

Pebble Steel - Battery Swapping

This document will guide you through the process of swapping out the battery of your Pebble Steel smartwatch. This may apply to other models of the Pebble smartwatch as well, I believe they have quite similar internals. You'll probably figure out the differences as you're performing it.

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WARNING

- This is a guide that I made to help the community. I do not take any responsibility for you (using the guide) hurting yourself, others or possibly ruining your device.
- The battery you use to replace the original one in the Pebble should have a protection circuit. This will partially protect you from shorting that could happen if you install it the wrong way.
- Opening a water sealed device ALWAYS brings the risk of the device becoming not as waterproof as before upon reassembly. I do not take any responsibility for this. You have been warned. (I would not drench/soak the device after reassembling it.)

Personal note

I was doing this procedure on my personal Pebble Steel because my battery was running bad after two years by using it constantly. I love the watch and while doing some research I found out there weren't really any good guides on how to replace the battery, so consider this my gratitude to the product and its community.

I did notice afterwards that my screen seems to have a little bit of pressure on the backlighting (three lighter dots that I can see if it's dark and I turn on the backlight). This may be because I didn't trim my battery cables enough. So make sure to learn from my mistake and cut the cords as short as possible.

I don't own any camera besides my phone so sorry if the pictures are a bit bad.

I've now been using my Pebble Steel for one full charge after the swap and with turning it off 2 nights I've timed it at 8 days (and some nights), like new :D !

Tools list

- T3 torx screwdriver.
- 1.5 mm flathead screwdriver.
- Small flat screwdriver or plastic prying tool.
- Really basic soldering skills.
- Soldering iron and solder.
- Replacement battery (search ebay for “pebble steel replacement battery”) to find the battery model and type. Please buy one with a protection circuit, most of them should have one. You really don’t want to walk around with a potential “pipe-bomb” strapped around your wrist. Have respect for batteries.
- Some cleaning alcohol (I used isopropyl alcohol).
- Silicone spray (optional, for good water sealing).
- Heat protected soldering mat (if you have one) or a workspace you don’t care about, solder is hot.
- Heat shrink wrapping (optional).

Process

Preparations

1. Clean your work area.
2. Plug in your soldering iron.
3. Turn off the clock.



4. Use the 1.5mm flathead screwdriver to remove the wristband, unscrewing the screws in the holes close to the watch itself.

Opening and cleaning



1.

- Use the T3 torx screwdriver to unscrew the four torx screws, one in each corner of the backside of the pebble.



2.



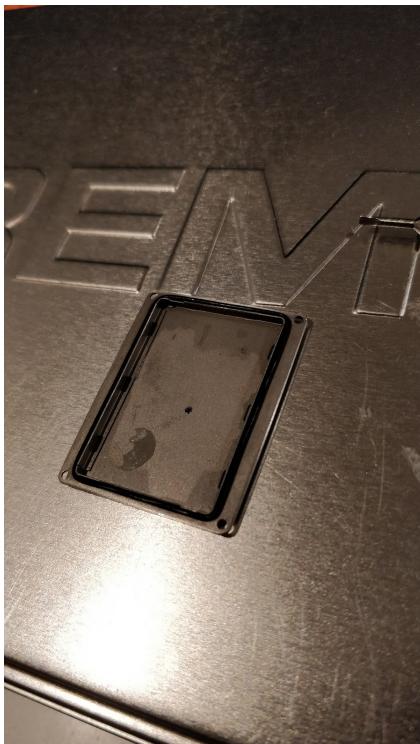
Use the small screwdriver or plastic prying tool to pry open the back from the rest of the clock. BUT BE CAREFUL, the vibration element is taped to the lid. Open it slowly and carefully pry the vibration element of the lid, keeping the tape as intact as possible.

- a. If you were to accidentally tear the power cords from the vibration element, you can solder them back using my pictures as a reference.



3.

When you've successfully removed the lid, press the vibration element down onto the circular pattern on the circuit board to make it stick and not be in the way.



4.

Carefully remove the rubber sealing around the outside of the ledge of the lid (the "O-ring" between the lid and the body that water seals the clock).

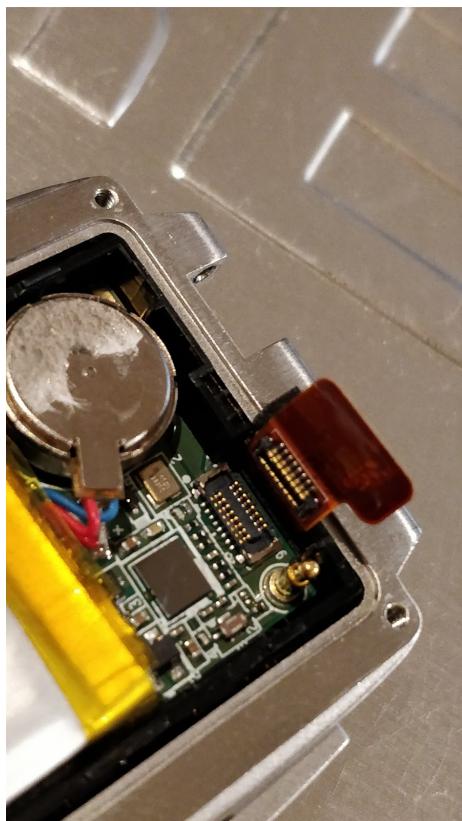
5. Clean the path around with the alcohol on a q-tip or a piece of paper or cloth, both lid and main body. Do NOT let any of the alcohol touch the o-ring, this will ruin it and you won't be able to seal it correctly.

