

# DELL® 3110 • 3115 • 3130 CN

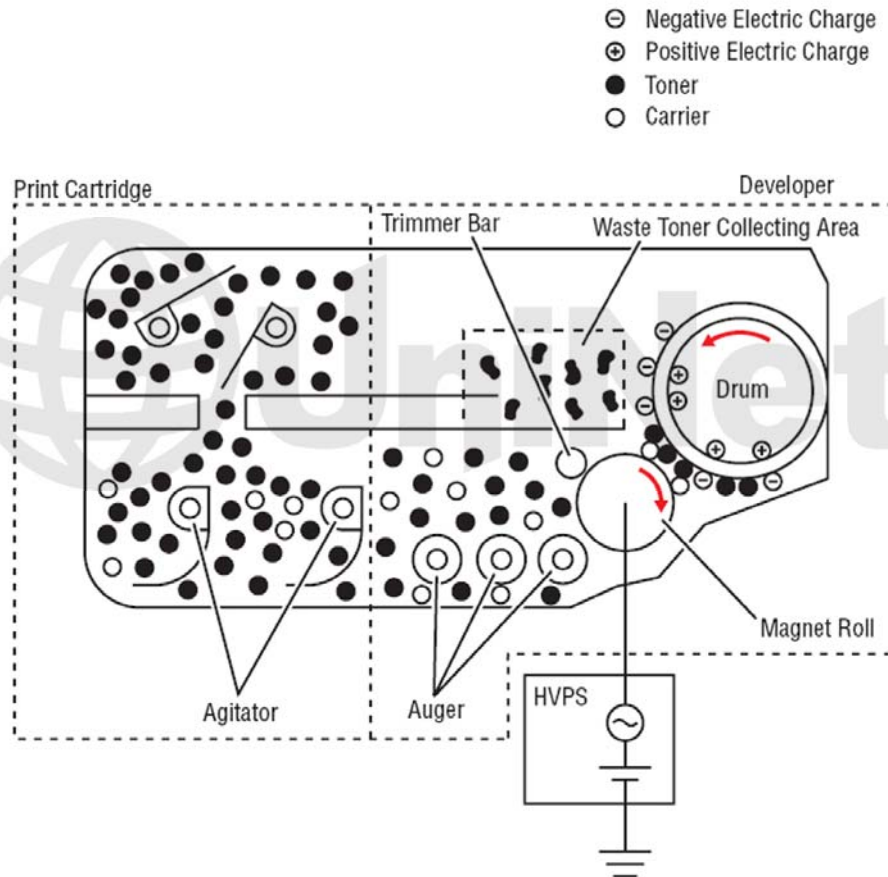
## TONER CARTRIDGE REMANUFACTURING INSTRUCTIONS



DELL 3110 CN TONER CARTRIDGE

# REMANUFACTURING THE DELL 3110/3115/3130 CN COLOR TONER CARTRIDGE

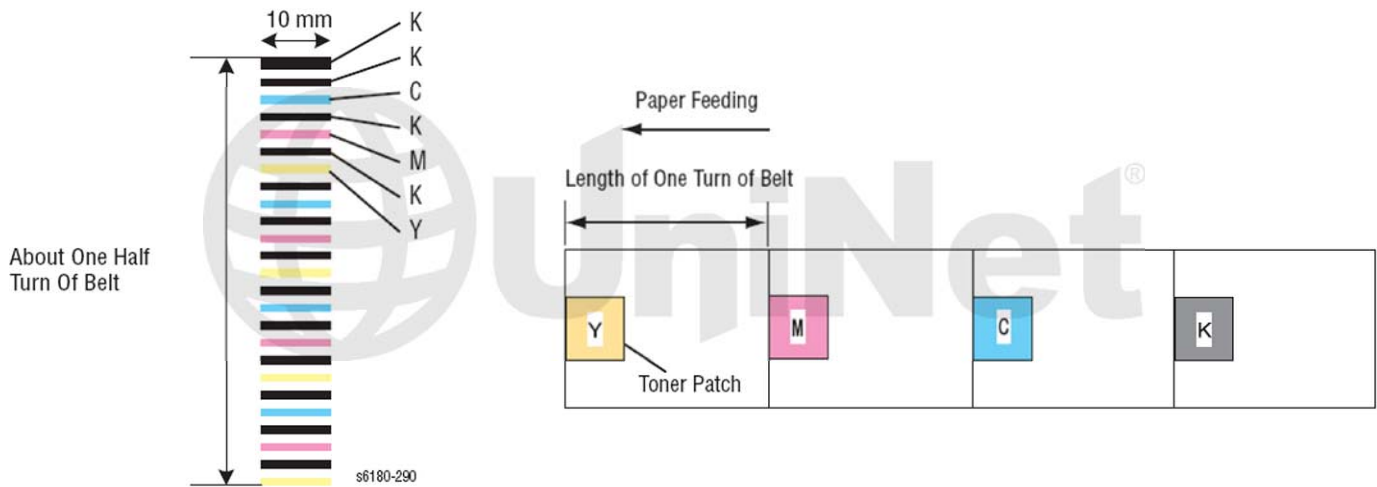
By Javier Gonzalez and the Technical Staff at UniNet



