

HP® LASERJET 2300

TONER CARTRIDGE REMANUFACTURING INSTRUCTIONS



HP 2300 TONER CARTRIDGE

REMANUFACTURING THE HP LASERJET 2300 TONER CARTRIDGES

By Mike Josiah and the Technical Staff at UniNet

Released in April 2003, the HP LaserJet 2300 series of printers are based on a 1200 dpi, 25 ppm Canon engine. As with all the new HP cartridges, these cartridges use a chip to monitor toner low functions. The chip looks very similar to the chips used on the 4300, 4200, and 1300 cartridges. The cartridge for the 2300 is the Q2610A, and is rated for 6,000 pages at 5% coverage. In our initial tests, the new OEM cartridges ranged from 5991 pages to 6212 pages, with densities ranging from 1.50 to 1.52. At first glance the Q2610A cartridge is a smaller version of the 4200 cartridge, but it is actually much closer in design to the 96A (2100) cartridge. The toner however, is very different.

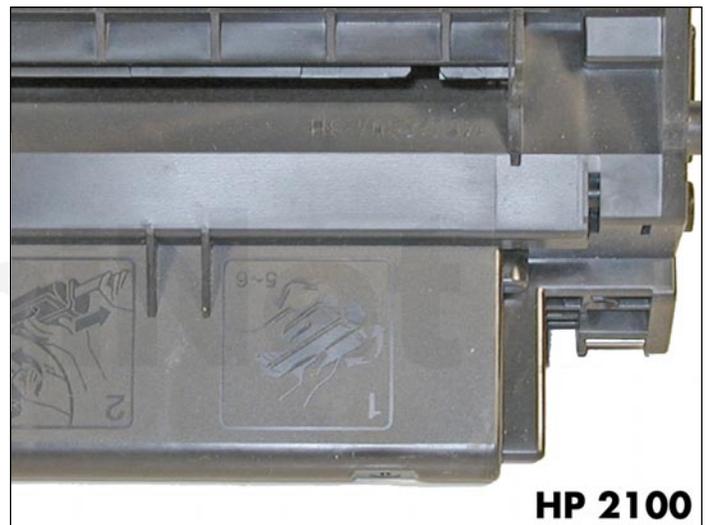
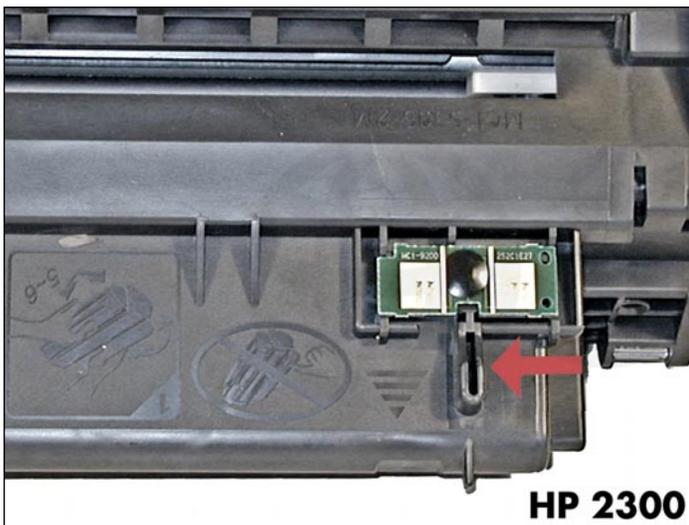
The LaserJet 2300 series of printers use a 266 MHz processor that outputs the first page in less than 10 seconds. With a duty cycle of 30,000 pages, 32 MB memory standard, and pricing starting at \$549.00 USD* these machines are sure to be very popular. HP has packed a lot of power into a relatively small machine. The cartridges have an internet or “street” price of \$119.99 USD* (both prices as of May 2003, in U.S. American Dollars).

