



# How to Samsung ML-1660, ML-1665 and SCX-3200

Also suitable for: SCX-3217

Before use, familiarise yourself with the safety information on pages 5 and 6.

Take maximum care when using power and hand tools. Consider the safety and protection of eyes and hands with regard to accidental slippage and/or breakage of the tool.

Consider doing the refill on top of sheets of old newspaper in case of accidental spills.

## Protect blue OPC drum while handling, keep from direct sunlight

As you work with the cartridge, protect the green OPC drum at all times. Never expose it to direct sunlight and expose to ambient light as little as possible.



## Ignore <...> symbol flashing red

## Clear pop up "Replace with new toner cartridge - 1042"

The above two symptoms are just to freak you into buying a new cartridge. Ignore them. Do nothing in response to them. Clear the pop up by clicking the X at top right corner of box. Continue printing.

## Do refill procedure if you get fade out

Fade out means that there's physically no toner powder left to print with. This is in contrast to any electronic messages the machine gives you about toner, which are not **directly** related to how much might be there.

Typical fade-out due to lack of toner develops **progressively** as shown in these three prints.



As you can see, the faded area gets wider and more pronounced with each print, but even on the last very faded page, the print at the edges is still the same blackness as on the first print. If you take out the cartridge and give it a shake at this point, perfect print will return for a few more prints – but then the fade out will return again. This pattern of progressively widening fade out bands which can be temporarily cured by shaking is the hallmark of toner exhaustion.

## Do refill procedure if you get pop up "End of life, replace with New Toner Cartridge"

Do the refill procedure if and when you get the pop up message "End of life, replace with New Toner Cartridge". The machine refuses to print until you do something about this message.

## Starter cartridge and standard cartridge are same for refilling

The machine arrives with a so-called "starter cartridge" already installed in the machine. It's rigged to do only 700 or so prints, whereas the cartridge you're subsequently supposed to buy does in the region of 1,500 prints. As far as the refill technique goes though, the two flavours of cartridge are identical and there's no real need to distinguish between them.

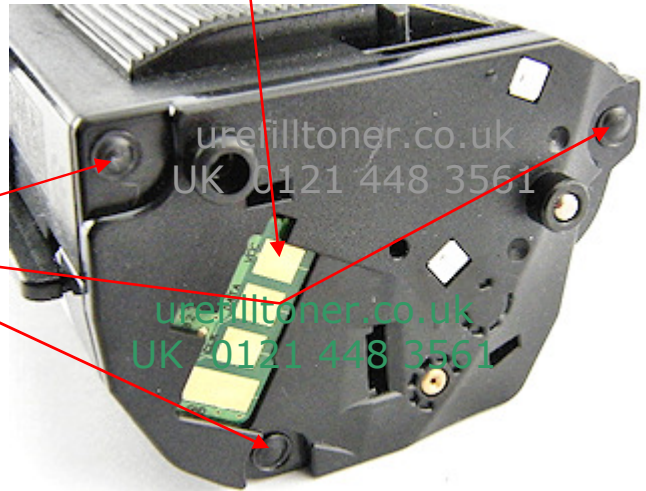


## How to refill it

1) Identify end of cartridge by green and brass colours of partially hidden chip

2) Load your drill with a drill with a HSS drill bit of approximately 5.5mm

3) The idea is to drill away 3 plastic rivets



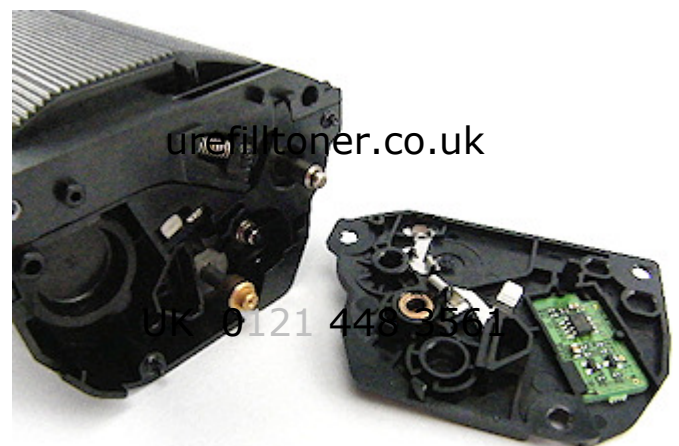
4) Drill directly on top of plastic rivet. Encourage drill to "bite" and you'll see plastic slivers forming as the drill cuts. If drill slides off too much, try making a smaller "pilot" hole in centre of rivet with very small drill bit.



