

# OKIDATA® B4545

## TONER CARTRIDGE REMANUFACTURING INSTRUCTIONS



OKIDATA® B4545 TONER CARTRIDGE

# REMANUFACTURING THE OKIDATA B4545 TONER CARTRIDGE

By Mike Josiah and the Technical Staff at UniNet

The Okidata B4545 MFP printer was introduced in January 2008. It is based on a 21ppm, 600 DPI engine. The toner cartridge lists for \$169.00 USD and is rated for 6,000 pages. The drum unit is rated for 20,000 pages. They are nice simple cartridges and with list pricing at \$170.00, very profitable to do!

These machines use the next generation of cartridge chips. Instead of a chip attached to the cartridge, they use a smart card type chip that is installed by the user into the machine. There is a slot on the machine just under the LCD display that houses the card. The card must be replaced each cycle. New replacement cards are available.

## THE CARTRIDGES USED IN THIS PRINTER:

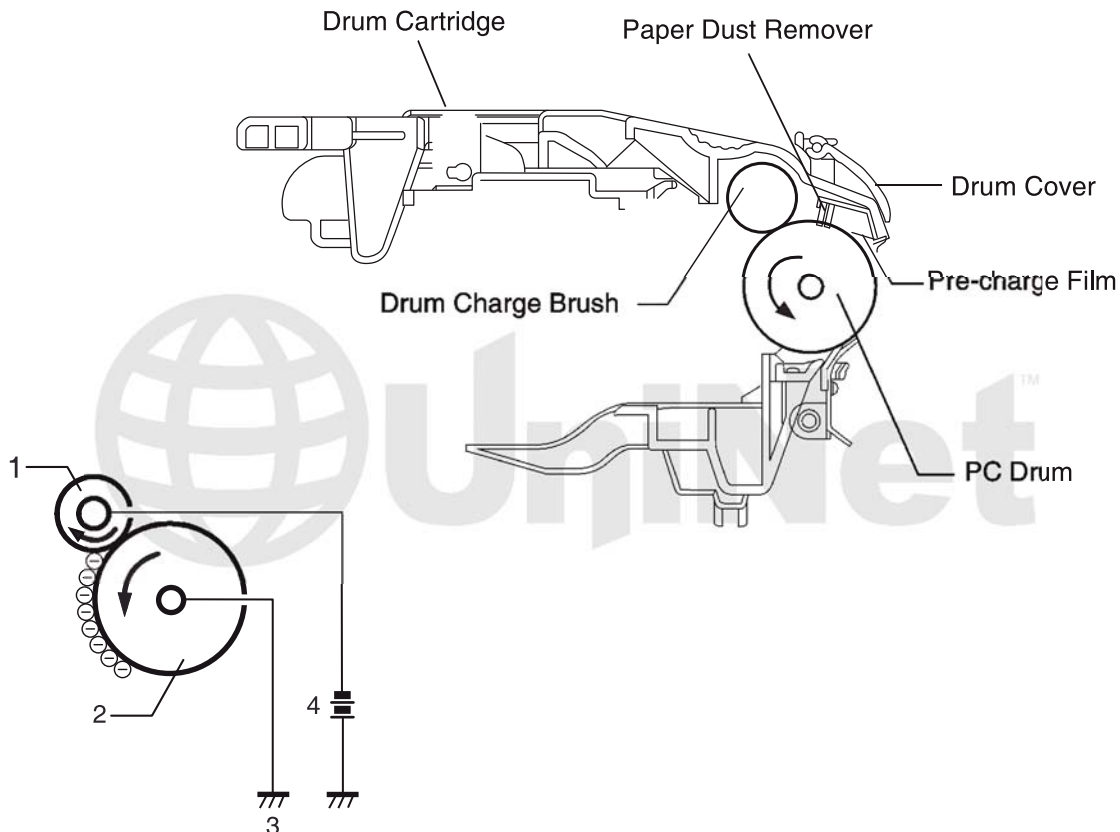
