

LEXMARK® T650 SERIES

TONER CARTRIDGE REMANUFACTURING INSTRUCTIONS



LEXMARK® T650 SERIES TONER CARTRIDGE

REMANUFACTURING THE LEXMARK T650 SERIES TONER CARTRIDGE

By Mike Josiah

First introduced in March 2009, the Lexmark T650 series is based on the Lexmark T650 1200 dpi engine. Depending on the model, the print speed is from 45-55 pages per minute. As with all of Lexmark's new heavy duty machines these machines are loosely based on the older Optra S machines but these are much faster. Due to the speed and fuser characteristics, the toner is completely different and unique to this series.

THE MACHINES CURRENTLY AVAILABLE BASED ON THE T650 ENGINE ARE:

Lexmark T650dn
Lexmark T650n
Lexmark T650dtn
Lexmark T652dn
Lexmark T652dtn
Lexmark T652n
Lexmark T654dn
Lexmark T654dtn
Lexmark T654n

As with the T640 machines, these cartridges have killer type chips installed in the Prebate or "Return Program" cartridges that will not allow the cartridge to be used again until the chipboard is replaced. As with other Lexmark cartridges, the non-prebate or standard cartridges will work with out replacing the chips. Replacement chips are currently being worked on and at the time of this writing (July 2009), are not available. They should be available as you read this.

These cartridges have a huge profit potential. They are slightly different than previous versions, but still easy and very worthwhile to do.

Lexmark has also released cartridges for different areas of the world.

The **Americas** are one region; **Europe, Middle East and Africa** are another (EMEA); **Latin America**, and **Asia Pacific** region is the last.

As in the past, most likely the only difference in the cartridges besides the part numbers is the chips.

AMERICAS LEXMARK PART NUMBERS FOR THESE CARTRIDGES:

"Return Program" 7K* Cartridge	T650A11A	List \$153.99**	
"Return Program" 25K* Cartridge	T650H11A	List \$430.99**	
"Return Program" 36K* Cartridge	T654X11A	List \$455.99**	T654 Series only
Standard 7K* Cartridge	T650A21A	List \$206.99**	
Standard 25K* Cartridge	T650H21A	List \$483.99**	
Standard 36K* Cartridge	T654X21A	List \$508.99**	T654 Series only

EUROPE, MIDDLE EAST AND AFRICA (EMEA) LEXMARK PART NUMBERS FOR THESE CARTRIDGES:

"Return Program" 7K* Cartridge	OT650A11E	
"Return Program" 25K* Cartridge	OT650H11E	
"Return Program" 36K* Cartridge	OT654X11E	T654 Series only
Standard 7K* Cartridge	OT650A21E	
Standard 25K* Cartridge	OT650H21E	
Standard 36K* Cartridge	OT654X21E	T654 Series only



ASIA PACIFIC REGION LEXMARK PART NUMBERS FOR THESE CARTRIDGES:

“Return Program” 7K* Cartridge	T650A11P	
“Return Program” 25K* Cartridge	T650H11P	
“Return Program” 36K* Cartridge	T654X11P	T654 Series only
Standard 7K* Cartridge	T650A21P	
Standard 25K* Cartridge	T650H21P	
Standard 36K* Cartridge	T654X21P	T654 Series only

LATIN AMERICA REGION LEXMARK PART NUMBERS FOR THESE CARTRIDGES:

“Return Program” 7K* Cartridge	T650A11L	
“Return Program” 25K* Cartridge	T650H11L	
“Return Program” 36K* Cartridge	T654X11L	T654 Series only
Standard 7K* Cartridge	T650A21L	
Standard 25K* Cartridge	T650H21L	
Standard 36K* Cartridge	T654X21L	T654 Series only

* Yield based on ISO/IEC 19752. ** List prices current as of July 2009. List prices shown in U.S. American Dollars.

There are also two label cartridges: the T654X04A and the T650H04A.

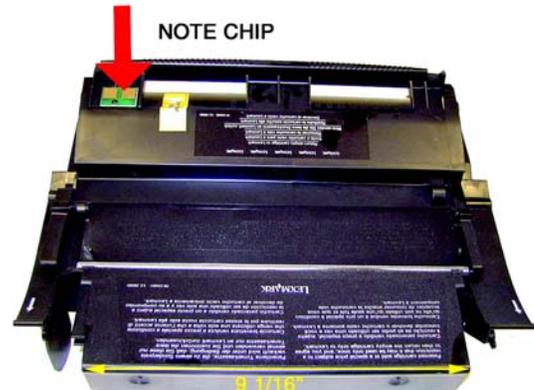
For Europe change the “A” to an “E”, for Asia change it to an “R”, and for Latin America change it to an “L”.

Lexmark only lists the extra high yield cartridges (36K) for the T654 series.

If these EHY cartridges are installed in the T650/652 machines, you will get an “Unsupported Cartridge” error.

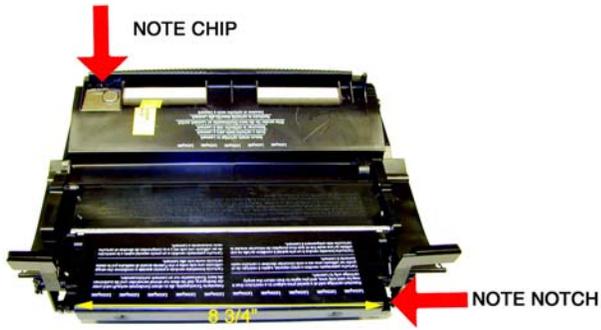


OPTRA S



OPTRA SE

The T65x series of cartridges are slightly different physically from all the rest in the Optra and T series. Since all of the cartridges from the Optra S on are somewhat similar, we are showing all the different cartridge versions here and throughout the next page.



