



TECHNICAL DOCUMENT

Disassembly Instructions

EPS (SX Style) Toner Cartridges

These instructions cover the disassembly of the EPS (SX style) toner cartridges. The EPS toner cartridge is one the most popular and widely used "All in one" style toner cartridges ever produced. It is used in the HP II, IID, III, IIID, Apple Laserwriter IINT series, and hundreds of other printers. The HP part number is the 92295A, The Apple part number is M6002. Most of the printers are rated at 300dpi, 8 pages per minute, (PPM). Some printer manufacturers have boosted the page speed to 10PPM, and as high as 800 DPI.

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.

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

- 1) You get a perfect seal every time.
- 2) 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.
- 3) The lower toner hopper section can be replaced with a new JUMBO HOPPER, capable of holding up to 275 grams of toner! This will allow you to not only build a high yield cartridge, it can now be done with a good seal installed!

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

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.

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) The Atrix HCTV shop-vac style vacuum, or the Atrix AAA portable style vacuum.

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.

- 2) A small screw driver (Common Style)
- 3) A Phillips head screwdriver with removable tips
- 4) Needle-nose pliers
- 5) Pin Pulling Pliers (PP-3) or PP-900 Screw Starter

EPS (SX Style) Toner Cartridges (Continued)

6) Cartridge splitting machine. (Talk to your sales rep. for suggested systems)

Supplies Needed

- 1) SX Toner.
- 2) Felt wand
- 3) Sealing Strip (Adhesive split hopper type) [SHS-SX]
- 4) Split Hopper clips (4mm) [SHS-CLIP]
- 5) Magnetic roller section foam (Full gasket or strips) -see text [SHS-FOAM,SHS-GSSX]
- 6) 275 gram capacity jumbo toner hopper (optional) [SHS-SX-HOP]
- 7) Black Poly bag
- 6) Wiper Blade (WB-SX)
- 7) Long Life OPC Drum
- 8) Recovery blade (RB-SX) [Optional]
- 9) Replacement case pins (PinSX-100) [Optional]
- 10) Replacement Magnetic Roller Sleeve (MRS-SX) [Optional]
- 11) Replacement Toner Fill Plugs (Plug-SX) [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 upside down. Remove the four (4) plastic pins. Two pins are 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.

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. If the pins are worn out or damaged they can be replaced with our part # (PinSX-100).

- 3) Turn the cartridge so the Debris Cavity is facing you, The debris cavity is the section that on older cartridge, has a label on it, the new are cartridges are printed directly in the plastic shell. In the older style cartridges, there are two interlocking clips located under this label toward the right and left sides of the label. The location can be felt using your thumbs. You will feel a 1/4" hole and the clip is located in this hole. In the newer cartridges, the holes are visible. Insert a small screw driver between the cartridge shell and debris cavity, and gently pry them apart to separate the two sections. Pry easily so you do not damage the interlocking clips. **It is also a good idea to remove the small triangle plastic piece that fits around the sealing strip opening (right side of the cartridge).**

EPS (SX Style) Toner Cartridges (Continued)

4) Remove the entire assembly consisting of the Debris Cavity, Photo-conductive Drum and Toner Supply Area in one piece from the Housing Shell. 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. (One end of one spring will stay attached to the cartridge).
- 2) Remove the plastic pin on the left 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 pulling 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 Photo-conductive drum

- 1) Place Debris Cavity + Drum section face down with drum cover facing up. Remove the Phillips head screw on the large metal axle pin. Remove the metal axle pin. The remaining axle pin has a tear-drop shape and can be made of either metal or plastic.
- 2) Hold the OPC Drum dust cover back and remove the Photo-conductive 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 unfiltered compressed air for this, as unfiltered air will have small dirt particles which blown at high speeds will damage the 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 Photo-conductive Drum in a soft lint free cloth and then into a dark colored bag or cover from bright light by some other suitable means. Again, do not rub or wipe the Photo-conductive 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. Vacuum and then blow off the Drum using compressed clean air. Always handle the Photo-conductive Drum with the utmost caution, since if damaged it is very costly to replace.

It is best to wait until you are ready to re-assemble the cartridge before cleaning the drum with alcohol.

Cleaning The Debris Cavity

The easiest way to clean out the Debris Cavity is to first remove the corona wire assembly.

- 1) Place the Debris Cavity upside down with the remaining spring on the left, and the white plastic part of the corona wire assembly to the right. Gently press the white end of the assembly to the left until a small white pin becomes visible. Pull the right side out, and gently work the left side out by pulling it straight out from the three small pins. Be very careful not to break any of these pins especially the black one, which is very fragile.
- 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. Check the Wiper Blade for any damage to the edge, and for proper color. The rubber section of the blade should be clear, or slightly yellow in color. If the blade is a deep yellow, or orange it should be replaced. If you are going to replace the OEM OPC drum with a long life drum, the wiper blade should be replaced regardless of it's color. Before replacing the Wiper Blade, wipe it off with a Toner Magnet, and coat lightly with the Drum Padding Powder.

