## About Centuri Engineering Company

Centuri Engineering Company was started in 1961 by Leroy (Lee) Piester in his garage while he was still in college in Phoenix, Arizona. With his wife, Betty, they built Centuri into one of the largest model rocket companies ever.

Centuri was known for its unusual and innovative designs, producing over 140 different kits with something for every model rocketeer. They also produced model rocket engines and pioneered the modern composite high powered engines with their Enerjet line.

Centuri Engineering was sold to Damon in the late 1960's and shared the same parent corporation with Estes Industries, the largest model rocket company in the world. The Centuri product line was kept separate from the Estes line until 1983. A few of the old kits have been reissued by Estes since then, but for the most part, Centuri Engineering Company lives today only in the dreams of the senior members of the model rocket community.

## About the Swift Boost Glider™

The Swift Boost Glider was initially released in late 1968 in the 1969 Centuri Catalog. It was the first front engine "pop-pod" boost glider from Centuri. The earlier boost gliders were rear engine designs like the X-21 and Acro-Bat. The Swift was designed to be easier for the beginner to build and trim for a stable glide. The Swift Boost Glider became one of Centuri's most popular kits. The Swift was Centuri #KBG-3 and was introduced with a price of $1.95.

The Retro-Repro™ Swift Boost Glider™ is updated by using all laser-cut balsa parts.. The original balsa nose cone and body tube are used. The original rubber shock cord is replaced with an elastic cord for longer life. The original method of attaching the shock cord has been replaced by a Kevlar® cord for greater reliability. A streamer replaces the original parachute to limit drift of the pop-pod.




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

**SWIFT BOOST GLIDER™**
**Kit No. KV-27**

| Specifications | | Recommended Engines |
|---|---|---|
| Body Diameter | 0.759" (19.3 cm) | 1/2A6-2 |
| Length | 16.5" (41.9 cm) | B4-2 |
| Fin Span | 11.8" (30.0 cm) | |
| Net Weight | 1.0 oz. (28.4 g) | |

