



Model Rocket Safety Code

- 1. Materials.** I will use only lightweight, non-metal parts for the nose, body, and fins of my rocket.
- 2. Motors.** I will use only certified, commercially-made model rocket motors, and will not tamper with these motors or use them for any purposes except those recommended by the manufacturer.
- 3. Ignition System.** I will launch my rockets with an electrical launch system and electrical motor igniters. My launch system will have a safety interlock in series with the launch switch, and will use a launch switch that returns to the "off" position when released.
- 4. Misfires.** If my rocket does not launch when I press the button of my electrical launch system, I will remove the launcher's safety interlock or disconnect its battery, and will wait 60 seconds after the last launch attempt before allowing anyone to approach the rocket.
- 5. Launch Safety.** I will use a countdown before launch, and will ensure that everyone is paying attention and is a safe distance of at least 15 feet away when I launch rockets with D motors or smaller, and 30 feet when I launch larger rockets. If I am uncertain about the safety or stability of an untested rocket, I will check the stability before flight and will fly it only after warning spectators and clearing them away to a safe distance.
- 6. Launcher.** I will launch my rocket from a launch rod, tower, or rail that is pointed to within 30 degrees of the vertical to ensure that the rocket flies nearly straight up, and I will use a blast deflector to prevent the motor's exhaust from hitting the ground. To prevent accidental eye injury, I will place launchers so that the end of the launch rod is above eye level or will cap the end of the rod when it is not in use.
- 7. Size.** My model rocket will not weigh more than 1,500 grams (53 ounces) at liftoff and will not contain more than 125 grams (4.4 ounces) of propellant or 320 N-sec (71.9 pound-seconds) of total impulse. If my model rocket weighs more than one pound (453 grams) at liftoff or has more than four ounces (113 grams) of propellant, I will check and comply with Federal Aviation Administration regulations before flying.
- 8. Flight Safety.** I will not launch my rocket at targets, into clouds, or near airplanes, and will not put any flammable or explosive payload in my rocket.
- 9. Launch Site.** I will launch my rocket outdoors, in an open area at least as large as shown in the accompanying table, and in safe weather conditions with wind speeds no greater than 20 miles per hour. I will ensure that there is no dry grass close to the launch pad, and that the launch site does not present risk of grass fires.
- 10. Recovery System.** I will use a recovery system such as a streamer or parachute in my rocket so that it returns safely and undamaged and can be flown again, and I will use only flame-resistant or fireproof recovery system wadding in my rocket.
- 11. Recovery Safety.** I will not attempt to recover my rocket from power lines, tall trees, or other dangerous places.

LAUNCH SITE DIMENSIONS

Installed Total Impulse (N-sec)	Equivalent Motor Type	Minimum Site Dimensions (ft.)
0.00 — 1.25	1/4A	50
1.26 — 2.50	A	100
2.51 — 5.00	B	200
5.01 — 10.00	C	400
10.01 — 20.00	D	500
20.01 — 40.00	E	1000
40.01 — 80.00	F	1000
80.01 — 160.00	G	1000
160.01 — 320.00	2 Gs	1500



**ROCKET FROM
U.N.C.L.E.**

**FUTURISTIC
MISSILE**

SINGLE STAGE

**BALSA FINS &
NOSE CONE**

FLYING MODEL
ROCKET KIT

LAZER CUT FINS

SEMROC

Made in the U.S.A by Semroc Astronautics Corporation - Knightdale, N.C. 27545

APRIL DANCER Kit No. KA-5

Specifications	Engine	Approx. Altitude
Body Diameter 1.34" (3.4 cm)	A8-3	125'
Length 16.6" (42.2 cm)	B6-4	400'
Fin Span 3.1" (7.9 cm)	C6-5	900'
Net Weight 1.9 oz. (53.9 g)		

PARACHUTE RECOVERY

About Semroc Astronautics Corporation

Semroc Astronautics Corporation was started by Carl McLawhorn in his college dorm at North Carolina State University in November, 1967. Convincing a small group of investors in his home town of Ayden, North Carolina to invest in a small corporation, the company was re-incorporated as Semroc Astronautics Corporation on December 31, 1969.

