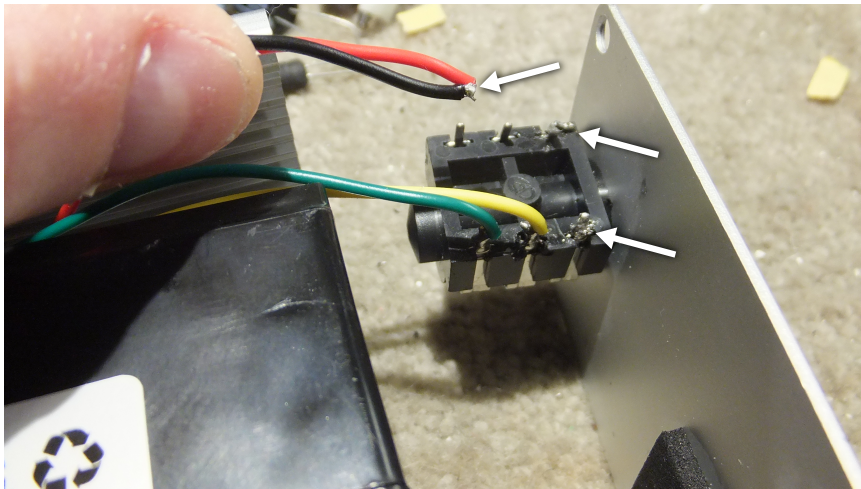


How to use aftermarket boosters with an original GPX battery.

Many prospectors have a desire to use aftermarket products connected to their detectors and using audio boosters is one of them. These are used to increase the audio levels of an external speaker or set of headphones. The original GPX batteries already have an internal amplifier, however, there are a variety of aftermarket audio boosters available. If you try to use an aftermarket amplifier that is connected between the detector and a GPX battery it will not work correctly. The electronics in the GPX battery will cause the audio signal to become very unusable and the audio sounds very bad. I have had a look at the GPX battery circuitry and have come up with two fixes for the correct operation of boosters connected to the GPX batteries.

The easiest fix is to undo the 4 screws on the audio socket side of the battery, and then slide the aluminium plate that is part of the battery box out. On the audio headphones/speaker socket there are 4 wires soldered to the connector, 2 are audio and the other 2 turn the amplifier on and off. I have found that the audio wires are usually yellow and green and the other 2 are red and black. To get an aftermarket booster to work just remove the red and black wires and solder them together, tape the ends so they do not short out and any inline booster will now work in conjunction with the GPX battery.

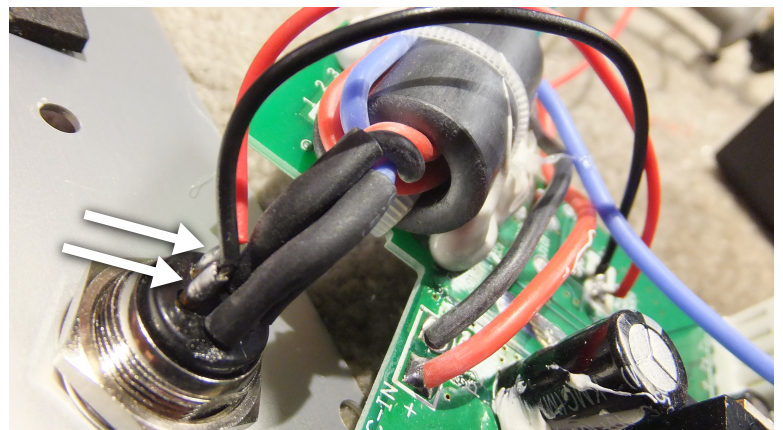


This is the easiest way to be able to use an external booster with an original GPX battery.

