

TECHNICAL DOCUMENT



- [Overview](#)
- [Required Tools](#)
- [Required Supplies](#)
- [Disassembly](#)
- [Running Test Pages](#)
- [Machine Error Codes](#)

Minolta DiAlta 151 Toner Cartridges

DOC-0287

OVERVIEW



First introduced in April 1999, the Minolta DiAlta 151 engine is an 18ppm, 1200dpi laser printer engine. The cartridge itself is very easy to remanufacture, and with list prices at \$210.00 USD per cartridge, a nice profit maker as well. The cartridge is rated for 9,000 pages and is loaded with 300g of toner.

Figures 1 & 2 show the difference between the two Minolta cartridges. The tabs are set so that the cartridges are not interchangeable. I imagine that they do this so that the sales from one division, is completely separate from another. These tabs can be removed so that the cartridges are universal, but it is not easy to cut them out cleanly. I have not seen them, but I imagine that the other printer manufacturers that use this engine have their own version of tabs as well.



Minolta PageWorks 18



Minolta DiAlta 151

FIGURE 1

FIGURE 2

The machines that are based on the Minolta DiAlta 151 engine are as follows. The reason that two part numbers are listed for some of the Minolta machines is that since Minolta purchased QMS, they have been changing over the part numbers to the QMS style. The first number is the newer number. The DiAlta machines are not manufactured under the Minolta-QMS name so they have retained their own part numbers.

MACHINE	CARTRIDGE PART #
Develop D1530 iD	
Konica 7415	950-704
Konica 7415 MFP	950-704
Lanier 5415	480-0047

Minolta DiAlta 151	4153-102
Minolta DiAlta 151 F	4153-102
PagePro 18 GN/L/LN/N/Plus	171-0398-001, 4153-101
PagePro 4100 E/GN/W	171-0398-001, 4153-101
PagePro 4110 W	171-0398-001, 4153-101
PageWorks 18/L/LN/N/Plus	171-0398-001, 4153-101
NEC NeFax 805	S3538

TOOLS REQUIRED



- Phillips head screw driver.
- Small Common screwdriver
- Needle Nose pliers
- Spring Hook
- Safety goggles and breathing mask.
- Vacuum approved for toner

SUPPLIES REQUIRED



- 300g DiAlta 151 toner.
- New drum
- New Wiper Blade (Check for availability)
- Sealing Strip (Check for availability)
- Cotton Swabs
- Isopropyl Alcohol
- Kynar Drum Padding Powder
- White Lithium Grease

DISASSEMBLY



1. On the gear side of the cartridge, remove the four screws on the end cap. See Figure 3
2. Carefully remove the end cap. Note the location of the gears. See Figures 4 & 5
3. From the fill plug side, remove the three screws. See Figure 6

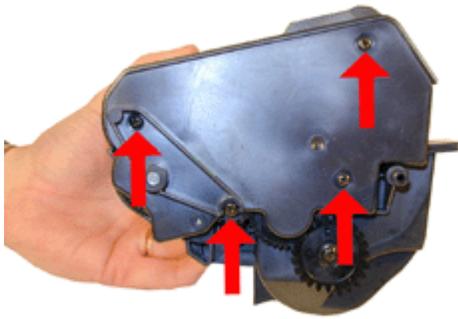


FIGURE 3

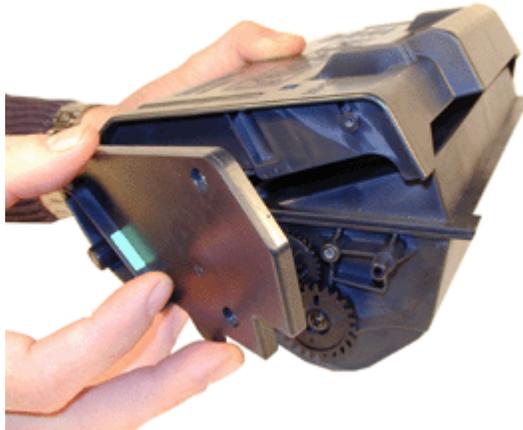


FIGURE 4

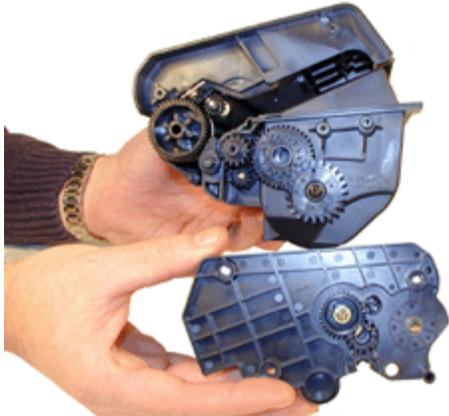


FIGURE 5

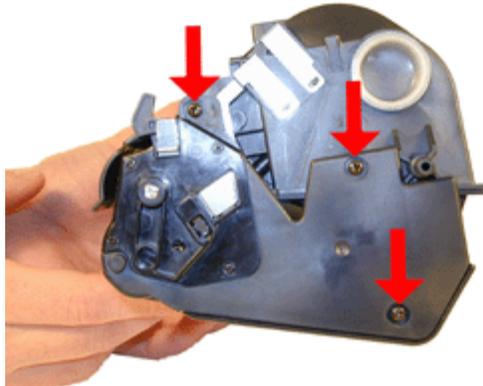


FIGURE 6

4. Carefully remove the supply chamber. Be careful not to damage the drum! See Figure 7
5. On the fill plug side end cap there is a second smaller end cap, or contact plate. This plate is held in with four very small screws. Use a jewelers Phillips head screwdriver to remove them. See Figure 8



