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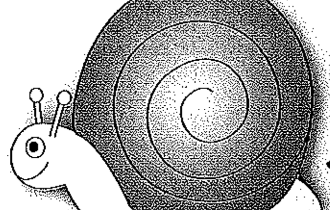
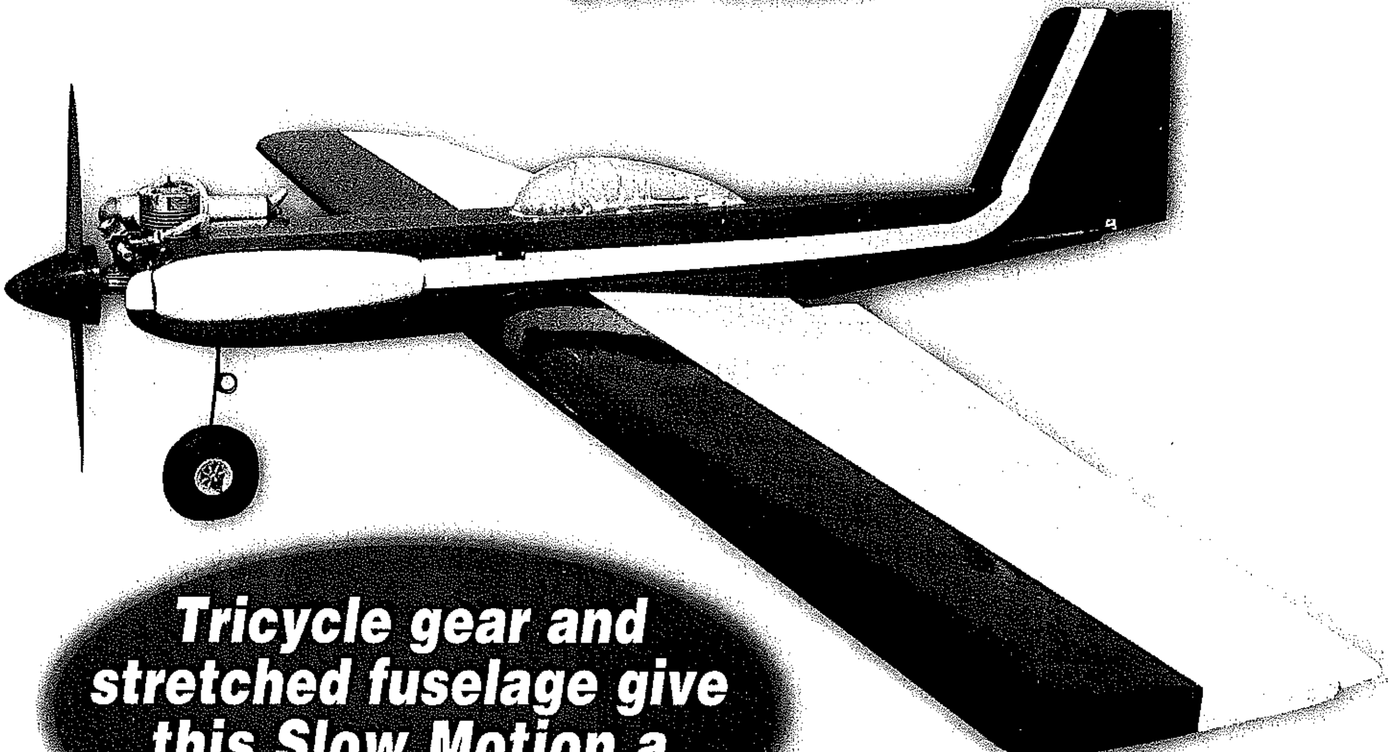


SLOW MOTION

Bill Evans



Tricycle gear and stretched fuselage give this Slow Motion a "traditional" look

The Slow Motion Tradition is the fourth in the series of Slow Motions.

First was the Slow Motion, for .15-.40 engines, in the January 1987 *Model Aviation*. Second was the Senior Slow Motion (.40-.60 engines) in October 1993 *MA*. Third was the Slow Motion TD .09 (for .09 15 engines, August 1997 *MA*). All Slow Motions are of the 21st century Simitar Series.

