

 **BACK-BONE**

Ribcage Installation

Part 1 - Teardown

Back-Bone

V1.05



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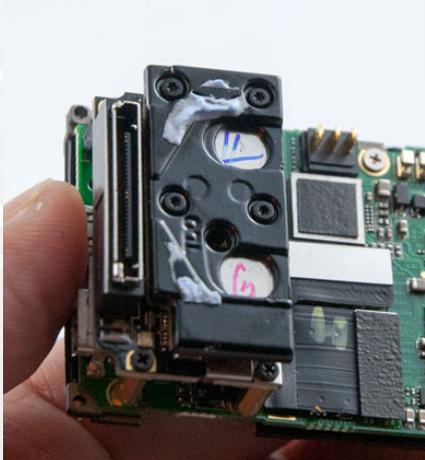
CAUTION!

1. Read all our documentation thoroughly before beginning your installation
2. This kit is for the Hero3 Black and Hero3+ Black only. No other models are supported.
3. Make sure to charge your battery before beginning the installation.
4. NEVER force or exert force on any components. IF YOU FEEL THE NEED TO USE FORCE THAN YOU'RE DOING SOMETHING WRONG.
5. The Ribcage DIY kit consists of highly machined parts and fine threaded through holes. NEVER FORCE any screws as this can strip the fine threads on the through holes. Instead check your assembly and registration and try again. All parts are highly accurate and DO NOT require force to assemble.
6. Ensure your work area is clean, well lit and free from dust.
7. We recommend inspecting and removing any dust or debris from the parts before you begin.
8. Never over tighten any of the small screws, especially on the faceplate and tripod mount. Excessive force or over tightening can result in stripped threads on the aluminum parts. Always loosely fit all screws in place before screwing them in until seated. Additional tightening is not required.
9. By applying this or any modifications to your GoPro devices you will **VOID** any warranties
10. Back-Bone takes no responsibility in your ability to use this modification
11. The Ribcage DIY kit is provide "as is" and without warranty
12. Disclaimer: Ribcage is a product of Back-Bone, and is not manufactured, distributed or endorsed by Woodman Labs, Inc the maker of GoPro and Hero Products.

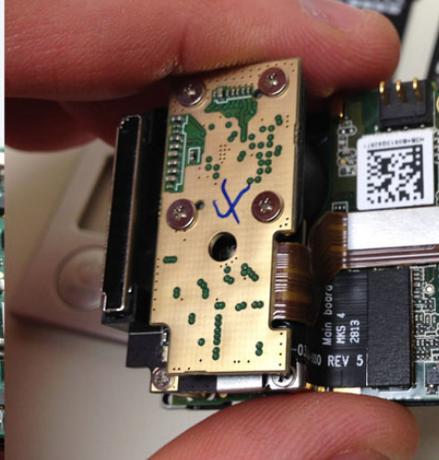
Note:

We should point out that the teardown was performed on the Hero3 Black, and the assembly was performed on the Hero3+ Black, so there are some slight visual differences. Most notably the Hero3 has a much different looking image sensor board than the Hero3+. It has a thick dark backing attached. It is not necessary to remove this backing as the Ribcage was designed with enough room for it to fit.

Hero3 Black



Hero3+ Black



Ribcage Installation: Part 1 - Teardown



Tools Required

Before you begin you will need to gather the following tools:

- A Torx T4 screw driver (not required for Hero3+)
- A set of small precision screw drivers
- A roll of 3M double sided tape (optional) *Note: don't use thick mounting tape – use only thin double sided tape or the parts may not fit correctly.*



Ribcage Installation: Part 1 - Teardown



1-1 Remove Battery and Accessories

Video: <http://youtu.be/Tz3vMLKMPJE?t=1m1s>

The first thing you need to do is remove all the accessories, SD card and the battery.



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1-2 Remove the Front Cover

Video: <http://youtu.be/Tz3vMLKMPJE?t=1m28s>

To remove the front cover use a miniature flat head screw driver. Gently insert the tool under the upper left corner of the cover and begin working your way around the camera.



The faceplate is attached with adhesive tape and some clips. Pull the faceplate off and set it aside.