**Toner 52116101**

**Drum 56120301**

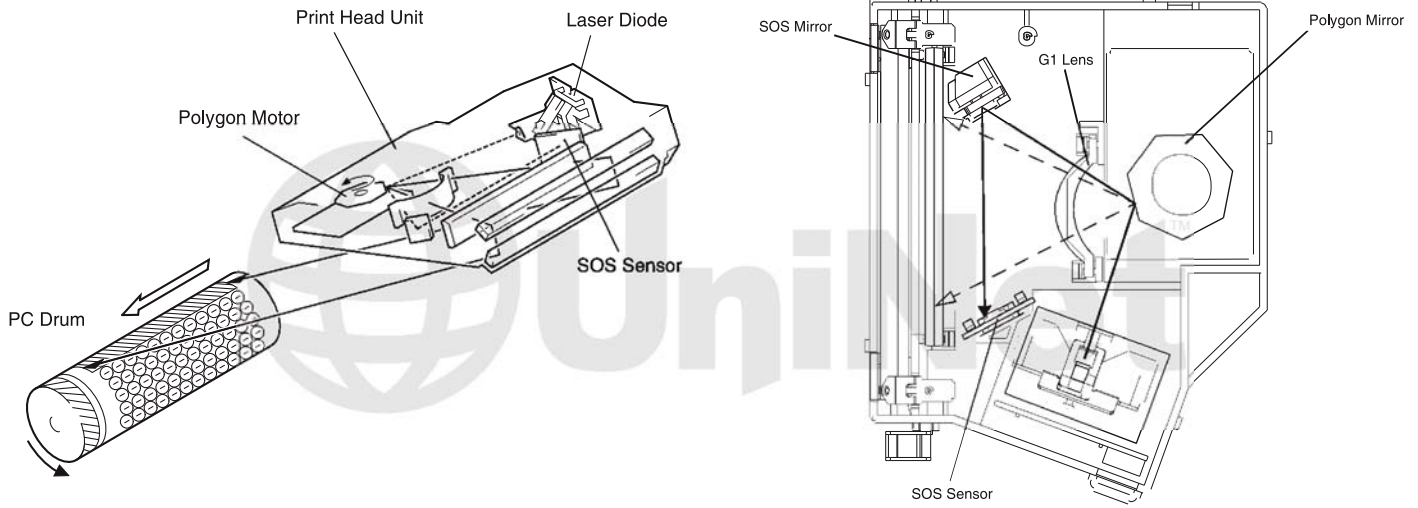
## CARTRIDGE THEORY

It has been a while since the theory of a two-cartridge monochrome system has been covered so we have included it here. The drum charging system used here is rather unique, as is the toner developer roller.

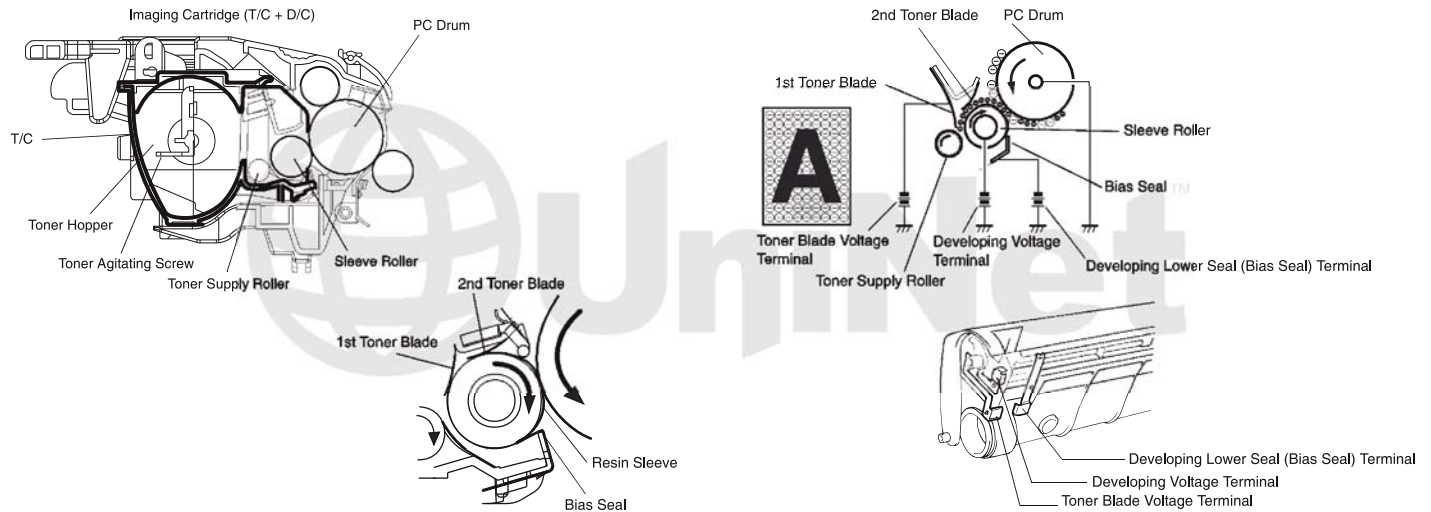
The toner cartridge printing process is best explained as a series of steps or stages. In the **first stage**, the drum charge-brush and the pre-charge film both place a charge on the OPC drum. The pre-charge film starts the process off by placing a preliminary charge on the drum, which increases the efficiency of the charge-brush.



In the **second stage**, the laser beam is fired onto a rotating mirror (called the scanner). As the mirror rotates, the beam reflects into a set of focusing lenses. The beam then strikes the OPC's surface, leaving a latent electrostatic image on the drum.



