6. Troubleshooting

6.1 Printing Problems – Causes and Solutions

6.1.1 Vertical Black Lines and Bands

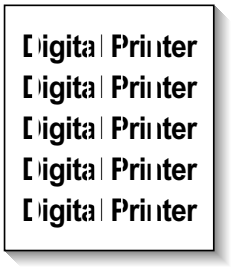
• **Description** 1. Straight thin black vertical lines occur in the printing.
2. Dark black vertical bands occur in the printing.



Check and Cause	Solution
1. Damaged developer roller, deformed Doctor-blade in the Toner cartridge.	1. Replace the toner cartridge and test again.
2. Scratched surface of the charge roller in the toner cartridge.	2. Replace the toner cartridge and test again.

6.1.2 Vertical White Line

• **Description** White vertical voids in the image.

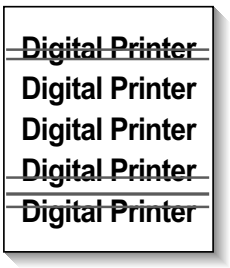


Check and Cause	Solution
1. 1. Contamination of the window or internal lenses of LSU mirror.	1. Clean the LSU window with recommended cleaner (IPA) Clean the window with a clean cotton swab. If dirt is inside the LSU – replace LSU.
2. Foreign object inside the toner cartridge or low toner.	2. Replace the toner cartridge.
3. Foreign object, contamination or burr on the edge of the toner cartridge window.	3. Clean the exposure window.
4. If the fuser is defective, voids occur periodically at the top of a black image.	4. Open the front cover and check the ribs that correspond to the position of the voids. Remove if found.
5. Contamination of the OPC drum.	5. If the problems are not solved, replace the toner cartridge.

6.1.3 Horizontal Black Bands

• Description

1. Dark or blurry horizontal stripes occur in the printing periodically. (These may occur at regular intervals down the page.)

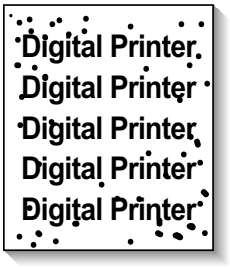


Check and Cause	Solution
1. Bad contacts on the toner cartridge high voltage terminals.	1. Clean all HV terminals on the cartridge and on the set frame. Ensure all toner or paper dust particles are removed.
2. The rollers in the toner cartridge may be contaminated. Charge roller = 37.8 mm Supply roller = 44.9 mm Develop roller = 35.2 mm Transfer roller = 45.3 mm	2. Clean the right Gear that has relatively small tooth gap on the OPC.
	3. If the problem persists replace the toner cartridge.

6.1.4 Black/White Spot

• Description

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



Check and Cause	Solution
1. If dark or blurry black spots occur periodically, the rollers in the Developer may be contaminated with foreign matte or paper particles. (Charge roller : 37.8 mm interval OPC drum : 75.5 mm interval)	1. Print several OPC cleaning Mode Prints and then run the Self-test 2 or 3 times.
2. If faded areas or voids occur in a black image at intervals of 75.5 mm, or black spots occur elsewhere, the OPC drum surface is damaged.	2. 75.5 mm repetition: Examine the surface of the OPC drum and carefully clean with a soft, lint free cloth. If unsuccessful replace the cartridge. 37.8mm repetition: Replace the toner cartridge
3. If a black image is partially broken, the transfer voltage is abnormal or the transfer roller's life has expired.	3. The transfer roller guarantees 50,000 sheets printing. If the roller's life is expired, replace it. **Note**. Cleaning the inside of the set to remove excess toner particles or paper dust will reduce the occurrence of this problem..

6.1.5 Light Image

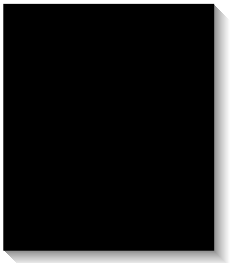
• **Description** The printed image is light, with no ghost.



