

Highly Entropic

Mixed bunch of computer, Linux, programming, photography, wine making, food, recumbent biking, general DIY hacking and other random stuff.

Sunday, September 4, 2011

Taking apart a disposable camera

For a future DIY photography project, I need to disassemble a couple of disposable cameras. Such single use cameras contain some interesting electronics! Most notably a small high voltage generator (330V), a rather large flash capacitor (330V, 120µF) and a xenon flash tube.

You can probably get used ones for free at your local photography shop. If they sell disposable cameras, chances are that most of the used ones they receive will be the same model (this is good!). In my case, this happened to be a 'Fujifilm Quicksnap Fashion'.



Detailed instructions on how to take these babies apart after the jump. But first, I'd like to thank my local photography shop, **Fovico**, for supplying me with a bag full of used disposable cameras!

WARNING: These cameras contain high voltage capacitors that hold **lethal** amounts of energy! For comparison, a police taser holds an energy of about 1 joule. A fully charged flash capacitor packs 13 joules of energy! This is within the range where ventricular fibrillation starts in a normal heart (10 to 50 joules)! (Small (comforting?) sidenote: devices like tasers/defibrilators/etc usually use higher voltages. 330V is "only" 'about 0.003 to 0.5 times enough' to actually get a lethal current flowing, according to Wolfram Alpha.)

Even so, under *no* circumstances should you ever touch part of the circuitry if there is *any* chance that the capacitor still holds a charge!

DISCLAIMER: You have been warned, and you will be doing this on your own risk. I'm not responsible in case you *should* get zapped.

Ok, now that I've nearly scared off most of you, let's first note that the detailed instructions below are for my specific model of disposable camera. However, I've noticed that a lot of the different brands and models have a very similar construction, so they should still be of some significance for those with other types of cameras.

Now, the cameras you receive will probably have taken quite a bit of abuse. In order to obtain the roll of film, the bottom left of the camera will have been broken open. The camera also contains a 1.5V AAA battery that the photography shop must take out and recycle. It's behind the little door on the bottom.

About Me

roaldfre

I'm currently studying at the Katholieke Universiteit Leuven, Belgium. I'm majoring in physics with computer science as my minor.

I'm into everything computer and programming related, and I'm a bit of an environmentalist. I also like building stuff and hacking things together. I recently started practicing photography as a hobby (see [my DeviantArt page](#))

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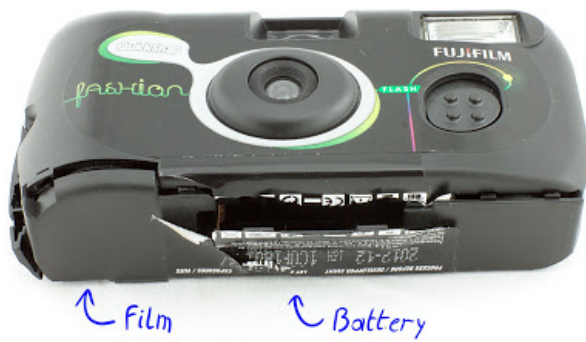
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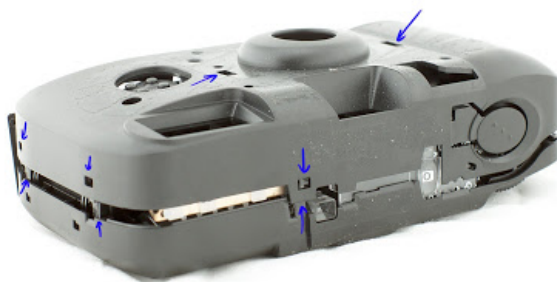
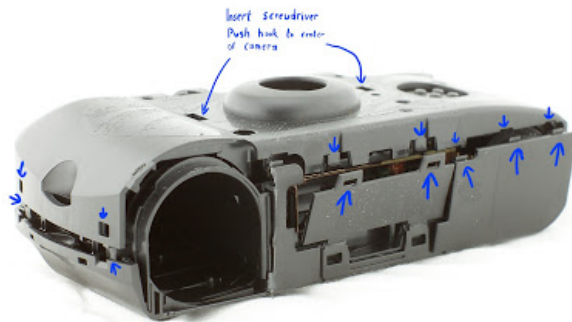
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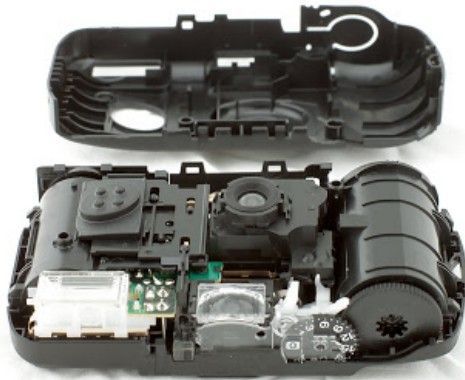
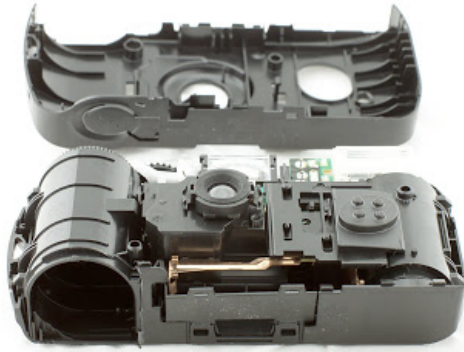
Make sure that the battery is removed, for your own safety! (Remember that nice, red warning above? Keep that in mind!)

