Xerox® WorkCentre 4150 style… Getting the most out of the Drum Cartridges… Repair & Reconditioning
WC- 4150, 4250, 4260

Xerox® WorkCentre 4150 Drum Cartridge

The 4150 machines are continuing their service out there in the field, and now they've been joined by newcomers in the series; 4250 & 4260. Dealerships who have placed these machines are finding that; for machines which are under contract, repair costs are not a big issue, but the cost of the supplies are adding up to costs per copy which are higher than what they have contracted on a per copy basis with their customers. Extending the life of the Drum Cartridge beyond its stated yield has become an essential part of keeping these machines profitable members of the fleet. We've already covered the machine itself with 3 ENX articles… and before that was an article about servicing the Fuser Module. Last month we looked into refilling the Toner Cartridges, so all that remains is the Drum Cartridge. In this article, we'll get familiar with these critters and see how they come apart.

Like many of the newer consumables in the Xerox product lines, these cartridges use an RF (Radio Frequency) chip as a reset CRUM (Customer Replaceable Unit Monitor). The CRUM is found on the left lower side of the cartridge close to the rear. There is an RF communication board on the machine which the CRUM lines up with. This board can both read and write to the CRUM. Once the counter is up, the CRUM needs to be replaced to continue using the Drum Cartridge. The OEM CRUM is just a sticker with some tiny electronics in the middle. The generic replacements (which at the time of this article's creation are just being tested out), are hard chips with some peel and stick backing on them.

Resetting the Drum count to extend the usable life of the cartridge will require only that you replace the Drum Reset CRUM on the left side of the cartridge. Eventually I am confident that the Drums and Blades and Charge Rollers will hit the aftermarket as well, at which point a more thorough rebuild will be possible.

The 4150's Drum Cartridge (or "Smart Kit" as Xerox likes to call the unit), sells at retail for $292.99 under the part number 013R00623 (13R623). It is rated for 55K pages. The newer models : 4250 & 4260 use a different cartridge – 113R755. It sells for $421.- and is said to have a yield of 80K. This article is based on the 4150 version… The major difference for the 4250 ctg is that it does not use an RF chip. It has a regular chip located inside the Front End Cover.
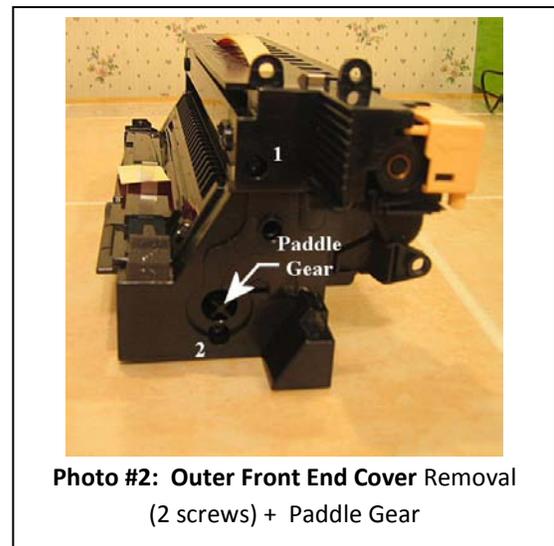
These cartridges include two basic halves… the top portion houses the Drum, Charge Roll, Cleaning Blade & Waste Toner Auger. The lower half is the Developer Housing. This cartridge is dual-component meaning it uses Developer Material on a magnetic roller. The Drum

gets its charge from a Charge Roll which is spring loaded against the Drum… there is also a spongy cleaning roll which helps keep toner from building up on the Charge Roll. There is a traditional Drum Blade which cleans any excess toner off. That waste toner is moved by the waste auger to the font of the cartridge and dropped into the Waste Container on the front end of the Toner Cartridge. There is a spring loaded shutter on the underside of the front end of the Waste Auger Tube.

The Drum is grounded by a clip inside of the drum cylinder which touches the metal drum shaft. There's another clip which makes contact with the front end of the metal Drum Shaft. That clip goes up to an exposed tab on the top of the cartridge near the front end which makes contact with the ground contact in the machine.

Now to it… Let's take one apart to see how the Drum and Blade come out.

