Fiberglass HED Rocket Kit – Build Instructions

HED (Head-End Deployment) is Dual Deploy where the main chute is in the nosecone, and the Av-Bay is the Nosecone coupler. A tip in the nosecone is threaded to accept a 1/4 in eyebolt, so you have an attachment point for the main chute right out of the NC!

The NC has no shoulder built on it. The first 3 inches of NC are same OD as airframe & the first 3in ID are made to accept a spiral wound coupler. Perfect fit, with smooth transition from cone to airframe. It has a built in ledge, or stop, on the inside to prevent the shoulder/coupler from wedging itself in the cone!

You no longer need a separate av-bay or payload, (or you can still use a payload & av-bay if you desire) as you now use the NC coupler with Bulkplates as the av-bay! Build the NC coupler just like a normal av-bay...with BP's on both ends, altimeter sled inside, arranged the same way you are familiar with. Slide the completed av-bay/ NC shoulder into the NC after attaching recovery gear.

The NC gets shear-pinned to the coupler with the main & shock cord neatly packed inside!

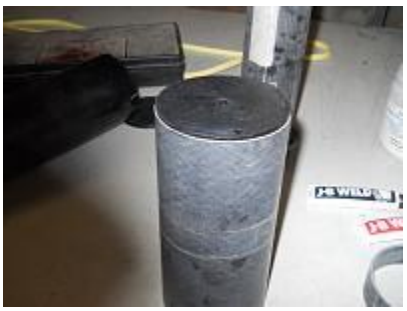
There is a vent band just like regular av-bay for vents ...switches etc. And due to the first several inches of the NC being same diameter as the airframe, your vents holes are actually far enough away from cone , no worry about turbulence messing up readings of altimeters!

You immediately lose a couple pounds of weight... No more payload & av-bay. Less drag... shortened rocket.

HED Av-Bay:

Note:This is very important, failure to do so & the av-bay fit will be off by the thickness of the front bulk-plate! The coupler butting up to the lip in NC, will throw off the vent band placement when glued on. If you forget to fit without the BP on, vent band have gap between it and NC!

1) Place one of the aluminum stepped bulk plates on the coupler.



2) Slide into NC until it sits against the lip/stop.
3) Draw a line around the coupler for taping later. Use a silver sharpie.

4) Slide the vent band on coupler, tight to NC.

5) Draw a second circle around coupler.

6) One of the first steps was to slide coupler into fin can and mark it through the slots for 3 equal positions.
7) Now transfer those to the NC for shear pins & to vent band for breather holes.
8) Wrap a layer of masking tape around line not facing the NC to keep glue off coupler.
9) Sand interior of vent band & area on coupler between lines.

10) Smear a thin coat of epoxy on area between lines only, NOT on vent band.
11) Slide vent band on and slowly twist when approaching glue to dispense it evenly.

12) Remove tape and clean up any excess glue.
13) Insert into NC [with bulk-plate on!]and check fit. Adjust if needed for a tight fit. You don't want any gap between the vent band & NC.
14) Remove and set aside to cure.

15) Drill 3 holes on marks previously made on vent band for altimeter readings. I used 3/16...size for your altimeter.
16) Insert coupler/av-bay into NC and rotate so vent band holes are between shear-pin marks.
17) Drill 1 hole at a time, one inch from edge of cone....insert pin.....move to next. I use 7/64 bit. [2-256 nylon screw] Do not try drilling all 3 first, this rarely works.

18) While this bit is still in drill. [7/64] You need a vent hole on the cone, [think payload here] to relieve internal air pressure, vent goes 1/2 way between tip and the front edge of coupler.
19) Finally make a key mark on edge between NC and vent band to make finding pin hole easier, when prepping rocket. Need only be deep enough to see through paint.
20) Be sure to sand any loose strands that may remain in any holes or inside coupler.

21) The heart of HED/dual deployment out of the nose cone. I simply drilled a 7/64 hole in the bulkplate for ejection charge wires. Rather than 2 as done in the past, I now use one, for both wires, so there is less chance of ejection charge leakage into bay.

22) Sled size is 5 3/4 in. long x 2 7/8in. wide, G-10 plate 1/8in. thick.
    a. I chose a very simple arrangement for this:
    b. RRC3 MissleWorks altimeter on one side, with battery on the rear. Less chance of damaging altimeter if battery comes loose. There is plenty of room for 2 altimeters & 2 batteries, should you desire.
    c. Rear eyebolt is permanently attached through wall of BP and into a "coupler" nut, threaded rod [1/4in.] is screwed into that.


    d. The switch wire for "twist & tape" is long enough the rear BP & sled can be removed while the switch wire remains in vent hole, further making prep simplified.

    e. Front BP is held in place with another eyebolt screwed into coupler nut. Later I replaced this with an "eye nut".

f. Holes for ejection wires are sealed with "sticky tack" putty available in any Big box store [Office Max,Staples,Wal-Mart etc], where school supplies are sold. Generally it is used for holding papers/projects on wall with out leaving marks.

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HED Nosecone:

1) Tie 2 ft. Kevlar loop to 2in eyebolt and screw into tip for recovery attachment. Using a ½" PVC pipe or similar sized dowel rod with a slot cut for the eyebolt helps for holding the eyebolt steady while screwing in.
Note the built in lip/stop for coupler so it can't wedge into NC like the spiral wound type.



2) Build coupler/shoulder (as above). Fold and store chute into NC. Insert av-bay....shear pin the cone to it. Ready to fly.