Cloning the Estes #0817 AERO-HI

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Introduction

Joining the Estes Mini-Brute family in 1973, the AERO-HI was a mini-engine model rocket that sported a scale-like sounding rocket appearance. The kit enjoyed a two-year run, exiting production following the 1974 product season.



Estes #0817 AERO-HI

[Ninfinger Productions: 1973 Estes Catalog]

I felt the AERO-HI would make a nice mini addition to my sounding rocket fleet, but not having a kit in my possession meant I'd have to clone the model. As we'll see, "clone" is, perhaps, a bit strong, as the build finds us deviating from the kit instructions in several places. That said, we'll find that taking these deviations will help simplify the finishing process.

So with this, allow me to share with you my interpretation of this diminutive model – let's get started.

Construction

To begin we'll need some documentation, and happily this can be found on Scott Hansen's *Ye Olde Rocket Plans* website here: Estes Aero-Hi #0817.

With some BT-20 prep work and a BMS-supplied BNC-20N nose cone, the makings of the model were in hand.

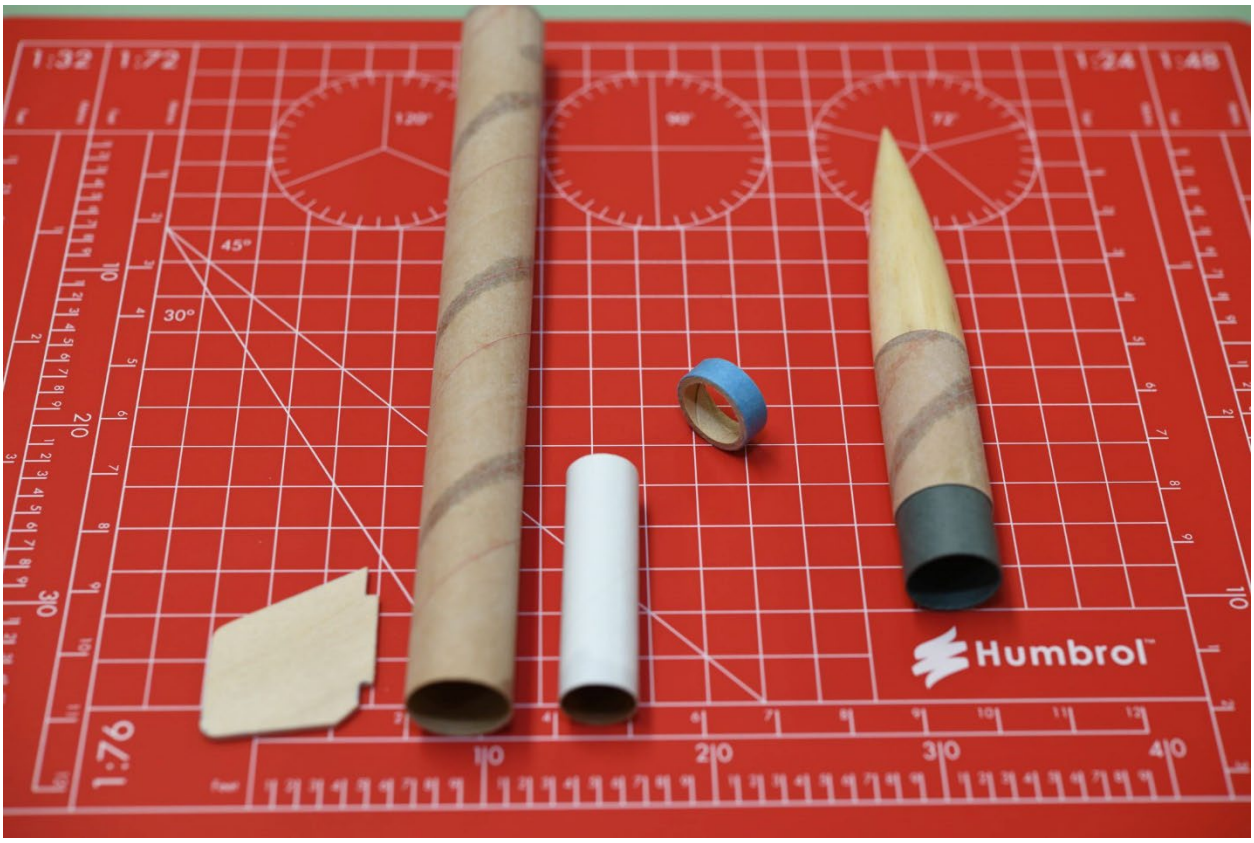


Photo 1: Basic Parts Set

While the kit instructions call for a BT-20B (8.65" long) airframe, I chose instead to separate the payload section (1.5") from the airframe, thus moving the separation point further aft. As we'll see, this will make the finishing of the payload section a little easier, especially since I didn't have the decal set for the model. The

payload band seen in the catalog illustration is a decal, but not having the decal sheet means this band will have to be painted.

