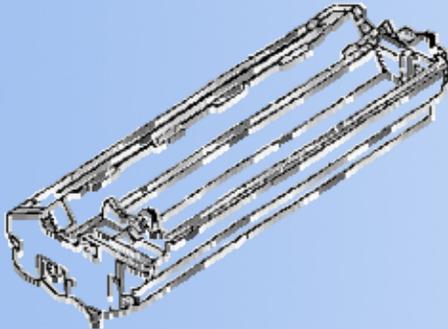


TECHNICAL DOCUMENT



- Overview
- Required Tools
- Required Supplies
- Prepare Work Area
- Disassembly
- Remove the OPC Drum
- Cleaning the Debris Cavity
- Re-Assemble the Cartridge
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- Reset procedure for all other OL series Laser Printers.
- Reset procedure for the "DOC-IT" Document Processing Systems.
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Okidata OL-400/800 OPC Cartridges

DOC-0202

OVERVIEW



These instructions cover the recycling of the Okidata OL-400/800 OPC cartridge used in LED printers, and plain paper fax machines using the Okidata OL-400/800 LED Page Printer Engine. This cartridge is somewhat unique in that the waste toner is recycled back into the supply chamber to be re-used.

The purpose of this procedure is to vacuum out toner that will have spilled inside the cartridge during shipping and/or rough handling, to clean the debris cavity, and to replace the OPC Drum with a new Long Life Replacement Drum, and Wiper Blade. This procedure should also be used to examine the internal parts of the cartridge for possible damage, or wear should the printing of the cartridge be poor and not correctable by any other means.

NOTE: The Ozone filter should be changed each time the OPC drum cartridge is recycled.

REQUIRED TOOLS



- Phillips head screw driver.
- Small Common screw driver
- Needle Nose Pliers
- Safety goggles and breathing mask.
- Vacuum approved for toner

WARNING: Always wear safety goggles and breathing mask when working with or around toner. Do not disperse the toner into the air. Use approved toner vacuums and filters at all times.

- Approved Vacuum systems:

Toner approved vacuum. The Atrix HCTV Canister Style vac. or the Atrix AAA style Portable vac. Some type of approved toner vacuuming system is important because toner consists of very fine particles that will pass right through a normal vacuum filter, and blow out the exhaust

REQUIRED SUPPLIES



- Long Life OPC Drum
- Wiper Blade
- Recovery Blade (Optional)
- Ozone Filter
- Cotton Swabs
- Isopropyl Alcohol
- Zinc Sterate Drum Padding Powder
- Scotch tape

PREPARE WORK AREA



1. Before proceeding with the following procedure you should have a work area available with approximately 4' x 3' clear space. It should be covered with some disposable paper since toner will spill on this area. It is recommended that brown craft paper be used and taped to the work area. This will hold the paper in place when trying to vacuum toner from the paper.
2. A garbage can with a strong plastic liner should be adjacent to the work area to empty used toner. It should be at least 2' deep to prevent toner from clouding up and over the top of the bag during disposal.
3. Have a few rags available and some disposable paper towels. The yellow Toner Magnet cloths are perfect for this.
4. The work area should be capable of being ventilated, if by accident toner becomes dispersed into the air. An exhaust fan in one window is recommended for ventilation.

DISASSEMBLY



1. Vacuum the outside of the cartridge thoroughly, especially the exposed Toner Hopper. Open the Hopper Cover by turning both blue levers on each side of the Hopper. Vacuum this area clean also.
 2. Place the cartridge upside down, (open section of hopper down), and remove the center Phillips head screw
 3. Turn the cartridge back over, with the hopper facing away from you. Note that there are two end caps, one on each end of the cartridge.
 4. On the right end cap, remove both Phillips head screws.
 5. Carefully remove the end cap. Note that on the front end, under the Corona Wire Assembly, there are two small gears. Draw a picture of this section showing both location and placement. Remove both gears, vacuum the end cap clean, and store the gears with the end cap until you are ready to re-assemble.
 6. Carefully remove the Corona Wire Assembly, and place aside.
 7. On the left end cap, remove the three screws and one C-ring.
 8. Carefully remove the end cap. Note that there are two small gears located in the front end of the cap, one large (may stay on the cartridge) and one small. Draw a picture of each location (The large gear fits on the shaft next to the small gear). Vacuum the end cap clean and place aside. It is a good idea to store the gears with the end cap so that there is no confusion when re-assembling.
- CAUTION:** As you remove the end cap, the cartridge will fall apart. Be very Carefully not to damage anything. Take your time and remove each piece slowly.
9. Lift off the Toner Hopper, note the location of the spring loaded bar, place a piece of scotch tape over the black plastic lever end of the bar, located on the right side of the cartridge, to hold it in place. Vacuum the assembly clean and place aside.
 10. Clean the left end cap, pay special attention to the small worm gear. The waste toner is recycled back into the supply chamber by a series of augers. See diagram #1 for a picture of the small auger.

