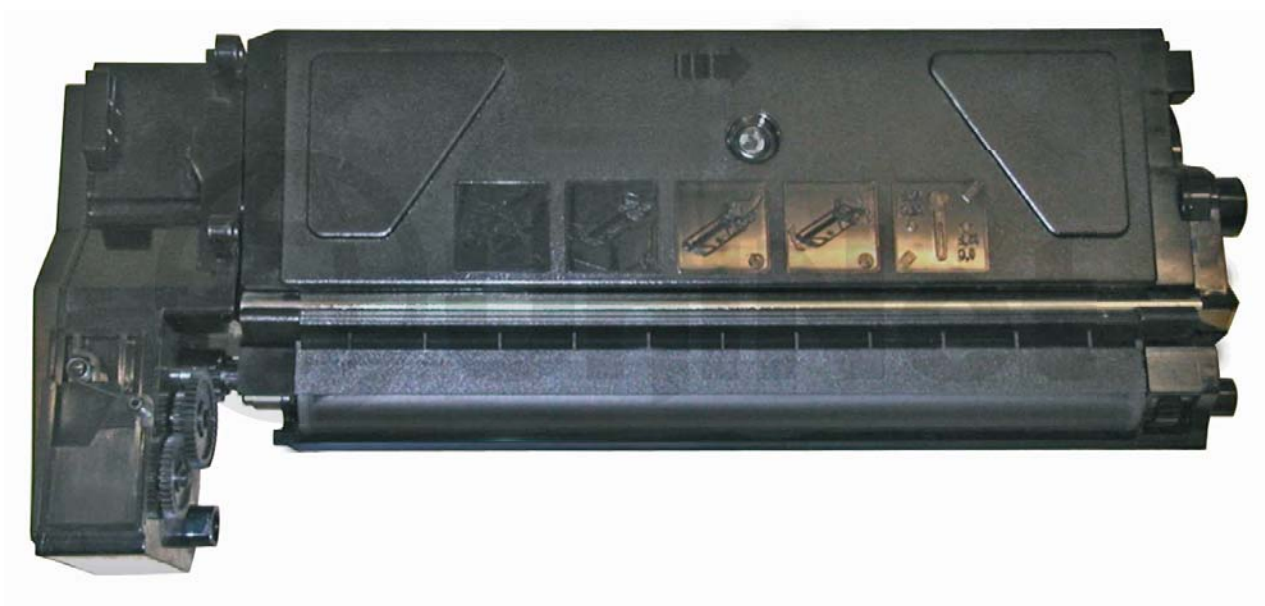


# SAMSUNG® SF-830

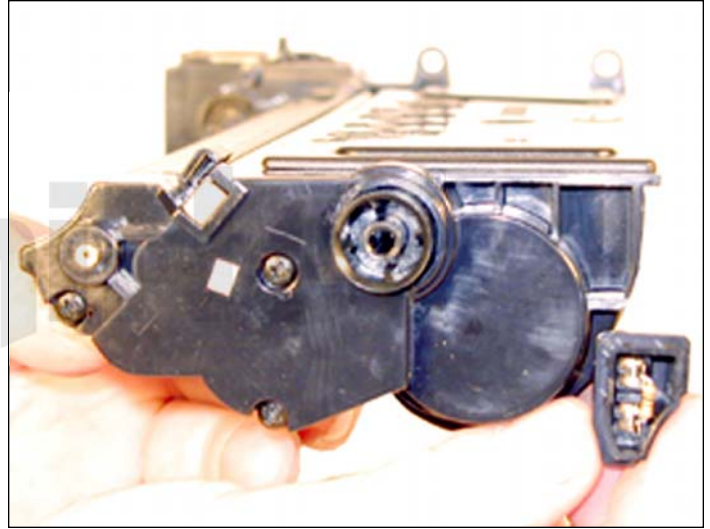
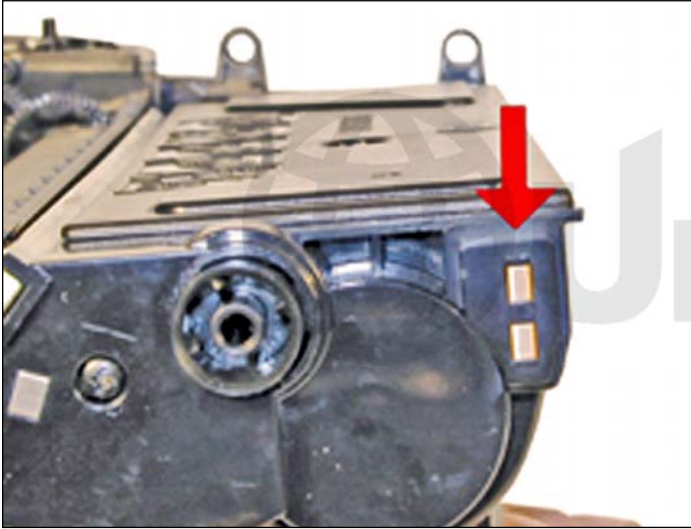
## TONER CARTRIDGE REMANUFACTURING INSTRUCTIONS



