Technical Document

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Lexmark E-320 Toner Cartridges
DOC-0296

OVERVIEW

First released in October 2001, the Lexmark E320/322 series of printers are based on the 16ppm 1200 dpi Lexmark 4500 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. Lexmark currently has four cartridges available:

- 08A0475 STD (3K pages) Non-Prebate cartridge
- 08A0476 STD (3K Pages) Prebate Cartridge
- 08A0477 HY (6K Pages) Non-Prebate cartridge
- 08A0478 HY (6K Pages) Prebate cartridge

The HY Non-Prebate cartridges list for $193.00, where the HY Prebate cartridges list for $173.00. (Pricing as of April 2002). The cartridges themselves are fairly simple to do, and as you can see, have very nice margins!

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.

The user guide has two interesting chapters in it. In Chapter 15 -Recycling the Print Cartridge. There is a statement on refilling Lexmark cartridges:

"WARNING: Lexmark does not recommend refilling used printer cartridges or purchasing refilled cartridges from a third party. Print quality and printer reliability cannot be guaranteed if you do. The printer warranty does not cover damage caused by using refilled cartridges."

This statement from Lexmark is very similar to the HP statement on remanufactured cartridges, and is the first time I have seen it out front like this and not buried in some back page somewhere. Basically they are saying that as long as a remanufactured cartridge does not damage a machine, the warranty is in effect. That should help with the occasional rogue Lexmark technician.

The second chapter I found interesting is number 13. This is definitely more on the humorous side. The chapter heading is Conserving Supplies. I read this thinking that there was some type of Economode similar to what HP has. (Every other dot is not printed, thus using less toner). Lexmark has come up with the unique method of setting the Print Darkness to "Very Light"! That is how they recommend that the user use less toner! I wonder why no one else ever thought of that?

Another point in both the user guide and the service manual is that in the E320 machine only. If the Standard 3000 page cartridge is installed, the toner low function will not work. No other explanation is given, but it is stated multiple times. We are currently looking into why this may be, but do not have an answer as of yet.

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.

These cartridges come new with a shipping lock/foam combination. They use the same type of foam as the 4039/4049 cartridges do as well as a shipping lock similar to the Optra S/T cartridges. The shipping lock and foam are unique to the E320 series cartridges. See Figure 1
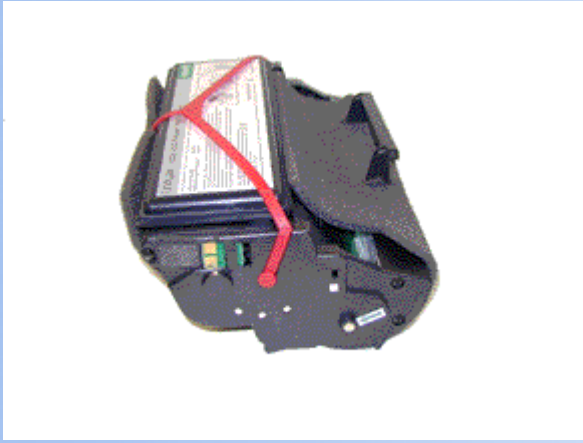

FIGURE 1

REQUIRED TOOLS

- Toner approved vacuum.
- A small Common screw driver
- A spring hook
- 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
- Cotton swabs
- Soft, lint free wipes

DISASSEMBLY

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 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

