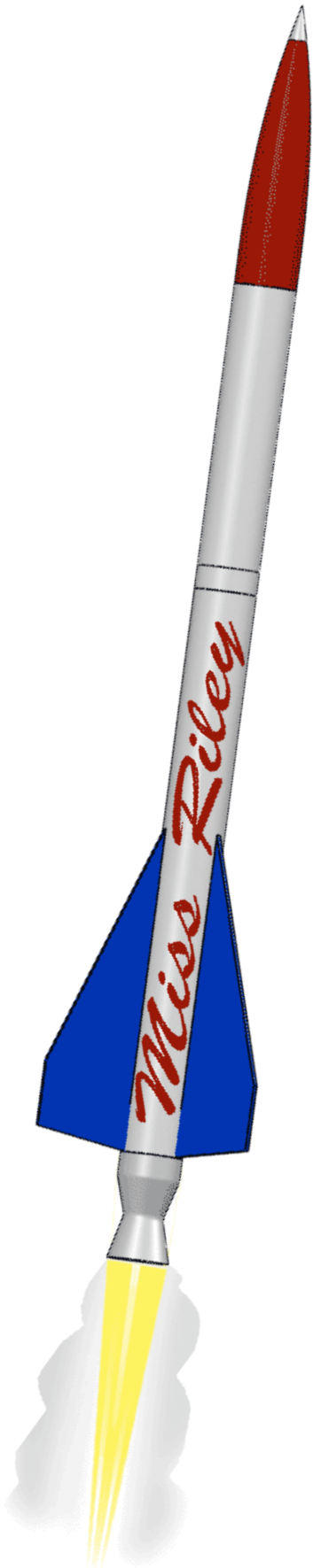


Miss Riley Rocket Instructions



Parts Included:

- 1- 2.64" Red 5:1 O-Give Filament Wound Nose Cone
- 1- Aluminum Tip
- 1- 2.64" White G12 Airframe 24" Slotted
- 1- 2.64" White G12 Airframe 12"
- 1- 2.64" White G12 Coupler 7"
- 1- 2.64" Switch Band 1"
- 2- G10 Stepped Av Bay Lids
- 1- G10 Nosecone Bulk plates
- 2- G10 Centering Rings
- 1- 38mm G12 Motor Mount Tube 16"
- 3- Blue G10 1/16" Fins
- 1- 2.64" x 5.0" Aluminum Machined Nozzle
- 1- 3ft Motor Mount Shock Cord
- 1- Vinyl Miss Riley Decal Red
- 1- 1/4" Eyebolt/Nut
- 2- Delrin Rail Buttons White
- 1- Detailed Instructions
- 3- White Plastic Rivets
- 10- White 4-40 Shear Pins
- 1- Certificate of Authenticity numbered and signed

Rocket Length: 54.50" Tall

Rocket Diameter: 2.64" Wide

Rocket Weight built with recovery and electronics:

Recommended Motors: H,I,J

Main Parachute required: 4ft Standard

Drogue Parachute required: 1ft Pro X

-Dual Deploy

-Colored Fiberglass

-Billet Aluminum Machined Nozzle

-Each signed by Homer Hickam and Ky Michaelson

-Limited Edition to 100

-Aluminum Nosecone Tip

-20th Anniversary Edition

2/3rd Scale of original in movie

Congratulations, you are now the proud owner of a limited edition 'Miss Riley' rocket! A stunning replica of the one used in October Sky, created by Ky Michaelson for the movie. This is a limited production run of only 100 kits that will ever be produced and commemorates the twentieth anniversary of the movie release in 1999.

Features: 2.63" diameter x 54.50" tall, all fiberglass construction, 38mm motor mount, with dual deploy and a beautiful machined billet aluminum nozzle. The fiberglass is naturally dyed red, white and blue.

