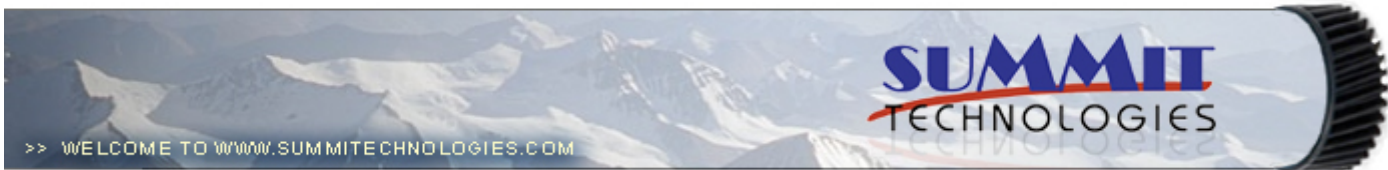


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Remanufacturing the Samsung ML-1610 Toner Cartridge



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Remanufacturing the Samsung ML-1610 Toner Cartridge

0365

OVERVIEW



First released in July 2005, the Samsung ML-1610 printers are based on a 15ppm, 600dpi engine.

SUMMIT TECHNOLOGIES

These cartridges are based on a completely new engine/cartridge design. The cartridges have a huge handle that folds over the cartridge when installed. Taking them apart is a bit different as well. The good news here is that there is a fuse instead of a chip used to reset the machine.

These cartridges do not have a drum cover, and come new with a piece of heavy paper taped around the cartridge. All new cartridges opened so far have shown some toner leakage on the drum that would have shown on any prints. See Figure 1

The replacement cartridge it self is rated for 2,000 pages at 5% coverage. As of July 2005, the Samsung version is not sold in the United States. In fact, Canadian web sites offer them, but cannot sell them into the US. The new Dell laser printer 1100, and the soon to be released Xerox Phaser 3117 are also based on this engine. It's my guess that Dell has an arrangement with Samsung that restricts them from selling the printers into the US, (at least for a while). The starter cartridge is rated for 1000 pages. The Xerox machine has not been released yet so we do not have any further information on availability yet.

PRINTER	CARTRIDGE
Samsung ML-1610	ML-1610D2
Dell LaserPrinter 1100	310-6640 (GC502)
Xerox Phaser 3117	Not released as of 7/05

Figures 2 & 3 show the differences between the starter Dell cartridge and the replacement Dell cartridge.

Most likely, the Samsung version will have a slot or tab located in a different place so that they cannot be used in a Dell machine, but we could not get one in time to confirm this.

With the Dell machines selling for \$99.00, and the replacement cartridges selling for \$68.00 each,(July 2005). This will be a very popular machine, and there will be I think a large demand for remanufactured cartridges. The Samsung machine are selling for a bit more, but they also have more features like running at 16ppm VS 15ppm, toner save and a better featured printer driver which offers overlays, watermarks, and multiple pages/page printing.



Figure 2



Figure 3

SUPPLIES REQUIRED	
--------------------------	---

- Samsung 1610 Toner 75g
- Conductive Grease
- Drum lubricating powder

1) Place the cartridge with the handle facing away from you. Remove the 2 screws on the left end cap. See Figure 4

2) Gently pry off the left end cap. See Figure 5

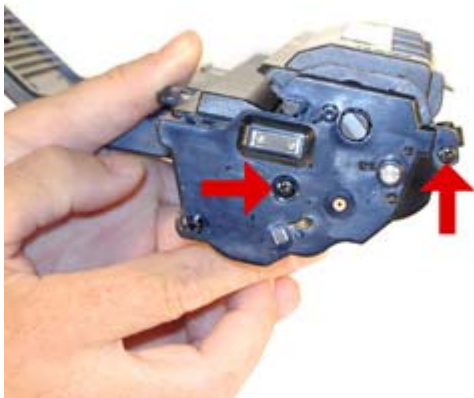


Figure 4



Figure 5

3) On the front edge of the cartridge, there are two screws, remove them. See Figure 6

4) Lift up and remove the waste chamber from the cartridge. Make sure the tab on the right side slide out of the slot. If you try to lift the cover off with out sliding the tab out, it will break off. See Figure 7



Figure 6



Figure 7

5) Remove the two screws and wiper blade from the waste chamber. See Figures 8 & 9



Figure 8



Figure 9

6) Clean out any remaining toner from the waste chamber.

