

4. Alignment and Adjustments

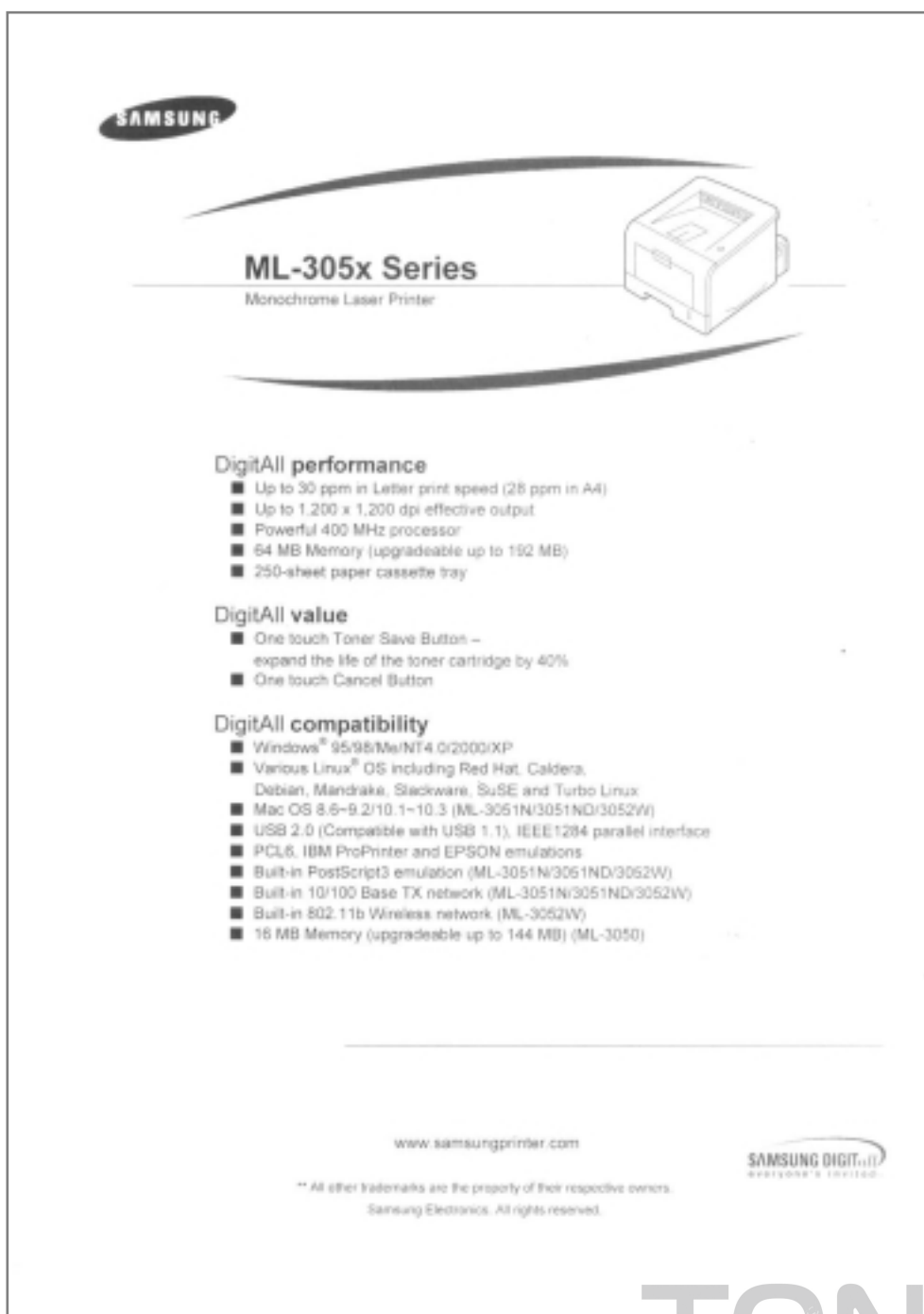
4.1 Sample Pattern

This product has the several sample patterns for maintenance. With the sample patterns, check the existence of the abnormality. The patterns help to regularly maintain the product.

4.1.1 Printing a Demo Page

Print a demo page or a configuration sheet to make sure that the printer is operating correctly.

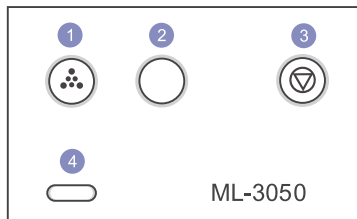
Press the Menu button to selection (In formation -> Demo Page)



4.2 Control Panel

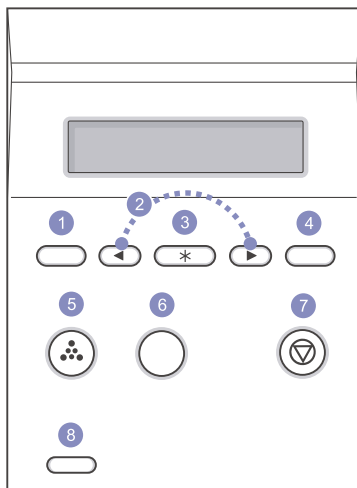
4.2.1 Control Panel

ML-3050



- | | |
|---|---|
| 1 | Toner Save: Allows you to save on toner by using less toner in printing. |
| 2 | Demo: Allows you to print a demo page. |
| 3 | Stop: Stops an operation at any time. |
| 4 | Status: Shows the status of your printer. |

ML-3051N and ML-3051ND



- | | |
|---|--|
| 1 | Menu: Enters Menu mode and scrolls through the available menus. |
| 2 | Scroll buttons: Scroll through the options available in the selected menu, and increase or decrease values. |
| 3 | OK: Confirms the selection on the display. |
| 4 | Back: Sends you back to the upper menu level. |
| 5 | Toner Save: Allows you to save on toner by using less toner in printing. |
| 6 | ML-3051N_Demo: Allows you to print a demo page.
ML-3051ND_Duplex: Allows you to print documents on both sides of the paper. |
| 7 | Stop: Stops an operation at any time. |
| 8 | Status: Shows the status of your printer. |

4.2.2 System setup

This chapter provides step by step information on setting up your printer.

This chapter includes:

- Using control panel menus (ML-3051N, ML-3051ND only)
- Menu overview
- Printing a demo page
- Changing the display language (ML-3051N, ML-3051ND only)
- Using toner save mode

Using control panel menus (ML-3051N, ML-3051ND only)

A number of menus are available to make it easy for you to change the printer settings. The diagram on the next column shows the menus and all of the menu items available in each menu.

Accessing control panel menus

You can control your printer from the printer's control panel. You can also set the control panel menus while the printer is in use.

1. Press Menu until the menu you want appears on the bottom line of the display and press OK.
2. Press the Scroll buttons until the desired menu item appears and press OK.
3. If the menu item has sub menus, repeat step 2.
4. Press the Scroll buttons to access the desired setting option or the required value.
5. Press OK to save your selection.

