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Canon® LBP-BX/BXII (4V)

The BXII cartridge pictured above has been painted gray for better visibility.

About the Cartridge

The BX engine and cartridge were first introduced with the QMS® 860 printer. When the BXII engine was introduced with the QMS 1660 and Hewlett Packard® LaserJet® 4V, (HP or 4V respectively) the physical design of the cartridge stayed the same, but drum and toner were upgraded to accommodate the enhanced resolution, higher print speed and the Power Save option of the new engine. Interestingly, since the introduction of the BXII engine, QMS has made the BXII cartridge a standard for both of their BX- and BXII-based printers. Customers who order OEM replacement cartridges for their QMS 860 printers actually get a BXII cartridge.

The BX and BXII cartridges are essentially the same cartridge and therefore use the same remanufacturing processes and components with the exception of toner formulation. BXII printers require a dedicated BXII toner formulation while BX printers can use either BX or BXII toner. (See page 3, *BX and BXII Toner Compatibility* for for more information.)

The BX/BXII cartridge is most similar in design to the LX (IIP) cartridge, but of a larger tabloid size. The cartridge sections are held together by two cartridge pins and a spring. The pins are easily removed using a pair of sidecutters, separating the waste bin and toner hopper sections.

The **waste bin section** houses the drum, PCR, wiper blade and recovery blade assembly. The **drum** used in the original BX (QMS 860) cartridge was a green SX-style without a vibration dampener (aluminum slug). With the BXII cartridge, the drum was upgraded to a gray NX-style drum that included a vibration dampener.

The BXII **PCR** is somewhat unique in that it has a black conductive cap installed on one end of the shaft. The cap is used to aid conductivity between the PCR and electrical contact in the waste bin section. Like other Canon PCRs, the BX/BXII PCR is highly suspectible to wear and exhibits print problems in low humidity conditions. To maximize performance and longevity, we recommend recoating the PCR after the OEM cycle. Recoated PCRs are guaranteed for five remanufacturing cycles, and can be recoated an additional two times after the initial recoating for a total of 15 cycles. *(See page 3 for more information)*

The **wiper blade** features a layer of foam installed on the stamping, and an additional washer used with one of the mounting screws. For best performance, we recommend replacing the wiper blade each time you replace the drum.

The mylar **recovery blade** is mounted to a metal stamping that is secured to the waste bin section with two screws. Damaged blades can be replaced by removing the entire assembly or only the recovery blade.

continued on the next page

Remanufacturing Information

Estimated Remanufacturing Time	15-30 mins.
Sug. Remanufactured Cartridge Price	$109 -$139
Toner Weight	340 (BX) or 400 (BXII)
Toner Class	Microfine
Recommended Test Printer	HP LaserJet® 4V

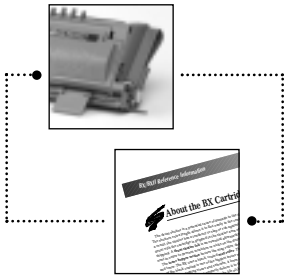


Table of Contents

Publication Price $39.95

About the BX Cartridge

The drum shutter is a potential cause of damage to the drum. The shutter's extra length allows it to flex easily in the center. As a result, the shutter has a tendency to slap or rub against the drum when the cartridge is gripped in the shutter area or during shipping. A **drum shutter felt** is an essential aftermarket component in order to prevent scratches or nicks on the drum.

The **toner hopper section** houses the mag roller, doctor blade and toner. The BX uses a black, coated **mag roller**. The wear factor of the black coating is one of the biggest issues with this component. As the coating wears and smooths, it loses it's ability to uniformly charge toner and properly deliver it to the OPC. The result is lighter and lighter print over the life of the mag roller.

Once the coating is worn, neither stripping nor liquid treatments can restore the vital imaging properties of the mag roller. Our research has found that the only reliable method for attaining consistent mag roller performance is to completely resurface and recoat the sleeve. Static Control's mag roller recoating program is projected to be available in the latter part of 1996.

The **doctor blade** uses plastic wipers installed at each end of the stamping that contact the mag roller sleeve. When replacing the doctor blade, remove the wipers and install them on the replacement blade. Doctor blade sealing foam, now available from Static Control, is installed to the hopper body to prevent leakage from underneath the doctor blade stamping.

Toner formulation is the key distinguishing factor between the BX and BXII cartridges. The BXII toner is formulated for the faster speed (16 ppm), higher resolution and PowerSave™ features of the BXII engine and can be used in either BXII or BX cartridges. BX toner, however, is formulated exclusively for the BX application. The traditional BX cartridge uses 340 grams of toner, while the BXII uses 400 grams.

The hopper is sealed using a **gasket sealing assembly** similar to the seal used in the LX (IIP) cartridge. Note that this seal is not a "lay in" type of seal. The rear edge of the gasket is anchored in a groove at the rear of the seal channel. Sealing the hopper requires removal of the seal channel plug, toner low sensor bar and mag roller felts. The key to a secure seal and leakage prevention is removing the OEM seal filament material. All installation tools, cleaning tools and replacement items are included in the BX/BXII Gasket Sealing Assembly Installation Kit. *An overview of the sealing process is included with the remanufacturing instructions in this manual on page 38.*

BX and BXII Toner Compatibility

BX MicroGraphics 1 toner should be used exclusively with BX (QMS 860) applications. The BX MicroGraphics 1 toner is not formulated to meet the demands of the faster print speed, higher

Cartridge Information

	QMS 860 (BX)	QMS 1660E (BXII)	HP LaserJet 4V/4MV (BXII)
OEM Part Number	Canon EP-B	Canon EP-BII	C3900A
OEM Published Yield[1]	7,500 pages	7,500 pages (4% coverage)	8,100 pages
Price (Retail, as of June/July 1996)	$199.00	$206.00	$206.00

[1] *Yield is based on 5% page coverage, letter size pages unless noted otherwise.*

Printer Compatibility

BX
Accel-Writer 8100
Acorn Graphtex 400
Apple Laserwriter Select 350
Birmy Graphics Powerimage 11/17, XL 11/17
Brother HL-8PSJ/HP-PSJ
Calcomp CCL600/XF/ES
Canon LBP-AX/BX
Daikin Industries Comtec 9700+
ECRM Scriptprinter
Genicom Corporation 9080
Intergraph Corp
JBCC Power Writer 5036
JRL Systems Easycopy L Series
JRL Systems LP-180
Newgen Sys Turbo PS-440B/660B/1200B
OCE 6450/6451/6460
QMS 860 Hammerhead Print System
QMS 860/860 Plus Print System
Varityper 5160
Varityper Panther
Xante Accel-A-Writer 8100
Xante Accel-A-Writer 8100 ENH
Xitron Clipper Cadet

BXII
BGL Tech Laserleader Mark 9416
Calcomp CCL 600 ES/1200 ES
Canon P-380
Genicom 9160
Hewlett-Packard LaserJet 4MV
Hewlett-Packard LaserJet 4V
JRL Systems LP180-16 Model 1
JRL Systems LP180-16 Model 2
JRL Systems LP180-16 Model 3
Newgen Systems DesignXpress 12
Newgen Systems DesignXpress 6
Newgen Systems DesignXpress 8
Prepress Solutions VT1200
QMS 1660 Print System
QMS 1660E Print System
QMS 1660EX Print System
Xante Corporation Accel-A-Writer 8200

print resolution and power save features of the BXII-based printers. The print speed of the BXII printers is 16 ppm, double that of the BX, so there is less dwell time in the fuser section for melting the toner and bonding it to paper. The PowerSave™ feature of the BXII printers also requires a specific toner formulation that works with the wide range of temperature changes in the fuser section. Using BX toner in a BXII application generally results in a high degree of fuser offsetting and poor print quality. For best results, use BX MicroGraphics 1 toner exclusively with BX (QMS 860) applications.

BXII MicroGraphics 1 toner can be used in either the BX or BXII application. When QMS introduced the BXII-based 1660 printer, the BXII cartridge become the standard for both the 860 and 1660 printers. An end user who orders a cartridge for the 860 actually gets a BXII cartridge. Because the BXII holds 60 more grams than the BX, the end user also gets a higher rated page yield.

We recommend building BX cartridges to BXII specifications in order to take advantage of increased yield as well as complete cartridge compatibility between BX and BXII printers.

Compatibility Chart

		COMPATIBLE TONER FORMULATION	
CARTRIDGE TYPE		BX *MicroGraphics I* (BX340B)	BXII *MicroGraphics I* (BX2-400B)
	BX (QMS 860)	yes	yes
	BXII (HP4V)	no	yes

BX UltraPrint Drum

The new BX UltraPrint™ drum used in combination with BX or BXII MicroGraphics toner offers a significant reduction in fuser offsetting defects commonly associated with BXII printers. The drum was co-developed by our systems experts to obtain increased yield while simultaneously minimizing the occurrence of offsetting. The BX UltraPrint drum and MicroGraphics combination achieves print quality and yield (8,000 pages at 5%) equal to that of the OEM.

Static Control's BX/BXII Remanufactured PCR

Like most of the Canon-based Primary Charge Rollers, BXII OEM PCRs are also recoatable through the Static Control PCR Recoating Program. After the initial recoating which is guaranteed for 5 remanufacturing cycles, the BXII PCR can be recoated an additional two times for a total of 15 remanufacturing cycles.

Market Outlook

The BX-based printer was a significant addition to the laser printer market because it was the first tabloid-sized printer in the 7-10 ppm market segment offered at an affordable price (about $3,500). The printer offered small to medium-sized businesses graphics capability and tabloid printing at 600 dpi print resolution. Improvements in networkability, resolution, speed (16 ppm), and lower price points in the later BXII-based printers have kept the printer competitive in the 16-20 ppm market segment. Without a doubt, pricing of under $2,000 (street price) for BX printers, in addition to the expanded features, fuel the popularity of these printers.

BX/BXII printers are usually found in small graphics companies or graphics departments, newspaper companies, publishing, and departments that specialize in CAD applications. Tabloid-sized page printing, full bleed and heavy graphics printing can increase page coverage which in turn can decrease yield rates.

Currently in North America, there are an estimated 250,000 BX/BXII printer placements which consume approximately 6-10 cartridges per year. As BXII printers remain competitive with other tabloid printers in similar market segments, placements are expected to increase. In the last year, industry trends have shown that BX/BXII cartridges have gained considerable share in the cartridge remanufacturing mix of Canon-based cartridges. Although the share of BX remanufactured cartridges is quite low compared to mature cartridge markets such as the SX, we expect years of continued growth in the BX/BXII market share, as well as growth in total cartridge consumption.

• Remove the black conductive Cap before recoating
PCRs from BX/BXII cartridges may have a black conductive cap installed on one end of the PCR shaft. Before you send in your BX/BXII PCRs for recoating, be sure to remove the black conductive cap from the PCR shaft and store it at your facility. Caps should be reinstalled on the shaft of the recoated PCRs.

If caps are left installed on incoming PCRs, we will make every effort to return them with the recoated PCRs.

• Recoated BX/BXII PCRs are a mottled, tan or grayish color
When you get recoated BX/BXII PCRs back, you will notice that the rollers appear mottled, tan or gray in color. During the recoating process the black outer layer of the PCR material is removed and replaced with a clear coating. The tan or gray color is the underlying resistive layer showing through the coating.

• BX and BXII recoated PCRs are interchangeable
There are no discernable differences between the PCRs in BX or BXII cartridge applications. Recoated BX/BXII PCRs can be used with either the BX or BXII applications.

For more information about Static Control's PCR Recoating Program, contact your Sales Representative. Phone numbers are listed on the back page of this manual.

About the BX Printers

QMS 860

QMS was one of the first companies to introduce a printer with the Canon BX engine, and for several years after the release of the 860, QMS held a dominant share of the BX market. The QMS 860 features 8 ppm print speed and 600 dpi print resolution. Most notable about the release of the 860 printer was that QMS set a new price point for tabloid printers. The 860 offered small- to medium-sized workgroups high-resolution tabloid printing at an affordable price, which made it one of the most popular BX-based printers. Versions of the 860 include the 860 Hammerhead Print System and the 860 Plus, all of which are based on the same BX engine.

QMS 1660E

The QMS 1660E is an updated version (January 1995) of the 1660, which was one of the first BXII-based printers. The E version is still based on the BXII engine and features 16 ppm print speed, 1,200x600 dpi resolution and QMS's fastest controller design. The 1660E also features full bleed capability on 11x17 size paper.

The latest "E" version of the printer has built-in Ethernet capability that QMS refers to as "CrownNet". Although the HP version of the BXII sells for less than the 1660E, QMS believes that the CrownNet technology is a strong factor for securing sales.

In May 1995, QMS went even further to upgrade the 1660E by improving print resolution from 600x600 to 1200(H) x 600(V) with laser modulation. With adequate memory installed, the new daughterboard allows the machine to operate at 1200x1200 dpi.

Hewlett Packard LaserJet 4V/4MV

The BXII-based LJ4V/4MV were the first of HP's tabloid-size laser printers, but surprisingly HP was not the first company to offer a printer based on the BXII engine: CalComp, NewGen, QMS and Xante introduced their versions of the printer several months earlier.

HP's version of the BXII is virtually indistinguishable from other versions of the printer, not only in features, but also in appearance. At the time of its introduction, the 4V/MV featured the most powerful processor delivered by HP, a faster processor than HP's own 4Si. Like the QMS 1660E, the HP4V also offers full bleed graphic technology for 11x17 size paper.

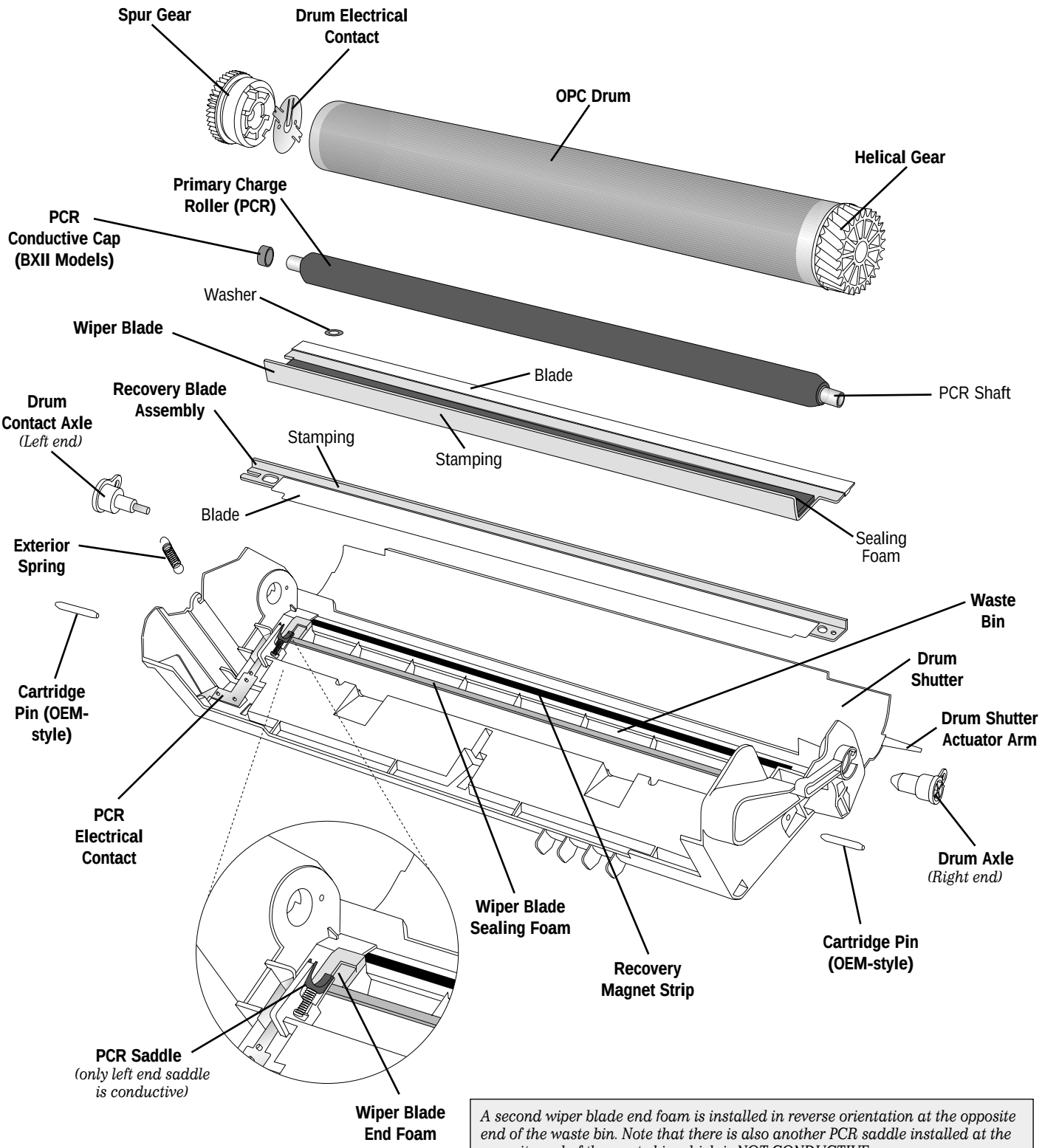
Reportedly, HP's 4V/4MV printers were developed to bridge a gap between the existing 12 ppm LJ4 plus and 17 ppm LJ4Si printers. At the time the 4V/4MV were introduced, HP envisioned the need for tabloid-size printing to become more mainstream in the future. Which it has; current BXII printers are widely used, not only for general office printing, but also for CAD and graphics printing.

Printer Information

	QMS 860 (BX)	QMS 1660E (BXII)	HP LaserJet 4V/4MV (BXII)
Introduction List Price	$3,906.00	$3,999.00	$2,449 (4V), $3,549 (4MV)
First Ship Date	July 1992	January 1995	September 1994
Pages Per Minute (ppm)	8 ppm (letter)	16 ppm (letter) 9 ppm (tabloid)	16 ppm (let, legal, exec) 8 ppm (tabloid)
Engine Duty Cycle	10,000 pages/month	35,000 pages/month	35,000 pages/month
Processor	25 MHz Intel 80960CA	33 MHz IDT 3081E	33 MHz Intel 80960CF
Resolution (dpi)	600 (H) x 600 (V)	600 (H) x 600 (V) dpi (original) 1200 (H) x 600 (V) dpi (update as of June 1995)	600 (H) x 600 (V) dpi REt resolution enhancement 120 gray levels (PCL mode) at 106 lpi
Toner Reduction Mode	N/A	yes (Conserve Toner mode)	yes (Economode)
EnergyStar Compliant	no	yes	yes (PowerSave™ feature)
Page Size	letter, A4, A5, legal, exec., B4 11x17" (tabloid), A3	letter, A4, A5, A6, legal, exec., B4, B5, 11x17" (tab), A3	letter, A4, legal, exec., B4, 11x17" (tabloid), A3
Target Market	Graphic arts, presentation graphics, desktop publishing, word processing	Workgroup printing, business graphics, text processing	General office printing (both printers); CAD, desktop publishing (4MV)

Notes

Waste Bin Section - Terms and Definitions



A second wiper blade end foam is installed in reverse orientation at the opposite end of the waste bin. Note that there is also another PCR saddle installed at the opposite end of the waste bin which is NOT CONDUCTIVE.

Cartridge Pin
Two pins installed at each end of the assembled cartridge hold the waste bin and hopper sections together.

Drum Axle (Right)
Installed at the right end of the waste bin section to hold the drum in place.

Drum Contact Axle (Left)
Installed at the left end of the waste bin section to hold the drum in place; a short metal rod installed in the axle assembly makes contact with the drum contact installed in the spur gear, providing electrical contact between the drum and printer.

Drum Electrical Contact
Installed in the spur gear of the drum; makes contact with the short metal rod installed in the drum contact axle and provides electrical contact between the drum and printer.

Drum Shutter
Protects the drum from light damage when the cartridge is out of the printer. When the cartridge is installed in the printer, the shutter opens so that the drum is exposed to the paper.

Drum Shutter Actuator Arm
Opens the drum shutter when the cartridge is installed in the printer.

Drum Shutter Felt
Shutter felt is an aftermarket component installed on the interior of the drum shutter. It protects the drum from potential damage caused by the opening and closing of the shutter. (Not shown in the illustration)

Exterior Spring
Installed on the exterior of the cartridge. Maintains pressure between the waste bin and hopper sections so the mag roller bushings are properly seated on the drum, maintaining the correct air gap between the drum and mag roller.

Organic Photo Conductor (OPC) Drum
An aluminum cylinder coated with light-sensitive organic photoconductive material used to retain an image written to it by a laser beam. (Also called OPC, drum, photoreceptor)

OPC Drum Gears (Helical and Spur)
The *spur gear*, on the left end of the waste bin section, houses the drum electrical contact. The other larger gear is the *helical gear*.

Primary Charge Roller
Uniformly charges the OPC drum. (Also called PCR, charge roller, or roller)

PCR Conductive Cap
Installed on the contact end of the PCR shaft; the cap aids conductivity to the PCR. (BXII Models Only).

PCR Electrical Contact
Metal contact installed in the waste bin section of the cartridge; makes contact with conductive cap on shaft of installed PCR and provides electrical contact between the printer and the PCR.

PCR Saddles
Two saddles support the PCR at each end of the shaft. One saddle, located at the contact end of the cartridge (left end), is made of conductive material. The other saddle is non-conductive. The springs at the base of the saddles maintain tension on the PCR so that it will make constant and uniform contact with the drum.

Recovery Blade Assembly
Acts as a dam at the base of the waste bin, keeping the toner from falling out of the waste bin onto the paper. On the BX cartridge, the recovery blade is attached to a removable metal stamping. (Also called catcher blade or scavenger blade)

Recovery Magnet Strip
A magnet strip installed along the length of the waste bin section between the recovery blade assembly and waste bin body; used to catch toner that migrates past the recovery blade assembly.