3. Remove the drum cover. Note the position of the springs. See Figure 4
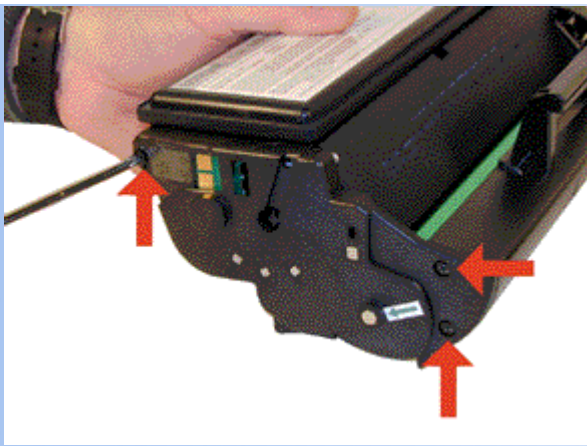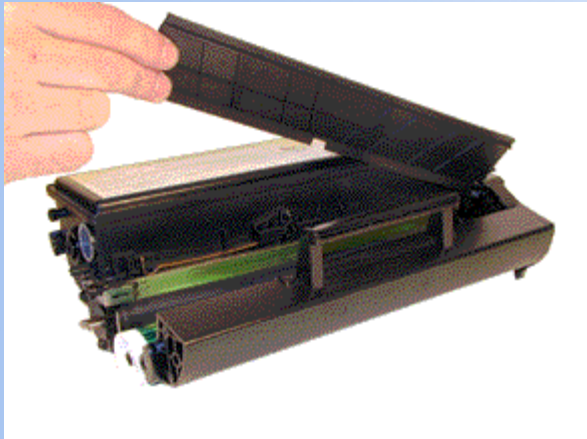
FIGURE 2
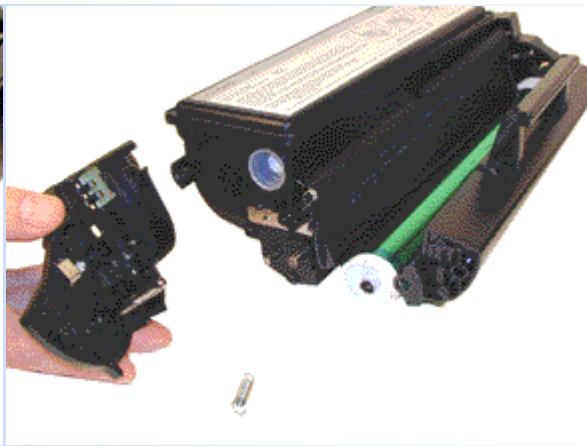
FIGURE 3

FIGURE 4

4. Remove the toner supply chamber. Make sure that all the gears stay in place. See Figure's 5 & 6

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
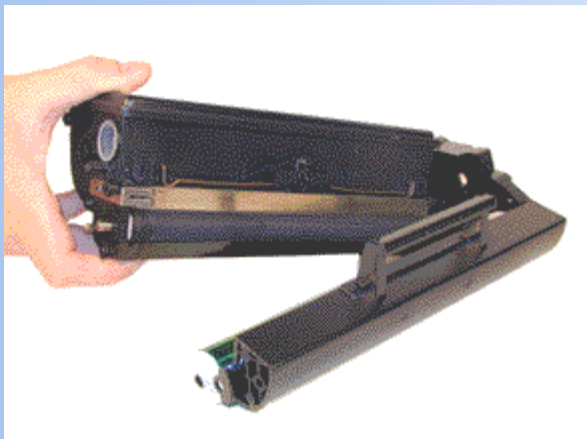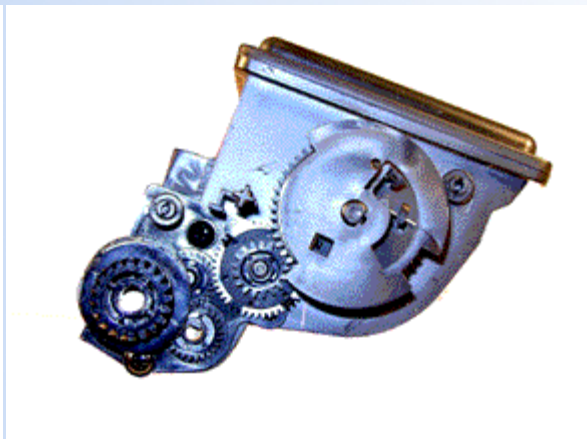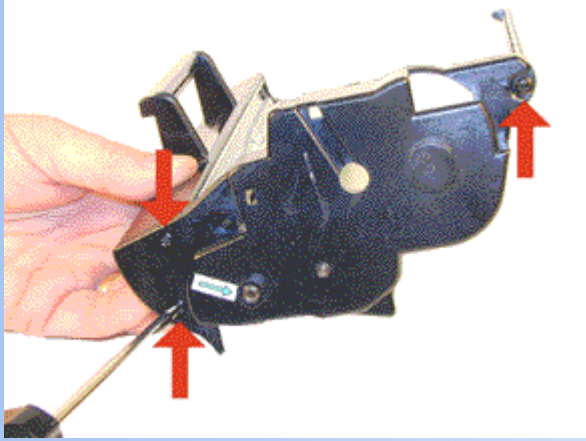