This model was so named because it is a Slow Motion elevated to tricycle gear and stretched fuselage with enhancements to give it a more *traditional* appearance. Almost all who have seen the new Tradition have taken a great liking to it.

CONSTRUCTION

Wing: For those who do not cut foam, you may order cores for the Tradition from Soaring Research, 454 Wildrose Ln., Bishop CA 93514; Tel.: (760) 873-4932. Cost of wing cores is $22 plus $8 for shipping.

Be sure the wing panels are flat and straight; use weights with the core on a flat surface if necessary. Cement the ¼ balsa leading edge undercaps to the leading edges and the ¼ balsa trailing edge spars to the trailing edges. Adhesive should be user-friendly odorless cyanoacrylate (CyA) or carpenter's glue; do not use regular CyA on foam. Set these aside to dry until after the fuselage is constructed.

Fuselage: Cut the fuselage pieces; place and pin the fuselage top piece on a flat work surface. Place the side pieces alongside and mark the location of the firewall and bulkhead on the top and sides. Pin the ¼ square longerons in place ¼ inch from the edge (use the sides as a guide). Curve these longerons from a three-inch fuselage width at the wing/elevon hinge location to the centerline of the fuselage at the tail. Glue in place by applying thin CyA to the inside edge of the longerons (the CyA will run under the longerons.)

Pin the fuselage side to the fuselage top; pin the firewall and former in place against the top and side; CyA the side to the top, firewall, and former. Be sure to curve the side to the center at the rear. Pin and glue the second side into place; pin and CyA the ¼ square bottom longerons into place against the fuselage sides. Pin and glue ¼ square strips around the back side of the firewall.

Sand the bottom edges of the fuselage sides flush with the bottom longerons. Pin and glue the front fuselage bottom into place. Pin and glue the ¼ balsa fuselage bottom rear into place.

Round the corners per the plan and sand the fuselage as needed.

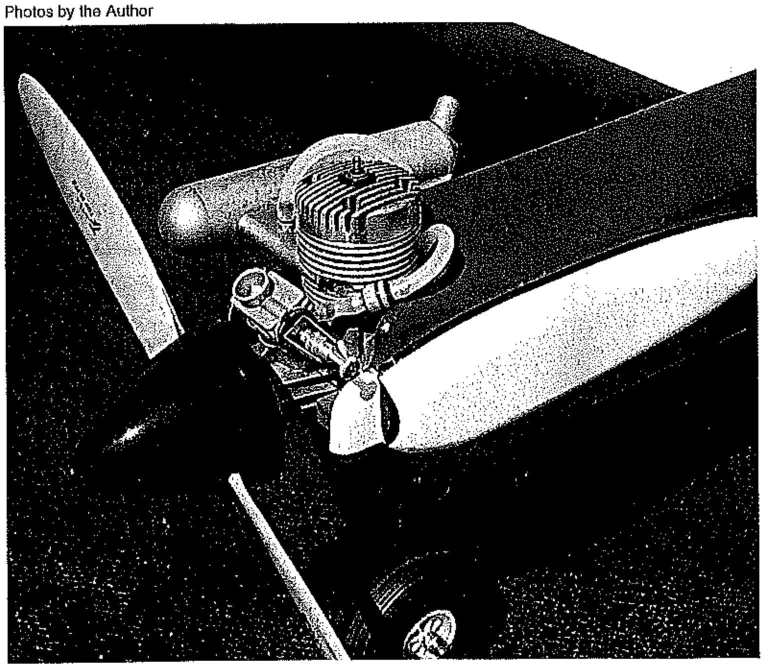
Back to the wing: Plane and sand the ¼ leading edge undercaps and trailing edge spars

TRADITION

Graphic Design by Carla Kunz

Phil Greenberg and prototype Tradition. Fuselage has been "stretched" a bit in this version. Wing area 710 square inches.

Photos by the Author



Slow Motion Tradition is powered by a .40 two-stroke with a six- to eight-ounce tank. Steerable nose gear is ⅛ music wire.

Why the Simitar?

The following is a compilation of the flight characteristics of the Simitar Series aircraft that result in performance advantages over aircraft with conventional horizontal stabilizer and elevator:

- A Simitar will not tipstall. As you reduce power and pull up elevator, when it reaches the point where a conventional model would try to tipstall, it merely drops its nose and continues to fly straight ahead with the nose down a bit. So the tail will never drop, cause a tip stall, and a crash.

