

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 Spartan™

The Stellar Spartan was the second in the Centuri Stellar Line. Originally planned for mass merchandising, the line was later changed to mail-order only, then dropped. The Spartan was an early prototype for the later Screaming Eagle which replaced it. Leftover parts from the Spartan were used for a few years on the Flutter-By until they were gone. The Stellar Spartan was released in the 1975 Rocket Times as Centuri #KD-3 with a price of 1.95.

The Retro-Repro™ Stellar Spartan™ is updated by using all laser-cut balsa parts.. The original plastic nose cone is replaced with a balsa nose cone. 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 The original method of attaching the shock cord has been replaced by a Kevlar® cord for greater reliability.

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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SPARTAN™ Kit No. KV-59

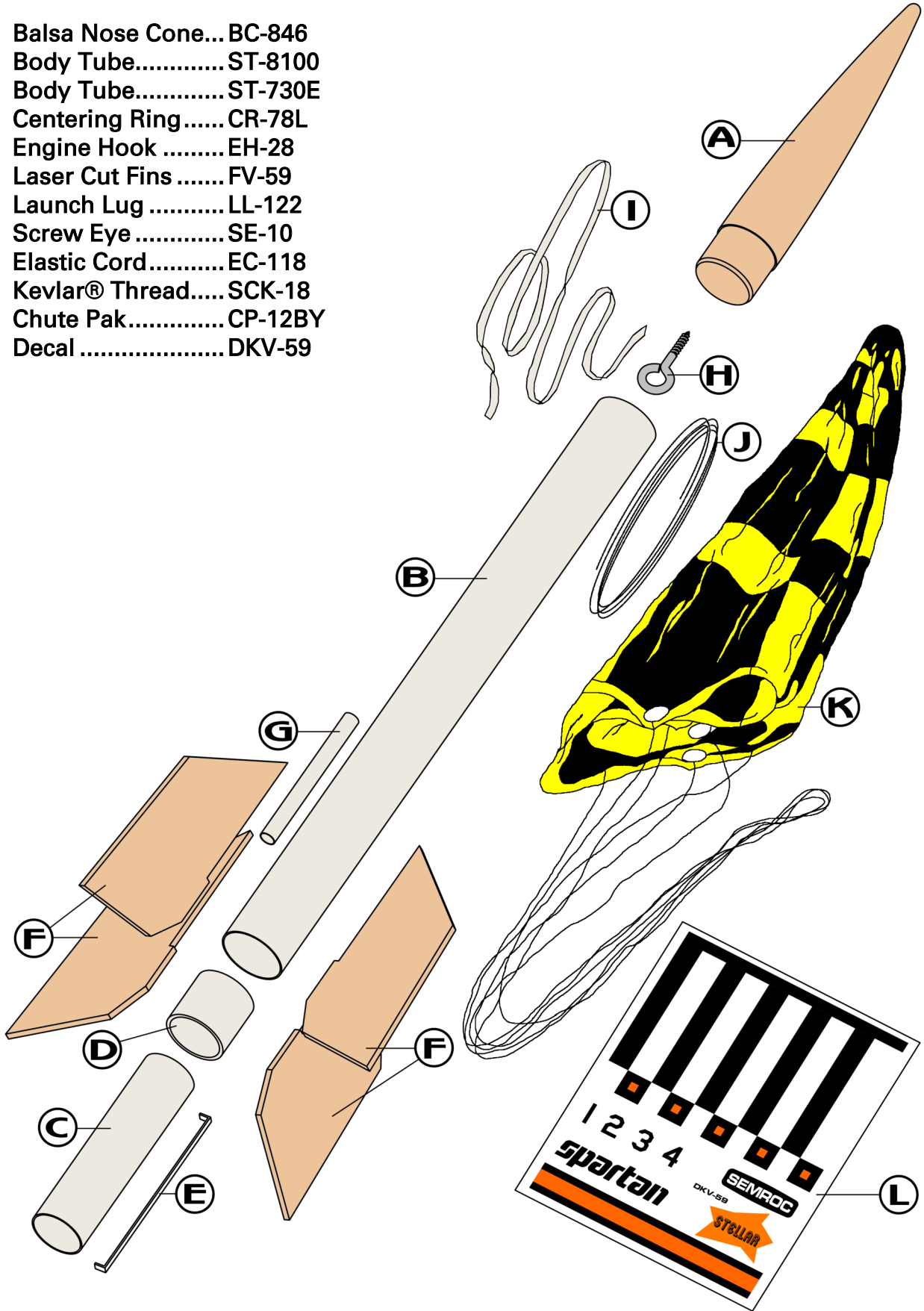
Specifications	Engine	Approx. Altitude
Body Diameter	0.908" (23.1 cm)	A8-3 250'
Length	16.4" (41.7 cm)	B6-6 650'
Fin Span	4.4" (11.2 cm)	C6-7 1300'
Net Weight	1.1 oz. (30.6 g)	

