

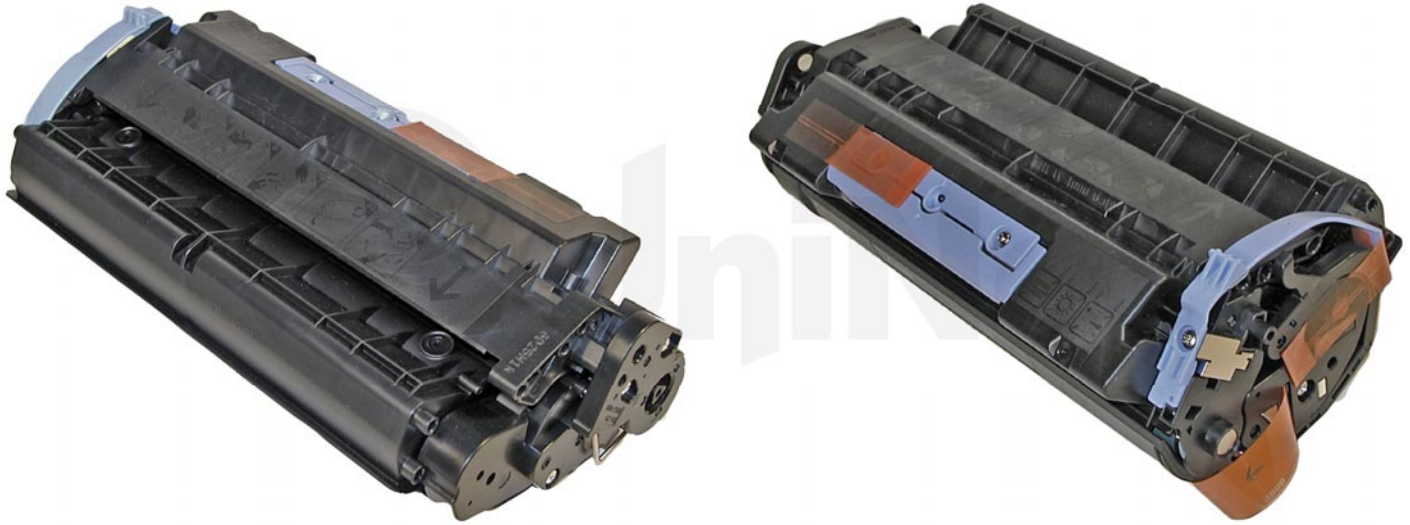
CANON® IMAGECLASS MF6500 (EP106) TONER CARTRIDGE REMANUFACTURING INSTRUCTIONS



CANON EP106 TONER CARTRIDGE

REMANUFACTURING THE CANON IMAGECLASS MF6500 SERIES EP106 TONER CARTRIDGE

By Mike Josiah and the Technical Staff at UniNet



First introduced in September 2006, the imageCLASS MF6500 machines are based on a 23-ppm, 1200dpi Canon engine. The cartridge for these machines is the “106” (0264B001AA) cartridge. The cartridge is rated for 5,000 pages at 5% coverage.

MACHINES BASED ON THE MF6500 SERIES

imageCLASS MF6530

imageCLASS MF6550

imageCLASS MF6560

imageCLASS MF6580

As one of the newest Canon cartridges, it is interesting to note that the cartridge does not use a chip. No plastic rivets are used and the plastic parts of the cartridge are not glued or welded in any way (as with all the newer HP cartridges). The cartridge itself is of a new design, but is very simple to remanufacture. As with the HP 1200/1300 and others, two small holes have to be drilled in the top to allow for the axle pin removal.

Shown above is a replacement cartridge as received. Note the tape that holds the side handle down, and the center handle in place. Be careful not to lose/break the side blue handle. This cartridge sits deep into the machine, and without this handle, removing it will be very difficult.