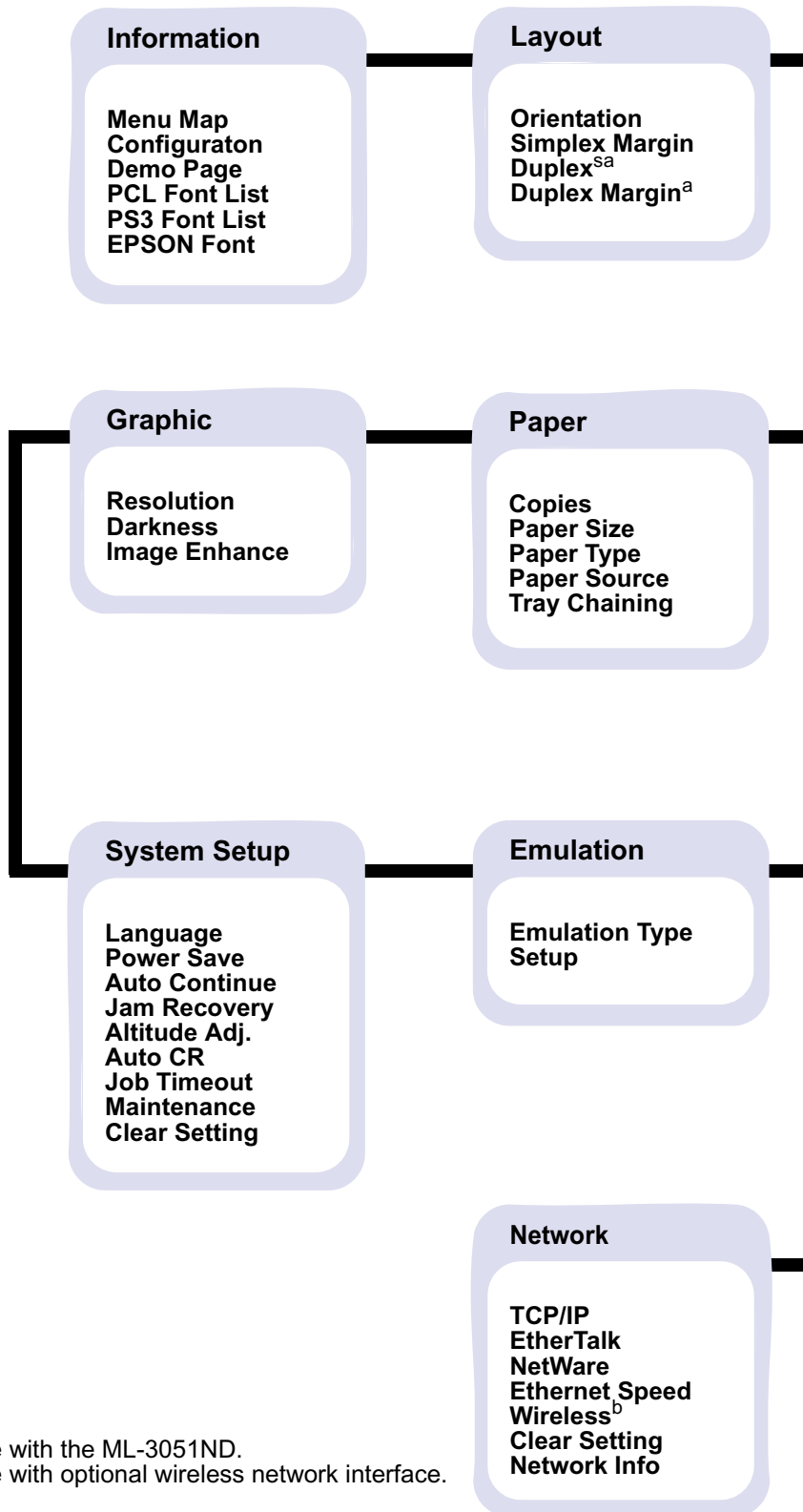
An asterisk (*) appears next to the selection on the display, indicating that it is now the default.

6. Press Stop to return to Standby mode.

After 60 seconds of inactivity (no key being pressed), the printer automatically returns to Standby mode.

4.2.3 Menu overview

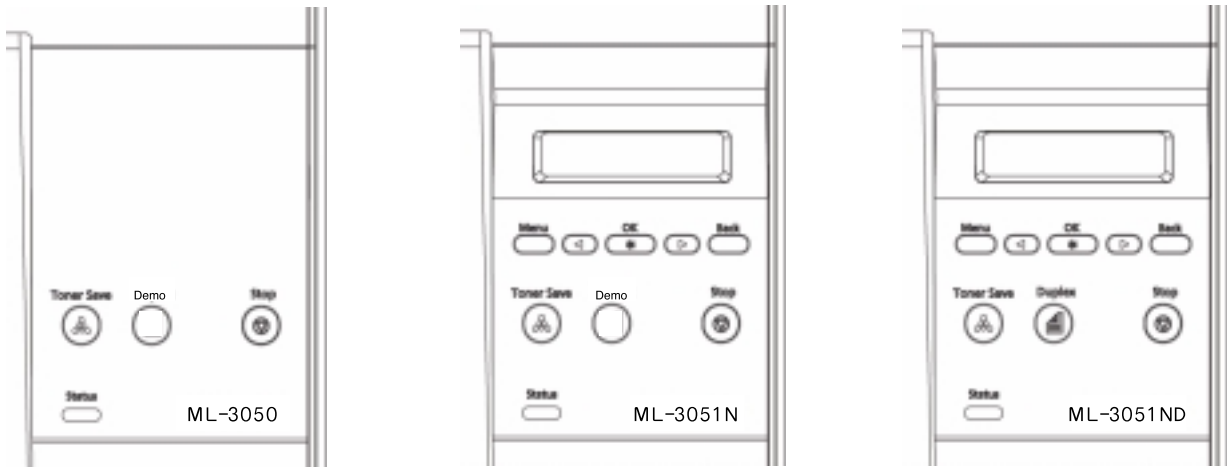
The control panel menus are used to configure the printer. The control panel provides access to the following menus:



a. Available with the ML-3051ND.

b. Available with optional wireless network interface.