PARACHUTE RECOVERY

Parts List

EXPLODED VIEW

- A 1 Balsa Nose Cone... BC-846
- B 1 Body Tube..... ST-8100
- C 1 Body Tube..... ST-730E
- D 1 Centering Ring..... CR-78L
- E 1 Engine Hook EH-28
- F 1 Laser Cut Fins FV-59
- G 1 Launch Lug LL-122
- H 1 Screw Eye SE-10
- I 1 Elastic Cord..... EC-118
- J 1 Kevlar® Thread..... SCK-18
- K 1 Chute Pak..... CP-12BY
- L 1 Decal DKV-59



BEFORE YOU START!

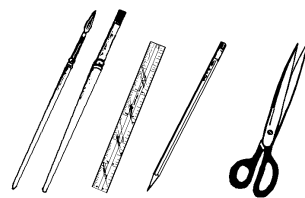
Make sure you have all the parts included in this kit that are listed in the Parts List in the center of these instructions. In addition to the parts included in this kit, you will also need the tools and materials listed below. Read the entire instructions before beginning to assemble your rocket. When 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.



White Glue or Wood Glue
Spray Paint
Balsa Fillercoat or Sanding Sealer
Fine Sandpaper 320 to 600 grit



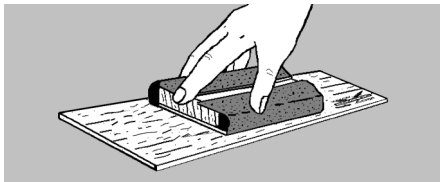
Hobby Brushes
Ruler
Pencil
Scissors

ASSEMBLY

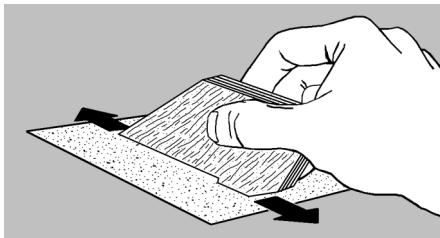
1. These instructions are presented in a logical order to help you put your Stellar Spartan™ together quickly and efficiently. Check off each step as you complete it and we hope you enjoy putting this kit together.

FIN PREPARATION

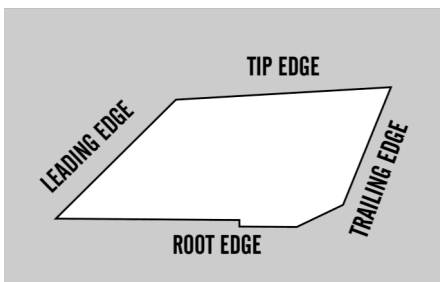
2. Lightly sand each side of the laser-cut fins (FV-59). Carefully push the laser-cut fins from their sheet. Start at one point on each fin and slowly and gently work around the fin.



3. Stack all the fins in a group. Line the 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.

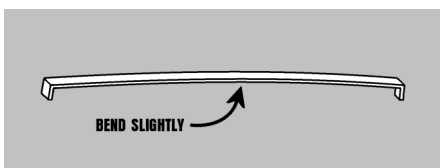


4. Round the leading and trailing edges of each fin. Leave the tip and root edges flat. Repeat for all eight fins. The trailing edge can be sanded to a bevel for a more aerodynamic shape.

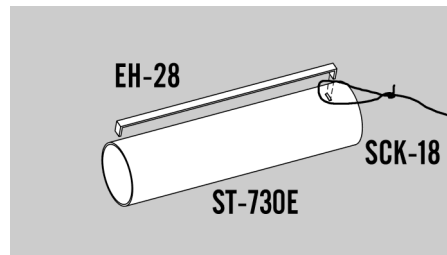


ENGINE MOUNT

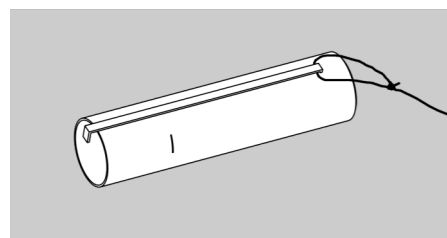
5. Bend the engine hook (EH-28) slightly so it forms a slight bow in the direction shown.



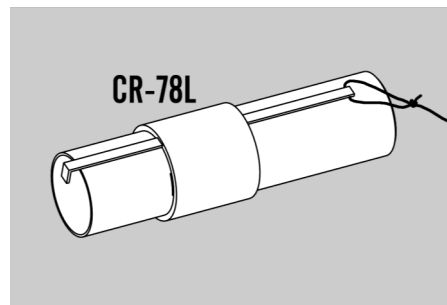
6. Tie a loop in one end of the yellow Kevlar® cord (SCK-18). Insert one end of the engine hook (EH-28) through the loop and into the pre-punched engine tube (ST-730E).



