

SEMROC

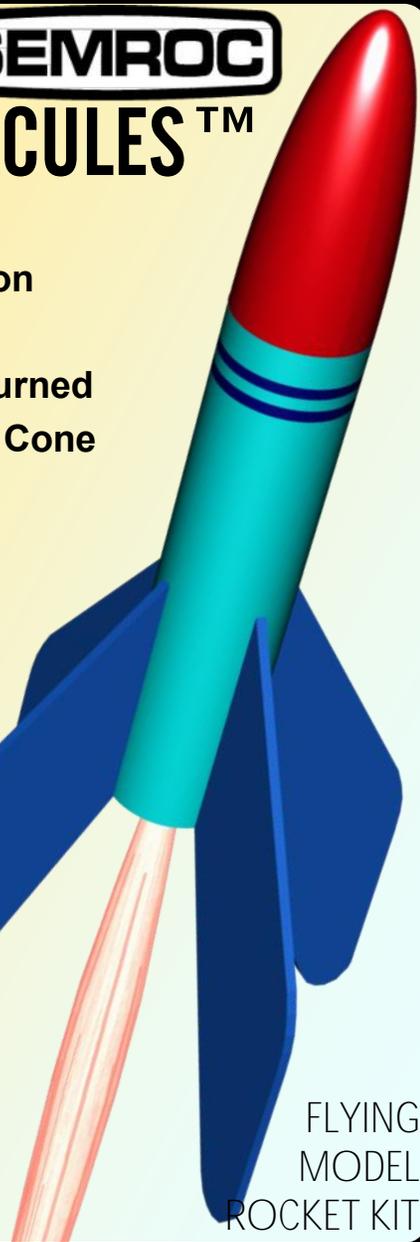
Lil' HERCULES™

1965 Retro
Reproduction

Precision Turned
Balsa Nose Cone

Laser Cut
Balsa Fins

Tumble
Recovery



FLYING
MODEL
ROCKET KIT

Made in the U.S.A by Semroc - Dayton, Ohio

LIL' HERCULES™ KV-14

Specifications

Body Diameter 0.759"(1.9cm)
Length 6.5"(16.5cm)
Fin Span 3.4" (8.6cm)
Net Weight 0.3oz.(7.1g)

Engine Altitude

A8-5 650'
B6-6 1050'

Skill Level 1

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 60'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 Lil' Hercules™

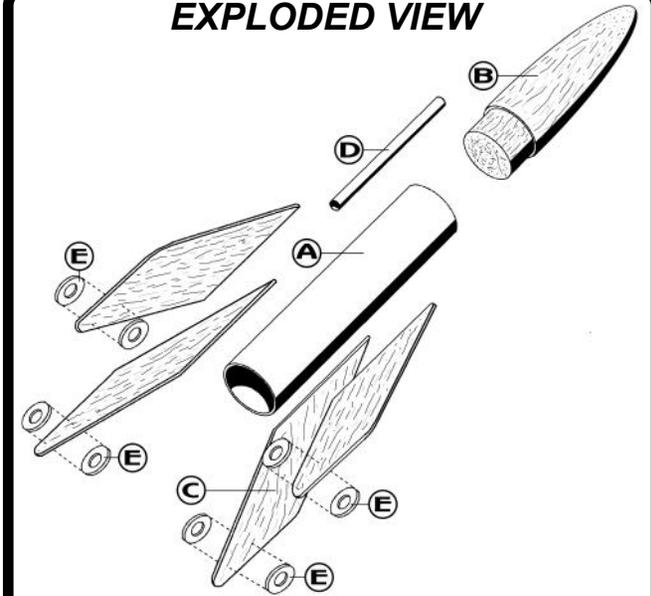
The Lil' Hercules was released first in 1965 as a rocket to use the Series III ("Shorty") model rocket engines. These engines were one inch shorter than the standard engines, but had the same diameter. The original Lil' Hercules was about an inch shorter than the Lil' Hercules II that was released as a replacement when the Short engines were dropped. Small weights were added to the fin tips to make it tumble recovery instead of featherweight recovery. The original balsa nose cone was replaced with a plastic version. Lil' Hercules was Centuri #KA-1 and sold for just 85¢ in 1965.

The Retro-Repro Lil' Hercules™ is updated by using laser-cut fins. The original balsa nose cone and body tube are still used. Since the Shorty engines are still not available, the Retro-Repro Lil' Hercules™ is a hybrid between the original and the later plastic model using current model rocket engines.

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.

EXPLODED VIEW



Parts List

A	1	Body Tube	ST-730
B	1	Balsa Nose Cone	BC-716
C	1	Laser Cut Fins	FV-14
D	1	Launch Lug	LL-122
E	8	Washer Weights	WW-5

TOOLS

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



BEFORE YOU START!

Be sure you have all the parts on the Parts List. You will also need the tools listed in the tools section. Read the entire instructions before assembling 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 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. It is important that you always ensure that you have adequate glue joints.

