BROTHER® HL-6050 • DR600 • DR4000

OPC CARTRIDGE REMANUFACTURING INSTRUCTIONS

BROTHER® DR600 OPC CARTRIDGE

www.uninetimaging.com

REMANUFACTURING THE BROTHER HL-6050 DR600 / DR4000* OPC CARTRIDGE

By Mike Josiah and the Technical Staff at UniNet

First introduced in April 2004, the HL-6050 laser printers are the next generation of Brother's newer higher quality engines. Last month we went over the TN670 toner cartridges, this month we finish up with the DR600 drum cartridge.

The HL-5150D printer is a 24ppm, 1200 dpi machine that comes standard with a duplexer built in. With a list price of $241.00 including the duplexer, these machines are going to be very popular.

In July 2004, I found pricing on the DR600 ranging anywhere from $93.88 to $149.99 on the internet.

Currently there are two machines based on the HL-6050 engine: The HL-6050, HL-6050D, HL-6050DN, and the HL-6050DW

The OEM stated yield is “estimated” at 30,000 pages. There are disclaimers in the manual that basically say you will not get anywhere near that yield. The following is taken directly from the HL-6050 user manual: "at 5% print coverage (A4 or letter size).” The actual number of printed pages will vary depending on the average type of print job and paper.

There are many factors that determine the actual drum life, such as the temperature, humidity, type of paper, type of toner used, number of pages per print job, and so on. Under ideal conditions, the average drum life is estimated at up to 30,000 pages. The actual number of pages that your drum will print may be significantly less than this estimate. Because we have no control over the many factors that determine the actual drum life, we cannot guarantee a minimum number of pages that will be printed by your drum.”

We are not including the theory on these cartridges again as they are basically the same as the TN-460/560. The difference here is that instead of a cleaning felt, these cartridges use a cleaning roller assembly. This assembly still returns the toner back to the toner cartridge as the felt did, but this roller also has a chamber that collects small amounts of toner that did not charge, as well as paper dust. All this must be removed. The best way is with compressed air.

In our tests so far, the cleaning roller system seems to work better than the felt, but testing is still on going. Time will tell...

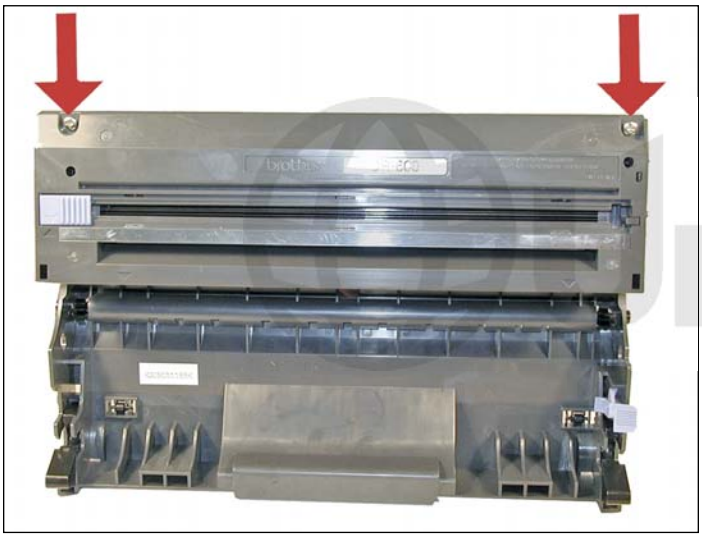
***DR4000 is used outside of North America. List pricing, as of July 2004, in U.S. American Dollars.**

