

SEMROC GYROC™

1965 Retro
Reproduction

Precision Turned
Balsa Nose Cone

Laser Cut
Balsa Fins

Helicopter
Recovery

*Design by
Gene Street*



FLYING MODEL
ROCKET KIT

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

GYROC™

KV-94

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

1/2A3-2T 125'
A10-3T 300'

Skill Level 2

**About
Estes Industries, Inc.**

In July 1958, G. Harry Stine of Model Missiles, Inc. in Denver, Colorado approached Vern Estes about making model rocket engines for them. On January 15, 1959, Vern's automated model rocket engine fabricating machine, "Mabel", produced the first of many millions of Estes model rocket engines. In 1960, Estes was producing more engines than Model Missiles could sell. Vern and his wife Gleda opened a mail order rocket company and introduced the Astron Scout and Astron Mark.

In 1961, a catalog was mimeographed and hand stitched on Gleda's sewing machine. Later that year, Estes Industries had outgrown the confined space in Denver. In December 1961, the entire operation was moved to an old farm in Penrose, Colorado quickly establishing the small town as the "Model Rocket Capital of the World."

Estes Industries was sold to Damon in September 1969. The name Estes is synonymous with model rocketry. Almost everyone remembers growing up launching Estes rockets or knowing someone that did. Estes Industries has introduced millions of youngsters of all ages to model rocketry for over half a century.

About the Gyroc™

The Gyroc was first released in 1965 as a free rocket if you purchased a pre determined amount from the Estes Catalog. It finally became a mainstay in the catalog in 1969 and stayed there until it was discontinued in 1983. It was originally designed by Gene Street.

The Retro-Repro Gyroc™ is updated by using laser-cut fins. The original 18mm motors have been replaced by a recoverable 13mm motor pod that returns via streamer. The hinges have been upgraded to Tyvek material and the elastic thread has been replaced by easily replaced rubber bands. This kit was re-engineered by Phil Queen.

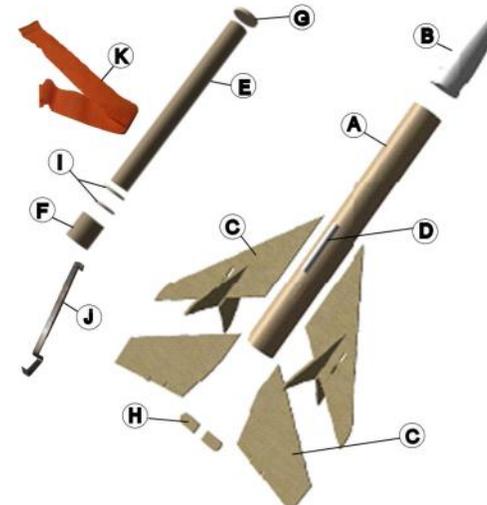
What is a Retro-Repro™?

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.

Released: November 2017

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EXPLODED VIEW



Parts List

A	1	Body Tube	BT 20-D
B	1	Balsa Nose Cone	BNC-20B
C	1	Laser Cut Fins	FV-94
D	1	Launch Lug	LL-122
E	1	Motor Tube	BT 5-70
F	1	Tubing Coupler	JT-20C
G	1	Centering Ring	CR5-20-1/8
H	2	Fin/Motor Stops	FKV-94B
I	2	Fiber Centering Rings	CR-KV-94
J	1	Engine Hook	EH-18
K	1	Streamer	SP-224

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. It is important that you always ensure that you have adequate glue joints.

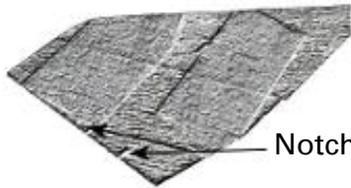
ASSEMBLY

1. These instructions are presented in a logical order to help you put your Gyroc™ 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.



3. Using masking tape, tape one main fin and one flap together. Be sure they are aligned along the outer edge, and are butted up tightly together. Only tape one side of the fins. Repeat with the second main fin and flap keeping the tape on the same side as the first set (make identical, not opposite).