SAMSUNG SF 830 TONER CARTRIDGE

# REMANUFACTURING THE SAMSUNG SF-830 TONER CARTRIDGE

By Mike Josiah and the Technical Staff at UniNet



First released in February 2002, the Samsung SF-830 is a 12 ppm fax engine that runs at 600 dpi. The Samsung toner cartridge SCX-5312D6 is rated for 7,500 pages at 4% coverage, and has a list price of \$129.00 USD. This engine represents a change for Samsung in that the toner and drum have been split into two different cartridges. This article covers the toner cartridge only. The drum unit will be covered at a separate article. The toner cartridge itself is very easy to remanufacture.

One of the error messages that these machines can display is “invalid cartridge.” Since these cartridges do not have a chip, this made us curious, and we started to look around. On the gear side of the cartridge (see above pictures) there is a small black plastic piece with two metal contacts. This piece can be pried out, and inside (on the Samsung SCX-5312D6 cartridge), there is a 30K ohm resistor. The Xerox cartridge uses a 12K ohm resistor. It appears that the machine looks for a certain resistance to determine the cartridge brand. That is how it determines if the cartridge is correct or not. If the wrong resistor is present, the “Invalid cartridge” message will display. This is a very easy and inexpensive way to build cartridges for other companies. There are no different plastic molds or anything else and the cartridges could even have the same production line. At the end of the line, the cartridges could be funneled off into the last section where these small encoding parts are installed. Only the very end of the line would be different. Much less expensive than retooling the production line for each manufacturer. The resistor does not go bad; it does not blow as a fuse would. It seems only to be there for identification purposes.

The Samsung cartridge resistor has a color code of orange, black and gold. This code means the resistor has a value of 30K ohms at 5% tolerance. The Xerox cartridge resistor has a color code of brown, red, black and gold. This code means that the resistor has a value of 12K ohms at 1% tolerance.

The SCX-5312 machines have “Save” functions for both toner and paper. The toner save mode is basically just like the Economode method used by other manufacturers. Only half the dots are printed using less toner. The paper save mode prints two pages on every sheet, so that less paper is used.

There is one interesting and somewhat strange thing about the SCX-5312 machines. The 5312 will still print after the toner is empty. This includes faxes as well. There is a window in the top of the cartridge which we assumed was the normal “toner low” backup for fax machines. The user manual however states that blank pages will print from both the printer and fax if the toner runs out.

