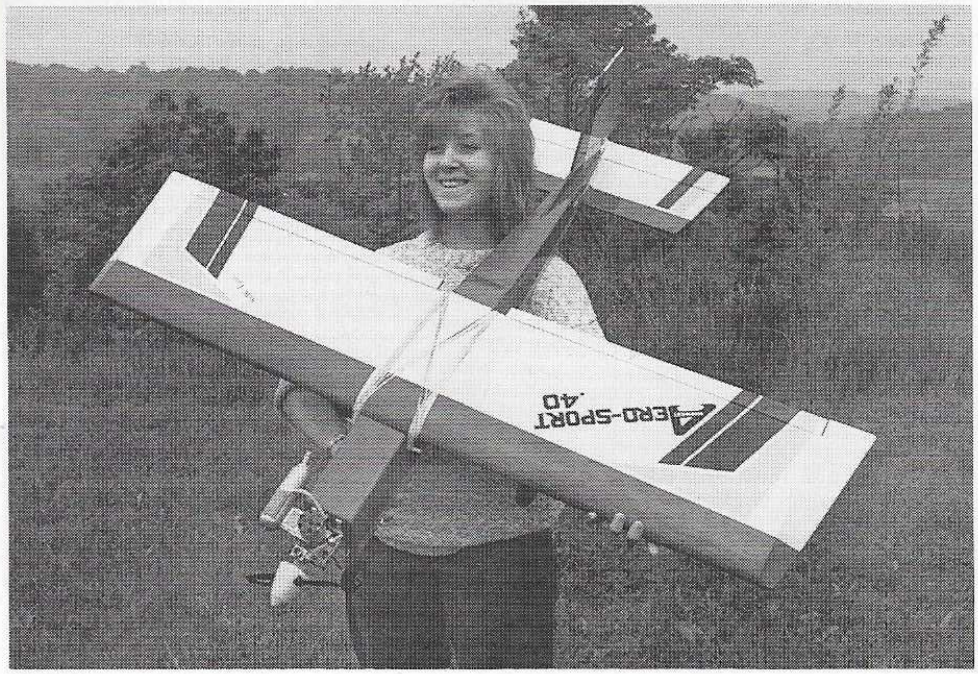


PHOTOGRAPHY: PAUL VLIET AND BOB HUNT

Lovely Vickie DeMario holds Paul Vliet's Midwest *Aero-Sport.* The model, a modern version of the notable *Ugly Stik,* has a 51-page construction manual that even an "all thumbs" modeler can successfully build from.

An FM Product Review:

Midwest Products' Aero Sport 40

By Paul Vliet

Another success in the "Success Series"
Well-engineered from kit to sky!.

Midwest has done it again with the introduction of the *Aero-Sport*—an updated modern version of an Ugly Stik—to a fine line-up of kits in their Success Series.

Having previously built their *Aero-Star 40* trainer for my son, it is my opinion that this kit is of equal quality. Both kits are extremely well designed with the beginning modeler in mind. The kit comes with each of its subcomponent parts bagged individually and sequentially numbered according to their order of use in the construction process. This is illustrated in the photo of the kit upon opening.

The kit comes complete with a 51 page instruction manual that a person of even modest mechanical ability can follow, understand and build from. The manual begins with a brief description of the model including a customer service address and phone number. It then lists the additional materials and tools necessary to complete the project. It gives many construction tips such as how to read the plans, how to cut parts out, adhesives available etc. Each and every step of construction starting with the wing panels through installation of the radio and engine equipment is accompanied by a drawing or photo with a check-off box to be used as one completes each step. This is a finely detailed manual that would be difficult to surpass.

