



GECO Field Batteries

© 2016, G. K. Lee (KI6GIG). All rights reserved.

http://www.neighborhoodlink.com/RTC-TH_Tech/pages

Email: ki6gig@arrl.net

You may post questions / comments about this paper to the Discussion area of our website.

Batteries are heavy. A tray or a bank of batteries is even heavier. Storing our field batteries in a small one-bedroom apartment means tucking them into nooks and crannies that are not readily accessible. If you have tried maneuvering under the dash in a car or pulled and installed cables under a desk, you know what I mean. Through the good graces of Harry (KB6ULN), we have access to surplus 16 Ah sealed lead acid batteries. Each battery weighs 13.6 lbs. They come in a metal box in sets of 3 batteries with a total weight of 45.6 lbs. per set.



These 16 Ah rated batteries are 7" L x 2.75" W x 7"H and are 13.6 lbs.

A key principle in all of our projects is to minimize costs by using any available off-the-shelf components. A big source of materials is derived from reducing waste and re-using items that normally end up in the trash bins. For this project we used a simple piece of scrap plywood (24" long, 8" wide); clear plastic tubing; plastic twine; Styrofoam packing material; plastic bottle caps. In a nutshell, the plastic caps serve as skids for the plywood tray. We cut the Styrofoam sheets to make 7.5" x 9" electrical short prevention pads for each battery box. The plastic twine and clear plastic tubing became the tray handle. It was secured to the underside of the tray with wood screws and washers.



The corner battery storage unit will hold 9 batteries (3 trays), with room for a battery float charging unit. The tray makes it easier to slide the 136.8 lbs. of batteries in and out of the storage nook for monitoring or servicing.

(Right now, we only have 3 batteries in storage.) The batteries are wired in parallel for float charging. However, they can be reorganized for use individually or in battery banks. Flexibility is key to station resilience.

GECO Field Batteries
Grassroots Emergency Communications Operations

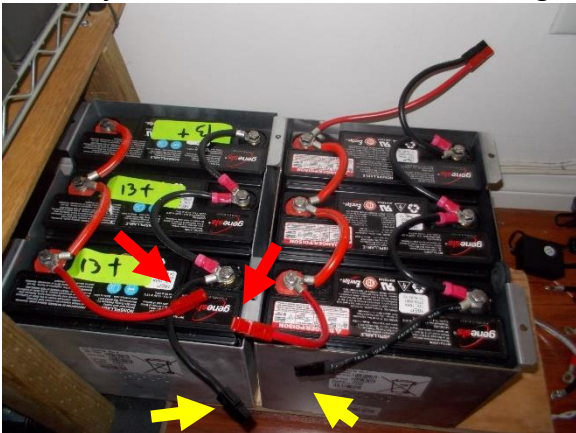


Styrofoam packing materials got cut into electrical insulation safety pads for each battery box. This might seem like overkill, but we felt it was a good way to make use of the Styrofoam rather than just tossing it. To our way of thinking, it is better to avoid any accidental shorting of battery terminals.

The bottle caps made it easier to slide the battery tray into the storage nook. As more batteries are made available, we hope to get 6 more batteries to fill the storage nook.



We can store a maximum of 3 field battery boxes in this unit. Fully charged batteries are the key power source for EmComm. The limited space makes it a challenge to wire the batteries in parallel for float charging. So we decided to fit each battery box with Anderson PowerPole connectors on one set of Positive / Negative leads. Thus each box can be readily disconnected for an adjacent box and taken out of storage and used in the field.



These two battery boxes are linked in parallel for charging using Anderson PowerPole connectors (red and yellow arrows).



Another set of Anderson PowerPole connectors allows easy connection to the battery float charger.

GECO Field Batteries

Grassroots Emergency Communications Operations



While float charging, the battery boxes are slid back into the storage compartment out of the way of our daily apartment living. The battery boxes can be easily retrieved for emergency use.

If using a single box of 3 batteries, we only need to disconnect a box from the adjacent boxes. The Anderson PowerPole Positive and Negative connectors would be attached following the ARES standard. Then any of our other radio can connect to and use the

battery box. Fitting all of our equipment power cords with Anderson PowerPole connectors assures operational flexibility to any battery to support any radio.

Our future plans call for using solar PV panels to maintain our batteries in the field. You can be sure Anderson PowerPole connectors will be used for that set-up as well.