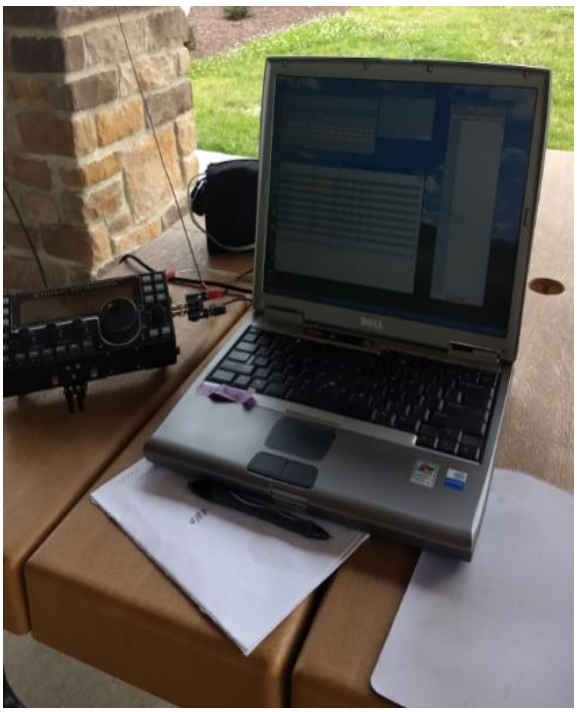
OPERATING FIELD DAY ON BATTERY POWER

By: Ray Albers K2HYD

If you like to get out into the field with your QRP radio, why not do it for Field Day? You can operate by yourself or with one buddy and use Class 1B in your exchange (i.e. "1B VA"). If you do it all on battery power and run five Watts or less, your QSO points will be multiplied by 5! (By the way, in this memo I'll just say "battery," but the ARRL rules say "other than commercial mains or motor driven generator," so if you can set up next to a fast moving stream and use a water wheel generator……). When the FD results are posted in December QST you'll show up as **1B1B** (1 transmitter, Class B, 1 operator, Battery power) or if with a buddy you'll be **1B2B.**

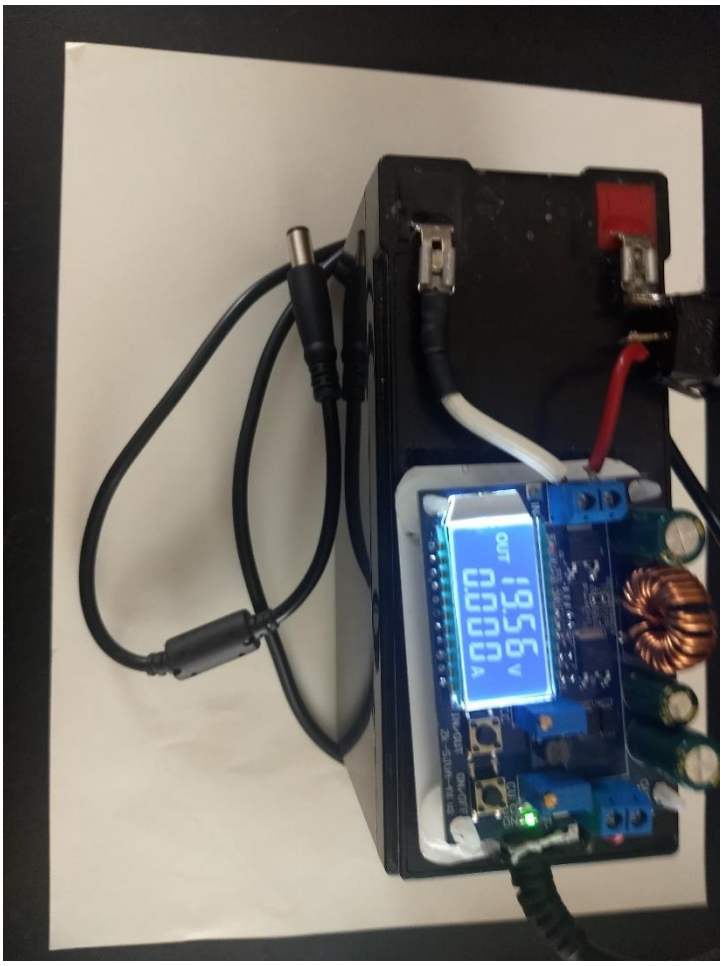
Here's a photo of my 2020 FD station, in a pavilion at the Bridgewater Retirement Community:



Notice that in my FD station I'm using a computer. I remember my first FD back in the 1970's, when the Logger had a huge sheet of paper on which he entered stations worked and used this to check for dupes – ugh! So I can't imagine running FD without using a computer to check for dupes and to generate the log. But here's the tricky part: If you are ONLY checking

dupes and logging with the computer, you can run it on commercial AC power while still claiming the 5X battery power multiplier, because your radio is running on battery. BUT! If the computer is connected to the radio for Digital modes, or keying the transmitter to call CQ and/or send the exchange, the computer has to be considered part of the transmitter and must also be on battery power. (The FD rules on the ARRL website don't explicitly say so, but the FAQs have a statement that does spell it out clearly.)

Unfortunately most laptops won't run very long on their internal batteries, so we need some sort of external battery supply. For my FD station, I used a 12V gel-cell battery and a buck-boost power converter to get the 19.5V the laptop wants. Here's a picture:



I got the converter on eBay: just look for "buck boost converter" and you'll see dozens of them for under twenty bucks. I like this one because it will display either output voltage or battery voltage – I monitor the battery voltage to get a warning that the battery is nearly depleted. Most laptops have some kind of proprietary power connector, so probably nothing you have in your junk box will fit. I happened to have a defunct AC supply lying around (do hams ever throw anything away?) so I cut off the power cord. But I see that if I go to eBay and search for "Dell laptop power connector" I can get one like this:

Notice that it has three wires. The red and black are positive and negative as usual. The third wire is something that Dell uses to send a proprietary signal from the power supply to the computer to tell it that a genuine Dell supply is being used, and it's OK to charge the internal battery. Since I couldn't reverse engineer that signal (I hate them!) my adapter only ran the computer but it didn't also charge the internal battery (who cares?)

Well, sorry to say this was the weak link in my FD operation. I was using a 7 Ah battery, and the above computer powering arrangement was only drawing a tad over an Amp, so I thought I'd get five or six hours

operation. Wrong! Battery ratings are based on a 20 hour discharge rate so I'd only get the 7 hours if I were drawing a mere 350 mA (in theory). In practice, I got only about three and a half hours. I did recharge the battery (from another battery – see below) and got a few more hours, but then finally I had to disconnect the computer from the radio, run it on AC power and only use if for dupe checking and logging, and do all my CW sending with the paddles.

So this year, I'm going to try to rig some way to get more hours of battery operation for the computer. Here are some of the avenues I plan to explore;

1. Park my truck near the pavilion, run a long wire and use the truck battery. Note that with this option I would NOT be allowed to run the truck engine to recharge the truck battery, nor could I re-charge the truck from AC power during FD – ARRL FD rules say, "To claim the power multiplier of five, the batteries must be charged from something other than a motor driven generator or commercial mains."

2. Have a second battery being recharged from the truck battery while the first battery is powering the laptop, and swap them at intervals. If I simply connect the auxiliary battery to the truck battery, the truck battery will sag after a while and the auxiliary battery won't be fully charged, so I may do what I did last year: Use a 12V – 120V inverter to power my smart charger to recharge the battery. I know my inverter throws out a lot of RF noise, so I'll have to see if this works with the truck parked less than a quarter mile from the station (as it was when I did this last summer).

3. One alternative I will probably NOT use: recharge the spare battery from commercial AC. If I do this, my multiplier will be only two, rather than 5

   In any case, I will take along my battery charger and an extension cord that will reach from the truck to the outlets in the pavilion, so I can get home after FD if method 1 or 2 above depletes the truck battery!