

Quest Seeker Addendum for E80

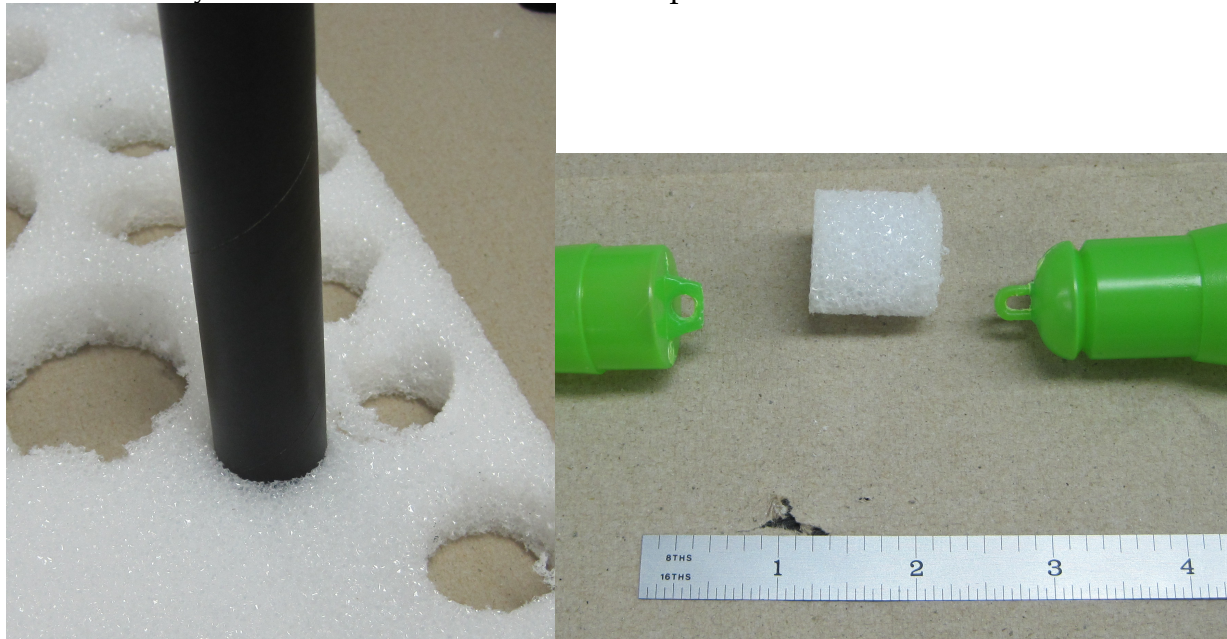
The on-line version of the instructions differs from the version included in the kit. The on-line version shows two parachutes, one attached to the body through the shock cord, and another attached to the payload section. You will also be attaching two parachutes: The one that came with the kit to the body and shock cord, and the smaller nylon one to the payload section. Your rocket should come down in two pieces, each with its own parachute.

The payload section of the Seeker must be modified to permit the altimeter to be installed and removed easily. Once installed the altimeter must be held securely and protected against damage. The payload section must also have ventilation holes installed so that the pressure inside the payload section is the same as the free-stream pressure outside the rocket for the altimeter to work properly.

The addendum was updated in 2014 to account for the smaller Pnut altimeter. The instructions differ slightly according to whether the Alt15k or the Pnut is being used.

Replace Step 4 with the following steps

1. Using the small payload tube punch out one plug (Alt15k) or two plugs (Pnut) of the 1-in thick white foam (one at a time). Regardless of what Prof. Duron or the proctors he has misadvised say, the white foam is roughly 1 in thick, is rigid, and comes in sheets. Do not use any other foam in the lab for this step.



2. Use a .5 in diameter dowel or a large carriage bolt to push the plug back out of the tube.

3. For the Alt15k carefully divide the plug in half with scissors, a knife, straightedge, or other tool. For the Pnut, just use the plugs as is.

