



Huawei Mate 30 Pro Teardown

An iFixit teardown of the Huawei Mate 30 Pro, in which we discover its fancy new vibration motor and humongous battery.

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INTRODUCTION

Under the weight of a myriad of tariffs and embargoes, Huawei released their Mate 30 Pro under their own power. While the rest of the world wonders whether this thing will survive without the search engine overlord, we're more concerned about what's on the inside—only a teardown will tell what sweet hardware everyone outside of China is missing out on, for now.

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TOOLS:

- [iOpener](#) (1)
 - [Suction Handle](#) (1)
 - [Spudger](#) (1)
 - [iFixit Opening Tools](#) (1)
 - [Tweezers](#) (1)
 - [Phillips #000 Screwdriver](#) (1)
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Step 1 — Huawei Mate 30 Pro Teardown



- It may look like a front-load washing machine, but cleaning your laundry is about the only thing this phone *can't* do. Check out the specs on our teardown unit (Chinese model LIO-AL00):
 - 6.53" OLED display with a resolution of 2400 × 1176 (~409.29 ppi)
 - Huawei Kirin 990 processor with 8-core CPU, 16-Core Mali-G76 GPU, and Neural Processing Unit
 - *Quadruple* rear cameras—40 MP *f*/1.8, 40 MP *f*/1.6, 8 MP *f*/2.4 with 3x optical zoom, and a 3D depth-sensing camera
 - 32 MP *f*/2.0 selfie cam, plus a 3D depth-sensing camera
 - IP68 dust/water ingress rating, USB-C port (but no headphone jack)
 - Facial recognition hardware, gesture recognition, and an under-display fingerprint sensor

Step 2



- In a size comparison, the gigantic Mate 20 X 5G still dwarfs the rest of the Mate lineup, including our Mate 30 Pro.
- But at 1.1 mm tall, the 30 Pro's camera bump is more than double that of the 0.4 mm bump on last year's vanilla 20 Pro.
- Meanwhile, the 88° "ultra curved" display makes for a sleek-looking device, and will make you fumble for a good hold on the slick back.
- ❗ It also ships with a bumper containing cutouts on the sides for some [smooth volume control](#)—potentially hampering its bumper function, and maybe even obscuring the [Quad-Finger Game Control](#).
- We're curious about how those display curves look from the inside. Historically, we've found that curved displays are a [big pain](#) to remove.
- At the upper edge of the screen, the Mate 30 Pro's additional 3D depth-sensing camera also takes a lot more space than the camera in the tiny teardrop notch of its predecessor.

Step 3



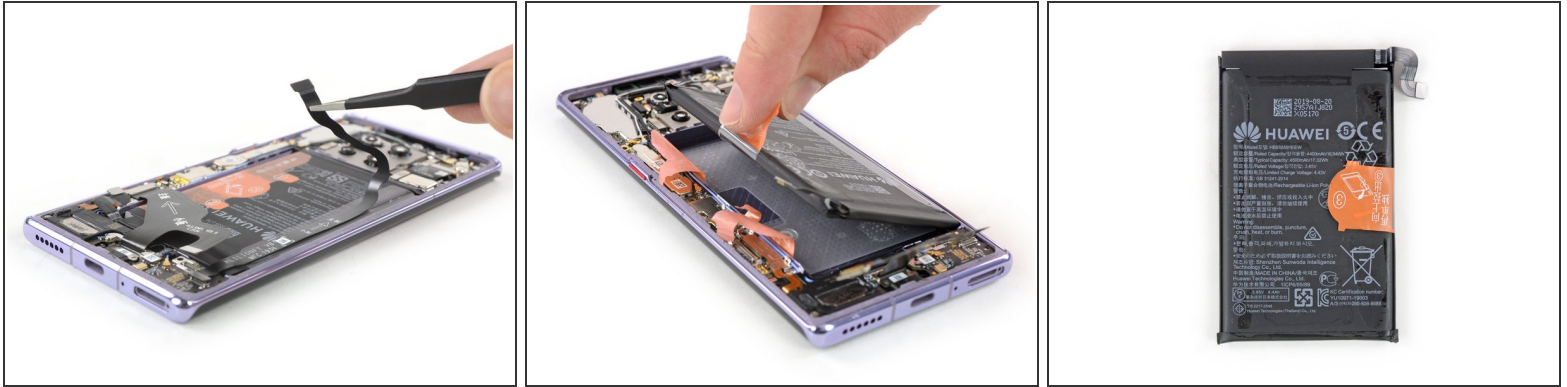
- As interesting as the display is, we're pretty sure it has to come off last. Instead, we attack the back cover with our classic move: [heat-lift-slice](#).
- ⓘ Since the fingerprint sensor sits under the display, we shouldn't encounter any boobytrap cables here—except for perhaps the camera flash ...
- We make it through unscathed! The back cover lifts off cleanly (with some gentle convincing). Everything peeking through the back cover while this thing is sealed up is either mounted in the plastic camera frame, or safely housed in the camera module—no booby trap cables here.