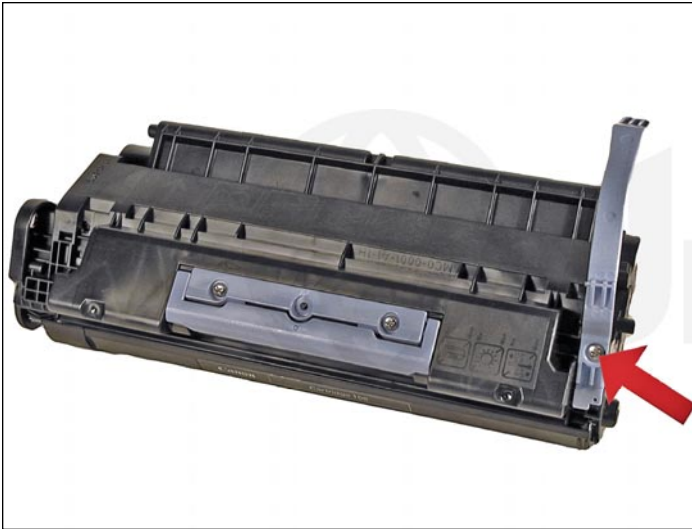
Cartridge troubleshooting as well as running test pages, cleaning pages and some simple printer troubleshooting will be covered at the end of this article.

SUPPLIES REQUIRED

1. Dedicated toner for use in Canon 106 (230g)
2. New drum (optional)
3. Wiper blade (optional)
4. Doctor blade (optional)
5. Magnetic roller (optional)
6. Sealing strip (when available)
7. Cotton swabs
8. Isopropyl alcohol
9. Drum padding powder
10. Conductive grease

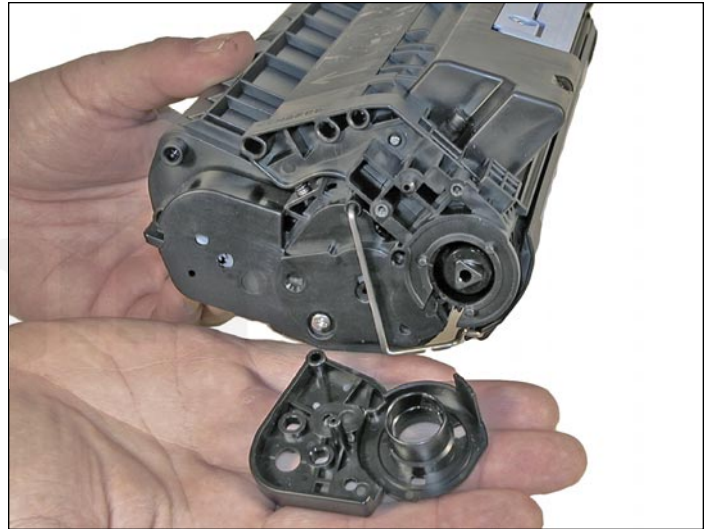
TOOLS REQUIRED

1. Allen wrench or modified spring hook to push pins out (see text)
2. Phillips head screwdriver
3. Small common screwdriver
4. Dremel type tool with side grinding bit

