

How to refill your

LaserJet 2100 (Canon PC1210/30/70)

Part Number C4096A, used in: Hewlett Packard LaserJet 2100/M/TN/Cxi/CSE

Keep the cartridge out of direct sunlight at all times and avoid more than 1 hour's exposure to ambient light. Cover your workspace with paper in case of accidental spillage. As with all powders, avoid inhaling the toner.

Melt? Or Cut?

You need to decide whether to melt your hole with the tool supplied or cut it with a craft knife. We think melting is much easier if you can organise it. Either way, the idea is to make a hole, pour the toner in and then tape over the hole. That's it. No rocket science.

To help you decide whether to melt or cut, read right through these pages and then come back to the Quick Start instructions below.

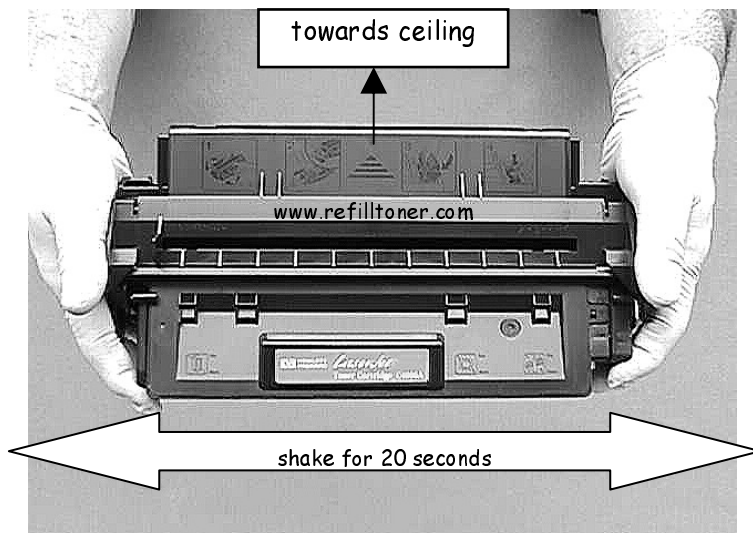
Pouring technique - go with the flow

The toner likes to settle down in the bottom of the bottle and make a lump. A lump is an all or nothing affair when it comes to pouring. You get nothing and then, suddenly, you have it all - usually over your shoes. So think in terms of shaking the bottle and then, without panicking, pour as much as you can before it settles back down again. Have everything ready for pouring so that once the toner has been shaken you've got every chance to pour most of it before it settles back down again. Try to pour as much as you can, but judge the speed so that it can all flow through the funnel without forming a blockage. Once you see that the toner isn't flowing out from the bottle easily any more, put the top back on the bottle and shake again.

Shaking the funnel while lifting it slightly can clear small blockages. Running a screwdriver right down through the funnel can clear bigger hold ups.

Quick start instructions

1. Hold the empty cartridge as shown below and shake from side to side for 20 seconds. Make sure the cartridge is orientated as shown with the arrow facing the ceiling.



2. Find the place to melt your hole as shown below. Try to copy the position as closely as you can.



- b) If you decide to cut the hole, go for a rectangular hole in about the same place as the melted hole shown right. (See "About cutting")

3. Melt your hole. (See "About melting")

4. Put the funnel into your hole.

5. Use one hand to **both** hold the funnel **and** tilt the cartridge to about 45 degrees.



6. With the top still on, shake the toner bottle energetically.

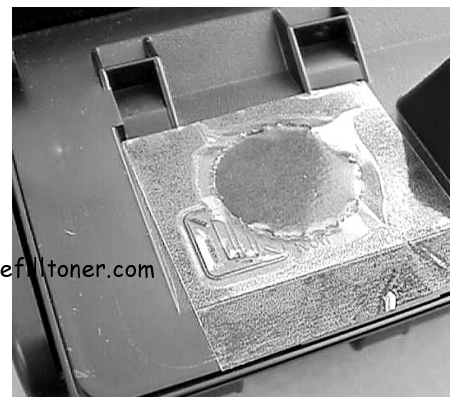
7. While the toner is still agitated from the shaking, pour it at moderate speed into the funnel. Tip: if toner gets stuck in the funnel, try shaking it while lifting the end a little. If toner is still stuck, push a screwdriver right through.