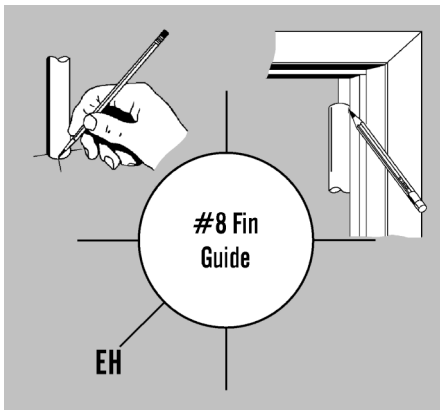
7. Place a mark 5/8" from the opposite end of the engine tube.



8. Slide the centering ring (CR-78L) over the engine tube until the bottom edge is even with the mark. Apply a bead of glue around each end of the joint between the two tubes, keeping glue off the outside surface of the centering ring. Place a bead of glue along the engine hook between the ring and Kevlar cord. Allow to dry completely.

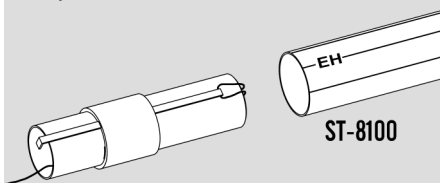


9. Stand the main body tube (ST-8100) on the fin guide on the next page and make the fin position marks on the side of the tube. Add a fifth mark at the engine hook position (EH) and place an EH next to it. Find a convenient channel or groove such as a partially open drawer, a door jamb (as shown,) or a piece of molding. Using the channel, extend the marks the full length of the tube to provide lines for aligning the fins.



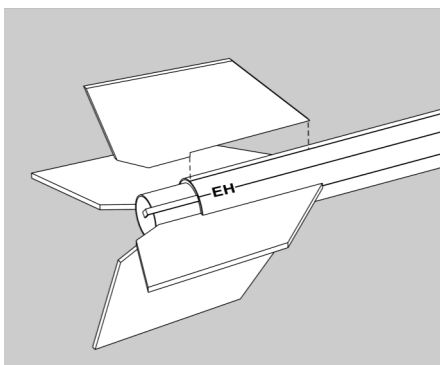
INSERT MOUNT

❑ 10. Check the engine mount for fit in the main body tube (ST-8100). If it has rough edges or excessive glue, sand lightly until it fits into the body tube. Apply a heavy bead of glue around the inside of the body tube. Align the engine hook with the line marked EH and quickly and smoothly push the engine mount into the tube until the centering ring on the engine mount is even with the end of the body tube. There should be 5/8" of the engine tube protruding from the body tube.

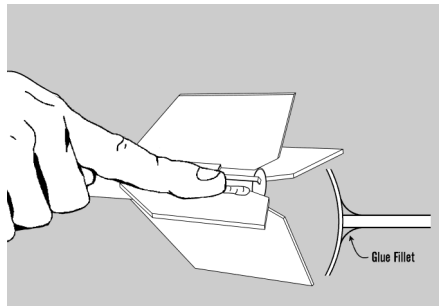


ATTACH FINS

❑ 11. 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 and with the notch against the end of the main body tube. Remove, allow to almost dry, apply additional glue, and reposition. Repeat for the other three fins.

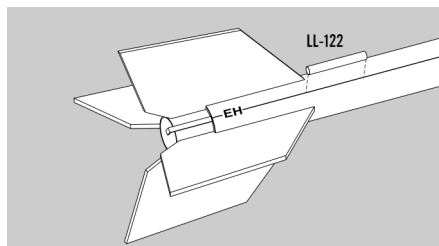


❑ 12. After the fin assembly is completely dry, run a small bead of glue along both sides of each fin-body tube joint. Using your forefinger, smooth the glue into fillets.



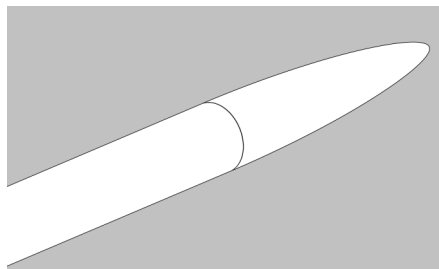
LAUNCH LUG

❑ 13 Glue the launch lug (LL-122) along the EH line and with the bottom of the launch lug and about 2' from the bottom of the main body tube.

