

PRION

Specifications

Length: 69"
Diameter 4.0"
Weight: 80oz
Recovery: 48" Nylon Chute
Motor Mount: 54mm
Fins: 8 - 1/4" Plywood
CG: 50" from nose tip

Parts List

- (1) Nose Cone
- (1) Pre-slotted body tube (31")
- (1) Forward body tube (19")
- (1) Coupler
- (1) Bulkhead
- (2) Centering rings
- (1) 54mm motor tube
- (8) laser-cut fins
- (2) Eyebolt, nut and washer
- (1) Nylon shock cord
- (2) Rail buttons, weld nuts and screws
- (1) Aeropack tailcone retainer
- (1) 12x12 Chute Protector (optional)
- (1) 48" Nylon chute (optional)

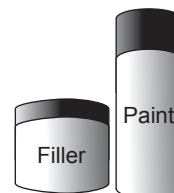
You'll need these items to complete this kit



5 Minute Epoxy



120/220 Sandpaper



Filler and Paint



Zap or CA Super Glue



Pencil



K-148



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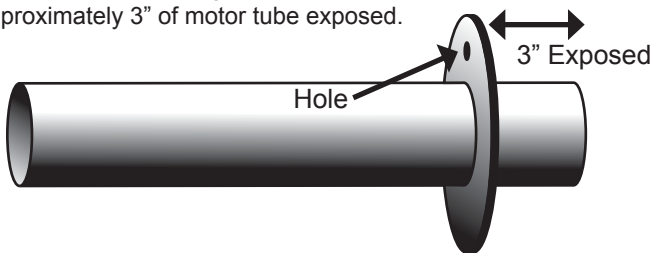


Please make sure you read all directions and understand how to assemble your model before you start construction. It is also a good idea to test fit each part before assembly – some manufacturing tolerances may require light sanding before final assembly.

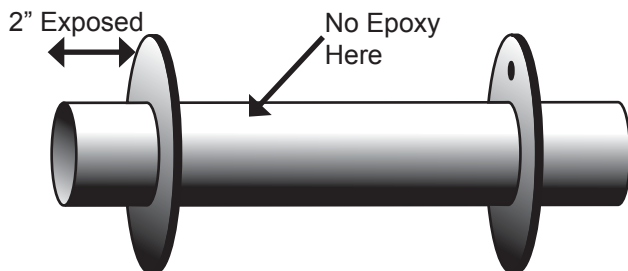
Laser cut parts will exhibit varying amounts of charring on the edges depending on the density of the plywood. The charred edges do not interfere with bonding and do not need to be cleaned before assembly. In most cases the charring will be cleaned up during sanding for finishing and painting.

Motor Mount Assembly

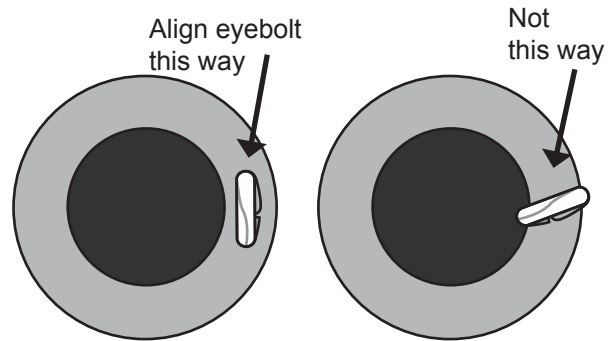
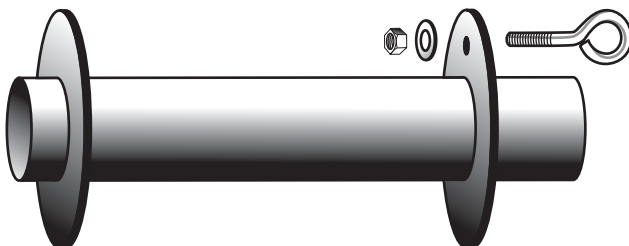
- ❑ Step 1 - Sand the glassine coating off of the motor tube. Epoxy will not stick very well to the glassine and roughing the tube will help the epoxy stick.
- ❑ Step 2 - Test fit the centering rings over the motor mount tube and sand if necessary. The ring should slide snug over the motor tube without deforming it. Also test fit the centering rings in the body tube and sand if necessary.
- ❑ Step 3 - One of the rings will have a hole for an eyebolt to attach the shock cord - this will be the forward ring. Spread some epoxy on the outside of one end of the motor tube and slide the forward ring (with the extra hole) until there is approximately 3" of motor tube exposed.