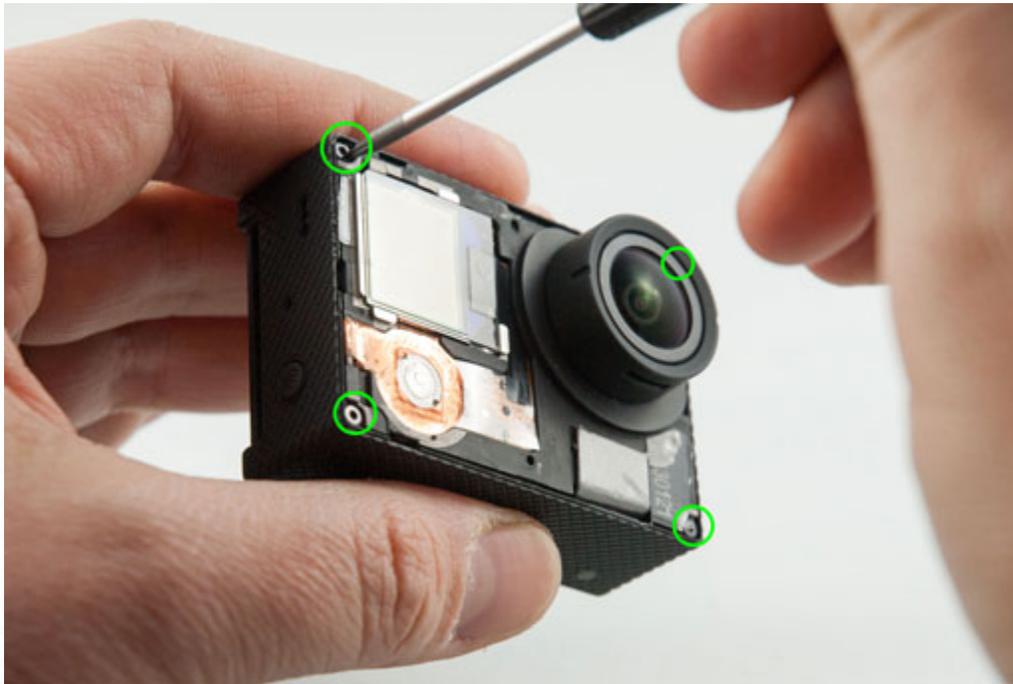
Ribcage Installation: Part 1 - Teardown



1-3 Remove the Corner Screws

Video: <http://youtu.be/Tz3vMLKMPJE?t=2m4s>

Now we'll remove the screws that attach the internal components to the housing. Remove the screws located in the four corners and set them aside for use later. On the GoPro Hero3 you will require a Torx T4 screwdriver, but on the Hero3+ a Philips is used.



Ribcage Installation: Part 1 - Teardown



1-4 Remove Interior Parts

Video: <http://youtu.be/Tz3vMLKMPJE?t=2m36s>

To remove the interior parts gently insert a screw driver under the housing next to the HDMI port and lift the housing slightly over the ports.



Grip the lens and work the PCB board assembly out of the housing by gently rocking the lens assembly back and forth until the internal aluminum plate and PCB board assembly is out.

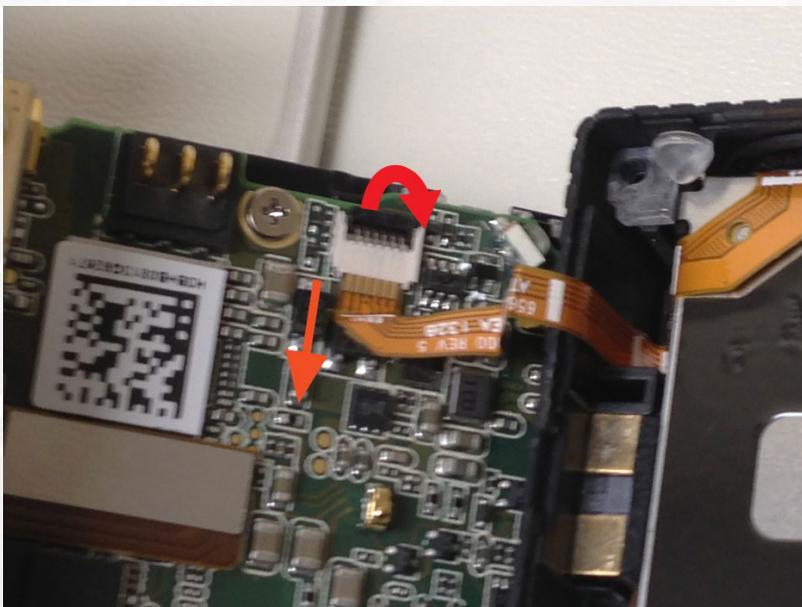


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On the Hero3+ be mindful of the tiny ribbon that connects the PCB board to the housing.