FIGURE 7

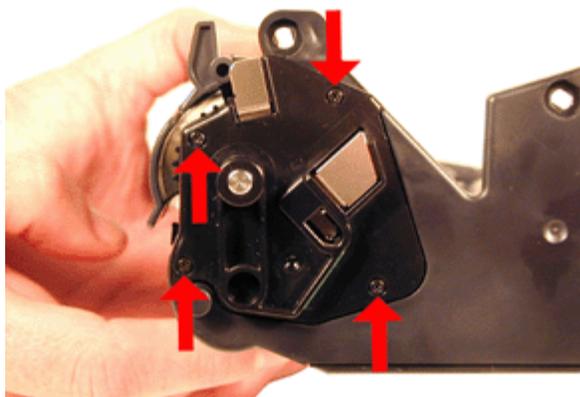


FIGURE 8

6. Remove the contact plate. A gear may come loose. Be sure not to lose it. (It may stick to the inside of the plate). See Figure 9
7. Remove the large end cap, and drum cover. See Figure 10

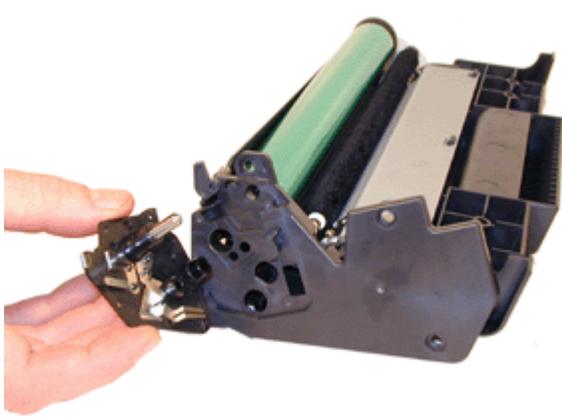


FIGURE 9



FIGURE 10

8. The PCR will be left sitting next to the drum. Remove the drum and PCR, place aside. Do not touch the PCR with your hands, as the oil normally present in your skin will contaminate the roller. See Figure 11

The PCR in these cartridges is a felt type that should only be cleaned with clean, dry compressed air. Do not use any chemicals on it, as there is a conductive coating on the felt that will be removed. The PCR's in these cartridges will typically last for up to two cycles. New replacement PCR's will probably never be available.

9. Remove the wiper blade and two screws. Leave the two small metal plates on the wiper blade. Believe it or not they are the contacts for the PCR! When new wiper blades become available, these contacts should be swapped over. See Figures 12 & 13
10. Clean out the waste chamber. Note that there is an auger that pushes the waste toner back into the supply chamber. Make sure that the auger turns freely, and that the drive gear on the outside of the hopper does not get lost.
11. Coat the wiper blade with your preferred lubricant, and install in the cartridge. Install the two screws. Align the blade with the three tabs, and drop in place. See Figure 14



