TECHNICAL DOCUMENT

Canon NX Toner Cartridges

DOC-0190

These instructions cover the disassembly of the NX toner cartridge, which is most commonly used in the HP3Si, and 4Si. Both of these machines print at 17ppm. The biggest difference between the two is that the 4Si is a 600 dpi printer where the 3Si is a 300 dpi printer. They other major differences are that the 4Si has an improved power supply that is less susceptible to background shading, and the fuser assembly in the 4Si runs at a different temperature than the 3Si. This fuser difference is only important when building cartridges with MICR toner in them. Both the 3Si and 4Si have separate MICR toners. The regular black toner is universal and will work equally well in both machines.

The purpose of this disassembly 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 fill the toner supply housing with new toner. The disassembly can also be used to examine the internal parts of the cartridge for possible damage should the printing of the cartridge be poor and not correctable by other means.

Due to recent changes made to the OEM cartridges in the seal technology being used, it is now recommended that if a seal is required, the Supply Hopper should be split. The cartridges now being manufactured use a “tear off” type gasket seal. This type of seal makes it virtually impossible to insert any type of seal without causing a leak. Inserting any type of card or tool in these cartridges, will catch on either the remainder of the OEM seal or the gray foam of the magnetic roller section. Once either of these is torn, toner will leak out of the cartridge. In addition to the new seal, there is also now a plastic tab that interferes with the inserting of any type of rigid material.

The following are a few of the advantages in splitting the hopper.

You get a perfect seal every time.

1. If the gray foam seal on the bottom of the magnetic roller section is torn from inserting card seals, you have access to replace it.

2. On the second and subsequent recharges, the magnetic roller does not have to be removed when refilling the hopper, this will greatly improve the speed of your process.

3. These instructions are written to be as complete as possible to enable anyone from a novice to an expert to successfully recycle this cartridge.

   This procedure should be read in it’s entirety before proceeding with the actual recycling process.

REQUIRED TOOLS

The tools needed to successfully and safely recharge toner cartridges are as follows:

1. Toner approved vacuum. The Atrix HCTV canister type toner vac, OR the Atrix AAA portable style vacuum.

2. 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, creating a real mess.

3. A small screw driver (Common Style)

4. A Phillips head screwdriver with removable tips

5. Needle-nose pliers
6. Pin Pulling Pliers (PP-3) or PP-900 Screw Starter
7. Cartridge splitting machine
   OR
8. Sturdy knife if splitting by hand (a clam shucking knife works great!)

SUPPLIES REQUIRED

1. Black Toner (9741, 9040I)
2. Sealing strip (SS-NX, SS-NXOP)
3. Insertion tool (IT-3) [Required if using SS-NXOP only]
4. Sealing Strip (Adhesive split hopper type) [SHS-NX]
5. Split Hopper clips (4mm) [SHS-CLIP]
6. Magnetic roller section foam (SHS-FOAM)
7. New magnetic Roller Sleeve (MRS_SX)
8. New doctor Blade (DB-NX)
9. Black Poly Bag
10. Long Life Drum
11. Wiper Blade (WB-NX)
12. New Primary Charge Roller (PCR)
13. 99% Isopropyl alcohol (FR-8)
14. Cotton Swabs (CT-100)
15. Lint free cotton pads (PW-96)
16. Nu-Finish car polish
17. Toner Cloths (TM-40)
18. Kynar Drum Padding Powder (DPP-K)
19. Recovery Blade (RB-NX) [Optional]

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. An empty 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. 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.

If the circulation of air in the work area room is combined with other rooms in the building, toner dust may be carried into the other rooms. A separate and isolated HVAC system is recommended for the work area room.

DISASSEMBLY

1. Vacuum the exterior of the cartridge.

2. Place the cartridge with the narrow side toward you. Remove the two (2) plastic pins. One pin is on either end of the cartridge. The pins can be removed by either screwing the PP-900 screw extractor into the center of the pin and pulling the pin out with a slight twisting motion, or by using the PP-3 Pin Pulling Pliers.