Check and Cause	Solution
1. Toner Save mode enabled	1. Ensure the Toner Save mode is off. Check set and driver settings.
2. Develop roller is contaminated or the toner cartridge is almost empty.	2. Replace the toner cartridge and try to print out again.
3. Ambient temperature is below than 10°C.	3. Wait 30 minutes after printer is powered on before you start printing.
4. Bad contact caused by dirty terminals on the toner cartridge or set.	4. Clean the cartridge and set contacts. Generally clean dirt from inside the set.
5. Abnormal output from the HVPS. (Run EDC mode – see sections 6.1.2 and 6.1.3)	5. Replace the HVPS if the problems are not solved by the above four instructions.

6.1.6 Dark Image or a Black

• **Description** The printed image is dark.



Check and Cause	Solution
1. No charge voltage in the engine board.	1. Check the state of the connector which connects the engine board and HVPS.
2. Charge voltage fault due to bad contact between toner cartridge and set contacts.	2. Clean the high voltage charge terminals. **Note** if 1 and 2 do not resolve the problem and the problem persists replace the HVPS.
3. VD0 signal of the Main PBA is Low state.	3. Replace the LSU Unit or Main PBA.

6.1.7 Uneven Density

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

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

Check and Cause	Solution
1. The pressure force on the left and right springs of the transfer roller is not even, the springs are damaged, the transfer roller is improperly installed, or the transfer roller bushing or holders are damaged.	1. Replace both the left and right bush and spring assemblies.
2. The life of the Toner cartridge has expired.	2. Replace the toner cartridge and try to print out
3. The toner level is not even on the toner cartridge roller due to the damaged blade or low toner.	3. Gently shake the toner cartridge and try printing again. If the problem persists replace the toner cartridge.

6.1.8 Background

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

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

Check and Cause	Solution
1. Printing large quantities of low coverage (2%) pages or the printer has not been used for a long time.	1. The toner cartridge is basically designed to print 3,000 sheets with 5% image. If it prints more than 3,600 sheets with 2% coverage, a background can occur.
2. Is a recycled toner cartridge be used?	2. The A/S is not guaranteed if using a recycled toner cartridge. **Note** try shaking the toner cartridge gently from side to side. If the problem persists replace the toner cartridge.
3. Has the life span of the toner cartridge ended?	3. Replace the toner cartridge when its life is expired.
4. Is the movement(Up and Down) of the transfer roller smooth?	4. Clean the transfer roller bushes.
5. Is the HVPS normal?	5. Clean the high voltage charge terminals. If this does not resolve the problem replace the HVPS.

6.1.9 Ghost (1)

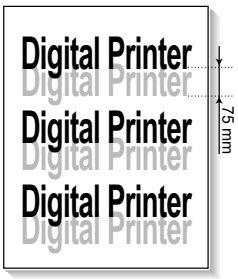
• **Description** Ghost occurs at 75.5 mm intervals of the OPC drum in the whole printing.



Check and Cause	Solution
1. Bad contacts caused by contamination from toner particles between high voltage terminal in the main body and the electrode of the Toner cartridge.	1 and 2. Clean all HV contacts, If problem persists replace the HVPS. If problem still persists replace the Main PBA
2. Bad contacts caused by contamination from toner particles between high voltage terminal in the main body and the one in the HVPS board.	
3. The life of toner cartridge is expired.	3. Replace the toner cartridge and try to print out.
4. Transfer roller life (50,000 sheets) has expired.	4. Check the transfer roller lifetime and replace it.
5. Low ambient temperature (below 10°C).	5. Wait about 30 minutes after power on before using printer.

6.1.10 Ghost (2)

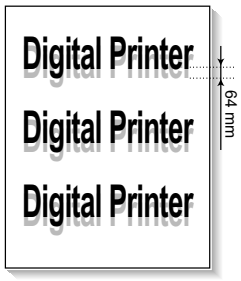
• **Description** Ghost occurs at 75.5mm intervals of the OPC drum in the whole printing.
(When printing on card stock or transparencies using manual feeder)



Check and Cause	Solution
When printing on card stock, thicker than normal paper or transparencies, such as OHP, a higher transfer voltage is required.	Ensure that the correct paper type is selected in the printer driver or application software. Remember to set back to normal paper after use.

6.1.11 Ghost (3)

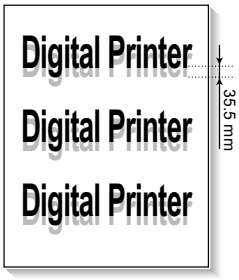
• **Description** Ghost occurs at 64 mm intervals.