OPTRA T



T-520



T-620



T-630



T-640



T-650

It should be noted that because of the play between the toner hopper and the OPC drum, a shipping lock should be installed in every cartridge. This holds true even if you are going to hand deliver the cartridge. This lock keeps the pressure off the developer rollers and helps prevent flat spots from occurring during storage.

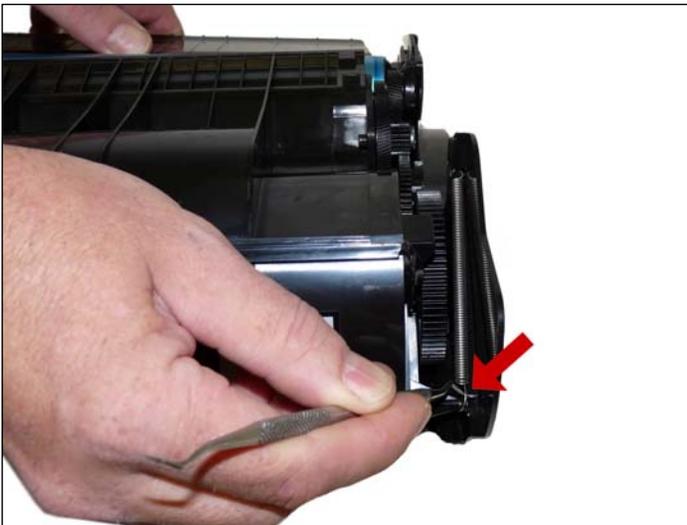
Machine/cartridge troubleshooting as well as how to run test prints will be covered at the end of this article.

REQUIRED TOOLS

1. Toner approved vacuum
2. Small screwdriver (common style)
3. Phillips head screwdriver (#1)
4. Needle nose pliers
5. Spring hook

REQUIRED MATERIALS

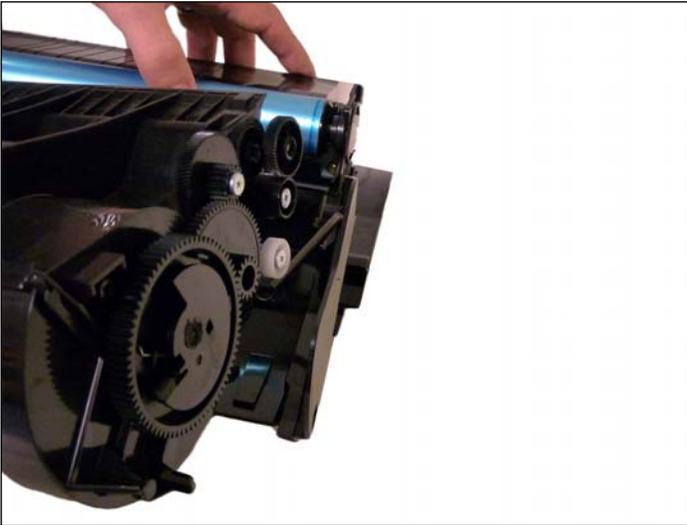
1. T650 toner
2. Drum padding powder
3. Cotton swabs
4. Isopropyl alcohol
5. Cotton pads
6. Long life OPC drum (optional)
7. Wiper blade
8. Shipping lock
9. Recovery blade (optional)
10. Retaining blades (optional)



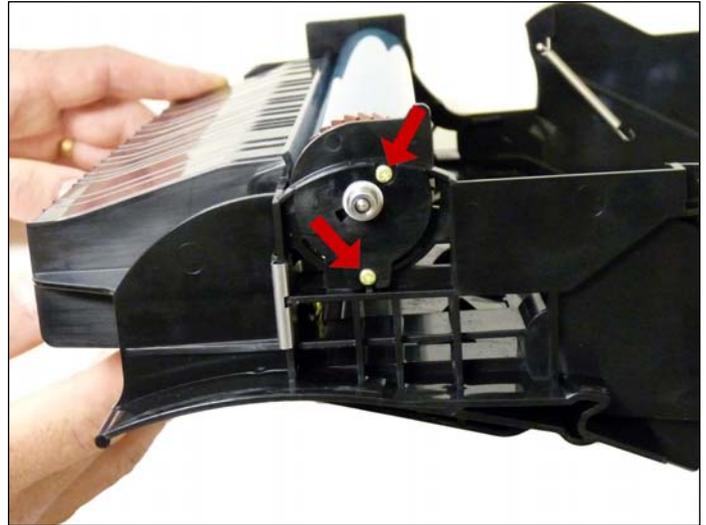
1. Vacuum the exterior of the toner cartridge. Be careful of the drum. Place the cartridge on the bench drum-side up (label face down) with the toner supply towards you. With a spring hook, remove the two springs from each end of the cartridge.



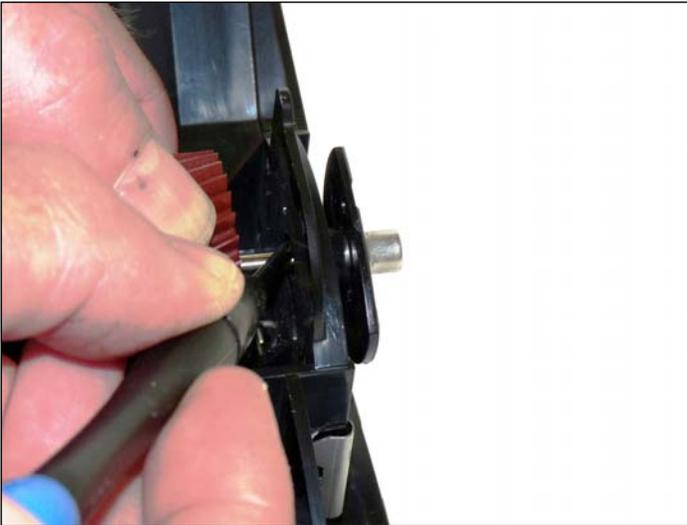
2. There are two plastic posts from the hopper that fit into the cartridge shell. Pull the edge of the shell out to release the posts, and lift up the hopper so that the posts are free.