3. Which ever tool you use, continuously twist the tool in a clockwise direction as you pull the pin out. This will help prevent the pins from breaking.

4. Remove the three Phillips head screws, one large, one small from the right side, and one large from the left side. Remove the plastic bushings from both large screw holes, (one from each side).

5. Locate the release Bar in the front center of the cartridge. Carefully pry the bar up and remove the Housing Shell from the rest of the cartridge. Vacuum the shell and hold to the side for later re-assembly.

Separate Debris Cavity, Drum And Toner Supply

1. Remove the two springs, one on either end of the assembly. The smaller spring is on the right, and the larger on the left side.

2. Remove the plastic pin on the right side of the assembly located at center bottom, (this pin holds both halves together while allowing them to move as if hinged). This pin can easily be removed by screwing either the PP-900 screw starter, or inserting the PP-3 Pin Pulling Pliers into the center of the pin and then prying it out.

3. Hold the assembly off the table with left and right hands, left hand on Debris Cavity and right hand on Toner Supply Area. Twist and pivot down and separate into two pieces. 1) Debris Cavity + Drum —2) Toner Supply Area. The two pieces are held together with interlocking and pivoting tabs only.

Remove Photoconductive Drum

1. Place Debris Cavity + Drum section face down with the small helical gear to the right side. Remove the Phillips head screw on the right side of the assembly. Remove the metal pin that was held in by the screw, (this pin has a long metal bar attached to it).

2. Hold the OPC Drum dust cover back and remove the Photoconductive Drum, being extremely careful not to scratch it. Vacuum any toner and debris from drum, being very careful not to come into contact with the drum surface. Do not polish or wipe the drum with a dry cloth, since this may scratch the drum. Blow off any remaining dust from the Drum using a can of compressed clean air. Never use un-filtered compressed air for this, as un-filtered air will have small dirt particles which blown at high speeds will damage the drum.

   If the Drum is OEM, we do not recommend that it be re-used. It should be replaced with a long life drum. The above and following procedures are if you are re-using a long life drum.

   CAUTION: Be very careful not to tilt or shake the can while spraying, as the propellant may spray out of the can and possibly ruin the drum.

3. Place the Long Life Photo-conductive Drum in a soft lint free cloth and then into a Foil bag or cover from bright light by some other suitable means. Again, do not rub or wipe the Photoconductive Drum with a dry cloth as this may scratch its surface. If there is any matter on the drum that must be cleaned off, use 99% pure Isopropyl alcohol and a soft lint free cotton pad to lightly wipe the drum surface. Always handle the Photoconductive Drum with the utmost caution, since if damaged it is costly to replace.

Cleaning The Debris Cavity

The easiest way to clean out the Debris Cavity is to first remove the Primary Charge Roller (PCR) Assembly.

1. Place the Debris Cavity upside down with the white clip on the left. Remove the white clip by gently squeezing the small clips in toward each other, and prying the entire clip assembly out. Remove the entirePCR Assembly, and place aside.

2. Remove the two screws holding the wiper blade down, and carefully pry up the wiper blade. Dump any toner into the garbage and Vacuum thoroughly. Replace the Wiper Blade with a new one. Due to the nature of this cartridge it is recommended that the Wiper Blade and Drum be replaced every cycle. Coat the drum lightly with the Kynar Drum Padding Powder (DPP-K).

   NOTE: Make sure that the thin Mylar blade (Recovery Blade) next to the wiper blade is not bent down lower than the wiper blade. If this blade is not at the proper height,(equal to the wiper blade) toner will spill into the printer. If the blade is bent down, it is best to replace it with a new recovery Blade (RB-NX).

3. Carefully remove the Primary Charge Roller (PCR). This is a small rubber roller with metal contacts on both ends.
   If the PCR is an OEM, it must be replaced. Most after market rollers will go at least 2 cycles. Clean the after market roller as per the manufacturers instructions. If you are not sure who the manufacturer is, replace the roller with a new

one.

