HP® LASERJET ENTERPRISE 600 • MFP 4555
TONER CARTRIDGE REMANUFACTURING INSTRUCTIONS

HP® LASERJET ENTERPRISE 600/MFP 4555 TONER CARTRIDGE

www.uninetimaging.com

REMANUFACTURING THE HP LASERJET ENTERPRISE 600/MFP 4555 TONER CARTRIDGES

By Mike Josiah and the Technical Staff at UniNet

First introduced in March 2011, the HP LaserJet Enterprise 600/MFP 4555 engine is a 43-62 ppm (depending on the model), 1200 dpi multifunction engine. The new CE390A and CE390X cartridges are rated for 10,000 and 24,000 pages respectively. As with all monochrome black HP cartridges to date, the chip is mainly controlling the "toner low" functions and of course, the "HP/non-HP cartridge" message.

HP initially released the MFP machines first. Then a few months later, the Enterprise 600 series was released.

These are nice cartridges to remanufacture, in that there are no plastic rivets to cut or drill, All the screws are the same size, and no glue type seals are used anywhere inside.

CURRENT MACHINES THAT USE THESE NEW CARTRIDGES

HP LaserJet Enterprise 600 M601n
HP LaserJet Enterprise 600 M601dn
HP LaserJet Enterprise 600 M602n
HP LaserJet Enterprise 600 M602dn
HP LaserJet Enterprise 600 M602x
HP LaserJet Enterprise 600 M603n
HP LaserJet Enterprise 600 M603dn
HP LaserJet Enterprise 600 M603xh
HP-LaserJet M4555h MFP
HP-LaserJet M4555f MFP
HP-LaserJet M4555fskm MFP

These cartridges are also very profitable to make! The retail price for the CE390A is $238.50* USD and the CE390X is $398.56* USD.

***Pricing, in U.S. American Dollars, as of December 2011.**

One very interesting note is that the printer uses the laser scanner unit to eliminate residual charges from the OPC drum. Here is what the service manual states on this:

"The residual charge on the photosensitive drum surface is eliminated to avoid uneven image. The residual charge of the previous image is left on the drum surface after the transfer operation and this affects the following image formation. The product eliminates this residual charge by emitting a laser beam to the drum surface. The drum charge elimination is operated only during the last rotation period."

So basically after the wiper blade cleans the drum, the laser fires again at a different intensity to electrically clean the drum. The PCR is still charging the drum with both AC and DC signals so it is still cleaning the drum electrically as well, but the laser is helping do this by eliminating most of the charges before the PCR fires. This is most likely needed because of the speed of the machine (up to 62 ppm).

UniNet®
www.uninetimaging.com

Pictured are shipping seals in place on a new OEM cartridge. The main seal separates the two halves of the cartridge, relieving some of the pressure on the various spring-loaded and foam assemblies.

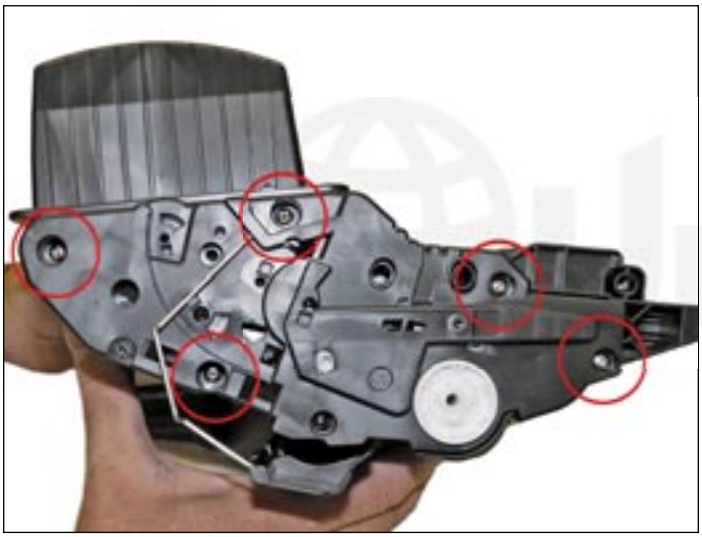
Printer usage, as well as some common printer/cartridge problems will be covered at the end of this article.

