

# HP® LASERJET 4200 • 4300

## TONER CARTRIDGE REMANUFACTURING INSTRUCTIONS



HP LASERJET 4200 TONER CARTRIDGE (Q1338A)

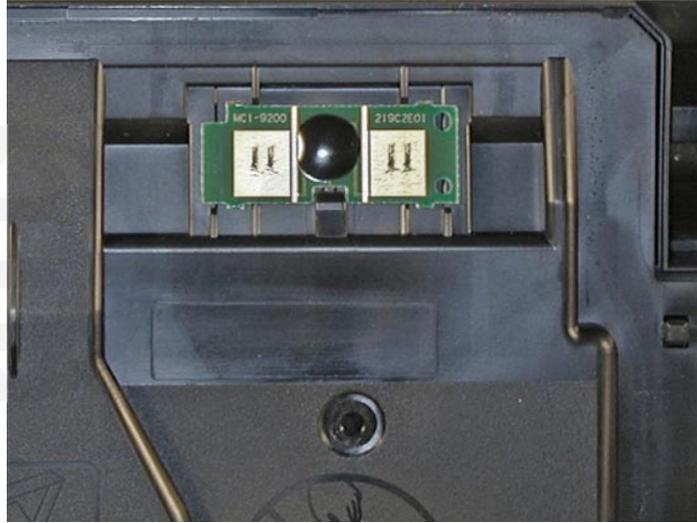


HP LASERJET 4300 TONER CARTRIDGE (Q1339A)

# REMANUFACTURING HP LASERJET 4200/4300 TONER CARTRIDGES

By Mike Josiah and the Technical Staff at UniNet

First introduced in November 2002, the HP LaserJet 4200 engine is a 35-ppm, 1200-DPI engine. The HP LaserJet 4300 is a 45-ppm, 1200-DPI engine. Both engines are made by Canon. The Q1338A cartridge (4200), is rated for 12,000 pages at 5%, the Q1339A (4300) cartridge is rated for 18,000 pages at 5%.



As with the HP 4100, the chip is mainly controlling the toner low functions, and of course the HP/non-HP cartridge message. These new chips are physically different in that they use physical contacts to “talk” to the printer (see image). The HP 4100 chips use RF (radio frequency) technology, where no physical contact is needed. These newer chips are also very noticeable, being placed on the top leading edge of the cartridge, and bright green in color. HP apparently is not making any effort to disguise the use of these chips. The chips themselves are held in place by double-sided tape.

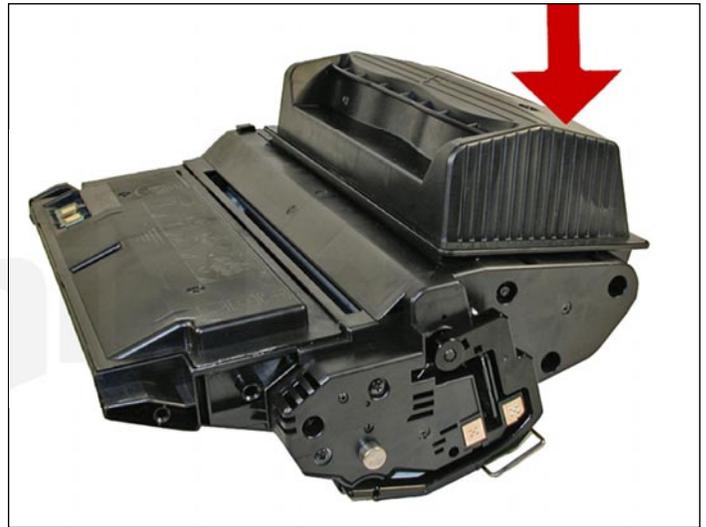
In our tests, the OEM cartridges did not meet their stated yields. The 4200 cartridges yielded 11,060 pages (vs. 12,000), and the 4300 cartridges yielded 16,009 pages (vs. 18,000). The densities for both were on the dark side with the 4200 averaging 1.54, and the 4300 averaging 1.55. This higher than normal density probably accounts for the low yield.

These instructions cover both the 4200 and 4300 cartridges. Although they are not interchangeable, the procedure to remanufacture them is for the most part, identical. The only major exception is removing the wiper blade on the 4300 cartridge.

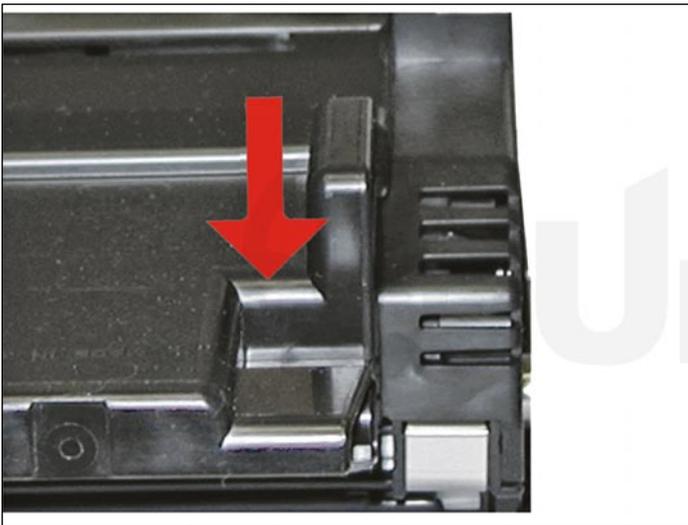
The first noticeable difference between the two cartridges is the height of the hopper, but there are many more subtle differences. The following images show the differences between the two cartridges...