Construction

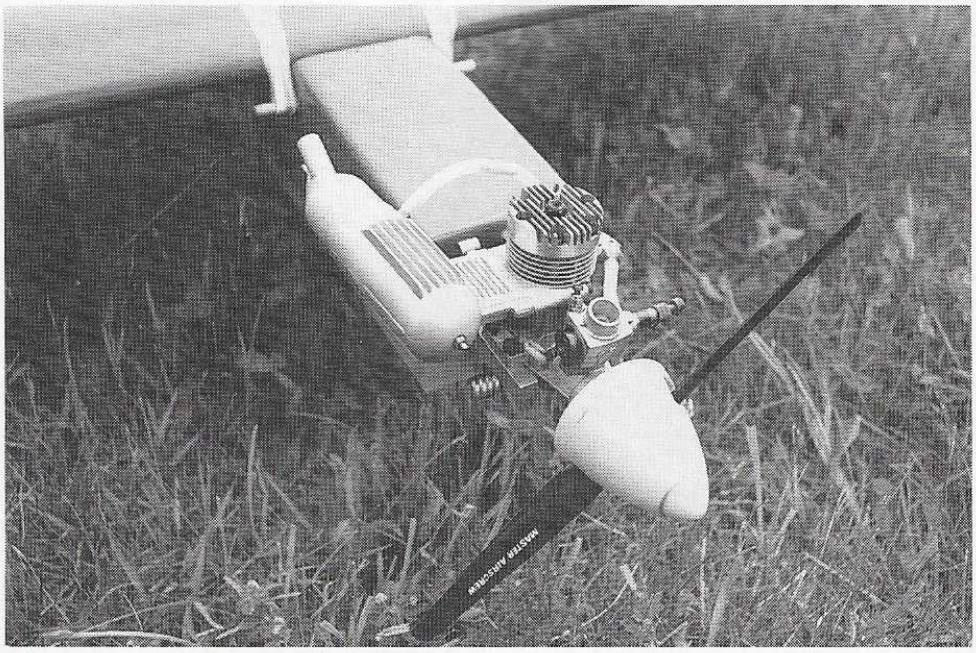
Wing. I began construction of the wing by laying the plans out on the building board and covering them with wax paper. I then fastened the 3/16 square jig piece in place over the main spars on the drawing. (I cheated; I built both wing panels at the same time.) The jig piece acts as a shim while building the wings. I prefer building tabs on a few of the ribs to this method. I then taped the main spars in place over the jig with masking tape.

The next step was the assembly of the trailing edge which is then pinned over the plans. I next glued in all the ribs which, by the way, had an excellent fit to the spars. Each rib is stamped with a "T" designating its top side, and as this is a semi-symmetrical wing it is important to make sure each rib is positioned properly.

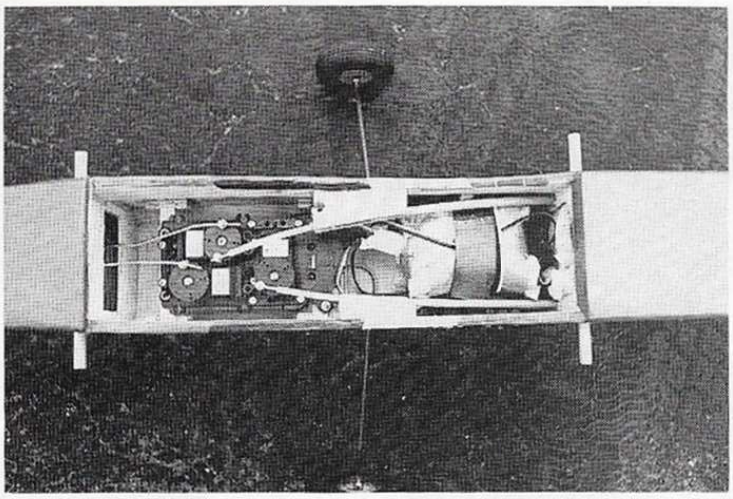
Application of the leading edge spar and top main spar was followed by installation of the leading edge sheeting. The instructions recommend using CyA glue for this with no mention of wetting the sheeting first. The sheeting is 3/32 and I strongly recommend that you soak the top side just prior to installation. The next step was to sheet in the trailing edge and wing center sections. The precut shear webs are installed next.

