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THE SAMSUNG ML-1630 TONER CARTRIDGE

DOC# 0429

By Mike Josiah and the technical staff at Summit Technologies – a Division of Uninet Imaging.

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Remanufacturing the Samsung ML-1630 Toner Cartridge

The Samsung ML-1630 Toner Cartridge

First released in October 2007, Samsung ML-1630, ML-1631, ML-1630S, and SCX-4500 Printers are based on one of Samsung's newest engines. The ML-1630 series runs at 17 ppm with a maximum resolution of 600 dpi. The design is new for Samsung and all other printer manufacturers for that matter. They are pushing its sleek design as a nice office addition not only as a printer but ascetically as well. One interesting thing is that the fuser uses a 2 lamp system. Most machines these days use a film and ceramic heater to fuse the toner. This system is more like the HP-8100

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

The standard cartridge (Samsung part# ML-D1630A comes new with 40g toner, and is rated for 2,000 pages at 5% coverage. The starter cartridge however is rated for only 1000 pages. As with pretty much all cartridges these days, the cartridge has a chip, and it has to be replaced.

Figure 1

While this system uses all standard monochrome technology, the printer itself is extremely small and compact. See **Figure 2** for a complete layout of the entire printer. I have not taken a machine apart yet, and I hope I never have too!

Cartridge troubleshooting as well as common error messages will be listed at the end of the instructions

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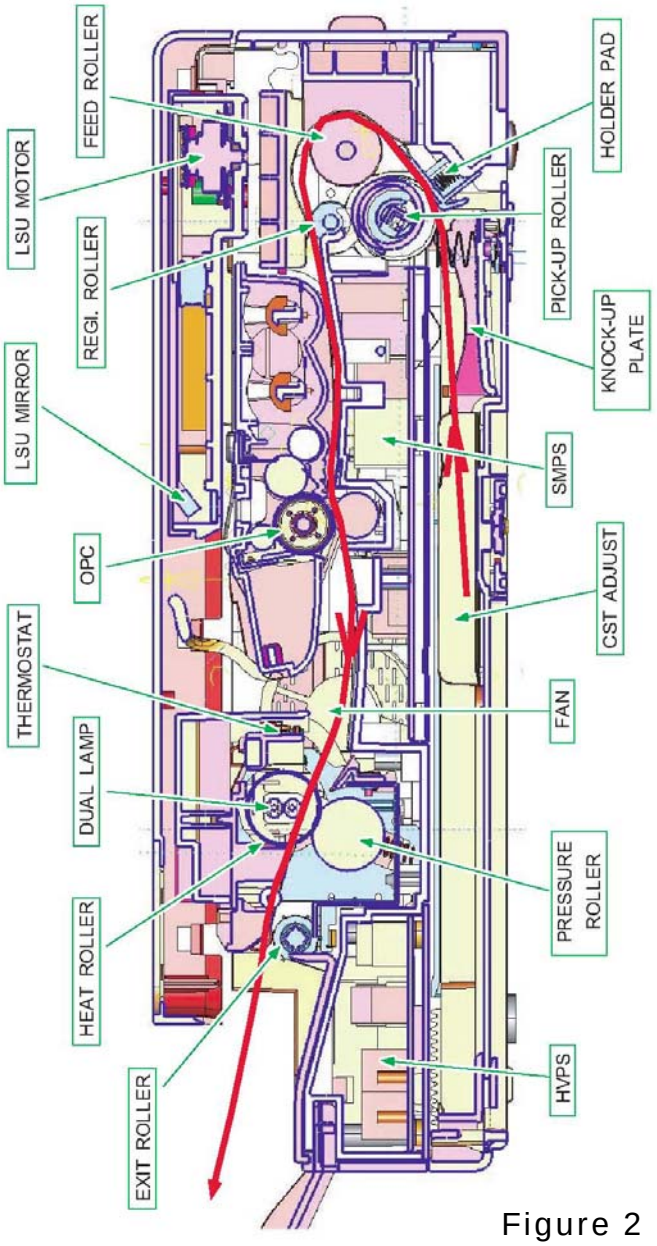


Figure 2

Required Tools

1) Toner approved vacuum.
2) A small Common screw driver
3) A Phillips head screwdriver
4) Needle nose pliers

