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Hewlett Packard® LaserJet® 4500 (HP4500)
Remanufacturing Instructions

About the Printer

Released in October 1998, the Hewlett-Packard® Color LaserJet® 4500 is currently leading the pack in color laser shipments in both the U.S. and world markets. The HP4500 is well on its way to becoming one of the most important new color laser engines for the remanufacturing industry for the next several years.

Continuing the exclusive partnership between HP and Canon®, the HP4500 is based on Canon's new EP-83 engine which has become the first color laser engine developed that eliminates the need to oil the fuser. The color toners are manufactured using a chemical process to produce uniform, spherical particles with a microscopic bead of wax as the core of each particle. By adding this wax content, the toner blends smoothly during fusing without the need for oil. The black toner is magnetic and manufactured through a conventional milling process, which is familiar technology to the remanufacturing industry.

The supplies set for the HP4500 consists of seven consumables. The OPC drum kit and four color toner cartridges are the five core replacement items. A fuser kit and transfer kit make up the remaining two supplies. All seven are designed for replacement by the end-user.

About the OPC Drum Kit:

The OPC drum, wiper blade, and PCR are housed in the OPC Drum Kit. The unit also contains a reservoir that collects waste toner from the drum and intermediate transfer belt. An electronic memory chip can be found on the side of the drum kit. The chip's function is to collect and store information to estimate the end of the drum life in order to maintain good print quality.

According to Canon's patent information, the chip records the amount of drum revolutions, the accumulated time the drum has been charged by the PCR, and the amount of toner in the waste bin. When the estimated end of drum life is reached, the chip shuts down the unit to prevent a decline in print quality.

continued, page 2

Engine Information

Engine Name	Canon® EP-83
Engine Type	Color Laser Printer
Date of U.S. Printer Introduction	October 1998
Print Speed (pages per minute)	4 ppm color, 16 ppm monochrome
Duty Cycle	35,000 pages per month
Print Resolution (dpi)	600 x 600 dpi

Supplies

Consumable	Part Number	List Price	Distributor Price	Page Yield
Cyan*	C4192A	$115.00	$102.00	6K
Yellow*	C4193A	$115.00	$102.00	6K
Magenta*	C4194A	$115.00	$102.00	6K
Black*	C4191A	$80.00	$70.00	9K
Drum Unit*	C4195A	$108.00	$67.00	25K/6.5K
Transfer Kit*	C4196A	$247.00	$154.00	100K/25K
Fuser Kit*	C4197A	$290.00	$181.00	100K/50K

*Prices as of September 2001

Table of Contents

WWW.SCC-INC.COM

Get the latest information on the web at Static Control's Hewlett-Packard® Color LaserJet® 4500 Online Engine Center at
www.scc-inc.com

System Support Series™ documents are available on our Web site in Adobe® Acrobat® format.

If you need additional information or technical assistance, please contact your Regional Support Team.

800 488 2426 (USA)
919.774.3808 (Int'l)
+44 (0) 118.923.8800 (UK)
info@scc-inc.com (US Email)
info@scceurope.co.uk (UK Email)
www.scc-inc.com

Version 5 - October 2001

About the OPC Drum Kit, continued

The user is also alerted to replace the drum unit. Successful remanufacturing of the drum unit requires either resetting the memory chip or replacing it.

Disassembly is simple and is basically accomplished by the removal of two end plates. The size of the drum unit can be compared to the NX cartridge. The drum unit is installed in a sliding drawer in the front of the printer. The unit has one handle on its top and utilizes a wide drum shutter with additional black poly material attached for added drum protection. From an end view the unit appears to have a triangular shape. This shape is essential for the movement and collection of large toner amounts in the waste bin (no waste bottle). Toner migration inside the unit is accomplished by a series of agitators that force the toner to the rear of the unit.

About the Toner Cartridges:

The four toner cartridges are separate from the drum unit and are approximately the size of the LX cartridge. All of the cartridges are loaded in a carousel from the top of the printer. The cartridge components are configured in the typical Canon® fashion, which makes disassembly easy.

In both the black and color cartridges, there are a series of electrical contacts and electronic components in the cartridge end plates near the doctor blade. These serve to maintain specific voltages for the developer roller and doctor blade to help control toner migration and contamination.

The electrical contact pin on all the cartridges serves as the contact for the end plate and the pivot point for the shutter. Because of this dual function, it is especially important to take care when removing the electrical contact pin during disassembly. The locking tab on the contact pin is easily broken during pin removal. The tab may not function properly after several disassemblies if it is not properly released during removal of the contact pin.

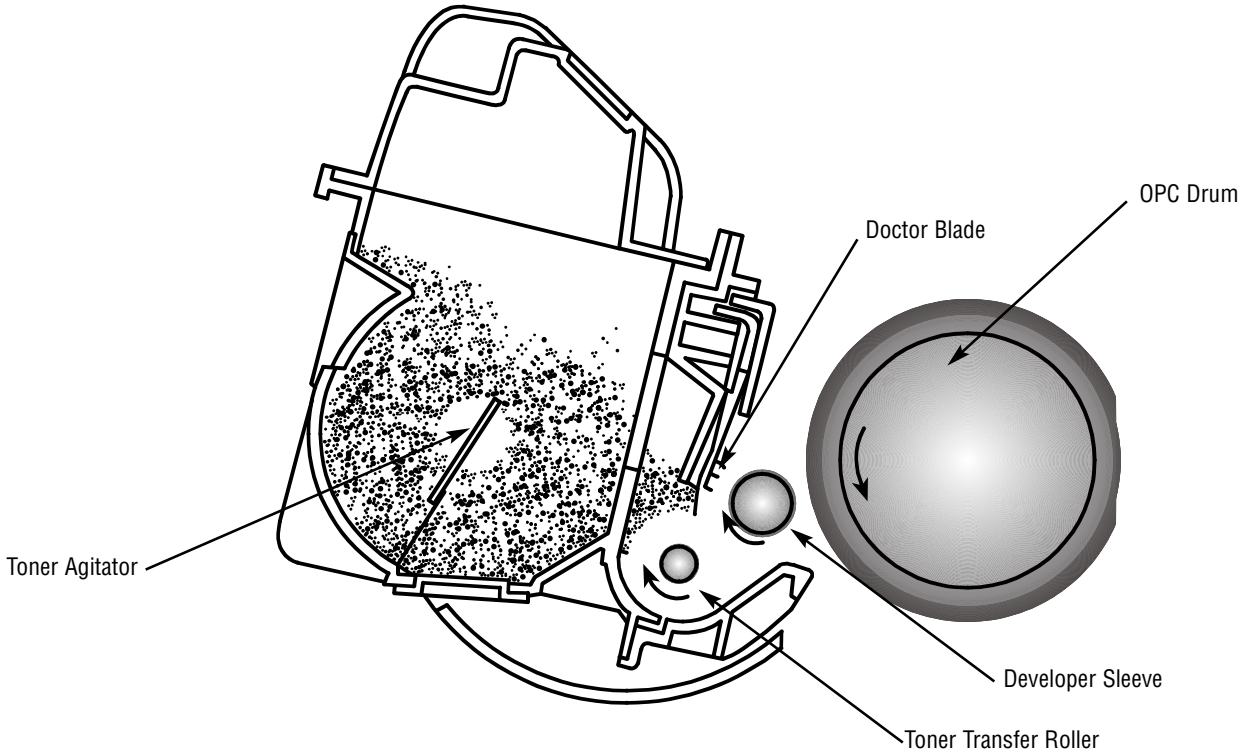
The hoppers for both the black and color cartridges can be split and sealed. The hopper cap is located beneath the mag roller end plate and can be accessed for filling toner whether or not the hopper is split.

As discussed previously, the black toner is magnetic and manufactured through a conventional milling process. The color toners are chemically manufactured to achieve a more uniform shape, composition, and size. The development in the black cartridge is achieved through a magnetic process, whereas the color cartridges use an electrostatic development process. The internal design and components between the black and color cartridges for the HP4500 vary slightly due to this difference in process. As a result of design differences, the disassembly instructions for the black and color cartridges are not identical.

The most notable component difference between the black and color cartridges is the doctor blade configuration. The black cartridge has a silicone blade attached to a typical metal stamping and has the same dimensions as the HP4000 doctor blade. The configuration of the doctor blade in the color cartridges resembles that of the Lexmark® Optra® C, a urethane material attached to a thin, flexible copper-alloy blade. The color cartridges also incorporate an additional roller assembly attached to the doctor blade that is not present in the black toner cartridge. The roller assembly must be removed to get to the doctor blade. The extremely small screws that secure the assembly require a jeweler's screwdriver or other small screwdriver for removal and may easily be lost.

An external design note is that all the color cartridges have a removable tab for cartridge identification by the printer. Each color has a specific position. Although the cartridges are interchangeable by repositioning the tab, it is not recommended to do so. First, even an extremely thorough cleaning of the cartridge would not completely prevent cross-contamination of the color toners. Secondly, the cartridge would need to be relabeled with the proper color label.

Cartridge Section



Use of Compressed Air

As of April 28, 1971, 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 the OSHA publication for any updates or changes that have occurred since the date noted above.

Use of Isopropyl Alcohol

For best results, we recommend using ONLY 91-99% for cleaning as directed in these instructions. 91% Isopropyl alcohol is available at most major drug stores; 99% Isopropyl alcohol is available through distributors of chemical products. Follow the alcohol manufacturer's safety instructions.

Tools and Supplies You Will Need

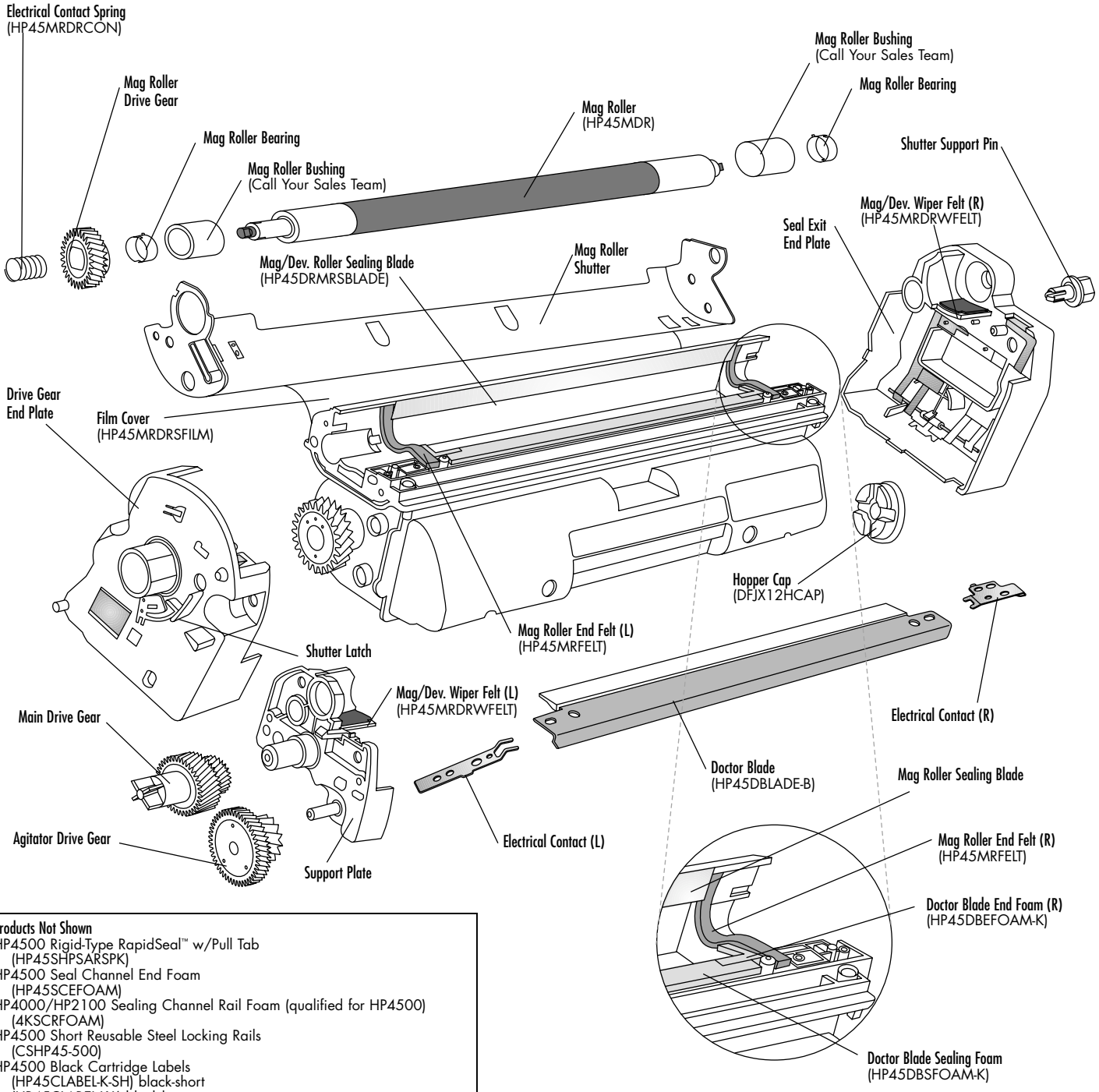
For Basic Remanufacturing:

- 91-99% Isopropyl Alcohol . . . . . *(See left)*
- Wooden Handled Cleaning Swab . . . . . *(QTIP)*
- Compressed Air for Cleaning . . . . . *(See left)*
- Pin Removal Tool . . . . . *(HP45SPRTOOL-2)*
- Small Jewelers Phillips Screwdriver
- Magnetic Tipped Phillips Screwdriver
- Small Flat-Blade Screwdriver
- Toner
- HP4500 or compatible printer (for testing)

