.

Amet, consectetuer adipiscing elit, sud diam nonummy nibh veniam, recneps adipiscing elit, sed diam nonummy nibtil laoreet dolore magn aliam erat volutpat. Ut wisi enim minim veniam, quisient nostrud. Sol uta nobis eleifendoptn cogue nihil imerdiet domg id quod mzim plera facer posim aum. Lorem ipsm dolor sit amet, consectuer. Duis autem eum iriure dolor in hendreritin vulputate velit cesse ea commodo mol

Stnecrep Balrecneps

Nam liber tempor cum soluta nobis eleifend option cogue nihil consequat, velillum. Dolore eu zril feugiat nulla facilisis at vero eros accumsan et iusto odio dignissim qui blandit praesent.

Singabet,

Stephen J. Singel
Demperta Aminerimum
Labanda Sinpat Abarress

SJS:dwg
FINAL

ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789ABCDEFGHIJKLMNOPQRSTUVWXY

7.5 Parts Life Cycle Maintenance Table

7.5.1 Parts Life Cycle Maintenance Table

Supplies	Life Cycle	Condition	Panel LED	Custmoer - Panel Manage	Responding
Toner Cartridge	1.5K: For Product	Toner Low	Toner LED : Red LED blinking	-	10% Remains
	0.7K: For Sale	Toner Uninstall	Online /Error LED : Red	-	
Fuser	50,000(page)	Thermistor Open Error (DCU Code : 60)	On line/Error LED : Red	Replaced at Exhauseted	
		Low Heat Error (DCU Code : 62)	On line/Error LED : Red	Replaced at Exhauseted	
		Over Heat Error (DCU Code : 68)	On line/Error LED : Red	Replaced at Exhauseted	
Transer Roller	50,000(page)	Exhauseted	No Indication	Replaced at Exhauseted	
PickUP Roller	50,000(page)	Exhauseted	No Indication	Replaced at Exhauseted	

7.5.2 Toner Cartridge Criterion

1) Supplies Criterion (Toner Cartridge)
  1. Cartridge Main Defects
    - White Point, Black Point : White or Black point on printing image
    - Image contamination   : Dirty printing image
    - Image Fainted : Entire Image is fainted and vertical white line emerge

    - Black Line : Vertical black line emerge on printing image

2) Defect Symptoms

Symptoms	Criterion	Remarks
White, Black Point	Clean Up OPC (10 times), if disappeared, no failure. - If continuous, failure	System Setup -> Maintenance-> Clean Drum
Image contamination (Toner leakage)	Drity printing image or contenimated reverse side - Clean up OPC (10 times) and inside of machine with cloth, if disappeared, no failure.	
Image Fainted	After shake cartridge right and left 5~6 times, if printing image is not fainted, no failure. (Toner Exhausted)	
Vertical Black Line	Vertical thin line emerge, if cartridge is scratched. - (Customer fault)	

7.6 Model Information

7.6.1 Understanding for Model Code

Model code is inscribed and managed by product standard operation.
If understand the standard operation. It will help to comprehend basic and derived model.

Classification	Model abbriviation				Feature/Properties					
DIGIT	1	2	3	4	5	6	7	8	9	10
Example	M	L		-	1	6	4	0		
Definition	Product Classification		Color Product		1. Speed of Engine - If same speed models are released simultaneously higher model is added +1 at speed code. - If over 10 models with same speed are brought into, tenth model is added +1. 2. Domestic Entry Model Distribution - C&C : Engine speed - Information : The first number deleted	1.New model, series model division - Over 3rd grade project 2.Valuablet model division in market despite of not over 3rd grade - VE model, etc. (Valuable model is decided byproduct planning group with sales prospect)	1. Basic : 0 2.Series model division - Below 4th grade project .PC Bundle .Domestic distribution (Entry model excepted)	Main feature description - N : N/W - P : PS - S : N/W+PS - B : Bluetooth - T : 2nd CST - M : Mac Compatible - X : Scanner . Beside abovefeature description, product conception to product planning group responsed	Space (Basic:Omitted)
Code Description	Printer Class of Product Description : M	Laser Beginning letter of printer Description: L	Default = Omissoin. Only color printer "C" initial .Engine = E	Division between code						
Description	Alphabet			-	Digit				Alphabet	

