



mini AQM-37A JayHawk

Specifications:

Length: 19"
Diameter 1.6"
Weight: 9oz
Recovery: 18" Nylon Chute
Motor Mount: 29mm
Fins: 1/8" Plywood
CP: 12" from nose tip
CG: 10.4" from nose tip

Recommended Motors:

Single Use		Reloadable	
D12-5*	455'	E16W-7	1380'
E9-6*	848'	E23T-6	1006'
F20W-7	2011'	F52T-8	2274'
F23J-7	1763'	G64W-10	3308'
G79W-10	3070'	51F36-9 (BS)	1696'
		57F59-9 (WT)	1859'
		56F120-9 (VX)	1837'
		41F36-7 (SS)	1349'
		107G83-9 (BS)	2994'
		93G80-9 (SK)	2817'

*Requires 29/24 adaptor

Parts List

1. (1) Nose cone
2. (1) Body tube
3. (2) Centering rings
4. (1) 29mm motor tube
5. (4) laser-cut fins
6. (1) Kevlar® shock cord section
7. (1) Nylon shock cord section
8. (1) 6"x6" flameproof chute protector
9. (1) 18" Nylon chute
10. (2) 1/4" launch lugs
11. (1) Water Slide Decals

Required to complete: 5 minute epoxy, 120/220 sandpaper, masking tape, finishing filler/paint.

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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.

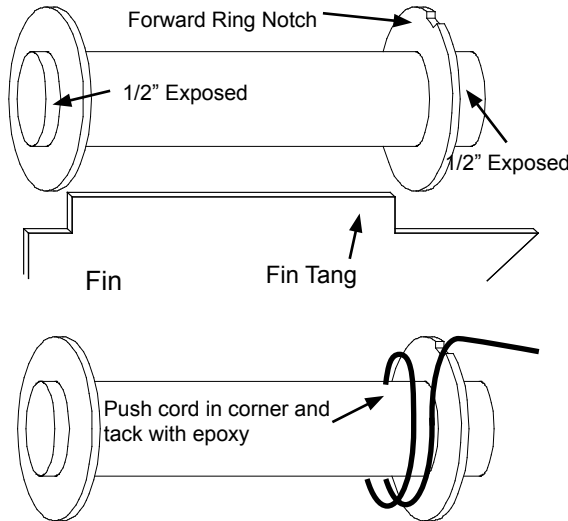
Step 1 – Motor Mount Assembly

IMPORTANT: Start by cutting the motor tube to 6" in length. This will allow room for the recovery in the body tube. Next, test fit centering rings over the motor mount tube and sand motor tube if necessary. Also test fit the centering rings in the body tube and sand if necessary. Spread some epoxy on the outside of one end of the motor tube and slide the ring (without the notch) until there is approximately 1/2" of motor tube exposed. Make sure you clean the motor tube of any epoxy so as not to interfere with the fin tangs later. After the aft ring is dry, make a mark 1/2" from the other end of the motor tube. Spread some epoxy on the motor tube and slide the forward ring until it aligns with the mark. **VERY IMPORTANT: make sure there is not any epoxy on the motor tube that would interfere with the fin tangs later on.**

The shock cord in this kit consists of a shorter section of Kevlar and a longer section of nylon cording. The two sections should be tied together using a single overhand, ring bend or double fisherman's knot. The Kevlar section will be attached to the motor mount and the nylon section will be attached to the nose cone.

Wrap the end of the Kevlar shock cord around the forward end of the motor tube and tack in place with CA.

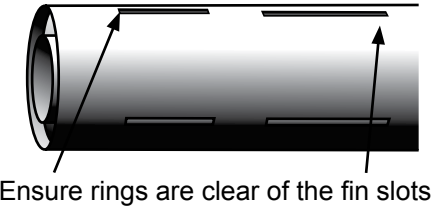
Make sure the cord lays flat enough so it will not interfere with the body tube when you slide the motor tube inside. Apply some epoxy to the cord to hold it in place. Make sure the cord is secure and will not come loose later with ejection forces that will pull on the shock cord.



Step 2 – Insert Motor Tube Assembly into Body Tube

Test fit each of the fins into the pre cut fin slots. Because plywood thickness varies, you may need to sand the slot to the correct width. 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 body tube to ensure a snug fit. Sand the centering rings if necessary. When you are satisfied with the fit, spread some epoxy on the inside of the body tube and slide the forward centering ring of the motor assembly into the body tube. **Make sure you have the motor assembly facing the right way!** Spread some more epoxy on the inside edge of the body tube before sliding the rear centering ring into the body tube. Continue

sliding the assembly inside the body tube until the aft centering rings are just clear of 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 tube doesn't cause it to slide out of alignment.



