UniNet IMAGING INC.

AbsoluteCOLOR® • AbsoluteBLACK® • UniDrums • UniRollers • UniParts • UniCoatings

HP 4600® REMANUFACTURING INSTRUCTIONS

HP® 4600 COLOR LASER PRINTER

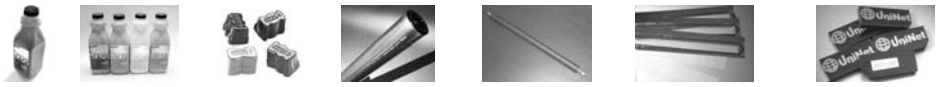
HP® 4600 TONER CARTRIDGES

ABOUT THE HP® 4600

Released in June 2002, the **HP® 4600** color laser printer introduces a unique and improved printing system. This multi all-in-one cartridge type allows high-speed color printing by means of a single-pass transfer stage. The system enables the HP® 4600 to process at 17ppm, which is significantly faster and more reliable than its 4ppm HP® 4500 predecessor.

To achieve the advantages of a single-pass system, each toner cartridge has its own dedicated imaging system – drum, charge roller and waste bin. This presents many advantages to the remanufacturing industry; however, the OEM has placed some hurdles that have to be overcome.

UniNet IMAGING INC.
www.uninetimaging.com



USA
Ph: +310-280-9620
Fx: +310-838-7294

EUROPE
+34-93-757-1335
+34-93-741-4166

JAPAN
+81-3-44-55-2789
+310-838-7294

BRAZIL
+55-11-4822-3033
+55-11-4822-3353

ARGENTINA
+54-11-4574-3706
+54-11-4574-3706

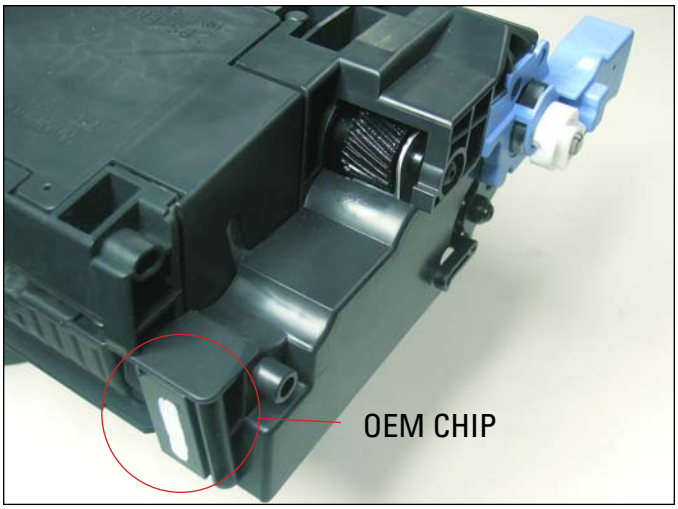
11124 Washington Blvd., Culver City, California U.S.A. 90232 Ph: 310 280-9620 • Fx: 310 838-7294 • techsupport@uninetimaging.com

SUPPLIES REQUIRED
TONER
SMARTCHIP

OPTIONAL SUPPLIES
(parts underlined are very important)

REPLACEMENT DRUM
WIPER BLADE
DOCTOR BLADE
PCR
DEVELOPER ROLLER
CONDUCTIVE GREASE

TOOLS REQUIRED
TONER-APPROVED VACUUM
3-MM (1/8 INCH) FLAT-HEAD SCREWDRIVER
PHILLIPS-HEAD SCREWDRIVER
NEEDLE-NOSE PLIERS
DRILL WITH 4-MM (11/64-INCH) BIT
PLIERS
HOOK TOOL



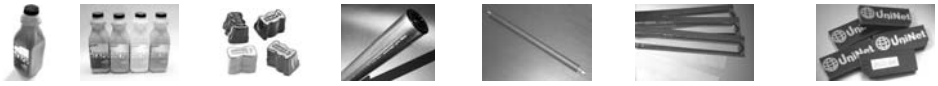
REMOVING THE OEM CHIP
1. Locate the OEM chip that is glued to the the rear of the cartridge.

2. Using a small flat head screwdriver, pry the glued chip off as shown.

3. Chip removed. It will be replaced later with a new Smartchip.

NOTES

UniNet IMAGING INC.
www.uninetimaging.com



USA
Ph: +310-280-9620
Fx: +310-838-7294

EUROPE
+34-93-757-1335
+34-93-741-4166

JAPAN
+81-3-44-55-2789
+310-838-7294

BRAZIL
+55-11-4822-3033
+55-11-4822-3353

ARGENTINA
+54-11-4574-3706
+54-11-4574-3706

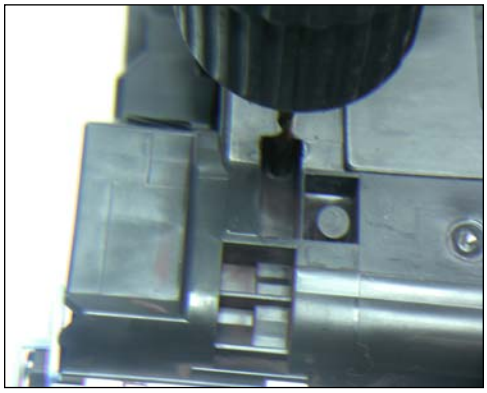
11124 Washington Blvd., Culver City, California U.S.A. 90232 Ph: 310 280-9620 • Fx: 310 838-7294 • techsupport@uninetimaging.com

DISASSEMBLING THE TONER CARTRIDGE

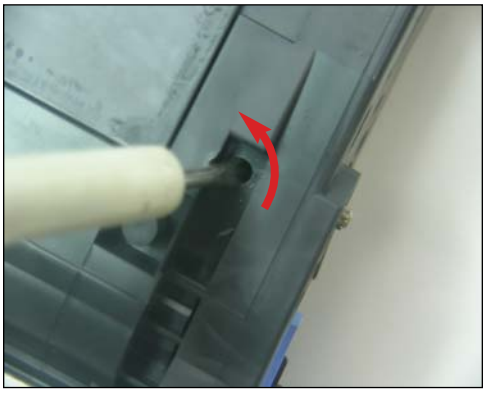
The first hurdle is noticed when attempting to dismantle the cartridge. As with the HP 1200 cartridge, the end-pins cannot be removed without making some minor alterations to the cartridge. The following instructions are a guide for dismantling the cartridge without having to purchase specially designed tools for removing the pin.

