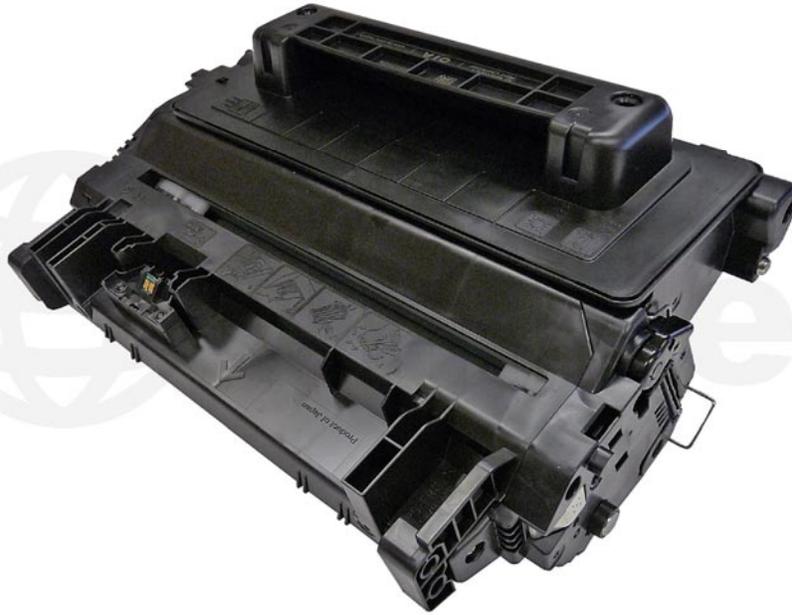


HP® ENTERPRISE FLOW MFP M630

TONER CARTRIDGE REMANUFACTURING INSTRUCTIONS



HP CF281A & CF281X TONER CARTRIDGES

REMANUFACTURING THE HP ENTERPRISE FLOW MFP M630 TONER CARTRIDGES

By Mike Josiah and the Technical Staff at UniNet

First introduced in September 2014, the HP LaserJet M630 is based on a 57 ppm, 1200 dpi engine. All the printers to date in this series come standard with an 800 MHz processor, have 1.5Gb memory (expandable to 2Gb), and have a first page out in less than 8.5 seconds.

This series of machines are heavy duty with double-sided scanning, paper capacity of up to 3,100 pages, a built in security center to safeguard your documents, a full color touch screen, and full MFP capabilities.

These cartridges are the next rendition of the HP 64A/X (P4015) and the HP 90A/X (Enterprise 600 series). They are very similar and use many of the same parts, but are not interchangeable. Conversion kits are currently in development. Check with your UniNet Sales Representative for availability.

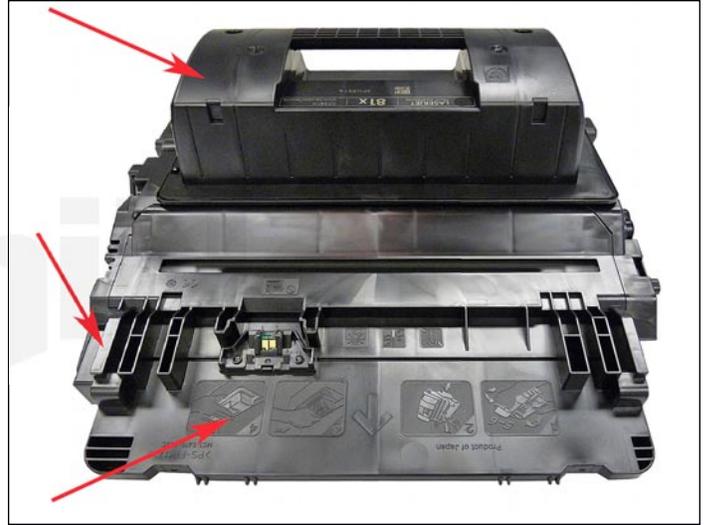
Out of the box these cartridges come with a 10,500-page low yield cartridge. The new CF281A and CF281X cartridges are rated for 10,000 and 24,000 pages respectively. Both the 81A and 81X cartridges work in all machines to date.

The CF281A has a list of \$171.99*

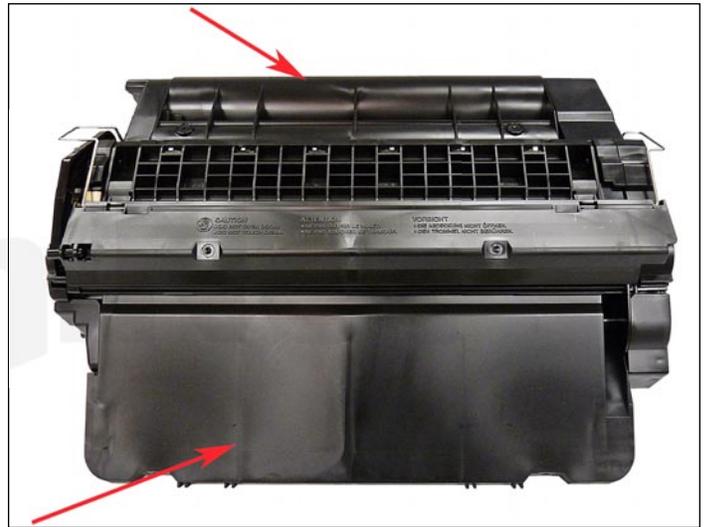
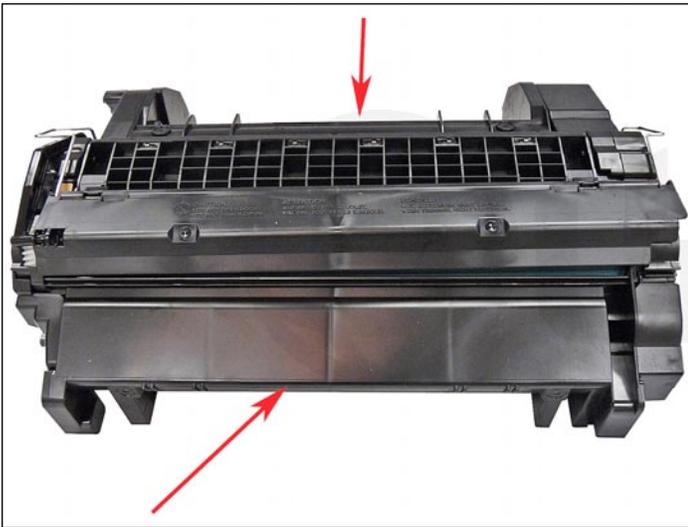
The CF281X has a list of \$282.99*

***Pricing as of 1/12/2015**

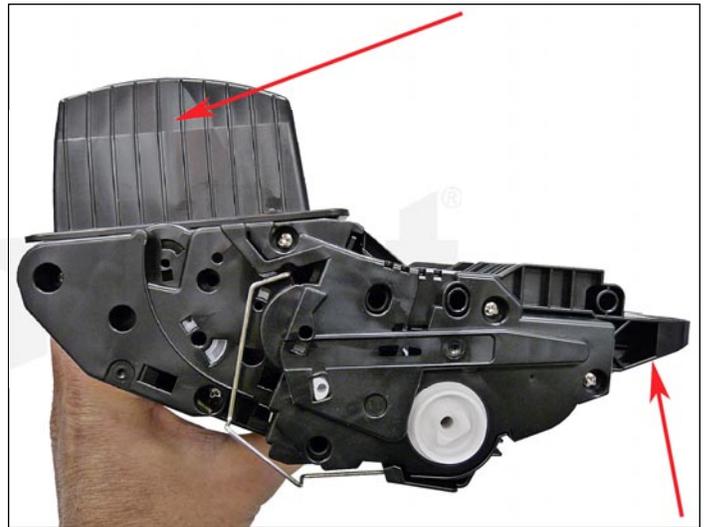
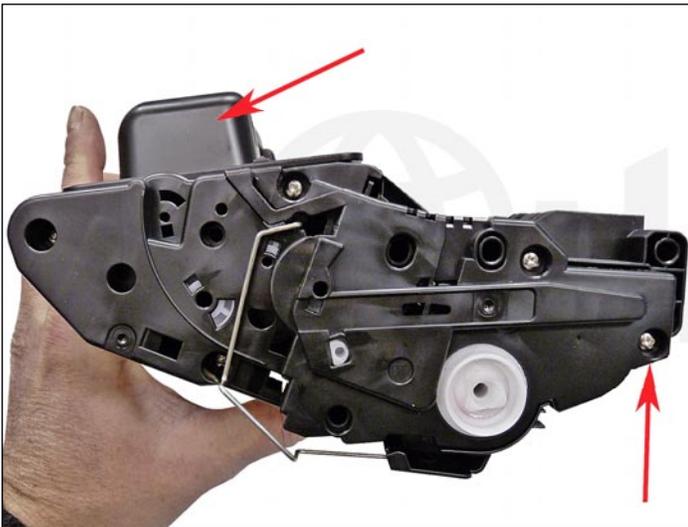
The following figures show the difference between the two 81A and 81X cartridges...



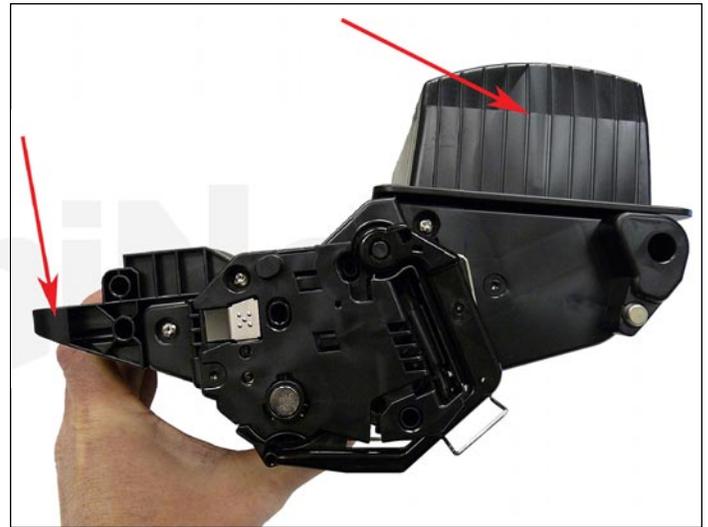
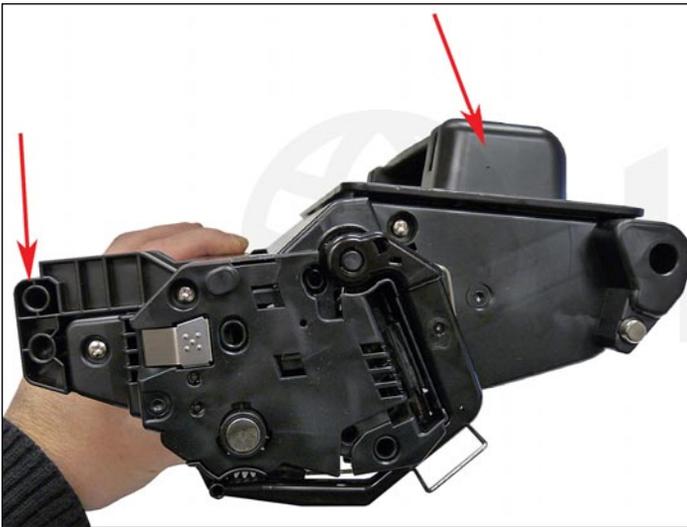
TOP OF 81A, 81X



