



# THE RAPIER

By DAN SANTICH

**T**here is a song that goes "Oklahoma, where the wind comes sweeping down the plains". Rogers and Hamerstein didn't have to be modelers to make that observation since it is probably the windiest place in the US. (Check the Almanac!) Since I am a member of the USAF, I am subject to assignment anywhere in the world, and so Oklahoma City has been my 'home' for the past two years.

During these two years I finally came up with an airplane to suit the environment – the Rapier. It is a fast and yet docile little ship that flies as well in strong, gusty wind as it does in calm air. It is light at 5½ pounds and a 60 size engine really pulls it along nicely, especially in the Top Hat and vertical Square Eight where brute power is needed. The large vertical fin is very effective, which makes the double stall turn, reverse spin, and knife edge flight duck soup. The wing is a triple taper (LE, TE, and root) but is very easy to build, since it has no dihedral. I will go into this later.

The Rapier was completed only one day before the Wichita, Kansas Spring Rally so it was test flown, trimmed, and proven on its first flight, which was as official! We took second place! It literally flew right off the board! What I am trying to say is that it is truly a fine little ship that is easy to fly. You don't have to watch it every second and I would not hesitate to recommend it to a beginner, providing adequate initial flight supervision was rendered. I am not of the school that believes in

progressive learning via galloping ghost, reeds, propo, in that order; and high wing, mid wing, low wing transitional training. The individual, himself, will determine this for himself, however. I believe you will save quite a bit of time and money if you go all the way right off. I have seen student pilots who had never touched a transmitter solo a Quik-Fli after only one lesson. If you have the desire and the money, go all the way. This hobby can be one of the most rewarding experiences of your life.

## CONSTRUCTION

### Fuselage:

- (1) Cut sides from 1/8" sheet.
- (2) Cut doublers from 1/16" sheet.
- (3) Cut slot in doubler for motor mount.
- (4) Epoxy doublers to fuselage sides.
- (5) Epoxy motor mounts in doubler slot.
- (6) With fuselage sides pinned vertical, epoxy bulkheads F3 and F4 in place.
- (7) Attach nose gear bearings to F2 and epoxy F2 in place, making sure of equal bends at nose.
- (8) Epoxy F1 on nose and add fill piece.
- (9) F5 and F6 can now be glued in. Be careful of alignment.
- (10) Drill motor mounts to suit engine and add blind nuts.
- (11) Cut 1/8" top sheet to rough shape. Soak in water and form over shape of fuselage with rubber bands until dry. When dry, trim to fit and glue in place. Cut slot in rear for vertical fin.
- (12) Cut lower nose block to shape. Drill hole for nose gear, align and epoxy in place.
- (13) Cut horizontal and vertical stabs from light 1/4 stock, shape, and glue in place. Add dorsal fin.
- (14) Rough shape and hollow out 1/2" x 3-1/2" soft balsa and glue to bottom of fuselage.

### Wing:

The wing is constructed upside

down on a flat surface, since there is no dihedral. The bottom does taper up toward the tips which gives a dihedral effect.

- (1) Cut all ribs from 1/16" stock.
- (2) Cut out and glue W2A, W3A, and W4A plywood landing gear braces to ribs.
- (3) Attach metal landing gear braces to W2A (left and right side).
- (4) Pin 1/2 x 3/8" top spar to table. The wing is being built upside down, remember. (The left and right wing panels are constructed at the same time).
- (5) Glue and pin all ribs along top spar, being careful of alignment.
- (6) Glue bottom spar to ribs.
- (7) Glue leading edge and trailing edge stock in place. Trim.
- (8) Epoxy landing gear block in place.
- (9) Glue rear spar in place.
- (10) Remove wing from table and glue top rear spar in place.
- (11) Glue 3/32" plywood wing mounts in place.
- (12) Glue 3/8" wing hold dowel in place.
- (13) Sheet wing with 1/16" balsa.
- (14) Glue 1" x 1" wing tips on and carve to suit.

### Finish:

I like the Hobby Poxo-Easy-Does It Method, however there are no really difficult curves so Super MonoKote would do fine also.

### Flying:

Check your controls for proper trim and make doubly sure your control movement corresponds to what you give it with the transmitter. On the take off roll, don't try to "Horse" it off. This can be disastrous! Just keep it straight and hold a slight amount of up elevator and it will lift off quite smoothly. One of the most confusing things for a student is orienting himself in relation to his ship, particularly when it is coming at you. Some say "turn your back and look over your shoulder", others say "push the stick in the direction of the turn", and yet others believe you should imagine yourself in the cockpit, etc. This is simply something you will have to learn by yourself. Any of the above methods will work.

In conclusion let me wish you good luck with your Rapier and may you have as many enjoyable hours flying it as I have had. ●

**From  
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