POLECAT AEROSPACE

5.5” JAYHAWK

AQM-37

The Jayhawk was designed in 1959 as an expendable target drone for the Army and Navy. The Jayhawk had an autopilot and a radio control system on different versions, and was air-launched from A4, A6, and F4 fighters. It has gone through many revisions and improvements over it’s lifespan, and was still in limited use in the late 1990s.

This kit features:

- Through the wall fin mounting
- Laser cut fin slots
- Fiberglass molded nose cone
- Laser slotted nose cone
- Fiberglass molded boat tail
- Pre-fiberglassed airframe
- Standard rail guides included
- Laser cut Baltic Birch fins and centering rings
- 54mm motor mount
- Tubular nylon shock cord
- Shock cord mounting hardware
- Vinyl Decals

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List of Materials:

(1)	Nosecone - slotted	(1)	Nose Bulkhead
(1)	Body tube - slotted	(2)	U-Bolts
(1)	54mm motor tube	(2)	U-Bolt backing plates
(2)	Centering rings (5.5” x 54mm)	(8)	1/4-20 nuts
(1)	Centering rings (5.5” x 54mm) drilled for U-Bolt	(4)	1/4” flat washers
		(2)	Rail guides
(1)	Boat tail	(2)	8-32 screws for rail guides
(1)	Boat tail centering ring (4” x 54mm)	(1)	Shock cord
		(1)	Decal Set
(2)	Main Fins		
(2)	Wingtip Fins		
(2)	Canard fins		

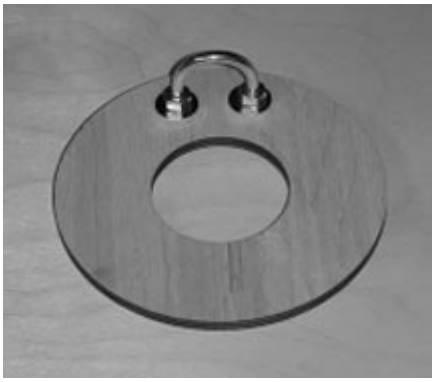
Construction

Please read and understand each step. The construction methods used in this kit differ from others in many ways. It is important to follow the instructions to ensure you get the most out of your kit.

Fin can / motor assembly

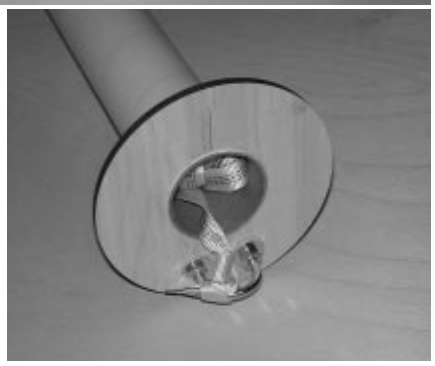
Locate the upper main centering ring and shock cord mounting hardware as shown. Mount the shock cord mounting hardware as follows:

Put two nuts then two washers on the U-bolt
Put the U-bolt through the centering ring
Put the U-bold backing plate on
Put two nuts on
Tighten snuggly with a 7/16 wrench
Secure the nuts with Epoxy or thread sealer to prevent the nuts from loosening



Position the upper centering ring (with the U-Bolt) 1/8” in from the end of the motor tube, with the U-Bolt facing as shown, epoxy the ring securely into place. Allow to cure.

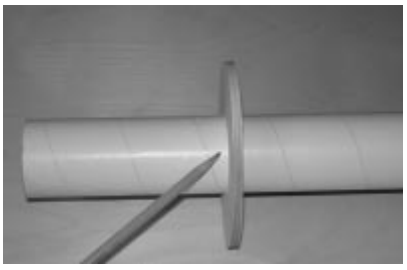
Securely tie the longer shock cord to the U-Bolt and seal the knot with CA or Epoxy.
Wrap and tuck the shock cord into the motor tube to keep it out of the way during the assembly.



