



Kindle 2 Teardown

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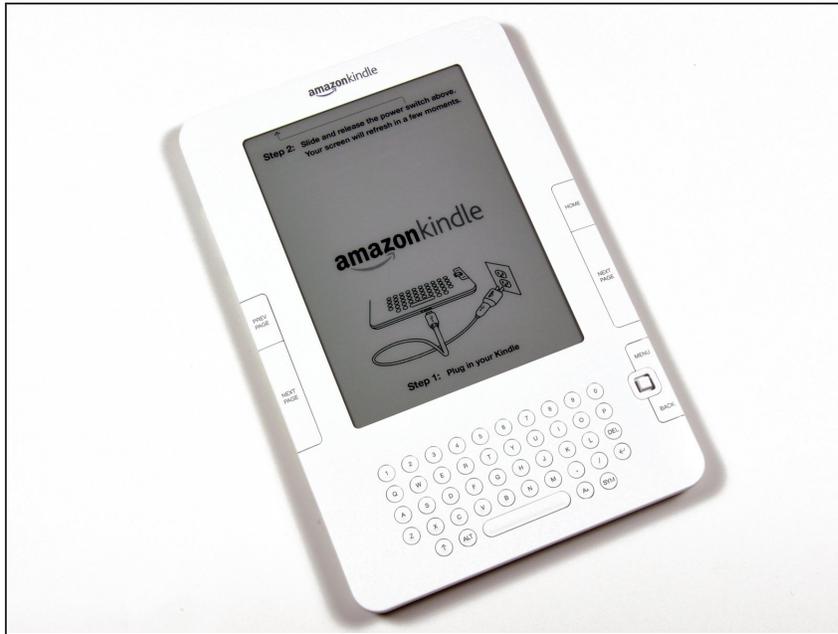
INTRODUCTION

Our Kindle 2 shipped on Monday, February 23rd, a [day early](#). Thanks to UPS Next Day Air, we have the reader in our hands Tuesday morning.

TOOLS:

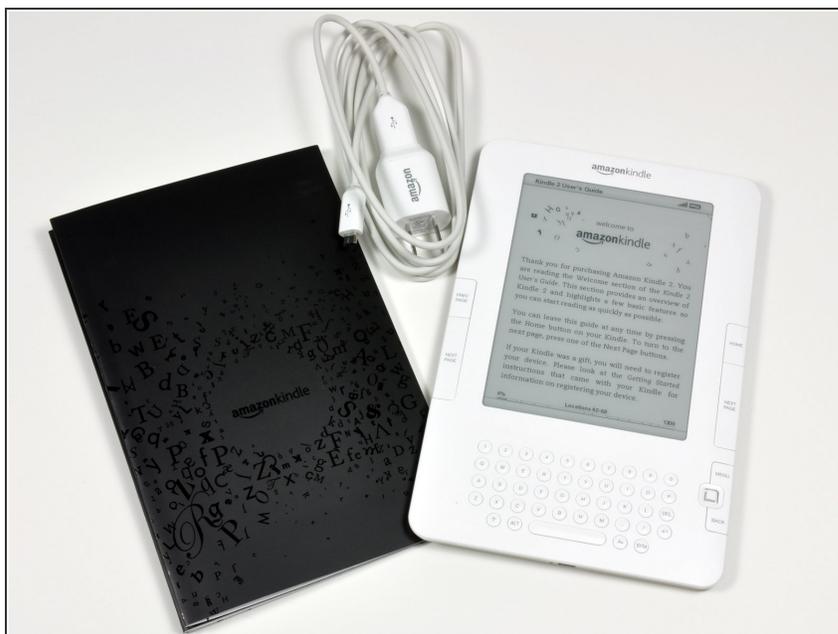
- [Phillips #0 Screwdriver](#) (1)
 - [iFixit Opening Tools](#) (1)
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Step 1 — Kindle 2 Teardown



- It's here!
- Thanks to the magic of E-Ink, the Kindle comes with setup instructions displayed on the screen itself. No plugging in is required.
- ⓘ We'll post updates on [twitter](#) about interesting things that we discover as we go.