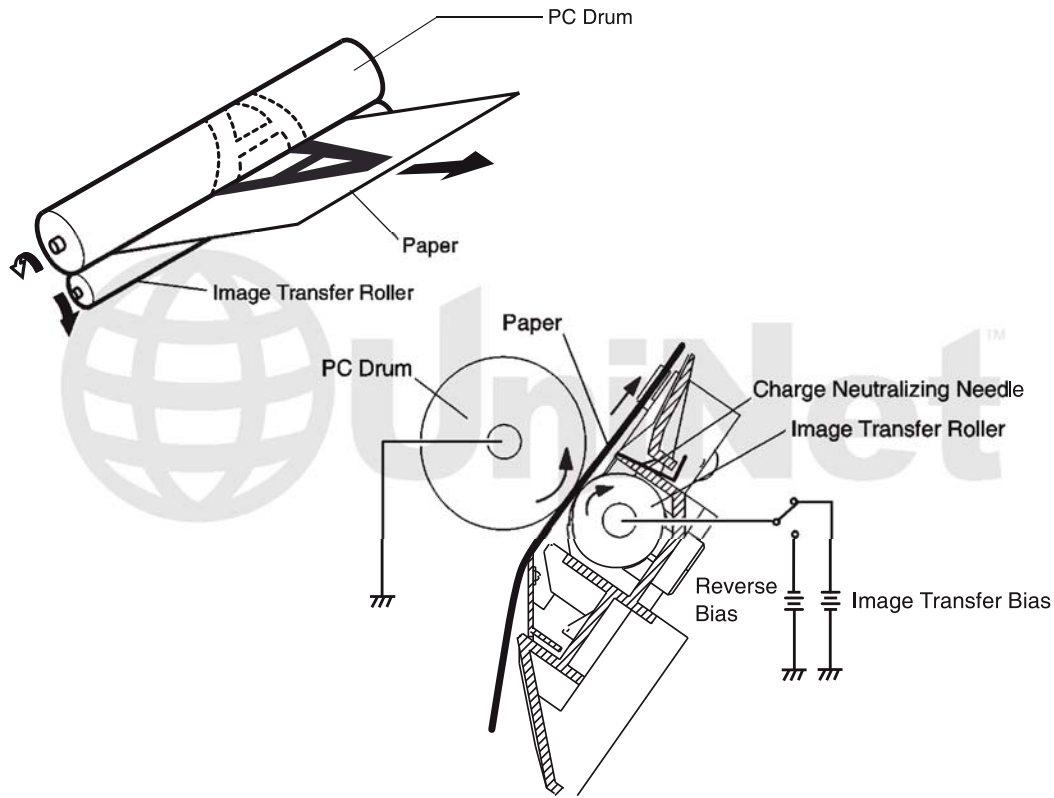
The **third stage** (developing stage) is where the toner image is developed on the drum by the developing section (or supply chamber), which contains the toner particles. The toner is held to the developer roller sleeve by a DC bias voltage supplied by the high voltage power supply. The developer roller consists of a rubber type roller with a separate resin conductive sleeve that fits around it. This DC bias voltage is controlled by the printer's intensity setting, and causes either more or less toner to be attracted to the drum. This in turn will either increase or decrease the print density. Both the charge-brush and developer roller DC bias voltages are controlled by the printer's intensity setting. The amount of toner on the magnetic roller sleeve is controlled by a double doctor blade system. This system has the first blade use pressure to keep the coating of toner on the developer roller sleeve constant. The second blade has a DC bias voltage, which charges the toner.



As the laser-exposed areas of the OPC drum approach the developer roller, the toner particles are attracted to the drums surface due to the opposite voltage potentials of the toner and laser-exposed surface of the OPC drum.

In the **fourth stage** (transfer stage) the toner image is then transferred to the paper as it passes below the drum by the transfer charge roller, which places a positive charge on the back of the paper. This positive charge causes the negatively charged toner on the drum's surface to be attracted to the page. The small diameter of the drum, combined with the stiffness of the paper causes the paper to peel away from the drum.

