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TECHNICAL DOCUMENT

Disassembly Instructions

Lexmark E-321/E323 Toner Cartridge

First released in April, 2003, the Lexmark E321/323 series of printers are based on a 20ppm 1200 dpi Lexmark engine. Lexmark is using the Prebate cartridges again, and these cartridges also use a non-resetable chip to prevent the Prebate cartridges from being recycled. The Non-Prebate cartridges can be recycled without changing the chip. The E321/323 cartridges look like an E320, except for the Gray end caps. The chip on these cartridges is also completely different from the E320. The replacement chips for these cartridges have proven difficult to make, but with recent advances we are betting that as you read this, they will be available.

Lexmark currently has four cartridges available:

12A7300	STD (3K pages) Non-Prebate cartridge
12A7400	STD (3K Pages) Prebate Cartridge
12A7305	HY (6K Pages) Non-Prebate cartridge
12A7405	HY (6K Pages) Prebate cartridge

The HY Non-Prebate cartridges list for $196.00, where the HY Prebate cartridges list for $176.00. (Pricing as of August 2003). Lexmark is changing the way they describe these cartridges. Prebate cartridges are now “Use and Return”, Non-Prebate cartridges are now “Standard”. Same thing different name. The cartridges themselves are fairly simple to do, and as you can see, have very nice margins!

Dell has released a printer based on this engine called the P1500. The chips in these cartridges are unique to Dell. Lexmark cartridges will not work in them.

In September 2003, Lexmark has just released the E220 printer. The E220 cartridges will work in the E321/323, but the E321/323 cartridges will not work in the E220. As this release just occurred literally as this was being written, No further information or test results are available.

These machines do not have a display panel; they have a series of lights that indicate the status. I will list some of the more common sequences & error codes at the end of this article. The machine also contains the PCR. When the lid is closed, the PCR drops down into the cartridge. Just like the Optra S series of machines.

On page 76 of the User Guide, Lexmark lists the replacement cartridges for this machine. Strangely, the Prebate cartridge numbers made to stand out, non-Prebate part numbers very east to miss. In fact, unless you specifically look for them, you would never see them!

Another point in both the user guide and the service manual is that in the E321 machine only. If the Starter cartridge is installed, the toner low function will not work. No other explanation is given, but it is stated multiple times.

These cartridges are fairly simple in design, but can be rather tricky to do. As soon as you take an end cap off, the cartridge falls apart in your hands! Putting the cartridge back together is a challenge the first few times, there is definitely a specific order that must be followed. We have gone into as much depth as possible in rebuilding the cartridge.

Lexmark E-321/E323 Toner Cartridges (Continued)

These cartridges come new with a shipping lock/foam combination. The shipping lock and foam are unique to the E320/321 series of cartridges. See Figure 1

Figure 1

Required Tools

Toner approved vacuum.
2) A small Common screw driver
3) A spring hook
4) Needle nose pliers

Required Supplies

225g Toner (MICR available also)New Drum
New Wiper Blade
Replacement chip for the Prebate cartridges.
Shipping lock and foam.
Conductive grease
99% pure isopropyl alcohol

Lexmark E-321/E323 Toner Cartridges (Continued)