Step 2



- What comes in the box:
 - A quick start guide, complete with embossed letters
 - An AC adapter
 - The Kindle 2
- ⓘ Conveniently, the AC adapter can be used with either a wall outlet or a USB port.

Step 3



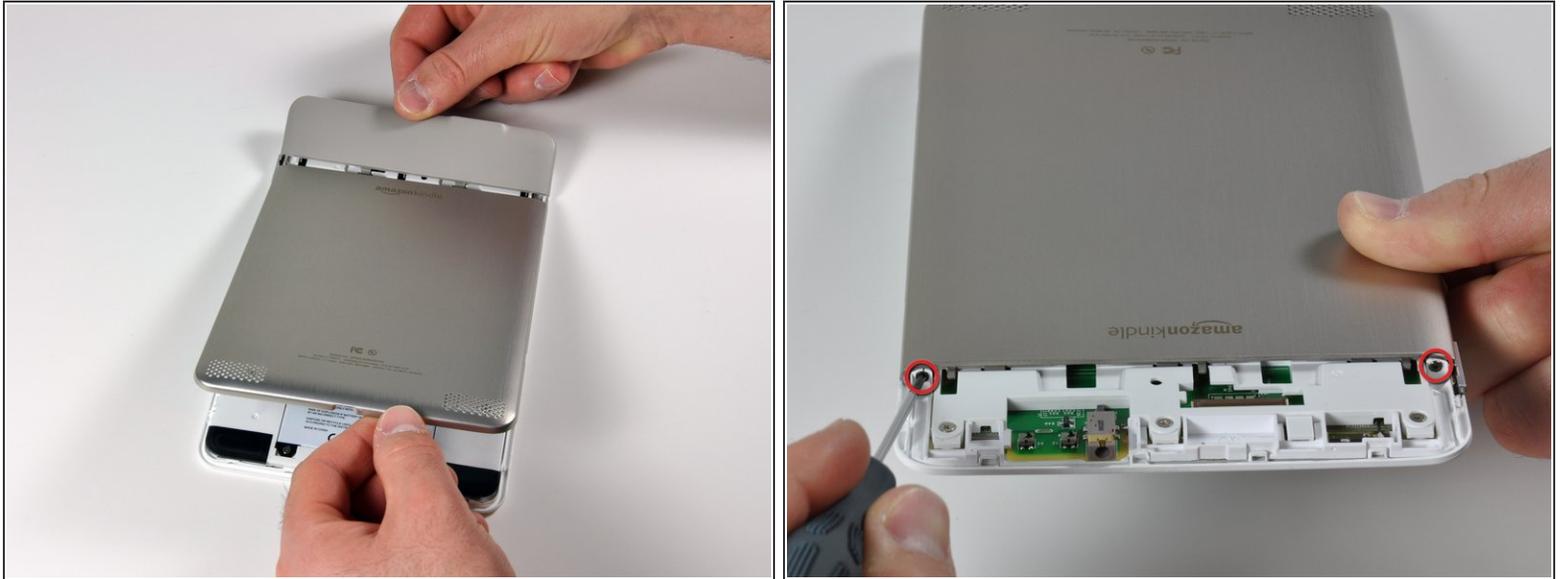
- Size comparison: Definitely not as big as a [17" MacBook Pro Unibody](#).
- The Kindle 2 weighs only 10.2 ounces. Per pound, that makes the Kindle 2 even more expensive than the \$2,799 MacBook Pro 17" Unibody we took apart last week.

Step 4



- The back. Nothing special about it.
- ⓘ Note the speaker holes on the bottom. We briefly tried the Text-to-Speech feature and were very impressed by the Kindle 2's ability to read the text displayed on-screen. But the honeymoon was quickly over and we started tearing into it.
- Hopefully the insides will be more exciting... We'll let you know as soon as we can!

Step 5



- Prying the back off...
- Getting inside is easy once you know how. We used some plastic opening tools and a [metal spudger](#), and finally managed to get in.
- The matte-gray top cover comes off first.
- There are two Phillips screws to remove before the Aluminum back can be removed entirely.