FIGURE 11

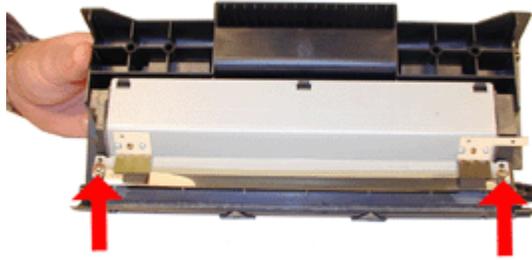


FIGURE 12

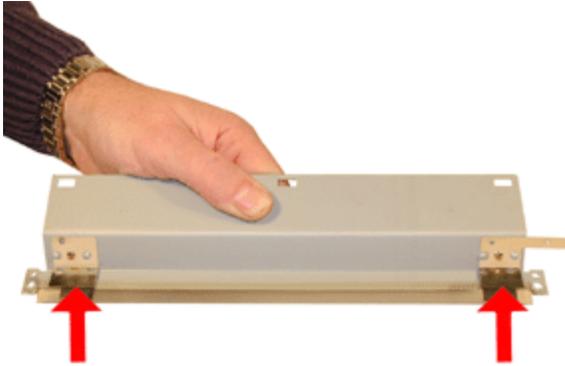


FIGURE 13

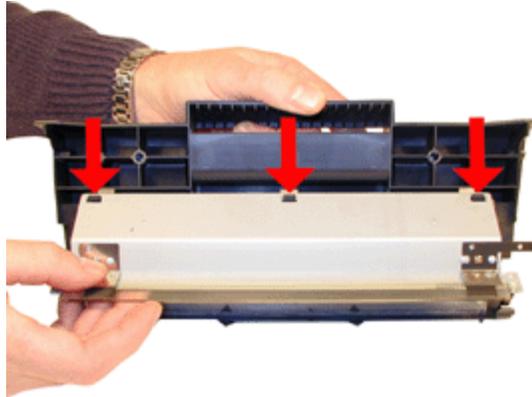


FIGURE 14

12. Clean the PCR contacts with a cotton swab and alcohol. See Figure 15

13. Remove the fill plug from the supply chamber. Dump out any remaining toner, and vacuum clean. See Figure 16

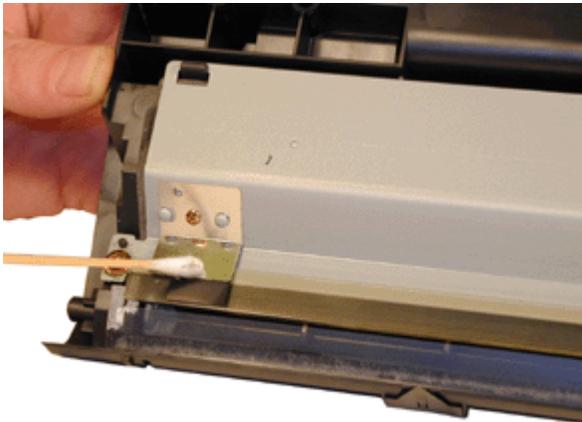


FIGURE 15

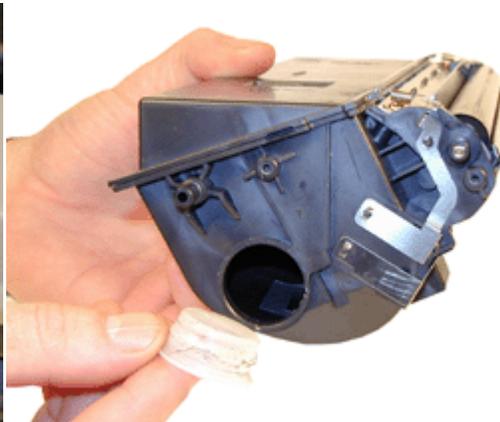


FIGURE 16

Although at this stage it is tempting to just fill the supply, and close it up, it is very important that this not be done. The Doctor Blade in these cartridges tends to get a buildup on it that will interfere with toner distribution on the developer roller, causing streaking down the page. If not cleaned, this can happen in as soon as 1000 pages. This blade needs to be cleaned every cycle.

14. Remove the two small springs on the developer roller tensioners with the spring hook. See Figure 17.

15. Turn both of the developer roller clips up so that they unlock, and remove. Both clips have been colorized for ease of identification. See Figures 18 & 19
16. Remove the developer roller. Be careful when handling the roller as it has a sleeve around it that is easily damaged. We have found it best to handle the roller by the metal shaft only. Do not touch the sleeve with your skin. See Figure 20.

