

HEX COURIER

Skill Level 2

Finless futuristic spacecraft that's built for speed!

Recommended Engines: A8-3, B4-4, B6-4, C6-5



ROGUE
A E R O S P A C E

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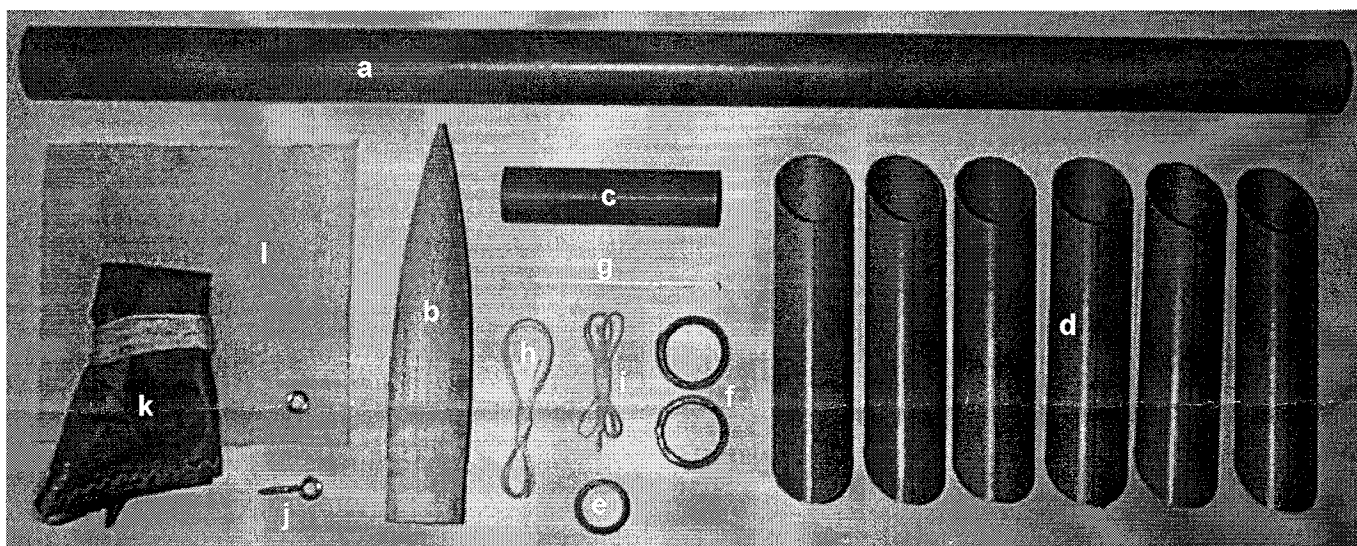
aero@RogueAerospace.com

Rogue Aerospace Corporation has exercised reasonable care in the design and manufacture of this kit, and warrants it to be free from manufacturing defects for 1 year from the date of purchase. If your kit is missing a part, please call or e-mail us for a replacement.

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Materials Included in This Kit

- a T-25 paper tube (43cm [17"] long)
- b BNC-25Y balsa nose cone
- c T-19E paper engine mount tube (7cm [2.75"] long)
- d Six T-25 paper tubes with slanted ends (14cm [4½"] long)
- e TR-18 thrust ring
- f Two CR-1925 centering rings
- g EC-7 engine clip
- h KC-4 Kevlar tether (91.4cm [36"] long)
- i ESC-1 elastic cord (30cm [12"] long)
- j Screw eye
- k PP-30 30cm (12") nylon parachute
- l Sheet of Perma-Wadding
- m Decal sheet (not pictured)

Materials You Must Supply

- Adhesives (see notes below)
- Pencil
- Hobby knife
- Masking tape
- Paint

Notes on Adhesives

There are several different kinds of adhesives (glues) you can use to build this kit. The most common is white or "school" glue. This glue works fine, but you must hold freshly glued parts in place for quite a while before the glue sets. A particularly good white glue is "Allene's Tacky" brand; it is easy to use because parts do not have to be held together very long before the glue "grabs" them. Wood or carpenters' glue can also be used in place of white glue.

A very useful adhesive is cyanoacrylate (CA), also known as "super glue" or "hot stuff." If you want to use CA, you should buy "medium thickness" CA from a hobby shop – and you should be *very* careful not to glue yourself to your model! When you use CA, always have "debonder" on hand in case of emergency. Work in a well-ventilated area, and be careful not to inhale fumes from the adhesive.

Whenever you must glue parts together in building this kit, you can use any of the glues listed above, unless a specific glue is mentioned in the instructions. You can generally substitute wood glue for white glue, and CA for plastic cement.