SUPPLIES REQUIRED

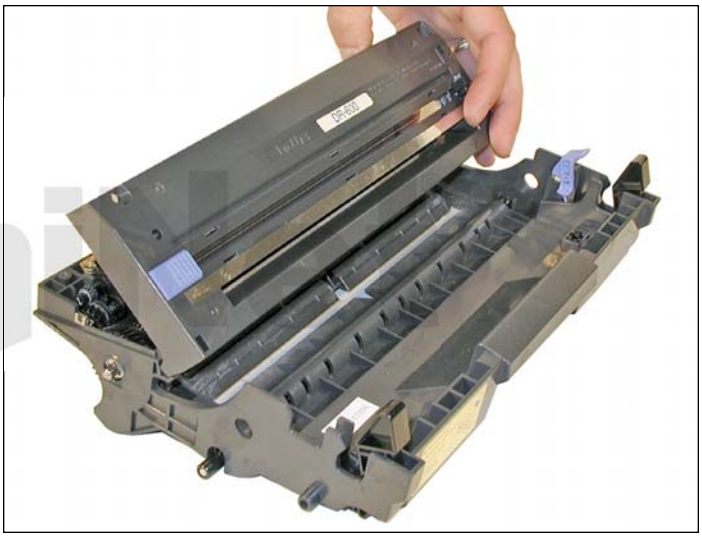
1. New drum for use in DR600
2. Cotton swabs
3. Isopropyl alcohol
4. Zinc stearate drum padding powder