FIGURE 5

FIGURE 6

FIGURE 7

6. Remove the drum coupling gear (Small version of the 4039/4049). Remove the drum. See Figure's 8 & 9

7. Remove the two screws on the wiper blade, and the blade. Clean out the waste chamber. See Figure's 10 & 11

   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.
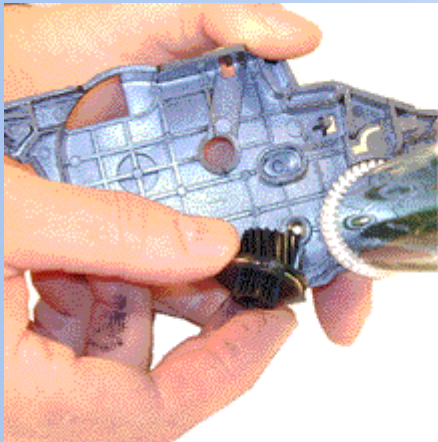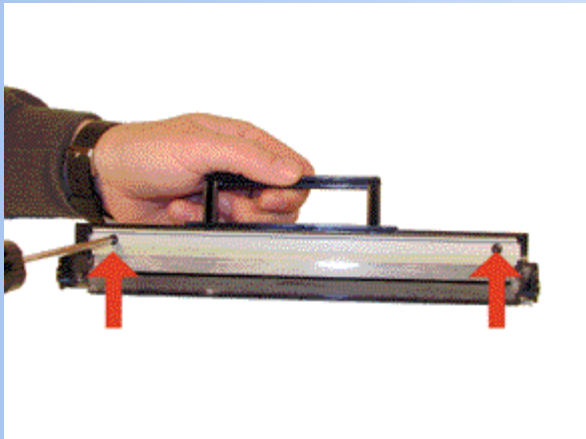

FIGURE 8

FIGURE 9

FIGURE 10

FIGURE 11

8. Coat the new wiper blade with your preferred lubricant, and install the wiper blade and two screws.

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

10. Remove the doctor blade spring and holder. See Figure 13

11. On the left side of the toner hopper, 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
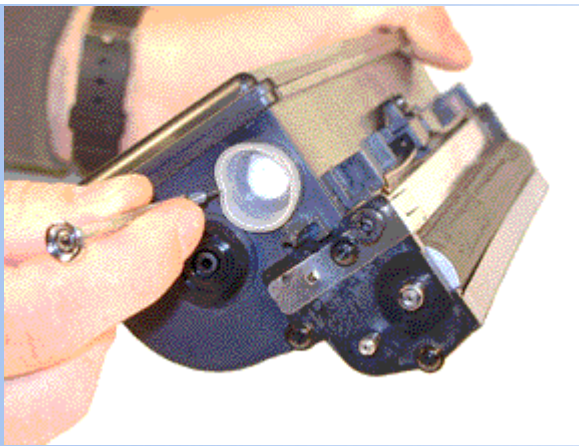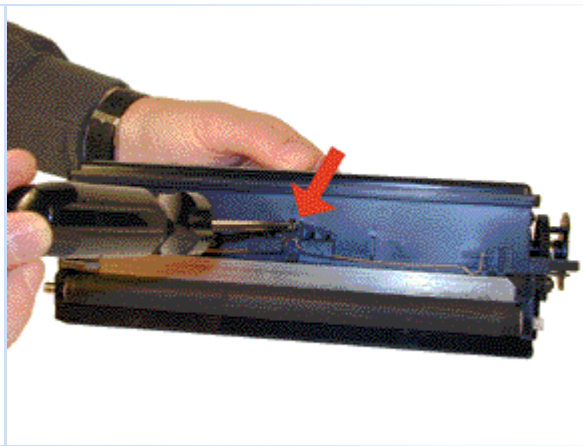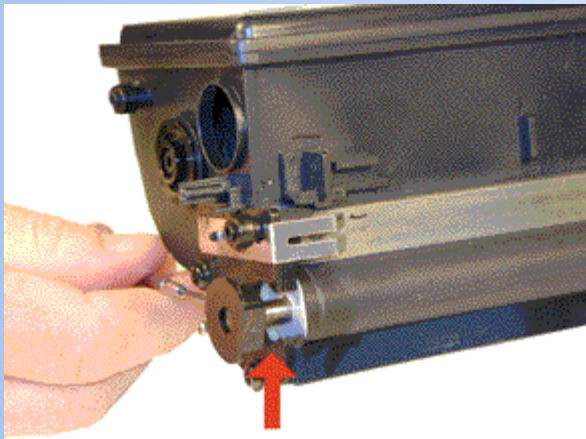
FIGURE 12