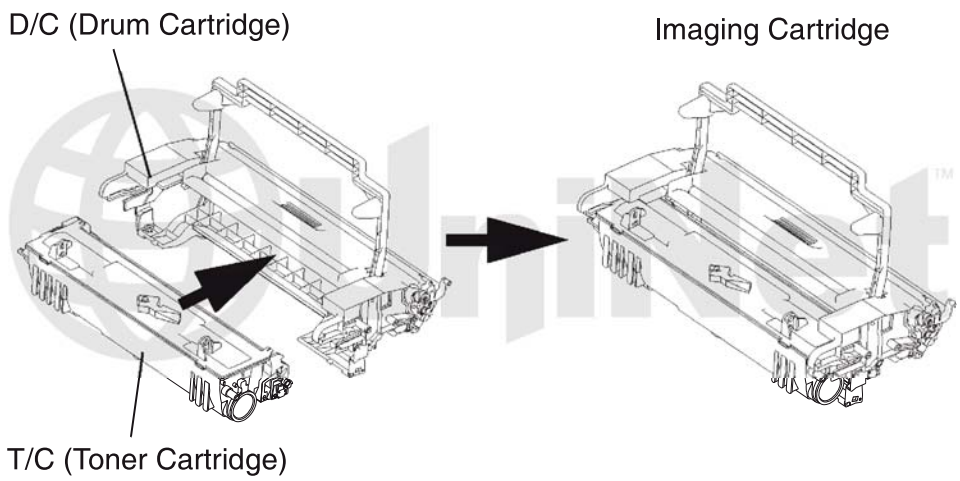
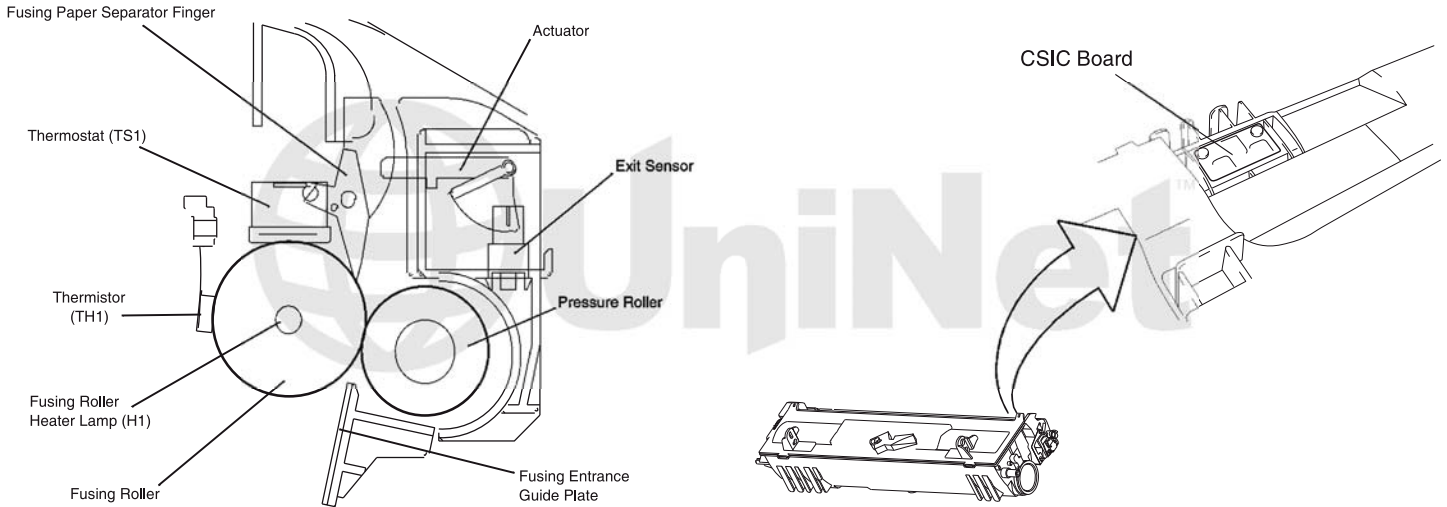
In the **fifth stage** (separation stage) the paper separates from the drum. The static charge eliminator (called the "charge neutralizing needle" here) weakens the attractive forces between the negatively charged drum surface, and the positively charged paper. This prevents toner dropouts onto the paper at low temperatures and humidity, as well as prevents paper from wrapping around the drum.



In the **sixth stage** (fusing stage) the image is then fused on to the paper by the fuser assembly, which is comprised of the upper and lower fuser rollers. The paper passes between a heated ceramic fusing element and a soft lower rubber roller that presses the page up into the upper heating element. The upper heated element then melts the toner into the paper.

In the **seventh stage** (drum cleaning stage) the OPC drum is cleaned. These cartridges are considered to have a 100% transfer system. As such they have a dust remover brush in the drum unit, but not a waste chamber.

The chip on these cartridges has a few functions: it detects a new cartridge when it is first installed, detects when the cartridge is properly position in the printer, and of course monitors toner low and toner out.



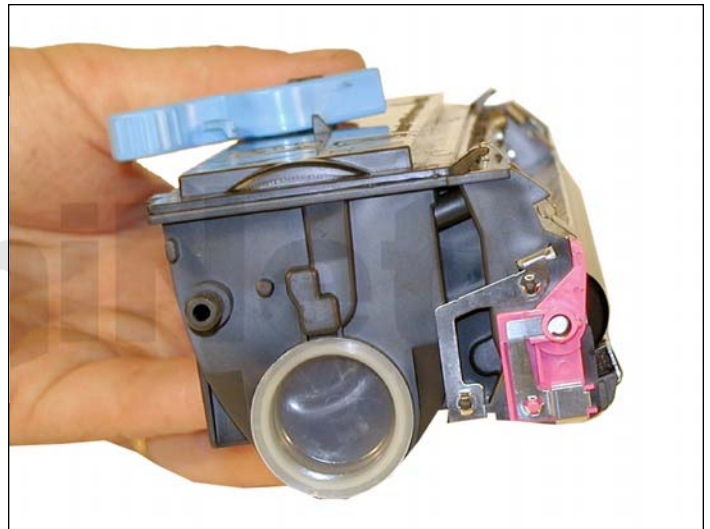
**Shown is how the toner and drum cartridges fit together.**