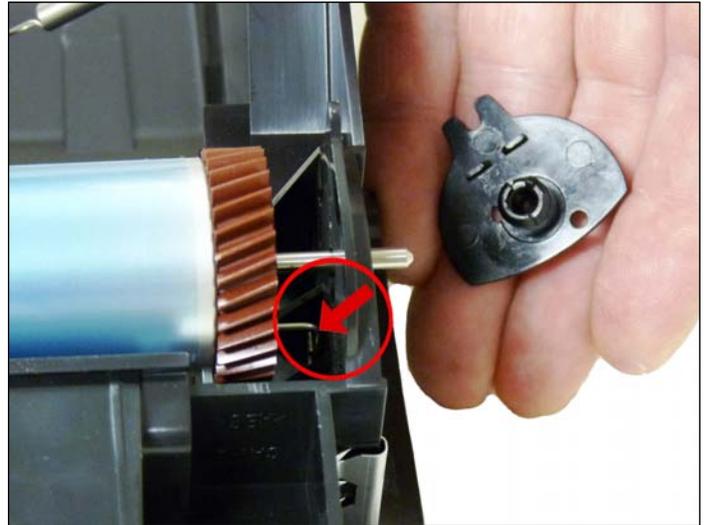
3. Slide the hopper to the right, and remove from the cartridge. Pull it out so that the large white bearing comes free. Place the hopper aside.



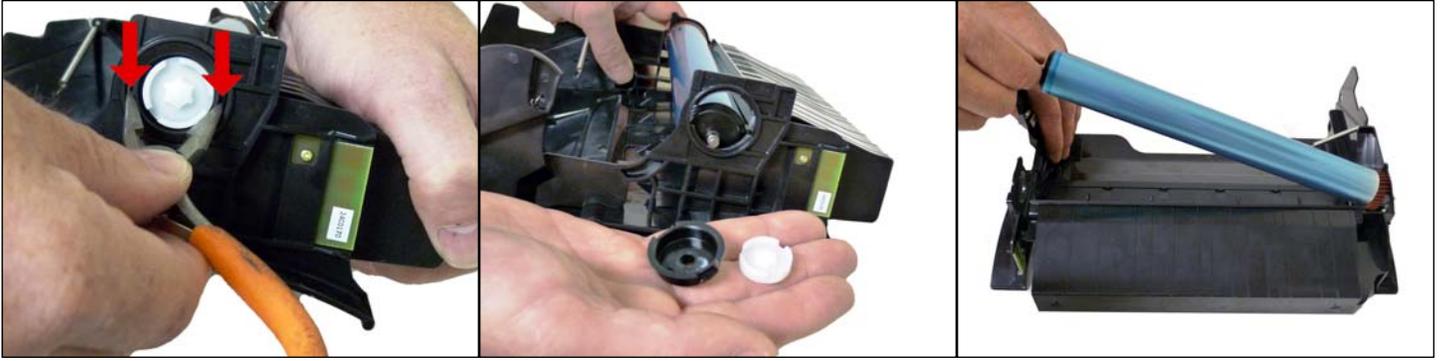
4. Remove two small screws from the drum axle plate.



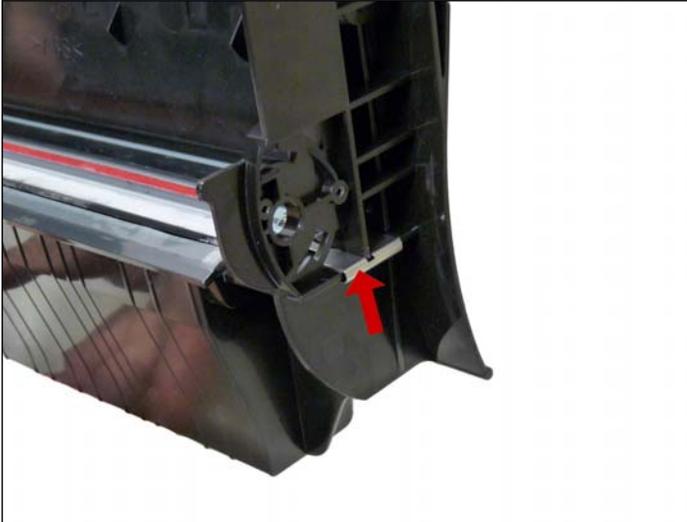
5. Press the drum axle plate out from the inside of the cartridge.



Hold the small helical gear while pulling it out so that the drum is not damaged in the process. Note the location of the spring.



6. On the opposite side, turn the locking ring until it spins freely. Carefully pry off the locking ring and white drive gear. Gently lift the drum up and out of the cartridge, if you are going to reuse the drum, place it in a light protected area.