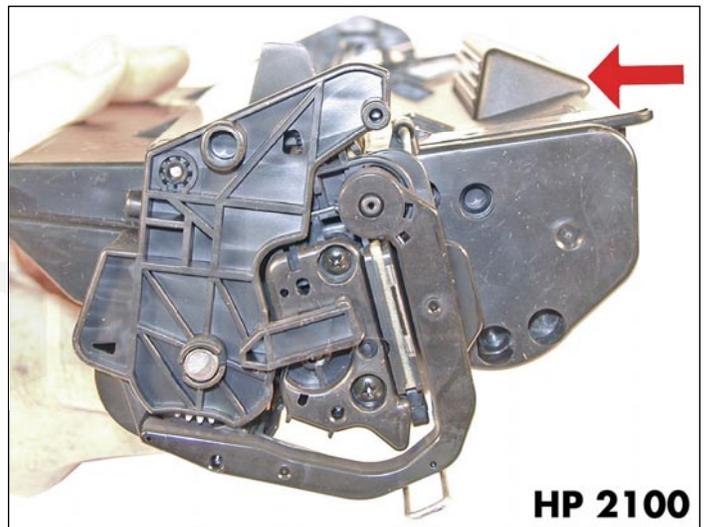
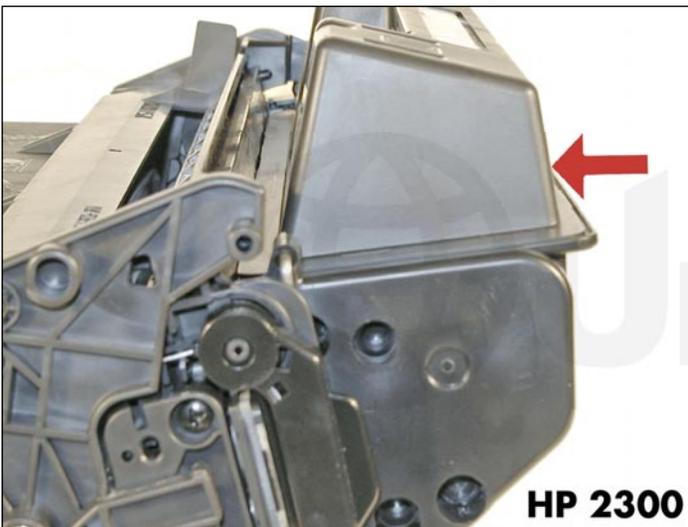
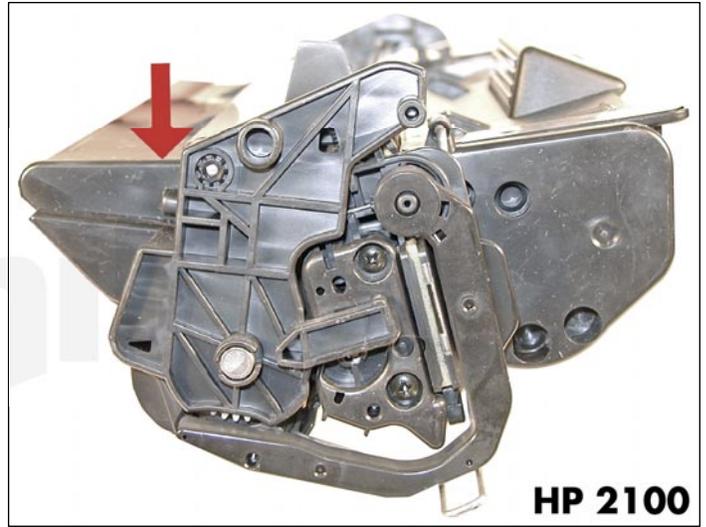
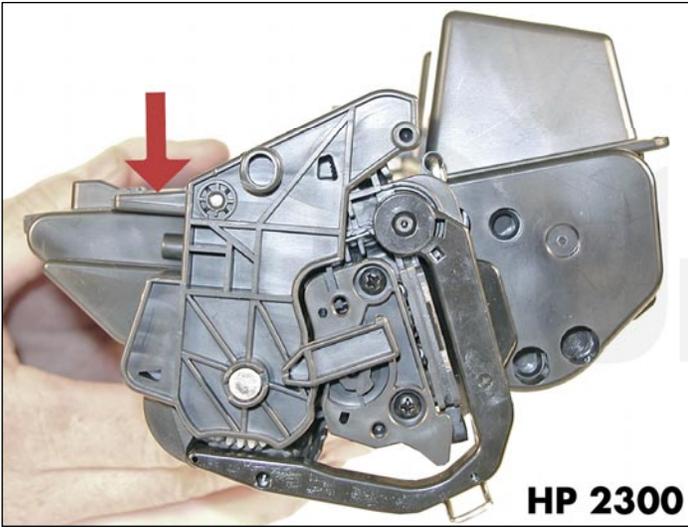
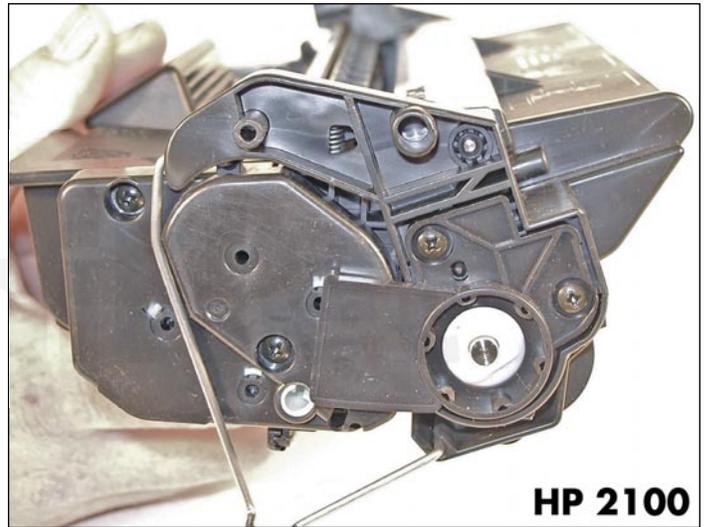
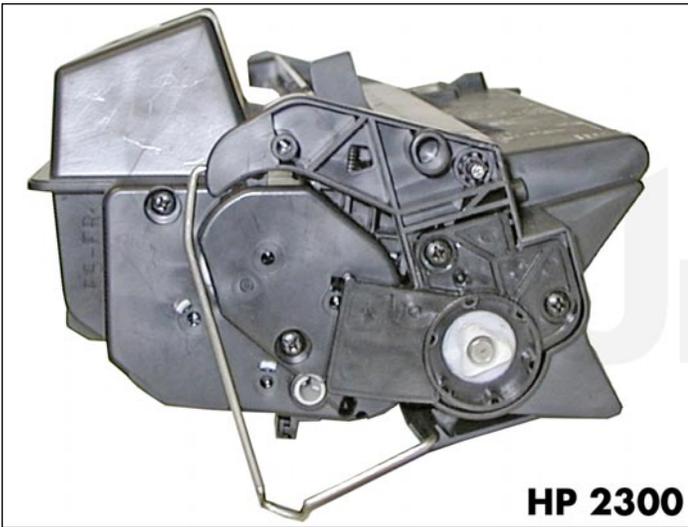
HP 2300 SERIES PRINTERS