BOTTOM OF 81A, 81X



RIGHT SIDE 81A, 81X



LEFT SIDE 81A, 81X

CURRENT MACHINES THAT USE THESE NEW CARTRIDGES

HP-LaserJet Enterprise Flow MFP M630dn

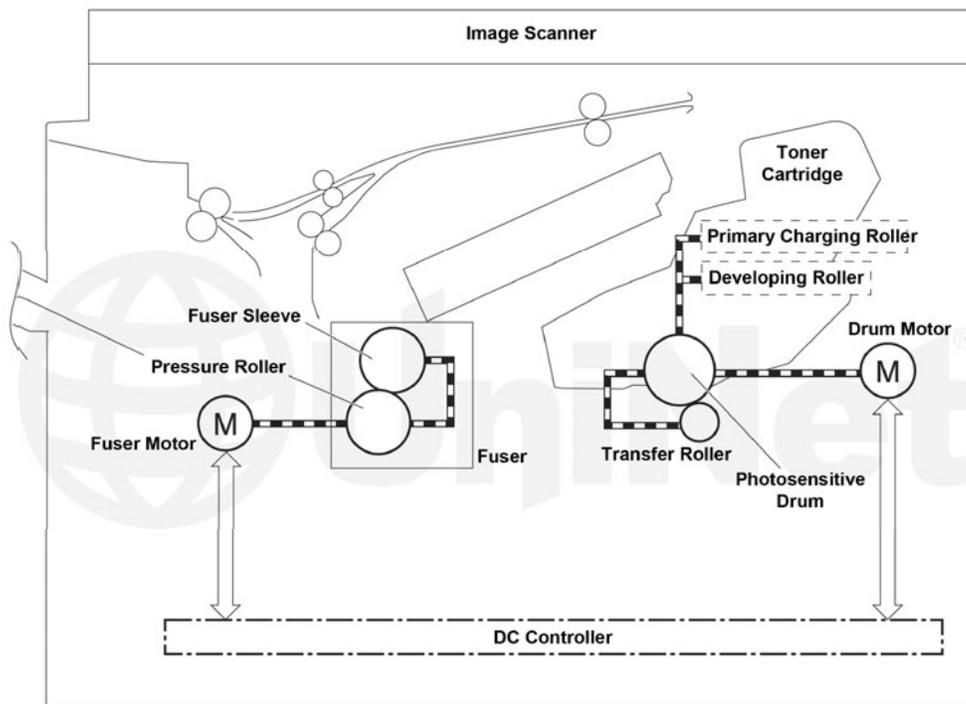
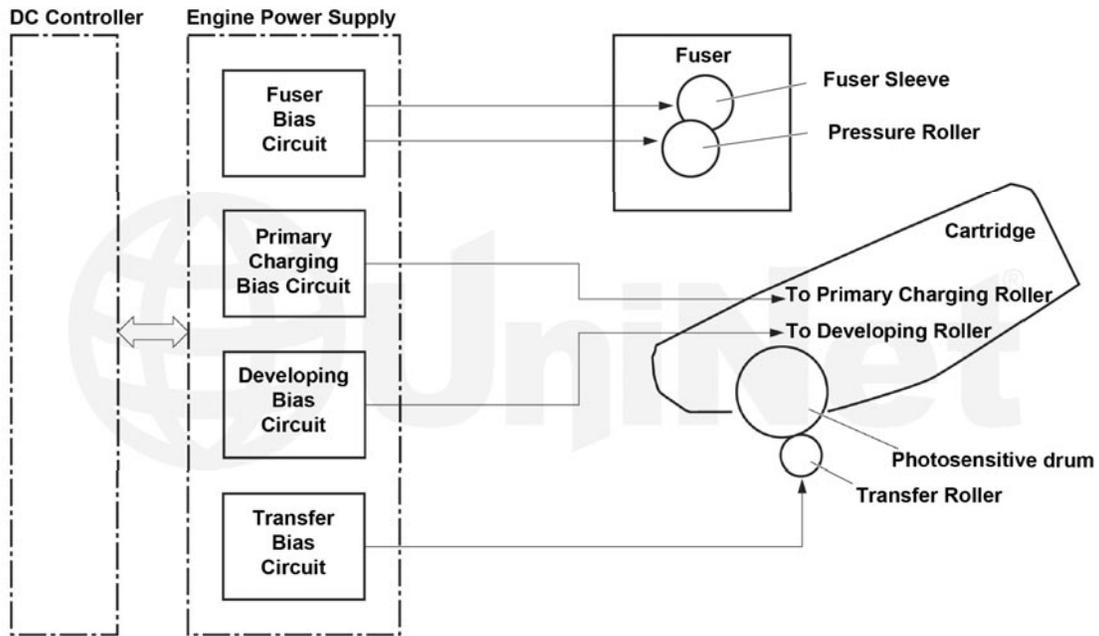
HP-LaserJet Enterprise Flow MFP M630h

HP-LaserJet Enterprise Flow MFP M630f

HP-LaserJet Enterprise Flow MFP M630z

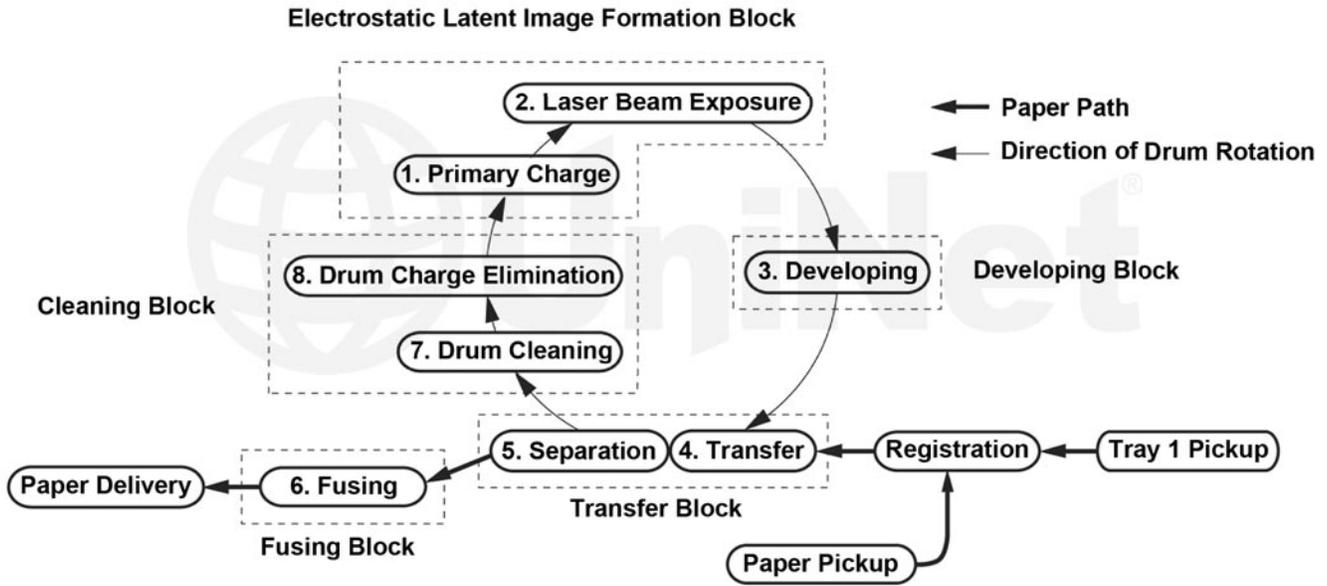
Printer usage, as well as some common printer/cartridge problems will be covered at the end of this article.

It's been a while since we have covered monochrome printing theory especially on the faster printers, so we are covering it here. Knowing the theory is very helpful if you run into a print issue and need to troubleshoot what happening. When you know what each part does and when, you can narrow the issue down much quicker.

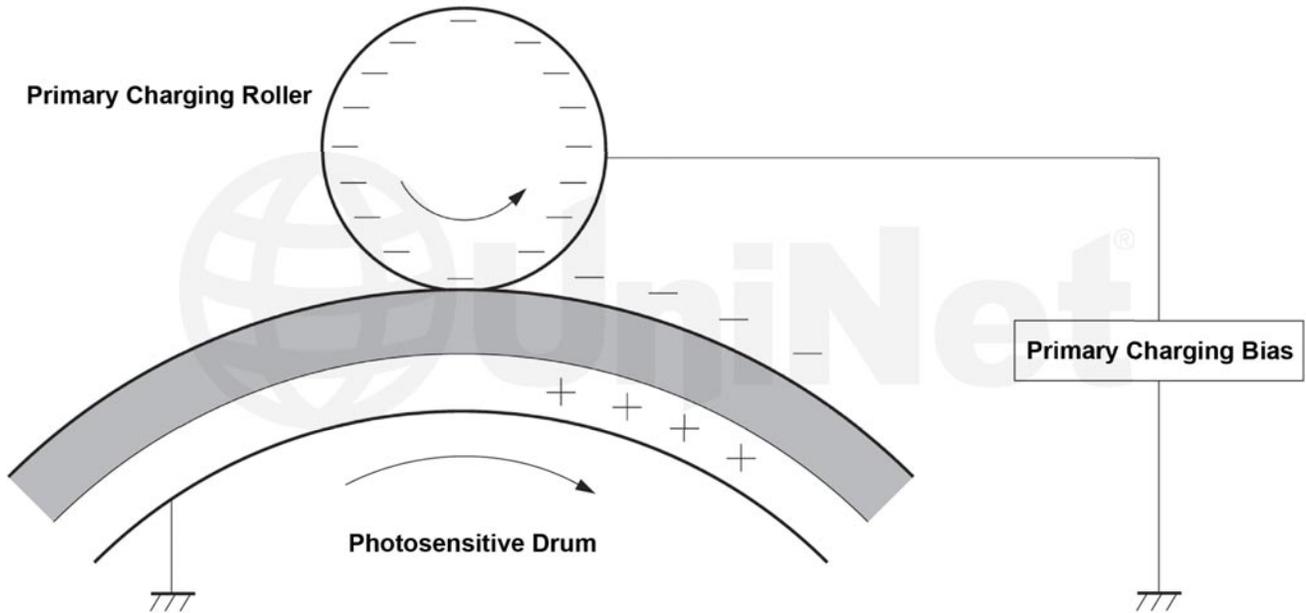


CARTRIDGE THEORY

Figures show how the various circuits, signals, and motors come out of the printer and what they connect to in the cartridge.



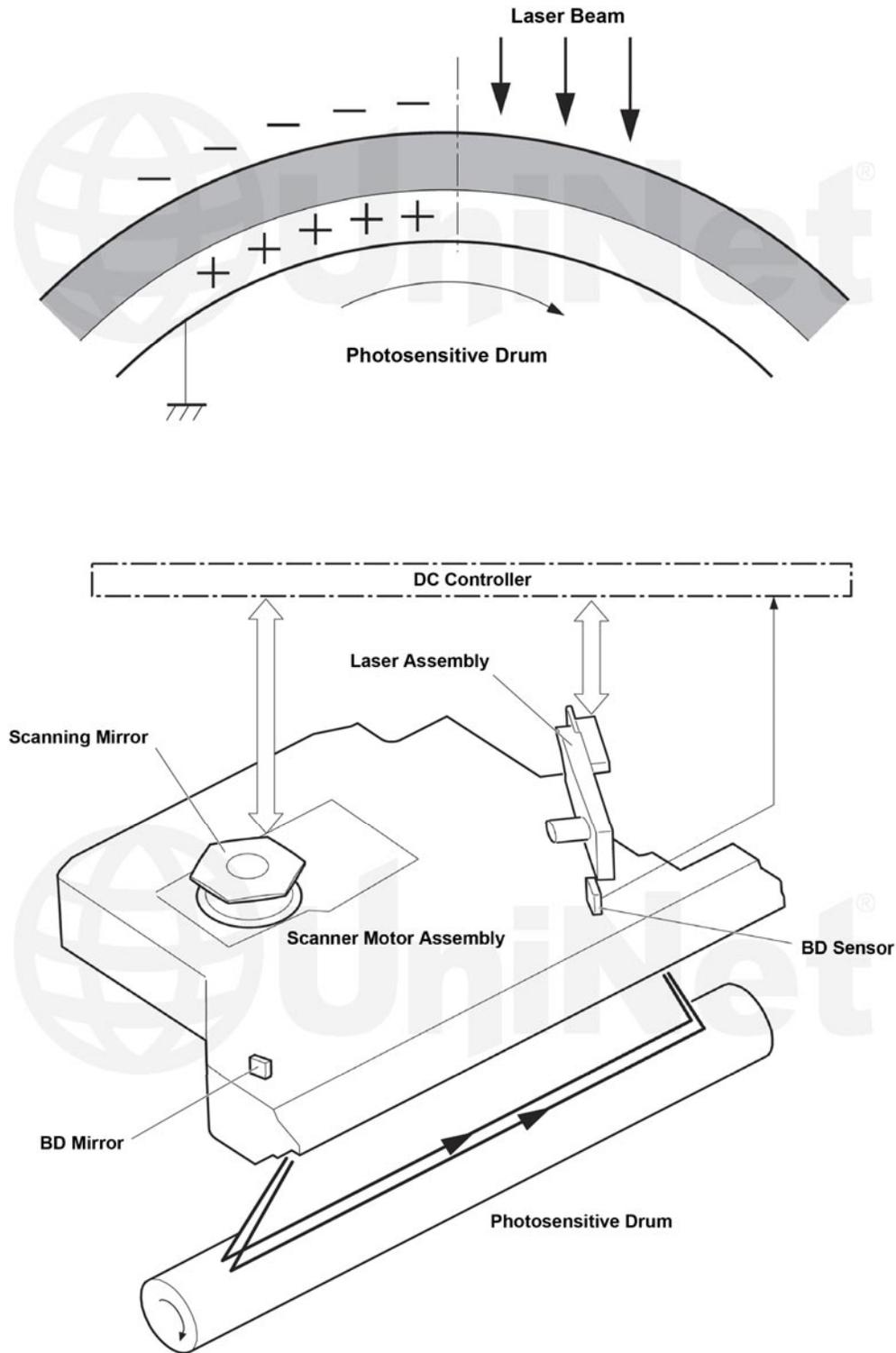
The image formation process consists of eight steps, which are split up into five functional blocks.