TOOLS REQUIRED

1. Phillips head screwdriver.
2. Small common screwdriver
3. Vacuum approved for toner

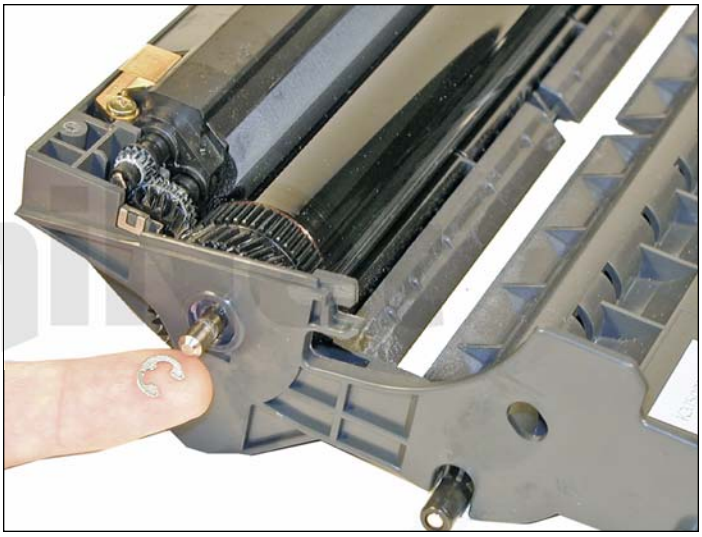


1. Remove the top two screws.

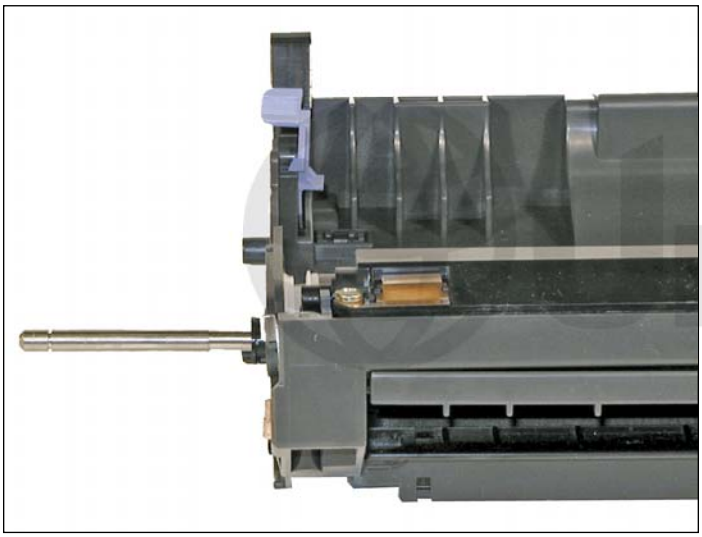


2. Lift the top cover up towards the empty toner cartridge cavity and remove from the cartridge.

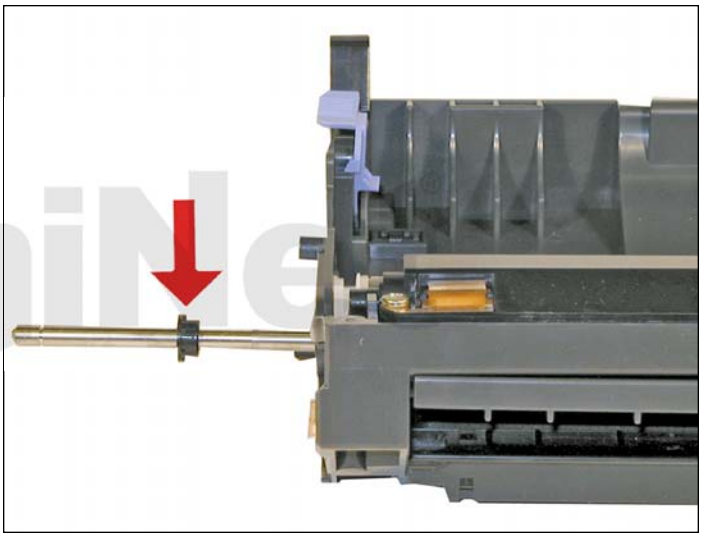
3. Remove the E-ring from the non-gear side of the drum axle shaft.



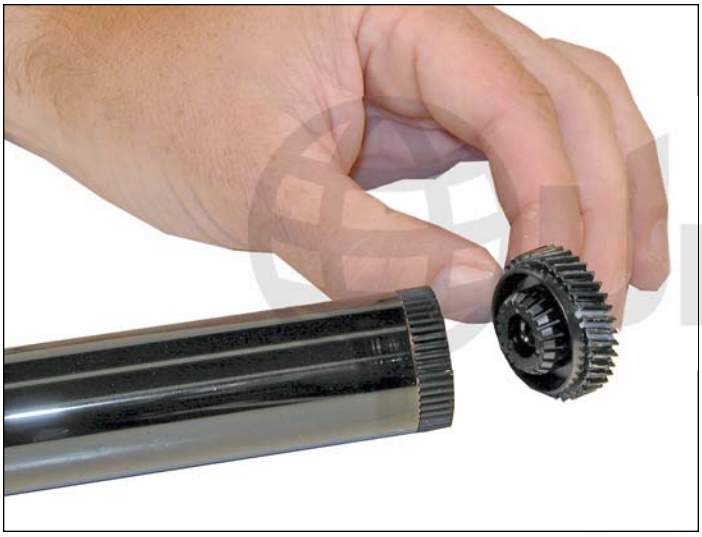
4. Remove the opposite E-ring.



5. Remove the drum axle from the non-gear side of the drum. If you try to pull it out from the gear side, the shaft will jam up on the drum ground contact and damage the contact.



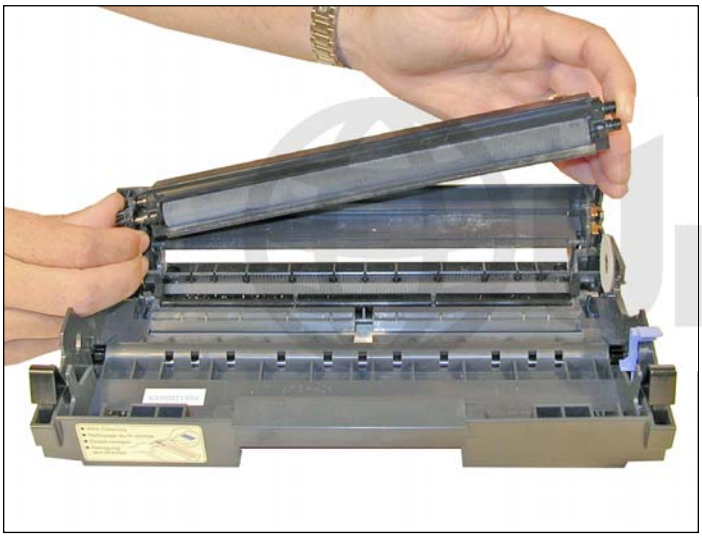
6. Be careful not to lose the round drum spacer.