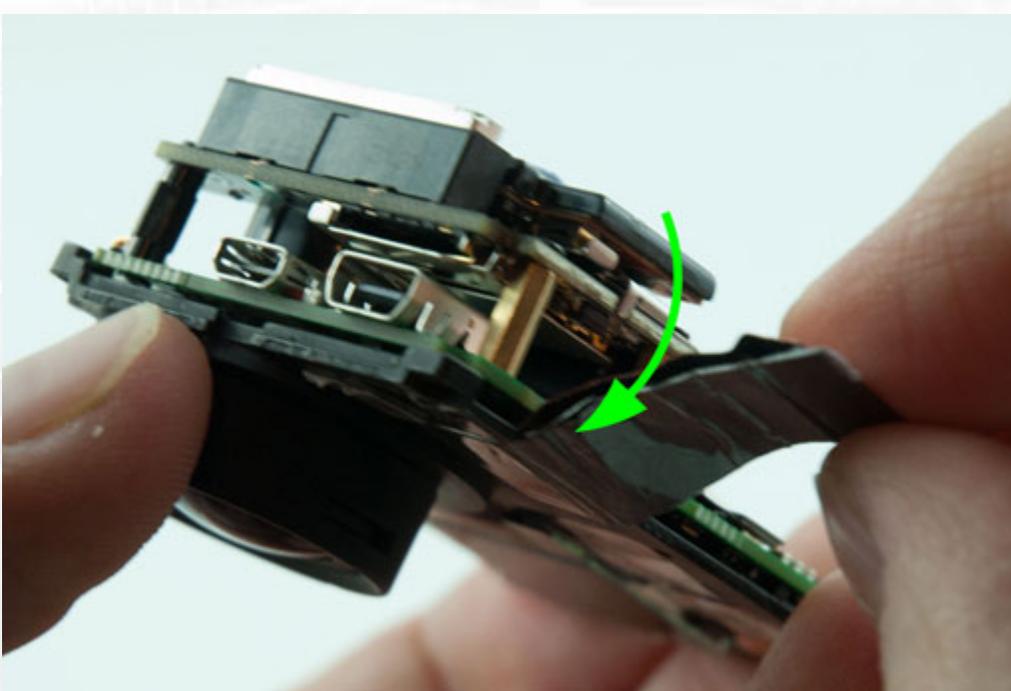
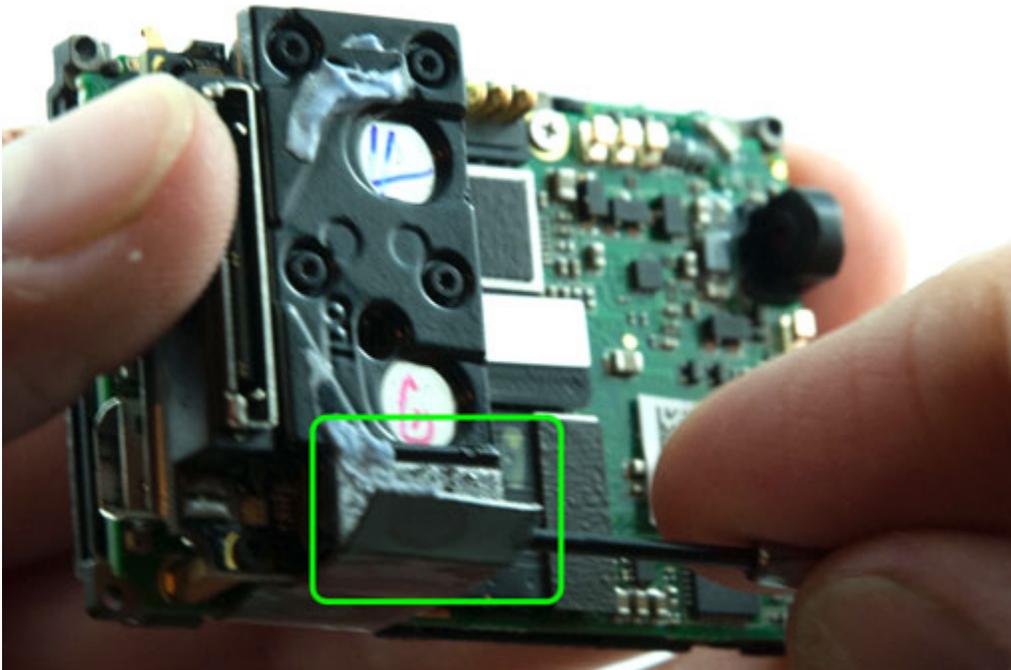
To release the ribbon pull up on the black locking mechanism, and gently pull it free.



1-5 Remove Heat Transfer Tape

Video: <http://youtu.be/Tz3vMLKMPJE?t=3m15s>

(Not required for Hero3+) Remove the heat transfer tape that wraps around the bottom of the camera by using your nails or a small flat screwdriver to pull up on the edge and gently pull the tape off from back to front.



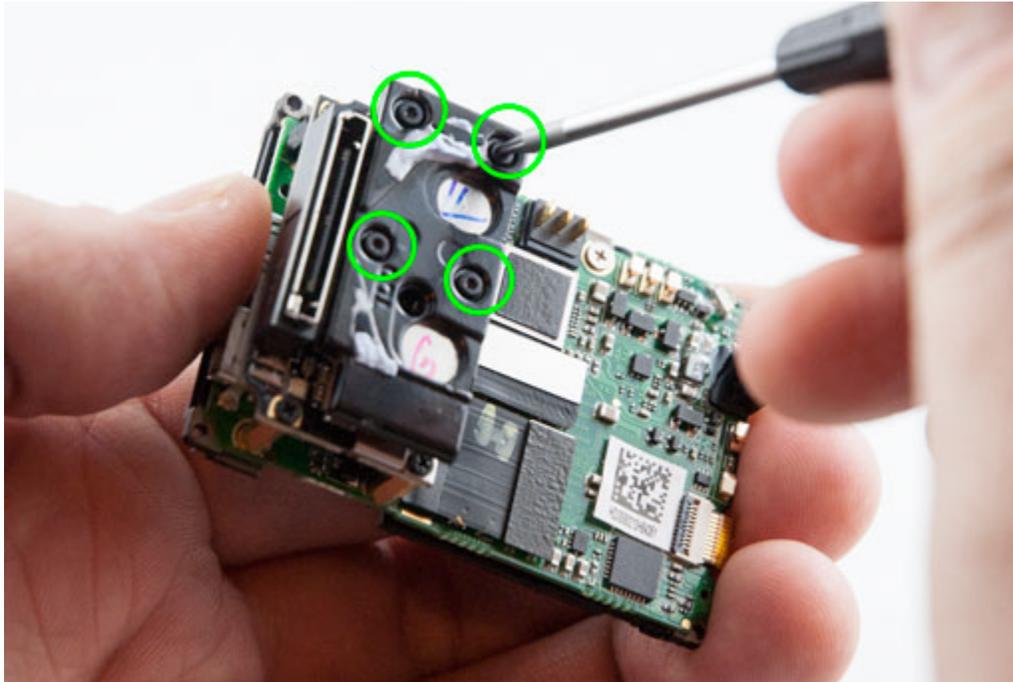
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1-6 Remove CMOS Plate Screws

Video: <http://youtu.be/Tz3vMLKMPJE?t=3m42s>

Remove the 4 screws holding the CMOS plate onto the rear of the assembly and set them aside.