## CARTRIDGE OVERVIEW

The toner is fed into the developer section. The toner and carrier in the developer are agitated by three augers, and supplied to the magnet-roll arranged in the drum surface area. The toner and carrier are charged by friction due to agitation (toner in negative, carrier in positive), and they are absorbed electrically.

1. When the print cartridge life has ended, the printer stops accepting print requests (life of the print cartridge is counted by the counter in the CRUM). This mode can be changed so the printer will not stop at the end of the print cartridge rated life; however, the printer will display an end of life message on the control panel.
2. The toner in the print cartridge is agitated by the built-in agitator and fed into the developer part. The augers are driven by the toner-motor and the developer-motor in the main drive. The toner to be consumed, according to the print count, is calculated and fed into the developer. This process is called "Toner Dispensation" which is controlled by two processes: "Pixel Count Dispense Control" (PCDC) and "Automatic Density Control" (ADC).
3. "Toner Density Control" uses two key systems to keep the density constant to attain stable printing:
  - **PCDC (Pixel Count Dispense Control)**
  - **ADC (Auto Density Control)**

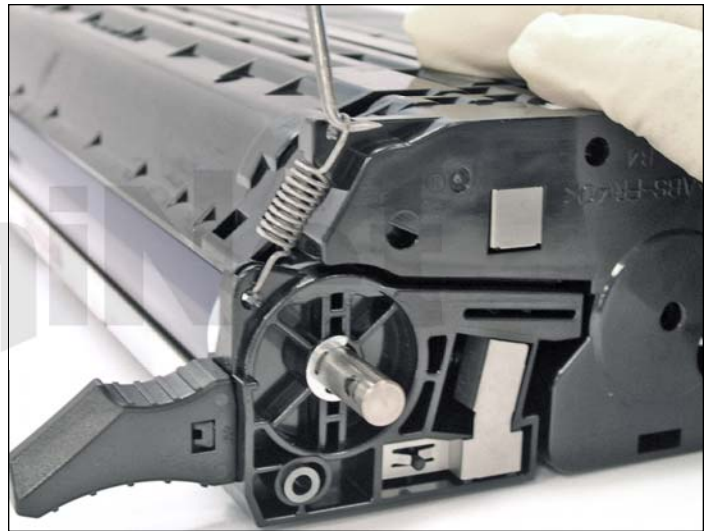
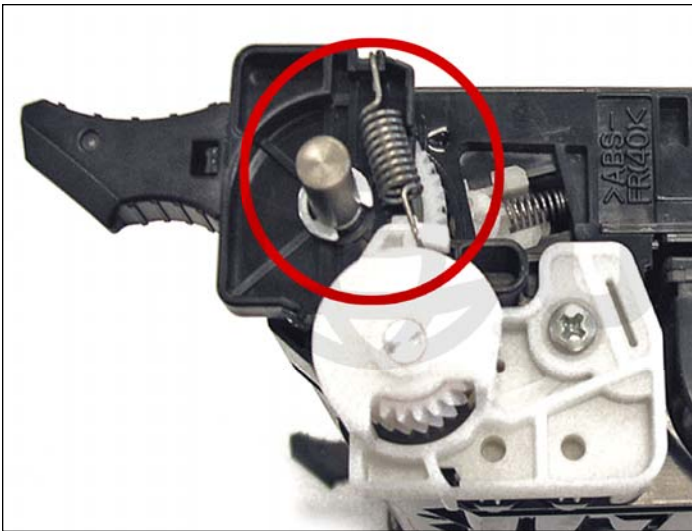


### PCDC (PIXEL COUNT DISPENSE CONTROL)

The amount of the toner to be consumed is calculated by the toner dispensing time. The toner motor is driven for the calculated toner dispensing time when supplying the toner to the developer.