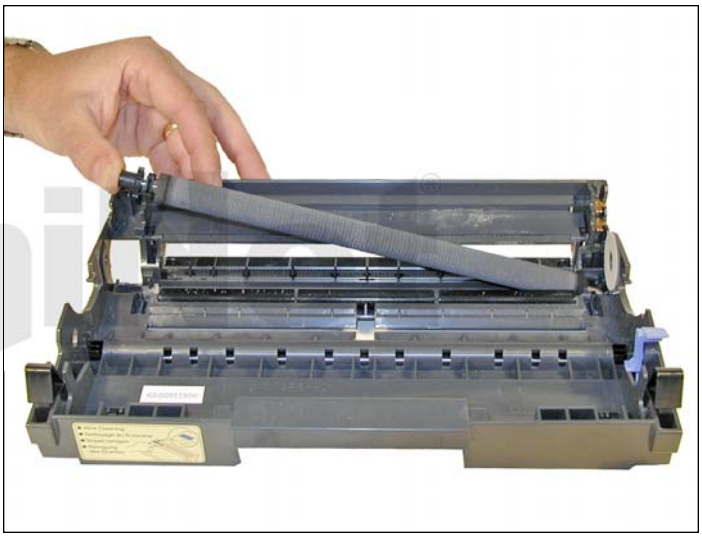
7. Carefully remove the drum.

Note that the gear side actually has two gears: one attached; one not.

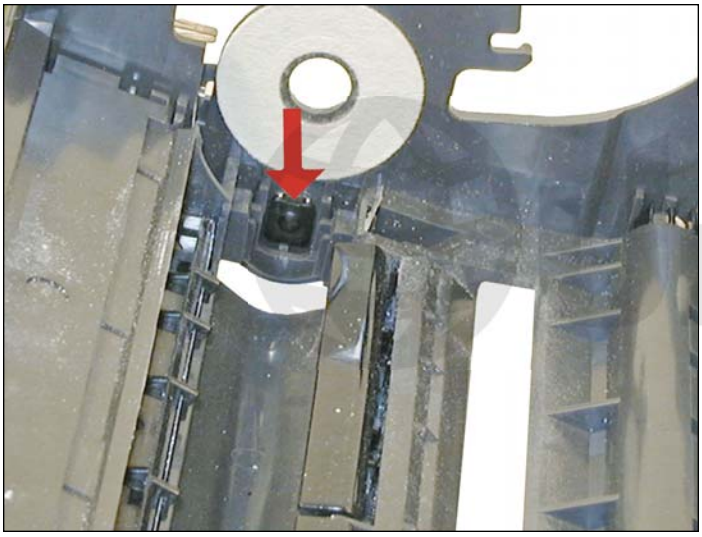
The opposite side has a separate hub and spring. Do not lose these parts!



8. Carefully lift out the cleaning roller assembly. Be very careful not to touch the roller with your skin. As with any cleaning roller, the oils naturally present in your skin will be absorbed by the roller and interfere with the cleaning process.

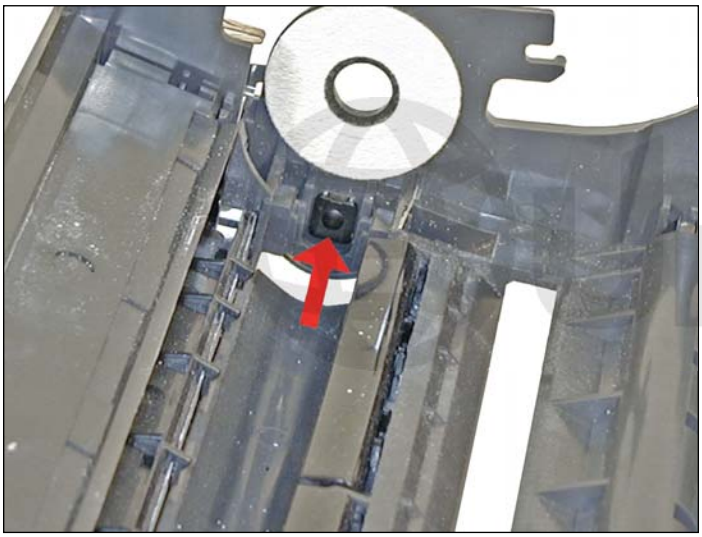


9. Lift out the transfer roller assembly. Be very careful not to touch the roller with your skin. The oils naturally present in your skin will be absorbed by the roller and interfere with the transfer process, causing light print.