Step 4



- With just a few flicks and swishes with our [precision bit driver](#), we remove the classic plastic combo frame: flash, NFC coil, and a wireless charging coil.
- With the frame out of the way, we extract a sprawling Y-shaped interconnect cable that ... interconnects the USB-C port, motherboard, and accessory board together. It has a handy arrow in case the electrons get lost and need directions.

Step 5



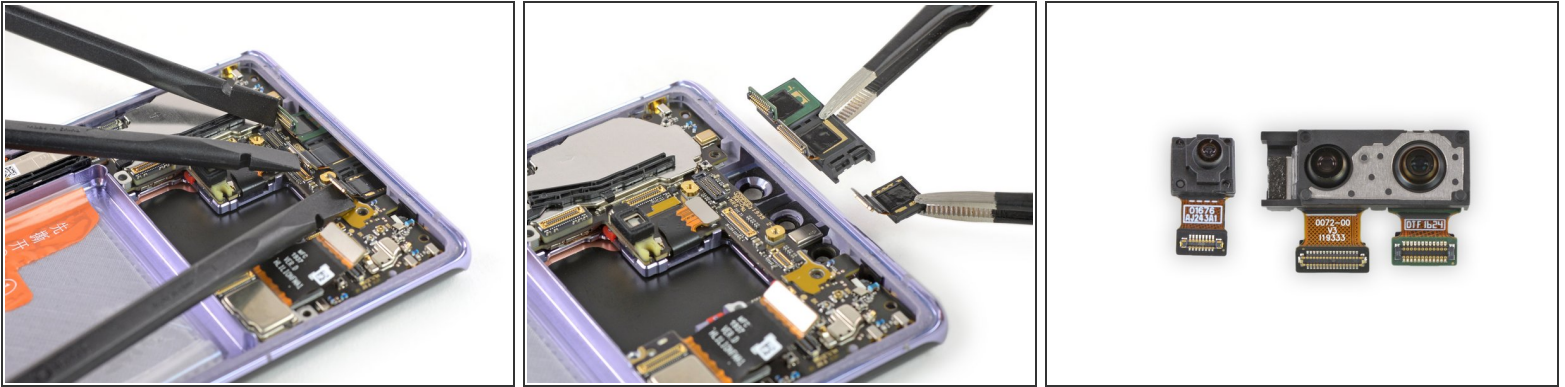
- The only other thing between us and the battery is this anaconda of a cable ("snakes on a phone," anyone?)
 - ⓘ While fiddly, we prefer these easy-to-access interconnect cables over cables hidden under the battery ripe for [accidentally prying through](#).
- This battery comes out with familiar rip-and-pull tabs—or is it pull-and-rip? Whatever it is, it's orange, and it has instructions on it—better than [nothing](#), though.
- The 4500 mAh cell is rated at 3.85 V, and a whopping 17.32 Wh of total power. That's a bit more than the 16.04 Wh from the [Mate 20 X Pro](#) or [the P30 Pro](#). The iPhone 11 Pro Max trails behind at [15.04 Wh](#).