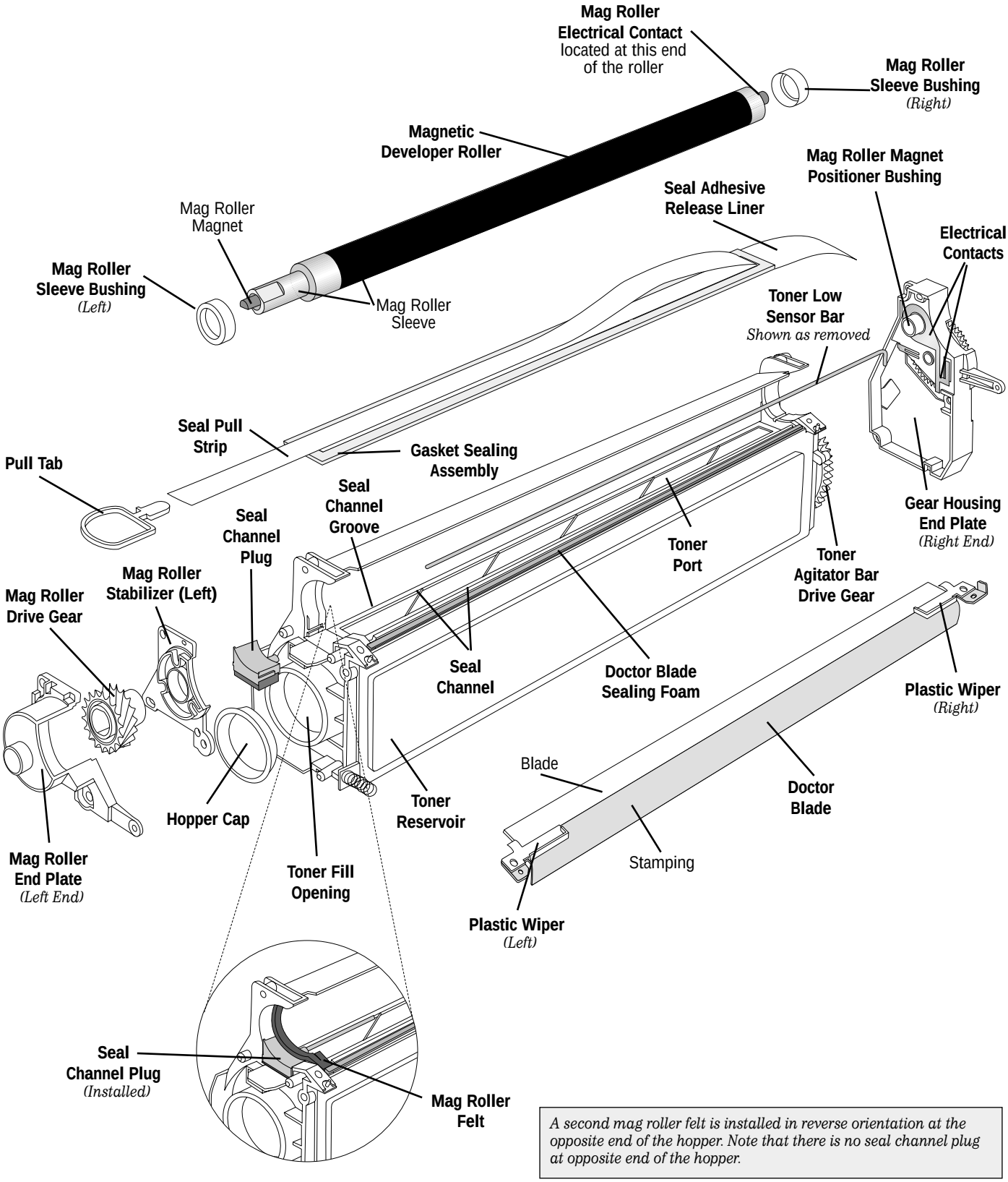
Waste Bin
A receptacle that catches toner wiped from the drum. (Also called waste hopper, dust bin)

Wiper Blade
Cleans the drum by wiping away toner that was not transferred to the paper. Constructed of a metal *stamping* (base) and polyurethane *blade*. (Also called cleaning blade)

Wiper Blade End Foam
Layer of foam that seals the area at the end of the polyurethane wiper blade; prevents leakage from the waste bin.

Wiper Blade Sealing Foam
A strip of foam installed under the wiper blade along the length of the waste bin; the foam seals the area between the wiper blade and waste bin in order to prevent leakage from the waste bin.

Toner Hopper Section - Terms and Definitions



A second mag roller felt is installed in reverse orientation at the opposite end of the hopper. Note that there is no seal channel plug at opposite end of the hopper.

Development Station
Area of the cartridge where toner is transferred from the toner hopper to the latent image on the OPC drum using the mag roller and doctor blade. (Not shown in illustration)

Doctor Blade
Uniformly meters the amount of toner on the mag roller. The doctor blade is constructed of a metal *stamping* (base) and a flexible *blade*. (Also called metering blade)

Doctor Blade Sealing Foam
A strip of foam that seals the area between doctor blade stamping and cartridge shell; prevents leakage from the toner hopper.

Electrical Contacts
Metal contacts, located in the gear housing end plate, that provide electrical contact between the printer and doctor blade, toner low sensor bar and mag roller.

Gasket Sealing Assembly
A rigid gasket base on which a seal is adhered. The gasket base is installed in the seal channel with the long rear edge anchored in a groove at the rear of the hopper seal channel.

Gear Housing End Plate (Right End)
A removable housing that covers the toner agitator drive gear at the right end of the hopper. This housing also provides a positioner bushing that supports the magnet inside the mag roller sleeve and keeps the magnet stationary. The doctor blade, toner low bar and mag roller electrical contacts are housed in this end plate.

Hopper Cap
Plugs the fill opening of the hopper.

Magnetic Developer Roller
A rotating coated aluminum *sleeve* around a stationary *magnet*. The mag roller attracts toner magnetically and applied AC/DC voltage charges the toner and transfers it to the OPC. A doctor blade meters the toner before it is delivered to the OPC. (Also called mag roller, developer roller)

Mag Roller Drive Gear
Rotates the mag roller sleeve around the permanent magnet.

Mag Roller Electrical Contact
Two prong contacts attached to the mag roller sleeve that contact the electrical contacts in the gear housing end plate; provides electrical contact between the mag roller sleeve and printer.

Mag Roller End Plate (Left End)
Installed on the left side of the hopper section to cover the end of the mag roller.

Mag Roller Felt
Material that lines the saddles where the mag roller rests in the hopper; also provides a seal at the ends of the mag roller.

Mag Roller Magnet Positioner Bushing
Supports the magnet inside the mag roller sleeve and keeps the magnet stationary; located in the gear housing end plate (right end).

Mag Roller Sleeve Bushing (Right and Left)
Placed on each end of the mag roller sleeve to establish a consistent air gap between the mag roller and drum when the cartridge sections are assembled.

Mag Roller Stabilizer (Left End only)
Prevents lateral movement of the mag roller. A stabilizer is placed on the left end of the mag roller axle and secured in place by screws and locating posts in the hopper section.

Plastic Wiper (Right and Left)
Removable wipers installed on each end of the doctor blade stamping; wipes toner from the ends of the mag roller that ride on the mag roller felt; prevents toner from adhering to sleeve. Right and left plastic wipers are NOT interchangeable.

Pull Tab
Attached to the seal pull strip to enable the end user to remove the seal pull strip and release toner into the development station.

Seal Channel
The area around the perimeter of the toner port where a seal is attached to the hopper body.

Seal Channel Plug
A plastic plug installed at the left end of the hopper section to seal the end of the hopper where the seal pull strip exits the hopper; the plug also provides a positioner bushing for one end of the toner low sensor bar.

Seal Pull Strip
Strip of seal material pulled by the end user.

continued on next page

Toner Hopper Section - Terms and Definitions

Seal Release Liner
A clear strip that covers the pressure sensitive adhesive on the bottom side of the gasket sealing assembly; the extra length of the liner is provided so that the liner can be removed after the seal is fully positioned in the seal channel.

Toner Agitator Bar
A metal paddle bar that rotates inside the toner hopper to move the toner toward the development station. (Not shown in the illustration)

Toner Agitator Bar Drive Gear
Rotates the agitator bar in the hopper; located at the drive train end of the hopper section (right end).

Toner Low Sensor Bar
Acts as an antenna to detect low toner volume in the hopper. Once a signal from the antenna reaches a specified value, the printer displays a toner low warning for the printer operator.

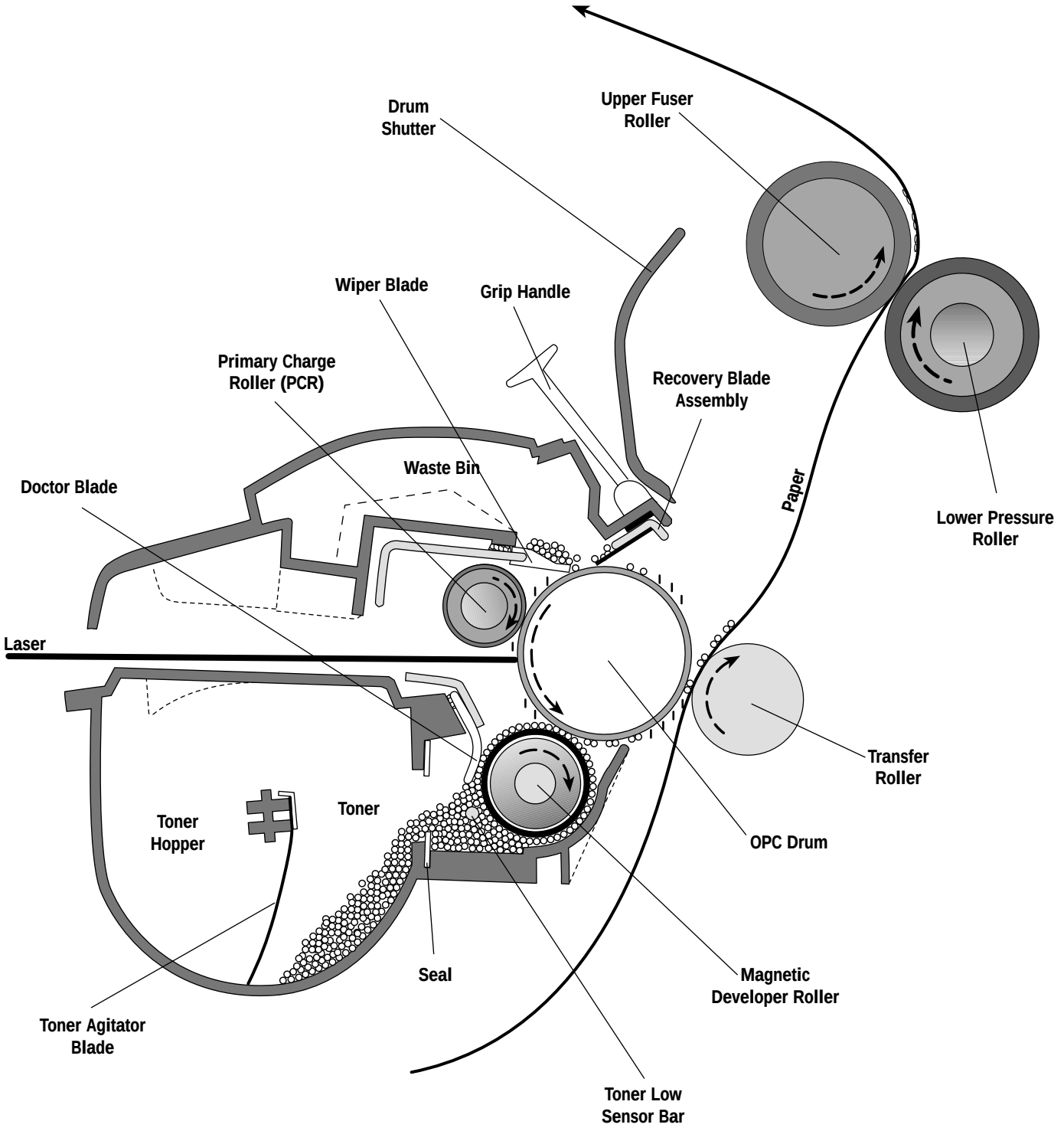
Toner Port
An opening, occupied by the seal, that runs along the length of the hopper. Once the seal is removed, toner travels through this opening to the development station.

Toner Reservoir
Holds the toner load needed for imaging.

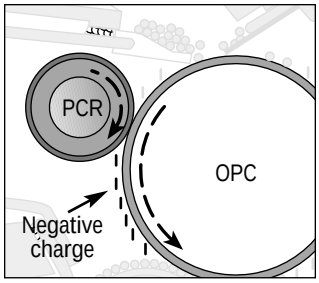
Notes

The Imaging Process

The illustration below is a schematic view of the BX/BXII cartridge imaging components from the left side of the cartridge. The cartridge is oriented as it would appear installed in the printer.

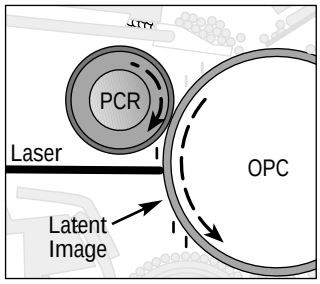


The Seven Steps of Electrophotography



1 Charging

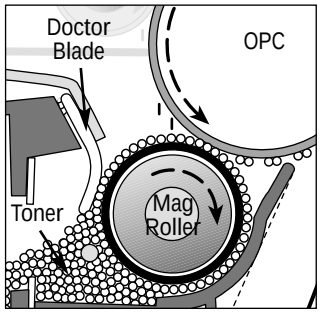
The process begins with the charging of the OPC by the primary charge roller. A constant flow of current from the PCR produces a blanket of negative charge on the surface of the rotating OPC drum.



2 Exposure

The evenly charged OPC surface then passes under a laser beam, which exposes the OPC one line at a time.

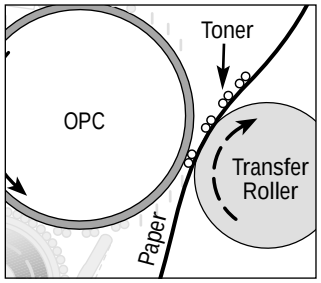
This focused beam scans across the drum and emits light only at locations to be toned later at the development station. The energy from the laser activates the photoconductor, and the surface charge is dissipated to ground forming the latent image.



3 Development

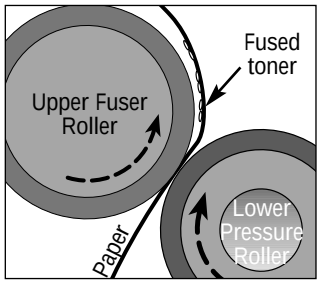
At the development station, the latent image on the drum is changed into a visible toner image that will be transferred to the paper. The negatively charged toner is attracted to the latent images (exposed areas) on the drum where the charge is more positive. The toner is repelled from unexposed areas of the drum where charge has remained negative.

Toner is magnetically attracted to a 4-pole stationary magnet inside a rotating developer sleeve. The developer roller and the doctor blade charge the toner. The doctor blade also meters the amount of toner present on the developer roller. An AC/DC voltage gives the toner a negative charge bias and transfers the toner to the OPC.



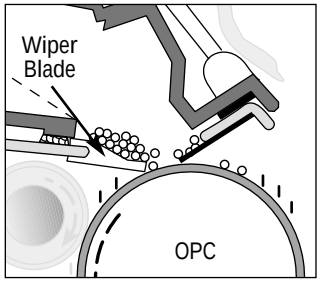
4 Transferring

After development, the toner image on the surface of the OPC is brought in contact with the paper moving at the same speed. A transfer roller on the opposite side of the paper applies a positive charge to the paper, causing the negatively charged toner to be attracted and transferred to the paper.



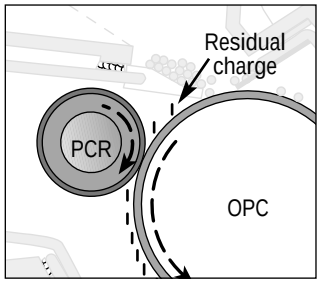
5 Fusing

The paper, along with the transferred toner image, then travels to the fuser assembly. This assembly is composed of a heated upper roller and a lower pressure roller. During fusing, the toner particles are melted and fused to the paper.



6 Cleaning

Since a percentage of toner on the photoreceptor is not transferred, the OPC surface must be cleaned by a wiper blade. Any toner not transferred to the paper is deposited in the waste bin. A recovery blade seals the area between the drum and waste bin to prevent toner from spilling onto the paper.



7 Erasure

In PCR-based systems such as the BX/BXII, the PCR "erases" residual charges on the OPC by applying a uniform surface charge to the OPC. Any variations in charge on the OPC surface are made uniform as the PCR charges the OPC.

BX Component Management Reference Chart

COMPONENT	CODE	CLEAN	LUBRICATE
Cartridge Pin	LXPIN Substitute Component	NA	NA
OPC Drum	BXBGDRGR (with gears) UPBXDRGR (with gears)	Dry, filtered compressed air	Pad coated area of drum with Kynar®; rotate drum against wiper blade - min. 6 rotations
Drum Shutter Felt	XP15DSFELT Aftermarket Component	Dry, filtered compressed air	NA
SCC Remanufactured PCR	BXRMPCR	91-99% isopropyl alcohol and soft, lint-free cloth; DO NOT clean OEM PCR with alcohol	DO NOT lubricate PCR shaft; lubricant not present in out-of-box OEM cartridge
PCR Cap - Conductive	NA	Lint-free cleaning cloth or lint-free swab	DO NOT apply lubricant to the cap
PCR Contact Saddle	NA	Lint-free swab dampened with 91-99% isopropyl alcohol	DO NOT lubricate either PCR saddle; lubricant not present on out-of-box OEM cartridge
Wiper Blade	BXBLADE	Dry, filtered compressed air; direct air close the surface of foam installed on the stamping; DO NOT clean with alcohol	Dip edge of wiper blade in Kynar®; make sure blade edge is evenly covered
Wiper Blade Sealing Foam	NA	Dry, filtered compressed air; direct air close to surface of foam	NA
Wiper Blade End Foam	NA	Dry, filtered compressed air; direct air close to surface of foam	NA
Recovery Blade Assembly	BXRBASM, BXRECBLADE or PRECB-BX	Dry, filtered compressed air	NA
Recovery Magnet Strip	NA	Dry, filtered compressed air	NA
Magnetic Developer Roller	Remanufactured sleeve under development	Dry, filtered compressed air	NA
Mag Roller Electrical Contacts	NA	Clean contact prongs (end of mag roller sleeve) and metal contact (on right end plate) with lint-free swab dampened with 91-99% isopropyl alcohol	Apply a very small amount of conductive lubricant to the metal contact in the end plate See page 21 for important information regarding the use of conductive lubricant
Mag Roller Felt	BXMRFELT	Dry, filtered compressed air	NA

EVALUATE	REPLACE
OEM cartridge pins should be straight, unmarred and unmodified in length	Replace OEM pins if bent, cut down or lost
Test print to check print density; check for deep concentric wear lines	Replace OEM drum after OEM cycle with SCC system-qualified drum; test print and replace as needed.
Install on interior of drum shutter to help protect drum from damage caused by opening and closing of shutter; felt should appear clean and fully secured to the cartridge	Replace if felt starts to peel, becomes dislodged or is missing
OEM PCR typically wears out after OEM cycle; SCC PCR guaranteed for 5 cycles; note that the BX/BXII remanufactured PCR is a mottled tan color	Replace OEM PCR after OEM cycle with SCC PCR; recoat SCC PCR after 5th and 10th remanufacturing cycles; one cycle PCRs are also available
Cap should be securely installed on the end of the PCR shaft	Replace cap if damaged or missing
NA	NA
Test print each cycle and check for vertical streaks	Replace if wiper blade-related print defects detected; install new wiper blade each time a new drum is installed; test print each cycle and replace as required
Foam should display smooth surface and be secured to the cartridge surface	Replace if foam is pitted, torn, dislodged or missing
Foam should display smooth surface and be secured to the cartridge surface	Replace if foam is pitted, torn, dislodged or missing
Blade should display a smooth surface and be completely secured to metal stamping	Replace blade if bent, kinked or damaged; replace entire assembly or blade only; installation tool required (Item Code: WXRBIKIT)
Magnet strip should be firmly secured to cartridge	Replace if not secured to cartridge or if missing
Test print against baseline to check for light print defects; visually inspect for scratches, previously treated or sandblasted mag rollers	Replacement mag roller sleeve under development
For optimum continuity make sure metal prongs are free of toner and debris; make sure prongs and end plate contact make proper contact when the end plate is reinstalled	If the prongs do not make contact with metal contact in end plate, bend prongs to correct position
Felt should appear clean, intact and secured to mag roller saddle	Replace if felt becomes excessively frayed, compacted with toner, shiny in appearance or dislodged

BX Component Management Reference Chart

COMPONENT	CODE	CLEAN	LUBRICATE
Doctor Blade	BXDBLADE	Dry, filtered compressed air; DO NOT clean with alcohol	NA
Doctor Blade Sealing Foam	BXDBSFOAM	Dry, filtered compressed air; direct air close to surface of foam	NA
Gasket Sealing Assembly	BXGSA	NA	NA
Toner	BX/QMS: BX340B LJ4V/BXII: BX2-400B	Clean toner hopper with dry, filtered compressed air	NA

EVALUATE	REPLACE
Test print to check print quality, background, or side-to-side variations in print quality	Replace OEM doctor blade with SCC replacement after OEM cycle; remove the plastic wipers from each end of the stamping and reinstall on the replacement blade; test print each cycle and replace as required
Foam should display smooth surface and be secured to the cartridge surface	Replace if foam is pitted, torn, dislodged or missing
NA	Remove OEM seal filament; install SCC BX Gasket Sealing Assembly; installation tools required; see page 38 for details
Take care not to bend the toner low sensor bar when cleaning or filling the hopper; otherwise false toner low warnings can be a result; see pages 20-21 for details	NA

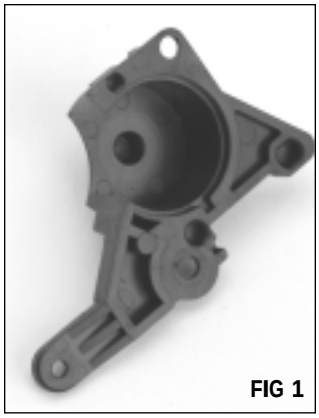
Changes to the BX/BXII Cartridge

Variations in Left-end Mag Roller End Cap, Stabilizer, and Mag Roller Drive Gear

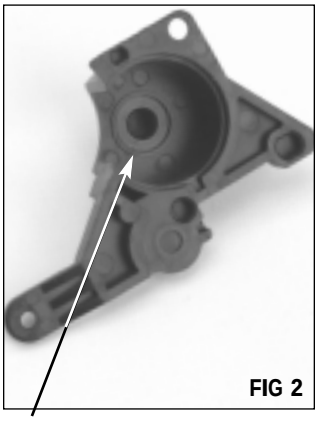
If you have been observant all of the years the BX/BXII cartridge has been in circulation, you may have noticed some subtle changes in the mag roller end plate, stabilizer and mag roller drive gear. There are two variations of the end plate that covers the left end of the mag roller. In comparing FIGs 1 and 2, you can see a thin, raised ring around the axle hub. The ring may function to help position the gear or prevent wear to the end cap and gear.

The stabilizer has undergone at least three modifications that we have been able to document, as shown in FIGs 3 , 4 and 5. The stabilizer shown in FIG 3 is most commonly found in the OEM and remanufactured cartridges we use in the cartridge development lab and is used in combination with the mag roller drive gear shown in FIG 6. The stabilizer shown in FIG 5 is another version, which is used with a different style gear that does not incorporate a raised collar in the center of the gear.

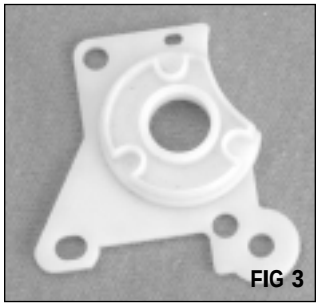
When assembling BX/BXII cartridges, make sure that you have the correct combination of gear and stabilizer; otherwise, the end plate will not fit properly over the end of the mag roller and hopper. The stabilizers shown in FIG 3 and 4 should be used with the gear shown in FIG 6. The stabilizer shown in FIG 5 should be used with the gear that does not incorporate a raised collar in the center of the gear (not shown in photo). The end plate may be used with either combination of stabilizer and gear.



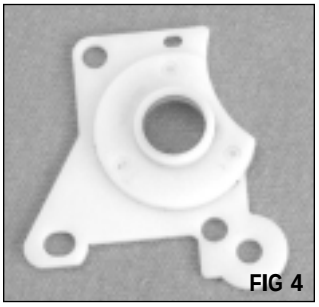
The end plate shown above does not display a raised ring around the axle hub.



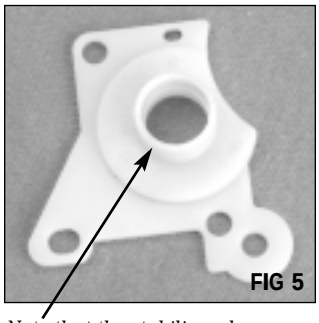
Note the raised ring around the axle hub.



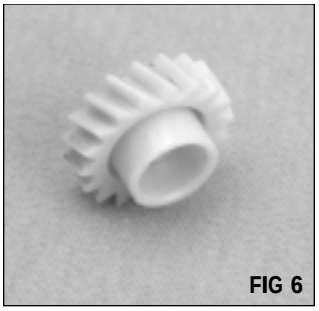
The stabilizer shown above is most commonly seen in current-production OEM cartridges.