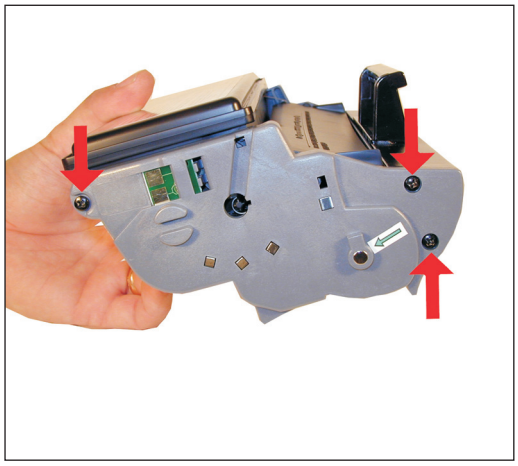

Figure 2

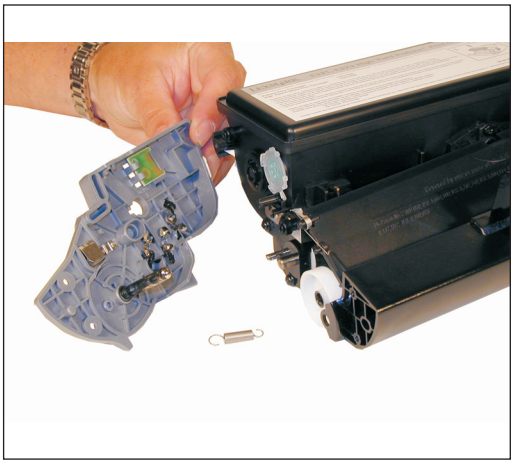

Figure 3

1) On the left side of the cartridge (Chip Side) remove the 3 screws. See Figure 2

2) Carefully remove the end cap. Note that a spring will come loose and the cartridge will basically fall apart at this point. If you intend to re-use the drum, make sure you are very careful not to damage it. See Figure 3

Figure 4

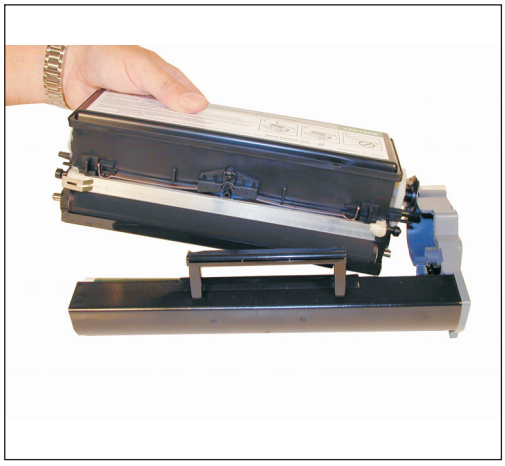

Figure 5

3) Remove the drum cover. Note the position of the springs. See Figure 4

4) Remove the toner supply chamber (the second spring will come loose). Make sure that all the gears stay in place. The supply hopper spring will come off, be careful not to lose it. See Figure's 5 & 6 (on next page)

Lexmark E-321/E323 Toner Cartridges (Continued)

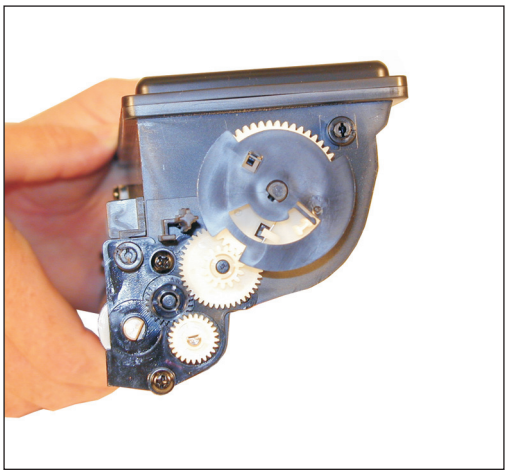

Figure 6

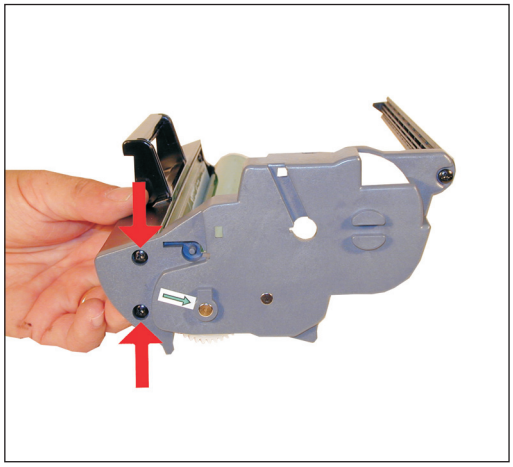

Figure 7

5) Remove the two front screws only from the right end cap. The back screw holds the long brace in place and does not need to be removed. See Figure 7