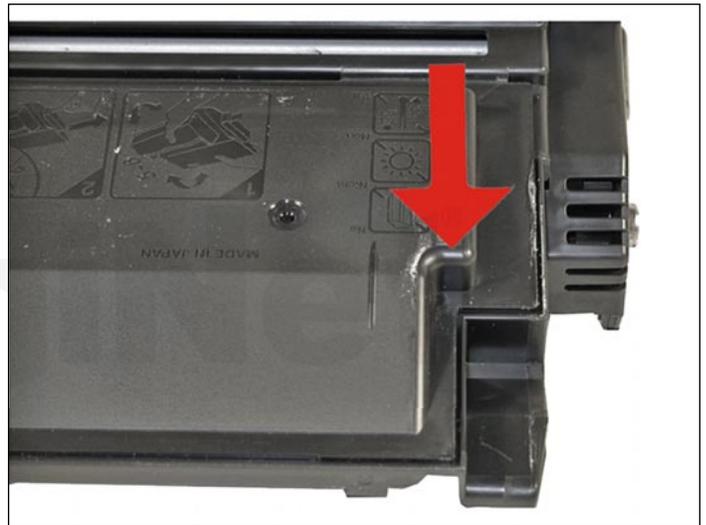
4200



4300



4200



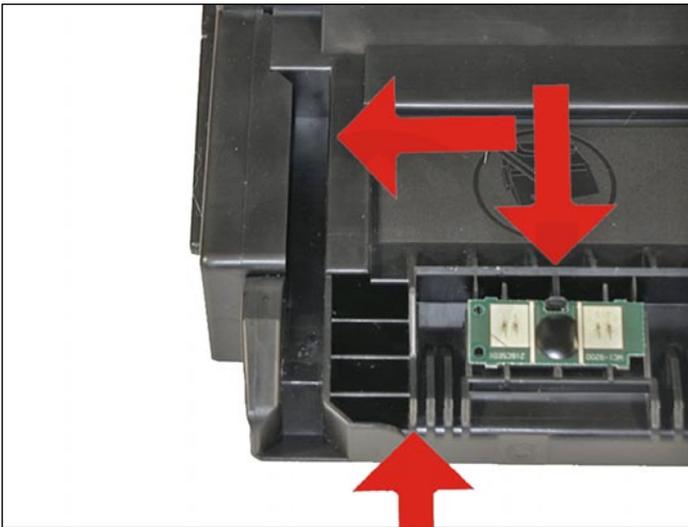
4300



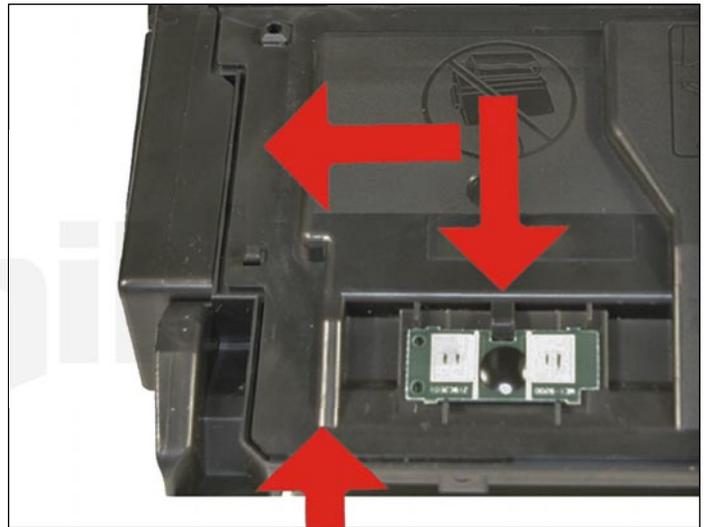
4200



4300



4200



4300



**4200**



**4300**

As you can see, HP and Canon seem to have gone out of their way to design these cartridges, so that they cannot be made interchangeable. We would have thought that having a low yield cartridge as well as a high yield cartridge, would be the way to go, especially when you consider past history. Apparently the engineers at HP/Canon thought otherwise. The machines themselves also look very similar, as they both have the same footprint, and what appear to be the same cases (except for the lids).

The next set of images show the display panel, when a cartridge is inserted into the machine in various states. Basically, it seems that the functions of this chip are the same as the 4100. The cartridge will work without a chip, but the error message must be cleared first. At the time of writing this article (December 2002), it is not known if the toner low function will work if the chip is removed. We are still in the initial stages of testing these cartridges. By the time you read this, we should have this, as well as other questions answered.



**New HP cartridge**



**New HP cartridge, seal left in**



**HP cartridge, low toner  
(this starts at about 2,000 pages)**



**Full cartridge, used chip**



**Full cartridge, used chip (after pressing "?")**



**Full cartridge, no chip (screen 1)**



**Full cartridge, no chip (screen 2)**



**Full cartridge, no chip (screen 3)**



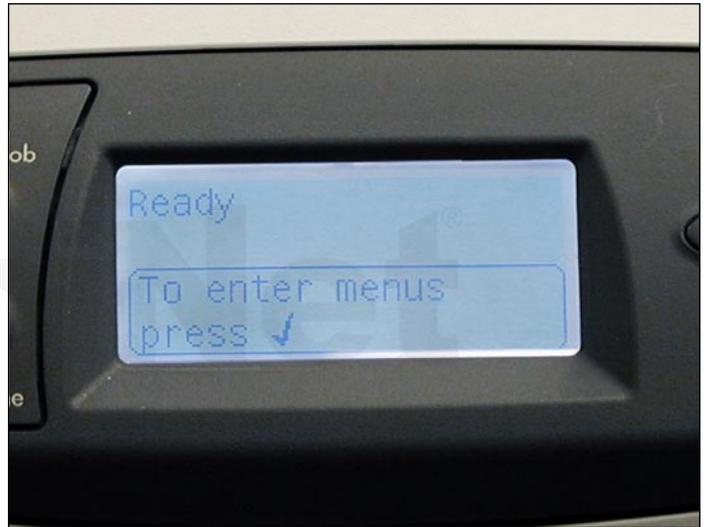
**Full cartridge, no chip (screen 4)**



**Full cartridge, no chip (screen 5)**



**Full cartridge, no chip (screen 6)**



**Full cartridge, no chip (after pressing "check" button)**

The following images show the Supplies Status Pages and their respective states. Note that as far as the Supplies Status Page is concerned, an empty cartridge is the same as a full one with a used chip...

# hp Laser Jet 4200 printers

supplies status page

1

## Ordering Information:

Hewlett-Packard supplies can be ordered on the internet at <https://www.hp.com/go/ordersupplies-na> or by calling Hewlett-Packard. (Please refer to your printer User Guide for the telephone number).

For highest print quality always use genuine Hewlett-Packard supplies.