Check and Cause	Solution
Fuser contamination.	1. Disassemble the fuser and remove any contamination on the rollers. Clean any contamination from between the Thermistor and the Heat roller. (Caution: Take care not to deform the rollers.)

6.3.12 Ghost (4)

• **Description** A White ghost occurs in a black image printing at 35.2mm intervals.



Check and Cause	Solution
1. The life of the developer may be expired.	1. Problem in the toner cartridge, replace the toner cartridge and try to print out again.
2. Abnormal output from the HVPS. (Run EDC mode – see sections 6.1.2)	2. Check the HVPS supply voltage. Clean all HV terminals on the cartridge and on the set. Replace the HVPS if the problem persists.

6.1.13 Stains on the Face of the Page

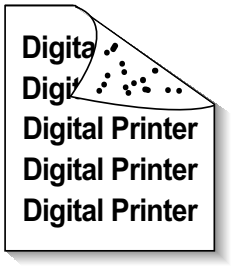
• **Description** The background on the face of the printed page is stained.



Check and Cause	Solution
1. Toner leakage due to improperly sealed toner cartridge.	1. Replace the toner cartridge.
	2. If the transfer roller is contaminated, run PC Cleaning Mode Print 2 or 3 times and then perform Self-Test 2 or 3 times to remove contamination.

6.1.14 Stains on Back of Page

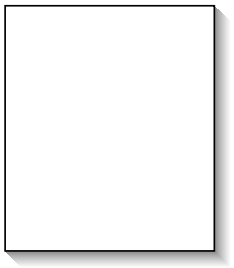
• **Description** The back of the page is stained at 45.3 or 75.3 mm intervals.



Check and Cause	Solution
1. 45.3mm : Transfer roller is contaminated.	1. Perform the OPC Cleaning Mode Print 2 or 3 times. Run Self-Test to remove the contamination from the transfer roller. **Note.** Replace the transfer roller if contaminated severely.
2. 75.3mm : Pressure roller is contaminated.	2. Disassemble the fuser and clean the H/R(Heat Roller) and P/R(Pressure roller). Check and clean the area between the H/R and the Thermistor. (Caution: Take care not to deform the rollers.)

6.1.15 Blank Page Print out (1)

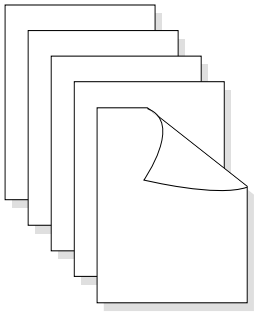
• **Description** Blank page is printed.



Check and Cause	Solution
Bad ground contacts in OPC and/or toner cartridge.	1. Check if the Ground-OPC or the OPC Ground Zener diode are defective or open circuit. (set inside left side). 2. Remove contamination of the terminals on the toner cartridge and the unit.

6.1.16 Blank Page Print out (2)

• **Description**
1. Blank page is printed.
2. One or several blank pages are printed.
3. When the printer turns on, several blank pages print.



Check and Cause	Solution
1. Abnormal solenoid.	1. Perform the engine self test using TECH Mode to check if the Solenoid is normal. If the problem persists replace the main PBA

6.2 Copy Problems

6.2.1 White Copy

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

Check and Cause	Solution
1. Check the Scanner Cover is properly closed. 2. Check shading profile. 3. Check white/black reference voltage on Main PBA. e.q • CIS_SI, CIS_CLK at CN8 • Or Check the FFC	1. Room light can pass through a thin original. 2. Redo shading profile in the tech mode. 3. Replace CN8 if it is defective. • CN8-Pin6(CIS-SI) • CN8-Pin7(CIS-CLK)

6.2.2 Black Copy

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

Check and Cause	Solution
1. Check for CIS problem on the Main PBA. 2. Check shading profile.	1. Check the CIS harness is properly connected. 2. Redo shading profile in the tech mode.

6.2.3 Abnormal noise

• **Description** There is noise from the Platen when copying.

Check and Cause	Solution
1. Check the Scan Motor and gesr.	1. Check for correct assembly of gear and motor. Ensure no parts are fouling and there are no foreign objects in the mechanism or scanner path. Replace any worn parts
2. Check the Motor Driver on Driver PBA.	2. Replace the main PBA.

