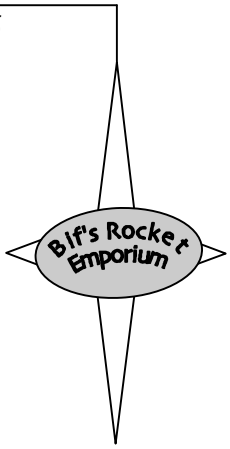
The Sirian Space Racer 5 (SSR-5)

Bif's Rocket Emporium • Paper Model Rocket • © Clive Davis, 2005



Specifications:

Total Weight:	1.75 ounces (50 grams)
Nose Cone Weight:	.75 ounces (20 grams)
Height:	12.125"
Width (body tube):	1"
CG empty:	5.75" from tip
Recommended Motors:	B6-4, C6-5

Instructions:
(Read all instructions first before beginning construction)

Not included in the "kit":

- Shock cord, streamer (or parachute)
- Glue (yellow or white glue, epoxy)
- clay for nose weight
- 18 mm expended motor casing
- X-acto knife/scissors, metal ruler with cork backing
- Ink jet printer
- Clean hands, free of glue and moisture
- Paper. Suggestions: bristol board, inkjet photo paper, glossy (approximately 32 lb.) all purpose business paper, other generic card stock.

1.) Print up the parts sheet on to your selection of paper. Bristol board will give you a very sturdy rocket but will weigh more (less altitude). Using bright, glossy business paper will produce a very beautiful, shiny rocket, but is more delicate and requires gentle hands in constructing and flying. ***TIP: score all the necessary lines first on the parts sheets before cutting them up. The sheets are easier to control in one large piece. Use an expended ball-point pen and a metal ruler with a cork backing (or masking tape) to trace along the fold lines. Push firmly to create a crease, but not too hard that the paper starts tearing or losing any ink***. Select the parts sheets that have the tube fins and nacelles on them. Put these back in the printer (you will have to determine the exact paper orientation – each printer is different) so that you can print up the red nacelle rectangle on the opposite side. Eventually, when you cut the nacelles and tube fins out, the opposite side of these will be covered completely in red.

2.) Cut out all parts using scissors or X-acto knife.

3.) BODY TUBE: Roll and glue body tube together so that it forms a cylinder. ***TIP: Roll the body tube around a large dowel or BT-50 tube. Fasten the top, bottom and middle with a number of rubber bands. Let sit for 30 minutes or more. This is in order to get the body tube in a general cylindrical shape first before trying to glue it together.*** Roll and glue to tab, making sure everything lines up nicely. Set aside to dry completely.

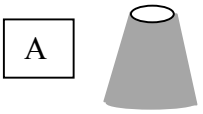
4.) TUBE FINS & NACELLES: Roll and glue the two tube fins

and two nacelles together so that they form cylinders. ***TIP: Roll the tubes around a a small dowel or expended 18 mm motor casing. Fasten the top, bottom and middle with a number of rubber bands. This is in order to get the tubes in a general cylindrical shape first before trying to glue them together.*** Glue and set aside to dry completely.

5.) FINS: There are two fin sets to the SSR-5. There are two wing-fins which are the larger fins of the rocket. There are two smaller clipped delta fins that are added to the bottom of the rocket. Fold the small fins over and glue together. Set aside to dry. Fold the two wing-fins over and glue to the included tab on the wing fins so that they form a kind of thin open box with two open ends. Locate the four identical leading and trailing edges of the wing-fins (they are the black strips with gray tabs). Fold the tabs of the leading edges down. Test fit the leading edges in the wing-fin first before adding any glue. ***TIP: When gluing the leading and trailing edges to the wing-fins, start from one end and work your way to the other side. In order to prevent any warping, place the wing-fins on wax paper on a flat surface such as a table top or book. Place wax paper on top and a heavy, flat book on top of the wing-fins.*** Allow to dry completely.

6.) LAUNCH LUGS: Fold and glue two launch lugs together so that the shapes form rectangular boxes.

7.) NOSE CONE: Roll and glue the nose cone together so that it forms an open-ended cone (Illustration A). Locate the red "lid" to the nose cone. Fold the black tabs down. Test fit into the top of the nose cone before gluing in the top. Place glue inside the top of the nose cone and



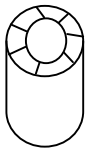
place the red top on the nose cone gently. After the red "lid" is dry, coat the inside of the nose cone with a thin layer of yellow glue. Run your finger around the inside of the cone to make sure the inside surface of the cone is coated with yellow glue.

8.) Locate the black shoulder piece which will function as the shoulder of the nose cone. Roll the shoulder so that it fits inside the nose cone. Test fit the nose cone to the body tube. Adjust the shoulder diameter so that the shoulder fits well within the nose cone, but also within the body tube. Remember, it is easier to add some masking tape to the bottom of the shoulder to get a good fit in the body tube than it is trying to glue a large diameter shoulder inside the nose cone. Once you have figured out the correct size shoulder for your nose cone, glue the shoulder into a tube. When dry, place glue inside the nose cone and insert the shoulder into the nose cone, but not so much that it deforms the shape of the cone. Make sure the shoulder is not glued in at an angle. It must be perfectly straight. Set aside to dry.

