Similar Slow Motion

This unusual flying wing RC model is the result of an unlikely collaboration by two men who had never met at the time. One is from the East Coast, one from the West; one likes hot airplanes, the other has all but abandoned aerobatics to watch machines that float and soar. It is comfortably "at home" with power by a glow engine or an electric motor.

■ Bill Evans with Bill Winter

Evans. I've spent most of the past 14 years specializing in high-performance, fully aerobatic flying wings. I've also been a faithful follower of Bill Winter's "Just For the Fun of It" column, so I was more than a little shocked when, during a chance phone call to Winter, I heard him say he'd like to build a Similar. It didn't sound like Winter's type. Was he joking? Some of the Similar variations have hit 160-plus mph.

He wasn't joking at all. What he wanted was a wing that had a range of from 15/20 to 60/80 mph, one that would fly on either two, three, or four channels and on rudder or ailerons. He wanted a Free Flighter capable of 360s, hands off, without losing altitude or spiraling down. He wanted a wing that would soar!

We agreed right then on the phone that it needed light weight, dihedral, and a 5-ft. wing to balance his K&B/Veco .19. Sketches flew back and forth. Problems developed but turned out not to be problems at all. Strangely, each of us was in complete agreement with the other from the outset.

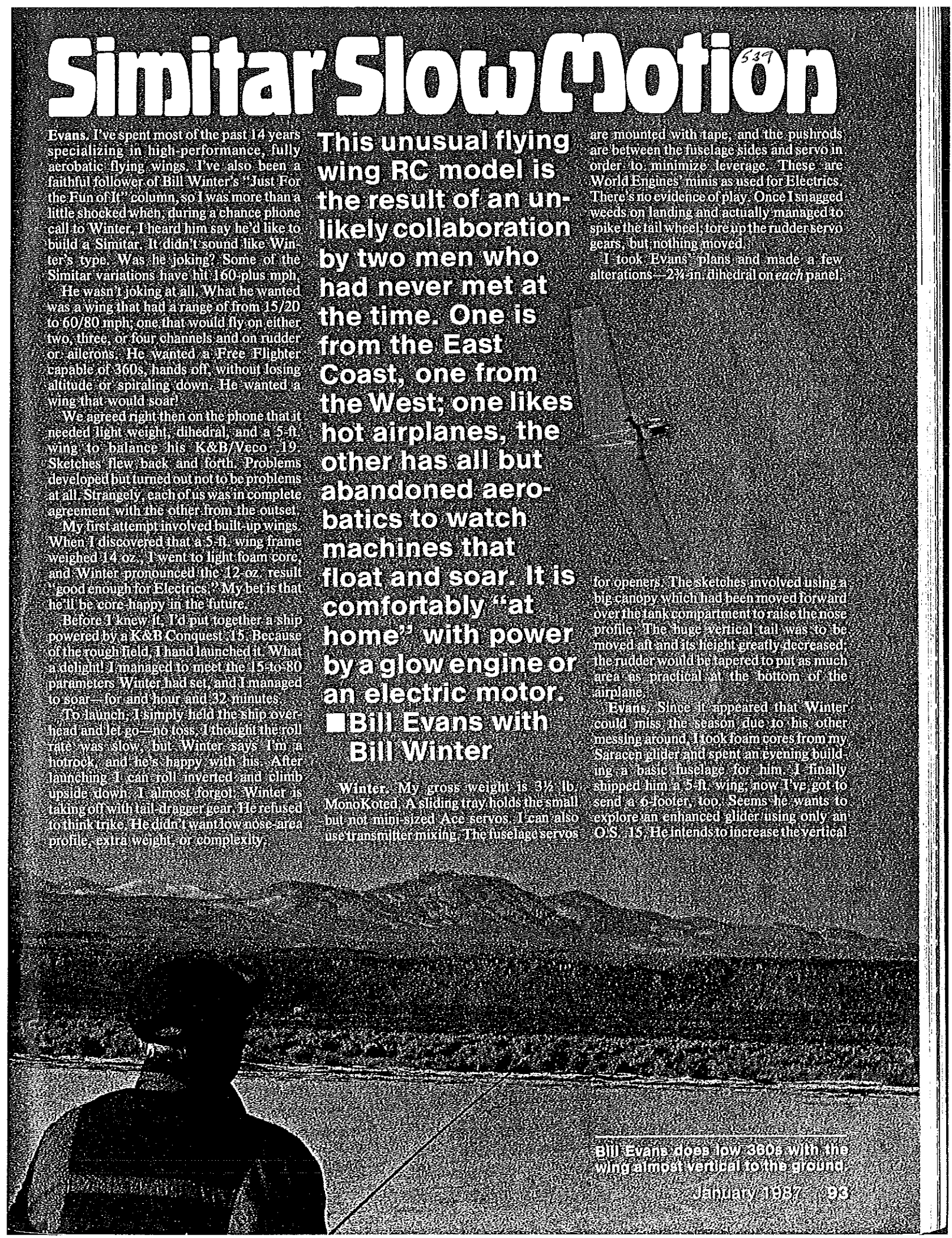
My first attempt involved built-up wings. When I discovered that a 5-ft. wing frame weighed 14 oz., I went to light foam core, and Winter pronounced the 12-oz. result "good enough for Electrics." My bet is that he'll be core-happy in the future.

Before I knew it, I'd put together a ship powered by a K&B Conquest .15. Because of the rough field, I hand launched it. What a delight! I managed to meet the 15-to-80 parameters Winter had set, and I managed to soar—for and hour and 32 minutes.

To launch, I simply held the ship overhead and let go—no toss. I thought the roll rate was slow, but Winter says I'm a hotrock, and he's happy with his. After launching I can roll inverted and climb upside down. I almost forgot: Winter is taking off with tail-dragger gear. He refused to think trike. He didn't want low nose-area profile, extra weight, or complexity.

Winter. My gross weight is 3½ lb. MonoKoted. A sliding tray holds the small but not mini-sized Ace servos. I can also use transmitter mixing. The fuselage servos are mounted with tape, and the pushrods are between the fuselage sides and servo in order to minimize leverage. These are World Engines' minis as used for Electrics. There's no evidence of play. Once I snagged weeds on landing and actually managed to spike the tail wheel; tore up the rudder servo gears, but nothing moved.

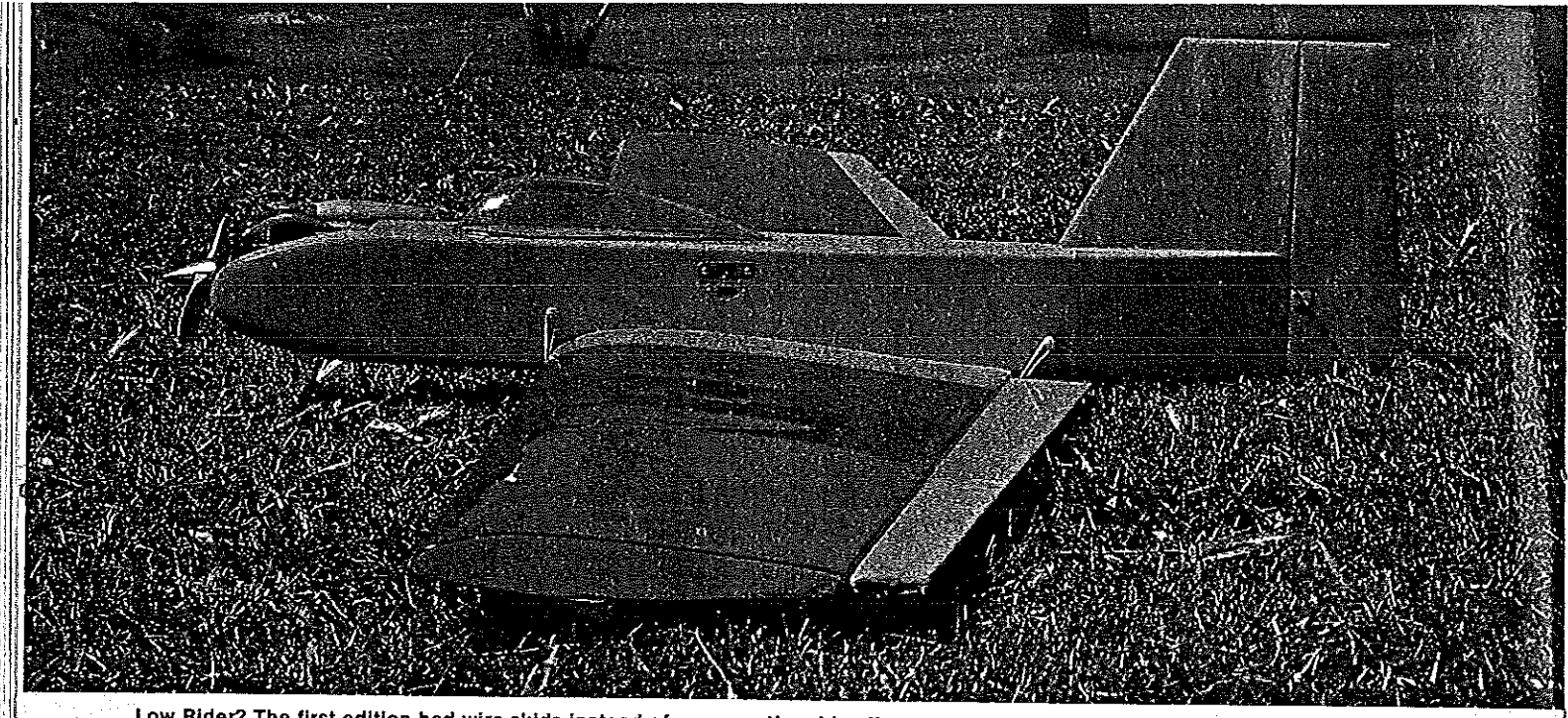
I took Evans' plans and made a few alterations—2¾ in. dihedral on *each* panel,



