Fast Charge your MFJ-259B Internal Batteries
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Introduction

I've had my MFJ-259B Antenna Analyzer since it was introduced, and I don't know what I'd do without it. From setting up antennas, to measuring inductors and capacitors, and for measuring frequency, I've found this unit to be almost indispensable for my applications. The only problem I run into is that I hate waiting for the internal batteries to charge – which always seems necessary when I need the unit the most! This can really take a long time, especially now that very high current AA cells are available (2300-2500 mah). Therefore, I decided to modify my MFJ-259B so I could connect an external fast charger to the batteries directly.

The Modifications

Figure 1 shows the extremely simple schematic/pictorial. I used a DC coax jack that disconnects the negative battery lead from the MFJ-259B when a charging plug is plugged in (see Photo "Jack & Wiring connections"). The jack is an All Electronics DCJ-25 2.5mm jack (www.allelectronics.com). A 2.1mm jack is also fine (DCJ-21). Just make sure you correctly match this to the charging plug that will be used (DCSID: 2.1mm plug, or DCLID: 2.5mm plug). Disconnecting the battery pack from the rest of the MFJ-259B ensures that you can't put any external voltage transients on the MFJ-259B internal DC lines during the charging process.

To keep from connecting the battery through the chassis during charging, you need to isolate the charging jack from the metal cover of the MFJ-259B. You'll need to drill a 1/2" diameter hole in a convenient location on the back of the MFJ-259B case to provide clearance for this jack. I then used a piece of bare pc board on which to mount the jack. You can see where I located my jack in Photo "Jack Location". A close-up of the jack wiring is shown in Photo "Actual Jack Wiring", and wire routing is shown in Photo "Wire Routing". I used two pieces of double sided tape to hold the wires to the battery holder as can be seen in Photo "All Wiring".

For a charger, I use a 900ma/1800ma switchable smart-charger available from www.batteryspace.com (Part Number CHUN-122 at $29). This charger auto-senses battery pack sizes from 7.2-12 volts. I charge the AA cells at the 900ma rate, as I'm concerned that the 1800ma rate is just too much for these size cells. Check out the deals on batteries as well. As I'm writing this, Batteryspace is selling twelve AA 2300mah NiMH batteries for $17 (Part Number MH-AA2250APZx12BOX3)!!

Conclusion

I've described a simple modification to the MFJ-259B that permits you to fast charge internal batteries, and simultaneously protect the MFJ-259B circuitry during the charging process. The availability of high capacity AA-size batteries, along with the capability of fast charging them really adds to the flexibility of an already great product.

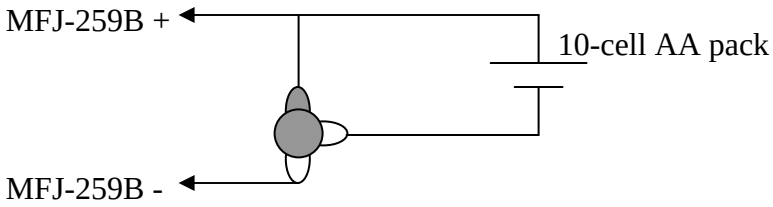
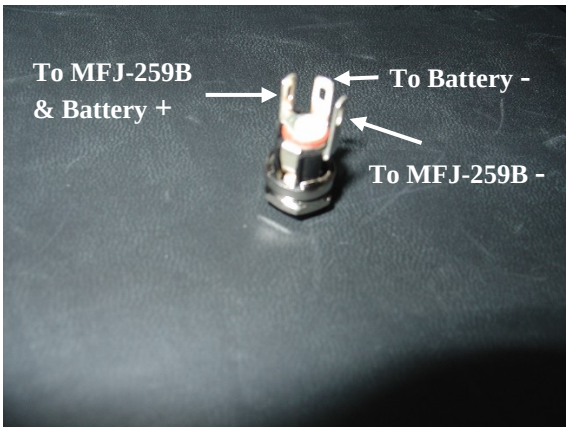
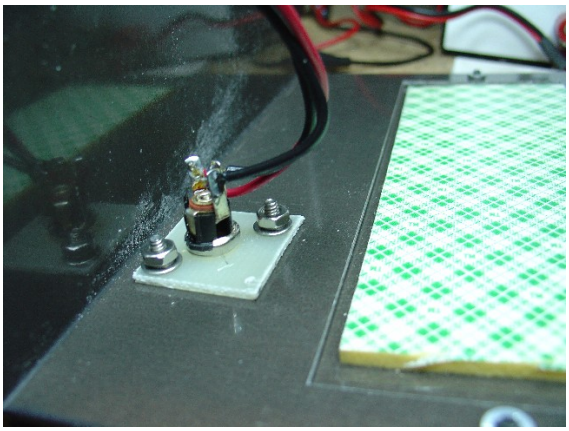


Figure 1 – Schematic/Pictorial

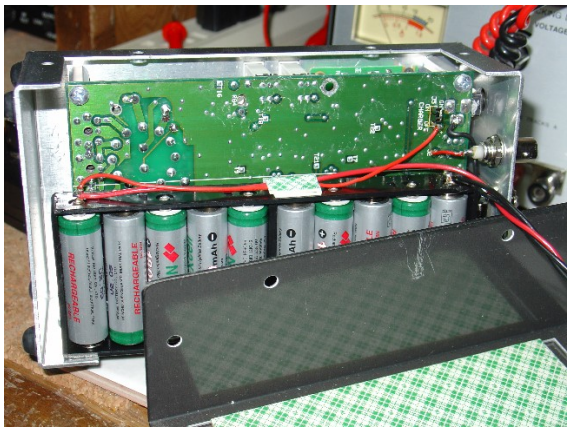


Jack and Wiring connections

Jack location – Note clearance around jack



Actual Jack Wiring on insulating pcb



Wire Routing