The plastic casing is held together by a few clips. First, strip of all the stickers so you can see the bare plastic. The positions of the clips are shown in the two pictures below. The photos were taken after the two halves were already separated, so you can see the little plastic hooks. (Note that the lid that covers the compartment for the film was ripped off by the photography shop on this camera.)

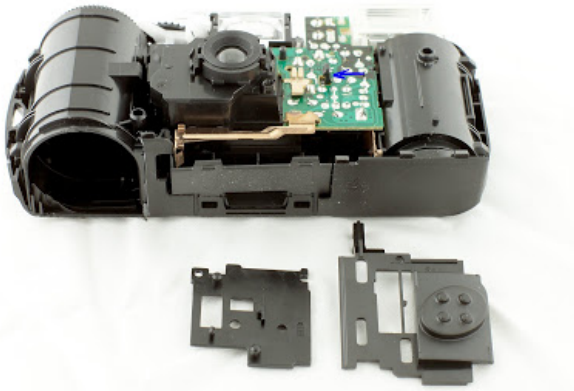


As you can see, there are clips all around the side, as well as two in the front. You can just put a screwdriver in those holes in the front, and push the plastic hooks to the center of the camera. They should let quite go easily.

You can now open up the halves. This will expose the flash and the flash capacitor underneath it, as well as part of the circuitry. Don't touch it! (This is the part where you start being careful.)

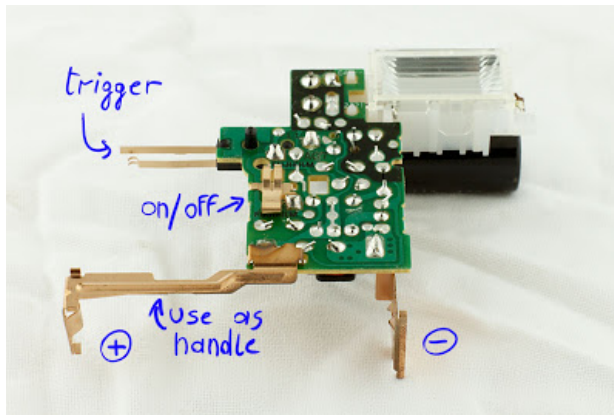


Those plastic sliding things (the switch to activate the flash) should fall right off if you tip the camera over. This fully exposes the flash circuit.



The circuit board is held in place by a single plastic hook, as shown in the picture above. You can easily take it off, but remember what I said about not touching it until you are absolutely sure that the capacitor has no charge left?

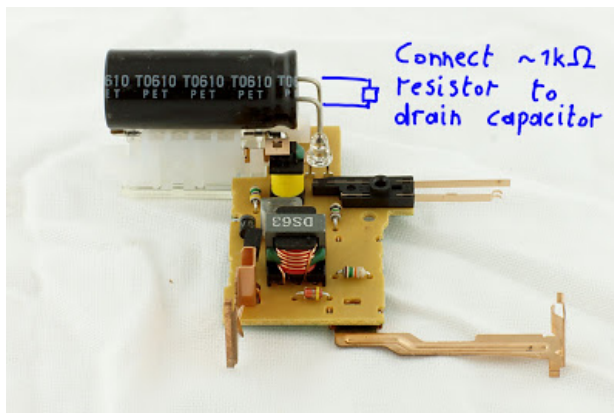
Well, as long as you just grab the long piece of copper from the battery holder (the positive terminal), and don't touch anything else, you should be fine. In fact, it makes a pretty good handle and you can keep your fingers a safe distance away from the high voltage side.



Now, the *first* thing you should do is make sure the capacitor is fully discharged. You can do this safely by holding a resistor of the order of $1k\Omega$ over the leads of the capacitor for a couple of seconds. (You may see a tiny bit of arcing if the capacitor was fully charged. This can be reduced by using a larger resistor, but you'd have to hold it against the capacitor longer to make sure all the charge has properly bled off.)