REQUIRED TOOLS

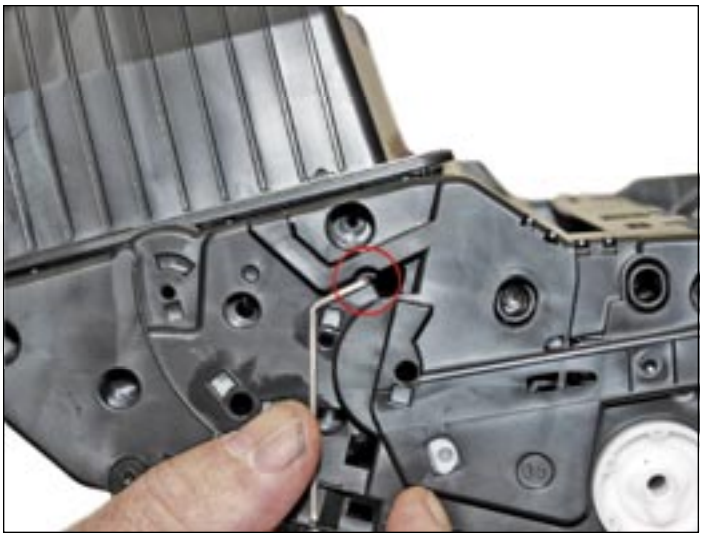
1. Toner approved vacuum
2. A small common screwdriver
3. A Phillips head screwdriver
4. Needle nose pliers
5. Magnetic roller press

REQUIRED SUPPLIES

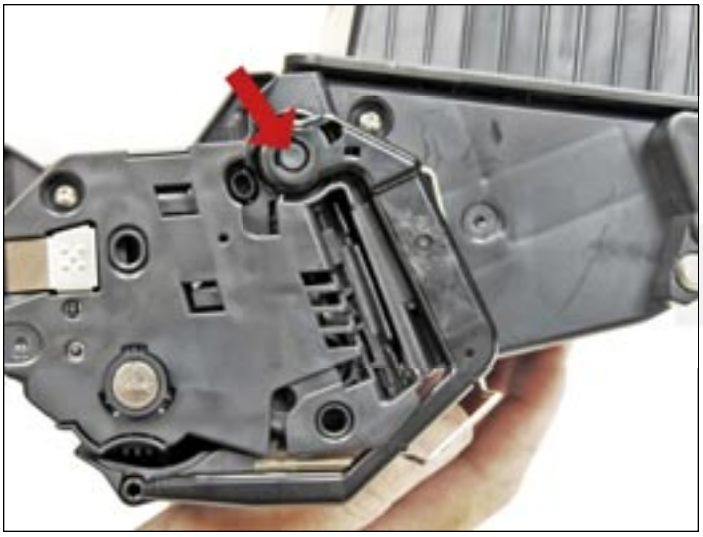
1. Dedicated toner (1,100 grams for the high yield; 725 grams for the low yield)
2. Replacement drum
3. Wiper blade
4. Doctor blade
5. PCR
6. Magnetic roller sleeve
7. Conductive grease
8. White lithium grease
9. Replacement chip



1. Place the cartridge with the toner hopper facing up and towards you. This will orient the cartridge for right and left sides. Remove the five screws on the right side end cap.



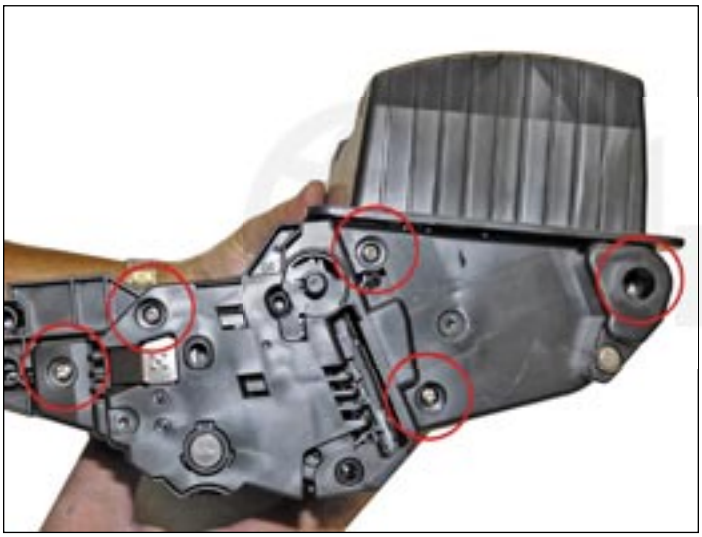
2. Open the drum cover towards the back of the cartridge. Remove the right side metal bar by pressing it out of the small clip.



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

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.