FIGURE 13

FIGURE 14

FIGURE 15

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

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

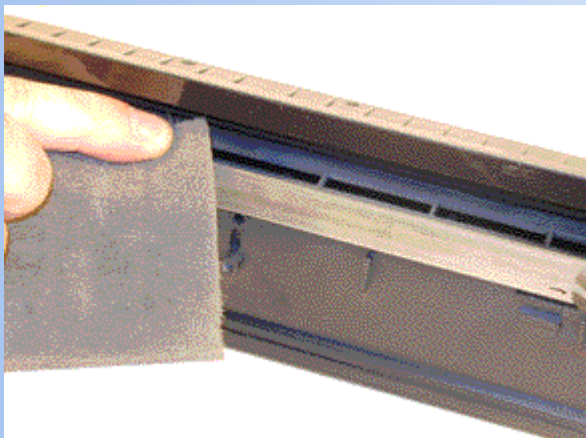16. Install the doctor blade spring holder, spring and screw. See Figure 19
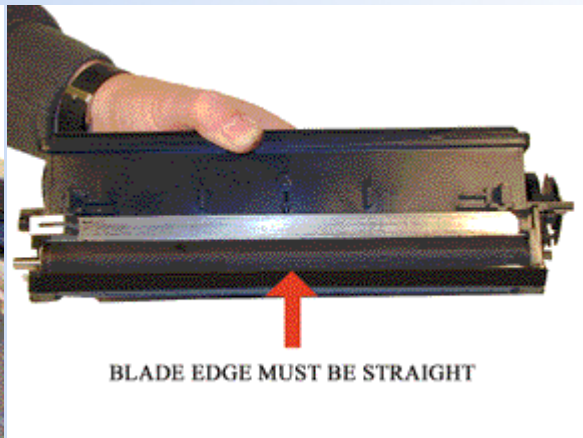

FIGURE 16

BLADE EDGE MUST BE STRAIGHT
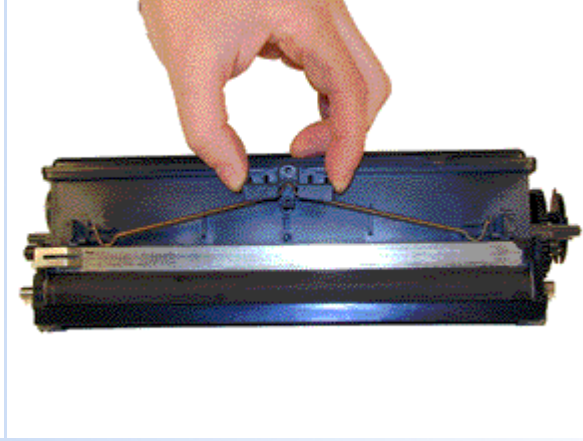
FIGURE 17

FIGURE 18

FIGURE 19

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

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
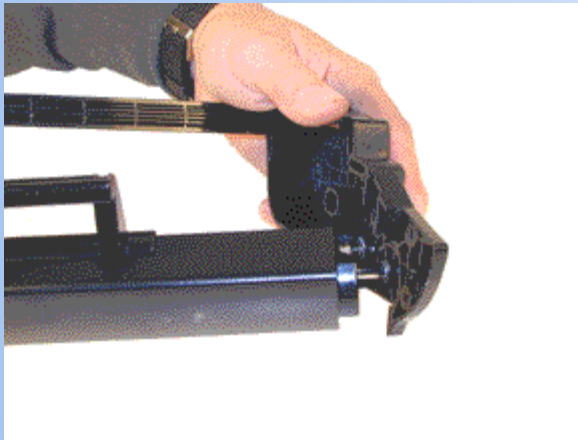