  How many times have we tried to force a stab model into the air, or stretch the glide, only to have it tipstall and crash? It will never happen with a Simitar.

- A Simitar has a wider speed range. Given the same weight, power, and wing area as a conventional model, the Simitar will fly more slowly; and because it has less drag, it will fly faster.

- A Smitar is aerodynamically stable. Hands-off at ¼ throttle, tap a bit of left aileron to get the right wing tip up a bit, let go, and a Simitar will do left-turn 360s until you say, "Quit!"

  Anyone of any age who can tap left or right stick can fly a Simitar until the tank runs out and never have to touch up or down elevator. Since it will not stall, pitch control is not required for slow flying. (For first-time fliers, takeoff and landing should be done by the instructor.)

- Wind is not a factor with a Simitar! Adjust throttle to maintain zero ground speed and you can hover; ease off and it will fly backward. Vertical takeoffs and landings are no problem.

- A Simitar will do all of the maneuvers a conventional Pattern model can do—better and easier. It will tumble fore-and-aft as well as tip-to-tip. Flat spins are no problem. Also, tight turns!

News commentator Paul Harvey recently made the statement, "Before not too much longer, no aircraft will be built with horizontal tails."

Bill Evans

SLOW MOTION TRADITION

Type: RC Sport

Wingspan: 64 inches

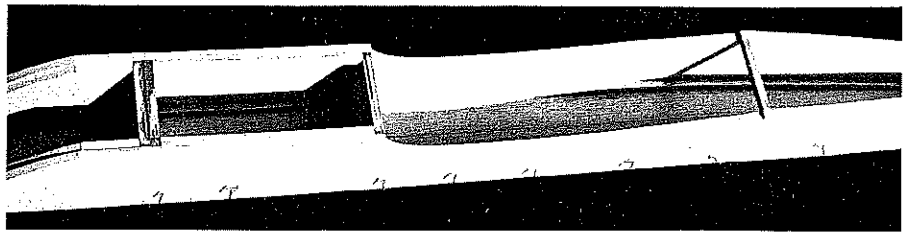
Engine: .40 two-stroke

Functions: Elevon, rudder, throttle

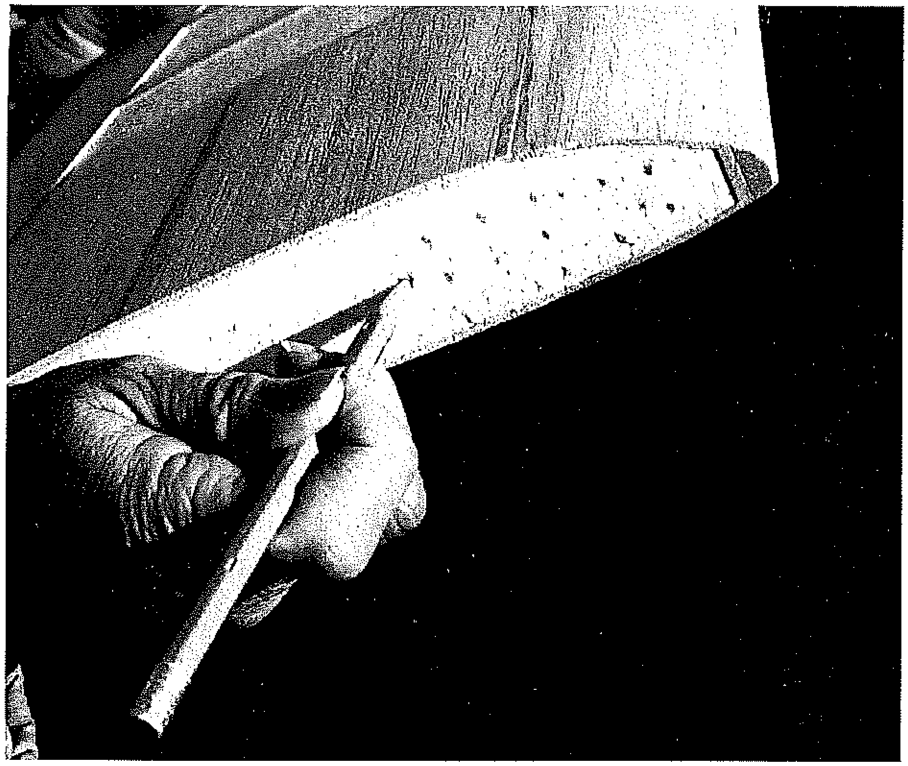
Flying weight: 4½ pounds

Construction: Built-up

Covering/finish: Film



Fuselage sides and inside cowl cheeks have been pinned and glued to fuselage top.



