

FIELD & BENCH REVIEW

Airtronics ADANTE

*A sailplane by which all others
in its class will be judged.*

“LOOK UP TO QUALITY” is the Airtronics* motto, and their new Adante high-performance multi-task sailplane is going to have a lot of people snapping their necks doing just that. Absolutely no effort has been spared in making the Adante what I believe is the ultimate multi-task contest sailplane available today.

A Modified-standard class sailplane, the Adante has a 99-inch wingspan and a 49-inch long fuselage, resulting in a relatively long tail moment-arm, giving increased stability and rudder effectiveness. The Adante is designed to fly on 5 channels, which control full-span flaperons with a sealed hinge line, spoilers, rudder, and a full-flying stabilator. The full-span flaperons allow the pilot to vary the camber of the Adante's airfoil to suit changing conditions, resulting in an exceptionally wide speed envelope and significantly increasing the versatility of the aircraft. Airtronics' Championship Series CS7P radio system provides the perfect match for this exceptional sailplane, providing for flaperon mixing, aileron/rudder coupling, and dual-rate linear and/or exponential control instantly available at the pilot's fingertips.

While designed specifically for multi-task competition, the Airtronics Adante will also provide the experienced pilot with many hours of exhilarating slope and thermal recreational flying.

THE KIT. Airtronics is serious about their devotion to quality. Packaged in a sturdy box is absolutely everything needed for construction, except for adhesives, paint, and covering material. You won't have to make extra trips to the store or mailbox for this kit.

The fuselage is of pre-joined fiberglass construction with a separately molded and fitted fiberglass canopy included. The quality of workmanship is excellent. More than enough fiberglass cloth is included for wing and center section reinforcement. Many precision machined brass and wood parts are included, as well as full-length aluminum tubing for the sealed flaperon hinge line and unusually sturdy brass and aluminum wing joiners.



*Type: Standard Class Sailplane
Wingspan: 99 inches
Length: 49 inches
Channels: 5*

article and photos by ALAN GORNICK JR.



Also included are a full-scale set of plans, featuring many double-scale enlargements, $\frac{3}{4}$ -views of critical construction areas, and a very complete photo-illustrated instruction manual.

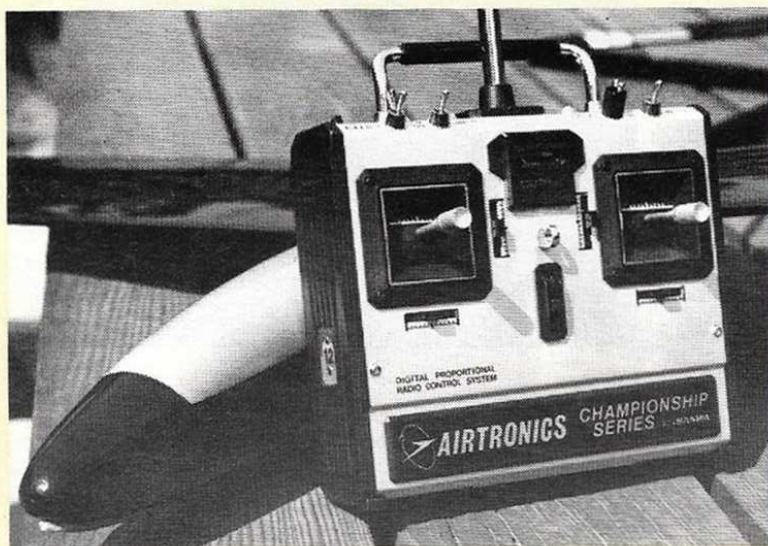
CONSTRUCTION. This kit has many innovative features and construction methods, so be sure to read the instructions, study the plans, and understand them thoroughly before starting.

The first step is also the easiest—construction of the all-wood rudder. I used Zap cyanoacrylate to expedite things. Be sure to shim the spruce trailing edge when installing it, and take care in sanding the leading edge bevel. It's a single bevel only, as final hinging will be with Slick Tac (a clear mylar tape, supplied).

Construction of the stabilator is straightforward, and you'll be pleased to



I threw the Adante over the edge and didn't get it back for 30 minutes!



The well-known and highly popular Airtronics Championship Series radio complemented Gornick's Adante.

discover that Airtronics even includes the Allen wrench for the joiner rod locking collars! Again, shim the spruce trailing edge when installing it.

In building the fuselage, as with any fiberglass construction, first wipe it down inside and out with acetone to remove any residual mold release or oil. I used 5-minute epoxy for installing all formers in order to move things along at a reasonable pace.