for openers. The sketches involved using a big canopy which had been moved forward over the tank compartment to raise the nose profile. The huge vertical tail was to be moved aft and its height greatly decreased; the rudder would be tapered to put as much area as practical at the bottom of the airplane.

Evans. Since it appeared that Winter could miss the season due to his other messing around, I took foam cores from my Saracen glider and spent an evening building a basic fuselage for him. I finally shipped him a 5-ft. wing; now I've got to send a 6-footer, too. Seems he wants to explore an enhanced glider using only an O.S. .15. He intends to increase the vertical

Bill Evans does low 360s with the wing almost vertical to the ground.



Low Rider? The first edition had wire skids instead of a conventional landing gear and was great for summer flying off grass runways.

area slightly to compensate for elevon yaw with the greater span. (Editor: This version was built by Bill Kaluf. It is fast and fully aerobatic.)

Winter. The airfoil median line is reflexed, though only a close look reveals it. Elevons are rigged with neutral 3/32 in. up, and the cores' leading and trailing edge sheeting is 1/16 x 2, open both top and bottom, and applied with Evans' own double-sided sheeting tape, Corefilm. The center of gravity (CG) is far forward, just 1 in. behind the leading edge, and the high point of the airfoil is unusually far forward, as you can see on the plans.

This wing will not stall. When the angle of attack increases and the speed slows, the leading edge drops. No more falling off of a wing on premature takeoff or when pulling elevator trying to make the runway on a dead-stick landing.

There were some subtle tricks I wanted to try. We had agreed on tapered elevons maintaining the same chord-to-wing ratio at both tip and root. I cut off nine inches from the total elevon span (4½ in. on each side). I wanted to leave the tips undisturbed. Rolls are not axial, that's for sure, but the rate is realistic, and no unusual control input is required. I dropped the extreme leading edge line from the root to the bottom of the tip section and sanded the rear undersurface of the tip to a more symmetrical section to give added washout effect.

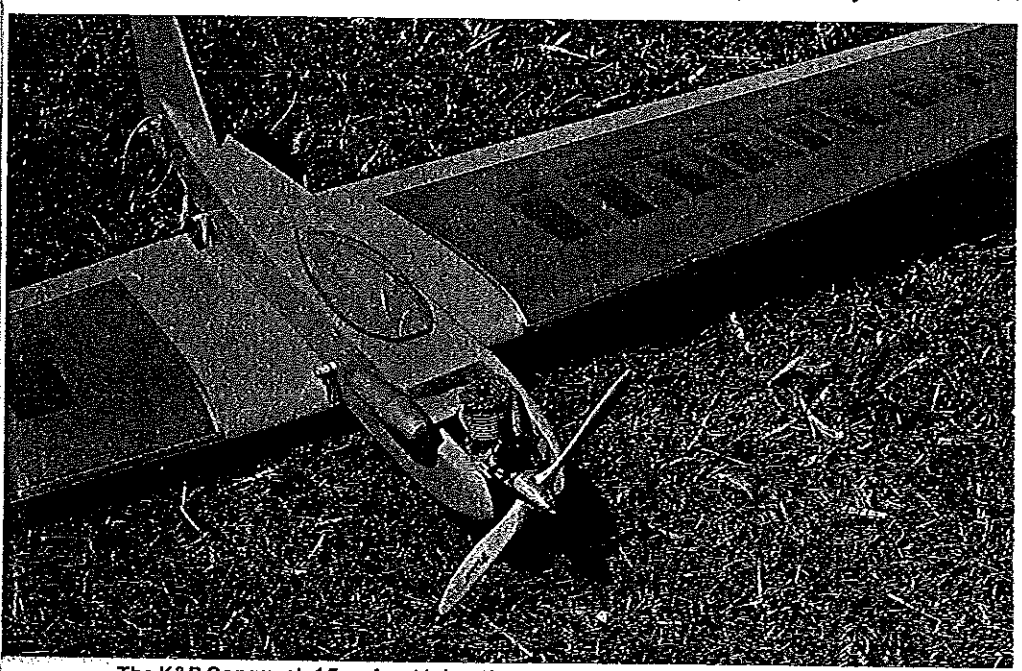
Evans. K&B's new Conquest .15 with ABC and new rod, and a Kraft KP7KB (with reversing throw adjustment for all channels, an elevon mixer, and even a rudder-aileron coupler) completed the ship. Test flights of the West Coast version conducted at Bishop, CA were picture perfect. Out of the box, the K&B idled down so I could almost walk alongside the ship on a low flyby. At full throttle, it ripped through the air at over 70 mph. Performance of the KP7KB was smooth and flawless.

You have several choices when it comes to radio and control-surface functions. First is the four-channel setup (see plans) with a sliding tray to operate the elevons. If you have a transmitter with an electronic mixing function, you may eliminate the sliding tray and mount the elevon servos outboard on the bottom of the wing.

Another choice would be to go with three channels: elevons and engine without rudder, or rudder, elevator, and engine. With the three-channel elevon/engine setup, you may use the sliding tray or radio with mixer. You will find that the elevons do a a good job of controlling the takeoff and landing roll. For the three-channel rudder, elevator, and engine setup, all you need to do is to attach the wing control surfaces to one servo so that the surfaces move up and down as elevators. To do this, join both pushrods at the servo.

The Similar Slow-Motion flies well on just rudder and elevator, so your choice of installation for the radio will vary depending on your equipment and your preference for either aileron, rudder, or both.

The word has spread quickly. John Ludwig and Ron Rolland, both of Bishop, began construction on Slow-Motions. Doug Stanek talked me into drawing up a .40 version which he powered with a K&B. Not such a slow Slow-Motion. Veteran builder Pete Jones also got in on the action. Ruben Vargas picked the Slow-Motion for his first RC and soloed in less than two



The K&B Conquest .15 up front takes the model up to Winter's desired upper end of 80 mph.

weeks.

Winter. As I write, Evans is altering the 'finished' plan. Originally the fuselage began its sharp curve to the rudder rearward from the trailing edge. There was fear that some builders might encounter mechanical clash of elevon control rods with the fuselage sides. The fit was mighty close. If the pushrods are kept close to the centerline, and the upright drive arms of the linkage are bent (slanted) slightly toward inboard, then the fuselage curve can begin at mid-chord—definitely a lower-drag configuration.