HP4500/4550

(Canon® EP-83)

product wirelines



Products Not Shown

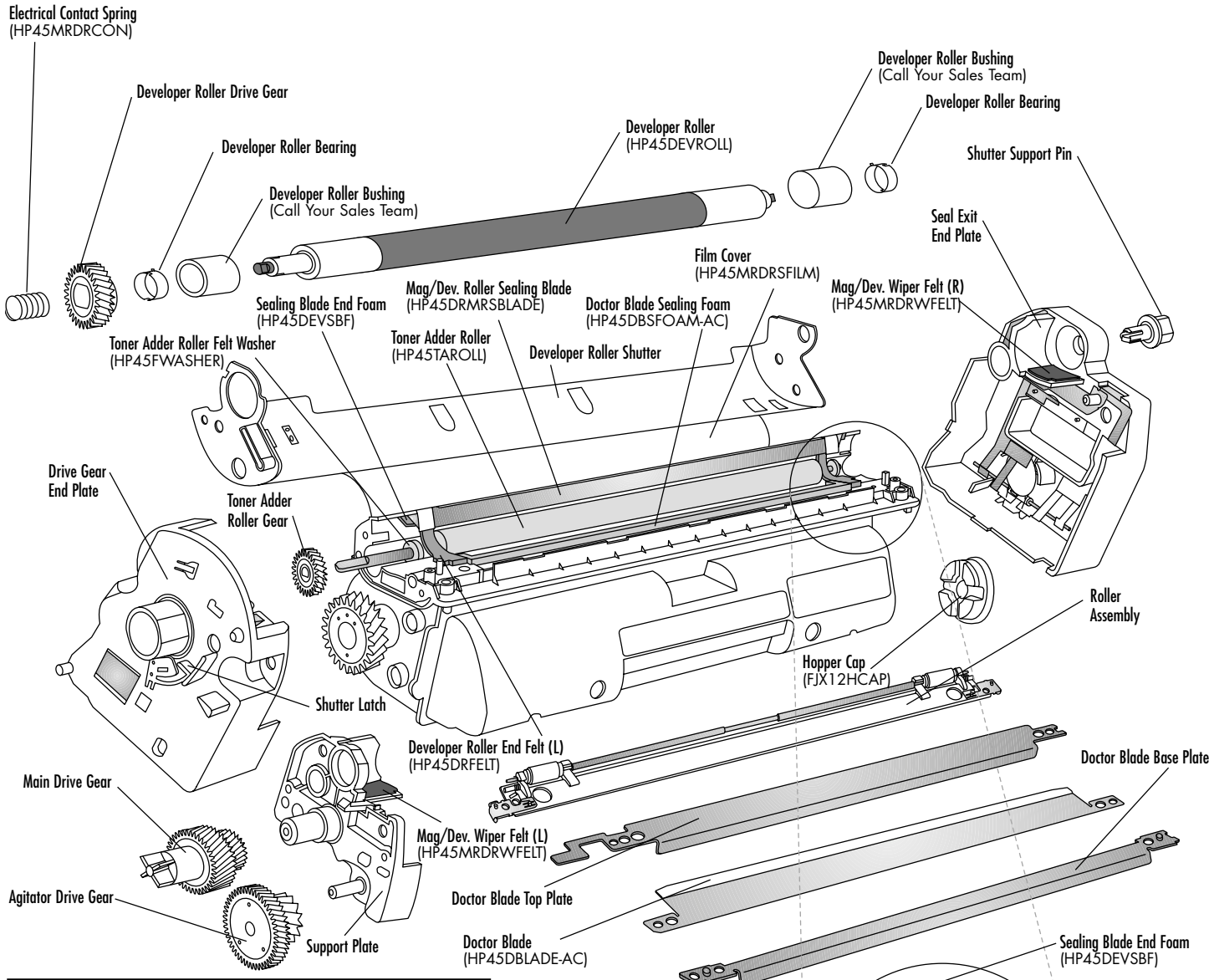
HP4500 Rigid-Type RapidSeal™ w/Pull Tab
(HP45SHPSARSPK)
HP4500 Seal Channel End Foam
(HP45SCEFOAM)
HP4000/HP2100 Sealing Channel Rail Foam (qualified for HP4500)
(4KSCRFOAM)
HP4500 Short Reusable Steel Locking Rails
(CSHP45-500)
HP4500 Black Cartridge Labels
(HP45CLABEL-K-SH) black-short
(HP45CLABEL-K-L) black-long
HP4500 PhotoPrecise™ Black Toner
(HP45-360B-K) black
(HP45-390B-K) black

Black Toner Cartridge

product wirelines

HP4500/4550

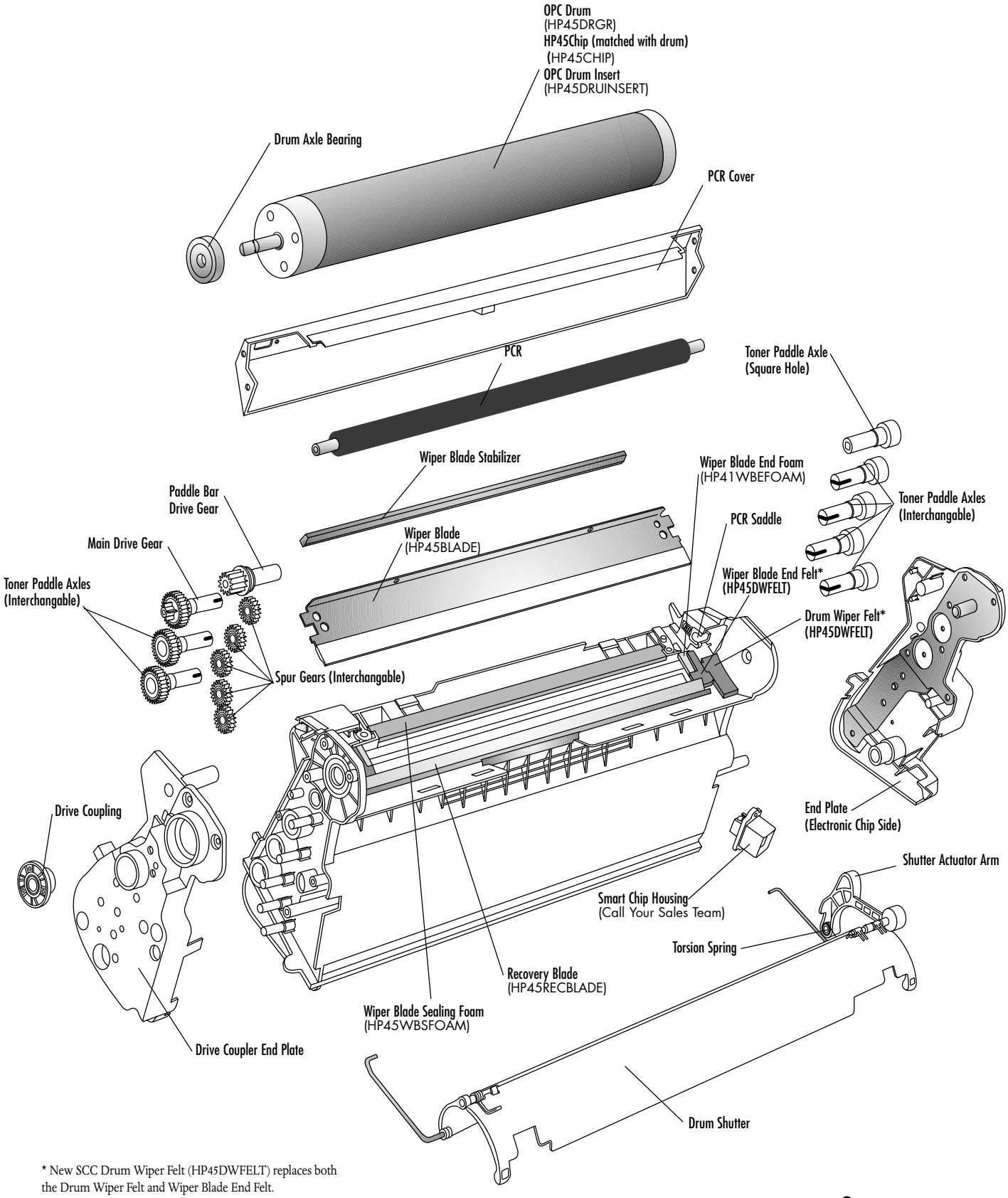
(Canon® EP-83)



Products Not Shown
HP4500 Rigid-Type RapidSeal™ w/Pull Tab
(HP45SHPSARSPK)
HP4500 Seal Channel End Foam
(HP45SCEFOAM)
HP4000/HP2100 Sealing Channel Rail Foam (qualified for HP4500)
(4KSCRFOAM)
HP4500 Short Reusable Steel Locking Rails
(CSHP45-500)
HP4500 Developer Roller Shield
(HP45DRSHIELD)
HP4500 Color Cartridge Labels
(HP45CLABEL-C-SH) cyan-short
(HP45CLABEL-C-L) cyan-long
(HP45CLABEL-Y-SH) yellow-short
(HP45CLABEL-Y-L) yellow-long
(HP45CLABEL-M-SH) magenta-short
(HP45CLABEL-M-L) magenta-long

HP4500 PhotoPrecise™ Color Toner
HP45-200B-C (cyan)
HP45-280B-C (cyan)
HP45-200B-Y (yellow)
HP45-280B-Y (yellow)
HP45-200B-MA (magenta)
HP45-280B-MA (magenta)

Color Toner Cartridge



* New SCC Drum Wiper Felt (HP45DWFELT) replaces both the Drum Wiper Felt and Wiper Blade End Felt.

Drum Unit

Disassembly of the Black Toner Cartridge

1. Remove the shutter support pin.
The shutter pin serves as an electrical contact for the end plate and is a pivot point for the shutter. The locking tab on the pin can easily be broken during disassembly (FIG 1). Static Control has developed a pin removal tool which safely and easily releases the locking tab.

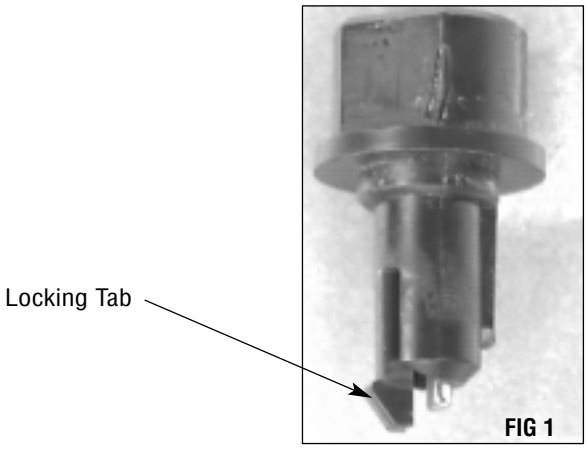


FIG 1

With the shutter in the closed position insert the Pin Removal Tool (HP45SPRTOOL-2) into the slot under the shutter as shown (FIG 2).

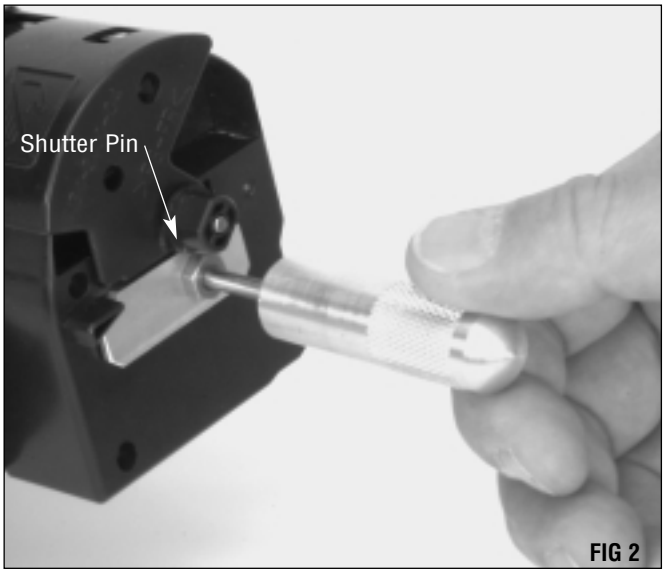


FIG 2

Rotate the handle on the pin removal tool in a clockwise direction to release the locking tab (FIG 3). When the locking tab is released, the shutter pin will pop out about 1/16 of an inch.

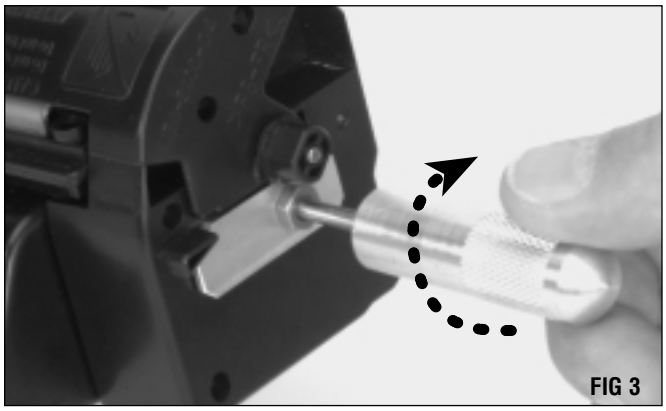


FIG 3

Rotate the handle on the pin removal tool in a counter-clockwise direction and remove the pin removal tool (FIG 4).

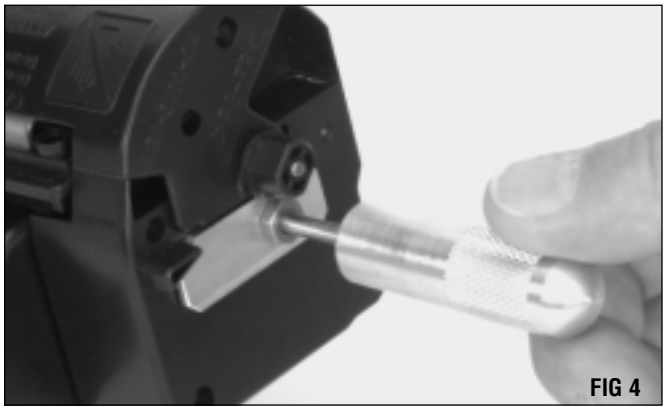


FIG 4

Remove the shutter pin (FIG 5).

