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Harbor Freight Auto-Darkening Solar Welding Helmet Repair

by [Eric](#) on Sep.26, 2011, under [Tutorials](#)

A little over a year ago, I purchased one of Harbor Freight's auto-darkening welding helmets. For \$50, it's a great deal.



Unfortunately, after less than a year of use, it simply stopped working. Somewhat ironically, the way you find out that your helmet has stopped working is by getting a flash burn in your eyes when you weld using a broken helmet.

One of the guys in my welding class mentioned that there are batteries in the helmet which can go bad over time. Batteries in a solar-powered helmet? Clearly this guy was nuts — but I thought I'd check it out anyway.

Turns out, he wasn't crazy. There are two CR2330 coin cells soldered directly to the main circuit board inside of the unit:



Checking the batteries with my voltmeter, I quickly discovered that one of them was completely dead. The other battery was still putting out a solid 3VDC.

Since soldering in batteries every time they go dead is not exactly a user-friendly solution, I decided to replace them with AAA's. Here's the procedure.

- 1) Remove the darkness adjustment knob by gently prying it off with a screwdriver. Un-screw the plastic nut which holds the unit in place.

- 2) Remove the clear plastic shield from the front of the helmet, and then gently remove the electronics assembly by unhooking the retaining spring.
- 3) Use a utility knife to pop open one corner of the enclosure. Work your way around the circumference with a screwdriver, breaking apart the plastic weld, until the cover can be removed.
- 4) Mark the locations of the (+) and (-) of each coin cell. Using your desoldering braid, remove the coin cells.
- 5) Go to Radio Shack and buy two AAA battery holders. I used these:



- 6) Solder one AAA holder in place of each of the coin cells that you removed. Be sure to observe polarity.





7) Using the shaft of your soldering iron, melt a hole in the side of the enclosure so that the wires from the battery holders can exit. You'll also want to melt a corresponding hole in the cover.

8) Mix up some 2-part epoxy, and epoxy the wires to the enclosure. This step probably is not necessary, but I don't want to burn my eyeballs again.



9) Wait for the epoxy to dry. Take this opportunity to clean all the viewing windows with Windex and a lint-free cloth, then reassemble the unit. There are four friction pins which seem to hold everything together just fine.



10) Re-install the electronics housing into the helmet. Re-attach the darkness adjustment dial.

11) Glue the two AAA holders to the inside of the helmet. I initially used the same epoxy that I used to hold the wires in place, but it didn't bond to either the plastic of the helmet or the plastic in the battery holders. I ended up using my hot glue gun, which worked very well.



12) Install four AAA batteries, and then test your helmet. I found – quite by accident – that the helmet will darken when you look at a halogen light bulb.

13) Go weld stuff.

Good luck with your repair!

~Eric

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