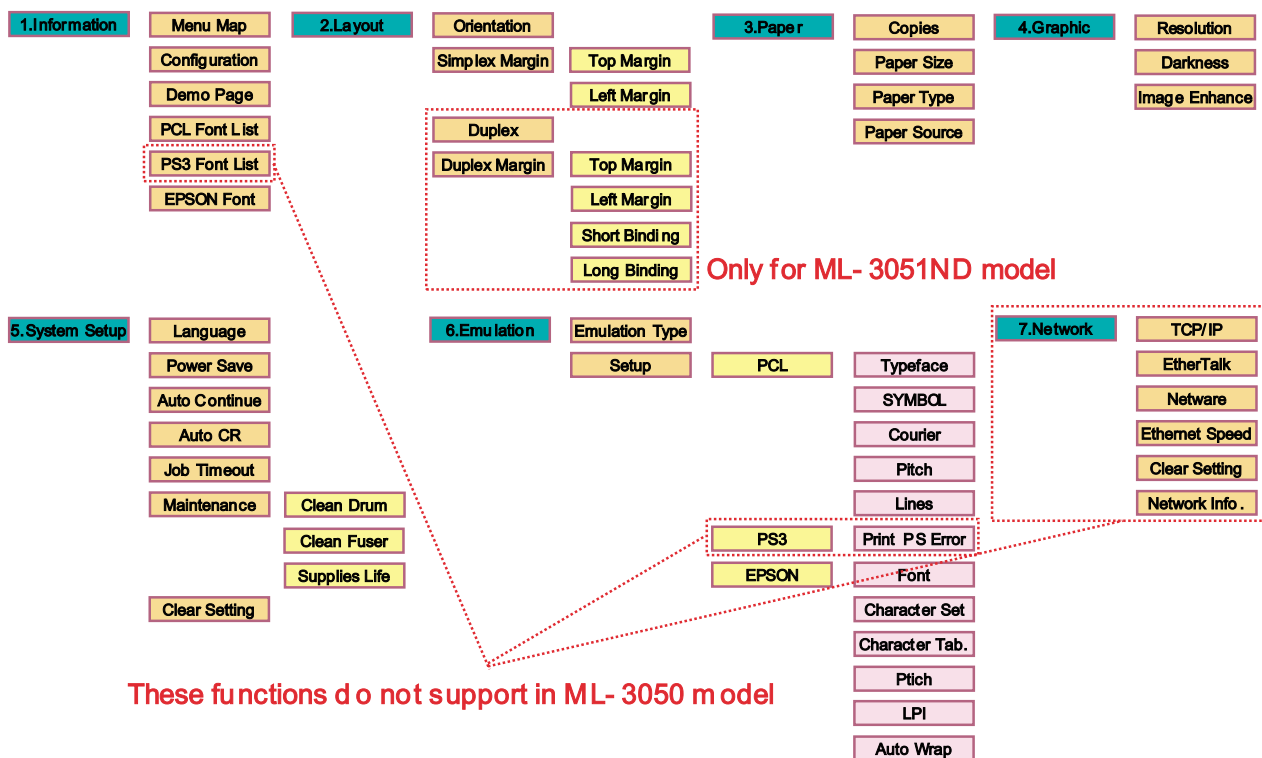
4.2.4 Basic Operation of Panel



Status LED		Description
Off		· Power Off / Sleep Mode (When data receive it'll Wake-up)
Green	On	· Ready status
	Blink	· Blink Slowly : Data Comm. status Blink Fast : Printing status
Red	On	Error which needs user action (Toner Empty, Paper Jam, Paper Empty, Cover Open etc..)
	Blink	· Recoverable Error (Paper Mismatching, Manual printing in MP Tray) · Warning status Warning just like supplies exchange (Toner Low etc.)

Error Type	Legacy models Error	Platform model Error
Recoverable Error	Error which can be recoverable Ex) Jam, Paper Empty, etc.	Error which doesn't need any special user actions Ex) Paper Mismatching, Manual printing in MP Tray
Error	Just like hardware error which can not be fixed even if user does special action Ex) Hsync Error, LSU Error, etc.	Including provider service error which need some special user or provider actions Ex) Toner Empty, Paper Jam, Paper Empty, Cover Open, etc.
Assert behavior	LED model - It shows the lines by LED combination LCD model - It shows the task name and the lines in LCD display	LED model - Not support LCD model - It shows the task name and the lines in LCD display

Operation Map



4.3 Consumables and Replacement Parts

To avoid print quality and paper feed problems resulting from worn parts and to maintain your printer in top working condition the following items will need to be replaced at the specified number of pages or when the life span of each item has expired.

COMPONENT	REPLACEMENT CYCLE
Pick-up Roller	150K Pages
Transfer Roller	70K Pages
Fuser	80K Pages
Toner Cartridge	8K Pages(Sales), 4K Pages(Initial)

4.4 LED Status Error Message

4.4.1 Status LED

Status		Description
Off		<ul style="list-style-type: none"> The printer is off-line and cannot print. The printer is in power save mode. When data is received, it switches to on-line automatically.
Green	On	The printer is on-line and can receive data from the computer.
	Blinking	<ul style="list-style-type: none"> When the backlight blinks slowly, the printer is receiving data from the computer. When the backlight blinks quickly, the printer is receiving and printing data.
Red	On	<ul style="list-style-type: none"> The toner cartridge is totally exhausted. Remove the old toner cartridge and install a new one. A paper jam has occurred. To solve the problem. The front cover is open. Close the front cover. There is no paper in the tray. Load paper in the tray. The printer has stopped printing due to a major error. Check the display message for details on the meaning of the error message.
	Blinking	<ul style="list-style-type: none"> A minor error is occurring and the printer is waiting for the error to be cleared. Check the display message. When the problem is cleared, the printer resumes printing. The toner cartridge is low. Order a new toner cartridge. You can temporarily improve print quality by redistributing the toner.