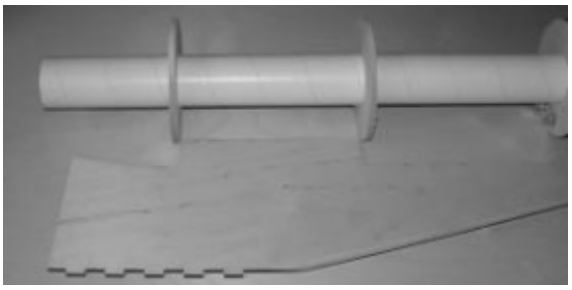
Securely epoxy the boat tail centering ring into the fiberglass boat tail. Ensure the ring is parallel to the back end of the boat tail. Do not add a lot of extra Epoxy here, you need to keep the tail end of the rocket as light as possible. Allow to cure.

Slide the two centering rings onto the motor tube. DO NOT EPOXY AT THIS TIME. Slide the boat tail assemble into place, leaving the desired amount of motor tube exposed, generally about 1/2” for most popular motor retainers. Position the rear centering ring so it is touching the forward edge of the boat tail as shown. Mark the position of this ring on the motor tube.

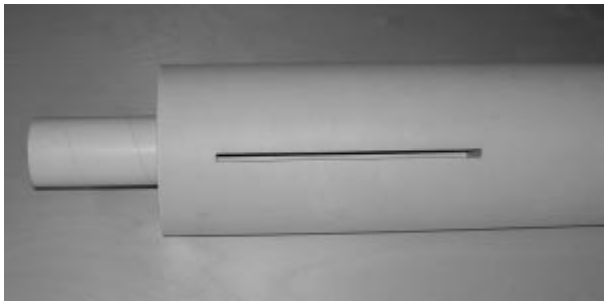
Having marked the location of the lower ring, slide it upwards about an inch and apply epoxy to the motor tube where the ring will be positioned (where you marked it). Now slide the ring back into position. This method will ensure there is no epoxy fillet on the upper side of the ring, which will prevent the main fins from seating to the motor tube. Allow to cure completely.



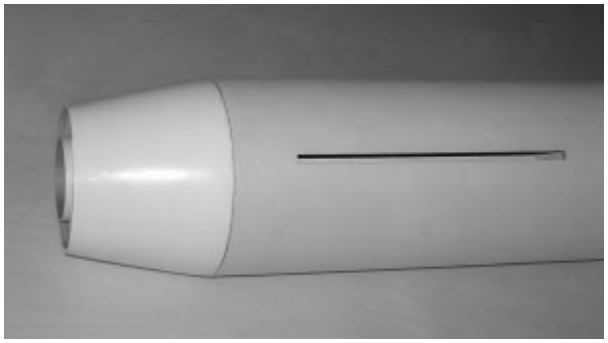
Using one of the main fins as a gauge, position the upper centering ring on the motor tube, referenced from the lower centering ring as shown. Mark the position of the upper centering ring and epoxy the ring in the same manner as the lower one. Make sure you do not leave any epoxy on the tube that will prevent the fin from seating to the motor tube.



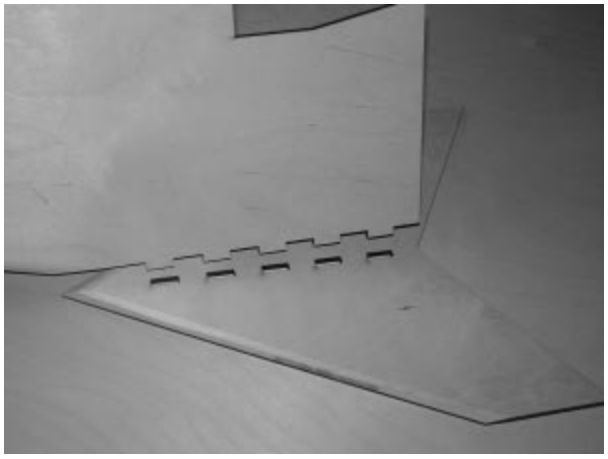
Epoxy the motor mount assembly into the body tube from the rear as shown. The centering rings should be located at the top and bottom of the fin slots. Take care not to block any of the fin slots. Allow to cure completely.