7) Re-install the wiper blade and two screws. Place the waste chamber aside. See Figure 10

8) Remove the two screws from the right side end cap. Carefully pry off the end cap. See Figure 11



Figure 10

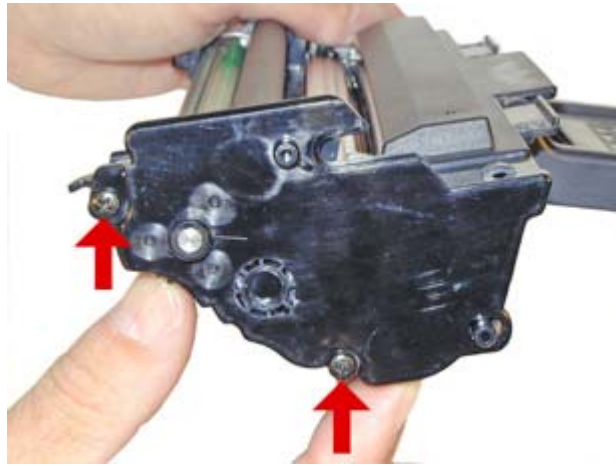


Figure 11

9) Remove the 4 gears, and place aside. See Figure 12

10) Slide the PCR away from the contact side, lift up and remove. See Figure 13

Clean the PCR with your normal PCR cleaner.

WARNING: Do not clean the OEM PCR with alcohol, as this will remove the conductive coating from the roller. If the PCR is an aftermarket, follow the cleaning methods recommended by the manufacturer. If the PCR is an OEM, we recommend it be cleaned with your standard PCR cleaner.

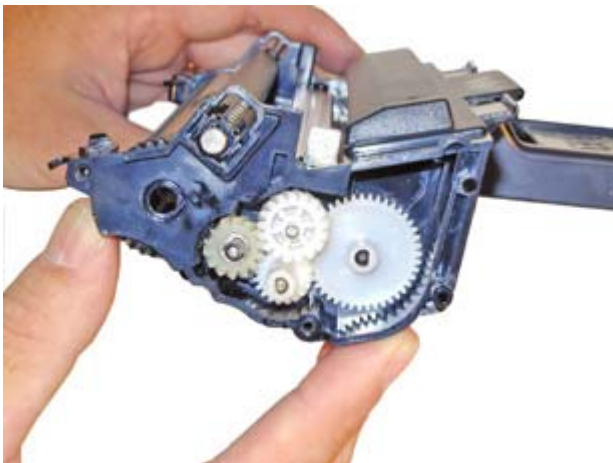


Figure 12



Figure 13

11) Remove the OPC drum. See Figure 14

12) Carefully pry out the fill plug. It fits tight and is easily damaged. Work a small jewelers screwdriver around the edge until the plug comes free. See Figure 15

13) Clean out any remaining toner from the hopper.



Figure 14



Figure 15

14) Gently pry out the roller plate from the cartridge by pressing in on a tab located on the bottom of the cartridge. There is a spring that is in contact with the developer roller shaft. Move the tail of the spring up so that as the plate is lifted out, it will fall behind it. See Figure 16

16) Remove the Developer Roller by lifting it out. See Figure 17

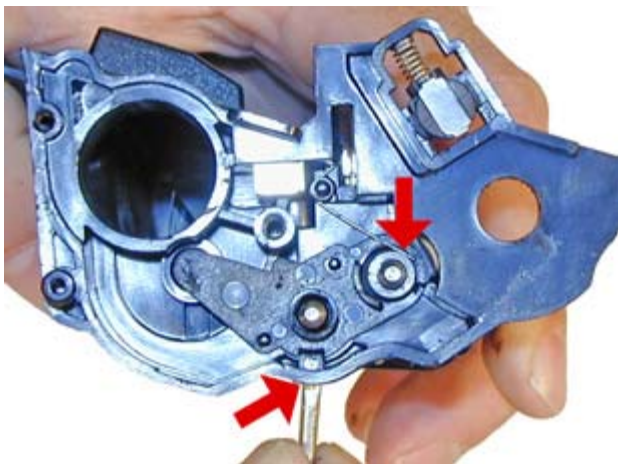


Figure 16



Figure 17

17) Remove the 2 screws on the doctor blade. On the fill plug side of the blade, there is the other tail of the spring. Lift it up while removing the doctor blade so it is not damaged. See Figures 18 & 19

It is highly recommended that the Doctor Blade be cleaned. Failure to do so will cause streaking. Dampen a cotton swab with alcohol, and clean the blade. Be careful not to press too hard and damage the blade. If the blade has a heavy buildup of toner on it, clean it with Acetone, and then alcohol.