It should be noted at this point that, apart from the label and toner, each of the four cartridges appears to be identical. See Figure 1. Even the black cartridge uses a rubber-type developer roller, as do the color cartridges. Therefore the following instructions apply to all four cartridges.

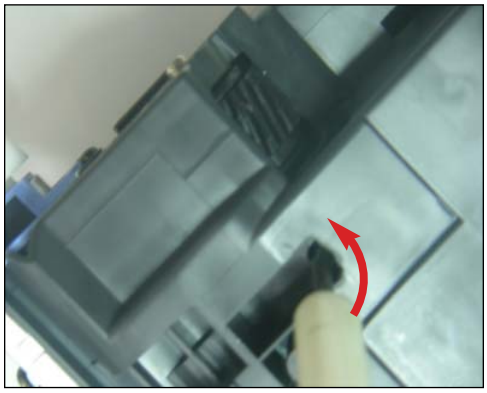
4. Locate the slots at both ends of the cartridge as shown.



5. Drill a 4mm (11/64-inch) diameter hole through each slot angled towards the pin. The drill will not go further than the depth of the pin.



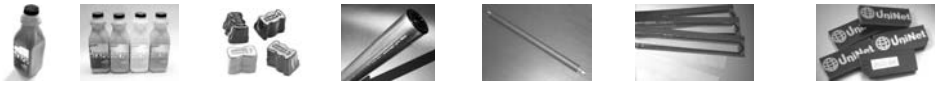
6. Insert a 3mm (1/8-inch) flat-head screwdriver with wide tip into the slot hole with the flat portion of the tip facing the pin. Push the screwdriver in behind the pin and turn in either direction. This action will push the pin out.



7. Repeat the same action for the second slot.

NOTES

UniNet IMAGING INC.
www.uninetimaging.com



USA
Ph: +310-280-9620
Fx: +310-838-7294

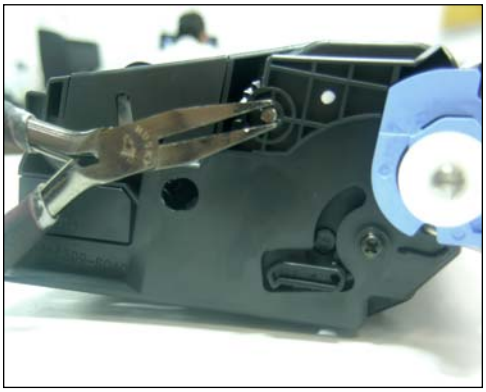
EUROPE
+34-93-757-1335
+34-93-741-4166

JAPAN
+81-3-44-55-2789
+310-838-7294

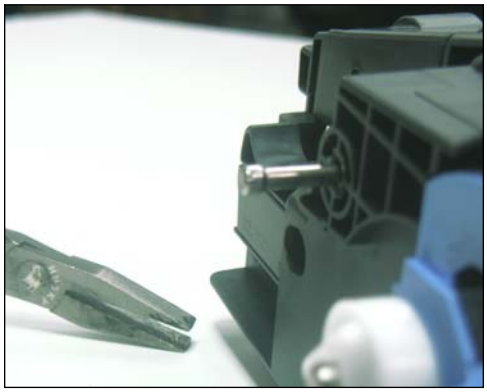
BRAZIL
+55-11-4822-3033
+55-11-4822-3353

ARGENTINA
+54-11-4574-3706
+54-11-4574-3706

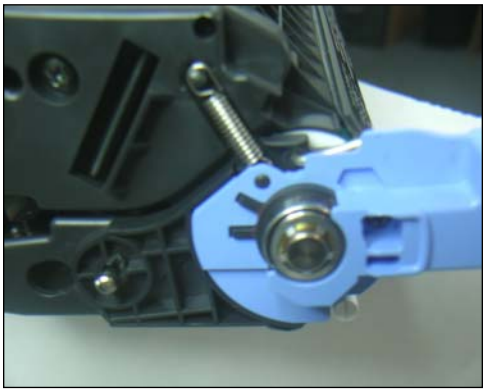
11124 Washington Blvd., Culver City, California U.S.A. 90232 Ph: 310 280-9620 • Fx: 310 838-7294 • techsupport@uninetimaging.com



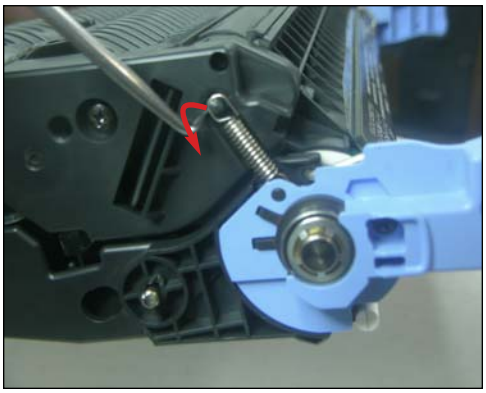
8. Grip the pin head with a pair of pliers and maneuver the pin to extract it out.



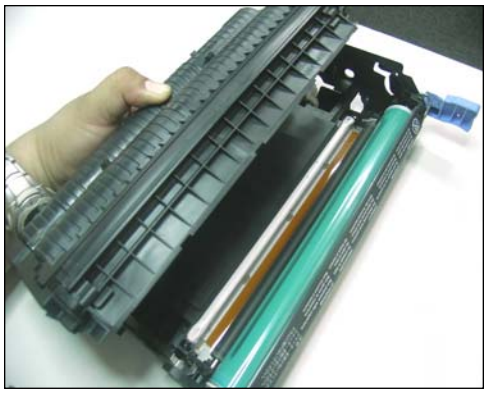
9. Pin extracted. Remove the other pin in the same manner.



10. Turn the cartridge upside-down. Locate the tension spring near the blue cartridge handle on the left-side of the cartridge.