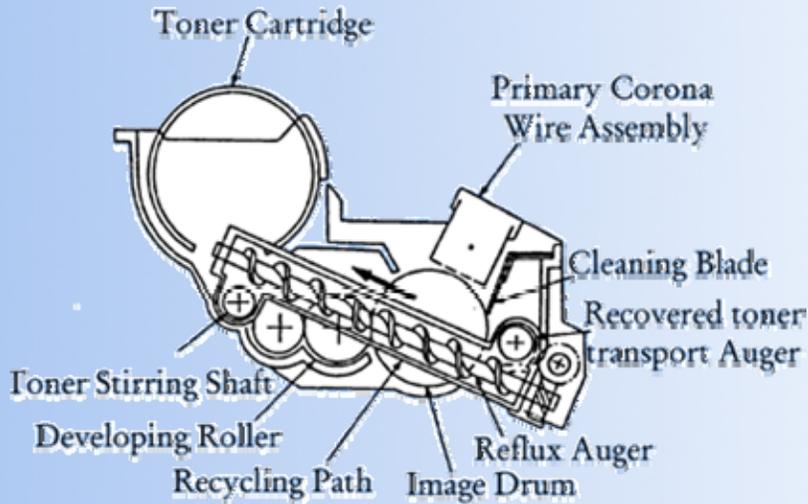


Diagram #1

11. Remove the metal plate from the Toner Feed Roller, and remove the Toner Feed Roller Assembly (two Rollers). Vacuum the plate and feed roller assembly. Be careful not to scratch the Static roller, or tear the foam roller.
12. Remove the PCB from the right side of the cartridge. Clean all the contacts with alcohol. Replace the circuit board, (make sure it is in the exact same position).

REMOVE THE OPC DRUM



1. Remove the OPC Drum, (it should be loose in the cartridge).
2. It is highly recommended that you replace the OEM OPC Drum with a new long life drum. The original OPC drum will not usually last another cycle without wearing out.

CLEANING THE DEBRIS CAVITY



Remove the two screws on either end of the Wiper Blade, and carefully pry off the wiper blade. Dump any remaining toner into the garbage and vacuum the cavity and spring thoroughly. Be careful not to lose the plastic bushing on the end of the black plastic worm gear. Before replacing the wiper blade, coat lightly with the drum padding powder. It is highly recommended that the Wiper Blade be changed each cycle.

NOTE: Be very careful not to bend or otherwise damage the small thin recovery blade located next to the Wiper Blade. If this blade is bent down lower than the height of the wiper blade, toner will accumulate on top of the blade and spill into the printer. If the blade does get bent, it should be replaced.

RE-ASSEMBLE THE CARTRIDGE



1. Coat the new OPC Drum with DPP (Zinc Sterate) and place the Drum (With the gears already installed), in the cartridge.
2. Replace the Feed roller assembly, and metal plate
3. Replace the toner hopper on the cartridge. Make sure that the spring loaded bar is still taped in its proper position.
4. **REPLACE THE LEFT END CAP FIRST.** Make sure that both of the small gears are in their proper position (on the end cap, not the cartridge). Also make sure that the plastic worm gear and the metal rod both fit into their respective holes, (the worm gear is keyed). If these rods are short, press them in from the opposite side until they fit properly. Replace the C-Ring on the metal shaft, and the three screws.
5. Take the Primary Corona Wire Assembly and clean with the Isopropyl Alcohol, and a cotton swab. Run the swab

carefully along the wire and the wire guides. Be very careful not to break this fragile wire. If there is any toner remaining in the assembly blow it off with a can of clean air. Be certain to blow away from yourself and only after all heavy signs of toner have been removed. Replace the corona wire assembly.

6. On the right end cap, place the bushing over the black plastic worm gear, note that it also is keyed, and the should be to the left of the notch that is on top of it. See diagram #2. If this bushing is not installed correctly, the cartridge will work, but you will hear a constant clicking noise. Placing the keyed part of the bushing to the right of the tab is probably the most common mistake made when doing this cartridge.