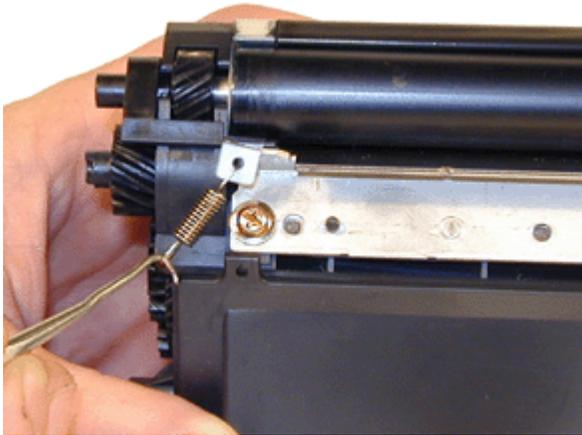


FIGURE 17

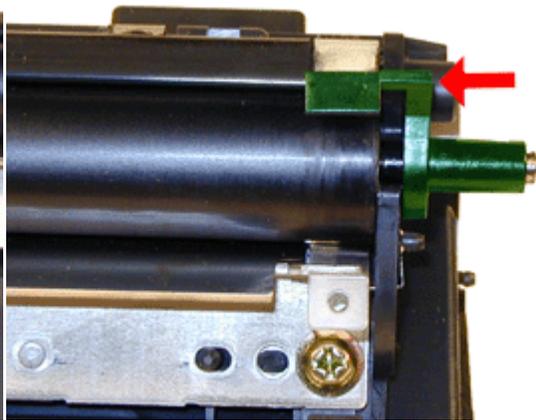


FIGURE 18

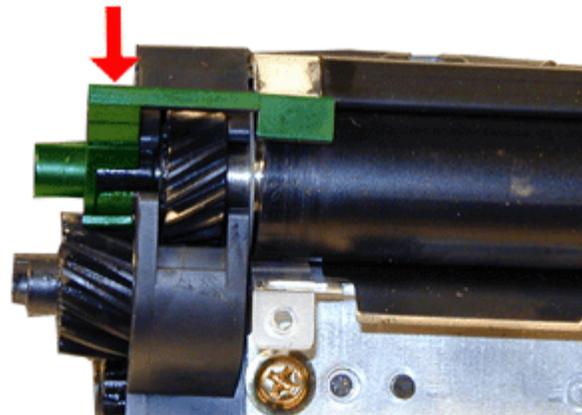


FIGURE 19

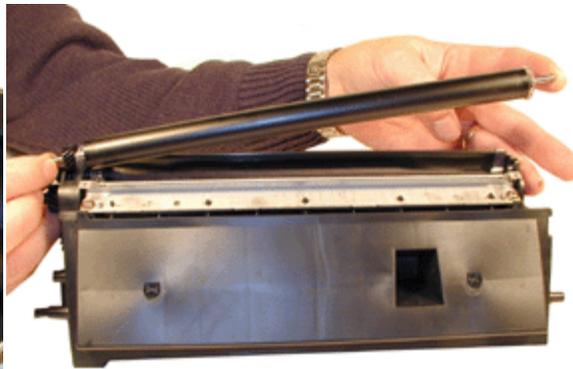


FIGURE 20

17. Remove the two screws from the doctor blade. See Figure 21.
18. Remove the doctor blade being very careful not to damage the seal foam. It may stick to the blade as it is removed. Separate the foam from the blade, and remove the blade. See Figure 22.
19. Clean out all the remaining toner from the hopper. Be especially careful to clean any toner residue off the metal feed roller. It is also important not to damage the clear plastic tensioners on either side of the hopper. See Figures 23 & 24



FIGURE 21

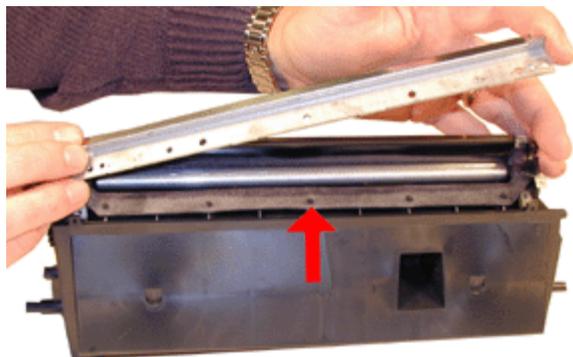


FIGURE 22

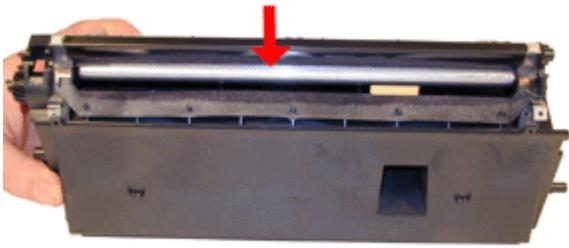


FIGURE 23

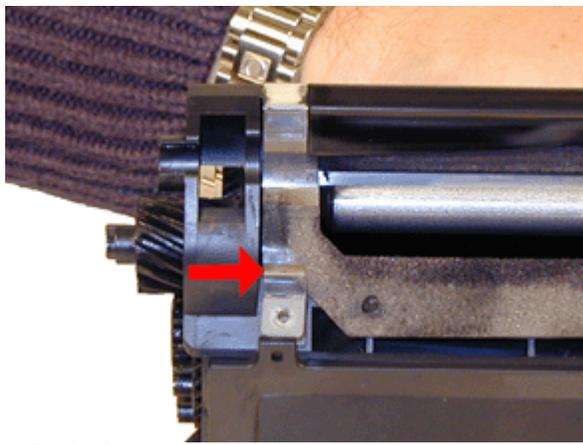


FIGURE 24

20. Place the doctor blade foam back in its proper position. See Figure 25
21. Clean the doctor blade with Acetone followed by alcohol. Make sure it is dry, and install in the cartridge. Make sure that the Dr. blade contact is behind the blade, and that the tensioners are on top. See Figures 26 & 27

These cartridges come new with out seals. The supply hopper is tight enough not to leak (much). Actually they hold up pretty good. Just make sure they are packed good if shipping them.

22. Install the developer roller. Make sure that the spacers on each side of the roller are straight, and in their proper place. See Figure 28