5) Carry on drilling each rivet until it looks approximately like this

6) Use 3mm screwdriver to lever end plate away from cartridge body. It will come off easily if all 3 plastic rivets are drilled out deep enough

7) Remove plug by pushing out on flange with screwdriver. Use fingers as soon as possible to avoid damage to plug. **Care: do not force screwdriver down side of plug.** Push end of screwdriver between plug flange and cartridge body. Use leverage pushing out on flange of plug to loosen plug slightly.



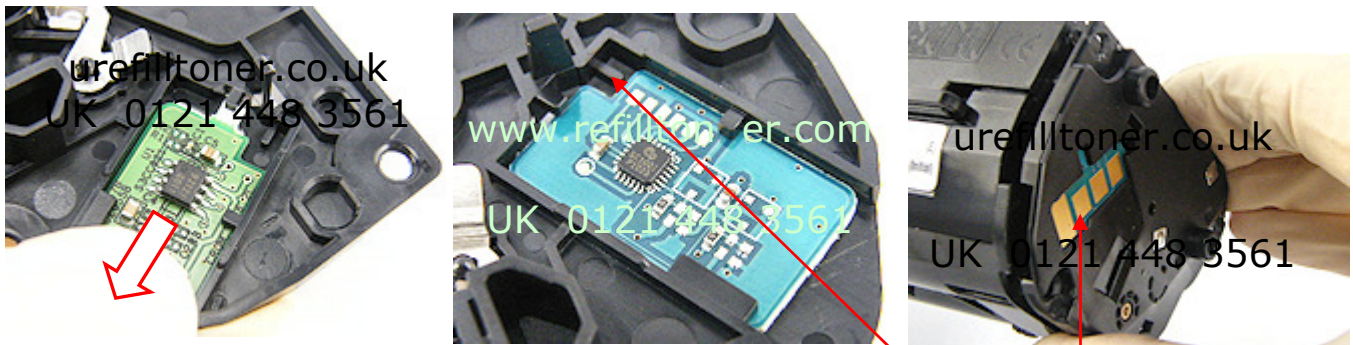


- 8) Shake toner bottle hard for a count of 5 before opening.
- 9) Open toner bottle and screw spout on. Wrap any kind of tape around neck to avoid all leakage of micro fine toner.
- 10) Hold cartridge at 45 degrees with one hand. Use other hand for bottle.



- 11) Keeping bottle below horizontal, bring spout to hole and up-end bottle. Bring cartridge and bottle to vertical. Jam spout firmly into hole.
- 12) Count to 5 while toner flows in.
- 13) Keeping spout near hole, rotate bottle down to below horizontal.
- 14) Cover end of spout firmly with finger and briefly shake bottle again. Repeat shake/pour until you can feel there's no toner in bottle when shaken.
- 15) Replace plug
- 16) Wipe excess toner from around plug end of cartridge and shake over white paper to check for a leak. We try to avoid damaging inside seal of plug by pushing outwards on flange only, but if you do get a leak, just seal with bathroom sealant, Copydex or the silicon glue provided.

- 17) Slide out old chip



- 18) Slide new chip in. Note how missing corner of chip fits with obstruction lug
- 19) Replace end plate in orientation as shown to avoid new chip falling out
- 20) Push plate on as flush as possible. Put a small blob of silicon glue over all 3 drilled out holes
- 21) Leave cartridge in dark place for 3 hours to let glue start to dry





## Waste?

The cartridge collects waste toner in a compartment which, eventually, fills up and causes print problems. The symptom of waste overflow is grey "skid marks" vertically down one section of the page.

