



# Pebble 2 (SE) Teardown

Despite its hyper-loyal fanbase, Pebble...

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## INTRODUCTION

Despite its hyper-loyal fanbase, Pebble returned to Kickstarter for a third time in 2016 to fund their next generation of e-paper smartwatches. Their campaign goals were met, but only 1/3 of the promised products were ever shipped—only the **Pebble 2** made it to customers. Then, to all of our disbelief, Pebble was devoured by Fitbit who seems to have forgotten that people might still want smartwatches that last more than 3 days on a charge.

Let's see what Pebble's last smartwatch looks like on the inside, and whether or not you'll be able to swap out parts to keep it ticking for... well, forever, hopefully.



### TOOLS:

- [iFixit Opening Tool](#) (1)
  - [Phillips #0 Screwdriver](#) (1)
  - [Hair Dryer](#) (1)
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## Step 1 — Pebble Time 2 SE Teardown



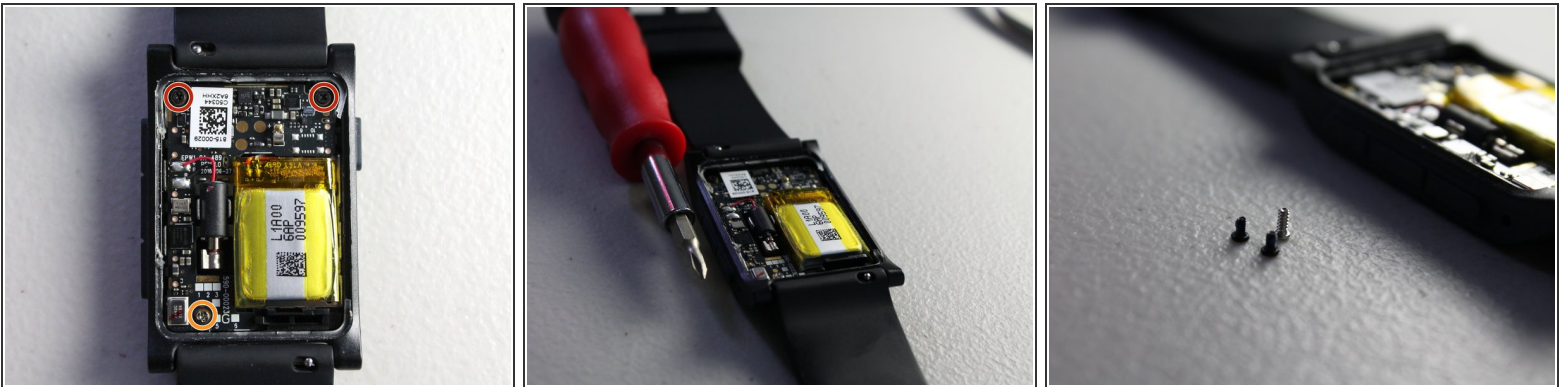
- Ahh, memory LCD displays. The best way to make a smartwatch. Pebble always had a real knack for making a great product regardless of specs, but here's what they say is inside:
  - An M4 ARM Cortex processor clocked at 100 MHz
  - 1.26 inches of low-power, black & white, memory LCD goodness behind Corning Gorilla Glass
  - Bluetooth 4.1 (an upgrade from the [previous generation's](#) 4.0)
  - A lithium-ion battery big enough to power all this for 7-10 days (depending on whether you sprung for the heart rate model—we didn't)

## Step 2



- Last year's Pebble Time was an all-around winner in terms of repairability, scoring a 9 out of 10 on iFixit's scale. Let's see if they kept up the good work this year.
- The first difference we encounter is that this device seems to open from the back instead of the front—we're hoping this doesn't mean the display is married to the glass.
- With a little help from our purple blow dryer and a pry tool, we get our first look at the insides—so far, so good!