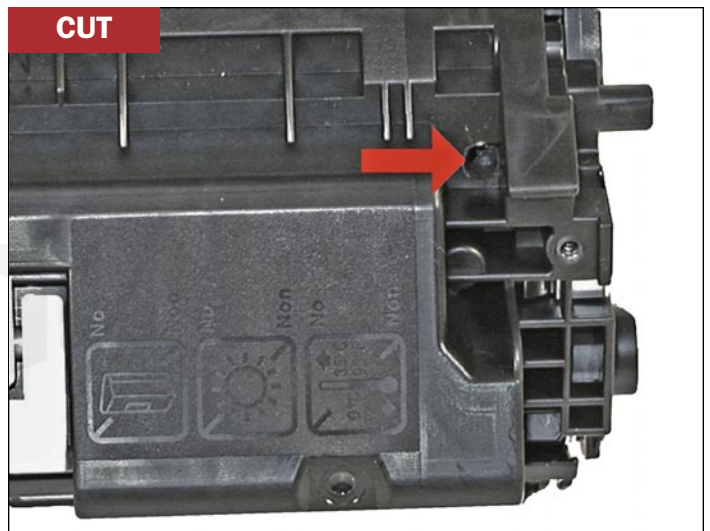
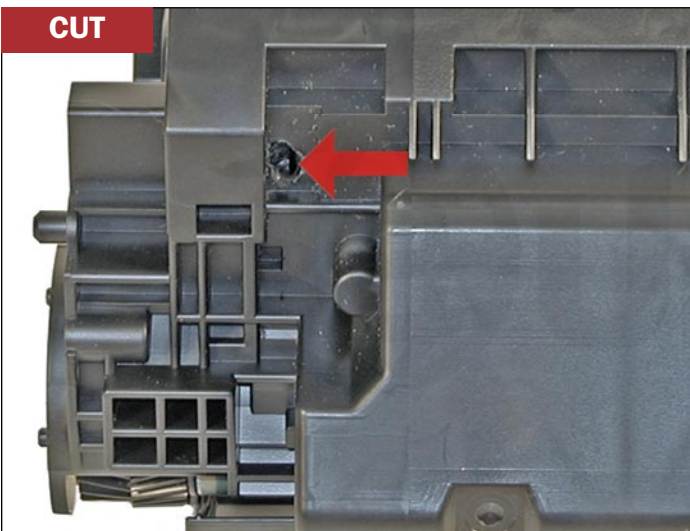
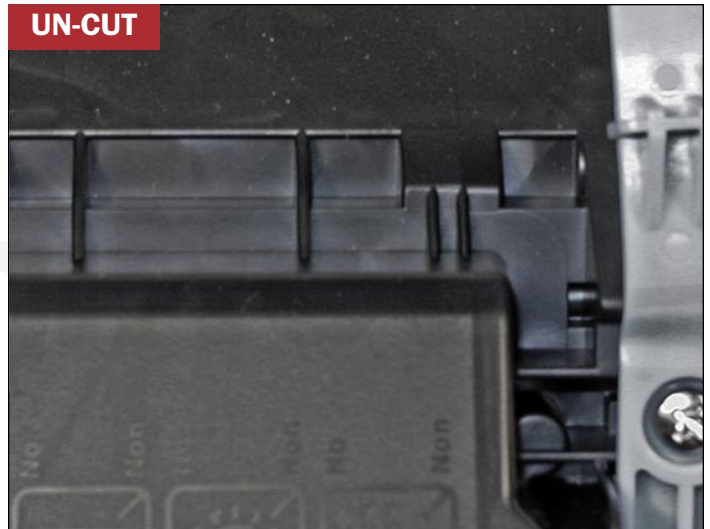
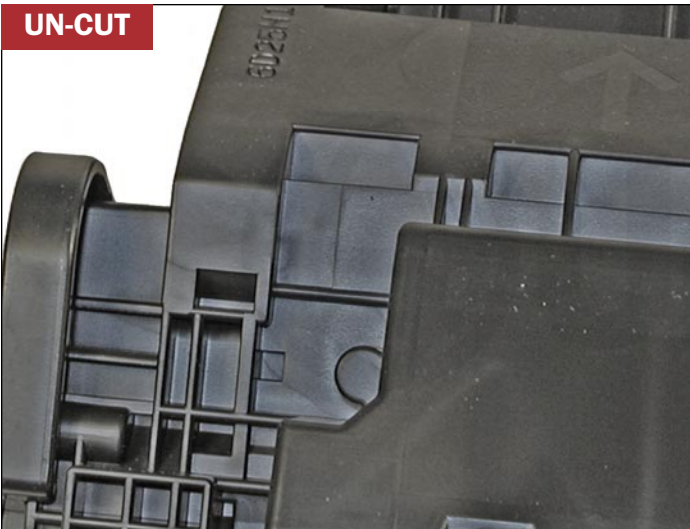


NOTE: The pins in these cartridges are very similar to the HP 1200/1300 cartridges. The best way to remove them without damaging the cartridge is to cut two small holes. Other than the location, it is basically the same procedure as the 1200/1300.