6) Remove the drum coupling gear (Smaller version of the 4039/4049). Remove the drum, remove the waste chamber. The waste chamber has to be the last to come out as there is a side piece from it that fits behind the drum. See Figure's 8 & 9

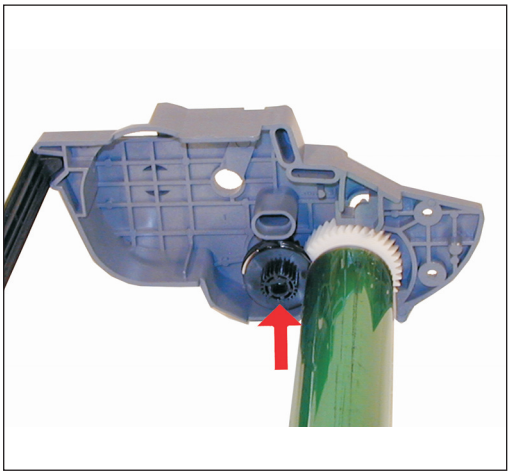

Figure 8

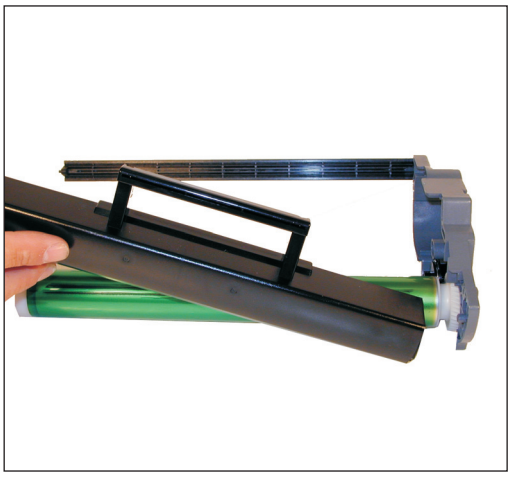

Figure 9

Lexmark E-321/E323 Toner Cartridges (Continued)

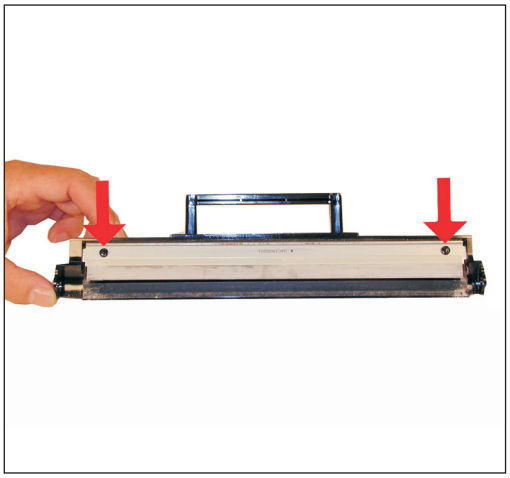

Figure 10

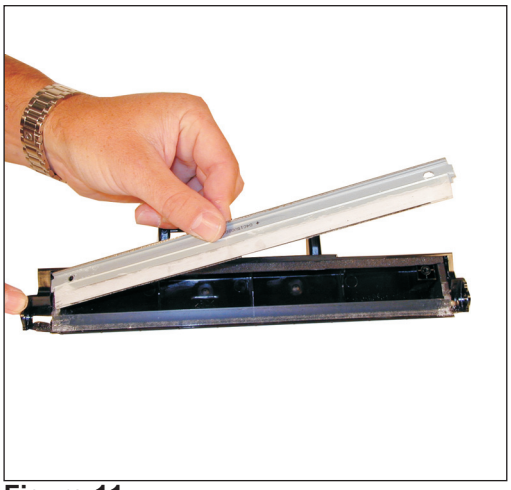

Figure 11

7) Remove the two screws on the wiper blade, and the blade. Clean out the waste chamber. The screws for the wiper blade are smaller than the end cap screws. See Figure 10

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.