A variation of the stabilizer shown in FIG 4.



Note that the stabilizer shown above has raised collar.



Current style mag roller drive gear should be used in combination with the stabilizer shown in FIGs 3 and 4.

Changes from BX to BXII

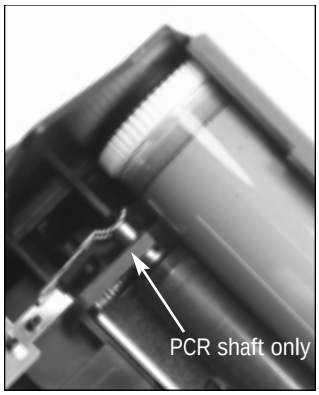
The BX engine and cartridge were first introduced with the QMS 860 printer. When the BXII engine was introduced with the QMS 1660 and Hewlett Packard LJ4V, the physical design of the cartridge essentially stayed the same, with only a few upgrades to accommodate the enhanced resolution and higher print speed of the BXII engine.

Drum

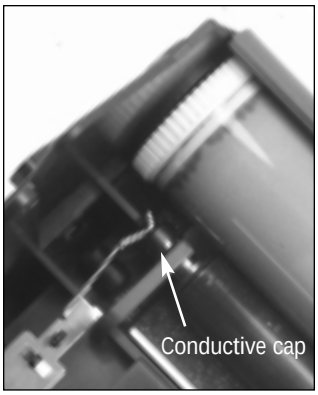
The original BX cartridge used a green SX-type technology drum without a vibration dampener (aluminum slug). With the introduction of the BXII, the drum was upgraded to a gray NX-type technology drum that included a vibration dampener.

PCR

A conductive cap was added to one end of the PCR shaft in BXII cartridges. When the PCR is installed in the cartridge, the end of the PCR with the cap is installed against the metal contact adjacent to the conductive PCR saddle. The cap is used to aid conductivity between the PCR and metal contact that contacts with the printer. The photos below show the difference between BX and BXII PCR configurations.



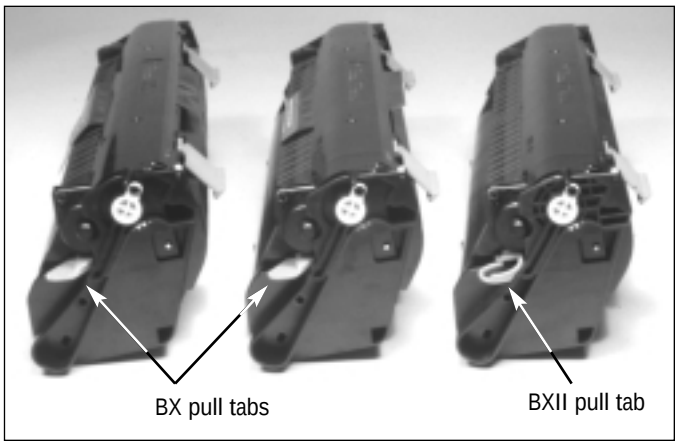
The BX PCR configuration does not include a conductive cap. The shaft makes contact with the metal contact in the cartridge



The BXII PCR configuration includes a conductive cap installed on the contact end of the PCR shaft

Pull Tab

The photo below shows the change in pull tab design between BX and BXII cartridges. The earlier, BX pull tab is most similar to the tab used with the LX cartridge. The BXII pull tab features a loop grip area.



The photo above shows the difference in pull tabs between BX and BXII cartridges. The cartridge on the right is a BXII cartridge, the other two are BX cartridges.

Toner

Toner formulation is the most significant difference between the BX and BXII cartridges. BXII toner is formulated for the faster speed, higher resolution and Power Save™ requirements of the BXII machine. The BXII cartridge offers higher page yield with a toner load of 400 grams, which is 60 grams more than the BX cartridge.

Tools for Cleaning

The Fundamentals of Cleaning

There are hundreds of cleaning products and treatments on the market that promise to enhance yield, restore newness, and even improve the durability of components. However, through years of research, our development labs have found that the most basic cleaning tools work the best: compressed air, toner vacuum, lint-free cleaning cloths, cotton swabs, isopropyl alcohol, and Kynar®.

Our philosophy on cleaning is that the less you affect the properties of components, the better. A cartridge is a complex system of interrelated components, and it is important to retain the original balance of the system and imaging properties as much as possible. Adversely affecting even one component with treatments or harsh cleaners can affect the entire imaging system. The key to effective cleaning is preventing damage and maintaining a balanced system.

If you use gentle cleaning procedures and a system of components that work well together, you should not need to use extreme cleaning methods. Compressed air cleaning is recommended for all cartridge components because it does not chemically or structurally affect components. Cleaning agents can cause buildup or leave residues that are harmful to components and to the entire cartridge system. An example of this is using solvents to clean wiper blades. Certain chemicals can leave a film on the blade that can be transferred to the drum as well as to the PCR.

As you read through this manual, you will notice that we caution against cleaners, treatments, and overcoatings. Alcohol-based cleaners, for example, attack the surface of the drum, mag roller, and PCR. It is the surface properties of components that are critical to the imaging process. Once you affect the properties of one component, the entire imaging system is affected.

Dry, Filtered Compressed Air

Compressed air is the most efficient and effective cleaning method for all cartridge components. Cleaning with compressed air takes less time because you are able to cover more area with a sweep of the air nozzle than with a vacuum attachment. And you are able to direct air into narrow areas that cannot be reached with a vacuum. Fragile materials such as foam and felt can be thoroughly cleaned with no damage to the material.

Just having compressed air is not enough. You should only use dry, well-filtered compressed air. Oil and water in the air lines can be transferred to components and can greatly increase the

An Overview of Cleaning Recommendations

Component	Preferred Method	Alternative Method	Not Recommended
OPC Drum	Compressed air	Dry, lint-free cloth	Coatings, treatments, toner cloths*, polishes, alcohol, or any type of solvent
Primary Charge Roller (OEM)	Lint-free cloth dampened with water	Compressed air	Wax, treatments, toner cloths, alcohol, or any type of solvent
SCC Remanufactured PCR	Lint-free cloth dampened with isopropyl alcohol**	NA	Do not use any cleaning method other than the preferred method prescribed
Mag Roller	Compressed air	Dry, lint-free cloth	Coatings, treatments, toner cloth, alcohol, or any type of solvent
Wiper Blade	Compressed air	NA	Creams, alcohol-based coatings, toner cloth, alcohol, or any type of solvent
Doctor Blade	Compressed air	NA	Creams, alcohol-based coatings, toner cloth, alcohol, or any type of solvent
Electrical Contacts	Cotton swab dampened with isopropyl alcohol	NA	NA
Felt and Foam Material	Compressed air	Toner vacuum	Alcohol or any type of solvent
Hopper Section	Compressed air	Toner vacuum	Cleaners or solvents (excluding alcohol) Use extreme caution not to bend toner low bar
Waste Bin Section	Compressed air	Toner vacuum	Cleaners or solvents
Cartridge Parts (bushings, gears, etc.)	Compressed air	Dry, lint-free cloth/swab with isopropyl alcohol	Cleaners or solvents (excluding alcohol)

** Toner cloths are impregnated with a solution that will contaminate imaging components. Use toner cloths only to clean the exterior of an assembled cartridge.*
*** For best results use 91-99% isopropyl alcohol. DO NOT USE DENATURED ALCOHOL.*

likelihood of print problems. An adequate dust control system should also accompany your compressed air set-up.

Use the proper nozzle attachments and safety equipment when cleaning with compressed air. The Occupational Safety & Health Administration (OSHA) Standard, 29 CFR 1910.242 paragraphs a & b for general industry requires effective chip guarding and personal protective equipment (PPE) when using compressed air. When cleaning residual toner particles from cartridges using a compressed air system, you must use air nozzles meeting OSHA requirements. Air nozzles that regulate air pressure to a maximum of 30 psi comply with this standard. Refer to System Support Series #7, Compressed Air Cleaning Systems, for more information.

Isopropyl Alcohol

Alcohol is both good and bad for cleaning. Alcohol is not harmful to electrical contacts, the SCC PCR, or PCR saddles. However, alcohol is harmful to the polyurethane on wiper and doctor blades as well as to the mag roller and drum. Alcohol should not be used in any form to clean or treat these components. Be careful to avoid getting alcohol on foam and felt material because the alcohol will attack the adhesive backing and possibly dislodge the material from the cartridge.

For best results, use only 91-99% isopropyl alcohol. Using alcohol with a higher water content requires much more time for evaporation and may leave the area damp. Anytime you use alcohol, make sure components and cartridge surfaces are completely dry before you add toner or reassemble the cartridge.

Ninety-nine percent isopropyl alcohol is generally available through distributors of chemical products, and 91% isopropyl alcohol can be found at most major drug stores. If you have any questions, call Technical Support at the phone numbers listed on the back page of this guide.

Toner Vacuum

Toner vacuums are a satisfactory alternative if you do not have access to compressed air. Use brush attachments to clean cartridge surfaces, and nozzles to clean narrow areas. Be careful to avoid touching coated surfaces on the drum and mag roller with the vacuum attachments.

Vacuums can sometimes damage components. It is very easy to damage fragile sealing and recovery blades or to dislodge felt/foam pieces when cleaning the cartridge. Additionally, exerting too much pressure on the nozzle while cleaning the hopper through the toner port can bend the toner low and agitator bars. Bending the toner low bar away from the mag roller can contribute to premature toner low warning message appearing.

Using Conductive Cartridge Lubricant

Conductive cartridge lubricant is used in most cartridges to aid conductivity and reduce friction in areas where electrical contacts meet. Equally important to the use of conductive cartridge lubricant is where it is applied and how much is used.

A general rule of thumb regarding application is "apply conductive lubricant only where it is present on the OEM cartridge." If lubricant is truly required, the OEM would be the first to recognize this and would apply it accordingly. On the BX/BXII cartridge, conductive lubricant is present on the mag roller contact only. Do not apply lubricant to the PCR saddles.

Each time you remanufacture a cartridge, wipe off the old lubricant with a swab or cloth and apply fresh lubricant to the same area. If you replace components that are lubricated, be sure to apply fresh lubricant to the same area on the replacement item.

"Sparingly" is an important word to remember when applying conductive lubricant. We recommend a thin layer about the thickness of a sheet of notebook paper. Use the wooden end of a cotton swab to apply just enough lubricant to prevent any friction between the moving components. (See photo above.) The lubricant should stay in place and work effectively for a full cycle.

Although the lubricant will aid conductivity, it will not increase conductivity. Applying too much conductive lubricant in hopes of increasing the charge of the mag roller or drum will not result in darker print. In fact, large amounts of lubricant can spill into other areas of the cartridge and adversely affect other components.

Conductive Cartridge Lubricant, 20 grams
. . . . . .(Item Code: CONCLUBE)

Lint-Free Cloths and Swabs

Soft, lint-free cloths and cotton lint-free swabs are excellent for cleaning imaging components. The material is soft and non-abrasive to most components. In order to avoid transferring oil, chemicals, or lint to components, use only dry, lint-free cleaning cloths. Never use a "toner cloth" to clean anything but the outside of an assembled cartridge. These cloths are impregnated with mineral oil that can contaminate imaging components.

Cloths and swabs are also excellent applicators for alcohol or conductive grease. But remember not to reuse the cloth or swab for cleaning.

Kynar®

Kynar® is most commonly used to lubricate the wiper blade. Dusting a new or just-cleaned wiper blade and drum with Kynar® before installation will reduce the friction between the drum and blade during the first few rotations of the drum.

Be sure to avoid getting Kynar® on the PCR. Kynar® buildup on the PCR can cause imaging problems and print defects. Even a small dot of Kynar® can block the transfer of charge to the OPC and can cause a repeating black dot defect.

Cleaning Tips & Techniques for Critical Imaging Components

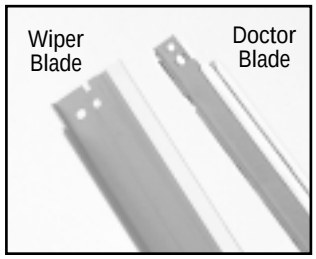
Primary Charge Roller

Use a lint-free cloth dampened with water to clean the OEM PCR. Or if you are using an SCC remanufactured PCR, use a lint-free cleaning cloth dampened with isopropyl alcohol. Using cleaners, waxes, or treatments may produce a shiny, clean-looking roller, but that does nothing to enhance the performance of the PCR. These treatments can often damage the roller as well as other components in the cartridge. The determining factors of PCR performance are the construction and design of the PCR. For more information about the technology of the PCR, refer to System Support Series #11 and #16.

Wiper Blades and Doctor Blades

Clean wiper and doctor blades only with compressed air. The surface of the blade is cut to an accuracy of less than .001". Any abrasive action to the edge of the blade, such as rubbing with a cloth, can degrade the edge of the blade and contribute to wiper blade-related defects.

Wiper blades perform best if left untreated by cleaners, polishes, or coatings. Blade coatings do nothing for wiper blade durability and can cause numerous problems: filming on both the drum and charge roller, improper drum cleaning, and wiper blade flip-overs. Creams or treatments can cause a buildup on the blade surface that cannot be removed by using compressed air. Drum coatings can also adversely affect the wiper blade.

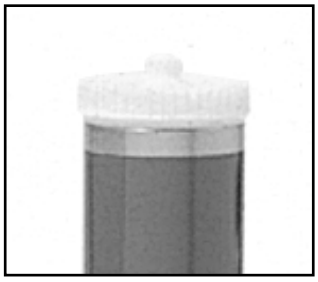


Alcohol should also be included in the same category with creams, polishes, and coatings. Our testing has shown that polyurethane blades will absorb alcohol and soften. Any rubbing action on a softened blade can degrade the working edge of the blade. Residual alcohol absorbed into the blade could affect the drum. Our recommendation is to avoid alcohol for cleaning wiper or doctor blades.

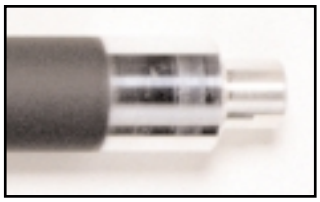
We recommend Kynar® for lubricating the wiper blade. Dip the edge of blade in Kynar® and pad the drum. Reinstall the drum and wiper blade; then rotate the drum into the wiper blade until the Kynar® is deposited into the waste bin.

OPC Drums

Clean the drum with compressed air. Avoid touching the coated surface of the drum with your fingers, and be sure to keep the drum in a light-protected area when you remove it from the cartridge.



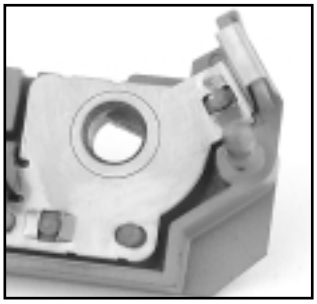
Do not use cleaning solutions or coating treatments on the drum. Not only will they have an adverse effect on the drum, but they may also harm the wiper blade, PCR, or mag roller.



Mag Roller

Clean the mag roller with compressed air or a dry, lint-free cloth. Always handle the roller by the axles or use clean latex gloves. Touching the coated surface of the mag roller with your fingers can leave oil on the roller. The oil can remain on the roller and cause print defects such as background or smudge defects at the mag roller interval.

Do not be tempted to use any type of mag roller chemical cleaner or coating. Our research has shown that liquid cleaners used on the mag roller cause a more measurable degradation of print quality when compared with that of an untreated roller. Coatings can contribute to over-bolded characters, poor page yield, and backgrounding, and can increase the tendency of toner additives to film the mag roller surface. The SCC cartridge systems laboratory has observed no benefits in the performance of treated mag rollers compared with an OEM mag roller cleaned exclusively with dry, filtered compressed air.



Electrical Contacts

Each time you remanufacture a cartridge, make sure all of the electrical contacts are free of debris and toner. Debris on contacts can interfere with the continuity between critical cartridge components.

Clean areas such as the mag roller contacts, PCR contact, and PCR saddles with isopropyl alcohol and a cotton swab (or a lint-free cloth).

Separating the Cartridge

TOOLS YOU WILL NEED:
- Needlenose pliers
- Sidecutters

The cartridge shown in these instructions has been painted gray for better visibility. The actual color of the cartridge is black.

1. **Remove the exterior spring using needlenose pliers. (FIG 1)**
   The spring holds the toner hopper and waste bin sections together.

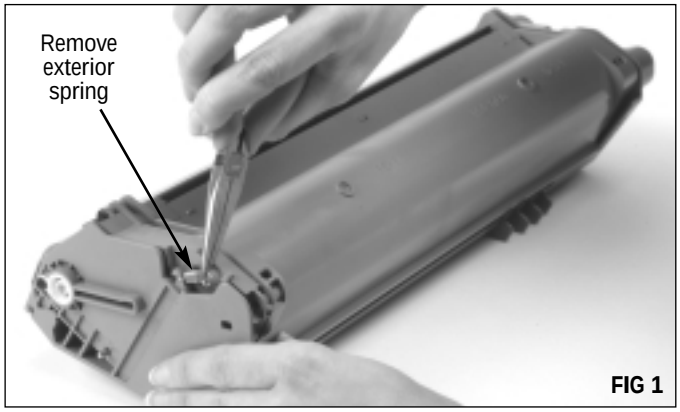


FIG 1

2. **Use a pair of side cutters to remove one pin from each end of the cartridge. (FIGs 2 & 3)**
   The OEM pins can be replaced with Static Control's LX Easy-pull metal cartridge pins (Item Code: LXPIN) if lost or damaged.

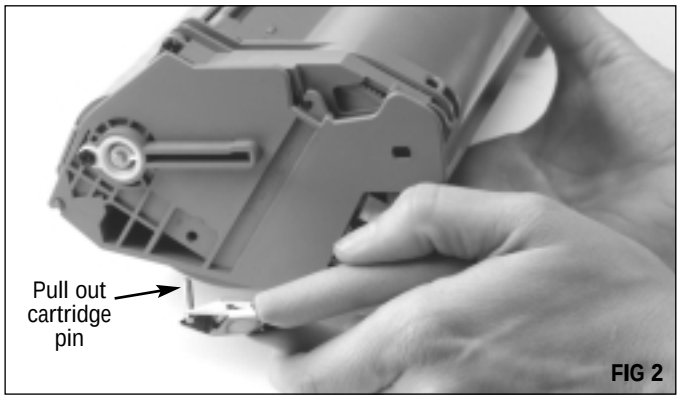


FIG 2

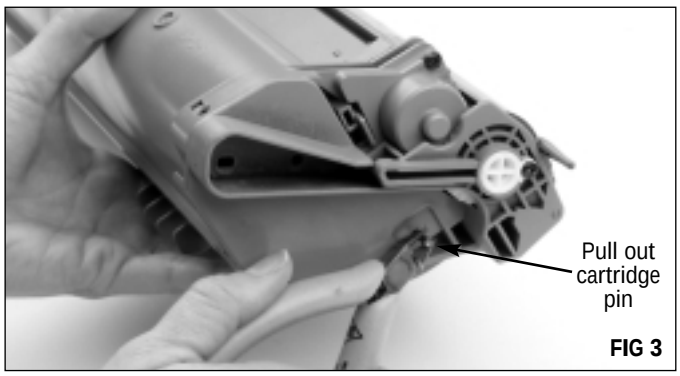


FIG 3

Separating the Cartridge

3. **Carefully separate the toner hopper and waste bin sections.** As you separate the cartridge, hold the drum shutter open to avoid damage to the drum. (FIG 4)

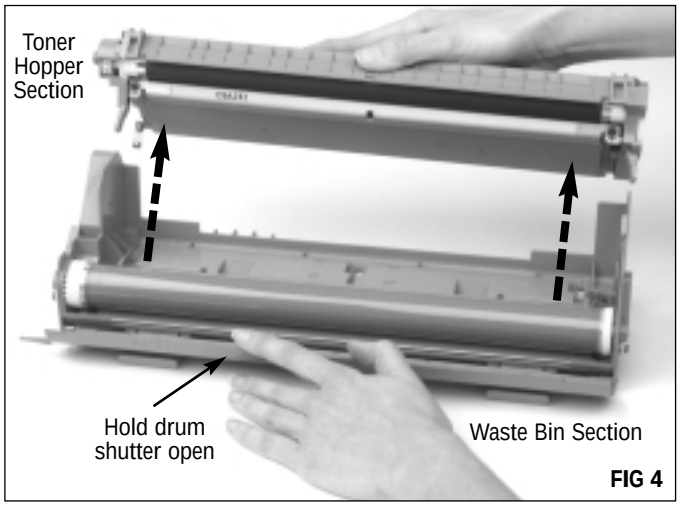


FIG 4

Disassembling the Waste Bin Section

TOOLS YOU WILL NEED:

- Needlenose pliers
- Phillips Screwdriver
- Flat-blade Screwdriver
- Compressed air for cleaning (see page 20 for important information regarding the use of compressed air)
- 91-99% Isopropyl alcohol (see page 21 for important information regarding the use of alcohol for cleaning)

1. **Remove the two white plastic drum axles from each end of the waste bin.**
   NON-CONTACT AXLE: Remove the holding screw as shown in FIG 5.

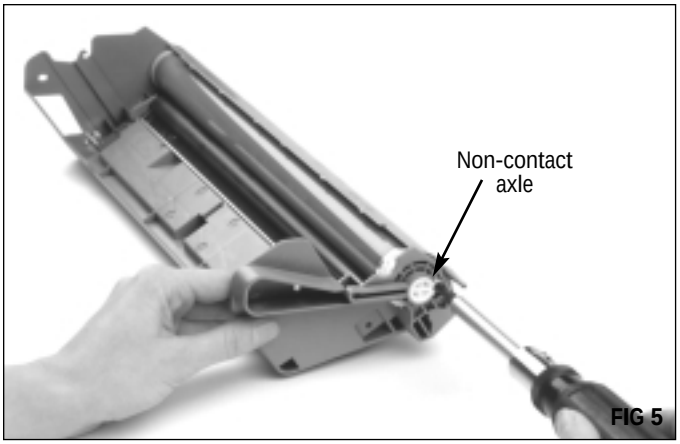


FIG 5

   Use needlenose pliers to grip the axle and pull it out of the waste bin section. (FIG 6)


FIG 6

   CONTACT AXLE: Remove the holding screw as shown in FIG 7.

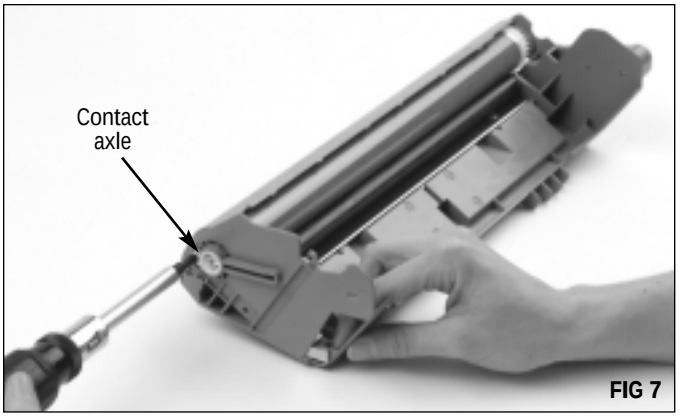


FIG 7

   Use a flat-blade screwdriver to pry out the axle as shown in FIG 8.