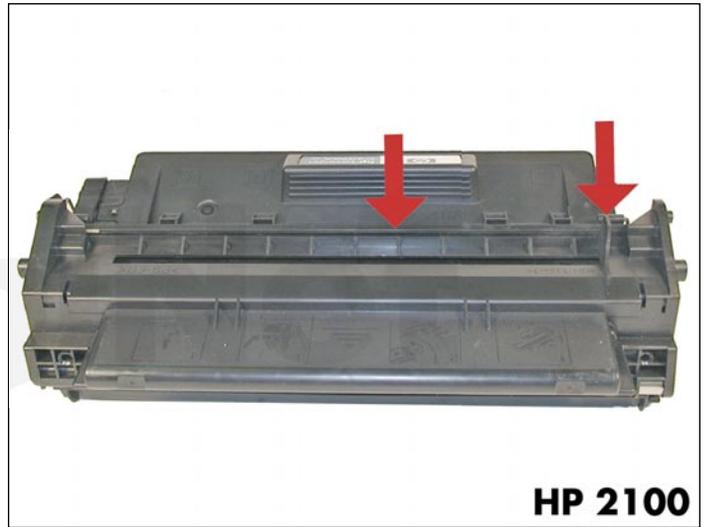
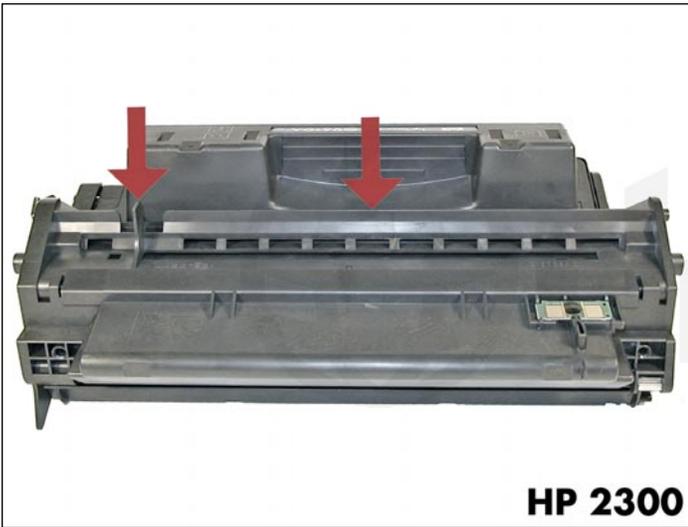
2300
2300n
2300d
2300dn
2300dtn
2300L*

*It should be noted that the 2300L is only rated for 20ppm, and has a duty cycle of 20,000 pages.

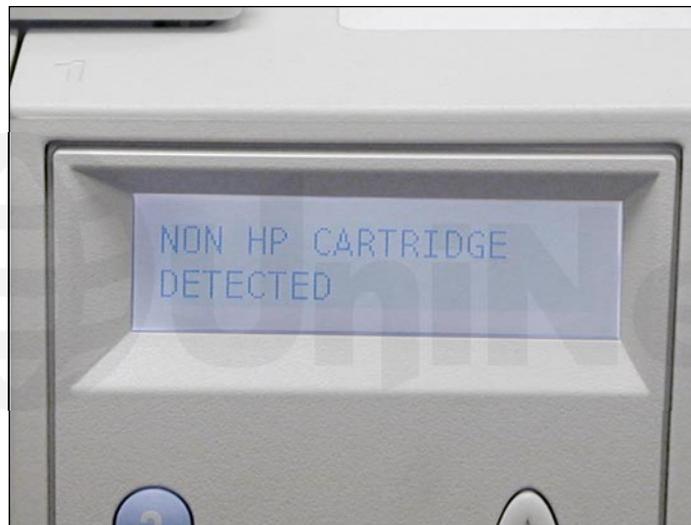
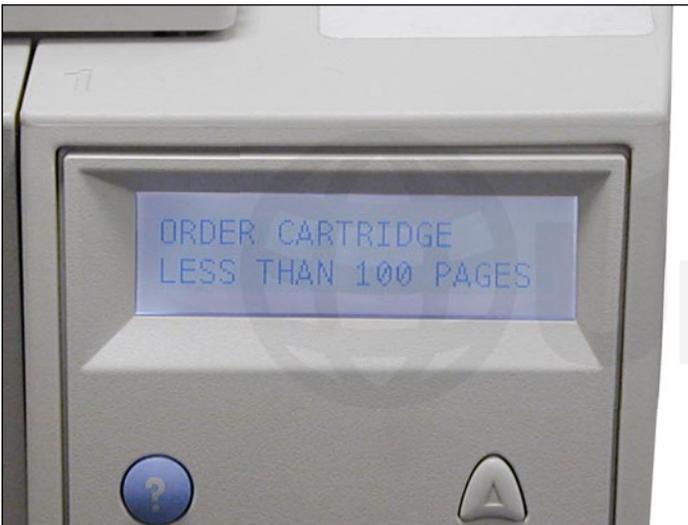
The following images show differences (or similarities) between the **96A** cartridge and the **Q2610A** cartridges. As with the other new HP cartridges, the chips on these cartridges do not shut down the entire cartridge, they disable the toner low features. The cartridge will run if the chip is removed, but the error message must be cleared first. The toner-low function will not work if the chip is removed...







These following shows the display panel when a cartridge is inserted in the printer with a used chip, and with no chip...



The following shows the **Supplies Status Page** in three different states...

hp LaserJet 2300L 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 product User Guide for the telephone number).

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



Estimated Pages Remaining: 6000
(Based on historical black page coverage of 5%)

Low Reached: No

Toner Out Reached: No

Serial Number: 34639

Pages printed with this supply: 1

Number of Jobs Processed:

Page Count by Paper Size:

Legal: 0

A4/Letter: 1

A5/B5/Executive: 0

Custom/Other: 0

Number of Jobs Processed: 1

First Install Date: 201121400

Last Used Date: 20030520

Recycling Information

Please return your used genuine supplies to Hewlett-Packard. For more information see:

<http://www.hp.com/go/recycle>

ENGLISH (1)

1. NEW CARTRIDGE

hp LaserJet 2300L printers

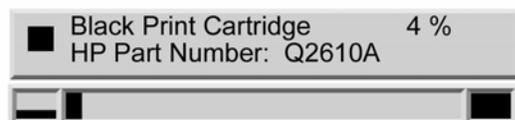
supplies status page

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 product User Guide for the telephone number).

