

## 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 Nomad™

The original Nomad was released by Centuri Engineering. Reminiscent of military missiles of the time, the semi-scale model was representative of several naval versions. It featured fiber fins and vanes and was easy to build. It was released in the 1973 Centuri Catalog as Cat. No. KB-5 and retailed for \$2.50.

The Semroc Retro-Repro™ Nomad™ is close to the original design. The original fiber fins are replaced with balsa main fins and basswood vanes for more durability and less warping. The original plastic nose cone is replaced with a balsa equivalent. The Nomad features a water-slide decal. The shock mount is replaced with a Kevlar® cord for greater reliability.

## What is a Retro-Repro?

A Retro-Repro™ is a retro reproduction of an out-of-production model rocket kit. It is a close approximation of a full scale model of an early historically significant model rocket kit from one of the many companies that pioneered the hobby over the past half century. A Retro-Repro™ is not a true clone or identical copy of the original. It incorporates improvements using modern technology, while keeping the flavor and build appeal of the early kits.

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# NOMAD™

**SCALE LIKE**

**EASY TO BUILD**

**BALSA FINS &  
NOSE CONE**

**BASSWOOD  
VANES**

**FLYING MODEL  
ROCKET KIT**



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

## Nomad™ Kit No. KV-76

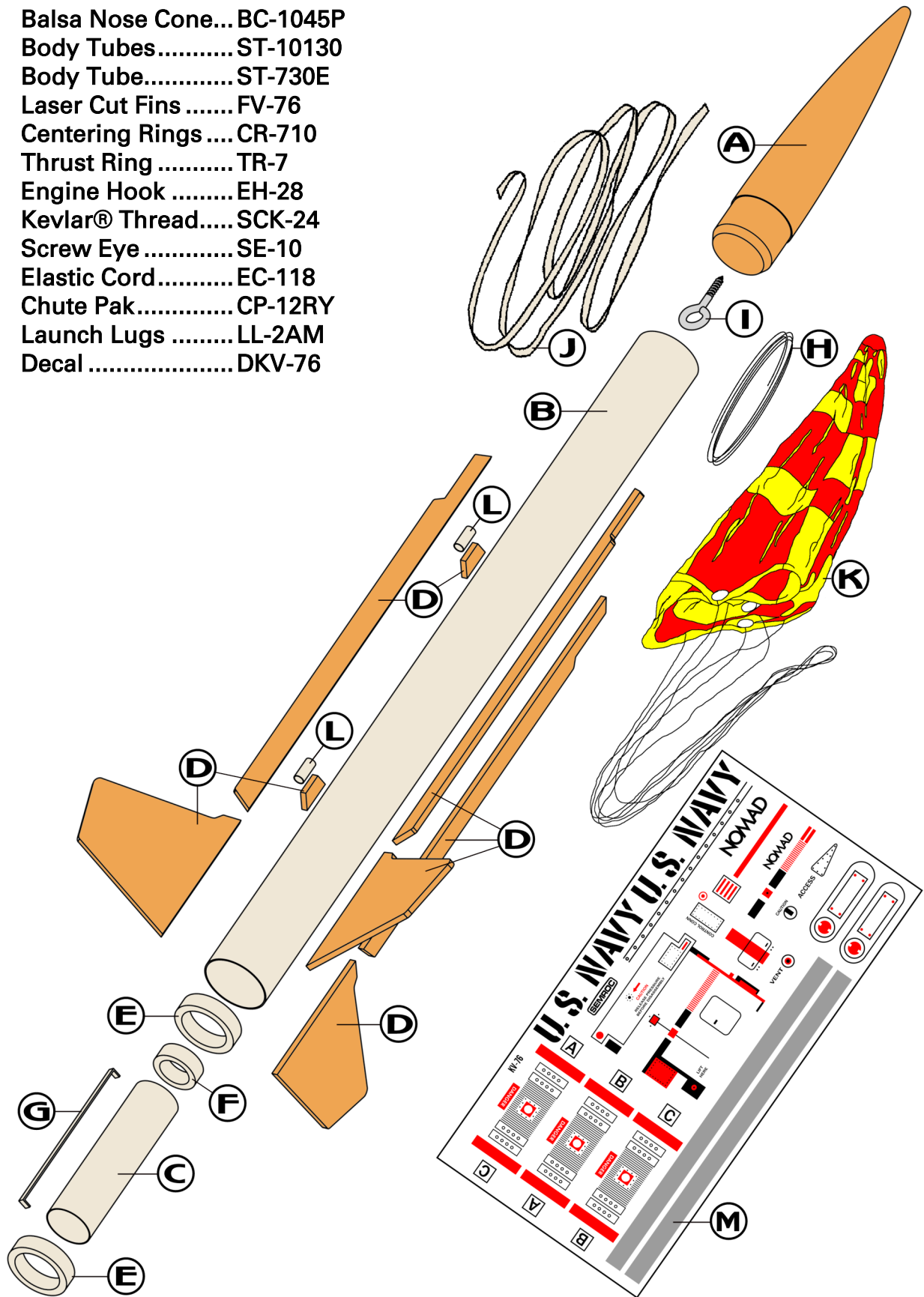
Specifications	Engine	Approx. Altitude
Body Diameter 1.04" (2.6 cm)	A8-3	200'
Length 18.3" (46.5 cm)	B6-4	500'
Fin Span 5.3" (13.5 cm)	C6-5	1000'
Net Weight 1.3 oz. (36.9 g)		