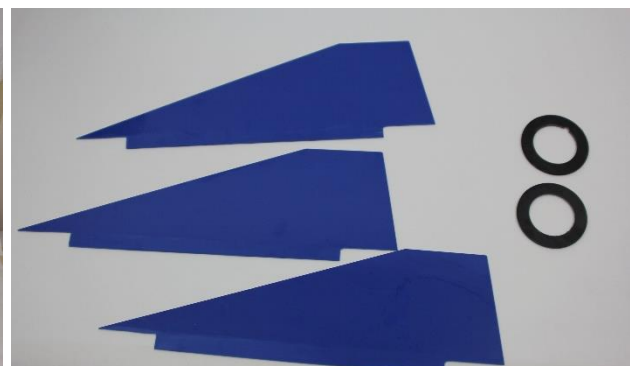
Homer Hickam Jr. wrote about his time growing up in Coalwood, West Virginia during the height of the Cold War in the late 1950's. His book, 'Rocket Boys' was the inspiration for the motion picture 'October Sky' in 1999. He and three friends called themselves The Big Creek Missile Agency (BCMA). After many generations of designs, they qualified for the National Science fair in 1960 and won a gold & silver medal in the area of propulsion.

Miss Riley died from Hodgkin's disease in 1969, at the age of 32. Hickam and The Rocketboys were greatly inspired by her passion, thus encouraging them to pursue their endeavors and rocket designs. This rocket is proudly named in her honor.

Make sure to read the entirety of the instructions before starting your build to properly know how all the pieces fit together and how the aluminum nozzle works. As well, fit all the pieces together to ensure a good fit, use fine sandpaper if needed. The most important thing to note is that the motor mount tube will stick 3.5" out the back for the nozzle to slide onto.



Step 1: Take all the parts and wash them with soap and warm water to get all the grease off them, this can be done in a sink or bathtub.



Take fine sandpaper, around 200 grit and sand both centering rings near the inner and outer edges, as well as the 3 fins on both sides about 3/4" up and at the root of the fins to ensure a tight bond with the glue. Then use a file and put a slight groove on one of the centering rings for the shock cord to pass through.



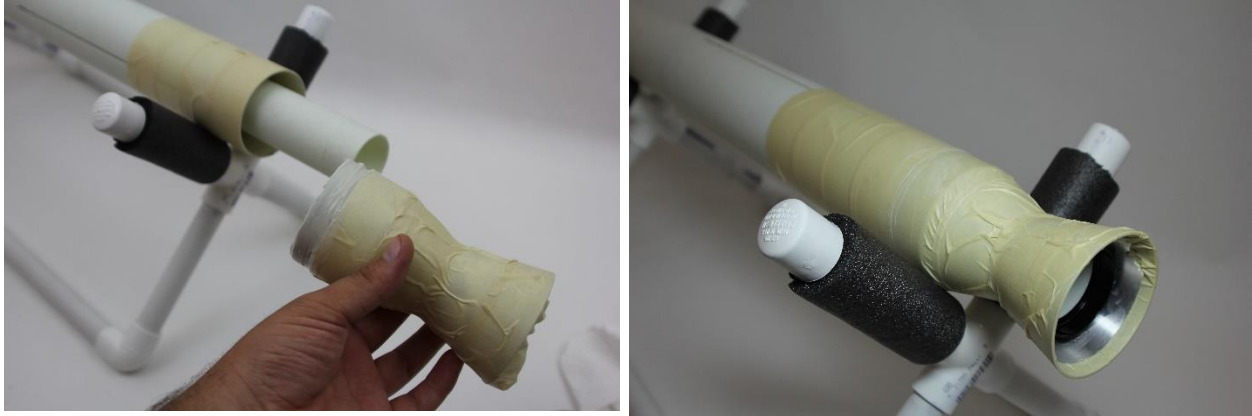
Step 3: Test fit the 2 centering rings, the shock cord motor retainer and the nozzle on the motor mount tube, spacing is very important to ensure a perfect fit between the fin slots. Take your time and measure it all out, the top centering ring will be $\frac{1}{8}$ " down from the top, the 2nd centering ring will be exactly 11" down from the top and the top of the nozzle will be exactly $11 \frac{3}{4}$ " down from there. That'll leave enough room for the Aeropack retainer to be hold your motor in and easily get your fingers on the threads.