**CURRENT MACHINES BASED ON THE SF-830 ENGINE:****Samsung SCX-5112****Samsung SCX-5312F****Samsung SCX-5315F****Samsung SCX-5115****Samsung SF-830****Samsung SF-835P****Samsung Msys 830****Samsung Msys 835P****All the Samsung machines so far use the SCX-5312D6 cartridge****Xerox WorkCentre Pro 412****Xerox FaxCentre F12****Xerox WorkCentre M15****Xerox WorkCentre M15i****Xerox WorkCentre 312****Xerox WorkCentre Pro 412****All the Xerox machines so far use the 106R584 cartridge**

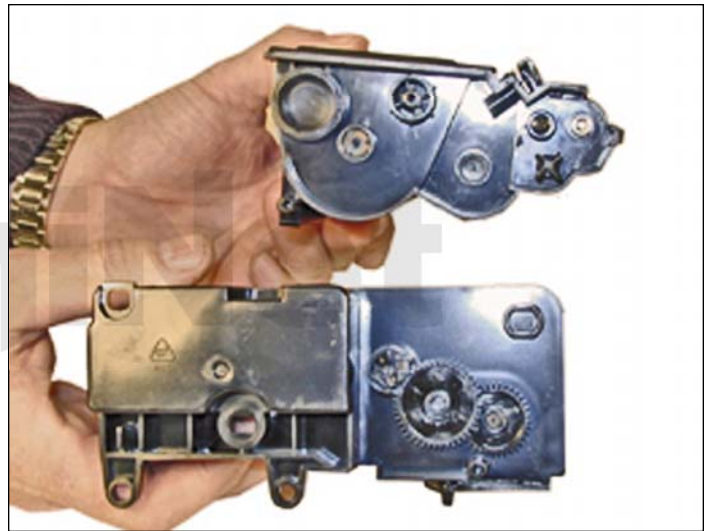
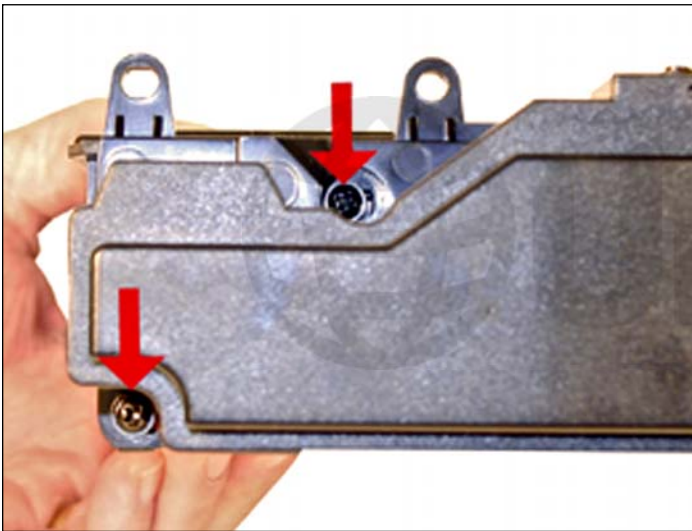
Machine and cartridge troubleshooting are covered at the end of this article.

**SUPPLIES REQUIRED:**

1. 250g dedicated toner for SF-830
2. White lithium grease

**TOOLS REQUIRED:**

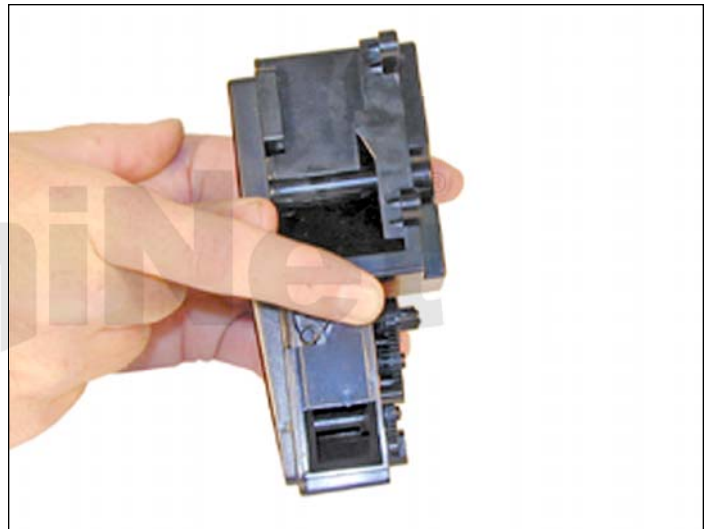
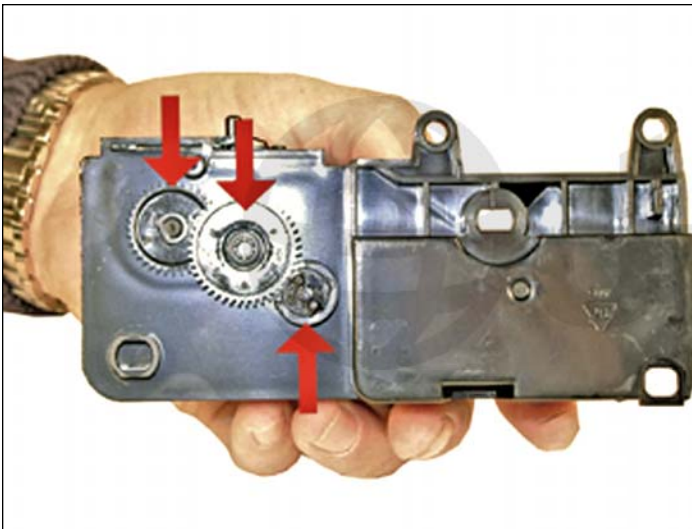
1. Phillips head screwdriver
2. Small common screwdriver
3. Spring hook
4. Vacuum approved for toner