**TOOLS NEEDED**

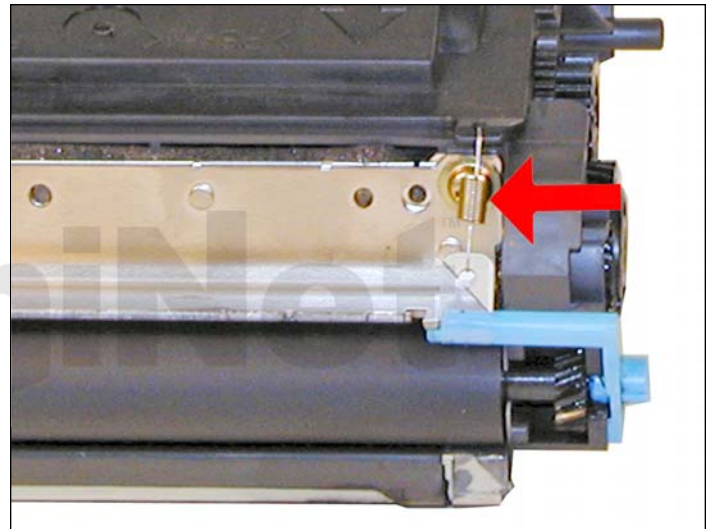
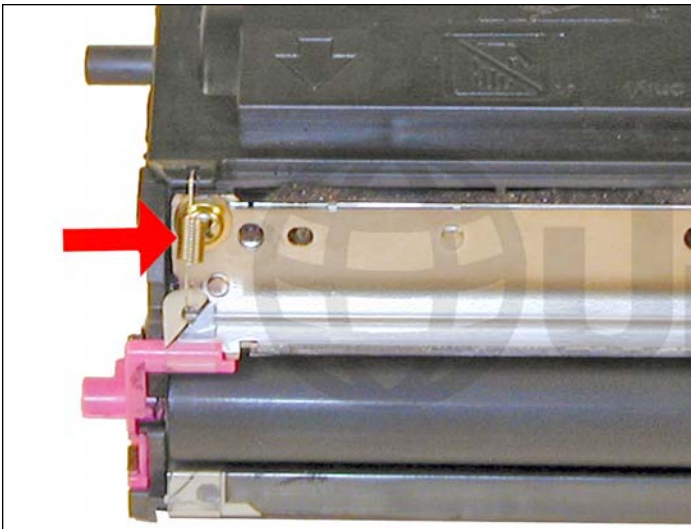
1. Toner approved vacuum
2. A small common screwdriver
3. A Phillips head screwdriver
4. Needle Nose Pliers

**SUPPLIES NEEDED**

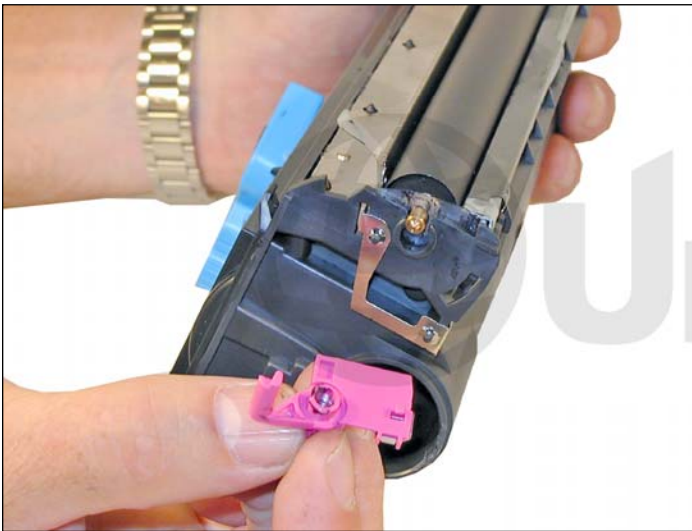
1. Okidata B4545 toner
2. Toner magnet cloths
3. Lint-free synthetic cotton 4"x 4" pads
4. 99% pure isopropyl alcohol
5. Cotton swabs



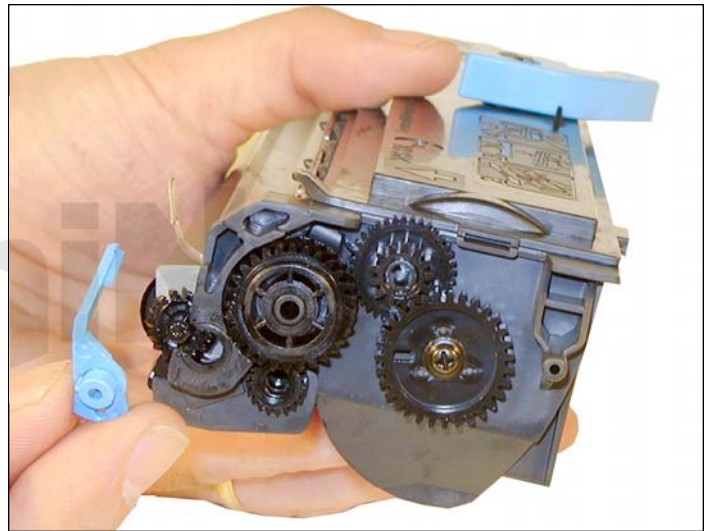
1. Remove the fill plug on the end of the cartridge. Dump the old toner out and discard. Vacuum the outside of the housing and the developer roller. Turn the developer roller a few times to vacuum all sides of the roller.



2. Although we don't recommend it: once clean, you can fill the cartridge, install the plug and you're done! We don't recommend this way because the doctor blade needs to be cleaned each cycle. Failure to do this will allow toner to build up on the blade causing vertical streaks, and eventually a ruined developer roller. The best way is as follows: to fully clean this cartridge, the developer roller must be removed. Remove both springs from each side of the developer roller.