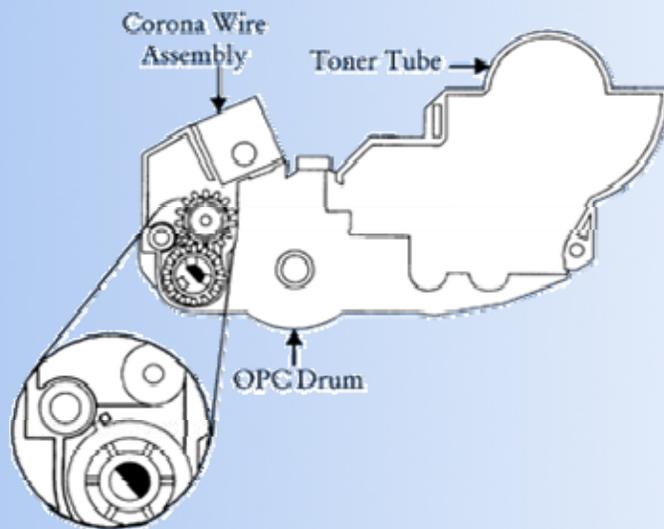


Diagram #2

7. Replace the two gears on the front two shafts, make sure that the keyed gear is on the worm gear, and that the other gear meshes with the OPC Gear. Remove the tape from the spring loaded lever, and replace the end cap. Once the end cap is fully seated, replace the two screws. This end cap can be tricky to replace. Just take your time and work the cap on until it fits snugly.
8. Turn the cartridge over and replace the center screw. Once the cartridge has been re-assembled, the last steps are to change the Ozone Filter and to reset the counter in the printer. Unlike some of the other OPC cartridges (like the Panasonic line), this cartridge has no fuse to reset the counter. Resetting the counter is done on the printer's keypad. This is done in a number of different ways, depending on the printer.

NOTE: The procedure for this is in the users manual chapter 4 and is also printed on the installation instructions for a new OPC Cartridge. Even though the printer may say to change the OPC cartridge, there is no preset page count where the printer will stop working. The message is there only as a reminder, the printer will continue to print. At this point the OPC Drum is also very close to the end of its useful life, the print quality will start to deteriorate.

RESET PROCEDURE FOR THE OKIDATA OL-800 SERIES PRINTERS



1. Turn off the printer
2. While holding the MENU1/MENU2 button down, turn the printer back on. Keep holding the button down until you see "MAINTENANCE MODE" on the display panel. Release the button.
3. Press the MENU1/MENU2 button three times. The display will read "DRUM COUNT RESET".
4. Press the ENTER/QUIET button. The display will read "DRUM COUNT RESET RESETTING", then "INITIALIZING", then "WARMING UP", and finally "ON LINE". The counter is reset!

RESET PROCEDURE FOR ALL OTHER OL SERIES LASER PRINTERS



1. Turn the printer off.
2. Press and hold the RESET button (not the Menu Reset), and turn the printer on. Hold the button down until you see "DRUM RESET" on the display. Release the button.
3. Run a self test. Turn the printer off-line and press the PRINT FONT/SELF TEST button once and release. The printer will print out a page with the installed fonts, and the page count of the printer. The counter is reset!

RESET PROCEDURE FOR THE "DOC-IT" DOCUMENT PROCESSING SYSTEMS



1. Turn the DOC-IT on, and re-initialize it: either re-boot the computer, or type DOCIT at the DOS prompt and press enter.
2. Press and hold the ENTER key for 3 seconds, when you release it you should see "Administration" on the display.
3. Press the down arrow key until you see: Reset drum ctr? YES 3NO
4. Press the left arrow key to move the check mark next to "YES". Then press ENTER.
5. Press any key to leave the Administration menu.

CHANGE THE OZONE FILTER



1. Pry off the filter housing. This is located next to where the power cord plugs into the printer. (Pry off from slit next to housing.)
2. Discard the old filter and replace with the new one.
3. Replace the filter housing. Press in top end first.

TESTING THE CARTRIDGE



Before taking any test prints, there are a few items in the printer that should be checked to ensure optimum print quality. If these items in the printer are not maintained, they could cause print defects that may be incorrectly blamed on the OPC or toner cartridge.

Transfer Corona Wire Assembly; In the base of the printer, there is the Transfer Corona wire assembly. The Corona wire is a very thin wire that runs straight across from left to right. This wire should be cleaned with a cotton swab, slightly dampened with alcohol. If this wire is dirty, the print outs will either be light, or have blank vertical stripes.

LED HEAD: This printer engine is not an actual laser engine but an LED (Light emitting diode) engine. A series of small LED's (2560), individually fire light from the head assembly to the OPC drum. This head must be clean, or light printing/ white lines, will occur. The LED HEAD should be cleaned with the tool supplied in the printer.