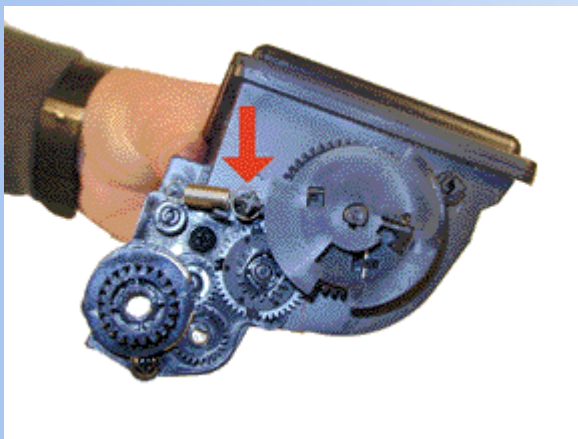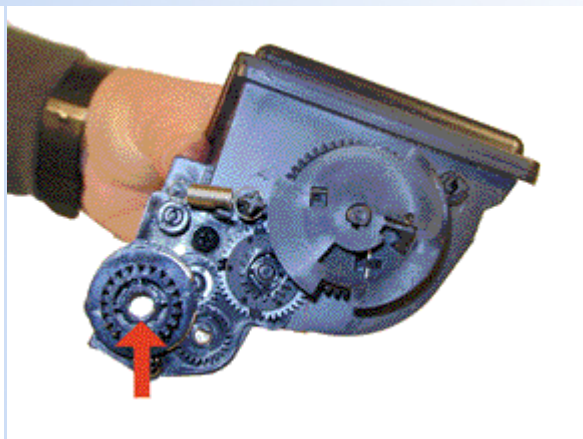**FIGURE 20**

FIGURE 21

FIGURE 22

FIGURE 23

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

22. With the spring hook, grasp the small loop of the spring and place it on the small end cap post. See Figure's 25 & 26
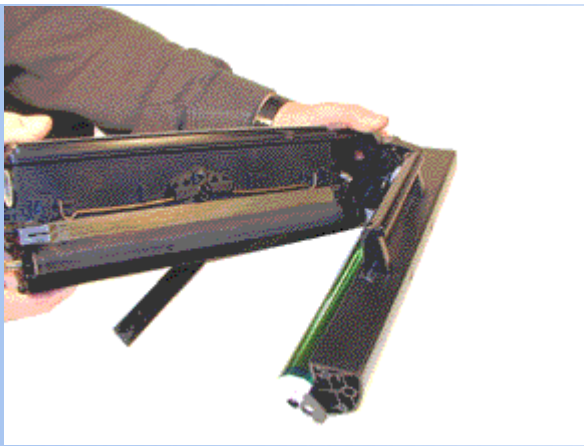
FIGURE 24