EPS (SX Style) Toner Cartridges (Continued)

NOTE: Be very careful not to bend the small thin Guide Blade next to the Wiper Blade. If this blade is bent down lower than the height of the wiper blade, toner will leak out of the cartridge into the printer. If this blade is damaged, it should be replaced with our part# (RB-SX).

3) The corona wire should be cleaned by using Film Remover and a Cotton Swab carefully running it along the wire and wire guide, being very careful not to break this fragile wire. Then a can of clean air should be used to blow any dust or toner left on the wire. Be certain to blow away from yourself and only after all heavy signs of toner have been removed. Always wear and use Eye and Breathing protective apparatus. Replace the corona wire assembly by reversing step 6.1.

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. The space between the magnetic roller and doctor blade is 0.010" and controls the thickness of the toner applied to the roller. The doctor blade has nylon spacers at each end which insures a proper gap setting. If this blade is removed and then re-installed the nylon spacers must be held in contact with the magnetic roller sleeve when tightening the screws holding the doctor blade in place. If the Spacer is worn or missing, use part # GG-5 to set the proper gapping distance (0.010").

Before cleaning the toner supply, first rotate the magnetic roller sleeve 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 sleeve 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. See the General Disassembly Procedure for proper cleaning, and handling of the magnetic roller sleeve. If the Magnetic roller sleeve has become damaged, or worn out, it should be replaced with our part# MRS-SX.

1) 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: Placing the toner funnel on the end of the vacuum hose greatly enhances the cleaning process.

NOTE: The magnetic roller assembly **MUST BE REMOVED** when splitting the cartridge for the first time. This will prevent damage to the magnetic roller, and will help prevent the upper magnetic roller section from warping.

2) Remove the two screws that hold the gear housing cover on the right side of the cartridge. Be very careful not to damage any of the pins on this cover when it is being removed. All loose gears must be removed at this time.

3) To remove the magnetic roller, first remove the two end caps, and Doctor Blade. Carefully lift the roller out of the cartridge. Be very careful not to damage the roller or to damage the copper contact at the opposite end of the roller.

4) Vacuum the Toner Supply Chamber thoroughly.

5) 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.

NOTE: If you are splitting the hopper, follow steps 7.6 through 7.16, if you are NOT going to split the hopper, skip to step 7.17

There are several options to splitting SX 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.

6) To split an SX 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.

EPS (SX Style) Toner Cartridges (Continued)

NOTE: To help avoid injury when using a knife to split 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.

7) 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.

8) 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)

9) If the OEM end foams are damaged, they should be replaced with a full 4 sided foam gasket. When using this gasket, the foam strips are not needed. Make sure you remove all of the old foam before installing the new gasket. 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.

NOTE: If you are upgrading the cartridge using a new Jumbo high capacity hopper, skip to section 7.11.

10) 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.

11) 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.

12) Align the top to the bottom by lining up the plastic pins with the alignment holes.

13) Take 10 of the 4mm metal clips, Press five on each side, one on each end and one in the middle.

14) 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.

15) 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 gears. 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.

16) 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 7.17-7.18

17) If you are NOT Splitting the hopper, insert the SS-SX 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.

NOTE: Summit also has available OEM type sealing strips for the SX type cartridge. These strips are similar to the original new cartridge seal. The SS-SXOP seal is approved for all types of shipping, and should be used if rough handling is a possibility. This seal also needs the IT-2 insertion tool. See document # 1030 for more information on how to insert these seals.

Hint: For easy insertion of the SS-SX sealing strip, first dip the end of the strip into a little SX type toner. This toner will act as a lubricant between the foam pad and sealing strip.

18) Pour 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. If the cap is leaking, it should be replaced with part # Plug-SX.

Re-assemble Toner Supply Housing, Drum & Debris Cavity

1) Coat the OPC Drum lightly with the DPP Drum Padding Powder.

2) Replace the OPC drum into the debris cavity being extremely careful not to scratch or damage the OPC drum. Note that there are two different types of gears on the OPC drum and in the cartridge, helical and straight. Make

EPS (SX Style) Toner Cartridges (Continued)

sure you insert the OPC drum in the proper direction. Be certain the gears between the drum and cavity are meshed properly. Insert the metal pins and Phillips head screws. Spin the OPC drum a few times in the proper direction (toward the debris cavity), to make sure that the wiper blade and OPC drum are properly lubricated with the DPP Drum Padding Powder.

If you are replacing the OEM OPC Drum with a long life drum (Drum-SXG), coat this drum with the DPP also. Remember, the Wiper Blade should have already been replaced.

3) Re-assemble the two halves as the reverse of step 2.3. 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 4 plastic pins, two on either end of the cartridge.

3) When transporting the cartridge it is best to keep the toner supply area facing down and the debris cavity facing up. This is the normal position the cartridge is in when placed in its original box with the lettering in its normal vertical position.

4) Re-felt or replace the felt wand. This wand is separate from the toner cartridge, it fits into the printer in the fuser assembly. A new cartridge comes complete with a new wand.