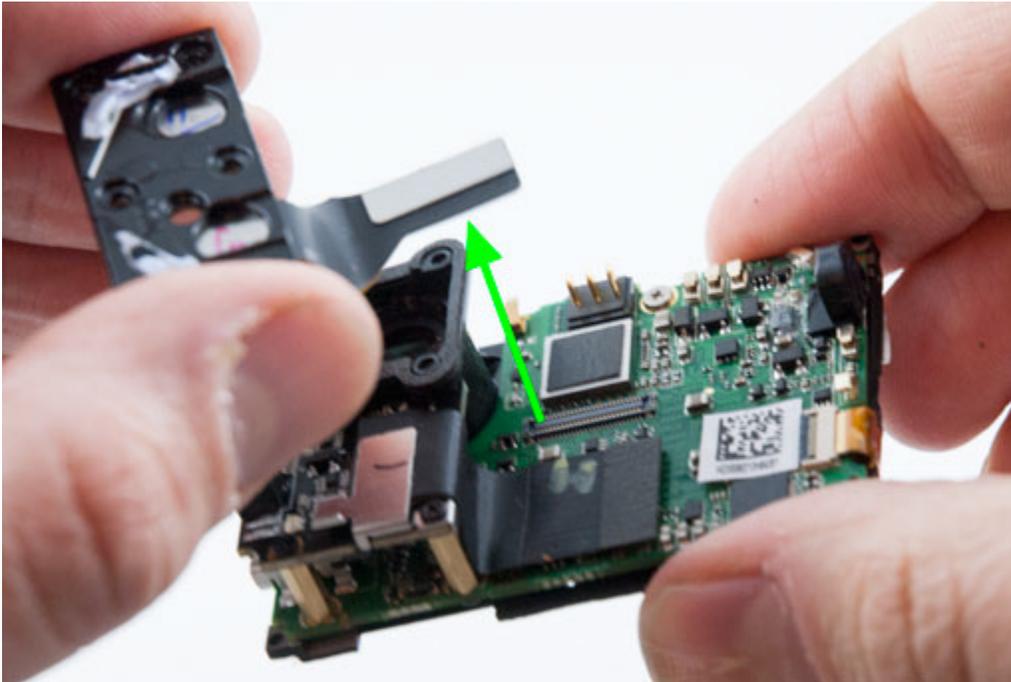
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1-7 Disconnect CMOS Sensor

Video: <http://youtu.be/Tz3vMLKMPJE?t=4m9s>

Gently pull to disconnect the connector joining the CMOS and PCB board

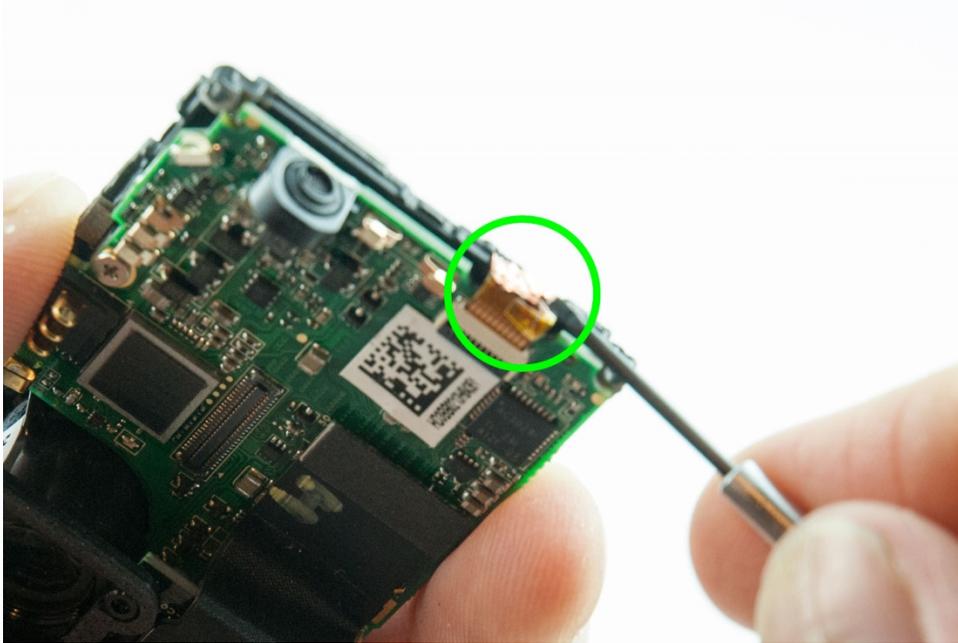


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1-8 Disconnect LCD Board Connector

Video: <http://youtu.be/Tz3vMLKMPJE?t=4m18s>

Use your fingernail or a flat screw driver and gently pull up to separate the metal tape covering the board connector located on the side.