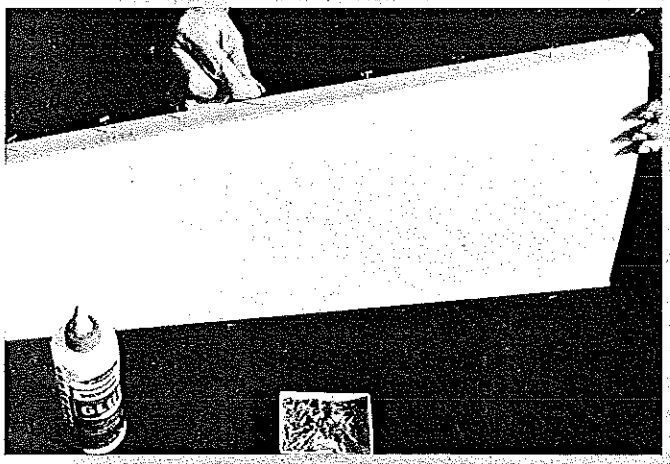
Even though I used a Hallco gear with oversize Goldberg wheels for my grassy runway, I was forced to locate the airborne system quite differently than I had expected in order to achieve Evans' 'mandatory' CG position. I had to position the 450 mAh battery pack vertically between the tank and the forward cabin bulkhead. This forced me to use a long top hatch, and since my flat-sided balsa canopy is extremely far forward, the canopy had to be attached to the hatch as a unit.

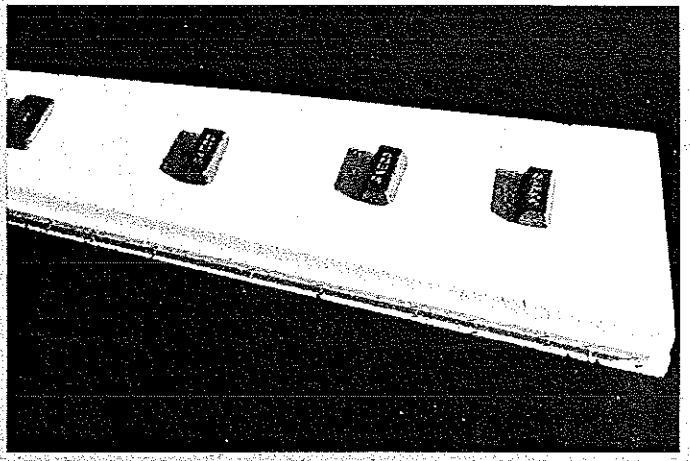
Since I didn't know how the plane would taxi, take off, or land, I raised the thrust line a half inch to increase the prop clearance. My 4-oz. Kraft tank top projects up inside the canopy through a hole in the hatch, and my Ace Silver 7 receiver lies against the cabin bulkhead. Evans' ship balances with the receiver and pack together well back in the cabin.

Joan Evans checks out what may be the only slow airplane her husband, Bill, ever built.

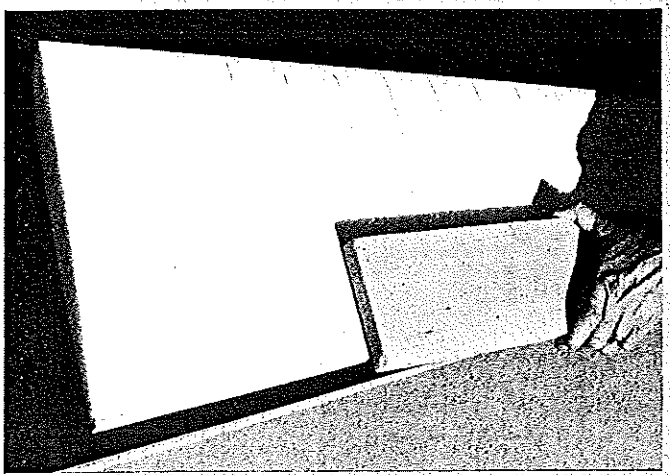
Skilled fliers like Evans (and there are thousands of you) are always self-conscious when talking about how a ship flies and what techniques to apply. A hacker like me runs no risk of seeming to brag. With the help of Don Srull (my test pilot) I have thoroughly evaluated this strange bird. For ease of handling in every respect, my Slow-Motion is a delight.

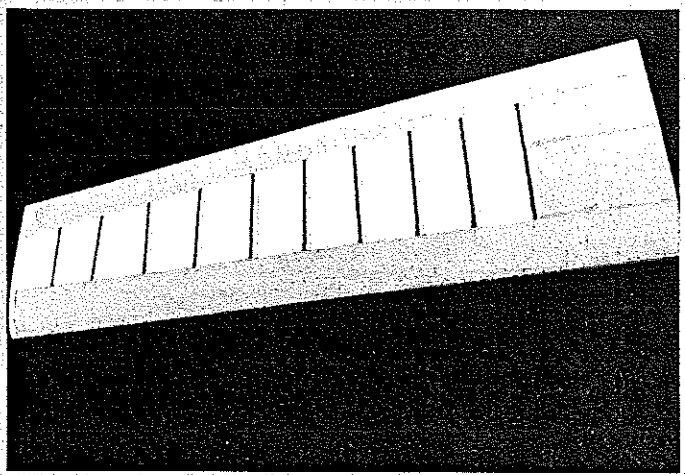
With 3½ in. of up (elevons in neutral), the ship will climb high at a great rate under power, slow-fly, and land like a Goldberg Eaglet. It remains stable at high speed with down trim cranked in, and the airfoil (including elevons) becomes quite speed-efficient. *Continued on page 96*





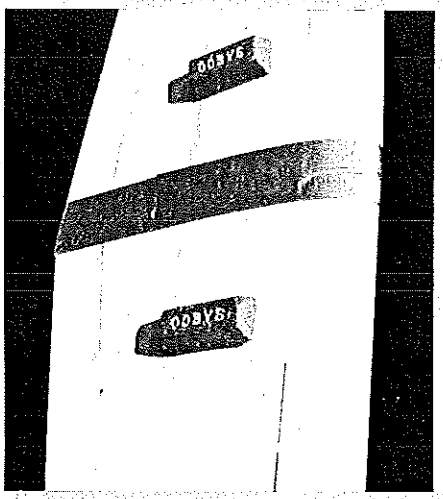
Left: Using aliphatic resin, glue and pin the leading edges and balsa trailing edges to the foam cores. Be sure not to bend or warp the cores. Right: Set the foam cores back into the cradles they were cut from; place both pieces on a flat surface, and hold in place with weights.



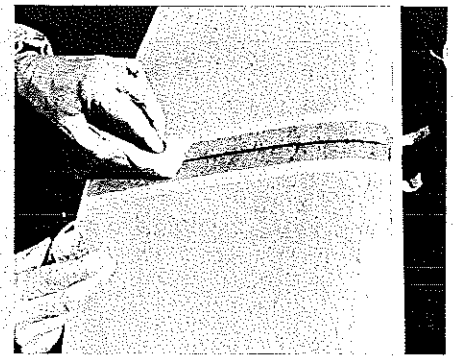


Left: Trim and sand balsa leading and trailing edges so the sheeting will fit over smoothly. Mark the wing core for the cap strips and center sheeting. Right: The completed wing panel; it builds quickly and is very strong. Pre-cut foam cores are available; see text for address.

Strengthen wing by punching holes into the roots before joining the halves with epoxy.



Apply epoxy to the wing joint, then wrap with a 24-in. piece of 2-in. masking tape to hold everything in place and to prevent the epoxy from leaking out of the seam before it cures.



Place a couple of strips of 1-in. masking tape out from the wing center, and coat the gap between with 5-min. epoxy. Use a piece of scrap foam to smooth out the epoxy.

Although I feared tip-overs on the ground, the ground handling characteristics are superior. If I had known that, I would have had no tank problem. Taxi control is excellent. The takeoff run is as good as any trike airplane; it usually requires no correction, but on occasion a light tap of right rudder is necessary as the tail (tail?) comes up. There is one extremely strange characteristic. On takeoff, for most tail draggers, the pilot holds up-elevator during the beginning of the run. With my Slow-Motion you could hold full-up all the way until the ship makes a perfectly ordinary takeoff and, once safely off, relax the stick to neutral. Climb-out is automatic. I think the tail wheel prevented over-rotation.