Semroc produced a full line of model rocket kits and engines. At its peak, Semroc had twenty-five full time employees working at two facilities. One was for research and development, printing, shipping, and administration. The other was outside town and handled all production and model rocket engine manufacturing. For several years, Semroc was successful selling model rocket kits, supplies, and engines by mail-order and in hobby shops. In early 1971, Semroc became insolvent and had to close its doors.

After 31 years of dreams and preparations, Semroc Astronautics Corporation was reincorporated on April 2, 2002 with a strong commitment to helping put the fun back into model rocketry.

May 8, 2005

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Box 1271 Knightdale, NC 27545 (919) 266-1977

LIMITATION OF LIABILITY

Model rockets are not toys, but are functional rockets made of lightweight materials and are launched with NAR or Tripoli safety certified model rocket motors, electrically ignited and flown in accordance with the NAR Model Rocket Safety Code. If misused, model rockets can cause serious injury and property damage. Semroc certifies that it has exercised reasonable diligence in the design and manufacture of its products. Semroc cannot assume any liability for the storage, transportation, or usage of its products. Semroc shall not be held responsible for any personal injury or property damage whatsoever arising out of the handling, storage, use, or misuse of our products. The buyer assumes all risks and liabilities therefrom and accepts and uses Semroc products on these conditions.

Your purchase and use of any Semroc products is construed as your agreement to and acceptance of these terms. If you do not agree to these terms and conditions, you must return the product, unused, for refund or credit.

100% SATISFACTION GUARANTEE

If you are not 100% satisfied with your Semroc product, we will make it right by providing whatever you consider fair, from refund to replacement.

Contact us at:

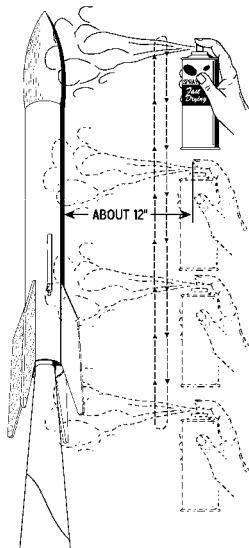
Semroc Astronautics Corporation

Customer Service Department
P.O. Box 1271
Knightdale, North Carolina 27545

JOIN THE NAR!

Sign up online at www.nar.org to join the premier model rocketry organization. Semroc fully supports the National Association of Rocketry and recognizes it as the sport's official voice. The NAR is the oldest and largest sport rocketry organization in the world. Since 1957 over 80,000 serious sport rocket modelers have joined the NAR to take advantage of the fun and excitement of organized rocketry. It is always more fun if you fly with friends. The *Sport Rocketry* magazine is one of the best ways to keep informed of new developments in the hobby. Check online at www.semroc.com/nar for promotions just for NAR members.



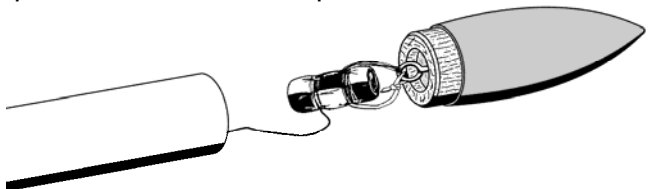


- ☐ **32.** After the paint has dried, decals should be applied. The decals supplied with the April Dancer are waterslide decals. Each decal should be cut separately from the sheet. Apply each decal before starting the next. Think about where you want to apply each decal and check for fit before wetting the decal. Use the cover photo for suggested placement.

FLIGHT PREPPING

- ☐ **33.** Mounting the engine: Insert the engine and make sure the engine hook keeps the engine in snugly. The hook may be slightly bent to make sure the engine is retained.

- ☐ **34.** Fold the parachute and pack it and the shock cord on top of the ejection baffle. Recovery wadding may be used, but is not necessary. Slide the nose cone into place, making sure it does not pinch the shock cord or parachute.



- ☐ **35.** Refer to the model rocket engine manufacturer's instructions to complete the engine prepping. Different engines have different igniters and methods of hooking them up to the launch controllers.

- ☐ **36.** Carefully check all parts of your rocket before each flight as a part of your pre-flight checklist. Launch the April Dancer from a 1/8" diameter by 36" long launch rod.