Step 3 – Fin Assembly

Using a door jam or small section of angle stock, pencil a line halfway between two of the fins that extends from the front to the back of the body tube. This line will be used later to align the launch lugs.

Special Note: The Jay Hawk is notorious for breaking off winglets on rough windy landings. Two schools of thought can be used here; The first is to lightly tack the winglets to the fins and assume the winglet will break off frequently. If it is tacked lightly, no damage should occur and the winglet can be re-tacked to the fin over and over again. The second school of thought is to attach the winglet securely and fly only in low wind situations hoping a rough landing will not snap the winglet off.

Start by testing the fit of the winglet onto the tip of the fin. Sand the winglet slot and/or fin tip if necessary. When you are satisfied with the fit, apply some epoxy to the fin tip and attach the winglet. Ensure the winglet is 90 degrees to the fin. Continue checking the alignment until the epoxy sets.

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 the 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. Carefully align the long forward section of the fin with your fin alignment marks. Secure the forward section of the fin with masking tape against the body tube. Clean any excess epoxy from around the fin joint. Continue rechecking the fin alignment until you are sure the epoxy has set. Repeat for the remaining fins.

Next, 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 4 – Launch Lug

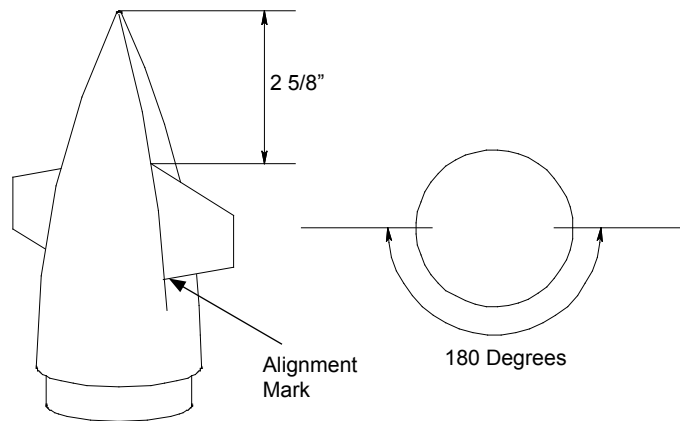
Mark the CP point along the launch lug line you made in the previous step. Make sure you measure the CP point from the tip of the nose cone and NOT the end of the body tube. Apply a small amount of epoxy on the launch lug line about 3/4" long on the CP mark. Press one of the launch lugs into the epoxy and ensure that it is aligned with the launch lug line previously drawn on the body tube. You can site down the tube and look through the launch lug to make sure it is straight. Similarly epoxy the second launch lug about 2" from the aft end of the body tube (aligned with the aft end of the fins). Site down both launch lugs and make sure they are both aligned. If you have a 1/4" launch rod, you can use this to ensure that both lugs are aligned properly.

Step 5 – Nose Cone Assembly

Use a good plastic glue like Loctite(r) Plastics Bonding System to glue the canards to the plastic nose cone.

Start by marking the nose cone with the two canard fin alignment lines 180 degrees apart. The leading edge of the canard is the longer straight edge. The curved edge will attach to the nose cone. Mark the alignment lines at 2 5/8" from the tip of the nose cone.

Test fit the canards to the nose cone aligning the leading edge of the canard with the alignment mark. Rough up the plastic where the epoxy will go to give it something to grip to. When you are satisfied with the fit, mix some epoxy and attach the canards along the alignment mark. You can use masking tape on both sides of the canard while the epoxy sets if you wish to hold them in place. Make sure both fins are 180 degrees apart and the root is seated firmly against the nose cone while the epoxy cures. After the epoxy cures, you can apply fillets to fill any space between the canard and the nose cone.