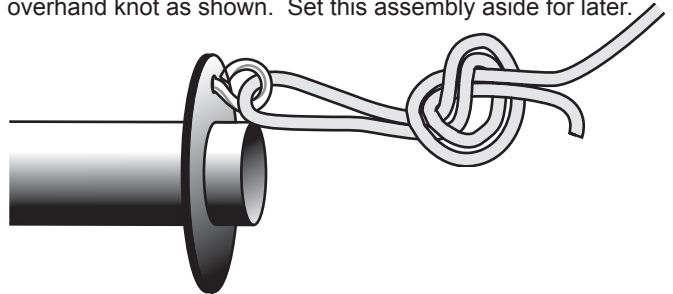
- ❑ Step 4 - After the forward ring is dry, spread some epoxy on the other side of the motor tube and slide the aft ring until there is 2" exposed on the aft end of the motor tube. **VERY IMPORTANT: make sure there is not any epoxy on the motor tube between the 2 rings that would interfere with the fin slots later on.**



- ❑ Step 5 - Mount the eyebolt using the nut and washer in the forward ring hole. Apply some epoxy to the threads of the eyebolt and nut to ensure it will not come loose later. Make sure the eyebolt is aligned so that it will not interfere with the body tube when the motor assembly is inserted into the body tube later.

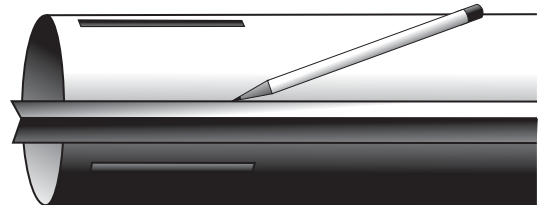


- ❑ Step 6 - Attach one end of the shock cord to the eyebolt using an overhand knot as shown. Set this assembly aside for later.

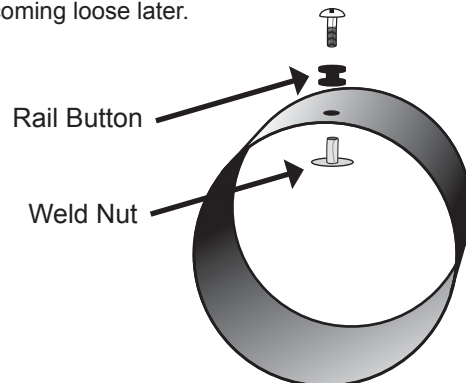


Rail Button Attachment

- ❑ Step 7 - Using a door jam or small section of angle stock, pencil a line halfway between two of the fin slots on the main body tube that extends from the front to the back of the body tube. Next, using the same method, pencil a line that extends from the center of each fin slot to the forward edge of the body tube. These lines will be used later to align the forward canards.



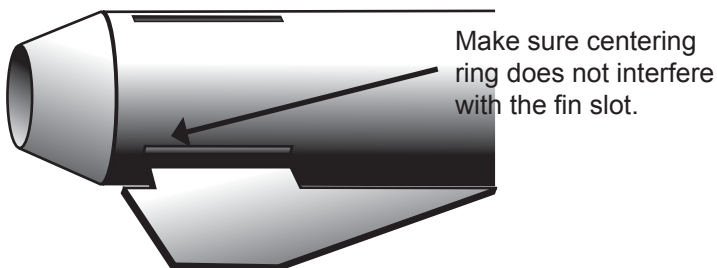
- ❑ Step 8 - Drill a 3/16" hole on the rail button line for the forward and aft rail buttons. The aft hole should be 1 1/2" from the aft end of the body tube and the forward hole should be 20" from the aft end of the body tube.
- ❑ Step 9 - Insert the weld nuts from the inside of the body tube through the previously drilled holes. You can hold the nut in place with a little CA if you like (be careful not to get any of the CA glue inside the threads). Place the rail button over the weld nut and secure with the short 6-32 screws. It is a good idea to use thread lock on the screw threads to keep it from coming loose later.