8) Coat the new wiper blade with your preferred lubricant, and install the wiper blade and two screws. Remember to use the smaller screws. See Figure 11

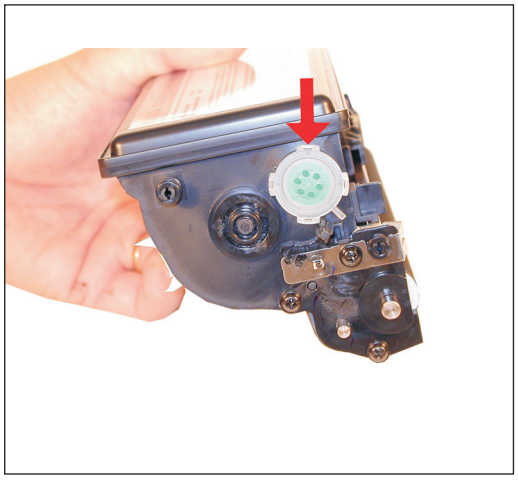

Figure 12

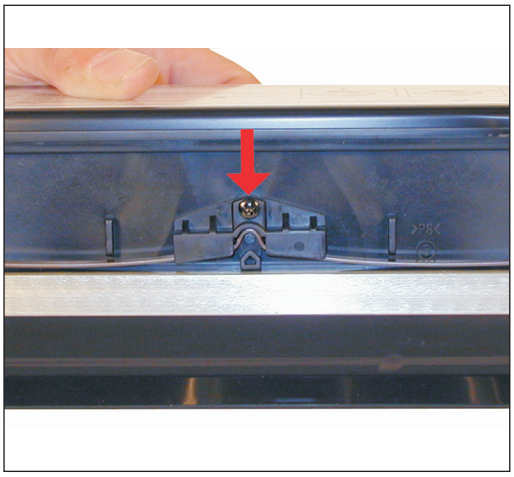

Figure 13

9) Remove the fill plug from the toner supply and dump/vacuum out the remaining toner. See Figure 12

10) Remove the screw on the doctor blade spring holder. Remove the entire spring and holder assy. See Figure 13

Lexmark E-321/E323 Toner Cartridges (Continued)

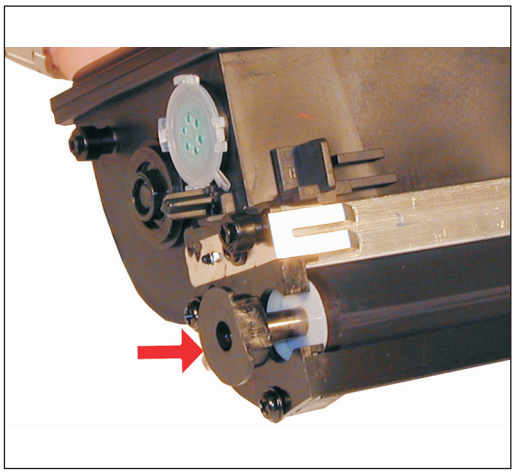

Figure 14

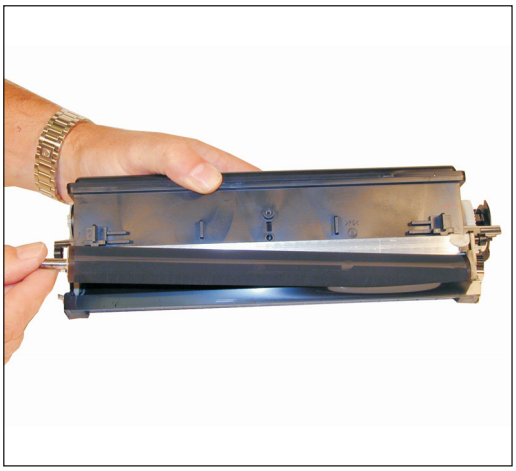

Figure 15

11) On the left side of the toner hopper (fill plug side), pry out the developer roller bushing. See Figure 14