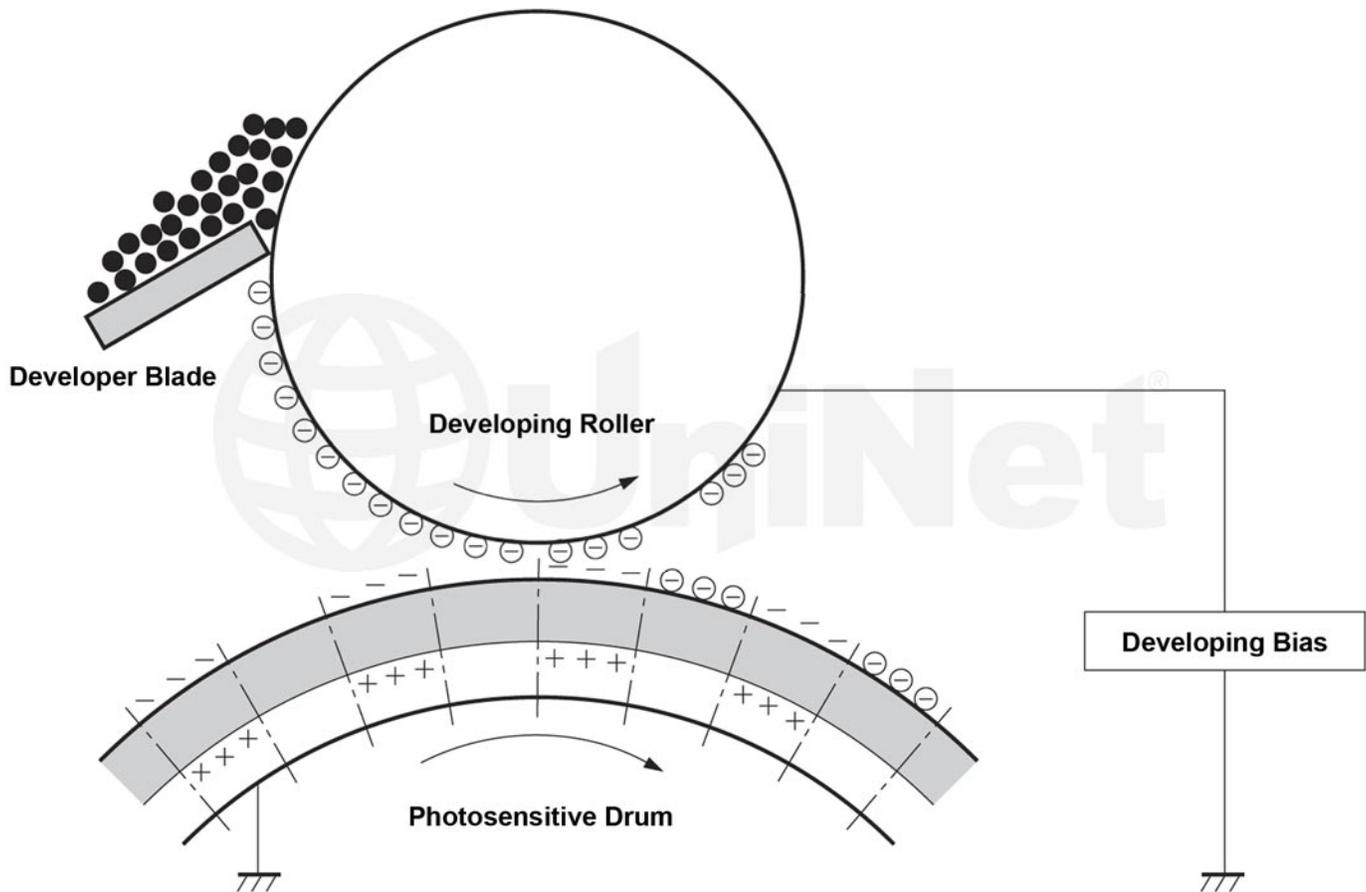
In the **first** step, the Primary Charge roller (PCR) places a uniform negative DC bias voltage on the OPC drum surface.

The amount of the negative DC bias placed on the drum is controlled by the printer's intensity setting.

This process sets the drum for the laser.

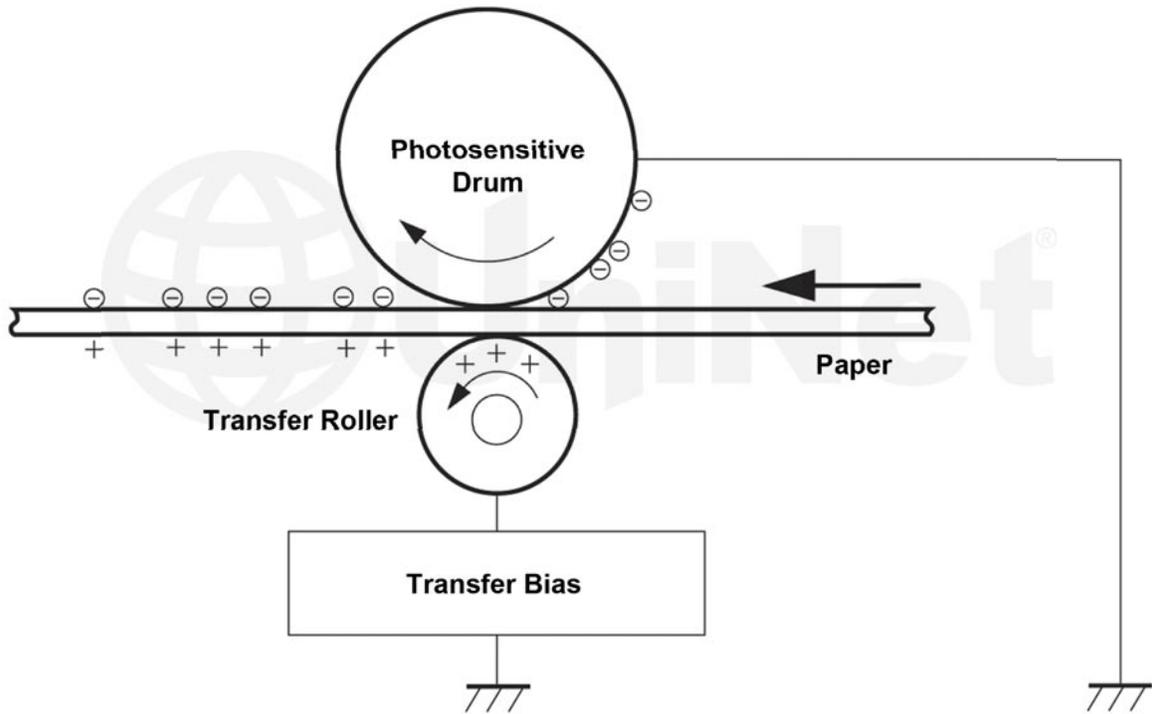


In the **second** step, two laser beams are fired onto a rotating mirror (called the scanner). As the mirror rotates, the beam reflects into a set of focusing lenses. The beam then strikes the OPC's surface, which neutralizes the negative charge and leaves a latent electrostatic image on the drum. Two beams are used for faster printing.

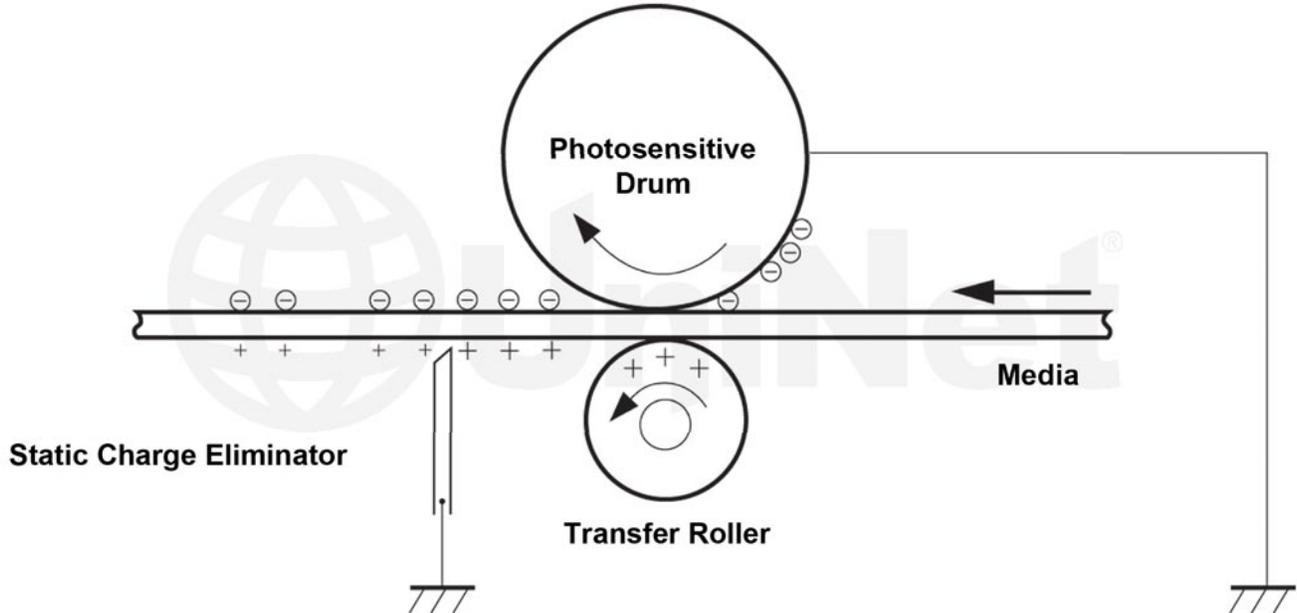


The **third** step (developing block) is where the toner image is developed on the drum by the developing section, (or supply chamber), which contains the toner particles. The toner is held to the magnetic roller sleeve by the stationary magnet inside the sleeve, and a DC bias voltage supplied by the high voltage power supply. This DC bias voltage is controlled by the printer's density setting, and causes either more or less toner to be attracted to the drum. This in turn will either increase or decrease the print density. Both the Primary Charge roller and magnetic roller DC bias voltages are controlled by the printer's density setting. The amount of toner on the magnetic roller sleeve is also controlled by the rubber doctor blade, which uses pressure to keep the amount of toner on the magnetic roller sleeve constant. This blade also causes a static charge to build up on the toner, which helps keep the coating of toner even, and allows easy transfer to the OPC drum.