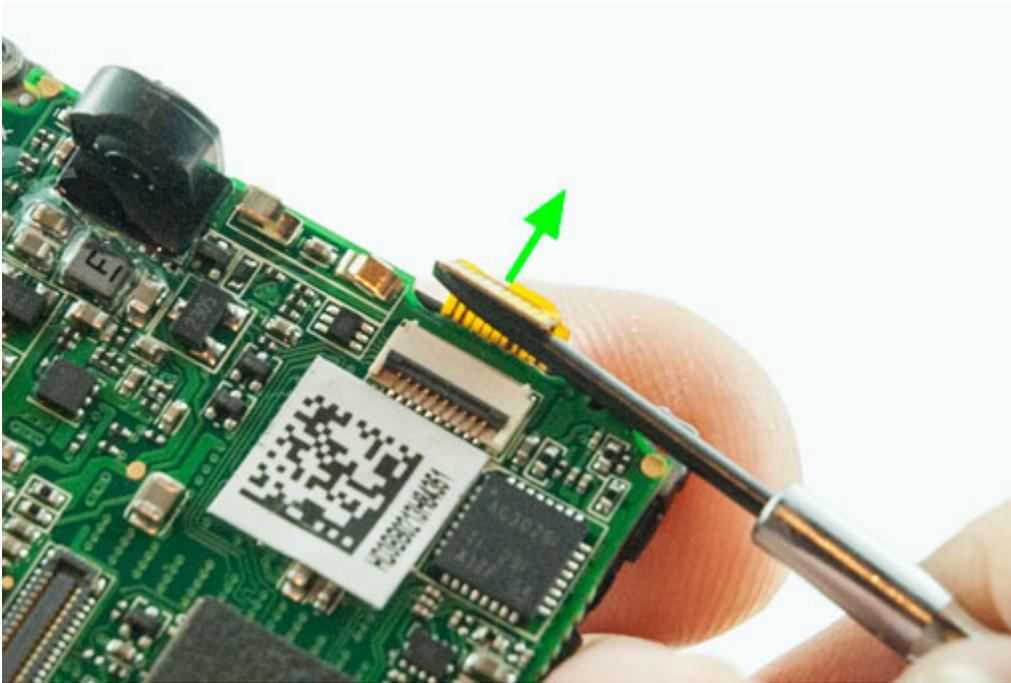


There is a small locking mechanism that grips the connector. Insert a screwdriver under the black tab and pull up to release.



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Use your screw driver to pull the connector free.



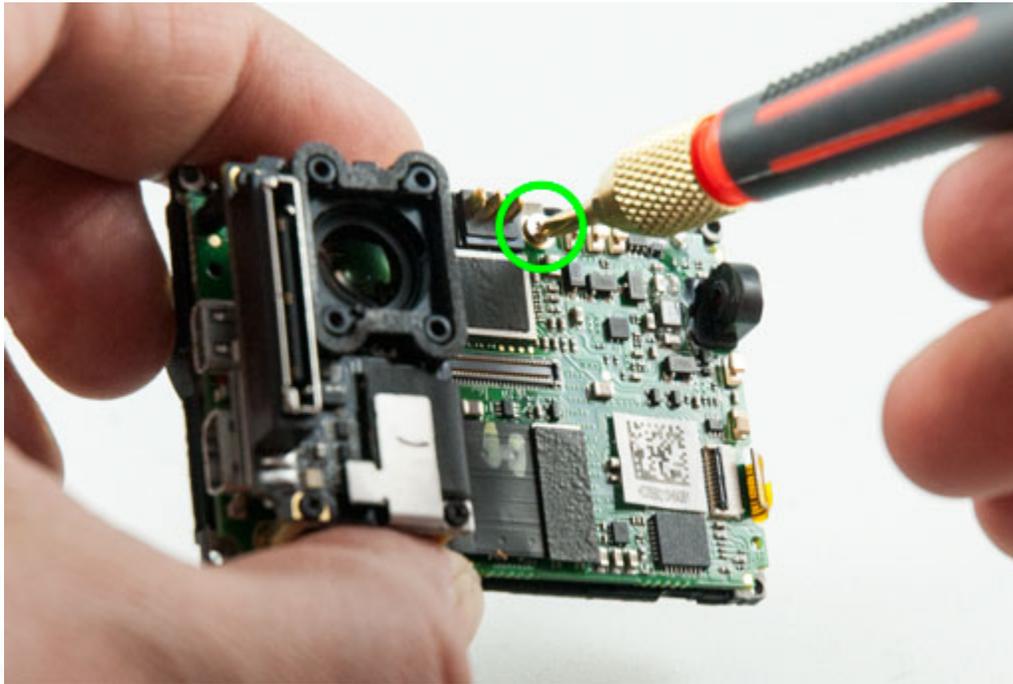
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1-9 Remove PCB Board Screw

Video: <http://youtu.be/Tz3vMLKMPJE?t=4m54s>

Remove the screw that attaches the PCB board to the aluminum plate. It's located on the top of the assembly next to the battery contacts.