Classification	Model abbriviation				Feature/Properties					
DIGIT	1	2	3	4	5	6	7	8	9	10
Example	M	L		-	2	2	4	0		
Definition	Product Classification		Color Product		1. Speed of Engine - If same speed models are released simultaneously higher model is added +1 at speed code. - If over 10 models with same speed are brought into, tenth model is added +1. 2. Domestic Entry Model Distribution - C&C : Engine speed - Information : The first number deleted	1.New model, series model division - Over 3rd grade project 2.Valuablet model division in market despite of not over 3rd grade - VE model, etc. (Valuable model is decided byproduct planning group with sales prospect)	1. Basic : 0 2.Series model division - Below 4th grade project .PC Bundle .Domestic distribution (Entry model excepted)	Main feature description - N : N/W - P : PS - S : N/W+PS - B : Bluetooth - T : 2nd CST - M : Mac Compatible - X : Scanner . Beside abovefeature description, product conception to product planning group responsed	Space (Basic:Omitted)
Code Description	Printer Class of Product Description : M	Laser Beginning letter of printer Description: L	Default = Omissoin. Only color printer "C" initial .Engine = E	Division between code						
Description	Alphabet			-	Digit				Alphabet	

7.6.2 Understanding Material Code & Name

Material code and name is maintained by standard criteria.
If understand the criteria, it will help to order materials.

1. Two different description ways for material code. (● : Digit, ■ : Letter(Alphabet))
    - Type 1 ●●●●-●●●●●●   ex) 2007-007961   R-CHIP
    - Type 2 ■■●●-●●●●●■   ex)JB96-01268A   ELA UNIT-COVER TOP

       Type 1 : Parts managed by entire divisions : Materials used by all samsung products.
              Most electrical parts are under the type 1.
       Type 2 : Parts managed by a division : Material used by a certain product
              Most mechanical parts are under type 2.

2. A/S Only material : Only for A/S, not related to product manufacturing.

3. Ass'y material : More than two materials are assembled. If the material order is out of service, the order can be
    processed by Ass'y material order.
    Picture and numbers are also described on Service manual.

※ Ass'y Material and A/S Only material Code are recognizable by product name.
    Those are under type 2 and known by material properties and beginning letters of product name.

Classification	Material Code	Material Name
A/S Only Material	**81-******(JB81-00039A)	AS-*****(AS-FUSE)
A/S Only Material	**75-******(JB75-00068A)	MEC-*****(MEC-CHUTE)
A/S Only Material	**92-******(JB92-01131A)	PBA-*****(PBA MAIN-CONTROLLER)
A/S Only Material	**96-******(JB96-01268A)	ELA-*****(ELA UNIT-COVER TOP)
A/S Only Material	**97-******(JB97-01089A)	MEA-*****(MEA UNIT-PULLEY IDLE)

7.6.3 F/W Upgrade Method

※ If F/W needs Upgrade, F/W file and usbprn file are requested.

■ Check "Ready" condition with power ON.

1. Paralle cable case
    · Start Download Rom file with "copy/b b255_706.fls lpt1:" commend on Dos Mode.
    · Once Download are finished, "Reset Printer" is indicated on LCD window.
    · Download finished ▶ Power ON/OFF.

2. USB cable case (Save attached file at certain directory)
    · Start Download Rom file "usbprbs b255_706.fls" on Dos Mode and push the enter key.
    · Once Download are finished, "Reset Printer" is indicated on LCD window.
    · Download finished ▶ Power ON/OFF.