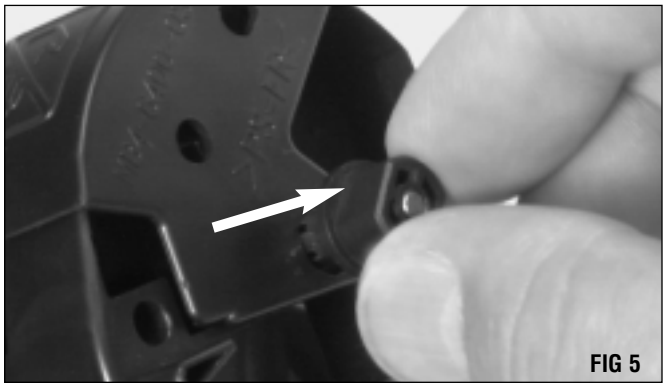


FIG 5

2. Remove the shutter
Release the shutter latch with a small flathead screwdriver as shown (FIG 6).

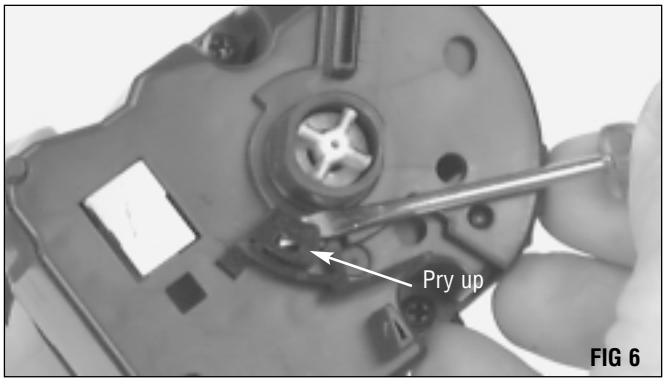


FIG 6

Pull the shutter over the drive gear end plate (FIG 7).


FIG 7

3. Remove the seal exit end plate
Remove the two screws that secure the seal exit end plate (FIG 8). Remove the endplate.

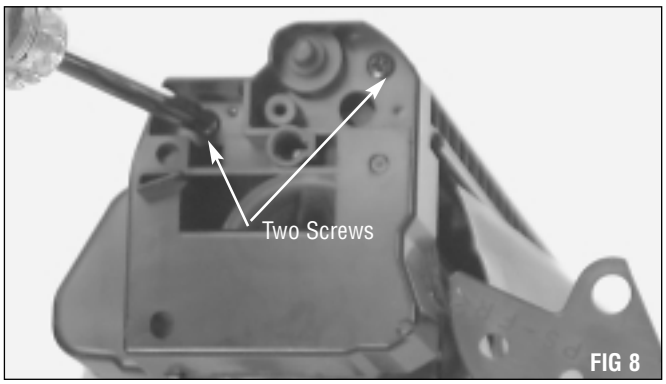


FIG 8

4. Remove the drive gear end plate
Remove the two screws that secure the drive gear end plate (FIG 9). Remove the endplate.

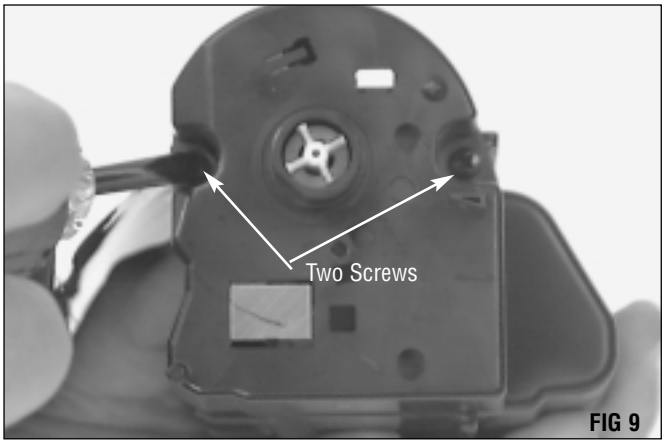


FIG 9

5. Remove the Mag Roller
Remove the electrical contact and drive gear from the mag roller (FIG 10).

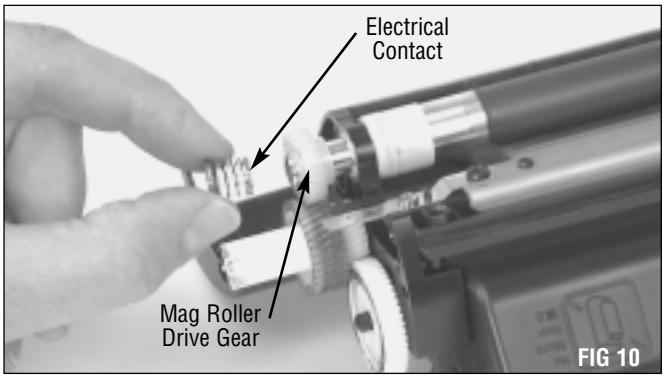


FIG 10

Remove the main drive gear from the cartridge (FIG 11).

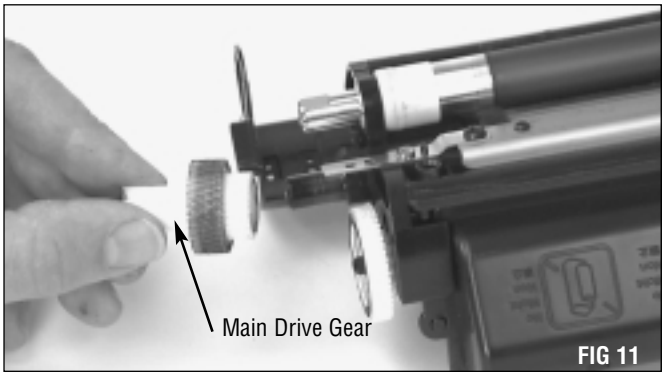


FIG 11

Remove the agitator drive gear (FIG 12).

FIG 12

Remove the mag roller, mag roller bushings and bearings (FIG 13).


FIG 13

6. Remove the doctor blade

Use a small Phillips screwdriver to remove the two screws on the doctor blade electrical contacts (FIG 14).

FIG 14

Remove the doctor blade screws (FIG 15).


FIG 15

Remove the doctor blade electrical contacts and the doctor blade (FIG 16).


FIG 16

7. Clean the cartridge

Use a flathead screwdriver to pry loose the hopper cap (FIG 17). Remove the hopper cap.


FIG 17

Dump the remaining toner from the cartridge and clean with dry, filtered, compressed air (FIG 18).

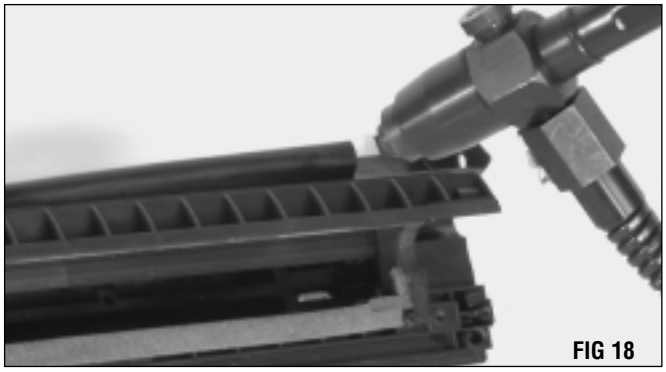


FIG 18

Clean both endplates with dry, filtered, compressed air. Clean the electrical contacts on both endplates with a cleaning swab (FIG 19).

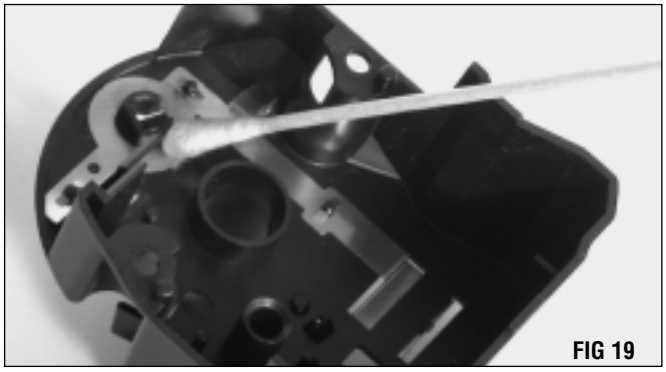


FIG 19

If you are going to split the cartridge remove the mag roller support plate by removing the two screws as shown (FIG 20).

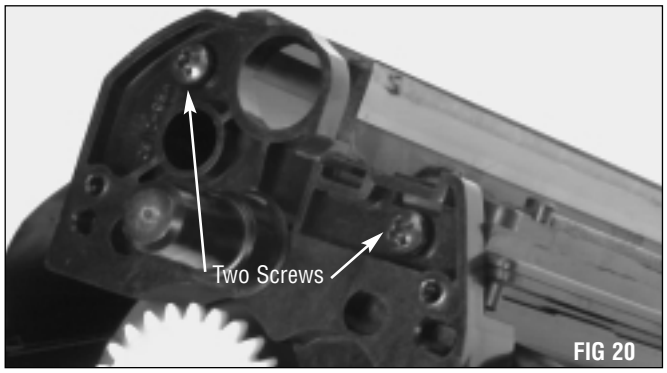


FIG 20

Splitting and Sealing

The most reliable toner hopper seal is obtained through splitting the hopper and applying an adhesive backed seal. Static Control has developed a split hopper sealing process utilizing a manual splitter tool. The splitter tool separates the hopper from the mag roller/developer section by breaking the ultrasonic welds along the length of the hopper assembly. The process for splitting the cartridge and installing the HP45oo RapidSeal™ is identical for each of the four toner cartridges (Black, Cyan, Yellow and Magenta). For more information about splitting and sealing the HP4500 cartridge, refer to System Support Series™ 282, "How to install your HP4500 Rigid-Type RapidSeal™ (HP45SHPSARS-2)".

Static has also designed a ProSeal™ to work with the HP4500 cartridge . The ProSeal™ adhesive insertable seal is an easy, cost effective method of sealing cartridges and offering OEM appearance without splitting. The ProSeal™ Installation Kits contain a plexiglass hopper jig, chrome plated insertion tool with handle, adhesive seals, seal pull tabs with adhesive, assorted cleaning tools and gapping gauges. For more information on the ProSeal™, refer to System Support Series™ 398, "How to install your HP4500 ProSeal™ Adhesive Seal".

Reassembly of the Black Toner Cartridge

1. Replace the doctor blade

Place the doctor blade on the cartridge as shown (FIG 21).


FIG 21

Replace the doctor blade tabs and secure with the two doctor blade screws (FIG 22).


FIG 22

Replace the two small screws on the doctor blade tabs (FIG 23 & 24).

FIG 23

FIG 24

2. Replace the mag roller

There is a keyed slot for each of the mag roller bearings. One bearing fits into the left side of the cartridge. The other bearing fits on the inside of the seal exit end plate. Replace each bearing making sure the bearing tab fits in the keyed area for the tab (FIG 25, 26 & 27).

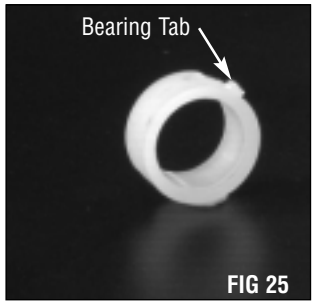


FIG 25

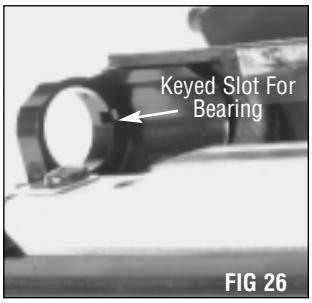


FIG 26

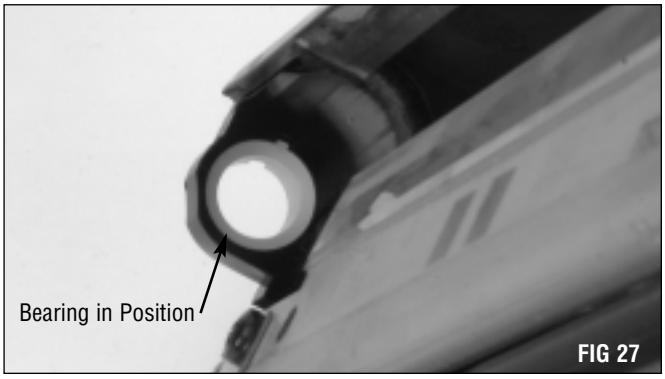
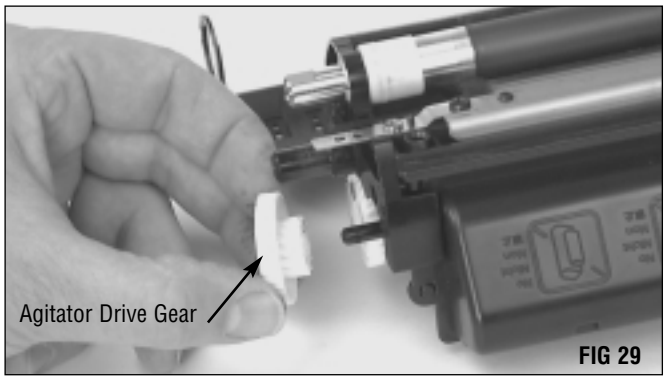


FIG 27

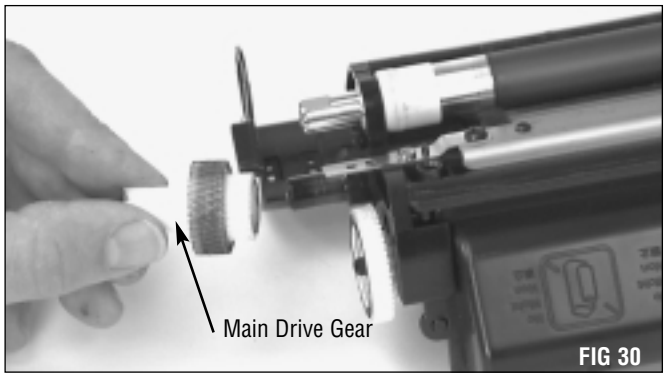
Place the bushings on the mag roller and replace the mag roller (FIG 28).