UniNet®
www.uninetimaging.com

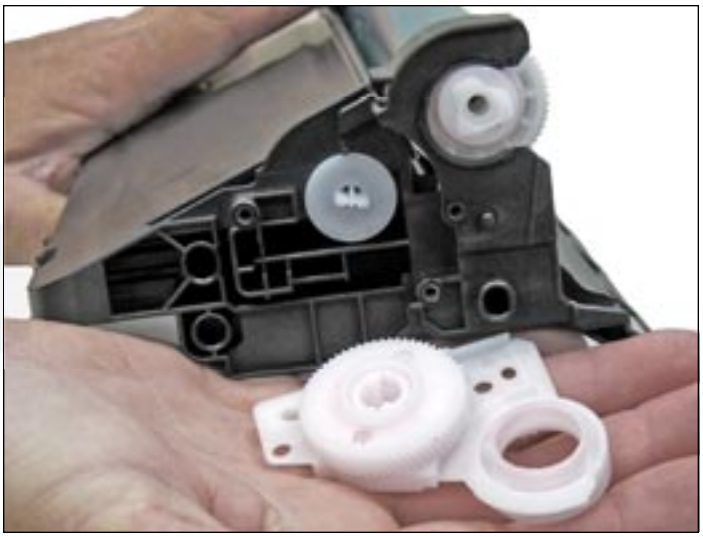


5. Remove the five screws from the left-side end cap.

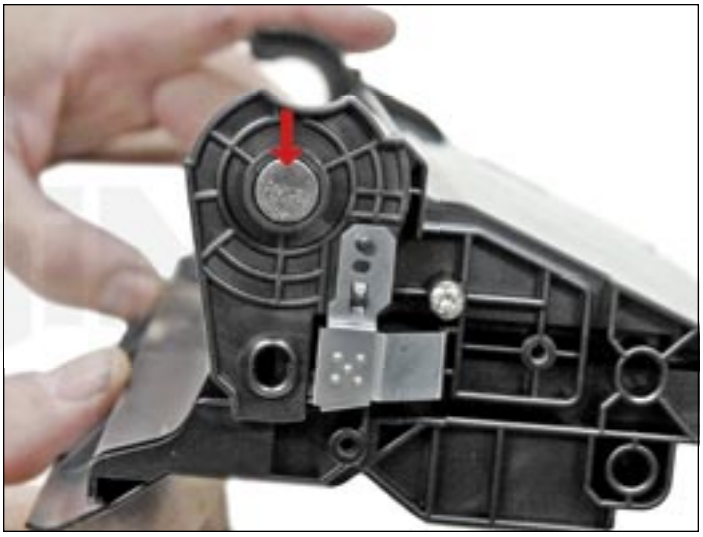
6. Remove the right-side end cap from the cartridge.

Note that the gears do not come off the end cap.

7. Remove the left-side end cap. Both halves will come apart easily. Be careful not to damage the drum or magnetic roller sleeve.



8. Remove the drum's plastic bushing/gear train assembly and screw.



9. To remove the drum, lift it from the large gear side, pull over, and remove it. There is no need to remove the drum axle pin.

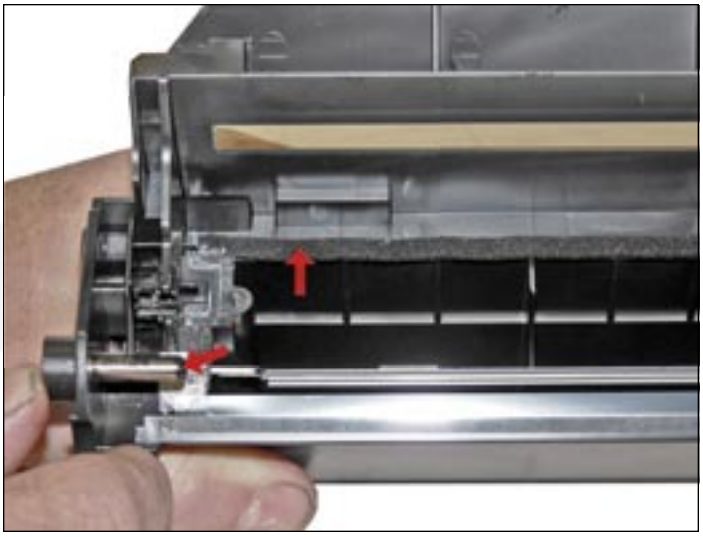
If it is removed, there is a chance that the hole in the plastic wall where the pin sits, will become slightly enlarged.

This will then allow the axle and drum to move slightly and cause banding.

10. Remove the PCR.

11. Remove the two screws from the wiper blade. Due to the high speed and page counts of these cartridges, we recommend that the wiper blades be replaced.

12. Note that there is not any type of sticky sealant on the wiper blade. There is just normal foam and felt seals under the blade. Remove the wiper blade from the cartridge, and clean out the waste toner. Be careful not to damage the spring coming out from the black PCR holder. Clean the PCR with your standard PCR cleaner.



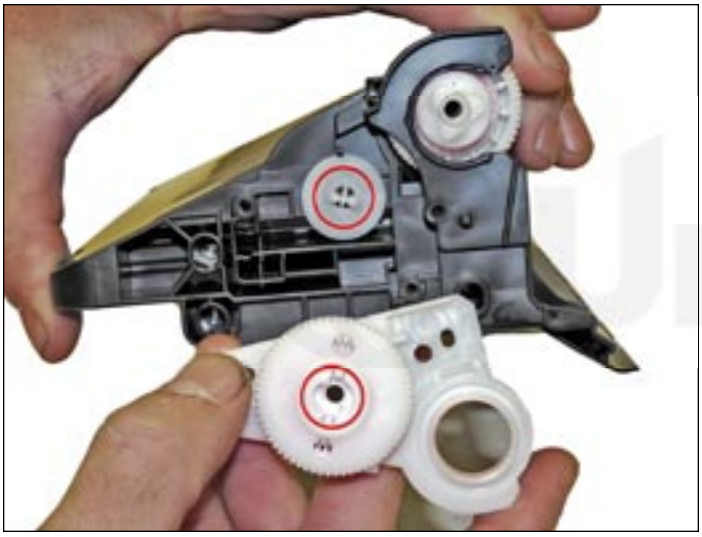
13. Clean the felt and foam seals under the wiper blade.

