

Popularity of the original Slow Motion led to this larger, 840 square-inch version.



A pair of Seniors resting on the DG (decomposed granite). Original .19-powered version appeared in January 1987 MA.

Senior Slow Motion

■ Bill Evans

It was inevitable that the success and popularity of the Slow Motion (January 1987 *Model Aviation*) would lead to the development of the larger Slow Motion Senior.

Some time ago, Bill Winter, who has endless thoughts about new models (mostly lightweight tail-draggers) made the mistake of telling me that he would like to fly a Simitar. I took the challenge without realizing that his requirements for a lightweight, ultra-slow-flying tail-dragger variant would be almost impossible to produce.

After several letters, many phone calls, and almost total agreement on every issue, the first Slow Motions took shape: one for Bill, and one for me.

Though it was Winter who pushed me to design the Slow Motion, it has been the readers of this magazine who are responsible for the push to make the Senior a reality, with inquiries about "a larger .60-size Slo Mo?", "one for a four-stroke?", or "an Astro electric 40 or 60?" Okay, you did it!

The Senior Slow Motion has a 64-inch span and weighs nearly seven pounds. Wing area is 840 square inches, which results in a wing loading under 20 ounces per square foot.

The first Senior was powered by an O.S. .90, which had plenty of power; with a 1.20, the vertical is outstanding. Others have been powered by the K&B .61 and the new K&B .65 Sportster. Airworthiness of the Slow Motion is perhaps best explained in an excerpt from a Bill Winter letter:

"Something extraordinary happened to me yesterday, and I hasten to share this with you. You know I have been ill, that I fly very little, that my flying is shaky and tentative. I've come to depend on big, slow-flying monsters with relatively low power. I've been

getting ground-shy with these biggies and had begun to have approach difficulties.

"Yesterday, a skilled flier named Bernie Steucker picked me up. It was quite windy and choppy, and was very turbulent near the ground. Our field is small, with a stand of trees along one side. On one approach there are obstacles: short trees, bushes, fence, and one has to come over that fence to get on. Within 300 feet on the other side there is a woods. The wind is almost always 90° across the runway.

"When I flew one of my ships, the gusts and eddies threw it up on one tip, then the other; made it jump and dance, and heavy control corrections were constant. It was unpleasant, scary and a crap shoot as to getting back onto the ground without being rolled up into a ball.

"Steucker had the old Slow Motion with him; it still had the original .19 in it. He asked me twice to fly it. The first time I sort of dashed around, no problems, and rather enjoyed it. I felt nothing in particular except some kind of surprise—a ting.

"The second time was the experience of a lifetime. I learned something exciting. Or you can say I saw the light. You know how

some airplanes require pretty constant stick work through high-speed turns if those turns are to look smooth? I became aware that when we feel a level of unpleasantness it is because we are making separate (necessary) inputs on three axes.

"When this sense disappears it is because the machine is what we call 'solid.' Solid planes are scarce as hen's teeth. You suddenly feel as if the ship is precisely tuned to the stick—which feels as if it is a single stick—and the airplane slaves smoothly and instantly to every stick movement, however minute. It is a



Senior is ready to go. This is one of the most conventional-looking models in the Simitar series, yet it will fly the pattern—and a few other maneuvers!



Doug Stanneck (Bishop, California) with an early prototype version of the Senior—this one is powered by a K&B .40.



John Ludwig (Bishop, California) with a K&B .60-powered Senior. Foam wing cores are available—see text for details.



Bill Thompson (Modesto, California) powers his Senior with an O.S. .90. Design can handle a wide engine range.



K&B Sportster installation—a good choice for the Senior. Wide speed range of this model will suit any pilot.



Mounting detail for O.S. engine. Note orientation of the needle valve and choke arms, visible just below the muffler.

fascinating feeling, because you then become one with the airplane—transported into it. It seems an extension of one's self.

"Well, Steucker muttered that no one can fly smoothly and decently in such choppy wind when throttled down and so trimmed. He handed off at nearly full power, at probably 70 to 80 mph max, and it was trimmed flat. I suddenly felt supremely confident and totally in charge; I did stuff I haven't done in 25 years or more.

"This thing bores through the wind. It does not change speed throughout consecutive loops, does not slow up, and if you relax elevator at the top it stays nearly inverted with stringlike precision the length of the area.

"The first time, Steucker asked me if I knew I was inverted! I laughed. Others cried, 'hey, you are upside down.' They got to yelling 'give it up,' or 'take it higher,' but I just kept going, and when they thought I had bought the farm, just went arcing off in those smooth curves this plane follows on its flight path.