This machine tracks like an arrow. With takeoff elevon trim (elevator mode), it has hands-off stability. A jab of the stick (don't hold it) produces a slightly delayed turn (a second or two) which develops into a 360, hands off, without loss of altitude. Tap the stick the other way, and an automatic eight will be perfectly executed. You do nothing! Hitting the stick a bit harder (again, don't hold) results in a 720.

If there are winds, there is a slight loss of altitude on the downwind side. At one-third throttle in level flight, a tight loop can be pulled with one-third back stick. On an engine failure over the runway midpoint at 30 feet (I emptied the tank), I made a tight curving descent to a perfect landing at a point directly beneath! In a pinch, the Slow-Motion will turn with my Vagabond Old-Timer.

In normal neutral trim, approaches can be racked around close-in—a boon for old guys with trifocals (or for beginners). With down-trim, approaches can be from far out as with any typical sport job. Slow flight maneuvering in traffic—trying to get into a busy approach stream—is a dream. One needs very little skill; it's safe as a baby; but it takes a couple of flights to become

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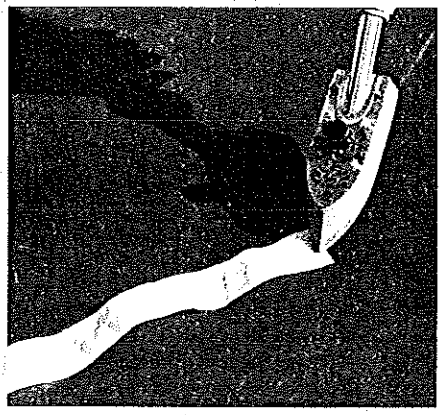
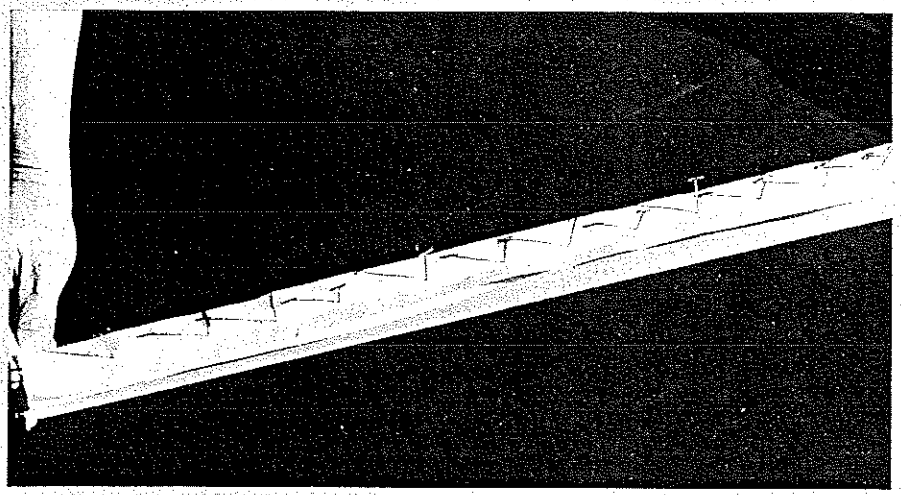
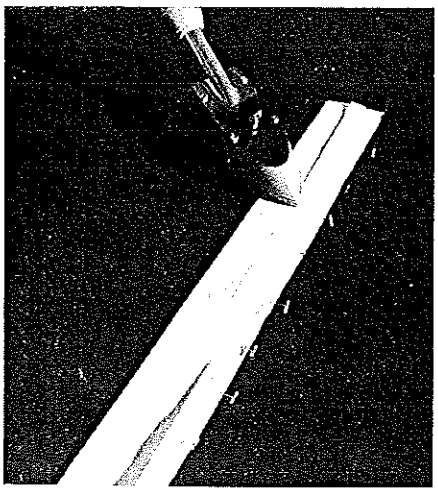


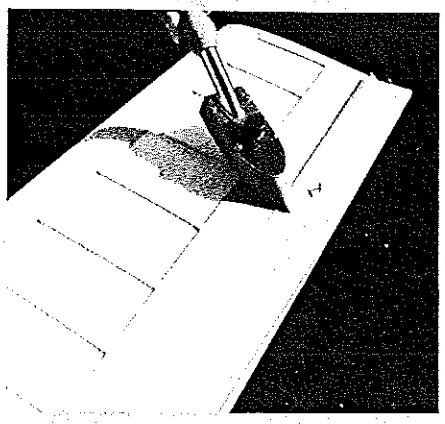
Cut a length of X-hinge to fit the control surface, and seal the ends with a covering iron to keep the stitch from unraveling.



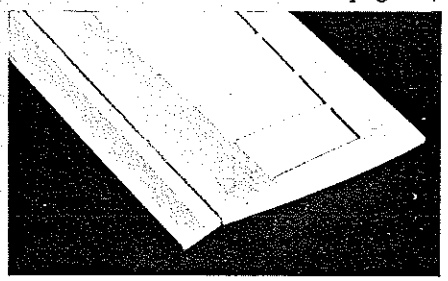
Pin the X-hinge to the edge of the control surface, making sure the stitch stays centered.



Iron the X-hinge to both sides of the aileron.



Pin the aileron to the balsa trailing edge; iron the X-hinge to both sides of the wing.



When complete, the X-hinge seals the hinge line and has almost friction-free movement.

accustomed to the *look* of the odd configuration.

To soar, I climb to, say 500 feet, then go to idle but don't cut it off. With an economical engine like the old baffle K&B/Veco .19, you can do that for 15 to 18 minutes. It is possible to search all areas for lift. Dead-sticks are a laugh. Really. I have soared repeatedly (with either elevon trim set for circle diameter) staying on station waiting for lift or gradually edging toward promising areas using only the trims for control. Any lift *gives* you automatic soaring like the big boys.

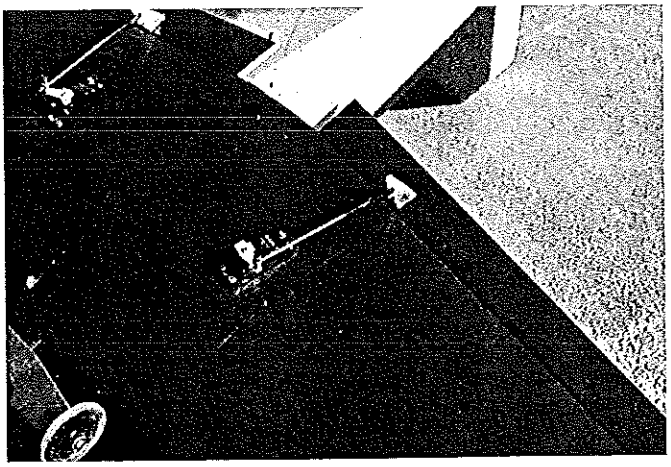
Tight gliding circles may eventually cause spiraling (gentle) with much down-aileron. However, the rudder trim for soaring proves superior, the turns being flatter. If you combine aileron and rudder trims by degrees in cross trim, you get very tight, flat soaring circles. The most efficient power-off soaring occurs with some down trim for higher speeds with less sink. Because of the long span, if you're forced to an extreme of crossed controls, the down aileron eventually overpowers the rudder to break the circle. But that is a never-used control situation anyway.

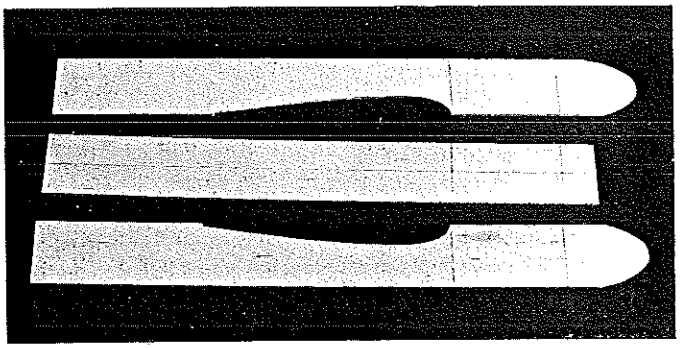
The ship will invert either from a half roll or from off the top of a half loop, but in slow trim it requires full elevator to hold—barely. In down trim and at higher speed, inverted flight is easy. My roll rate is satisfactory. Evans' is faster, and his inverted flight is better. I have more weight and drag and a different center of drag because of my bulky landing gear.