Step 6



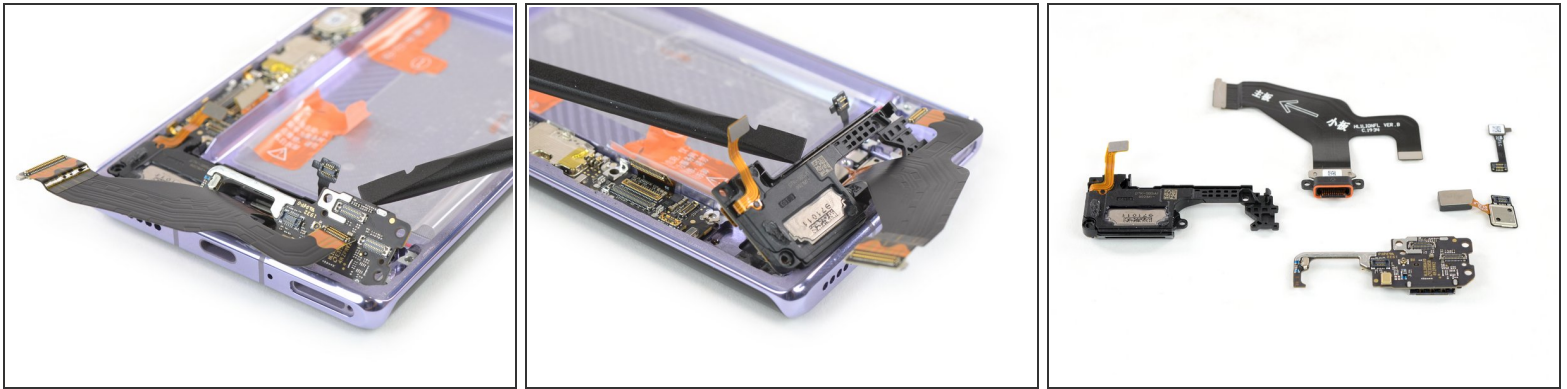
- These four lenses are the horses for Huawei's marketing carriage—and with good reason. It's quite a lineup:
 - 40 MP $f/1.8$ Cine Camera with a classical RGGB pattern on a $1/1.54''$ IMX608 sensor, outputting a 3:2 format
 - 40 MP $f/1.6$ SuperSensing Camera with Huawei's special RYYB pattern and OIS on a $1/1.7''$ IMX600 sensor, shooting in 4:3
 - ⓘ This camera can supposedly shoot [256x Ultra Slow-motion videos @7680 FPS](#), which might explain [this little breakout board](#) sitting in the middle of the data stream from the SuperSensing Camera. Is it a dedicated ISP (Image Signal Processor) for intensive slo-mo image buffering and calculation?
 - 8 MP $f/2.4$ telephoto lens with OIS over an OV08A10 sensor to offer 3x optical zoom, 5x hybrid zoom and up to 30x digital zoom
 - 3D depth-sensing camera for real-time in-depth video effects with an [IMX316 sensor](#)
- What remains on the motherboard seems to be the dot projector module that gives the 3D camera something to look at.