Required Supplies

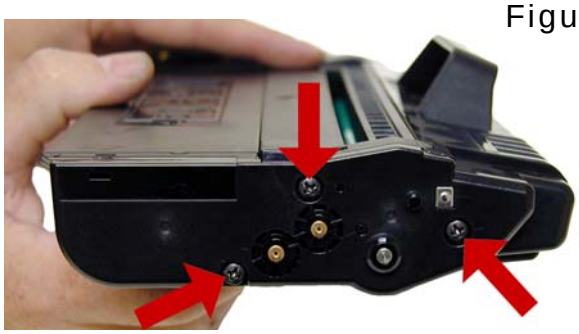
40g Toner
New replacement chip (Under development)
Conductive Grease
99% Isopropyl alcohol
Drum lubricating powder

1) Place the cartridge with the handle up, facing towards you. Remove the three screws from the right side end cap. See **Figure 3**

Figure 3

2) On the left side end cap, remove the three screws. See **Figure 4**

Figure 4



3) While still on the left end cap, locate the top and bottom tabs. Press in on these tabs, and remove the end cap. See Figures **5, 6, & 7**

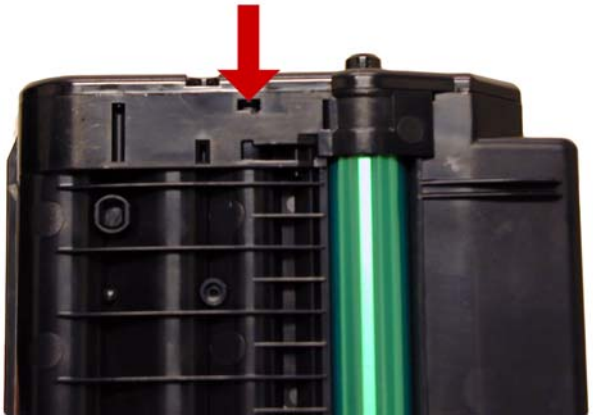


Figure 5

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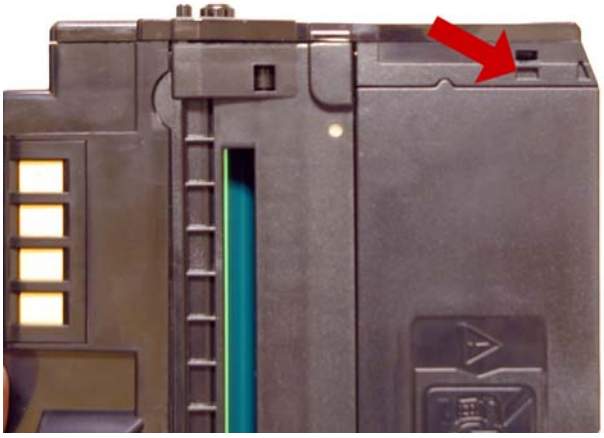

Figure 6

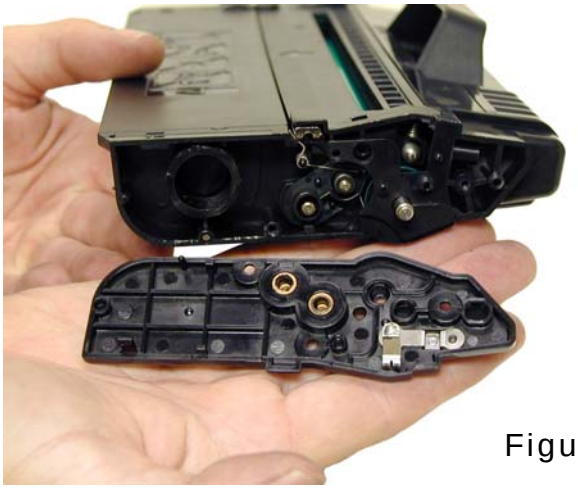

Figure 7

4) On the right side end cap, press in on the top tab and remove the end cap. See **Figures 8 & 9**.The right side does not have a bottom tab, but it fits on very tight and must be carefully pried off.