I find Evans' design superior in every way to any so-called trainer with reasonable across-the-board performance. Approaches are positive, don't float, and there is a make-it-easy positive angle to the spot. To tell you the truth, his airplane has excited me. It is a conversation piece at any field and has given me more pleasure than anything since my ¼-scale Aristocrat. Remember that a 5 ft. wing on a .19 is derated (for me), and if you are into advanced aerobatics, some other Similar variation (such as his .40 Tracer) could be your cup of tea. I should add that there are no crosswind takeoff or landing problems. I take off at two-thirds throttle.

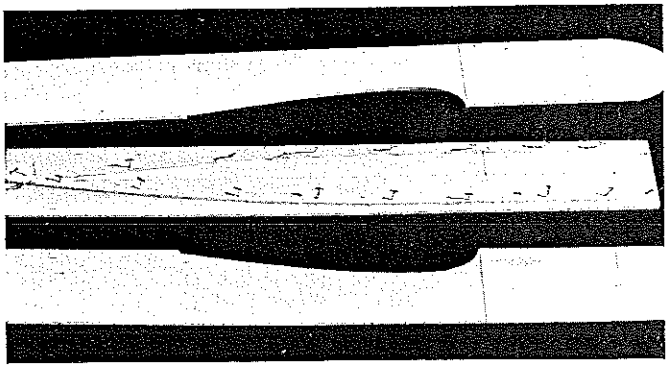
Construction. Following the sequence described should produce a framed-up craft in four to six hours. I spend most of my time covering and installing the radio system. We've fixed it up so you can have a Slow-Motion even if you can't cut foam cores. They can be ordered from Soaring Research, 454 Wildrose Lane, Bishop, CA 93514. The cost is $12 plus $3 shipping, and California residents must add 6.5% sales tax.

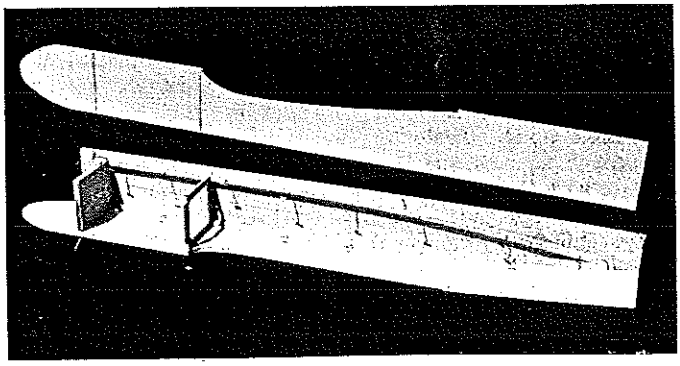
Glue (alphatic) and pin the ⅛-in. leading



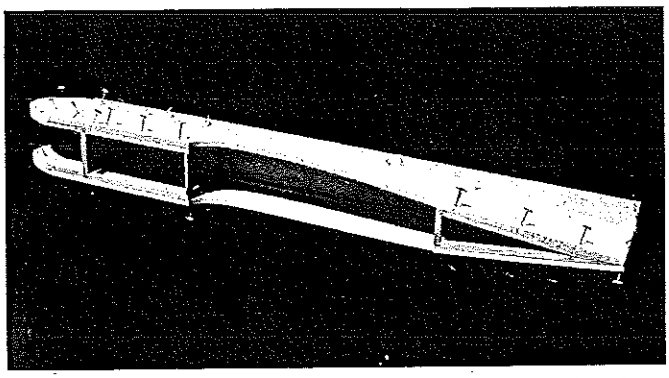


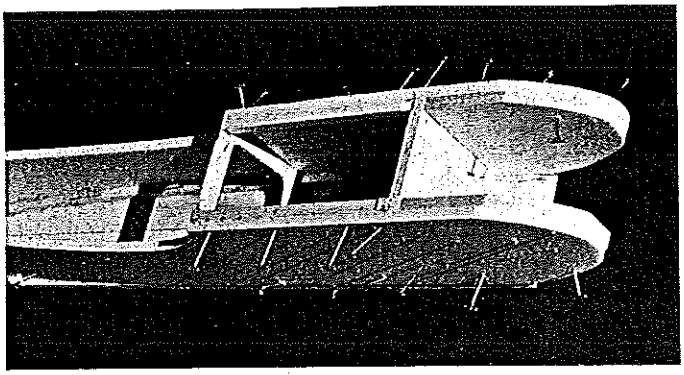
Left: If your transmitter has electronic mixing, just mount the servos in the wing underside as shown here. Epoxy a ⅛-in. ply servo tray into the wing, and tunnel through the foam for the servo lead. Above: Fuselage sides and top ready to assemble. Mark the locations of the firewall and former, and draw a top centerline.



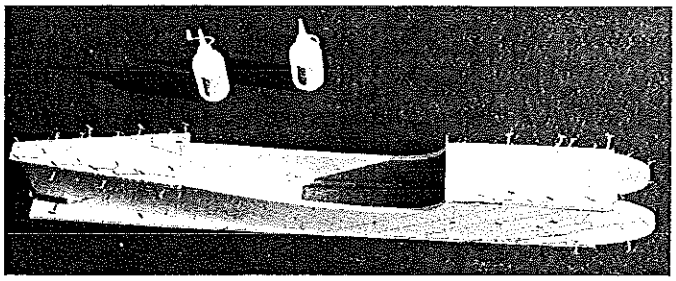


Left: Pin and glue (author used Hot Stuff) the ¼-in. sq. longerons to the fuselage top. Use the centerline to keep the longerons the same distance on either side. Right: Glue one fuselage side, the firewall, and the former to the top. Be sure to keep everything square in this step.

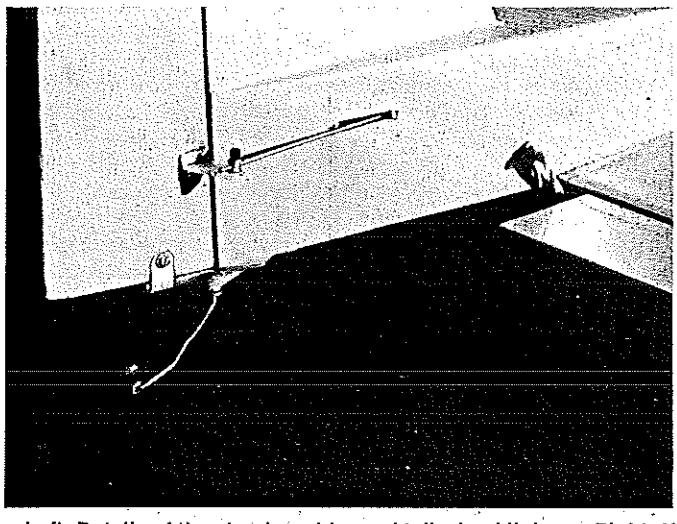


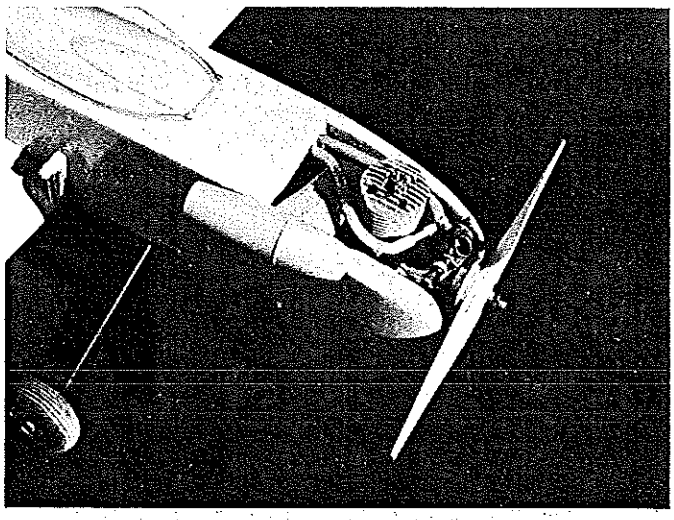


Left: Add the second fuselage side, the ¼-in. bottom fuselage longerons, and the ¼-in. sq. pieces behind the firewall. Epoxy the balsa cowl doublers in place. Right: With everything pinned into place for the glue to dry, this picture shows how the nose section should look.