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



Estimated Pages Remaining: 100
(Based on historical black page coverage of 6%)

Low Reached:	Yes
Toner Out Reached:	No
Serial Number:	34639
Pages printed with this supply:	4679
Number of Jobs Processed:	2
Page Count by Paper Size:	
Legal:	0
A4/Letter:	4679
A5/B5/Executive:	0
Custom/Other:	0
Number of Jobs Processed:	45

First Install Date:	201121400
Last Used Date:	20030520

Recycling Information

Please return your used genuine supplies to Hewlett-Packard. For more information see:
<http://www.hp.com/go/recycle>

ENGLISH (1)

2. FULL USED CARTRIDGE

hp LaserJet 2300L printers

supplies status page

1

Ordering Information

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



Black Print Cartridge
HP Part Number: Q2610A

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)

*Warranty Note

ATTENTION: A non Hewlett-Packard supply has been detected. Service or repairs required as a result of using a 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.

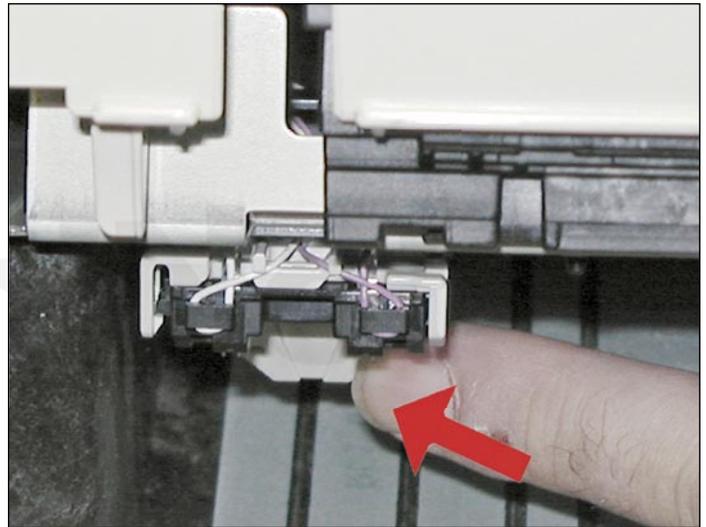
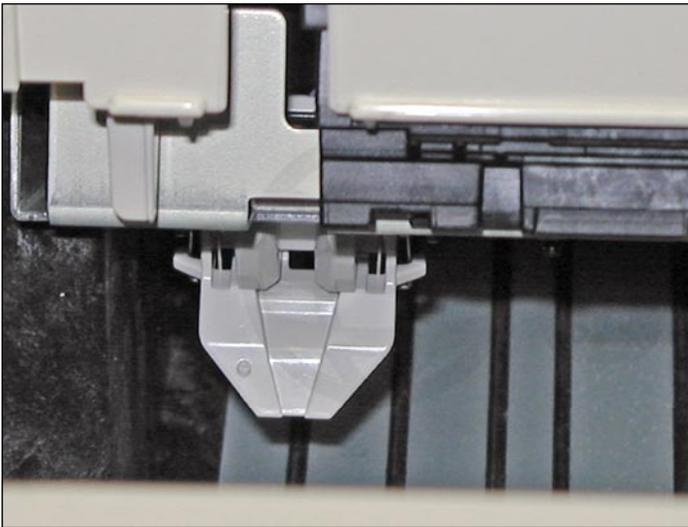
If this cartridge was sold to you as a genuine HP product, then please call our fraud hot-line, (Refer to your printer User Manual for the telephone number).

Recycling Information

Please return your used genuine supplies to Hewlett-Packard. For more information see:
<http://www.hp.com/go/recycle>

ENGLISH (1)

3. FULL NO CHIP



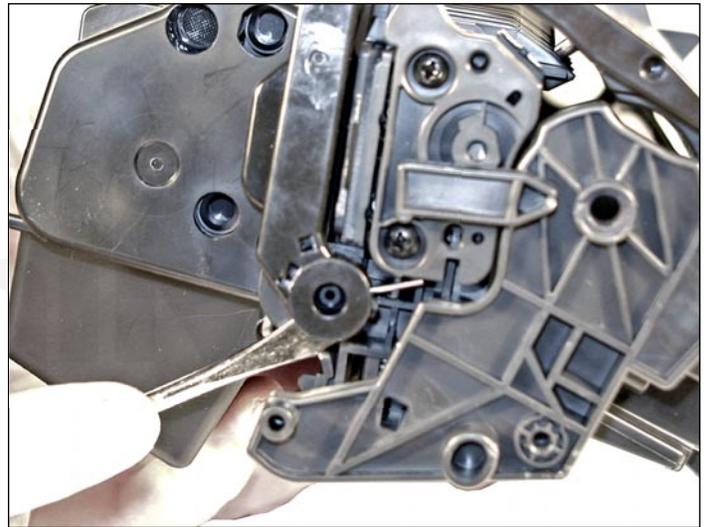
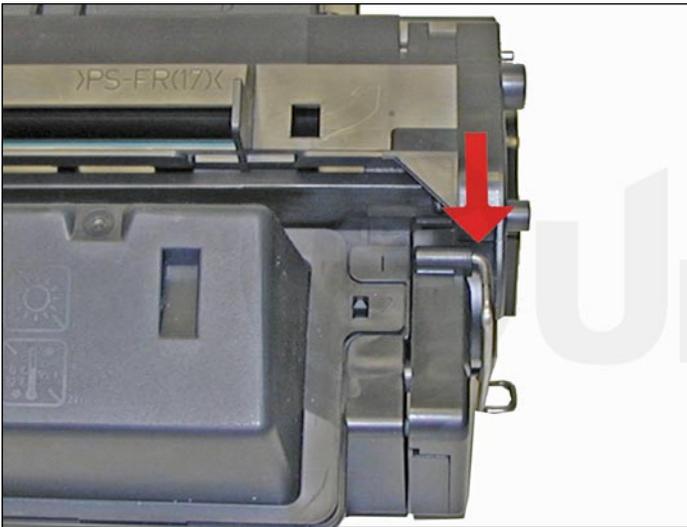
There is a small plastic tab located just in front of the chip board on the cartridge. When the cartridge is inserted, this tab engages the chip reader which is on a hinged assembly. If this tab is broken, the reader may not engage properly, and a memory supplies error could occur (this is the same error you get when the chip is removed).