**PARACHUTE RECOVERY**

# Parts List

# EXPLODED VIEW

- A 1 Balsa Nose Cone... BC-1045P
- B 1 Body Tubes..... ST-10130
- C 1 Body Tube..... ST-730E
- D 1 Laser Cut Fins ..... FV-76
- E 2 Centering Rings .... CR-710
- F 1 Thrust Ring ..... TR-7
- G 1 Engine Hook ..... EH-28
- H 1 Kevlar® Thread..... SCK-24
- I 1 Screw Eye ..... SE-10
- J 1 Elastic Cord..... EC-118
- K 1 Chute Pak..... CP-12RY
- L 2 Launch Lugs ..... LL-2AM
- M 1 Decal ..... DKV-76



## 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.

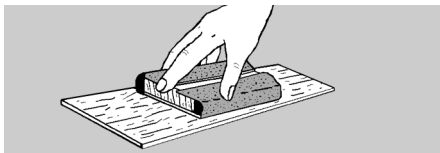


## ASSEMBLY

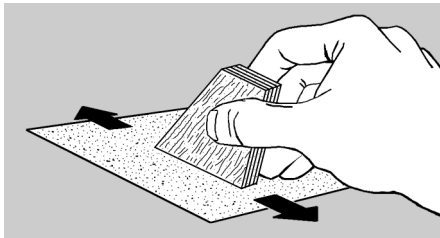
1. These instructions are presented in a logical order to help you put your Nomad™ together quickly and efficiently. Check off each step as you complete it and we hope you enjoy putting this kit together.

## FIN PREPARATION

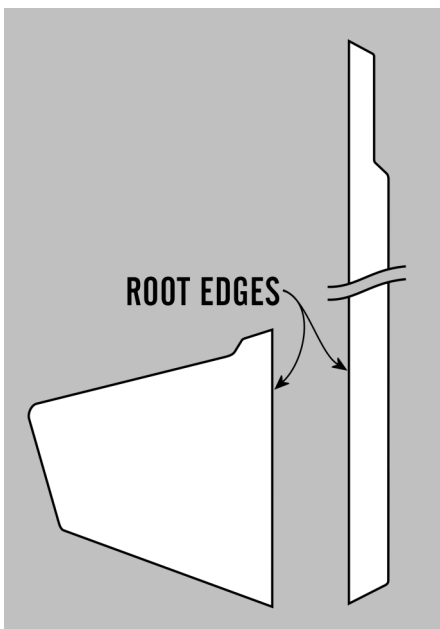
2. Lightly sand each side of the two laser-cut fin sheets (FV-76). Carefully push the laser-cut fins from their sheet. Start at one point on each fin and slowly and gently work around the fin.



3. Stack all the like fins in sets. Line each set of fins up squarely and sand the fins back and forth over some fine sandpaper to get rid of the hold-in tabs as shown below.