12) Remove the developer roller. Be careful not to damage the black retaining blade. See Figure 15

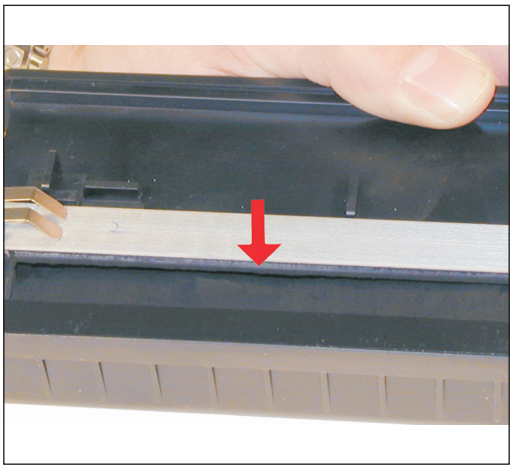

Figure 16

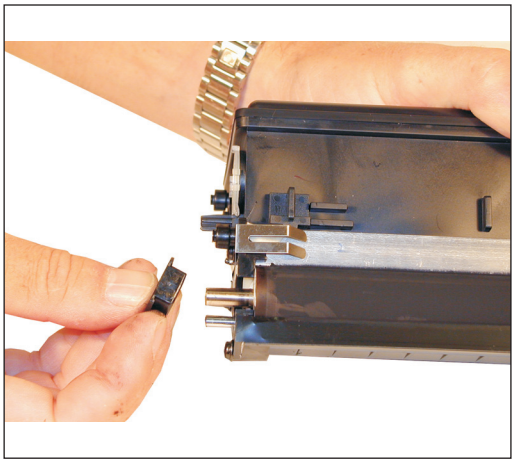

Figure 17

13) Clean the working edge of the doctor blade with a Scotch-Brite pad and alcohol. See Figure 16

NOTE: The shims on the developer roller are similar to those used on the 4019/39/49 cartridges. The same replacement shims can be used if they become damaged.

14) Replace the developer roller back into the hopper. Make sure that the shims are not damaged, and that the black retaining blade is not damaged. Install the bushing. See Figure 17

Lexmark E-321/E323 Toner Cartridges (Continued)

Figure 18

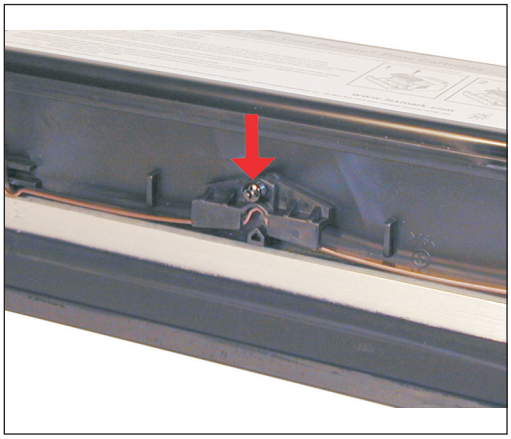

Figure 19

15) Fill the hopper with 225g of E320 toner. Replace the fill plug. See Figure 18