6.2.4 Defective Image Quality

• **Description** The copied image is excessively light or dark

Check and Cause	Solution
1. Check shading profile.	1. Redo shading profile in the tech mode.
2. Check the gap between original and scanner glass.	2. A gap of more than 0.5 mm can cause a blurred image. Ensure cover close correctly. Replace as necessary.
3. Check printing quality.	3. See "Print" troubleshooting.

6.3 Paper Feed problems – Causes and Solutions

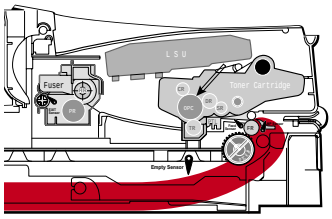
6.3.1 Wrong Print Position

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

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

6.3.2 JAM 0

• **Description**
1. Paper does not exit from the cassette.
2. Jam-0 occurs when the paper feeds into the printer.

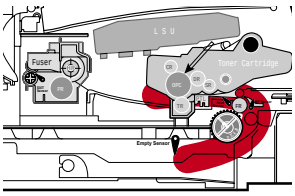


Check and Cause	Solution
1. Check the Solenoid by using Tech Mode.	1. Replace the solenoid.
2. Check cassette/MP knock-up plate and springs.	2. Repair / replace as required
3. Check paper separator pad	3 Clean with soft cloth dampened with IPA (Isopropyl Alcohol) or water. Replace if required.
4. Check the pick up roller for contamination and correct assembly.	4. Clean with soft cloth dampened with IPA (Isopropyl Alcohol) or water. Replace if required
5. If continuous clusters occur, check all rollers between pickup and registration sensor.	5. Ensure all rollers are clean and free to operate correctly.
6 If the paper feeds into the printer and Jam 0 occurs, perform Tech Mode to check feed sensor.	6. Check the SMPS PBA, Main PBA and all connections. Replace any faulty parts or the

6.3.3 JAM 1

• Description

1. Paper is jammed in front of or inside the fuser.
2. Paper is stuck in the exit roller and in the fuser just after passing through the Actuator-Feed.

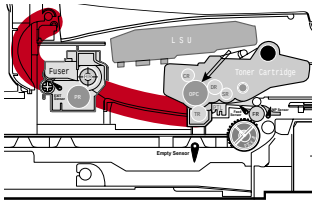


Check and Cause	Solution
1. If the recording paper is jammed in front of or inside the fuser.	1. Replace the Exit-Sensor, SMPS or main PBA.
2. If the recording paper is stuck in the exit roller and the fuser just after passing through the Actuator-Feed, Feed Actuator may be defective.	2. Reassemble the Actuator-Feed and Spring-Actuator if the movement is bad. Replace if necessary.

6.3.4 JAM 2

• Description

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



Check and Cause	Solution
1. If the paper is completely fed out of the printer, but Jam 2 occurs: The Exit sensor may be defective. • After the paper is completely discharged the Exit sensor actuator should return to its original position to shut the photo-sensor. It may stick open or return only slowly due to contamination be paper debris or foreign objects.	1. Check if the exit sensor actuator is defective. • Check if the actuator exit is deformed (Check if the lever part is deformed). • Check whether burrs occur in the assembly part of the exit actuator and if the actuator operates smoothly. • Check if foreign objects or paper debris are preventing the correct operation of the actuator.
2. If the paper is rolled in the Fuser Roller: • This occurs when a Guide claw is broken away, damaged or deformed. • It occurs when the Spring of a Guide claw is broken or damaged. • It occurs when the Heat-Roller or Pressure-Roller is seriously contaminated with toner.	2. If the paper is stuck in the fuser : disassemble the fuser and remove the jammed paper, and clean the surface of the pressure roller with dry gauze. Check all ribs, claws and springs.

6.3.5 Multi-Feeding

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

Check and Cause	Solution
1. Check that the paper size guides are set correctly (cassette and MPF tray).	1. Adjust paper guides.
2. Solenoid malfunction (the solenoid does not work properly).	2. Replace the solenoids or PBA as appropriate.
3. Friction Pad is contaminated.	3. Clean the friction pad rubber with a soft cloth dampened with IPA (Isopropyl Alcohol) or water.
4. Paper has a rough surface texture.	4. Use paper with a smother surface finish.