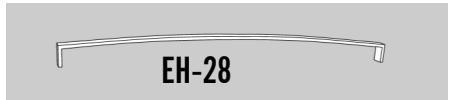


4. Round all the edges of each fin, except leave the root edges flat. Repeat for all six fins. The root edges will be glued to the body tube.

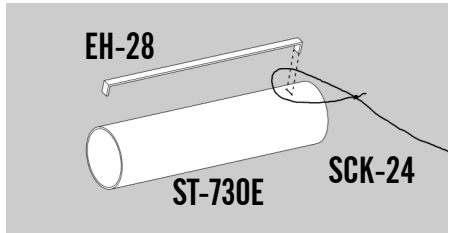


## ENGINE MOUNT

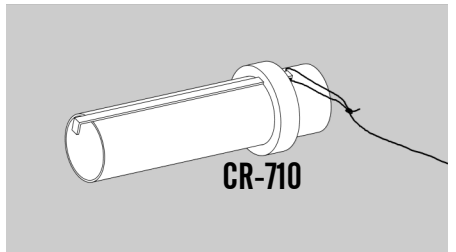
5. Bend the engine hook (EH-28) slightly so it forms a slight bow in the direction shown.



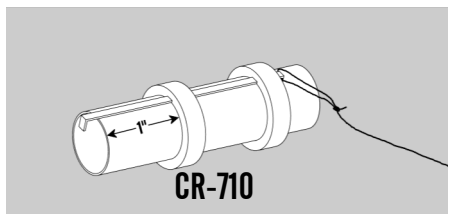
6. Tie a loop in one end of the yellow Kevlar® cord (SCK-24). Insert one end of the engine hook through the loop and into the pre-punched engine tube (ST-730E).



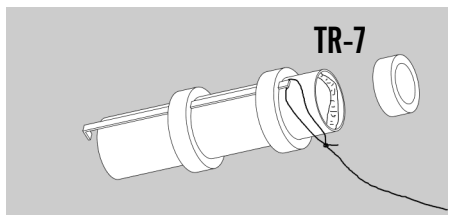
7. Slide one of the centering rings (CR-710) from the bottom of the engine tube until it is against the end of the engine hook and against the yellow Kevlar® cord.



8. Mark 1" from the bottom of the engine mount tube and slide the other centering ring (CR-710) from the bottom until it is even with the mark.

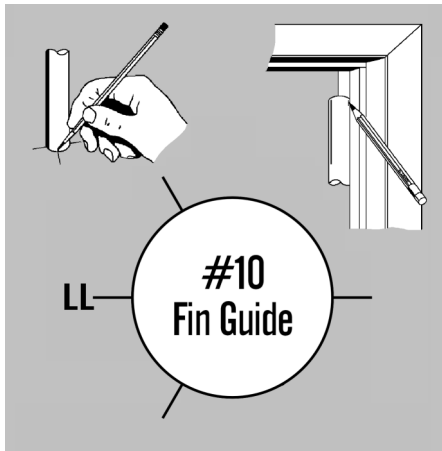


9. Glue the thrust ring (TR-7) in place on top of the engine hook as shown.



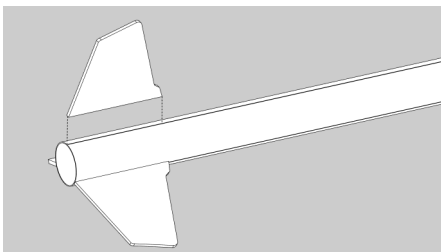
## MARK TUBE

❑ 10. Stand the main body tube (ST-10130) on the fin guide below and make the fin position marks and launch lug mark "LL" on the sides of the tube. Find a convenient channel or groove such as a partially open drawer, a door jamb (as shown,) or a piece of molding. Using the channel, extend the marks the full length of the tube to provide lines for aligning the fins and launch lugs.



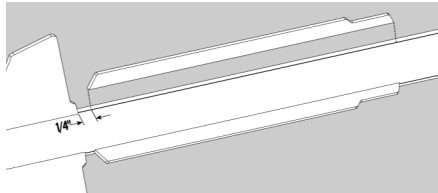
## ATTACH FINS

❑ 11. Apply glue to the root edge of one of the large fins and position it along one of the lines drawn for the fins on the side of the body tube and even with the bottom. Remove the fin, set it aside and allow it to almost dry, apply additional glue, and reposition. Repeat for the other two fins. If you follow these instructions, the fins will not require much additional work to keep them aligned. Allow the fins to completely dry, checking carefully to make sure they are parallel with the main body tube.