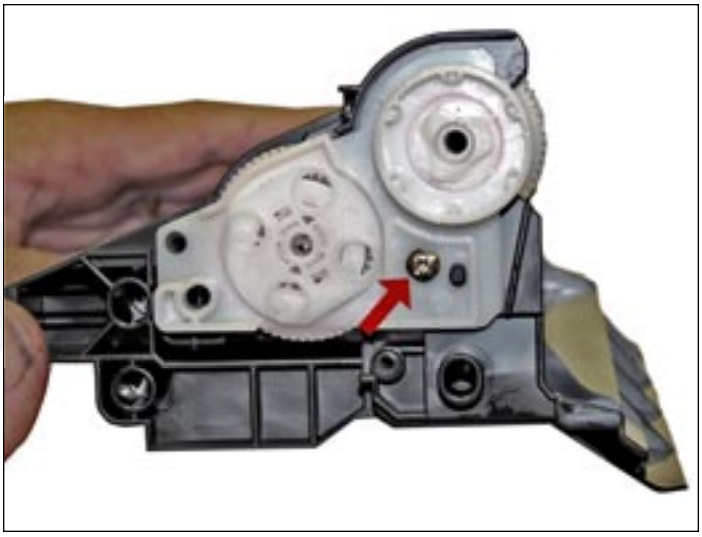
Make sure they are not compressed, or they may leak.

UniNet
www.uninetimaging.com

14. Install the wiper blade and two screws. Be careful not to damage the small contact that comes off the PCR spring on the black holder side.

15. 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! Also place a small amount of white lithium grease on the white holder side.

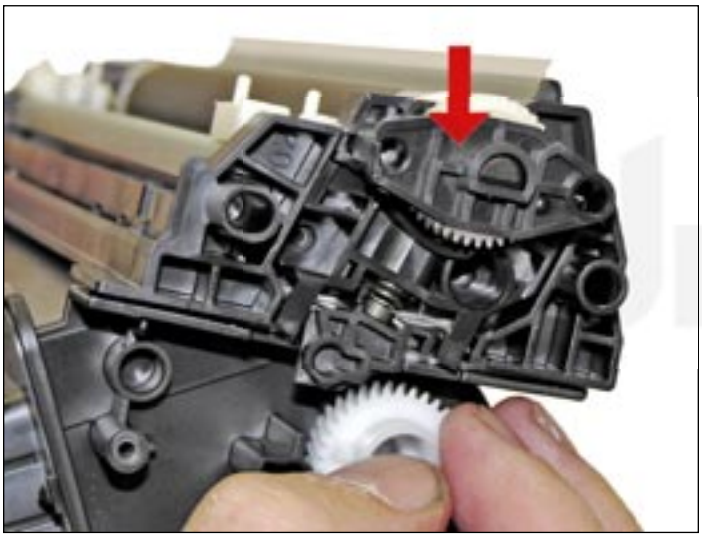




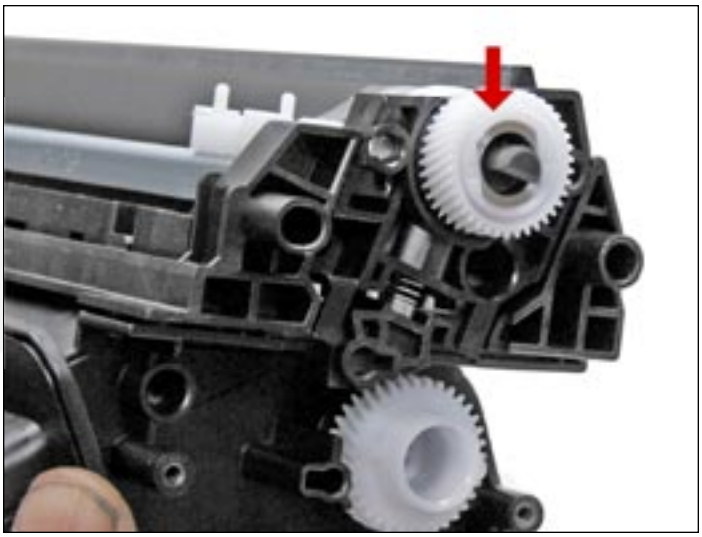
16. Install the drum, drum bushing assembly and screw.