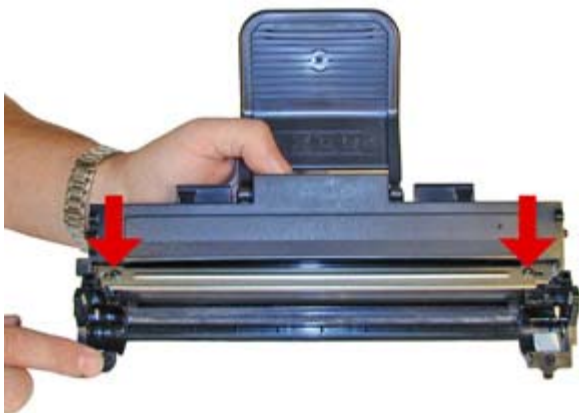


Figure 18

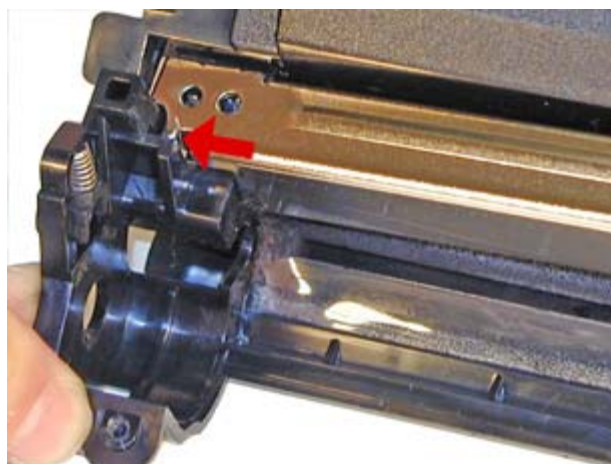


Figure 19

18) Clean the feed roller and any remaining toner from the hopper. See Figure 20

19) Re-install the doctor blade and two screws. Make sure the tail of the spring fits into the proper slot. See Figures 21 & 22

20) Install the developer roller, keyed end to the gear side of the cartridge. See Figure 23



Figure 20

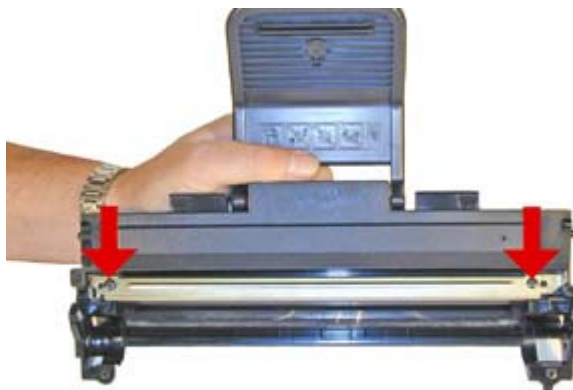


Figure 21

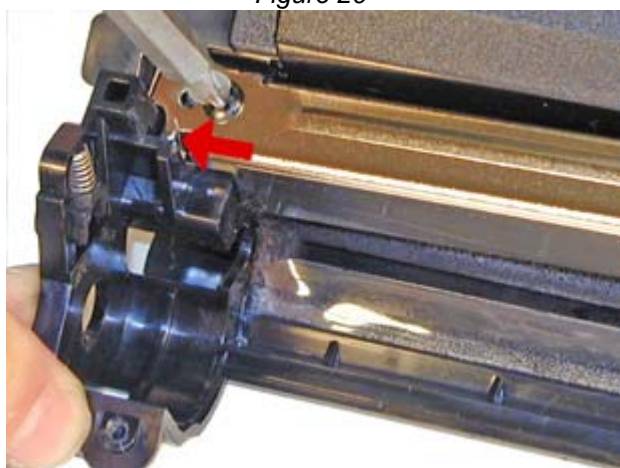


Figure 22



Figure 23

21) Install the roller plate. Route the tail of the spring so that it sits on top of the plate and is in contact with the shaft of the developer roller. Lock the plate in place with the tab. See Figures 24 & 25