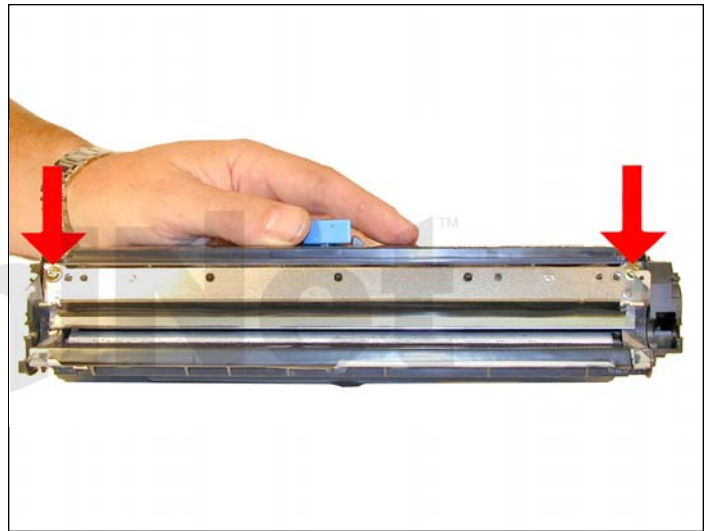
3. Remove the pink bushing from the left side.



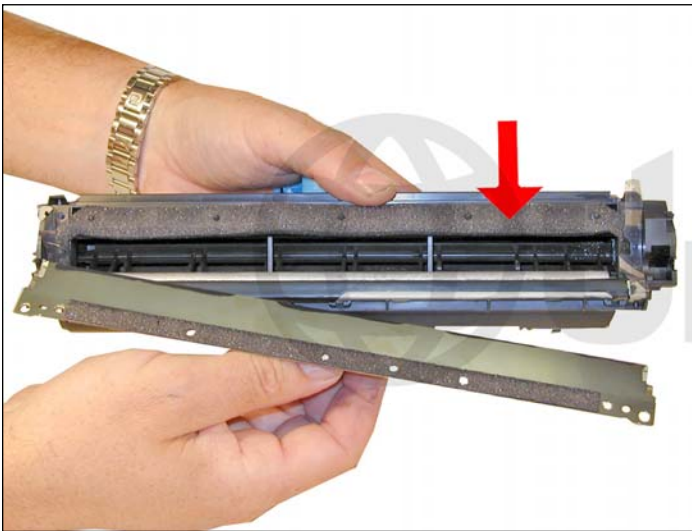
4. Remove the blue bushing from the right side.



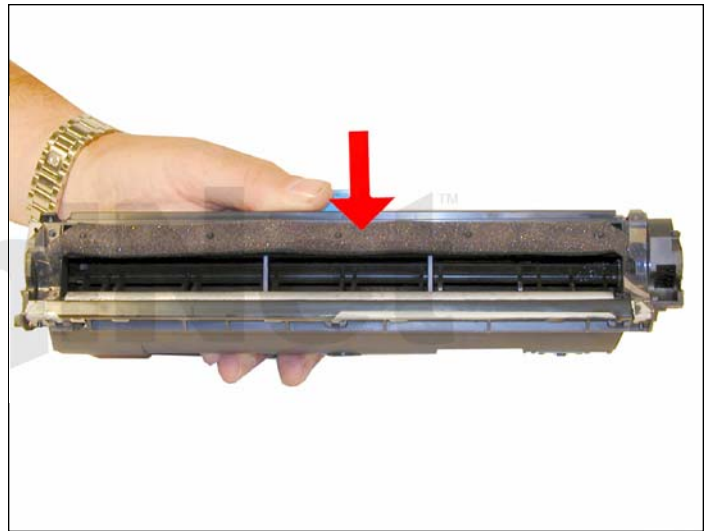
5. Remove the developer roller.



6. Remove the two screws from the doctor blade.



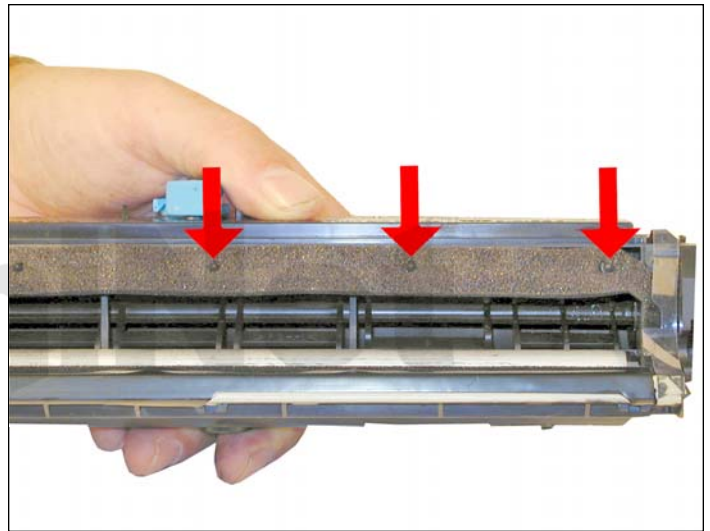
7. Remove the doctor blade. Carefully separate the foam seal from underneath the blade. Be careful not to tear this foam, as the cartridge will leak.