Left: Glue the ¼-in. ply gear block and the ¼-in. balsa bottom pieces into place. Right: Remove pins and slightly round the corners.





Left: Details of the simple rudder and tail wheel linkage. Right: Never able to pass up the high-performance lure, Evans chose the K&B Conquest .15 as his engine while Winter stuck with his all-time favorite, the K&B/Veco .19. Either one hauls the plane around smartly.

edges and ¼-in. trailing edges to the foam cores. Take care not to bend or warp the cores. Set aside in the cradles to dry.

Cut out the fuselage sides. The wing saddle and nose shape should be cut from ¼ x 3-in. balsa. The former may be cut out to accept the tank from the rear; then you won't need the hatch. Mark a centerline on the ¼-in. balsa fuselage top, then mark the positions of both the firewall and the former on the fuselage top and sides. Also mark the fuselage top to indicate the position of the top ¼-in. squares, and glue the squares in place with Hot Stuff.

Glue and pin the first fuselage side to the top; set in the firewall and the former; then glue and pin the second fuselage side to the top, firewall, and former.

Glue and pin the ¼-in. balsa bottom corners in place. Cut and glue in the ¼-in. ply gear mount, balsa fuselage rear bottom, and forward bottom. Cut and glue in the ¼-in. balsa nose cheek doublers, and set the assembly aside.

Trim and sand the balsa leading and trailing edges so that the skin sheeting will fit smoothly. Bond the 1/16 x 2-in. leading and trailing edges, top and bottom, to both wing panels. We used Corefilm (the sheeting tape mentioned above) to do the sheeting. Even the cap strips can be applied using Corefilm. Merely stick it to the back of some 1/16-in. sheeting, cut ¼-in.-wide strips, cut the cap strip to fit, peel the backing, and stick it in place. Cement the leading edge cap into place.

Apply the center-section sheeting and wing tips; sand and join the wing panels with 5-min. epoxy, and cut and sand the elevons to fit. Sand the fuselage and vertical stab (fin and rudder) to shape.

We used X-Hinge for the hinge control surfaces—easy to apply, seals the gap, and improves the effectiveness of the control surfaces.

Cover the model, install the radio, and check the control surface movement for proper direction. Notice that the elevons (or elevator) should be set so that at neutral trim there is about 3/32 in. of up. This is to provide the necessary reflex required for tailless aircraft. Balance per the plan.

You will find that the Slow-Motion has no bad habits. It was designed for all-out fun flying, so put your Similar Slow-Motion in the air to share in the fun.

Winter. Fun? More than I've had for years. Responses are like velvet. I rock the

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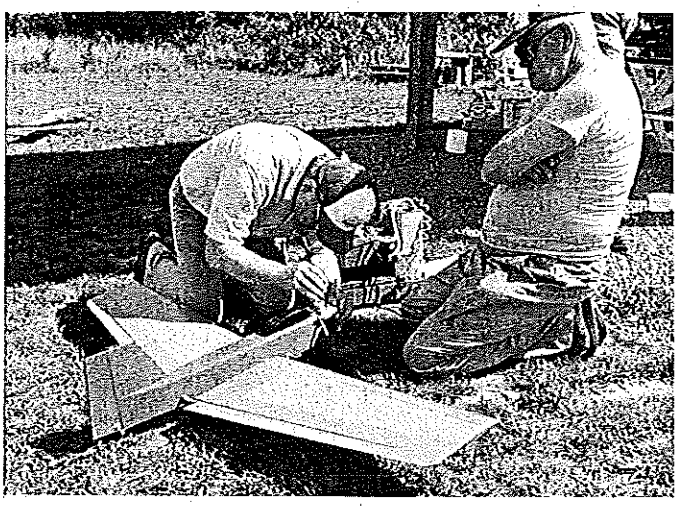
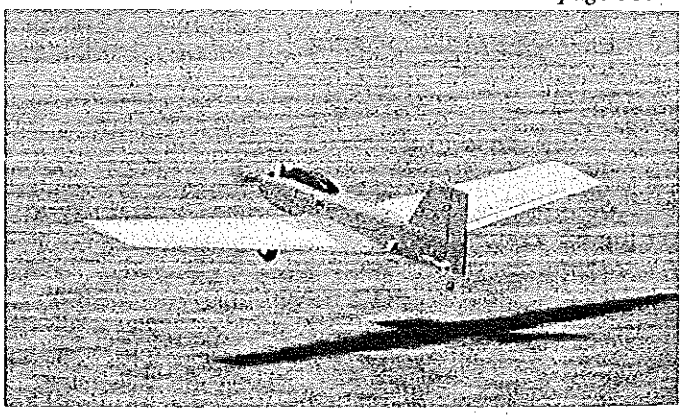
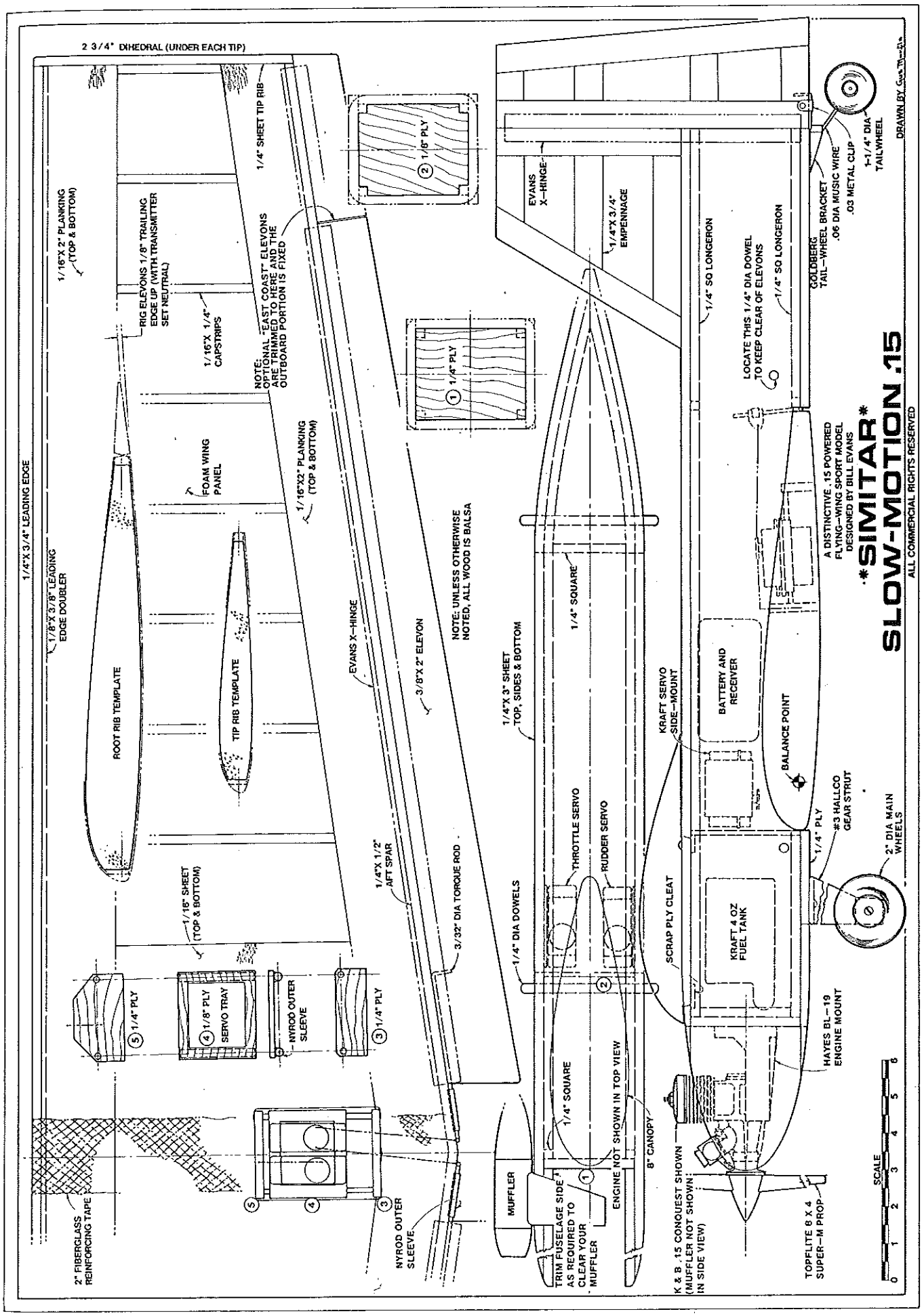




Left: Under scrutinizing eyes, Don Srull fine-tunes Winter's Similar prior to its first flight. Note the shortened elevon and the fixed tip on Winter's East Coast version. Above: Heading off to soaring altitude. Winter says this model suits his laid-back style perfectly.