6.3.6 Paper rolled in the fuser

• **Description** Paper rolled around fuser rollers or 'Concertina' jam

Check and Cause	Solution
1. Contamination of the pressure roller or heat roller.	1. After disassembling the fuser, clean contamination from between the heat roller and the thermistor and also clean contamination from the pressure roller. Clean the surface of the rollers with IPA or water
2. Damaged or deformed ribs, claws or springs.	2. Check for damage or deformation of the print claws and the holder plate claws, and repair or replace as appropriate.

6.3.7 Paper rolled on the OPC Drum

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

Check and Cause	Solution
1. Paper is too thin. 2. The face of paper is curled.	1. Use paper that conforms to the printer specification. 2. Ensure paper is stored properly to prevent curl. **Note.** To remove paper rolled in the OPC. • Remove the toner cartridge from the set, taking care not to touch the green surface. Use the gearwheel at the side to rotate the OPC drum and pull the paper from the cassette. • Clean fingerprints on the OPC gently with soft tissue, taking care not to scratch the surface.

6.4 Printer Faults – Causes and Solutions

6.4.1 Fuser Error

• **Description** A message "Open Heat Error/Over heat/Heating Error' is displayed in the LCD panel.

Check and Cause	Solution
1. Thermostat, fuser power cable or heat lamp is open circuit.	1. Replace the whole fuser assembly if the thermostat is open circuit.
2. Thermistor is open circuit.	2. Replace the whole fuser assembly if the thermistor sensor is faulty.
3. Heat lamp ON/OFF test	3. Replace the fuser.
4. Drive gear melted	

6.4.2 LSU Error

• **Description** A message “LSU Error” is displayed in the LCD panel.

Check and Cause	Solution
1. LSU cable or connector faulty. 2. LSU motor is faulty. 3. Check the HSYNC signal.	Use TECH mode to test the LSU - Replace the LSU - Replace a main board if the same error persists after replacing a LSU.

6.4.3 Fuser gear melts due to overheating causing Paper Jam.

• Description	Constant Jam where paper is entering Fuser unit. Fuser rollers do not turn

Check and Cause	Solution
1. Check the Heat Lamp, thermostat and thermistor	1. Use EDC Mode to test the fuser. Replace Fuser unit Replace SMPS or Main PBA as appropriate.

6.4.4 Paper Empty

• Description	Paper Empty is displayed in the LCD panel even when paper is loaded in the cassette.

Check and Cause	Solution
1. Deformed paper sensor actuator or faulty sensor. 2. SMPS PBA or Main PBA is defective 3. Faulty cables or connectors.	1. Replace the defective actuator or sensor. 2. Replace the SMPS PBA or MAIN PBA as appropriate.

6.4.5 Paper Empty without indication

• **Description** The paper empty message does not appear in the LCD when the paper cassette is empty.

Check and Cause	Solution
1. Deformed paper sensor actuator or faulty sensor.	1. Replace the defective actuator.
2. SMPS PBA or Main PBA is defective .	2. Replace the SMPS PBA or MAIN PBA as appropriate

6.4.6 Cover Open

• **Description** The Cover Open message appears on the LCD even when the print cover is closed.

Check and Cause	Solution
1. The 'Open Cover' microswitch may be stuck or faulty	1. Use TECH mode("cover sensor test") to check cover switch operation. Check and replace switch if necessary.
2. The tab on the front cover may be damaged or broken	2. Replace the front cover.
3. Check the connector and cables between Switch and main PBA.	3. Replace the Main Control board or Cover Open S/W as necessary.

6.4.7 No error message when the cover is open

• **Description** The Cover Open message does not appears on the LCD even when the print cover is open.

Check and Cause	Solution
1. The 'Open Cover' microswitch may be stuck or faulty 2. Check the connector and cables between Switch and main PBA.	1. Use TECH mode("cover sensor test") to check cover switch operation. Check and replace switch if necessary. 2. Replace the Main Control board or Cover Open S/W as necessary.

6.4.8 Defective motor operation

• **Description** Main motor is faulty and paper does not feed into the printer, resulting in Jam 0'

Check and Cause	Solution
1. The main motor harness or Motor PCB may be faulty.	1. Check the motor harnesses and connectors, replace if defective.. If the problem persists replace the main PBA. **Note** Check motor operation using EDC Mode.