Rules to Live By

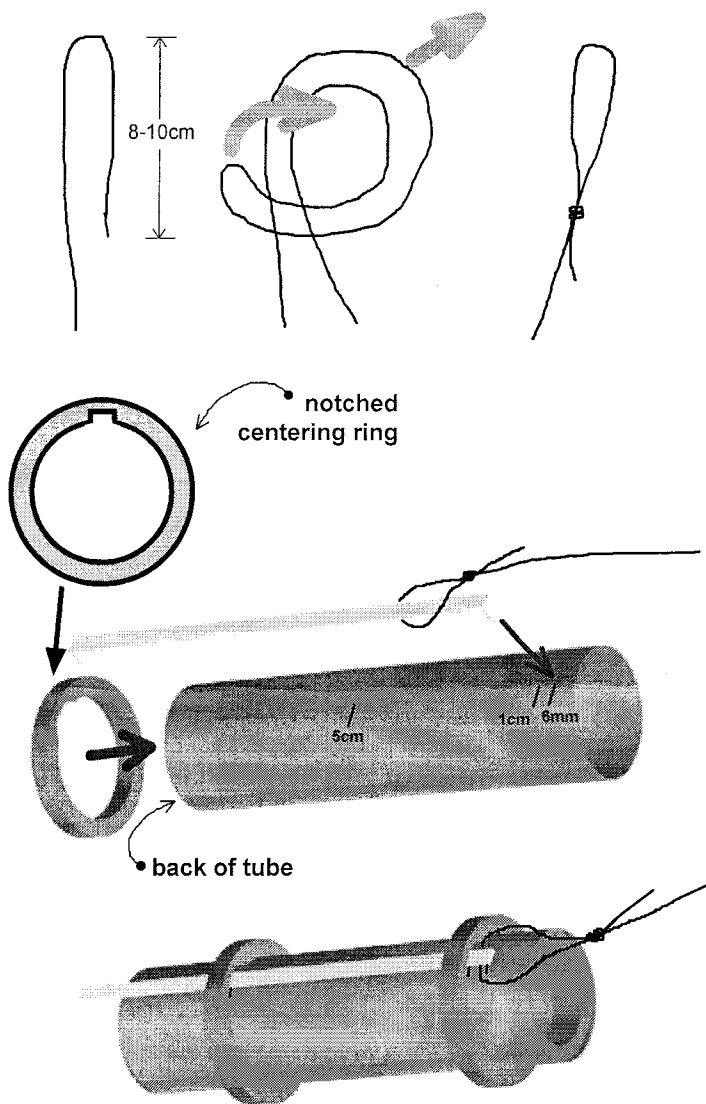
- 1** Before you begin to build your model, **make sure you have read and understood all steps in these instructions.** It's much better to spend a few minutes becoming familiar with these instructions now, than a few hours trying to correct a major mistake later. A good rocketeer is a careful modeller. Do not proceed with any step until you are certain you know what to do. Make all measurements twice before cutting or gluing.
- 2** **Do not alter the basic design of this model rocket in any way.** Most importantly, do not reduce the number or size of fins, shorten the body tube, use a different nose, or add fins to the rocket. Any of these changes would affect the stability of the rocket and could cause it to lose the ability to fly straight. An unstable rocket is less than worthless and is no fun for anyone. Of course, you can change the color scheme, decals, and so forth as you wish.
- 3** Once you've finished your rocket, **launch it only in accordance with the Model Rocket Safety Code** created by the National Association of Rocketry. A copy of the Code is included with your model. If you don't follow the Code, you could jeopardize the future of model rocketry...and make every other model rocketeer in the world angry. Follow the Code.

Assembly Instructions

1

Assemble engine mount.

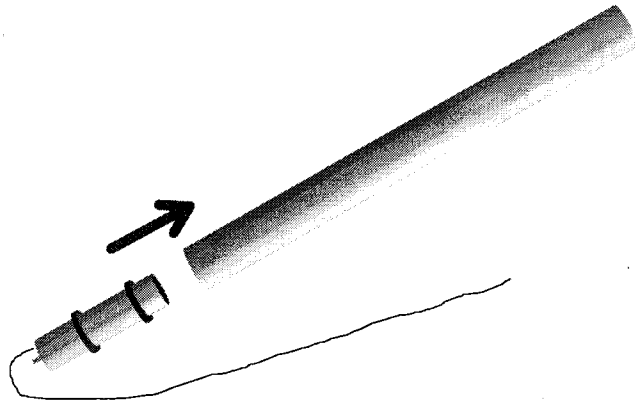
- a) Grasp one end of the yellow Kevlar tether and double it back on itself, making a loop about 8-10cm (3-4") long. Tie an overhand knot in the loop as shown.
- b) Using a hobby knife, make a small notch on the inside of each centering ring as shown, about the width of the engine clip.
- c) Make 3 marks on the green engine mount tube: at 6mm (1/4"), 1cm (3/8"), and 5cm (2") from one end (the "front" of the tube).
- d) At the 6mm (1/4") mark, cut a slit about 3mm (1/8") wide. Note that one end of the engine clip is shorter than the other. Insert this shorter end into the slit. Place the loop you made in the end of the Kevlar tether around the free end of the engine clip, and slide it towards the front of the engine tube.
- e) Apply glue around the engine mount tube at the 1cm (3/8") mark. Slide one centering ring on from the back of the tube until it meets the mark. Make sure the engine clip lies straight down tube, held in place by the centering ring.
- f) Apply glue around the tube at the 5cm (2") mark. Slide the remaining centering ring on from the back of the tube until it meets the mark, making sure the notch you made is centered around the engine clip.
- g) Apply glue around the inside of the front of the engine tube. Slide the green thrust ring into the tube until it rests against the end of the engine clip.