SIMITAR
SLOW-MOTION .15
A DISTINCTIVE .15 POWERED FLYING-WING SPORT MODEL DESIGNED BY BILL EVANS
ALL COMMERCIAL RIGHTS RESERVED
DRAWN BY Gus Thomas
2 3/4" DIHEDRAL (UNDER EACH TIP)
1/4"X 3/4" LEADING EDGE
1/8"X 3/8" LEADING EDGE DOUBLER
1/16"X 2" PLANKING (TOP & BOTTOM)
1/4" SHEET TIP RIB
RIG ELEVONS 1/8" TRAILING EDGE UP (WITH TRANSMITTER SET NEUTRAL)
1/16"X 1/4" CAPSTRIPS
NOTE: OPTIONAL "FAST COAST" ELEVONS ARE TRIMMED TO HERE AND THE OUTBOARD PORTION IS FIXED
1/16"X2" PLANKING (TOP & BOTTOM)
FOAM WING PANEL
ROOT RIB TEMPLATE
TIP RIB TEMPLATE
EVANS X-HINGE
3/8"X 2" ELEVON
NOTE: UNLESS OTHERWISE NOTED, ALL WOOD IS BALSA
1/4"X 3" SHEET TOP, SIDES & BOTTOM
1/4" SQUARE
1/4"X 1/2" AFT SPAR
3/32" DIA TORQUE ROD
1/4" DIA DOWELS
THROTTLE SERVO
RUDDER SERVO
KRAFT SERVO SIDE-MOUNT
BATTERY AND RECEIVER
BALANCE POINT
SCRAP PLY CLEAT
KRAFT 4 OZ FUEL TANK
1/16" SHEET (TOP & BOTTOM)
1/4" PLY
1/8" PLY
SERVO TRAY
NYROD OUTER SLEEVE
1/4" PLY
2" FIBERGLASS REINFORCING TAPE
NYROD OUTER SLEEVE
MUFFLER
TRIM FUSELAGE SIDE AS REQUIRED TO CLEAR YOUR MUFFLER
1/4" SQUARE
ENGINE NOT SHOWN IN TOP VIEW
8" CANOPY
K & B .15 CONQUEST SHOWN (MUFFLER NOT SHOWN IN SIDE VIEW)
TOPFLITE 6 X 4 SUPER-M PROP
HAYES BL-19 ENGINE MOUNT
#3 HALLCO GEAR STRUT
2" DIA MAIN WHEELS
1/4" PLY
1/8" PLY
EVANS X-HINGE
1/4"X 3/4" EMPENNAGE
1/4" SQ LONGERON
LOCATE THIS 1/4" DIA DOWEL TO KEEP CLEAR OF ELEVONS
1/4" SQ LONGERON
GOLDBERG TAIL-WHEEL BRACKET
.06 DIA MUSIC WIRE
.03 METAL CLIP
1-1/4" DIA TAILWHEEL
SCALE
0 1 2 3 4 5 6

FULL SIZE PLANS

No. 538 Wildfire **$5.75**
CL FAI Speed plane spans 37 in. Uses takeoff dolly.

No. 539 Simitar Slow-Motion .15 ..... **$3.50**
RC Tailless "flying plank"for .15 engines spans 60 in.

No. 540 Sparrowhawk **$6.75**
RC sportster spans 40 in., has flaps, tri-gear. For .15s.