FIG 28

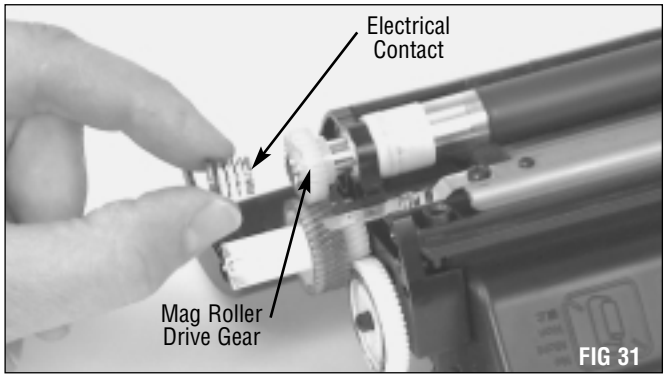
Replace the agitator drive gear (FIG 29).



Replace the main drive gear (FIG 30).

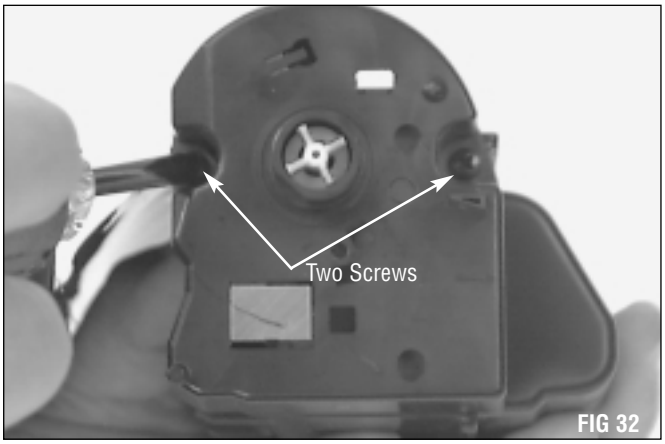


Replace the mag roller drive gear and electrical contact (FIG 31).



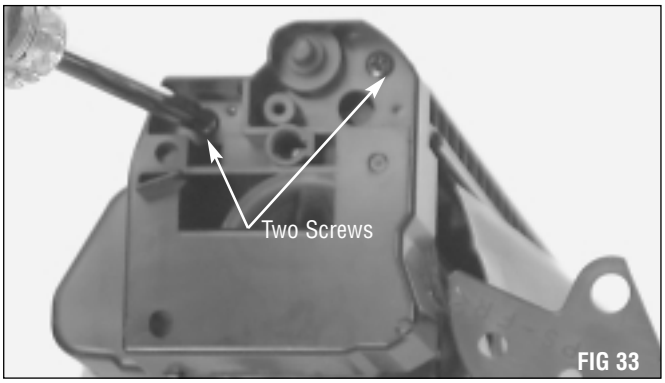
3. Replace the drive gear end plate

Replace the drive gear end plate and secure with the two screws (FIG 32).



4 . Replace the seal exit end plate

Replace the seal exit end plate and secure with the two screws (FIG 33).



5. Replace the shutter

Place the shutter over the drive gear end plate (FIG 34).


FIG 34

Pry up the shutter latch and place the shutter underneath (FIG 35).

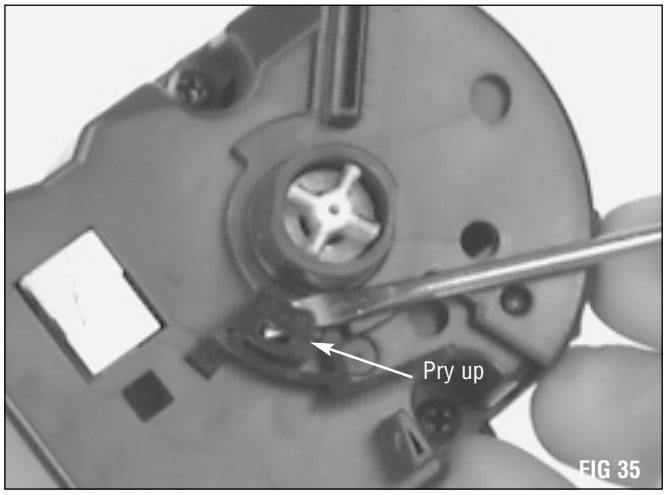


FIG 35

6. Replace the shutter support pin.

Line up the key on the shutter support pin (FIG 36) with the slot on the cartridge (FIG 37) and replace the pin (FIG 38). Push the pin until you feel the locking tab engage.

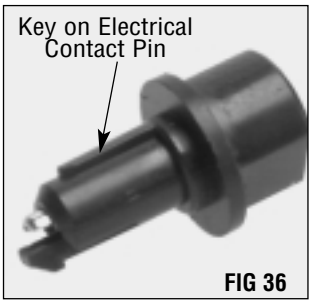


FIG 36

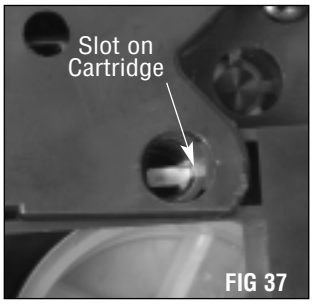


FIG 37

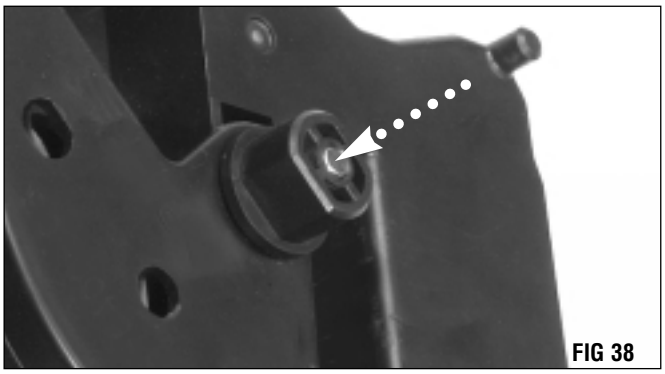


FIG 38

Disassembly of the Color Toner Cartridge

NOTE For disassembly of a color toner cartridge, first follow steps 1 (FIG 1) through step 5 (FIG 11) of the Disassembly of the Black Toner Cartridge Section, and then proceed with step 1 (FIG 39) of this section.

1. Remove the developer roller

Remove the toner adder roller gear and the large idler gear (FIG 39).

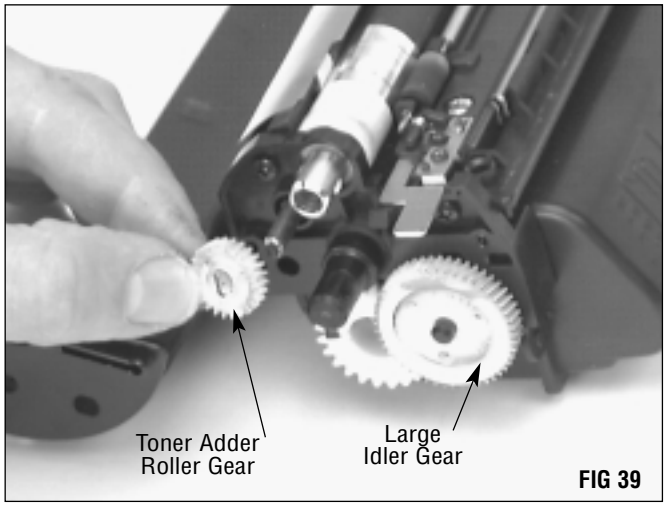


FIG 39

Remove the developer roller, mag roller bushings and bearing (FIG 40).


FIG 40

2. Remove the doctor blade assembly

Use a jeweler's Phillips screwdriver to remove the two small screws from the electrical contacts at each end of the doctor blade assembly (FIG 41).

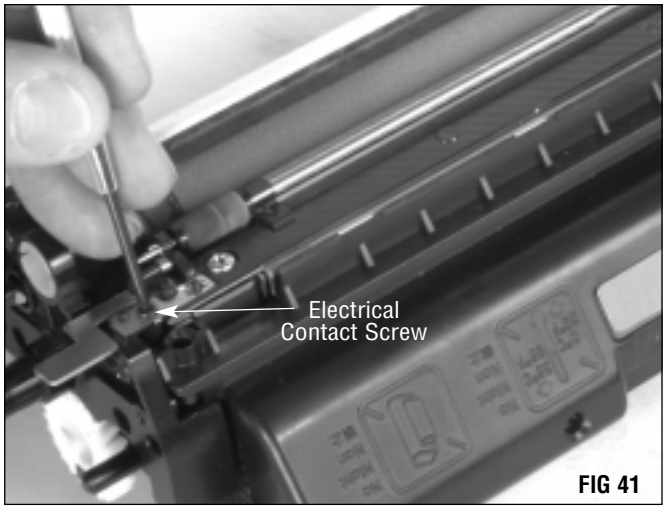


FIG 41

Remove the roller assembly (FIG 42).

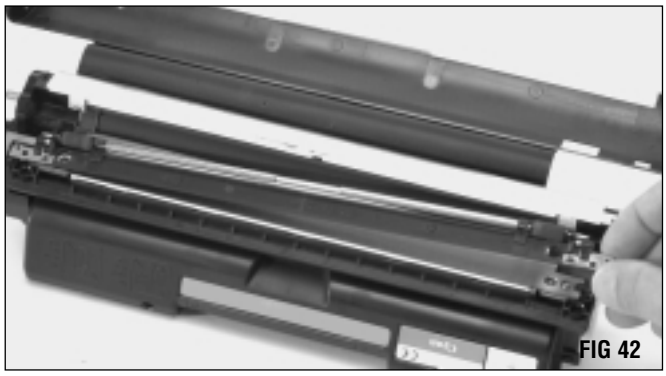


FIG 42

Remove the doctor blade screws and washer (FIG 43). Note the washer is on the right side only.

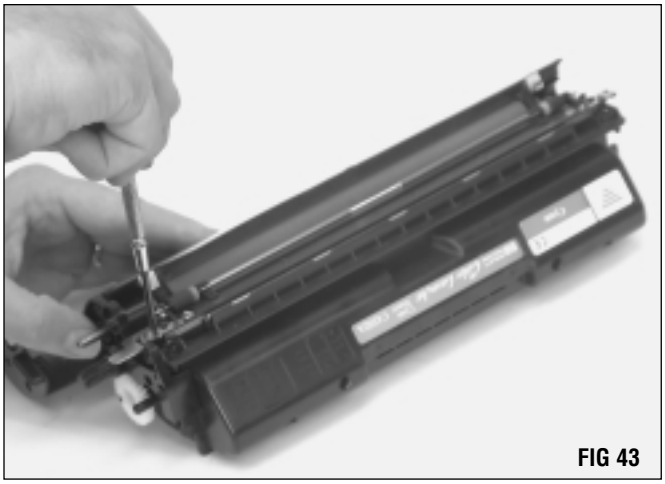


FIG 43

Remove the doctor blade top plate (FIG 44).


FIG 44

Remove the doctor blade (FIG 45).


FIG 45

Remove the doctor blade base plate (FIG 46).

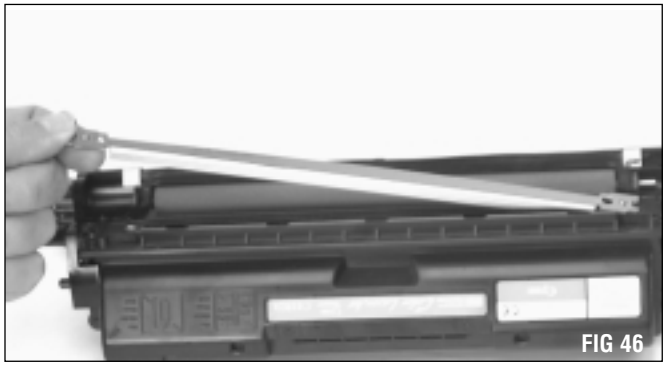


FIG 46

3. Clean the cartridge

Use a flathead screwdriver to pry loose the hopper cap (FIG 47). Remove the hopper cap.


FIG 47

Dump the remaining toner from the cartridge and clean with dry, filtered, compressed air (FIG 48).


FIG 48

Clean both endplates with dry, filtered, compressed air. Clean the electrical contacts on both endplates with a cleaning swab (FIG 49). Use compressed air to clean the developer roller, roller assembly, doctor blade top plate, doctor blade and doctor blade base plate (FIG 50).

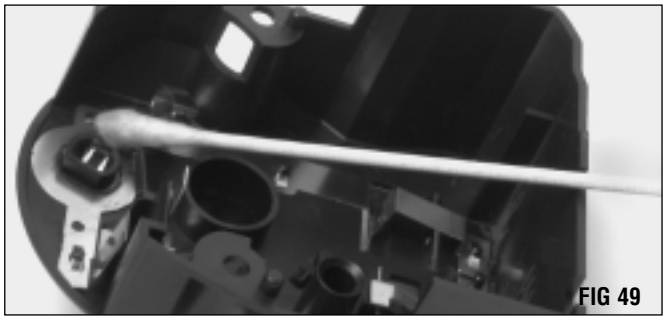


FIG 49

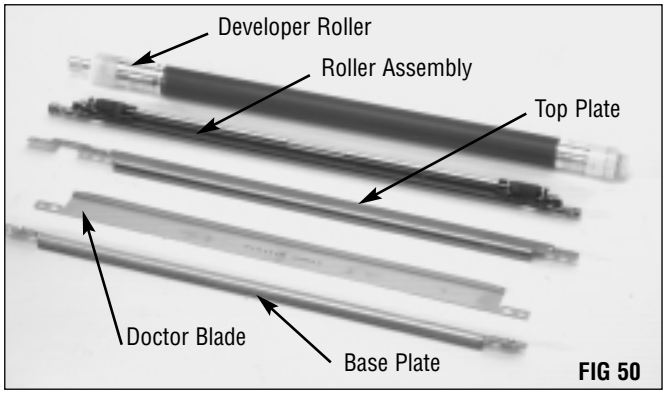


FIG 50

If you are going to split the cartridge, remove the developer roller support plate by removing the two screws as shown (FIG 51). See the section on Splitting and Sealing on page 10 of this manual.