2

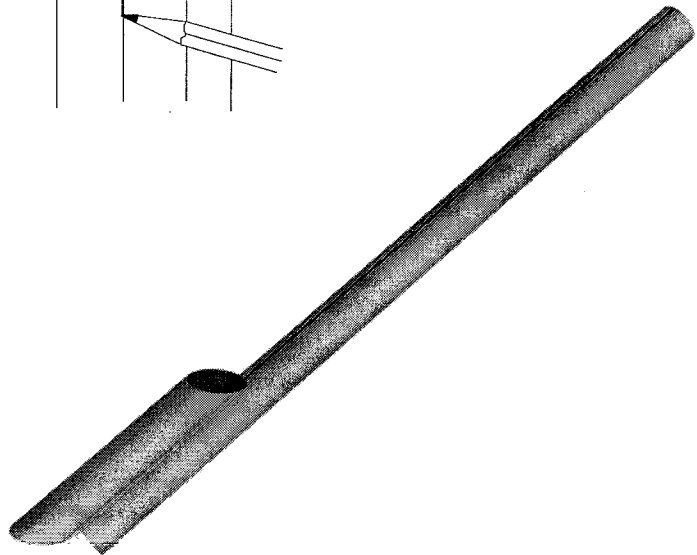
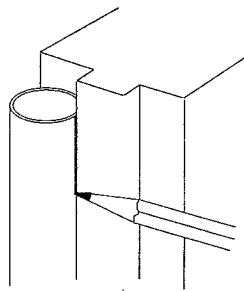
Install engine mount.

- a) Spread glue around the inside of the *aft* end of the body tube. This is the end *opposite* the end where you drew a ring using the tube marking guide in step 2c.
- b) Thread the yellow Kevlar tether back through the engine mount, then slide the engine mount into the body tube until its aft end is flush with the back of the body tube. Make certain the Kevlar tether is not trapped by glue or by the engine mount.
- c) Feed the tether back through the engine mount and out the front of the body tube.

**3**

Attach first tube fin.

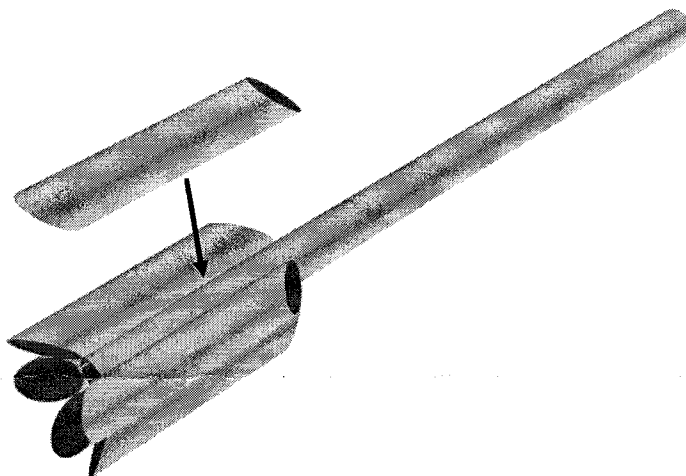
- a) Using a door jamb or metal angle as a guide as shown, draw a straight line down the length of the body tube.
- b) Select one of the slant-cut tubes (tube fins). Notice a line has been pre-drawn to indicate the side of the tube that should rest against the rocket's body. Using a pencil, extend this mark around the tube walls to the inside of the tube, so that you can see its location from the other side of the tube.
- c) Apply a thin line of glue down the pre-drawn line on the tube fin. Press the tube fin against the body tube so that the pre-drawn line lies on the line you drew on the body tube, and the back of the tube fin is even with the back of the body tube. Remove the tube fin and allow the glue to dry.
- d) Once the glue has dried, apply a second coat of glue down the pre-drawn line on the tube fin, and put the fin back into place on the body tube, holding it there until the glue has set. Let this second coat of glue dry.