No. 193 Stiletto: CL Stunt model (McDonald) winner 1976, 1980, 1982 FAI World Champs. ..... $ 3.75
No. 239 Blue Birds: RC Ken Willard's formation plane, 4-channel, .10/.15 power. ..... $ 3.75
No. 262 Crashmaster: CL Crash-proof trainer, two sizes—.15/.30 and .35/.40 power. ..... $ 1.25
No. 302 Mini F-16: RC Sarpolus' .049 ducted-fan sport flier for 2-channel. Balsa wings, tail, fuse structure. ..... $ 2.75
No. 310 1930 Fleet Biplane: RC Sport Scale for .35/.40, 4-channel. Wingspan 56 in., ⅛ scale. Two sheets. ..... $ 8.25
No. 314 Drake II: RC Ken Willard's flying boat for 3-channel, .15-power. Fly from land with removable gear. ..... $ 3.75
No. 326 Taylor Cub: RC Don Srull's Schoolyard-Scale for .049s, 2-3 channel. Spans 50 in. ..... $ 3.50
No. 332 Zephyr: RC Small, 2-channel glider for hand-launch or tow, thermal or slope soaring. ..... $ 2.00
No. 386 Laser 200: RC Sport Scale replica of championship Aerobatic flier. Uses .40 power, 4-5 channel. Two sheets. $10.75
No. 414 Electric Sparky: RC Electric-powered fun flier for 05 motor, 3-channel RC is scaled-up 1939 rubber-power favorite. ..... $ 8.50
No. 438 Cruiser: FF Embryo Endurance rubber-power fun ship has big-model characteristics. ..... $ 2.00
No. 440 Cavalier: RC Old-Timer-like new design has a huge wing for slow, easy flights. For .35 power, 3 channels. Two sheets. $17.25
No. 444 Firebolt: RC Pusher canard sport/pattern uses .40 pusher engine and 4-channel. Has swept-forward foam wings. ..... $ 6.50
No. 447 ½A Miss America: RC Old-Timer ½A Texaco model for .049 glow, 2-channels. ..... $ 6.50
No. 454 Sweet P-30: FF Neat, stick-and-tissue Outdoor Rubber P-30-class model is a contest-winner. ..... $ 2.00
No. 457 Spectre: RC Electric-power for 05-size motor uses 3 different wings for sport, soaring, or aerobatics. ..... $ 7.00
No. 460 4-40: RC Shoulder-wing sport flier for 4-cycle, .40-size engine, 4 channels. ..... $ 6.50
No. 465 Blue Max II: RC Fun-fly sportster for .40-size engines spans 52 in. Lightweight structure. ..... $ 7.00
No. 470 Stroker: RC Mid-wing sportster uses .40/.45 four-stroke engine, spans 50½ in., tail-dragger. ..... $ 6.50
No. 478 Buttercup: RC Cute, elfin sportster uses micro 2-ch. RC or pulse-rudder. Spans 27 in., for .020/.035 power. ..... $ 3.00
No. 490 Weekender: RC Low-wing sport flier for .20-size 4-stroke engine spans 47½ in. ..... $ 5.75
No. 499 4-60: RC Doc Mathews' great sport flier for .60-size four-stroker engine spans 70 in. Two sheets. $12.75
No. 500 Fokker D.VIII: RC Sport Scale model of WW I monoplane uses .90 four-stroke engine, spans 83½ in. Two sheets. $16.00
No. 502 Bill Winter's Vagabond: FF Sport flier is down-sized, .02-powered version of 1940s cabin plane. Spans 33½ in. ..... $ 2.25
No. 503 Buzzbat: RC Slope-soarer spans 60 in., uses 2 RC channels. ..... $ 7.50
No. 505 P-38 Lightning: CL Sport Scale fighter spans 65½ in., weighs 10 lb., uses twin .35s. Two sheets. $11.75
No. 506 Playmate: RC Sport flier for 3 RC channels, .15/.25-size engines spans 50 in. ..... $ 6.50
No. 507 Hummin'bird: FF Hot class A/B competition plane won at the '85 Nats. ..... $ 7.50
No. 508 B-25B: CL Profile scale WW II bomber for twin ½A engines spans 30½ in. ..... $ 4.00
No. 509 Roscoe 18: FF Hand-Launched Glider features curved, 18-in. wing, DT. ..... $ 1.50
No. 510 Stomper: FF Hand-Launched Glider has angular, 18-in. wing, DT. ..... $ 1.50
No. 511 F-16: CL ½A profile scale fighter spans 17 in., has tricycle landing gear. ..... $ 2.00
No. 512 Extra 230: RC Giant Scale acrobatic plane spans 8 ft., uses quadra engine. Two plan sheets. $16.50
No. 513 Black Beauty: RC Slop-soaring racer has foam wing, 3-ch. RC, spans 114 in. ..... $ 7.50
No. 514 Henry T: RC Sportster for ½A, 2-3 channel RC spans 52 in., has adjustable wing flaps. ..... $ 4.75
No. 515 Westland Whirlwind: RC Sport Scale WW II twin-engined British fighter for .10-size engines spans 55 in. Two sheets. $11.50
No. 516 Envoy: CL Stunter for .40/.46 power spans 58 in. ..... $ 6.75
No. 517 Fake Ford: RC Sportster for three ½A engines, 3-ch. RC Spans 50 in. Two plan sheets. ..... $ 5.75
No. 518 Project P-13: FF Scale German WW II flying wing pusher/tractor for rubber power; spans 26 in. ..... $ 3.25
No. 519 Gee Bee R-1: CL Profile sport flier for .25 engines spans 36¼ in. ..... $ 4.75
No. 520 Flight Assistant: Wheeled flight box carries lots. Two plan sheets. $11.50
No. 521 Comet Jr. Clipper Plus 35%: RC Old-Timer sportster for ½A engine, 2-ch. RC spans 48½ in. ..... $ 6.50
No. 522 Sorta Pitts: RC Reminder-scale bipe for .40/.60 engines spans 43 in. Two plan sheets. $10.50
No. 523 Dawnwalker: FF Superlight Unlimited/Mulvihill rubber-powered competition plane spans 42½ in. ..... $ 4.00
No. 524 Texas Rat: CL Another rugged version of the Midwest Sport Racer for .40 engines spans 24 in. ..... $ 2.75
No. 525 Hi-Tech 2002: RC Canard ducted-fan for .45 engines spans 39 in. Two sheets. $10.00
No. 526 Ki.61 Hein: CL Mostly-cardboard sport-scale WW II Japanese fighter for .40 engine spans 60 in. Two plan sheets. $11.50
No. 527 Miss RJ: RC World Champion FAI Pylon Racer for .40 engines spans 51 in. ..... $ 5.50
No. 528 Swallow: RC Lightweight "hotdogger" for .40-size four-stroke engines spans 58 in. ..... $ 8.25
No. 529 PBY Catalina: FF "Skinny Scale" for two CO-2 motors. Spans 32 in. All-sheet-balsa construction. ..... $ 3.25
No. 530 Tsunami: CL Profile scale ½A spans 21½ inches. All-sheet-balsa construction. ..... $ 2.25
No. 531 Terrible Coupe: FF Rubber-powered Coupe d'Hiver spans 48 in. A contest-winner. ..... $ 4.75
No. 532 Baby Bird: CL Tiny, Thunderbird-like Stunter uses .049 diesel or glow, spans 34½ in., has flaps. ..... $ 4.00
No. 533 Cessna C-37: RC Schoolyard Scale of famous 30s plane for .049/.10 power, 2-ch. spans 42½ in. ..... $ 5.00
No. 534 1938 Challenger: RC ½A Texaco Old-Timer spans 47½ in., for .049 engine, 2-channel RC. ..... $ 5.50
No. 535 Atrix: RC AMA Class D Sailplane spans 110 in., uses 4-channel RC system. ..... $ 7.25
No. 536 Cyrano II: FF P-30 Rubber flying wing pusher spans 28 in. From Barnaby Wainfan. ..... $ 3.25
No. 537 Cessna 206 Caravan: CL Sport Scale for 02 electric power spans 37 in. ..... $ 3.00

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26	John Adams, Australia	2844
27	Laar Hein Van't, Netherlands	2821
28	Jaap Vis, Netherlands	2789
29	Stephan Engberg, Sweden	2732
30	Richard Douglass, Gr. Britain	2682
31	Ton Thielen, Netherlands	2628
32	Francois Gahide, France	2404
33	Gerard Violon, France	2068

Teams

1	Austria, 12711	6	Belgium, 10958
2	Germany, 12681	7	Australia, 10677
3	Switzerland, 11983	8	Sweden, 10049
4	U.S.A., 11628	9	Gr. Britain, 9857
5	Italy, 11268	10	Netherlands, 9634
		11	France, 8972

Sim. Slow Motion/Evans

Continued from page 100

stick in fascination. It's as if the servos were geared to the sticks. I even tried coupled ailerons and rudder, but the Slow-Motion flies itself better without. Its smooth responses make my flying look expert. You'll never see a jerky response to any input. What can I tell you? All aircraft should have been designed like the Simitar.

Prologue. It was February and the wind was blowing and cold as I headed for the Eastern Sierra Flyers' field in Bishop, CA. Funny, but all I carried in the van that day was an airplane, transmitter, and battery charger—no fuel, plugs, starting battery, or paper towels—I was going Electric.

The new Electric version of my Slow-Motion was fitted with an Astro Flight Cobalt 15 and a 12-cell 800 mAh pack. I had named it, appropriately enough, the Charger. At 57 oz., the Charger was 4 oz. lighter than my .15 glow-powered Slow-Motion. Test runs on the Cobalt 15 with an 8-4 prop had produced 15,000 rpm for the first 2½ minutes, 13,000 for the next minute, and 9,000 for the rest of the four-minute run. My spirits were high.

The field was soft sand (decomposed granite), so I opted for a hand launch. It went off easy with plenty of power, and what a flight! Loops, rolls, and inverted were terrific. At four minutes I could hear the motor wind down, so I shut it off and turned in a 7½-min. flight. I was hooked. I put in a call to Bob Boucher at Astro Flight and asked about a Cobalt 25. In a week I was back at the field with a ship that weighed a full 5 lb. and flew faster than with the .15 glow. I was really hooked.

Specs. Total wing area is 630 sq. in. (4.4 sq. ft.). At 64 oz. with the geared Cobalt 05, wing loading is 14.5 oz. per sq. ft. With the Cobalt 15 direct drive, weight is 57 oz., making the wing loading 13 oz. per sq. ft. (Yes, my 15 with 12 cells came out lighter than LeRoy's 05 with seven cells.) The Cobalt 25 with 14 cells of 1200 mAh capacity weighs 80 oz.; wing loading is 18 oz. per sq. ft. Whichever of these three Astro motors you may use in a Slow-Motion, mounting is a simple matter with the mounts available from Astro.

Material list for SIMITAR SLOW MOTION

FOAM WING CORES		1 SET
1/16" X 2" X 36"	MEDIUM BALSA	4
1/16" X 1/4" X 36"	MEDIUM BALSA	1
3/8" X 2" X 36"	MEDIUM BALSA	2
1/4" X 3/4" X 36"	MEDIUM BALSA	3
1/4" X 3" X 36"	MEDIUM BALSA	3
1/4" X 1/4" X 36"	MEDIUM BALSA	4
1/4" X 3" X 8"	BIRCH PLYWOOD	1
1/8" X 3" X 8"	BIRCH PLYWOOD	1
1/4" DIAMETER X 8" LONG WOOD DOWEL		1
FUEL TANK – 4 OZ. RECTANGULAR		1
ALUMINUM LANDING GEAR STRUT		1
2" DIAMETER WHEELS		2
1 1/4" WHEEL		1
TAILWHEEL BRACKET		1
AILERON TORQUE ROD ASSEMBLY		1 SET
8" PLASTIC CANOPY		1
ENGINE MOUNT TO SUIT		1