Step 6



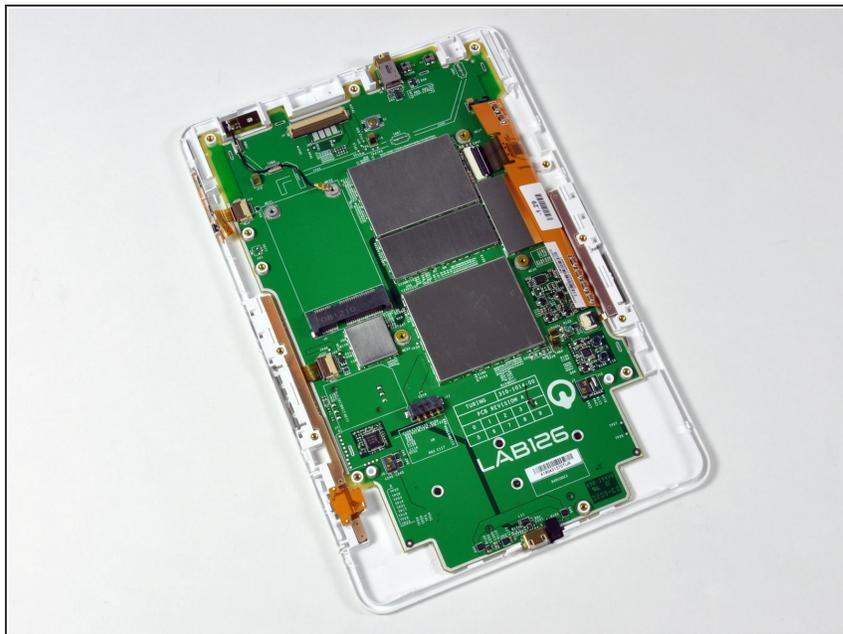
- We're in!
- It's still not very pretty; just more white plastic.
- Twenty Phillips screws hold the white plastic paneling in place.
- Interestingly, nothing was attached to the large white and brown connector near the top of the board.

Step 7



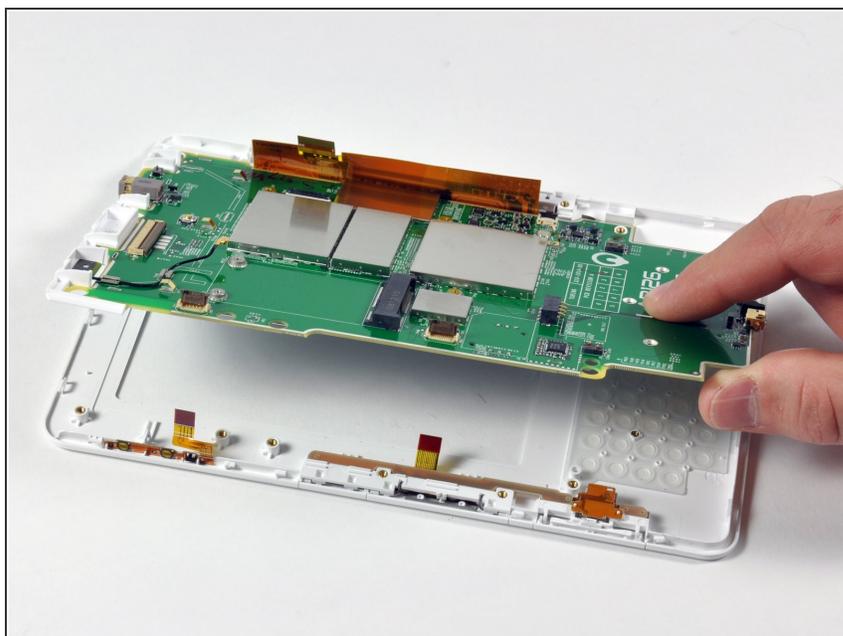
- Remove two Phillips screws and the battery lifts out easily.
 - The battery is Model No. S11S01A. It's a 3.7 V, 1530 mAh lithium polymer battery. The battery weighs in at 31 grams, just over 10% of the Kindle's total weight.
 - The wireless card is also easily removable by removing two Phillips screws.
- i** There are two antenna ports on the wireless card, but there was nothing connected to the AUX port in our Kindle.