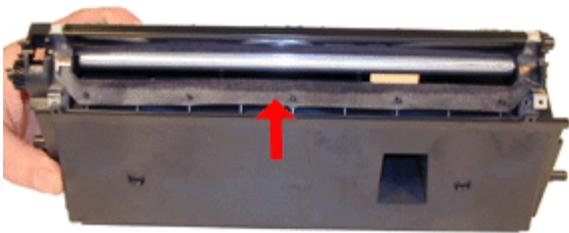


FIGURE 25

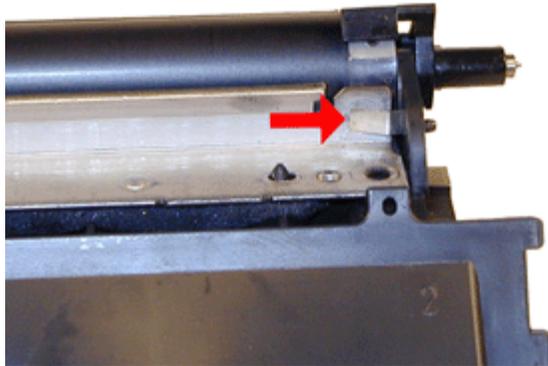


FIGURE 26

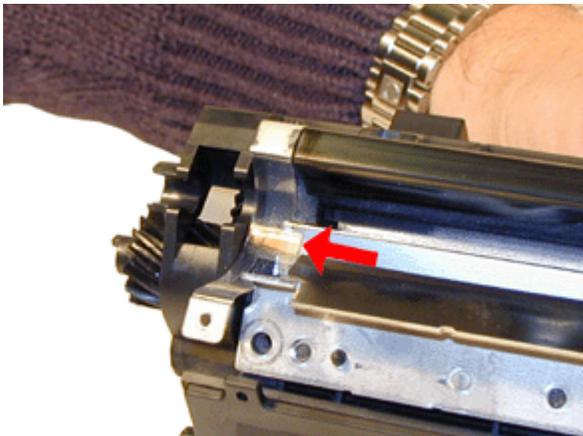


FIGURE 27

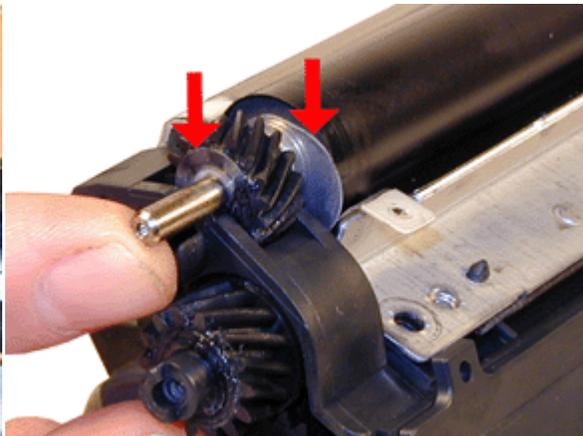


FIGURE 28

23. Install both developer roller clips, larger on the gear side, smaller on the fill plug side. Lock both clips in place. Make sure that the clear tensioner strips are under the clip tabs. See Figures 29, 30, & 31.

