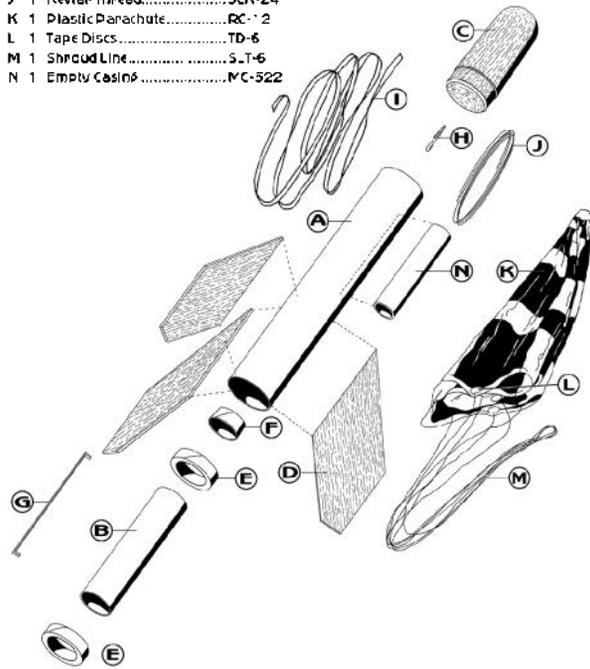


Parts List

- A 1 Body TubeST-1060
- B 1 Body TubeST-730E
- C 1 Balsa Nose Cone.....BL-102C
- D 1 Laser Cut Fins.....FV-1
- E 2 Centering Rings.....CR-7 10
- F 1 Thrust Ring.....TR-7
- G 1 Engine HookEH-28
- H 1 Screw Eye.....SE-10
- I 1 Elastic Cord.....EC-124
- J 1 Kevlar Thread.....SKN-24
- K 1 Plastic Parachute.....PC-2
- L 1 Tape Discs.....TD-6
- M 1 Shroud Line.....SLT-6
- N 1 Empty Casings.....MC-522

EXPLODED VIEW



ASSEMBLY

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

ENGINE MOUNT

2. Tie a loop in one end of the yellow Kevlar cord. Insert one end of the engine hook through the loop and into the pre-punched engine tube. Glue the thrust ring in place on top of the engine hook as shown.



About the Mark II™

The Carlisle Rock-A-Chute Mark II was initially released in 1957. It more resembled modern model rockets than the original Mark I which looked more like a fireworks rocket from the early 1950's. although it's market was small. It did provide inspiration for hundreds of successive designs.. The Estes Astron Mark was an improvement of the Carlisle Mark II that used the newer model rocket engines. The nose cone was from a Leeds Sweete plastic crayon sharpener. The fins were stapled to tag board reinforcing strips, which were then stapled to the hardwood engine mounts.

The Retro-Repro™ Mark II™ is updated with precision laser-cut fins. The original plastic nose cone is replaced with a balsa nose cone. The original 18" parachute has been reduced in size to 12". 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 The original method of attaching the shock cord has been replaced by a Kevlar cord for greater reliability. An engine hook is also added for ease of changing the engine.

Before You Start

Make sure you have all the parts included in this kit that are listed in the Parts List found with the Exploded View found in 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. Refer to the exploded view drawing as needed as to location of parts. Test fit parts prior to applying any adhesives. It is important that you always ensure that you have adequate glue joints.