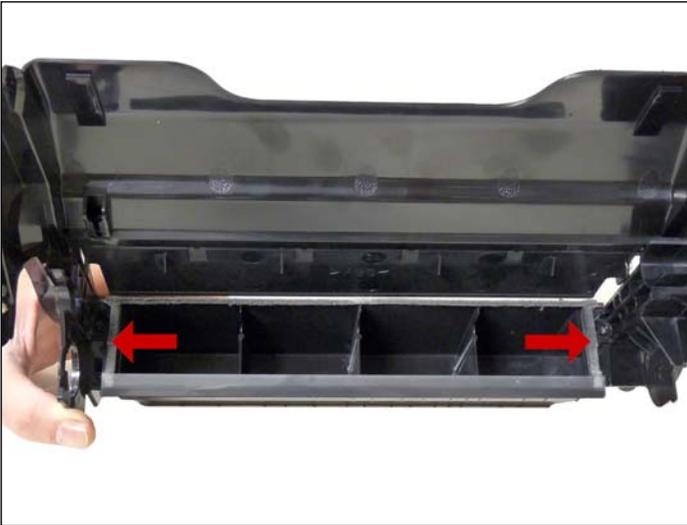
7. On the wiper blade, remove the contact spring. Remove the two screws on either end of the wiper blade.



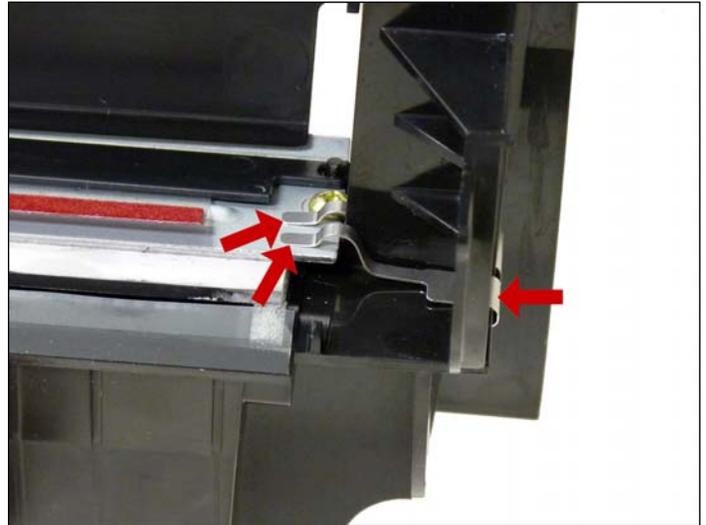
8. Place the cartridge so that the waste bin is face-up. Take a razor blade and cut the foam seal that runs along the back edge of the wiper blade to separate it from the cartridge. Make sure to cut along the plastic/foam and not the blade.



9. Hold the cartridge so that it is upright (standing up with the waste bin on the table). With one hand, hold the laser shutter open, and with the other hand, remove the wiper blade. Work the blade off carefully so that the alignment pin does not break!



10. Make sure that the two end foams are clean and in their proper place.

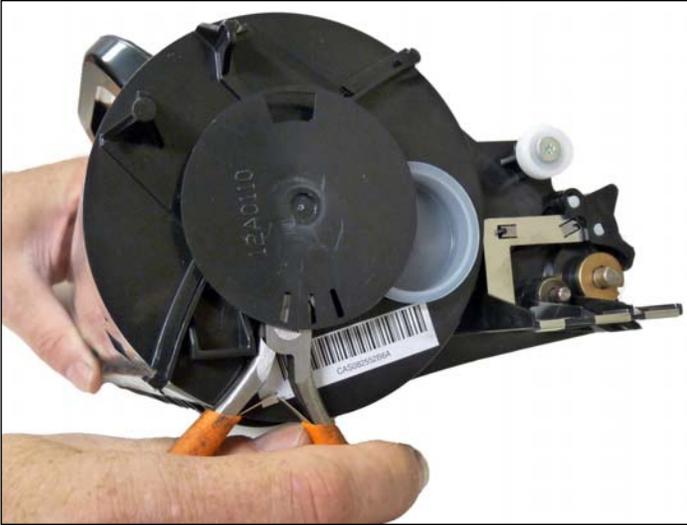


11. Pad the new wiper blade with your preferred wiper blade lubricant.

Replace the blade and two screws into the cartridge. Install the wiper blade contact spring.



12. Place a piece of clear tape along the edge of the wiper blade. If the tape does not stick well, the area should be cleaned with alcohol. It is very important to get a good seal with the tape, otherwise the cartridge will leak. Trim away any excess tape. Be careful not to allow any tape into the laser port opening.

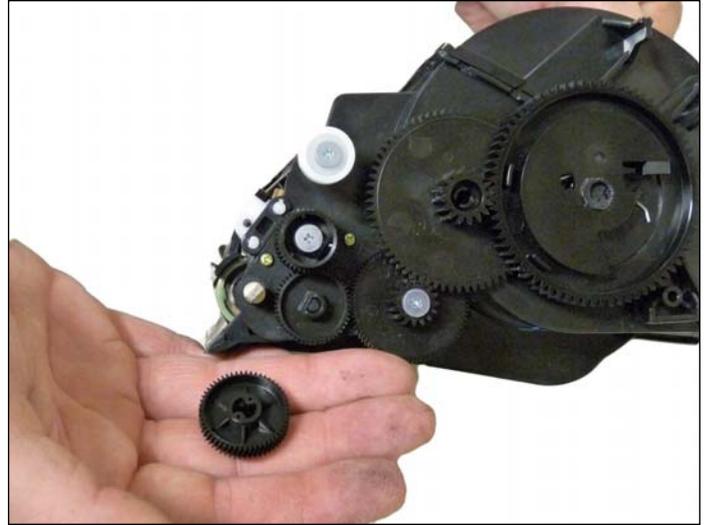


13. On the supply hopper, take a pair of needle nose pliers and gently pry off the encoder wheel. Make sure you pry it off from the center shaft so that the wheel does not become damaged. Also take great care to work the wheel off. If it is pulled straight off, the shaft may pull through the clutch gear on the opposite side of the shaft. Place the wheel in a safe place. Remember, this wheel tells the cartridge what type of cartridge it is: Prebate or Non-Prebate. The chip is what tells the machine what type of yield the cartridge has. If this wheel becomes damaged, it must be replaced.