Body Tube Assembly

- Step 10 - Attach the Aeropack Retainer Base (the black part) to the aft end of the motor tube using JB Weld. Make sure you attach to the right side of the motor tube - the end opposite the eyebolt with the shock cord attached. When the JB Weld has set, screw on the tail cone. The tail cone should be almost flush with the aft centering ring.
- Step 11 - Wrap the shock chord into a small bundle and stuff it inside the motor tube for this next step. Test fit the motor tube assembly into the aft end of the body tube to ensure a snug fit. Sand the centering rings if necessary. NOTE: to get the motor tube assembly past the rail button nut, you will need to insert the first ring at an angle so that you can move the first ring past the rail button nut. Then straighten the assembly before inserting the aft ring.
- Step 12 - IMPORTANT: before starting this step, spread some grease or cooking oil on the tail cone lip so the epoxy will not stick to the tail cone when the motor assembly is inserted into the body tube.

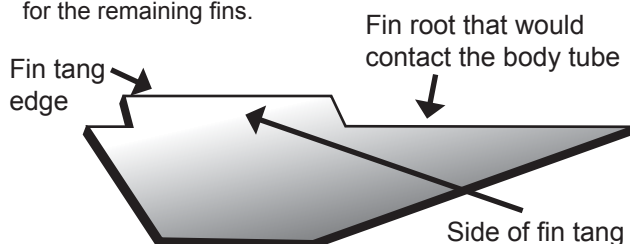
Start by spreading some epoxy on the inside of the body tube about 5" from the aft end and slide the forward centering ring of the motor assembly into the body tube. Keep going by spreading some more epoxy on the inside of the body tube near the aft edge before sliding the aft centering ring into the body tube. Continue sliding the assembly inside the body tube until the aft centering ring is all the way in body tube and the tail cone is flush with the body tube. Make sure the centering rings don't interfere with the fin slots. It's a good idea to test fit a fin in each slot here before the epoxy sets. Hold the body tube with the motor tube assembly down until the epoxy sets. Make sure the weight of the motor assembly doesn't cause it to slide out of alignment.



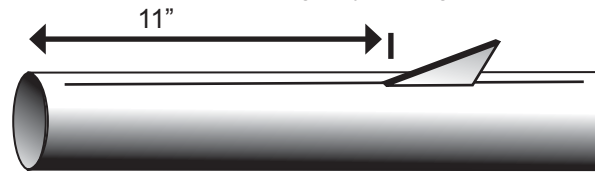
Fin Assembly

- Step 13 - Test fit each of the fins into the pre cut fin slots. The fin should seat firmly against the motor tube - sand each fin if necessary. When you are satisfied with the fit, apply some epoxy to the end of the fin tang that will contact the motor tube as well as any fin root that will contact the body tube. Also, spread a thin layer of epoxy on each side of the fin tang.

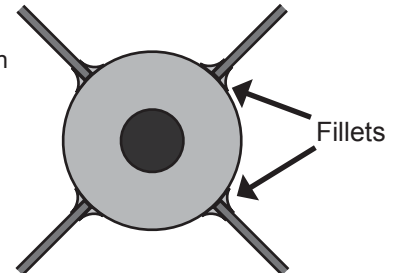
Slide the fin into place and check the alignment. Continue rechecking the fin alignment until you are sure the epoxy has set. Clean any excess epoxy from around the fin joint. Repeat for the remaining fins.



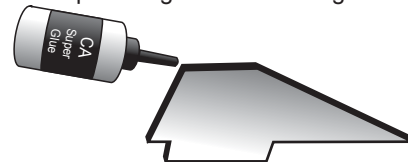
- Step 14 - Mark the canard alignment lines made in a previous step 11" from the front of the aft body tube - this will mark the leading edge of the canards. Sand the glassine off of the body tube where the fins will be attached and using epoxy attach the 4 canards ensuring they are aligned with the aft fins.



- Step 15 - Apply epoxy fillets to both sides of each fin. Carefully smooth the epoxy fillets with your finger before the epoxy sets. Allow each fillet to set before rotating the airframe for the next fillet.