Make sure the gears from the bushing assembly align with the drive gear on the hopper.

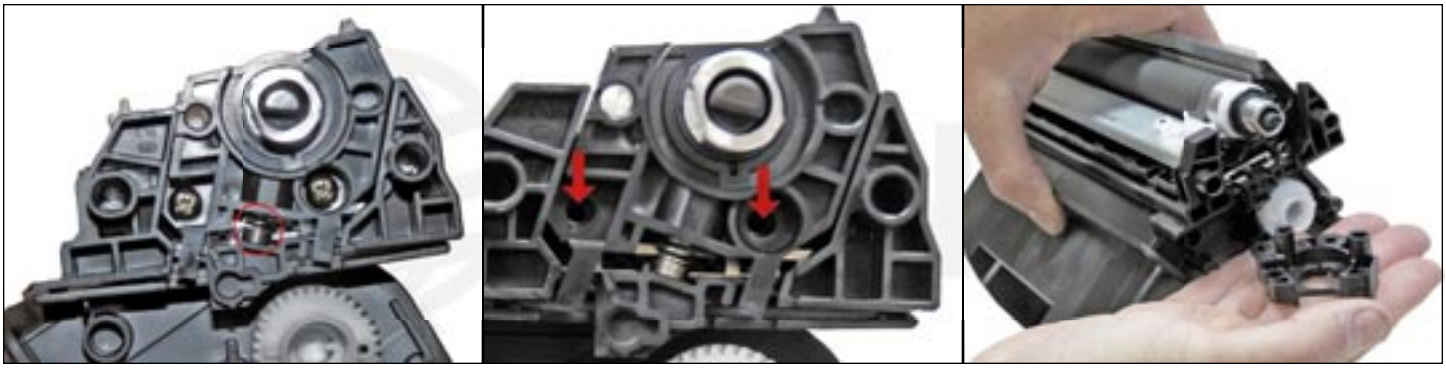
Place the waste chamber aside.



17. On the supply chamber, carefully pry off and remove the magnetic roller sleeve cover.

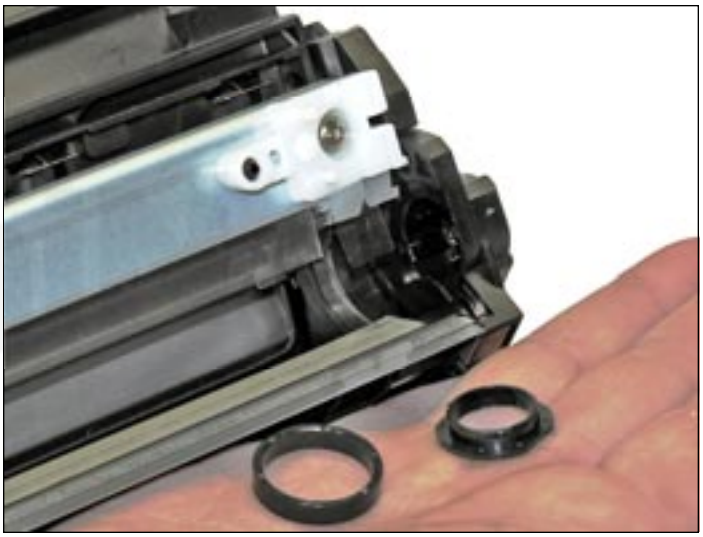


18. Remove the magnetic roller sleeve drive gear.



19. Note the location of the spring that sits between the magnetic roller sleeve holder and the hopper.

Remove the two screws, spring and the holder.



20. Remove the magnetic roller sleeve assembly.

The left (non-gear) bushings may come off with the roller.

If they do not, remove them so they are not lost or damaged.

21. Lift up on the clear scraper covers, and remove the two doctor blade screws.

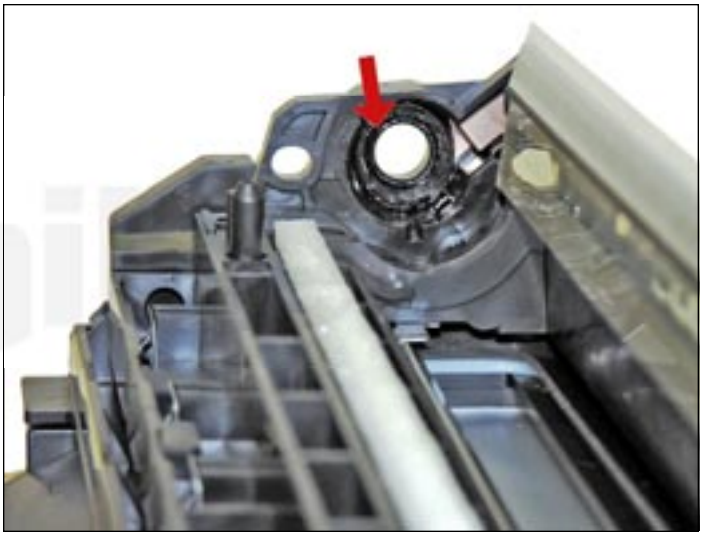
Remove the two scrapers and the doctor blade.