24. Install the two small springs on the tensioners. Make sure you keep the hook side of the spring down! See Figure 32

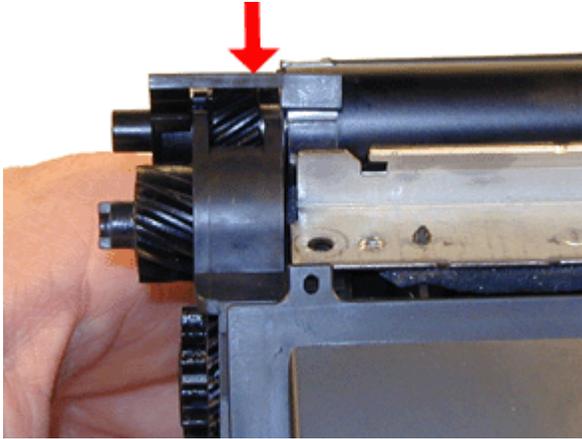


FIGURE 29

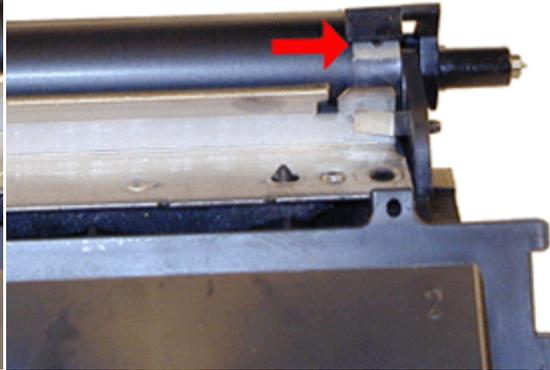


FIGURE 30

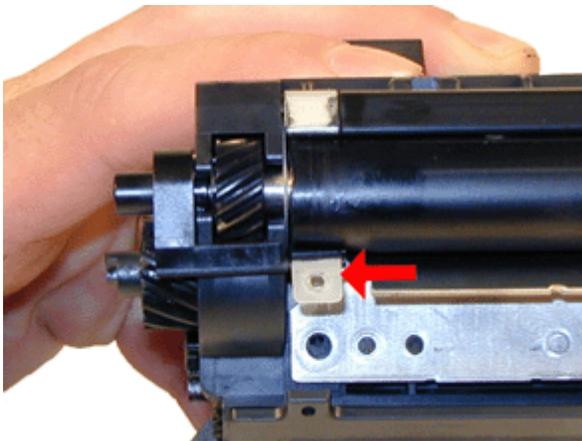


FIGURE 31

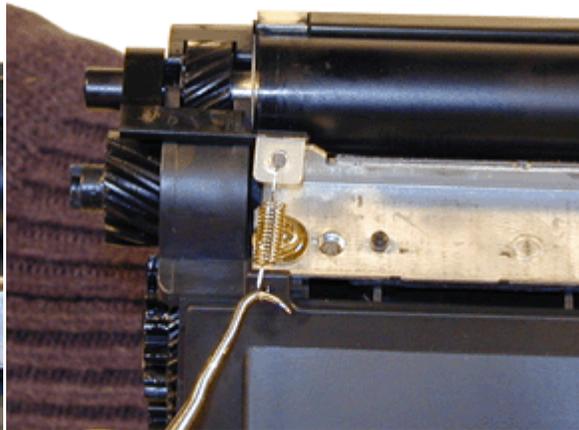


FIGURE 32

25. Fill with 300g 151 toner. See Figure 33

26. Replace the fill plug, check for leaks. See Figure 34

27. Check the geared end cap to see if the grease is contaminated with toner. If it is, clean it all off with alcohol, and replace it with white lithium grease. Be sure to try and put the same amount back that was removed. See Figure 35

Install the right side end cap (Has two gears mounted on it), onto the waste hopper. See Figure 36



FIGURE 33

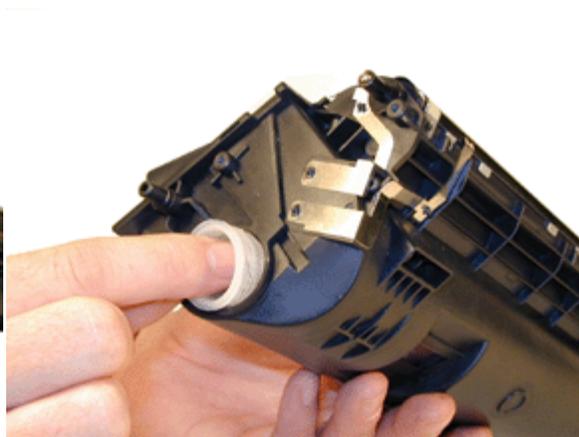


FIGURE 34

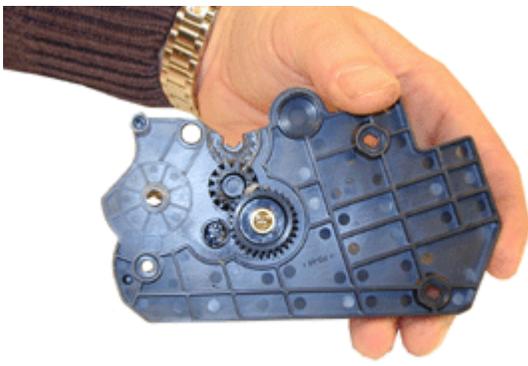


FIGURE 35

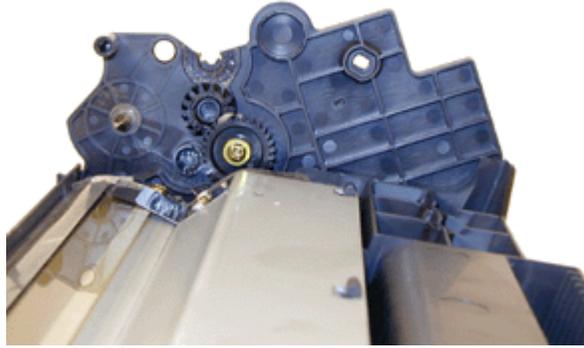


FIGURE 36

28. Install two of the screws as indicated. See Figure 37
29. Install the cleaned (Blown off) PCR into the end cap. The thick shaft side fits into the end cap. Do not touch the PCR with your hands, as the oil normally present in your skin will contaminate the roller. Make sure that the gears are aligned. See Figure 38



FIGURE 37

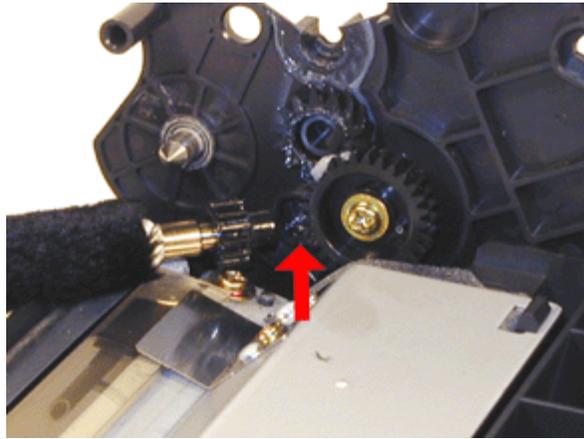


FIGURE 38

30. Install the drum large gear side to the right. See Figure 39
If the OEM drum is damaged, new drums are available with out gears, the gears must be swapped out.
31. Install the toner hopper into the end cap. It should just snap in place. Make sure that the cut gear shaft fits into the hopper properly. You may have to turn the gears slightly to align them. Install the two remaining screws. See Figures 40 & 41
32. Remove the drum cover from the left end cap. Turn it up so that it can be gently pried from its holder. See Figure 42