The instructions call for 1/16" thick balsa fins; for my clone, I chose to fashion these from 1/16" basswood. So, with some cutting, sanding, SilkSpan and three coats of Nitrate dope, a native fin set appeared.

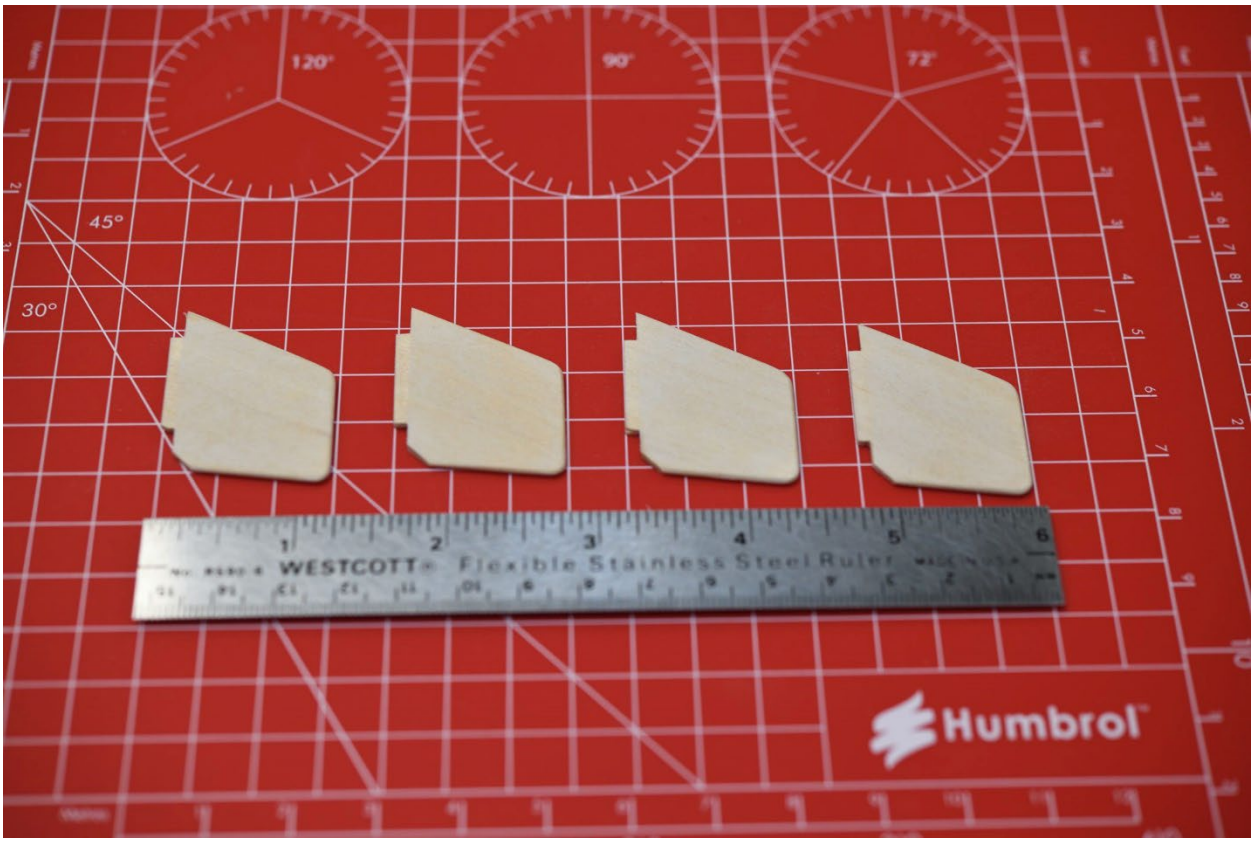


Photo 2: Fin Set

One will note I've cut the fins with a TTW tab, something not called for in the instructions. Instead of surface mounting the fins with glue fillets, I'll install the fins with these tabs. This approach permits me to finish the parts separately – no fiddly fin fillets to mask on this *petite fusée*. The finished painted fins will be installed once the airframe is painted, decaled, and fully cured.