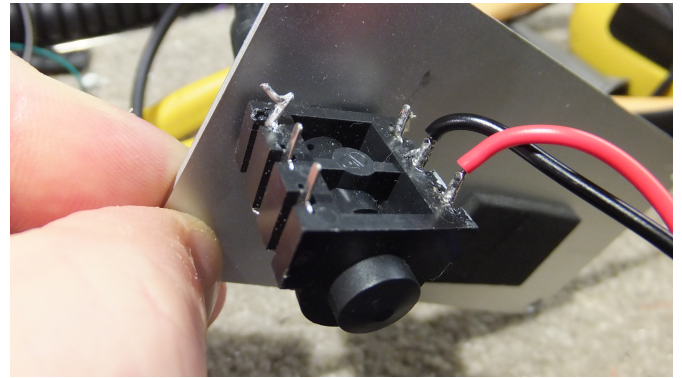
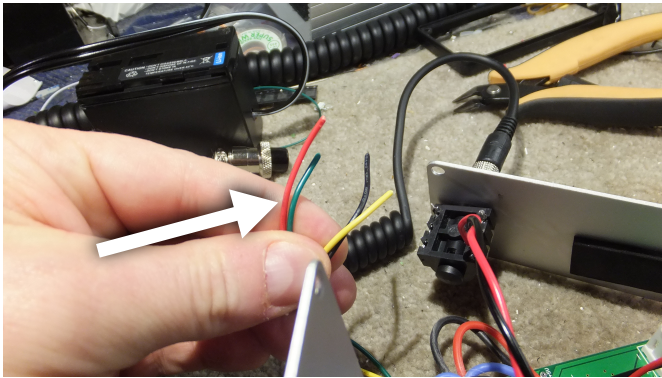
The red and black wires are unsoldered from the two audio socket pins. Then soldered directly together as shown in the picture. This method works fine, however better audio quality can be achieved by following the steps below.

The other way is to remove the end and top plates and disconnect the battery from the circuit board, this is easy if the battery has a plug that connects to the circuit board. If the battery is hard wired then carefully unsolder the red battery positive wire and tape the end so that it cannot short out on anything. If you are unsure get a technician to do it for you. Once the battery wire or connector is disconnected it is safe to do the actual work around. Remove the front end plate with the power socket and position it so that you can see the wires, the two wires you want to find are on pin 2 and pin 3, the power socket actually has the pins numbered on the plastic.

The two wires indicated by the arrows on pins 2 and 3 are removed. New wires are connected to pins 2 and 3 and go directly to the audio socket located on the back of the battery box. All existing wires on the audio socket on the back of the box are unsoldered and each end taped over individually to prevent shorting out.



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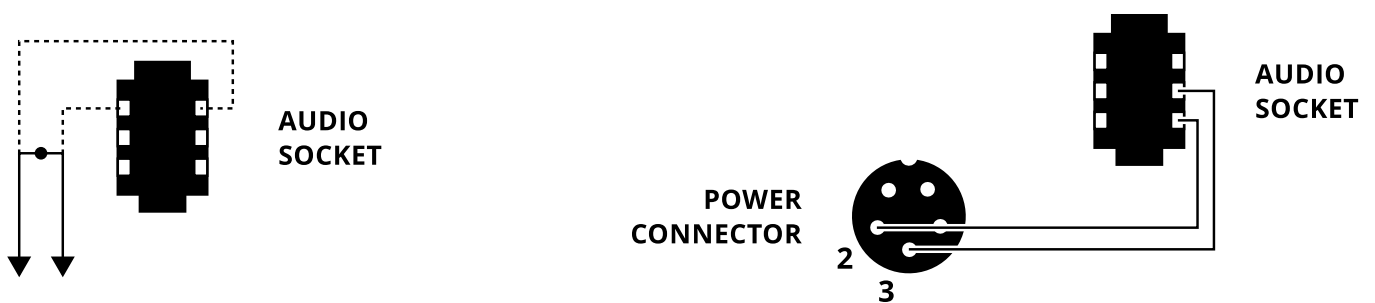


These four wires are unsoldered from the audio socket on the rear of the battery box. The ends should be taped over individually with electrical tape to prevent anything shorting out. Next, the two wires that were soldered to pins 2 and 3 on the front connector are then soldered to audio socket as shown in the pictures.

Once this is done screw the front plate back into position and either reconnect the battery circuit board connector or resolder the positive red battery wire to where it was originally soldered. Now you can use any after market booster and the sound will be crystal clear, and if you disconnect the booster the sound from the battery audio socket will be just normal headphone levels directly from the detector.

There are many detectorists that have very poor hearing, using headphones with hearing aides can cause all sorts of feedback squeals and noises. When not using hearing aides the sound levels are not loud enough and some sort of audio boosting is required. The same goes for using an external speaker, the sound levels are not loud enough in various situations and a booster is the sure way to improve these situations.

This wiring info is also handy to know if you are out in the scrub and the GPX audio amplifier fails inside the GPX battery, now you could just do the bypass wiring and at least now you can still use headphones.



The above diagram explains the easy method. The dashed lines indicate where the wires were soldered to. The dot between the two wires indicate where you solder.

This is the optimal method which involves unsoldering several wires and soldering pins 2 and 3 from the power connector to the audio socket.

High resolution versions of the photos in this article can be found at detectormods.com.

These modifications should only be carried out by suitably qualified individuals.