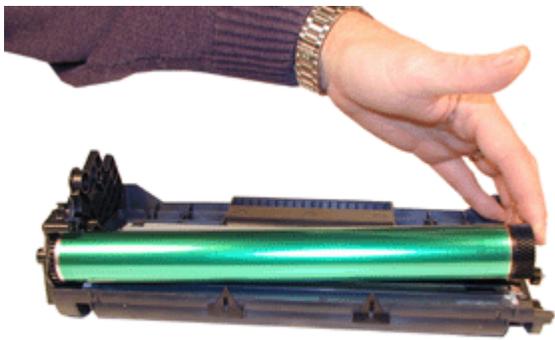


FIGURE 39



FIGURE 40

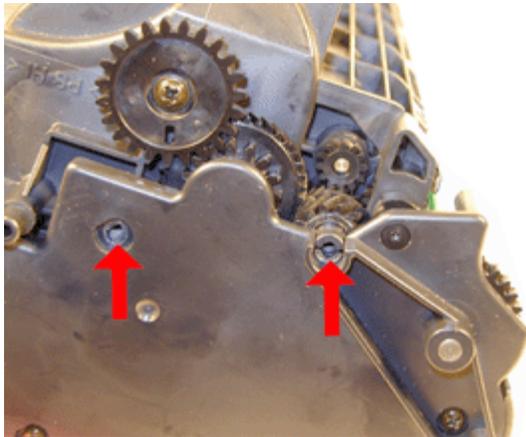


FIGURE 41

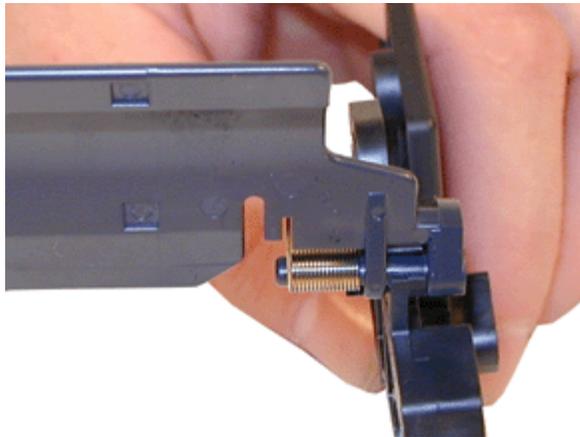


FIGURE 42

33. Place the loose gear from the end cap by the PCR gear. See Figure 43
34. Install the end cap onto the cartridge, install the two screws as shown. See Figure 44
35. This is tricky, the shaft from the contact plate has to go through the end cap and the loose gear. The metal drum axle must fit into the drum and must also line up with the two hoppers. Don't force it; keep playing with it until it fits. See Figure 45
36. Install the four small screws in the contact plate. See Figure 46