REQUIRED TOOLS

1. Toner approved vacuum
2. A small common screwdriver
3. A Phillips head screwdriver
4. Needle nose pliers
5. Wire cutters
6. 1/16 inch or smaller punch

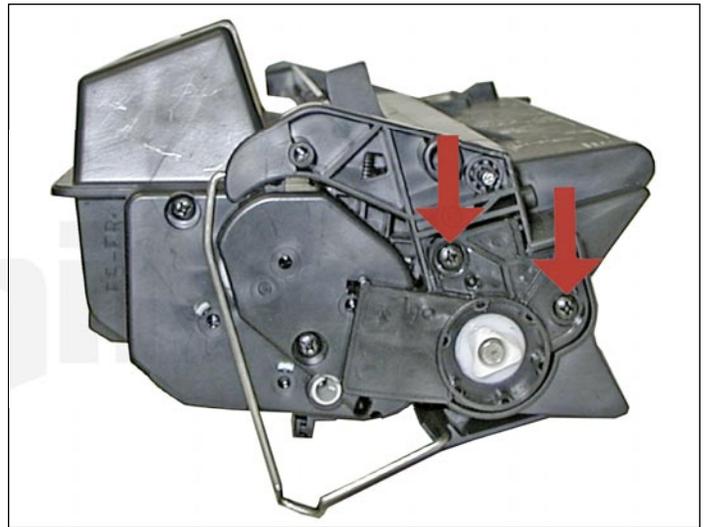
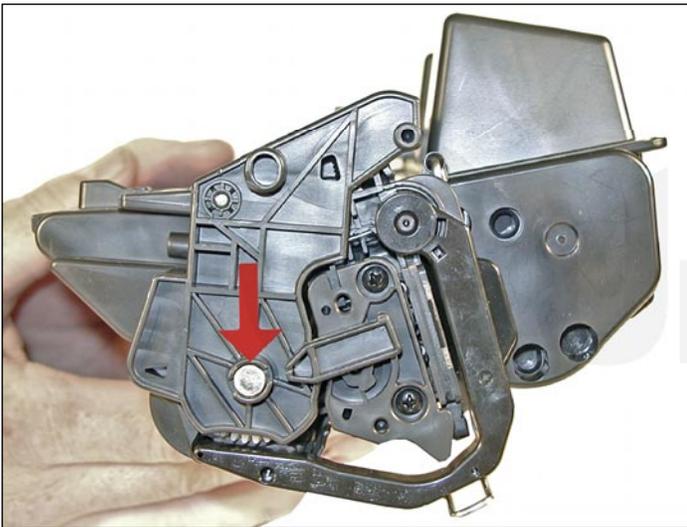
REQUIRED SUPPLIES

1. Toner (350 grams) for use in HP 2300
2. Replacement OPC drum
3. Replacement wiper blade
4. Replacement PCR (optional)
5. 99% isopropyl alcohol
6. Magnetic roller cleaner
7. Kynar padding powder
8. Conductive grease



1. Remove the drum cover by prying the two metal bars out of their holders, and then carefully pry off the spring-loaded arm.

Be careful not to lose the spring!

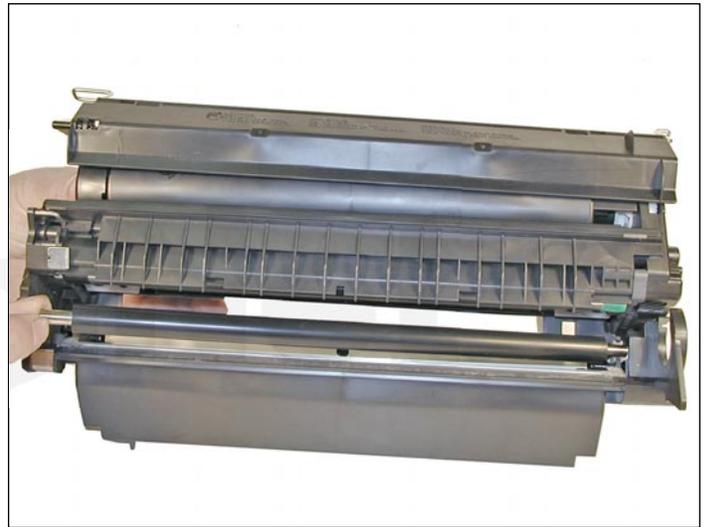


2. Place the cartridge with the drum side up. Note on each end of the cartridge, there are small silver pins. To separate the two halves these pins must be removed. Like the 96A cartridges, these pins cannot be pulled out or pushed in from the outside of the cartridge (the wiper blade is in the way). The only way to disassemble the cartridge without damaging it is to push the pins out from the inside. To do this, both the OPC drum and PCR must first be removed. Replacement pins are available that can be removed from the outside.

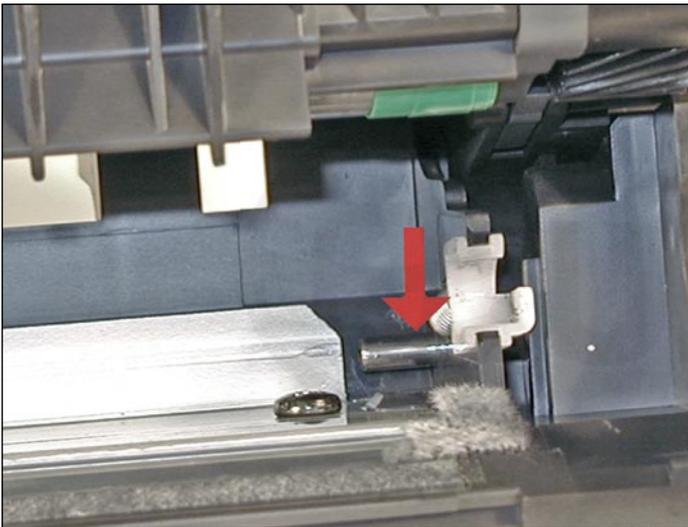
With the pair of needle nose pliers, remove the metal axle pin located on the right side of the cartridge. Remove the two screws and the plastic drum bushing from the left side of the cartridge.