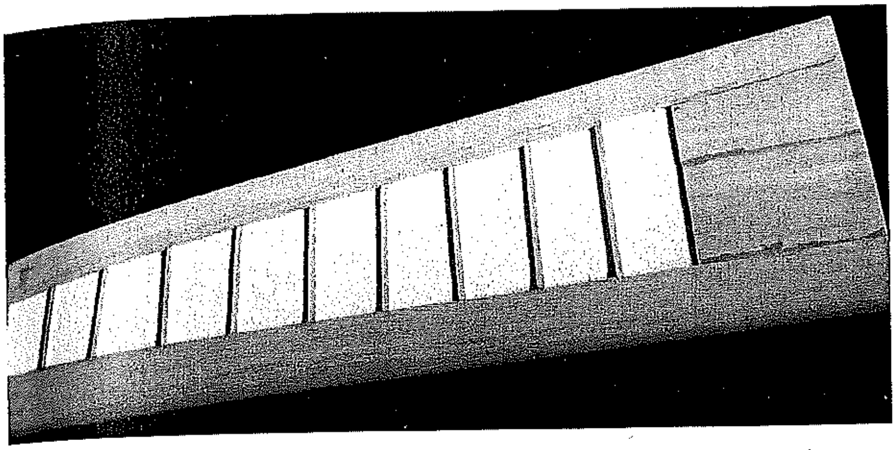
Five-minute epoxy is used to join the panels. Pencil holes increase gluing area.

so that the sheeting will fit over them. Do not sand any of the core away.

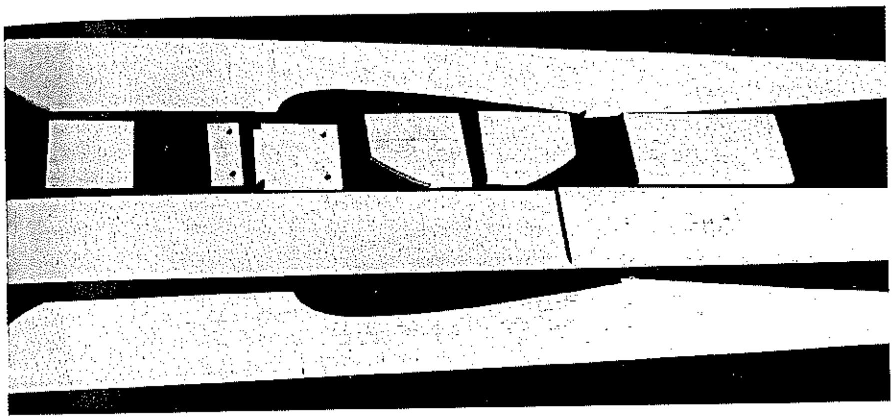
Sheet the wings; we used Corefilm to apply the 1/16 sheeting to the leading edges, trailing edges, and center section. Sand the leading edge sheeting flush to the undercap and then pin and cement the 1/4 x 1 leading edge cap to the leading edge. Apply the 1/16 x 1/4 capstrips on two-inch centers from the end of the inboard sheeting to the tip of the wing.

Shape and sand the leading edge. The leading edge bottom is nearly flat and the top curve is fairly steep. Do not round the leading edge; a maximum radius of 1/16 is desirable. Attach the wingtips; carve and sand to airfoil shape. Finish-sand the wing panels and join them with five-minute epoxy.

Fit the elevons to the wing. We used X-



Wing cores available from the author. Adhesive is odorless CyA or carpenter's glue.



Fuselage "kitted" and ready for assembly. Fuselage is built inverted.