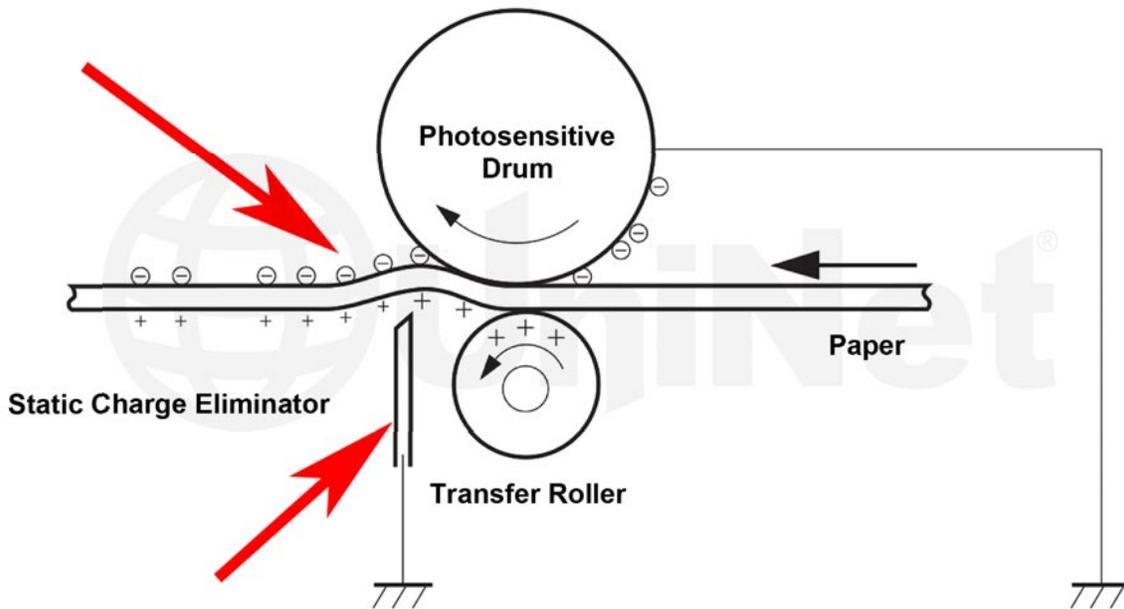
There is a lot going on here and you can see where print density issues can be caused by more than one part or setting.



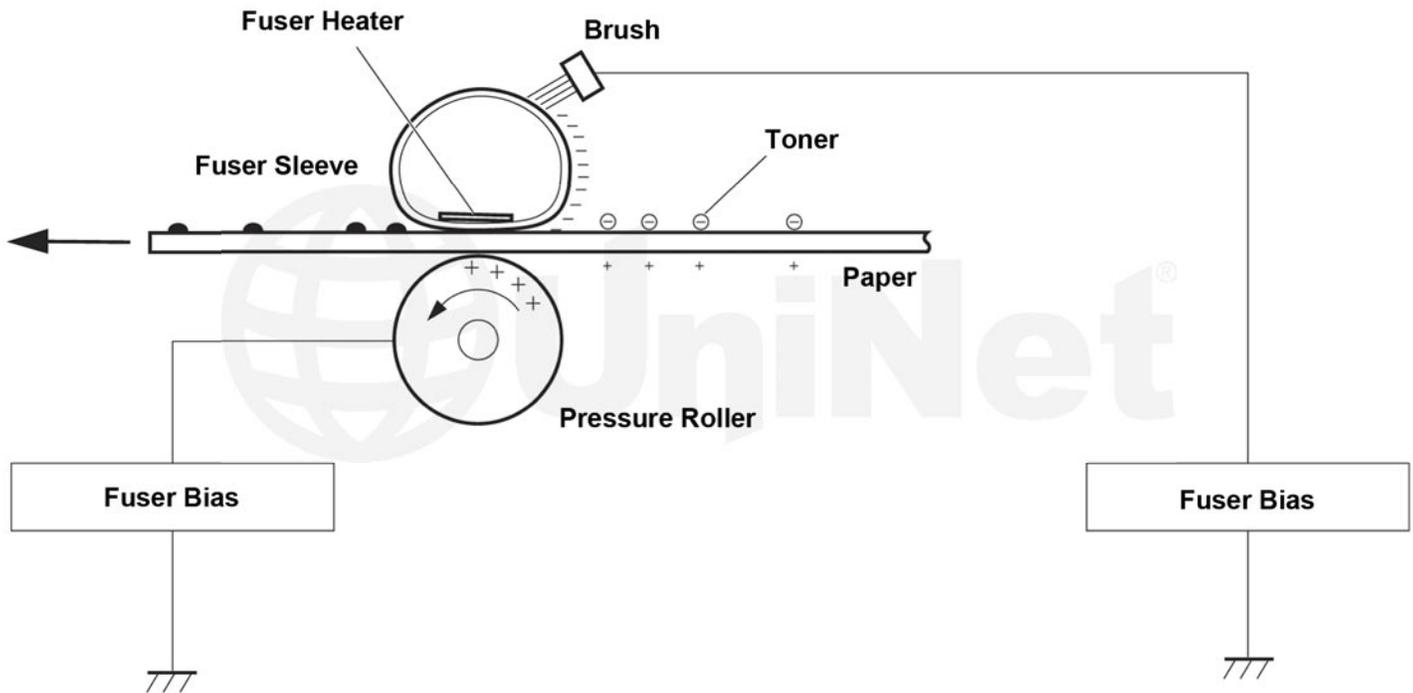
As the laser-exposed areas of the OPC drum approach the magnetic roller, the toner particles are attracted to the drum surface due to the opposite voltage potentials of the toner, and laser-exposed surface of the OPC drum.



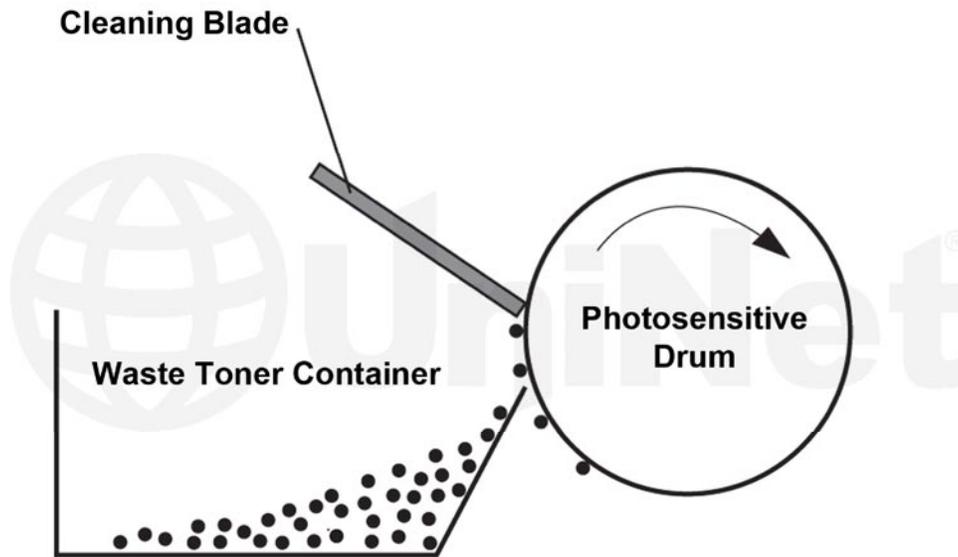
In the **fourth** step, the toner image is then transferred to the paper as it passes below the drum by the transfer charge roller, which places a positive charge on the back of the paper. This positive charge causes the negatively charged toner on the drum's surface to be attracted to the page. The small diameter of the drum, combined with the stiffness of the paper causes the paper to peel away from the drum.



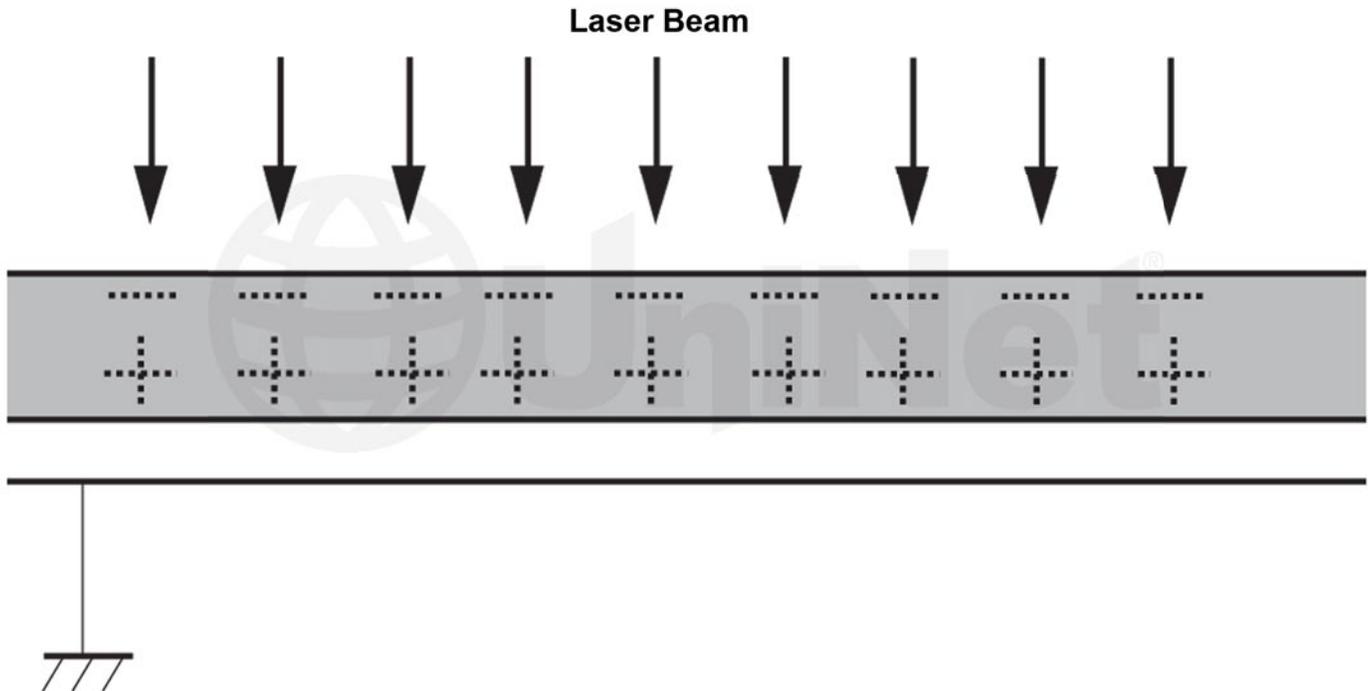
In the **fifth** step, the paper separates from the drum. The static charge eliminator weakens the attractive forces between the negatively charged drum surface, and the positively charged paper. This prevents toner dropouts onto the paper at low temperatures and humidity and also prevents paper from wrapping around the drum.



In the **sixth** step, the image is then fused on to the paper by the fuser assembly, which is comprised of the upper fixing-film assembly and the lower fuser roller. The paper passes between a heated upper fixing-film assembly and a soft lower rubber roller. The upper heated element then melts the toner into the paper. The fixing-film assembly consists of a Teflon sleeve with a ceramic heating element inside. These fusers are a bit different in that they have a brush, which has a DC bias charge on it to help keep the film clean.



In the **seventh** step, the OPC drum is cleaned. On average, approximately 95% of the toner is transferred to the paper during the print cycle. As the drum rotates during printing, the remaining 5% of the toner that is on the OPC drum is cleaned off by the wiper blade. It is then guided into the waste chamber by the recovery blade, and stored in the waste chamber.



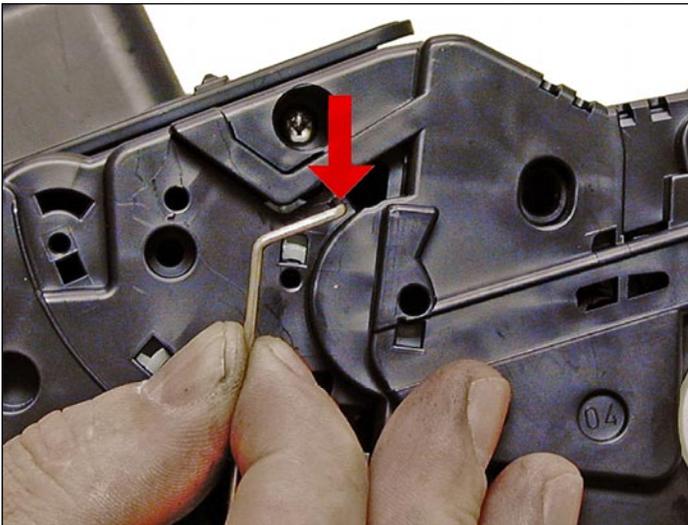
Step **eight** is where the residual charge is eliminated. An AC signal is placed on the PCR, which eliminates any residual charges from the drum and prepares the drum to be charged (also by the PCR). The AC-erase and DC charge voltages are applied to the drum almost simultaneously.