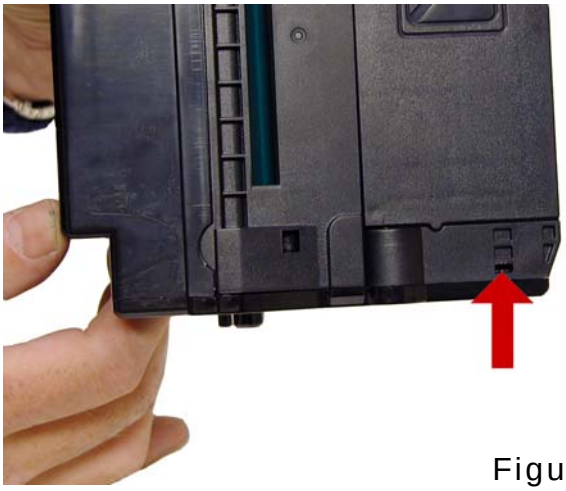

Figure 8

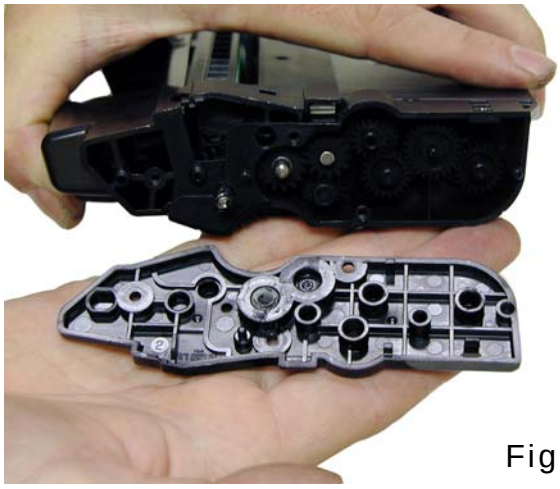

Figure 9

5) Separate the two halves slightly, and lift off the middle top cover/PCR assembly. See **Figure's 10 & 11**

Figure 10

Figure 11

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6) Pull the metal drum axle from the toner hopper clips on both sides. Remove the drum/waste assy. See **Figure's 12, 13 & 14**

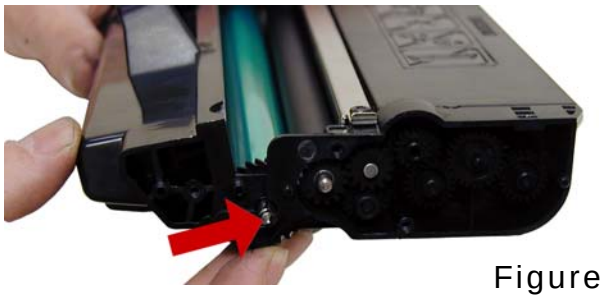

Figure 12

Figure 13

Figure 14

7) On the top cover, lift up on the PCR. Remove the PCR from the assembly. See **Figure 15**

Figure 15

8) 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.

9) Place a small amount of conductive grease in each of the PCR holders, and replace the PCR. See **Figures 16 & 17**

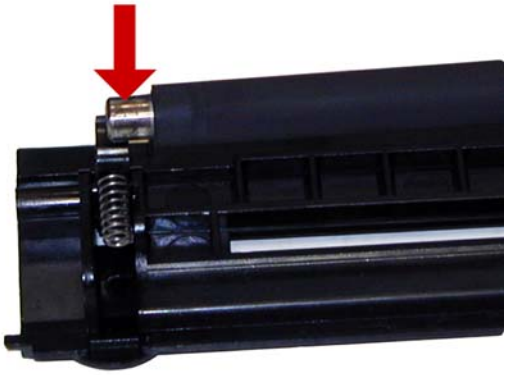

Figure 16

Figure 17

10) Remove the drum axle from the clips on both sides of the waste assembly. Remove the drum. See **Figures 18 & 19**

Figure 18

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Figure 19

11) Remove the two screws from the doctor blade, remove the blade. See **Figure 20**

Figure 20

12) Clean out all the waste toner from the hopper. Make sure the foam seals are clean. See **Figure 21**

Figure 21

13) Install the cleaned or new doctor blade and two screws. See **Figure 22**

Figure 22

14) The gear side of the drum axle shaft has conductive grease on it. Regardless of if you are replacing the drum or not, clean the old grease off, and replace with new. See **Figure 23**

Figure 23

15) Install the drum/axle into the clips of the waste toner assembly. See **Figure 24**