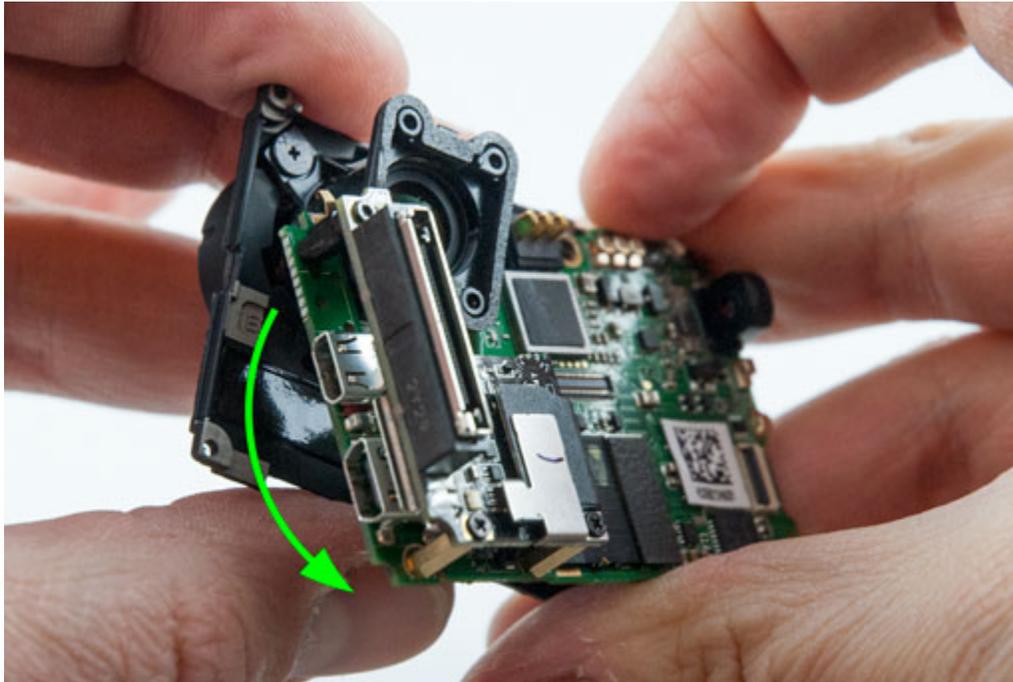
Ribcage Installation: Part 1 - Teardown



1-10 Remove PCB Board

Video: <http://youtu.be/Tz3vMLKMPJE?t=5m15s>

Gently pull the PCB board away from the aluminum plate.



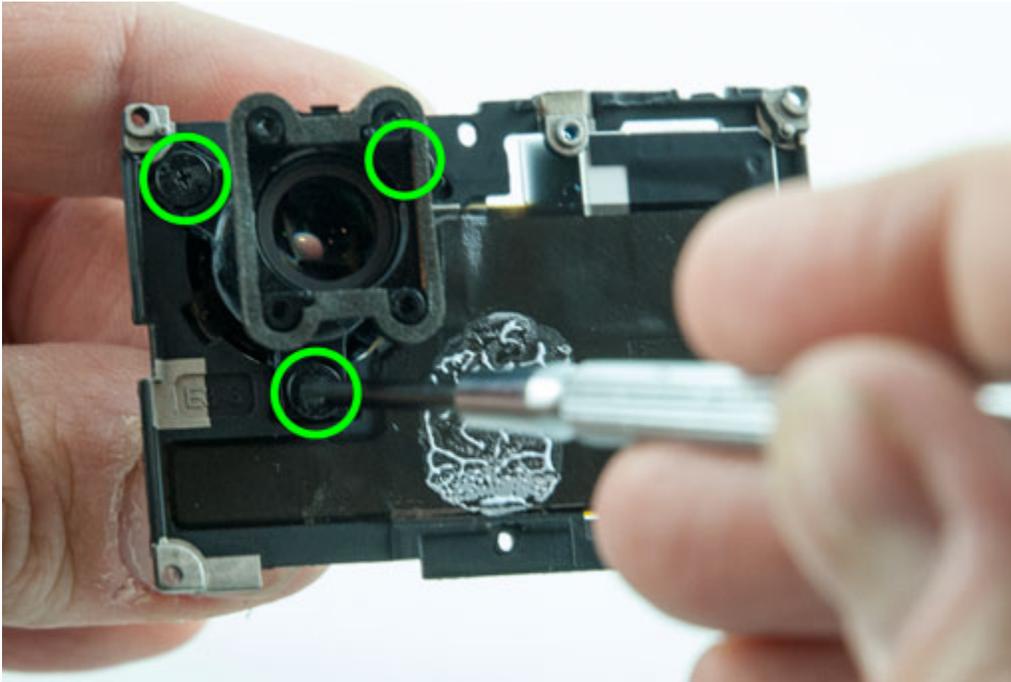
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1-11 Remove Screws From Lens Assembly

Video: <http://youtu.be/Tz3vMLKMPJE?t=5m32s>

Unscrew the three screws holding the lens assembly onto the aluminum plate.



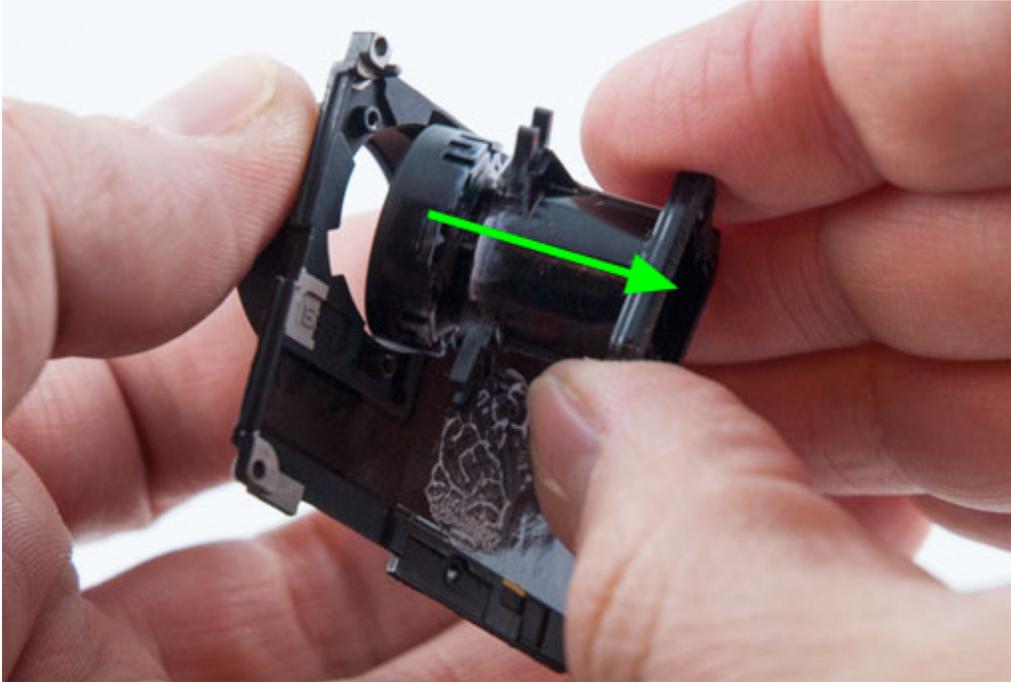
Ribcage Installation: Part 1 - Teardown



1-12 Remove Lens Assembly

Video: <http://youtu.be/Tz3vMLKMPJE?t=5m48s>

Pull the lens assembly away from the aluminum plate. This lens can be re-used with your Ribcage Kit. We'll cover its preparation in a separate tutorial.