11. Using a hook tool, unclip the spring by lifting it up and over the anchoring tag.

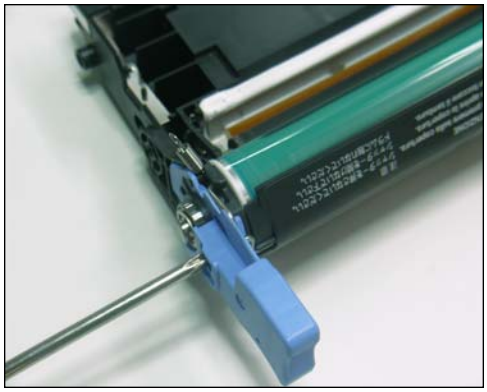


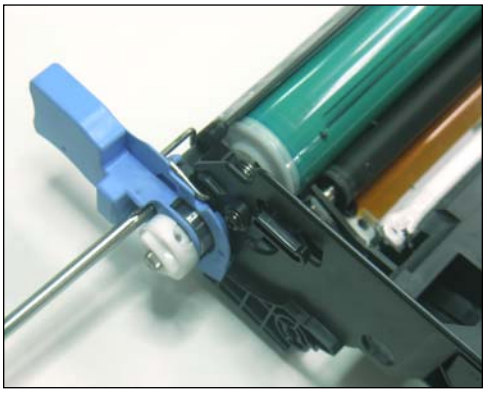
12. Lift the toner hopper portion of the cartridge away from the drum section as shown.

13. Toner hopper and drum section separated.

DISASSEMBLING THE DRUM SECTION

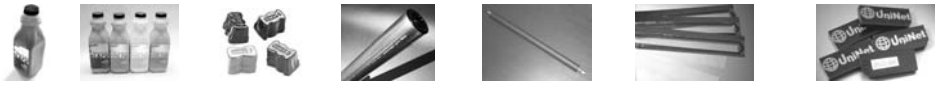
Testing and research indicates that all components can be reused for a number of cycles if qualified. Lab research indicates that the soft chemical toners cause much less wear on components than iron-oxide-based toners.





14. Using a small Phillips screwdriver, remove the screws that are located on the blue cartridge handles shown. The cartridge handle on the left-side will easily come off after removing the screw.

UniNet IMAGING INC.
www.uninetimaging.com



USA
Ph: +310-280-9620
Fx: +310-838-7294

EUROPE
+34-93-757-1335
+34-93-741-4166

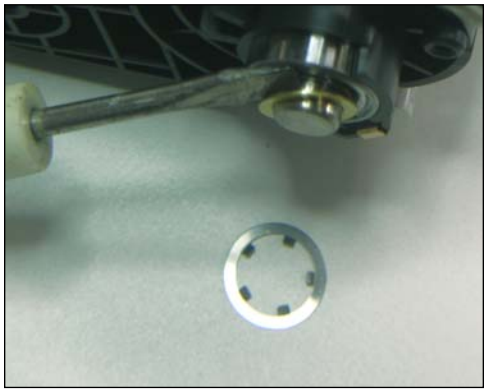
JAPAN
+81-3-44-55-2789
+310-838-7294

BRAZIL
+55-11-4822-3033
+55-11-4822-3353

ARGENTINA
+54-11-4574-3706
+54-11-4574-3706

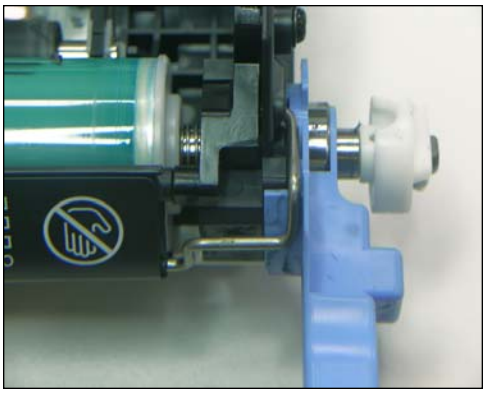
11124 Washington Blvd., Culver City, California U.S.A. 90232 Ph: 310 280-9620 • Fx: 310 838-7294 • techsupport@uninetimaging.com

15. Remove the star-lock clip by wedging it off the shaft with a flat-head screwdriver as shown.

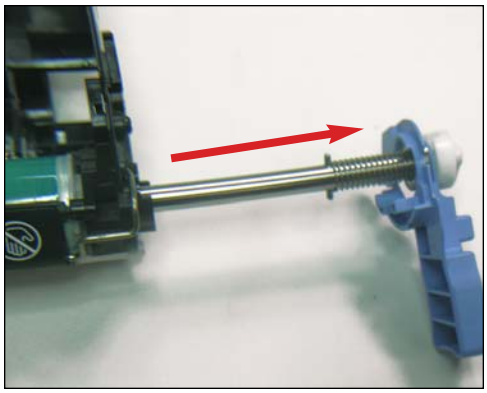


16. Now remove the washer in the same manner.

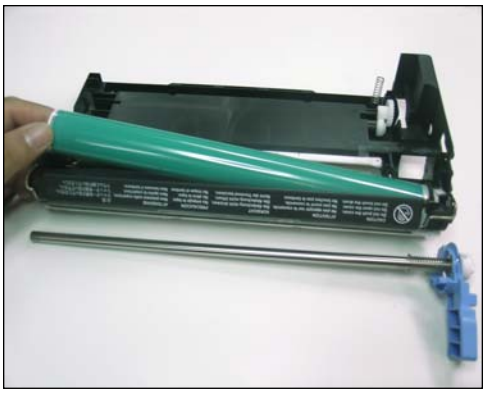
17. Wedge a flat-head screwdriver down the left side of the drum as shown. Tilt the screwdriver sideways to force the drum to the right. This will also push the shaft out the right-hand end.



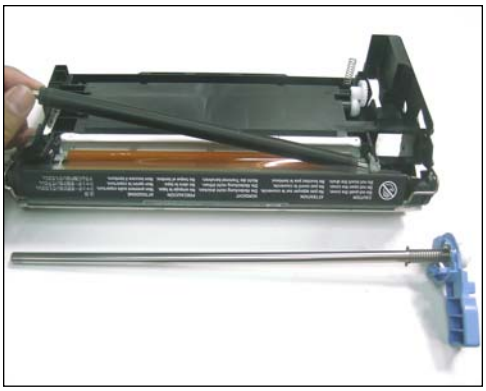
18. The extended shaft length at the right-hand end will allow you to grip the drive coupler and pull the shaft out.



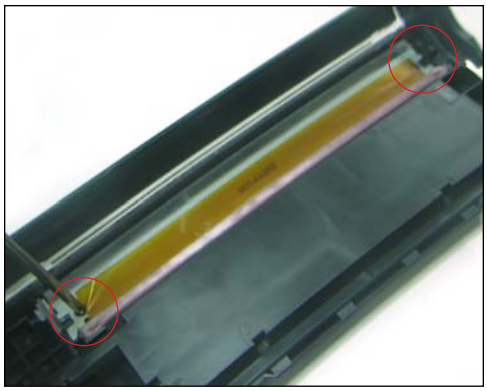
19. Shaft pulled out.