Estimated Pages Remaining: 12000  
(Based on historical black page coverage of 5%)

Pages Remaining: 188882

Low Reached: No

Toner Out Reached: No

Serial Number: 17073

Pages printed with this supply: 0

Page Count by Paper Size:

A3/Ledger: 0

Legal: 0

A4/Letter: 0

A5/B5/Executive: 0

Envelope: 0

Custom/Other: 0

Number of Jobs Processed: 1

First Install Date: 201121400

Last Used Date: 201121400

New full cartridge

 **UniNet**  
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# hp Laser Jet 4200 printers

## supplies status page

1

### Ordering Information:

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Estimated Pages Remaining: 227  
(Based on historical black page coverage of 5%)

Pages Remaining: 188881

Low Reached: Yes

Toner Out Reached: Yes

Serial Number: 33118

Pages printed with this supply: 11136

Page Count by Paper Size:

A3/Ledger: 0

Legal: 0

A4/Letter: 11136

A5/B5/Executive: 0

Envelope: 0

Custom/Other: 0

Number of Jobs Processed: 17

First Install Date: 201121400

Last Used Date: 201121400

Empty, used cartridge

# hp Laser Jet 4200 printers

supplies status page

1

## Ordering Information:

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For highest print quality always use genuine Hewlett-Packard supplies.



Estimated Pages Remaining: 227  
(Based on historical black page coverage of 5%)

Pages Remaining: 188883

Low Reached: Yes

Toner Out Reached: Yes

Serial Number: 33118

Pages printed with this supply: 11137

Page Count by Paper Size:

A3/Ledger: 0

Legal: 0

A4/Letter: 11137

A5/B5/Executive: 0

Envelope: 0

Custom/Other: 0

Number of Jobs Processed: 18

First Install Date: 201121400

Last Used Date: 201121400

Full, used chip

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www.uninetimaging.com

# hp Laser Jet 4200 printers

supplies status page

1

## Ordering Information:

Hewlett-Packard supplies can be ordered on the internet at <https://www.hp.com/go/ordersupplies-na> or by calling Hewlett-Packard. (Please refer to your printer User Guide for the telephone number).

For highest print quality always use genuine Hewlett-Packard supplies.

■ **Black Print Cartridge**  
HP Part Number: Q1338A

**Maintenance Kit** 95%  
HP Part Number: 110V-Q2429A, 220V-Q2430A

ATTENTION: A non Hewlett-Packard supply has been detected. Certain features (such as remaining toner volume data) may not be available as a result of using this non Hewlett-Packard supply.

\*(See Warranty Note)

Pages Remaining:

188882



## \* Warranty Note

ATTENTION: A non Hewlett-Packard supply has been detected. Services or repairs required as a result of using non Hewlett-Packard supply will NOT be covered under printer warranty.

Certain features (such as remaining toner volume data) may not be available as a result of using this non Hewlett-Packard supply. Please refer to your printer User Guide for a complete listing of these features.

If this cartridge was sold to you as a genuine HP product, then please call our fraud hot-line. (Refer to your printer User Manual for the telephone number).

Full, no chip

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[www.uninetimaging.com](http://www.uninetimaging.com)

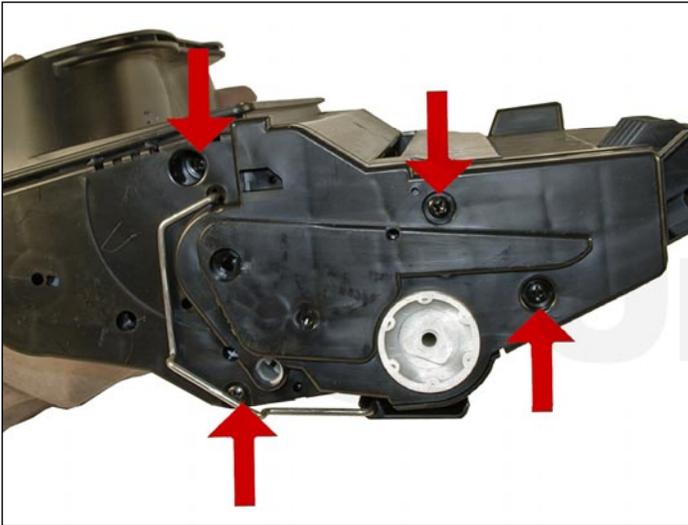
Printer usage, as well as some common printer/cartridge problems will be covered at the end of this article.

### REQUIRED TOOLS

1. Toner approved vacuum
2. A small common screwdriver
3. A Phillips head screwdriver
4. Needle nose pliers
5. Dremel tool for removing wiper blade shelf on HP 4300 cartridges

### REQUIRED SUPPLIES

1. 690g replacement polyester-based toner for use in HP 4200 / 1,100g for use in HP 4300
2. Replacement drum
3. Wiper blade
4. Doctor blade
5. PCR
6. Magnetic roller sleeve
7. Conductive grease
8. Tube of silicon for sealing wiper blade gap



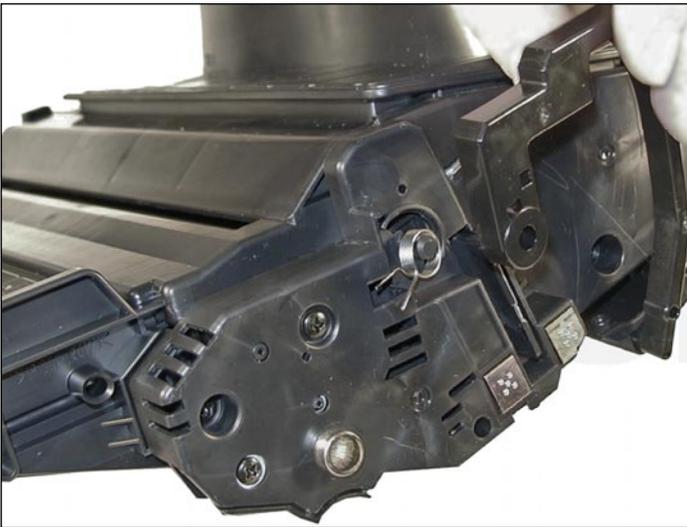
1. Place the cartridge with the toner hopper facing up and away from you. This will orient the cartridge for right and left sides.