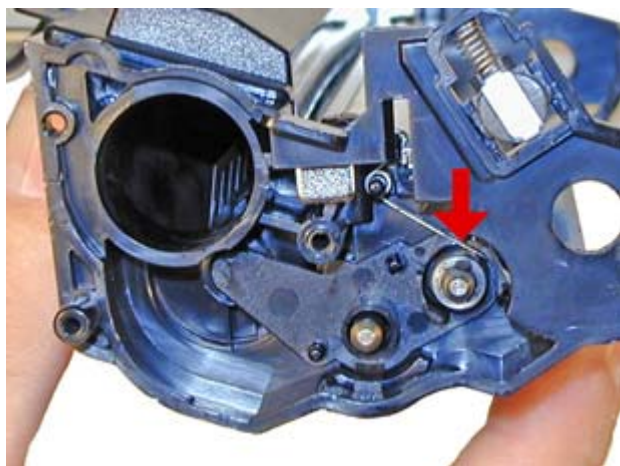


Figure 24



Figure 25

23) Install the 4 gears as shown. See Figure 26

24) Install the drum in place. See Figure 27

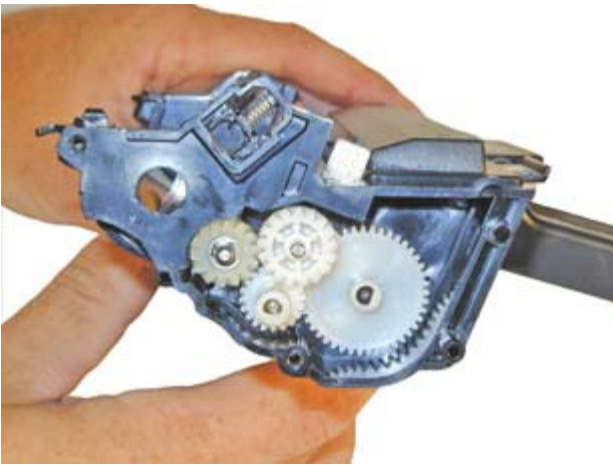


Figure 26



Figure 27

25) Clean out the old conductive grease from the PCR contact hub and replace with new. A small amount of grease is fine, more is not better when it comes to conductive grease. See Figure 28

26) Install the PCR by sliding it through the non contact side, and into the contact hub. See Figure 29



Figure 28



Figure 29

27) Fill the hopper with the appropriate toner. Replace the fill plug, check for leaks. See Figure 30

28) Install the gear side end cap, and 2 screws. Make sure the PCR fits correctly in its holder, and all the gears are aligned. See Figure 31



Figure 30



Figure 31

29) Install the waste chamber by sliding the tab through the slot in the end cap. Rotate it down, and install the two screws. See Figure's 32 & 33

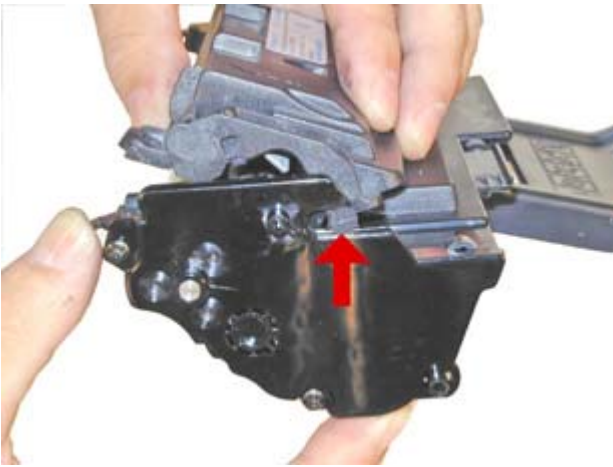


Figure 32

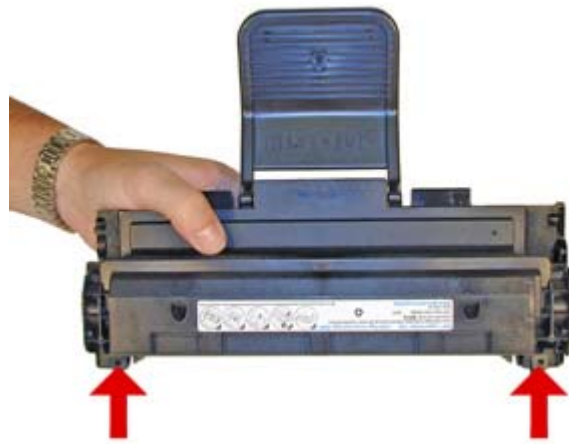


Figure 33

30) Install the remaining end cap and two screws. Make sure the end cap sits flush with the rest of the cartridge. See Figures 34 & 35