8. Clean any remaining toner dust from the hopper and seals.

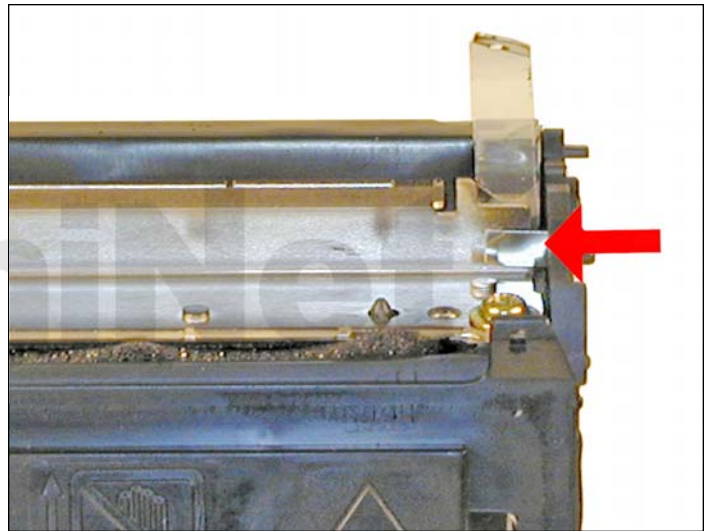
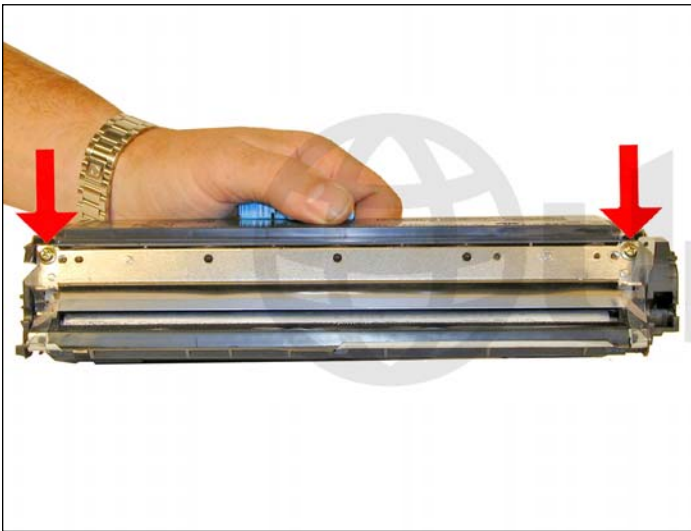


9. Clean the doctor blade with a cotton swab and a small amount of acetone. Remove any remaining residue with another cotton swab and 99% isopropyl alcohol.



10. Align the foam seal onto the small plastic posts on the hopper.





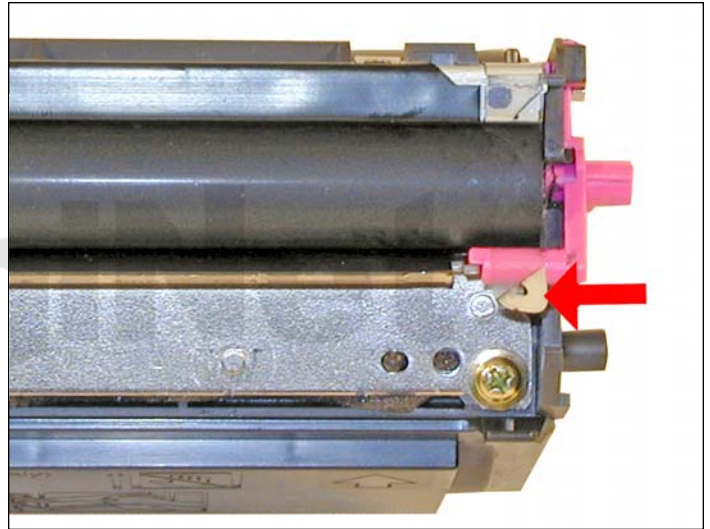
11. Install the doctor blade and two screws. Make sure the contact leaf spring is touching the backside of the blade.

Clean the developer roller sleeve with a lint-free cotton cloth and place aside.



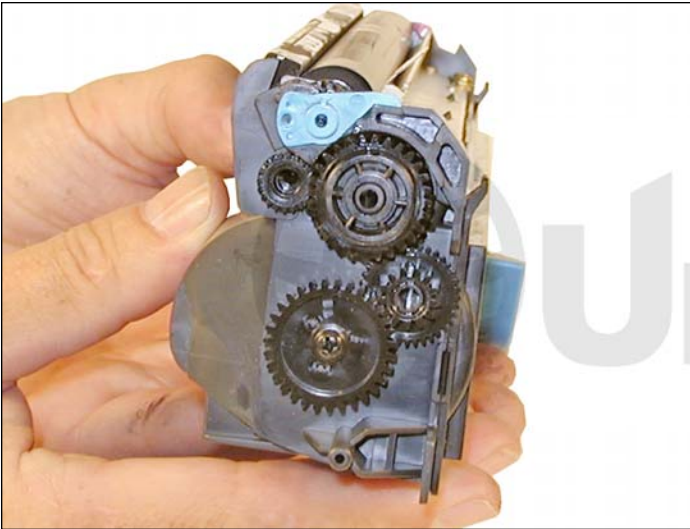
12. Install the developer roller gear side to the left.

Make sure the clear spacers have the flat side down and that they are not crimped.