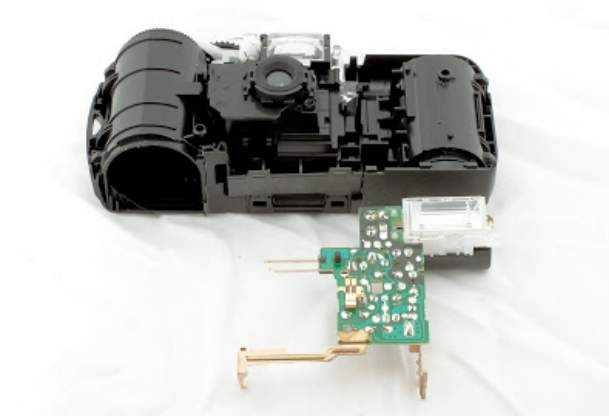
Make sure you don't touch the leads of the capacitor *or* the resistor when doing this! You can use a (insulated!) plier to hold the resistor, or wrap it in something non conducting, like a couple of layers of electrical tape, to get a handle.

If you don't have such a resistor laying around somewhere, it would be (1) time to start questioning if you are really up for this job, and (2) still possible to discharge the capacitor in a less safe manner. You can just short out the leads of the capacitor with an old screwdriver. This will create a huge spark and pieces of metal can evaporate from both the screwdriver and the capacitor leads, messing up both. This is nasty, dangerous and overall not advised.

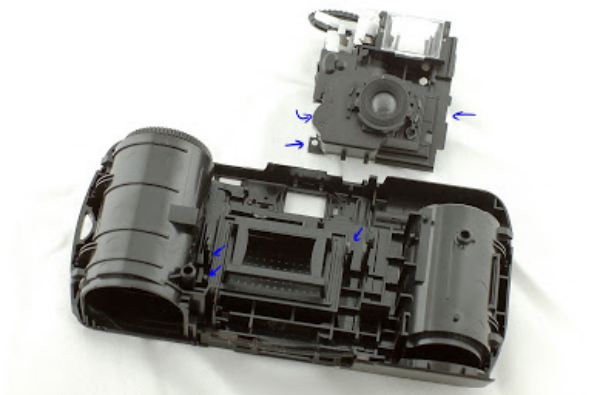
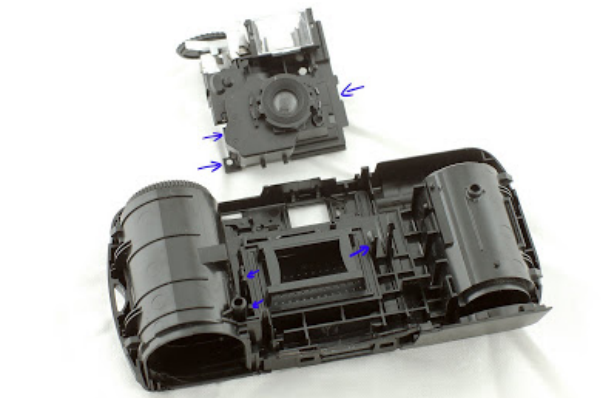


Note that you should *always* discharge the capacitor, even if you are sure that the camera hasn't been recharged after the last flash went off. This is, because, after a flash discharge, there's still roughly 40V present on the capacitor. (The xenon plasma in the tube stops conducting when the voltage falls below that value.)

Ok, so now you have the circuit board safely separated from the camera body, like so:



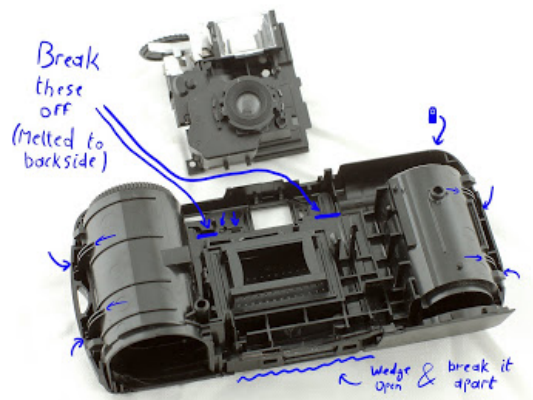
The next step is taking out the lens assembly. It is attached with two clips and a pin (shown below) and comes off pretty easily.



The lens unit can be taken apart further, exposing the lens and the shutter leaf. It's just a small and obvious plastic clip. I don't show how to do this here, because I don't need it for my next project.

The final step consists of separating the backside of the body from the 'inner' side. This step is rather messy.