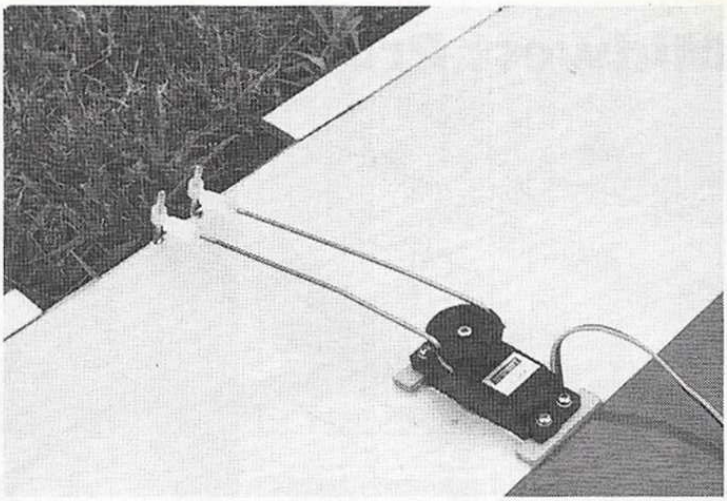
The wing is then unfastened from the board, positioned upside down and the bottom sheeting added. Cap stripping is added to the top and bottom of all ribs. The root and tip ribs are sanded so that the spars and sheeting are flush. The 1/4 inch sheet wing tips are installed next.

Next item to attend to is joining the wing panels. I installed the straight center section birch ply brace into one wing panel using epoxy (you may also build the wing with dihedral, if you wish, using a separate brace that's also included) and allowed it to set. I then put pin holes in each root rib at random locations. This allowed the epoxy to spike the two surfaces together when joined. I next



An O.S. Max .46 Long Stroke was tucked in the *Aero-Sport's* nose, turning a 12-6 prop. The engine has plenty of muscle to make the model a pretty agile performer but needs to be broken in before mounting it in the plane.





Though three servos could be mounted side by side, this 2-1 arrangement **(above left)** in the servo tray is tidier and easier to work with and besides, there's plenty of room. The aileron linkage is a standard torque link set-up **(above right).** Plenty of clearance for the aileron servo.

gave each root rib surface a liberal coat of epoxy making sure to work the epoxy into the pin holes. I then joined the two wing halves, removed the excess epoxy, and taped the entire joint with masking tape and set the assembly aside to dry. The wing center section is then wrapped with fiberglass cloth using either CyA or slow set epoxy.

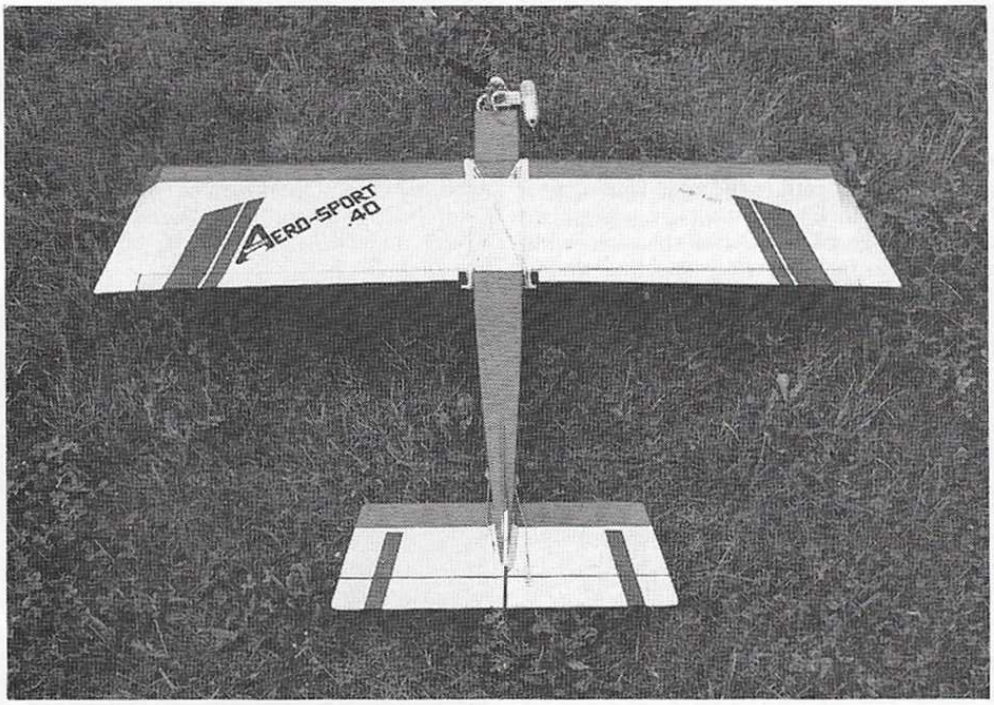
The final procedure is the installation of the aileron torque rods and hinges. Use the hinges of your choice as none are provided in the kit. This was, all in all, a very straight forward wing to build. Assembly time for the wing was approximately eight hours.