14. Remove the fill plug from the hopper.

Dump out all remaining toner.

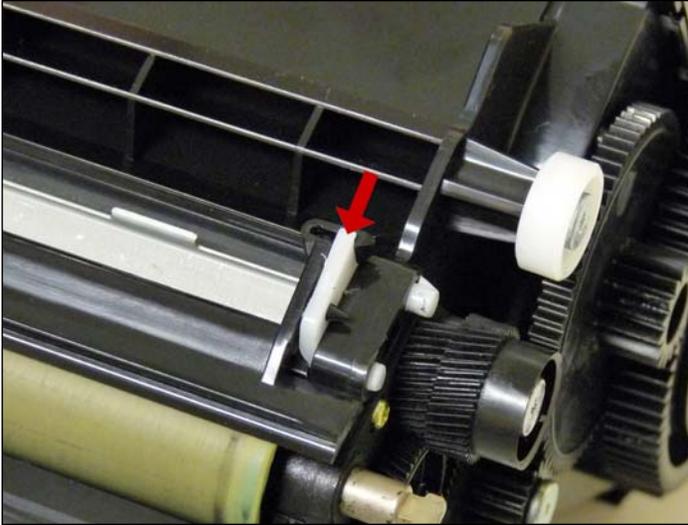


15. Turn the developer roller drive gear to unlock it (hold the other gears when doing this).

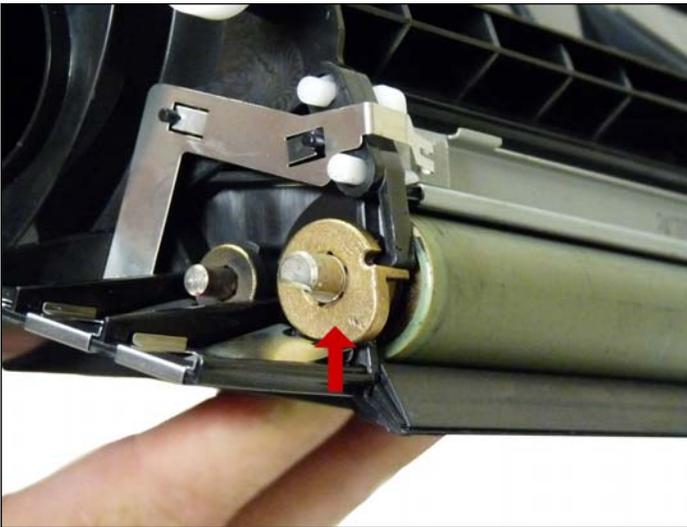
Remove the drive gear from the developer roller shaft.



16. Remove the doctor blade spring by pressing down on the center of the spring.



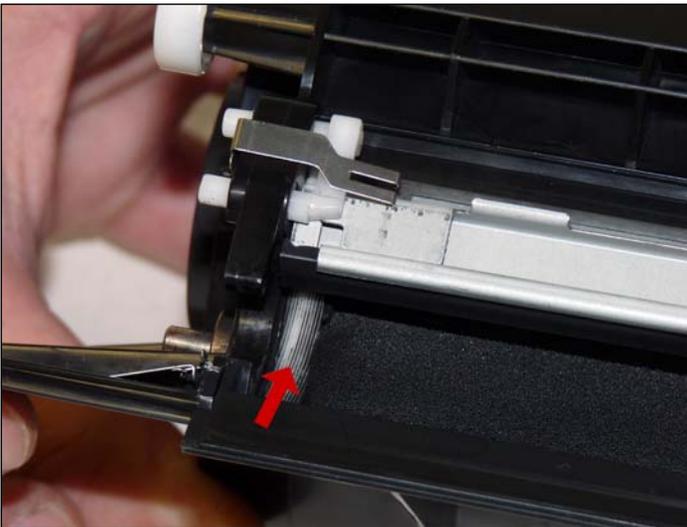
17. Remove the developer roller cover by releasing the tab on the left side, and sliding out the right from the pins.



18. On the left (fill plug) side of the static roller there is a small metal bushing. Press down on the metal spring, take a small screwdriver, and pry the bushing up so that the tab on the bushing is facing up. This will release the bushing and developer roller.



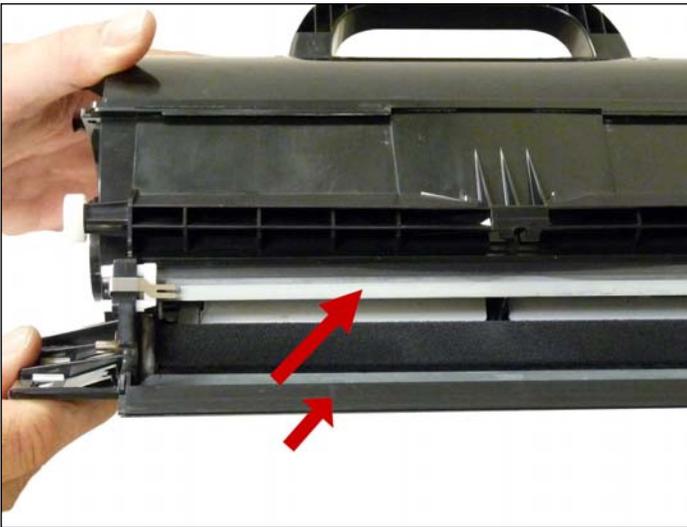
19. Remove the developer roller. Note that there are no spacers on these cartridges. NOTE: Always remove the doctor blade before removing the developer roller. Failure to do this will cause the doctor blade to slide down from its original position and possibly ruin the alignment. Vacuum/blow the toner hopper clean.