**GLIDE/STREAMER RECOVERY**

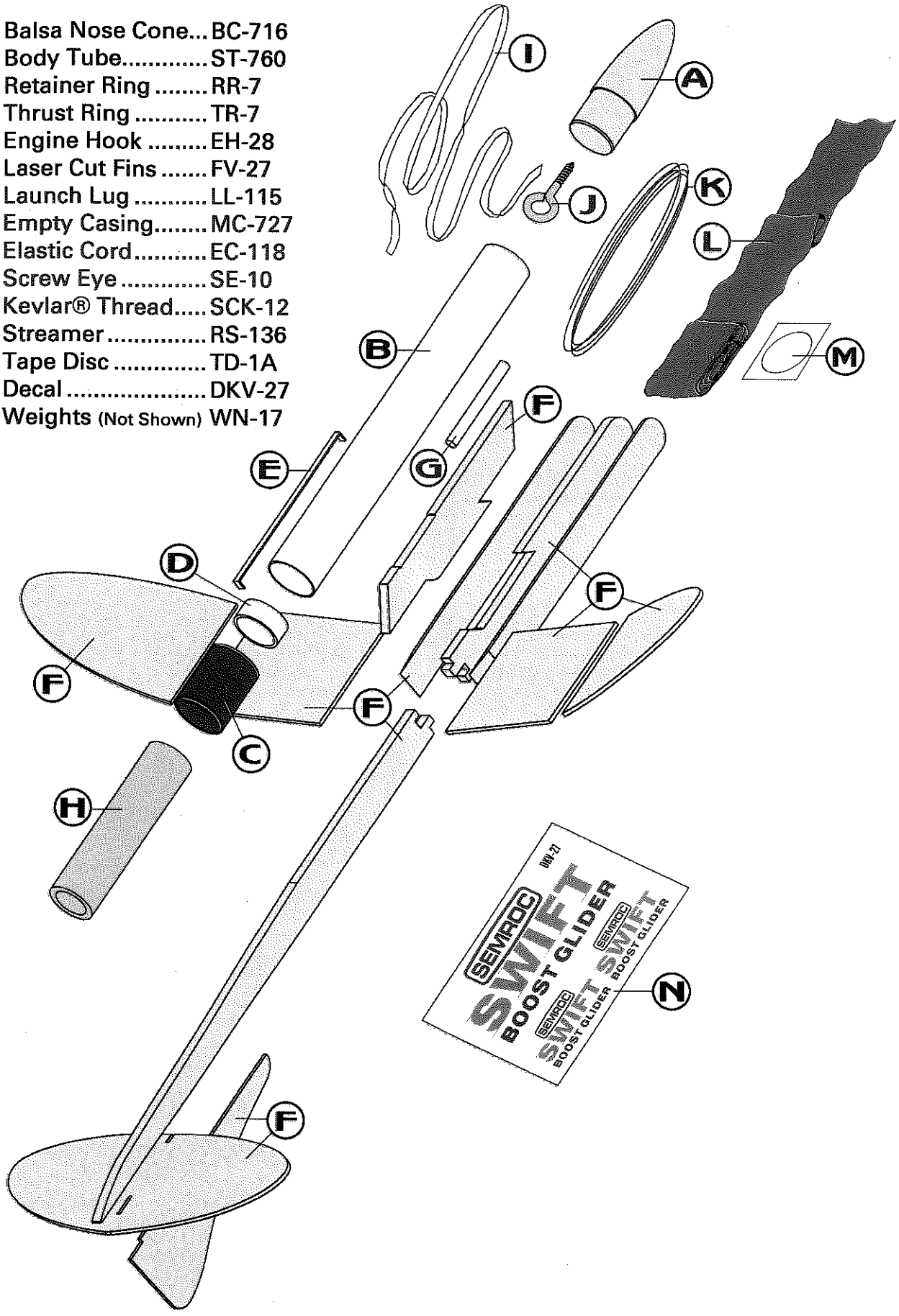
**August 1, 2009**

Copyright © 2009 Semroc Astronautics Corporation
Box 1271 Knightdale, NC 27545 (919) 266-1977

## Parts List

| | | | |
|---|---|---|---|
| A | 1 | Balsa Nose Cone... | BC-716 |
| B | 1 | Body Tube..... | ST-760 |
| C | 1 | Retainer Ring ..... | RR-7 |
| D | 1 | Thrust Ring ..... | TR-7 |
| E | 1 | Engine Hook ..... | EH-28 |
| F | 1 | Laser Cut Fins ..... | FV-27 |
| G | 1 | Launch Lug ..... | LL-115 |
| H | 1 | Empty Casing..... | MC-727 |
| I | 1 | Elastic Cord..... | EC-118 |
| J | 1 | Screw Eye ..... | SE-10 |
| K | 1 | Kevlar® Thread..... | SCK-12 |
| L | 1 | Streamer ..... | RS-136 |
| M | 1 | Tape Disc ..... | TD-1A |
| N | 1 | Decal ..... | DKV-27 |
| O | 3 | Weights (Not Shown) | WN-17 |

## EXPLODED VIEW

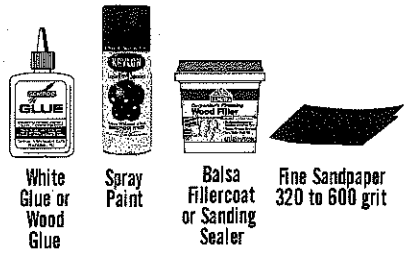


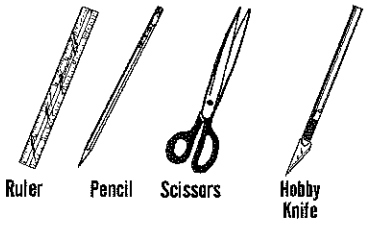
## BEFORE YOU START!

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 on the back of the cover sheet 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. Masking tape and wax paper are also needed.