1. Remove the two screws located on the waste chamber.

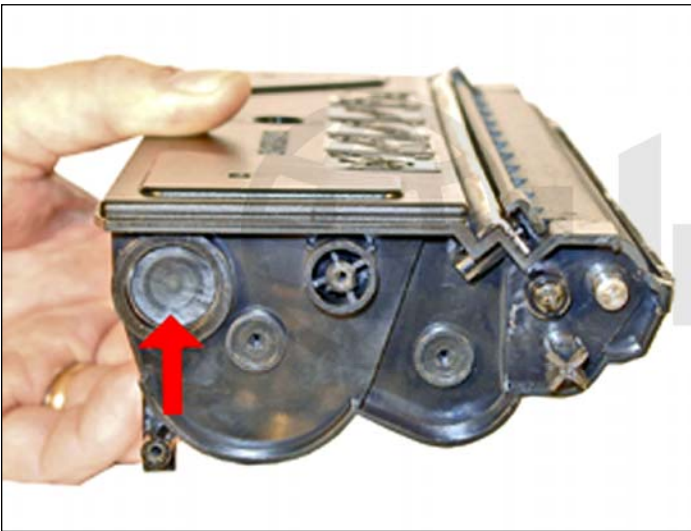
Remove the waste chamber.

Be careful not to lose the gears.