1. Remove the screw and blue side handle (it gets in the way).



2. With the center blue handle facing you, remove the two screws and drum hub on the left side of the cartridge.



3. Drill a shallow hole on each side of the cartridge as indicated.



4. Turn the cartridge over so the center blue handle is facing you but also facing down. Note the small spring across the left (non-gear) side of the drum. Remove the spring.



5. Push the pins out with a modified spring hook or a jeweler's screwdriver.

Remove the pins (shown) with a pair of wire cutters.



6. Separate the two halves.



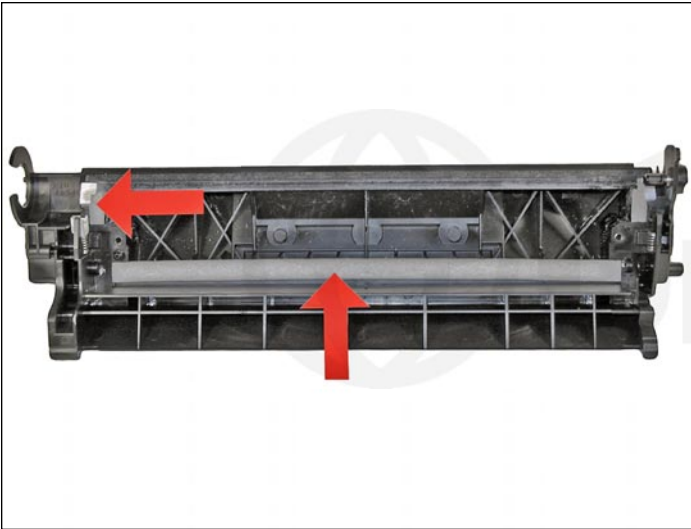
7. On the drum/waste section, remove the drum.



8. Remove the PCR and clean with your standard PCR cleaner.



9. Remove the two screws and wiper blade.



10. Clean out the waste toner.

Make sure that the side and rear foam seals are clean.



11. Coat the wiper blade with your preferred lubricant.

Install the blade and two screws.



12. Re-install the cleaned PCR.

Note that a new OEM PCR has a small amount of conductive grease on the black (contact) side.

Clean off the old grease and replace with new.



DRUM GEAR CHANGE

UPDATE: If you are replacing the drum, the gears will need to be changed over from the OEM to the new. There are two methods of removing the gears from OPC drums: The first and easiest method is to place the drum in a metal vice approximately 2" back from the gear, and slowly tighten the vice. The gear should pop out easily. This is the only method you can use on the OPC drums, which have a weighted slug in the center. If you use this method go on to step #3. The other method is as follows.

REQUIRED TOOLS & MATERIALS

1. A 1/4" x 15" metal rod
2. A 1" x 15" wooden dowel
3. A tube of super glue
4. A small piece of emery-cloth or sand paper

Step #1: Remove the drive gear:

The drive gear is the gear that has no metal electrical contacts in it. These gears are usually larger than the contact gear.

- A. Carefully insert the 1/4" metal rod into the center of the gear that has the contacts, or the contact gear.
- B. Angle the rod so that the rod presses against the edge of the opposite gear. The rod should be touching both the inside of the OPC Drum and the edge of the gear.
- C. Tap the end of the rod with a hammer, working the rod around the entire edge of the gear, until the gear comes loose. NOTE: Gently heating the ends of the drum with a hair dryer or heat gun on low may cause the glue to soften and ease in the removal process. Just be careful not to use too much heat and melt the gear!

Step #2: Remove the "contact" gear:

- A. Insert the 1" wooden Dowel into the gearless end of the drum.
- B. Tap the dowel with a hammer until the gear comes loose.

Step #3: Remove any old adhesive from the gears; straighten out any damage done to the contact gears' metal contacts:

- A. Removing the adhesive can be done with a small sharp common screwdriver. The glue comes off easily.

