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Samsung ML-2150 Toner Cartridges

DOC-0329

OVERVIEW



The Samsung ML-2150 series of printers are based on a Samsung 21 ppm, 1200 dpi engine. These cartridges from the outside seem to be a beefed up version of the P8e. From the inside however, they are completely different.

Unfortunately with this cartridge (ML-2150D8/XAA), Samsung has joined the Dark Side, and now uses a chip. Testing is still ongoing, but the early indications are that the chip is a cross between HP and Lexmark. The chip controls all the toner low functions (HP) as well as eventually shutting the cartridge down (Lexmark). In our tests so far, both the starter and the standard cartridge can be refilled twice*. After that, the display on the printer states to change the cartridge. Only one page at a time will print from that point. Toner low shows the entire time, but the printer prints normally. The starter cartridge is rated for 4K pages, while the Standard cartridge is rated for 8K pages. We are just starting to evaluate the code on this chip so we do not know if the chip is page count driven or not.

*For our initial tests, we put in 90g to match the OEM 4K cartridge, and 160g in the standard 8K cartridge. If you put in the full 160g in a starter, the chip in all likely hood will only last one cycle. Standard cartridge chips so far have printed roughly 2 1/2 cycles (22,000 pages) not counting the OEM cycle before the chip stopped. The Starter cartridge ran for just under 12,000 pages (not counting the OEM) before the chip stopped.

We are actively working on a chip solution for this (Sept. 2003), and will hopefully have it available as you read this. Other than the chip, I really like these machines. With speeds of 21ppm, and the base printer selling for \$370.00, they are selling very quickly. The cartridge lists for \$179.99 so there is plenty of room for a decent profit.

REQUIRED TOOLS



- Toner approved vacuum.
- A small Common screw driver
- #1 Phillips head screwdriver
- Needle nose pliers
- Spring Hook

REQUIRED SUPPLIES



- ML-2150 toner, 160g (For 8k cartridge)
- iper Blade (Check for availability)

- OPC Drum (Check for availability)
- Kynar padding powder
- PCR Cleaner
- Conductive grease

DISASSEMBLY



1. Clean the exterior of the cartridge.
2. Place the cartridge with the handle facing up. Remove the top 2 screws. See Figure
3. Tilt the hopper away from the screw holes and remove. Vacuum both the hopper and cartridge clean. See Figure 2



FIGURE 1



FIGURE 2

4. Locate both the drum cover arms and gently pry them off. Try to keep the springs on the arms to make re-assembly easier later. See Figures 3 & 4



FIGURE 3



FIGURE 4

5. Remove the two screws on the Waste chamber. Lift the waste chamber off the cartridge. See Figure 5 & 6
6. On the waste chamber, remove the two screws on the PCR clips. Remove the clips, and the PCR/PCR Cleaner. This cartridge also has a built in PCR Cleaner. Make sure you note the orientation of the PCR as each side is different. See Figure's 7 & 8



FIGURE 5



FIGURE 6



FIGURE 7



FIGURE 8

7. Remove the two screws on the wiper blade. Remove the blade. Figure 9
8. Clean out the Waste chamber.

NOTE: Be very careful not to damage or distort the thin Mylar Recovery Blade next to the wiper blade. If this blade is bent or damaged in any way, it should be replaced

9) Clean the PCR and PCR Cleaner. The PCR Cleaner should only be cleaned with clean dry compressed air, or Vacuuming. No chemicals should be used.

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

10) Re-install the Wiper Blade. New blades are at the time of this writing not available, but the OEM will easily last another cycle.

9. Reinstall the PCR/PCR Cleaner, clips, and screws. Put the entire assy. aside. See Figure 10
10. Remove the Four screws on the right side end cap. The fourth brass colored screw is a machine threaded screw that holds the drum axle in place. Remove the end cap. If the gold colored screw spins, press in on the drum gear, and the screw will come loose. See Figure 11.
11. Remove the three screws on the left side end cap. Remove the end cap. See Figure 12.