❑ 12. Apply glue to the root edge of one of the long basswood fins and position it along one of the lines drawn for the fins on the side of the body tube and 1/4" from the top of

the large fin. Use the same techniques used on the main fins and repeat for the other two long fins. Allow the fins to completely dry, checking carefully to make sure they are parallel with the main body tube and in line with the lower fins.

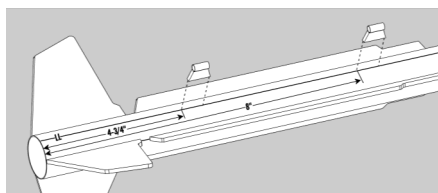


## LAUNCH LUGS

❑ 13. Glue one of the launch lugs (LL-2AM) to the next to the longest edge on one of the fin standoffs as shown. Allow to dry. Repeat for the other launch lug and standoff.

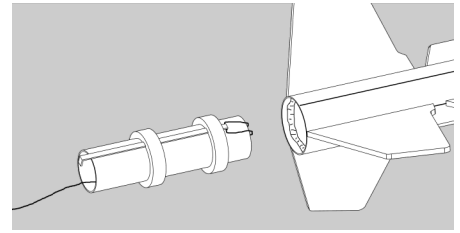


❑ 14. Apply a bead of glue to one of the launch lug assemblies opposite the lug and apply it to the main body tube on the LL line and 4-3/4" from the bottom of the main tube. Attach the second launch lug mount on the LL line and 8" from the bottom of the tube. Sight from one end to make sure they are parallel with the line and aligned with each other. Allow to dry.



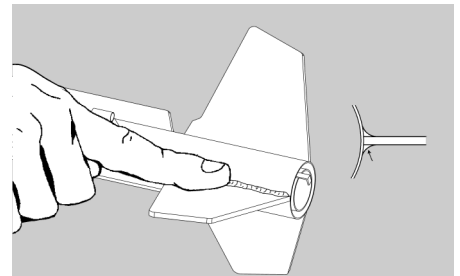
## ATTACH MOUNT

❑ 15. Pull the Kevlar cord through the top of the engine mount tube and out the bottom of the tube. Apply a thick bead of glue inside the end of the body tube with the large fins and on the top side of the bottom ring on the engine mount assembly. Insert the engine mount assembly with the thrust ring end first into the main body tube until the bottom of the engine tube is even with the bottom of the main tube. Do not stop until it is in the correct place. Allow to dry completely in a vertical position.



## APPLY FILLETS

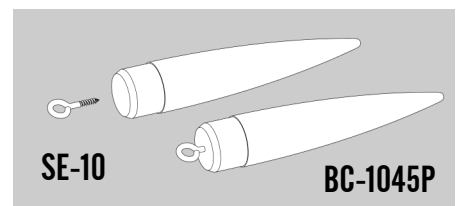
❑ 16. After the fins and launch lug standoffs are completely dry, run a small bead of glue along both sides of each fin-body tube joint and standoff. Using your forefinger, smooth the glue into fillets. Apply a fillet of glue on each side of the launch lugs. Allow this assembly to dry in a vertical position.



## NOSE CONE

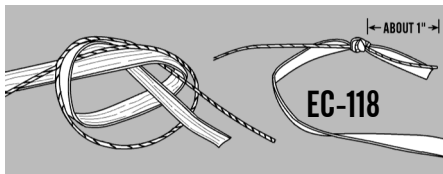
❑ 17. Insert the nose cone (BC-1045P) in the body tube and check for proper fit. The nose cone should be snug to hold itself in alignment. If it is too loose, add masking tape. If it is too tight, sand the shoulder slightly.

❑ 18. Screw the screw eye (SE-10) into the base of the nose cone, remove and fill the hole with glue. Reinsert the screw eye until the eye is flush with the base of the nose cone.