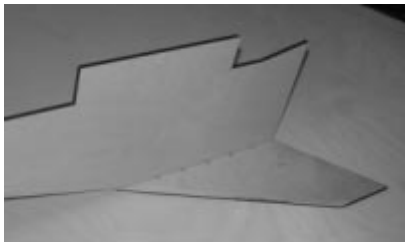
Test fit the boat tail onto the body tube. To get a good epoxy joint, sand the boat tail shoulder and apply a liberal amount of epoxy. Slide the boat tail into position and wipe away the extra Epoxy. Allow to cure.



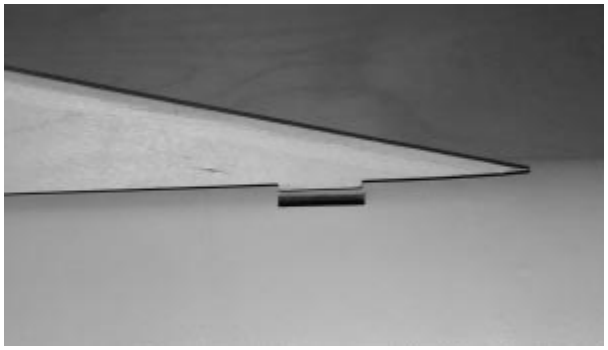
The main and outer fins are joined as shown. Very little Epoxy is needed at this joint, the machined fit is extremely tight. Apply a very small amount of epoxy to the fingers on the main fin and fit them into the slots on the outer fins. DO NOT REINFORCE THIS JOINT WITH FIBERGLASS OR FILLETS. The joint is stronger than the fin material



To seat the outer fin, hols the main fin at the tip and tap it on a flat surface to seat it.



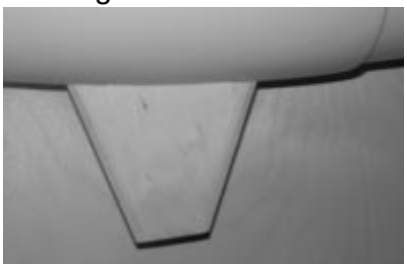
Slide the fin assembly into the main fin slots and seat the forward tab into the slot. This tab will not interfere with any recovery system. Once you have a good fit, remove the fin assembly and apply a generous bead of epoxy to the fon root and along the sides f the fin where it joins the body tube. Make sure the fin is perpendicular to the airframe. A note on fillets here. DON'T. Fillets are not only not needed, they add weight to the rocket at the wrong end. The fins are designed to pop lose in the event of a hard landing. They can be reinstalled without ruining the paint, unless you make the joint very strong, then the fin material will break and the rocket is ruined.



Make sure the fin is seated to the body tube. Repeat this for the other fin assembly, making sure the fins are parallel.

Mount the U-Bolt hardware to the nose cone bulkhead as shown. Tighter and secure the threads with thread lock or Epoxy.

Position the nose bulkhead into place and slide the canard fins onto the slots.Make sure the canard fins are the right way. Once you are happy with the fit, securely epoxy the assembly together. Make this joint secure. The hole in the nose bulkhead is for adding nose weight.



The canard fins will be straight if installed properly. Fillets are not needed for the canard fins. Once the epoxy has cured, securely tie the other end of the shock cord to the nose cone B-bolt.

Final assembly

Drill a 1/8” hole through the body tube into the lower and upper centering rings along a line on the airframe for the rail guides. The screws will make their own threads. Make sure the rail guides will spin freely on the screws after you install them, otherwise they can bind on the rail. Drill a 3/16” pressure hole in the airframe above the top centering ring.

The balance point of the rocket is 37” back from the tip of the nose come.
You will need to add nose weight to your Jayhawk before flying it. **DO NOT ATTEMTPT TO FLY THIS ROCKET WITHOUT PROPER BALANCE**.

We hope you enjoy your Jayhawk. Happy flying!

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