About the April Dancer™

The Semroc April Dancer™ is based on a special effects missile from the old television spy series "Man from U.N.C.L.E." Lee Piester, the president of Centuri Engineering, designed the model rocket for his friend, Gene Winfield. Gene was the manager of the division of AMT that built the car used on the series. One of the special effects used rocket launch tubes in the gull-wing doors to fire the "heat-seeking" missiles. Lee designed the original model rockets used on the series in 1967. The original models used the Centuri Mini-Max "F" engines. The explosive effects were added in post-production.

The Semroc April Dancer gets its name from the "Girl from U.N.C.L.E." played by Stefanie Powers. Although the series only lasted one season, she made quite an impact on thousands of fans. The Semroc April Dancer uses laser-cut balsa fins, balsa nose cone, ejection baffle, and parachute recovery. Since the original fins were so small, a clay weight is added to the nose cone for improved stability.

BEFORE YOU START!

Make sure you have all the parts included in this kit that are listed in the Parts List in the center of these instructions. In addition to the parts included in this kit, you will also need the tools and materials listed below. Read the entire instructions before beginning to assemble your rocket. When you are thoroughly familiar with these instructions, begin construction. Read each step and study the accompanying drawings. Check off each step as it is completed. In each step, test-fit the parts together before applying any glue. It is sometimes necessary to sand lightly or build-up some parts to obtain a precision fit. If you are uncertain of the location of some parts, refer to the exploded view in the center of these instructions. It is important that you always ensure that you have adequate glue joints.

TOOLS: In addition to the parts supplied, you will need the following tools to assemble and finish this kit.

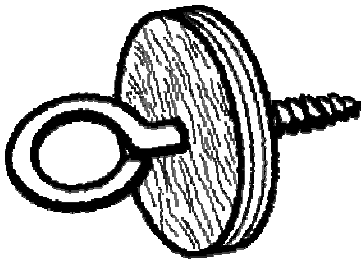


ASSEMBLY

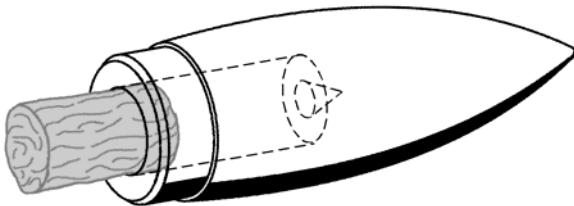
- ☐ **1.** These instructions are presented in a logical order to help you put your April Dancer together quickly and efficiently. Check off each step as you complete it and enjoy putting this kit together.

PREPARE NOSE CONE

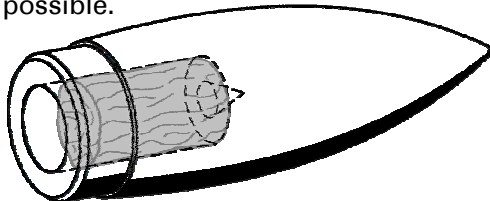
- ☐ **2.** Twist the screw eye into the center of the plywood disc. Only screw it in until the threads just disappear into the plywood. Apply glue to the thread side and set this assembly aside to dry.



- ☐ **3.** Roll the Clay Weight into a cylinder about 5/8" in diameter. Insert into the drilled hole in the nose cone.



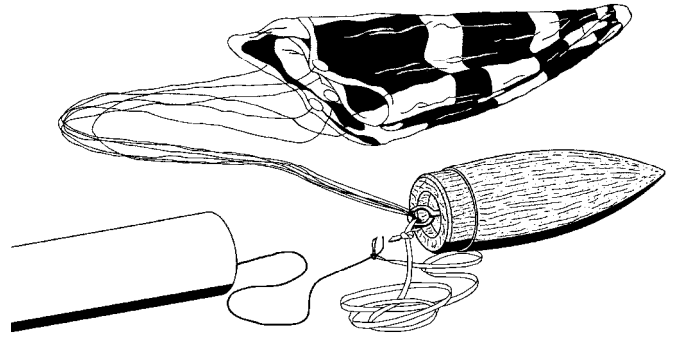
- ☐ **4.** Using a wood dowel, pencil eraser, or your finger, push the Clay Weight as far into the nose cone as possible.