2. Remove the four screws on the left side end cap (shown).

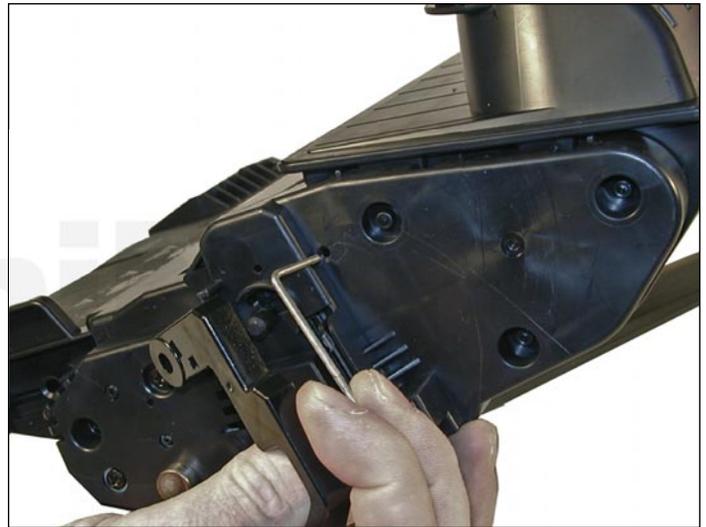


3. Open the drum cover towards the back of the cartridge.

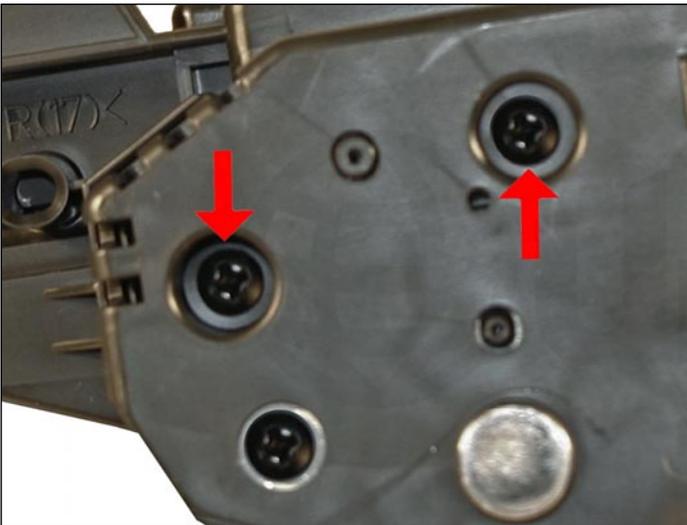
Remove the left side metal bar.



4. 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.



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



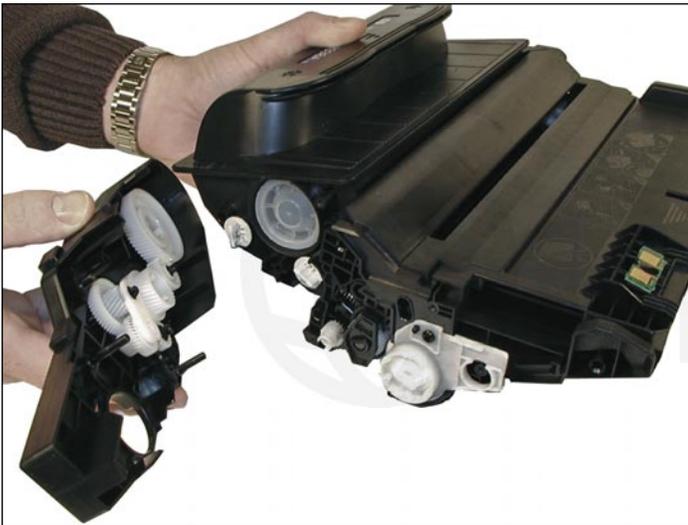
6. Remove the two screws from the right side end cap.

Do not remove the screw that is holding the recessed metal drum axle pin.



The rest of the right side end cap is held in place by three melted plastic posts.

Although there are tools to aid in removing this end cap, we have found it not necessary. After removing and replacing the waste chamber a few times, a technician will be much faster than going through the trouble to remove the end cap.



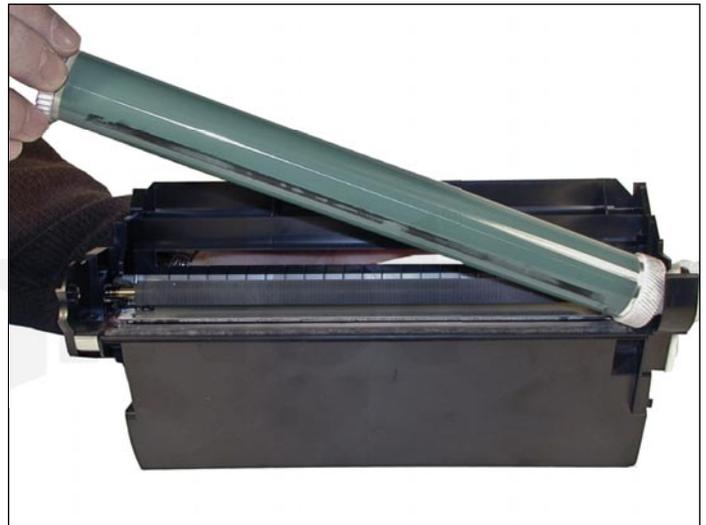
7. Remove the left side end cap from the cartridge.



8. Carefully work the waste chamber loose from the right side end cap. Press in on the metal drum axle pin to help free it.



9. Remove the metal drum axle pin screw and the axle pin.



10. Remove the drum.



11. Remove the PCR.



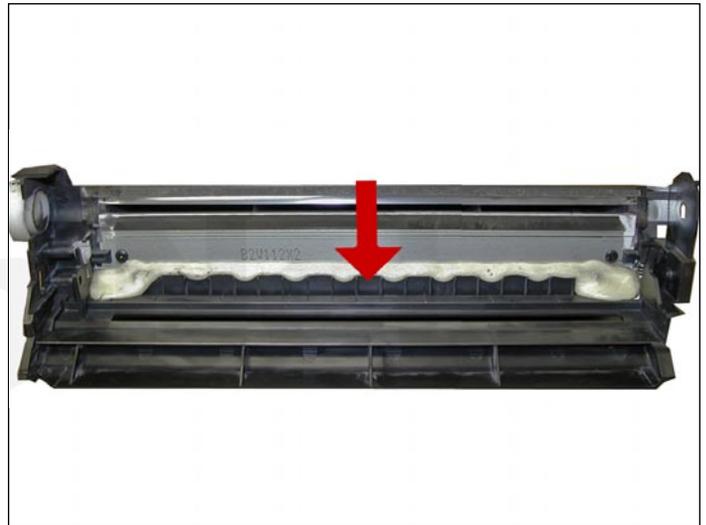
12. Remove the two screws from the wiper blade.