9.) MOTOR MOUNT: Using an expended 18 mm motor, roll the motor mount. Make the motor mount fit the motor casing as well as you can. Add glue to the tab and hold

the motor mount until it keeps its shape, usually just a minute or two. Find the engine block, a black strip, that will fit inside the motor mount. Rolling the engine block is not rocket science, but it does have to fit inside the motor mount at the top. Insert glue at the top of the motor mount and gently place the rolled engine block inside.

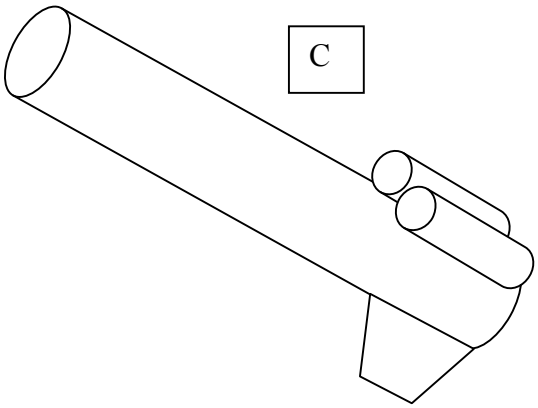
B



Make sure the engine block is glued well so that it does not start unraveling once inside the motor mount. Using your fingernail, gently curve/fold in the top of the motor mount inwards (Illustration B). Reinforce the newly created "motor block" with glue. I like to put the casing back inside the motor mount really quickly so that it forces the glue up around the motor block. Remove the casing immediately so that it doesn't get glued inside the motor mount. Make sure there is a hole at the top for the ejection charge to function properly. Let dry.

10.) CENTERING RINGS: Now locate the very long thin strips. These strips are the centering rings. Begin by gluing and rolling one centering ring on the motor mount at the marked lines. Depending what kind of paper you use, you will need different amounts of the centering rings. Test fit the motor mount inside the body tube, making sure you don't add too many strips to the centering rings. It is easier to add more centering ring than it is to sand away centering rings for a good fit. Once you get a good fit, run some glue around the tops and bottoms of the centering

C



rings. Allow to dry completely, then glue the motor mount into the body tube so that the bottom of the motor mount is flush with the body tube.

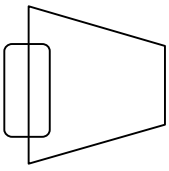
11.) Glue the nacelles on to the wing-fins so that they are flush with the edges of the wing. The nacelles should be the exact same length as the tip of the wing fin.

12.) FINAL ASSEMBLY: There are marks on the body tube for the wing fins, the tube fins, and the clipped delta fins. The wing-fins fit on either side of the rocket mid way up the body tube. The tube fins should be glued side by side, then glued on to the body tube behind the "cockpit" so that the bottom of the tube fins is flush with the bottom of the body tube. In order to glue the clipped delta fins onto the rocket, you will need to use the small support plates. These need to be glued onto the root edge (see illustration D) on either side before being

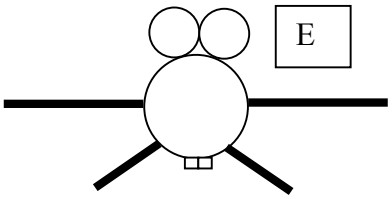
Clipped delta fin

Support plate

D



glued on the underside of the rocket, on the lines on the body tube opposite the tube fins. The bottom of the clipped delta fins should also be flush with the bottom of the body tube. Make sure the support plates fold outwards to support the clipped delta fins on either side. Once the wing-fins have dried, add the larger support plates to the top and bottom of the wing-fins. On the back of the rocket along the seam, glue the two launch lugs together, then glue the launch lugs midway up the body tube.



(not to scale)

13.) NOSE WEIGHT & SHOCK CORD MOUNT: Using one of the tri-fold shock cord mounts, fold and glue a shock cord (go to a Joanne Fabrics type store to buy the elastic cord your mother used to mend your underwear when you were a poor missionary kid in Kenya) to the tri-fold mount, ala Estes style. Once dry, glue the shock cord inside the body tube so that it will not block the nose cone shoulder. Use your finger to hold the shock cord mount in place while the glue dries. Fill the nose cone (but not the shoulder!) with clay. If you have not done so, make sure the nose cone has been coated with yellow glue, otherwise the moisture from the clay will seep through your rocket and ruin the beautiful finish from your $2,000 ink jet printer. Put a little hole in the clay. Tie a knot or two in the loose end of the shock cord and place the knot inside the hole you created in the nose cone. Secure the top of the nose cone with epoxy so the clay and shock cord stay put. Alternatively, glue the shock cord deep inside the nose cone, secure with glue, let dry, and then add the clay on top of the shock cord. Coat the clay with a thin layer of yellow glue to keep it secure in the nose cone.

14.) Place a streamer or two, or a parachute in the rocket, making sure you attach it to the shock cord. Regarding parachute sizes, I would recommend nothing more than a 12 inch parachute. I have personally never flown this on anything other than two streamers, both approximately 1" x 24".

15.) Follow all NAR-approved directions for prepping and launching the rocket. Extra care must be taken to make sure all the fins and tube-fins are glued on well and straight. The flights will really be enjoyable if all the fin units have been constructed properly and sit well on the rocket.

This is a Share-A-Rocket-Kit. If you enjoyed this rocket, please send me an e-mail and let me know your thoughts. Donations of $2.00 are gladly accepted through Paypal.

Thank you.
Clive Davis
Bif's Rocket Emporium
clive_davis@ftml.net

PAYPAL:
clive_davis@ftml.net