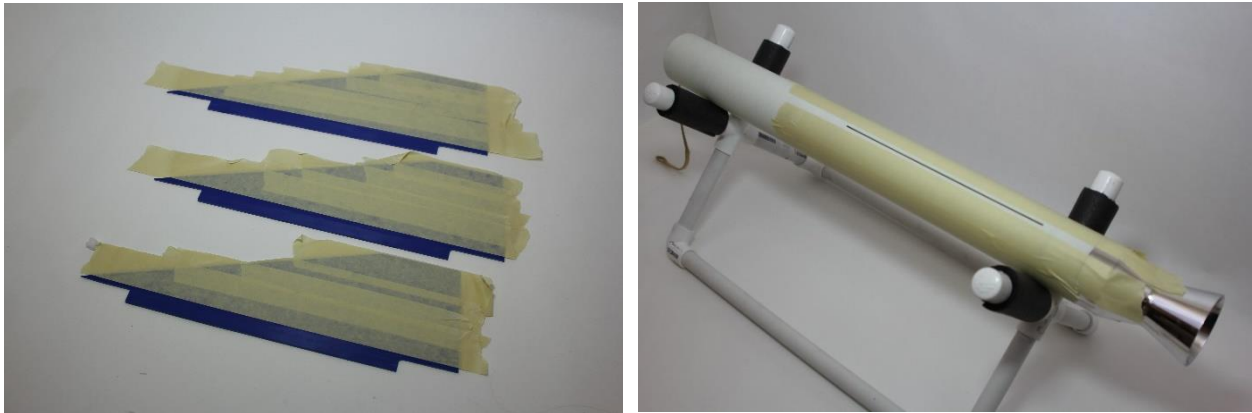
Step 4: Take the 16" Motor Mount Tube and sand it really well with rough sandpaper. Use either Rocketpoxy or regular Epoxy to glue the centering rings onto the 38mm motor tube. The one with the slotted hole will be for the very top of the tube, about $\frac{1}{8}$ " and the second will be glued on 11" down. Take the recovery cord and have it about 7" down the tube, and make sure it has plenty of glue around it, at the end of the shock cord make a small knot, large enough so it will not slip out of the hole. This measurement is very critical as the tolerances are tight between the fins, centering rings and the nozzle. Once the glue is dry, add a bead of glue all the way around on both the top and bottom of both centering rings so they are sturdy.



Step 5: Add glue on the outside of the centering rings, slide the motor mount tube into the 24" airframe with the shock cord facing up, until the rear centering ring is exactly 1.25" from the back of the tube. Once again, this must be very precise for everything to fit with the tight tolerances. The motor tube should be sticking out 3.5" out the back of the rocket. When inserting the motor mount tube, make sure to use a glue that takes time to dry, also make sure to remove all the glue left $\frac{1}{2}$ " in from the back as the nozzle will seat right up against the inside of the body tube.



Step 6: Once the epoxy is dry on the centering rings, tape everything off at the aft end of the airframe, and the nozzle. Add a small amount of glue at the top of the flange on the nozzle all the way around, as well as the inner part of the nozzle where the angle meet. I would highly recommend a glue that bonds to metal such as JB weld or such. This will hold the nozzle onto the motor mount and body tube. The nozzle acts as a 3rd centering ring of the motor mount and acts as a thrust plate against the rocket. Step 7: Using an Aeropack RA38P Retainer (Not included but needed), add glue in the inside and slide it onto the motor mount tube. The entire assembly will be in the inside of the nozzle. This is best to be done immediately after sliding the nozzle over the motor mount.



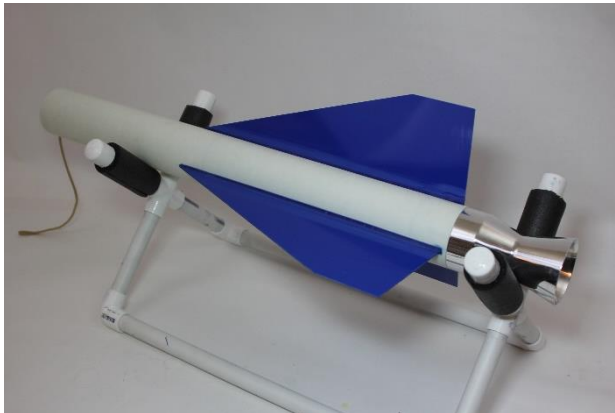
Step 7: Tape off the entire rocket, including the entire body, to about 3/16" away from the fin slots and the entirety of the fins as well except for the fin root. Place tape from the top of the fin to about 5/8" down from the bottom. It's important to keep everything clean from glue. Sand straight lines within the tape for the glue to grab onto.



Step 8: Take the fins, one at a time, and glue them in with a bead of glue at the bottom, 10-minute epoxy is recommended here to hold them down and use rocket poxy for the fillets. When gluing the fins, make sure they are perfectly straight by using a guide or looking down the rocket to ensure it flies properly.