8. When the toner stops pouring smoothly like a liquid, put the top back on the bottle and shake again. Repeat the shake and pour cycle until all the toner is gone.

9. Wipe down the surface near the hole - stray toner powder will unstick the sticky patch you're about to put on.

10. Peel the backing off one of the sticky patches and press the patch into position covering the hole.

11. Rock the cartridge in the horizontal position to even out the toner. That's it.



About melting

Melting a hole is much easier than cutting it, but it brings other issues into play:

- 1) You need a naked flame or some means of getting the end of the tool hot enough to melt the plastic. In our own workshop, we use a blowtorch for this. It's the kind with a disposable butane canister. They're in most hardware and DIY shops, but this is an "industrial strength" approach because we do a lot of melting. So how about a picnic stove? A candle flame? Or a gas cooker?
- 2) Fumes can be produced. As with the combustion of any organic substance (such as petrol or tobacco) a cocktail of gases can be produced and some of these are harmful or at least irritant. We ourselves have no hesitation in researching and refilling with melt & pour in a well-ventilated room. If a well-ventilated room wasn't available, we'd have no hesitation in doing the melting part outside. However, the company gives no warranties, neither explicit nor implicit, as to the safety of melting holes in toner cartridges. The onus is on you to assess any possible risk, and, if you're worried about this issue, then why not do "cut & pour" instead?
- 3) If you decide to melt a hole outside in the open air, do it out of direct sunlight to avoid light damage to the OPC drum. Put newspaper under the cartridge to prevent grit particles from getting into things.
- 4) Avoid excessive heating of the tool. The edges of your hole can ignite if the tool is too hot. It doesn't need to be anywhere near red hot. Experiment with just a few seconds immersion in the heat source at first and get the "feel" of it.
- 5) Usually, the "melted out" circle of plastic sticks to the melting tool, but occasionally, the resulting piece of plastic falls inside the cartridge. Try to avoid this if you can, but don't worry too much if it happens. A piece of plastic this size and shape inside the toner compartment doesn't usually do any harm, but be aware that it's there.



About cutting

You'll need a craft knife for this. Sometimes called a modelling knife, Stanley knife or carpet knife. The style shown in the photo is best because it has a big strong metal handle that allows you to apply some force if necessary. Avoid applying a side-ways force, which can snap the blade.

Don't worry too much about carving out a great work of art. The exact shape or size of the hole isn't that important as long as the funnel will go in. We think it's best to try pushing the tip of the blade through the plastic to make a series of small punctures, rather than going for one heroic slash. But there's plenty of room for individual style. Just don't cut yourself and remember, the hole isn't going to be entering a fashion show. **Caution:** never cut towards yourself or your free hand.

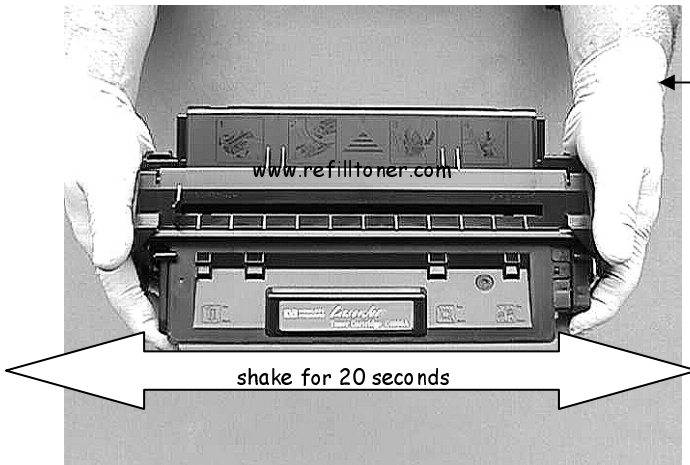
How many times can I refill?