REQUIRED TOOLS

1. Toner approved vacuum
2. A small common screwdriver
3. A Phillips head screwdriver
4. Needle nose Pliers

SUPPLIES NEEDED

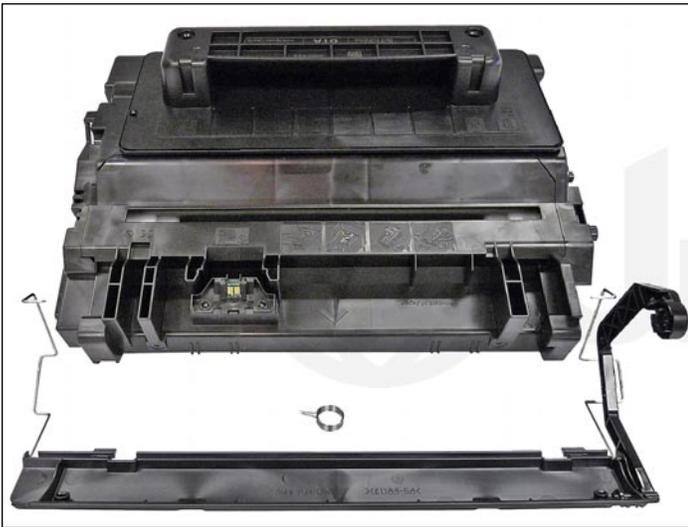
1. Toner for use in the HP M630 series of printers (standard and high yield load)
2. Replacement drum
3. Replacement wiper blade
4. Replacement doctor blade
5. Replacement PCR
6. Replacement magnetic roller sleeve
7. New replacement smartchip
8. Conductive grease
9. Drum lubrication
10. Hot glue gun (see text)



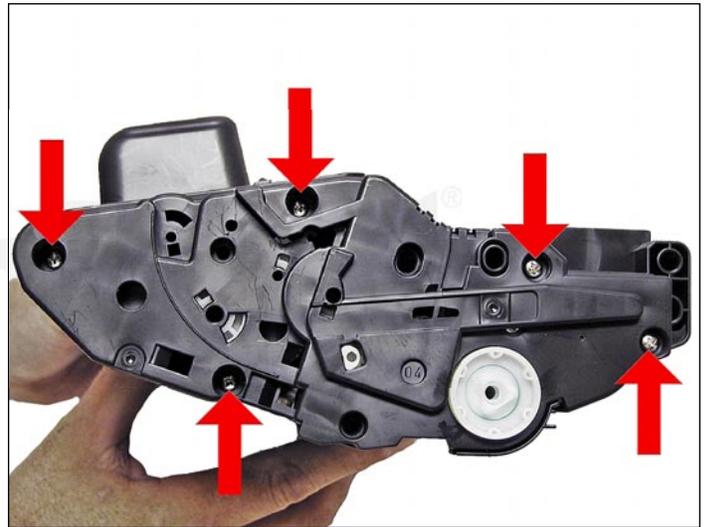
1. Place the cartridge with the toner hopper facing up and towards you. This will orient the cartridge for right and left sides.
2. Open the drum cover towards the back of the cartridge. Remove the right side metal bar by prying it out of its holder.



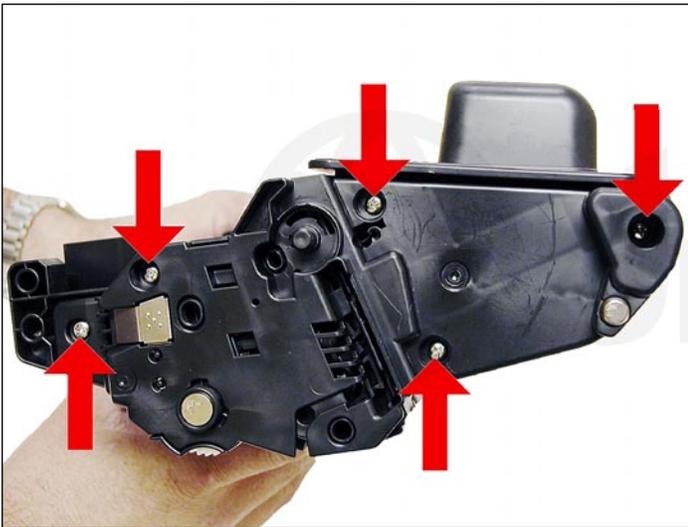
3. On the opposite side of the cartridge, carefully pry off the drum cover plastic arm. The spring will probably pop off, so take care not to lose it. We will go over the installation at the end of this article. Remove the drum cover assembly.



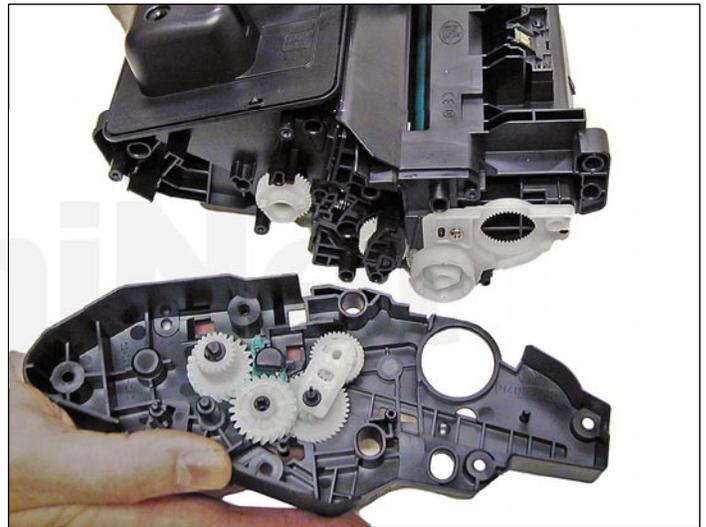
4. Remove the metal bar from the left side, and remove the entire drum cover assembly. Make sure you put the spring in a safe place.



5. Remove the five screws on the right side end cap.



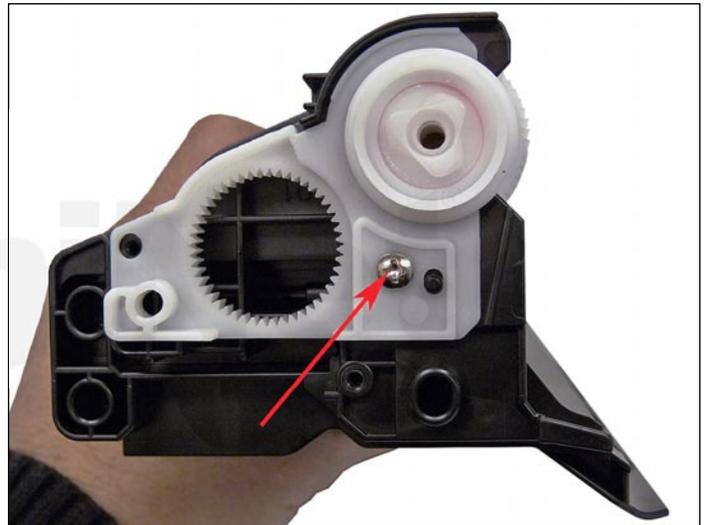
6. Remove the five screws from the left end cap.



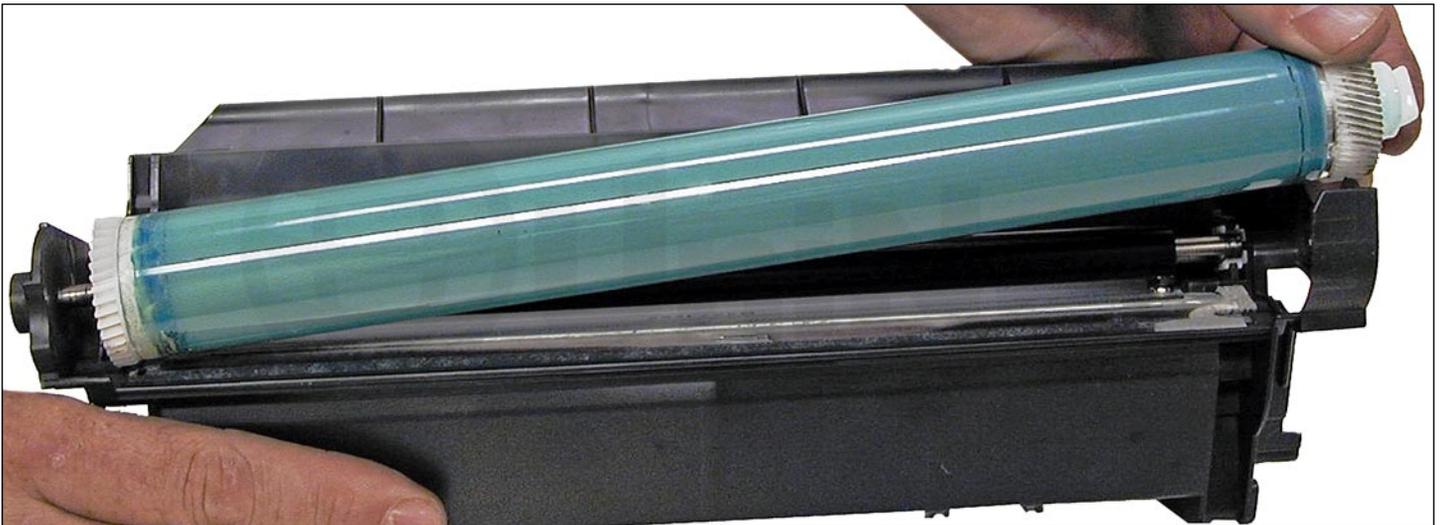
7. Remove the right and left side end caps from the cartridge. Note that the gears do not come off the gear side (right) end cap.



8. Separate the toner hopper and waste chamber.



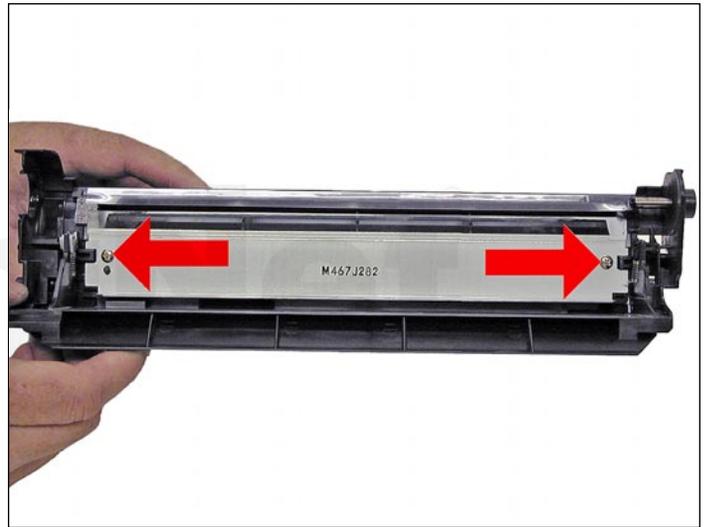
9. On the large gear side of the waste chamber, remove the screw and white plastic drum bushing.