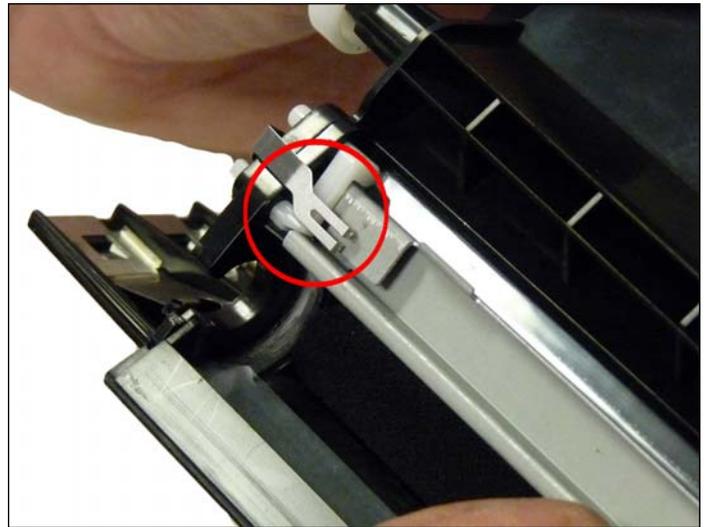
20. With a cotton swab dipped in alcohol, clean the developer roller seals located on either end of the static roller section. These seals are made of a white plastic. Also clean the electrical contact that touches the developer roller shaft. Carefully vacuum or blow off the developer roller. Be careful not to touch the roller with your hands, or to damage the roller in any way.



21. Remove the doctor blade by sliding the blade down out of the track.



22. Inspect the inner and outer retaining blades. If they are bent in any way, they must be replaced, as they will leak.

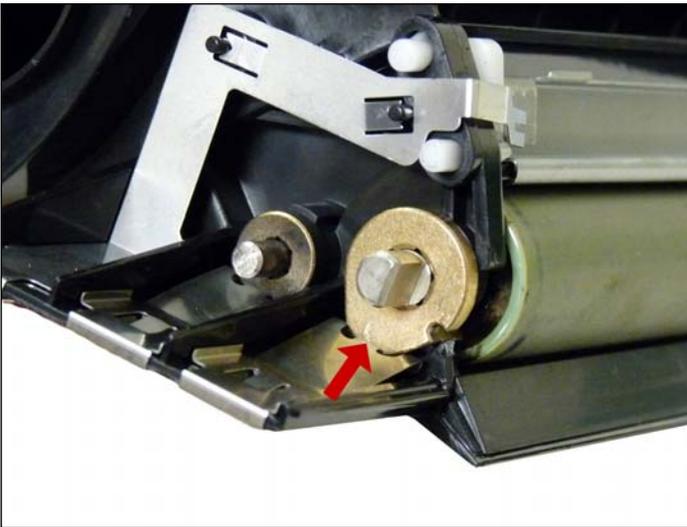


23. Clean and install the doctor blade. Make sure the contact spring is on top of the blade.



24. Place the longer keyed end of the developer roller into the cartridge and install the roller.

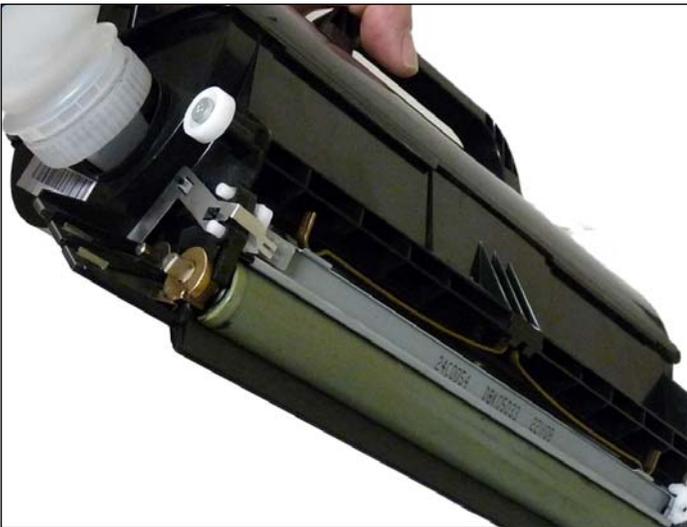




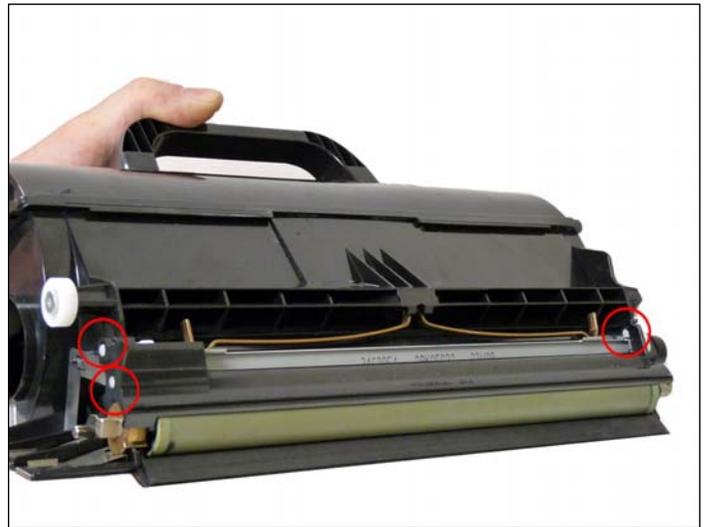
25. Install the bushing onto the developer roller shaft, turning it so that the tab is facing down. This will lock the roller in place.