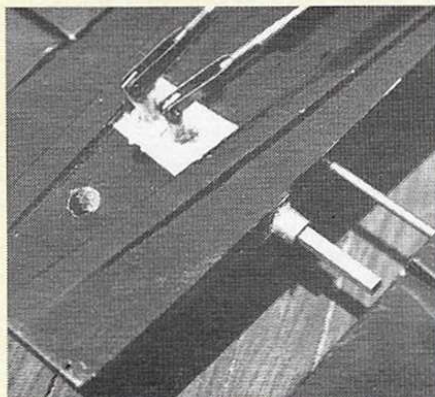
In gluing on the built-up wood vertical stabilizer, drill many small holes in the top surface of the fuselage half-stab. Use a mixture of epoxy and microballoons (sparingly) to join these and you'll have a light, secure assembly. When fitting the canopy to the fuselage, place a piece of waxed paper between the two before

gluing the hold-down dowel and former in place with epoxy. Some seepage is inevitable. After priming the fuselage assembly and canopy with Pactra Prep and sanding with 220- and then 400-grit wet-or-dry sandpaper, I applied two

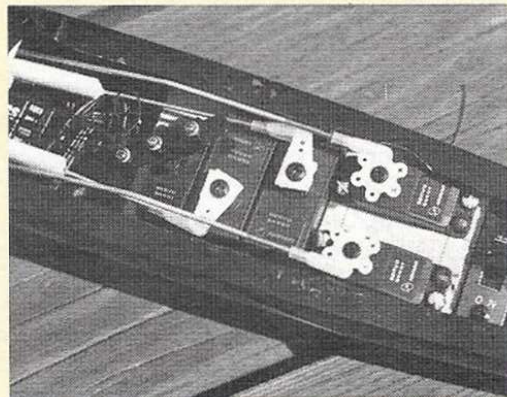
coats of black Pactra Formula-U paint to the fuselage and silver Formula-U to the canopy, and set both aside to cure.

I had then arrived at some of the more unique design and construction features of the Adante. The wing center section is made up of several plywood ribs and webs, as well as leading and trailing edge pieces. While all are beautifully machined and finished, it may not be immediately obvious that the webs, as well as the other stock, are tapered to allow for dihedral. Be sure to orient them correctly.

The flaperon drive is ingenious, consisting of telescoping square brass tubing connecting the flaperons and center section positively, yet allowing easy wing removal. The wooden blocks into which the metal parts fit are subtly beveled for dihedral and grooved for alignment. Be absolutely sure you have all this squared away before gluing it forever. The instructions recommend soldering the square brass tubes, steel control arms,



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Plenty of room, even for five servos.

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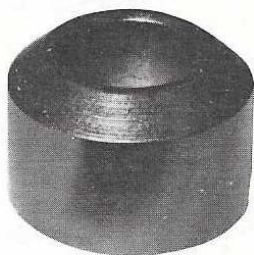
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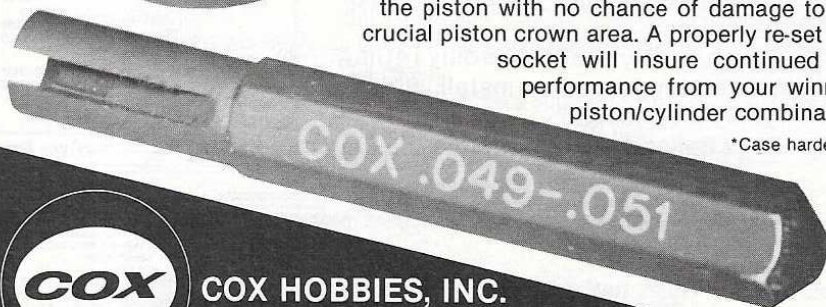
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ADANTE

and brass end fittings. Instead of doing this, I used Zap-A-Gap and a squirt or two of Zip Kicker and saved a great deal of time.

The wing construction of the Adante is definitely different and innovative. Follow the directions explicitly and you'll be well rewarded. First cut the wing core chord-wise 5 inches from the root, sandwich a plywood rib between the foam where the cut was made, and add a root rib. Then cut the wings to accept a brass joiner tube fitting inserted through the ribs and extending into the wing. Use triangular balsa stock to fill in this assembly flush with the wing surfaces, then use a mixture of epoxy and micro-balloons levelled off to finish the job. Inlay the spoiler chord tubing into the cores (a soldering iron melts a channel quickly), and glue in place the spruce sub-trailing edge. Either 15- or 30-minute epoxy will do nicely for the above tasks; 5-minute epoxy is too brittle.

Splicing the wing sheeting is routine, with Zap cyanoacrylate expediting the job (use waxed paper underneath), after which things get very interesting. Sheet the wings with a sandwich of foam core, fiberglass cloth, and balsa skins, with the fiberglass cloth extending approximately one-half and one-third of the span from root to tip for the top and bottom surfaces respectively, and trim at the tip end in a parabolic pattern. This construction, using Hobbypoxy Formula II, a 45-minute epoxy, results in an extremely strong, yet light and flexible wing with no areas of localized stress.