- ☐ **5.** Insert the plywood disc and screw eye assembly into the hole in the nose cone and press it firmly against the Clay Weight.



- ☐ **28.** Tie the free end of the elastic cord to the screw eye.

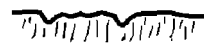


This completes the assembly of your

SEMROC
April Dancer

FINISHING

- ☐ **29.** When the fillets have dried, prepare balsa surfaces for a smooth professional looking finish. Fill the wood grain with balsa fillercoat or sanding sealer. When dry, sand with fine sandpaper. Repeat until smooth.



1st coat of fillercoat



2nd coat of fillercoat



After 1st sanding



3rd coat of fillercoat

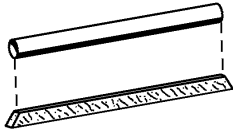


After final sanding

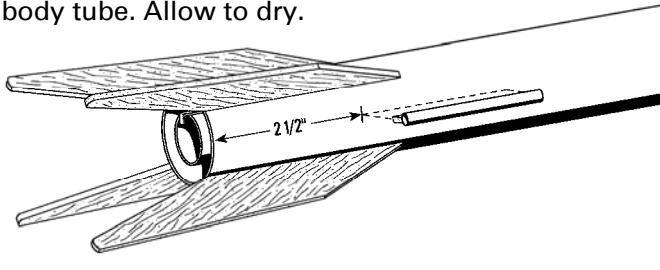
- ☐ **30.** After all balsa surfaces have been prepared, wipe off all balsa dust with a dry cloth. First spray the model with an enamel primer. Choose a high visibility color like white for the final color. The nose cone may be painted separately. Red was used on the original model.

- ☐ **31.** Spray painting your model with a fast-drying enamel will produce the best results. PATIENCE...is the most important ingredient. Use several thin coats, allowing each coat to completely dry before the next coat. Start each spray a few inches above the model and end a few inches below the model. Keep the can about 12" away and use quick light coats. The final coat can be a little heavier to give the model a glossy wet-looking finish.

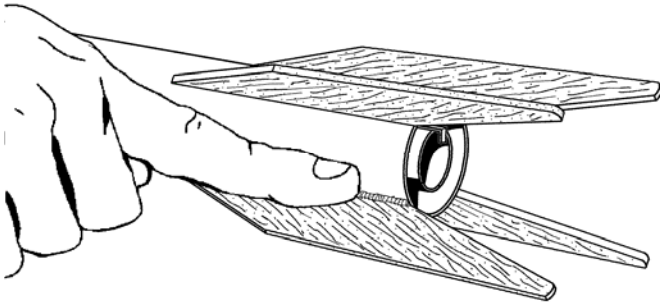
- ❑ **24.** Glue the launch lug to the short side of the balsa standoff as shown. Allow to dry.



- ❑ **25.** Glue the standoff and launch lug assembly to the main body tube along the line previously marked and 2 1/2" from the bottom of the main body tube. Allow to dry.

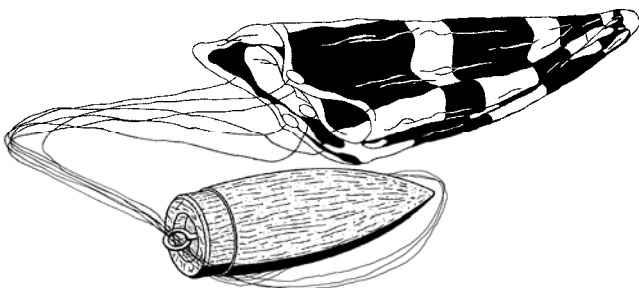


- ❑ **26.** After the fin assembly is completely dry, run a small bead of glue along both sides of each fin-body tube joint. Using your forefinger, smooth the glue into fillets.