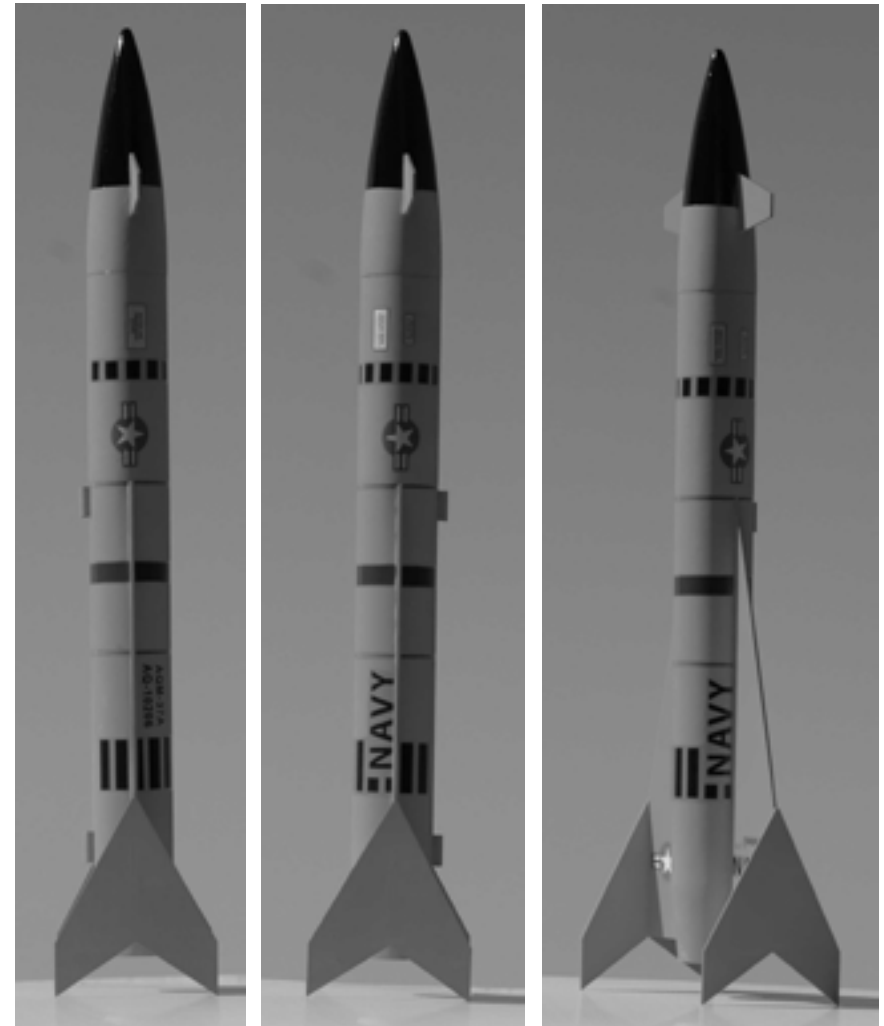
Step 6 – Balancing Your Model

At this point, pack the chute and assemble the rocket. Insert the largest motor you intend to fly (or simulate the weight with an substitute). Ensure the CG is forward of the recommended CG. The CG is measured from the tip of the nose cone. Add weight inside the nose cone by pouring lead shot into the nose cone tip and adding some epoxy. You can cut a larger hole in the base of the shoulder to make it easier to pour the lead and epoxy into. **IMPORTANT: The epoxy will not stick to the inside of the nose cone and if you do not anchor it, the liftoff force will cause the weight to become dislodged causing an unstable model. You can anchor the epoxy with a dowel that is wedged against the base of the shoulder of the nose cone or other similar method.** You can also place the lead in the base of the nose cone so that it cannot become dislodged during liftoff, but you will have to use more weight. This model typically requires 3oz of balast in the tip of the nose cone.

Step 7 – Flinishing Your Model

Painting a plastic nose cone requires special preperation because the plastic is very slippery and doesn't take paint very well.

Several of the spray paint manufacturers have plastic paint out now in various colors. If you can find plastic white primer this is best to use to get your nose cone ready for it's final color.



Start by sanding the plastic surface with 320 sandpaper. Be careful not to scratch the surface too much, you just want to get a rough finish for the primer to stick too. Next, apply several coats of the plastic primer. Allow the primer to dry completely before proceeding - most manufacturers suggest 5 days before the primer has properly bonded with the plastic.

After the primer has cured, you can lightly sand the entire surface with 320 sandpaper to remove any scratches in the plastic that might be showing through the primer. Be very careful not to sand through the primer or you will need to start over. Last apply the final color coat to the nose cone. It's recommended that you use the same brand as the primer so you ensure compatibility between the paint. We have found this combination to give the plastic cone a very durable finish.

You can now paint the rest of your model and apply the decals.

Step 8 – Flying Your Model

Attach the end of the shock cord and the parachute to the nose cone. You can also attach the chute protector to the shock cord just below the nose cone. 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.

IMPORTANT: ensure that the nose cone is not too tight or too loose. The best fitting nose cone should support the weight of the rocket when lifted by the nose cone, but should come loose from the body tube when forcefully shaken up and down. If the nose cone is too tight, the shoulder can be sanded (or if there are thin rings, these can be sanded off). If the nose cone is too loose, you can apply masking tape around the shoulder until the nose cone fits snug into the body tube. Keep in mind that all plastics expand and shrink with temperature, so it is best to check your fit at the flying field.

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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