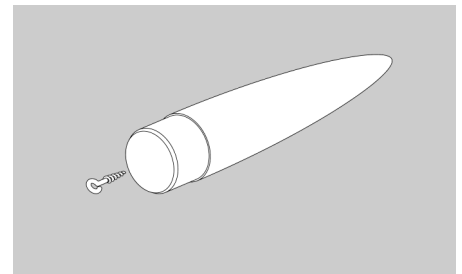


NOSE CONE

❑ 14. Insert the nose cone (BC-840) in the body tube and check for proper fit. The nose cone should be snug enough to hold itself in alignment. If it is too loose, add masking tape. If it is too tight, sand the shoulder slightly.

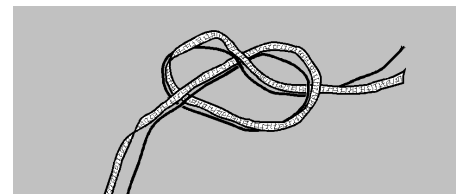


❑ 15. Twist the screw eye into the center of the base of the nose cone. Unscrew it and squirt glue into the hole. Reinstall the screw eye and wipe off any excess glue.



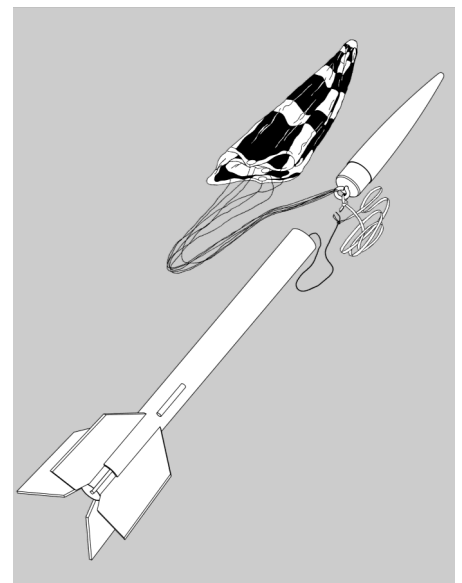
SHOCK CORD

❑ 16. Prepare the shock cord as follows. Shake the Kevlar cord out of the top of the body tube. Line up one end of the elastic shock cord (EC-118) with the free end of the Kevlar cord and tie an overhand knot at the end of the two cords. Pull the knot tight and place a small drop of white glue on the knot to prevent it from loosening.



FINAL ASSEMBLY

❑ 17. Assemble the chute (CP-12) using instructions printed on the canopy. 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.



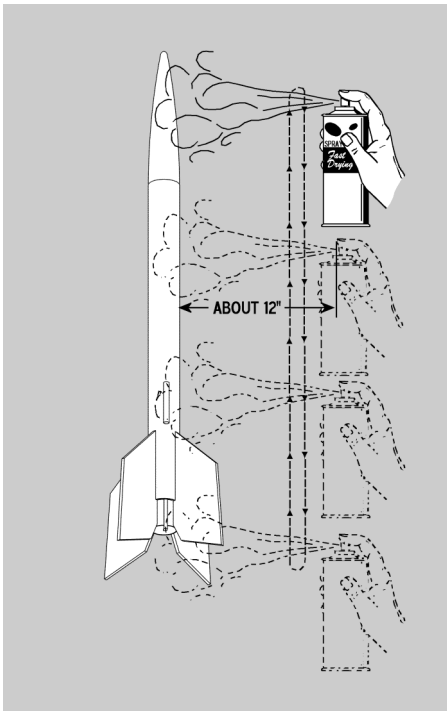
FINISHING

❑ 18. For a smooth professional looking finish, fill the wood grain with Fill-n-Finish, balsa fillercoat or sanding sealer. When dry, sand with fine sandpaper. Repeat until smooth.



❑ 19. 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.

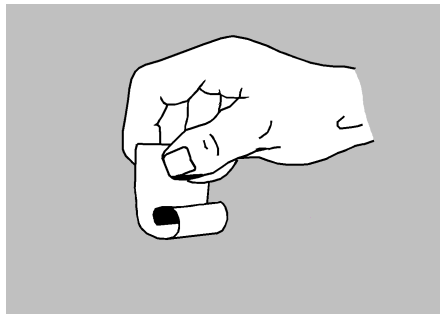
❑ 20. Spray painting your model with a fast-drying enamel will produce the best results. PATIENCE...is the most important ingredient. Use several thin coats, allowing each coat to completely dry before the next coat. Start each spray a few inches above the model and end a few inches below the model. 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.



❑ 21. After the paint has dried, decals should be applied. The decals supplied with the Spartan™ 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.



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



FLIGHT PREPPING

❑ 23. 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.

❑ 24. Apply a few sheets of recovery wadding in the top of the 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.

❑ 25. 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.

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

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