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For nearly 30 years, all of my field support needs have been met using my blue, 1976 vintage AeroTrend field box. This extremely light, under 3 pounds, fiberglass field box supports the airplane, holds the fuel, fuel pump, 2 draws worth of tools, electric starter, 22-amp battery, power panel, two fast chargers for the aircraft's on-board battery, tachometer, battery tester and a host of specialty devices.



Photo 1 Photo 2

It has been upgraded and redesigned over the years as my flying needs have changed. At 31 years of age, the darn thing still looks new and still performs most of my glow powered field support tasks. However, it is not easily portable at a contest since both air-plane and starting equipment must be quickly set in position and the engine running within three minutes. So, Ole` Blue (photo 1) has passed its contest tasks off to the Silver Case (photo 2).

Both "field boxes" do the jobs they have been designed for very well. But now that my "fleet" includes several electric-powered aircraft, both Ole` Blue and Silver Case just can't carry everything needed for a relaxing day pushing electrons around the sky. Something more was needed for that task.



Photo 3

I was planning to get some 1/4-inch finished plywood at Loews or Home Depot, crank up the old jig saw and make an electric field box of my own design. I had already done that to make a charging box that held two 22-amp dry cell batteries from an old telephone back up power system. But this was just a charging box and held few tools and no equipment. It no longer met my growing electric-power needs.



Photo 4



Photo 5

I was going to make my own electric field box until I visited my local hobby shop. There, right in front of me was the new ElectriFly Ultra E-Box. It was very reasonably priced at \$40, held batteries, chargers and lots of equipment. I was in a hurry to complete another project but picked up the box and, judging from the box photo alone (usually a dangerous thing to do), put it in my shopping cart. The box listed the Hobbico TorqMaster LC 12-volt, 7-amp Battery (photo 5) as the recommended power system so I also bought two of them for \$18 each plus some wire and banana plugs.

I thought I had bought a field box kit similar to many of the field box kits out there for glow power. But even a kit would be easier to construct than my own concoction. The Ultra E-Box kit sat there for about a month while I worked on other projects.



Photo 6

Finally, I had some time to build the Ultra E-Box kit just for my own personal E-Flight sessions. I opened the box, removed the contents and actually stood there a little bit stunned. Look at photo 6 above. Exactly what you see there is what came from the box. *The entire field box is completely built.* It is *not* a kit. The electric plugs, switches and all wiring are already factory-installed. The two drawers are built and fit well. All the dividers are in place. The laser cut plywood parts fit together perfectly. How can they do this for \$40 retail?



Photo 7



Photo 8

There is one, and only one construction step for the "builder" to complete. Click on photo 7 to enlarge it and notice the four small hook and loop fasteners located on the four factory-installed tabs; one at each corner of the opening. These fasteners are the "white strip" seen in photo 6. Cut that strip into four equal pieces, remove the protective paper from one side and affix the strip to the corner tabs.



Photo 9

Then remove the protective paper from the other side. Position the vented cover as shown in photo 9 and press into place. That's it; the "kit" was built. Using the hook and loop fastener system allows the battery cover to be quickly removed for charging the box batteries or for access to the interior draw.



Photo 10

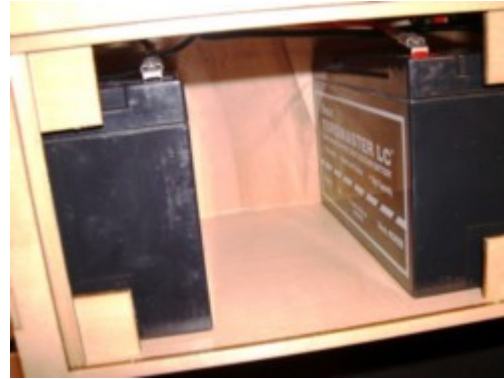


Photo 11

Remove the vented cover and the drawer. Note that there are two sets of wires in the battery compartment. Connect the longer of the black and red wires to the battery terminals of the left battery as shown in photo 11. The shorter wires go to the right side battery. All the internal wiring is done for you.



Photo 11A

These wires connect to the exterior switch so that power to all the charging plugs can be severed using just the single switch. Once the batteries are installed, replace the vented cover. The Ultra E-Box is ready to go. Let's take a little tour of the box and see what is there.



Photo 12

The top of the box has two vented mounts for chargers. The input jacks for the banana plugs are installed and wired (photo 12). The spaces are large enough to accommodate most of the available chargers used for Lithium (Li-Poly) or Nickel-Metal Hydride (Ni-MH) flight batteries. One charger is usually enough for most sport electric flying but the Ultra E-Box allows room for two just in case.