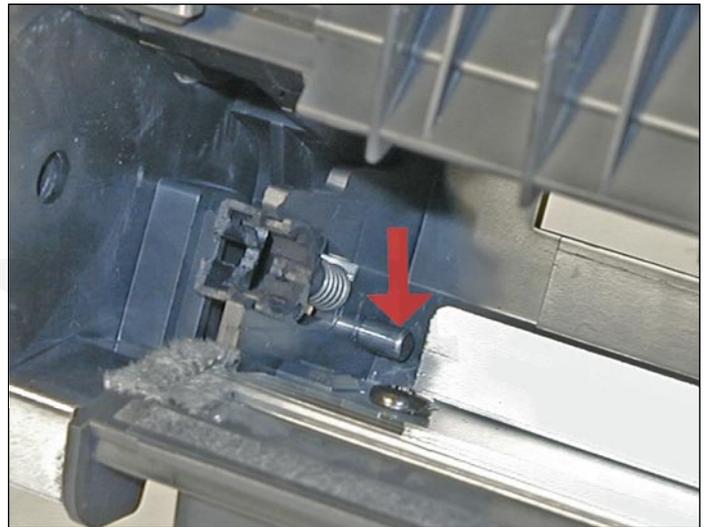
3. Remove the Photoconductive drum, being extremely careful not to scratch it. If the drum is in good shape and you plan to reuse it, blow off any toner and debris from drum being careful not to let the air gun come in contact with the drum surface. Do not polish or wipe the drum with a dry cloth since this may scratch the drum.



4. Carefully remove the primary charge roller (PCR) by gently prying it out of the clips on either end. Be careful as the PCR holders come loose easily! Place the PCR aside.



5. Take the small punch or a small screwdriver, and gently press both of the metal pins out from the inside of the cartridge. To make this process easier, push the pins out halfway, and pull them out from the outside with needle nose pliers or wire cutters. You can also take a normal sized common screwdriver by placing the edge against the wiper blade and twisting. The pins will move out enough to grab them with pliers from the outside. Separate the two halves and clean the PCR.



WARNING: Do not clean the OEM PCR with alcohol, as this will remove the conductive coating on the roller. If the PCR is an aftermarket, follow the cleaning methods recommended by the manufacturer. If the PCR is an OEM, we recommended that it be cleaned with a PCR cleaner. If the roller is damaged, or worn out it should be replaced with a new roller.



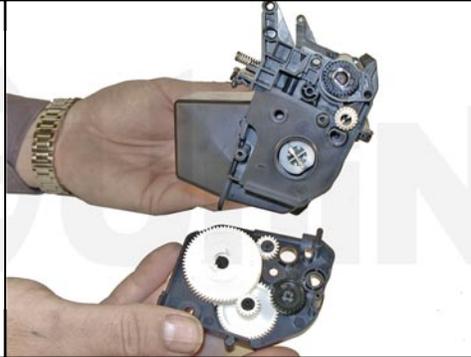
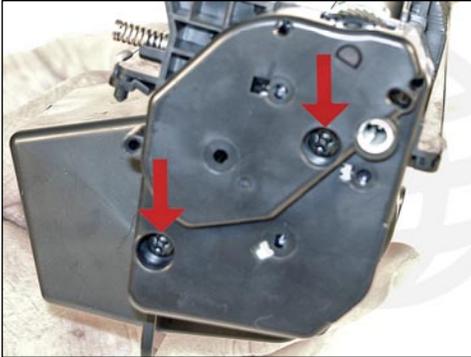
6. Remove the two screws and the wiper blade, and clean the toner out of the waste chamber.

NOTE: Be very careful not to damage or distort the thin mylar recovery blade next to the wiper blade. If this blade is bent or damaged in any way, it should be replaced.

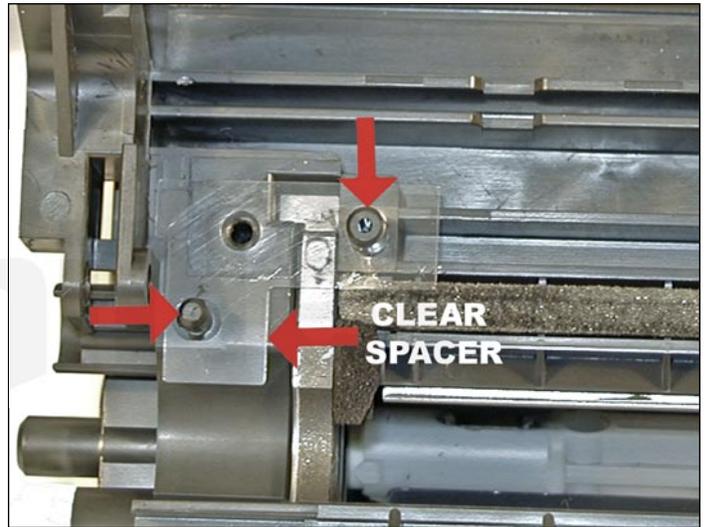


7. Due to the aggressive nature of the toner used in these cartridges, we recommend that the wiper blade be replaced each cycle. Lightly coat the new blade with Kynar drum padding powder. Replace the wiper blade into the cartridge.