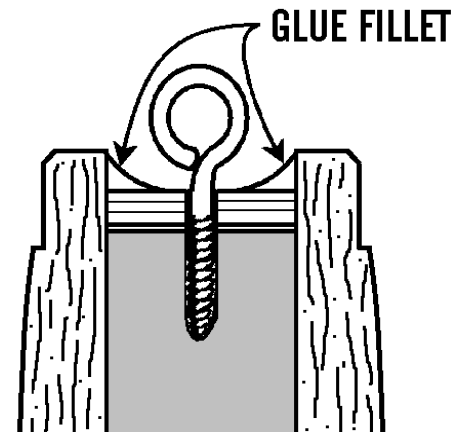


FINAL ASSEMBLY

- ❑ **27.** Assemble chute using instructions printed on canopy. Attach chute by passing the lines through the screw eye and looping them over the tip of the nose cone as shown. Pull the lines tight and make sure they are all of equal length. Put a drop of glue on the joint to keep the lines from moving.

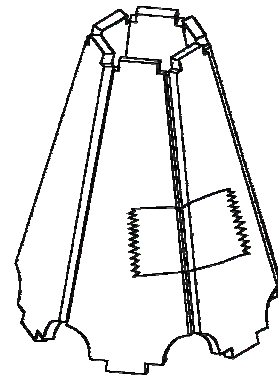


- ❑ **6.** Make sure there is no clay showing. The glue will not stick to the clay. Apply a glue fillet around the plywood disc-nose cone joint. Leave the nose cone in a vertical position with the screw eye facing upwards until the glue is completely dry.

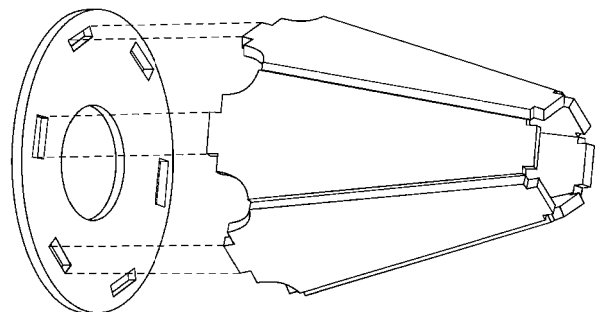


BUILD EJECTION BAFFLE

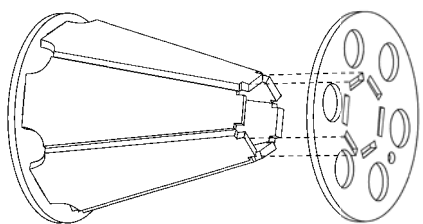
- ❑ **7.** Carefully punch out the Ejection Baffle parts from the laser-cut fiberboard sheet. Carefully crease the middle section on the scored lines to form a cone. Hold it together with a small piece of tape as shown.



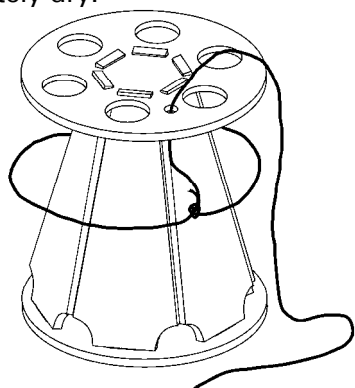
- ❑ **8.** For extra protection from hot ejection gases, coat the inside with a thin coat of wood glue. Punch out the center hole and all the slots in the bottom ring. Align the tabs of the middle section with the slots in the bottom ring and assemble the two parts. Apply glue to all the joints, making sure all the duct holes are left open.



- ❑ **9.** Punch out the outer holes and all the slots in the top ring. Align the tabs of the middle section with the slots in the top ring and assemble the two parts. Apply glue to all the joints, making sure all the round duct holes are left open.

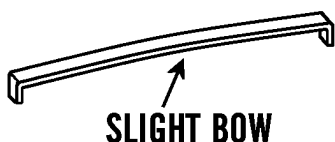


- ❑ **10.** Tie one end of the yellow Kevlar® thread snugly around the top of the cone and pass the long free end through the smallest hole. Apply a bead of glue around the thread and on the knot. Set the assembly aside on a piece of wax paper and allow it to completely dry.