13. With a razor knife, carefully lift up the seal foam and cut away. This is very sticky stuff, the best way to remove it is to cut and lift.

The wiper blade can be resealed with a good quality silicon caulk. Make sure you use the type that never dries (cannot be painted).

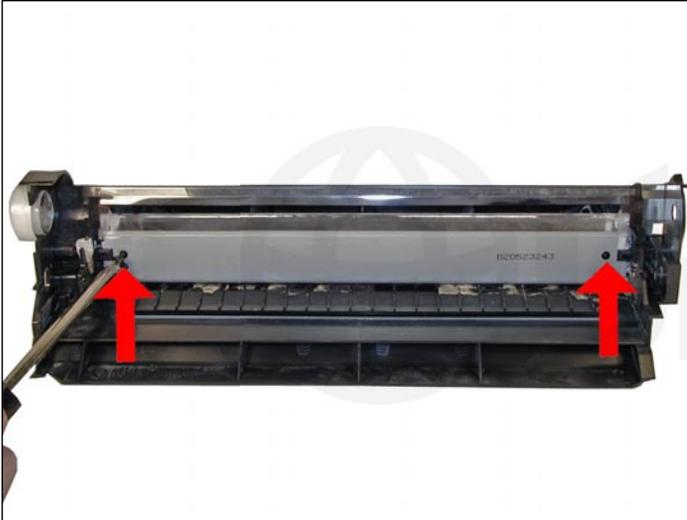
This foam seal is apparently a cheaper way to seal the cartridge instead of using a foam gasket. Although it is a real pain to remove, replacing it with silicon will allow you to easily peel it off the next cycle.



14. Note the difference between the 4100 wiper blade and the 4200. At first glance they look very similar, but they are not. The tab behind the screw holes is a different size, and the alignment holes are on opposite sides.

Due to the high speed and page counts of these cartridges, we recommend that they be replaced. It should be noted that the 4300 (39A) cartridge has a plastic shelf across the wiper blade that prevents it from being removed and replaced. This shelf is best removed by a Dremel-type tool with a grinding bit, or a circular blade bit. We do not recommend that a knife be used as it is easy to slip and cut yourself.

15. Clean the primary charge roller (PCR) with your standard PCR cleaner.

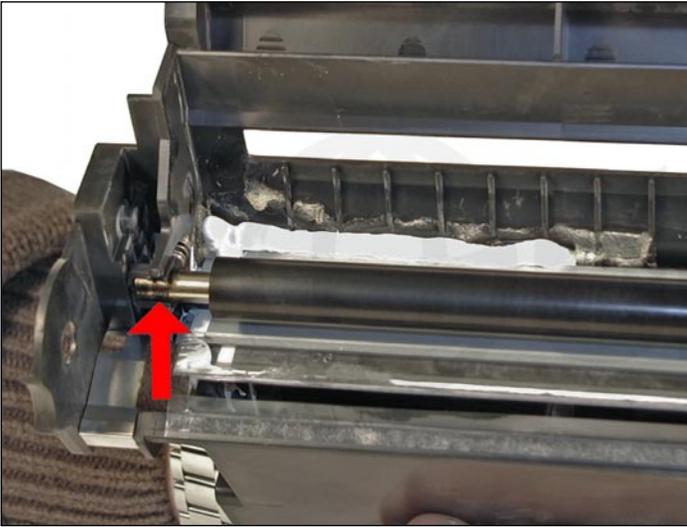


16. Install the wiper blade and two screws.



17. Seal the back edge of the wiper blade with a good quality silicon caulk. Use the type that never dries (cannot be painted).

Let the caulk dry for a few hours before doing anything else.



18. 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!

### 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 AND 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: Removing 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: Removing 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: Removing any old adhesive from the gears, straightening 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.

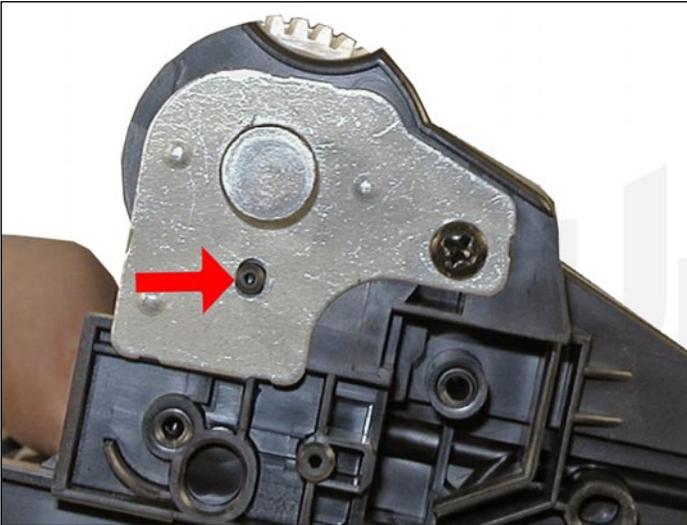
- E. Using the super glue, place a few (3-4) small drops of glue strategically around the inside edge of the OPC drum. Make sure you leave a blank area for the metal contacts!

- F. Insert the contact gear.