### ADC (AUTO DENSITY CONTROL)

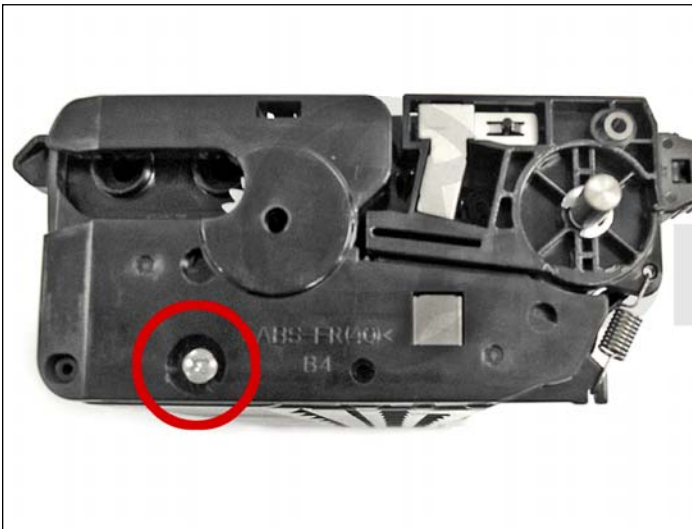
The patches of respective colors (Yellow, Magenta, Cyan and Black) in the above diagram for the toner density control are generated under a specified potential condition, and transferred onto the belt. The ADC sensor measures this density, and the measured value is compared with reference value. If the toner density is low, the toner dispense quantity is increased at the next printing, or if the toner density is higher, the toner dispense quantity is reduced at the next printing by regulating the drum charging voltage (developing DC voltage) This calculation is made for each color.



### REMANUFACTURING THE TONER CARTRIDGE

1. Release and remove the compression spring that tensions the two halves.

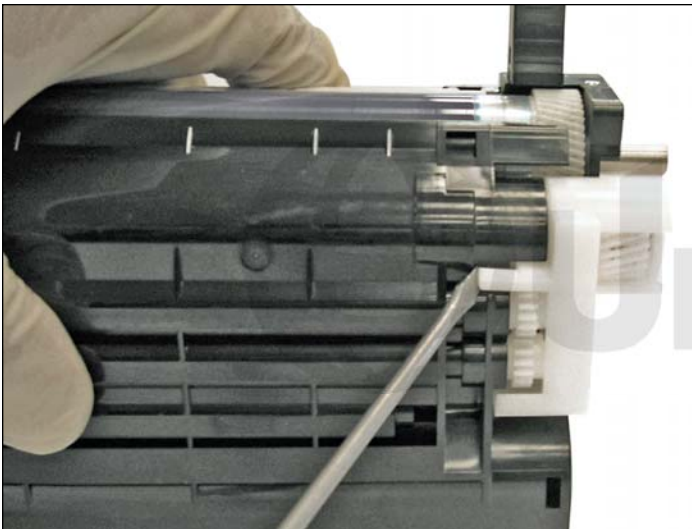
**NOTE:** The contact side spring may be easier to remove if flipped upside down.