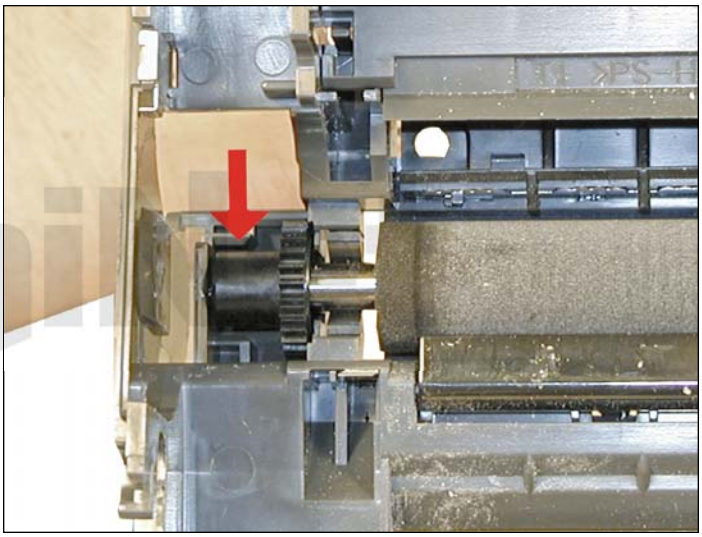


10. **IMPORTANT**: Note the small piece of black plastic spacer on the right side of the roller (side opposite the gear). This spacer keeps the transfer roller touching the electrical contacts on the left side of the cartridge. Be very careful not to lose this spacer! The cartridge will either print very light or half pages if it is missing. It is best to remove this spacer while cleaning the cartridge. Using compressed air, blow off the transfer roller. Unless you have a statically grounded vacuum, do not vacuum this roller.