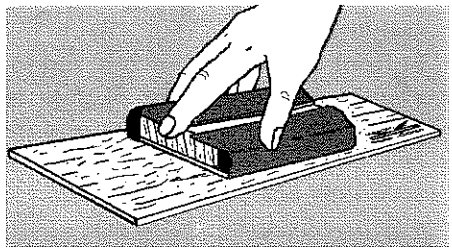




## ASSEMBLY

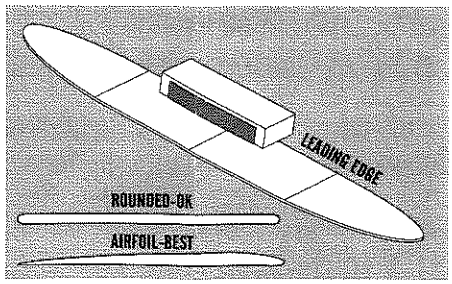
❑ **1.** These instructions are presented in a logical order to help you put your Swift Boost Glider™ together quickly and efficiently. Check off each step as you complete it and we hope you enjoy putting this kit together.

## BALSA PREPARATION

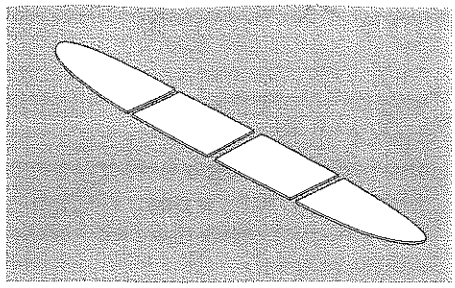
❑ **2.** Lightly sand each side of the laser-cut fin sheets (FV-27). Carefully push the laser-cut fins from the sheet. DO NOT separate the four main wing pieces at this time. Start at one point on each fin and slowly and gently work around the fin.



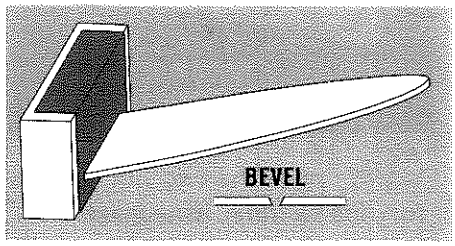
❑ **3.** Sand an airfoil shape on the main wing. The tips of the wing are closer to the front. Leave the parts connected until you are finished sanding. Since the balsa is thin, all edges can be rounded unless the highest performance is desired.



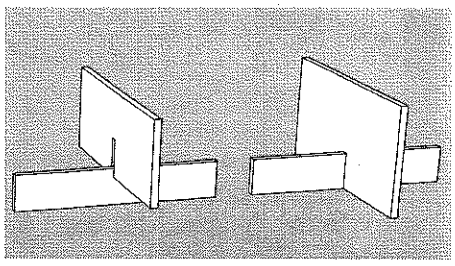

❑ **4.** Mark each of the four parts of the main wing on the top side near the front so they can be assembled in the same order. Using a hobby knife, cut the four sections of the main wing apart .



❑ **5.** Sand the gluing edges on all four parts of the wing so they will form an angle upward when the wing is assembled.

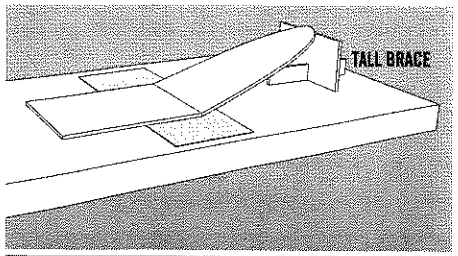



❑ **6.** Assemble the two braces and their supports as shown. Apply enough glue to hold them in place. They will be discarded later.

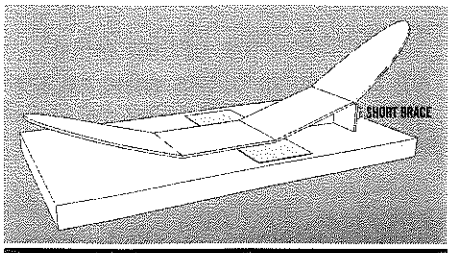


## WING ASSEMBLY

❑ **7.** Place the tallest brace (1" tall) on your work table. Use tape to hold it in place. Place a piece of wax paper next to the brace. Tape the right inner wing to the work table. Tape the right wing tip in place to the top of the brace. Apply a bead of glue to the joint and allow to dry. Remove carefully from the wax paper. Repeat with the left wing parts.

