

# SABIK MK 50



Capt. Jim Simpson, once arrested in Vietnam by the VC on a vagrancy charge (later released back to duty for the good of the service — theirs!), proves, once again, that anybody can design an airplane.

RCM presents the full size plans for this miniature competition model with full size performance.

By CAPT. JAMES SIMPSON, USAF

## FULL SIZE PLANS

**H**e did it again! Ole FL is getting senile with old age. For some reason known (or unknown) only to him another of my many anti-gravity devices now graces the pages of one issue of this magazine. Well, Dewey, as per our telephone conversation prior to the Winter Nats here is another .19 powered radio controlled miniature aircraft for your edification and amusement.

Unlike most authors/designers of this era I am going into my usual ramble and babble because I figure if I can get enough of these words together and FL buys this hogwash, I'll have enough money (that is provided RCM doesn't fold until after I'm paid) to pay about 10% of my bill for hobby supplies!

Oh yeah, I almost forgot about the Sabik. That's the name of a star way out in space somewhere which is where I got this design to begin with. It's heritage is delineated in RCM (Nov. '68) in the XF-226 article so I won't repeat it here. Mark 50? Yes, there have been that many - actually, I have built 59 Sabiks but 9 of 'em were exact replicas of previous models!

A quick glance at the plans will tell you there isn't much there and if you think about that you'll discover that it also means the cost is less. And while we're on this subject I'd like to tell you how inexpensive it is to run a Veco .19 BBRC on Cox Blue Label but you wouldn't believe how long it'll run on a 4 oz. tank so go try it yourself!

A bill of materials is included so if you live in South Dakota or out in the sticks and have to order your supplies you can get them all at once. Mostly it's included because I wrote it to figure out that I can tell you that this plane costs only \$9.29 ready to cover and only \$21.29 ready to fly and these are mail order retail prices!

So, throw your 60's and analog gear away and go get a Veco .19 BBRC and a Royal Classic radio and build this bird. If you use other brands than these the guarantee is void. But worse than that you'll have to drill all new holes and stuff!

Following are specific instructions which are written for procedures which enable me to build one of these from scratch in two days. The fact that the next one is number 60 has nothing to do with it, Clark!

Cut a sheet of 1/4 x 3 x 36 into two 18" pieces and glue together edgewise by taping one side then turn it over, bend it back on the tape hinge, glue it, then tape this side also. Cut the horizontal stab and elevators to top view from this and let it dry. Cut the vertical fin, dorsal fin, and rudder from 3/16" sheet to the shape shown at the side view.

Cut the top block to outline and draw a centerline and the former locations on it. Slot the rear end to accept the rudder then carve the top edges round and sand to shape at least the last 10" (the rest may be done later).

Cut two identical fuselage sides of 3/32" x 4" x 36" balsa and add all stiffeners and braces (I use contact cement for this). Cut fuselage bottom planking (grain lengthwise) from remainder of the side pieces, splicing together with tape in the same fashion as the elevator.

Cut firewall and the No. 1 bulkhead from 1/8" plywood. I mount the Veco .19 and the nose gear block to the firewall, so drill all the necessary holes including fuel line and throttle pushrod holes at this time. Also, drill 2 each 1/4" dia. holes (wing hold down dowels) and the throttle and nose gear pushrod holes in the No. 1 bulkhead at this time.

Set a roll of masking tape close by and, using your favorite adhesive (I prefer Titebond), rapidly glue and tape into position the firewall, No. 1 bulkhead, fuselage sides, rear crosspieces and rear planking in that order.

Now sand the tail surfaces to shape and carefully align and glue the horizontal and vertical stabilizers before or after the hinges are installed - set the completed assembly aside to dry now and we'll do the wing next.

Cut all the leading and trailing edge planking from 1/16" sheet balsa and then use the excess to cut out the ribs in pairs, cut the spars from 3/32" sheet and 1/4" square.

Draw a center line on the first, middle, and last ribs of each wing panel and the rib and spar locations on the bottom leading edge planking. Now check all these parts for a proper fit. Once that's done get the glue and tape ready. Starting with the left wing

panel (I'm left-handed) and working as fast as possible and without interruption until done, do this; glue the full depth spar to the bottom leading edge planking and the ribs into their slots in the spar. Glue the 1/4" sq. spar in place to hold the rib spacing. Run a bead of glue along the marks for rib location on the bottom leading edge planking and also along the top of all ribs from the spar forward, and along the top of the full depth spar. Quickly put the top leading edge planking in place and tape the entire mess together with short pieces of tape, between the ribs along the spar and at the ribs along the leading edge. Now put glue along the top of the 1/4" sq. spar and all ribs aft of it. Turn the panel over and slap it down on the trailing edge planking. Now, quickly glue the bottom trailing edge planking in place and pin it all down flat and solid. Now you can stop for a breather!

Really, unless you've done that at least once you won't believe it takes longer to read it than it does to do it. Another advantage of this method is it builds in a slight amount of washout, which eliminates the need for "stall strips." If you use the alternate method - that is; glue the ribs into the full depth spar then use a 1/4" sq. balsa "jig strip" under the ribs behind the spar to hold the centerline drawn on the ribs parallel to the work surface while adding the remainder of the wing structure, or if you're fortunate enough to have an A-Justo-Jig . . . aw nuts - if you come out with a straight panel then by all means use the stall strips as shown. The point here is washout and stall strips are both good but NOT together.