Step 7



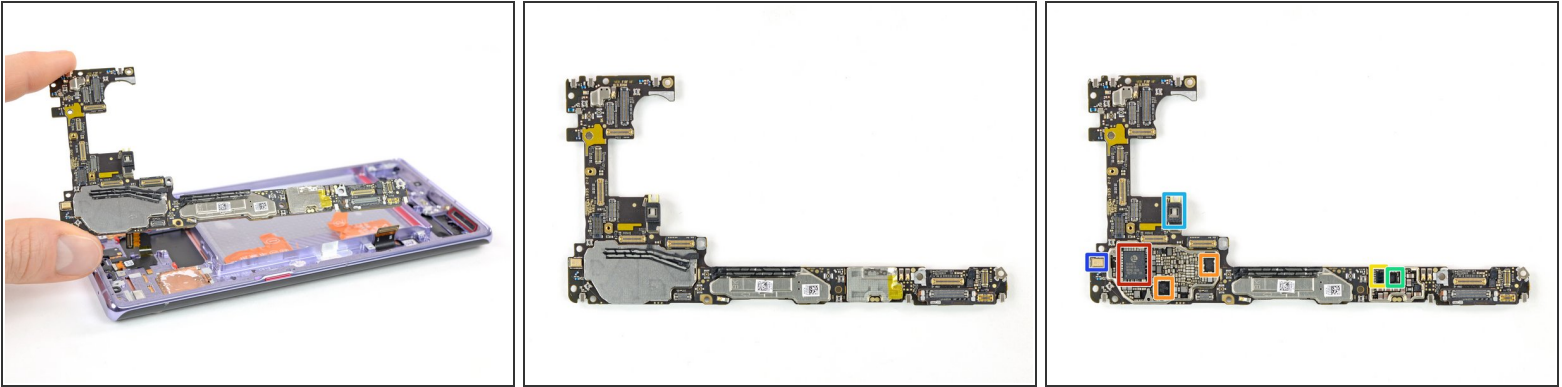
- A tenacious tandem teardown team effort spudges up the front-facing camera connectors to free three front-facing peepers.
- We momentarily scratch our heads as we wonder why Huawei only listed two front cameras in the [spec sheet](#), until we realize that one of these must be the *gesture sensor* mentioned elsewhere on the page.
- The double-wide camera couple houses the larger 32 MP $f/2.0$ selfie cam on the right, (1/2.8" IMX616 sensor) and the aforementioned 2.4 MP gesture camera on the left (1/6.95" IMX332 sensor).
- The single unit is the 3D depth sensing camera with an IMX516 sensor—likely used for face unlock and depth effects for your selfies.

Step 8



- With the cameras out of the way, we remember that this phone is more than just its seven cameras! There's a lot of other stuff in here:
 - The USB-C port and its Y-shaped interconnect cable
 - A daughterboard with the SIM card slot on the back
 - The loudspeaker in its plastic frame
 - The optical fingerprint scanner (SYNAPTICS S3909).
- ❗ What do all these parts have in common? They're modular and independently replaceable!
- At the north end of the phone, we're left with a bunch of writhing [snakes](#) coax cables.