2. Remove the screw from the contact side.



3. Remove the screw from the white end cap.

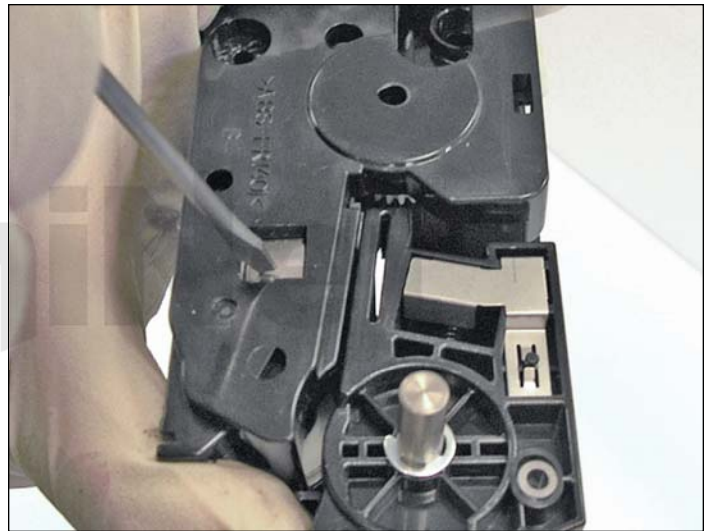


4. Remove the white end cap by releasing the locking clip.



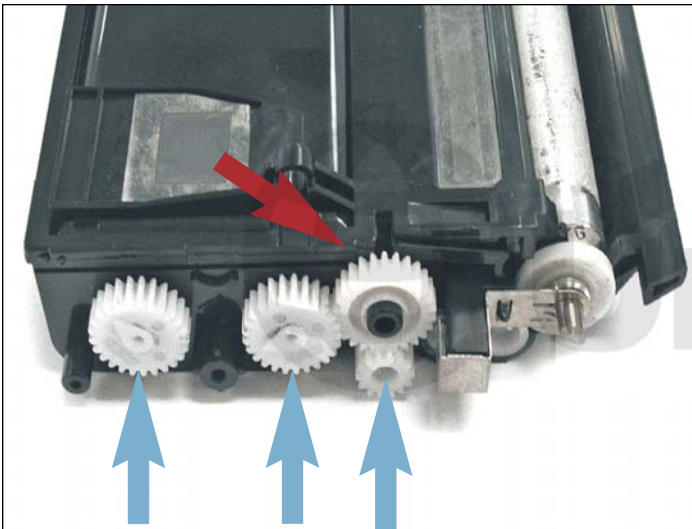
5. White end cap removed.





6. Remove the end cap by releasing the clip as shown.

Now grasp the end cap, and while pulling, push down on the contact to release the end cap without disturbing the contact.



7. Remove the idle gear (marked by the **red** arrow).

The actuator gears cannot be removed as they are attached to the axle inside the hopper (marked with **blue** arrows).



8. Remove the magnetic roller contact by first releasing it from the tab as shown.



9. Continue by sliding the contact, using a small hook tool.  
Position the hook tool between the contact and pull off.



**REMANUFACTURING THE TONER HOPPER**  
10. Start by removing the developer drive train.



11. Remove the front auger drive gear as shown.  
This will allow you to remove the bearing (circled).



12. Remove the magnetic roller support bearing.



13. The fastest way to remove the support bearing on the opposite side is to first lift the magnetic roller. Pull it out about 5mm, then stop and position the magnetic roller back in the cartridge

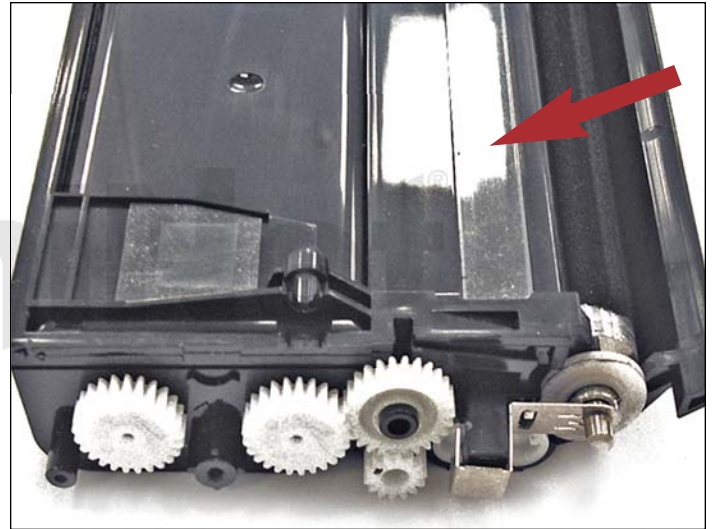


14. The support bearing (circled) will have been pushed out by the magnetic hub and can now be removed.



15. Remove the magnetic roller and clean using compressed air to blow off all the remaining developer.





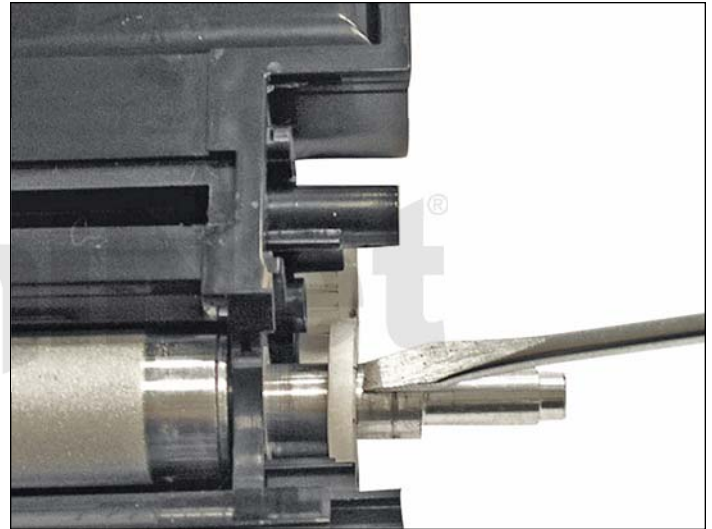
16. Remove the toner hopper sealing strip (left).