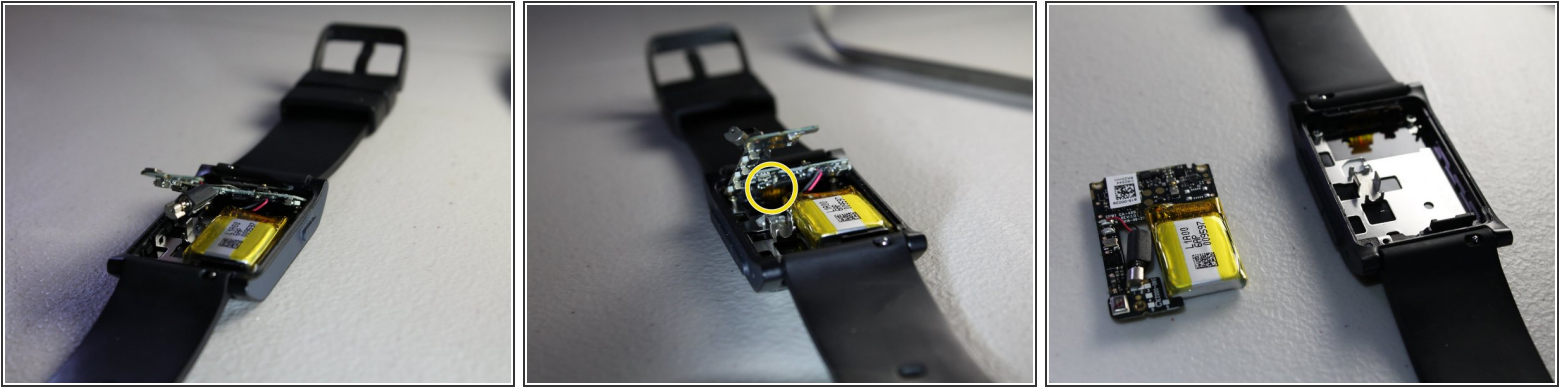
## Step 3



- We are now face-to-face with the motherboard.
  - We spot two black Philips #0 screws,
  - and one silver Philips #0 screw.
- These colors indicate different screw lengths, which is helpful for making sure they go back in the correct spot.