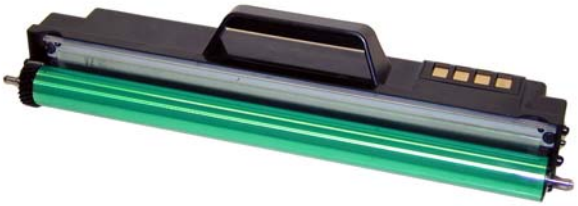

Figure 24

16) Carefully pry out the fill plug on the toner hopper, and dump out any remaining toner. The fill plug can be difficult to remove. Take a small common screwdriver and work it around the edge lifting slightly until it comes loose. See **Figure 25**

Figure 25

17) On the fill plug side of the hopper, locate the double plastic bushing and contact spring. See **Figure 26**

18) Take the long tail of the spring and move it off the developer roller shaft so it sits against the bushing. See **Figure 27**

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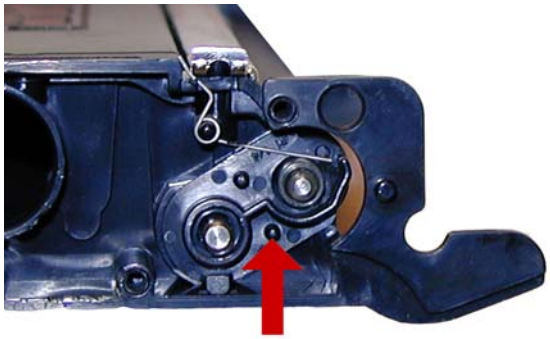

Figure 26

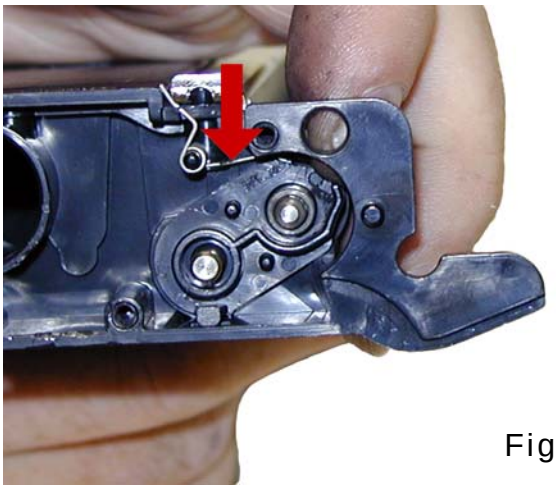

Figure 27

19) Press in on the bushing tab, and remove the bushing. Be careful not to lose the spring! See **Figures 28 & 29**