Tail Surfaces. The tail surfaces on this aircraft are of simple 1/4 inch balsa slab construction. Begin by butt-joining the two pre-cut 1/4 inch balsa slabs that form the horizontal stabilizer. The same process is then used to form the vertical stab. The stabs are then surfaced, and the edges of the stabs, elevator and rudder sanded round. Install all hinges and the tail surfaces are complete.

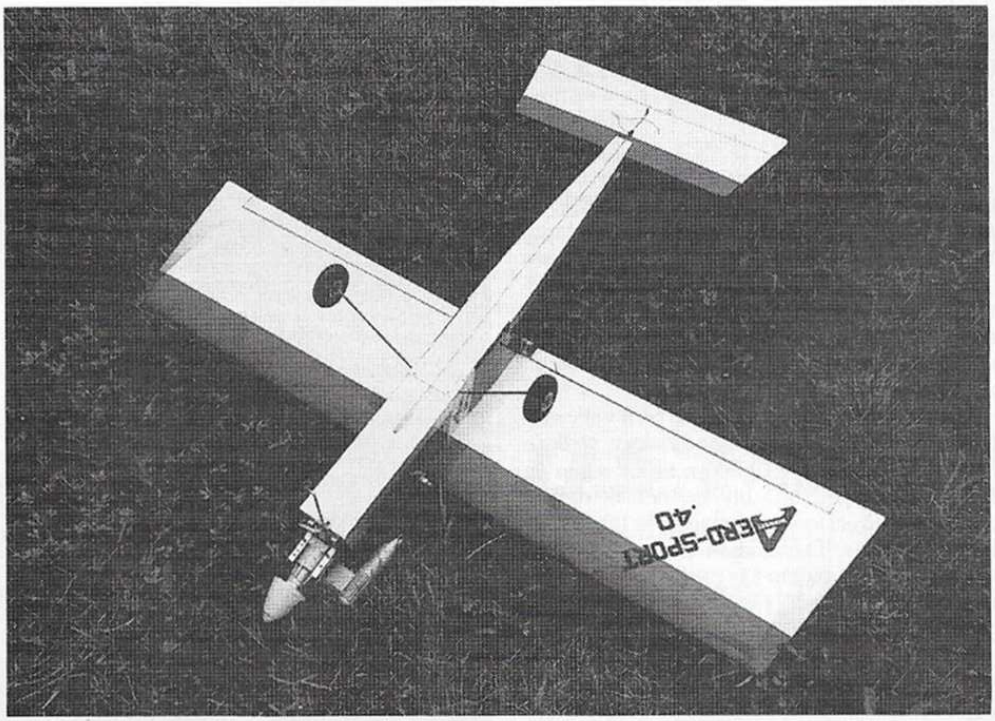
Fuselage. Step one in the fuselage construction is to lay out one of the die-cut plywood sides over the plan and draw lines using a straight edge on same to locate the four formers. These locations are then transferred to the other side of the fuselage and the sides then outlined with 1/2×1/2 inch triangular balsa stock on the top and bottom edges. Lay out the firewall for the engine mount, nose gear mount, throttle and steering arm push rods. Install the appropriate blind nuts for the above. Formers F-1, F-2, and the firewall are then glued to one fuselage side using the previously marked locations and a square to keep the formers perpendicular to the side.