Step 9

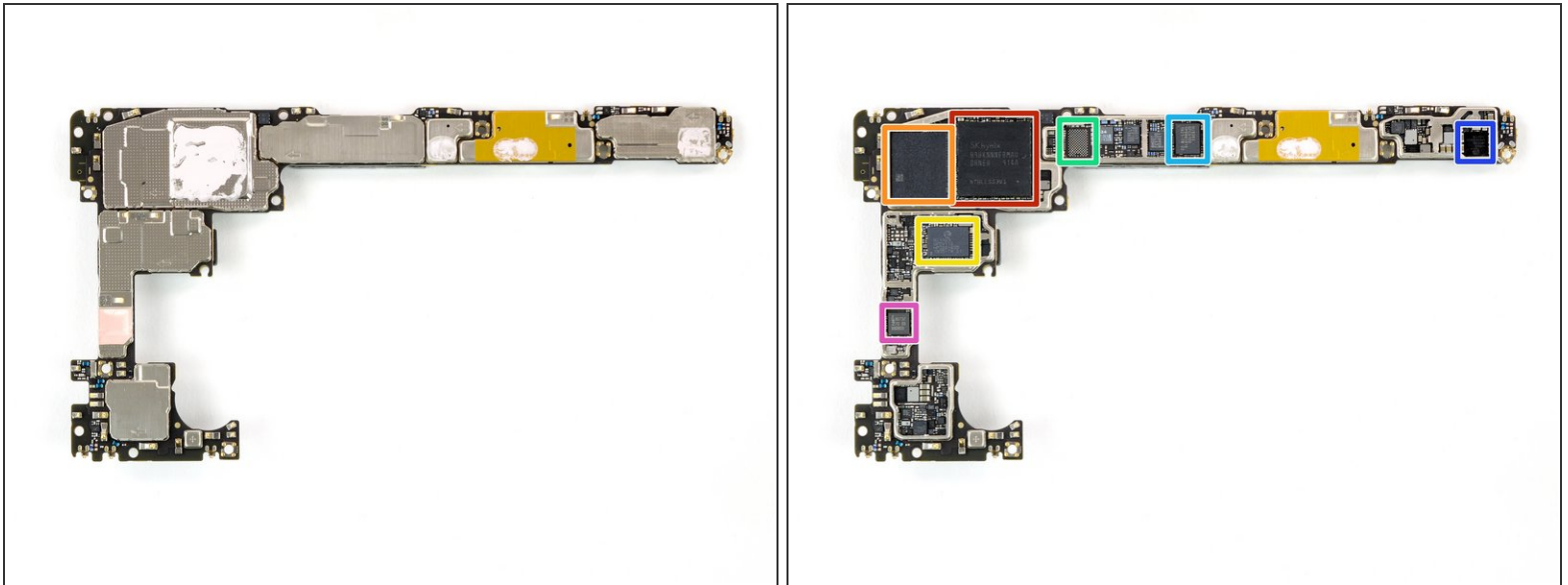


- With all those things crammed into the phone, the motherboard is shaped to fill the remaining space. Let's see what goodies we can find on this chocolate silicon bar:

- HiSilicon Hi6421 power management IC
- HiSilicon Hi6422 power management IC
- STMicroelectronics BWL68 wireless charging receiver IC
- Halo Micro HL1506F1 battery management IC
- Dot projector
- Microphone

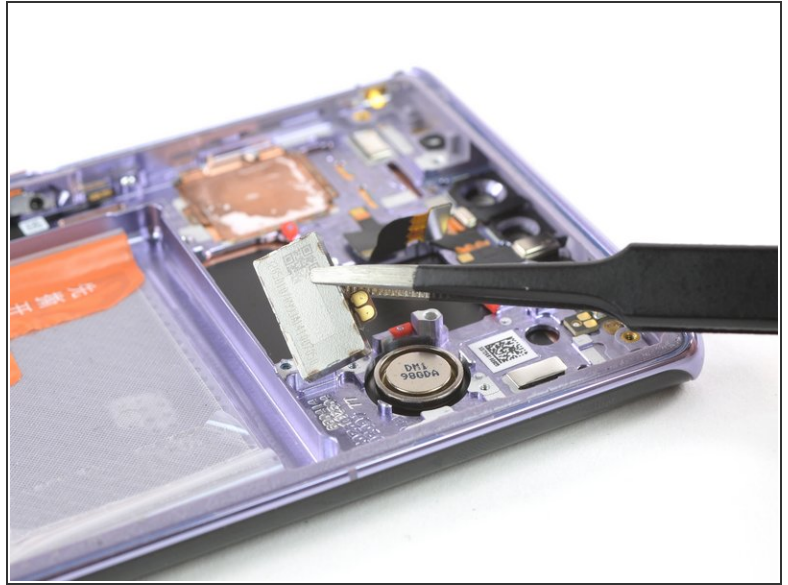
- ① Beneath the motherboard, we spot a copper plate running down the left of the frame. This is similar to the Mate 20 X 5G's [liquid cooling system](#).