Notches

4. Turn fin sets over and prepare a Tyvek hinge. Before applying glue, lay hinge material across fin/flap joint to get the proper orientation of the hinge. Run a small bead of white glue on the side of the Tyvek hinge where it will attach to the fin. Spread glue out thinly across the hinge. Don't put so much glue on the hinge so that it will seep down between fin and flap. Position hinge centered across the joint. Set these aside to dry with the masking tape still applied.



5. Take the motor tube and place a mark at 1/4" and 7/8" from the end that has the slot for the engine hook. Make a mark 1/4" from the opposite end.



6. Install the engine hook in the slot on the tube.

7. Find the fiber centering rings. The split centering ring goes on the motor tube at the 1/4" mark around the engine hook. The full centering ring slides over top of the engine hook and is positioned at the 7/8" mark on the motor tube. Put a glue fillet on the sides of the centering rings that face each other. Do not put glue over the engine hook at the split ring. Set aside to dry.



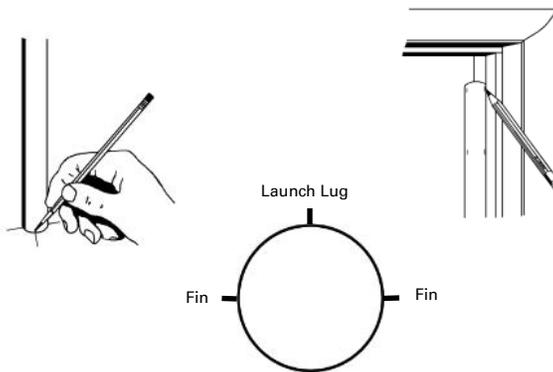
8. Slide the black coupler over the motor tube and down over the fiber centering rings. Work glue down in to the centering rings to attach the coupler to the centering rings. Try to avoid getting glue on the outside of the black coupler tube.



9. Attach the streamer to the motor tube with a piece of masking tape. Slide the brown centering ring on the top end of the motor tube to the 1/4" mark and put a glue fillet on both sides. Avoid getting glue on the outside of the centering ring. Set aside to dry.



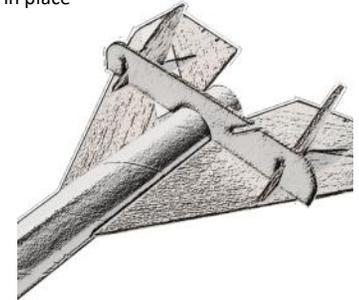
10. Using the diagram below, mark the location for the fins and launch lug on the body tube. Using either a door jamb or a piece of angle, extend the marks along the body tube approx. 3 1/2" from one end. Make a mark 3" from the end on each line.



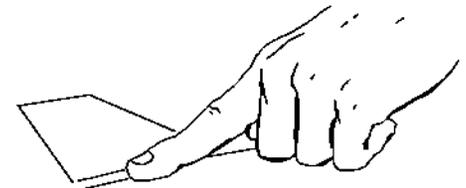
11. Using the fin alignment tool (fiber board), glue on the fin assemblies with the front of the fin at the mark on the body tube. Do not get glue on the flaps or alignment jig. Set aside to dry.



12. Remove the masking tape and fold the flaps carefully to crease the hinge. Pop out the Vertical Stabilizers from the balsa sheet and glue them to the Main Fins. The Stabilizers with the notch in the leading edge go on the same side as the hinge. You can use the fin alignment tool to hold the stabilizers in place.



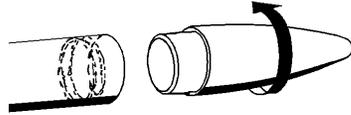
13. Add a glue fillet to the Main Fin/Body Tube joints, and to the Fin/Stabilizer joints to strengthen these joints.