16) Install the doctor blade spring holder, spring and screw. See Figure 19

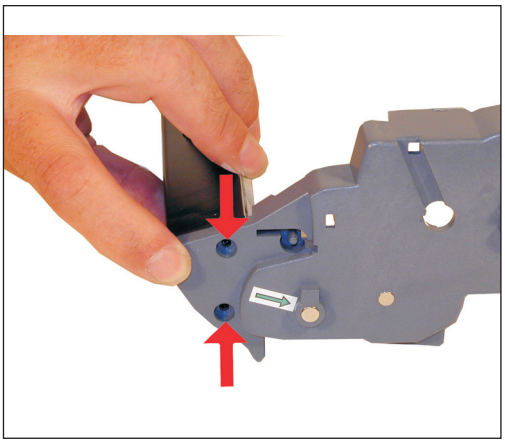

Figure 20

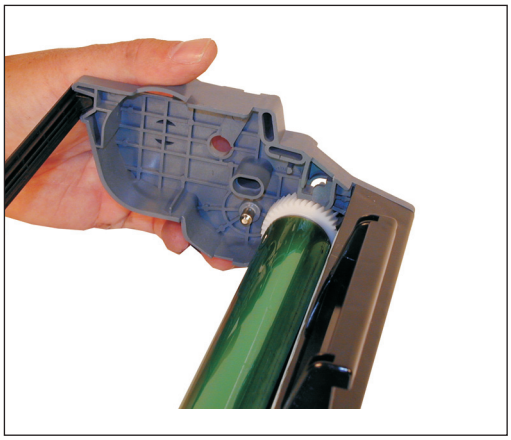

Figure 21

17) Install the waste chamber into the right end cap. Install the 2 screws. See Figure 20

18) Install the drum (gear side) into the right end cap. See Figure 21

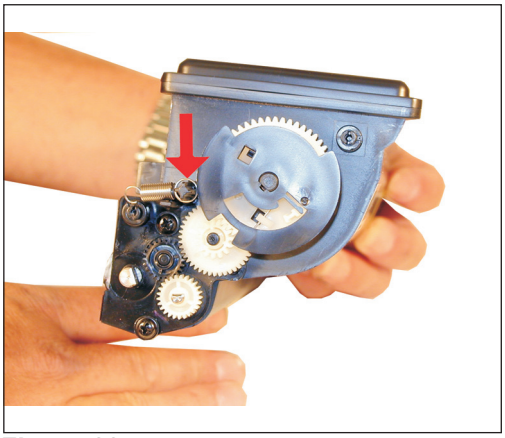

Figure 22

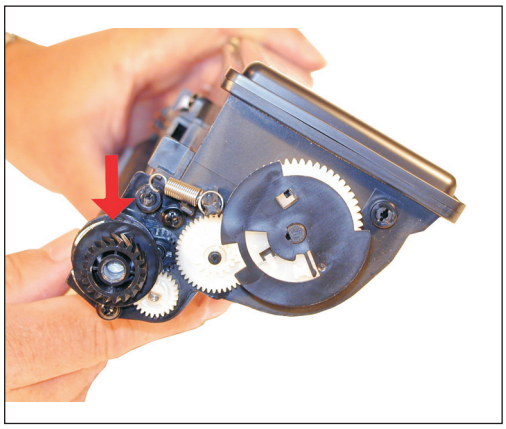

Figure 23

19) Install the spring large loop side on the large toner hopper post. See Figure 22

20) Install the coupler gear on to the shaft on the toner supply. Note that the gear and shaft are both keyed. See Figure 23

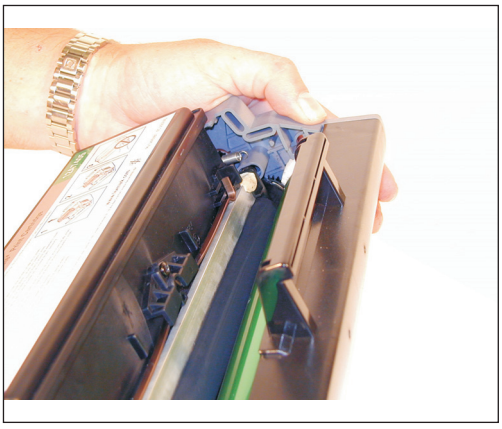

Figure 24

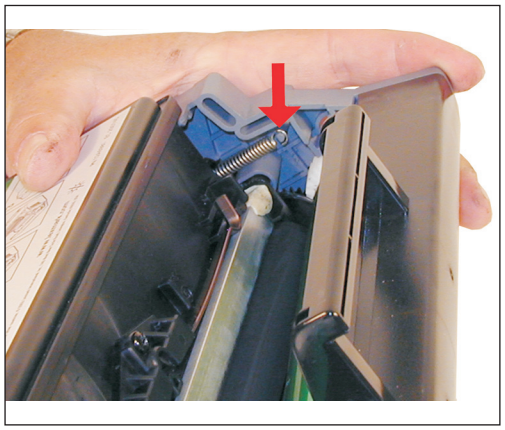

Figure 25

21) Install the toner supply hopper into the end cap. See Figure 24

22) While holding the supply hopper in place, take the spring hook, grasp the small loop of the spring and place it on the small end cap post. See Figure 25