10. Remove the drum.



11. Remove the PCR.



12. Remove the two screws from the wiper blade.



13. Remove the wiper blade from the cartridge, and clean out the waste toner.

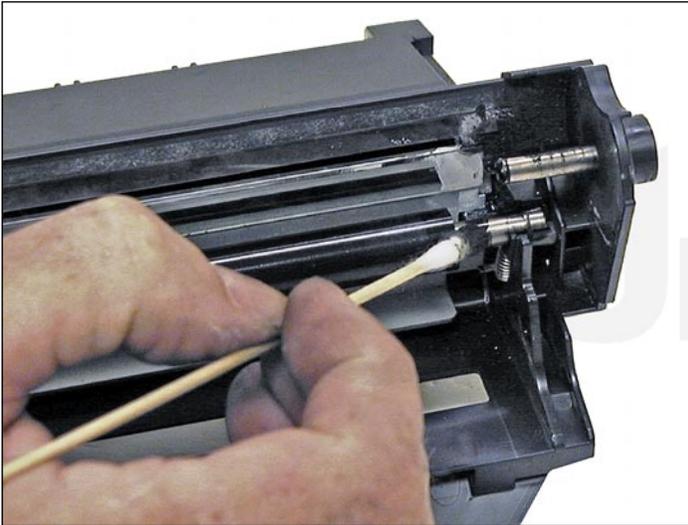


14. Due to the high speed and page counts of these cartridges, we recommend that the wiper blades be replaced.

Make sure that the wiper blade foam seals are clean.

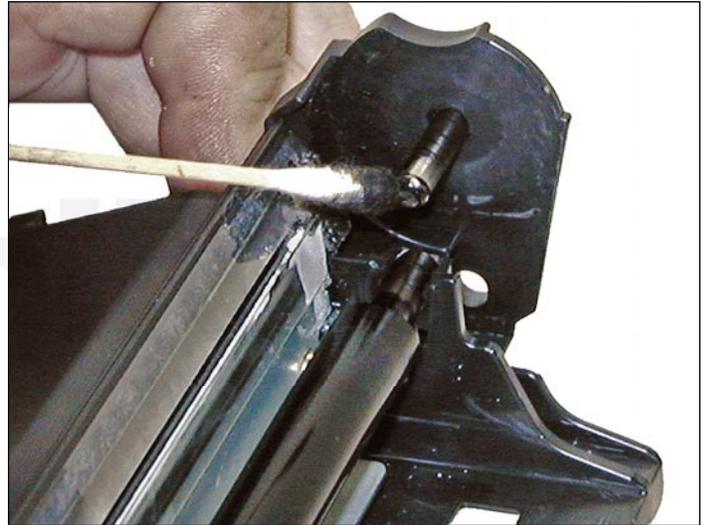


15. Install the new wiper blade and two screws.

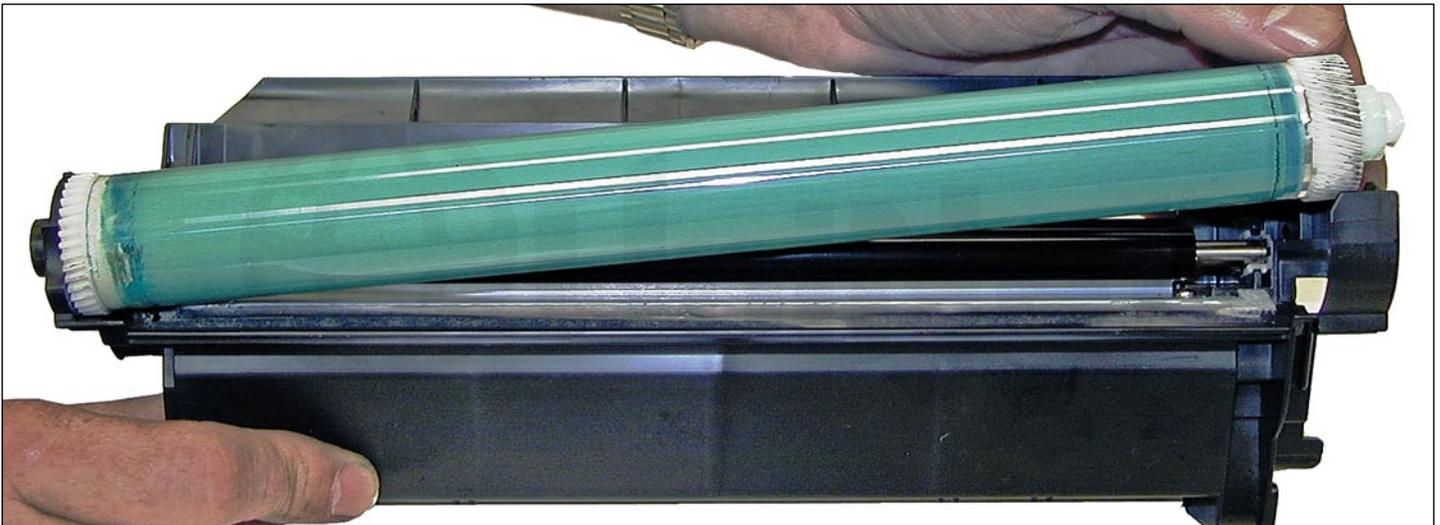


16. Clean the PCR with your standard PCR cleaner.

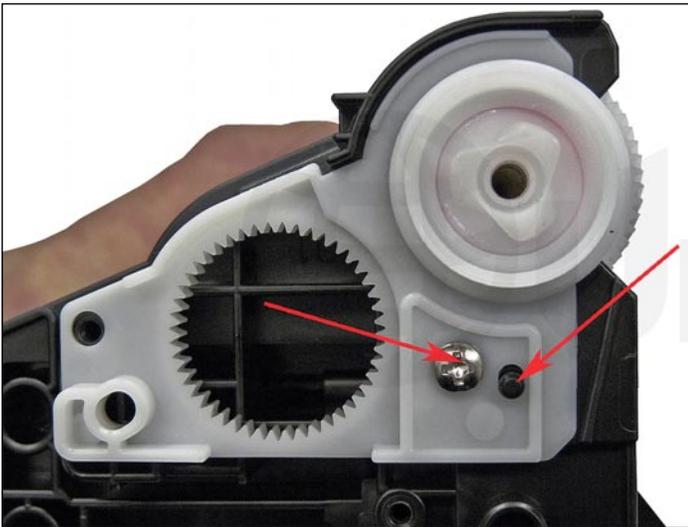
17. Install the cleaned PCR. Place a small amount of conductive grease on the black PCR saddle. Remember, when using conductive grease, more is not better!



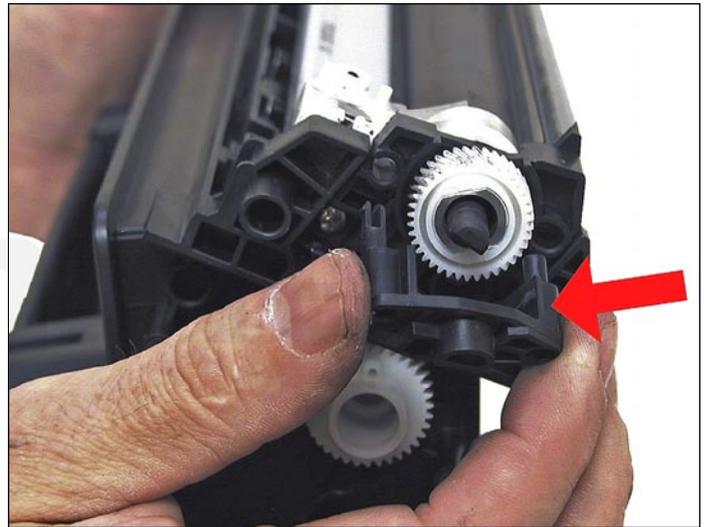
18. On the drum axle pin, clean off the old conductive grease and replace with new.



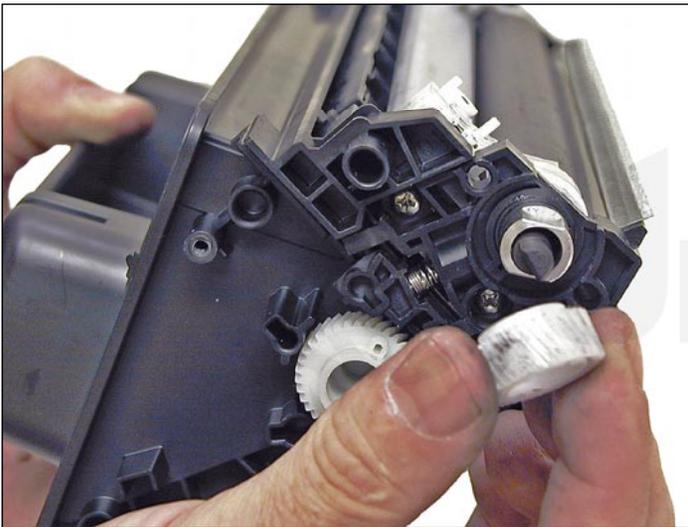
19. Install the drum small gear side first onto the drum axle pin.



20. Install the white plastic drum bushing and screw. If the OEM drum grease is dirty, clean it off with alcohol, and replace with white lithium grease.

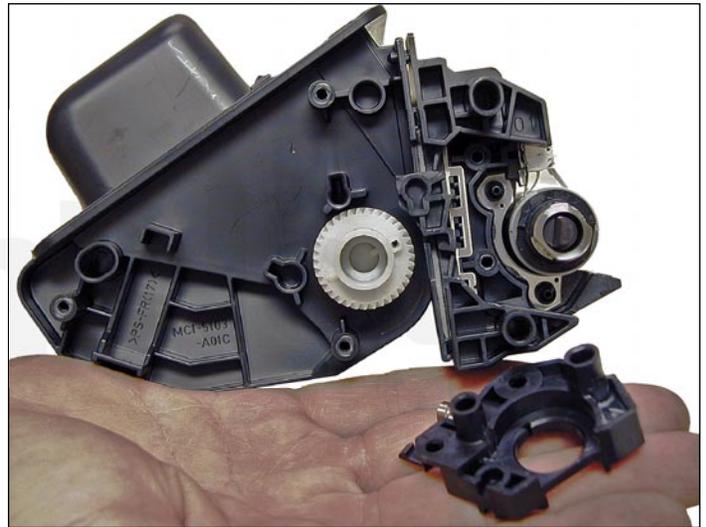
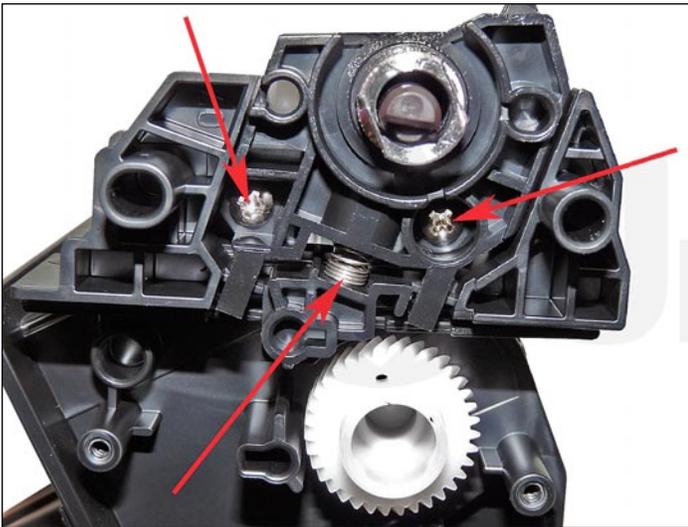


21. On the supply chamber, carefully pry off the Magnetic Roller (MRS) cover, and remove.



22. Remove the MRS drive gear.

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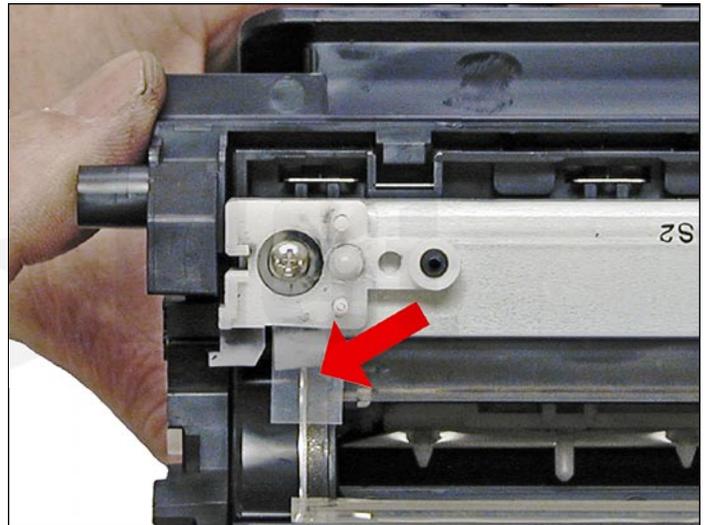


23. Note the location of the spring that sits between the MRS holder and the hopper.

Remove the two screws, spring, and the holder.