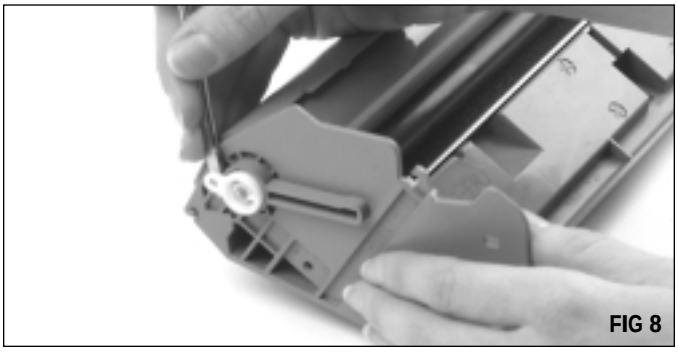


FIG 8

Disassembling the Waste Bin Section

2. **Remove the drum.**
Hold the drum shutter in an "open" position for better access to the drum. Grasp the drum by the helical gear and lift the drum from the waste bin. (FIG 9)

We recommend replacing the OEM drum with a Static Control's UltraPrint™ BXII Drum with gears (Item Code: UPBXDRGR) or the BX/QMS-860 Blue-Green drum without gears (Item Code: BXBGDRUM). The UltraPrint™ and Blue-Green drums can be used in either the BX or BXII applications. For best results, use the UltraPrint™ drum in combination with the LJ4V/BX MicroGraphics 1 toner. See page 3 for more details on the BX UltraPrint™ drum.

If you plan to reuse the drum, store it in an area that is protected from light and impact damage.

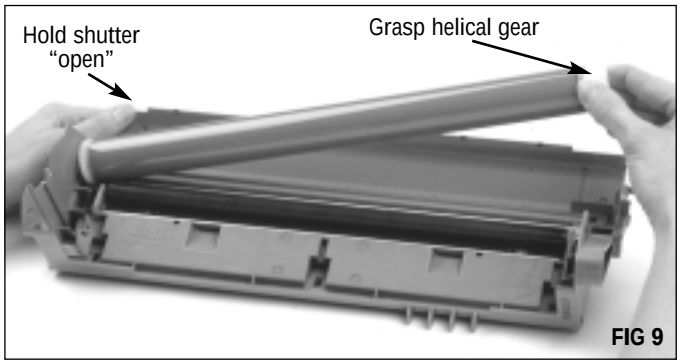


FIG 9

3. **Remove the PCR.**
Note that a black plastic cap covers the end of the PCR that touches the PCR electrical contact. To avoid damage to the cap and electrical contact, release the left end of the PCR first as shown in FIG 10. Do not lose the cap.

DO NOT stack PCRs, lay anything on top of PCRs, wrap PCRs with rubber bands, or touch the surface of the PCR with your bare fingers. Dents on the surface of the SCC or OEM PCR can prevent the PCR from being recoated.

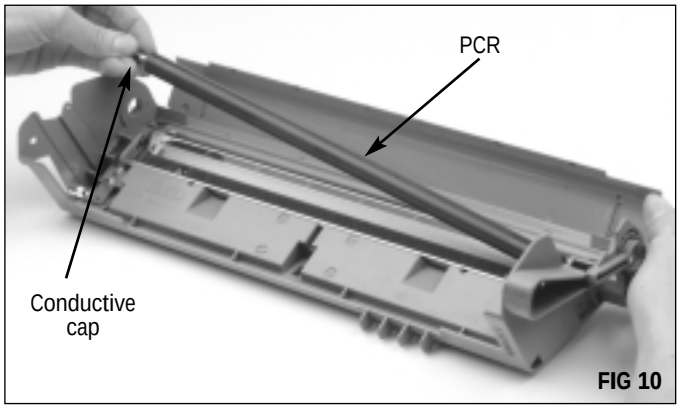


FIG 10

Static Control's PCR Recoating Program
We recommend replacing the OEM PCR after the first cycle with Static Control's remanufactured BX PCR (Item Code: BXRMPCR). The SCC PCR is guaranteed for five cycles when used with the prescribed imaging system and remanufacturing techniques and can be recoated two additional times after the initial recoating. One-cycle remanufactured PCRs are also available. *Contact your Static Control Sales Representative for program details.*

If you plan to send in your OEM or SCC Remanufactured PCRs for recoating, we recommend that you remove the **conductive cap** and store it at your production facility. When the PCR is returned to you, reinstall the cap on the PCR.

Disassembling the Waste Bin Section

4. **Remove the wiper blade.**
Remove two screws from the stamping area as shown in FIG 11; then carefully lift the blade from the waste bin as shown in FIG 12.

Note that the holding screw closest to the contact side of the waste bin uses an additional washer with the screw. Do not lose the washer.

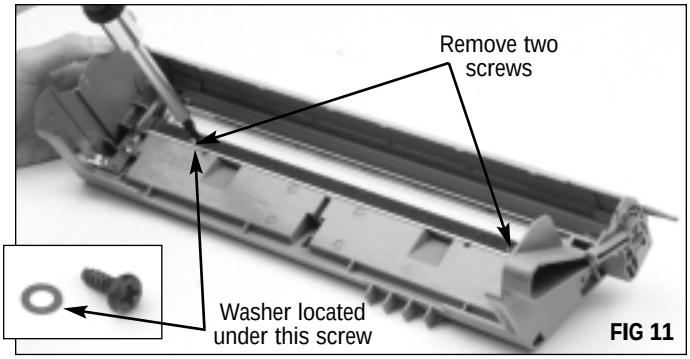


FIG 11

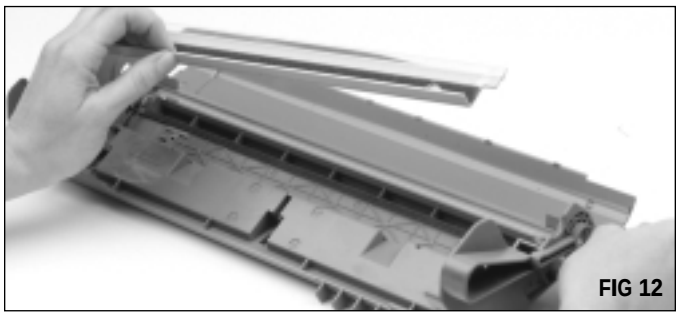


FIG 12

5. **Remove the recovery blade.**
The mylar recovery blade is attached to a metal stamping and secured in the waste bin with two Phillips Screws. The entire unit is referred to as the recovery blade assembly.

We recommend removing the recovery blade assembly to avoid damage to the mylar blade during cleaning. Remove two screws from the stamping as shown in FIG 13.

A **recovery magnet strip**, located under the stamping of the assembly, prevents toner from migrating out of the waste bin. Do not remove this strip.

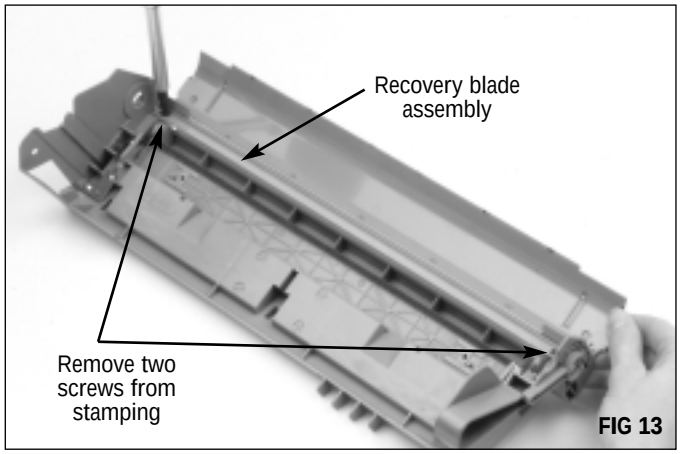


FIG 13

Disassembling the Waste Bin Section

To prevent breaking the locating posts that position the stamping, carefully pry up **each end** of the blade before removing it. (FIGs 14 & 15)

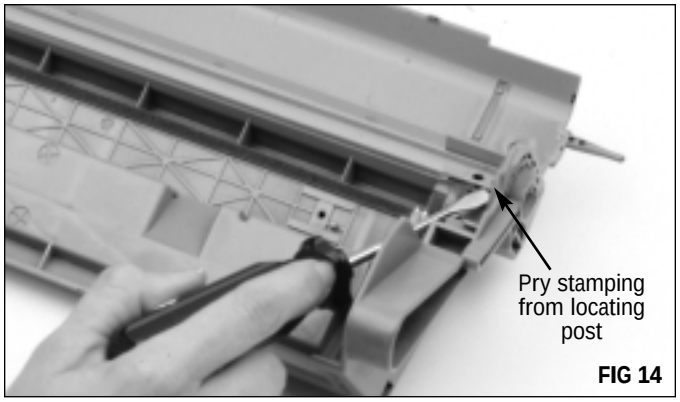


FIG 14

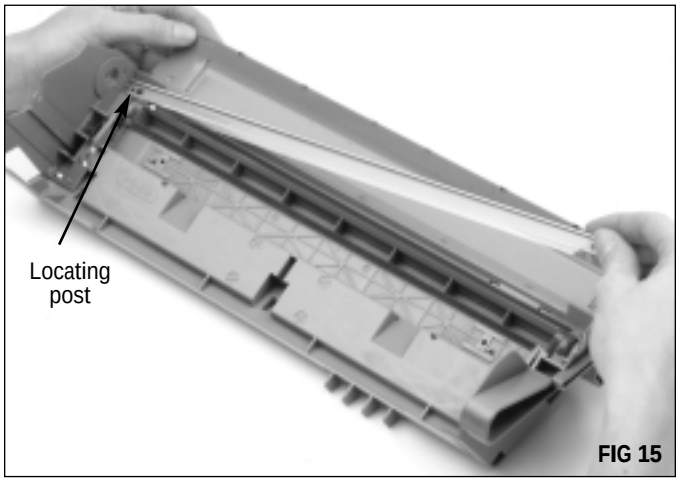


FIG 15

6. Clean the waste bin.
Empty the bulk of the waste toner and clean the waste bin with dry, filtered compressed air. (FIG 16) Direct compressed air on and around the **wiper blade sealing foam** and **end foams** to remove toner and debris from the foam material.

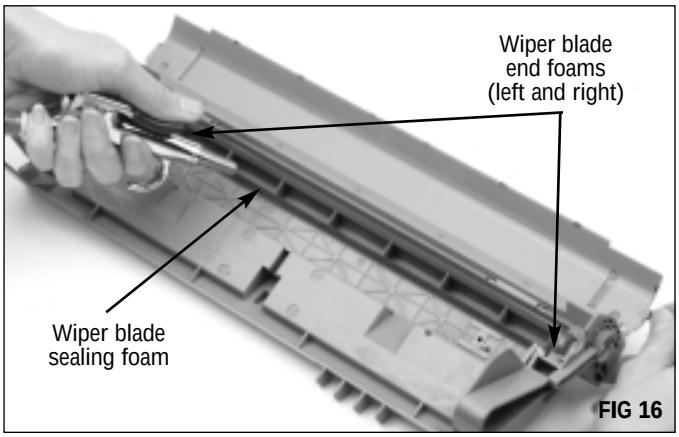


FIG 16

Disassembling the Waste Bin Section

7. **Inspect the wiper blade sealing foam and end foams. (FIG 17)**
   The foam material should display a smooth surface void of pits or tears in the material. Tears in the material can result in a source of leakage from the waste bin.

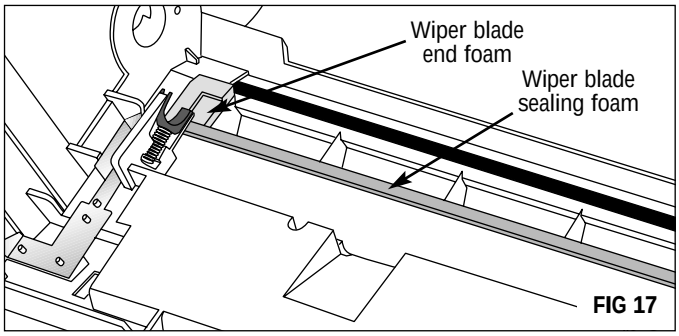


FIG 17

8. **Install a drum shutter felt.**
   The drum is highly susceptible to damage by the drum shutter due to the extended length and flexibility of the shutter. (Item Code: XP15DSFELT)

   Remove the adhesive backing from the shutter felt. Center the felt on the inside surface of the shutter as shown in FIG 18.

   Complete instructions regarding drum shutter installation are included with the product, or refer to System Support Series #33.

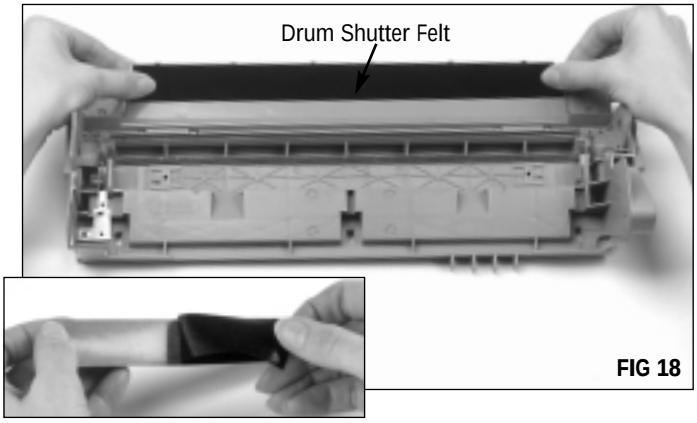


FIG 18

9. **Clean the PCR contact saddle (left end of waste bin).**
   Clean any toner residue from the saddles and electrical contact pad using a lint-free swab dampened with 91-99% isopropyl alcohol. (FIG 19)

DO NOT apply conductive cartridge lubricant to either PCR saddle, shaft or to the conductive cap. Lubricant is not present on the OEM cartridge.

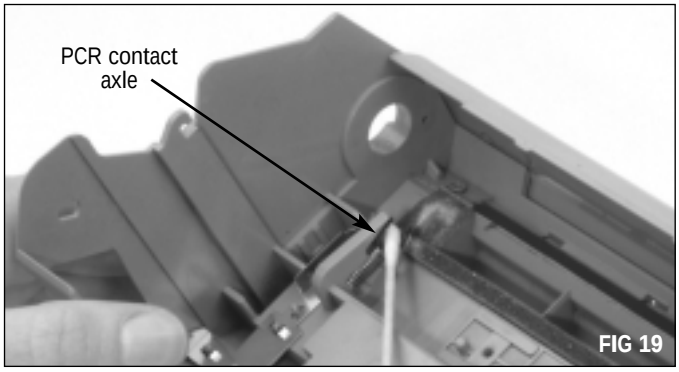


FIG 19

Assembling the Waste Bin Section

TOOLS YOU WILL NEED:

- Needlenose pliers
- Phillips Screwdriver
- Kynar® (Item Code: KPOW)
- Long, shallow trough for dipping edge of wiper blade in Kynar®
- Lint-free cloth (Item Code: LFCLOTH)
- Lint-free or cotton swab (Item Code: LFSWAB or QTIP)
- Compressed air for cleaning (see page 20 for important information regarding the use of compressed air)
- 91-99% Isopropyl alcohol (see page 21 for important information regarding the use of alcohol for cleaning)

IMPORTANT Excessive torque applied to any of the screws may damage the screw bosses.

1. **Clean and inspect the recovery blade.**
   Clean the blade and stamping with dry, filtered compressed air. Be very careful not to damage the fragile blade. (FIG 20)

   The recovery blade should display a smooth, flat surface free of kinks or waviness along the edge.

   Replace blade (Item Code: BXRECBLADE) if damaged or dislodged or replace the entire assembly (Item Code: BXR-BASM). An installation tool is required for individual blade replacement.

   Complete instructions regarding recovery blade installation are included with the installation kit (Item Code: RBIKIT), *or refer to System Support Series #19.*

2. **Install the recovery blade.**
   Position the stamping over locating posts at each end of the waste bin and secure the assembly with two Phillips Screws. (FIG 21)

3. **Clean and inspect the wiper blade.**
   Clean the wiper blade with dry, filtered compressed air ONLY. Direct air close to foam on the stamping to remove toner and debris. (FIG 22)

DO NOT use alcohol or any alcohol-based solvent to clean the polyurethane blade.

For best results, replace the wiper blade each time you replace the drum. (Item Code: BXBLADE)

Many wiper blade defects can be determined through test printing before the cartridge is remanufactured. Check for horizontal streaks or smudging (letter size page).

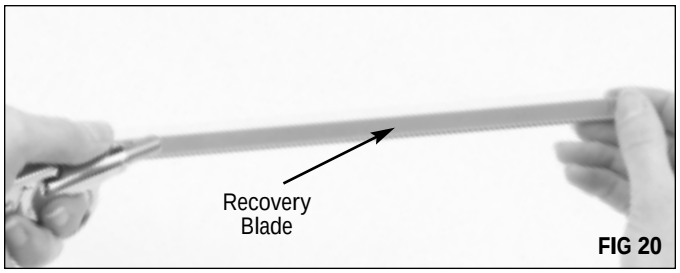


FIG 20

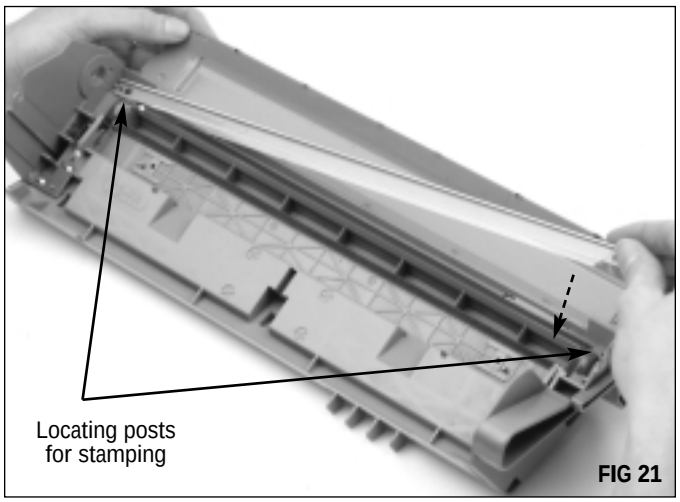


FIG 21

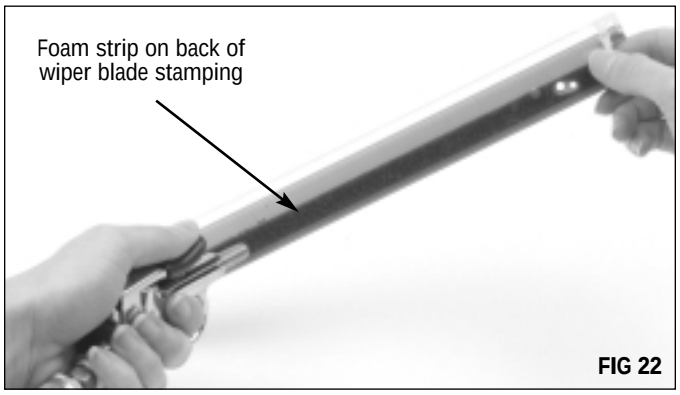


FIG 22

Assembling the Waste Bin Section

4. **Dip the edge of the blade in Kynar® (Item Code: KPOW).**
Examine the length of the blade to ensure even coverage. Repeat the dipping process one more time. (FIG 23)

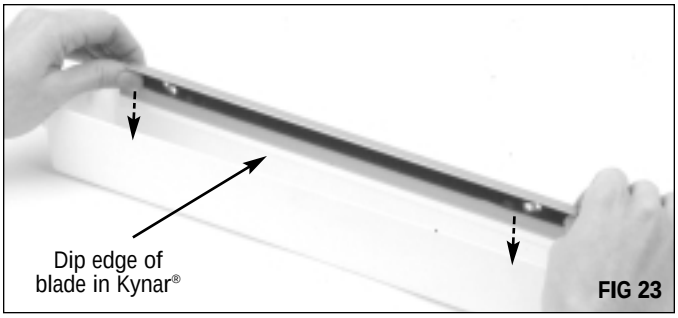


FIG 23

5. **Install the wiper blade.**
Position the stamping over the locating posts in the waste bin, and secure the blade with two Phillips Screws. (FIG 24)

Note that the screw installed closest to the contact end of the waste bin uses a washer. Be sure to install the washer with the screw. (FIG 24a)

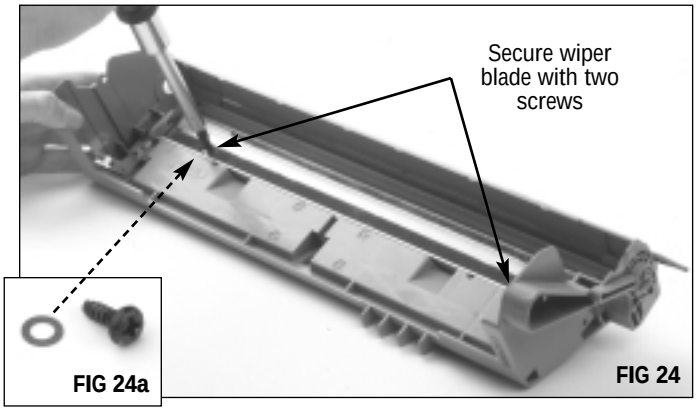


FIG 24

FIG 24a

6. **Clean and inspect the PCR.**
Gently wipe the PCR in one direction. Be careful not to pinch or dent the surface of the PCR, as the material has poor memory. (FIG 25)

• Clean the **SCC PCR** using a soft, lint-free cloth dampened with 91-99% ISOPROPYL ALCOHOL.

• Clean the **OEM PCR** using a soft, lint-free cloth dampened with WATER ONLY.

DO NOT lubricate the PCR shaft or conductive saddle.

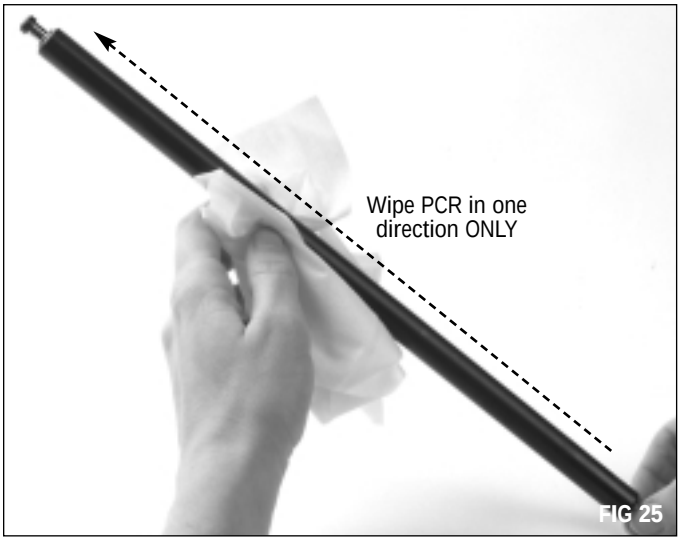


FIG 25

Assembling the Waste Bin Section

7. **Install the PCR.**
Position the end of the PCR with the conductive cap on the contact saddle (left end) as shown in FIG 26. Make sure the cap is seated against the metal contact as shown in the magnified view of FIG 26a to ensure proper electrical contact between the printer and PCR.

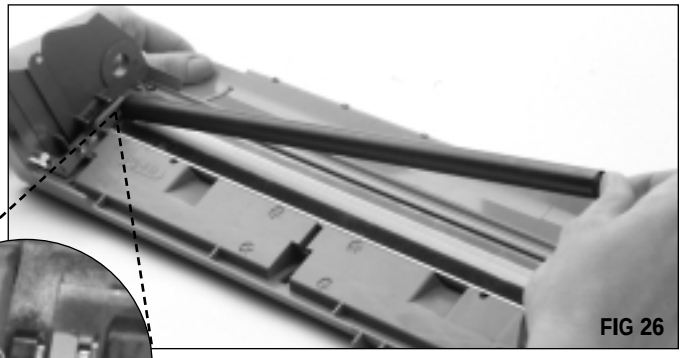


FIG 26

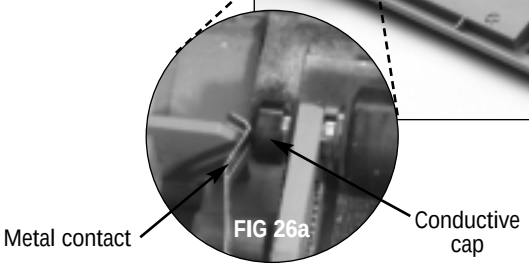


FIG 26a

8. **Clean and inspect the drum.**
Clean the drum with dry, filtered compressed air. Inspect the drum for deep concentric wear lines or cracks in the coating. (FIG 27)

We recommend replacing the OEM drum with a Static Control's UltraPrint™ BXII Drum with gears (Item Code: UPBXDRGR) or the BX/QMS-860 Blue Green drum without gears (Item Code: BXBGDRUM). The UltraPrint™ and Blue-Green drums can be used in either the BX or BXII applications. For best results, use the UltraPrint™ drum in combination with the LJ4V/BX MicroGraphics 1 toner. See page 3 for more details on the BX UltraPrint™ drum.