FIGURE 25

FIGURE 26

23. If you have a Prebate cartridge, install the replacement chip in the left end cap. See Figure's 27 & 28

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

25. 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 30
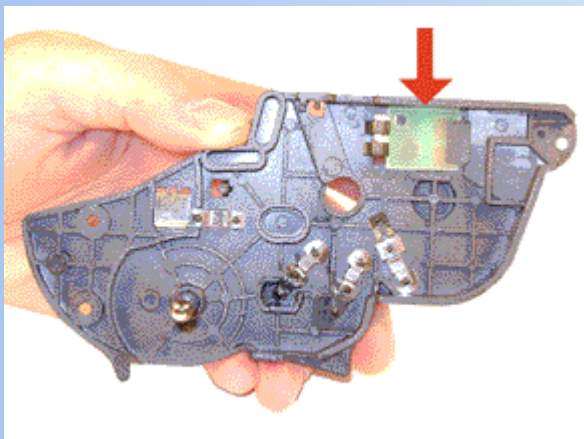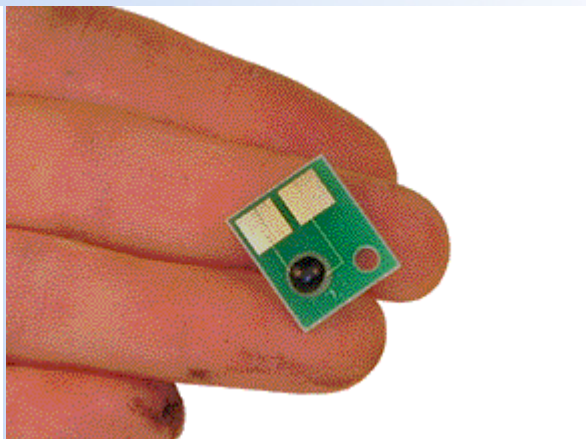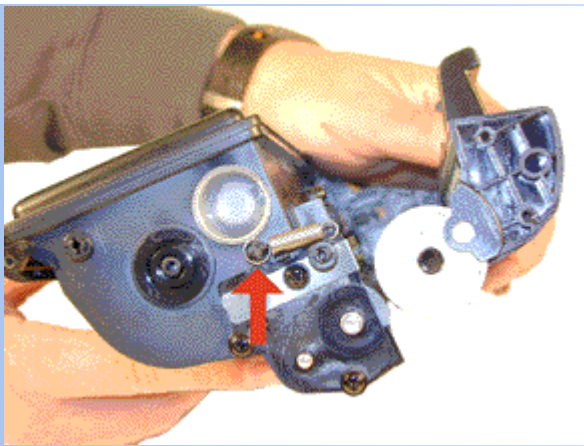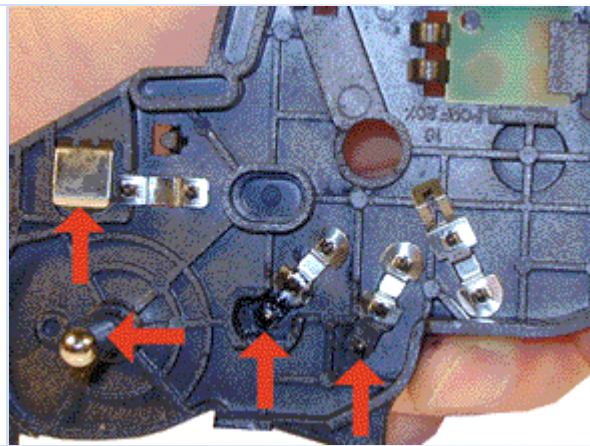

FIGURE 27

FIGURE 28

FIGURE 29

FIGURE 30

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 31& 32

26. With the spring hook, grasp the small loop of the spring and place it on the small end cap post. See Figure 33

27. Install the three screws on the end cap. See Figure 34
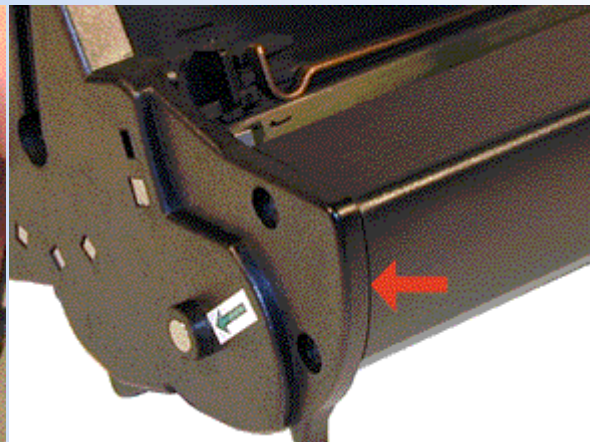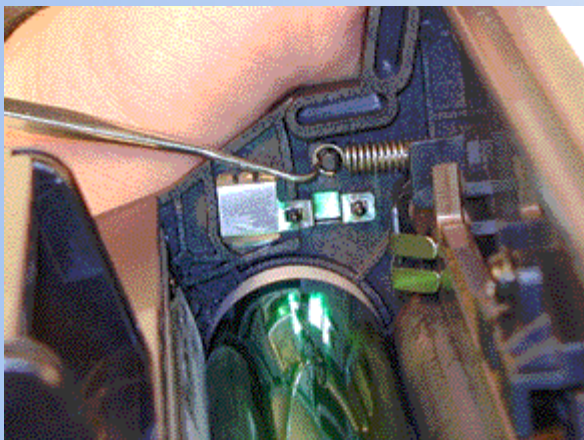