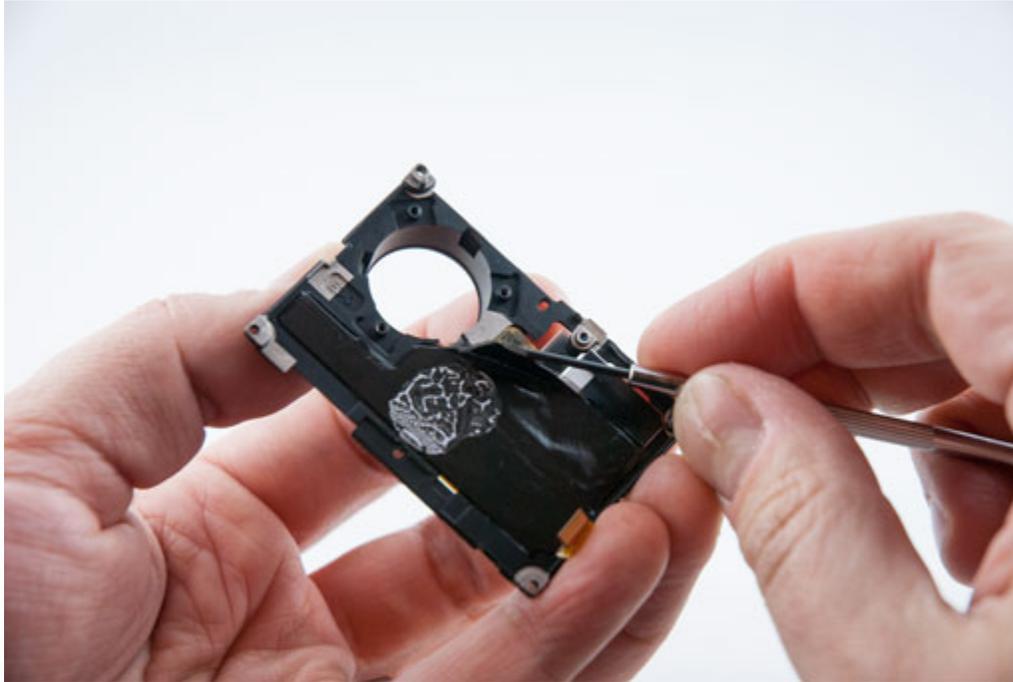
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1-13 Remove Adhesive Backing

Video: <http://youtu.be/Tz3vMLKMPJE?t=5m58s>

(Not required for Hero3+) Gently pull up an edge of the adhesive backing with your screw driver taking care not to scratch or damage the LCD components below.



Pull the tape free and put it aside.