So, back to my "country method" of wing structure - gee, I can't help but think how nice an A-Justo-Jig would be! Oh well, while the panel is upside down, add the capstrips and center section planking after installing the gear mounts, bellcrank platforms, pushrods, linkage, etc. (oh yes, that does take more time to do than to read about, ha!). After both panels have dried long enough to be considered "cured" take them up, remove the tape, and join them at the center, then add one leading edge, the center section brace, and then the other leading edge. Next on the agenda are the tip blocks, top capstrips, and top center section planking. Sand the resulting mess to an airfoil (same for each panel) add pinked tape to the center section then put wing in place

on the fuselage, drill and install hold down dowels. Leave the hold down dowels 1/4" too long as this excess will also hold the hatch in place. With the wing in place drill a tap size hole through the trailing edge and the hold down plate. Now tap the plate for your favorite nylon screw and enlarge the wing hole to accommodate this screw! MonoKote the wing, install the landing gear and the servo, and put it aside for now.

Back to the fuselage. Where was it? Oh yes, remove all the tape, glue the triangular stock in front of the firewall, and bolt the engine in place. Align and install the 1/16" ply ring former to allow clearance for the spinner, install the throttle linkage, and the nose gear with its linkage. Now install the tank with its plumbing, (aren't those Sullivan SS tanks great?) and leave room for the battery pack. Now with all this garbage in place cut a piece of 1/4" sheet balsa to fit in the opening and clear the nose strut. Add the 1/4" scrap crosspiece and 1/16" ply at each end of the hatch. Now remove the engine, tank, battery, nose gear, etc., set the hatch in place and drill 2 each 1/8" diameter holes through the firewall into the hatch leading edge. Drill 1/4" holes in the hatch to match the wing hold down dowel holes. Now remove the hatch and glue the 1/8" dowels in the firewall so 1/8" sticks through to engage the hatch leading edge. How 'bout that? Now sand this mess and add MonoKote to the outside and HobbyPoxy to the engine and tank compartments and radio room.

The prototype MK 50 I built just before I left Rapid City, S.D., to go to the Winter Nationals. The completed airplane weighed (less engine and RC gear) a scant 17 oz. Its all-up flying weight with a full fuel tank is less than three pounds! I installed the radio gear and finished the plane in motel rooms enroute to the Winter Nats at Tucson, Arizona, and test hopped the plane at Marana Air Park the day before the big contest. Good ole' Don Sump was there as well as Tony Bonette, Dan Santich and a bunch of the Tucson Radio Control Club. With this crowd of notables around I cranked up the MK 50 and let her go and go she did! Almost straight up! The Veco .19 BBRC is a great little powerplant and at less than 3 pounds the Sabik is no slouch! Bob Angus saw this display and allowed it was tail heavy. Bob and I have been at a couple of contests

together but he doesn't know I'm renowned for carelessness or he'd a' said, "Didja align the control surfaces in neutral before the first flight?" to which I would have replied, "Certainly not, if I had, where would the challenge lie?" So, anyhow, I flew it around for a couple of minutes holding full down elevator then pulled the power off and landed still holding full down elevator! I quickly turned the Kwik link 11 full turns to align the elevator in neutral! As usual the second and all subsequent flights were at least flawless and the consecutive vertical eights the old way (i.e. from the bottom up) leave no doubt about Class C performance.

And then the next day! Boy, what a contest. And everybody who was anybody was there, weren't they, Dewey? You guessed it! Dewey wasn't! I had heard that he chickened out but there was no fear as Jerry Kleinburg and Joe Bridi were covering things well (as usual)! I did get a most pleasant surprise though as I crouched down in front of my La Jollita Formula I racer trying to outstare the Donald Duck head I had installed in the cockpit. A sweet feminine voice not unlike that of an angel said, "Excuse me, are you Jim Simpson?" Well that crossed the duck's eyes so I considered the question and answered in the affirmative! Then I looked up and was face to face with the real brains behind RCM. No kidding, fellas, Don Dewey is a front! Just a loud mouthpiece and I suspect - related to Pinocchio, the wooden headed puppet! The voice belonged to Kathleen Acton. And so do the brains. And ole Dewey had to stay at the office and empty wastebaskets! And I got to talk to someone from RCM who

was kind and intelligent, and THAT was a delightful change! I explained to Kathleen why the plans weren't finished and why there were no construction pictures and that as soon as this "fly-in" was over I'd go back to the North Pole (didn't know it was adjacent to Rapid City, South Dakota, did'ja Dewey?) and draw the plans for it.

So here they are, Kathleen, and again I'm sorry I wasn't finished with them at Tucson. I hope you can still use them. If you keep Dewey out of the wastebaskets and up off the floor, I bet you'll have a lot less trouble with his answering your mail and all that sort of thing!

To all you good flyers and builders who read through all this drivel about Dewey, I wish every success in the world and don't worry about RCM's future. As long as Kathleen Acton is there - there'll be an RCM!

#### Bill of Materials

- 1 ea. 1/4" x 3" x 36" - stab, elevator
- 1 ea. 3/16" x 3" x 36" - rudder, fin
- 2ea. 3/32" x 4" x 36" - fuse sides
- 2 ea. 3/8" x 3" x 36" - fuse top, wing LE
- 1 ea. 1/8" x 6" x 12" - firewall, No. 1 bkhd., ldg. gear
- 8 ea. 1/16" x 3" x 48" - wing planking, ribs
- 1 ea. 3/32" x 3" x 36" - wing spars
- 4 ea. 1/4" x 1/4" x 36" - spars, pushrods
- 1 ea. 1" x 1" x 18" - wing tips
- 1 ea. 1/4" dowel & 1/8" dowel
- 1 ea. 3/16" x 3/4" x 36" TE stock
- 1/16" ply scrap, Titebond & HobbyPoxy II, MonoKote, wheels, horns, wire, etc.