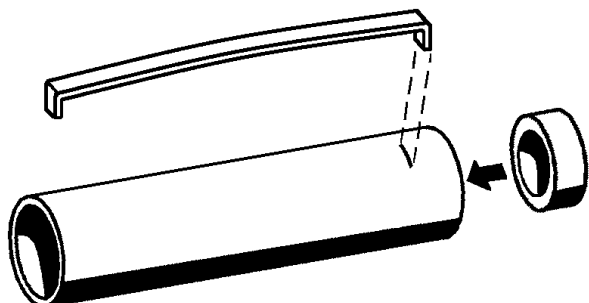


ENGINE MOUNT

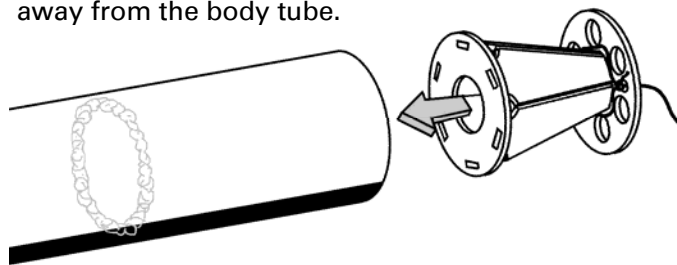
- ❑ **11.** Bend the engine hook slightly so it forms a slight bow in the direction shown.



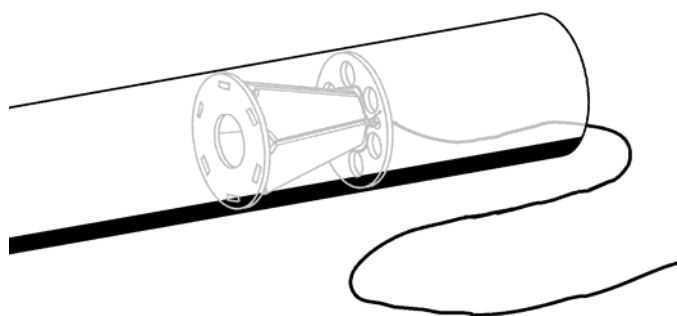
- ❑ **12.** Insert one end of the engine hook into the pre-punched engine tube slot. Glue the thrust ring in place on top of the engine hook as shown.



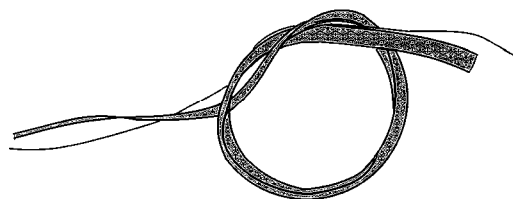
- ❑ **20.** Apply a thick bead of glue inside the forward end of the main body tube. Align the ejection baffle as shown with the single hole towards the top of the main body tube and the Kevlar® thread away from the body tube.



- ❑ **21.** Push the ejection baffle assembly into the body tube until it is three inches deep. Do not stop until it is in place. Apply a fillet of glue around the top ring and body tube joint. Allow to dry completely.

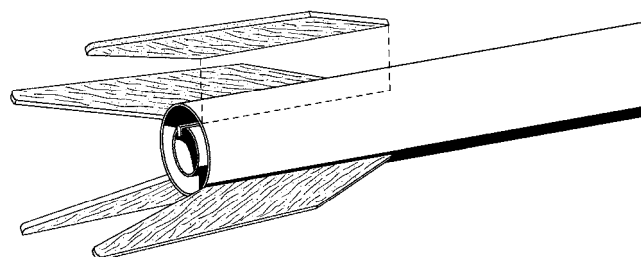


- ❑ **22.** Tie the free end of the Kevlar® thread to one end of the elastic cord using an overhand knot.