UniNet®
www.uninetimaging.com

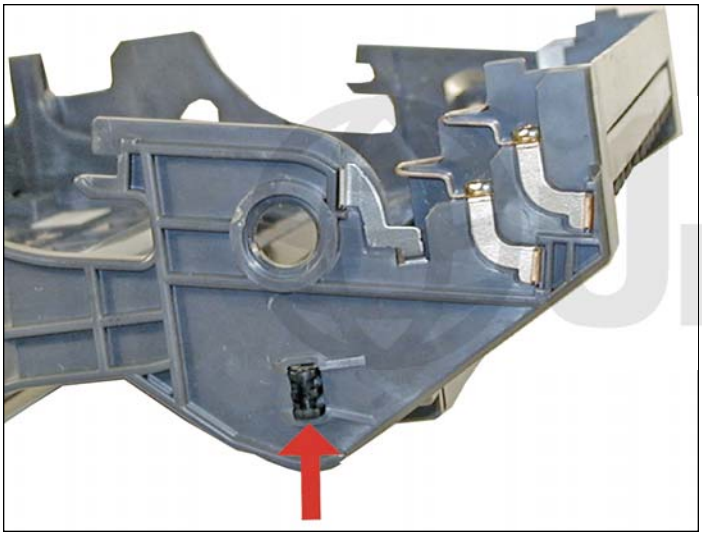


11. Reinstall the small black transfer roller spacer.



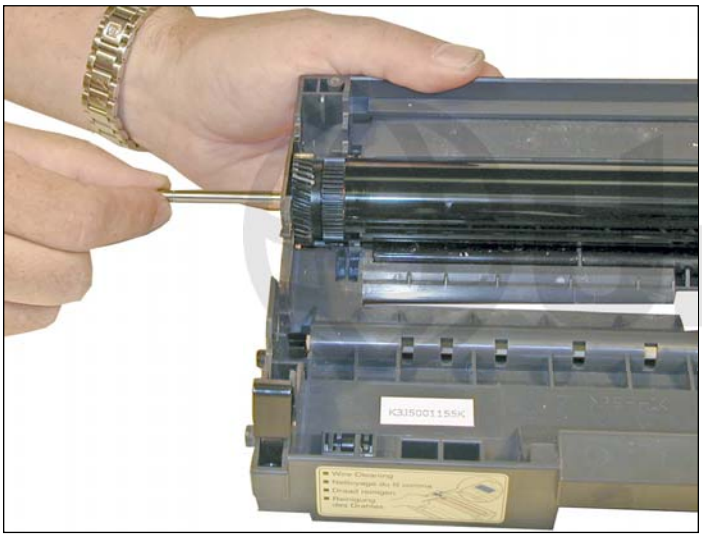
12. Install the transfer roller.

Make sure the U-shaped holders fit into their respective slots.

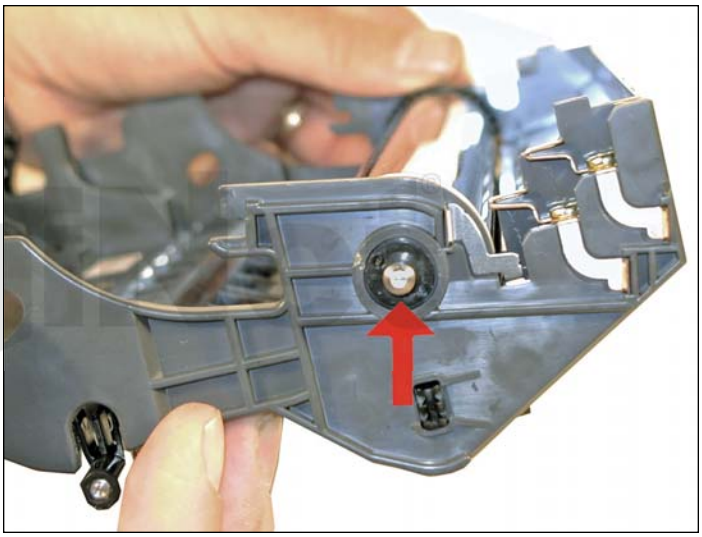


13. Check the outside of the cartridge to make sure that the small black spacer is correctly positioned.

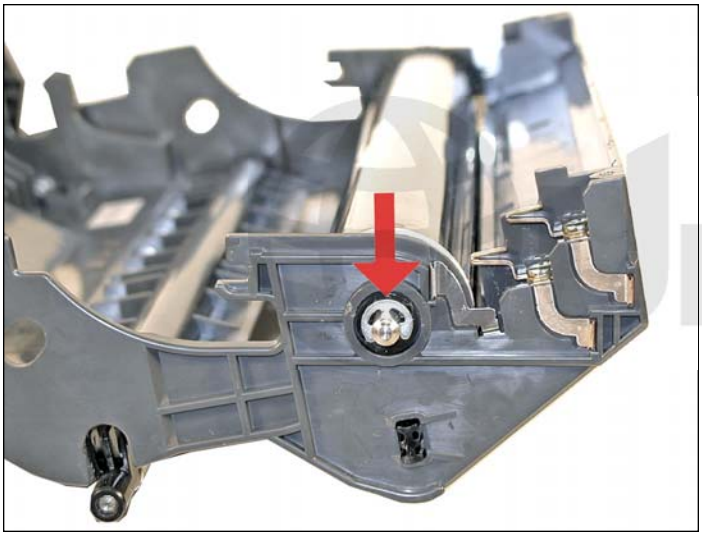
14. Install the drum and associated gear, hub, and spring.