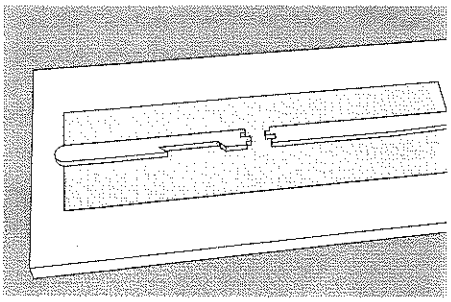


❑ **8.** Using the short brace (3/4" tall), align the two wing halves as shown to get the proper dihedral. Use a sheet of wax paper under the joint, then tape both pieces in place and apply a bead of glue in the joint between the two halves. Allow to dry.

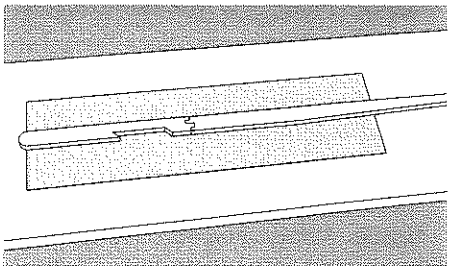



## BODY

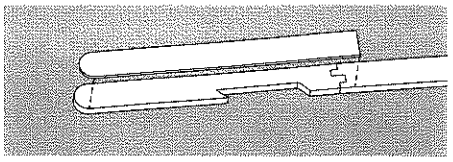
❑ **9.** Check the two body pieces for fit, sanding if necessary. Put a sheet of wax paper under them.



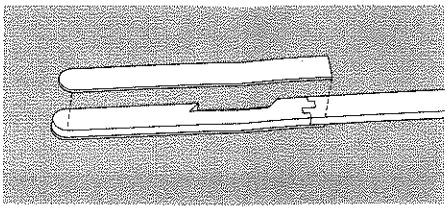
❑ **10.** Apply a bead of glue on the stepped joint formed by the two body pieces. Check for proper alignment, using a straightedge, if needed. Allow to completely dry before moving the assembly.



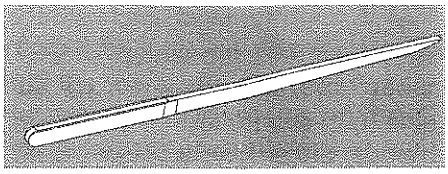
❑ **11.** Glue one of the nose strips to one side of the main body, keeping the edges aligned. Allow the glue to set for a few minutes.



❑ **12.** Turn the main body over and glue the other nose strip in place. Place the assembly under a weight and allow to completely dry.

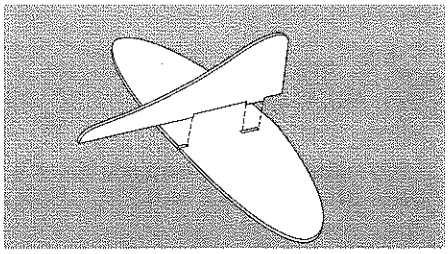


❑ **13.** Sand the front and rear of each of the nose strips to a taper.