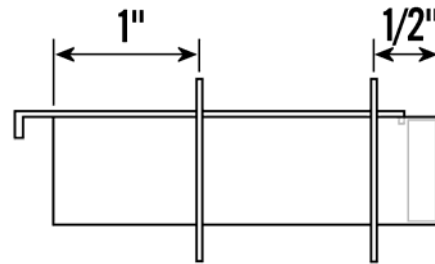


FIN ASSEMBLY

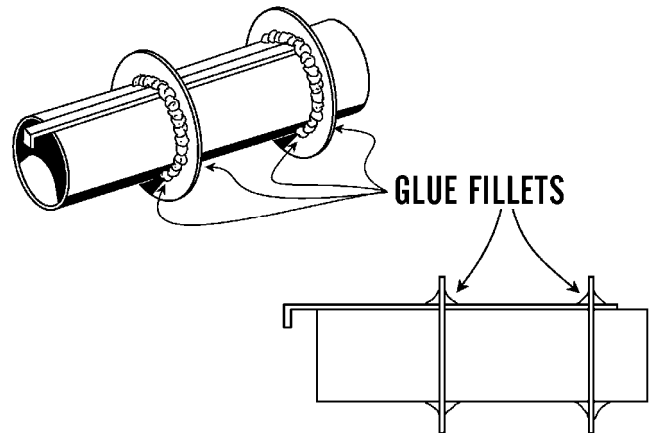
- ❑ **23.** Apply glue to the root edge of a fin and position it along one of the lines drawn for the fins on the side of the body tube. Remove, allow to almost dry, apply additional glue, and reposition. Repeat for the other three fins.



- ❑ **13.** Slide the two centering rings onto the engine tube. Position them to the approximate locations as shown.

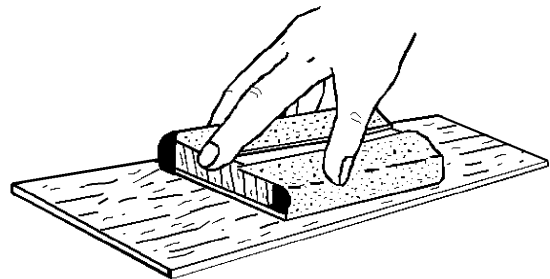


- ❑ **14.** Apply a heavy fillet of glue around both sides of each centering ring at the joints with the engine mount tube. Continue turning the assembly until the glue does not run. Set the assembly aside to dry completely.

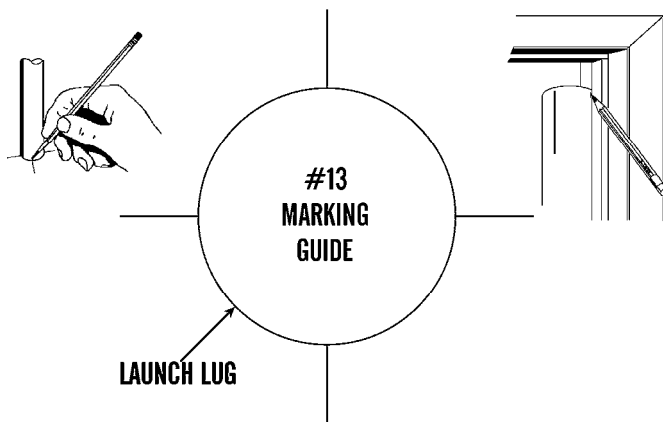


PREPARE THE FINS

- ❑ **15.** Lightly sand each side of the laser-cut fins. Carefully push the laser-cut fins from their sheet. Start at one point on each fin and slowly and gently work around the fin.



- ❑ **16.** Stack all four fins and line them up squarely. Run the fins back and forth over some fine sandpaper to get rid of the hold-in tabs as shown. Carefully sand the launch lug standoff and set it aside for later.



Parts List

A) 1	Body Tube	ST-13105
B) 1	Body Tube	ST-730E
C) 1	Balsa Nose Cone.....	BC-1340
D) 1	Laser Cut Fins	FA-5
E) 2	Centering Rings	CR-713
F) 1	Thrust Ring	TR-7
G) 1	Launch Lug.....	LL-122
H) 1	Engine Hook	EH-28
I) 1	Screw Eye.....	SE-12
J) 1	Plywood Block	PB-75
K) 1	Elastic Cord	EC-124
L) 1	Kevlar® Thread	SCK-24
M) 1	Ejection Baffle.....	EB-13
N) 1	Weight Clay.....	WC-5
O) 1	Plastic Parachute	RC-12
P) 1	Tape Discs	TD-6
Q) 1	Shroud Line.....	SLT-6
R) 1	Decal.....	DKA-5

Exploded View