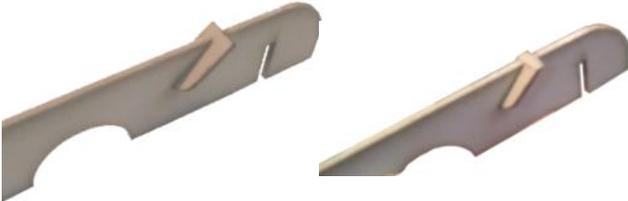
14. Optional: Lightly round leading edges of wings and vertical stabilizers.

15. Glue the launch lug to the side of the body tube even with the mark you made on the line marked for the launch lug. Be sure it is parallel with the body tube.

- ❑ 16. Glue the nose cone into the forward end of the body tube.



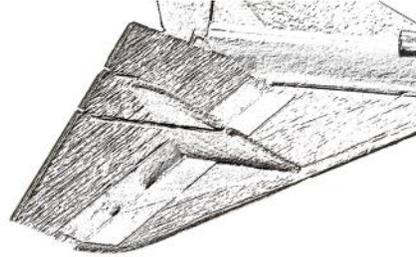
- ❑ 17. Find the Motor Tabs and take them out of the Basswood sheet. Using the fin alignment tool, insert a tab rounded end first into the angled slot on the top of the tool and sand it until it is flush with the fin alignment tool. Repeat with the second motor tab.



- ❑ 18. Wind the Streamer around the motor tube and insert it into the body tube with the motor hook out the back. Holding the Flaps parallel with the Fins, glue the Motor Tabs to the Flaps on the side opposite the hinge. The sanded face of the Tabs must be in contact with the black coupler. Set aside to dry.

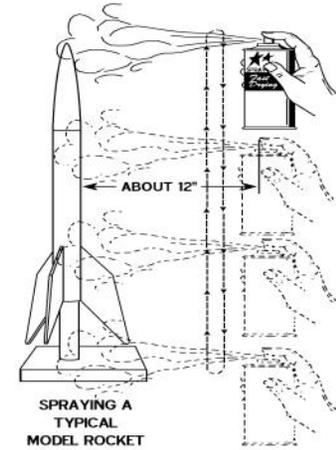


- ❑ 19. Once dry, partially remove the motor tube so the flaps can be moved up to the Vertical Stabilizers. Take a Black Rubber Band and hook it in the notch in the leading edge of one of the Vertical Stabilizers. Pull the Rubber Band back and hook it in the slots on the trailing edge of the Flap. The Flap should be able to move back down to parallel with the Fin and when released, snap back up and be in contact with the Vertical Stabilizer. Repeat with the other side.



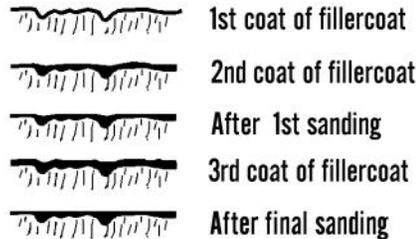
This completes the assembly of your

GyroC



FINISHING

- ❑ 20. When all the glue has dried, prepare balsa surfaces for a smooth professional looking finish. Remove the Rubber Bands and the motor tube and set them aside until finishing is completed. Fill the wood grain with balsa fillercoat or sanding sealer. When dry, sand with fine sandpaper. Repeat until smooth.



- ❑ 21. After all balsa surfaces have been prepared, wipe off all balsa dust with a dry cloth. First spray the model with an enamel primer. 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.

FLIGHT PREPPING

- ❑ 22. To Prepare your Gyroc for flight, begin by replacing the Rubber Bands on the Flaps and Vertical Stabilizers.
- ❑ 23. Carefully wrap the streamer around the motor tube and holding the flaps down, insert it into the Gyroc catching the tabs on the black coupler to hold the flaps in the down position.
- ❑ 24. Prepare the engine of your choice and insert it into the motor tube making sure the motor hook locks the engine in the motor tube.
- ❑ 25. Carefully check all parts of your rocket before each flight as a part of your pre-flight checklist. Launch the Gyroc from a 1/8" diameter by 36" long launch rod.