Remove PCB



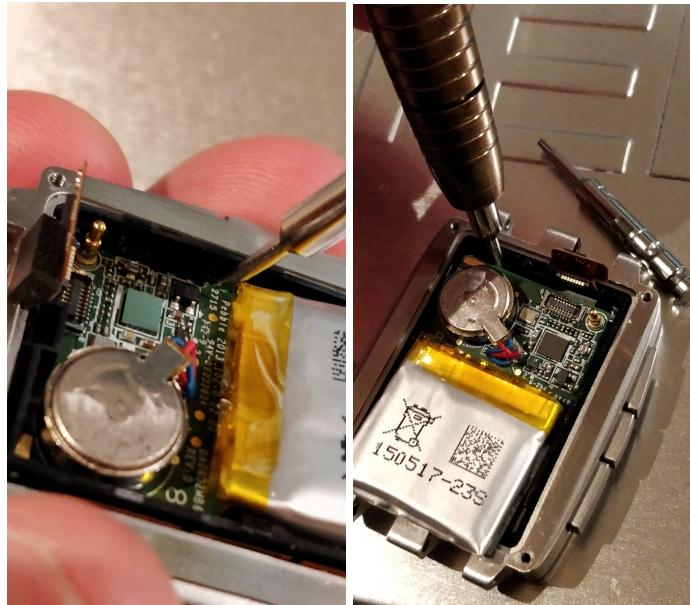
1.

Use your prying tool to carefully pry the battery off the bottom of the device, be careful, the screen is in the bottom and you don't want to put too much pressure on it.



2.

Disconnect the screen connector "tab", the orange/brown flex-pcb with a chip on it, these are fragile.



3.

Use your prying tool to carefully remove the pcb from the main body. It's a bit snug but try bending in all four corners like i do in the pictures.



4.

When it's loose you will be able to simply pick it out of the casing.

Remove the old battery and attach the new one

As you can see in my picture, if you look closely on the ribbon cable going from the battery to the pcb the polarity of the leads are written out in small white masking. Pay attention to this, you **MUST** attach your new battery in the same way as the old one.
Take a picture to help your memory.



I didn't take any picture of the desoldering itself, sorry.

1. Heat up the soldering joints where the battery connects to the PCB and tug the cord to remove it, you could cut the battery lead before soldering so you don't risk shorting the board. I did not do this, but who knows, maybe I was just lucky.
2. Cut the cords of the new battery as short as the old ones or a bit longer. Put the heat shrink tubing on the single leads and pull them as far away from the point you will solder as possible. Peel the tip of cables.



3. Apply some solder to the solder point of the PCB to ease the process.
4. Heat one point at a time, put the lead with the right polarity (+/-) into the solder, heat it for a second to get a good connection (no cold joints) and then remove the soldering iron. Repeat for the second lead.



5.

Pull down the heat shrink tubing and heat it with a lighter to make it shrink and isolate the peeled cables.

Putting everything back together

Now you basically do everything in reverse. Except for the lid where we do something extra for the water seal. Be careful handling the battery leads since they can be a bit stiff, you don't want them to break the soldering points of the PCB.



1.

Put the PCB back into the casing, pushing it down to make sure it clips into place. Be careful of the screen below.

2. Reattach the screen (the orange/brown flex connector with the chip on it).

- This btw, is the connector that people recommend you put something behind to raise the pressure on the contacts if you are having problem with the screen.



3.

You can now power on the device to see if it works. If the battery was sold by a serious battery dealer you shouldn't have to charge it to make it start. It should be charged a bit for storage, although not fully charged.

4. Turn it off again.



5.

Put the battery in the same spot as the old one, you might have to move the vibrating element to make it fit. Mine seemed to be a little bit thicker than the original one but it all worked out fine when screwing on the lid. Just make sure you don't have ANY risk of puncturing it.

6. If you have any silicone spray, rub some on the o-ring, this will make the seal better.
7. Attach it around the inner ledge of the lid.



8.

Put the lid and main body back together and screw in the screws, make sure the seal is tight.



9.

Power on the device.

10. Attach the wristband.



11.

Charge the device.