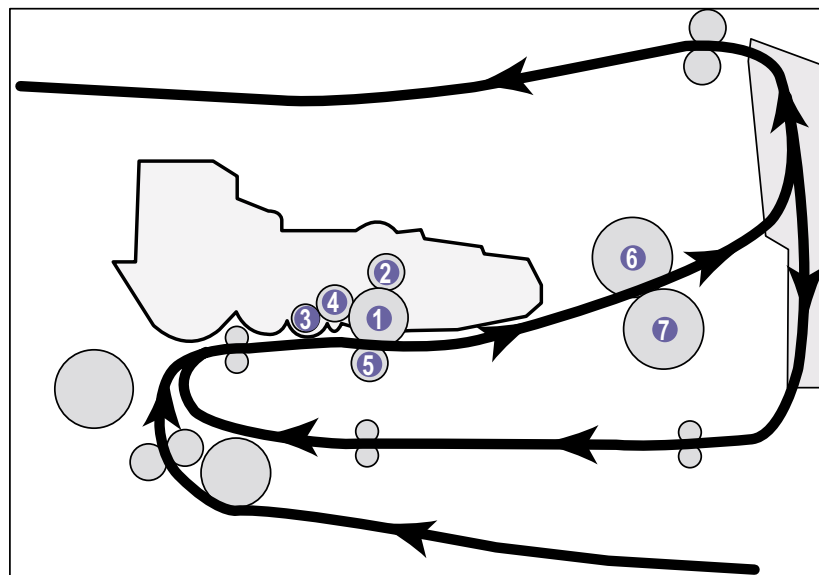
4.4.1 Error Message

Message	Meaning	Suggested solutions
Door Open	The front cover or rear cover is not securely latched.	Close the cover until it locks into place.
Duplex Jam 0 Check Inside	Paper has jammed during duplex printing.	Clear the jam.
Duplex Jam 1 Open/Close Door	Paper has jammed during duplex printing.	Clear the jam.
Fuser Door Open	The fuser door is not securely latched.	Open the rear cover and close the fuser door until it locks into place. For the location of the fuser door.
Install Toner	A toner cartridge is not installed.	Install a toner cartridge.
Invalid Toner	The toner cartridge you have installed is not for your printer.	Install a Samsung-genuine toner cartridge, designed for your printer.
Load Manual Press Stop Key	The multi-purpose tray is empty in manual feed mode.	Load a sheet of print material and press Stop (if you use the ML-3050) or OK (if you use the ML- 3051N or ML- 3051ND). You need to press Stop or OK each page to be printed.
Low Heat Error Cycle Power	There is a problem in the fuser unit.	Replace to Fuser Unit.
LSU Hsync Error Cycle Power	A problem has occurred in the LSU (Laser Scanning Unit).	Replace to LSU Unit.
LSU Motor Error Cycle Power	A problem has occurred in the LSU (Laser Scanning Unit).	Replace to LSU Unit.
Main Motor Locked	There is a problem in the main motor.	Open and then close the front cover.
Open Heat Error Cycle Power	There is a problem in the fuser unit.	Unplug the power cord and plug it back in. If the problem persists, please call for service.
Over Heat Error Cycle Power	There is a problem in the fuser unit.	Unplug the power cord and plug it back in. If the problem persists, please call for service.
Paper Jam 0 Open/Close Door	Paper has jammed in the feeding area of the tray.	Clear the jam.
Paper Jam 1 Open/Close Door	Paper has jammed in the fuser area.	Clear the jam.
Paper Jam 2 Check Inside	Paper has jammed in the paper exit area.	Clear the jam.
Printing...	The printer is printing jobs using the displayed language.	Complete your printing.
Ready	The printer is on-line and ready to printer.	Use your printer.
Replace Toner	This message appears between the Toner Empty and Toner Low status.	Replace the toner cartridge with a new one.
Self Diagnostic...	The engine in your printer is checking some problems detected.	Please wait a few minutes.

Message	Meaning	Suggested solutions
Sleeping...	The printer is on power save mode.	When data is received, it switches to on-line automatically.
Toner Empty	The toner cartridge has run out. The printer stops printing.	Replace the toner cartridge with a new one.
Toner Low	The toner cartridge is almost empty.	Take out the toner cartridge and thoroughly shake it. By doing this, you can temporarily reestablish printing operations.
Tray 1 Paper Empty	There is no paper in the tray 1.	Load paper in the tray 1.
Tray 2 Paper Empty	There is no paper in the optional tray 2.	Load paper in the optional tray 2.

4.5 Abnormal Image Printing and Defective Roller

If abnormal image prints periodically, check the parts shown below.



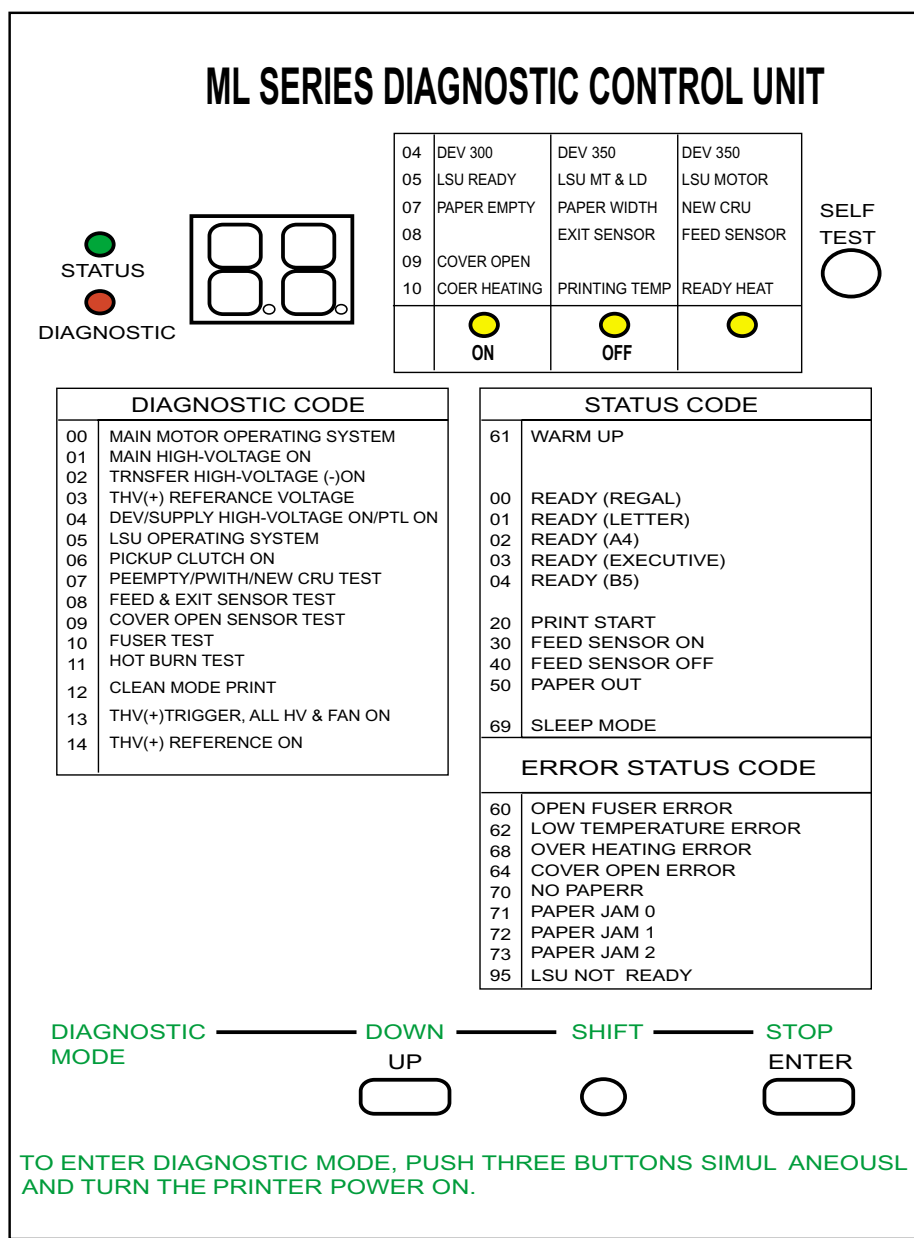
- 1 OPC Drum
- 2 Charge Roller
- 3 Supply Roller
- 4 Developing Roller
- 5 Transfer Roller
- 6 Heat Roller
- 7 Pressure Roller

No	Roller	Abnormal image period	Kind of abnormal image
1	OPC Drum	75.5mm	White spot, Block spot
2	Charge Roller	37.7mm	Black spot
3	Supply Roller	44.9mm	Horizontal density band
4	Develop Roller	35.2mm	Horizontal density band
5	Transfer Roller	47.1mm	Black side contamination/transfer fault
6	Heat Roller	77.8mm	Black spot and fuser ghost
7	Pressure Roller	75.4mm	Black side contamination

4.6 How to use DCU

4.6.1 DCU Setup

You can examine the malfunction of the printer. To perform DCU, open the front discharge cover and leave the connect the harness wire(10 pin/4 pin) to the CN1(ML-3050) of the Main control board.