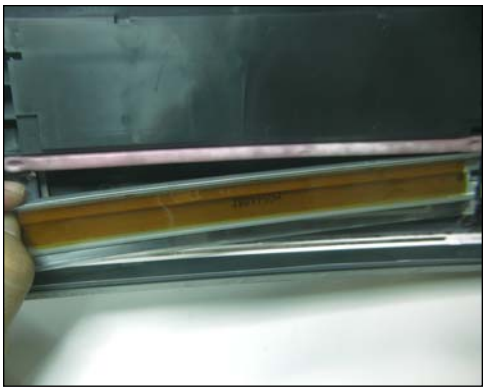
20. Carefully maneuver the left-hand end of the drum upward and lift the drum away from the cartridge as shown. If the drum is reusable, store it correctly, keeping it away from light.



21. Remove the PCR and clean with a damp cloth. Allow it to dry before installing.



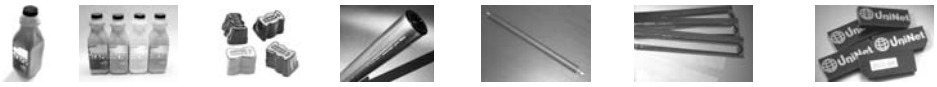
22. Remove the screws located on the wiper blade that is held in place as shown.



23. Note that the wiper blade is sealed by a sticky adhesive strip. Carefully pull the wiper blade away without damaging the strip.

Empty the waste bin and clean thoroughly using compressed air or a vacuum.

UniNet IMAGING INC.
www.uninetimaging.com



USA
Ph: +310-280-9620
Fx: +310-838-7294

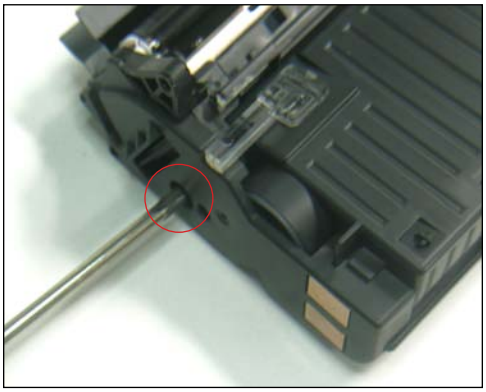
EUROPE
+34-93-757-1335
+34-93-741-4166

JAPAN
+81-3-44-55-2789
+310-838-7294

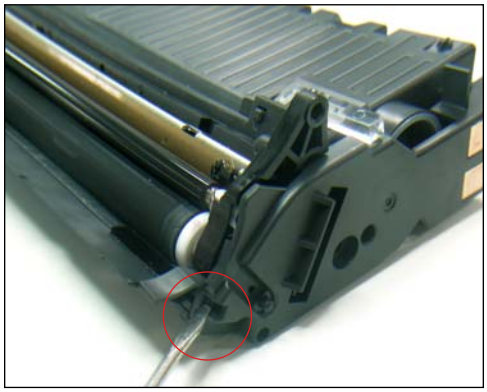
BRAZIL
+55-11-4822-3033
+55-11-4822-3353

ARGENTINA
+54-11-4574-3706
+54-11-4574-3706

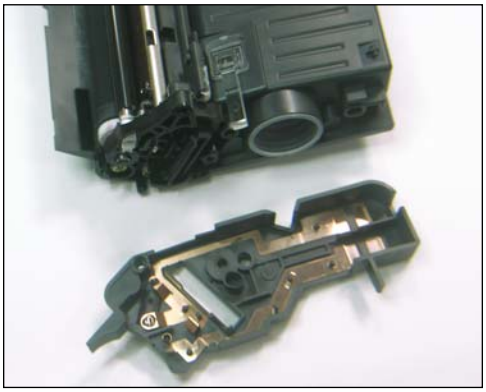
11124 Washington Blvd., Culver City, California U.S.A. 90232 Ph: 310 280-9620 • Fx: 310 838-7294 • techsupport@uninetimaging.com



DISASSEMBLING THE TONER HOPPER
24. Remove the Phillips screw on the end cap (gearless side) that holds it in place.



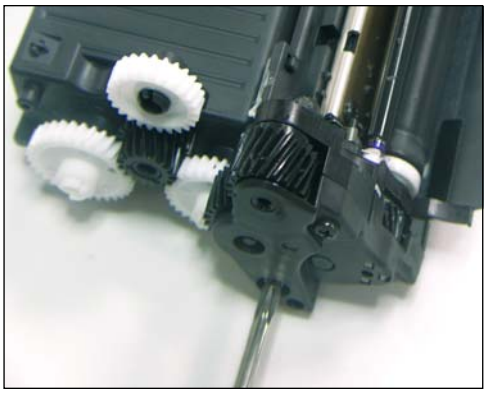
25. Use a flat-head screwdriver to press in and unclip the supporting clip in the area shown. It will be necessary to pull the cap away while pressing the clip in.



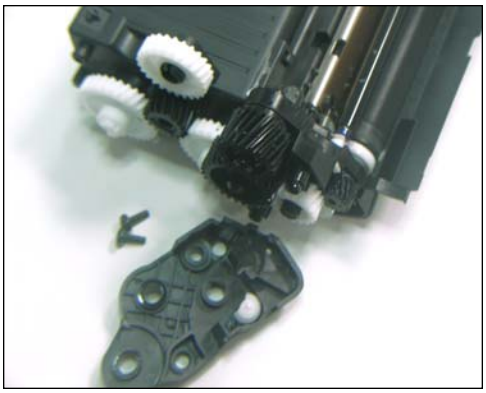
26. End cap removed.

REMOVING THE DEVELOPER ROLLER
27. Remove the two Phillips screws that hold the roller support plate in place (gearless side).