The formers have their corners cut on a 45° angle to accommodate the triangular stock but I found it necessary to sand these corners in order to obtain the proper fit to the sides. The former center sections also have to be cut out. I felt this should have been done in the die-cutting process. The opposite side is now glued to the formers. The tail surfaces, having been previously glued at right angles to one another, are installed along with former F-4 into the pre-cut horizontal stab platform and the fuse sides are drawn in to touch either side of the vertical stab. They are then glued into place. This is all accomplished by first pinning the fuselage sides in place over the top view of the plans.

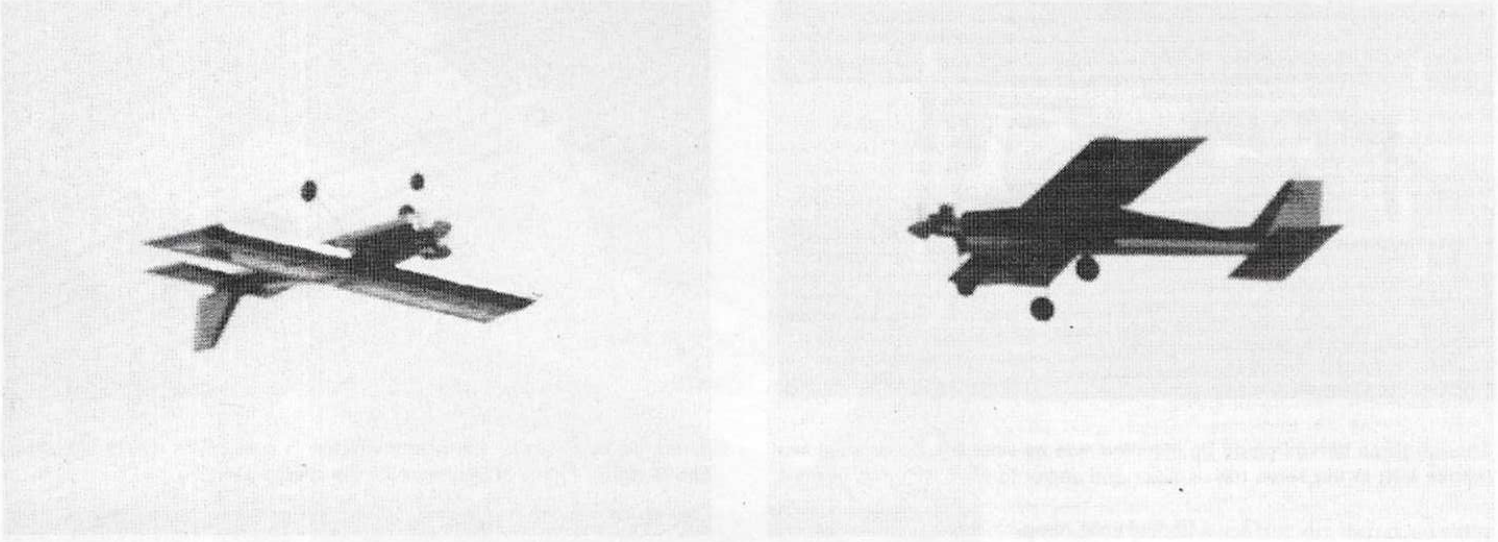
Added next are the 1/2×1/2 inch triangular corner gussets between the fuselage sides and the horizontal stab. This increases the gluing area and helps retain the horizontal



Overhead shot shows the generous tail moment arm on the *Aero-Sport* **(above)** which helps contribute to its excellent stability. Each main gear is a single 5/32 wire that plugs into trunnion blocks in the fuselage **(below).** Note the neat, hidden antenna running down the fuselage.



Midwest Products' Aero Sport 40



Equally comfortable upside down or right side up **(above left and right),** the *Aero-Sport* is a nice stable flying model. At high rates, the aileron response can be fairly nimble. At low rate it becomes more docile. One plus for less experienced fliers: the plane doesn't like snap rolls.

stab. The 1/8 inch plywood bottom sheeting goes on next in front of the main landing gear block and 1/8 inch balsa sheet, cross grain, aft of the main gear block. Aft of the wing saddle goes the 3/32 inch balsa top sheeting while a 1/2×3 inch balsa slab goes in front of the wing saddle. The fuse is sanded to shape and the assembly is complete.