4.6.2 Code

Connect DCU to the printer and turn the power on. It show 7 Segment FND on the panel and each code tells the function of the printer.

1) Normal Code

While printing or warming up, it indicate the position of the paper

Code	State	Description
61	Warm up	The printer is on, the cover is open or close.
00~05	Ready(kind of paper)	The printer is ready, the paper is detected when the first paper is printed. 00: Legal ,01: Letter ,02: A4 ,03: EXEC ,04: B5 ,05: Folio, 06: A5/A6
20, 21, 22	Print Start	The engine controller received the print order from the video controller. 20: 1st, 21: MP, 22: SCF
30	Feed Sensor On	The paper is passing out of the Feed Sensor.
40	Feed Sensor off	The paper has passed out of the Feed Sensor.
50	Paper Out	The paper has passed out of Exit Sensor.
69	Sleep Mode	The fuser power turned off to minimize the power consumption.

2) Error Code

When detecting the malfunction, the printing is stopped to indicate error code.

Code	State	Description
60, 62, 68	Fuser Error	The error in the fuser occurred. There is a short circuit in the thermistor and the thermostat while printing, Low Temperature Error occurs. • 60: Open Fuser Error • 62: Low Heat Error • 68: Over Heat Error
64	Cover Open	The Printer Cover is open.
65	CRU Error	The Toner Cartridge not installed,
70	No Paper	No paper in the paper cassette.
71	Paper Jam 0	The front part of paper is jammed between pickup unit and Feed sensor.
72	Paper Jam 1	The front part of paper is jammed between the Discharge sensor and Feed sensor.
73	Paper Jam 2	The front part of paper is jammed just after passing through the discharge sensor.
76	Out Bin Full	The Out bin is filled with paper.
95	LSU Not Ready	LSU Scanner Motor not ready or Hsync signal not output.

4.6.3 Self Diagnostic Mode

If Error code occurs due to malfunction of the printer, perform Self Diagnostic Mode to solve the problem.

The printer works only in the self-test mode to solve the malfunction problem.

To enter the self-test mode, turn the power on pressing the buttons of [Down], [Shift] and [Stop] at the same time. Release the button within 2 or 3 seconds if 78 shows in the DCU. If 00 shows in the DCU, press the button [Up] or [Shift] to select the self+test, and press the button of [Enter] to operate. To stop, press the button of [shift] and [Enter] together.

Code	Description
00	Main Motor Operating System Only the main motor is in operation.
01	Main High Voltage On(THV-) -1400 voltage output by MHV terminal. <i>Caution : High voltage probe should be used.</i>
02	Transfer High Voltage(-)On(THV-) -1000 voltage output by MHV terminal. <i>Caution : High voltage probe should be used.</i>
03	Transfer High Voltage (+)Reference on (THV +) +1300 voltage output by MHV terminal. <i>Caution : High voltage probe should be used.</i>
04	DEV/supply High Voltage : DEV/Supply High Voltage Test. The left one of the three LEDs in the self-test panel is on when DEV high voltage Supply high voltage output by each HV terminal. Press the [Up] button to switch the voltage. The middle and right one of the three LEDs are on and -350 voltage output by DEV HV terminal. <i>Caution : High voltage probe should be used.</i>
05	LSU Operating System The scanning motor of LSU is in operation, the right LED of the three buttons on. Press the [Up] button to Check LD. LD is functioning and the middle button is on. If the LD is normal, all LEDs are on.
06	Pickup clutch on The Solenoid in the printer is in operation. To stop the operation, Press the button [shift] and [Enter] together.

Code	Description
07	<p>Paper Empty Sensor Test :</p> <p>If activate the Actuator of the PEMPTY Sensor, the left and right of the three LEDs are on.</p> <p>Paper Empty Sensor ON/OFF 1st LED ON/OFF</p>
08	<p>Feed & Exit Sensor Test</p> <p>Test the Feed sensor and Discharge sensor in the same way as '07'.</p> <p>Feed Sensor ON/OFF 2nd LED ON/OFF</p> <p>Exit Sensor ON/OFF 3rd LED ON/OFF</p>
09	<p>Cover Open Sensor Test</p> <p>Test the Cover Open Sensor in th same way as code '07'</p> <p>Cover Open Sensor ON/OFF 1st LED ON/OFF</p>
10	<p>Fuser Test</p> <p>If the [Enter] button pressed, the right LED is on and temperature of the fuser is up to READY Mode. If the [Up] button pressed, the middle LED is on and temperature of the fuser is up to Printing Mode.</p> <p>If you press the button once more, the left LED is on and temperature of the fuser is up to overheat Mode.</p>
11	<p>Hot Burn Test</p> <p>If the [enter] button pressed, the printer is continuously printing without detection.</p> <p>Turn the power off to stop operation.</p>
12	<p>Cleaning Mode Print Mode</p> <p>Print the paper to clean the OPC Drum in the Cartridge.</p>
13	<p>THV(+) TRIGGER. ALL HV :</p> <p>All high voltage output by each HV terminal and LSU and the fan is in operation. In this mode, electronic resistance of transfer roller and high voltage is detected.</p>
14	<p>PTL Test : (ML-1610 : not design)</p> <p>Indicates the function of the PTL, same method of the code '07'.</p>
15	<p>Fan Test :</p> <p>Indicates the function of the Fan, same method of the code '07'.</p>
16	<p>Manual Pickup Test :</p> <p>Indicates the function of th Manual Pickup, same method of the code '07'.</p>
17	<p>Manual Sensor Test :</p> <p>Indicates the function of the Manual Sensor, same method of the code '07'.</p>

No.	Function	Enter	Up/Down		Stop	Remark
00	Motor	Motor Run			Motor Stop	
01	MHV	Mhv On			Mhv Off	-1300V
02	THV(-)	Thv Negative On			Thv Negative Off	-1000V
03	THV(+)	Thv On			Thv Off	+1300V
04	DEV	Dev On	Supply	DEV	Dev Off	-350V
			0 : -550V	0 : -350V		
05	LSU	LSU Run	● On	● Off	● Ready	LSU Stop 020mV
06	PickUp	Pickup On			Pickup Off	
07	PEmpty		● Paper	● Empty	●	
08	Sensor		●	● Exit	● Feed	
09	Cover		● Cover	● Open	●	
10	Fuser	Fuser On			Fuser Off	
11	Hot Burn	Hot Burn On				
12	Clean Print	Clean Printing				
13	Thv Reference		● low	● adequate	● high	
14	PTL	PTL On			PTL Off	PTL No
15	FAN	Fan On			Fan Off	
16	Manual Pickup	Manual Pickup On			Manual Pickup Off	
17	Manual Sensor		● Manual	● Sensor	●	

<DCU Function Table>

4.6.4 Self Test Button

If the Self-Test button pressed, vertical lines are printed.

Turn the power on while pressing this button, '89' shows in the DCU and the printer is warming up. After warming-up the printer is in READY Mode, and '88' shows in the DCU. In this mode, without any detection, the printer begins printing(trial printing and data from the PC). It is convenient to use this mode when the engine malfunction is detected in the control board.