Step #4: Install the gears on the new replacement drum:

- A. Inspect the metal contacts on the contact gear. Make sure that the contacts will make proper contact with the inside of the OPC drum.
- B. Locate the side of the drum on which you are going to place the contact gear. On some OPC drums, this is critical. See individual instructions for more information.
- C. Lightly sand the INSIDE of the OPC where the metal parts of the contact gear will meet. This will insure a good electrical contact.
- D. "Dry fit" the contact gear in the OPC drum and check for a good contact with an Ohmmeter. The reading should be a direct short, or no more than 1 or 2 Ohms. NOTE: When checking the contact, place one lead on the drum axle contact and the other on the edge of the drum. This way, you will not have to pierce the coating that is on the OPC surface. A retail electronics store, such as Radio Shack carries cheap Ohmmeters for less than \$10.00 USD, and a sales person would normally be glad to show you how to use it.
- E. Using the super glue, place a few (3-4) small drops of glue strategically around the inside edge of the OPC drum. Make sure you leave a blank area for the metal contacts!
- F. Insert the contact gear.
- G. Check for continuity again with the Ohmmeter.
- H. Repeat steps E and F for the drive gear.

NOTE: Be very careful not to place the metal contacts in direct contact with the glue, as this will interfere with the proper grounding of the drum, and the cartridge will not print properly, (solid black pages). It is also very important to NOT put any glue on the gear, as the chances of it dripping out onto the drum surface and ruining it are high. Placing the glue inside the drum tube works much better.



13. Re-Install the OPC drum.

The metal axle pin should have a good amount of conductive grease on the tip.

Remove the old grease and replace before inserting the drum.

Place the drum/waste assembly aside.



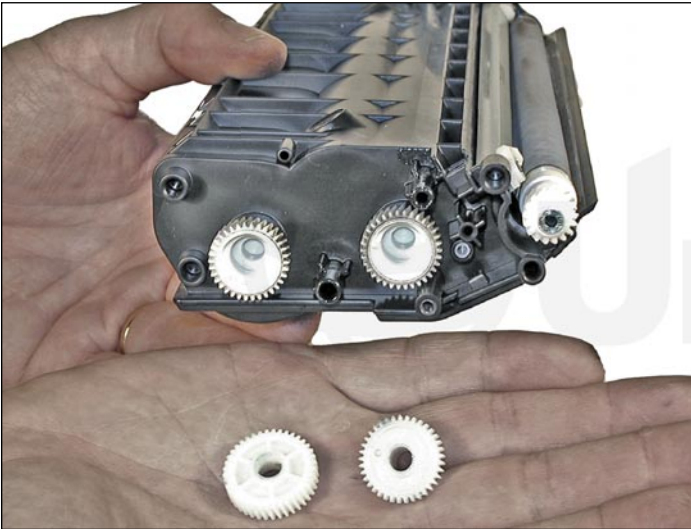
14. On the toner hopper, remove the drum cover.

Remove the spring arm by pressing in on the tab located inside the arm pivot point.

Pull the metal bar out from the opposite side to remove.



15. On the gear side of the magnetic roller, remove the screw and end cap.



16. Remove the two gears as indicated. The remaining two gears should not be removed. They will not fall off, and are mounted to the toner augers inside the hopper.



