

HOW TO CONVERT A POINTER CADET ELT TRAINER BEACON TO "C" CELL BATTERIES

By 1st Lt. Joe Tomasone, CAP (joe@tomasone.com)

The Pointer Cadet can be easily retrofitted to use "C" cell batteries, eliminating the cost of the specialty battery pack sold for it – which is really just the same "C" cell batteries in a fancy Styrofoam case. Note that the author does NOT recommend retrofitting an actual ELT since this method is not FAA-approved. Only do this modification on a training beacon! Assuming you have the proper tools, the total cost to convert the pack is \$5.00 or so, and the ongoing cost for each battery change is around \$7.00 – a far cry from the \$35-50 cost of the Pointer battery. You can also use rechargeable batteries for even more long-term cost savings.

What you'll need:

A Pointer Cadet training beacon with existing battery pack

(2) 2-C Cell Battery Holders (Radio Shack # 270-385)

(1) 1-C Cell Battery Holder (Radio Shack # 270-402)

Sticky-back Velcro, preferably in roll form

Soldering iron and solder

Electrical tape

(5) C-Cell batteries

1. Remove the 6 screws from the bottom of the beacon and remove the bottom panel.
2. Remove the existing battery pack.
3. Carefully cut away the Styrofoam to expose where the power leads are soldered to the battery pack and de-solder the leads so that the connector and bare-ended wires are removed from the pack.

Note: You may elect to just simply cut the wires and strip the ends.

4. Connect the red lead of one of the 2-C Cell battery holders to the black lead of the other. Solder the connection and wrap it in electrical tape.
5. Connect, solder, and tape the black lead of the 2-C Cell battery holders to the red lead of the 1-C Cell holder.
6. Connect, solder, and tape the remaining red lead (on the 2-C Cell holders) to the red lead of the connector that you removed from the beacon's old battery pack. Connect, solder, and tape the black lead from the 1-C Cell holder to the black lead of the connector.



Figure 1: Pointer Cadet Beacon Battery



Figure 2: Connecting the battery holders

7. Cut two pieces of Velcro to fit the rear of the 2 C-Cell battery packs. For most Velcro, this should almost completely cover the rear of the pack. Remove the backing and stick the two battery packs together, making sure that the leads are at the top.

8. Cut two pieces of Velcro for the bottom of the 2-C Cell packs. Attach them and Velcro the packs to the middle of the beacon's empty battery compartment.

9. Cut a piece of Velcro long enough to cover the bottom of the 1-C Cell battery holder and about $\frac{3}{4}$ of the way down the back. Use the "soft" side and discard the "hard" side. This will help to prevent the battery holder from moving around in the pack.

10. Connect the connector on the new battery pack to the connector inside the beacon. Turn the beacon on to verify proper operation.

11. Insert the 2-C Cell pack after winding the spare leads between the two individual packs.

12. Insert the 1-C Cell pack behind the circuit board in the other half of the beacon with the Velcro towards the circuit board and power connector.

13. Route any extra power leads down next to the battery packs to avoid pinching/shorting when you reassemble the beacon.

14. Replace the rear panel and screws. Shake the beacon to verify that the packs do not move inside.

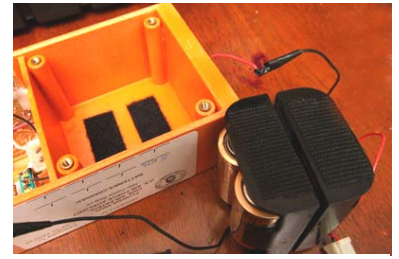


Figure 3: Velcroing the 2-C Cell Packs



Figure 4: Velcroing the 1-C Cell Pack



Figure 5: Ready to close

You're finished! Now, when the batteries need replacing, you can simply go to the nearest store and pick up some C-Cell batteries instead of ordering the \$40 battery pack. If you want to simulate a beacon with a weak battery, you can use a nearly dead battery in the 1-C Cell holder; that will drop the supply voltage and produce a weaker signal.