There are four clips around the edge of the camera that need to be released. There's also one right next to the viewfinder on the inside. The pieces are aligned with two pins, one next to that clip near the viewfinder and one on the side, next to the 'compartment' for the capacitor.



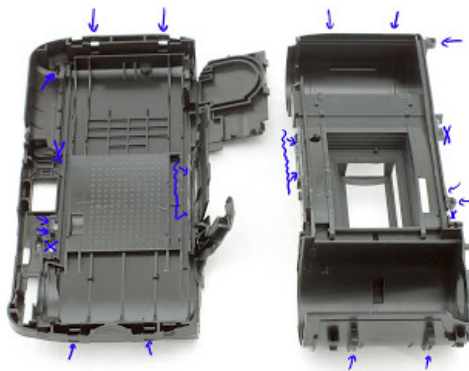
That was the easy part. On both sides of the viewfinder, there are small plastic tabs that seem to be joined (melted?) to the rear panel. You can see them if you look at the back of the camera



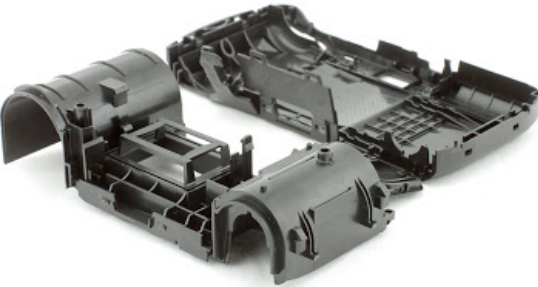
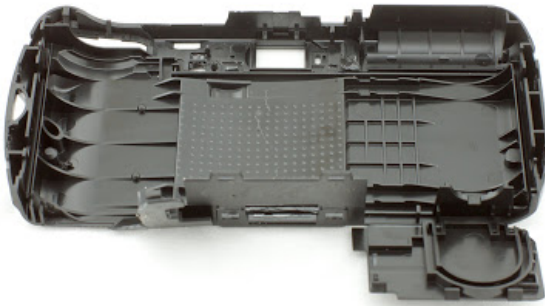
You'll have to break these apart. I find it easiest to just cut the tabs off.

Once those are free, you'll find that the bottom is still connected. As far as I can tell, the rear side and the 'inner' side just seem to be one whole piece of plastic, 'folded' at the bottom. I just insert a screwdriver between the pieces at the top and wedge them open till the bottom breaks apart.

You then end up with these two pieces (broken tabs are marked with an X, the broken off bottom part with a squiggly line):



Here are some more images of the rear panel and the rear and inner piece:



So, there you have it. You can now start messing with these fun little cameras yourself, but remember to keep it safe!

Posted by [roaldfre](#) at [14:44](#)

8 comments:

Vishnu Thanki Jul 5, 2016, 11:17:00 AM

Superb Man..... Helped a Lot :-)

[Thanks](#)

[Reply](#)



Unknown Feb 2, 2017, 11:02:00 AM

Great post, you have pointed out some excellent points, I as well believe this is a very superb website.

[Plastic Flow Meter](#)

[Reply](#)



Unknown Feb 17, 2017, 4:35:00 PM

DO NOT TOUCH THE GREEN BOARD Fuck it still hurts

Reply

Replies



Unknown Feb 17, 2017, 4:36:00 PM

Srsly don't touch

Anonymous Nov 16, 2017, 4:29:00 PM

oops
too late

Anonymous May 30, 2019, 4:20:00 AM

You're a stupid motherfucker

Reply



Louisiana Department of Transportation and Development Mar 1, 2018, 9:02:00 AM

Here's how to bring ANY dead battery back to life again..

Hi

If you hate buying new expensive batteries ...I have good news!

There's an easy new way to bring your old batteries back to life again ...so you never have to buy new pricey batteries again!

>> Click Here To Learn How <<

The average person spends \$15,000 on batteries over their lifetime...

But this fast and simple method eliminates that entire cost and lets you save thousands over your lifetime on battery costs!

>> Click Here To Learn How To Do This Simple Method & Bring Any Dead Battery Back To Life <<

Tom (who you meet in the presentation) has to limit how many people learn about this secret technique (you learn why in the presentation).

So if you want to learn this simple new way to bring ANY old battery back to life again...

Then stop what you're doing and watch this presentation while you still can.

>> Click Here To Watch The Presentation <<

Best Regards,
Kevin Day

P.S. if the links don't work in the email, you can watch the presentation here: **>> Click Here To Learn How <<**

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Unknown Jun 15, 2019, 5:30:00 AM

Ouch. Should have made sure the capacitor was empty.

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