At the time of writing, the scrupulously honest answer is: we don't know. But here's some informed speculation.

Waste overflow possibility? In a freshly emptied original cartridge we examined, the waste compartment was only 14% full overall. As usual, most of this 14% was in a single section on the left-hand side. But assuming this can be evened out with our shaking in step 1 of the refill method, then the waste could theoretically take at least 5 refills. So our initial guess is that drum life will limit the cartridge first.

Drum life? The drum design and toner weight is similar to other cartridges where "three straight refills and maybe then some" is the rule of thumb.

Dealing with the waste overflow threat

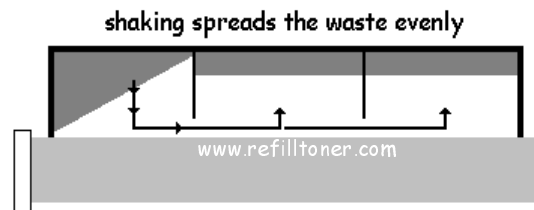
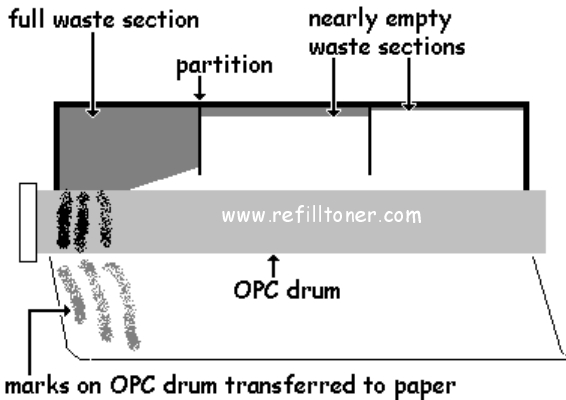


Remember that first step in refilling your cartridge? It was to shake the cartridge in the position shown left and it's vitally important to do this before every refill. Why?

To even out the waste toner which is building up in the waste compartment.

The cartridge collects its own waste toner as it goes along. Eventually the waste does fill up completely, but left to its own devices, it tends to fill up at just one end first. The end that's full then causes marks on your prints even though there's plenty of room in the waste as a whole.

But by shaking the cartridge from side to side in the position shown you force the waste to spread between all the sections and so delay the waste over-flow factor for as long as possible. Note that the cartridge has to be held as in the photo to let the waste drop down and get through the gaps between the sections.



The waste overflow threat can be defeated completely by emptying the waste. For the LaserJet 2100, our guess at the time of writing is that drum wear will become a problem before waste overflow gets a chance - as long as you're fairly religious about the shaking routine before every refill. However, if you've refilled three times and fancy going for a fourth, you might want to empty the waste as a precaution. By the same token, if you begin to see streaky vertical lines down one side of your prints, then **immediately** empty the waste to try and clear the problem.

You need to nip waste overflow in the bud because the action of compacted toner rubbing on the cartridge's OPC drum pretty soon wrecks that particular cartridge's drum for good.

How to empty the waste

You'll need a vacuum cleaner with a "hairy" dust-cleaner attachment and some clear 45mm (2 inch) wide adhesive tape. The vacuum is to clean up the outside of the cartridge only. Don't try to vacuum out the waste compartment: this would buckle the delicate catcher blade and send your cartridge to an early grave.

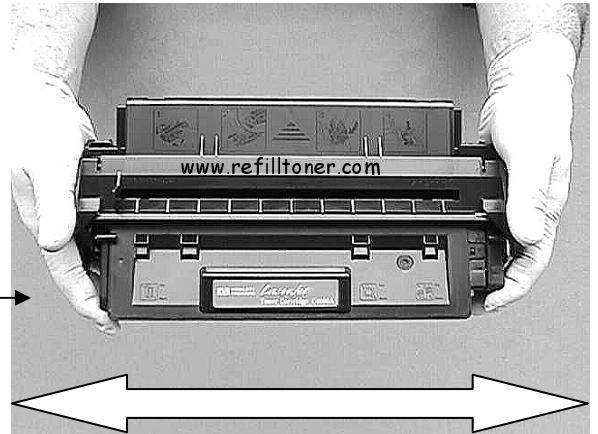
- 1) Find the place to melt the hole as shown below. It involves the diagram which has a 1 in one corner and "5-6" in another corner.