"The remarkable thing, and I barely understand, is that for a few minutes, a [then] 76-year-old man who doesn't see well, who shouldn't do many things, was flying better than at any time in his life—better than when I could fly a pattern.

"What I sensed vividly is that the really well-coordinated design, properly trimmed and used, imposes its will on the pilot. Can you believe this? Sticks blend into one, the stick and plane blend, then your mind, and

what is in essence the soul of the airplane.

"I know you always say, why build a tail? Tails aren't necessary. Well they are not—not on this type machine. Today I am thinking that if I want to fly and have fun, and not have to struggle, the question is, *why build anything else?*



Elevator servo position when using an electronic mixer in transmitter or receiver. Model is very directional.

"I fight the feeling, but after what I did yesterday and could do, I have to admit it—I saw the light. I wonder, however, if ever again in my life I will fly anything like this, under such conditions, with uncompromised success. That old Slow Motion is the easiest airplane I have ever flown...

"Since I don't get out often, and find that wind grounds me on two out of three trips (with my big, slow jobs), a slightly larger Slo Mo is a wise choice. And since we both have soared the Slo Mos, I ask myself, what am I doing making another Old-Timer?"

Construction: Foam cores for the Senior Slo Motion are available from Soaring Research, 454 Wildrose Lane, Bishop, CA 93514. Price is \$20 for the cores; 1/4 plywood sheeting is \$18; and shipping is \$7. California residents add sales tax.

The following construction sequence will allow you to use your time to the best advantage:

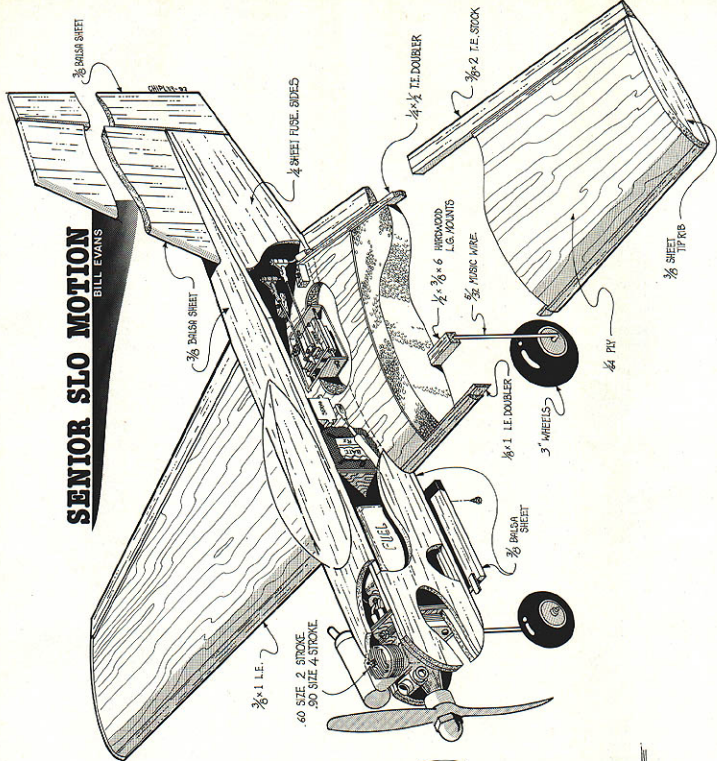
Use aliphatic resin glue and pins to attach the 1/4 leading edge and 1/4 trailing edges to the wing cores. Be careful not to warp the cores. Set aside in cradles, and put some weights on top to hold the cores flat.

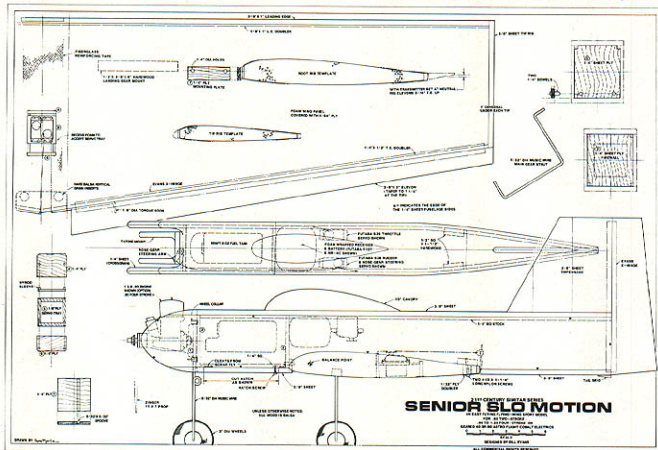
Cut the fuselage parts, making sure to clamp the 1/4 ply wing plate to the former while drilling the holes for the hold-down dowels.