4.7. Paper Jam

4.7.1 Clearing paper jams

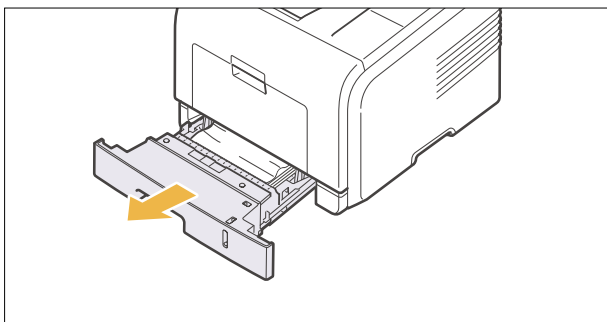
Message	Location of Jam
Paper Jam 0 Open/Close Door	In the paper feed area (tray 1, optional tray 2, multi-purpose tray)
Paper Jam 1 Open/Close Door	Around the toner cartridge Check Inside In the paper exit area
Paper Jam 2 Duplex Jam 0 Check Inside a	In the duplex area
Duplex Jam 1 Open/Close Door ^a	Between the duplex unit and fuser area

a. ML-3051ND only

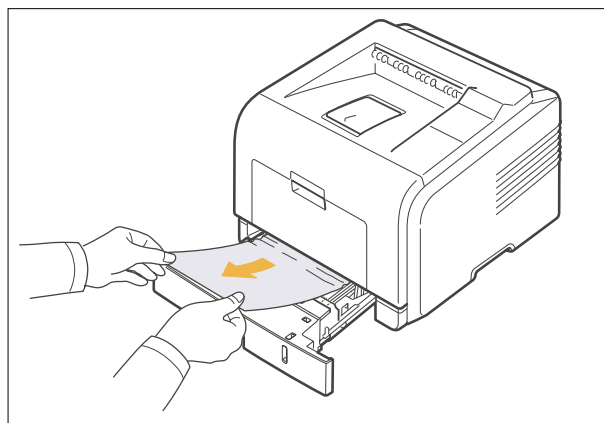
4.7.2 In the paper feed area

In the tray 1

1. Pull the tray 1 open.



2. Remove the jammed paper by gently pulling it straight out. Make sure that all of the paper is properly aligned in the tray 1.

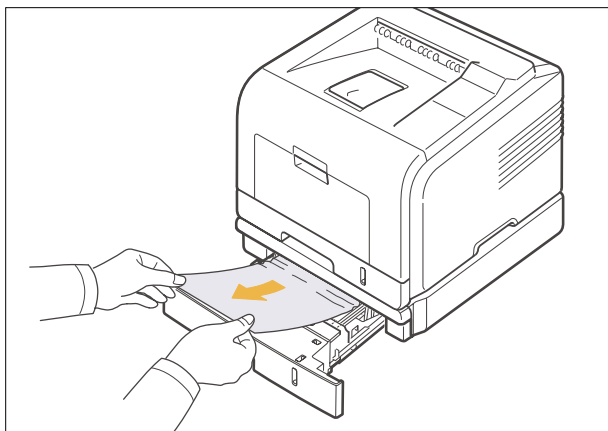


If the paper does not move when you pull, or if you do not see the paper in this area, check the fuser area around the toner cartridge.

3. Insert the tray 1 into the printer until it snaps into place. Printing automatically resumes.

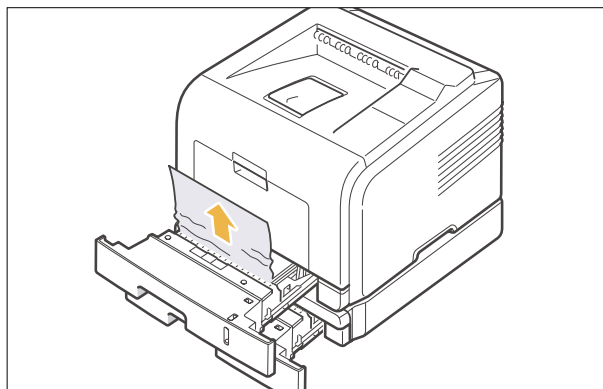
In the optional tray 2

1. Pull the optional tray 2 open.
2. Remove the jammed paper from the printer.



If the paper does not move when you pull, or if you do not see the paper in this area, stop and go to step 3.

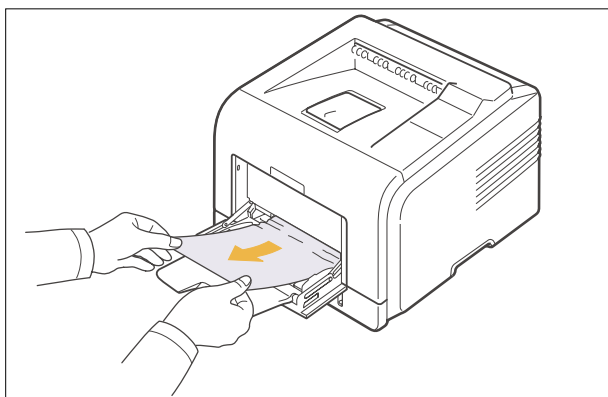
3. Pull the tray 1 half.
4. Pull the paper straight up and out.



5. Insert the trays back into the printer. Printing automatically resumes.

In the multi-purpose tray

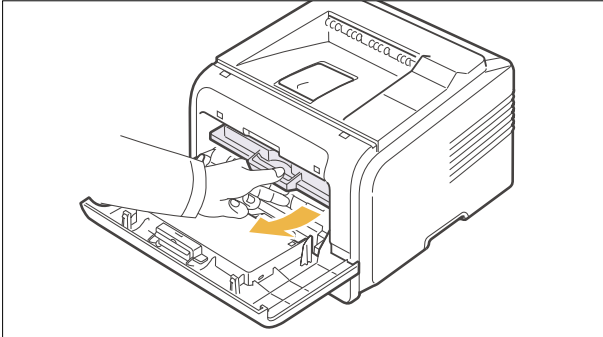
1. If the paper is not feeding properly, pull the paper out of the printer.



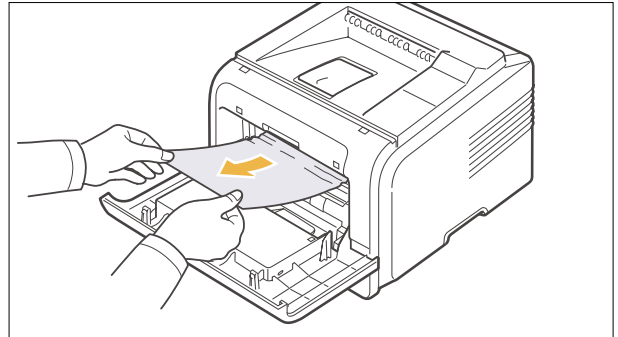
2. Open and close the front cover to resume printing.