Complete instructions regarding gear installation are included with the drum, or contact Technical Support for additional instructions. Phone numbers are listed on the back page of this manual.


FIG 27

DO NOT use cleaning agents or coatings on the drum. Be careful not to nick the surface of the drum with the air nozzle.

9. **Pad the coated area of the drum with Kynar® (Item Code: KPOW).**
Be careful to avoid Kynar® on the gears. (FIG 28)

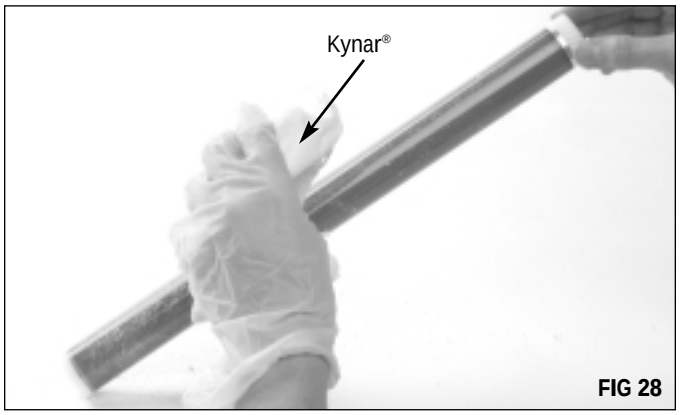


FIG 28

Assembling the Waste Bin Section

10. **Install the drum.**
Position the drum in the waste bin with the helical gear on the right as shown in FIG 29.

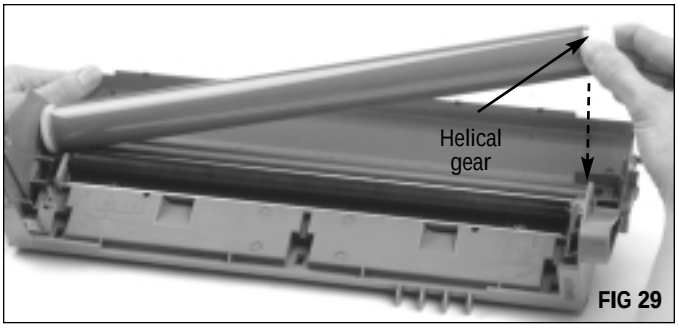


FIG 29

11. **Install both drum axles.**
Secure with holding screws. The contact axle is installed on the left end of the waste bin as shown in FIG 30.

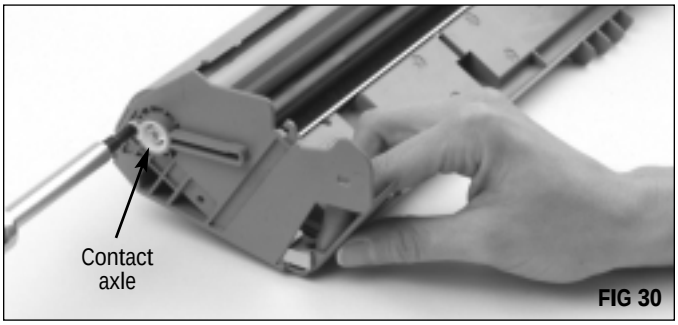


FIG 30

The non-contact axle is installed on the right end of the waste bin as shown in FIG 31.

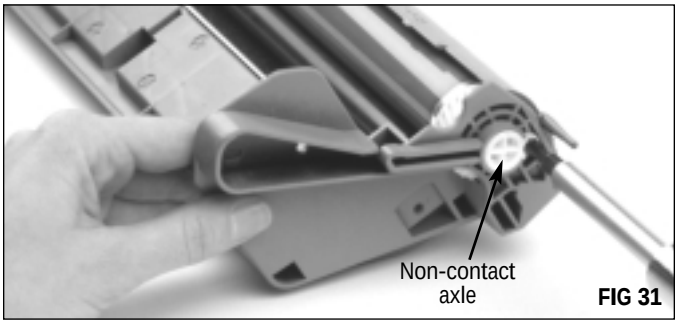


FIG 31

12. **Rotate the drum at least 6 revolutions in the direction indicated by the arrows in FIG 32.**
Rotating the drum will help lubricate the wiper blade and prevent the potential of blade "flip overs". Any Kynar® wiped from the drum by the wiper blade will deposit in the waste bin.

As you rotate the drum, wipe the Kynar® from the PCR with a lint-free cloth as shown in FIG 32 , or use dry, filtered compressed air to blow off the Kynar®.

IMPORTANT Make sure there is no Kynar® present on the PCR, otherwise repeating voids in solid print areas at the PCR interval may result.

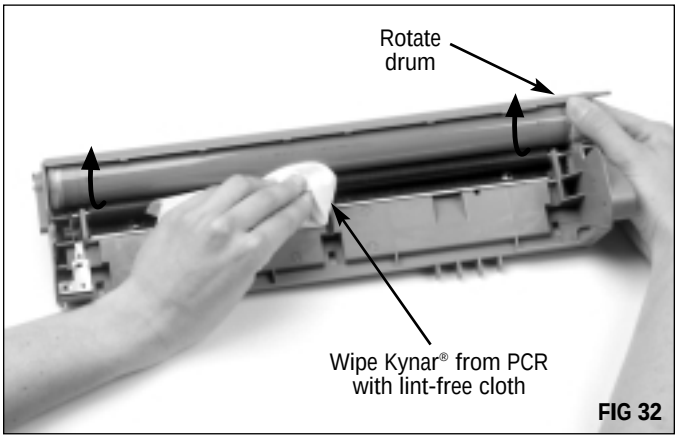


FIG 32

13. **Place the assembled waste bin section in a light-protected area until final reassembly.**

Disassembling the Toner Hopper Section

TOOLS YOU WILL NEED:
- Phillips Screwdriver
- Compressed air for cleaning (see page 20 for important information regarding the use of compressed air)

1. **Remove the right mag roller end plate.**
Remove three Phillips Screws as shown in FIG 33.

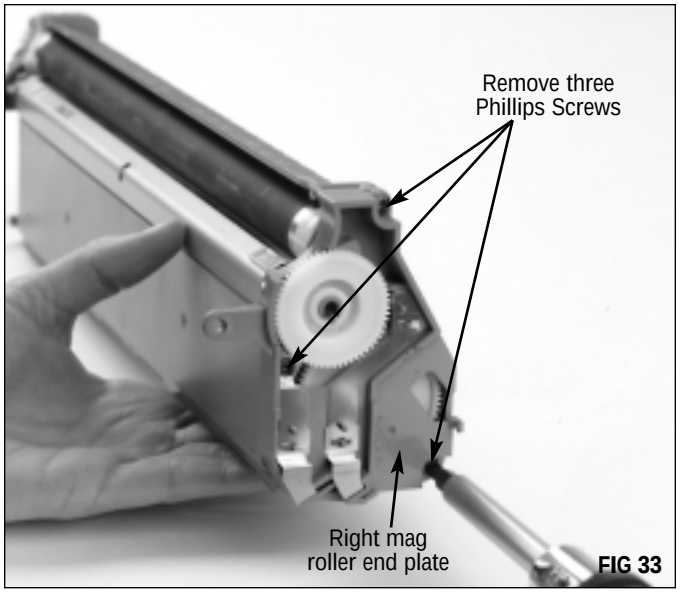


FIG 33

Pull the end plate off the end of the hopper. (FIG 34)
Note that the electrical contacts for the mag roller, toner low sensor bar and doctor blade are located in the right end plate.

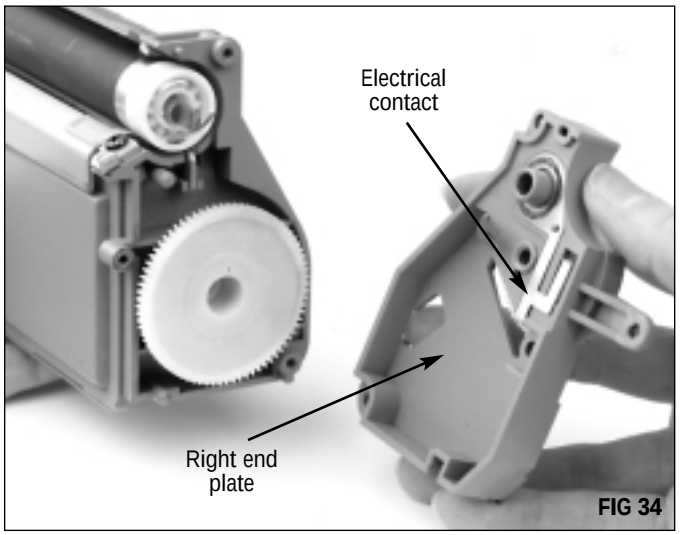


FIG 34

2. **Remove the left mag roller end plate.**
Remove two Phillips Screws as shown in FIG 35.

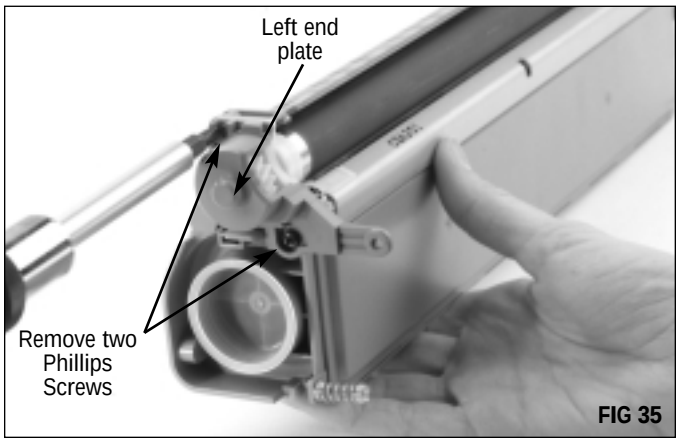


FIG 35

Disassembling the Toner Hopper Section

Pull the end cap off the end of the hopper as shown in FIG 36. Note that the left end cap does not house electrical contacts.

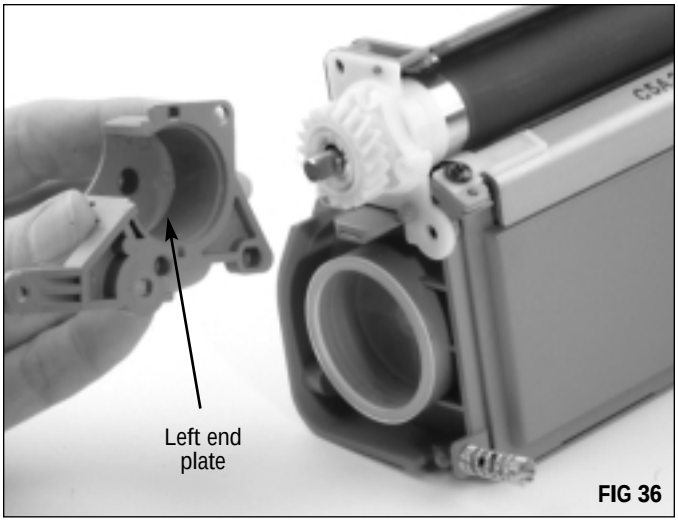


FIG 36

3. **Remove the mag roller drive gear. (FIG 37)**

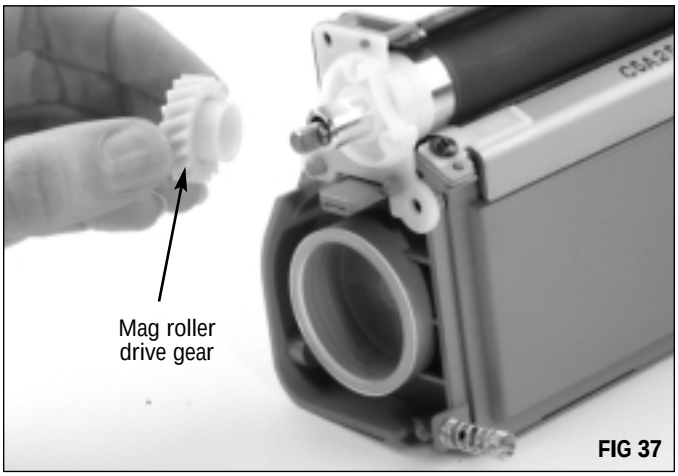


FIG 37

4. **Remove the mag roller stabilizer. (FIG 38)**

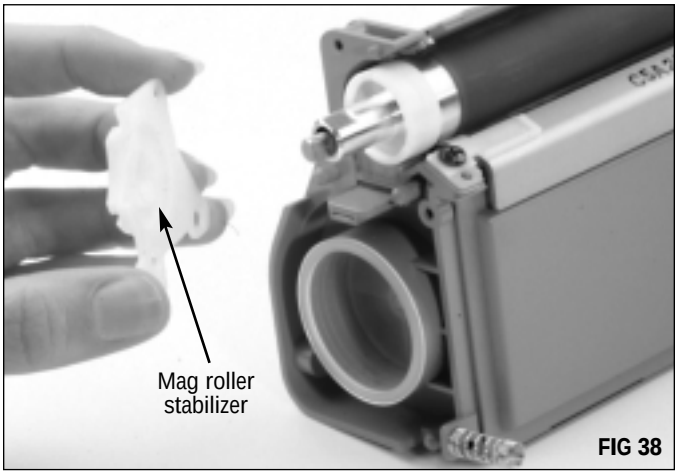


FIG 38

Disassembling the Toner Hopper Section

5. **Remove the mag roller.**
   Grasp the axles at each end of the mag roller as shown in FIG 39 and carefully remove the roller from the hopper. The mag roller sleeve bushings installed on each end of the mag roller can be left in place or removed. Be careful not to lose the bushings.

DO NOT touch the surface of the mag roller with your fingers or scratch the surface. Store the mag roller on a soft surface, but DO NOT stack the rollers on top of each other.

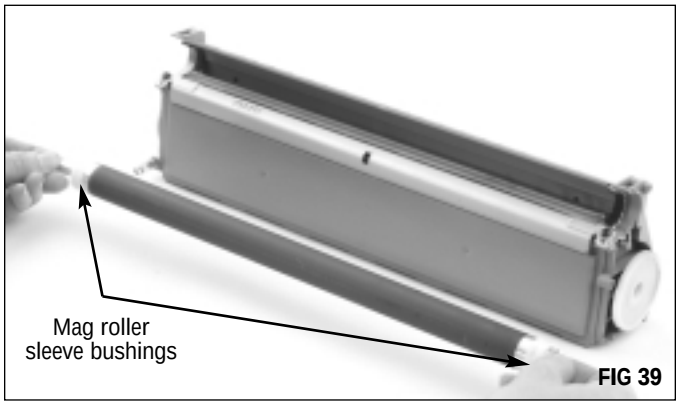


FIG 39

6. **Remove the doctor blade.**
   Remove the two Phillips Screws that secure the blade stamping. (FIG 40)

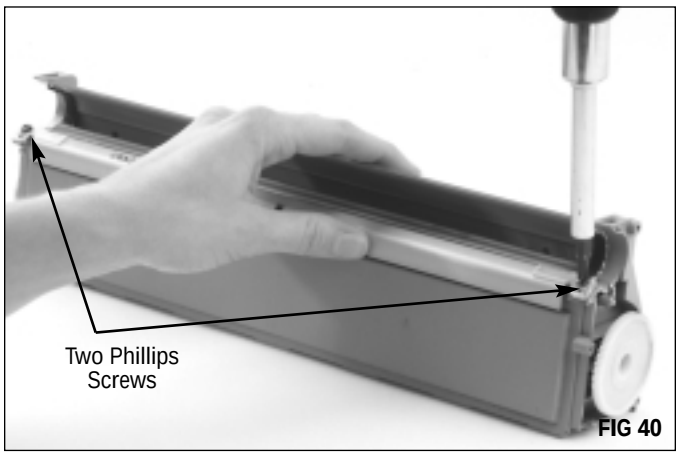


FIG 40

Then, lift the blade from the hopper as shown in FIG 41. Be careful not to lose the plastic wipers on the doctor blade. You will reuse these if you install a replacement blade.

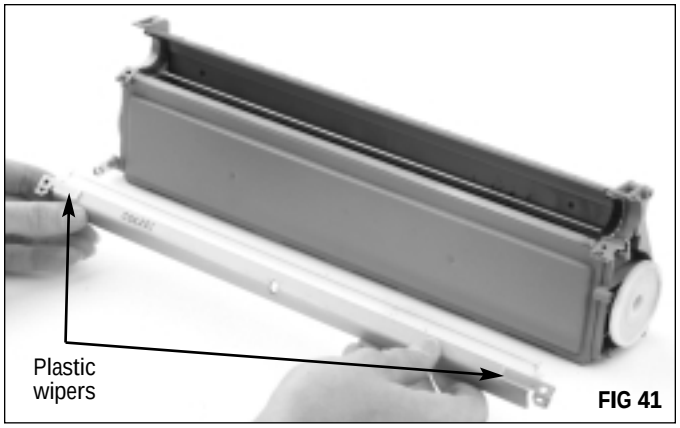


FIG 41

Disassembling the Toner Hopper Section

7. **Clean the hopper with dry, filtered compressed air.** Direct compressed air on and around the doctor blade sealing foam and mag roller felt components in order to remove as much toner and debris as possible. (FIG 42)

   We don't recommend using a toner vacuum to clean the hopper section due to potential damage to the toner low sensor bar.

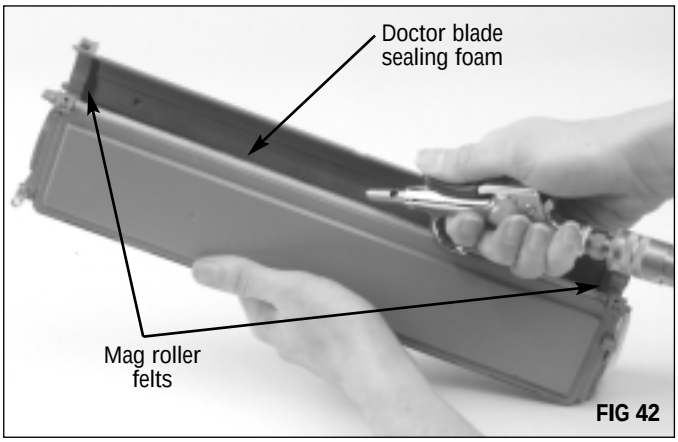


FIG 42

Before You Continue...

If you plan to seal the hopper, proceed to page 38 for an overview of the Static Control Gasket Sealing Assembly installation instructions. The section is provided to show you the basic steps of installation; however, you should not attempt to seal the hopper without thoroughly reading the instructions included with the BX Gasket Sealing Assembly Kit (Item Code: BXGSAKIT) or refer to System Support Series #48.

If you plan to fill the hopper, but not install a seal, proceed to page 43 to reassemble the toner hopper section. Then follow the instructions on page 47 to fill the hopper.

Sealing and Filling the Toner Hopper - Overview

IMPORTANT The instructions in this section are included to provide an **OVERVIEW** of BX Gasket Sealing Assembly installation. Refer to the product instructions included with the BX Gasket Sealing Assembly Kit for more details. **DO NOT ATTEMPT TO SEAL THE HOPPER WITHOUT THOROUGHLY READING THE INSTRUCTIONS.**

TOOLS YOU WILL NEED:

- Needlenose pliers
- BX Gasket Sealing Assembly Kit (Item Code: BXGSAKIT) For a listing of the kit contents, see page 57 of this guide
- Compressed air for cleaning (see page 20 for important information regarding the use of compressed air)
- 91-99% Isopropyl alcohol (see page 21 for important information regarding the use of isopropyl alcohol)

1. **Remove the right and left mag roller felts.**
   In order to install a new seal or remove an old seal, the mag roller felts, toner low sensor bar and seal channel plug must be removed. Use the curved scraper blade tool (included in the seal kit) to lift up one end of the felt as shown in FIG 43. Then carefully peel the felt, along with the underlying adhesive, from the hopper.

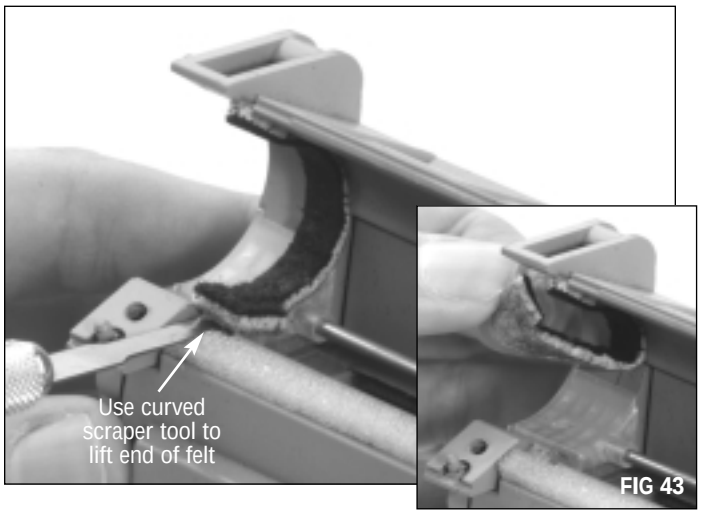


FIG 43

2. **Remove the toner low sensor bar.**
   The toner low sensor bar is removed by grasping the bent end of the bar, then lifting the bar up and out of the hopper. (FIG 44)

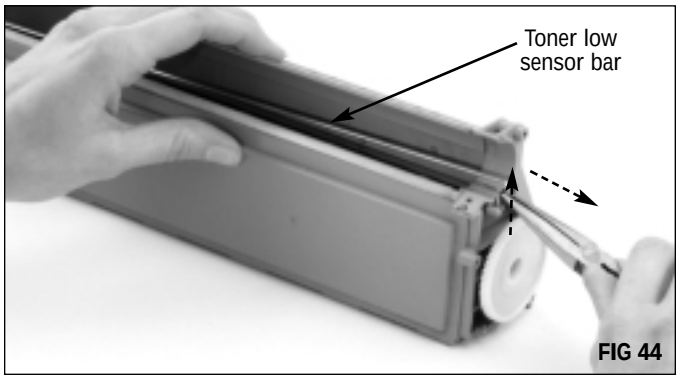


FIG 44

3. **Remove the seal channel plug.**
   Use a pair of needlenose pliers to slide the plug to the left and out of the seal channel.(FIG 45)

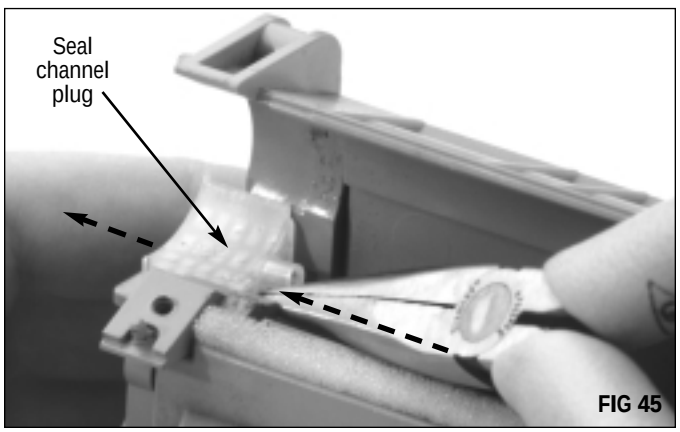


FIG 45

Sealing and Filling the Toner Hopper - Overview

IMPORTANT If Static Control seal or other aftermarket seal is present in the channel, skip step 4 entirely. Refer to the BX Gasket Sealing Assembly installation instructions for details on how to remove these seals.
(System Support Series #48).