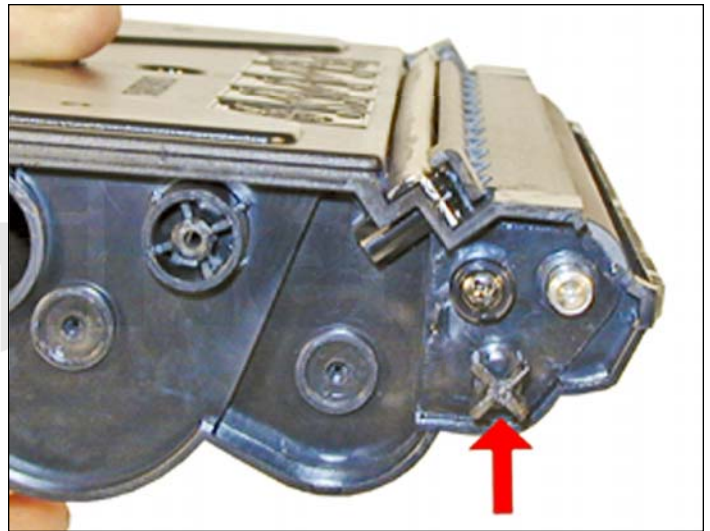


2. Remove the gears from the waste chamber and open the spring loaded cover.

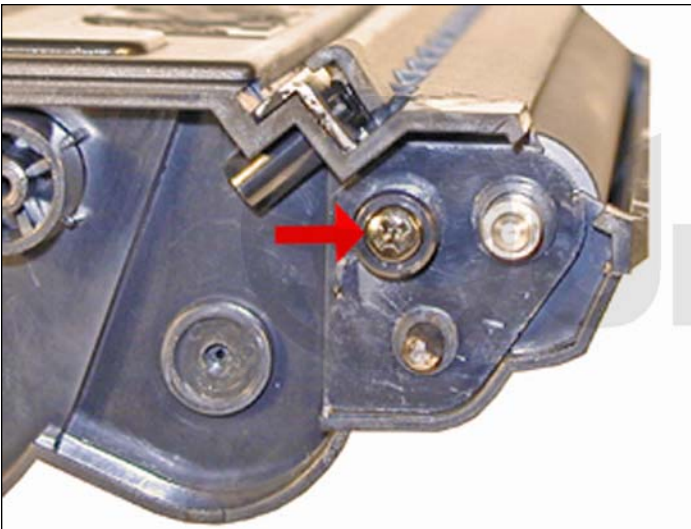
Vacuum and blow out the waste chamber clean.



3. Remove the toner fill plug on the same side of the cartridge as the waste chamber. Dump the bulk of the remaining toner out of the cartridge. Vacuum/blow out the toner supply chamber clean. It is not necessary to get the cartridge completely clean now. As the developer roller needs to come out so the doctor blade can be cleaned, you will then have easy access to clean out the hopper.



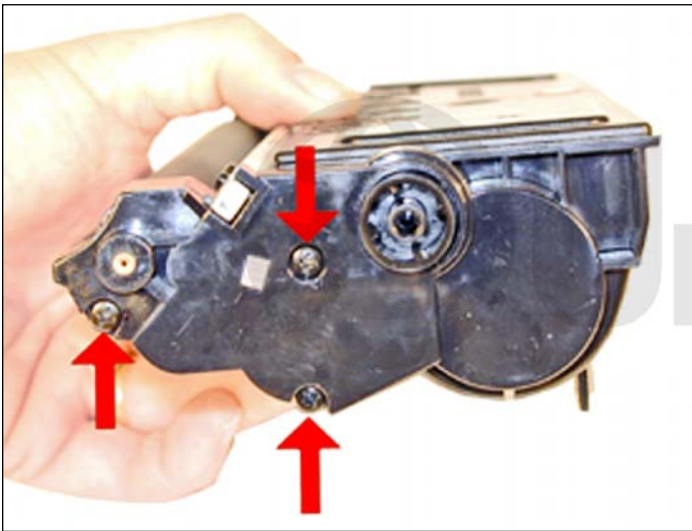
4. Remove the waste chamber drive gear.



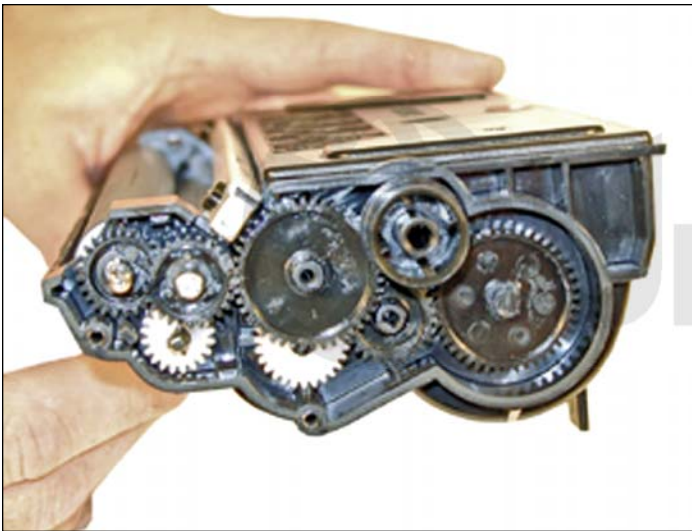
5. Remove the small developer roller screw and end cap.