4.7.3 Around the toner cartridge

1. Open the front cover and pull the toner cartridge out.



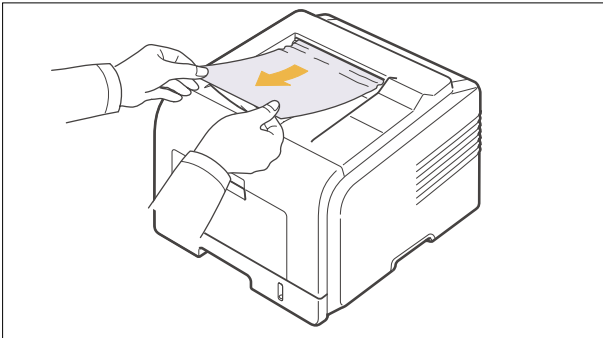
2. Remove the jammed paper by gently pulling it straight out.



3. Replace the toner cartridge and close the front cover. Printing automatically resumes.

4.7.4 In the paper exit area

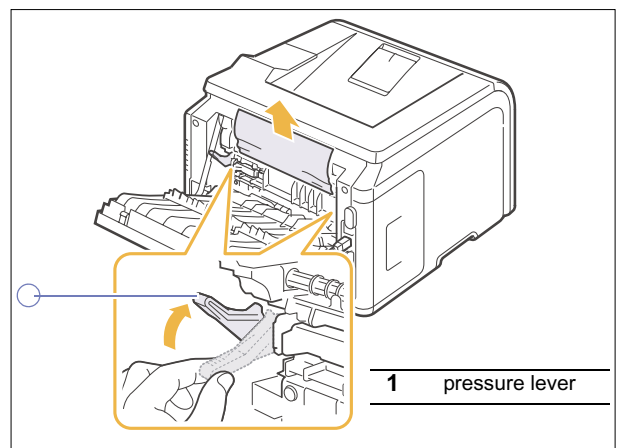
1. Open and close the front cover. The jammed paper is automatically ejected from the printer.
2. Gently pull the paper out of the output tray.



If you do not see the jammed paper or if there is any resistance when you pull, stop and go to the next step.

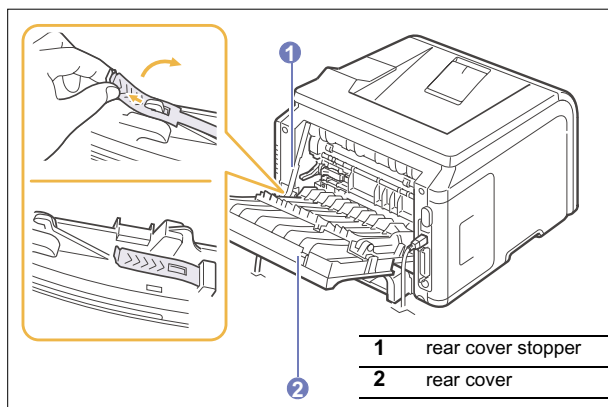
3. Open the rear cover.

4. If you see the jammed paper, push the pressure lever on each side up and remove the paper. Return the pressure lever to its original position and skip the step 10.

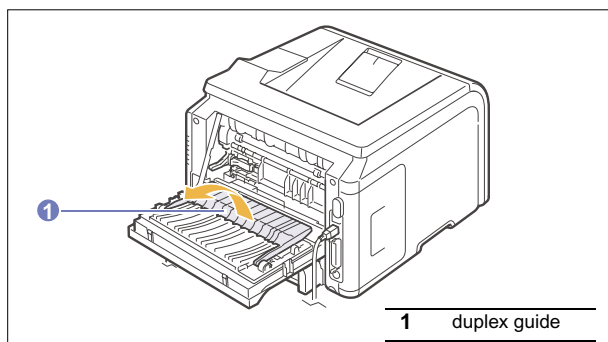


If you still do not see the paper, go to the next step.

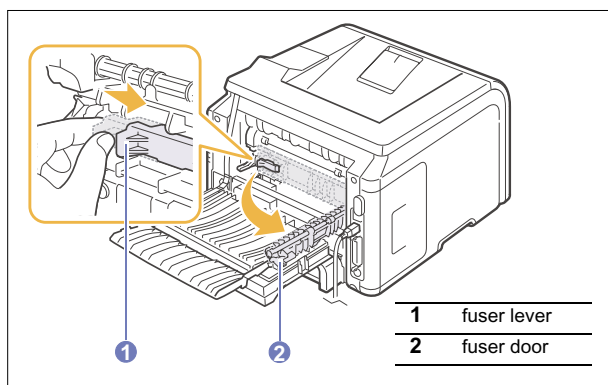
5. Release the blue strap, the rear cover stopper, and fully open the rear cover, as shown.



6. Unfold the duplex guide fully.

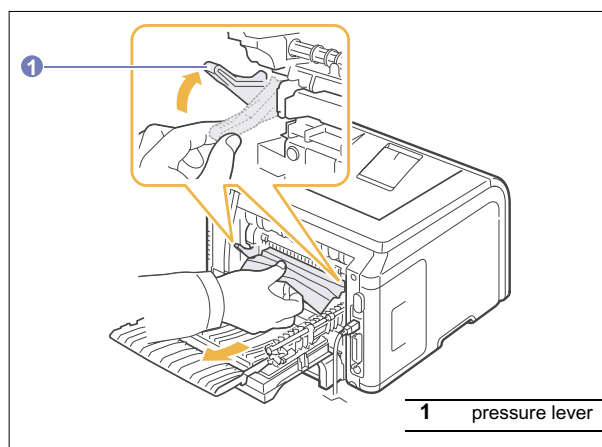


7. While pushing the fuser lever to the right, open the fuser door.



8. Pull the jammed paper out.

If the jammed paper does not move when you pull, push the pressure lever on each side up to loose the paper, and then remove it.



9. Return the lever, door, stopper, and guide to their original position.

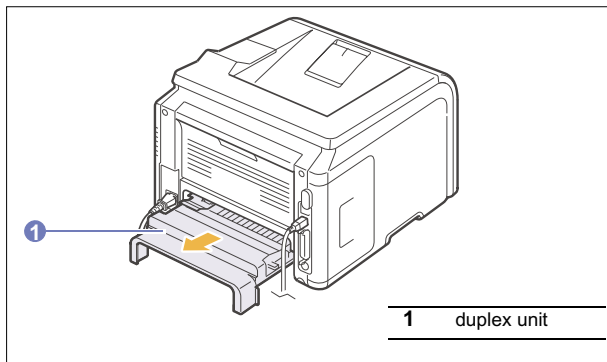
10. Close the rear cover. Printing automatically resumes.

4.7.5 In the duplex unit area (ML-3051ND only)

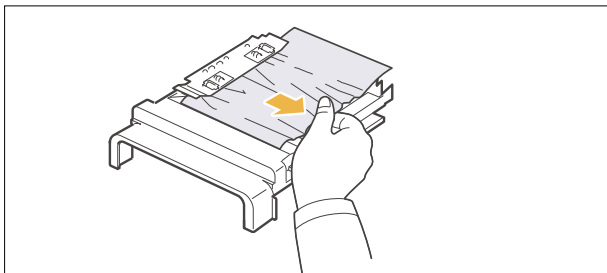
If the duplex unit is not inserted correctly, paper jam may occur. Make sure that the duplex unit is inserted correctly.