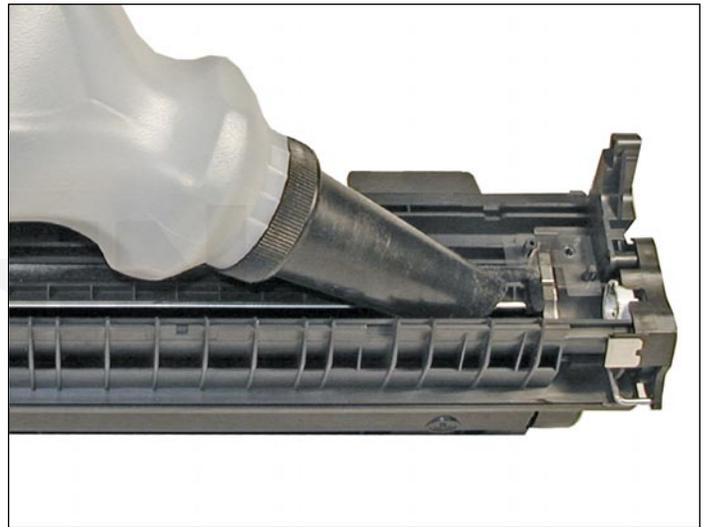
NOTE: We do not recommend using Zinc Sterate on this cartridge, as it will stick to the PCR and cause small white voids in the printed characters.



8. To remove the magnetic roller, first remove the right end cap by removing the two screws. Note the gears in the end cap are held in place. Carefully lift the roller out of the cartridge. Be very careful not to damage the wire contact at the opposite end of the roller.



9. Remove the doctor blade by removing the two screws and lifting it out straight up. When removing this blade, be very careful not to break the alignment pins. These pins keep the doctor blade at the proper distance from the magnetic roller. Make sure that the clear spacers stay in place also!



10. Vacuum the toner supply chamber thoroughly.

Note that these cartridges do not use magnetic roller felts. As with all of the newer Canon cartridges, they have small curved magnets to contain any toner that may try to migrate past.

11. Fill the hopper with 350g of toner through the magnetic roller opening.



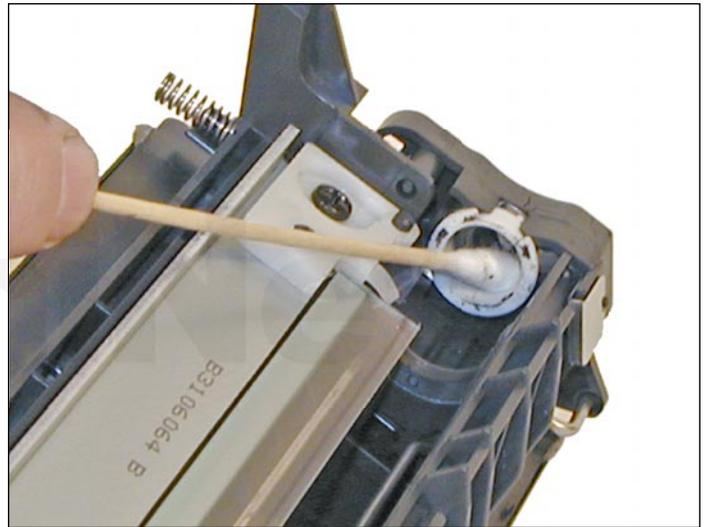
12. Inspect the green and black end caps on the magnetic roller sleeve. Make sure they are not cracked. If they are cracked, they will tear the coating off of the OPC drum.



13. To change the magnetic roller sleeve, press the magnet from the gear side until the white bushing pops out from the other side. Slide the stationary magnet out from the old sleeve and into the new. Place the two end caps, bushing, and gear on the new sleeve (black on the contact side, green on the gear side). Note that the bushing also has a small bushing that fits around the MRS sleeve. So far these small bushings have held up well, but it may cause a problem when the cartridge has been refilled multiple times. Clean the contact spring of the magnetic roller, and the contact-side end cap with the alcohol. Coat the contact side end cap with a small amount of conductive grease.



14. Install the new doctor blade. If the clear spacers are lost, make sure that the new blade came with them attached. Conversely, if the new doctor blade has spacers, make sure that you remove the OEM spacers. Only one set of spacers should be installed!



15. Place a small amount of conductive grease on the contact plate of the end cap. Remember, a small amount is more than enough. Too much grease will actually attract toner and cause problems. Always use conductive grease sparingly.

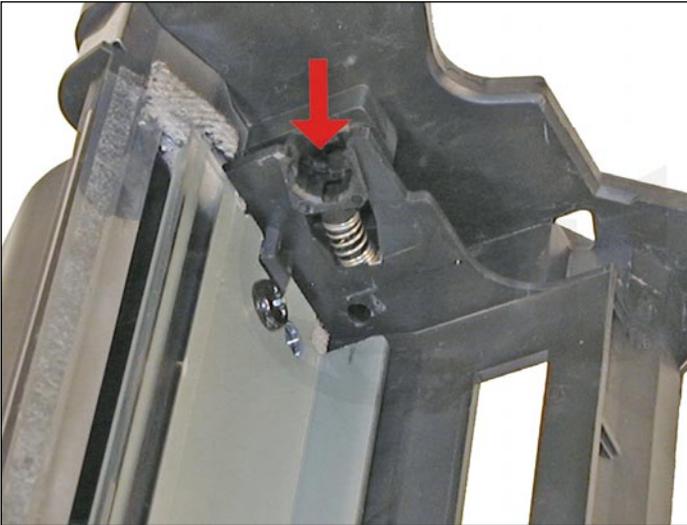


16. Install the magnetic roller assembly, hub, gear, and large end cap. Spin the roller a few times in the proper direction to make sure all is aligned properly (make sure the spring contact is clean and not bent).



17. Install the large end cap and two screws.

Make sure the gears are clean.



18. Clean the PCR silver contact ends along with the U-shaped contacts with the isopropyl alcohol. These are electrical contacts and must be clean in order for the cartridge to print correctly. Be very careful not to get the alcohol on the rubber part of the PCR as this will remove the conductive coating ruining the PCR.



19. Replace the cleaned primary charge roller.

Make sure that the long shaft side is to the black holder side.

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 two inches 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 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. Radio Shack carries cheap Ohmmeters for less than \$10.00 USD, and the sales people will 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.