4. **Remove the OEM Seal material. (FIG 46)**
   It is very important to remove as much of the OEM seal as possible in order to ensure a secure seal with the new gasket seal. Large filaments of OEM material trapped underneath a new seal can raise the new seal and allow toner leakage from the hopper. (FIG 47)

   For the BX application, 91-99% isopropyl alcohol is applied to the seal to loosen the filament material. A curved scraper blade tool, designed specifically for seal removal, is provided in the kit.

IMPORTANT See page 21 for important information regarding the use of isopropyl alcohol for this application.

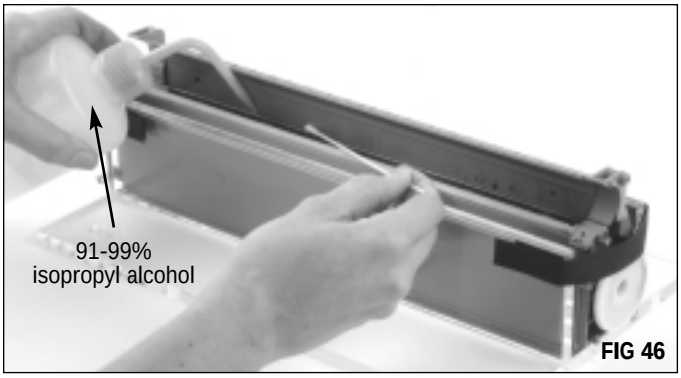


FIG 46

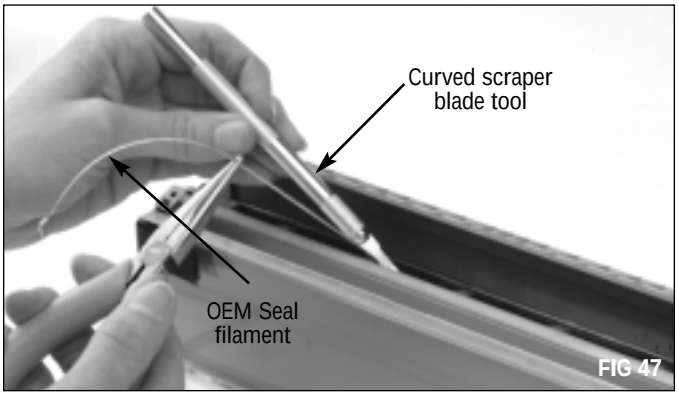


FIG 47

5. **Clean the hopper with dry, filtered compressed air. (FIG 48)**
   A groove at the rear of the seal channel is used to anchor the new seal in position in the hopper. Any residual alcohol in the groove can prevent the seal adhesive from securing to the hopper. Residual alcohol can also fall into the toner reservoir and combine with toner.

IMPORTANT The sealing surfaces, groove area, and hopper must be COMPLETELY DRY before a new seal is installed. Allow adequate time for the alcohol to completely evaporate.

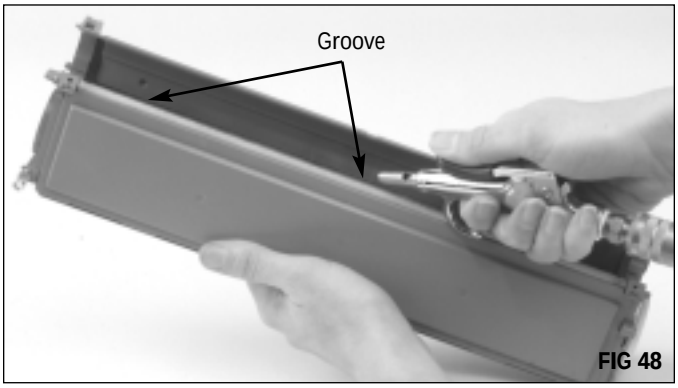


FIG 48

6. **Install the gasket sealing assembly. (FIG 49)**
   Before the seal is initially positioned in the hopper, the release liner on the seal is folded so that it accessible once the seal is properly positioned in the sealing channel. Then the backing can be removed without disturbing the position of the seal.

   The rear edge of the gasket seal is anchored in a groove that runs along the rear of the hopper seal channel. An insertion tool is used to seat the edge of the seal in the groove. When the edge of the seal is properly seated, the entire sealing assembly will lie flat in the sealing channel.

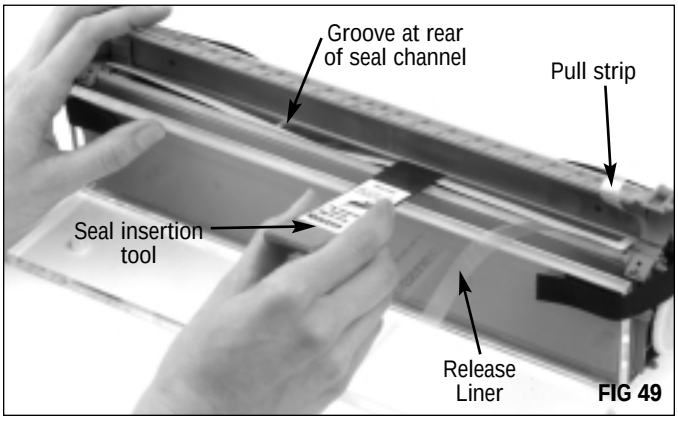


FIG 49

Sealing and Filling the Toner Hopper - Overview

7. **Remove the release liner from the seal.**
The photos in FIGs 50 & 51 illustrate how the backing is removed while the seal is positioned in the hopper. The backing is removed and the seal is secured to the hopper in small increments using the curved end of the installation tool or your finger as shown.

DO NOT press firmly on the center port area of the seal.

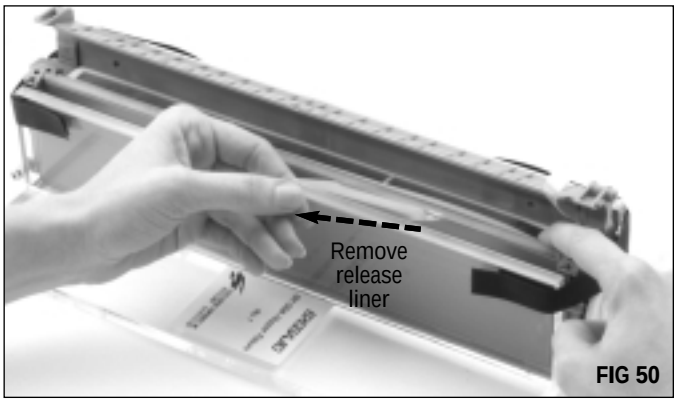


FIG 50

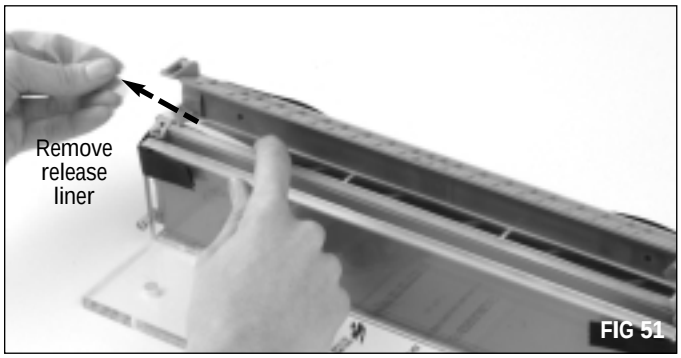


FIG 51

8. **Secure the perimeter of the seal.**
The ends of the seal are particularly susceptible to toner leakage if not secure. (FIG 52)


FIG 52

9. **Fold the pull strip over the gasket sealing assembly. (FIG 53)**

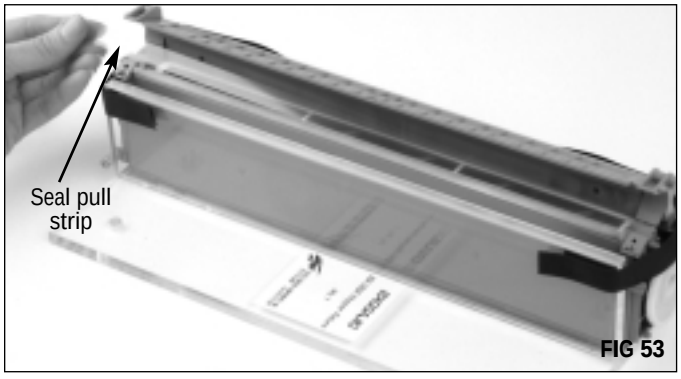


FIG 53

Sealing and Filling the Toner Hopper - Overview

10. Install the seal channel plug and toner low sensor bar. (FIG 54)

Install the seal channel plug by sliding it into the seal channel.

The bent end of the toner low sensor bar provides electrical contact with a metal contact in the right mag roller end plate. Therefore, it is critical that the bar is properly secured in the hopper. A drop of adhesive caulk is used to secure the bar, as well as to seal the area around the toner low sensor bar and prevent toner leakage into the end plate. The adhesive caulk is included in the BX gasket seal kit.

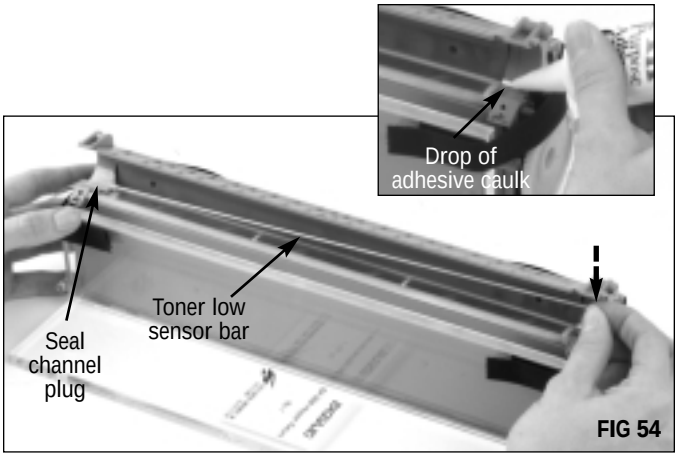


FIG 54

11. Install replacement left and right mag roller felts.

The mag roller felts used for the BX application are die-cut with an extension as well as an angled end along one edge of the felt. When the felts are installed, the extension and angle should face the interior of the hopper. A set of mag roller felts are included with the BX Gasket Sealing Assembly kit or available separately. (Item Code: BXMRFELT)

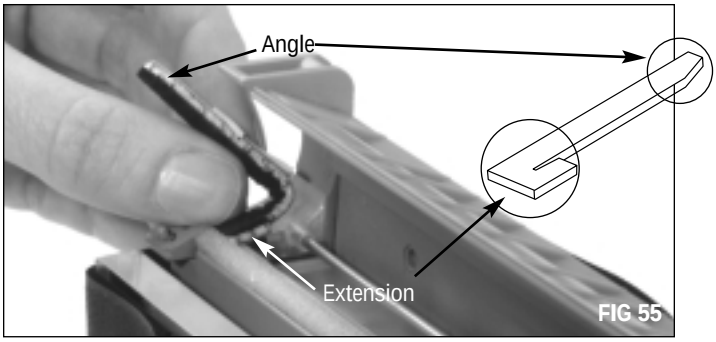


FIG 55

12. Inspect the doctor blade sealing foam

When the BX seal is installed or replaced, the doctor blade sealing foam is easily damaged by direct contact with installation tools and alcohol used to clean the seal channel. The alcohol can deteriorate the adhesive that holds the foam to the hopper and cause the foam to become dislodged.

Carefully inspect the foam and make sure that it is free of pits or tears, and the entire length of the foam is secured to the hopper. Replace as required. (Item Code: BXDBSFOAM)

To remove the foam, lift up one end of the foam with the curved scraper blade tool, then peel the foam and adhesive backing from the hopper. (FIG 56)

Complete instructions regarding doctor blade sealing foam installation are included with the product, or refer to System Support Series #52.

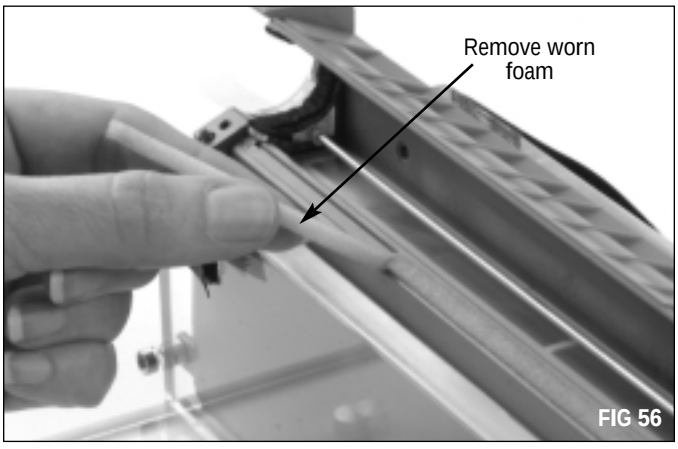


FIG 56

Sealing and Filling the Toner Hopper - Overview

13. **Install replacement doctor blade sealing foam.**
Remove a small section of the backing. (FIG 57a) Starting at one end of the hopper, press the exposed section of the foam to the mounting surface. (FIG 57)

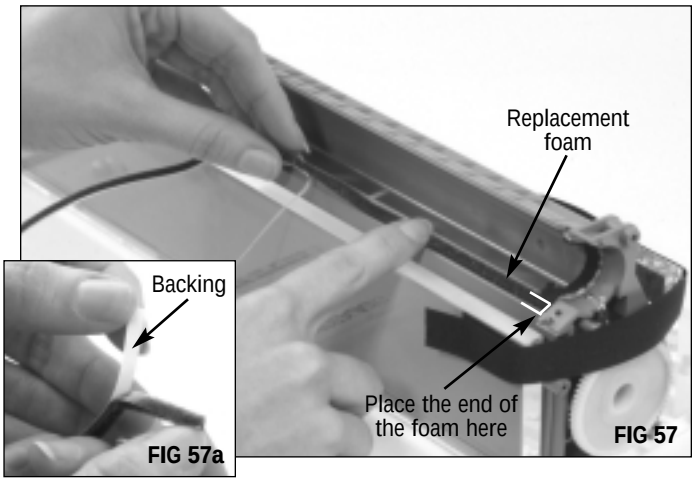


FIG 57a

FIG 57

14. **Fill the hopper with toner through the fill hole. (FIG 58)**
BX: Use BX/QMS-860 MicroGraphics 1 toner, 340 grams (Item Code: BX340B)
BXII: Use LJ4V/BXII MicroGraphics 1 toner, 400 grams (Item Code: BX2-400B)

IMPORTANT Static Control's BX toner is formulated for BX (QMS 860) applications ONLY. Static Control's BXII toner can be used in either BX or BXII applications. See page 3 for more details.


FIG 58

15. **Install the hopper cap. (FIG 59)**

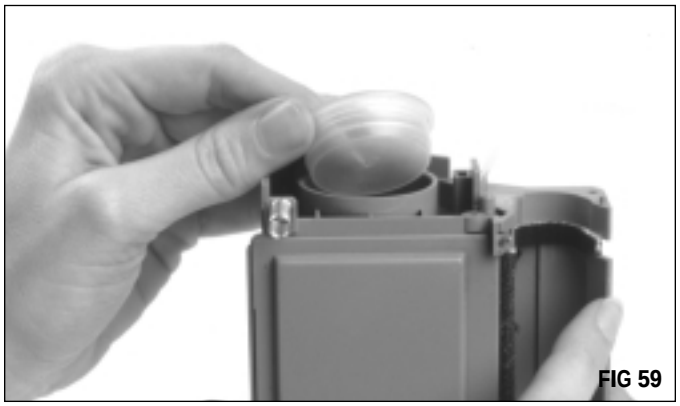


FIG 59

Assembling the Toner Hopper Section

TOOLS YOU WILL NEED:

- Needlenose pliers
- Phillips Screwdriver
- Lint-free cloth (Item Code: LFCLOTH)
- Lint-free or cotton swab (Item Code: LFSWAB or QTIP)
- Conductive Cartridge Lubricant (Item Code: CONCLUBE)
- Compressed air for cleaning (see page 20 for important information regarding the use of compressed air)
- 91-99% Isopropyl alcohol (see page 21 for important information regarding the use of isopropyl alcohol.)

1. **Clean the doctor blade with dry, filtered compressed air. (FIG 60)**
   We recommend replacing the OEM doctor blade with the Static Control doctor blade (Item Code: BXDBLADE) after the OEM cycle.

   For subsequent remanufacturing cycles, test print the cartridge prior to remanufacturing and inspect prints for doctor blade-related print defects. Replace the blade as required. *See the component management chart on pages 14-17 for more details.*


FIG 60

   Remove the plastic wipers from the old doctor blade and install on the replacement blade as shown in FIG 61. For an illustration of the orientation of the wipers on the doctor blade stamping, see page 8.

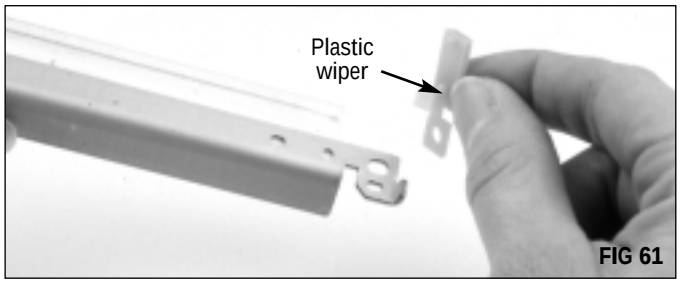


FIG 61

2. **Install the doctor blade.**
   Position the doctor blade stamping over the locating posts in the hopper section as shown in FIG 62.

   Secure the blade with Phillips Screws as shown in FIG 62a.

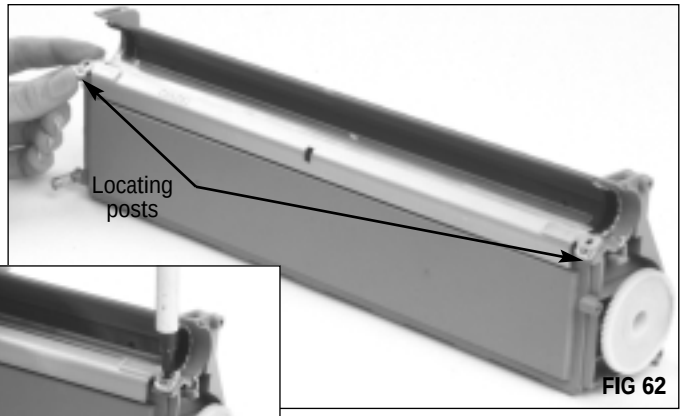


FIG 62


FIG 62a

Assembling the Toner Hopper Section

3. **Clean the mag roller with dry, filtered compressed air.** (FIG 63)

DO NOT scratch the coated area of the roller with the air nozzle or touch the mag roller with your fingers.

A remanufactured mag roller sleeve is currently under development.


FIG 63

4. **Clean the mag roller bushings.**
Use a lint-free cloth or a swab to clean toner and debris from the bushings. (FIG 64)

Replace bushings if cracked or excessively worn.

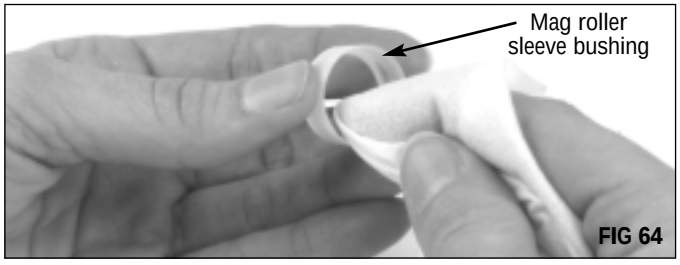


FIG 64

5. **Clean the mag roller contact.**
Use a cotton or lint-free swab to remove the grease from metal contacts. (FIG 65)

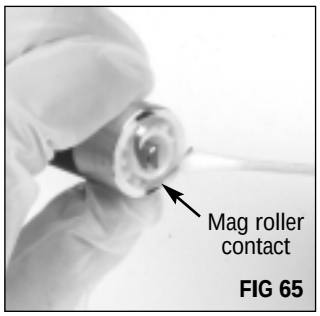


FIG 65

6. **Install mag roller bushings on each end of the mag roller. (FIG 66)**

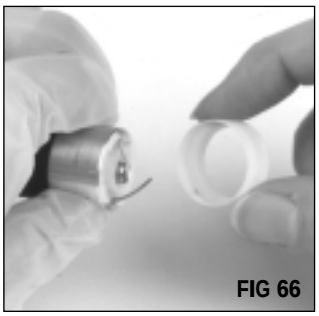


FIG 66

7. **Install the mag roller.**
Make sure the contact end of the roller is on the right end of hopper as shown in FIG 67.

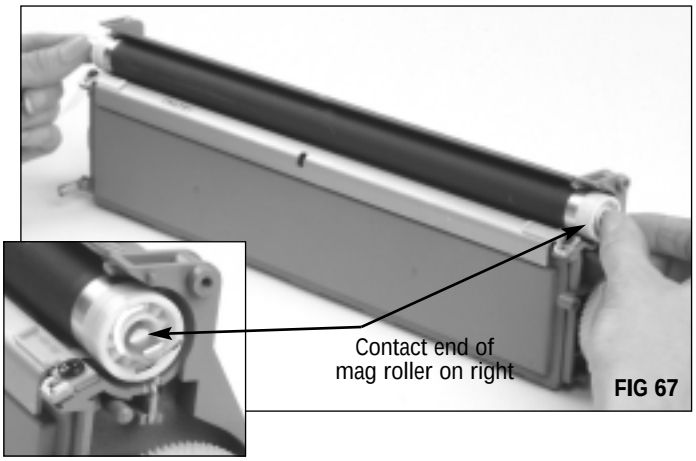


FIG 67

Assembling the Toner Hopper Section

8. **Clean the mag roller electrical contact on the right end plate with a swab (Item Code: QTIP) or (Item Code: LFSWAB) dampened with 91-99% isopropyl alcohol. (FIG 68)**
   For more information about cleaning with alcohol and where to find 91% or 99% isopropyl alcohol, turn to page 21.

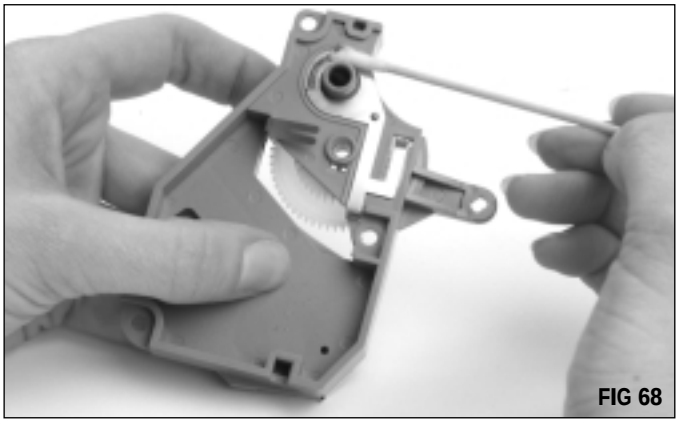


FIG 68

9. **Apply a THIN layer of conductive cartridge lubricant (Item Code: CONCLUBE) on the electrical contact. (FIG 69)**
   Use the wooden end of a swab as an applicator. For more information regarding the application of cartridge lubricant, turn to page 22.