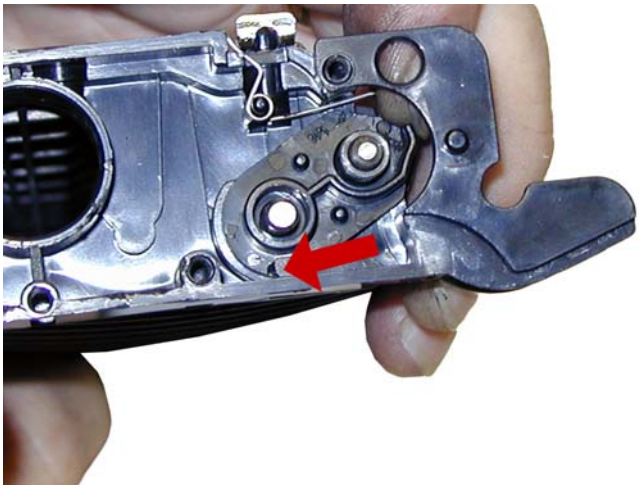

Figure 28

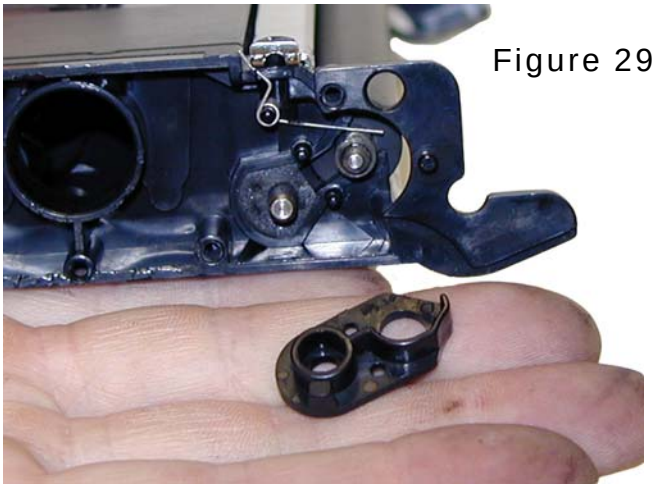

Figure 29

20) Slide the developer roller over, and lift out to remove. See **Figure 30**

Figure 30

21) Remove the 2 screws from the doctor blade, remove the blade. See **Figure 31**

Figure 31

22) Clean out all the remaining toner from the hopper.

23) Make sure the doctor blade sealing foam and the developer rollers seals are clean and intact. See **Figure 32**

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Figure 32

24) Clean the Dr. blade edge so there is no evidence of build up along the edge. If any buildup exists, the cartridge will streak. This blade can be cleaned with your preferred Samsung DB cleaner. See **Figure 33**

Figure 33

25) Install the doctor blade and two screws. See **Figure 34**

Figure 34

26) Clean the developer roller with a dedicated DVR cleaner, and replace into the hopper. Install the gear side first. See **Figure 35**

Figure 35

27) While holding the DVR contact spring back, install the double bushing. Make sure it snaps into place. See **Figure's 36 & 37**

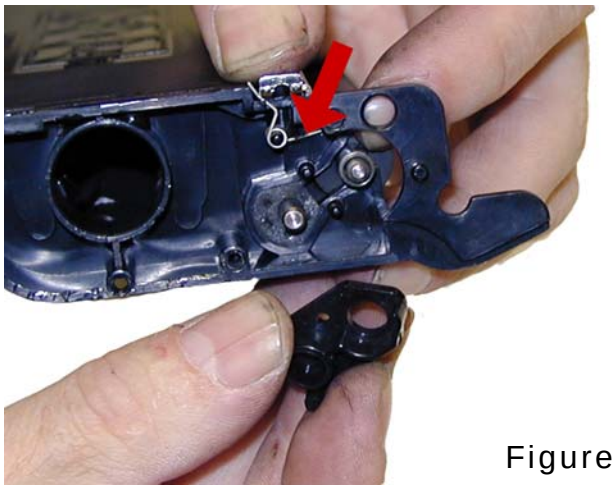


Figure 36

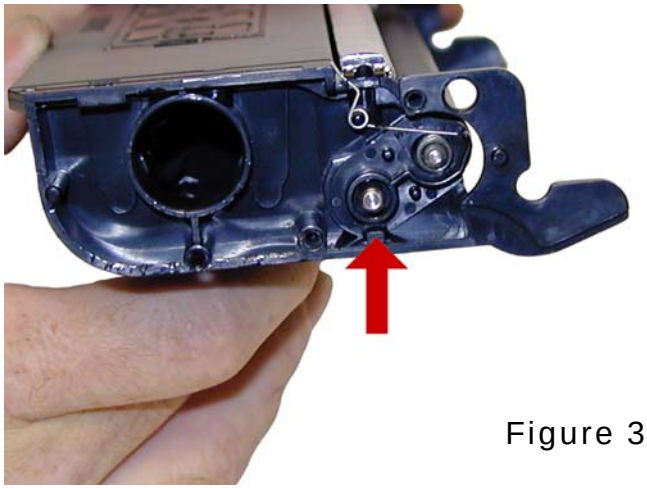
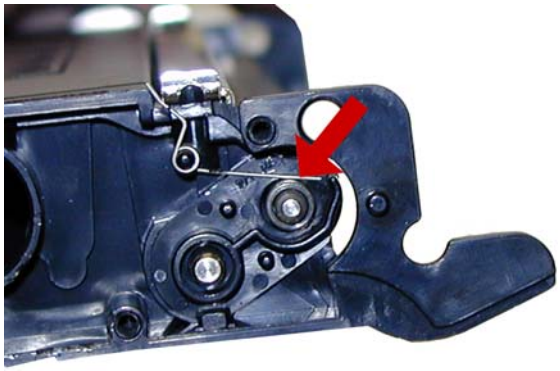