Photo 13 Photo 14

However, being the spoiled Pattern Pilot that I am, I wanted to use three chargers. Actually, I wanted to use four chargers but that is not a story for now. I choose the Great Planes ElectriFly Triton DC Comp Peak Charger (photo 13) for one side. This computerized charger will safely charge battery packs up to 24 cells for Nickel-Cadmium (Ni-Cd) or Ni-MH batteries and up to 4-cell (5-cell for the Triton 2) Li-Poly batteries. The Triton also charges 6, 12, and 24- volt lead-acid batteries.

The Triton is my field box's "universal" charger and is used for many applications. This is an older version and has been replaced by the Triton 2. The newer Triton 2 has even more features. Its capabilities are too many and too varied to list here but more information is available at: <http://www.electrifly.com/chargers/gpmm3153.html>

The second charger is the Hobbico Dual Peak charger designed to charge two Ni-MH packs of 6 to 8 cells each. This charger is used primarily for the ElectriStar trainer. It uses two independent circuits, one for each pack. The Dual Peak charger is detailed in the [ElectriStar Select](#) review article. Or you can check the manufacturer's details at <http://www.hobbico.com/chargers/hcap0255.html>

The Dual Peak charger works well with my ElectriStar when I run it on the Ni-MH batteries. The Ni-MH packs are used mostly for flying public attendees at air shows (on "buddy" boxes) as they can be fast charged far more quickly than can the Li-Poly packs. I know that Li-Poly packs can be

charged at a 1C rate, 1 x the pack's mAh rating, but charging at lower rates, such as 250 mAh, extends the life of these expensive batteries. So it is Ni-MH power for the public.

The Super Sportster EP and the Super Star EP aircraft still use Ni-MH batteries allowing the Dual Peak or Triton chargers to be used for them. But most of the Electric Fleet uses single Li-Poly power and that is the Triton's affair.

But when flown just for me, the ElectriStar relies on Li-Poly power. As the article describes, the performance difference is amazing. But the ElectriStar uses *two* Li-Poly batteries. The Triton charger charges only one battery pack at a time. This would double the time between charge periods for the ElectriStar. Since my usual Li-Poly charge rate is around 300 mAh, this delay makes for too much Hangar Flying and too little air time.



Photo 15



Photo 16

This is the time for that third charger mentioned before. The ElectriFly PolyCharge 4 is able to simultaneously charge up to four Li-Poly, and only Li-Poly (*not* Li-Ion), battery packs at any rate from 250 mAh to 3000 mAh. The PolyCharge works with all Li-Poly battery packs of 1 to 4 cells. These packs can be any capacity, even 6000 mA but the highest charge rate is 3000 mA. As was true for the Triton 2 and Dual Peak chargers, the PolyCharge 4 has many features so go to: <http://www.electrifly.com/chargers/gpmm3015.html> for complete details.

It may be that the ElectriFly engineers had the PolyCharge 4 in mind when they designed the Ultra E-Box. Probably, they did not. However, this capable multi-pack charger is able to neatly rest, along with all four battery leads, in the front tray designed to carry the transmitter (photo 15). Transmitters are best carried in their own sealed cases anyway as that protects trim lever positions, antennae and computer screens.

A second happy coincidence is that the PolyCharge 4's power input alligator clips fit nicely into the external power jacks as shown in photo 16. The alligator clips are needed to hook directly to car batteries or my home-built charge power box. Not having to remove them, or create a second patch cord, is a huge convenience.



Photo 17



Photo 18

Moving forward from the twin charger mounts, The Ultra E-Box opens to a lot of small divided storage areas (photo 17). The divided storage area on the left in photo 18 is used to store battery packs. This area will hold eight battery packs of any type. The storage area to the right can hold battery packs as well.



Photo 19



Photo 20

But the center divider is removable. Compare the same area in photos 18 and 19. The divider in photo 19 has been removed. Eight battery packs plus the ones in the aircraft are usually more than enough for a day's flying. With the divider removed, this area can be used to store the two Li-Poly "balancers" used in the charging process.

These balancers insure that each cell in a Li-Poly pack is charged to the exact same capacity. As the pack is charged, the balancer monitors each cell's voltage. If one cell develops a higher voltage, the balancer applies a small power drain on that cell to keep its voltage "down" while the other cells "catch up" to it. Balancing the charge like this protects the battery from overcharging while inputting a higher final capacity to the pack and also extending its service life.