6.4.9 No Power

• **Description** When system power is turned on the LCD panel does not come on.

Check and Cause	Solution
1. Check if the power input and SMPS output are normal.	1. Replace the power supply cord or SMPS. Check power fuse and SMPS fuses replace if necessary.
2. LCD panel does not come on but normal start up sounds are heard.	2. Replace the OP panel.
3. After replacing SMPS display does not come on and no start up sounds are heard.	3. Replace the main PBA panel.

6.4.10 Printed Vertical Lines become curved

• **Description** When printing, vertical lines are not straight.

Check and Cause	Solution
1. Check stability of 24V supply to LSU.	1. 24V stable - Replace LSU. 24V unstable replace SMPS, if the problem persists replace the main PBA.

6.5 Toner Cartridge Service

Only toner cartridges supplied by Samsung should be used. Printing defects or set damage caused by the use of non-approved toner cartridges or un-licensed toner refills are not covered by the guarantee.

6.5.1 Precautions on Safe-keeping of Toner Cartridge

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

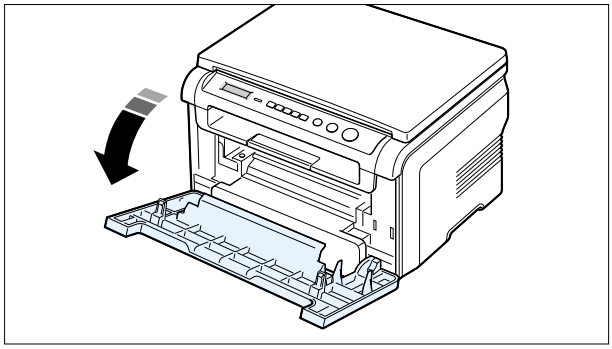
6.5..2 Service for the Life of Toner Cartridge

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

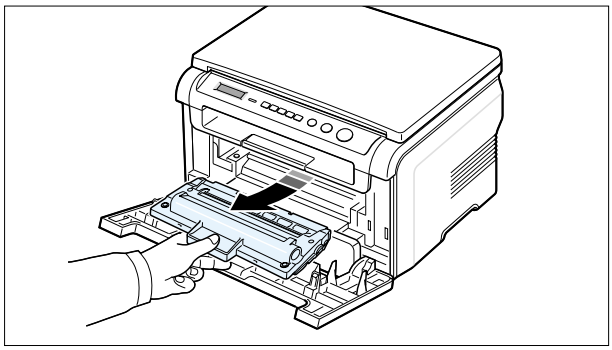
6.5.2.1 Redistributing Toner

When the toner cartridge is near the end of its life, white streaks or light print occurs. You can temporarily reestablish the print quality by redistributing the remaining toner in the cartridge.

1. Open the Front Cover.

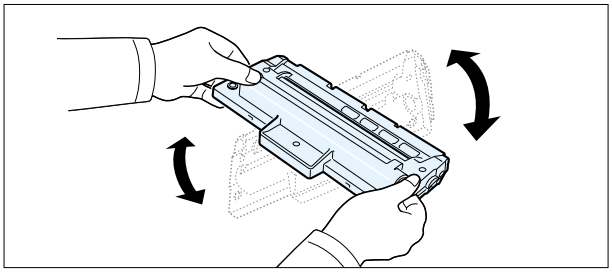


2. Lightly pushing the used cartridge down, pull it out.

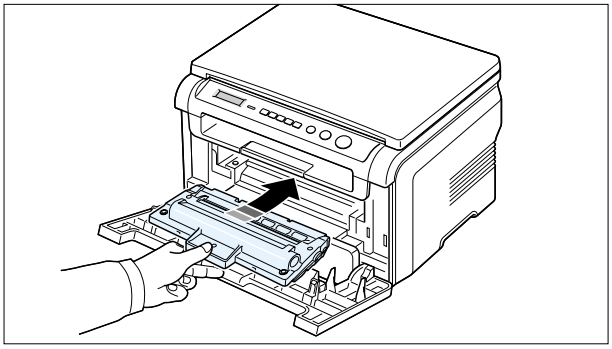


Note : Help the environment by recycling your used toner cartridge. Refer to the recycling brochure packed with the toner cartridge for details.