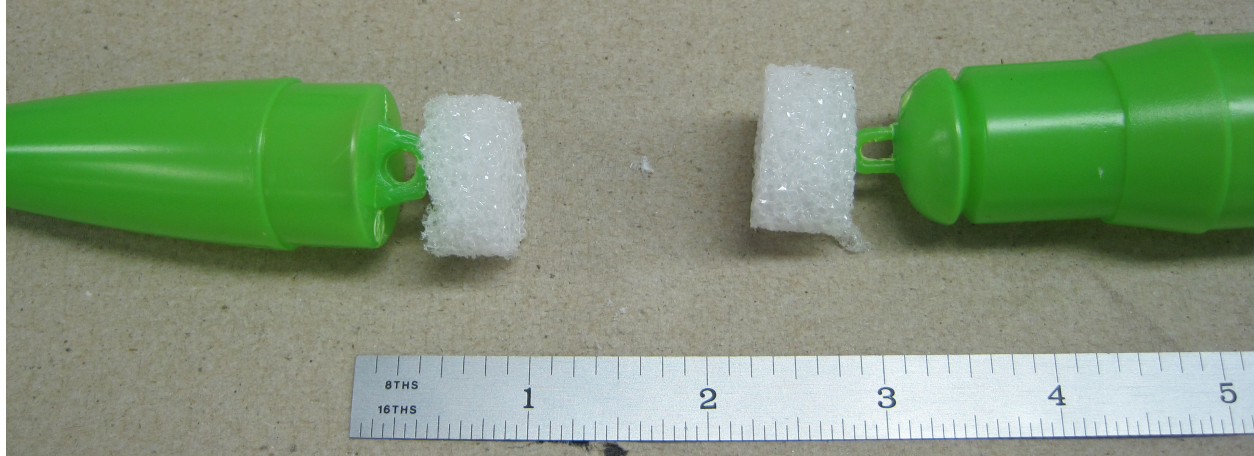


Figure shows the Alt15k plugs. The Pnut plugs are twice as thick.

4. Carefully sand or abrade one piece of foam to reduce the diameter slightly, so that it fits easily in the Small Payload Tube. This piece will be attached to the Blow Mold Transition.

5. For the Alt15k align the foam pieces so that the side you cut in Step 3 is toward the plastic rocket part and the flat side faces away from the plastic rocket part (It will make Steps 10 and 11 work better). One piece of foam needs to be pushed onto the loop in the Nosecone, and the other onto the loop on the small end of the Blow Mold Transition. You can align them by hand if you are very careful, but it's easier to put the foam and the Nosecone or Blow Mold Transition into one end of the Small Payload Tube, put the .5 in dowel in the other end and push together until the loop penetrates the foam. However, you don't want any of the green plastic to protrude above the top of the foam in the Alt15k case. The Pnut plugs are thick enough that protrusion is not an issue.

6. The foam on the Blow Mold Transition needs to be compressed further until its shape conforms largely to the Blow Mold Transition. Again, you don't want any of the green plastic to protrude above the top of the foam.

7. For both the nose cone and the Blow Mold Transition, remove the foam. Apply a *small* amount of plastic model cement and reattach the foam to the Nose Cone or Blow Mold Transition.

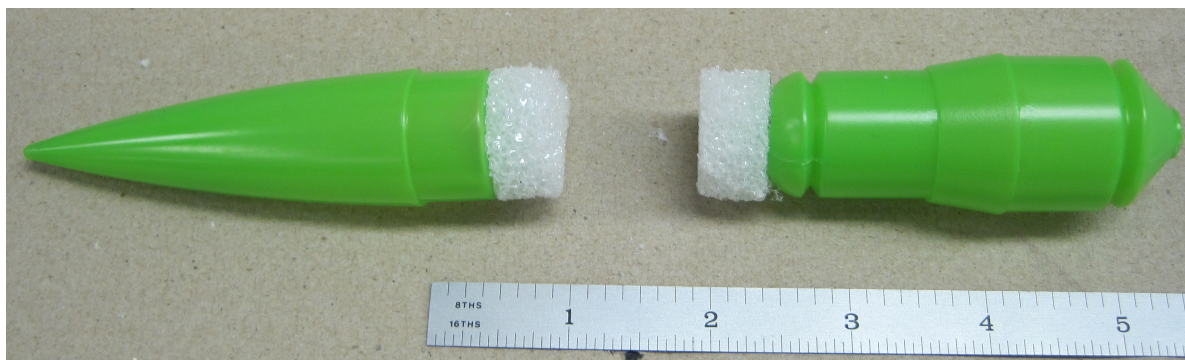


Figure shows the Alt15k plugs. The Pnut plugs are twice as thick.

8. Double-check the fit of the foam plug and the Blow Mold Transition in the Small Payload Tube. If necessary, carefully sand the outside of the foam plug glued to the Blow Mold Transition until it slides freely into the Small Payload Tube.

9. Cut three disks of conductive foam to the diameter of the Small Payload Tube. Regardless of what Prof. Duron or the proctors he has misadvised say, the conductive foam is roughly $\frac{1}{4}$ in thick and comes in sheets. Do not use any other foam in the lab for this step. It's easiest to push the Small Payload Tube gently into the conductive foam to create an outline and then trim around the outline with scissors.



Figure shows the Alt15k plugs. The Pnut plugs are twice as thick.

10. Trim one of the conductive foam disks with scissors until it is slightly smaller than the payload tube inner diameter. Use a generous amount of white glue and glue it onto the end of the foam plug attached to the Blow-Molded Transition. The white glue takes a while to set.

11. Use a generous amount of white glue and glue one of the remaining foam disks to the foam attached to the nose cone. The white glue takes a while to set. The completed assemblies should look like the photo below. The intent is that when assembled, the altimeter will be held in place by the two conductive foam disks.