A sealed flaperon hinge is achieved through the use of a concave spruce trailing edge cap in conjunction with a full length aluminum tubing flaperon leading edge. The hinges are composed of cylindrical plastic inserts aligned with slots in the tubing, drilled to accept cut-off self-tapping screws which are glued into the wing trailing edge. Ingeniously simple, this system is efficient, concentric, tight yet free-functioning, and foolproof.

ADANTE

After cutting the spoiler openings through the balsa/fiberglass wing skin, I used a soldering iron to shape the spoiler bays in the foam. The spoilers are actuated by dial cord (supplied) threaded through nylon tubing, and pulling upon a lever and return spring arrangement. This system works very positively.

After final assembly, adjustments, and sanding, the Adante was ready for covering. I used black Super MonoKote for covering the wings and stabilator, with red, orange, and yellow Trim MonoKote for trim.

A championship airplane deserves a quality radio and the obvious choice was the Airtronics Championship Series CS7P. This is an outstanding radio,

extremely versatile and reliable. Its many mixing functions, as well as instantly selectable dual-rate linear and/or exponential controls, are invaluable in obtaining peak performance from a sailplane as advanced and sophisticated as the Adante.

Five channels are required to fly the Adante and I installed two Airtronics No. 94554 coreless ball bearing heavy-duty servos on the flaperons, and three Airtronics No. 94401 ball bearing micro servos for rudder, spoilers, and stabilator. Airtronics has a Flaperon Module available, part No. 96403, which plugs into the CS7P transmitter and mixes the aileron and auxiliary II channels for flaperon control, eliminating the need for complex mechanical linkages. This unit works beautifully. If you use another brand of transmitter, ask for Airtronics 2-function Mixer No. 96100, which will work with any brand radio.

FLYING. My first flight with the Adante was at the Rose Bowl in Pasadena, California, an excellent thermal soaring location and the site of many sailplane contests. I'm always nervous when first launching a new airplane. Under the acceleration of the Hi-Start, small misadjustments have a way of creating unbelievable excursions from the desired flight path. I needn't have worried, the Adante is extremely stable during launching and went up straight as an arrow. We were all highly impressed with the handling and flight characteristics of the Adante. But how would it handle on the slopes?

I live within 1/4-mile of one of the best slope soaring sites in Los Angeles, one that features both slope lift and considerable thermal activity. The wind was extremely light when I arrived, but I decided to gamble and threw the Adante over the edge. Well, I didn't get it back for about 30 minutes! After a couple of low passes along the hill, a wing tipped up, I turned into the thermal, and the Adante was climbing like a homesick angel. I added a little down flap and it went up even faster, while the airplane slowed sufficiently to allow tighter turns within the thermal. I soon learned to adjust the flaps to the size and strength of the thermal. I also learned that by raising the flaps to the reflex position, I could get from an area of sink to where the hawks were circling in a hurry, losing very little altitude in the process.

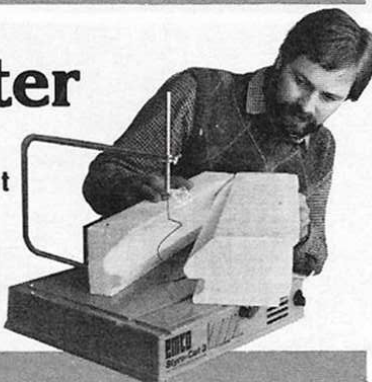
Later in the afternoon the wind started building and I discovered that the Adante is a fantastic aerobatic sailplane. Since

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the full-span flaperons provide a variable camber airfoil, all sorts of possibilities present themselves. For instance, try flying it inverted with reflex (up) flap to increase the lift! Go ahead, climb in a thermal while inverted! The Adante is fully capable of all aerobatic maneuvers, loops, four-point slow rolls, snaps, hammerheads, Cuban eights, etc., and when it's time to land, the spoilers make spot landings easy.

Back at the Rose Bowl with a new Hi-Start, I found solo launching the Adante to be a piece of cake, as were spot landings (the spoilers are very effective). Launching with partial flaps resulted in awesome vertical performance, and the zoom launching technique recommended in the manual was even more impressive. To zoom launch, launch with partial down flap, and at the top of the launch start a shallow dive for speed and neutralize the flaps. Now pull up abruptly to pop off the tow and at the same time use reflex flaps. The Adante will go up like a rocket! At the peak of the climb, push over to level flight and neutralize the flaps.

Now that you're *way up there*, I hope you have a full charge on your batteries and a nice comfortable chair, because you're flying an airplane that gives you every advantage, which is just what a full-on competition high-performance sailplane should do!

Competition or sport, thermal or slope, or just displayed on the ground, the Adante is a winner!

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