PROCEDURE:

Photo #1: Upper Rear End Cover - removal

Photo #2: Outer Front End Cover Removal
(2 screws) + Paddle Gear

1. Start by removing the Top Rear End Cover (see Photo #1). You'll take 3 screws out (from the rear) and then you'll need to do a little wiggling from side to side to work the cover off of there.
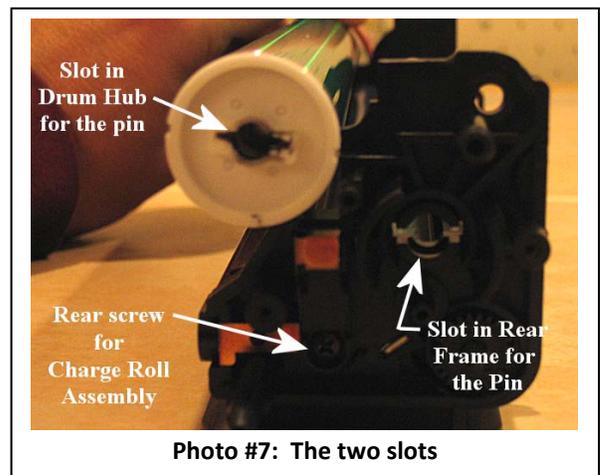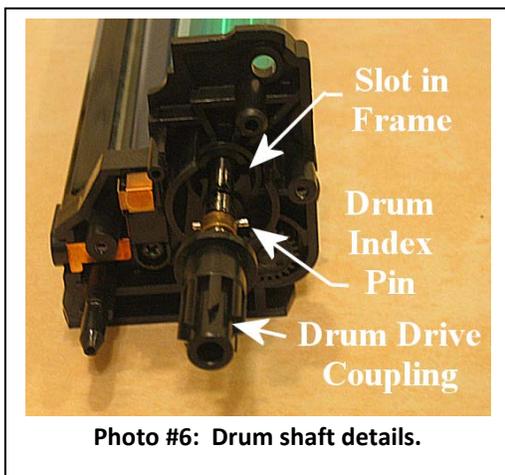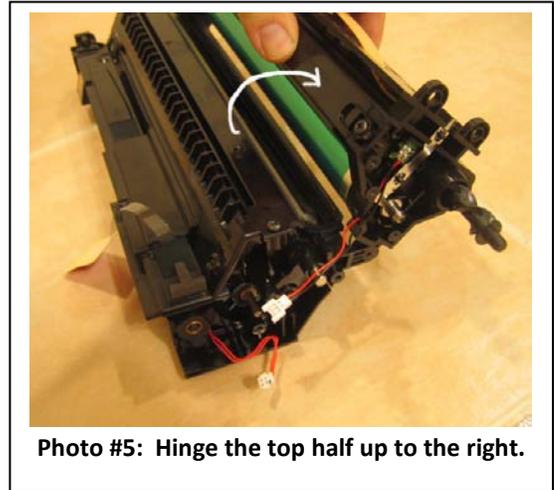
2. Next remove the Outer Front End Cover. Two screws come out from the front and then

Photo #3: Inside of the Front End
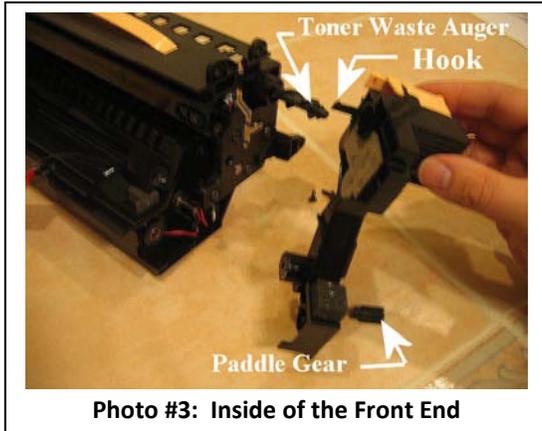
you'll release a single hook at the top right

where it sticks through to just above the drum. There is a small paddle gear which pulls off of its 'D' shaft when you remove the Outer Front End Cover and it will then fall right off. (see Photo #2)
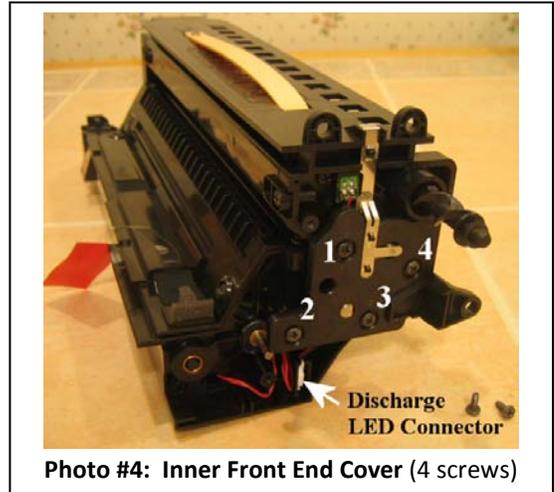
3. Then remove the Inner Front End Plate (see Photos #3 & #4). 4 screws from the front end.

4. Now for the "big moment"… you will separate the Upper (drum) half and the Lower (developer) half. Start by disconnecting the

Photo #4: Inner Front End Cover (4 screws)

Photo #5: Hinge the top half up to the right.

Photo #6: Drum shaft details.

Photo #7: The two slots

white connector for the Discharge LED which is tucked into an alcove low down on the

front end. Then the entire top half of the cartridge can hinge up to the right (see Photo #5)… Now shimmy it backwards off its hinge pins and lift it on off of there.