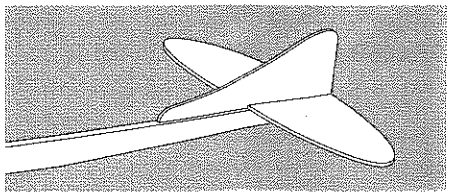


## GLIDER FINAL

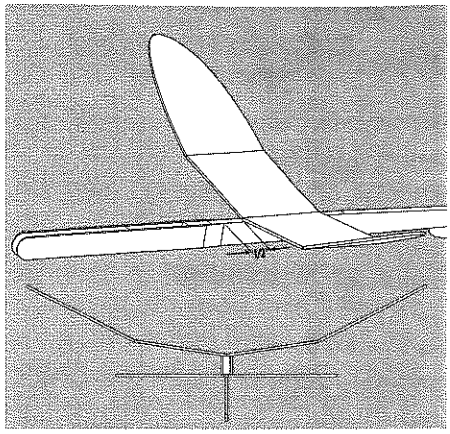
❑ **14.** Round the edges of the stabilizer and rudder. Leave the bottom (flat) edge of the rudder square. Apply a bead of glue to the bottom of the rudder and insert it into the stabilizer. Make sure they are at right angles.



❑ **15.** Glue the tail and rudder assembly to the bottom (flat) side of the main body. The slot should be facing down.

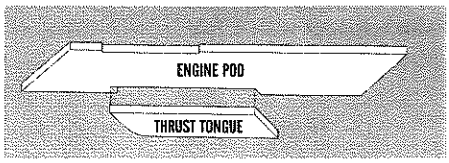


❑ **16.** Place a mark 1/2" from the end of the nose strips on the main body. Glue the wing in place with the leading edge even with this mark. Make sure the wing is at right angles with the body and both wing tips are symmetrical with the stabilizer.

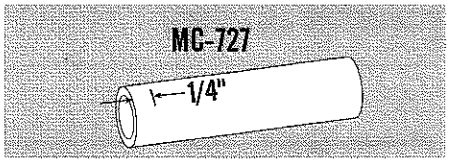


## POP POD ASSEMBLY

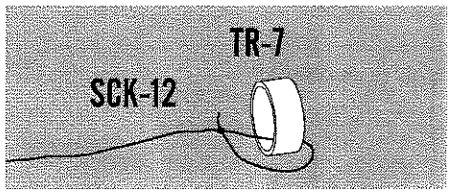
❑ **17.** Glue the thrust tongue in the slot in the engine pod. Make sure the rounded edge is to the outside as shown.



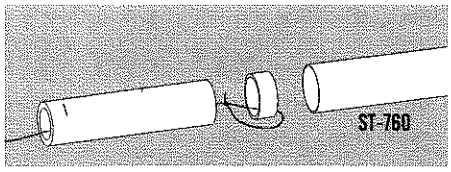

❑ **18.** Mark the empty casing (MC-727) 1/4" from one end.



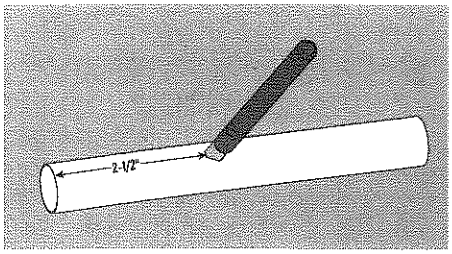

❑ **19.** Pass one end of the yellow Kevlar® cord (SCK-12) through the thrust ring (TR-7) and tie an overhand knot in the loop formed.



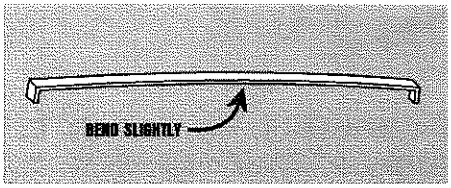

❑ **20.** Apply a bead of glue inside one end of the body tube (ST-760). Thread the shock cord through the empty casing and use it to insert the thrust ring into the body tube. Push it in one motion until the mark on the casing is even with the end of the tube. Do not stop until it is in place or the glue will "freeze" the thrust ring too soon. Remove the empty casing immediately. Stuff the cord into the body tube.



