



Harman Kardon Onxy Studio 5 Teardown

Not a true teardown, but more of a look inside...

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INTRODUCTION

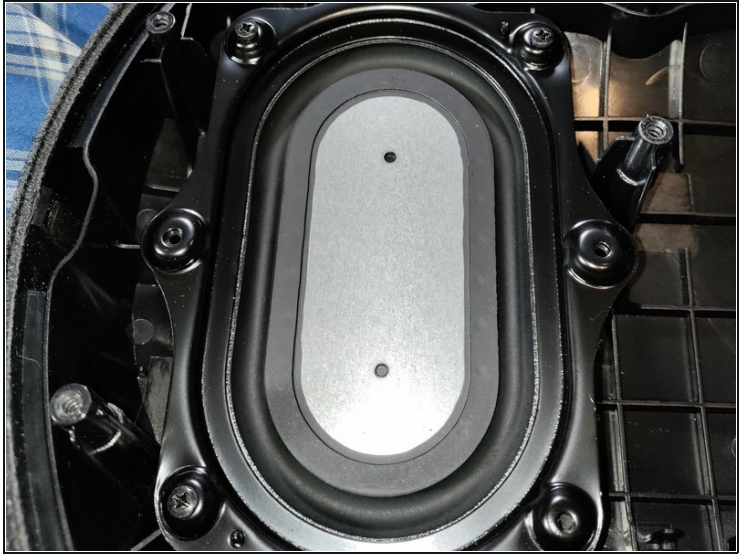
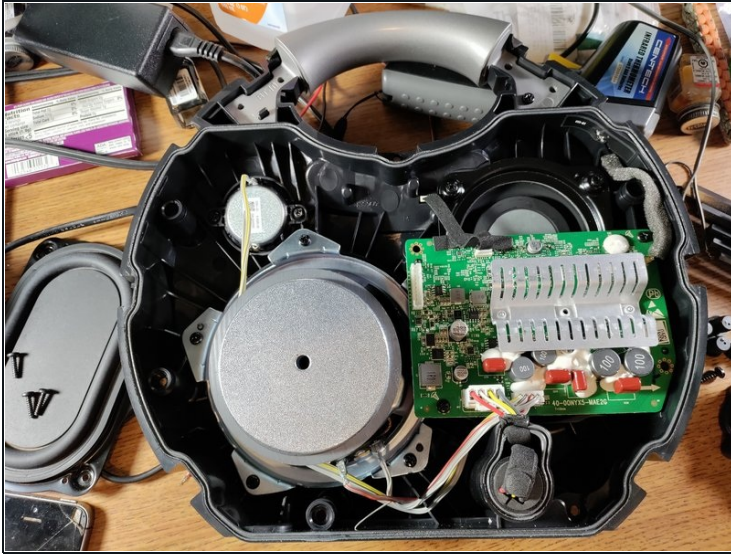
Not a true teardown, but more of a look inside and a breakdown of how this rather confusing speaker works

Step 1 — Face



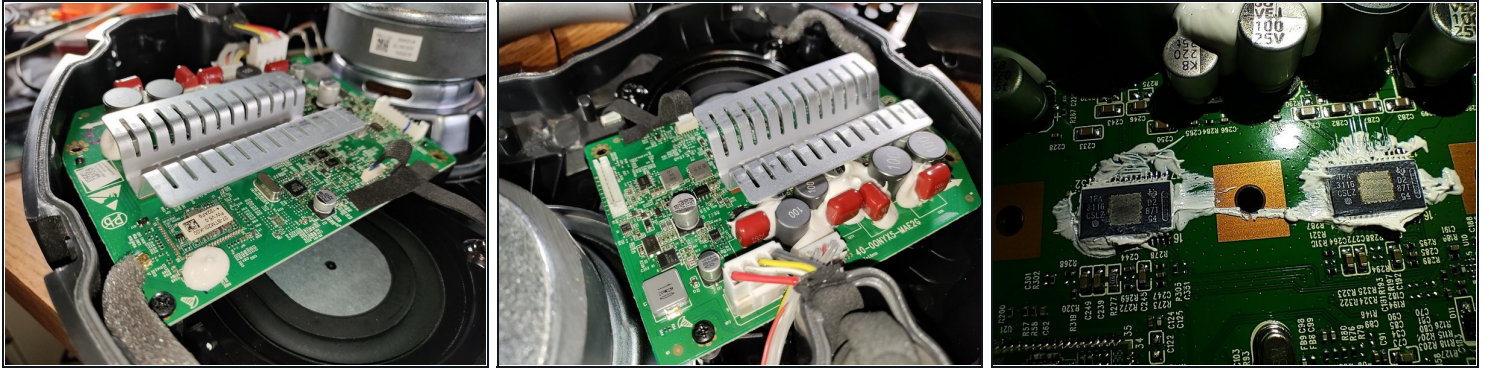
- It's quite difficult to get the front cover off, but once it is it will expose the tweeter, woofer, and one of the 2 passive radiators.

Step 2 — Inside



- The back cover isn't a cover like the front is, it IS the back. Removing all the face screws will allow it to rather easily pop off and expose the inside.
- Inside here we will find an onyx tweeter, aura sub, and both of the weighted omni passive radiators.
- There's also a SINGLE 18650 battery and the main board.
- Tweeter is 4 Ohm, Woofer is 2 Ohm. Remember this as it will be used on the next page

Step 3 — Board Level



- Not too much to see here, Bluetooth module and its antenna, AK7755EN DAC and various power supplies and the output filters for the amplifier. A DC-DC boost converter supplies higher voltage for the amplifiers.
- Under the heatsink lies 2 TPA3116D2's that I believe are running in PBTL.
- Here's where it gets complicated and long-winded. The speaker has 2 operating modes. Battery and AC power, Which is a 19V 2A brick. When running on battery supply voltage bounces between 7V-10V when measured at pin 32 of the TPA's. When plugged supply voltage sits at a much more stable 12V.
- The DAC also implements an aggressive compressor when on battery power. Power AT THE WOOFER on battery was 5.9V which comes to 17.5W into 2 Ohms. When plugged in voltage jumped to 9V, which at 2 ohms is 40.5W! I didn't power test the tweeter, but I'm going to guess battery is around 3W-5W and plugged in is around 10W.

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