17. Remove the magnetic roller assembly.



18. On the opposite side of the hopper, remove the screw and end cap.

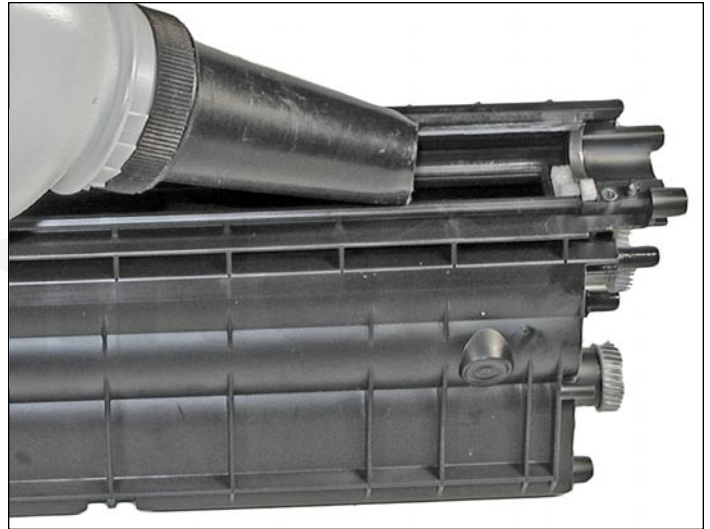


19. Remove the two screws and doctor blade. Pry the blade up from the right side. There is adhesive under the blade. If you pull the blade off, the alignment pin may break off.



20. Remove the fill plug and dump out any remaining toner.

Vacuum/blow the hopper clean.

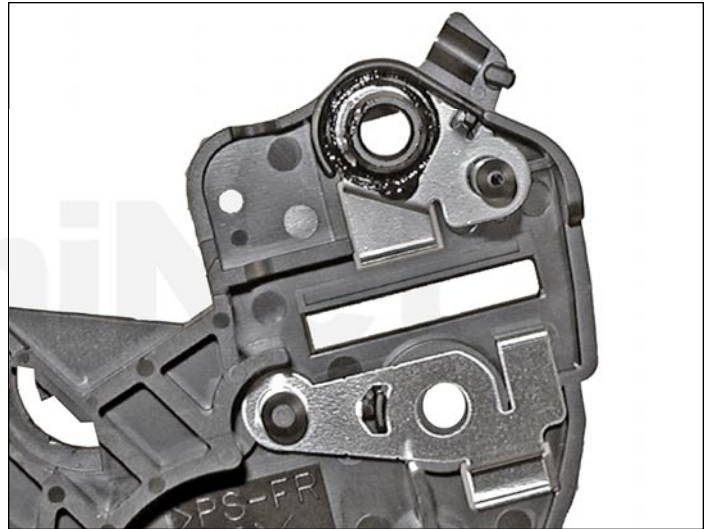


21. When a seal becomes available, install it now and fill the hopper through the fill hole. Proceed to step 22.

Otherwise, Install the fill plug and fill with 230g toner for use in Canon 106.



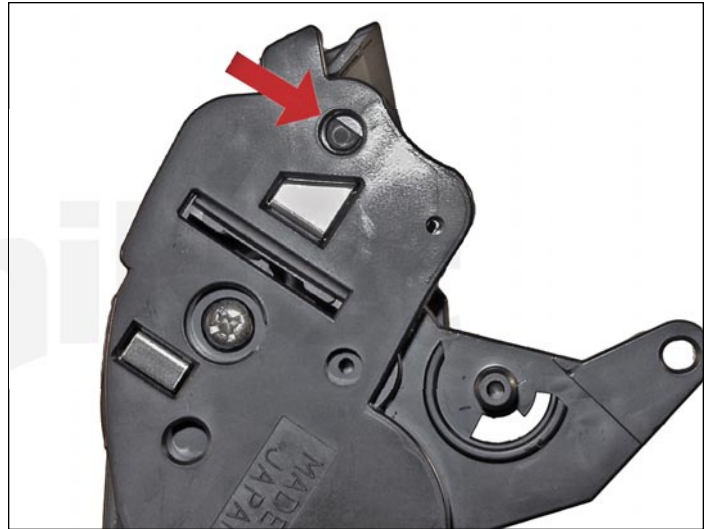
22. Re-install the doctor blade, plastic scrapers, and two screws.



23. On the electrical end cap, clean the old grease off the contact plate, and replace with new conductive grease.



24. Install the electrical end cap and screw.



25. Install the magnetic roller assembly.

Make sure the keyed end fits properly into the keyed slot in the end cap.