Duplex jam 0

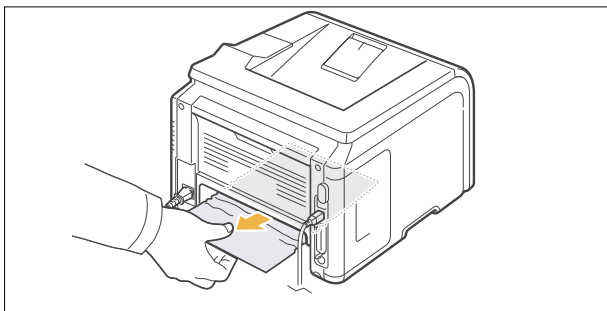
1. Pull the duplex unit out of the printer.



2. Remove the jammed paper from the duplex unit.

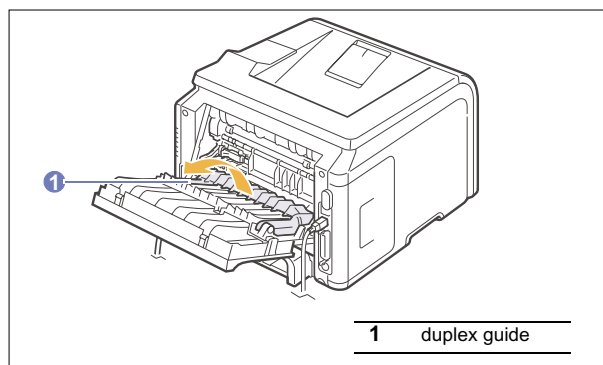


If the paper does not come out with the duplex unit, remove the paper from the bottom of the printer.

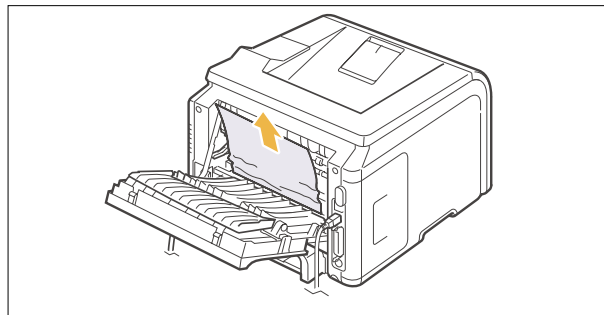


Duplex jam 1

1. Open the rear cover.
2. Unfold the duplex guide fully.



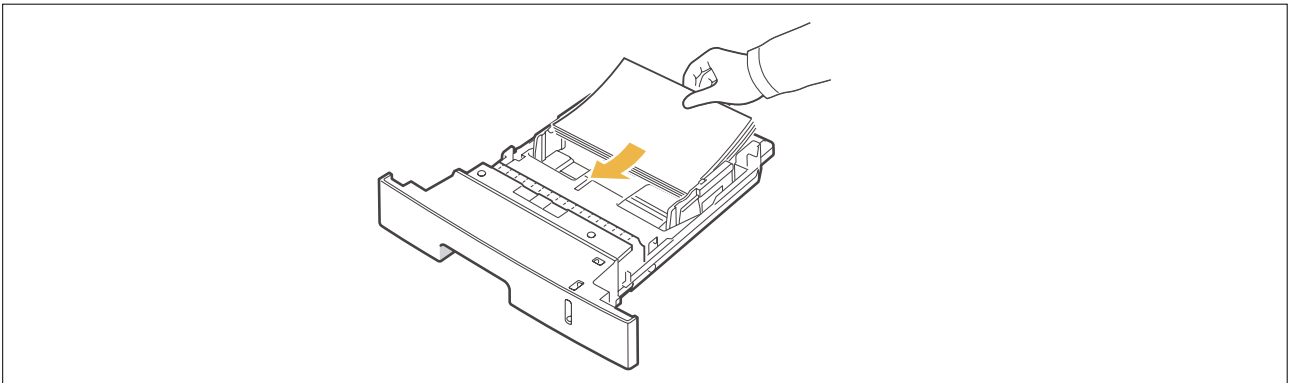
3. Pull the jammed paper out.



4.7.6 TiPs for avoiding paper jams

By selecting the correct media types, most paper jams can be avoided.

- Follow the procedures on page 5.5. Ensure that the adjustable guides are positioned correctly.
- Do not overload the tray. Ensure that the paper level is below the paper capacity mark on the inside wall of the tray.
- Do not remove paper from the tray while your printer is printing.
- Flex, fan, and straighten paper before loading.
- Do not use creased, damp, or highly curled paper.
- Do not mix paper types in a tray.
- Use only recommended print media.
- Ensure that the recommended print side of print media is facing down in the tray, or facing up in the multi-purpose tray.
- If paper jams occur frequently when you print on A5-sized paper: Load the paper into the tray with the long edge facing the front of the tray.



In the printer properties window, set the page orientation to be rotated 90 degrees.

4.8 Download & Reset F/W

Firmware download method		
Normal Download method	LED Panel	<ol style="list-style-type: none"> 1. In Dos Prompt types "Usblist2 [Rom file name]" and Press Enter 2. Status LED Slow blink 3. Status LED & Toner Save LED are both blink 4. When download complete, set will be automatically power On/Off and it'll Warming Up
	LCD Panel	<ol style="list-style-type: none"> 1. In Dos Prompt types "Usblist2 [Rom file name]" and Press Enter 2. In LCD "Flash Upgrade..." message will be show up. 3. In LCD "Update Image Please Wait..." message will be show up. 4. When download complete, set will be automatically power On/Off and it'll Warming Up
Boot Download method	LED Panel	<ol style="list-style-type: none"> 1. While Pressing Stop key, Power On the Printer 2. In Dos Prompt types "Usblist2 [Rom file name]" and Press Enter 3. Status LED ; Slow blink 4. Status LED & Toner Save LED are both blink 5. When download complete, set will be automatically power On/Off and it'll Warming Up
	LCD Panel	<ol style="list-style-type: none"> 1. While Pressing Stop key, Power On the Printer 2. After verify the message "Download Mode Press Stop key" Press Stop Key 3. Verify the message "Download Mode Please Send IMG..." 4. In Dos Prompt types "Usblist2 [Rom file name]" and Press Enter 5. In LCD "Update Image Please Wait..." message will be show up. 6. When download complete, set will be automatically power On/Off and it'll Warming Up
Reset method		
LED Panel		<ol style="list-style-type: none"> 1. In LCD "Update Image Please Wait..." message will be show up. 2. Status LED Slow blink Fast blink then print out configuration page 3. Check the OS version and total page value is "0" 4. Please set power On/Off
LCD Panel		<ol style="list-style-type: none"> 1. In LCD "Update Image Please Wait..." message will be show up. 2. In LCD message Ready Printing then print out configuration page 3. Check the OS version and total page value is "0" 4. Please set power On/Off