22. Remove the fill plug from the hopper.

Clean out all the remaining toner in the supply hopper.

23. Note the magnetic seals on both the magnetic roller sleeve and doctor blade sealing foam. Make sure both are clean.

24. There are two separate mixing blades in the toner hopper. The largest is on the bottom, with the smallest on the top. Each is driven by its own separate drive gear. 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. This may become necessary in order to seal the cartridge. We will keep you informed on the availability of a seal system and how to install it as our testing continues. The foam isolates the magnetic roller from the vibrations of the mixing augers, and allows smoother prints.



25. Clean the magnetic roller contacts, and replace the conductive grease. If the plating on the contact is worn, they should be replaced, or banding will most likely occur.

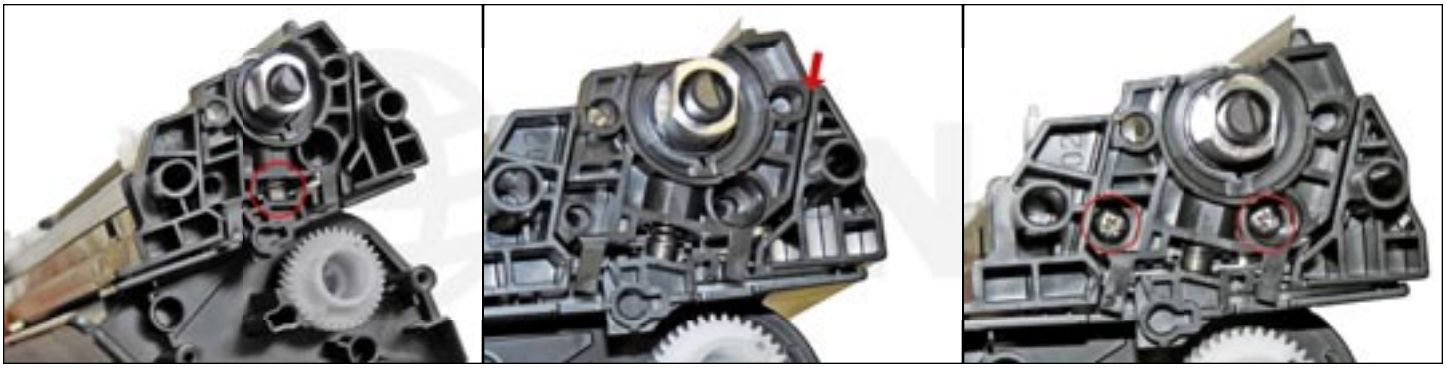
26. Install the doctor blade, and be careful with the alignment pins. Do NOT install the scrapers or screws yet...

27. Clean the magnetic roller with dedicated magnetic roller cleaner.

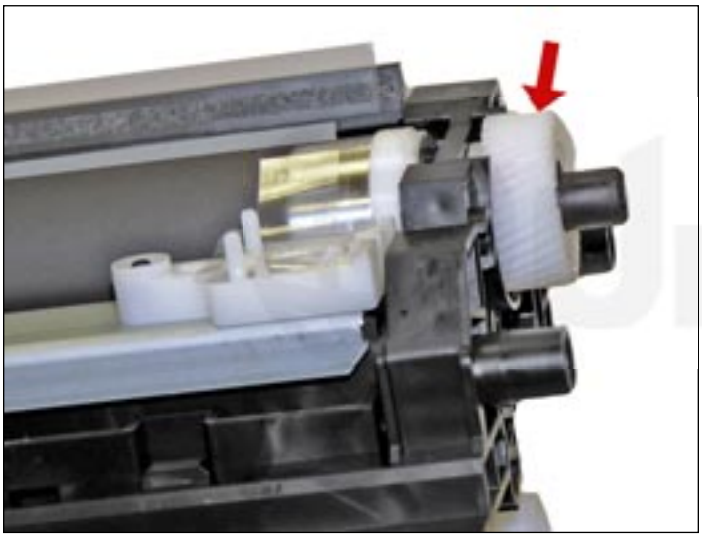
On the left side of the magnetic roller, is a small hub keyed into the magnetic roller sleeve holder.

Align the hub with its slot and install the hub, as well as the entire magnetic roller sleeve assembly.