26. Install the doctor blade spring.



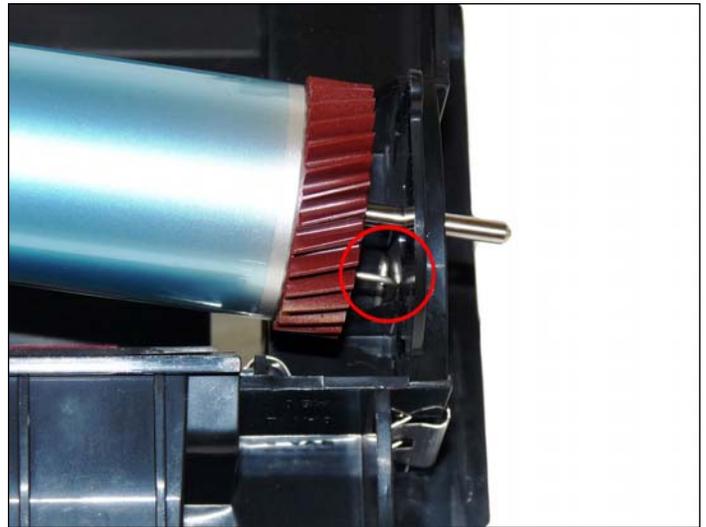
27. Fill the hopper with the appropriate amount of toner. Remember: the amount of toner that can be placed in the cartridge is controlled by the chip. Install the fill plug.



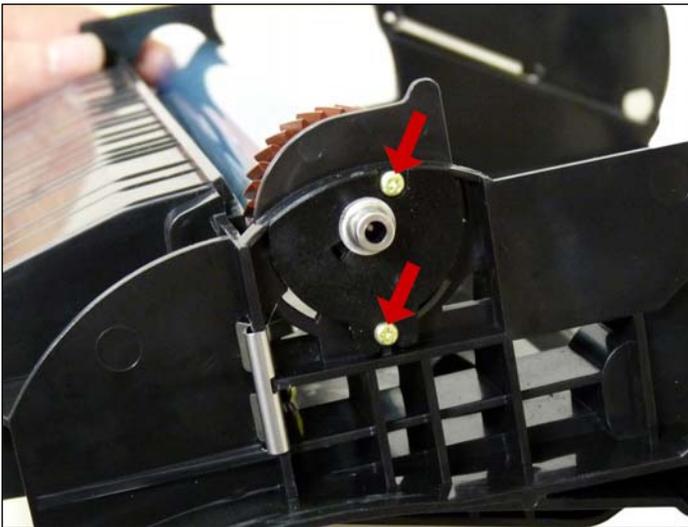
28. Install the developer roller cover. Make sure the pins are aligned correctly in the cover.



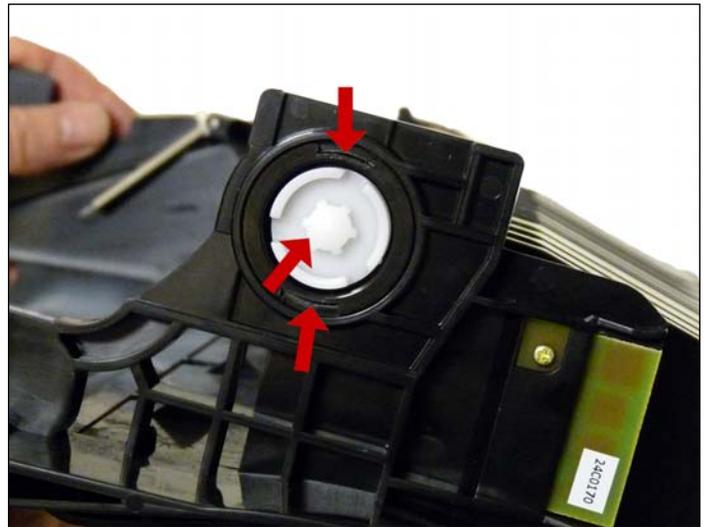
29. Install the encoder wheel.



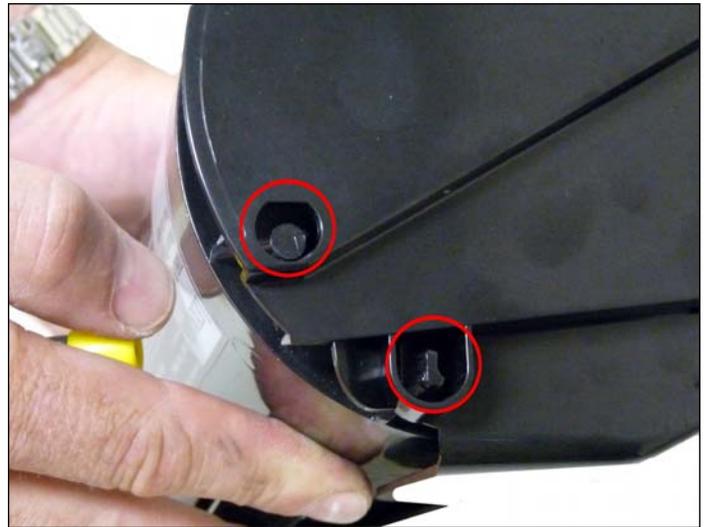
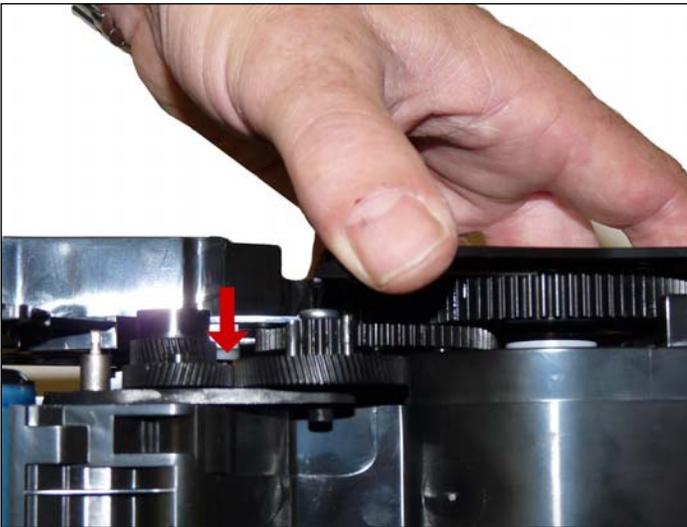
30. Take the OPC drum and lightly coat with your preferred Lexmark drum lubricant. Place the OPC drum into the cartridge with the long thin axle on the contact or non-chip side of the cartridge. Make sure that the spring is in the proper position.