Step 8



- After removing sixteen more screws, we've made it to the main PCB.
- Everything exciting is still beneath silver EMI shields.
- The Kindle was designed by [Lab126](#), a secretive Amazon subsidiary based in Cupertino that designs consumer devices. Thus far, they have only released the Kindle 1 and 2.

Step 9



- Lifting the logic board and display assembly out of its plastic housing.
- There is no protective covering over the display. The display seen from the outside is the actual E-Ink panel.

Step 10



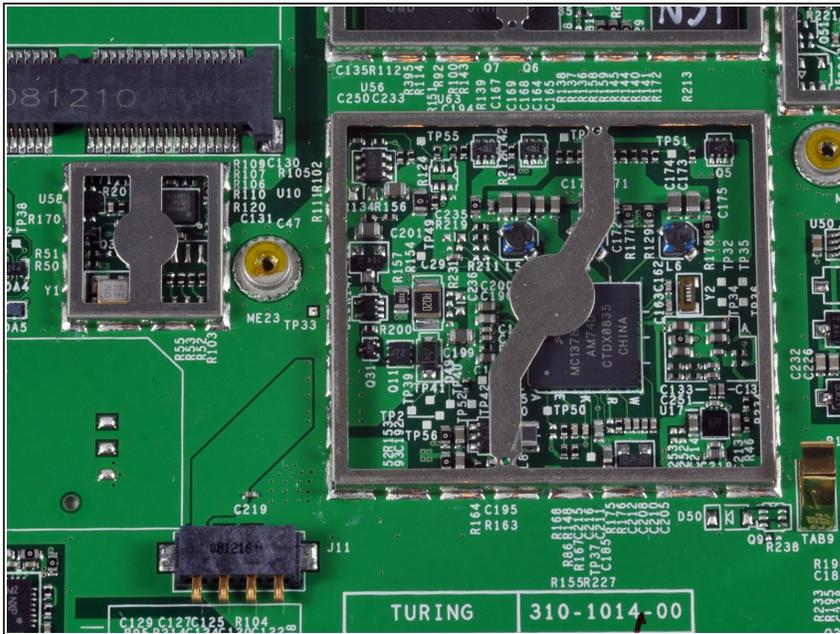
- Even with the battery completely removed, the screen displays a crystal clear image.
- The display is held by a "window frame" of adhesive. Gentle prods and twists from all sides with a plastic opening tool separated the display.
- Removing the display reveals a bunch of vias on the PCB. Nothing too terribly exciting.

Step 11



- The logic board after removing the silver EMI shields.
- The majority of the larger chips are made by Freescale, Samsung and Epson.
- ⓘ On the center-left side of the board is an outline of a SIM card with empty headers. Amazon left a opening in the plastic framework revealing this region. Was this left in for development and debugging?

Step 12



- A close-up shot of the center area of the board.
- The large MC13783VK5 is a Freescale [battery power management chip](#).
- The ISP1105 (smaller chip in the left enclosed area) is a [USB transceiver](#).

Step 13



- The main processor is in the upper left. The Freescale chip is labeled MCIMX31LVKN5C M91E CTAH0850V. It's a [532 MHz](#), ARM-11 90nm 14mm package.
- To the right of the processor, the Samsung K4X1G323PC is a [32MB mobile DDR SDRAM chip](#). There another Samsung SDRAM chip in the lower right.
- The large Samsung package in the lower left is the Kindle's main memory. It's a [2 GB moviNAND package](#), which includes both flash memory and the controller.
- The co-branded Epson and E-Ink chip on the right is the [display controller](#). It is a PFBGA package that supports "high speed screen updates (2048x1536 at 50Hz+)."

Step 14



- The complete disassembly of the Kindle 2.
- It seems to be the type of device that people will not bother modding... Or will they? Only time will tell.

To reassemble your device, follow these instructions in reverse order.