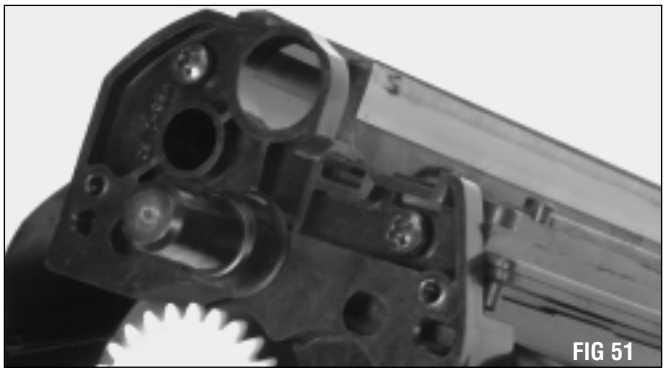


FIG 51

Reassembly of the Color Toner Cartridge

1. Replace the doctor blade

Replace the doctor blade base plate (FIG 52).

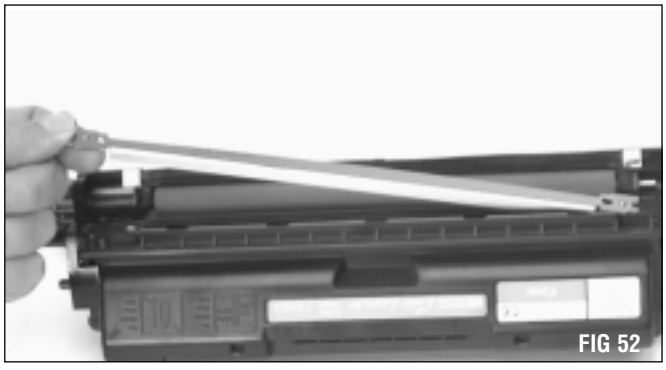


FIG 52

Replace the doctor blade (FIG 53).


FIG 53

Replace the doctor blade top plate (FIG 54).

FIG 54

Replace the doctor blade screws (FIG 55). The screw with the washer is on the right side.The doctor blade has elongated holes on each side, allowing for a small amount of play during installation. The doctor blade's elongated holes should be centered when securing to avoid leakage. See Industry Alert #76 for more information.

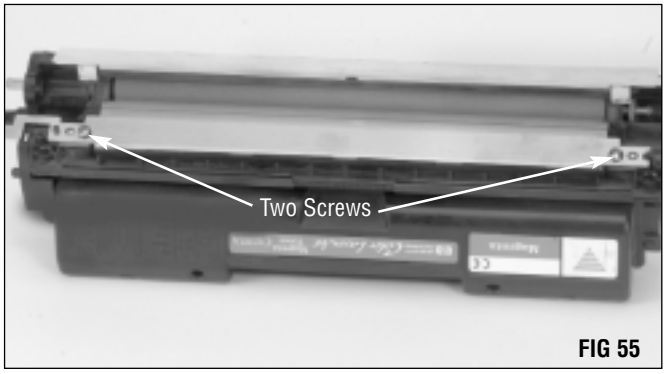


FIG 55

Replace the roller assembly (FIG 56).

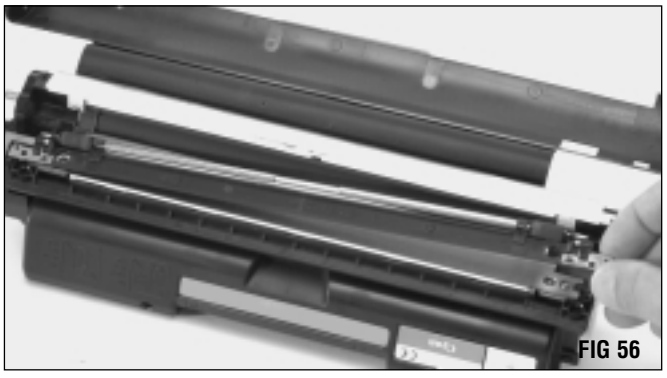


FIG 56

Use a jeweler's Phillips screwdriver to replace the two small screws from the electrical contacts at each end of the doctor blade assembly (FIG 57& 58).

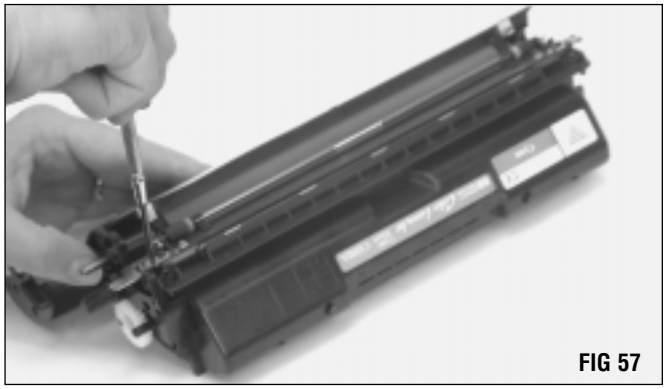


FIG 57

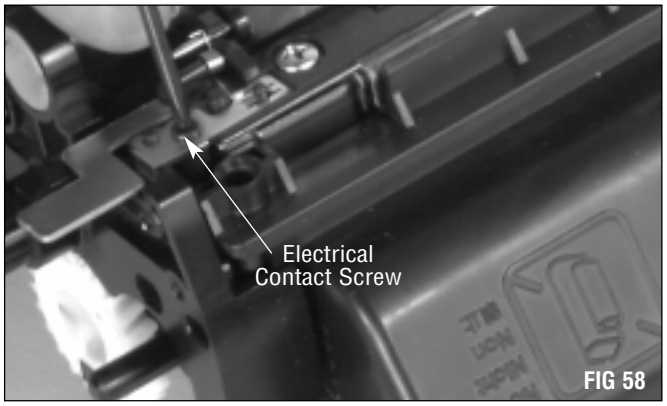


FIG 58

Replace the developer roller, developer roller bushings and bearings (FIG 59). See page 11, step 2 for placement of bearings.

FIG 59

Replace the toner adder roller gear and the large idler gear (FIG 60).

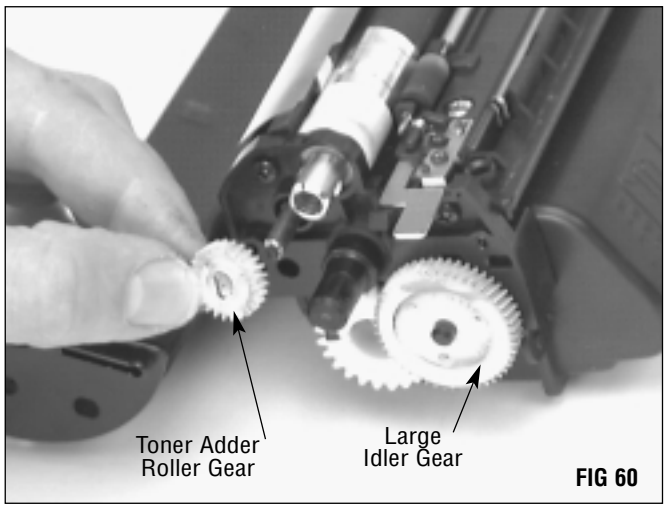


FIG 60

The remainder of the color toner cartridge reassembly process is identical to the black toner cartridge (Note: The cartridge component specified as the “mag roller” on page 11 will be the “developer roller” on the color toner cartridge). Go to page 12 (FIG 30) and follow the remaining steps of that section.

Disassembly of the Drum Unit

1. Remove the drum shutter

Use a Phillips screwdriver to remove the drum shutter actuator screw (FIG 61).

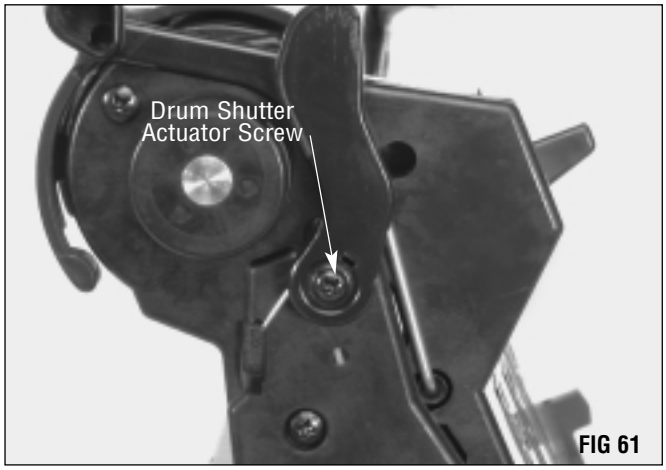


FIG 61

Remove the drum shutter (FIG 62).

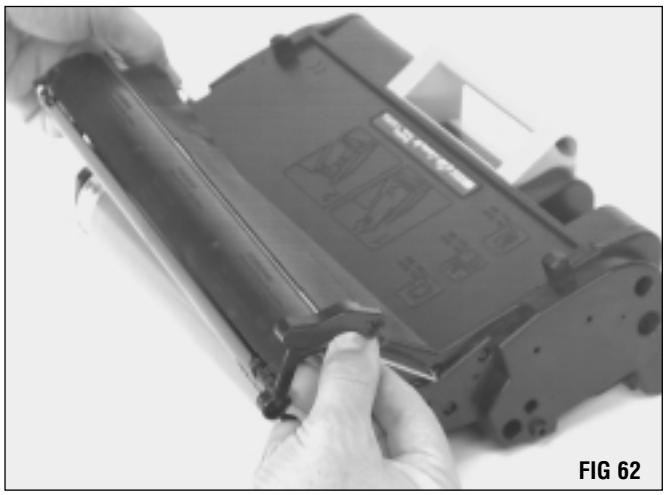


FIG 62

2. Remove the end plates

Use a Phillips screwdriver to remove the seven screws from the endplate on the electronic chip side of the cartridge (FIG 63).

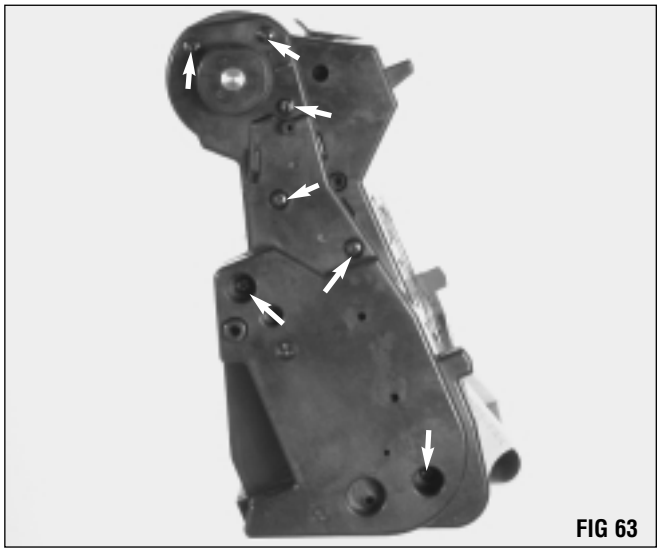


FIG 63

Use a Phillips screwdriver to remove the six screws from the drive coupler end plate (FIG 64).

FIG 64

Remove the drive coupling (FIG 65).

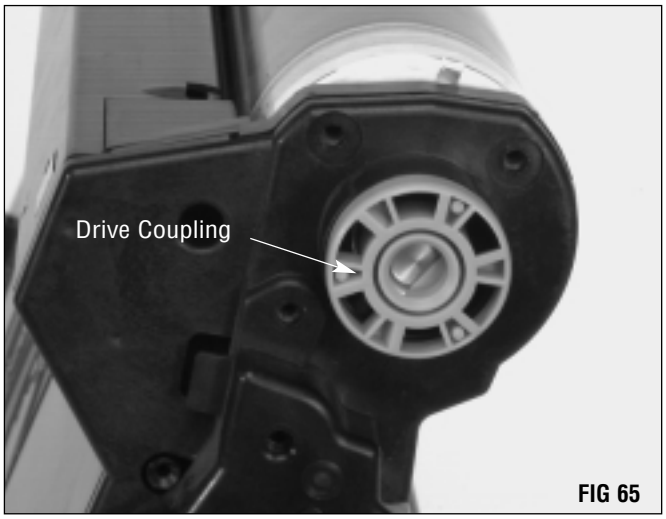


FIG 65

Remove the drive coupler end plate (FIG 66).

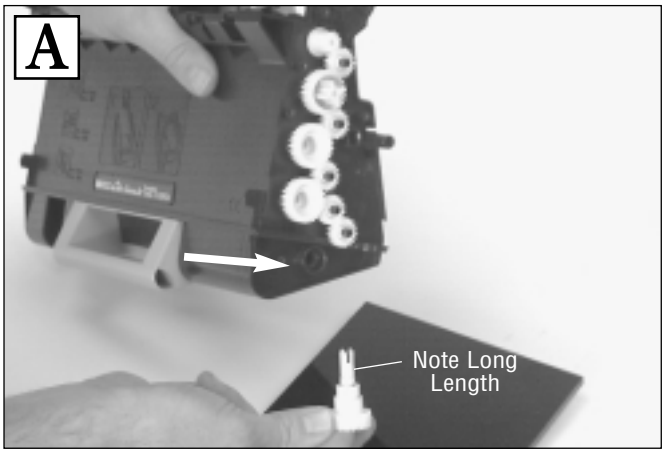
FIG 66

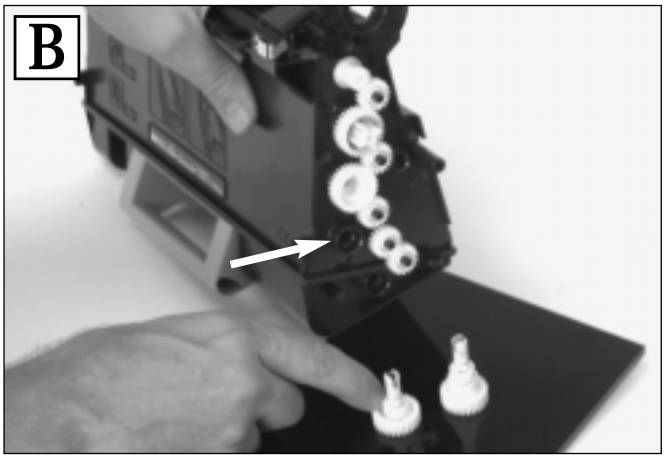
Remove the bearing (FIG 67).