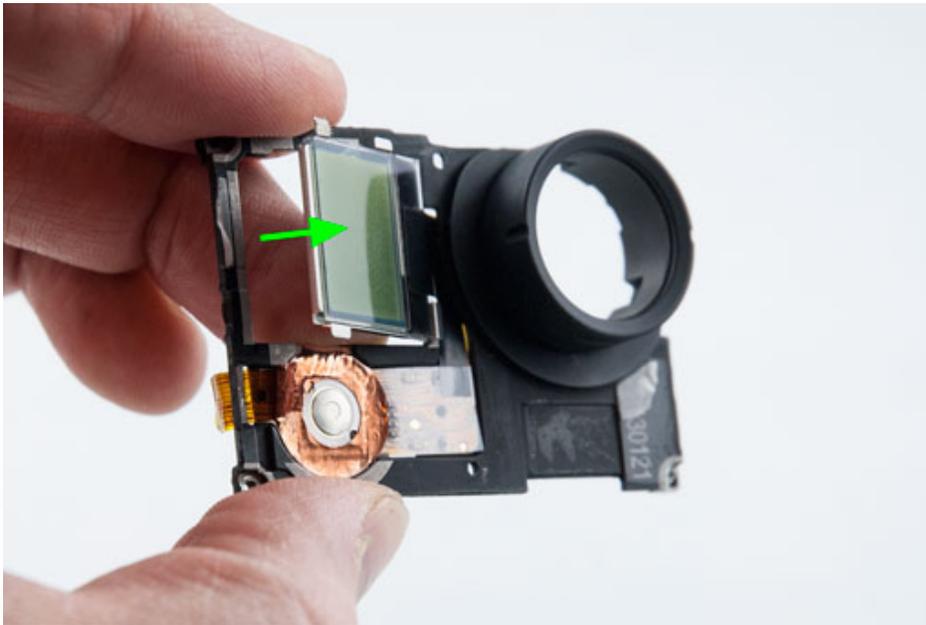
Ribcage Installation: Part 1 - Teardown



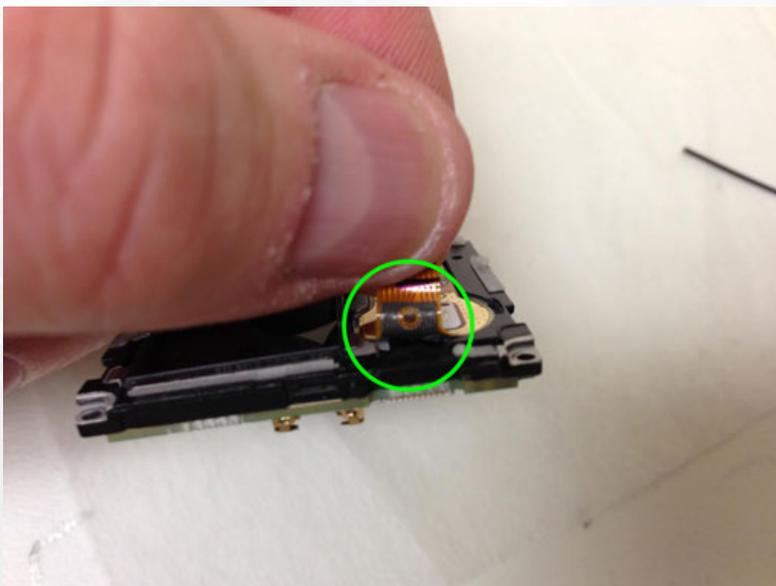
1-14 Remove LCD/Button Assembly

Video: <http://youtu.be/Tz3vMLKMPJE?t=6m25s>

Now it's time to remove the LCD and button assembly from the aluminum plate. **It's very important to take your time and use a gentle touch with this step. Damage to this component will mean it will have to be replaced for the camera to function properly.** Push up on the LCD display from the back.



It's important to grip the LCD screen to prevent it from falling over and bending the ribbon. Pull up on the metal tape that was released earlier and gently pull the assembly free. Make sure the grey adhesive area is not stuck down when you start to pull or it may not come off properly.

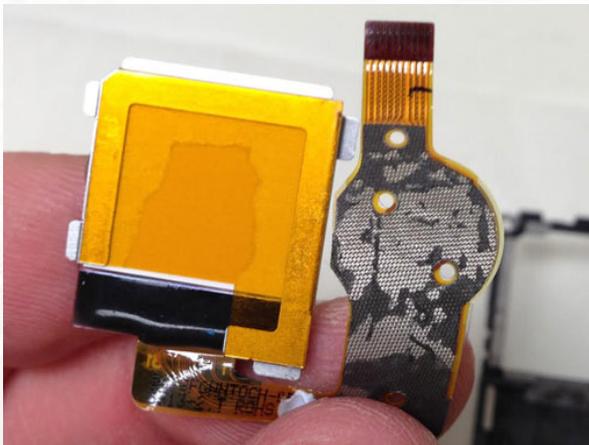


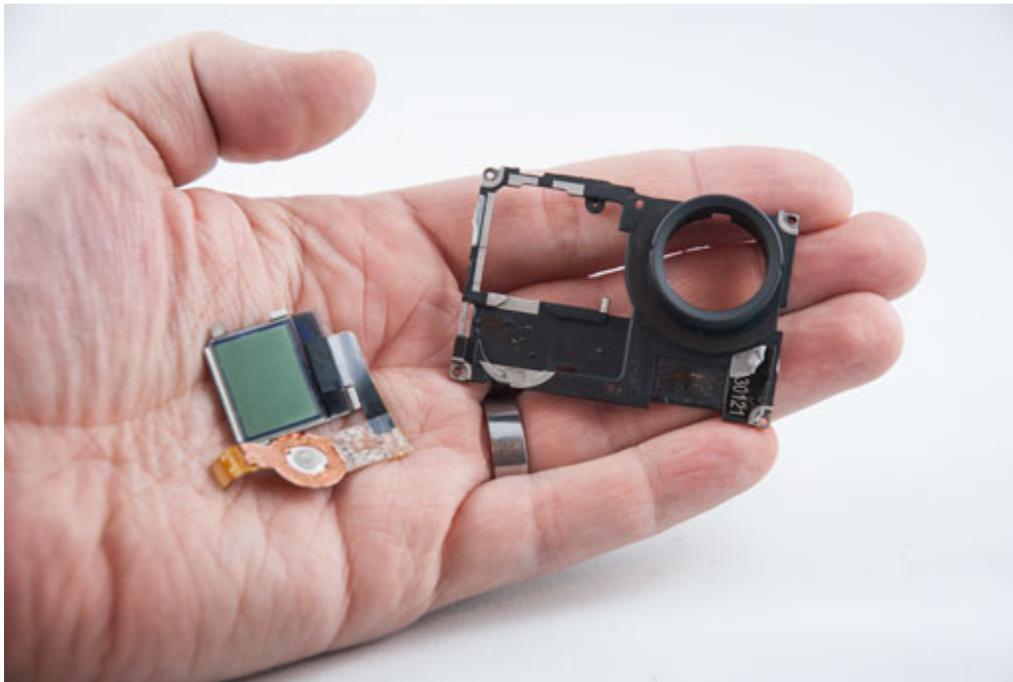
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Be sure to take your time. It's held on with an adhesive backing so remember this isn't a race. Slowly and gently work the adhesive bit by bit until the part comes free. Try not to bend the ribbon at sharp angles to prevent any possible damage and don't use any prying or scraping tools to force it off.



In some cases the adhesive can be stubborn and pieces of the backing may be left behind. If this is the case in your project, we recommend adding a small piece of 3M double sided tape to the affected area:





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1-15 Teardown complete

Video: <http://youtu.be/Tz3vMLKMPJE?t=7m30s>

Now you've successfully disassembled your GoPro camera. Now it's time to move on to the fun stuff: installing your new Ribcage mod kit! Continued in Part 2 – Assembly.