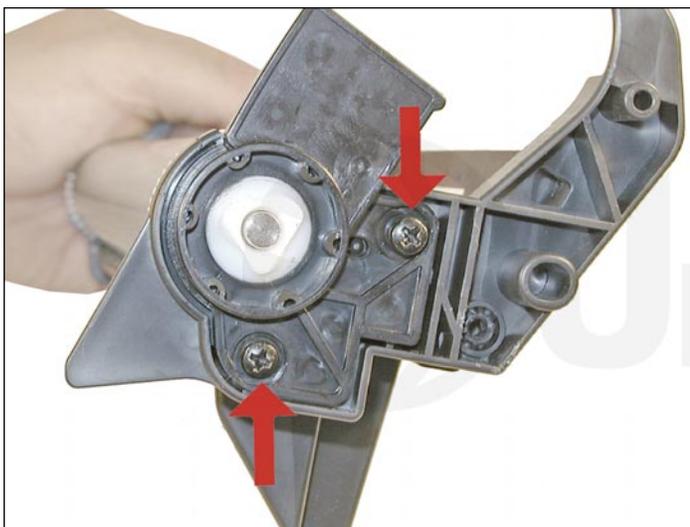
- H. Repeat steps E and F for the drive gear.

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.



20. Coat the OPC drum with the Kynar, and replace the OPC drum, metal axle, and plastic drum bushing.

Do not install the screws yet.



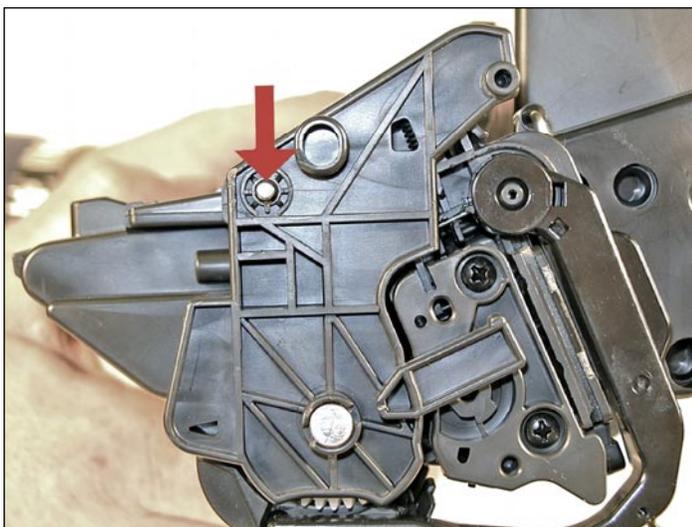
21. Manually spin the OPC drum in the proper direction (towards the edge of the wiper blade) to make sure everything is properly lubricated. If the drum binds, remove it and coat the wiper blade and drum with Kynar again. Once the drums spins properly, install the last two screws in the end cap.



22. Install the drum cover onto the toner hopper.

Set the spring as shown in the far left photo, and install the metal bars on both sides.

Once installed, release the tail of the spring so that the cover closes properly.



23. Place the two halves together, and insert the two silver pins.

RUNNING THE CLEANING PAGE

The cleaning page helps keep the fuser free of toner particles. HP recommends that it be run every time a new cartridge is installed.

1. Press the SELECT button to open the menus.
2. Press the UP or DOWN arrows until CONFIGURE DEVICE appears on the display.
3. Press the SELECT button.
4. Press the UP or DOWN arrows until PRINT QUALITY appears on the display.
5. Press the SELECT button.
6. Press the UP or DOWN arrows until CREATE CLEANING PAGE appears on the display.
7. Press the SELECT button.
8. Follow the instructions on the cleaning page to complete the process.

CHANGING THE PRINTERS INTENSITY (DENSITY)

1. Press the SELECT button to open the menus.
2. Press the UP or DOWN arrows until PRINT QUALITY appears on the display.
3. Press the SELECT button.
4. Press the UP or DOWN arrows until TONER DENSITY appears on the display.
5. Press the SELECT button.
6. Press the UP or DOWN arrows until the desired setting (1-5) appears on the display. "3" is the default setting.

PRINTING TEST PRINTS

There are a number of test pages that can be run from the menu. There is: MENU MAP, CONFIGURATION PAGE, SUPPLIES STATUS PAGE, and the PS or PCL FONT LIST. The Supplies Status Page is actually the best to use. It has Solid Black, Grayscales, and Text.

1. Press the SELECT button to open the menus.
2. Press the UP or DOWN arrows until INFORMATION appears on the display.
3. Press the SELECT button.
4. Press the UP or DOWN arrows until the page you wish to print appears on the display.
5. Press the SELECT button.

CARTRIDGE TROUBLESHOOTING

Broken Top Fin: If the plastic fin on the top right side of the cartridge is broken, the display will read INSTALL CARTRIDGE. See the pictures at the beginning of this article for more information.

Memory Supplies Error: This occurs when the chip is either missing, or damaged. The machine will still work, but the SELECT button must be pressed to clear the message.

Dirty or Bad Primary Charge Roller (PCR): This will show on the test print as vertical gray streaks down the page, as a gray background throughout the page, or as ghosting where part of a previously printed area is repeated.

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 3 times per page. Any drum defects will repeat three times per page based on the drum circumference of 3.66 inches.

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.

Worn-Out Drum: This will usually show up as shading on the right side of the page. It will usually start right from the edge of the page, and work in towards the center. The pattern will normally look like tire tracks.

Bad Wiper Blade: This will show as either a gray line approximately 1/8 inches thick, or as shading across the entire page. In either case there will be a film of toner on the drum surface that matches the defect.

REPETITIVE DEFECT CHART

OPC drum:	95.0 mm
Upper fuser roller:	75.0 mm
Lower fuser roller:	63.0 mm
Magnetic roller:	47.0 mm
Transfer roller:	44.0 mm
PCR:	38.0 mm