3. Unpack the new toner cartridge and gently shake it horizontally four or five times to distribute the toner evenly inside the cartridge.



4. Save the box and the cover for shipping. Slide the new toner cartridge in until it locks into place.



6.5.3 Standard of guarantee for consumable parts.

Please refer to User's Manual or Instructions on Printer Consumables SVC manual for the criteria for judging the quality of consumable parts the standard of guarantee on those parts.

- **Spotting a refilled cartridge by eye.**
  One way security screws are used in the manufacture of the cartridge – check if these are damaged.

6.5.4 Signs and Measures of Poor toner cartridge

Fault	Signs	Cause & Check	Solution
Light image and partially blank image (Cartridge life is ended.) 	• The printed image is light or dirty and untidy. • Parts of the image are not printed. • Periodically a "tick tick" noise occurs.	1. If the image is light or dirty and untidy - Shake the toner cartridge and then recheck. OK: Lack of toner, so the life is nearly expired. 2. Some part of image is not printed - Shake the toner cartridge and then recheck. (1)NG: clean the LSU window with a cotton swab, then recheck. (2)OK: Lack of toner, so the life is nearly closed. 3. Periodically a noise like "tick tick" occurs - Measure the time between ticks. 4. White vertical stripes on the whole or part of the page : Shake the toner cartridge and then recheck. OK: Lack of toner, so the life is nearly expired	1. All of 1, 2, 3 If image quality improves by shaking, replace with a new toner cartridge. Perhaps up to 100 pages left before out of toner. 2. For item 2- If image quality improves after cleaning the LSU window then the toner cartridge is normal. (Contamination on the LSU window has caused image quality problems.) 3. For item 3- If the time between ticks is about 2 seconds, the toner inside the toner cartridge is almost exhausted. (Purchase and replace with a new toner cartridge. Perhaps up to 200 pages left before out of toner) 4. For item 3- This is a phenomenon caused by lack of toner, so replace the toner cartridge.
Toner Contamination	• Toner contamination of the printed page at regular intervals down the page. • Random Toner contamination over the whole or large parts of the paper surface.	1. Contamination at regular intervals. (a)Check the distance between contamination marks. (b)Check the appearance of both ends of the toner cartridge OPC drum. 2. Random page contamination. (a) Check that the terminals (contact points) of the toner cartridge and the set are clean. (b) Check that the terminals (contact points) of the toner cartridge and the set are not damaged.	1.(a) Refer to section 6.5 1.(b) If both ends of the OPC drum are contaminated with toner: Check no. of pages printed using this cartridge – perhaps waste toner collector is full. 2. Clean all HV contacts. If the problem persists replace the cartridge.

Fault	Signs	Cause & Check	Solution
White Black spot  	• Light or dark black dots on the image occur periodically. • White spots occur in the image periodically.	1. If light or dark black dots occur at regular intervals this is because the toner cartridge rollers are contaminated with foreign substance or paper particles. (1)37.8mm interval : Charge roller (2)75.5mm interval : OPC cycle 2. If white spots occur in a black image at intervals of 75.5mm, or black spots occur elsewhere, the OPC drum is damaged or foreign substance is stuck to the surface. 3. If a black and white or graphic image is partially broken at irregular intervals, the transfer roller's life has been expired or the transfer voltage is abnormal.	1. For item 1 - Run OPC Cleaning Mode Print 4-5 times repeatedly to remove excess toner. Especially check for foreign substances on the OPC surface Clean with a clean gauze moistened with IPA Isopropyl Alcohol) take care not to damage the OPC surface. ⚠ Never use other forms of alcohol. 2. For Item 2 - If running OPC Cleaning Mode Print 4-5 times does not resolve the problem : at intervals of 37.8mm - place the toner cartridge. : at intervals of 75.5mm – clean OPC drum. 3. For item 3 - Change the transfer roller because the life of the transfer roller has expired. (Check the transfer voltage and readjust if necessary.)
Recycled product	• Poor appearance of the toner cartridge. • Dirty or rough printouts. • Bad background in the image.	1. Poor appearance of the toner cartridge. (a)Check for damage to label and if different materials are used. (b)Check the appearance of parts of the toner cartridge, such as frame, hopper, screws 2. Unclean and rough printouts. (a)Check that the terminals (contact point) of the toner cartridge and the set are clean. (b)Check that the terminals (contact point) of the toner cartridge and the set are not damaged.	1. For Item 1 the cartridge is judged to be a recycled product - (a) If there is any evidence of disassembling the toner cartridge. (b) If materials other than normal parts of the toner cartridge are added or substituted. 2. Clean all HV contacts. If the problem persists replace the cartridge. **Note** If the cartridge is judged to be recycled then these types of problems can occur when the toner cartridge is recycled over 2 times. If 'nearly empty' cartridges are collected for re-use this is judged as recycling the toner cartridge.