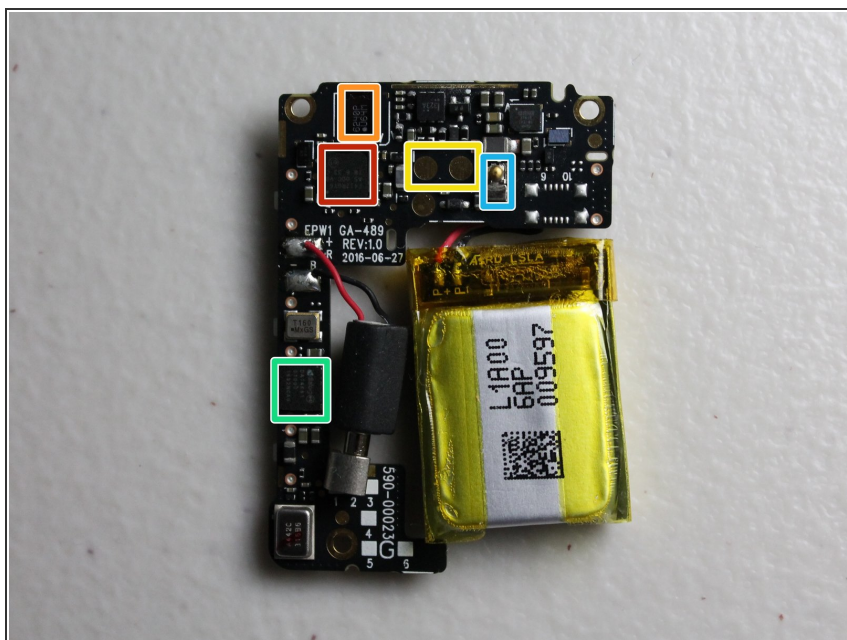


## Step 4



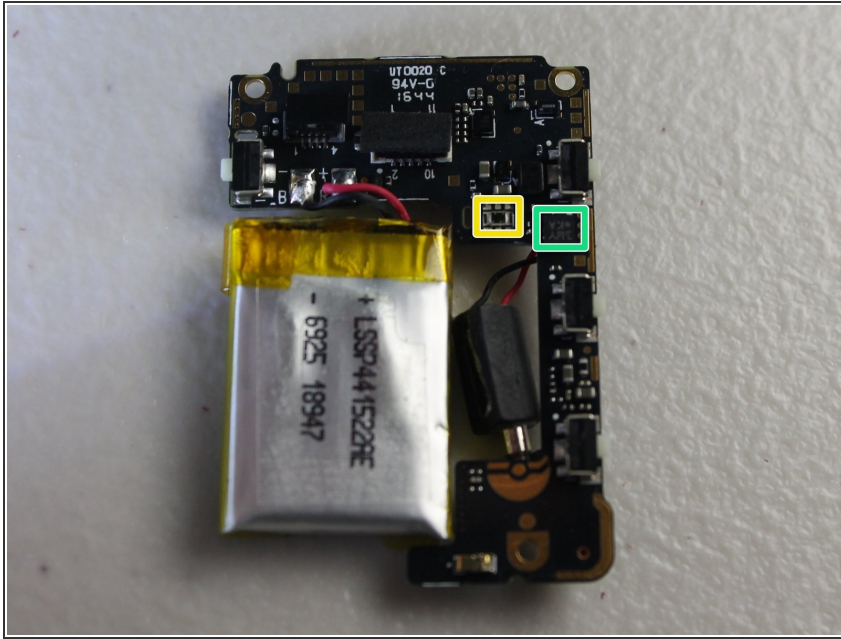
- After snapping the eccentric rotating mass (ERM) vibration motor out of its housing on the backside of the display, we can begin to lift the motherboard...
- Only to be snagged by some sneaky display cables!
- As we deftly maneuver a spudger to unclip the two(two?) display cables from the underside of the motherboard, we realize with great sadness that the battery and the vibration motor are both hanging on by a solder.
- With the display cables free, we can lift out the motherboard and her soldered-on freeloaders.

## Step 5



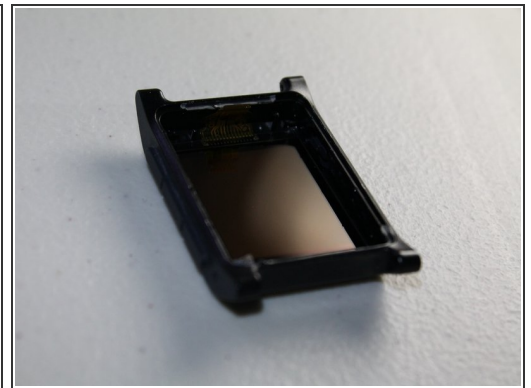
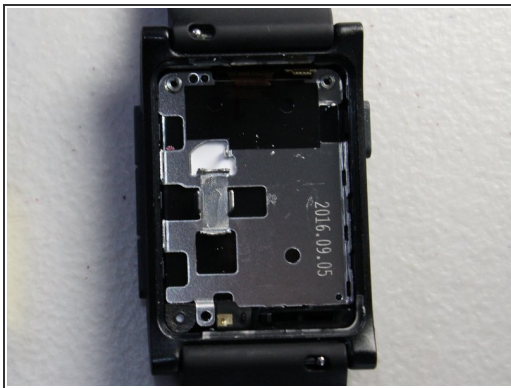
- We're regretting bringing a zoom lens to a macro fight, but here's what we can make out of the front-side ICs:
  - That 100 MHz ARM Cortex M4
  - Dialog's [SmartBond DA14681](#) Bluetooth LE SoC
  - A mysterious memory chip, rumored to have 8mb of room to play
  - Pebble's smartstrap data and charging pins,
  - and their accompanying grounding pin
- We also see here a similar-sized battery to last year's Pebble Time, though in much less friendly packaging.

## Step 6



- The far side of this MB only has two notable ICs:
  - One of Bosch's [BMA-series](#) accelerometers
    - ⓘ Note that we take a hit here from the BMI series in the Pebble Time, losing some cool features like the compass. \$99 only goes so far, you know
  - An ambient light sensor