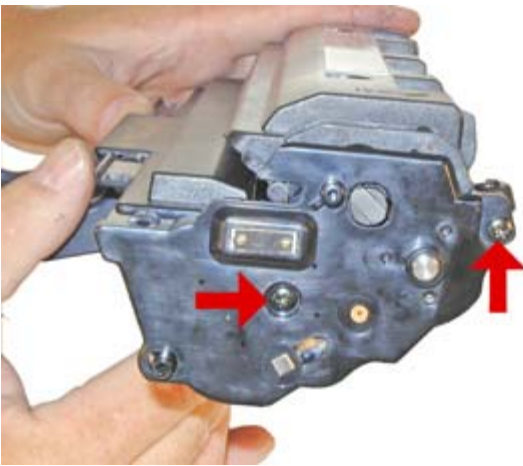


Figure 34

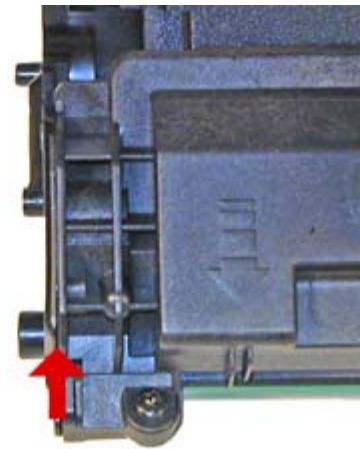


Figure 35

31) Replace the fuse located on the right front of the cartridge (with the handle away from you. Start cartridges do not have a fuse at all, but the holding tabs are there. The fuse is a 63mA 250V fast acting 5 x 20mm glass type. See Figure 36

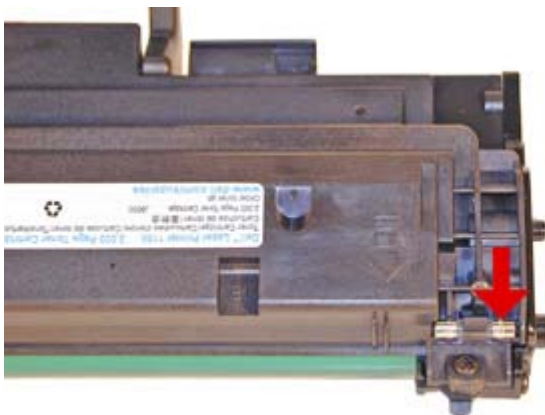


Figure 36

TOOLS REQUIRED



- Toner approved vacuum
- A small Common screw driver
- A Phillips head screwdriver

- Needle Nose Pliers

CARTRIDGE TROUBLESHOOTING



Repetitive Defect Chart

PCR 38mm
 Developer Roller 44mm
 OPC Drum 75mm

A **Dirty or Bad Primary Charge Roller (PCR)**; located Inside the cartridge, this will show on the test print as vertical gray streaks down the page, as a gray background throughout the page, as ghosting where part of a previously printed area is repeated, or as a mark that repeats every 38mm.

Dirty PCR Connection; This will show as horizontal dark black bars across the page, or as shading throughout the page.

Scratched Drum; This is shown by a very thin, perfectly straight line that runs from the top to the bottom of the test page.

Chipped Drum; This will show as a dot or series of dots that repeat every 75mm.

Light Damaged Drum; This will show up as a shaded area on the test print that should be white. Again this will repeat every 75mm.

Bad Wiper Blade; This will show as either a gray line approximately 1/8" thick, or as shading across the entire page. In either case there will be a film of toner on the drum surface.

Bad Developer Roller; This will show up as light print or as a mark that repeats every 44mm

Machine Error Codes:

These machines do not have a display panel. They use a series of LED's to indicate a problem. There are two lights on the control panel, the POWER, and the ERROR lights. The POWER light is a Green LED, and the ERROR LED is a two color LED, Red and Orange.

The user manual for these machines only has very basic information listed as follows:

If both lights are blinking, the machine has problems and needs service. (Helpful isn't it!)

If the Error light is on steady red, and the power light is off, there could be a number of problems. Either there is a paper jam, the front cover is open, or the toner cartridge is not installed.

If the Error light is blinking orange, the printer is set to manual feed, and there is no paper in the tray.

If the Error light is on steady in Orange, that is the toner low message.

PRINTING TEST PAGES



Demo Page

Press and hold the "X" button for 2 seconds until both LED's blink. A demo page will print out

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