The motor mount was constructed with a pair of rings spaced to capture the fin tabs. These narrow fin tab rings were created by splitting a normal AR-520 ring in half with a thin, fine-toothed razor saw. I chose not to add the engine hook; friction fitting a mini motor should be just fine for this model.



Photo 3: Split Ring

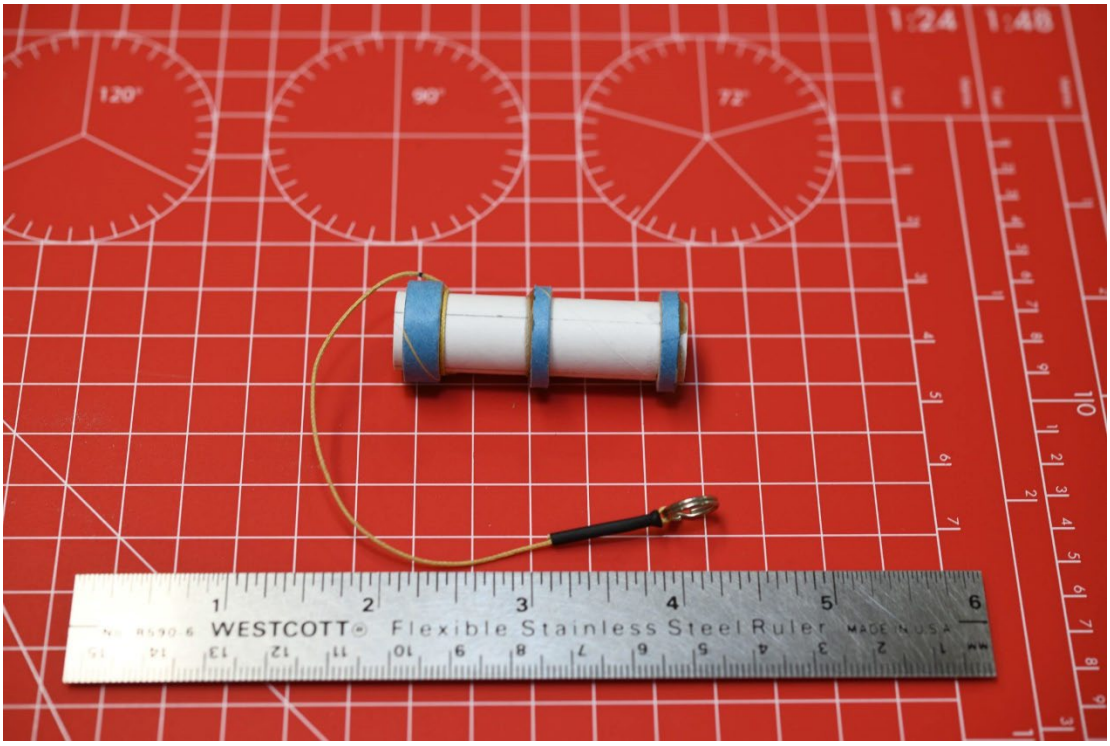


Photo 4: Finished MMT

Fin slots were cut in the airframe and then the MMT was installed.



Photo 5: Airframe Fin Slots

I also chose to drop the launch lug; I'll fly this model from our BT-20 tower. That just left the conduit raceway to install.

For the conduit I used a length of Evergreen #244 1/8" Styrene half round strip. Not an exact match for the kit's balsa part, but its use would mean the finishing process would go easier. With a judicious line of Weldwood Contact Cement the conduit was set in place.



Photo 6: Conduit Applied

The nose cone was finished with Brodak Sanding Sealer, and with this, the parts were punted to the Paint Shop for primer.

Finishing

Each subassembly was primed with Rustoleum #20818 Automotive Primer and allowed to fully cure. Given the size of this little model, we'll paint it with an airbrush.