12pt Times New Roman. The quick brown dog jumped over the lazy dog. Now is the time for all good men to come to the aid of the party. The quick brown dog jumped over the lazy dog. Now is the time for all good men to come to the aid of the party. The quick brown dog jumped over the lazy dog. Now is the time for all good men to come to the aid of the party. The quick brown dog jumped over the lazy dog. Now is the time for all good men to come to the aid of the party. The quick brown dog jumped over the lazy dog. Now is the time for all good men to come to the aid of the party. The quick brown dog jumped over the lazy dog. Now is the time for all good men to come to the aid of the party. The quick brown dog jumped over the lazy dog. Now is the time for all good men to come to the aid of the party. The quick brown dog jumped over the lazy dog. Now is the time for all good men to come to the aid of the party. The quick brown dog jumped over the lazy dog. Now is the time for all good men to come to the aid of the party.

12pt Bold Times New Roman. The quick brown dog jumped over the lazy dog. Now is the time for all good men to come to the aid of the party. The quick brown dog jumped over the lazy dog. Now is the time for all good men to come to the aid of the party. The quick brown dog jumped over the lazy dog. Now is the time for all good men to come to the aid of the party.

If you seem to have that, you can empty the waste as shown in the next section.

For the ML-1665 waste overflow is unlikely to happen until about the fifth refill. If you want to be pre-emptive, empty the waste at the end of the fourth refill.

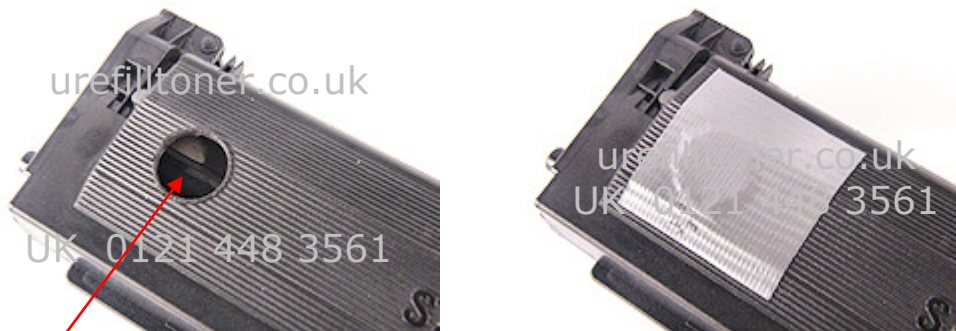
If you do get skid marks, you need to empty the waste straight away if you're going to because the compacted toner will soon permanently scratch the OPC drum.

We say "if you're going to" because emptying the waste is inevitably more messy than just refilling: so it's a personal choice if you want to do it or not.

## How to empty the waste

You need a vacuum with the "hairy" attachment on. Only use the vacuum near a toner cartridge with the hairy attachment on and only use for cleaning stray toner powder, not for sucking up the bulk of any big piles of toner.

1. Get a melting tool from [urefilltoner.co.uk](http://urefilltoner.co.uk) (in the manufacturer list, choose "Sundries", then click "Sundries" again).



2. Melt hole as shown.
3. Shake waste straight into an outside bin. not expose the OPC drum to direct sunlight.
4. Using hairy vacuum attachment, carefully clean up outside of cartridge.
5. Clean surface around hole as much as possible with absorbent paper.
6. Seal hole with any wide tape.

## Don't update your firmware

The way the machine responds to chips can be modified by updating the firmware. Do not allow the machine to update firmware across the internet. Disable any default options to do this. It could re-program your machine to reject the compatible chips.

## Less is, apparently, more

The truth is, the ML-1665 original cartridge contains so little toner – 40g - that our pouring machines can't pour it. So what you get from us is significantly more toner – 55g.

By and large (it depends on what you print) the compatible chip lets you use about 50g of the 55g supplied. Theoretically, after 8 refills you'll have 40g of toner left over: enough for a refill just be changing the chip. In practice, just be aware that not all of our over-generous amount of toner might be used up in every case.