- 2) The photo left shows a half-melted hole. Try to copy this position exactly. Melt your hole.

- 3) Keeping your hole facing upwards, carry the cartridge to an outside bin. Don't do this if there is a risk of exposing the cartridge to direct sunlight.

- 4) Start shaking the waste directly into an outside bin.
- 5) When you notice that not much is coming out anymore, shake the cartridge in the time-honoured position shown right to release more waste from the other compartments. Then shake what's released into the bin again.
- 6) Continue shaking and pouring like this until virtually nothing is coming out anymore.



- 7) Vacuum the stray toner from the cartridge using the "hairy" attachment. Use the vacuum to clean up the surface only: do not try to vacuum the inside of the waste.

- 8) Clean off the surface around the hole and then seal with 45mm (2-inch) wide tape. Press the tape hard onto the plastic. A few wrinkles are usually unavoidable. Just press them down hard with the back of your fingernail. That's it.



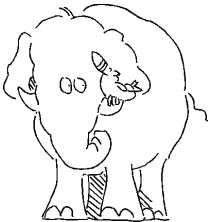
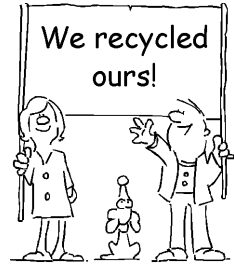
Please, tell three people what you've done

OK, we admit it. This is our begging act. Have you saved money by using our DIY kit? Did you feel a touch of pride as your cartridge *did* print again? Maybe you found some environmental satisfaction? Or perhaps you feel it should be refilled "because it's there". We sincerely hope we've helped float your boat in some way. And if so, then please help our voice in the wilderness and tell at least three people about what you did with your empty cartridge.

We all know a lot of people: at work, in the family and in clubs and groups. Why not make a point of telling just three of those people about what you did with your empty cartridge? Even if they don't have printers themselves, they probably know people that do.



Why not copy these instructions and FAX them to three work contacts? Why not make some photocopies and give them to people that you know use computers? Why not broadcast an email to your email pals? In our experience, people will probably thank you for getting organised to spread useful information and it enhances your (doubtless already legendary) image as someone who knows their stuff. A battered home world might just benefit from your efforts as well.



Don't forget

You can easily refill **desktop copier cartridges** by Canon, Sharp and Xerox. Plus enjoy more refilling success with laser printers by Hewlett Packard, Acer, Apple, Brother, Canon, Epson, Lexmark, Minolta, NEC, Star, Xerox and many others.

UK orders and information

<http://www.urefilltoner.co.uk>



U Refill Toner Ltd

Safety Information

Not to be used by children.

Safety data: mono component toner powder

Avoid direct heavy inhalation of product, wear gloves, do not ingest.

Hazards: no known health hazard when used as intended.

Emergency and first aid:

Inhalation: unlikely. Remove from exposure to fresh air. Keep at rest.

Ingestion: substantially non-toxic, but if swallowed consult a physician.

Eye contact: Flush with large amounts of clean water. If irritation persists, seek medical attention.

Skin contact: wash with soap and water.

Ingredients: Styrene acrylate copolymer, carbon black, polypropylene, charge control agents. May also contain magnetic pigment.

Notice. All safety information is given to help facilitate the safe use of this product and is based on information obtained from the manufacturer. This information is believed to be correct, but does not purport to be all-inclusive and shall only be used as a guide. U Refill Toner Ltd makes no warranty, express or implied, as to the accuracy or completeness of this information. It is the user's responsibility to determine the suitability of this information for the adoption of necessary safety precautions and / or compliance with local laws and regulations.

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If you the purchaser decide not to go ahead with refilling for whatever reason, simply return the product or products to U Refill Toner Ltd and we will cheerfully refund your money. Your statutory rights are unaffected.

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