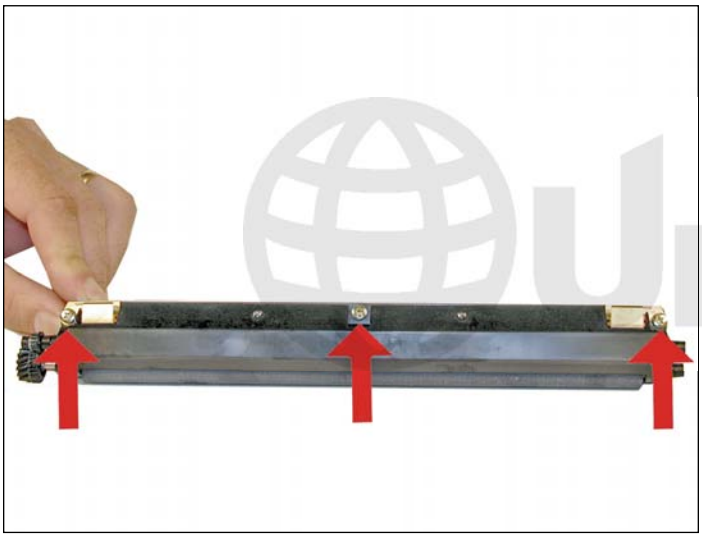
15. Install the drum axle from the drum gear side of the cartridge.