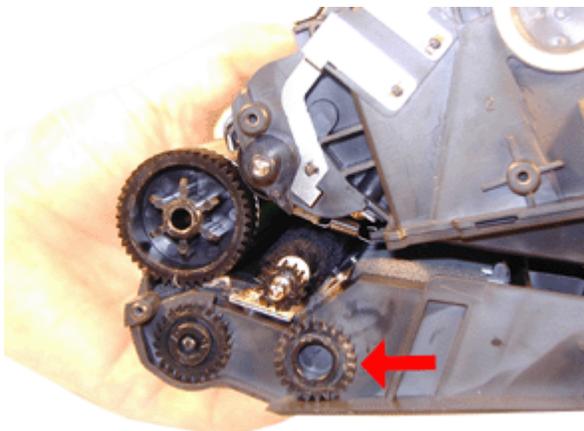


FIGURE 43



FIGURE 44

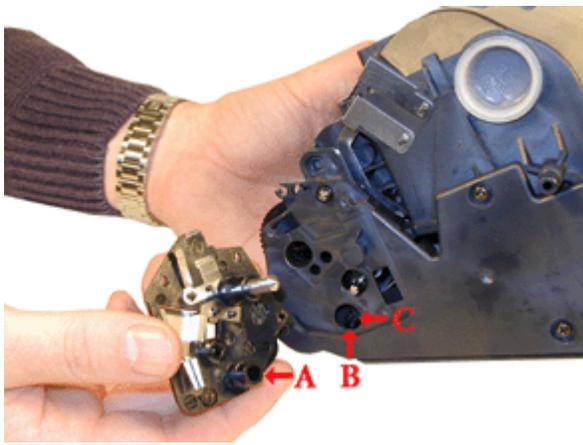


FIGURE 45

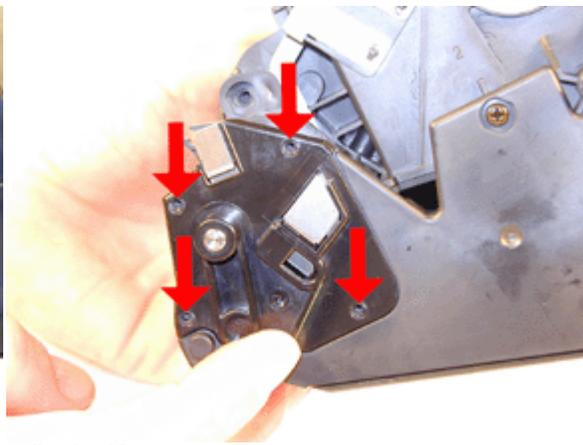


FIGURE 46

37. Install the three remaining large screws. See Figure 47
38. Install the drum cover back on to the end cap. Make sure that the spring is set properly, and that the end of the cover fits into its slot on the opposite side. See Figures 48 & 49.

The drum does not drive the toner supply section of the cartridge, only the waste section. The toner supply is driven separately by the large gear on the bottom of the toner hopper. See Figure 50.



FIGURE 47

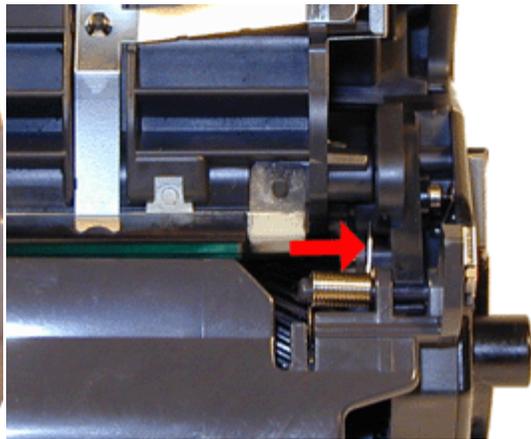


FIGURE 48

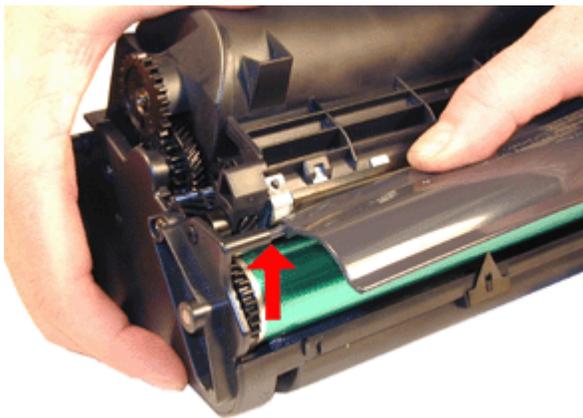


FIGURE 49

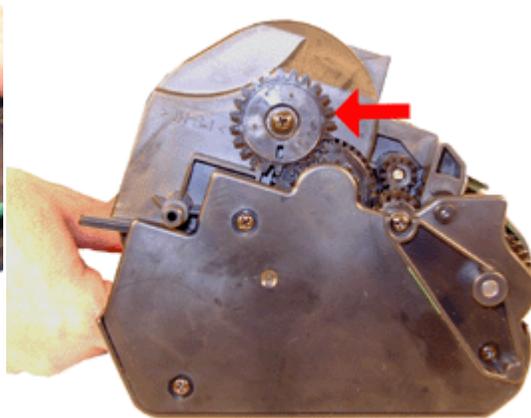


FIGURE 50

So if you normally spin the drum a few times to ensure that all the gears are aligned, and that the drum & wiper blade are lubricated, don't panic! Only the drum is supposed to turn!

The cartridge is finished!

This last part of re-assembling the cartridge is one of the worst I have seen. It must be a nightmare for the production line when they build these! As the commercials say; "From the minds of Minolta"!

RUNNING TEST PAGES



The following is for the PageWorks/PagePro versions of these machines. (The most popular). The DiAlta fax machines have a series of reports that can be used to test the cartridge. All are accessible from the control panel.

Make sure that the READY light is on. Briefly press the PANEL BUTTON, a configuration page will print

The test prints available through the printer driver are: (the printer must be hooked up to a computer, and the correct driver installed.)

DEMO PAGE

Configuration Page

PCL FONT LIST

PS FONT LIST

MACHINE ERROR CODES



The following is for the PageWorks/PagePro versions of these machines. (The most popular). The DiAlta versions have a display panel.

These machines use lights instead of a display panel. The Ready Light is Green, Paper Light is Amber, and the Error light is Red.

Some of the more common light sequences are as follows:

READY	PAPER	ERROR	PRINTER STATUS
(Green)	(Amber)	(Red)	
ON	OFF	ON	TONER LOW
ON	BLINKING	ON	TONER OUT
OFF	OFF	ON	COVER OPEN
OFF	Blinking	OFF	PAPER MISFEED
ON	OFF	BLINKING	FUSER ERROR
ON	ON	BLINKING	LASER ERROR
BLINKING	OFF	BLINKING	SCANNER ERROR
BLINKING	ON	BLINKING	FAN ERROR

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