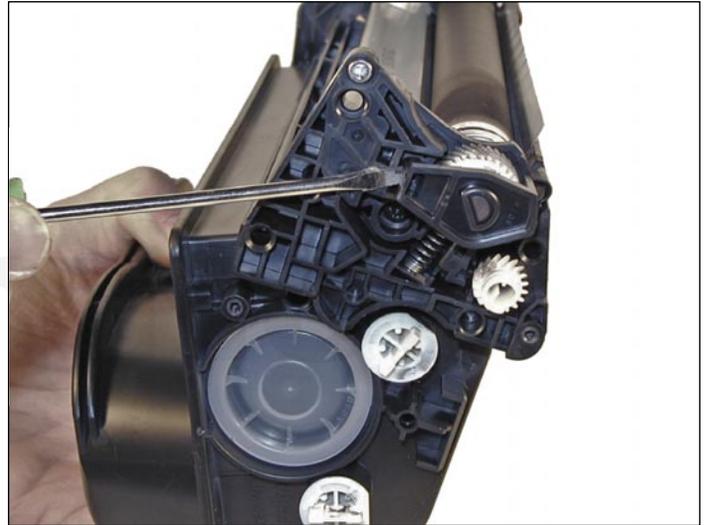
- G. Check for continuity again with the Ohmmeter.

- H. Repeat steps E and F for the drive gear.

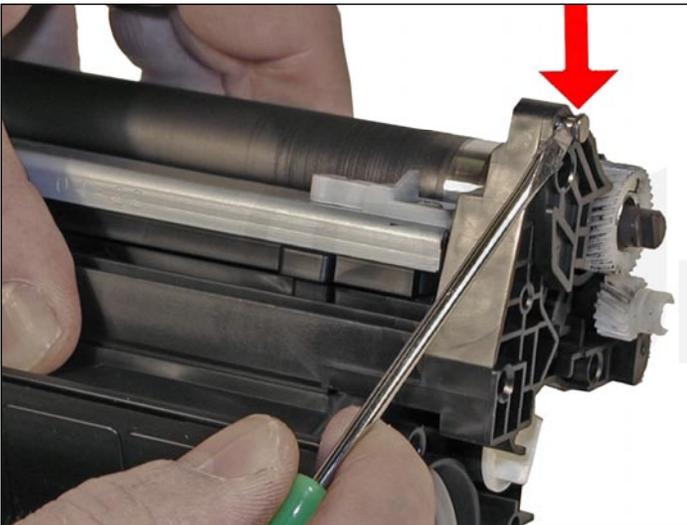
**NOTE:** Be very careful not to place the metal contacts in direct contact with the glue, as this will interfere with the proper grounding of the drum, and the cartridge will not print properly, (solid black pages). It is also very important to NOT put any glue on the gear, as the chances of it dripping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



19. Install the drum, the drum axle pin, and screws. Make sure that the plastic pin is centered in the oblong hole of the metal axle pin (just like the HP 4000 cartridges).



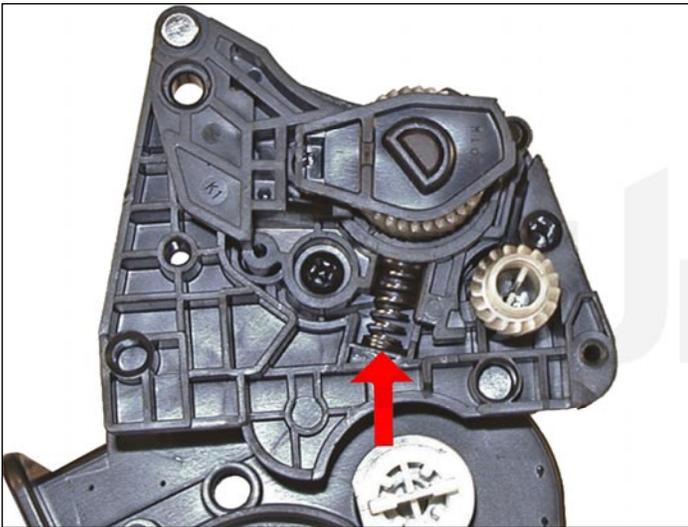
20. Carefully pry up the magnetic roller sleeve (MRS) cover, and remove.



21. Remove the small metal pin from the magnetic roller sleeve holder.



22. Remove the magnetic roller sleeve drive gear.



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

Remove the screw, the spring, and the holder.



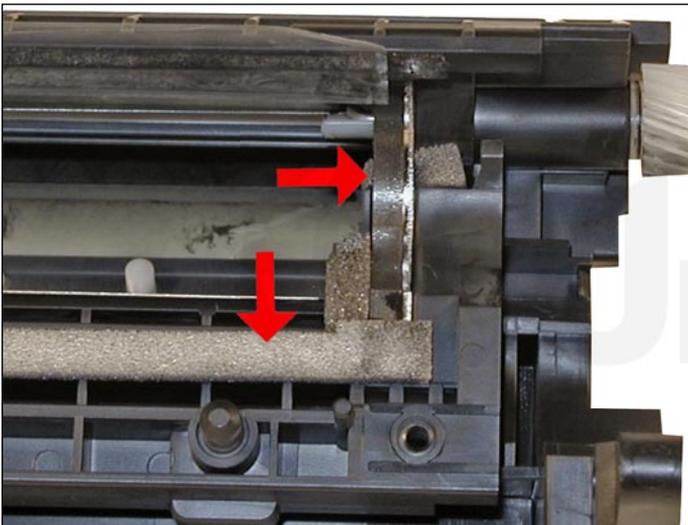
24. Remove the magnetic roller sleeve assembly.



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

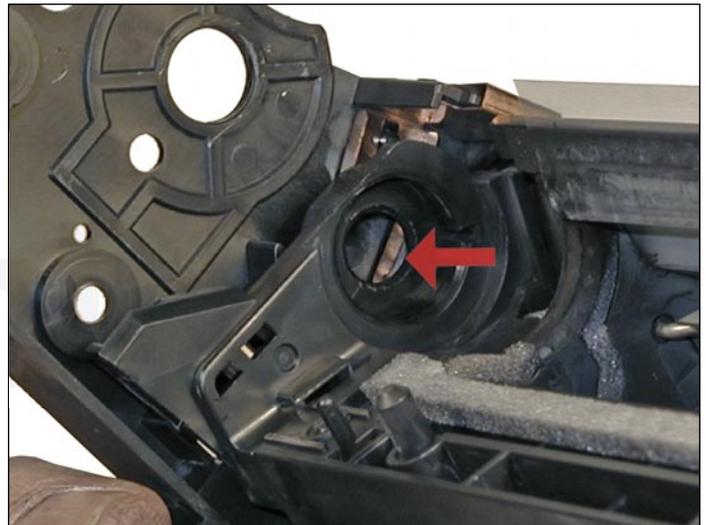
Note the clear spacer that fits in between the blade and the white plastic spacer.