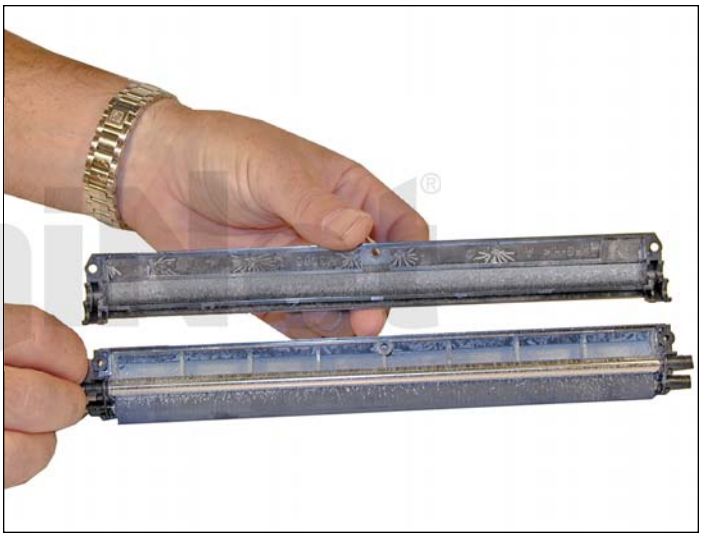


16. Install the black drum axle spacer.

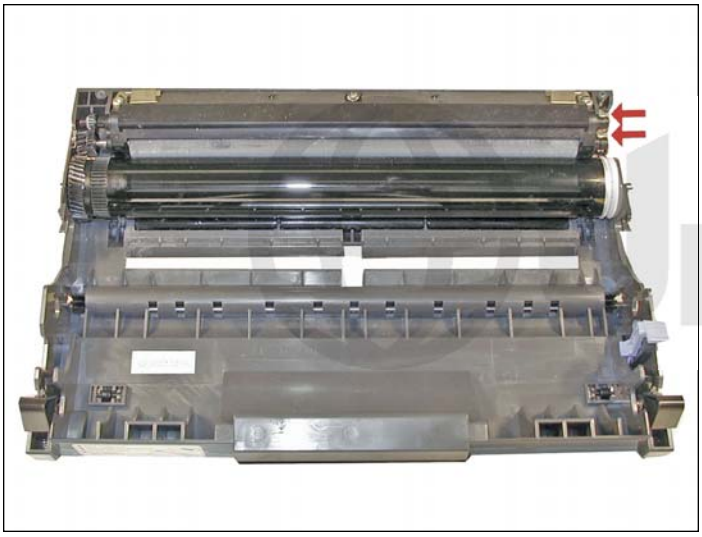


17. Install the two E-rings on each side of the drum axle gear side first.



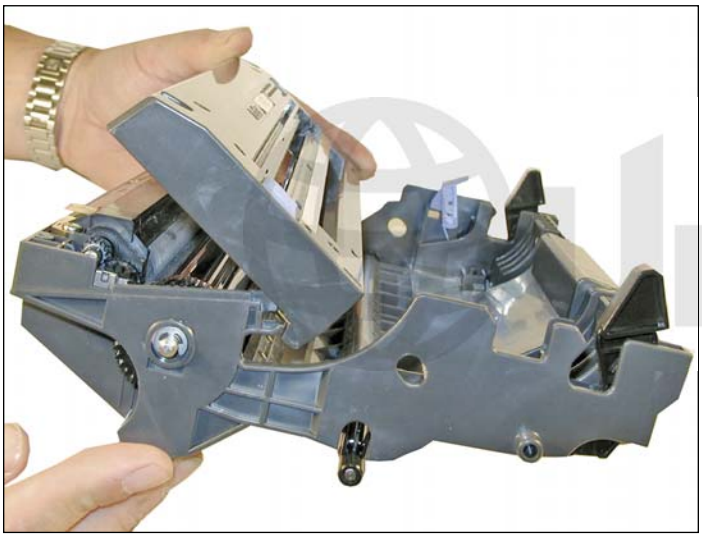


18. Remove the three screws that hold the cleaning roller assembly together. Pry the cover off. Vacuum or blow off the cleaning roller. The dust inside is a combination of toner and paper dust, all of it must be removed. Make sure you don't lose the gears!

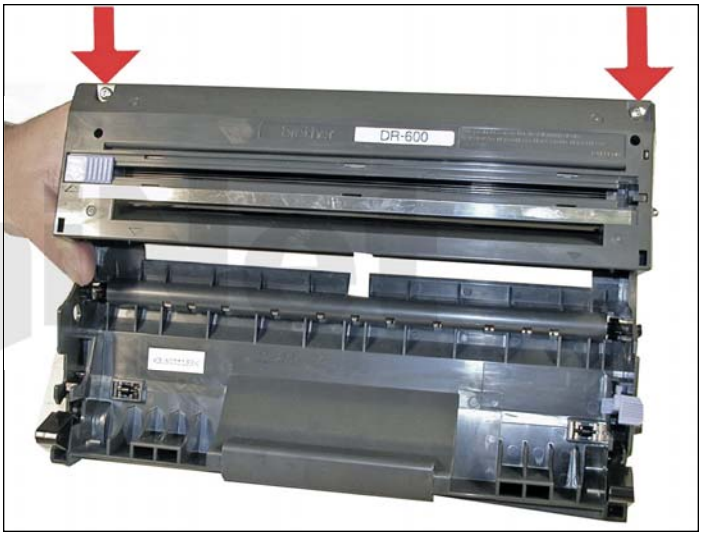


19. Install the cleaning roller assembly and two screws. Check to make sure the two contact springs are not dirty or bent.

20. Clean the primary corona wire and grid with a cotton swab and alcohol.



21. Install the top cover, hook the back edge over the tab, and press down.



22. Install the top two screws.

RESET PROCEDURE

1. Press the cover release button, and open the front cover.
2. With the cover still open, press and hold the GO button until "Drum Clear" is displayed.
3. Release the GO button.
4. The counter is reset!

TROUBLESHOOTING

Backgrounding (gray streaks): This is usually caused by contaminated toner. Clean all remaining dust from the cleaning roller assembly, blow cleaning roller clean with compressed air.

Dark black vertical streaks: This is normally caused by either a dirty primary corona wire, or the blue corona wire cleaner is not in its "home" position on the left side of the cartridge.

Light print: This can be caused by a dirty or worn transfer charge roller. These rollers are located inside the cartridge. So far in our tests, they should last at least 2-3 cycles. See next section also.

Light or half page prints: This is caused by a missing transfer roller spacer. The spacer is a small piece of black plastic that sits next to the right end of the transfer roller. This piece keeps the transfer roller touching the electrical contact on the opposite side of the roller. If missing, the roller will move and can cause light or 1/2 page prints.

Black or white horizontal Lines: Black lines normally appear when there is a build up of toner. White lines appear when there is a dead spot, or contamination of the roller. If the lines repeat every 94 mm (approx. 3 3/4"), the drum is bad or dirty. If they appear every 39 mm (approx. 1 9/16"), the developer roller in the toner cartridge is bad or dirty.

Solid black pages: 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 94 mm (3 3/4"): Chipped drum or something is stuck to the drum surface.

UniNet
www.uninetimaging.com