Remove the carrier chamber sealing strip (right).

The cartridge is now ready to be cleaned.



17. Install the magnetic roller first.

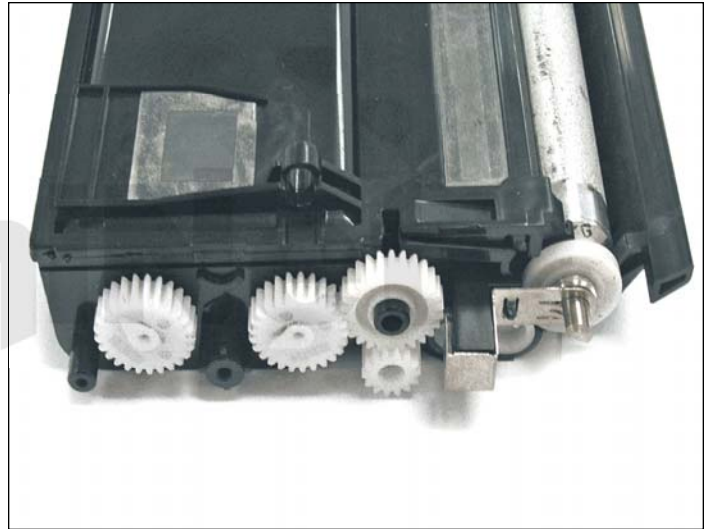


18. Install the support bearing and magnetic roller bushing on both sides. **NOTE:** There is an alignment tab that will need to be positioned correctly, in order for the bearing to fit properly.





19. Once the bearings are installed position the front auger drive gear as shown.



20. Install the magnetic roller contact as shown.



21. Using a sheet of paper (size is your choice), position it inside the carrier chamber blocking the magnetic roller. This will simplify filling the carrier chamber with 70g of developer. You can also use a funnel to fill the carrier chamber.



22. Once you have filled the carrier, clean the edge with isopropyl alcohol and install a new carrier chamber seal.



23. If a standard cartridge is being used, this will be a good time to fill the cartridge with toner. Seal the cartridge using the OEM sealing strip or an aftermarket sealing strip.