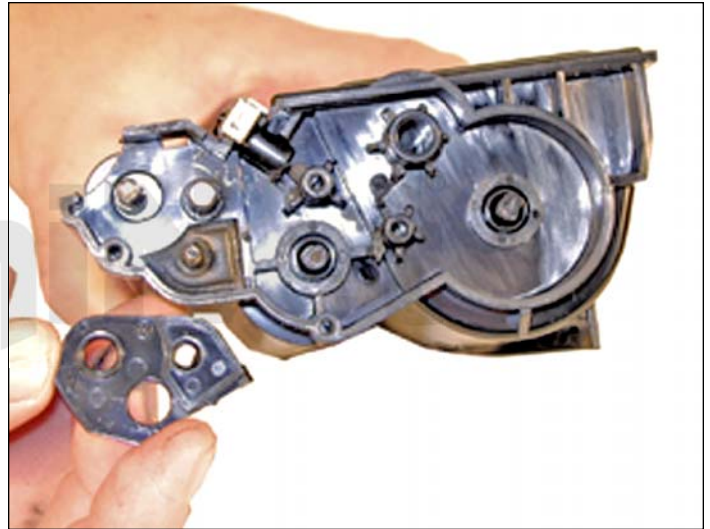
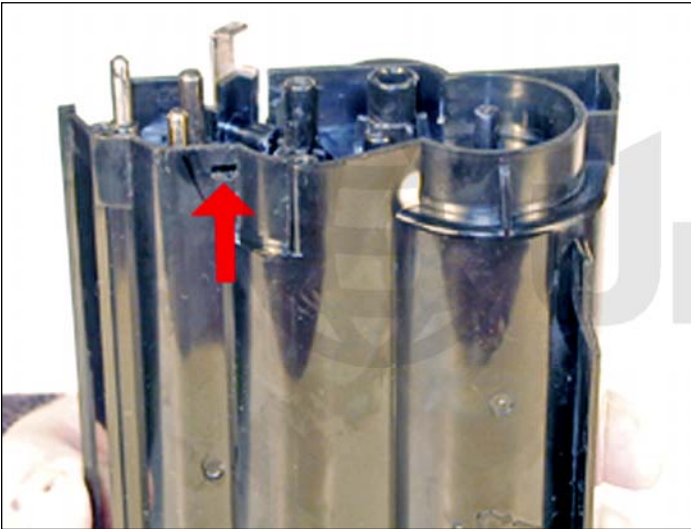
6. With a spring hook, bend up the middle of the developer roller cover, and remove from the cartridge. The cover has a small plastic tab that locks it in place on each side.



7. Remove the three screws from the opposite side end cap.



8. Note the location and placement of the gears and remove them.



9. Remove the small internal end cap from the gear side, on the developer roller shaft. Although it is not necessary to remove this piece for the roller to come out; if it is not removed, it will bend, and most likely cause a leak. To remove it, press in on a small tab, and pry it out.



10. Lift the developer roller out of the cartridge.

Clean out all the remaining toner from the hopper.



11. Clean the doctor blade. Unless new blades are available, we do not recommend that this blade be removed, as it is held in place by an adhesive foam seal under the blade. If the blade is pried up (not an easy thing to do) the blade will bend and become useless. Clean the blade with a cotton swab dampened with alcohol with the blade in place. Make sure that you do not drip any alcohol into the cartridge.



12. Install the developer roller.

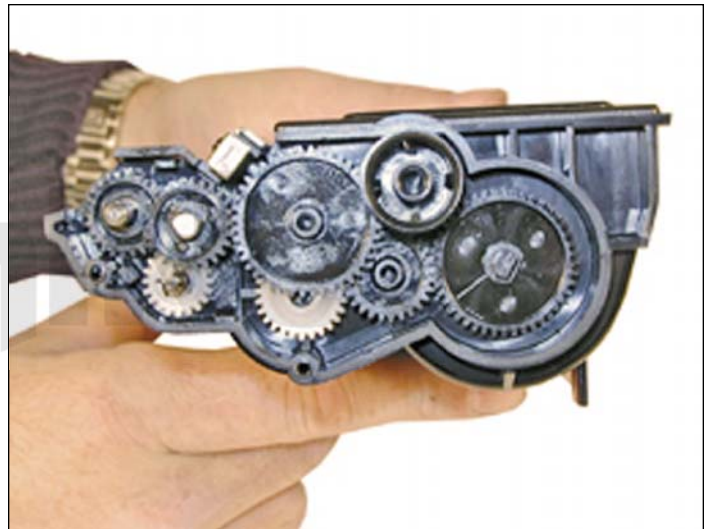


13. Install the small internal end cap.

Make sure it snaps in place.