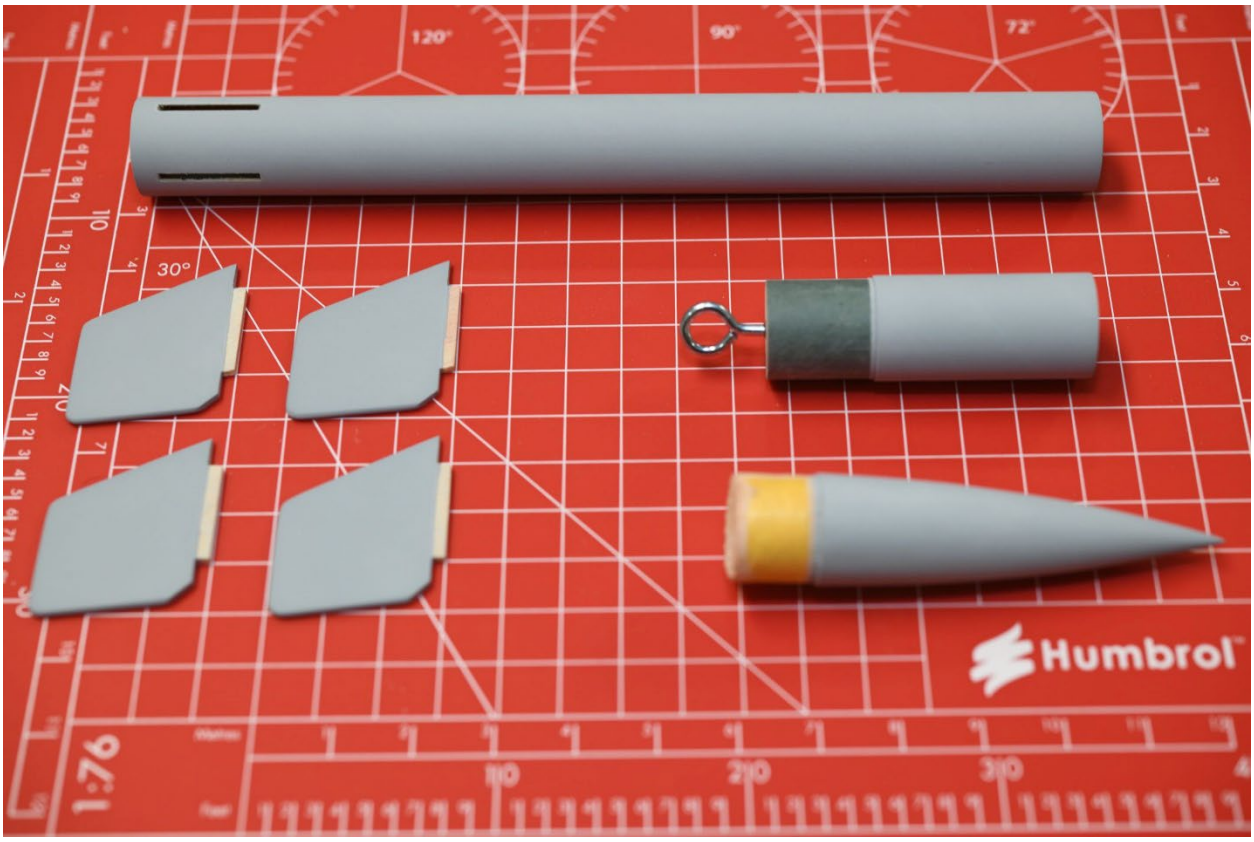


Photo 7: Primed Subassemblies

The airframe, nose cone, payload section and three of the fins were airbrushed with GSI's Mr. Color #1 White. The fourth fin was airbrushed with GSI's Mr. Color #2 Black. Once the airframe's white paint had cured, it was then over sprayed with Mr. Color #59 Orange.

Going with an orange airframe was a clear departure from the instructions, as they call for the airframe to be painted Red. I ignored this suggestion, preferring instead the more orange-tinged look the catalog illustration presents. For me, the shape of the model and the orange-ish livery conjured memories of the old Model Missiles Aerobee-Hi, and who knows? Perhaps the Estes Aero-Hi was a nod to this iconic relic of the past. So, orange it was.



Photo 8: Model Missiles Inc Aerobee-Hi, circa 1958

[National Air and Space Museum]

Returning to the payload section, the black instrumentation band was masked with Tamiya tape and airbrushed with Mr. Color #2 Black.