Draw a centerline on the fuselage top piece, and mark the location of the firewall and former; also mark the location of the

SENIOR SLO MOTION

BILL EVANS





firewall and former on the inside of the fuselage side. Start the $\frac{1}{4}$ square at the aft edge of the firewall, and pin down on the fuselage top, following the curve shown on the plans.

Pin down the second $\frac{1}{4}$ square on the top, and use the centerline to measure to match the curve of the first longeron. Use cyanoacrylate (CyA) glue to attach both $\frac{1}{4}$ square longerons to the fuselage top (run glue on the inside edge only).

Pin the left fuselage side to the top and longeron, set in the firewall and former to square, then CyA the side, firewall, and former to the assembly. Pin the right side in place, check for squareness at aft end, clamp and pin, then CyA the side to the assembly.

Install the cowl cheeks and bottom longerons, sand flush and install the front

bottom and rear bottom fuselage pieces. Final-sand and cover the fuselage, cut and attach the hatch, and install the engine mount, servos, radio, etc. Fuselage construction is now complete.

Cut and sand the fin and rudder to shape. Epoxy the fin to the fuselage, then use Evans X-Hinge to attach the rudder to the fin and fuselage.

Trim and sand the leading and trailing edges flush with the cores so that the sheeting will fit nicely over them. Attach the sheeting to the cores; we used corefilm. Glue and pin the $\frac{1}{8}$ leading edge cap, and set aside to dry.

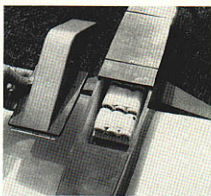
Sand the leading edge to shape—keep the top steep and the bottom fairly flat. Install the tip plates.

Use 5-minute epoxy to join the wing panels. I place a piece of two-inch masking tape upside-down on the workbench, put the panels (with epoxy on them) down on the tape, pull the tape around the joint, block up the tips for dihedral, pin, and let the epoxy set.

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Above: Joe Price (Peotone, IL) and Astro 40-powered Electric Senior. Right: Hatch has been removed for battery access.



Senior Slow Motion

Type: RC Sport

Wingspan: 64 inches

Recommended motor size/type: .60 two-stroke, .90-1.20 four-stroke, geared 40-80 Electric

Number of Channels: Three

Expected Flying weight: Approx. 7 lbs.

Construction: Foam-core wing with plywood skin, sheet balsa fuselage and rudder

Str. Slow Motion/Evans

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Trim and sand the elevons to shape, then fit and attach to the wing. We again used X-Hinge, which seals the gaps, goes on easy, and lasts forever.

Set the wing in place on the fuselage and mark and cut for the 1/4 plywood mounting plate. Use epoxy to install. Add the hold-down blocks, then drill and tap for 10-32 nylon bolts. Install the elevon servos.

Remember to rig the elevons with about 1/4 inch of up, with the trim at neutral (this is to provide the necessary reflex for the Simitar series). Throws? A quarter inch of up, down, left, and right is adequate.

Flight performance? Typical of the Simitar series, no stall, wide speed range, and again very directional. At half power or less, it's so docile anyone can handle and fly it. At full power it will do the pattern, and some maneuvers that aren't in the book. The model handles like any other, but with superior performance.

Come join the Simitar pilots and fly into the 21st century. →

Safety/Shaw

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of the members had packed up and gone home, leaving only myself and one other flier at the field. Luckily, my wife and daughter were there also, as she was elected to take me to the emergency room while my friend packed up all my stuff and brought it home for me.

"One of my planes suffered a minor mishap when the wind blew it off a table and broke the needle valve flush with the housing. After a few expletives, I put it up and got my Anniversary Cub out, fueled it up, took off, and when trying to show my friend how low and slow it would fly, caught the wheels in the grass and stuck the nose in the ground, breaking my cowling into a *bazillion* pieces. Into the van it went.

"About now something should have told me it was time to give up and go home. Did I? Naw! Like I said, 'That stuff only happens to the other guy.'

"Okay, last chance, out comes the Bridi Trainer. Ha! Ha! Trainer, my foot, this thing is a rocket. It will do 2,765 rolls in a second. Well, okay, maybe only 1,765. It will lomevack faster than most aerobatic airplanes. At any rate, it is a very light, fast, maneuverable airplane equipped with a Webra .40 Schnuerle engine and a 10 x 6 propeller that responds instantly to the engine's commands.