FIGURE 9

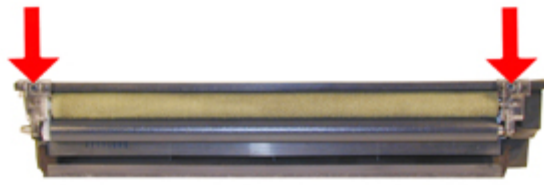


FIGURE 10

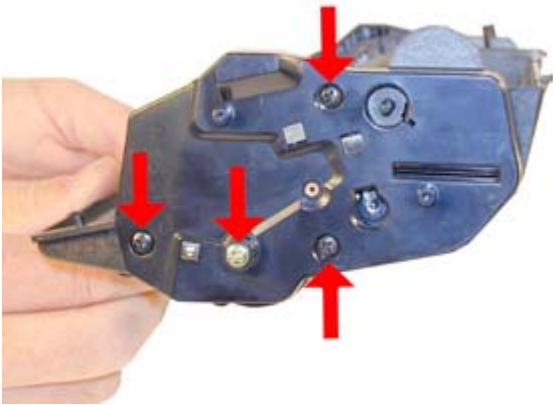


FIGURE 11



FIGURE 12

12. Remove the Metal plate and gear assy. Make sure to note the orientation of the remaining gears as they are now loose, a small drive belt will come loose. Remove the gears. See Figure 13
- 15) From the large gear side, push the axle in and remove it from the opposite side. Remove the drum. See Figure 14.
13. Press in on the 2 small tabs of the developer roller plate on the right side. See Figure's 15 & 16.



FIGURE 13



FIGURE 14



FIGURE 15



FIGURE 16

14. Remove the developer roller. If there is a built up on the roller, clean it with a good quality rubber roller cleaner that does not leave any residue. Be careful not to damage the two flat shims on either side of the roller. See Figure 17
15. Clean the toner feed roller with clean compressed air. See Figure 18
16. Clean the Dr. Blade with a cotton swab and 99% pure isopropyl alcohol. It is best not to remove this blade as the foam seal on top tends to tear, and will then leak. See Figure 19
17. Re-install the developer roller long shaft side to the left or gear side of the cartridge. See Figure 20



FIGURE 17

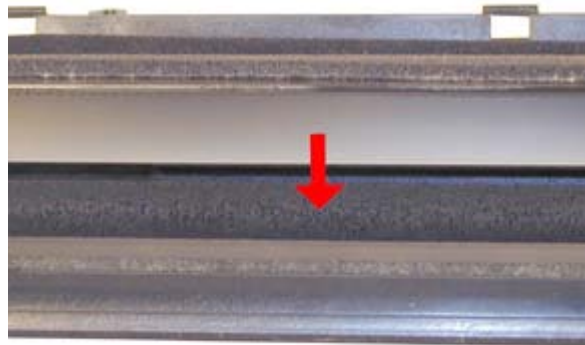


FIGURE 18

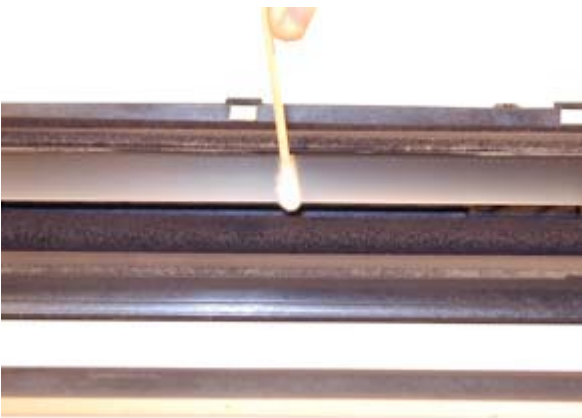


FIGURE 19



FIGURE 20

22. Install the developer roller plate. Make sure both tabs lock into place. See Figure 21
23. Install the drum and drum axle. Slide the axle in from the small gear side, making sure that the threaded hole is on the right (small gear) side. See Figure 22
24. Install the right end cap and four screws. See Figure 23