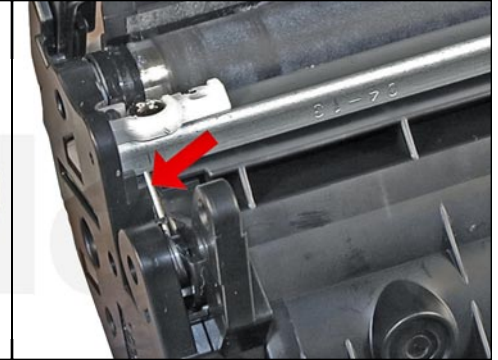
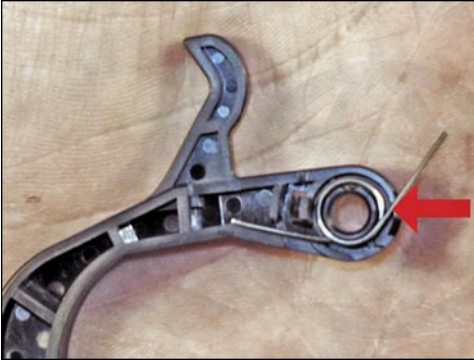


26. On the opposite side of the hopper, install the two gears as shown.



27. Install the gears side end cap and screw.

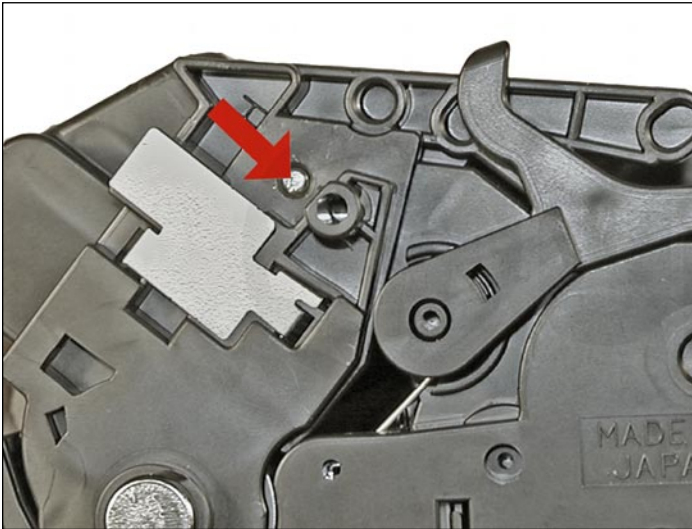
Make sure the gears mesh properly.



28. Install the drum cover.

Place the spring in the arm as shown. Install the arm, place the bar in the hole, and release the arm spring.

Rotate the spring a few times to make sure everything is working properly.

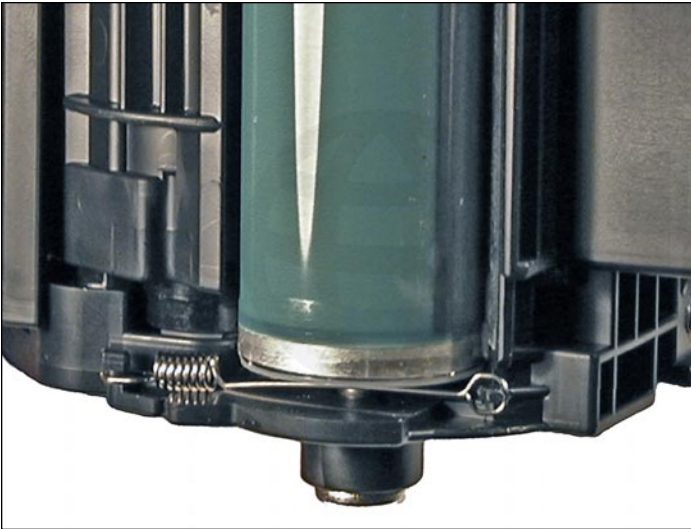


29. Place the two halves together, making sure the arms on the toner hopper are aligned and insert the two pins.

Make sure that the pins are inserted fully so that they do not come loose.



30. Install the drum hub and two screws.



31. Install the small spring across the two small plastic tabs on the non gear side of the drum.

Installing this spring can be a bit tricky.