The only difficulty is that the balancer must be manufactured by the same company that makes the battery pack. The industry has not yet understood that standardization helps the companies as well as the consumers. So these compartments hold the Thunder Power and ElectriFly Equinox balancers. There is a Ploy-Quest balancer on the way and that will fit in the front section also occupied by the PolyCharge 4. This is a very large compartment and there is plenty of room there for both.

Just forward of the balancer area are the slots for screwdrivers, ball drivers and three CAA holders. If you fly "Foamies", small electric aircraft made from foam like the [ElectriFly Flatana](#), you will appreciate having this CAA storage area. There are also two large, flat storage areas just

aboard the CAA holders. These can hold tools like pliers, and wrenches or connecting cords and jumper wires.

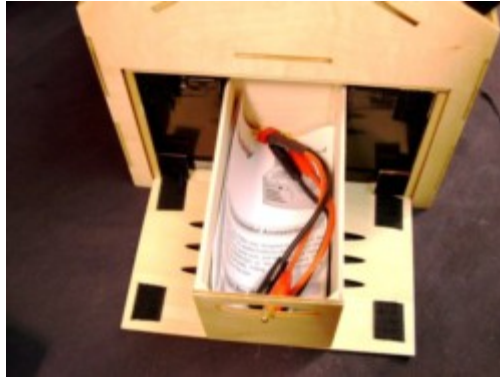


Photo 21 Photo 22

The Ultra E-Box has two sliding drawers. The outside drawer, photo 21, is used to hold my Astro-Flight Voltage/Amp meter and its various jumper wires. Using so many battery brands, all with different connectors, requires a great many different jumper wires for both power monitoring and charging. There are so many that sometimes it seems that, laid end to end, they would reach to a nearby solar system! But that is the state of the art in today's electric power. Everybody uses something different.

Photo 22 shows the inside drawer, nestled between the two Hobbico batteries. This is a good feature and be sure to take advantage of it. I store more connectors but also photocopies of the charger and balancer instruction booklets. The instructions are protected from the elements and careless handling since they are located inside the box.

As you may have noted, there are lots of storage compartments, areas and places to put things in the Ultra E-Box. These areas are flexible and can hold many different items. The handle is strategically located and large enough that the box can always be carried in a level position no matter how it is loaded.



Photo 23 Photo 24

As the photos show, the Ultra E-Box carries everything you need for a great E-day. The box is coated with a clear coating that protects it from dirt and fuel residue (I guarantee that exhaust residue will hit your E-Box at any joint flying field).



Photo 25



Photo 26

There is one thing to consider. The Ultra E-Box is powered by two 7-amp batteries wired in parallel to yield 12 volts. Considering there will probably be a 5% capacity loss due to resistance, internal charger needs and battery aging, the Ultra E-Box will yield about 13 amps per session.

On the ElectriFly Select trainer, that is sufficient capacity for four flights; one on charged batteries in the aircraft and three charge cycles on the twin 3300 mAh Ni-MH or 3200 mAh Li-Poly flight batteries. (The flight batteries are never completely discharged and usually can absorb only 2200 mA during the recharge.) Every extra battery set stored in the compartments will add one flight.

For single battery aircraft like the Super Sportster EP, the box batteries hold six recharges making for seven flights. Smaller aircraft, like the Prodigy, that use 2100 mAh batteries can be recharged about 7 times. Eight flights are usually enough for me for one day.

"Foamies" like the Flatana use 600-800 mAh batteries and can be flown practically an entire weekend (about 25+ flights). Obviously, the Ultra E-Box has plenty of battery "muscle" for a good day of E-Powered flight. There are larger batteries available like the Mega Power 12-volt at 7.5 amps (<http://www2.towerhobbies.com/cgi-bin/wti0001p?&I=LXHVVU6&P=7>) and even some 9 amp "Gel Cells" available from battery suppliers that will fit. While they can be used in the E-Box, be sure you need the larger capacity before laying out the extra money for these batteries.

I have to admit, I can't understand how ElectriFly can offer a field box of this quality, complexity and usefulness, totally built and sealed in urethane, for \$40 retail. It may not be possible to build one yourself for this money when the electrical switch, wiring and connectors are included. But as long as they are willing to make this offer, get one. NOW! Before they wise up and catch on.

For more information on this very special value, go to: <http://www2.towerhobbies.com/cgi-bin/wti0001p?&I=LXJBU2&P=0>