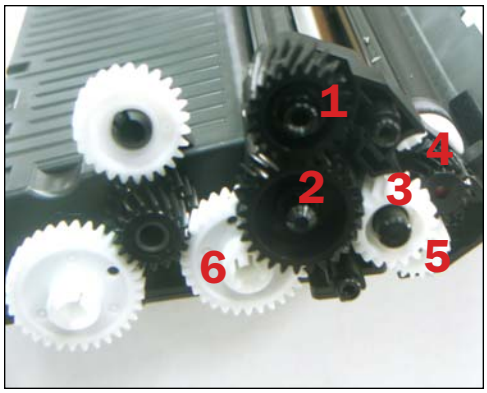
28. Roller support plate removed.



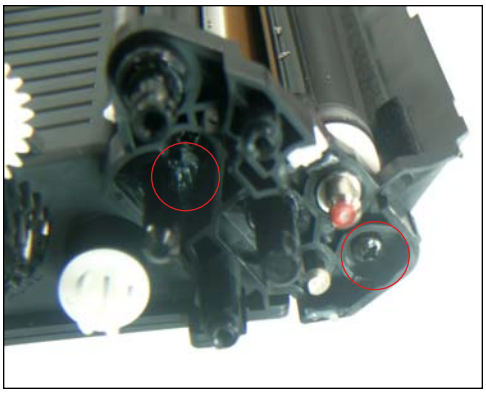
29. Remove the two screws that hold the end plate in place (gearside).



30. End plate removed.

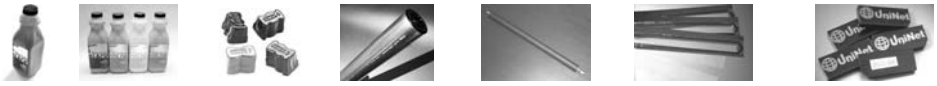


31. Remove the gears in order from one to six shown. Gear “six” will need to be carefully unclipped.



32. Gears removed. Remove the two screws that hold the roller support plate in place, then slide the plate out.

UniNet IMAGING INC.
www.uninetimaging.com



USA
Ph: +310-280-9620
Fx: +310-838-7294

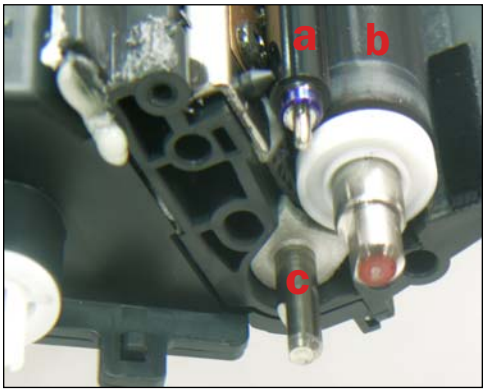
EUROPE
+34-93-757-1335
+34-93-741-4166

JAPAN
+81-3-44-55-2789
+310-838-7294

BRAZIL
+55-11-4822-3033
+55-11-4822-3353

ARGENTINA
+54-11-4574-3706
+54-11-4574-3706

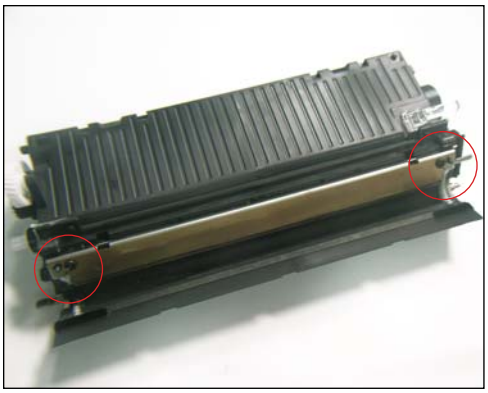
11124 Washington Blvd., Culver City, California U.S.A. 90232 Ph: 310 280-9620 • Fx: 310 838-7294 • techsupport@uninetimaging.com



33. Shown are the three rollers of the HP 4600 developing system:
(a) Toner Charging Roller
(b) Developer Roller
(c) Adder Roller.

34. First remove the toner charging roller by pulling it sideways.

35. Then, remove the developer roller by pulling it sideways. Be careful not to lose the white bushings on each end as they can easily fall off.



REMOVING THE DOCTOR BLADE
36. Remove the two screws that hold the doctor blade in place.

37. Doctor blade removed.

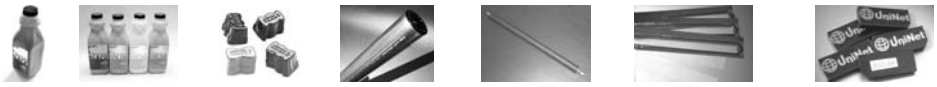
38. Using needle-nose pliers, pull out the toner fill plug. Remove residual toner and clean the hopper thoroughly using compressed air or vacuum. Fill with new toner and install the fill plug.

ASSEMBLING THE TONER HOPPER
39. Install the doctor blade back into place.

40. Install the developer roller as shown.

41. Install the toner charging roller as shown.

UniNet IMAGING INC.
www.uninetimaging.com



USA
Ph: +310-280-9620
Fx: +310-838-7294

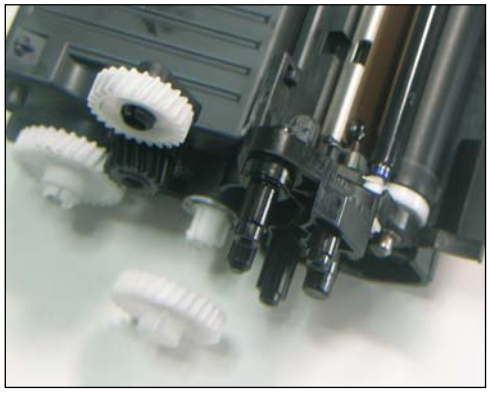
EUROPE
+34-93-757-1335
+34-93-741-4166

JAPAN
+81-3-44-55-2789
+310-838-7294

BRAZIL
+55-11-4822-3033
+55-11-4822-3353

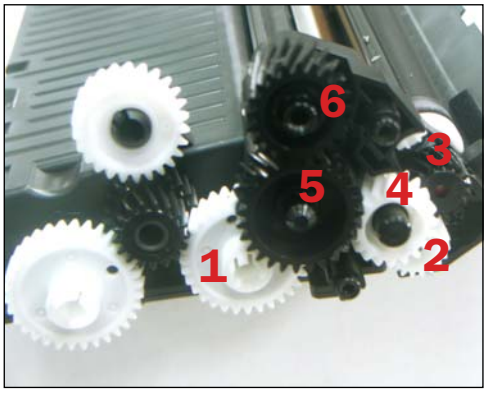
ARGENTINA
+54-11-4574-3706
+54-11-4574-3706