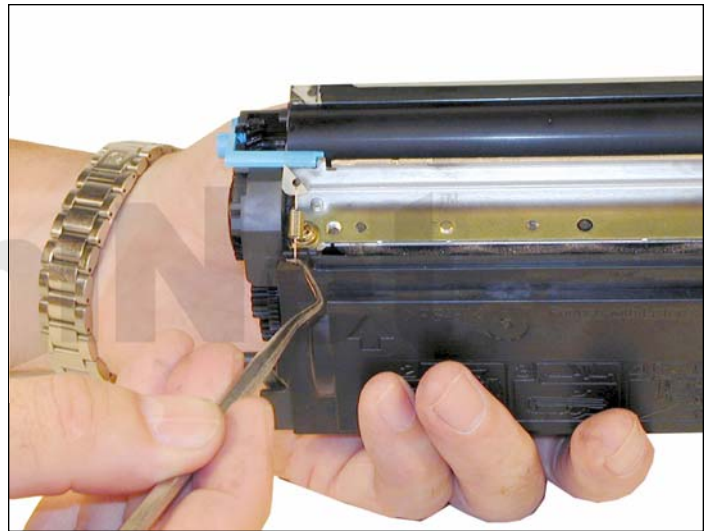
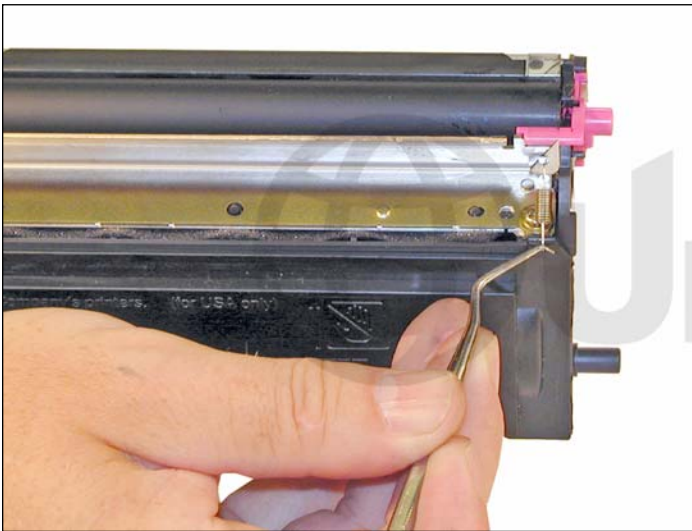


13. Install the pink bushing on the left side of the developer roller.

The clear plastic band should be over the arm of the bushing.

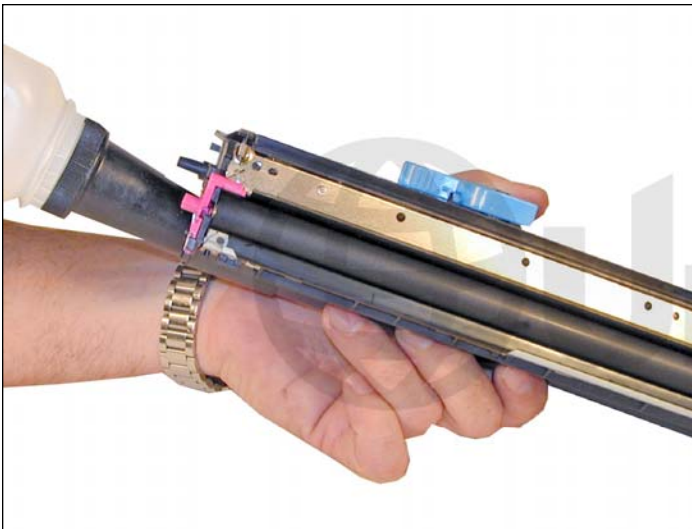


14. Install the blue spacer on to the right side of the developer roller. The clear plastic band should be over the arm of the bushing.



15. Install the small springs on both sides of the developer roller.

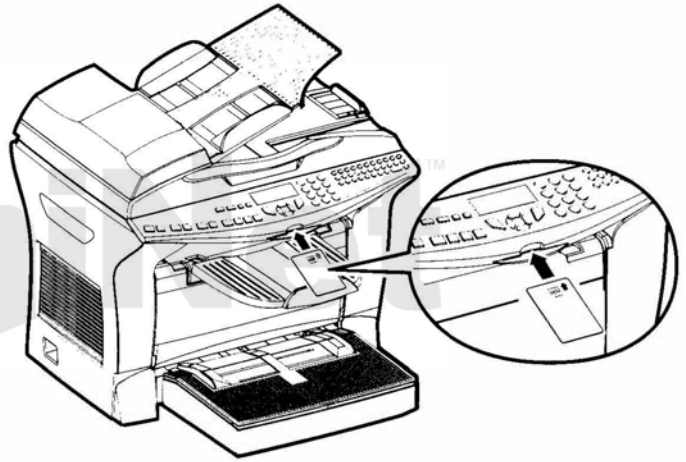
The clear plastic band should be under the bushing.



16. Fill the cartridge with B4545 toner.



17. Install the developer roller cover. The fingers of the cover snap around the colored developer roller bushings.



18. When packaging the cartridge don't forget to include a new smart card! The printer will not accept the cartridge as new without one. As stated in the beginning of this instruction, the card is to be installed by the end user, and the slot is located just under the LCD display on the printer.