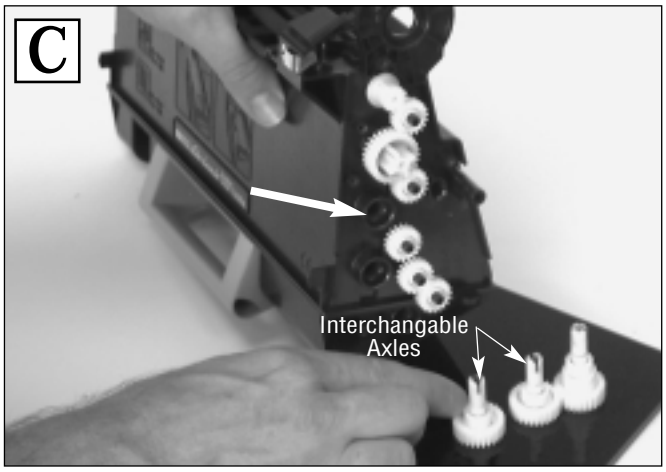
FIG 67

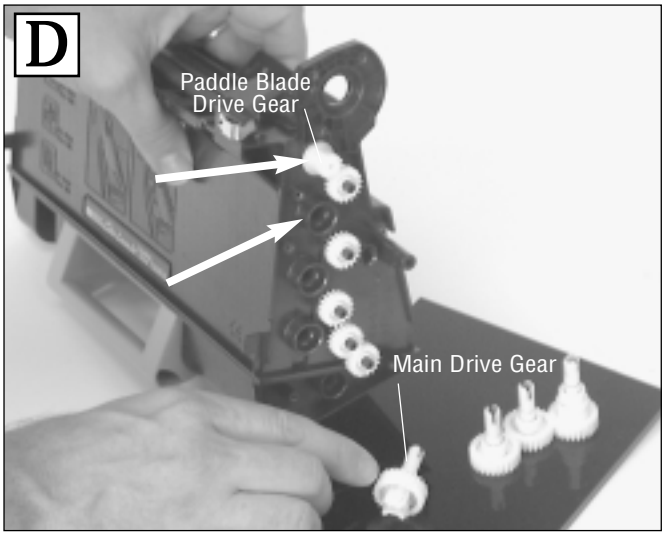
8. Remove the toner paddle drive gears and remaining toner paddle axles

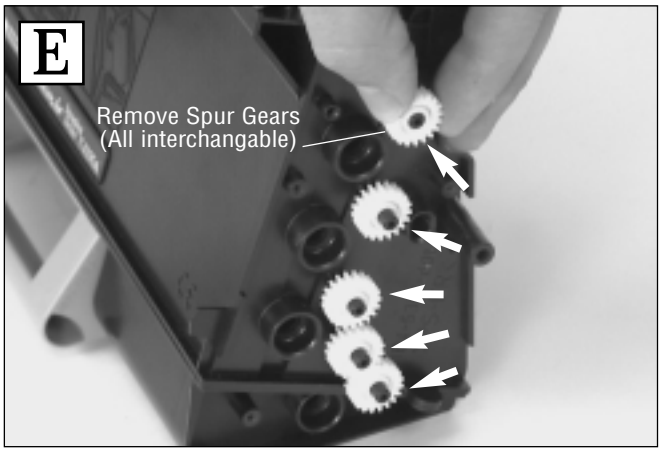
Follow steps A through E to remove the toner paddle drive gears and toner paddle axles.











Remove the endplate on the smart chip side of the cartridge (FIG 68).

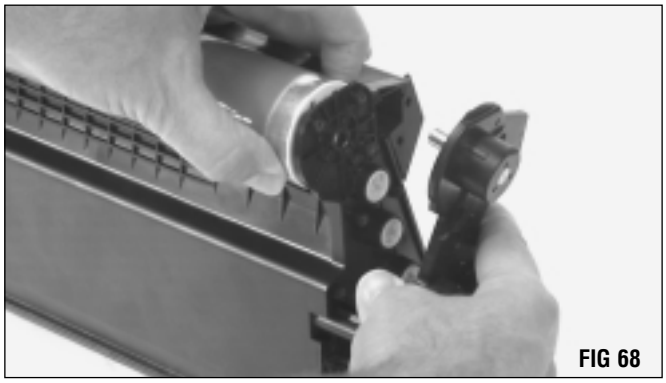


FIG 68

3. Remove the OPC Drum

Remove the OPC drum from the cartridge (FIG 69).

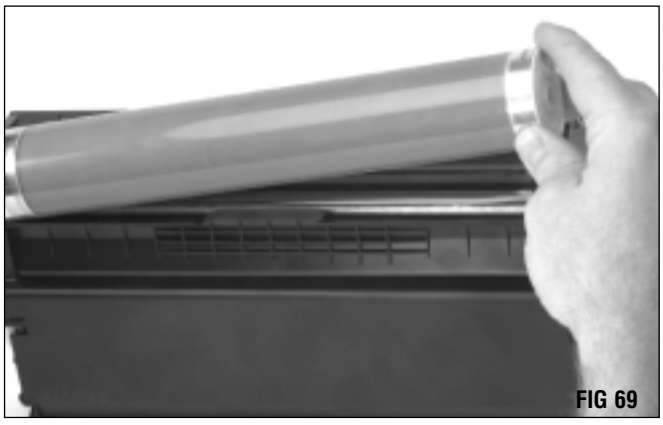


FIG 69

7. Remove the five toner paddle axles
Note the square hole in the upper axle (FIG 70). The other four axles are interchangeable (FIG 71).

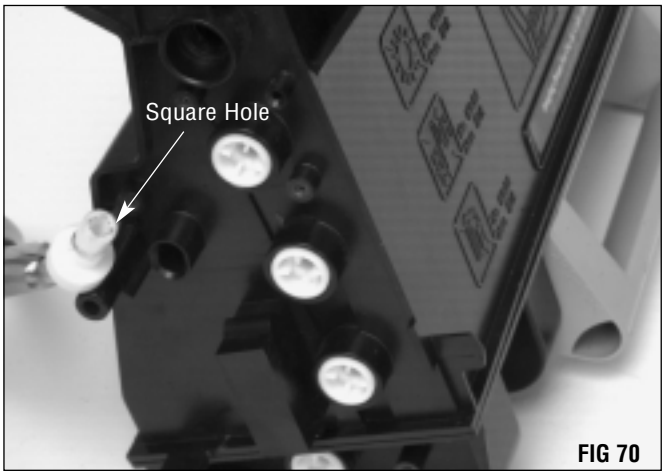


FIG 70

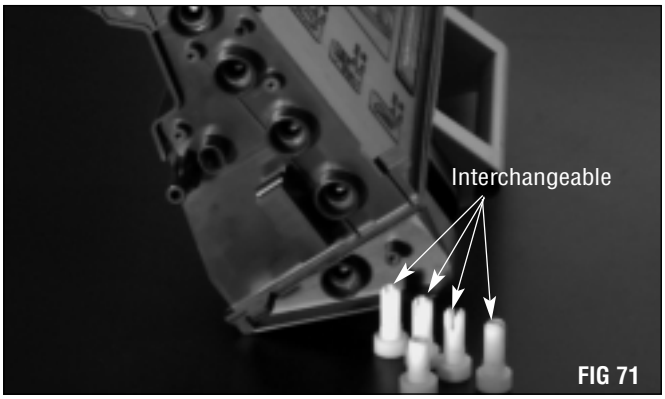


FIG 71

4. Remove the PCR
Use a small flathead screwdriver to release the locking tab on the PCR cover (FIG 72). Remove the PCR cover.

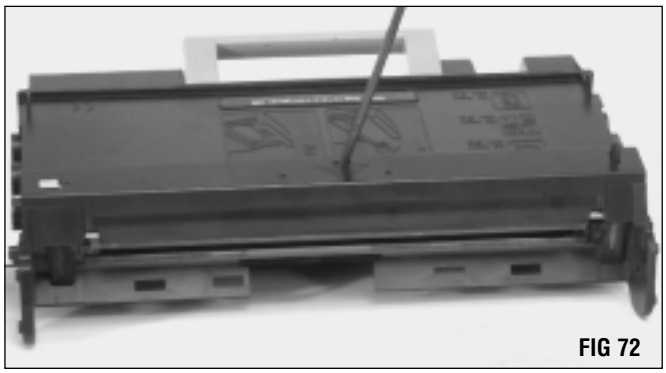


FIG 72

Remove the PCR (FIG 73).


FIG 73

5. Remove the Wiper Blade
Use a Phillips screwdriver to remove the two screws that secure the wiper blade (FIG 74). Remove the wiper blade.

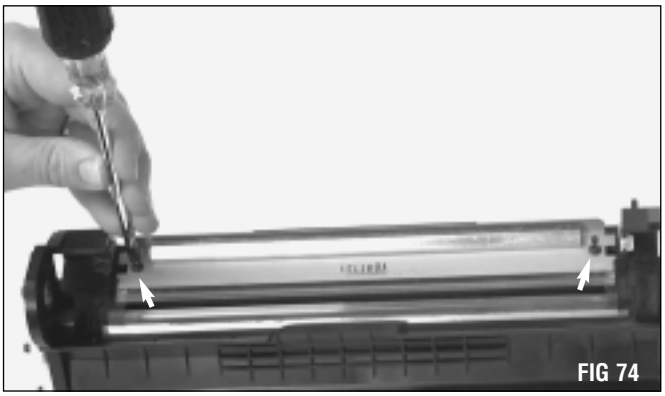


FIG 74

6. Remove the smart chip housing
Use a Phillips screwdriver to remove the two screws that secure the smart chip housing (FIG 75). Remove the smart chip housing.

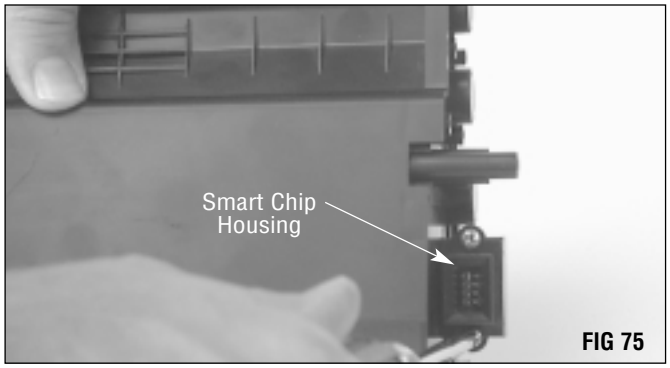


FIG 75

9. Clean the cartridge
Dump the remaining toner from the cartridge and clean cartridge components with dry, filtered, compressed air (FIG 76).


FIG 76

Reassembly of the Drum Unit

3. Replace the smart chip housing
Use a Phillips screwdriver to replace the two screws that secure the smart chip housing (FIG 77).

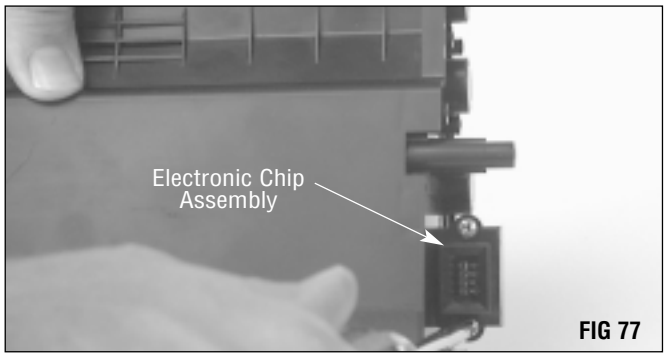


FIG 77

4. Replace the Wiper Blade
Use a Phillips screwdriver to replace the two screws that secure the wiper blade (FIG 78).

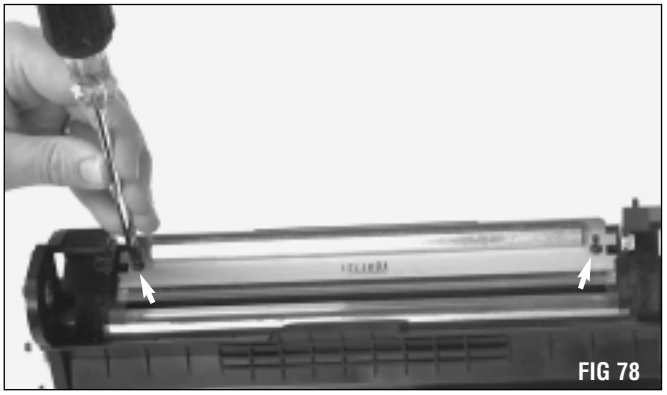


FIG 78

5. Replace the PCR

Replace the PCR as shown (FIG 79).

FIG 79

Replace the PCR cover (FIG 80). Make sure the locking tab engages.