11124 Washington Blvd., Culver City, California U.S.A. 90232 Ph: 310 280-9620 • Fx: 310 838-7294 • techsupport@uninetimaging.com

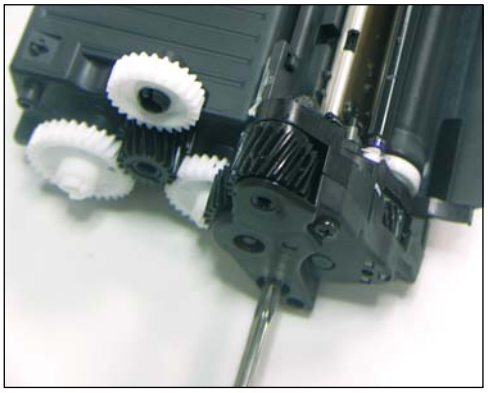


42. Install the gearside roller support plate back in place.

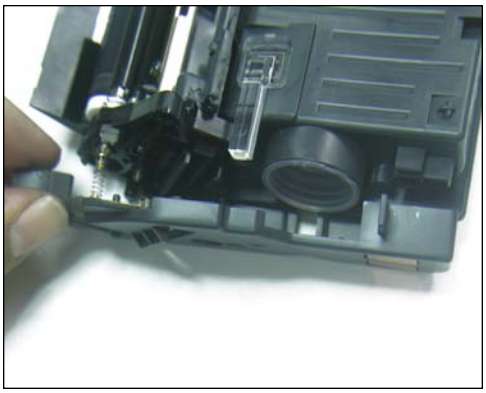
When applying the gear shown, ensure that the locking slot matches with the key of the paddle drive shaft.



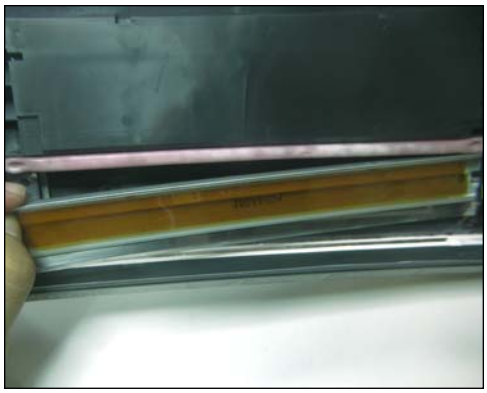
43. Install the gears in order from one to six as shown. Check that the gears are the correct way.



44. Install the gearside end plate as shown.



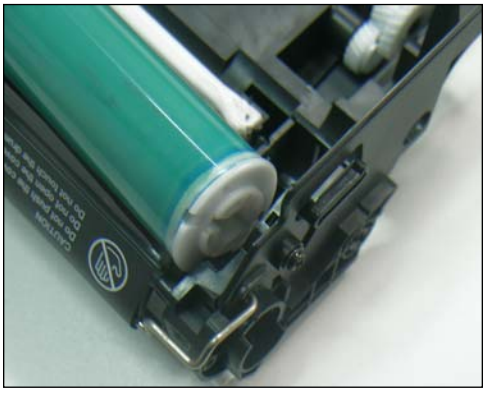
45. Install the end plate (gearless side), ensuring that the contact spring inserts into the rectangular bush end hole as shown.



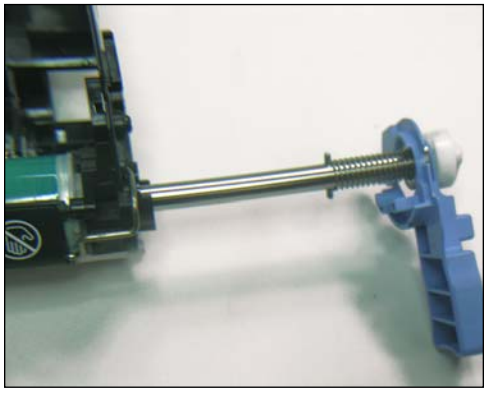
ASSEMBLING THE DRUM SECTION

46. Install the wiper blade back into place.

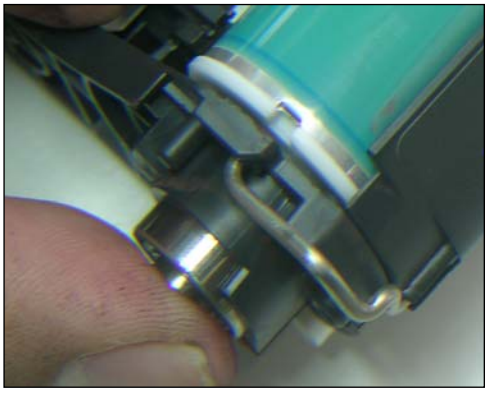
47. Install the PCR back onto the saddles shown.



48. Insert the keyed end of the drum into the right-hand end of the cartridge.

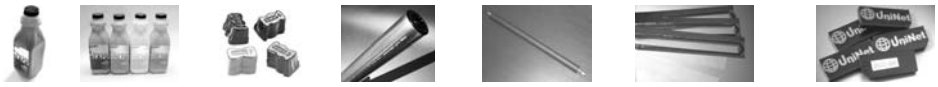


49. Carefully insert the drum shaft back into position as shown.



50. Hold the left-hand end bearing in place while inserting the shaft. The shaft will need to be turned slightly to engage the shaft-locking pin into the drum key slot.