Figure 37

28) Set the long tail of the contact spring so it touches the shaft of the developer roller. See **Figure 38**



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29) Fill the hopper with 40g ML-1630 toner, replace the fill plug, check for leaks. See **Figure 39**

Figure 39

30) Snap the drum axle shaft into both clips on the toner hopper. See **figure 40**

Figure 40

31) Slide the middle top cover/PCR assembly into place. Make sure the two middle tabs fit under the edge of the waste hopper. See **Figures 41 & 42**

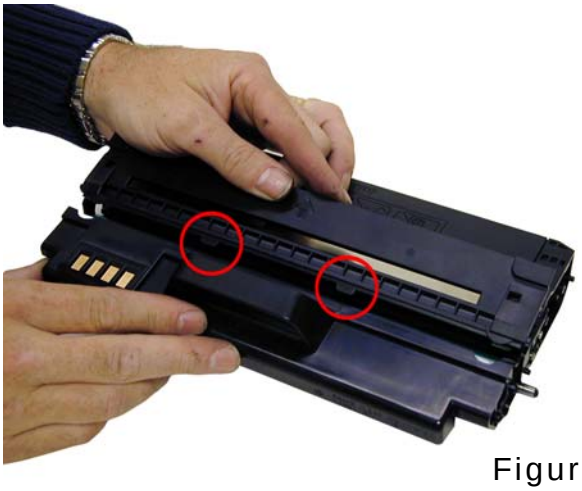

Figure 41

Figure 42

32) Take the right side end cap align the drum axle keyed end so it will fit into the keyed slot of the end cap. Snap the end cap into place. See **Figures 43 & 44**

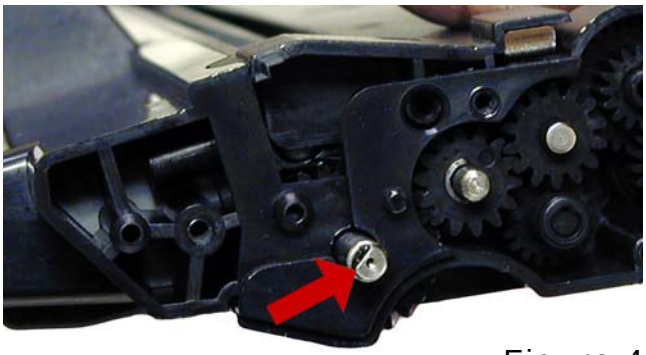

Figure 43

Figure 44

33) Install the three screws into the end cap. See **Figure 45**

Figure 45

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34) Clean the contacts on the left side end cap, and replace the conductive grease. Snap the end cap into place, and replace the three screws. See **Figures 46 & 47**

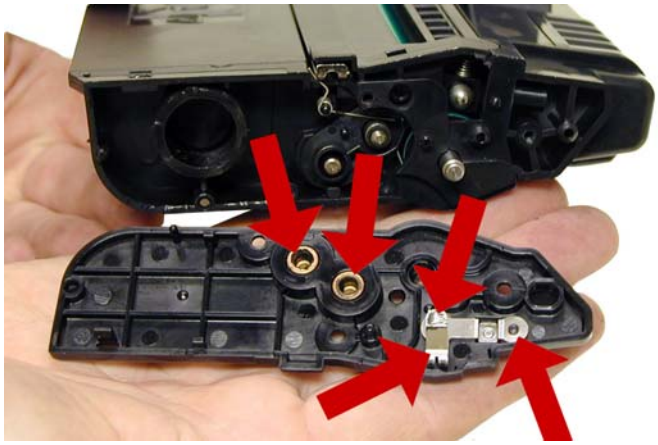

Figure 46

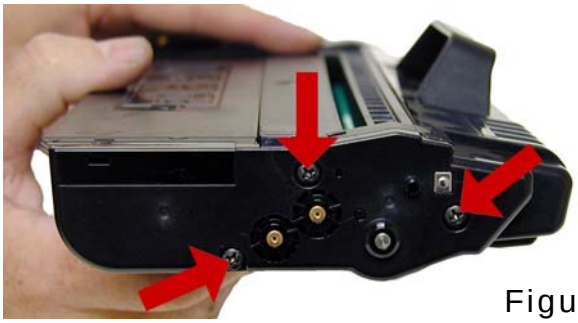

Figure 47

35) To replace the chip, drill out the two plastic rivets with a small drill, remove the cover, and chip. I used a 5/64" bit. See **Figures 48 & 49**