4. Clean the U-Shaped PCR holders with a cotton swab, and alcohol.

SPLITTING, SEALING, AND FILLING THE HOPPER

The toner supply housing consists of the toner supply, magnetic roller and doctor blade which mounts directly above the magnetic roller.

1. Before cleaning the toner supply, first rotate the magnetic roller by hand and observe the layer of toner applied to the magnetic roller. The toner should form an even consistent layer of toner with no clumps or lumps showing. Should the layer of toner be thicker in some areas the magnetic roller should be cleaned using 99% pure Isopropyl alcohol. Always remove the roller for cleaning and make sure it is completely dry before re-installing it.

2. Remove the 1 1/4" fill plug on the end of the Toner Supply Housing. Dump the toner out of this housing and save or discard as desired. Vacuum the outside of the housing and the magnetic roller. Turn the metal roller a few times to vacuum all sides of the roller. Inserting the vacuum end up to the 1 1/4" fill hole while turning the magnetic roller aids in complete toner removal.

   NOTE: There is no need to remove the gear box, the fill plug can be removed, and replaced without touching it. If you wish to remove the gear box, press in on the two tabs located on the back of the box. When re-installing the box, make sure that the white gears line up and mesh.

3. Insert the SS-NX plastic sealing strip into the end of the Toner Supply Housing. Push all the way in and be certain good contact is made with the far end of the housing. The sealing strip should seat approximately 1/4" into the far end of the housing. Check the proper seating by feeling into the end of the housing using your index finger. Also make sure that the seal is kept tight against the back edge of the cartridge (opposite the doctor blade).

4. If you are using the SS-NXOP, or the SS-NXH, follow the instructions that came with your system, or tool.

5. Fill the toner bottle cap with toner, this will be used for the test after the cartridge has been completed.

6. Pour the rest of the new toner into the fill hole, and replace the fill hole cap. Make sure that the cap is fully seated, and that there are no leaks.

7. Take the cap full of toner and pour a 1/4" bead down the length of the Magnetic Roller. Turn the roller by the small white gear until the entire roller is coated. This will give you just enough to print 3-4 pages.

8. If it is necessary to replace the Magnetic Roller Sleeve, carefully push the stationary magnet from the side opposite the white cap until the cap is free. The stationary magnet can now be installed in the new sleeve, and the end white cap replaced. It is very important that there be a good electrical contact between the wire in the white cap, and the inside of the magnetic roller sleeve. In our testing, we have found that for consistent blacks, it is best to replace the MRS and Doctor Blades with new ones.

NOTE: If you are splitting the hopper, follow steps 7.7 through 7.16, if you are NOT going to split the hopper, skip to step 7.17

There are several options to splitting NX Supply Hoppers. The hoppers can be split by hand, but it is a tricky process that can easily damage the cartridge. For this cartridge, it is highly recommended that you purchase a splitter. There are many types of splitters on the market. All of the splitters we have tested work equally well. If you have a splitter, follow the instructions for splitting provided by the manufacturer.

9. To split an NX by hand, take either a sturdy knife, or screwdriver and insert it into the seam of the hopper. Gently pry up and move the knife along the length of the hopper. Do this to all sides until both halves are separated. Be very careful not to break the square alignment pin on the upper half.