Step 9: Once all 3 fins are secure, tilt the rockets so both fins are off to the side quality. Use a good amount of Rocketpoxy for the fillets and use your finger to create a nice smooth fillet all the way down, make sure to have alcohol and many paper towels handy. I personally used their blue die which turned out amazing.



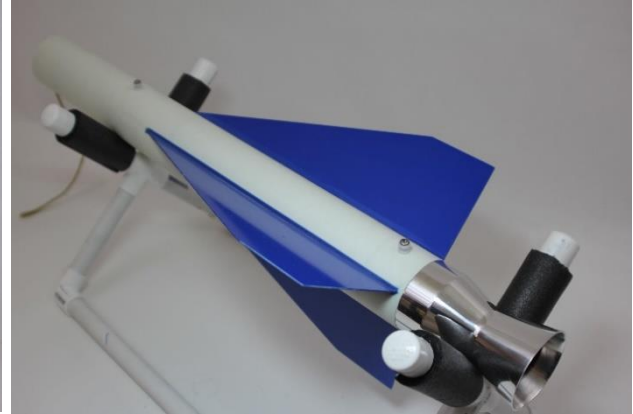
Step 10: Remove the tape from fillets 30-40 minutes after when the glue starts to set up. You will need to do this with all 3 fins, which will be 6 fillets total. When the glue is dry, take fine sandpaper and sand the fillets smooth.



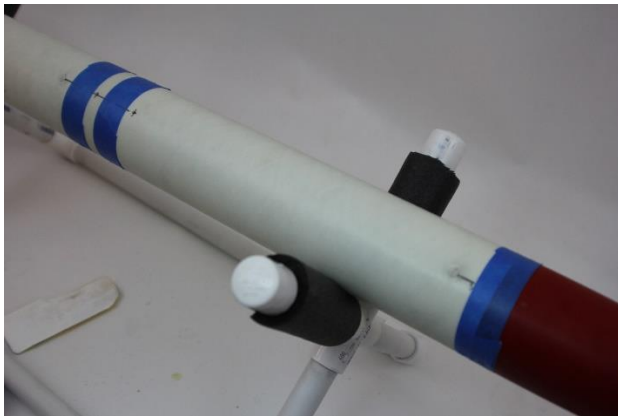
Step 11: Now the bottom half of the rocket should be complete. The next thing to do would be to work on the av bay/electronics section. You will need to take the 1" switch band and the 7" coupler, tape one end of the coupler off, and make a line 4" in from both ends. Lightly sand the area between the lines, add a thin line of glue all the way around and slide the switch band over it, always be prepared to remove any glue residue from this.



Step 12: Now the bottom half of the rocket should be complete. The next thing to do would be to work on the av bay/electronics section. You will need to take the 1" switch band and the 7" coupler, tape one end of the coupler off, and make a line 4" in from both ends. Lightly sand the area between the lines, add a thin line of glue all the way around and slide the switch band over it, always be prepared to remove any glue residue from this.



Step 13: Drill 2- $\frac{1}{8}$ " holes in the 24" airframe in the middle between the slots. One will be 8" in from the top, and the other being 23" down the tube. These will be for the Delrin Rail Buttons included, screw them into the holes, as the screw will naturally thread themselves into the fiberglass, add a small drop of glue into the threads.



Step 15: Using a $\frac{1}{8}$ " bit along the switch band, drill 3-holes, all $\frac{1}{2}$ " up the line, this will be for your vent holes for your electronics. Then take the $\frac{1}{8}$ " bit and drill 3 more holes about 1" down on the bottom airframe, these will be the holes for your shear pins for the drogue. These same holes will need to be drilled through the nose cone coupler with the top airframe all the way around for the main parachute. Lastly, drill 3- $\frac{1}{8}$ " holes for the plastic rivets snap in on the bottom half of the top airframe, these snap in rivets hold the coupler to the airframe when the charge goes off, but breaks the shear pins.



Step 16: Congrats, now all the gluing has been done, where you go from here is your decision with the electronics and recovery. Note: For the Charge Wells, you will need to use 1.0 grams and 1.5 grams of 4F black powder for the Primary and Secondary. Also make sure to always ground test before you launch.