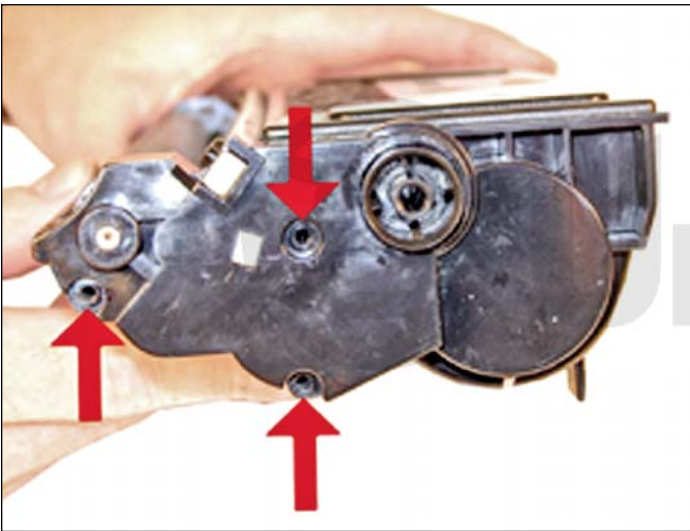


14. Install the developer roller end cap, screw, and drive gear on the waste chamber side. Clean the old grease off the gears and replace with new. We recommend white lithium grease be used.

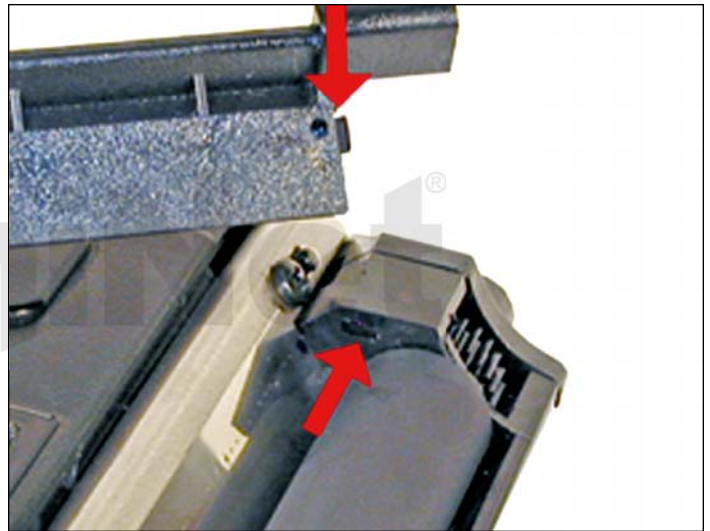


15. Install the gears, starting from left to right, and placing the inside gears first.





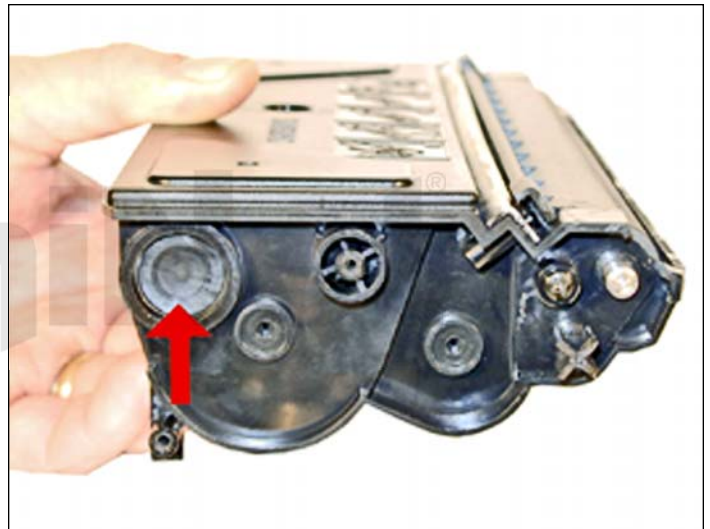
16. Install the gear end cap and three screws.