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

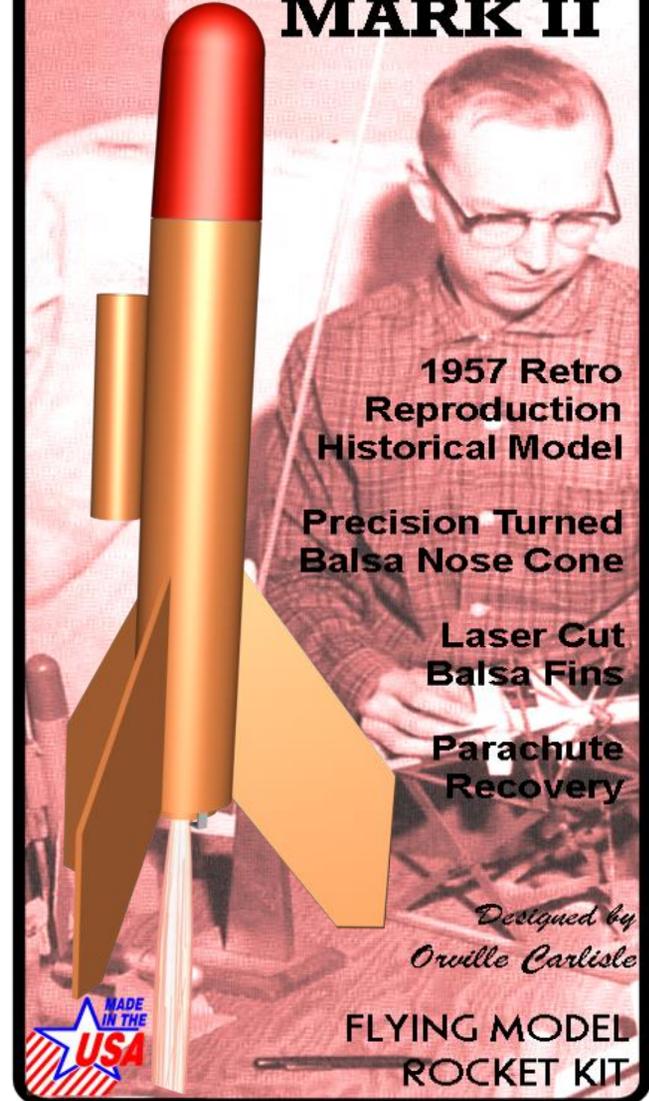
- White or Wood Glue
- Spray Paint
- Balsa Fillercoat or Wood Filler
- Fine Sandpaper
- Hobby Brushes
- Ruler
- Pencil
- 320 to 600 Grit

May 1, 2004, April 26, 2016

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SEMROC

MARK II



**1957 Retro
Reproduction
Historical Model**

**Precision Turned
Balsa Nose Cone**

**Laser Cut
Balsa Fins**

**Parachute
Recovery**

*Designed by
Orville Carlisle*

**FLYING MODEL
ROCKET KIT**

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

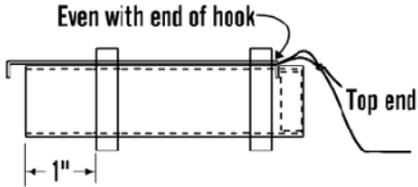
**MARK II™
Kit No. KV-1**

Specifications	Engine	Approx. Alt
Body Diameter	A8-5	300'
Length	B6-6	750'
Fin Span	C6-7	1350'
Net Weight		

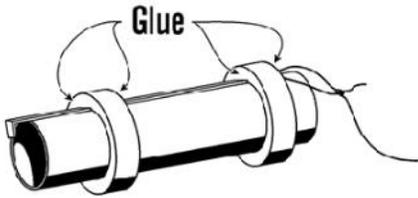
Skill Level 1

❑ 3. See other side.

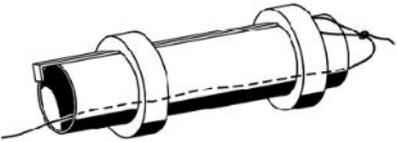
❑ 4. Glue the two centering rings on the engine mount tube as follows. Slide the first ring from the bottom until it is even with the end of the engine hook. Make sure the yellow Kevlar cord is free and comes out from the top of the tube as shown below. Mark 1" from the bottom of the engine mount tube and slide the other centering ring from the bottom until it is even with the mark.



❑ 5. When the centering rings are positioned properly, apply glue fillets around the engine mount tube at all four joints as shown.

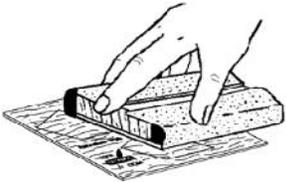


❑ 6. Pull the yellow Kevlar cord back through the engine mount tube so it will be out of the way later when it is installed in the main body tube. Set the engine mount aside to dry completely.



FIN PREPARATION

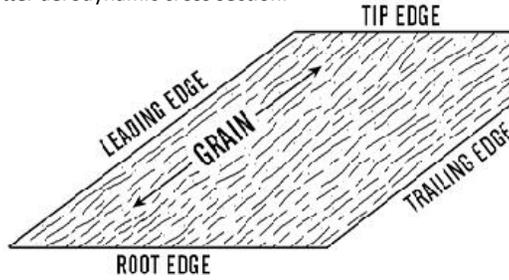
❑ 7. Lightly sand each side of the laser-cut fins. Carefully push the laser-cut fins from their sheet. Start at one point on each fin and slowly and gently work around the fin.