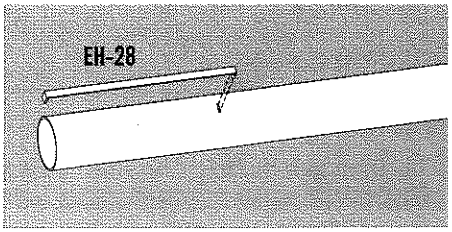

❑ **21.** Place a mark exactly 2-1/2" from the end of the tube that has the thrust ring. Use a hobby knife to place a small slit at the mark. It **should clear the thrust ring.**



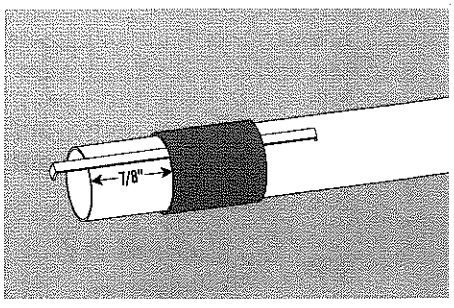

❑ **22.** Bend the engine hook (EH -28) slightly so it forms a slight bow in the direction shown.



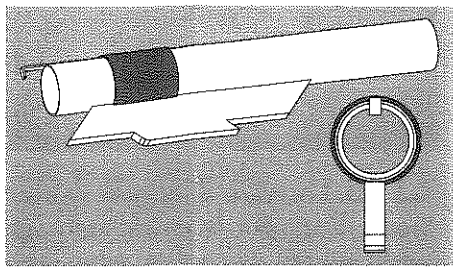

❑ **23.** Insert one end of the engine hook into the slit, leaving the other end free to overhang the end of the tube.




❑ **24.** Place a mark 7/8" from the end of the body tube. Slide the retaining ring (RR-7) over the tube and engine hook until the bottom is even with the mark. Apply a smooth fillet of glue around each end of the retaining ring.

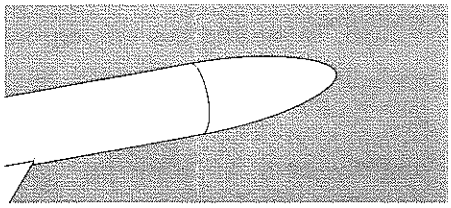



❑ **25.** Attach the pod assembly to the bottom of the body tube, **opposite the engine hook.** Align the pod so the retaining ring fits in the notch. Sight down the assembly to make sure it looks like the end view. Run a fillet of glue along each side at the joint between the pod and body.

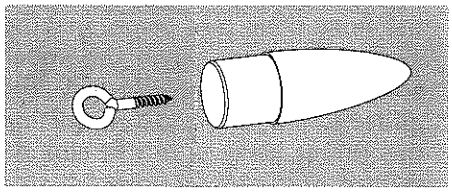


## NOSE CONE

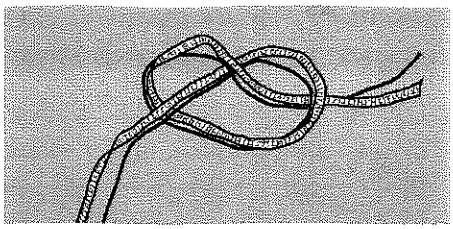
❑ **26.** Insert the nose cone (BC-716) in the tube and check for proper fit. The nose cone should be snug to hold itself in alignment. If it is too loose, add some masking tape. If it is too tight, sand the shoulder slightly.



❑ **27.** Twist the screw eye (SE-10) into the center of the base of the nose cone. Remove the screw eye, squirt in a drop of glue and reinsert the screw eye.

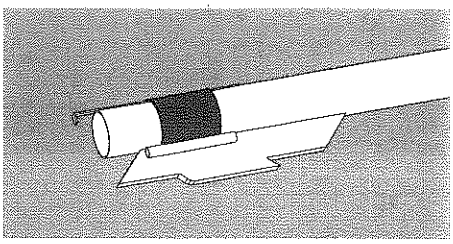


❑ **28.** Prepare the shock cord as follows. Line up one end of the elastic shock cord (EC-118) with the free end of the Kevlar® cord (SCK-12) and tie an overhand knot at the end of the two cords. Pull the knot tight and place a small drop of glue on the knot to prevent it from loosening.