Lexmark E-321/E323 Toner Cartridges (Continued)

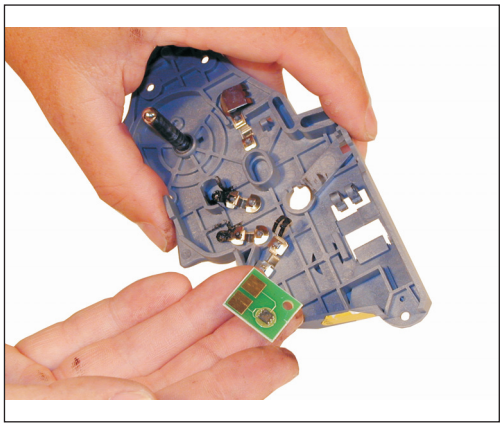

Figure 26

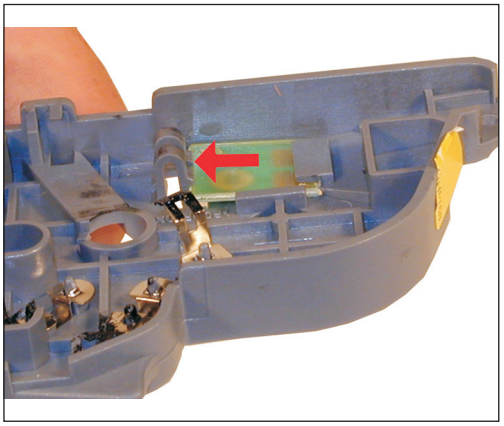

Figure 27

23) If you have a Prebate cartridge, install the replacement chip in the left end cap. Make sure that the chip is locked in place by the two plastic tabs. See Figure's 26 & 27

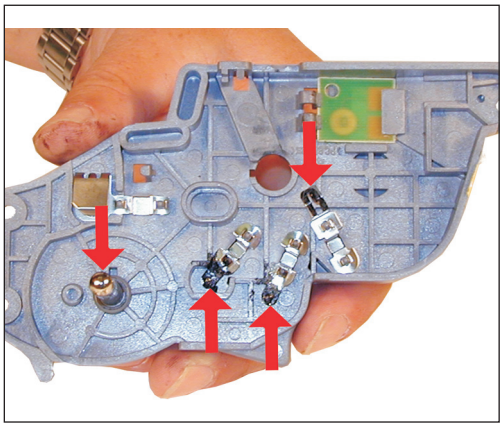

Figure 28

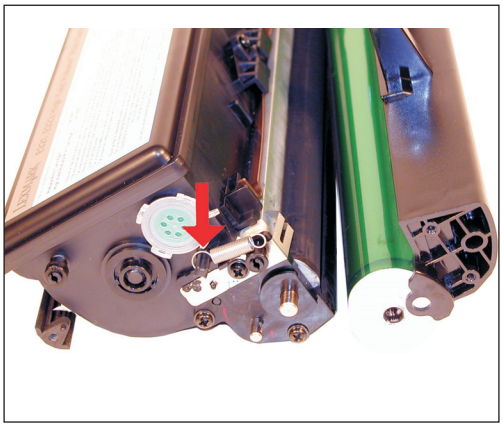

Figure 29

24) Clean off all the old conductive grease from the left end cap. Reapply new grease to all the contact points including a small amount on the drum axle shaft. Remember, when using conductive grease, more is not better. Just use a small amount on each point. See Figure 28

25) Place the large loop of the second spring on the large hopper post. See Figure 29

Lexmark E-321/E323 Toner Cartridges (Continued)