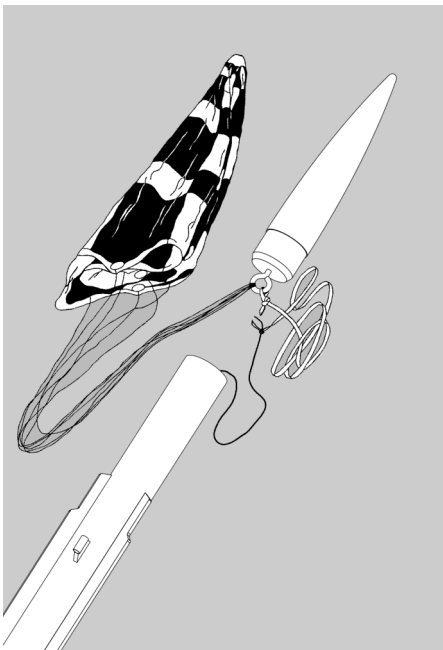


## FINAL ASSEMBLY

❑ 19. Tie the free end of the Kevlar® cord to one end of the elastic cord (EC-118) using an overhand knot. Pull the elastic cord and Kevlar cord back through the main body tube and out the top of the tube.



❑ 20. Assemble the chute (CP-12RY) using instructions provided with it. Pull the lines tight on the chute and make sure they are all of equal length. Attach the chute by tying them to the screw eye. Put a drop of glue on the joint to keep the lines from moving. Attach the free end of the elastic cord to the screw eye. Put a drop of glue on that joint as well.

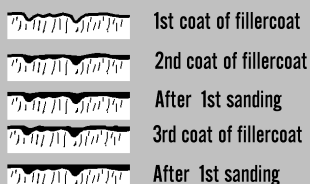


This completes the assembly of your

# NOMAD

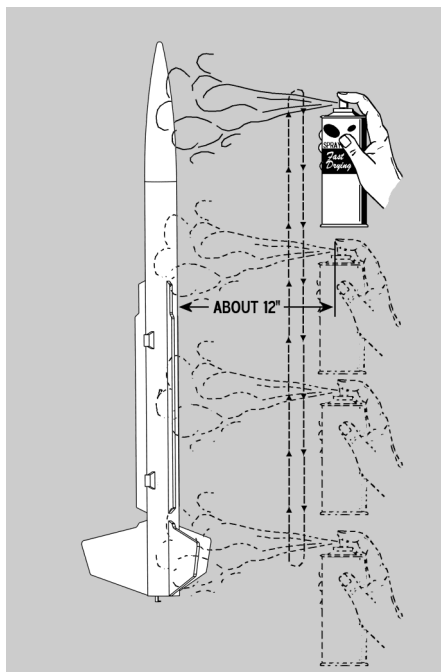
## FINISHING

❑ 21. 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.



❑ 22. 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 high visibility colors like white for the final color.

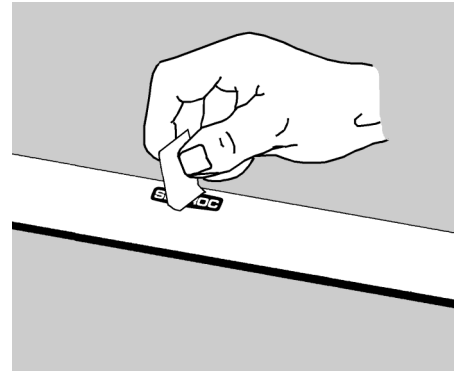
❑ 23. Spray painting your model with a fast-drying enamel will produce the best results. PATIENCE...is the most important ingredient. Use several thin coats, allowing each coat to completely dry before the next coat. Start each spray a few inches above the model and end a few inches below the model. 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. After the paint has dried, decals should be applied. The decals supplied with the Nomad™ 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.



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



## FLIGHT PREPPING

❑ 26. Mounting the engine: Insert the engine and make sure the engine hook keeps the engine snugly. The hook may be slightly bent to make sure the engine is retained.

❑ 27. Apply a few sheets of recovery wadding in the top of the main body tube. Fold the parachute 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 parachute.

❑ 28. 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.

❑ 29. Carefully check all parts of your rocket before each flight as a part of your pre-flight checklist. Launch the Nomad™ from a 1/8" diameter by 36" long launch rod.

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