## Safety Data ML- type toner

**Not to be used by children. Avoid inhalation of product. Avoid eye and skin contact. Do not ingest. Avoid sources of ignition while pouring and at all times.**

### 1 Identification of the substance and the company

Product name	Samsung ML-1665 type refill toner
Part no.	SA1665BOT
Supplier	U Refill Toner Ltd. Contact details as per page header

### 2 Hazards identification

Acute health effects	N/A
Skin contact	Slight irritation
Eye contact	May cause irritation by mechanical abrasion
Inhalation	Irritation to respiratory tract
Ingestion	Unlikely when used as intended. Acute oral toxicity is believed to be low
Potential health effects	
Routes of exposure	Skin contact, eye contact and inhalation. Ingestion unlikely.
Chronic health effects	Prolonged inhalation of excessive amounts of any dust may cause lung damage. Treat as nuisance dust.
Carcinogenicity	Carbon black is classified by IARC as group 2B (possible human carcinogen), but inhalation tests using a typical toner showed no association between toner and animal tumours.

### 3 Composition

Ingredients	CAS No.	Weight(%)
Polyester	Proprietary	>82
Carbon black	1333-86-4	<8
Polypropylene	9010-79-1	<4
Iron oxide	1317-61-9	<4
Silica	67762-90-7	<2

### 4 First aid measures

Inhalation	Move person to fresh air. Obtain medical assistance
Eye contact	Flush with plenty of low pressure water for at least 15 minutes. Do not rub eyes. Remove contact lenses to ensure thorough flushing.
Skin	Wash with water, obtain medical attention if ill effects occur
Ingestion	Rinse out mouth with water. Seek medical advice

### 5 Fire fighting measures

Flammability classification	Slight
Hazardous combustion products	Carbon monoxide and carbon dioxide
Extinguishing media	Water, dry chemical, carbon dioxide or foam
Special fire fighting procedures	Avoid inhalation of smoke. A self contained breathing apparatus and suitable protective clothing should be worn.
Unusual fire & explosion hazards	Toner is a combustible powder; formation of an explosive dust-air mixture is possible. Avoid all ignition sources if toner has been dispersed in air.

### 6 Accidental release measures

Spill/leak procedure	Sweep up or vacuum spilled toner and transfer into sealable waste container. Sweep slowly to minimize generation of dust. If vacuum is used, the motor must be rated as dust tight and safely applicable to the vacuuming of toner dust. Residue can be removed with soap and cold water. Garments may be washed or dry-cleaned after removal of loose toner.
Environmental precautions	Do not flush into surface water or sanitary sewer systems. Dispose of waste material in accordance with all applicable laws.

### 7 Handling and storage

Handling	Keep containers closed when not in use. Handle and open containers with care. Use with adequate ventilation. Avoid inhalation of dust and contact with skin and eyes. Keep away from sources of heat, sparks and open flames.
Storage	Store at room temperature in the original container. Keep container tightly closed and dry. Do not store with strong oxidizers.

### 8 Exposure controls and personal protection

Personal protective equipment	
Eye / face	Wear dust resistant safety goggles if there is danger of eye contact
Hands / skin	Wear protective gloves
Respiratory protection	Wear approved respirator for dust when exposure exceeds permissible limits
Additional measures	Use in a well ventilated area. Use engineering controls to reduce air contaminants to permissible limits. Wash hands after use.

### 9 Physical and chemical properties

Appearance and odour	Fine powder. Slight odour
Solubility in water	Negligible
Solubility in organic solvents	Soluble in some solvents
Specific gravity (H2O = 1)	1.3

### 10 Stability and reactivity

Stability	Stable under normal storage conditions
Conditions to avoid	Heat, flames, sources of ignition. Keep dust away from ignition sources.
Hazardous decomposition products	Carbon dioxide, carbon monoxide, Nox
Hazardous polymerization	Will not polymerize
Incompatible materials	Strong oxidizers

### 11 Toxicological information

Oral toxicity	Believed to be low
Inhalation toxicity	No data
Eye irritation	Not classified as irritant according to OSHA HCS and EU 67/548/EEC as amended
Sensitization	Not classified as sensitizer according to OSHA HCS and EU 67/548/EEC as amended
Carcinogenicity	Carbon black is classified by IARC as group 2B (possible human carcinogen), but inhalation tests using a typical toner showed no association between toner and animal tumours.
Mutagenicity	Negative (AMES test)

### 12 Ecological information

Not tested for ecological effects
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### 13 Disposal considerations

Collect into tightly sealed containers. Dispose of waste in accordance with all local laws. Do not throw in open fires in order to prevent risk of dust explosion.
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### 14 Transport information

General	Not known to be specifically listed
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**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.