4

Attach remaining tube fins.

- a) Select one of the remaining slant-cut tubes. Extend the pre-drawn line around the edges of the tube with a pencil as you did in step 3b.
- b) Apply a thin line of glue down the pre-drawn line on the tube fin. Press the tube fin against the body tube so that the pre-drawn line lies against the body tube, the back of the tube fin is even with the back of the body tube, and one side of the tube fin rests against the tube fin you mounted in step 4. Remove the tube fin and allow the glue to dry.
- c) Once the glue has dried, apply a second coat of glue down the pre-drawn line on the tube fin, and put the fin back into place on the body tube, holding it there until the glue has set. Let this second coat of glue dry.
- d) Repeat steps a-c for the remainder of the slant-cut tubes. The last tube fin should fit snugly into place between the two tubes on either side.
- e) Lightly sand the ends of the tube fins once they are in place to remove any imperfections left by the cutting process.

**5**

Prepare nose cone.

- a) Screw the screw eye into the base of the balsa nose cone by hand. When it is about 3/4 of the way in, unscrew it and remove it from the nose cone.
- b) Squirt white glue into the hole left by the removal of the screw eye. Immediately replace the screw eye, screwing it in all the way until the base of the screw eye's loop is resting against the nose cone.
- c) Thread one end of the elastic shock cord through the screw eye and tie it **securely**. You may wish to use a drop of white glue to "set" the knot.

6

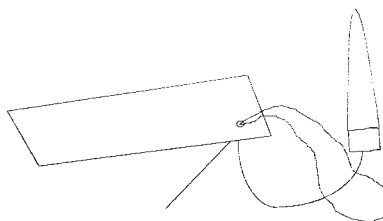
Attach parachute canopy to model.

- a) Make loops in the free ends of the yellow Kevlar tether and elastic cord similar to the loop you made in step 1a.
- b) Gather the parachute shroud lines together and pass them through the loops you made.
- c) Pass the parachute canopy through the loop formed by the shroud lines and pull tight to secure the parachute.

7

Attach Perma-Wadding to model.

- a) Form a loop in the middle of the Kevlar tether and pass it through the eyelet in the sheet of Perma-Wadding.
- b) Pass the nose and parachute through this loop. The Perma-Wadding is now attached to the tether, but can be moved up and down it or removed if necessary.



8

Assemble rocket into flight configuration.

- a) Fold the parachute and loosely wrap the Kevlar tether around it a few times. Place the folded parachute in the center of the sheet of Perma-Wadding, and use it to push the Perma-Wadding down into the body tube. In this fashion, the parachute gains maximum protection from the engine's ejection charge by being wrapped in heat-resistant material.
- b) Pack any remaining length of Kevlar tether on top of the parachute, and insert the nose cone into the tube. Adjust the fit of the nose cone, if necessary, by sanding or by applying transparent tape to the shoulder.

9

Paint rocket.

- a) Painting your rocket improves its appearance as well as its performance. For best results, use enamel-type spray or bottle paints, and use several light coats of paint rather than one heavy one.
- b) A recommended paint scheme is shown on the first page of these instructions. To duplicate this scheme, paint the entire model white. Then, use paint markers or brush paints to paint the interior of the tube fins black, and the aft "lip" of the tube fins dark red. Alternatively, you can cover the parts of the model you do not want to paint with newspaper and masking tape, and use spray paints to paint the tube fins.
- c) Apply the included decals. Suggested positions for the decals are shown in the illustration on the first page of these instructions. A complete set of numbers and letters is provided, so you can designate your model with any "tail number" you wish.

10

Prepare for launch.

- a) To launch your rocket, first make certain it is assembled as described in step 8. Note that *no recovery wadding is required*, as the reusable Perma-Wadding serves to protect the parachutes from the hot ejection charge.
- b) Slide an engine of the recommended type into the rear of the rocket so the nozzle is pointing outward. Slide the engine in until the engine clip snaps into place around it.
- c) Install an electrical igniter into the engine as recommended by the engine manufacturer.
- d) Mount a 1/8" launch rod on your launch pad. Slide the rocket onto the launch rod by guiding the rod through the void left between two tube fins and the body tube. (Essentially, you have six built-in launch lugs available on this rocket.)
- e) Connect the igniter to your electrical ignition system. (Launch systems are available from your local hobby store.)
- f) Launch your rocket! Remember to follow the National Association of Rocketry Model Rocket Safety Code whenever you launch.
- g) Let us know how you like the design! Write to us or e-mail us at the addresses listed on the front of these instructions, and tell us what you did or didn't like about this kit. You can help us better the hobby by sharing your opinions and ideas!

TODAY

1993

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OCTOBER

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TODAY 1993

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