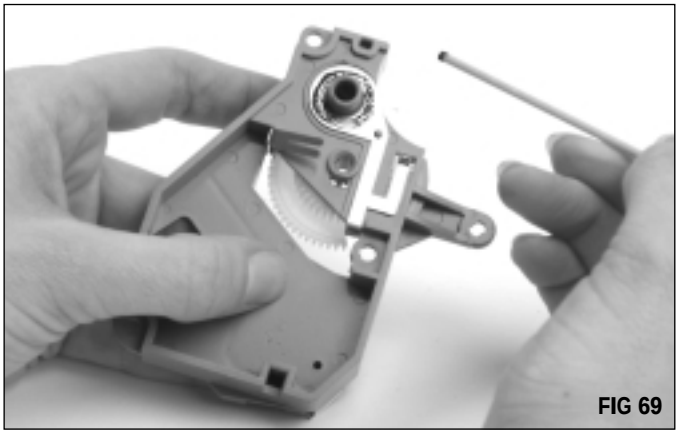


FIG 69

10. **Install the right mag roller end plate.**
    Note that the contact end of the mag roller axle is keyed as shown in FIG 70, and fits into a positioner bushing in the right end plate. As you position the end cap over the hopper, grasp the axle at the opposite end of the mag roller and rotate the magnet until the axle seats in the positioner bushing. (FIG 71)

    Secure the end plate with 3 Phillips Screws.

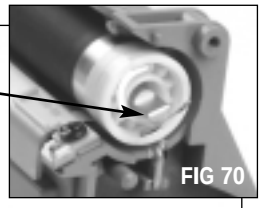


FIG 70

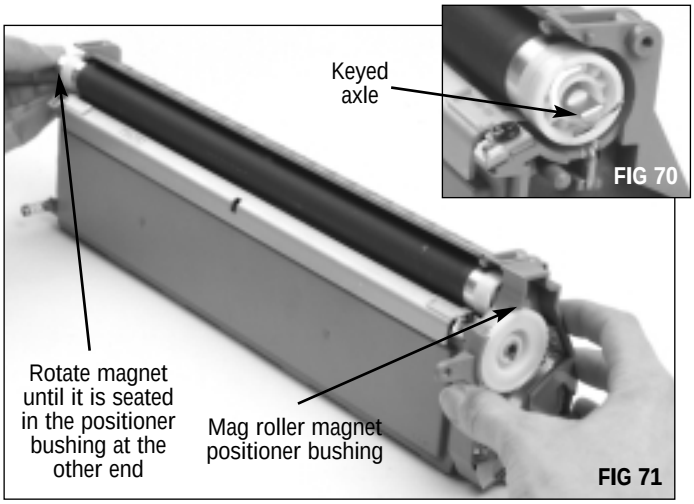


FIG 71

Assembling the Toner Hopper Section

11. **Install the mag roller stabilizer and drive gear on the left end of the hopper.**
Make sure each of these components is positioned correctly as shown in FIGs 72, 73 & 74.

There are several variations of these three components. Refer to page 18 for details regarding proper assembly.

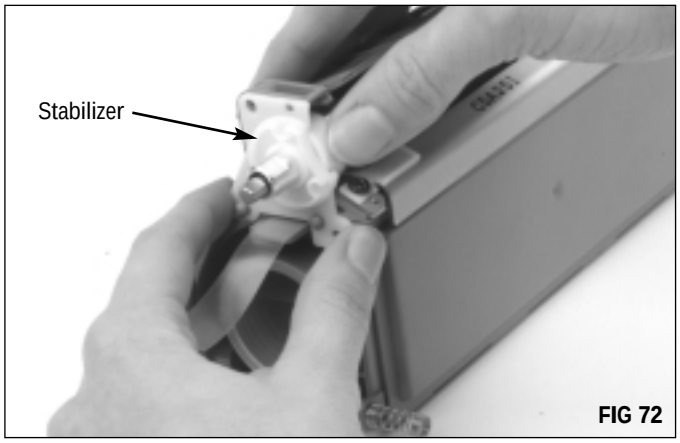


FIG 72

Position the mag roller drive gear so that the non-geared flange faces toward the mag roller. (FIG 73)

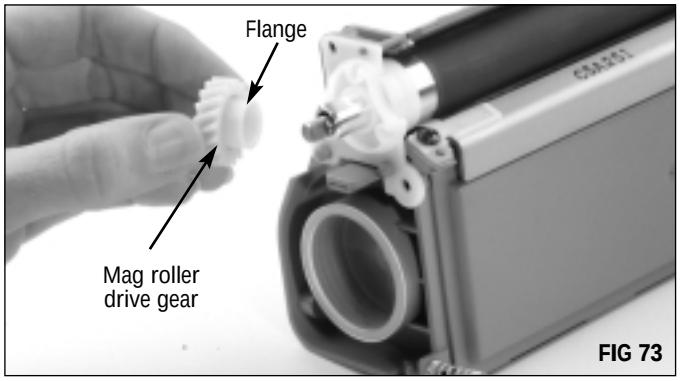


FIG 73

12. **Install the left mag roller end plate as shown in FIG 74.**
Secure the end plate with two Phillips Screws.

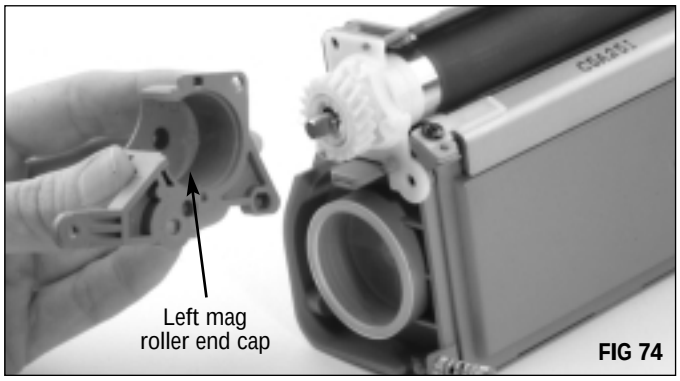


FIG 74

Filling the Toner Hopper Without a Seal

Before filling the hopper, make sure the toner hopper section is completely reassembled. With the mag roller securely installed, the hopper is adequately sealed for filling from toner bottles or filling machines. However, note that filling machines may dispense toner with some force or pressure that can cause some leakage from around the mag roller.

WARNING **We do not recommend shipping the BX/BXII cartridge without a seal. BX cartridges that are not sealed are highly susceptible to leakage during shipping and handling.**

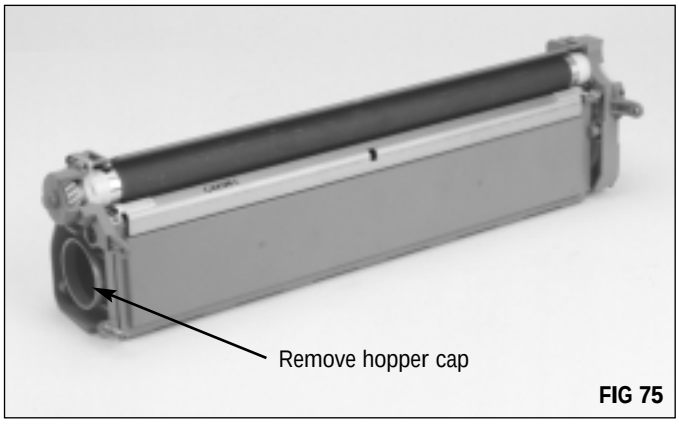


FIG 75

1. **Remove the hopper cap.**

2. **Shake the toner bottle to aerate the toner.**
   BX: Use BX/QMS-860 MicroGraphics 1 toner, 340 grams (Item Code: BX340B) or LJ4V/BXII MicroGraphics 1 toner (Item Code: BX2-400B)
   BXII: Use LJ4V/BXII MicroGraphics 1 toner, 400 grams (Item Code: BX2-400B)


FIG 76

IMPORTANT **Static Control's BX toner is formulated for BX (QMS 860) applications ONLY. Static Control's BXII toner can be used in either BX or BXII applications. See page 3 for more details.**

3. **Using a funnel or a funnel attachment for the toner bottle, fill the hopper through the side fill hole. (FIG 76)**

IMPORTANT **Be very careful not to touch the mag roller as you fill the hopper. Oil from your fingers or hands can cause repeating print defects.**

4. **Install the hopper cap. (FIG 77)**

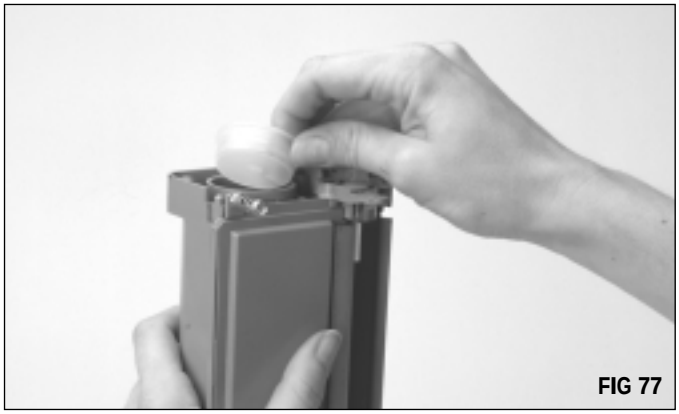


FIG 77

Assembling the Cartridge

TOOLS YOU WILL NEED:
- Needlenose pliers
- Phillips Screwdriver
- LX Easy Pull Metal Cartridge Pins (2) (Item Code: LXPIN)

1. **Assemble the waste bin and toner hopper sections as shown in FIG 78.**
   As you bring the sections together, hold the drum shutter in a slightly "open" position to avoid lodging the shutter between the two sections. If the shutter becomes lodged, the shutter will not open when installed in the printer, which will result in damage to both the printer and cartridge.

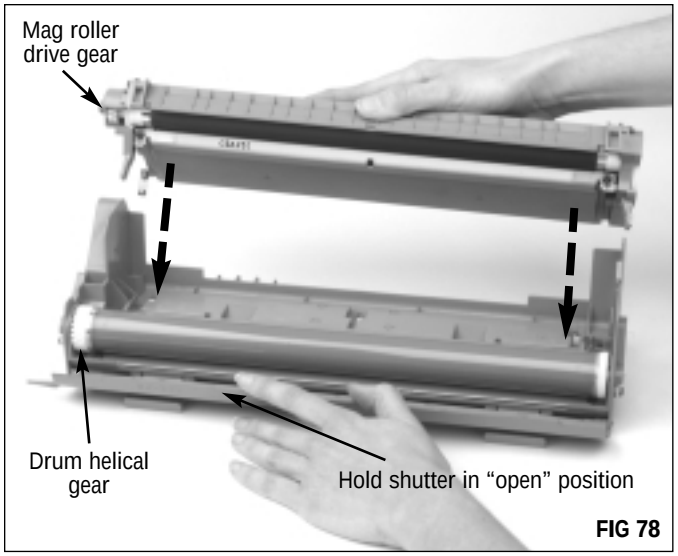


FIG 78

   Once the sections are assembled, open the shutter to confirm that it is not lodged. (FIG 79)

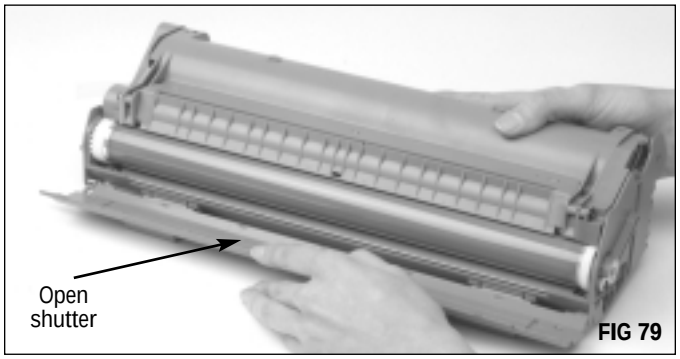


FIG 79

2. **Install the OEM cartridge pins at each end of the cartridge.** If the OEM pins are damaged or missing, use LX cartridge pins (Item Code: LXPIN). (FIG 80)

   Carefully squeeze the sections together to align the pin holes in each section. Then, push the pins in as far as they will go. Note that the heads of the replacement LX pins will protrude slightly from the base of the cartridge body even when fully installed. This should not interfere with cartridge or printer operations.

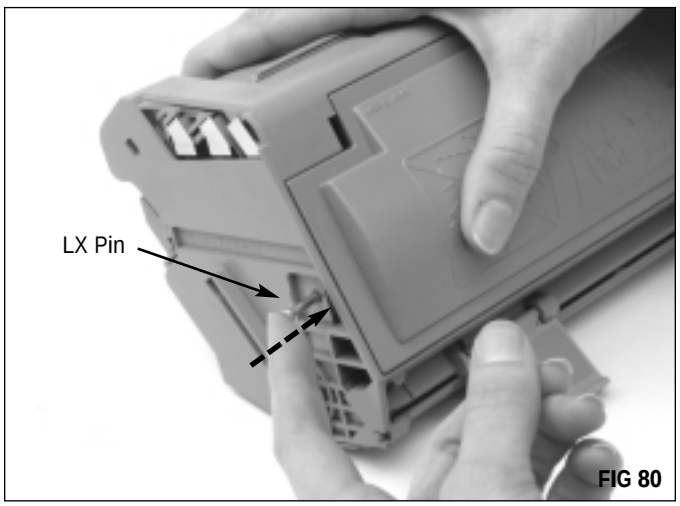


FIG 80

Assembling the Cartridge

3. **Install the exterior spring.** (FIG 81)

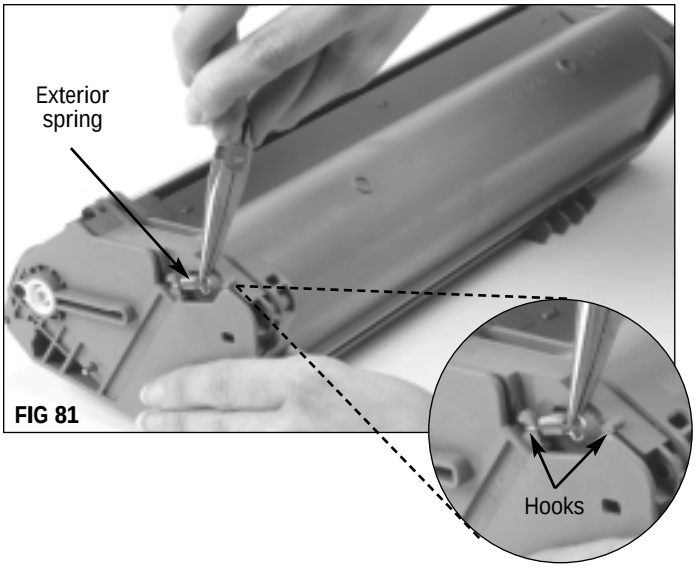


FIG 81

4. **Clean the exterior metal contacts.**
Use a cotton or lint-free swab dampened with 91-99% isopropyl alcohol to clean. (FIG 82)


FIG 82

Installing the Pull Tab

TOOLS YOU WILL NEED:

- Scissors
- BX Pull Tab (Item Code:BXOEMTAB)
  Includes instructions; note that the Static Control BX Pull Tab is for use with the BX Gasket Sealing Assembly (Item Code: BXGSA)

1. **Install the pull tab into the pull tab slot on the hopper.**
   After a BX Gasket Seal has been installed, slide the BX Pull Tab into the pull tab slot on the end of the hopper just above the toner fill hole as shown in FIG 83. Make sure the squared side of the BX Pull Tab is toward the spring on the hopper.

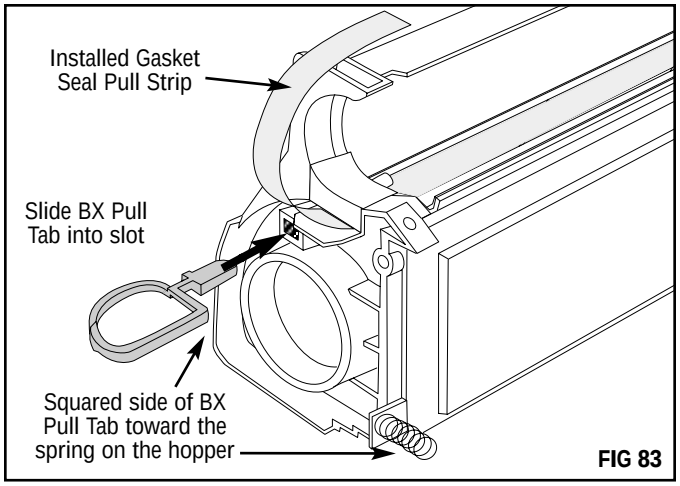


FIG 83

2. **Thread the seal pull strip through the pull tab.**
   Thread the seal pull strip between the squared edge of the BX Pull Tab and the seal exit shelf, then loop the pull strip up through the BX Pull Tab ring as shown in FIG 84.

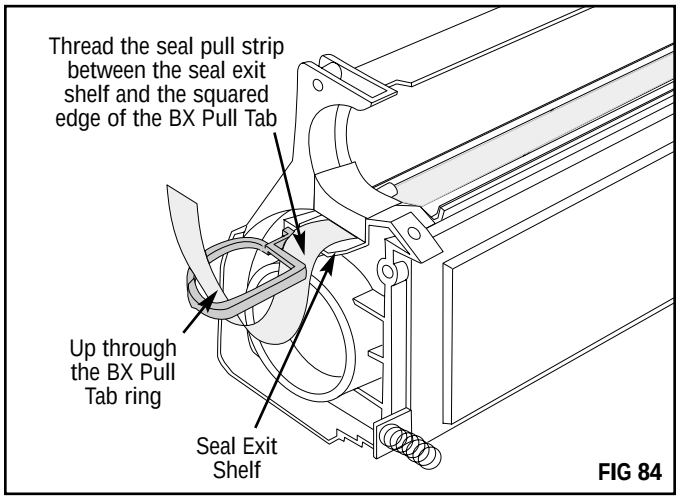


FIG 84

3. **Mark the pull strip and trim.**
   Loop the end of the seal pull strip back toward the seal channel exit port plug. Mark the seal pull strip with a pen where it meets the exit port plug. (FIG 85) Marking the seal pull strip ensures an accurate cut.

   With scissors, cut the seal pull strip along the mark and discard the excess.

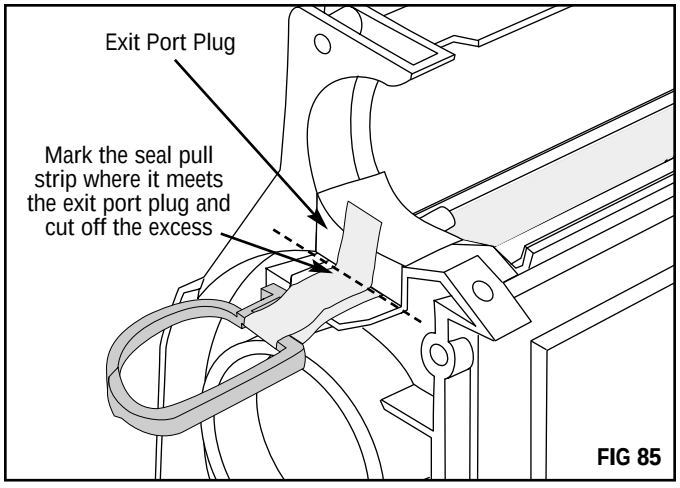


FIG 85

Installing the Pull Tab

4. **Attach an adhesive strip.**
   Remove an adhesive square from the sheet of adhesive. Place the adhesive square with the exposed, adhesive side down on the end of the seal pull strip. (FIG 86)

   Press the adhesive square in place and carefully peel away the paper backing. (FIG 86)

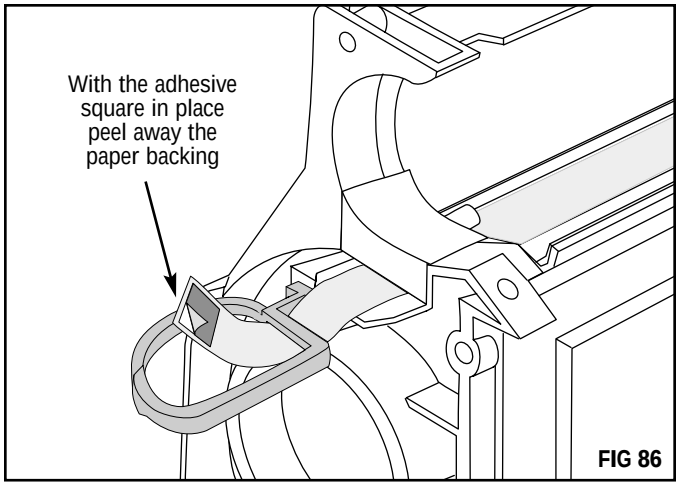


FIG 86

5. **Secure the seal pull strip loop.**
   Fold the end of the seal pull strip back toward the seal channel exit port plug and press the adhesive side down onto the seal pull strip exiting the seal port, thus creating a loop. (FIG 87) Press the seal pull strip firmly on the seal exit shelf to secure the loop.

DO NOT It is important to wrap the seal pull strip taut around the tab ring; however, be careful not to pull hard enough to release or break the installed gasket seal.

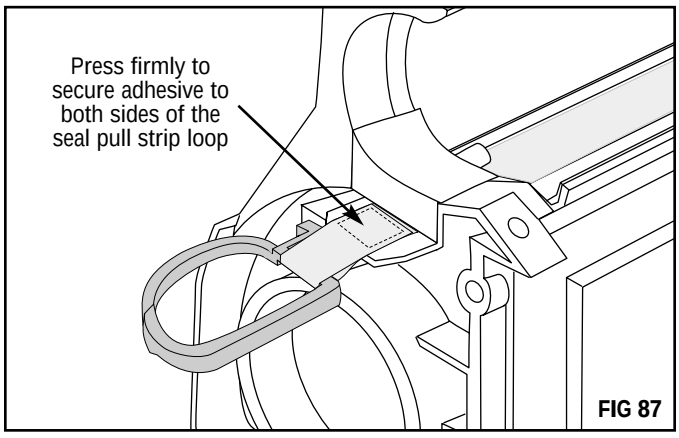


FIG 87

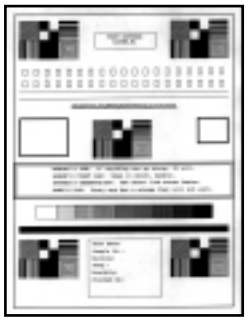
Troubleshooting Print Defects

Establishing Baseline Performance Benchmarks

We recommend that you perform a comprehensive series of test prints to establish the performance standards of your cartridges utilizing Static Control's BX/BXII Imaging System Components. Listed below is a series of Anacom Smart Box® test targets that we regularly use in system evaluation. This test series will establish the normal print characteristics of the BX/BXII cartridge for comparison with your subsequent remanufactured cartridges. We further recommend that you retain this cartridge as your standard to simplify future performance verification.