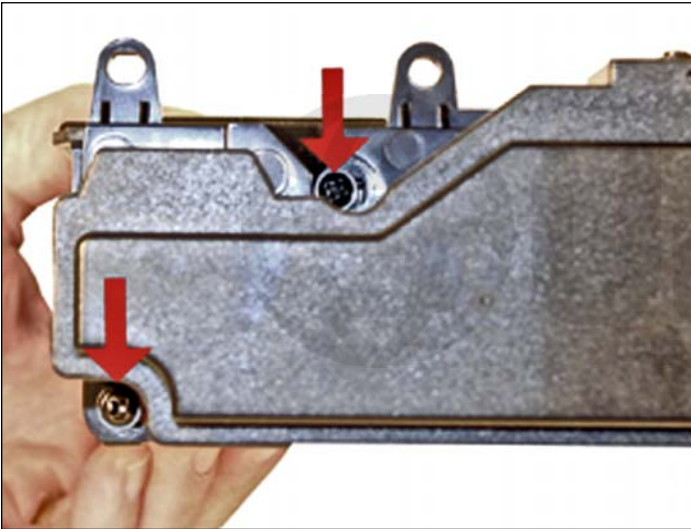
17. Install the developer roller cover in the same way it was removed. Do not bend it at too much of an angle, or it will stay bent.



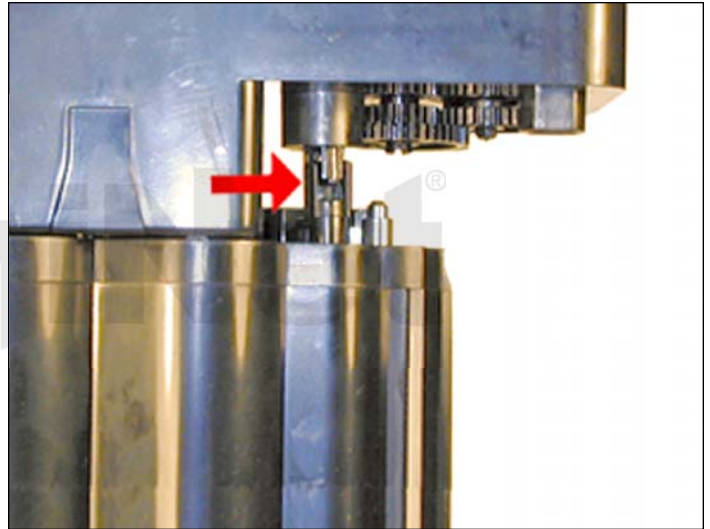
18. Fill with 250g toner for SF-830.



19. Install the fill plug and check for leaks.



20. Install the waste chamber and two screws.



21. Make sure the waste chamber drive gear is meshed with the waste chamber gears.

#### **CARTRIDGE TROUBLESHOOTING:**

There is really not much that can go wrong with these cartridges. It is still too early to tell yet, but most of the problems will probably come from either the developer roller or the doctor blade. Streaking, shading, backgrounding, etc., can all come from these two parts. We will write an update after we have more information.

#### **MACHINE TROUBLESHOOTING:**

- Drum warning:** The drum cartridge is nearing the end of its life.
- Drum empty:** The drum cartridge is finished.
- No developer cartridge:** This means the drum cartridge is missing. Actual developer is not used in these machines. We are not sure why a “no drum cartridge message” was not used. That is why we included the drum messages here.
- Invalid cartridge:** A non-Samsung cartridge is installed, or the encoder piece is missing. See text at the beginning of this article.