Step 10



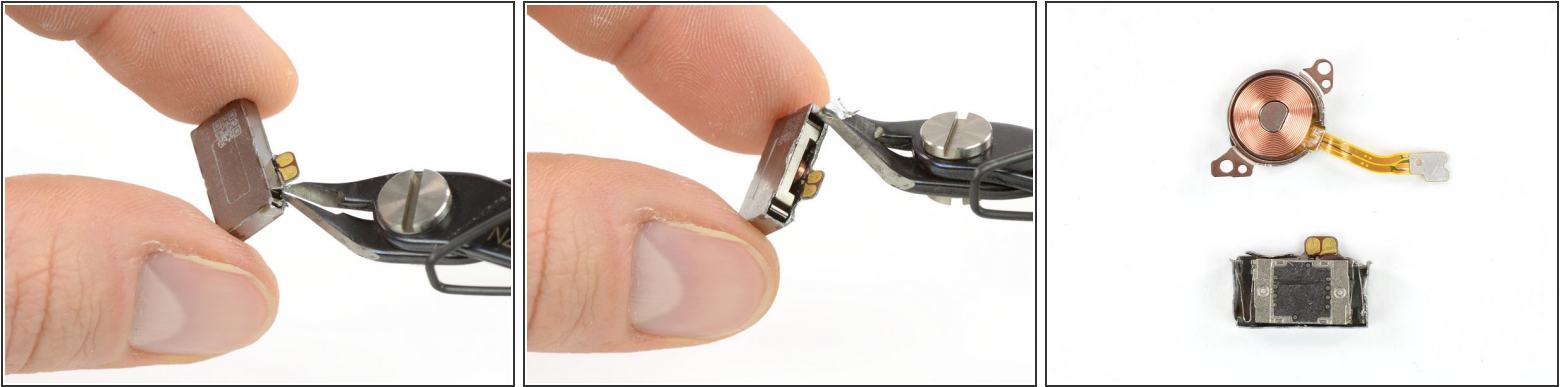
- The other side reveals:
 - SKhynix H9HKNNNFBMAU-DRNEH 8 GB LPDDR4X SDRAM with the SoC Kirin 990 layered underneath
 - Kioxia (Toshiba) M-CT041930U544311JPN 256 GB UFS
 - HiSilicon Hi1103 Wi-Fi module ([as seen in the Mate 20 X 5G](#))
 - An empty pad, which apparently hosts an [additional front-end module](#) in the 5G version of this phone
 - HiSilicon Hi6363 RF transceiver ([as in the Mate 20 Pro](#))
 - HiSilicon Hi6526 power management IC
 - NXP 80T37 (likely NFC controller)

Step 11



- Next we dig out the structure-borne speaker driver, previously seen in the [P30 Pro teardown](#).
 - ⓘ This little thing vibrates the display to create sound—replacing the traditional earpiece speaker we see in [other phones](#). It's a nifty trick, but not without some downsides: it's an additional component to replace with the display, and if you crack your screen around the driver, you'll likely see a drop in sound fidelity.
- Aaand what do we have here? It looks like the tiny circular LRA vibration motor from [Mates past](#) has been upgraded to a rectangular [taptic engine](#)-style buzzer.