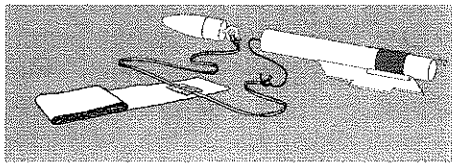
## LAUNCH LUG

❑ **29.** Glue the launch lug (LL-115) against the pod and centered on the retaining ring.



## FINAL ASSEMBLY

❑ **30.** Shake the elastic cord free and out of the top of the main tube. Attach the free end of the elastic cord to the screw eye. Put a drop of glue on that joint as well. Using the tape disc (TD-1), attach the streamer (RS-136) to the center of the elastic cord.

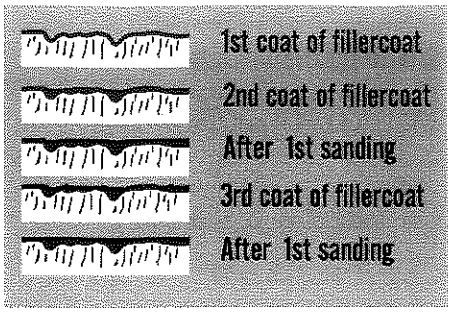


This completes the assembly of your

SEMROC
# SWIFT
## BOOST GLIDER

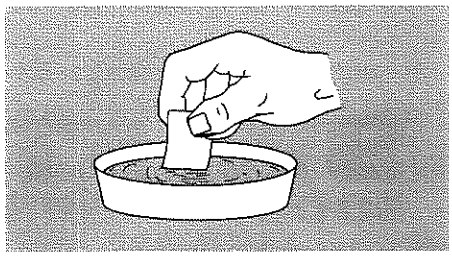
## FINISHING

❑ **31.** For a smooth professional looking finish, fill the wood grain with balsa fillercoat or sanding sealer. The pop-pod can be finished normally, but for best glide results, the glider should have a minimum of weight added by fillercoat and paint. When dry, sand with fine sandpaper.

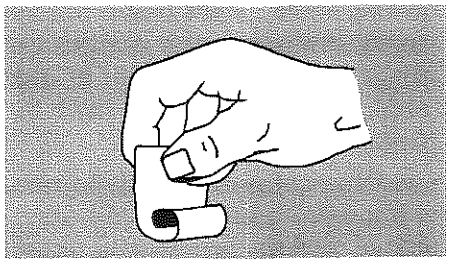



❑ **32.** After all balsa surfaces have been prepared, wipe off all balsa dust with a dry cloth. Paint should be kept to a minimum! Marker pens work best to keep the added weight to a minimum.

❑ **33.** After the paint has dried, decals should be applied. The decals supplied with the Swift Boost Glider™ are waterslide decals. Each decal should be cut separately from the sheet. Think about where you want to apply each decal and check for fit before wetting the decal. Use the cover photo for suggested placement. Dip each decal in a small dish of water that has a drop of detergent. It will take about 30 seconds before the decal is loose enough to apply.



❑ **34.** Slide the decal in place and use the paper backing to work the bubble out. Repeat for all the decals.



## GLIDE TRIMMING

❑ **35.** Locate a clear grassy area free of objects that will damage your glider. Face the wind and gently toss the glider with a slight angle of attack upward. If the glider stalls, add some weight (WN-17) in the front tip of the glider body and try again. If it dives, add a weight at the tail and retry. Straight pins may be used if the supplied weights are too heavy.

## FLIGHT PREPPING

❑ **36.** 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.

❑ **37.** Apply a few sheets of recovery wadding in the top of the body tube. Roll the streamer and pack it and the shock cord on top of the recovery wadding. Slide the nose cone into place, making sure it does not pinch the shock cord or streamer. Attach the glider to the pop pod by inserting the thrust tongue in the slot on the top of the glider body.

❑ **38.** 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. Use tape to keep the igniter leads away from the wings.

❑ **39.** Carefully check all parts of your boost glider before each flight as a part of your pre-flight checklist. Launch the Swift Boost Glider™ from a 1/8" diameter by 36" long launch rod.

❑ **40.** After each flight, promptly remove the spent engine casing and dispose of properly.