UniNet IMAGING INC.
www.uninetimaging.com



USA
Ph: +310-280-9620
Fx: +310-838-7294

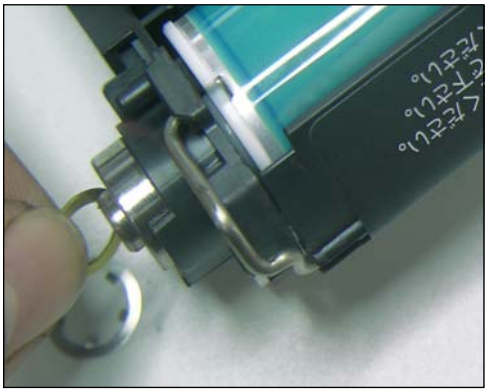
EUROPE
+34-93-757-1335
+34-93-741-4166

JAPAN
+81-3-44-55-2789
+310-838-7294

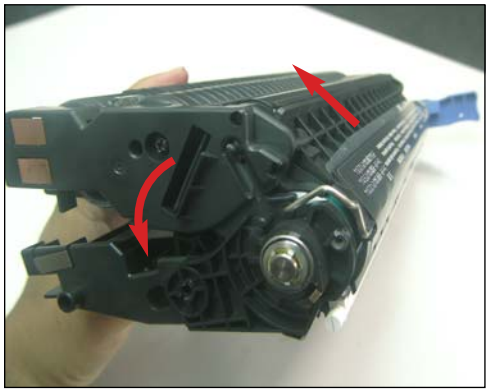
BRAZIL
+55-11-4822-3033
+55-11-4822-3353

ARGENTINA
+54-11-4574-3706
+54-11-4574-3706

11124 Washington Blvd., Culver City, California U.S.A. 90232 Ph: 310 280-9620 • Fx: 310 838-7294 • techsupport@uninetimaging.com



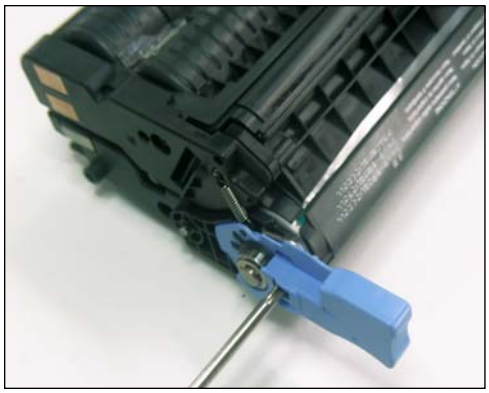
51. Apply the washer, then press the star-lock clip back over the shaft. Check that each end of the shaft is sitting in place correctly.



52. Assemble the two halves together. It is important to raise the drum shutter upward and lower the toner hopper downward under the shutter to prevent damaging the shutter blade.

53. Insert the two cartridge pins and press fully in place.

54. Install the tension spring that was removed in steps 10 and 11.



55. Install the two blue cartridge handles that were removed in step 14.

56. Cartridge is now complete.

NOTE: A new Smartchip must now be fitted before testing the cartridge.

NOTES

UniNet IMAGING INC.
www.uninetimaging.com

USA
Ph: +310-280-9620
Fx: +310-838-7294

EUROPE
+34-93-757-1335
+34-93-741-4166

JAPAN
+81-3-44-55-2789
+310-838-7294

BRAZIL
+55-11-4822-3033
+55-11-4822-3353

ARGENTINA
+54-11-4574-3706
+54-11-4574-3706

11124 Washington Blvd., Culver City, California U.S.A. 90232 Ph: 310 280-9620 • Fx: 310 838-7294 • techsupport@uninetimaging.com

COLOR-CALIBRATION INSTRUCTIONS

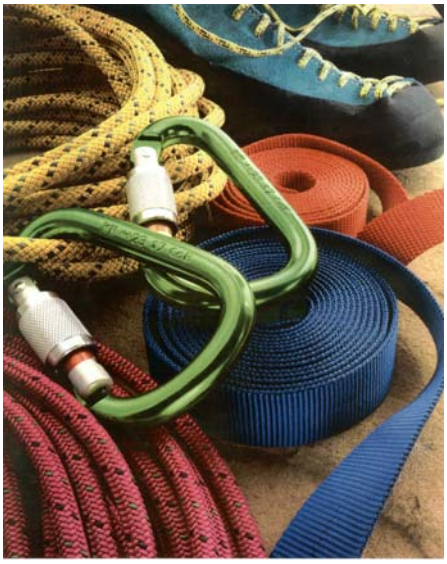
Start from the Ready position display, press the green “check” button which will take you to the Menu page.

Highlight Option #3 (“Configure device”) and press the check button again.
This will take you to the next window.

Highlight Option # 2 (“Print Quality”) and press the check button.
Then in the next window scroll all the way down until you get to “Calibrate Now” then press the check button once more.

The machine will take several minutes to complete the calibration.

COLOR-CALIBRATION RESULTS

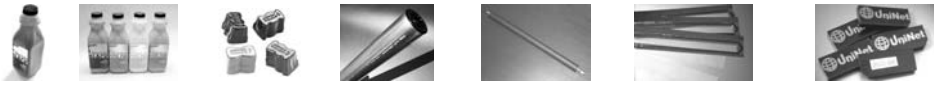


True color representaion shown with calibration.

Poor color representaion shown without calibration. Image seems to have a reddish tint. Note the “blue” belt in the picture has turned purple.

NOTES

UniNet IMAGING INC.
www.uninetimaging.com



USA
Ph: +310-280-9620
Fx: +310-838-7294

EUROPE
+34-93-757-1335
+34-93-741-4166

JAPAN
+81-3-44-55-2789
+310-838-7294

BRAZIL
+55-11-4822-3033
+55-11-4822-3353

ARGENTINA
+54-11-4574-3706
+54-11-4574-3706

11124 Washington Blvd., Culver City, California U.S.A. 90232 Ph: 310 280-9620 • Fx: 310 838-7294 • techsupport@uninetimaging.com

UNINET IMAGING INC. • HP® 4600 TROUBLESHOOTING GUIDE

DEFECTS DUE TO CARTRIDGE REMANUFACTURING

Problem	Toner leakage and dark spots on printed image (Toner build-up).
Details	During printing, toner accumulates between doctor blade and developer roller and, if extensive, spots develop on printed images.
Causes	1. Defective doctor blade or developer roller. 2. Improper assembly of cartridge (especially, the side leakage). - Imbalance in tightening of doctor blade. - Worn-out end felt of developer roller. 3. Weak charging of toner / possibly due to improper storage condition.
Suggestion	1. Care in regeneration of cartridge components and not using damaged components. 2. Precise control of blade gap and replacement of end felt. 3. Maintaining the charging power of toner / Proper toner storage.

Problem	Backgrounding.
Details	Toner speckles being printed in the margin of printed image.
Causes	1. PCR contamination / defective PCR or wiper blade. 2. Lack of re-usability of OPC drum (Defective surface or improper cleaning). 3. Calibration error due to worn-out transfer belt. 4. Weak charging of toner / possibly due to improper storage condition.
Suggestion	1. Replace PCR and /or wiper blade. 2. Replace OPC drum. 3. Replace transfer belt. 4. Maintaining the charging power of toner / Proper toner storage.