"One of the bad habits I've developed over the years is sitting down in front of the airplane to start it. Another is messing with the radio while sitting there. Yet another, is not waiting for someone to assist in holding and moving the airplane

after it's running. *Quite a list of dumb habits, ain't it?*

"Well, to get on to the meat (pun) of the incident, I was sitting in front of the plane, started the engine, removed the glo-plug battery, and was moving the radio off to the side so I could get up and take the airplane to the runway. Something, and I still don't know what, hit the throttle control moving it to the full position. The plane did exactly what it was told to do and went wide open jumping the foot and a half distance between us in about half an instant.

"All I remember is the ugly sound propellers make when they chew up fingers (blender effect). Fortunately, the engine died and didn't get anything else to eat. I grabbed a clean rag and wrapped my hand in it, afraid to even look to see if there was anything left of my now completely numb hand.

"What were the damages? I lost the end of my thumb, the whole left side of my index finger from the tip to the first knuckle, a cut on the right side of the same finger that went to the bone and chipped it. The end of my middle finger went away, and my ring finger was cut diagonally through the nail and nail bed to the left side. The doctor took some skin and meat from just above my elbow to rebuild my index and middle fingers, and sewed the other fingers back together. Right now I look like I have a hand full of marshmallows, what with all the bandages and tape.

"So you say, what have you learned? Well, I picked up on several things:

1. Never start your airplane without some means of restraining the airplane—either a person to hold it, or some sort of mechanical restraint.
2. Never sit down in front of a running engine.
3. Never, never fly model airplanes by yourself. Always have someone go with you.
4. Always, if you use plastic or carbon fiber or glass-filled nylon propellers, dull the edges and rebalance them. As they come from the factory, they will cut like very sharp knives.

"I am sure there are other things that should be brought out about safe model operation, but for now, these should keep me from having to pay another visit to the emergency room any time soon!"

As James pointed out, it's unfortunate that modelers continue to injure themselves in ways that are preventable! Of all the mail I receive each month (one or two letters), "something went into the prop" stories continue to hold the lead. Folks, we all know props are dangerous; however, injuries are plentiful, and complacency continues to abound.

What's the solution? Can injuries be reduced? Sure. We all know they can be, if we truly try, and most of us do. Be an actively concerned modeler and do your part to

practice the safety approach! Offer a helping hand when needed and influence those around you by teaching sound safety practices. The fingers you save may be your own.

Sun spots: I have no doubt that many of us are familiar with what happens to our vision after we've accidentally stared into the sun for a moment as our aircraft flies through it. For those of you who haven't had this pleasure, it can best be described as an initially painful sensation, followed by bright dots remaining in the center field of vision for a brief period of time.

Since forward vision can be temporarily blocked by these sun spots, real potential for aircraft demise exists unless a fellow modeler is available to temporarily take the controls.

To avoid this problem, most clubs try to find fields that allow positioning of the runway so the sun is to a flier's back from sunrise to sunset. Normally, one would think that having the sun on your back would open the sky to a full day of flying opportunities, but for Kevin Cassidy of Northport, New York, this benefit proved to become an interesting liability. Kevin writes:

"I want to alert model fliers to a subtle and dangerous phenomenon that can occur when you think you are well protected during a lengthy period of flying.

"I was recently treated to one of the best RC flying weekend weather periods in memory. The sky was crystal-clear blue, cloudless, and there was virtually no glare since the humidity was so low. Cool temperatures and a light breeze made for two days of absolutely perfect time to test winter-built projects plus yank and bank old favorites. I spent many hours at the field.

"My flying site is situated such that we can keep the sun behind us at all times. This benefit has had an interesting liability. Throughout the day, the fliers subconsciously become a sort of 'negative solar collector' by keeping the sun behind them at a generally constant angle. That's comfortable to the eyes, of course. My prescription sunglasses are quite dense, and I always thought my eyes to be well protected while looking skyward; however, at the end of each day my left eye hurt terribly.

"An optics scientist has confirmed my suspicion that my eye was sunburned by the sunlight reflected into my eye from the inside surface of my sunglasses. I had unknowingly held my head at a nearly constant and correct angle to capture the rearward-entering rays.

"The moral of this story is that a side shade attached to the glass frame is sometimes as important as the lenses themselves."

Veco Chief Flyaway: More months ago than I'd like to admit, I received a letter from longtime modeler Robert Ford of Long Beach, California, describing a slight error he made while launching his control line aircraft from a stooge some 40 years ago.