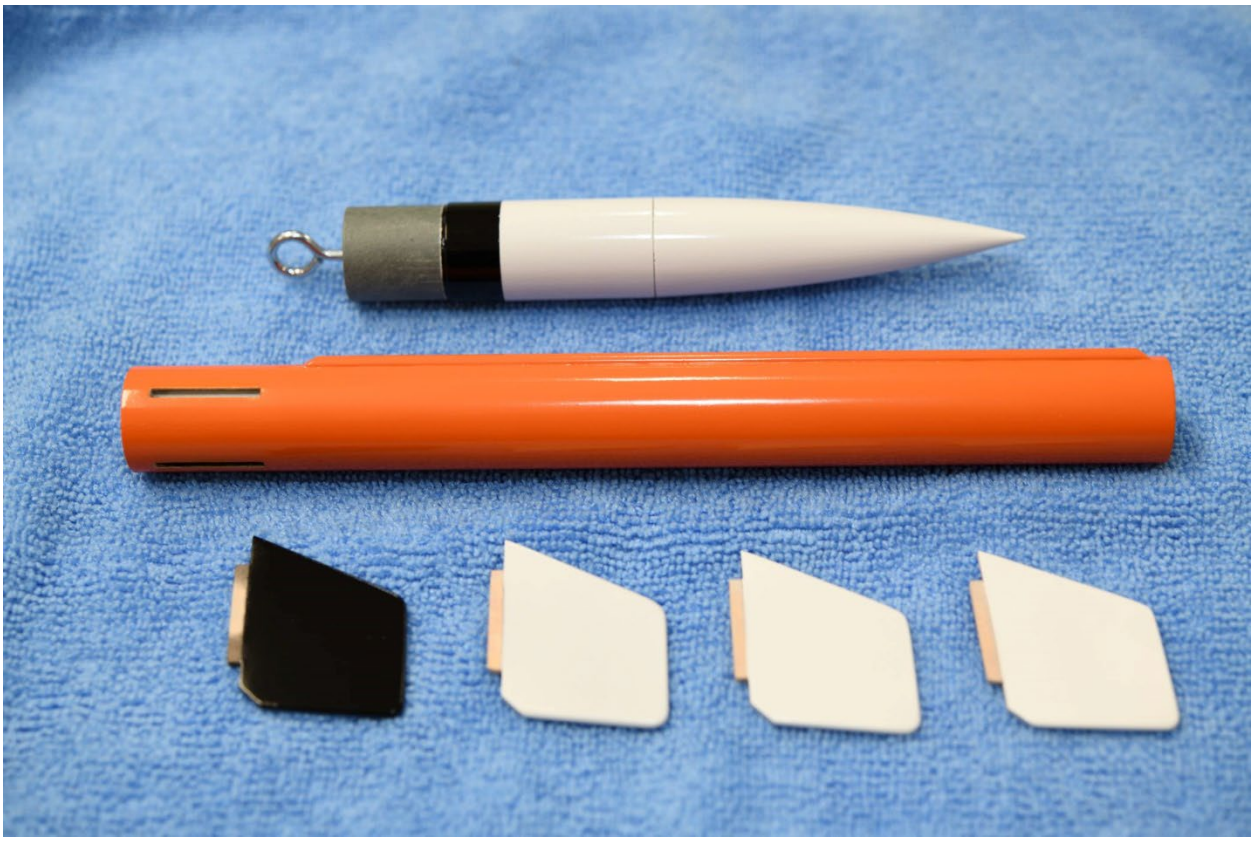


Photo 9: Painted Parts

I found an exact match for the "AERO-HI" decal font, which allowed me to reproduce this marking in MicroSoft Word. A pair of these markings was printed with an HP LaserJet printer on Bare Metals Foil's Expert's Choice laser decal film, and then set in place with MicroScale's Micro Set decal setting solution. Once dry, the nose cone was permanently installed, and the entire payload/nose cone section was airbrushed with GSI's GX100 Super Clear III clear coat. Once the clear coat had cured, the two silver bands were masked and airbrushed with AK Interactive's Xtreme Metal #481 Polished Aluminum.



Photo 10: Finished Payload Section

Finding a match for the black fin's "R-9" markings proved to be more daunting, so I opted for the letters and numbers found on MicroScale's #90051 Block Gothic Letters and Numbers decal sheet (happily available at our local hobby shop, Hobby Express). These were placed with Micro Set decal setting solution.