Hinges to attach the elevons. If you use mechanical elevon mixing, form and install the elevon control rods before you attach the elevons. Cut and cement end-grain balsa into the wing at the bolt location to obviate crush of the wing when you bolt it to the fuselage. Fit the ¼ plywood wing plate into the leading edge of the wing at the center section. Set the wing and wing plate into place on the fuselage and check for fit before gluing the wing plate to the wing.

Using waxed or greased temporary ¼ dowels, set the wing and plate into place, align them, and glue the plate to the wing with five-minute epoxy.

Place hardwood gear blocks at the correct location on the bottom of the wing, mark the area, and remove the sheeting and foam so that the blocks are flush with the sheeted bottom wing surface. Glue these in place with five-minute epoxy.

Sand and cover the wing. If you use electronic elevon mixing, install ⅛ plywood servo plates flush with the bottom surface of the wing and dig out the foam for the servo pocket prior to covering the wing bottom.

Complete and sand the vertical fin (and rudder, if desired, for aerobatics). If you are using a rudder, attach it, sand and cover; cover the wing and fuselage; epoxy the vertical fin to the fuselage.

For those new to the concept of the Simitar series, an explanation of the control surface function and component installation will be helpful.

A Simitar requires only pitch (elevator) and roll (aileron) functions for perfect flight. Except for Pattern flying, a rudder is not required.

Simitar control surfaces are elevons, which serve as ailerons and elevators. In essence, consider the control surfaces as full strip ailerons that counter-actuate to provide aileron control and also actuate simultaneously to provide elevator control. This means that some form of mixing is needed. Such mixing can be provided by mechanical or electronic means.

The best mechanical method is to use my sliding tray, which works as follows:

One of the servos in the tray is set up as you would for strip ailerons. The second servo is for elevator and its control arm is attached to the stationary bulkhead at the front of the tray so that it will slide the tray fore and aft to give the elevator function.

Electronic mixing can be provided by a radio with built-in mixing or by using Ace's Christy Mixer or the Quillan Mixer, which plug in between the servos and the receiver. Both mixers work very well and are in the $25 to $45 price range. Alternatively, some of the newer radio systems have built-elevon mixing or flaperon mixing functions. I have used several of the Futabas in this line, such as the 6VA, 7NFK, 7UAF, 7UAFS, 7UAP, and 9VP.

Sliding Tray Setup: The sliding tray fore-and-aft formers are 1/4 plywood. Drill the 1/8 holes for the dowel through both formers at the same time; this will make the holes parallel. Cut the 1/8 plywood tray to fit the aileron and elevator servos. Push the dowels into one of the formers, slide the red outer Nyrod over each dowel, then push the other former onto the dowels. Cement the tray in place onto the Nyrods (be careful not to get cement inside) and install the servos as shown.

Electronic Mixer Control Setup: Use 1/8 plywood trays to mount the servos in the wing; epoxy the trays flush on the bottom of the wing after sheeting. Grind a hole in the top center of the wing and use a piece of piano wire with a hook bent on one end to tunnel out for each servo lead. The lead is then easily fished through with a piece of string.

Final Assembly: Install the landing gear, engine, fuel tank, and radio. Hook up all controls and check to make sure there is no binding. Check to make sure your aircraft balances (level to slightly nose-down) at the Center of Gravity (CG) location indicated on the plans (approximately 1½ inches behind the leading edge of the wing, with no fuel in the tank).

I put in as much control throw as I can get, then use what I need (⅜ to ½ inch of up, down, left, and right is fine). Remember: Control is not like a light switch, it's like a dimmer switch. Use only as much pressure on the stick as you need to make it do what you want!

Set the nose wheel height so that the leading edge of the wing is ¼ inch higher than the trailing edge (measured at the hingeline) with the model at rest on a flat surface. The trailing edge of the elevons are set ⅛ up with the transmitter trim at neutral.

Check all surfaces for proper motion (left aileron command results in the left elevon going up, and the right going down; and the up elevator command results in both elevons going up).

Flying: Flight performance is very smooth and graceful; it gives the feeling that it's an extension of yourself in the air. It seems to always do the right thing, often before you command it. Are the thumbs quicker than the eye? Bill Winter said to me, "Why does my Simitar do what I want it to before I tell it to? Does it read my mind?"

Remember, be safe, be courteous to other fliers, and have fun and tight turns! ✈

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