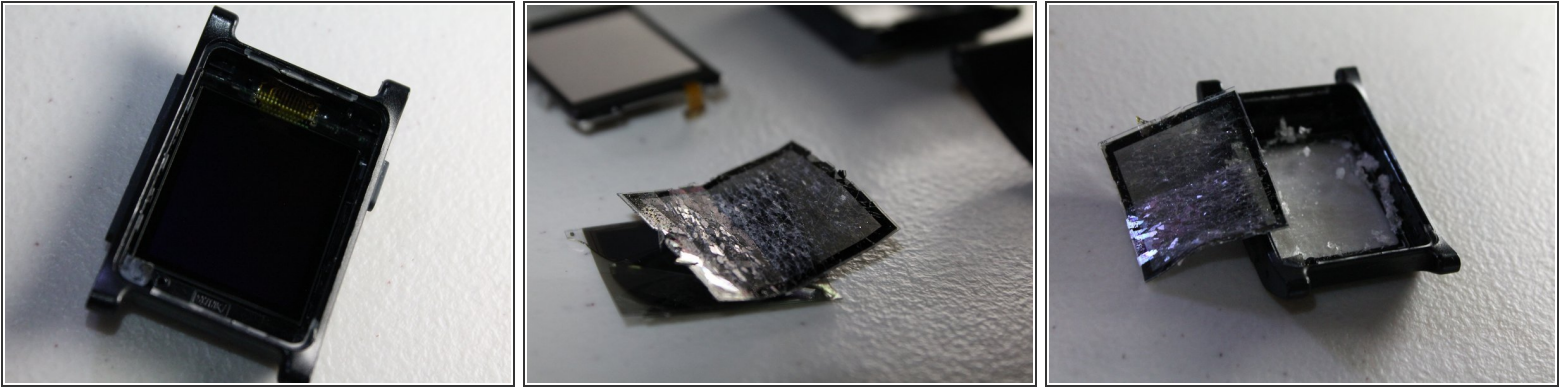
## Step 7



- Turning back to the body, we are met with a cold, metal wall.
- With no more screws in sight, we start pulling and prying, and are met with success! The black & white e-paper display comes out in one piece.
- We start to feel concerned, however, by the fact that we aren't seeing through the display glass after pulling out the display.

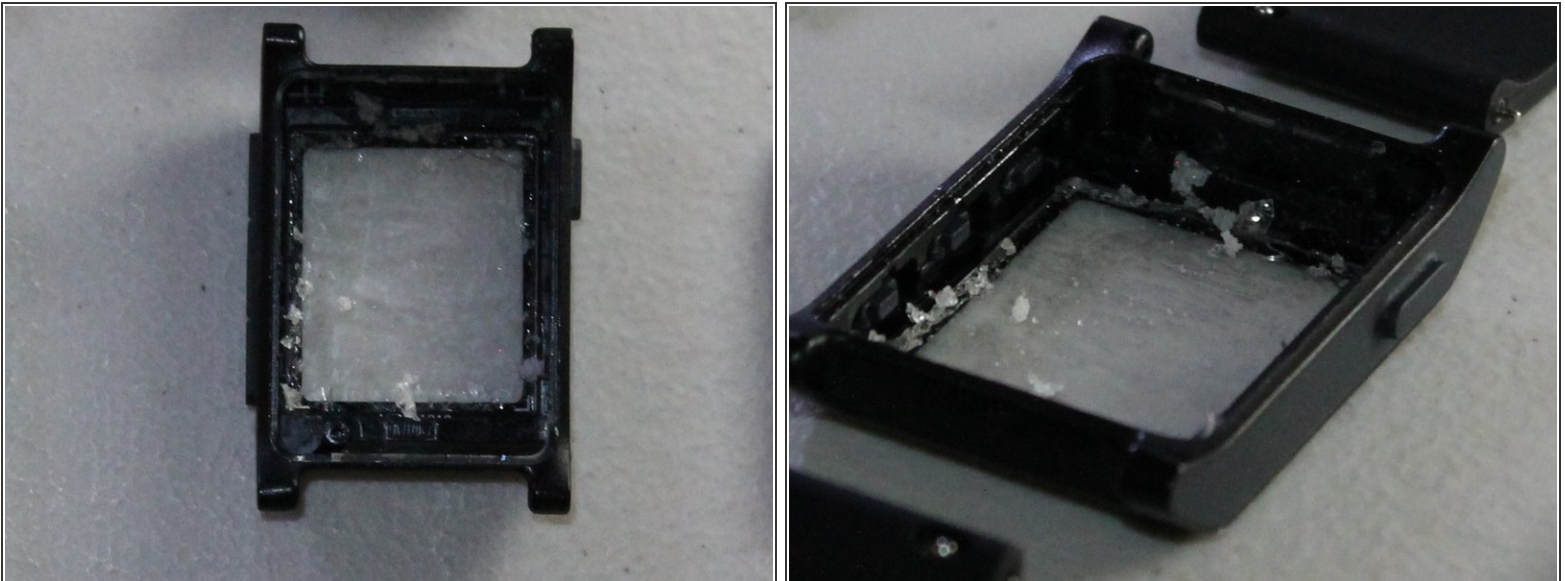


## Step 8



- Unfortunately for us, this inky black screen marked the end of our mostly adhesive-free teardown.
- Even with our trusty purple blow dryer, we couldn't seem to loosen the adhesive enough to pry the last layers out without breaking them.