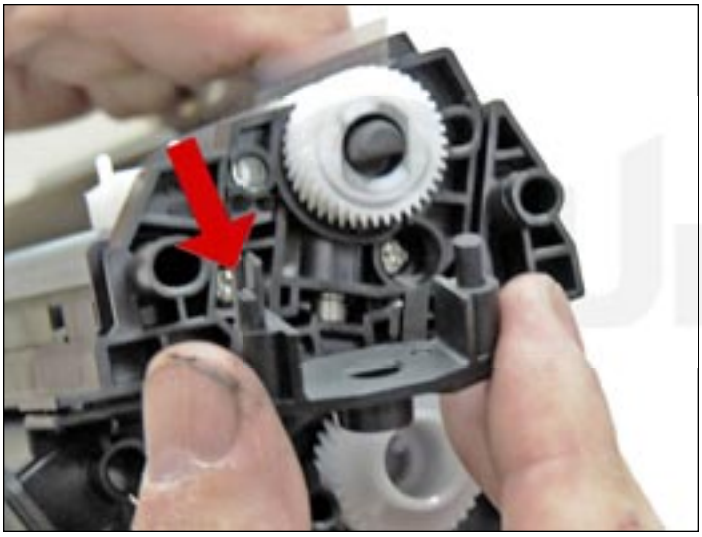
28. Install the two doctor blade scrapers and screws. The clear scraper covers must sit on top of the roller. Installing them now will lessen the chance of damaging, or getting any grease on them.

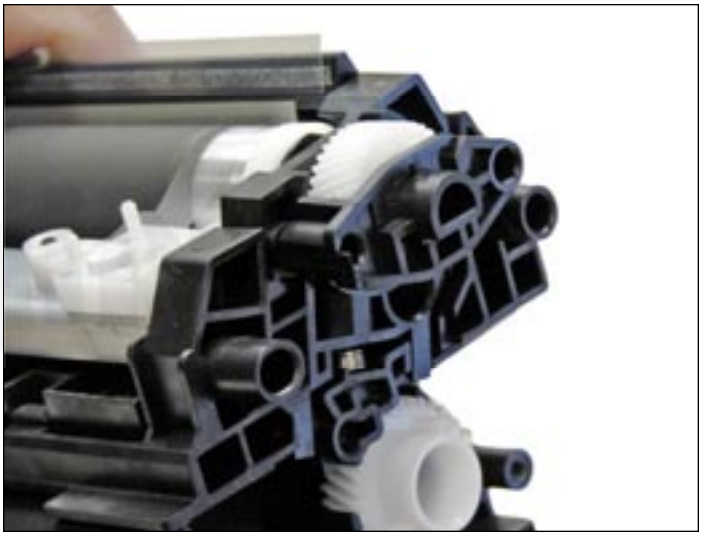


29. Install the holder and spring. Make sure that the spring is compressed so it fits into its slot. This is easily done with a small screwdriver as the holder is pressed in place. If you are having a hard time getting the holder in place, take a moment to look at the angles of the plastic holder. They have to align with the corresponding angles in the hopper for it to fit. Install the two screws.



30. Install the magnetic roller sleeve drive gear.



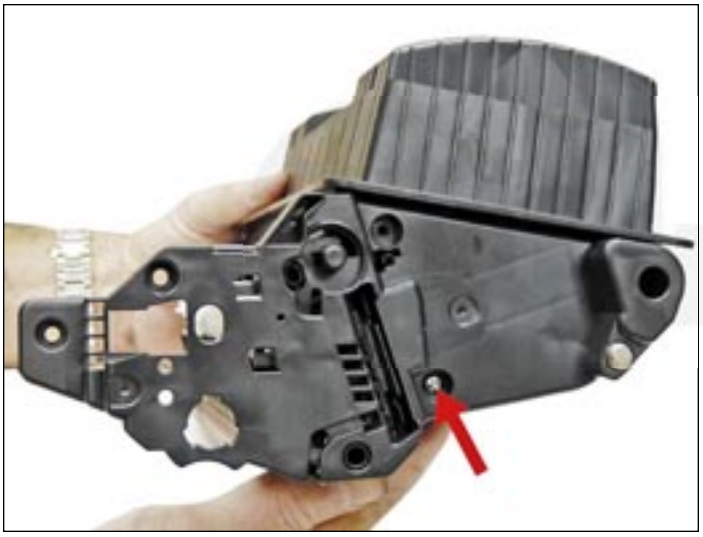


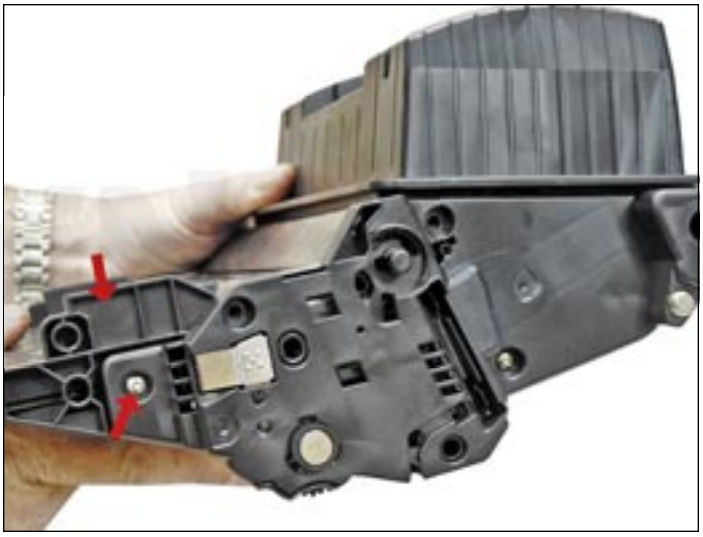
31. Install the keyed magnetic roller sleeve cover.