Fault	Signs	Cause & Check	Solution
Ghost & Image Contamination	• The printed image is too light or dark, or partially contaminated black. • Totally contaminated black. (Black image printed out) • The density of printouts is too dark and ghost occurs.	1. The printed image is too light or dark, or partially contaminated black. (a) Check if foreign substance or toner are stuck to the terminals (point of contact) of the toner cartridge or set. (b) Check if the terminal assembly is normal. 2. Totally contaminated black. (Black image printed out) (a) Check if foreign substances are stuck to the terminal (point of contact) of the toner cartridge or set. (b) Check if the terminal assembly is normal. (Especially check the charge roller terminal.) 3. The printed image is dark and ghost occurs. (a) Check if foreign substances are stuck to the terminal (point of contact) of the toner cartridge or set. (b) Check if the terminal assembly is normal. (Especially check the developer roller terminal.)	1. All of Items 1, 2, 3 (a) Clean the contacts on the toner cartridge. (b) Clean the contact points on the set. (c) If the terminal assembly is damaged repair or replace the terminals in the set or replace the cartridge 2. In Item 2 This is particularly related to problems with the charge roller contact. Pay close attention to the charge roller contacts. 3. In Item 3 This is particularly related to problems with the developer bias voltage contact. Pay close attention to the charge roller contacts.

6.6 Software Problems – Causes and Solutions

6.6.1 The printer is not working (1)

• **Description** While Power turned on, the printer is not working in the printing mode.

Check and Cause	Solution
1. Run Self-Test Mode: using the menu buttons print the test page. (Menu, Enter, Enter).	1. If the test print works that means there are no problems in the printer itself. If the test printing does not work that means the printer is faulty and the problem is not due to computer software or driver settings.
2. Check that the PC and the printer are properly connected and that the toner cartridge installed correctly.	2. Replace the printer cable. If the problem is not solved even after the cable is replaced, check the amount of the remaining toner. (refer to Toner Cartridge Service 7-6, Page 7-25)
3. Check that the printer cable is directly connected to the printer.	3. If you have other devices that need to share the printer port try temporarily disconnecting these devices 9and perhaps even uninstalling their drivers) to ensure the printer works by itself. If you are using a USB hub try connecting directly to the back of the PC instead.

6.6.2 Abnormal Printing

• **Description** Printing does not work – even after replacing the cable
Printer does not work at all or strange fonts are printed,

Check and Cause	Solution
1. Set up the parallel port using CMOS SETUP.	1. Ensure that ECP (best) or SPP is selected in the CMOS (BIOS) setup.
2. Printer Driver Error.	2. Ensure that the correct driver is loaded. Use the driver supplied on the CD or downloaded from the Samsung web site. DO NOT use the Microsoft driver supplied with the Windows operating system. If the printer is a GDI or SPL type printer ensure that ALL OTHER GDI or SPL drivers are uninstalled as Windows allows only 1 of this type of driver to be loaded.
3. Error message “insufficient memory”. (The printing job sometimes stops due to insufficient virtual memory, this is caused by insufficient space on the hard disk.)	3. Delete any unnecessary files to secure enough space on the hard disk and start the print job again.

6.6.3 SPOOL Error

• **Description**	SPOOL (simultaneous peripheral operations online) is the process Windows uses to manage print jobs. Jobs are processed and then stored on the hard disk until the printer is ready to accept them

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

How to delete the data in the spool manager.

In the spool manager, the installed drivers and the list of the documents waiting to be printed are shown.

Select the document to be deleted and check delete in the menu.

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