5. To get the drum out requires extracting the Drum Shaft through the rear end. The trick is that there's an indexing cross pin in the shaft which is in a slot in the drum's rear hub… that pin needs to be lined up with a matching slot in the rear frame of the cartridge in order to pull the shaft out the rear.   In photo #6 you can see what the Drum Shaft's indexing pin looks like as you extract the shaft from the rear of the cartridge. Photo #7 shows the drum's slot and the slot in the cartridge next to each other. When you go to reassemble things, remember to line up those two slots so you can push the drum shaft with its cross pin all the way in till the pin engages the drum's hub to drive it. .

6. Next you can remove the Charge Roll Assembly (2 screws from the right side, 1 screw from the front end and 1 screw from the rear end). See Photo #8. Clean out the Charge Roll Assembly carefully and vacuum the sponge cleaning roll in the assembly.
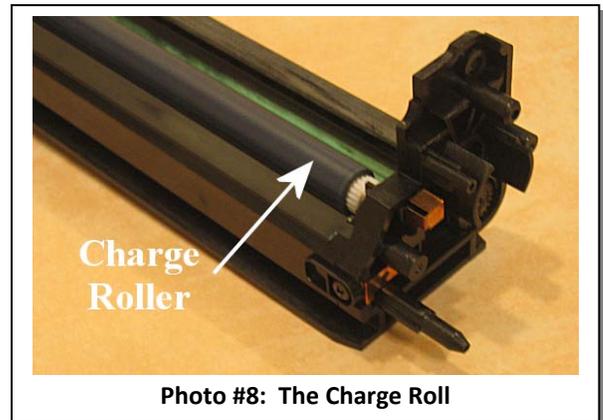

Photo #8: The Charge Roll

7. To get to the Blade you must first remove the Discharge LED & its Light Bar (it looks like a long discharge lamp but at closer inspection, you'll see it is really just a single LED at the front end which lights up the lucite Light Bar (see Photo #9) the Light Bar is somewhat flexible in spite of its fragile appearance) You'll want to start by removing the front Drum Shaft Ground Contact (pry very gently at the metal where it is pushed onto each of the 2 plastic posts… don't mangle it… you want to be able to push the metal burrs back onto the posts later and have them still be able to grab the posts firmly). With the contact out of your way, you can push the Discharge Light Bar forward and out through the front end. You can remove the Discharge LED Board with ease to clean the LED.
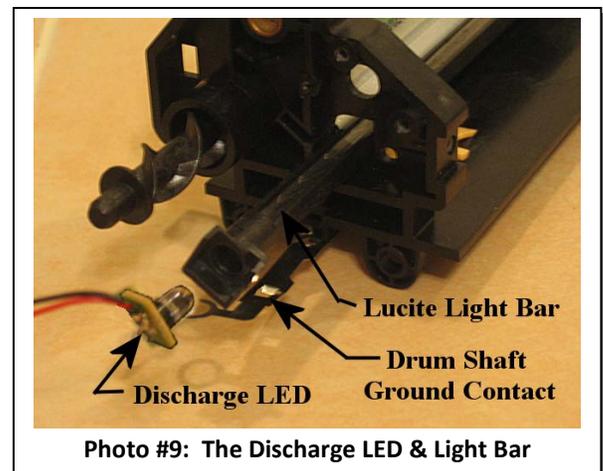

Photo #9: The Discharge LED & Light Bar

8. Finally now that the Discharge Light Bar is out of the way, the Drum Cleaning Blade can be removed (2 screws).

9. Reassemble everything, and replace the Drum Reset CRUM. On the 4150 it is located on the lower left side of the cartridge (do not install the new CRUM over the old one.. make sure to remove the old one first or it will confuse the communications with the machine). Make sure the new CRUM is as "flush" as it can be. (See Photo #10). On the 4250/4260 cartridges it is located inside the Front End Cover (See Photo #11)

Photo #10: 4150 Drum Reset CRUM

Photo #11: 4250/4260 Drum Reset CRUM

Nice work !

Here is a re-cap of the codes which relate to drum cartridge problems:

STATUS CODES (Relating to the Drum Cartridge):

09-300	Drum warning (new end of 55K life)
09-310	Drum cartridge drum is not turning properly. (check the drum and the drives to the drum's drive coupling)
09-320/330/340/600	Drum Cartridge CRUM (chip) failure.
09-400	Drum Cartridge end of life.
09-900	Wrong Xerographic Module (Drum Ctg.) (incompatible CRUM chip)

All of the codes above can be remedied by replacing the Drum Reset CRUM with the correct one for your particular model and market region. The exception would be the 09-310 (Drum not turning properly) which indicates a mechanical failure. For that problem you'd want to double check that the drum drive pin in the drum shaft is engaging the slot in the drum's rear hub properly… if the pin were to fall out of place, the drum shaft would spin without turning the drum.

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