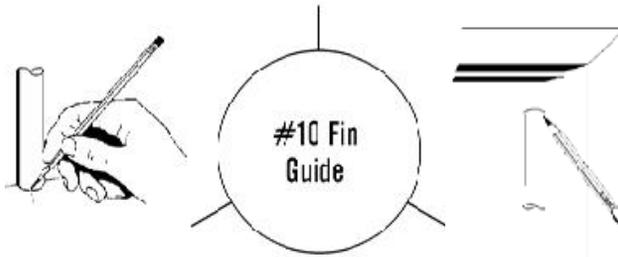
❑ 8. Stack all the fins together. Line them up squarely and sand the fins back and forth over some fine sandpaper to get rid of the hold-in tabs as shown.



❑ 9. Round all edges **except** the root edge (which will be glued to the body tube). The tip edges and trailing edges may be tapered for better aerodynamic cross section.

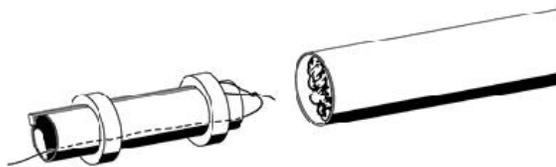


❑ 10. Stand the body tube on the guide below and make the fin position marks on the sides of the tube. Find a convenient channel or groove such as a partially open drawer, a door jamb (as shown), or a piece of molding. Using the channel, extend the marks the full length of the tube to provide lines for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

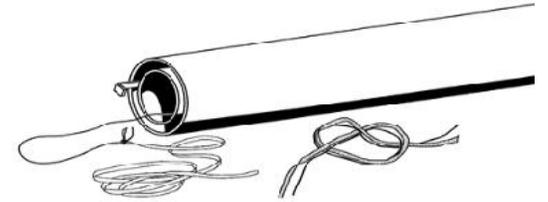


SHOCK CORD

❑ 11. Check the engine mount for fit in the body tube. If it has rough edges or excessive glue, sand lightly until it fits into the body tube. Apply a heavy bead around the inside of the body tube. Then quickly and smoothly push the motor mount into the tube until the engine mount tube is even with the bottom of the body tube.



❑ 12. Prepare the shock cord as follows. Line up one end of the elastic shock cord 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.

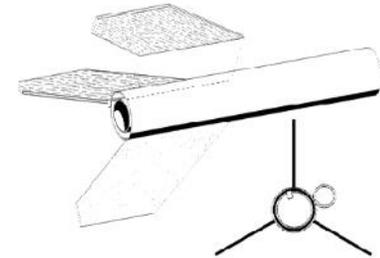


❑ 13. Feed the shock cord and yellow Kevlar cord back through the engine mount tube and body tube until they come out the opposite end. Make sure they are pulled all the way through the engine mount and do not hang on the engine hook. It may be necessary to shake the tube or pull the shock cord through with a coat hanger or small, thin wood dowel.

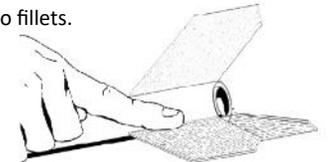


FINISH FINS

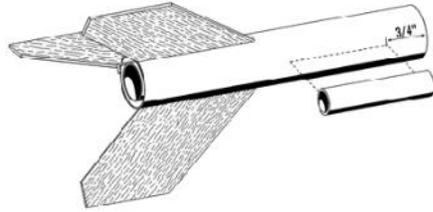
❑ 14. Run a thin bead of glue along the root edge of one of the fins. Attach it to the body tube on one of the lines drawn earlier. Remove the fin and wait until the glue gets tacky. Reapply the fin and check for proper alignment. Repeat for the other two fins. Refer to the end view.



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

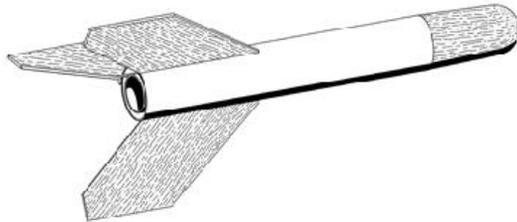


- ❑ 16. Glue the launch lug along the side of the body tube, centered between two of the fins and about 3/4" from the top of the body tube.

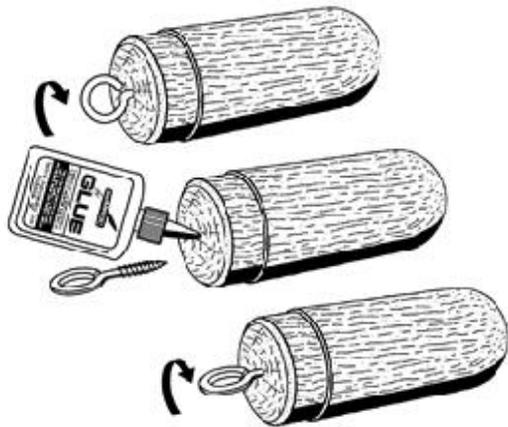


NOSE CONE

- ❑ 17. Insert the nose cone 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.