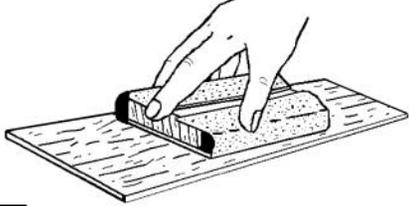
Released: October 24, 2003, Revised: May 16, 2004,
April 17, 2015

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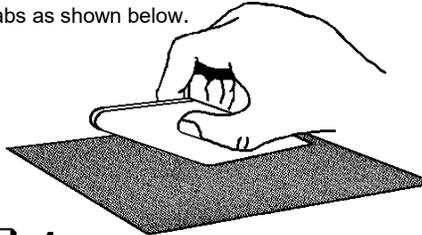
ASSEMBLY

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

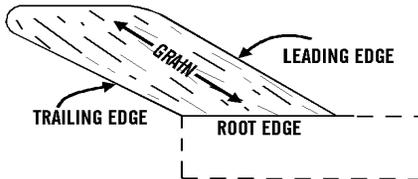
2. Lightly sand each side of the laser-cut fins. Carefully push the laser-cut fins from their sheet. Start at one point on each fin and slowly and gently work around the fin.



3. 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 below.



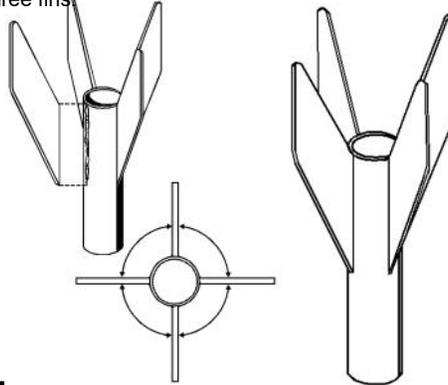
4. Round all edges except the root edge. The root edge must remain flat since it will be glued to the body tube. The trailing edge may be sanded in a streamlined taper if you want a higher performance rocket.



5. Stand the body tube on the fin guide below and make the fin position marks 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.

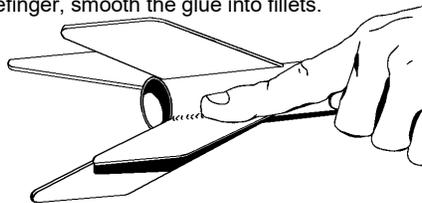


6. Apply glue to the root edge of a fin and position it along one of the lines drawn on the side of the body tube. Remove, allow to dry, apply additional glue, and reposition. Repeat for other three fins.

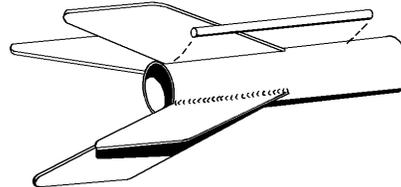


7. Allow to dry standing vertically, checking for alignment visually while the assembly dries.

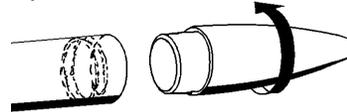
8. After the fin assembly is completely dry, run a small bead of glue along both sides of each fin-body tube joint. Using your forefinger, smooth the glue into fillets.



9. Glue the launch lug onto the body, right up against one fin and flush with the bottom. Stand the assembly vertically again and wait for the fin fillets to completely dry. Watch for runs in the glue and wipe any before they run down the tube.

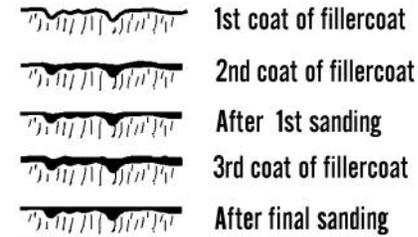


10. Check the nose cone for proper fit. If it is too tight, sand the shoulder slightly. Apply a thin bead of glue inside the top of the body tube. Insert the nose cone and allow it to dry completely.

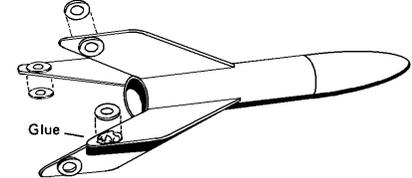


FINISHING

11. When the fillets have dried, prepare balsa surfaces for a smooth professional looking finish. Fill the wood grain with balsa filler coat or sanding sealer. When dry, sand with fine sandpaper. Repeat until smooth.



12. Spread a few drops of glue on one side of a fin tip and apply a weight (washer). Repeat for the remaining weights applying two weights on each fin, one on each side as close as possible to the tip. **The weights are necessary for tumble recovery.**



13. 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 yellow or orange for the final color.

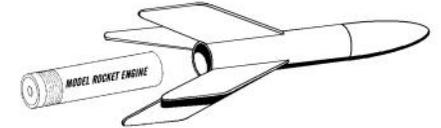
14. Spray painting your model with a fast-drying enamel will produce the best results. PATIENCE...is the most important ingredient. Use several thin coats, allowing each coat to completely dry before the next coat. Start each spray a few inches above the model and end a few inches below the model. Keep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

This completes the assembly of your

Lil' HERCULES

FLIGHT PREPPING

15. Mounting the engine: The engine must have a small amount of masking tape applied to keep it from falling out of the body tube. Since the engine will kick out at ejection, it must not be too tight.



16. Refer to the model rocket engine manufacturer's instructions complete the engine prep.

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