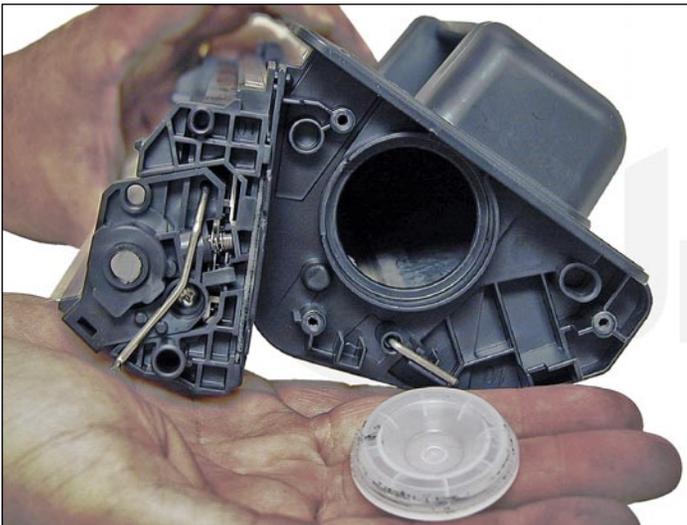
24. Remove the MRS assembly.



25. Remove the two doctor blade screws and the doctor blade.

Note the clear plastic strip that covers the doctor blade screws.

Slide the screwdriver under the strip. Be careful not to damage the strip!



26. Remove the fill plug and clean out all the remaining toner in the supply hopper.



27. Note the magnetic seals on the MRS and the doctor blade sealing foam. Make sure both are clean.



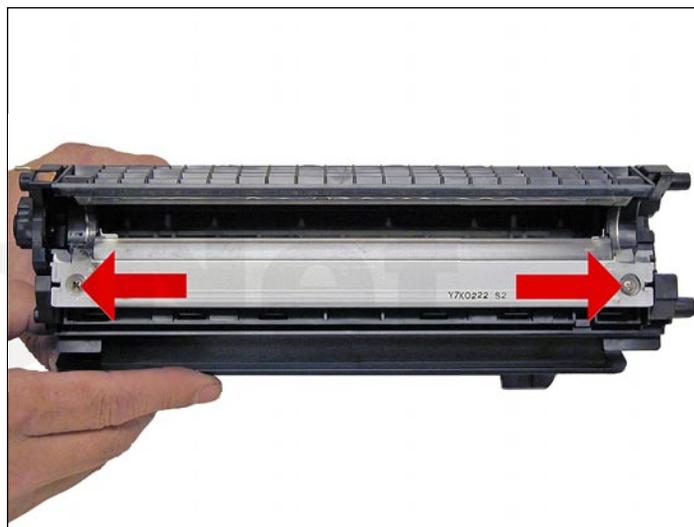
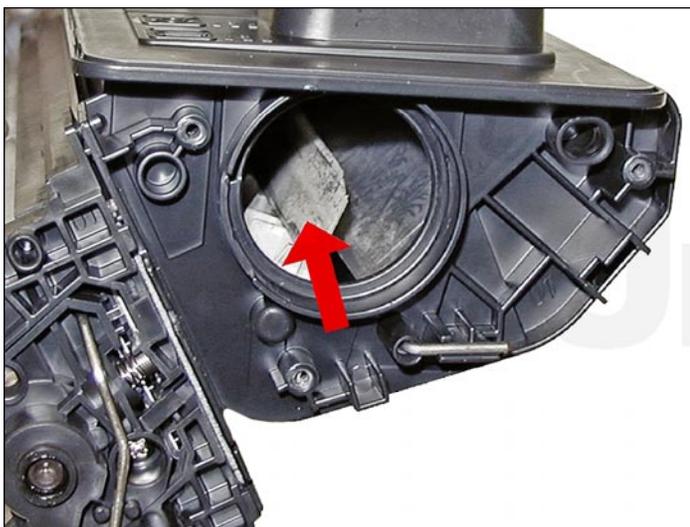
28. Note also the new heavy-duty style magnetic roller contact. This, when combined with the new larger diameter of the roller, allows the cartridge to run at the higher speeds that these machines are capable of.



29. There are magnetic roller bushings on each side of the roller.

While these are holding up well in our initial tests, this may be an area where wear will cause banding.

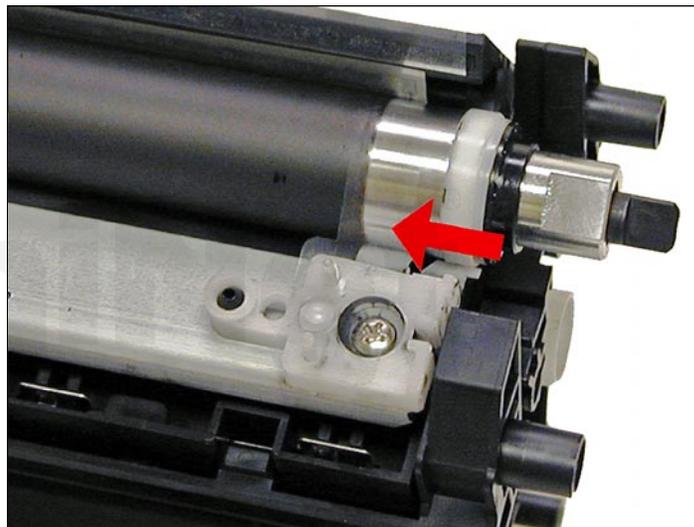
One will stay in the hopper, and one comes off with the Magnetic Roller assembly.



30. These cartridges just use one large mixing blade inside the toner hopper. Make sure it turns freely after cleaning or you will get invalid cartridge errors, motor errors or paper jams.

31. The upper magnetic roller section of the toner hopper “floats” on a series of foam seals. The upper half can be removed from the hopper, but some of the seals will be destroyed. The foam isolates the magnetic roller from the vibrations of the mixing augers, and allows smoother prints.

32. Install the doctor blade and two screws. Make sure that the clear strips are not damaged!

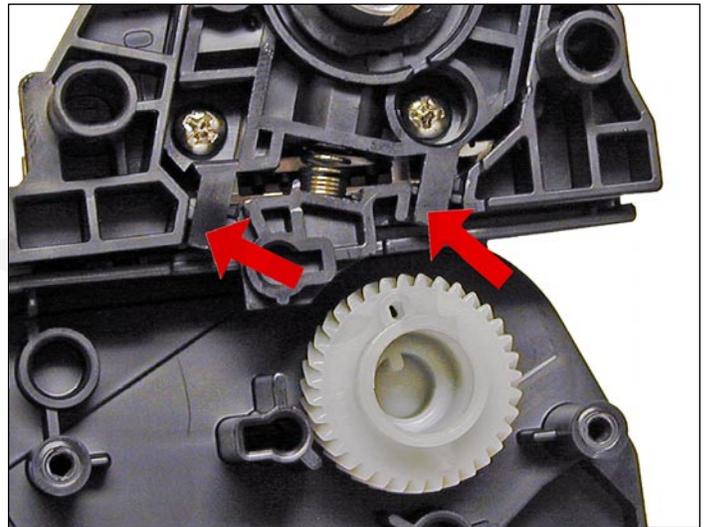
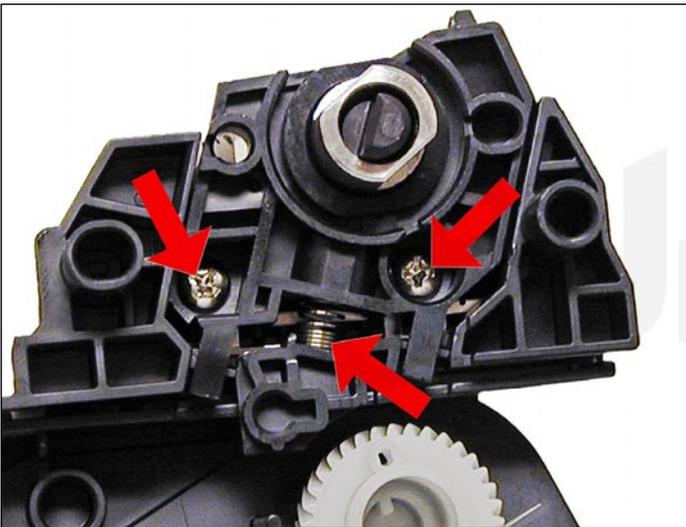


33. Install the MRS assembly.

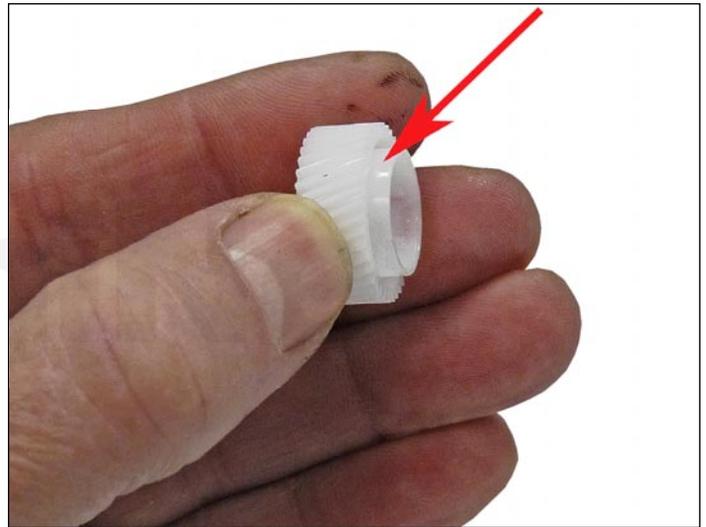
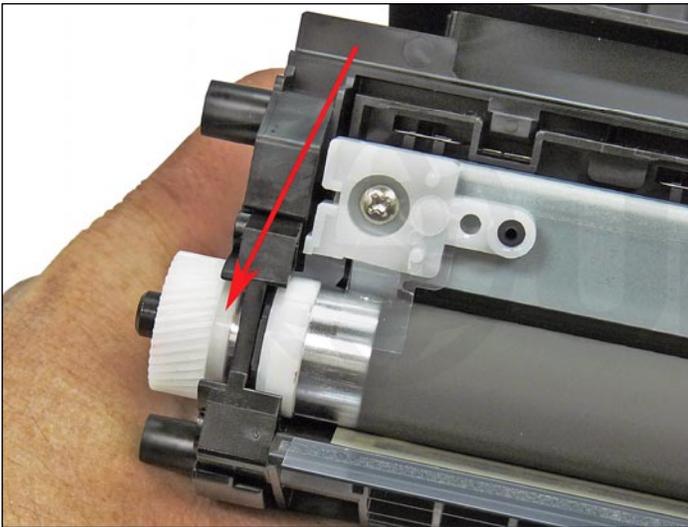
Make sure the clear strips from the doctor blade ride on top of the magnetic roller.



34. Remove the right side small bushing from the magnetic roller sleeve, and install it onto the holder. Make sure the tab on the bushing aligns with the slot in the holder.

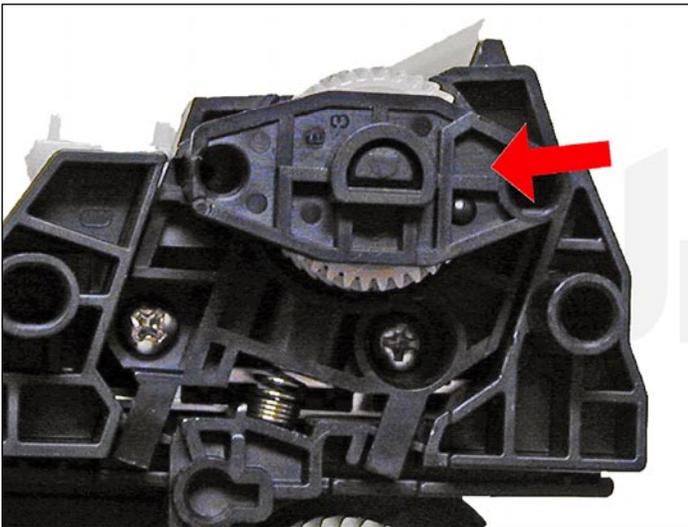


35. Install the holder, two screws and spring. Make sure the screw holes line up, and that the two locking tabs on the bottom of the holder are in the correct place. This can be tricky to get in place until you've done it a few times. Take your time and don't force the fit.