Figure 30

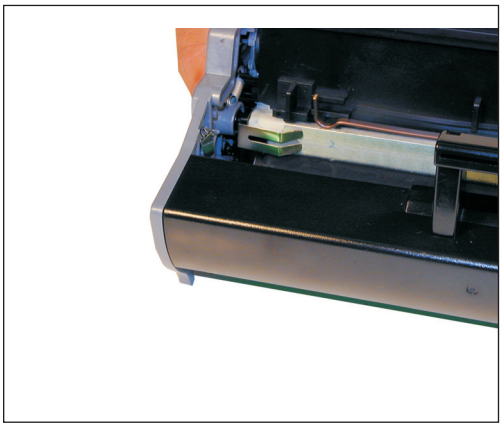

Figure 31

26) Carefully align and install the left end cap. Make sure the back brace fits correctly and that the alignment pins are all in there correct position. Snap the end cap in place. See Figure's 30 & 31

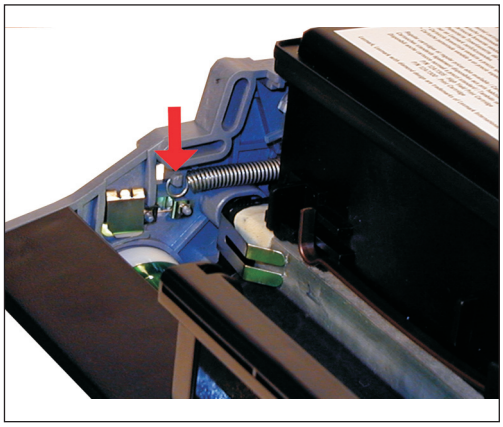

Figure 32

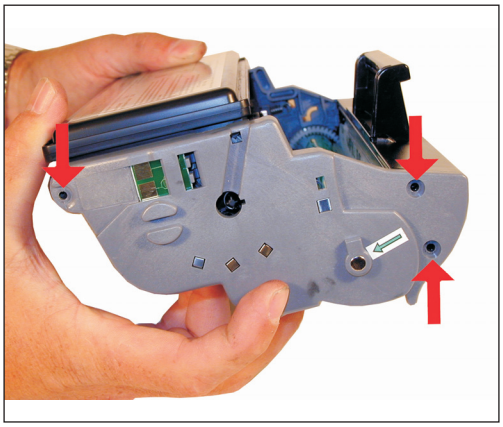

Figure 33

27) With the spring hook, grasp the small loop of the spring and place it on the small end cap post. See Figure 32

28) Install the three screws on the end cap. See Figure 33

Lexmark E-321/E323 Toner Cartridges (Continued)

Figure 34

Figure 35

29) With the springs in the correct position, bend the drum cover slightly in the middle. Place the alignment pins in their respective slots. Try to make sure the large tail of the spring fits in place as you fit the cover in place. See Figure's 34 & 35

The cartridge is finished! If you are testing the cartridge, (Highly recommended) a test page can be generated from the machine, but it is not an easy process. It is easier and faster to generate pages from an Anacom box, or a computer.

30) Once the testing is finished, make sure you install the shipping lock.

Printing a Test page:

As stated above running test prints from the machine itself is not an easy task. It is easier and faster to run tests from an Anacom box, or a computer.

If you need to run prints from the machine do the following:

1)Turn the printer off.

2)Open the top cover.

3)Press and hold the "CONTINUE" button as you turn the printer back on. All the lights will cycle.

4)Release the "CONTINUE" button, close the cover.

5)Press and hold the "CONTINUE" button until all the lights cycle.

6)The Printer will print the Configuration Page.

Light Sequences:

The more common problems such as Toner Low and Paper Jam have their own lights and are self-explanatory. I will list some of the less apparent sequences here.

Toner Low Blinking, Error on steady: Toner cartridge error

Toner Low Blinking, Error Blinking: Wrong Toner cartridge (Probably an IBM, or E320)

Error light on steady: Top Cover Open