Do not lose this spacer, or light print will occur.

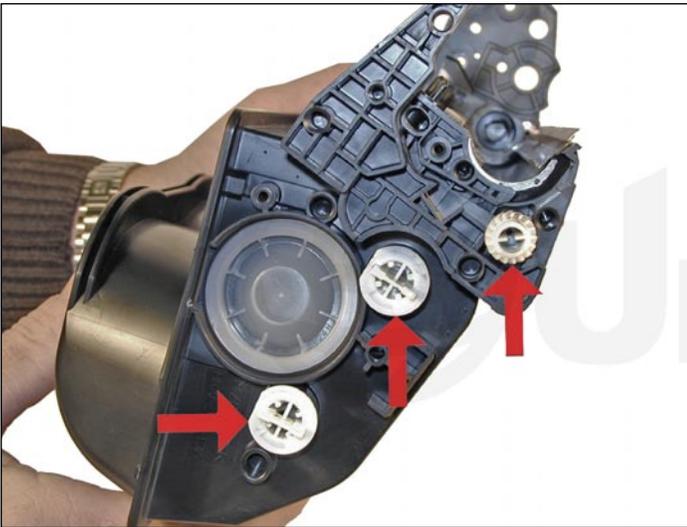


26. Clean out all the remaining toner in the supply hopper.

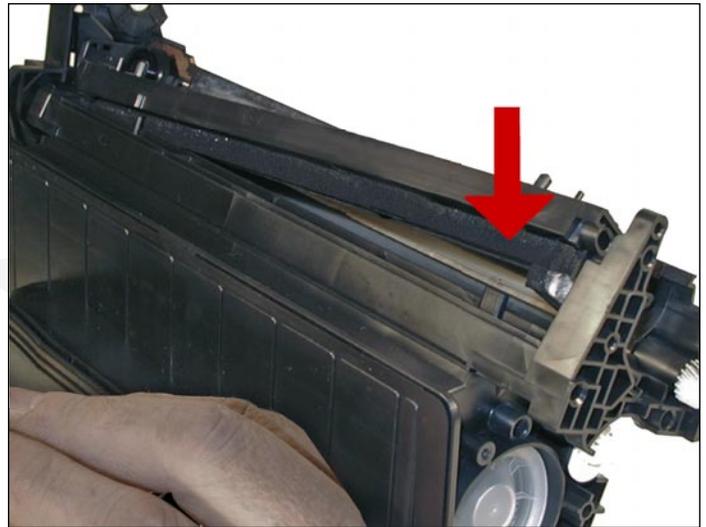
27. Note the magnetic seals on the magnetic roller sleeve and the doctor blade sealing foam. Make sure both are clean.



28. Note also the new style magnetic roller contact. There are two copper fingers that fit top and bottom on the magnetic roller. These, when combined with the new larger diameter of the roller, allow the cartridge to run at the higher speeds that both machines are capable of.



29. There are three 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.



30. The entire upper half of the toner hopper is different, in that it “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 as our testing continues.



31. Fill with 690g of replacement polyester-based toner for use in HP 4200, or 1,100g for use in HP 4300 cartridge.



32. Install the doctor blade and two screws. Make sure that all the spacers (both clear and white) are seated correctly!



33. On the magnetic roller sleeve, there is a small hub that is keyed into its holder. Align and install the hub with its slot, as well as the entire magnetic roller sleeve assembly.



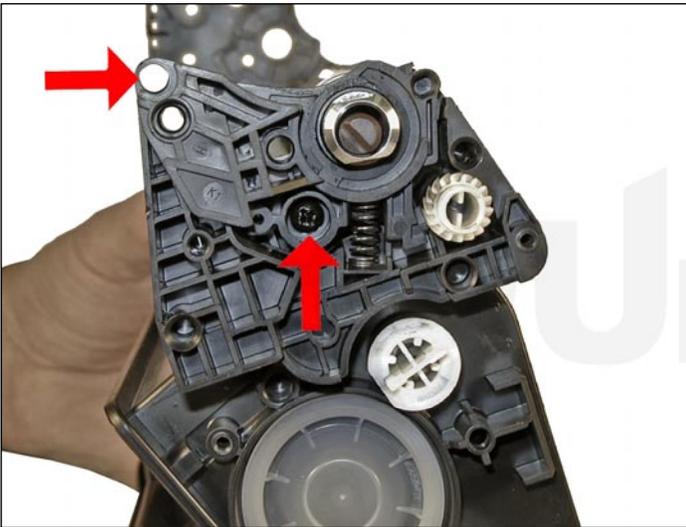
34. The opposite side holder is also keyed.

Align the remaining hub and install into the holder.



35. Install the holder and spring.





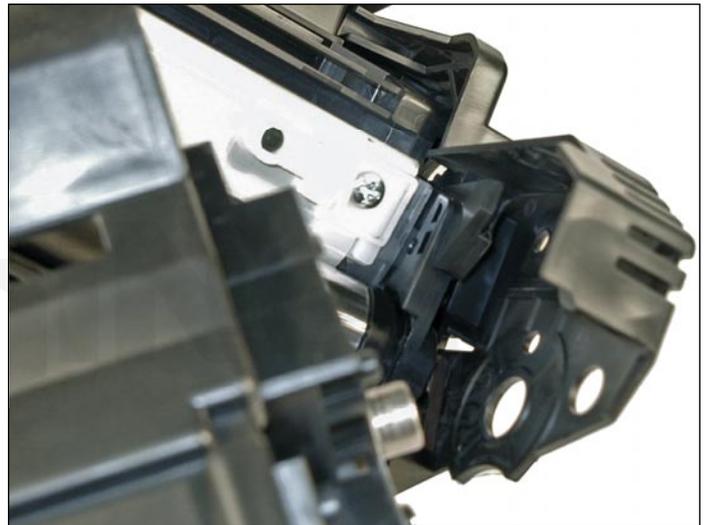
36. Install the screw and the small metal pin.



37. Install the magnetic roller sleeve drive gear.



38. 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 sleeve assembly.