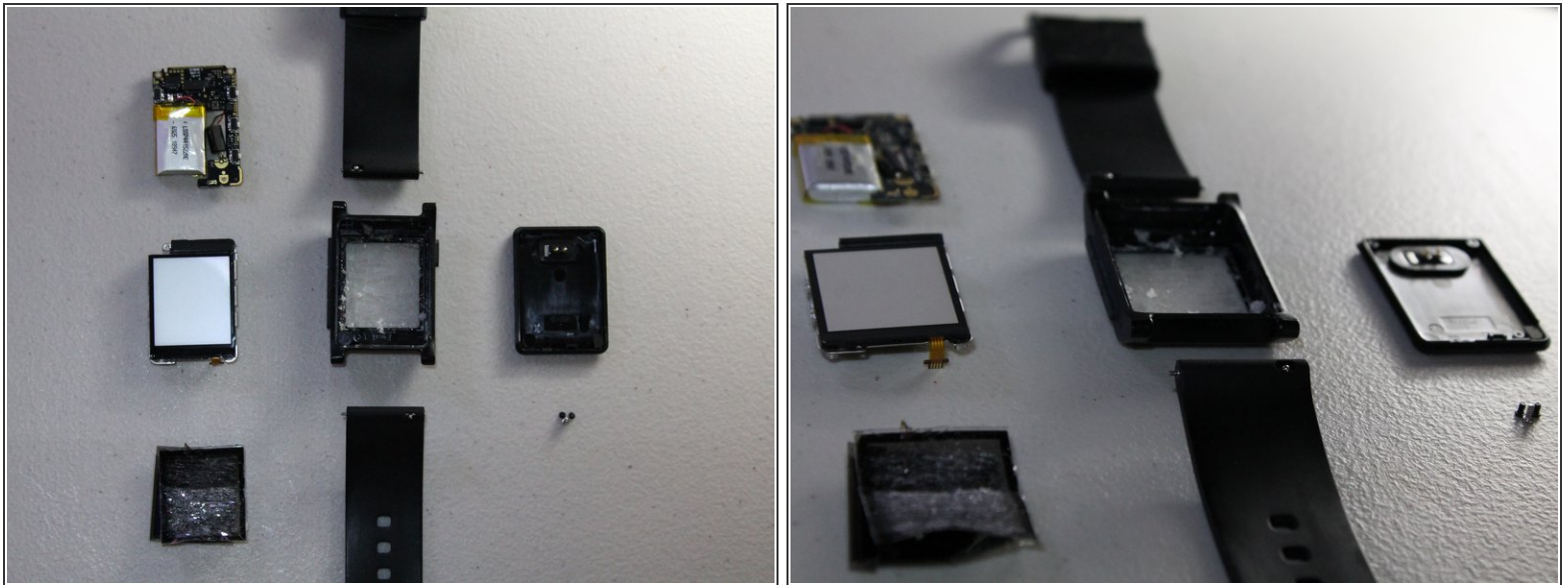
## Step 9



- There's not much left of this watch! Like the company, we are left with a hollow reminder of what was once something great.
- We try to dismantle the buttons, like last year, but find that they are built in to the chassis. It would have been nice to simply be able to swap out either side and replace the accompanying buttons, but no such luck here.



## Step 10



- That's it! In a surprising departure from its older sibling, this Pebble 2 turned out to not be very repairable at all.
- If we had the authority of the iFixit team behind us, we would probably rate this at a 2/10.
  - Pebble stuck with industry-standard 22 mm watchbands, so you can still swap those out all you like!
  - The motherboard and first part of the screen can be removed fairly easily,
  - but with both the battery and the vibration motor soldered on, there won't be much swapping going on.
  - Since the second half of the screen is glued to the front glass, neither it nor the glass are feasibly replaceable.
  - Button replacements are also a no-go.
- If you're looking to stay on the Pebble train as long as possible, you might want to pick up a few of these on [Amazon](https://www.amazon.com) while they're still around.