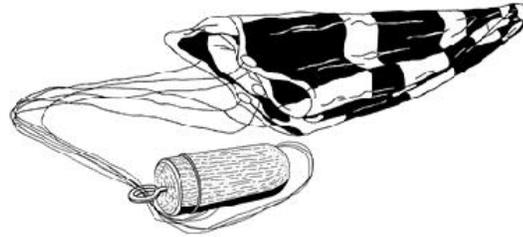


- ❑ 18. Twist the screw eye into the center of the nose cone. Unscrew it and squirt glue into the hole. Reinstall the screw eye and wipe off any excess glue.

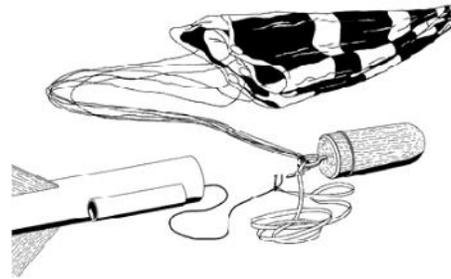


FINAL ASSEMBLY

- ❑ 19. 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.



- ❑ 20. Tie the loose end of the elastic cord to the screw eye. Put a drop of glue on the knot to keep it from untying.



This completes the assembly of your

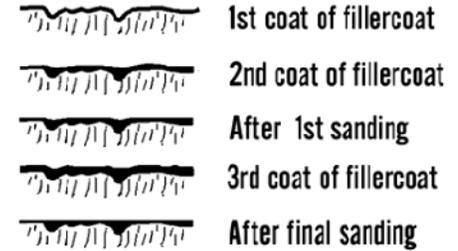
MARK II

FINISHING

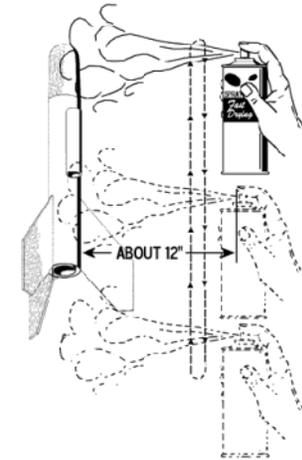
- ❑ 21. When the fillets have dried, prepare balsa surfaces for a smooth professional looking finish. Fill the wood grain with balsa fillercoat or sanding sealer. When dry, sand with fine sandpaper. Repeat until smooth.



- ❑ 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 a high visibility color combination like orange and red for the final color. Colors were not standard on the Mark II. The Mark II in the Smithsonian is all international orange with a red nose cone. Some were all bright yellow or flat white with black fins.

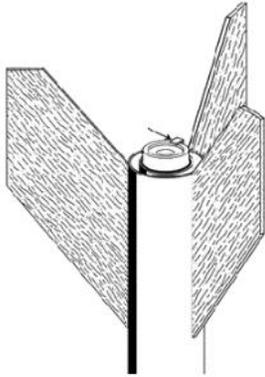


- ❑ 23. Spray painting your rocket with a fast drying enamel will produce the best results. PATIENCE... is the most important ingredient. Use several thin coats, allowing each coat to completely dry before the next coat. Start each spray a few inches above the model and end a few inches below the model.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

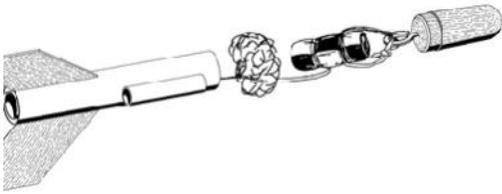


FLIGHT PREPPING

- 24.** 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.



- 25.** Pack the recovery wadding from the top of the body tube. Use a sufficient quantity to protect the parachute, but not too much that it will interfere with the proper deployment of the parachute.



- 26.** Fold the parachute and pack it and the shock cord on top of the recovery wadding. Slide the nose cone into place. Make sure it does not pinch the shock cord or parachute.
- 27.** Refer to the model rocket engine manufacturer's instructions to complete engine prepping. Different engines have different igniters and methods of hooking them up to the launch controllers.
- 28.** Carefully check all parts of your rocket before each flight as a part of your pre-flight check list. Launch the Mark II from a 1/8" diameter by 36" long launch rod.