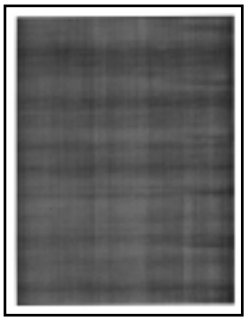
Anacom Smart Box® Test Print Series

Test Print	Print Characteristic Test
Murphy's Law	Small Area Solid Black Density, Gray Scale Accuracy, Text Boldness, Character Blasting
Solid Black	Large Area Solid Black Density, Horizontal Banding, Repetitive Defects
Gray Scale	Gray Scale Accuracy, Overtoning, Horizontal Banding
Solid White	Toner Leakage, Repetitive OPC, Mag Roller Defects
Barber Pole	Text Boldness, Side to Side Uniformity, Character Blasting

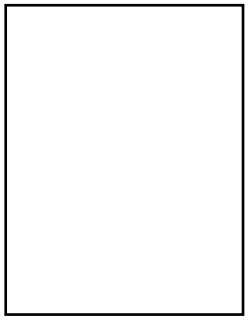


Murphy's Law

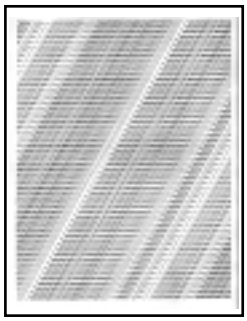
Solid Black



Gray Scale



Solid White

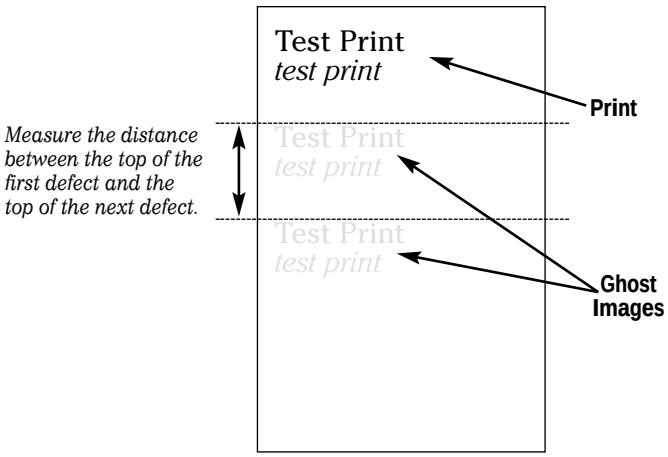


Barber Pole

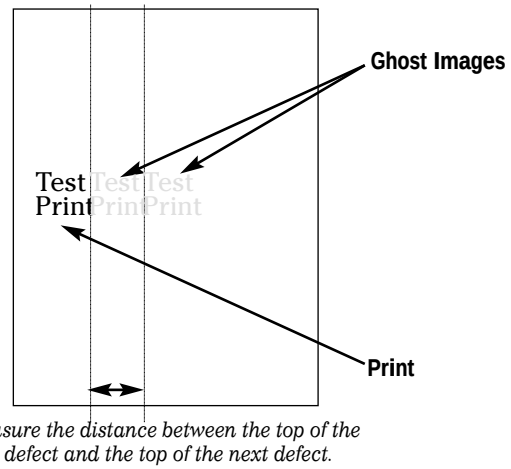
How to Measure Repetitive Defects

1. Find the repeating defect. Defects may appear as horizontal banding, dots, lines or hazing. Note that with BX/BXII cartridges, the repetitive defect will appear vertically on a letter size page and horizontally on legal or tabloid size pages. (See the next page for details regarding orientation of media as it exits the printer.)
2. Measure the distance between the defects. Interval measurements are provided in both inches and millimeters. To get an accurate measurement, measure from the top or bottom of the first defect to the top or bottom of the next defect. Make sure you are measuring like defects. It is possible to have two sets of repetitive defects that overlap each other on the page.
3. Find the interval number in the table below and the corresponding component. Some probable causes of the defect are listed to help with troubleshooting. This is not an exclusive list. Some repetitive defects may be the result of a combination of factors. If you having trouble locating a defect, call Technical Support at the telephone numbers listed on the back of this manual.

Example of Repetitive Ghosting Defect on BX/BXII printer **tabloid size paper**; note that tabloid size paper exits printer in a portrait orientation



Example of Repetitive Ghosting Defect on BX/BXII printer **letter size** paper; note that letter size paper exits printer in a landscape orientation



Repetitive Defect Troubleshooting Guide

Interval	Component	Probable Cause of Defect
@ 3.75" (94 mm) Intervals	OPC Drum	OPC wear, OPC damage, OPC contact elliptical drum rotation, OPC light exposure degradation, PCR defect
@ 1.70" (43 mm) Intervals	Primary Charge Roller	PCR wear, PCR Contamination, toner properties poor electrical contact, low RH% conditions, dry paper
@ 2.48" (63 mm) Intervals	Mag Roller	Mag roller wear, mag roller electrical contact, mag roller cleaning damage mag roller bushing wear, doctor blade failure, toner properties, mag roller contamination
@ 3.46" (88 mm) Intervals	Upper Fuser Roller	Toner offsetting, fuser roller/pressure roller incompatibility, upper fuser roller/lower pressure roller wear/contamination
@ 3.38" (83 mm) Intervals	Lower Pressure Roller	Toner/pressure roller incompatibility, pressure roller wear/contamination (defect will appear on backside of page)
@ 2.40" (61 mm) Intervals	Transfer Roller	Repeating interval of light print

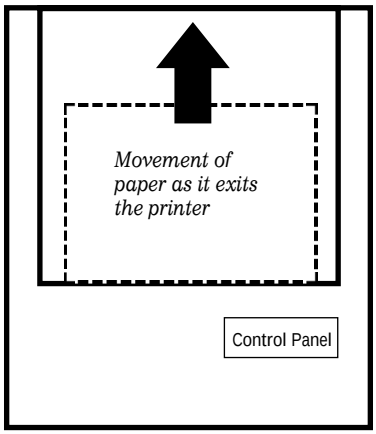
Troubleshooting Print Defects continued

We recommend that you perform a comprehensive series of test prints to establish the performance standards of your cartridges utilizing Static Control's BX/BXII Imaging System Components. Listed below is a series of Anacom Smart Box® test targets that we regularly use in system evaluation. This test series will establish the normal print characteristics of the BX/BXII cartridge for comparison with your subsequent remanufactured cartridges. We further recommend that you retain this cartridge as your standard to simplify future performance verification.

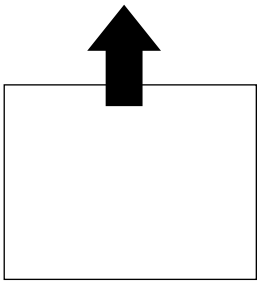
Print Defect	Probable Cause of Defect
Background	Inadequate drum charging/erasing, OPC wear, PCR wear, toner properties, low RH% conditions, dry paper
Ghosting	Inadequate drum charging/erasing, OPC wear, PCR wear, PCR contamination, low RH% conditions, toner properties, dry paper, upper fuser roller (Toner Offsetting)
Light Print	Mag roller, electrical contacts, OPC wear, PCR wear, toner properties, high RH% conditions, damp paper, doctor blade
Streaking/Lines	Wiper blade (sharp-edged lines), Upper Fuser Roller, PCR contamination (vertical line), missing/damaged mag roller felts (page edge line)
Random Sprinkles	Recovery blade, mag roller felts
Smudges	OPC contamination, upper fuser roller, mag roller contamination
Toner Offsetting	Upper fuser roller, lower pressure roller, toner properties, PowerSave feature (BXII only)

Page Orientation During the Printing Process

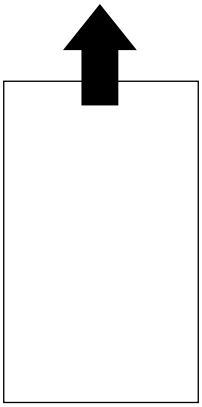
Understanding the orientation of media as it travels through the imaging process of the printer can help in troubleshooting repetitive print defects. The BX/BXII engine supports several media sizes that exit the printer in both portrait and landscape orientations. Letter-sized media, for example, follows the printer paper path in a landscape orientation. Therefore, repetitive defects will appear horizontally if you are looking at the page in a landscape orientation. If you are looking at a letter-sized page in the portrait orientation, the defects will appear vertically. Legal- and tabloid-sized media exits the printer in portrait orientation.



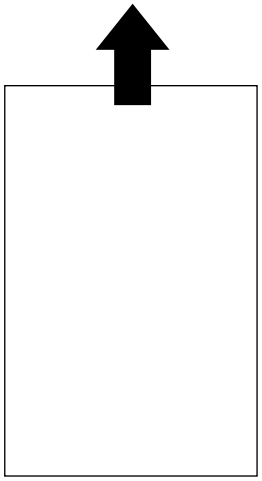
HP LaserJet® 4V Printer



Letter 8.5" x 11" landscape orientation

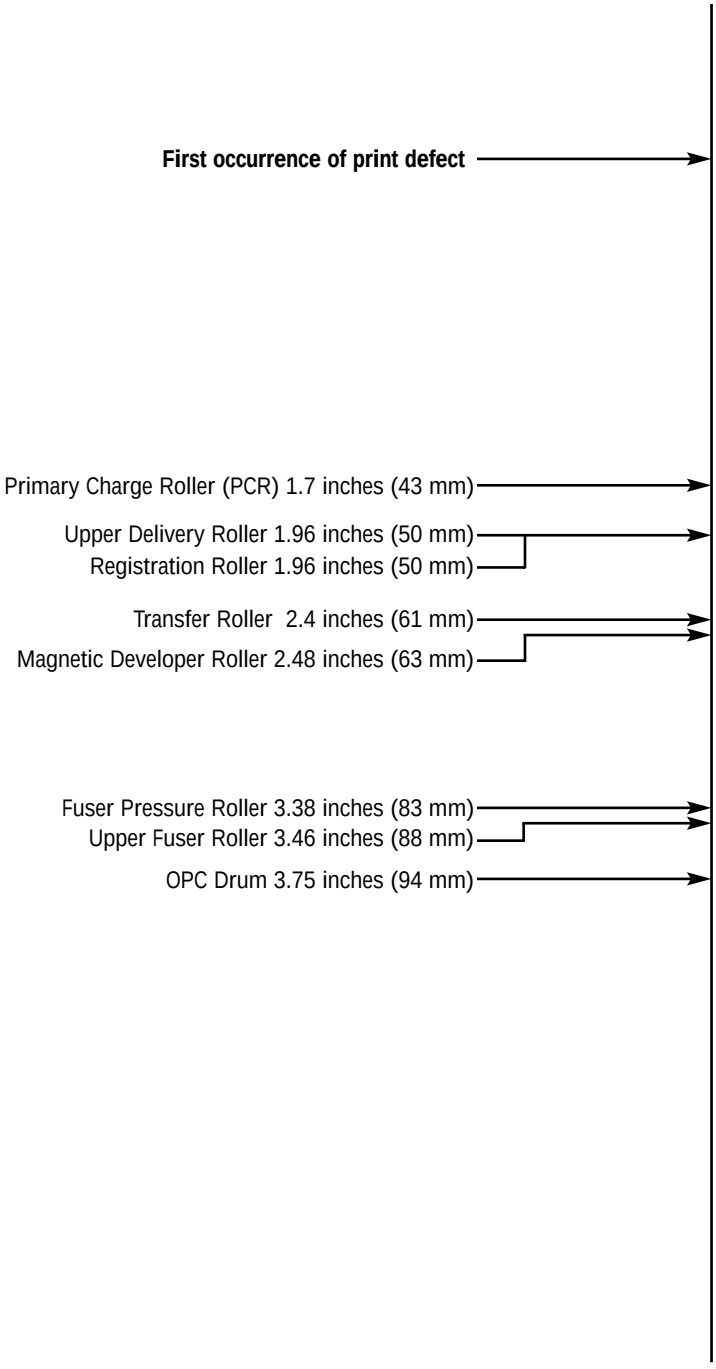


Legal 8.5" x 14" portrait orientation



Tabloid 11"x 17" portrait orientation

Repetitive Defect Ruler



Preventing False Toner Low Warnings

False toner low warnings should not occur in BX/BXII cartridges, and therefore can be puzzling when they do happen. A false warning can be caused by a number of problems involving the printer, cartridge, toner or a combination of all three. While the solution to toner low problems will vary from cartridge to cartridge, there are some preventative steps you can take.

Use the Correct Toner

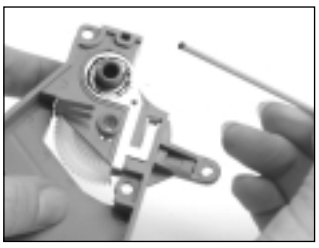
If you are having an ongoing problem with false toner low warnings, try changing the brand of toner you are using. In most of the cases we have seen, toner is the cause of the false warnings. In our testing of BX toners and through calls on our Tech Support line, we have found that several aftermarket toners will cause a high incidence of false toner low warnings.

Static Control's BX toners have been formulated and tested to work properly with the toner low sensing system. Based on testing and surveys of customers who use our toner exclusively, the occurrence of false toner warnings is less than one percent. And, in these instances, factors unrelated to toner contributed to the false warnings.

Ensure Electrical Contact

Thoroughly clean all electrical contacts in the cartridge during your remanufacturing processes. Pay particular attention to cleaning the contact prongs on the end of the mag roller and its corresponding contact plate in the gear housing end plate to ensure optimum continuity. Then, apply a small amount of conductive lubricant to the metal contact. If the mag roller does not receive the proper voltage from the power supply, it will in turn affect the signal received by the toner low bar. *For detailed instructions regarding cleaning electrical contacts, refer to page 45.*

Clean toner, grease and debris from the contact prongs on the mag roller sleeve. Use a cotton swab dampened with isopropyl alcohol.



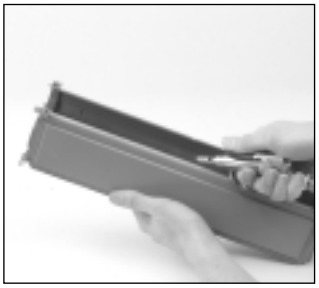
Each remanufacturing cycle, remove conductive grease from the metal contact in the gear housing end plate. Apply a small amount of conductive cartridge lubricant (Item Code: CONCLUBE) to the contact.

How the Toner Low System Works

The toner low bar reads the positive portion of the AC voltage from the electromagnetic field around the mag roller. The toner provides a medium through which the AC voltage signal travels to reach the toner low bar. As long as the toner is present between the mag roller and toner low bar, the bar receives the signal. As the toner level between the bar and mag roller begins to drop, the signal also drops. Once the signal drops within a certain threshold, circuitry in the high voltage power supply triggers a toner low message that is sent to the printer interface board and is displayed on the printer control panel LED. If the toner is not providing a proper medium through which the signal can travel, a toner low message can be triggered even when the cartridge is full of toner.

Prevent Damage to the Toner Low Sensor Bar

Use compressed air to clean the hopper instead of a toner vacuum. Forcing a vacuum attachment or toner funnel into the hopper through the toner port can inadvertently bend the toner low bar away from the mag roller. In the BX/BXII cartridge the original distance between mag roller surface and toner low bar is .075". Increasing this distance by as little as .075" (a total distance of .150") can cause premature toner low warnings.



Need Help? Call Technical Support

If, after following these preventative measures, you still have problems with false toner low warnings, contact Technical Support for additional troubleshooting advice.

BX Cartridge Supplies, Kits and Imaging Systems

Imaging Systems

BXBGSYS-340B-G	BX/QMS-860 Blue-Green OPC Drum/Gears, Toner, Wiper Blade (BXBGDRUM, BX340B, BXBLADE)
BX2BGSYS-400B-G	BXII/LJ4V Blue-Green OPC Drum/Gears, Toner, Wiper Blade (BXBGDRUM, BX2-400B, BXBLADE)
UPBX2SYS	UltraPrint™ BX/BXII OPC Drum/Gears, Toner, Wiper Blade (UPBXDRGR, BX2-400B, BXBLADE)

Toners - Bottles, Bulk, Buoys & Bags

BX340B	BX/QMS-860 MicroGraphics 1, 340g Bottle
BX2-400B	BXII/LJ4V MicroGraphics 1, 400g Bottle

All Toners are Available in Bulk, Beacon Buoys, and 10/20 lb Per-Fill Bags - Call for Quotes

Toner Kits

BXTSKIT	BX/QMS-860 Toner/Seal Kit (BX340B, BXGSAPK)
BX2TSKIT	BXII/LJ4V Toner/Seal Kit (BX2-400B, BXGSAPK)

Drums

BXBGDRGR	BX/QMS-860 Blue-Green OPC Drum/Gears
UPBXDRGR	UltraPrint™ BX/BXII OPC Drum/Gears

PCRs

BXRMPCR	BX/QMS-860 Remanufactured PCR (on exchange basis)
1CBXRMPCR	One Cycle BX/QMS-860 Reman PCR (on exchange basis)

Call for PCR Imaging System Package Pricing.
We now have two programs available for our remanufactured PCRs. With our 15 Cycle Program, PCRs can be recoated three times. Each recoating is good for up to five cartridge cycles, for a total of 15 cartridge cycles. We also have a single cycle multi-coating program, which involves recoating the PCR for one cartridge cycle, then recoating it again for another single cartridge cycle. As long as the PCR remains undamaged, this process can be repeated indefinitely. Also, we buy recoatable PCRs. Call your Sales Representative for details.

Blades - Tools, Kits & Supplies

BXDBLADE	BX/QMS-860 Doctor Blade
PRECB-BX	BX/BXII PolyBlade™ Recovery Blade
WXRBIKIT	5Si Recovery Blade Installation Kit (for BX)
RBITOOL-PBT	PolyBlade™ Recovery Blade Tool - Tabloid
BXRECBLADE	BX/QMS-860 Recovery Blade
BXRBASM	BX/QMS-860 Recovery Blade Assembly
BXBLADE	BX/QMS-860 Wiper Blade
SEKTOOL	Square Ended Knife Tool (with 3 knife blades)
SE3PAK	Square Ended Scraper Blades (3 per pack)

Bags

5009521	Extra-Length Foil Bag (9.5" x 21")
5001121	Extra-Length Foil Bag (11" x 21")
6001121	Custom Printing Service, Foil Bag

Cartridge Parts, Tools & Supplies

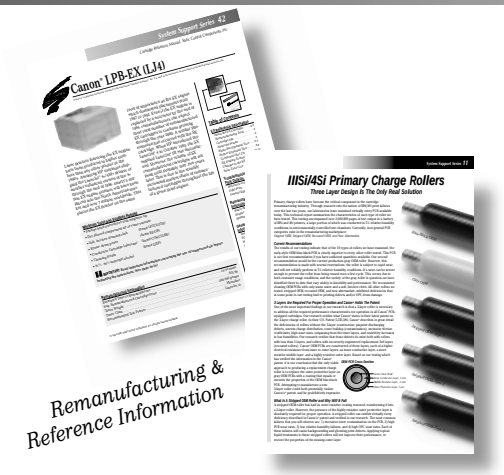
FSTOOL	Felt/Foam Scraper Tool (#1 handle, 3 blades)
FSKNIFE	Felt/Foam Scraper Tool Knife (3 blades for FSTOOL)
BXDBSFOAM	BX/QMS-860 Doctor Blade Sealing Foam
BXMRFELT	BX/QMS-860 Mag Roller Felt
XP15DSFELT	Fuji-Xerox XP15/20, BX Drum Shutter Felt

Packaging Supplies

4VBOX	4V/BX Cartridge Box
4VINSERT	4V/BX Cartridge Box Insert
BPTAPE	Brown Paper Tape (2" x 180' 24 rolls/case)

Seals & Supplies - Gasket Sealing Assembly

BXGSA	BX/QMS-860 Gasket Sealing Assembly
BXGSAKIT	BX/QMS-860 Gasket Sealing Assembly Kit
BXGSAJIG	BX/QMS-860 Gasket Sealing Assembly Hopper Jig
BXGSAPK	BX/QMS-860 Gasket Sealing Assembly Pack
GSATOOL	Gasket Sealing Assembly Installation Tool
CSBTOOL	Curved Scraper Blade Tool
CSBKNIFE	Curved Scraper Blade Knife (3 blades for CSBTOOL)
BXOEMTAB	BX/QMS-860 OEM-Type Seal Pull Tab



Remanufacturing & Reference Information

Technical Bulletins

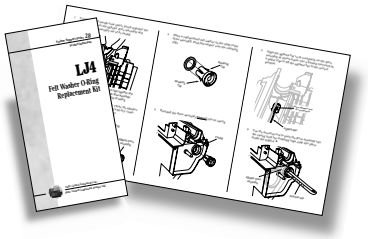
Keep Up-to-Date with Static Control's System Support Series Technical Literature

The System Support Series was exclusively developed by Static Control's scientific and engineering staff to deliver the information you need to build better cartridges and a more successful business.

Technical Bulletins keep you informed of technical issues that affect the way you remanufacture cartridges.

Remanufacturing Instructions provide in-depth reference information on the entire cartridge system.

Fully illustrated *Product Instructions* guide you step-by-step through component replacement procedures.



Product Instructions

Product Instructions

	3	IIISi/4Si Cutting Tool Kit
	36	IIISi PCRConnection™
	6	4L/PC330 Perimeter Adhesive Seal Starter Kit
	41	4L Doctor Blade Repair Foam Installation Kit
BX	48	BX/BXII Gasket Sealing Assembly Installation Kit
BX	52	BX/BXII Doctor Blade Sealing Foam Replacement
BX	59	BX/BXII Seal Pull Tab
BX	33	Drum Shutter Felt Replacement (SX, 4L, BX, XP15/20)
	8	IBM Wiper Blade Tool
	9	IBM Hopper Cover
	26	LJ4 Mag Roller Felt Replacement Kit
	27	LJ4 Mag Roller Sealing Blade Installation Kit
	28	LJ4 Felt O-Ring Washer Installation Kit
	29	LJ4 Doctor Blade End Foam Installation Kit
	30	LJ4 Doctor Blade Sealing Foam
	31	LJ4 Screw Hole Repair Kit
	4	LX Hi-Flow™ Gasket Sealing Assembly Installation
	17	LX Wiper Blade Installation Kit
	38	Mag Roller Felt (PC330, 310, 320, 330, 530, 550, 770)
BX	39	Mag Roller Felt (LX/FX, BX/BXII)
	34	Mag Roller Felt (SX, IIISi/4Si)
	50	PC330 Doctor Blade Repair Foam
	18	Adhesive ProSeal™ Kit
BX	19	Recovery Blade Installation Kit
	51	SP101 Developer Sleeve Replacement
	40	XP5/10 Seal Gasket Sealing Assembly Installation Kit
	45	XP5/10 Doctor Blade End Foam
	46	XP5/10 Doctor Blade Sealing Foam
	43	XP15/20 Primary Corona Wire
	57	XP15/20 Adhesive ProSeal™ Kit
	44	XP15/20 Transfer Corona Wire
	61	5Si Drum Axle Tool Kit
	62	5Si Sealing Channel Rail Foam
	64	5Si Sealing Channel End Foam (Open/Closed)
	66	5Si Drum Axle Retaining Ring
	67	5Si Recovery Blade Installation Kit
	68	5Si Drum Shutter Felt
	69	5Si Felt O-Ring Washer Installation Kit
	70	5Si Drum Wiper Felt
	71	5Si Wiper Blade Sealing Foam
	72	5Si Wiper Blade End Felt and End Foam
	73	5Si Recovery Magnet Assembly Installation
	74	5Si Mag Roller Felt
	75	5Si Mag Roller Sealing Blade
	76	5Si Doctor Blade Sealing Foam
	77	5Si Doctor Blade End Foam
	78	5Si Cartridge Clip

Remanufacturing & Reference Guide

BX	14	Canon LBP-BX/BXII (4V) Cartridge
	42	Canon LBP-EX (LJ4) Cartridge
	32	Canon-LBP-NX (IIISi/4Si) Cartridge
	2	Canon-LBP-PX (4L) Cartridge
	53	Canon LBP-WX (5Si) Cartridge
	60	Canon LBP-VX (5P) Cartridge
	1	Fuji-Xerox XP 5/10 (P1) Cartridge
	5	Fuji-Xerox XP15/20 Cartridge
	10	Xerox 5018 Dry Ink Cartridge

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User and Maintenance Manuals

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The development of cartridge imaging systems, such as the BX Imaging System, is the primary mission of our cartridge systems laboratory and toner development laboratory. Through extensive testing and research, we develop the optimum combination of matched components for each cartridge system. Our engineering and manufacturing expertise provides us with total control in design, quality and development to produce products from the ground up. The result is a system of components that seamlessly work together in each designed cartridge application.

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