   NOTE: To help avoid injury when using a knife to spit the hopper, make sure you keep the blade facing away from you, and that you work away from yourself. If you slip and cut into the hopper section, it must be replaced.
10. Inspect the end foams on the bottom of the upper magnetic roller section. If they appear worn or are damaged in any way, they should be replaced with a new foam gasket.
11. Clean the seal area with the Acetone or alcohol. Clean both the top of the supply, and the bottom of the magnetic roller section. (Do not clean the foam on the upper magnetic roller section)
12. If the OEM foam ends are in good shape, install two foam strips along the edges so that they fit between the OEM foams. This will prevent any leakage once the seal has been removed.
13. Remove the adhesive liner and place the seal on the top of the toner hopper. Make sure that the seal is perfectly flat, and that there are no gaps.
14. Fill the hopper with toner, replace the fill plug and check for any leaks. (Remember to save some for post testing. We normally fill the toner bottle cap 1/2 way and place it aside). If you are using a new jumbo hopper, these normally come pre-sealed. Fill the hopper with the desired amount of toner.
15. Align the top to the bottom by lining up the plastic pins with the alignment holes.
16. Take 10 of the 4mm metal clips, Press five on each side, one on each end and three in the middle.
17. Replace the End Caps on the Magnetic Roller Sleeve with new ones. The OEM caps will crack and tear the coating off of the OPC drum.
18. Clean the contact spring of the magnetic roller, and the contact-side end cap with the alcohol. Re-install the Doctor Blade, Magnetic Roller Assembly, Assembly end caps, and gear box. Spin the roller a few times to make sure all is aligned properly. Take the cap full of toner and sprinkle a 1/4 bead along the back edge of the roller. Spin the roller until the entire roller is covered evenly with toner. This coating is just enough to run 4-5 test pages with little or no toner in the Waste Chamber.

19. If you are using a Seal Tab, attach it to the end of the seal. During the next recharge on this cartridge, remove the 10 clips, peel off the old seal, and replace it. There is no need to replace the FOAM ends or strips.
    Skip to section 8.1

If your hopper has not been split, follow steps 10-19

20. Insert the seal into the Toner supply Chamber. Make sure that it seats properly in the opposite end of the cartridge. Some of the newer cartridges have plastic tabs that block the seal entrance. These tabs should be cut off with a flat piece of metal.

In cartridges where the seal does not slide in easily, we recommend that you do NOT use any seal at all. Forcing a seal in will tear the foam seals, or remainder of the OEM seal, and the cartridge will leak
If you are using the SS-NXOP, follow the instructions that came with the tool.

21. Fill the toner supply through the fill hole.

22. Fill the toner bottle cap with toner, this will be used for the test after the cartridge has been completed.

Take the cap full of toner and pour a 1/4" bead down the length of the Magnetic Roller. Turn the roller by the small white gear until the entire roller is coated. This will give you just enough to print 3-4 pages.

Re-assemble Toner Supply Housing, OPC Drum And Debris Cavity

1. Coat the OPC Drum lightly with the Kynar Drum Padding Powder (DPP-K).

2. Replace the Long Life OPC drum into the debris cavity being extremely careful not to scratch or damage the OPC drum. Note that there are two differenttypes of gears on the OPC drum, a small helical, and a large helical. The small helical gear side is inserted to the right side, (where the metal axle pin & bar were located). Make sure you insert the OPC drum in the proper direction. Be certain the gears between the drum and cavity are meshed properly. Install the metal Axle Pin but do not install the screws yet.

3. Spin the drum manually counter clockwise, to make sure that it is properly lubricated. Remove the both the Axle pin, and OPC drum, install the PCR Assembly.

4. Re-install the OPC drum. Insert the metal Axle pins and Phillips head screws

5. By installing the above items in this order, you will keep from contaminating the PCR with any excess Kynar

6. Re-assemble the two halves as the reverse of steps of Separate Debris Cavity, Drum and Toner Supply.section. Replace the plastic Hinge pin and the two springs.

Replace Assembly Into Housing Shell

1. Insert the Debris Cavity, Drum, Toner Supply Housing assembly into the housing shell by inserting the left side first when the Debris Cavity is facing yourself.

2. Insert the 2 plastic pins, one on either end of the cartridge, and the 3 Phillips head screws,(make sure that you replace the plastic bushings in the large screw holes before replacing the screws.

   HINT: The plastic pins can be pushed in partway in by hand, and then pushed the rest of the way by using a T-10 Torx bit on the screwdriver handle or #2 Phillips screwdriver as a convenient push tool.

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 0x3464 Thread 0x29b8 DBC 0x8437024 Jet'.

/script/catSearch.asp, line 58