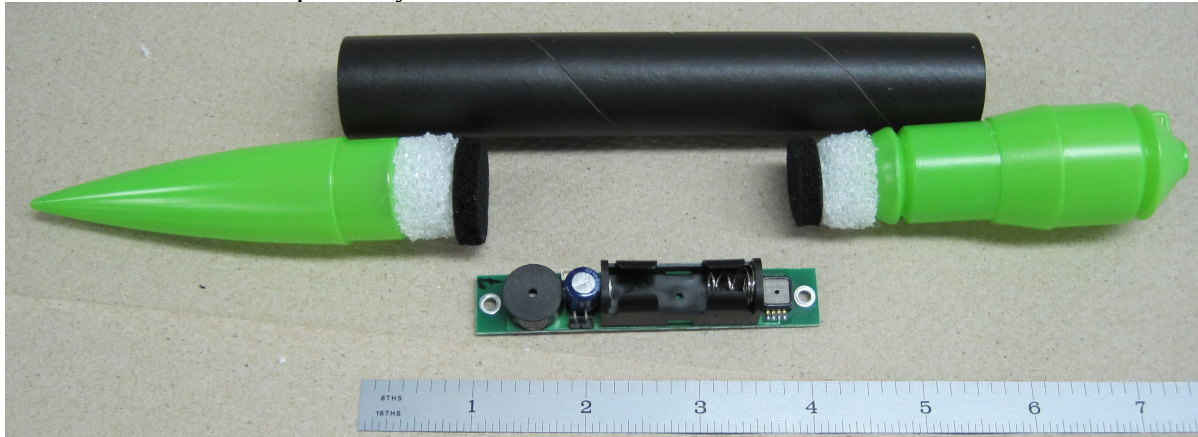


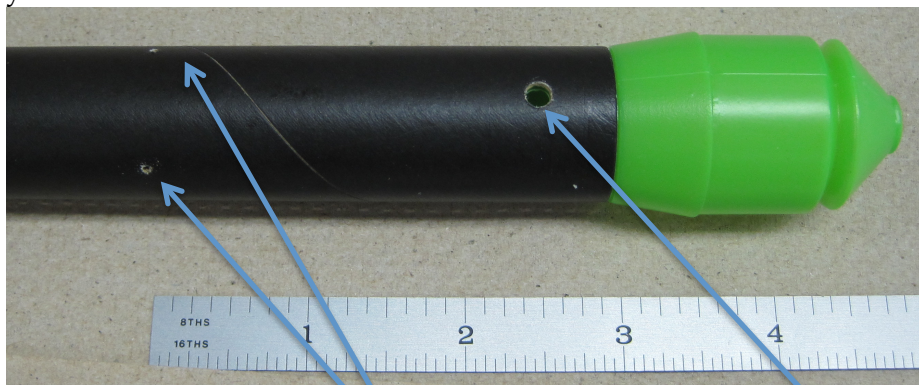
Figure shows the Alt15k plugs. The Pnut plugs are twice as thick.

12. Apply a generous amount of plastic model cement inside one end of the Payload Tube. Insert the conductive foam – white foam – nose cone assembly into the end with the glue until the Payload Tube rests against the shoulder of the Nose Cone.

13. The conductive foam – white foam – blow-molded-transition assembly should slide easily into the other end of the payload tube. If it doesn't, reshape the foam parts until it does.

14. Insert the conductive foam – white foam – blow-molded-transition assembly into the payload tube. Drill holes for static vent 3.000 ± 0.050 (or at a position you calculate) from the blow-molded-transition end of the Small Payload Tube. Holes should be spaced at 120° around the tube. Calculate the hole diameter from the [Adept Rocketry guidelines](#). Use the +100% size option. Do not make the holes smaller than $.050$ regardless of your calculations. Smaller holes plug too easily.

15. Drill a hole for a reusable plastic rivet. The hole should be $.500 \pm 0.010$ from the end of the Small Payload Tube, and $5/32''$ ($.156 +.004/-0.000$) in diameter. Drill simultaneously through both the tube and the transition. Be sure to use a plastic rivet in the hole for your launches.



Vent Holes

Rivet Hole

16. In Step 5, attach the parachute you put together to the loop in the white shock cord attached to the lower portion of the rocket, as per the on-line instruction, not those in the kit. Attach the nylon Top Flight parachute to the payload section, as per the on-line instruction, not those in the kit. You may find the plastic loop in the Blow Mold Transition too small to accept the parachute lines. An additional 5/32" hole drilled in the transition near the center hole (as per the example) may solve the problem.

17. Regarding Step 6, we recommend you put your parachutes inside your rocket only when you are prepping for launch. Leaving them inside the rocket can lead to them taking a set and not unfurling in flight. The results are not happy.

18. Regarding Step 7, the circumferential stickers add strength to the body tubes. They should be added. The others are optional. However, please put one of your Section and Team Stickers on the booster section, and one on the payload section. With so many identical rockets, it's easy to get confused without ID on your rocket.

19. The third conductive foam disk can have a slot cut into it for centering the altimeter in the payload bay if you desire.