FIGURE 31

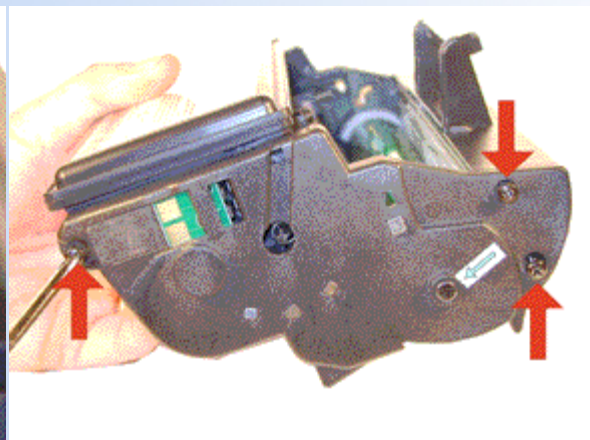
FIGURE 32

FIGURE 33

FIGURE 34

28. With the springs in the correct position, bend the drum cover slightly in the middle.

29. Place the alignment pins in their respective slots. See Figure's 35 & 36
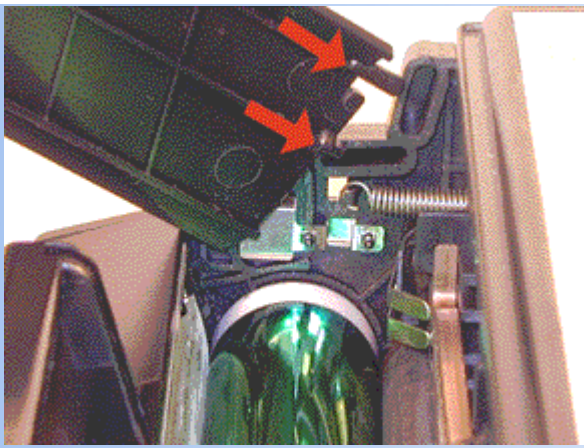
FIGURE 35

FIGURE 36

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.

These machines also have the ability to run a cleaning cycle.

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. Turn the printer on.

4. When the error light comes on, indicating the top cover is open, press and release the operator panel button twice quickly.

5. When the Error and Pres Button lights start flashing, close the cover

These steps get you into what is called the Special Function Menu.

To run the test pages,

6. Do steps 1-5 above.

7. Press and release the operator panel button twice quickly (Double-button press) four times until the Ready/Data and Toner Low lights come on and the bottom two lights blink.

8. Press the operator panel button with a long button press (hold until all the lights come on). Three pages will now print. The first has only registration marks, the second is all gray, and the third is all black.

9. To exit the test page sequence, press the operator panel button until all, the lights come on.

The above sequence if not done right can change other settings in the printer. If this happens, the printer should be reset back to the factory defaults.

To reset the printer to factory defaults:

A. Do steps 1-5 above.

B. Press and release the operator panel button twice quickly (double button press) until the Toner Low light comes on, and the two bottom lights blink.

C. Press and hold the Operator Panel Button until all the lights come on.

D. The printer is reset!

RUNNING THE CLEANING CYCLE

1. Do steps 1-5 above.

2. Place a sheet of paper in the automatic paper feed slot.

3. Press and hold the Operator Panel Button until all the lights come on solid.

4. One sheet of paper should feed through.

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

- Error light on steady: Top Cover Open

- Ready Blinking, Toner Low blinking: Scanner Motor failure

- Toner Low blinking: Fuser failure

- Ready, Toner Low, and Press Button all blinking: Fuser too hot.

- Toner Low, Press Button both blinking: Fuser not hot enough

- Load Paper, Press Button both blinking: Thermistor open in fuser.

RECOMMENDED SUPPLIES

Microsoft OLE DB Provider for ODBC Drivers error '80004005'

[Microsoft][ODBC Microsoft Access Driver]General error Unable to open registry key 'Temporary (volatile) Jet DSN for process 0xe54 Thread 0x168c DBC 0x8547d64 Jet'.

/script/catSearch.asp, line 58