Install the large loop side of the spring on the waste hopper first, and pull it across to the toner hopper with a spring hook.



32. Install the blue handle and screw.

CARTRIDGE TROUBLESHOOTING**Repetitive Defect Chart:****OPC drum:** 76 mm**Magnetic roller:** 38 mm**PCR:** 36 mm**Backgrounding (gray streaks):**

This is usually caused by a dirty/worn out PCR, or a worn out wiper blade.

Light Print:

This can be caused by a dirty/worn magnetic roller or a worn out doctor blade.

Solid Black Pages:

There is a bad drum ground contact, probably from the drum axle shaft to the contact gear inside the drum.

Perfectly straight thin black lines down the page:

This indicates a scratched drum.

Black dots that repeat every 76 mm:

This indicated a bad drum or something stuck to the drum surface.

Dark black Horizontal lines:

These are usually caused by a bad PCR connection, a pin hole in the PCR, or a pin hole in the drum. These lines normally run about 1/8" thick and can show as few as four times to as many as 12 times per page.

"Tire Tracks" on right edge of page:

"Tire tracks" are what we call a vertical shaded area with lines in it that look like tire tread marks in the sand. These are caused by a worn out drum. This normally happens to OEM drums.

Half the page prints, the other half is blank:

The cartridge spring most likely fell off. Locate the spring and re-install.

Light and dark print:

This shows up mostly on full gray or solid black pages. The magnetic roller alignment pins are not aligned correctly or the magnetic roller bushings are worn.

RUNNING TEST PAGES

There are two different ways to run test pages. The easiest way is to just use the scanner to make copies. The other way is to run them from the printer driver menu.

CHANGING PRINTER SETTINGS

1. Press the ADDITIONAL FUNCTION button
2. Press the left or right arrows until PRINTER SETTINGS appears on the display
3. Press OK
4. Press the right or left arrows until the following settings you want to change appears on the display
 - a. Image Refinement (smoothes jagged edges on or off)
 - b. Density (set from 1-9)
 - c. Toner Saver (On or OFF)
5. Press OK
6. Change the desired setting
7. Press OK

RUNNING THE CLEANING PAGE

There are a few different cleaning pages that can be run. Each type cleans different parts...

Fuser Roller Cleaning Page:

1. Press the ADDITIONAL FUNCTION button.
2. Press the left or right arrows until ADJUST/CLEANING appears on the display
3. Press OK
4. Open the multipurpose tray
5. Place a sheet of blank LTR paper in the tray
6. Press the right or left arrows until FIX.UNIT CLEANING appears on the display
7. Press OK
8. The cleaning page will run

ADF Automatic Cleaning Page:

1. Press the ADDITIONAL FUNCTION button
2. Press the left or right arrows until ADJUST/CLEANING appears on the display
3. Press OK
4. Press the right or left arrows until FEEDER CLEANING appears on the display
5. Press OK
6. Place 5 sheets of blank LTR paper in the ADF
7. Press OK
8. The cleaning page will run

Transfer Roller Cleaning Page*:

1. Press the ADDITIONAL FUNCTION button
2. Press the left or right arrows until ADJUST/CLEANING appears on the display
3. Press OK
4. Press the right or left arrows until TRANS. ROLLER CLEAN appears on the display
5. Press OK
6. The cleaning process will run

***Run this when backs of page have smudges on them.**

PRINTER TROUBLESHOOTING

These machines use both text and numerical error messages. For the most part the text messages are self explanatory, but one may be confusing.

Toner Is Not Set Insert Toner:

This means that the cartridge is either missing, is not put together correctly, or just isn't installed correctly in the machine. There is no chip that will cause this, just a physical problem.

Numeric Error Codes (MF6550, MF6560, MF6580 only):

- 0001: Paper jam**
- 0003: ADF paper problem (size)**
- 0005: Receiving fax machine did not respond within 35 seconds**
- 0009: Paper out**
- 0012: Receiving fax machine out of paper**
- 0037: Memory full**