I noticed upon seating the wing that the trailing edge was a 1/4 inch higher than the fuselage top. I then installed a 1/4×3 inch fairing block and shaped it. I still had a 1/4 inch gap between the trailing edge of the wing and the fuse that was formed by the aileron torque rods. I closed this gap by installing a piece of 1/16 inch plywood on the wing that overlapped the fuse by about 1/4 inch, thus covering the gap.

Finishing and flying it

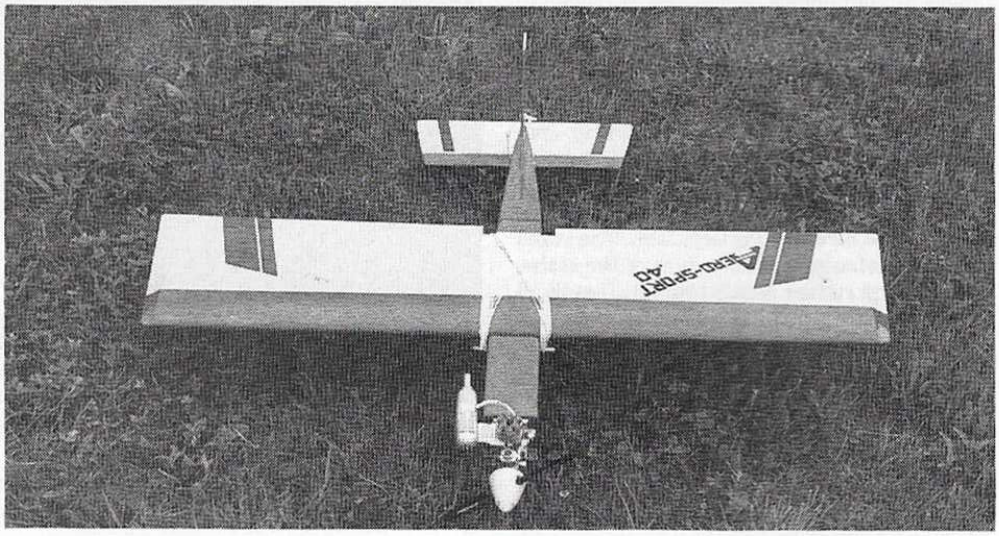
I like to use a surface prep such as SIG's Stix-it or Balsarite prior to using an iron-on covering to help eliminate future sags and bags in the covering. I used a combination of Goldberg's UltraCote and MonoKote as I already had a sufficient amount on hand.

The radio used was a World Expert 7 channel FM and World servos. I used an O.S. 46 Long Stroke with a 12-6 prop for power. The engine, in combination with the plane's all up weight of approximately 4 3/4 pounds, promised to make this bird a fairly agile performer.

The test flight would have gone very well if I could have kept my motor running. As it was, I wound up making two dead stick landings. This problem, of course, was my own fault. The O.S. was brand new with no running time. I decided, after the two dead sticks, to run a couple of tanks through the engine on the ground. The engine ran fine after having done this.

The *Aero-Sport* turned out to be a very stable little aircraft. It responds very well to very small amounts of aileron input when on high rates (approximately 1/2 inch of deflection as per directions) and becomes fairly docile on low rates. The aircraft is not very good at snap rolls, a fact that is probably a plus for most modelers that would be building this type of model.

The *Aero-Sport*, in my opinion, is an excellent step up from a high wing trainer for a beginner looking for something a little more advanced without getting into something that involves a great deal of building time. I had about 35 to 40 hours in the entire project. I do not recommend it, however, for someone who has not mastered the basics. It is, all things considered, great fun to fly and I would highly recommend it for any flier with capabilities of novice or above.



Any of the heat-shrinkable coverings are good candidates for covering the *Aero-Sport*. Whatever the choice, the model's finish **(above and below)** is nicely complemented by the *Aero-Sport* graphics included in the kit.