For the airframe's marking I substituted an Aerojet logo for the suggested Estes logo. Yet another deviation from the kit, but I felt the Aerojet logo was more in keeping with the subject. The airframe and fins were then individually airbrushed with GSI's GX100 Super Clear III clear coat and then set side to cure.



Photo 11: Ready for Assembly

Once ready, the fins were installed with a few dabs of epoxy.

Not having the kit on hand meant that I didn't have the decals representing the fin mounting flanges. Rather than attempt to reproduce these markings, I chose instead to craft an actual set of fin mounting flanges, sourced from lengths of 0.015" thick Styrene strip.

These were airbrushed with GSI's Mr. Finishing Surfacer 1500 Black and then over sprayed with AK Interactive's Xtreme Metal #479 Aluminum. Once the paint was dry, a set of fin mounting bolt heads was applied in the appropriate places on each flange with tiny dots of MIG Ultra Glue. Once complete, each fin flange was set in place, also with a dash of MIG Ultra Glue.



Photo 12: Fin Mounting Flange

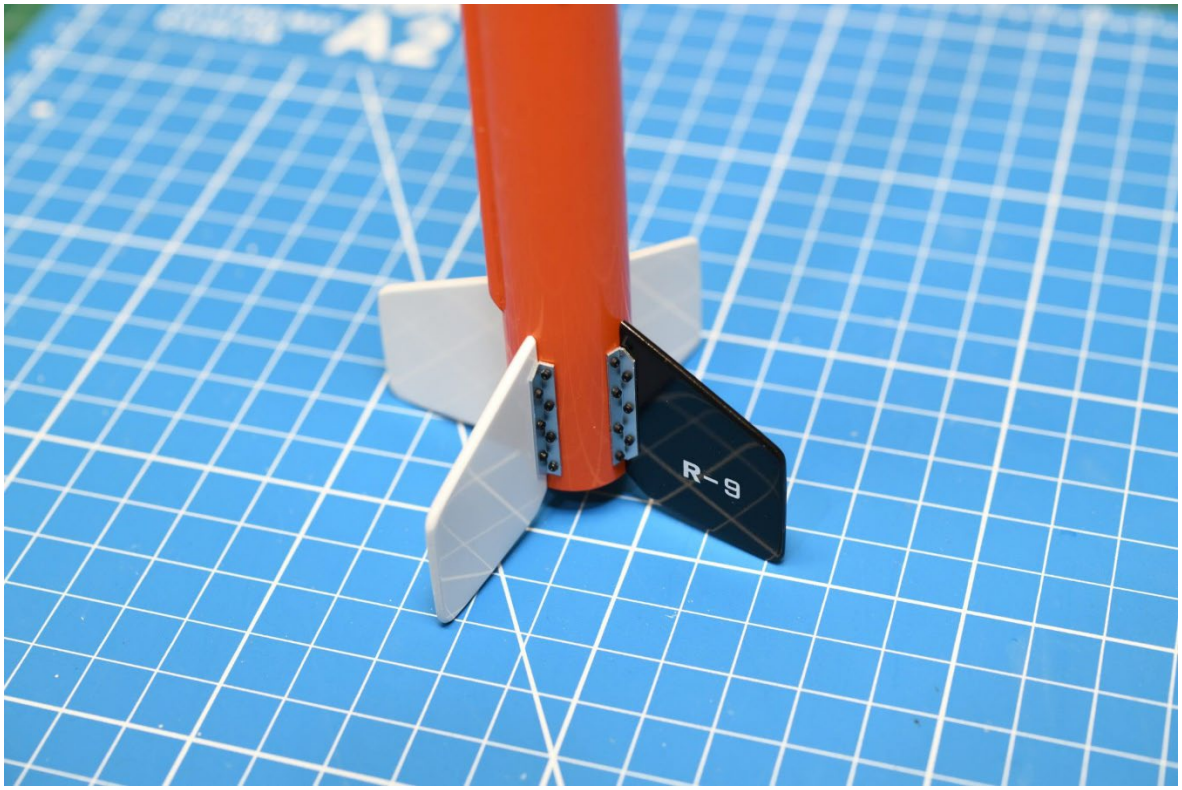


Photo 13: Fin Flanges Installed

With this, our kinda-clone of the Estes AERO-HI was complete.



Photo 14: AERO-HI Complete

This was a fun little build that produced a welcomed addition to my sounding rocket family. I hope you found the build of interest, and I encourage you to take a shot at this great little model!