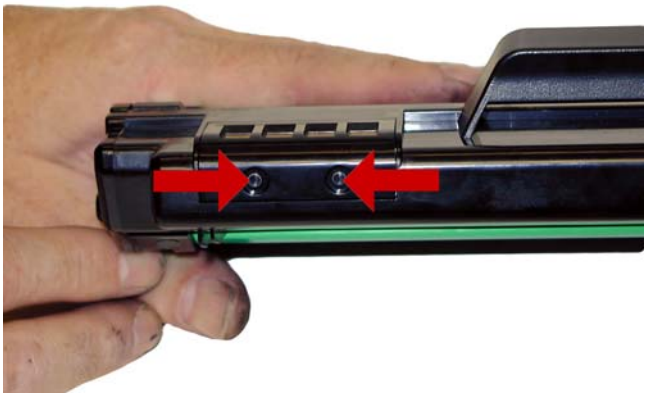

Figure 48

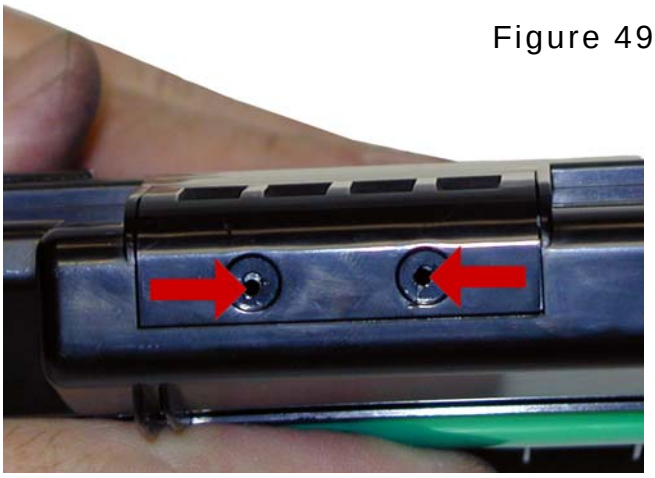

Figure 49

36) Install the new chip and cover, insert 2 small screws that correspond to the holes drilled to hold everything in place. See **Figures 50 & 51**

Figure 50

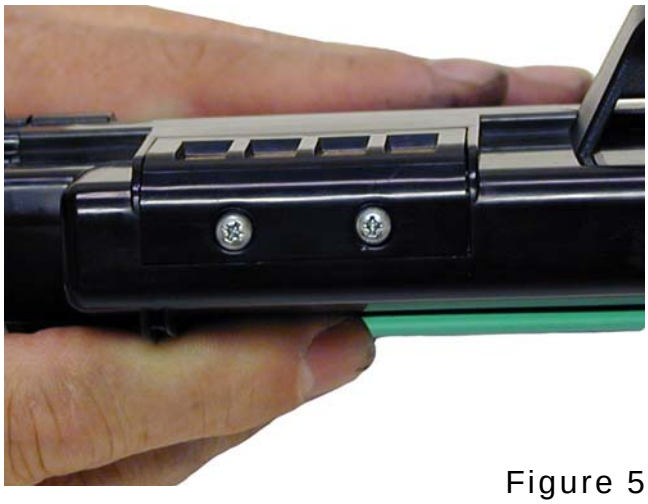

Figure 51

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Common Cartridge Problems

Repetitive defect chart:

Upper heat roller: 77.09mm
Lower pressure roller: 75.36
OPC drum: 62.8mm
Transfer roller: 47.1mm
Supply Roller: 46.9mm
Developer roller: 35.2mm
PCR 26.7mm

Printer Error Messages:

!!T1 Toner Exhausted
!!T2 Invalid toner. (Cartridge has been refilled but the chip has not been replaced)
!!T3 Cartridge not installed correctly or missing
!!T4 Non Genuine Toner, cartridge not compatible with this machine.(Too soon yet to see what causes this)
!!CO top cover open
!!EE Internal error
!!JO Paper feed jam rear of machine
!!J1 Paper jam rear of machine
!!J2 paper jam Exit area

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