36. Install the Magnetic Roller drive gear.

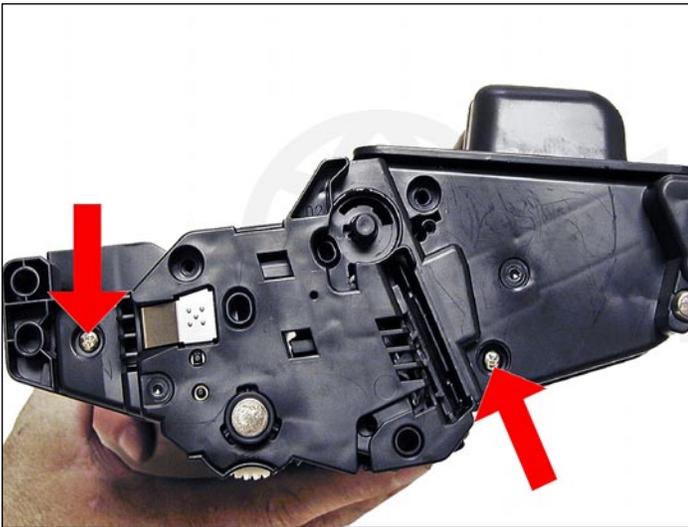
Make sure the bushing part of the gear faces into the cartridge.



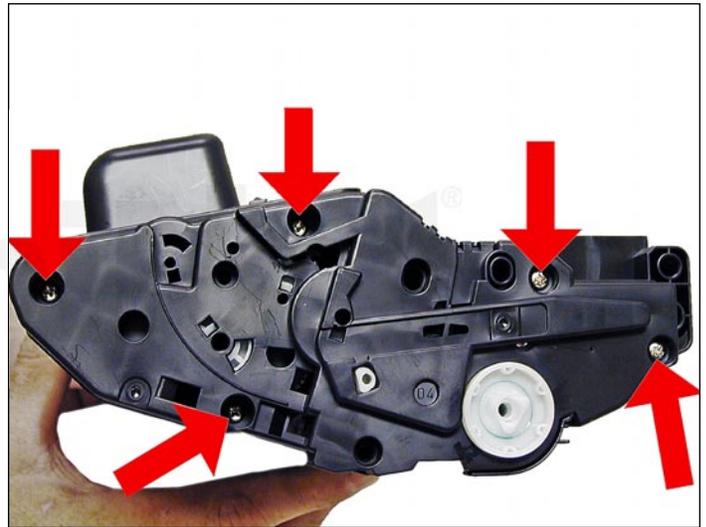
37. Install the keyed MRS cover. Make sure that the keyed hole in the cover matches the keyed end of the magnet in the MRS assembly.



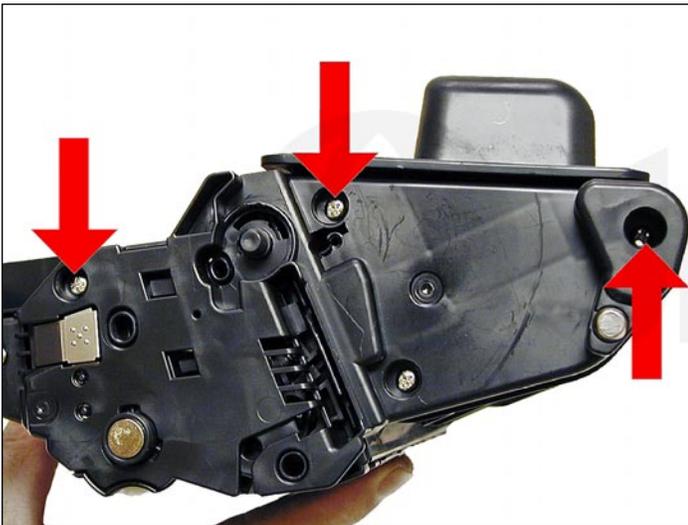
38. Fill with appropriate amount of toner for use in the M630 series. Install the fill plug.



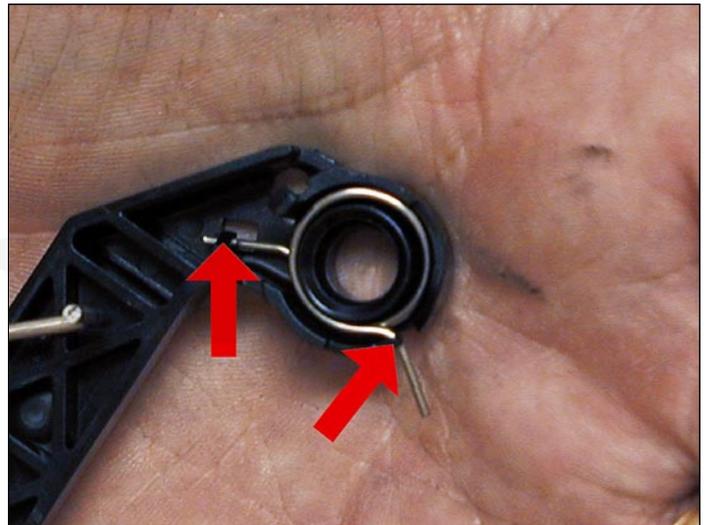
39. Hold the two sections of the cartridge together, and install the left (contact side) end cap. Install a screw in the waste and supply sections to hold everything together.



40. Install the right side end cap and five screws.



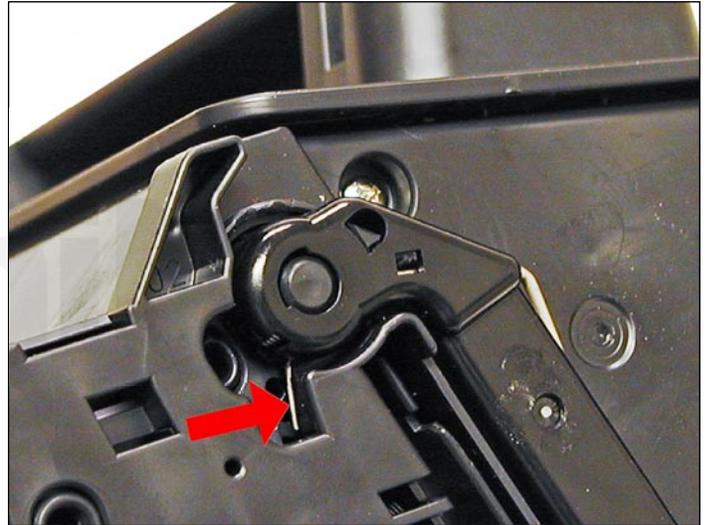
41. Install the remaining three screws on the left end cap.



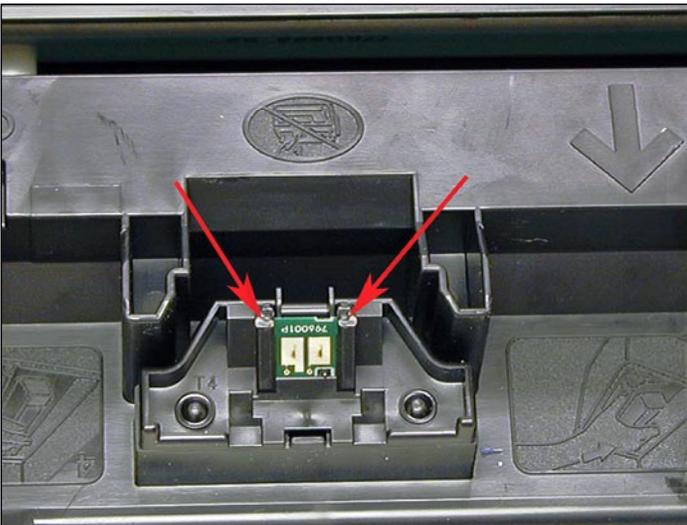
42. Install the spring into the drum cover arm as shown. Pull the upper tail of the spring until it fits into the notch in the arm hub.



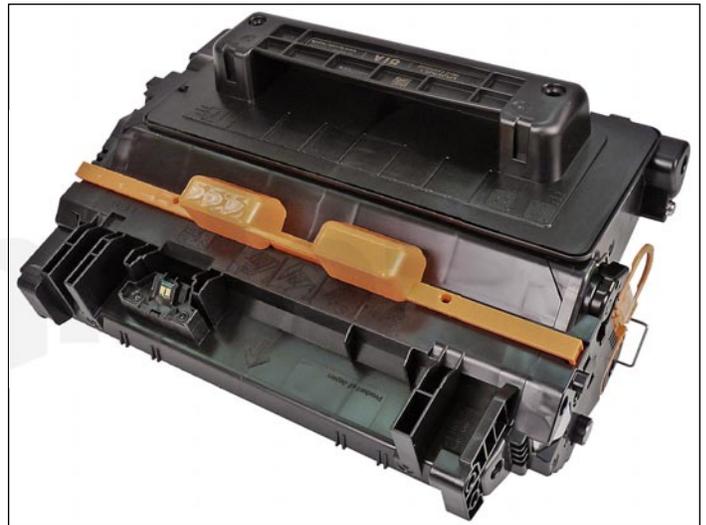
43. Install the metal bars from the drum cover on both sides of the cartridge.



44. Install the arm onto the cartridge. Pull the arm fully back to release the spring from the notch. Check to make sure the drum cover operates properly.



45. Remove the old chip from the top of the cartridge by slicing the melted plastic off with a sharp Xacto knife.



REPLACING THE CHIP

Lock the chip in place with a small dab of glue from a hot glue gun. Replacing this chip will enable the toner low functions of both the cartridge and the machine again.

46. If available, insert the shipping lock into the cartridge. This lock separates the two halves of the cartridge preventing damage to the internal rollers.

REPETITIVE DEFECT CHART

*OPC drum	94mm
Upper fuser sleeve	94mm
Lower fuser pressure roller	94mm
Tray 2 separation roller	79mm
Tray 2 pickup roller	79mm
Tray 2 feed roller	79mm
Tray 1 separation roller	79mm
Tray 1 feed roller	79mm
Tray 1 pickup roller	63mm
*Magnetic roller	63mm
Feed roller	50mm
Pre-registration roller	50mm
Transfer roller	47mm
*PCR	38mm

NOTE: Items indicated with an * are in the toner cartridge

RUNNING THE CLEANING PAGE

1. From the HOME screen on the product control panel, scroll to and touch the DEVICE MAINTENANCE button.
2. Touch CALIBRATION/CLEANING, touch CLEANING PAGE, and then touch PRINT to print the page.
3. A CLEANING message will display on the product control panel. The cleaning process takes a few minutes to complete.

Do not turn the product off until the cleaning process has finished. When it is finished, discard the printed page.

RUNNING TEST PAGES

1. From the HOME screen on the product control panel, scroll to and touch the SUPPLIES button.
2. The status of all supply items is listed on the screen.

To print or view a report of the status of all supply items, touch the MANAGE SUPPLIES button. Touch the SUPPLIES STATUS button, and then touch either the PRINT or VIEW button.

PRINTER ERROR CODES

Most of the error codes are self-explanatory but there are a few that are part text, and part number. It is those codes that we will list here...

10.10.00 Supply Memory Error: Bad chip**10.XX.YY Supply Memory Error: An error has occurred in one or more of the printer supplies.**

10.00.00 = Memory is defective

10.00.10 = Memory is missing

Error 50.WX.YX: These are Fuser error codes.

W=1 or 2 Low Fuser Temperature

W=3 High Fuser Temperature

W=4 Drive Circuit Fault

W=7 Fuser pressure Release Mechanism Failure

W=8 Low Fuser Temperature

W=9 High Fuser temperature

Error 51.00.10 Beam Detect Error

Error 51.00.19/20: These codes are laser/scanner errors