LED HEAD Contacts: The Small brass contacts that feed the LED Head are also very important to keep clean. They should be cleaned with a cotton swab slightly dampened with alcohol.

FUSER ROLLERS: The fuser rollers should be examined for any cuts or marks. The upper roller can be cleaned with a soft cloth dampened with water. The lower roller should not be cleaned in the field.

Normally you would set the intensity to the darkest setting, before taking any test prints, but the Okidata OL-400/800 engine does not have any type of user accessible intensity adjustment. The only way to adjust the intensity on these machines is by a qualified service technician, through a circuit board inside the printer, or through the printer driver in the software. To run a test print use the following procedure:

Press the On-Line button Press the PRINT FONTS/ SELF TEST button, two pages of text will print out.

TROUBLE SHOOTING



Once you have the print out's, they need to be examined to determine possible cartridge defects. In general, any marks on the paper that shouldn't be there indicate a problem. You should also examine print areas for abnormalities such as light print, poor black fills and print inconsistencies.

Some of the more common OPC cartridge problems are:

- A Bad Drum Ground will result in a black or gray bar across the top of the page, usually 1" thick. An extremely bad connection will show up as a solid black bar across the top with no text printed. A poor connection will show up as a

gray bar across the top with the rest of the page printed as normal. This problem has been known to occur in new OEM cartridges as well as rebuilt cartridges. The cause of this problem is a bad contact in the drum ground circuit. This is usually located at (but not limited to) the contact gear in the OPC Drum. If the drum you are using came without gears, it is very important to lightly sand the inside of the OPC drum on the contact gear side. It is also very important not to get any glue on the contacts as this will insulate the gear from the drum. If the gear contacts are OK, check the connections to the circuit board in the end cap. If any of these contact points are not good, you will get a shaded bar across the page every time. For more information on Drum Gear removal and replacement, see document # 4019 on our Fax on Demand System, or WEB site.

- A Scratched drum will show up as a very thin, perfectly straight line that runs from the top to the bottom of the test page.
- A Chipped drum will result in a dot or series of dots that repeat 3 times per page. Any drum defects will repeat 3 times per page based on the drum circumference of 3.71".
- A Light damaged drum will show up as a shaded area on the test print that should be white. Again this will repeat 3 times per page.
- A Bad wiper blade will result in vertical gray lines down the page, or as shading across the entire page. In either case there will be a film of toner on the drum surface.
- A Dirty Primary Corona Wire will show up as a random dark black streak down the page.

CARTRIDGE PRINTING THEORY



See the diagram on the last page of this manual

The OPC and toner cartridge printing process is best explained as a series of steps, or stages. In the first stage, the Primary Corona Wire places a uniform negative 700 volt DC voltage on the OPC drum surface. This process is called conditioning.

In the second stage, (also called the imaging section), the light from the LED Head will discharge this DC voltage to ground. The areas that are discharged, will leave a latent electrostatic image on the drum. The OPC drum's circumference is 3.71" or approximately 1/3 of a page and therefore makes three revolutions for each 11" printed page.

The third 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 first fed from the toner cartridge, into the supply chamber of the OPC cartridge. It is then fed to the static roller by the feed roller which has a negative 550vdc bias voltage placed on it. The toner is held to the Static roller by a negative 400 Vdc bias voltage. As the feed roller rotates, it rubs against the static roller, and a friction charge is generated allowing the toner to be attracted to the static roller. The amount of toner on the static roller is controlled by the Doctor blade. This blade also causes a static charge to build up on the toner which helps keep the coating of toner even, and allows easy transfer to the OPC drum.

As the LED light exposed areas of the OPC drum approach the Static 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. This image is then transferred to the paper as it passes below the drum by the transfer corona wire, 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 image is then fused on to the paper by the fuser assembly, which is comprised of the upper and lower fuser rollers. The lower fuser roller presses the page up into the upper fuser roller which then melts the toner into the paper.

The fourth stage is where the OPC drum is cleaned. On average, approximately 90% of the toner is transferred to the paper during the print cycle. The remaining 10% remains on the OPC drum and is cleaned off the Drum by the wiper blade, and guided into the waste chamber by the recovery blade. At this point the waste toner is recycled back into the supply chamber by the large recovery auger, (located just under the wiper blade), and the small recovery auger (located in the left side of the cartridge)

The OPC drum is now ready to be Conditioned by the Primary Corona Wire and start the print cycle again.

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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 0x2de8 Thread 0x1ee4 DBC 0x3f3b014 Jet'.