25. Install the gears on the left side, place the belt over the top right gear. See Figure 24

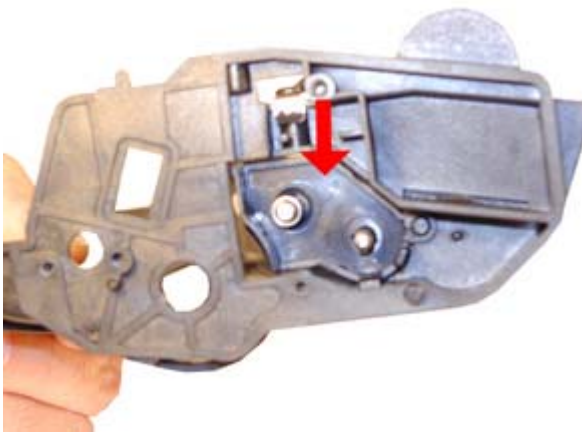


FIGURE 21



FIGURE 22

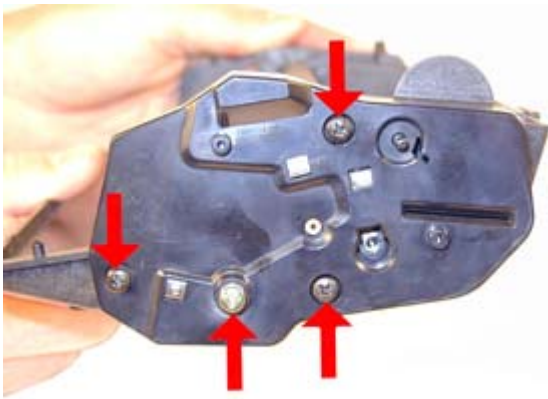


FIGURE 23

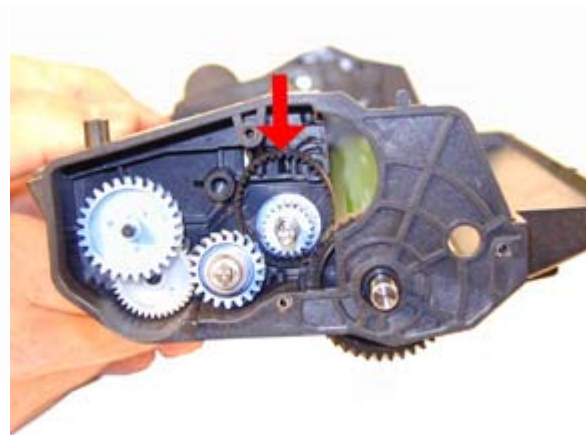


FIGURE 24

26. Install the gear plate and two gears. With the spring hook, pull the belt over the top gear. See Figure 25
 27. Install the end cap and three screws. See Figure 26
 28. Re-install the waste chamber and screws. See Figure 27.
 29. Push the fill plug out from the inside of the supply hopper. Removing it this way will prevent any damage to the plug. (You will need small fingers for this!) See Figure 28



FIGURE 25



FIGURE 26



FIGURE 27

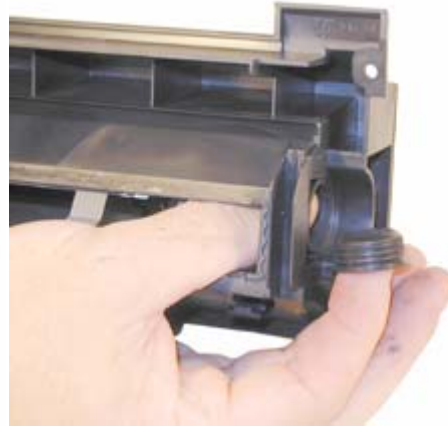


FIGURE 28

30. Install the seal on the toner hopper. Make sure the seal tab is orientated as shown. See Figure 29
31. Fill the supply hopper with 190g 2150 toner. See Figure 30
32. Slide the seal pull tab under the foam seal and out the cartridge wall. See Figure 31
33. Install the toner hopper. Place it at an angle so that the back edge tabs fit into their slots. Install the two front screws. See Figure's 32 & 33



FIGURE 29



FIGURE 30



FIGURE 31



FIGURE 32

34. Install the drum cover loosely so that the arms are on the posts. With the spring hook, pull the spring tab into the slot in the end cap to set the spring tension. See Figure's 34 & 35
35. Once new replacement chips are available, replace the chip. See Figure 36



FIGURE 33



FIGURE 34



FIGURE 35



FIGURE 36

COMMON CARTRIDGE PROBLEMS



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, or as ghosting where part of a previously printed area is repeated. 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 3 times per page. Any drum defects will repeat 3 times per page.

Light Damaged Drum; This will show up as a shaded area on the test print that should be white. Again this will repeat 3 times per page.

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.

Light print overall: Check to see if the toner save mode is on.

PRINTING TEST PAGES



CONFIGURATION PAGE

Press the "MENU" button on the control panel until "Information" appears on the display.

Press the "Enter" button

Press the "Scroll" button until "Configuration" appears on the display

Press the Enter button.

A Configuration page will print out

DEMO PAGE

Press the "MENU" button on the control panel until "Information" appears on the display.

Press the "Enter" button

Press the "Scroll" button until "DEMO PAGE" appears on the display

Press the Enter button.

A DEMO page will print out.

PRINTING A CLEANING PAGE:



Two cleaning pages are available. One for the fuser or one for the drum in the cartridge. According to the Samsung manual, the drum cleaning page will clean up dust, and the fuser toner. How the user is supposed to know the difference, I have no idea. If you are instructing your customer to run a cleaning page, I would have them run both.

Press the "MENU" button on the control panel until "Setup" appears on the display.
Press the "Enter" button
Press the "Scroll" button until "Maintenance" appears on the bottom line of the display
Press the "Enter" button
Press the "Scroll" button until either "OPC Cleaning", or "Fuser Cleaning" appears on the display
Press the "Enter" Button

PRINTER ERROR CODES



Like most other Samsung machines, all error messages are text based, and self explanatory.

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