**NOTE:** Do not mix the toner bottle with developer. The toner bottle does not take developer.

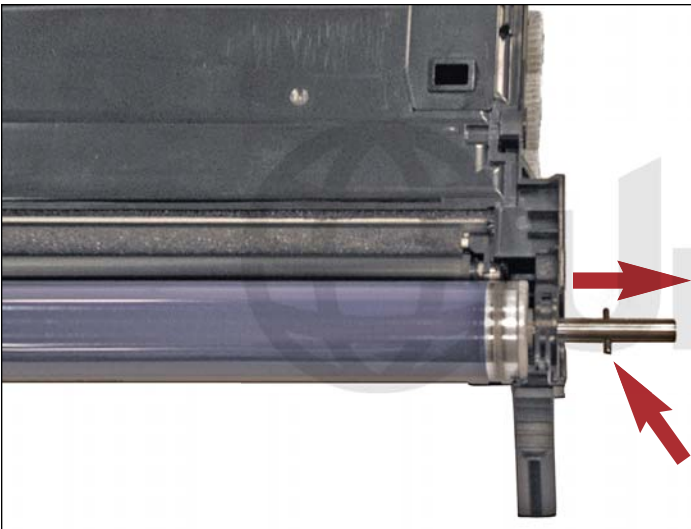


### REMANUFACTURING THE DRUM UNIT

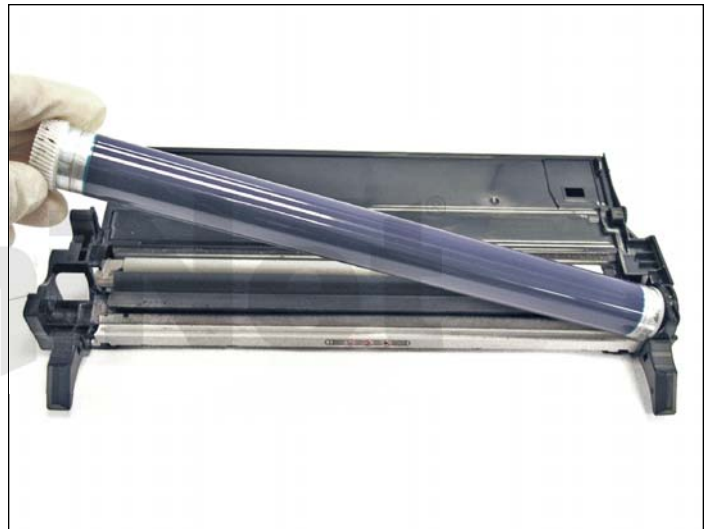
24. With the drum facing you, Remove the right side (non-gear side) "E" clip which secures the drum axle.



25. Pull the axle out towards the gear side of the drum to avoid bending the internal drum contacts



26. **NOTE:** If your cartridge does not use two "E" clips but a locking pin on one side. You will need to remove the "E" clip from the opposite side (gear side of drum) remove the axle through the non-gear side of the drum.



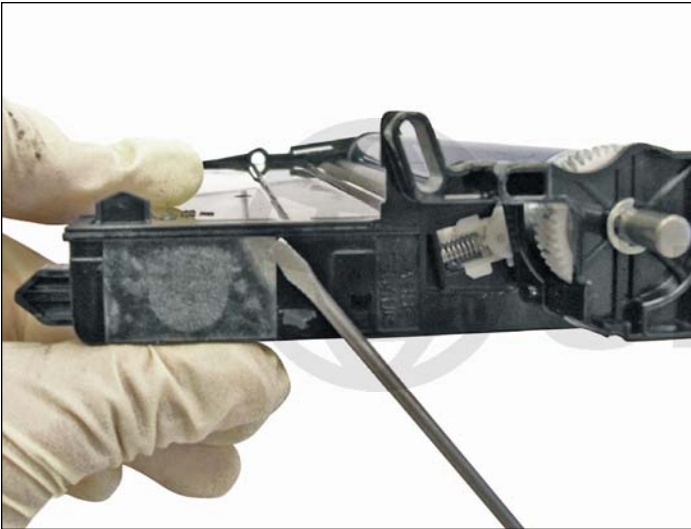
27. Remove the drum. If you intend to reuse the OEM drum, store it away from direct light.



28. Remove the PCR.



29. Remove the cleaning roller.

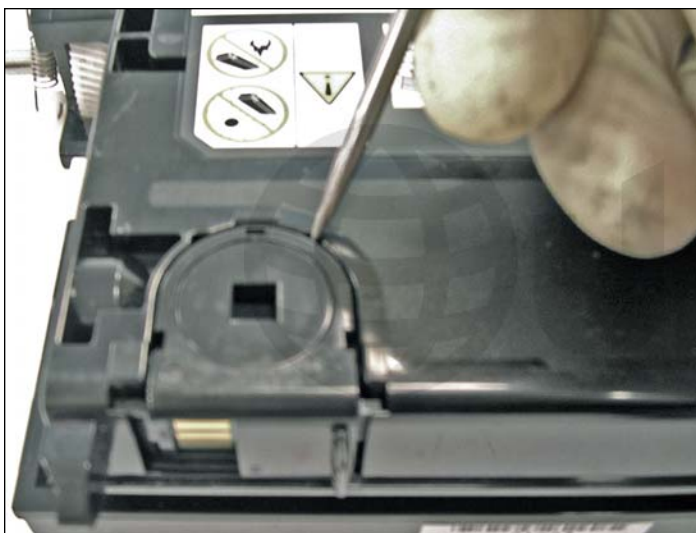


30. **NOTE:** If the cartridge being used is a standard yield cartridge which does not include a working toner hopper in the drum section, you can skip this step. If this were a high yield cartridge, you will find the waste section has additional gears and augers in the back portion. In which case, it would also need to be cleaned out when you clean out the waste section.





31. Once you have reassembled the high yield cartridge and joined the drum section with the toner hopper, you can now fill with toner. We recommended adding  $\frac{1}{4}$  of the toner in the drum unit toner hopper section and the rest in the toner hopper.



#### REPLACING THE SMARTCHIP

32. Locate and pry the chip, using a hook tool as shown.



33. The new chip should slide through the rails and snap into place, when fastened correctly.