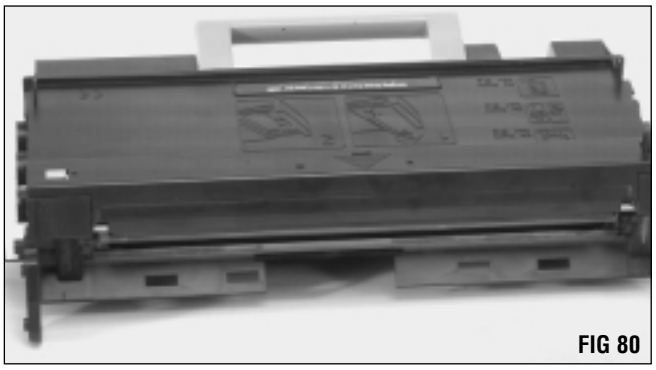


FIG 80

2. Replace the five toner paddle axles

Note the square hole in the upper axle (FIG 81). The other four axles are interchangable (FIG 82)

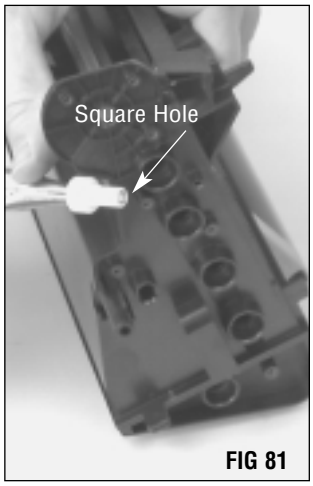


FIG 81

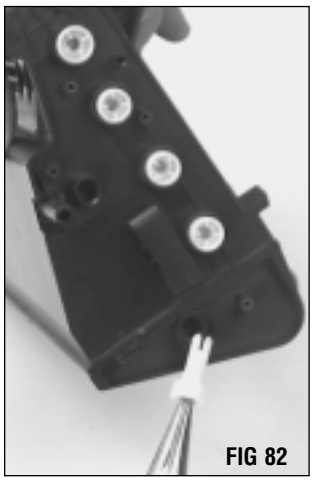


FIG 82

6. Replace the OPC Drum

Replace the OPC drum (FIG 83).

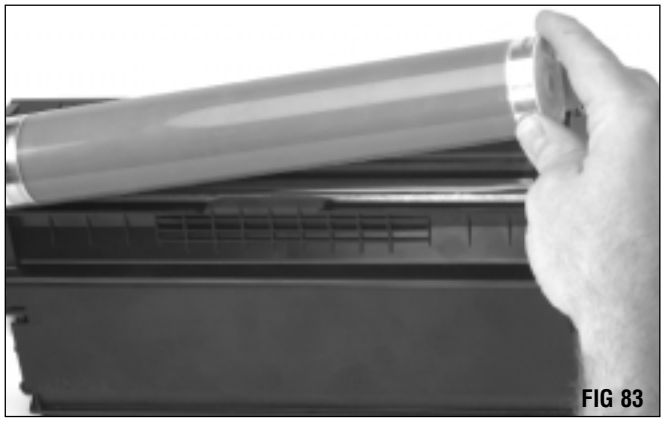


FIG 83

7. Replace the endplates

Replace the endplate (electronic chip side) and secure with the seven screws (FIG 84).

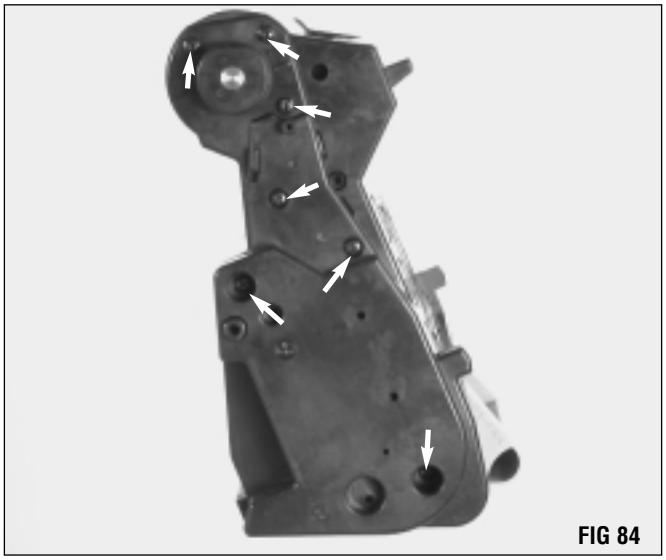


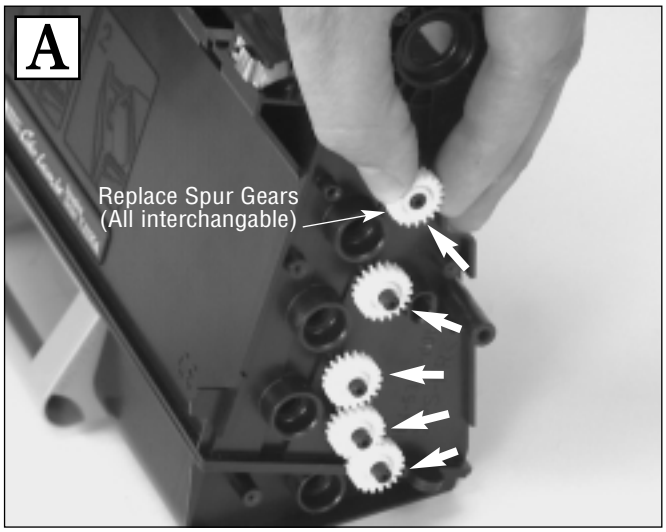
FIG 84

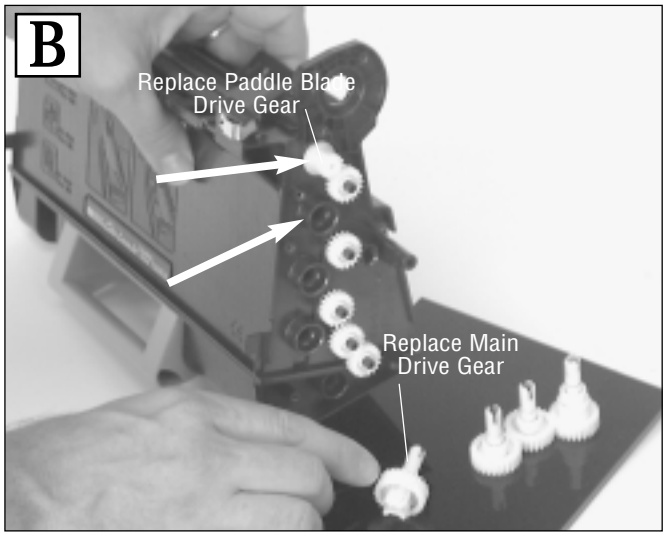
Replace the bearing (FIG 85).

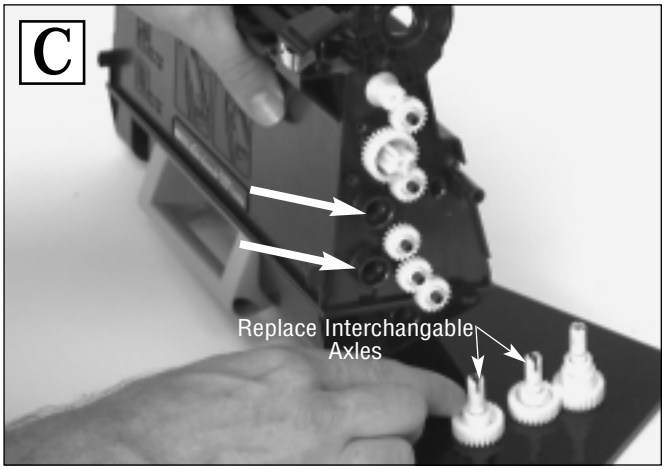
FIG 85

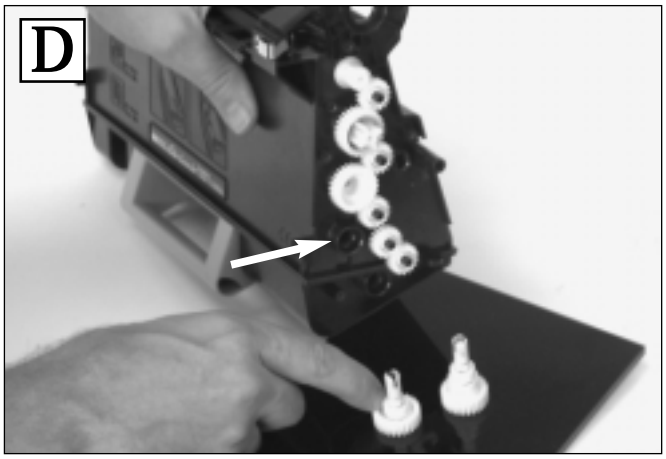
1. Replace the agitator drive gears

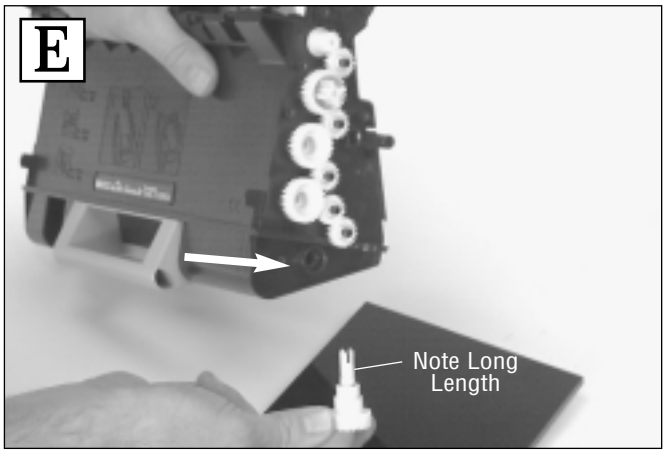
Follow steps A through E to replace the toner paddle drive gears and axles.











Replace the drive coupler end plate and secure with the six screws (FIG 86).

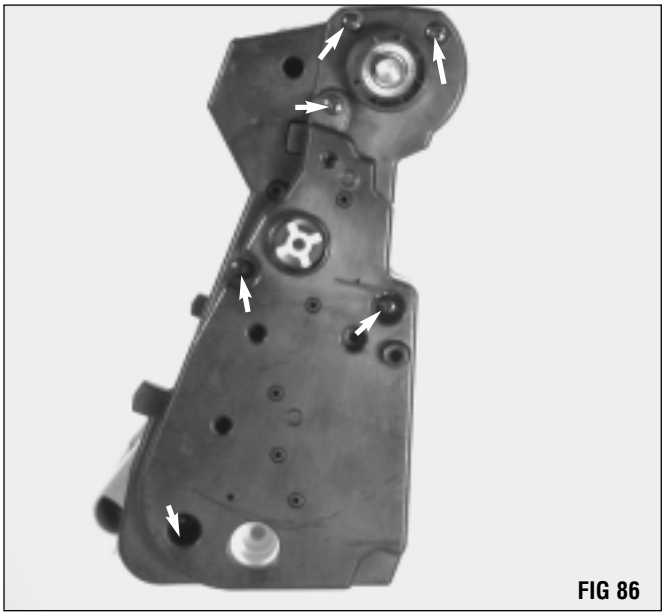


FIG 86

Replace the drive coupling (FIG 87).

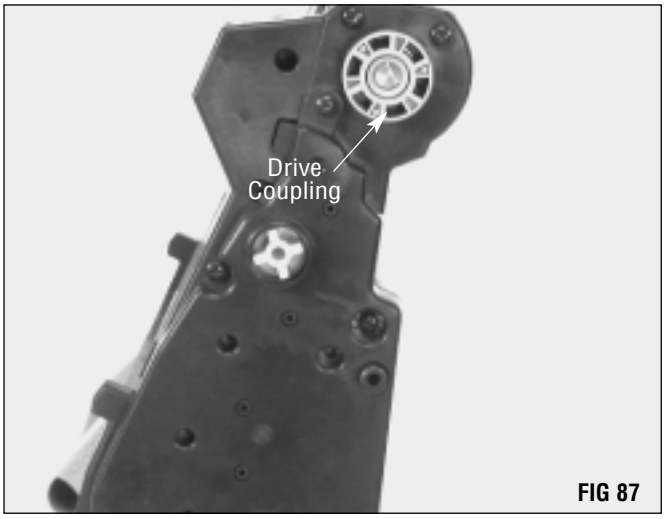


FIG 87

8. Replace the drum shutter

Replace the drum shutter (FIG 88). Note the location of the drum shutter spring and support bar (FIG 89 & 90).

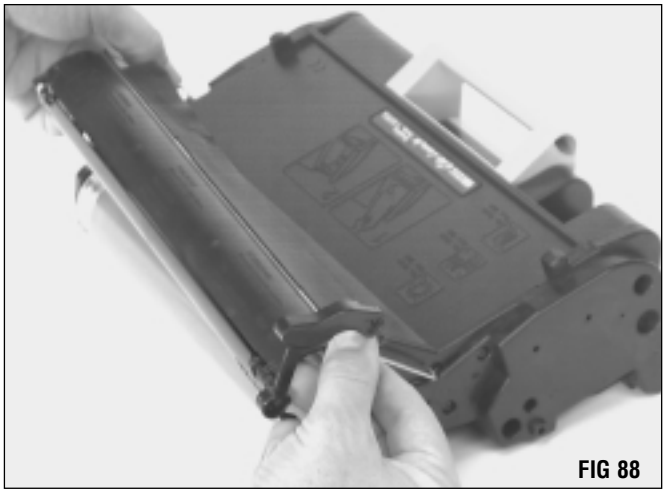


FIG 88

FIG 90

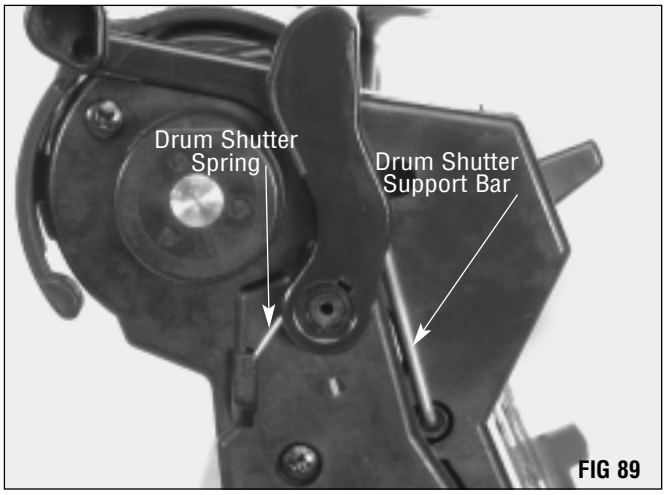


FIG 89

Use a Phillips screwdriver to replace the drum actuator screw (FIG 91).