31. Install the drum axle plate and two screws as shown.



32. On the opposite side of the cartridge, install the black plastic bushing. Turn it until it locks. Press on the white gear inside the bushing.

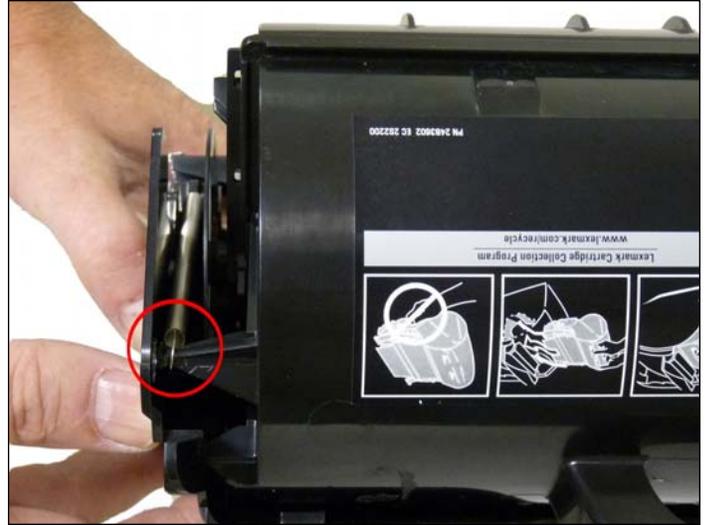


33. Take the toner hopper and install it left side first.

Make sure that the left side post and the white bearing are in their proper slot.



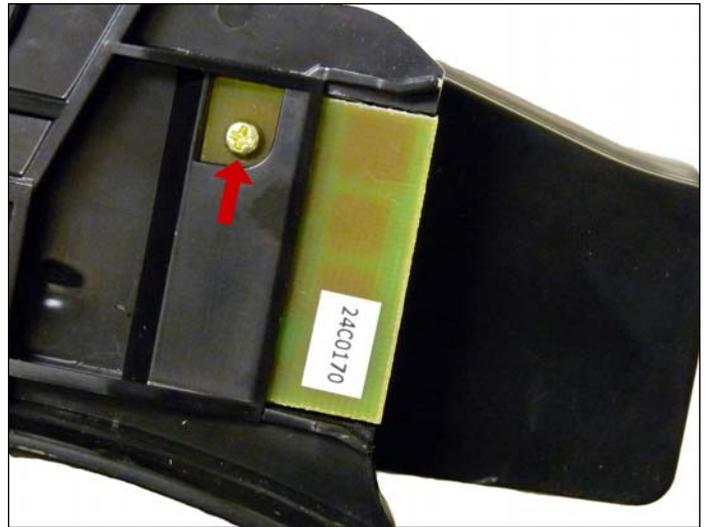
34. On the right side of the cartridge, pull the cartridge shell out so that the right side post falls into its slot.



35. With the spring hook, replace both springs on to the toner supply chamber.



36. Re-install the developer roller drive gear. Hold the gear train and turn the gear until it locks. It's a little hard to get on now than if installed before, but it's easier to install the hopper this way. Either way is fine though.



37. Replace the chip by removing the screw and sliding the chip out. When replacing the chip keep the contact side facing the cartridge.



38. A shipping lock must now be installed. This lock should be used even if you are going to hand deliver the cartridge. It will prevent the toner hopper from coming in contact with the OPC drum, and causing damage to either the drum or the developer roller. Press the two red tabs into the sides of the cartridge as indicated in the picture supplied with the lock.

CARTRIDGE TROUBLESHOOTING**Cartridge Repetitive Defect Chart:**

OPC Drum	94mm
Developer Roller	62mm
PCR (in machine)	38mm

Machine Error Codes

Most of the error messages appear to be in text, and do not need an explanation. No numeric messages are listed in the user guide except for the following:

- 42.xy** This is a cartridge region mismatch.
The 'x' = the printer region and the 'y' = the cartridge region.
Both must match each other.

Region Codes are as follows (see text at beginning of article):

0	Worldwide
1	America
2	Europe region
3	Asia region
4	Latin America
9	Invalid region

TAKING TEST PRINTS**Printer Menu:**

1. Press the MENU key.
2. Press the DOWN ARROW until "CONFIG MENU" shows on the display.
3. Press the SELECT button.
4. Press the DOWN ARROW until the check mark is next to "PRT QUALITY PAGES."
5. Press the SELECT button

Included on these pages are:

1. Device information
2. Printer revision
3. Cartridge information
4. Printer margin settings
5. Minimum stroke width