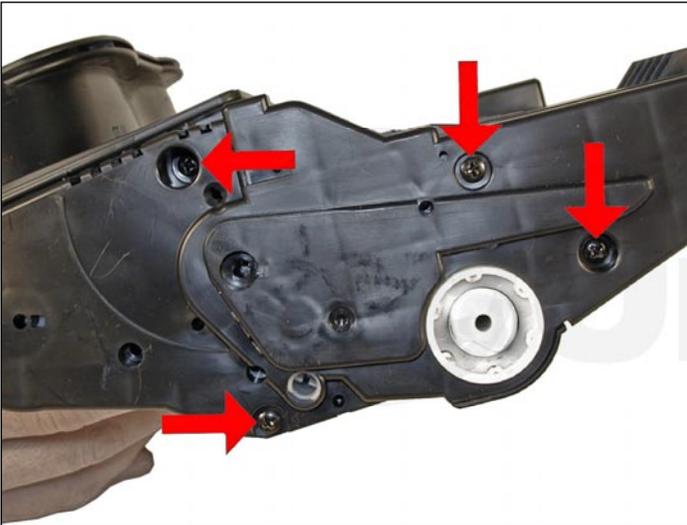
39. Install the waste section into the fixed end cap on the supply hopper. This is a tricky process the first few times, but gets much easier. The best way to do it is to carefully pull the end cap out, and slide the waste up and in, until everything aligns. For the first few times, this is definitely easier said than done, but you will get the hang of it.



40. Install the two screws into the end cap.



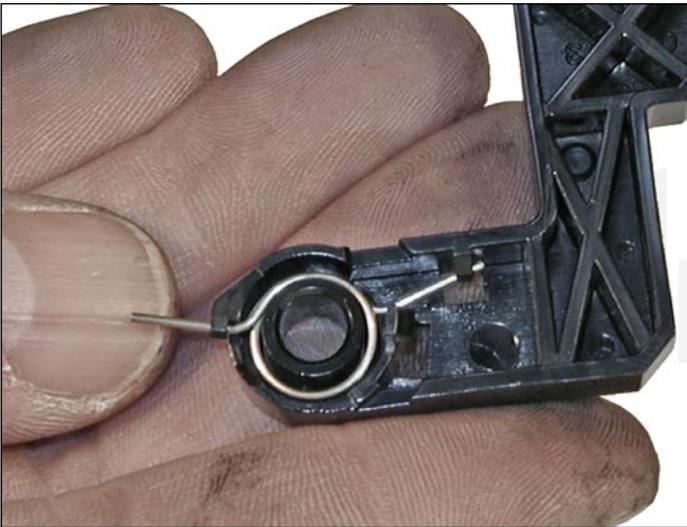
41. Install the left side end cap.



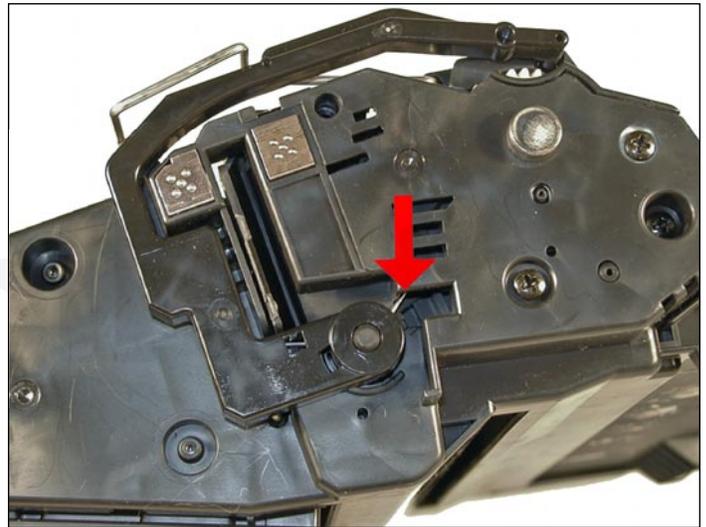
42. Install the four screws.



43. Install the metal bars from the drum cover on both sides of the cartridge. You will have to turn the bars so that the flattened end of the bars fit into the keyed slots.



44. 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.



45. Install the arm onto the cartridge. Release the spring from the notch so that the tail fits as shown.

46. 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.

**COMMON CARTRIDGE PROBLEMS****Repetitive Defect Chart:**

<b>OPC drum:</b>	<b>95 mm</b>
<b>Magnetic roller sleeve:</b>	<b>63 mm</b>
<b>PCR:</b>	<b>36 mm</b>

**Dirty or bad primary charge roller (PCR):**

A bad PCR will normally cause a gray background or ghosting. Small defects from the PCR will repeat every 36 mm.

**Dirty PCR connection:**

This will show as horizontal dark black bars across the page, or as shading throughout the page.

**Scratched drum:**

This is shown by a very thin, perfectly straight line that runs from the top to the bottom of the test page.

**Chipped drum:**

This will show as a dot or series of dots that repeat three times per page or every 95 mm. Any drum defects will repeat three times per page (95 mm).

**Light damaged drum:**

This will show up as a shaded area on the test print that should be white. Again this will repeat three times per page.

**Tire tracks:**

This is normally caused by a bad drum, they normally show up on the right edge of the page.

**Damaged magnetic roller sleeve:**

A damaged magnetic roller sleeve will leave a mark that repeats every 63 mm.

**RUNNING THE CLEANING PAGE**

1. Press the "SELECT" button
2. Press the "DOWN ARROW" until CONFIGURE DEVICE appears
3. Press the "SELECT" button
4. Press the "DOWN ARROW" until PRINT QUALITY appears
5. Press the "SELECT" Button
6. Press the "DOWN ARROW" until CREATE CLEANING PAGE appears
7. Press the "SELECT" button
8. Follow the instructions on the cleaning page to complete.

**RUNNING TEST PAGES**

1. Press the "SELECT" button
2. Press the "DOWN ARROW" until INFORMATION appears
3. Press the "SELECT" button
4. Press the "DOWN ARROW" until either of the following page selections appear:
  - MENU MAP
  - CONFIGURATION PAGE
  - SUPPLIES STATUS PAGE
  - PS or PCL FONT LIST
5. Choose the page(s) desired, and press the "SELECT" button

**PRINTER ERROR CODES**

These codes will be listed as soon as HP releases the service manuals for these machines (time of this writing).