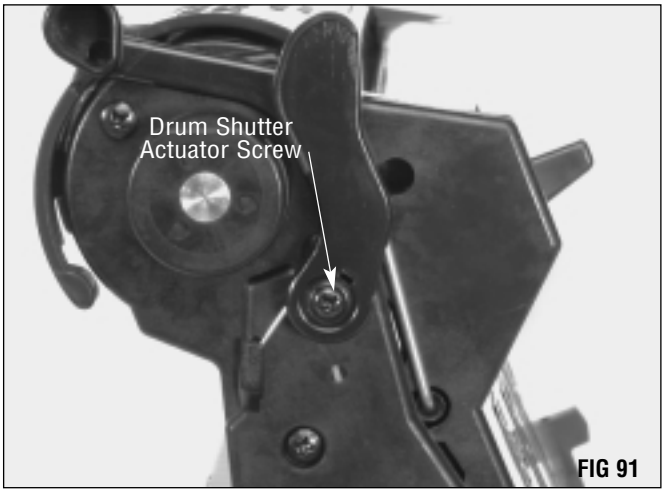


FIG 91

HP4500 Post Test Process

HP4500 color toner cartridges are one of the most important product launches your business will ever undertake. Our forecast projections for the North American aftermarket is that color laser cartridges will represent more than 50% of the total market volume in just three to four years.

Consequently, when you go to market with color, you are taking your first step into the marketplace that will be the core of your business in just a few short years. If your customers become disillusioned with their first exposure to aftermarket color laser products, your ability to succeed in a color-dominated future will be seriously impacted.

This is why post-testing the HP4500 is so important. Static Control has designed and developed specific tools which allow you to accurately and confidently post-test the HP4500 series color cartridges. The test will show if the cartridge is mechanically sound, plus it can show defects that will be apparent to the end user when the seal is pulled. This test is not intended to be used to produce prints for the purpose of mixed color evaluation on a scientific level. In order to evaluate a cartridge for its best color output quality the seal should be pulled.

Items You Will Need

- **HP 4500/4550 printer**
- **HP 4500/4550 toner**
- **SCC End Foams (HP45SCEFOAM)** - Two additional end foams are used on the developer section to limit toner migration. These are placed inboard of the existing end foams and prevent toner from passing beyond the ends of the adder roller, ensuring that the toner can be used.
- **SCC Interlock Override Clip (HP45OVERIDECLIP)** - This tool fits in the top of the printer under the toner access cover. Its function is to override the printer's normal process of initiating a calibration sequence when the toner access cover is opened. The tool does this by preventing the access cover's interlock switch from being actuated.
- **Toner Applicator Tool (HP45TONERAPP)** - This device provides the means to apply an even distribution of toner along the length of the adder roller.
- **SCC Color CD/Print Target Generator (COLOR TARGET)** - This is a group of SCC color test targets on CD. Use this with a computer to send the file to the printer to print a color target. The user has an option of the targets and the sequence of targets that can be printed.
- **SCC Toner Seal (HP45SHPSARS-2)** - This seal is designed to allow the maximum distance between the seal pull strip and the toner adder roller. This prevents the seal pull strip from being pulled into contact with the adder roller when high static voltages are applied during printing/post testing.

1. Place black electrical tape over the toner sensor windows (two on each cartridge) on each of the empty cartridges for the printer to calibrate.

2. Open the back door, then the top cover of the printer.

3. Place the interlock override clip into position as shown (FIG 92).

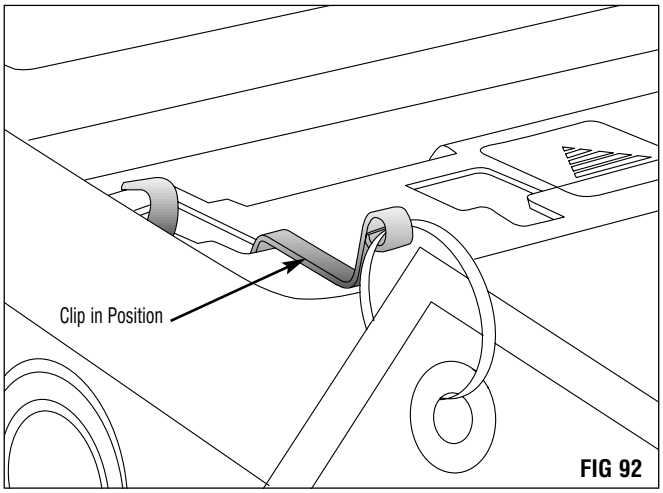


FIG 92

4. Press the safety latch with a small short shaft screw driver to rotate the cartridge carousel (FIG 93).

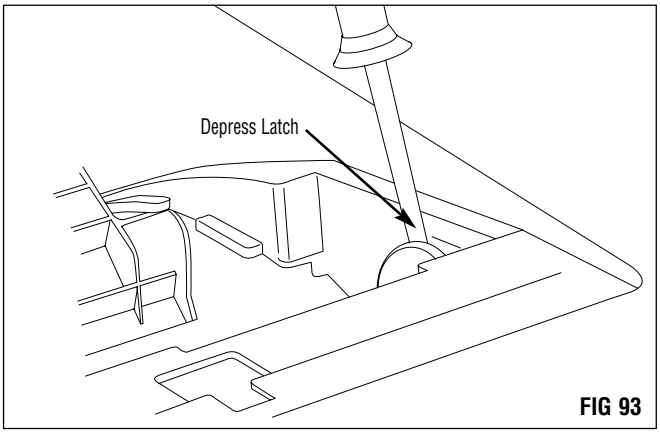


FIG 93

NOTE Turn power save off or set to the longest time setting.

5. Install the baseline calibration cartridges (as described in step 1) in the printer. Rotate the carousel, lining up the keyed area as shown (FIG 94) to place the cartridges in the printer.

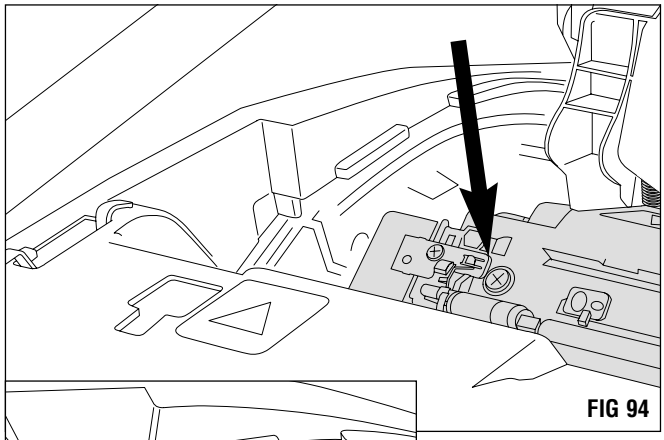
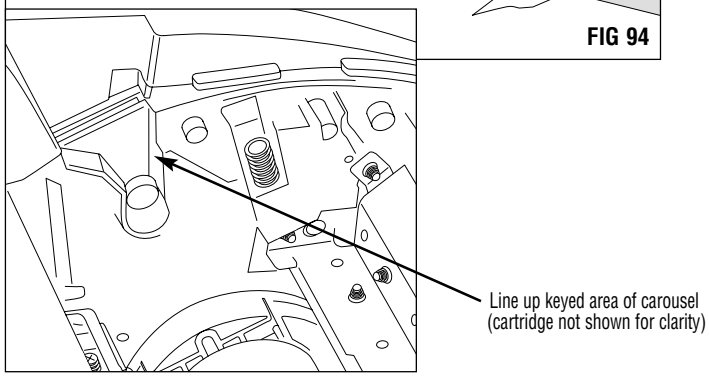


FIG 94



6. Shut the top cover and then the rear door of the printer. Press the Go button and let calibrate (approximately 4 minutes). Calibrate the print to empty cartridge so that the voltages are increased. This will help to remove as much toner as possible from the cartridges being tested.

NOTE Some residual dusting may occur when using the tool.

7. **Remove the toner applicator tool cap at the top. Fill the tool. Make sure the knob is in the load position. Place the tool over top of the seal in front of the toner adder roller (FIG 95)**

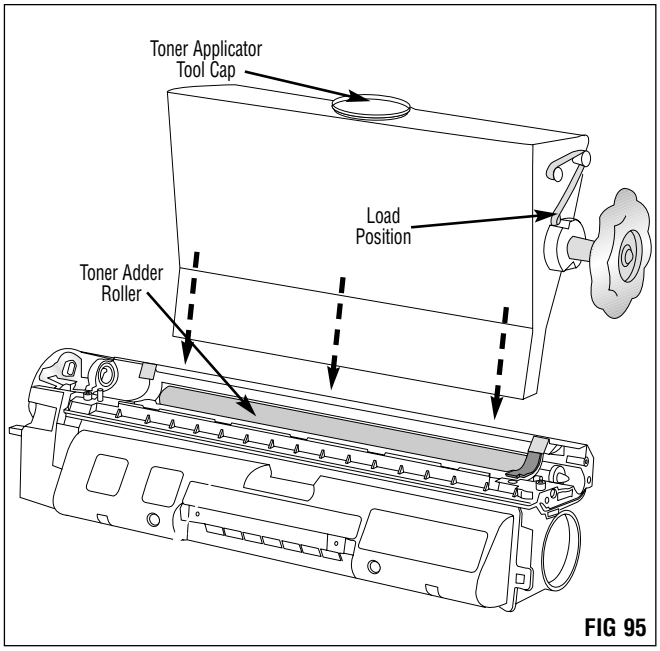


FIG 95

8. **Turn the knob counter clockwise one full circle. The toner will pour as you turn the knob. Tap the bottom lightly to insure that all of the toner is out. Turn until it is in the load position again (FIG 96).**

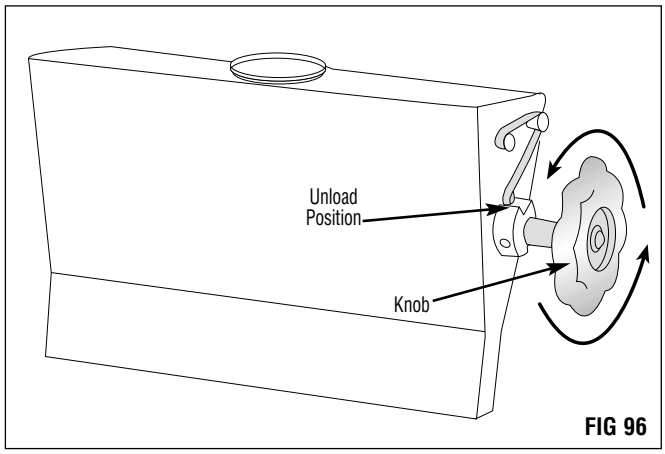


FIG 96

NOTE DO NOT turn the cartridges upside down or from end to end. Keep the cartridges level when reassembling and installing in the printer.

9. Rotate the carousel, lining up the keyed area as shown (FIG 97) to remove the calibration cartridges. Put the cartridges to be tested (keeping them level) in the printer. Shut the top cover and the back door. For each color run one full page (solid color), one 30% page, three BP80 pages (text) as a post test print set. To remove all remaining toner from the development area of each cartridge run five additional solid pages of each color. The reason for removing all toner (five additional solid pages) is to prevent toner leakage during shipment and/or delivery of the cartridges.

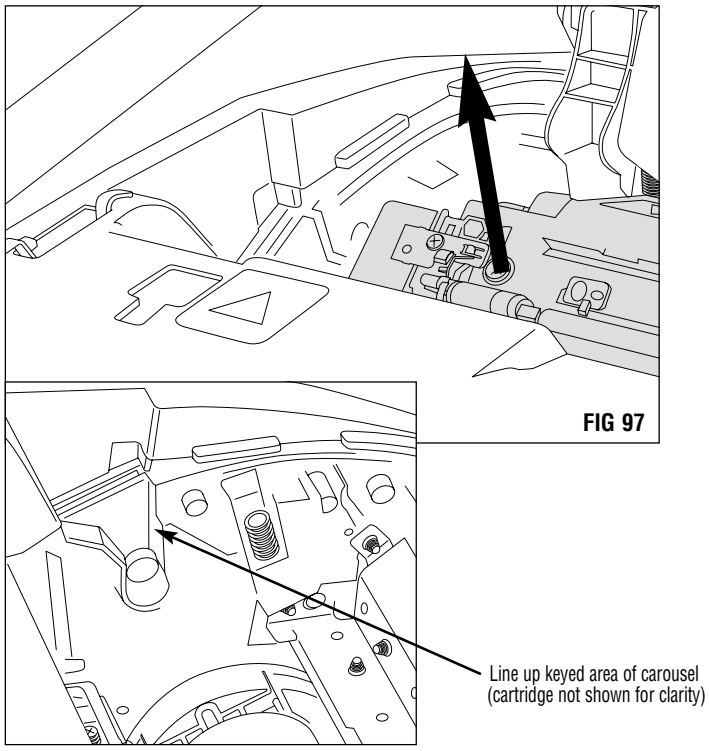


FIG 97

Imaging System Technology You Can Count On!

The development of cartridge imaging systems, such as the Hewlett Packard® LaserJet® 4500, is the primary mission of our technology laboratories. 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 cartridge application.

This dedication and commitment results in integrated cartridge systems that Static Control fully supports, allowing you to quickly attack new market opportunities with complete confidence in the reliability and performance of your cartridges.

STATIC CONTROL

Static Control Components, Inc.
3010 Lee Avenue • PO Box 152 • Sanford, NC 27331
US/Can 800·488·2426 • US/Can Fax 800·488·2452
Int'l 919·774·3808 • Int'l Fax 919·774·1287
www.scc-inc.com

Static Control Components (Europe) Limited
Unit 30, Worton Drive
Reading • Berkshire RG2 0TG • United Kingdom
Tel +44 (0) 118 923 8800 • Fax +44 (0) 118 923 8811
www.scc-inc.com