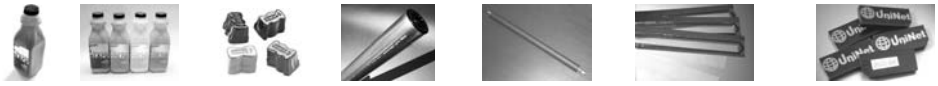
Problem	Streaking.
Details	Development of streaks on printed images.
Causes	1. Physical or chemical damages of doctor blade and / or developer roller surface (scratches, damages of surface coating etc.). 2. Toner coating forms on blade due to an insufficient gap between doctor blade and developer roller.
Suggestion	1. Proper regeneration of the components and selection of good components. 2. Change the cartridge assembly method.

Problem	Scattered toner in the edge of paper.
Details	Traces of toner in the paper margin and edge section and contamination of transfer belt.
Causes	1. Localized wear of OPC drum, wiper blade, PCR, developer roller, and / or doctor blade. 2. Side leakage (toner build-up).
Suggestion	1. Replace the worn component. 2. Be careful with sealing properly during the cartridge assembly (end felt, sealing blade, recovery blade, etc.).

DEFECTS DUE TO IMPROPER TONER

Problem	Image density (ID) problem
Details	ID of printed images is either too low or too high and the color gradation deviates too much from the linearity.
Causes	1. Weak charging power of toner / possibly due to improper storage. 2. Defective OPC drum, doctor blade, developer roller, adder roller. 3. Calibration error due to defective Smartchip, worn-out transfer belt (it could be a simple mis-calibration at printer switch-on).
Suggestion	1. Maintaining the charging power of toner / Proper toner storage. 2. Replace worn components. 3. Replace the Smartchip or the transfer belt (Repeat the calibration more than three times before deciding to replace).

UniNet IMAGING INC.
www.uninetimaging.com



USA
Ph: +310-280-9620
Fx: +310-838-7294

EUROPE
+34-93-757-1335
+34-93-741-4166

JAPAN
+81-3-44-55-2789
+310-838-7294

BRAZIL
+55-11-4822-3033
+55-11-4822-3353

ARGENTINA
+54-11-4574-3706
+54-11-4574-3706

11124 Washington Blvd., Culver City, California U.S.A. 90232 Ph: 310 280-9620 • Fx: 310 838-7294 • techsupport@uninetimaging.com

UNINET IMAGING INC. • PRODUCT CATALOG FOR HP® 4600

ABSOLUTE COLOR® TONERS


#6360 - HP® 4600 Absolute Black® Chemical toner 210g (9,000 pages)


#8454 - HP® 4600 Absolute Black® toner 22 lb (10 kg) bag (sold2 p/box) (new formula)


#9010 - HP® 4600 Absolute Black® toner 220g


#6371 - HP® 4600 Absolute Cyan® Chemical toner 190g (8,000 pages)


#9011 - HP® 4600 Absolute Cyan® toner 210g


#8719 - HP® 4600 Absolute Cyan® toner 22 lb (10 kg) bag (sold 2 p/box)


#6372 - HP® 4600 Absolute Magenta® Chemical toner 190g (8,000 pages)


#9012 - HP® 4600 Absolute Magenta® toner 210g


#8720 - HP® 4600 Absolute Magenta® toner 22 lb (10 kg) bag (sold 2 p/box)


#9013 - HP® 4600 Absolute Yellow® toner 210g

BLADES WIPER & DOCTOR


#8743 - HP® 4600 doctor blade, 10 pack (special order)


#8563 - HP® 4600 doctor blade, 10 pack (with chemical coating)


#8097 - HP® 4600 wiper blade, 10 pack

CARTRIDGE PARTS


#5524 - HP® 4600 blue cartridge installation handle (left), 10 pack (special order)


#5526 - HP® 4600 blue cartridge installation handles (right), 10 pack (special order)

#6366 - HP® 4600 developer roller end felt (Left & Right), 50 pack

#4953 - HP® 4600 developer roller sealing blade end felt (right & left), 50 pack


#9965 - HP® 4600 Doctor blade sealing foam (2 mm), 10 pack


#9966 - HP® 4600 Doctor blade sealing foam (3 mm), 10 pack

#9329 - HP® 4600 fill plug cap, 100 pack


#9124 - HP® 4600 short pin, 50 pack (special order)


#5361 - HP® 4600 wiper blade end felt, 50 pack (special order)

#5460 - HP® 4600 wiper blade sealing foam, 25 pack


#9618 - HP® 5500, 4600 drum axle retaining ring, 100 pack


#5959 - HP® 5500, 4600 toner adder roller felt washer, 50 pack

DRUMS


#9396 - HP® 4600 Uni Drum® Green OPC with gears

MAG, DVR & PCR ROLLERS


#9790 - HP® 4600 developer roller, 10 pack (not for use with Chemical toner)

#8767 - HP® 4600 developer sponge supply roller, 10 pack

SEALS


#5512 - HP® 4600 Clear Seal® OEM style adhesive (no foam), 50 pack

#5511 - HP® 4600 Clear Seal® OEM style adhesive w/foam, 50 pack (spcl order)


#9125 - HP® 4600 long pin, 50 pack (special order)


#9123 - HP® 4600 metal clip 14 mm, 100 pack (special order)


#9122 - HP® 4600 metal clip 35 mm, 100 pack (special order)


#8711 - HP® 4600 shipping lock, 10 pack


#9118 - HP® 5500, 4600 pull tab, 10 pack

SMARTCHIP & FUSES


#8356 - HP® 4600, 4650 Smartchip® Black cartridge


#8357 - HP® 4600, 4650 Smartchip® Cyan cartridge


#8359 - HP® 4600, 4650 Smartchip® Magenta cartridge


#8358 - HP® 4600, 4650 Smartchip® Yellow cartridge

UniNet IMAGING INC.
www.uninetimaging.com







USA
Ph: +310-280-9620
Fx: +310-838-7294

EUROPE
+34-93-757-1335
+34-93-741-4166

JAPAN
+81-3-44-55-2789
+310-838-7294

BRAZIL
+55-11-4822-3033
+55-11-4822-3353

ARGENTINA
+54-11-4574-3706
+54-11-4574-3706

11124 Washington Blvd., Culver City, California U.S.A. 90232 Ph: 310 280-9620 • Fx: 310 838-7294 • sales@uninetimaging.com