Make sure that the keyed hole in the cover matches the keyed end of the magnet in the magnetic roller assembly.

Note that the post on the front (doctor blade) side is longer than the back post.

32. Fill with appropriate amount of dedicated toner, and replace the fill plug.





33. Install the left side end cap onto the toner hopper. It is easier to install the end cap on the supply hopper first.

Install one screw and slide the waste chamber into the end cap.

Install another screw from the end cap into the waste hopper to hold it in place.

34. Install the right-side end cap and five screws.

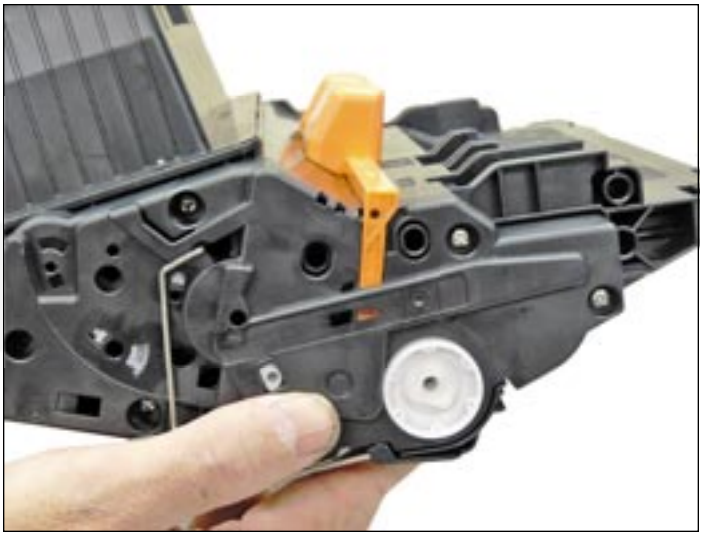
35. Install the remaining three screws on the left-side end cap.

36. Install the metal bars from the drum cover on both sides of the cartridge. Place the bars in front of their slots, and press in place with a small screwdriver.

37. 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.

38. Install the arm onto the cartridge. Pull back all the way and release the spring from the notch so that the tail fits as shown.

39. Replace the chip on the top of the cartridge. Replacing this chip will enable the “toner low” functions of both the cartridge and the machine again.



40. Install the plastic separator seal.

This seal keeps the two halves slightly separated, relieving the pressure of the various foam and spring assemblies.

REPETITIVE DEFECT CHART

OPC drum:	**94 mm**
Upper fuser sleeve:	**94 mm**
Lower fuser pressure roller:	**94 mm**
Cassette feed and separation rollers:	**79 mm**
Tray 1 feed roller, separation roller:	**79 mm**
Magnetic roller sleeve:	**63 mm**
Tray one pickup roller:	**63 mm**
Pre-registration roller:	**50 mm**
Feed roller:	**50 mm**
Transfer roller:	**47 mm**
PCR:	**37.7 mm**

TEST PAGES FROM BOTH LASER PRINTERS & MFP MACHINES

Running the cleaning page:

1. From the HOME screen, touch the DEVICE MAINTENANCE button.
2. Open the CALIBRATE/CLEANING menu, and the CLEANING PAGE menu.
3. Touch the PRINT button to run the page. This process can take a few minutes to complete.

Running test pages:

1. From the HOME screen, touch the ADMINISTRATION button.
2. Open the REPORTS menu, and the CONFIGURATION/STATUS pages.
3. Choose the CONFIGURATION page, ADMINISTRATION MENU MAP, CURRENT SETTINGS page, or STATUS page.
4. Touch the PRINT button to run the report.

PRINTER ERROR CODES

There are literally hundreds of error codes listed in the service manual on these machines. We have listed just the more common cartridge and paper jam codes here:

10.XX.YY - Supply memory error:
An error has occurred in one or more of the printer supplies. HP again calls the chip a “memory tag” and the machine cannot communicate with one of them.

10.XX.33 - Used supply in use:
Chip not changed.

10.XX.40 - Genuine HP supplies installed.

10.XX.41 - Unsupported supply in use:
Wrong chip installed.

10.YY.35 - Incompatible supply in use.

13.XX.YY - All the error 13 codes deal with paper jams or a door open:
There will always be a text message under the number code tell you where the jam is. These messages are very specific.