All information offered is believed to be true and is offered for consideration in good faith. However, U Refill Toner Ltd gives no warranties, neither explicit nor implicit as to the completeness or accuracy of any information offered nor the ultimate safety of refilling toner cartridges in any manner described or suggested nor the ultimate safety or hazardousness of products supplied by U Refill Toner Ltd. The onus is on the purchaser to evaluate all possible risk, including the possible incompleteness or inaccuracy of currently available information, and by proceeding to use the refill product or products, the purchaser thereby assumes all risk of peril or injury howsoever arising.

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.





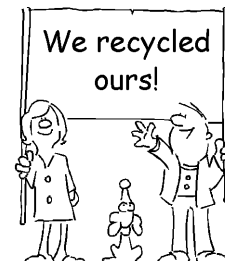
## Please, tell three people what you've done



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. Why not send a link to [urefilltoner.co.uk](http://urefilltoner.co.uk) to some friends you know have printers?

The phrase "carbon footprint" hadn't been coined in 1992 when we started selling our trend-bucking "guerrilla re-cycling" products. Refilling with just toner **more or less halves CO<sub>2</sub>** compared with making the toner plus the whole structure of a cartridge to put it in\*.



We're asking for your support to create a kind of benign chain-reaction effect. Yes, we stand to make money from that, but we believe that the battle to reduce CO<sub>2</sub> output does have to be commercialised. That's to say, when the capacity of individuals to make voluntary self-sacrifice reaches a limit, what will take up the slack? In the same way that carbon big-foot companies need money to keep doing what they do, so does a carbon twinkle-toes.



Environmental organisations make us aware of a pyramid of priorities. **Re-use**, in the sense of directly using a resource again, is more beneficial than re-cycling (normally taken to

imply an industrial process such as re-pulping paper fibre).

So, one last time for the planet, please advocate [urefilltoner.co.uk](http://urefilltoner.co.uk) if you feel our existence is preferable to our non-existence. Keep refilling in the free world.

\*Sources:

**Dr. M. Gell, "Carbon Footprints and Ecodesign of Toner Printer Cartridges"**, Xanfeon Energy & Environmental Services, UK, 2008. Dr. Gell calculates a 52% reduction in carbon footprint by refilling a cartridge 3 times and replacing the OPC drum once. We think the DIY refill case is even more favourable because the following carbon loads included in Dr. Gell's assumptions don't apply: manufacture/transport of replacement OPC drum, triple transport of empty cartridge to remanufacturing facility and energy consumed during remanufacturing at facility. In addition, the footprint of the delivery transport is smaller because toner weighs only a fraction of a whole cartridge.

**Centre For Remanufacturing & Reuse (commissioning body), "The Carbon Footprint of Remanufactured Versus New Mono-toner Printer Cartridges"**. The authors conclude that, based on their data, a remanufactured mono (i.e. black & white laser printer) cartridge has a "46% lower carbon footprint than a corresponding new cartridge".

**Berglind & Eriksson, "Life Cycle Assessment of Toner Cartridge HP C4127X"**, University of Kalmar, Sweden, 2002. The authors state (Abstract page I) that from the point of view of environmental load, "the re-use alternative is full measured two times better ...". Although they point out that the main environmental load is, in fact, associated with paper.

## Refills by you ... thanks to you .....

Thanks for refilling the toner cartridges in your printer. We invented "do-it-yourself" toner refills in 1992, "melt & pour" in 1996 and put "unplug & pour" into internet-speak in 2002. We've never tried to patent or otherwise restrict the use of these ideas.

If you liked our product, please recommend us to friends and colleagues. We've survived for over 20 years – fighting giant corporations that dwarf us – thanks to your custom and recommendation. No one here takes that, or you, for granted.

U Refill Toner. Now needed more than ever. Now refined more than ever.

- ✓ more than halve the cost
- ✓ halve CO<sub>2</sub>
- ✓ defend your consumer choices and right to reuse



Original and largest selling  
do-it-yourself toner refill

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