Step 12



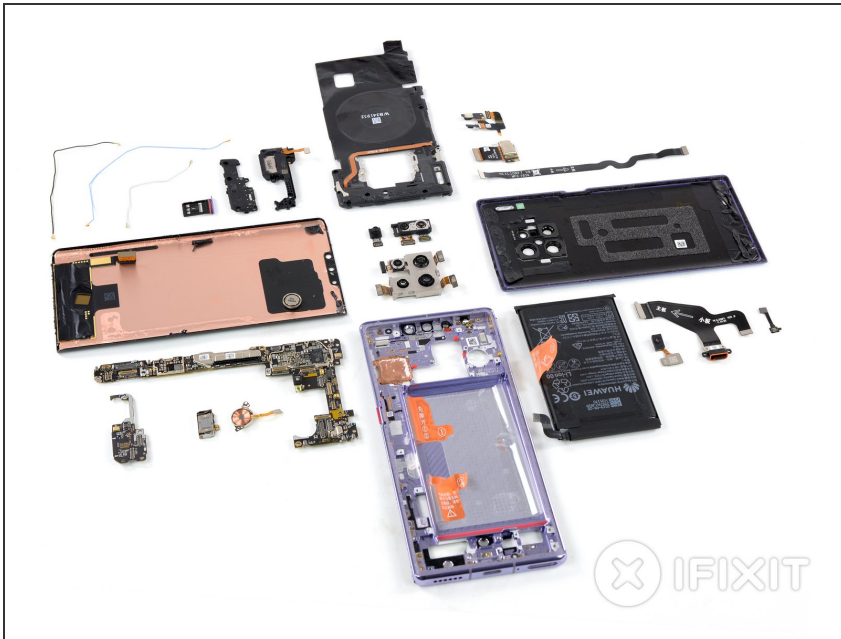
- Peeling the mysterious wobble box open like a can of sardines, we indeed find an x-axis linear actuator.
- What [Apple started](#) all the way back in [2014](#) seems to finally be catching on with other manufacturers. From [Meizu](#) to [Google](#) to [Samsung](#), and now Huawei—everyone seems to agree that precision haptics (and bigger motors) positively affect the way we interact with these pocket computers.

Step 13



- Next up, the *ultra-curved* screen! We are faced with [zero margin](#) between the display and the frame.
- Patient heating and prying gets our foot in the seam, and we go slicing around corners and curves with our handy ~~pizza-cutter~~ [iMac Opening Wheel](#) that seems to be tailored for this job.
- Finally our opening picks can start gnawing on the glue behind the edge ...
- ... and eventually grant us the success we deserve—an open display.
- ① This display hooks up via a single, rather small connector. Many contemporaries have two separate plugs for the digitizer and the screen.

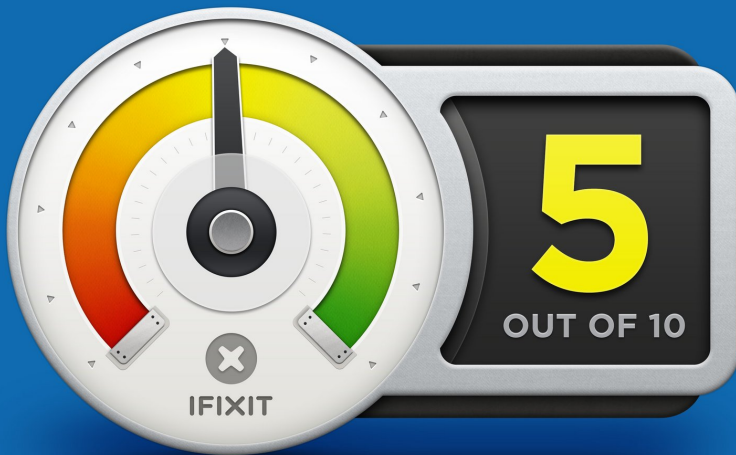
Step 14



- This phone is chock full of modular components and cutting-edge tech. For once, we can sort of understand why they didn't make room for a headphone jack. (We'll probably continue to gripe about that though.)
- With that, here's a summation of our repairability findings.

Step 15 — Final Thoughts

REPAIRABILITY SCORE:



- The Huawei Mate30 Pro earns a **5 out of 10** on our repairability scale (10 is the easiest to repair):
 - Almost every component is modular and can be replaced independently.
 - Only standard Phillips screws are used.
 - Pull tabs make fairly quick work of battery replacement, once you've carved through the rear cover, plastic frame, and some cables.
 - A few components require extended disassembly for service.
 - The display can be removed without removing the battery, although it's still tough to pry off and impeded by some cables.
- Glued-down front and back glass means greater risk of breakage, while making all repairs more difficult and lengthy.