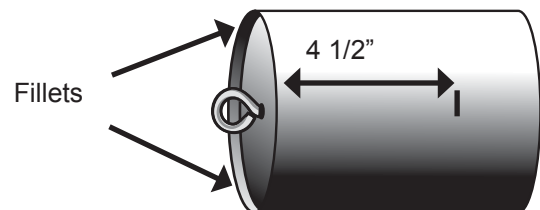
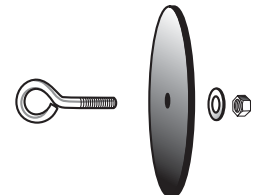


- Step 16 - It is a good idea to CA the sharp tips of the fins to keep them from splintering on hard landings.

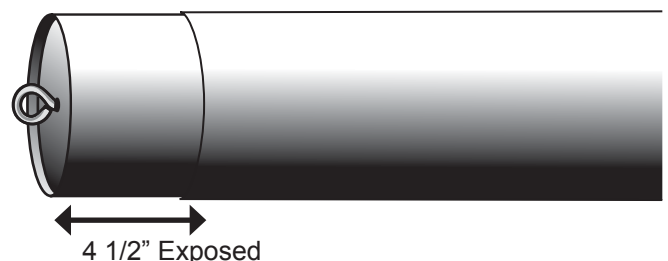


Payload Section Assembly

- Step 17 - Insert the eyebolt through the hole in the center of the bulkhead and secure using the washer and nut. **IMPORTANT: Apply some epoxy to the nut and eyebolt threads to ensure the nut doesn't come loose later.**
- Step 18 - Apply some epoxy to the inside of the coupler and push the bulkhead in so there is about a 1/8" to 1/4" of coupler exposed. After the epoxy has set, apply a fillet of epoxy around the inside edge of the coupler bulkhead joint.



- Step 19 - Next mark the coupler 4 1/2" from the aft edge. Apply some epoxy to the inside of the forward body tube section and slide the coupler up to the mark. There should be 4 1/2" of coupler exposed. Make sure the coupler is straight and the body tubes are aligned properly when they are assembled later.



Final Assembly

- Step 20 - Using the same knot you used in step 6, attach the other end of the shock cord to the payload section eyebolt.
- Step 21 - Attach the parachute to the shock cord near the payload section. Also attach the chute protector to the shock cord near the payload section.
- Step 22 - Drill a small 1/8" hole in the chute compartment to allow venting. Make sure you do this without the chute in the chute compartment.

Balancing Your Model

- Step 23 - Pack the chute and assemble the rocket. When packing your chute, wrap the chute protector around the chute with the opening in the chute protector facing forward. Always make sure your chute is well protected as the hot ejection motor gasses will melt the nylon chute.
- Step 24 - Insert the largest motor that you intend to fly (or simulate the weight with an appropriate substitute) and ensure that the CG (where the rocket balances front to back) is at or in front of the point defined in the specifications on the first page. The CG should be measured from the tip of the nose cone.
- Step 25 - If the CG is behind the specified point, add weight inside the nose cone by pouring lead shot into the nose cone, adding some epoxy and sealing the hole until the epoxy cures. Make sure you hold the nose cone with the tip pointing up while the epoxy cures so all the weight will be in the shoulder of the nose cone. **IMPORTANT: the epoxy will not stick to the inside of the nose cone and if you attempt to epoxy the weight to the tip of the nose cone, the liftoff force may cause the weight to become dislodged causing an unstable model.**
- Step 26 - When you are satisfied with the balance of your model, epoxy the nose cone to the payload section. If the fit is too snug, you can sand the ridges on the nose cone with 220 sandpaper until the fit is right.
- Step 27 - Your model is now ready to paint.

At this point your model is ready to fly.

Now go have some fun!

Flying Your Model

IMPORTANT: always use positive motor retention to secure the motor. Failure to use motor retention will cause the motor to be ejected instead of the parachute making for a dangerous ballistic reentry.

IMPORTANT: always remember to check your balance point and ensure your CG is forward of the specified CG point.

IMPORTANT: Always follow the NAR safety code and remember that rockets are not toys and can be dangerous if not prepared and used properly. If you are a beginner, it is a good idea to fly with a club or other group of experienced rocketeers until you have gained some experience.

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IMPORTANT: Please contact us via phone or email if you have any questions about constructing or flying your model.



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