BY **Wil Byers**

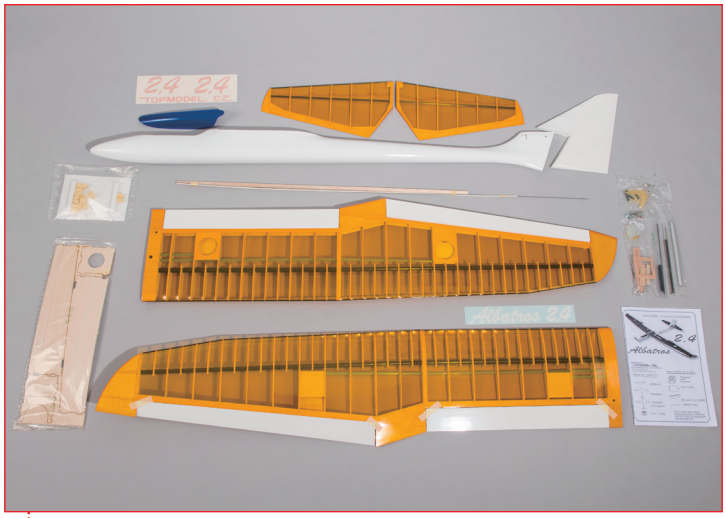
ESPRIT model

ALBATROS 2.4S/E ARF

AN LMR MACHINE THAT MAKES THERMAL SEARCHING FUN AGAIN!

Limited Motor Run (LMR) soaring has gotten a huge shot in the arm from Altitude Limited Electric Soaring (ALES). While FAI F5J soaring competition never really caught on for LMR gliders and sailplanes, ALES is shaping up to be the hottest thing in soaring to come along in a very long time. Electronic control modules such as the Sky Limit by Winged Shadow Systems *(wingedshadow.com)* and

The nostalgic design lines of the Albatros 2.4S/E give it a striking look in the air. The transparent covering also helps with visibility.



Your Albatros 2.4 kit will include everything you need to get the glider flying except for servos, motor, battery and so on. The jig for cutting the nose off the fuselage is extra too.

Here is what I bought from Esprit for my Albatros 2.4S/E. The MVVS gives it plenty of climbing power when combined with a Thunder Power 2700-mAh 3S LiPo battery.

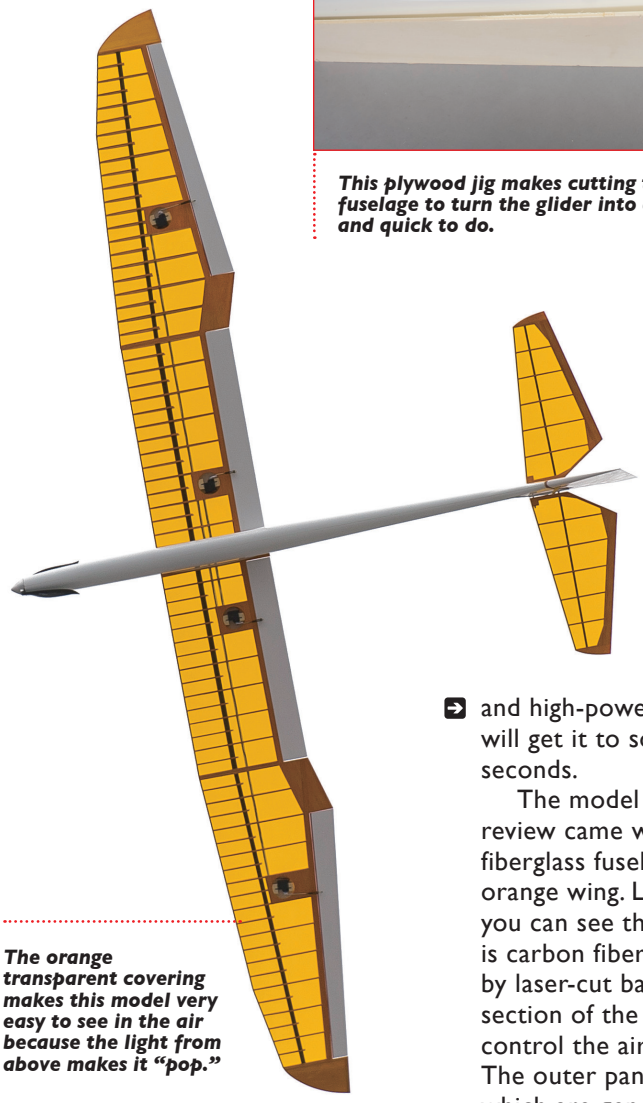
the CAM controller by Soaring Circuits (*soaringcircuits.com*) have given a huge boost to the ALES competition format. They have done so because they make it easy to monitor a glider's motor runtime and/or altitude. The result is, now a competition can be flown in man-on-man format where all the gliders launch at one time. The glider is limited by either its launch altitude or its motor run time. The competition is then centered around the pilot thermalling or soaring the glider for a specified duration. It is pilot and contest director friendly, and this fun, fair competition is literally taking off!

The Albatros 2.4S/E is ideally suited for LMR ALES-type competition and all-out fun flying. It is a beautiful model both on the ground and in the air. It has the classic design lines of a Bird of Time glider; this model, however, incorporates state-of-the-art construction methods, including carbon fiber, laser cutting and high-quality covering. Its built-up construction for the wing integrates a carbon spar that is strong enough to withstand both winch launches

The Albatros 2.4S/E is a good pick for getting into ALES soaring and competition. It is affordable and easy to assemble too.

This plywood jig makes cutting the nose off the fuselage to turn the glider into an LMR machine easy and quick to do.

You'll want to use a sharp Zona-type saw to cut the nose off the fuselage. During the cut it must be held tightly against the jig.

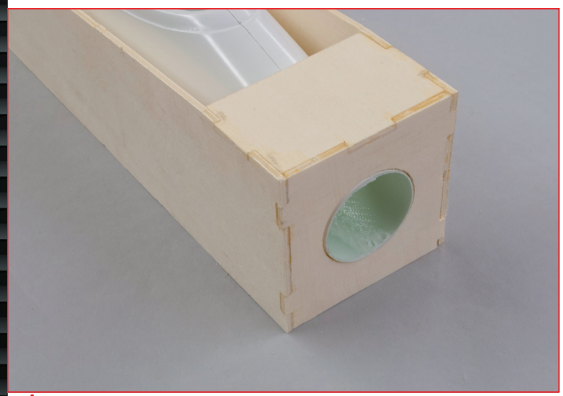


The orange transparent covering makes this model very easy to see in the air because the light from above makes it "pop."

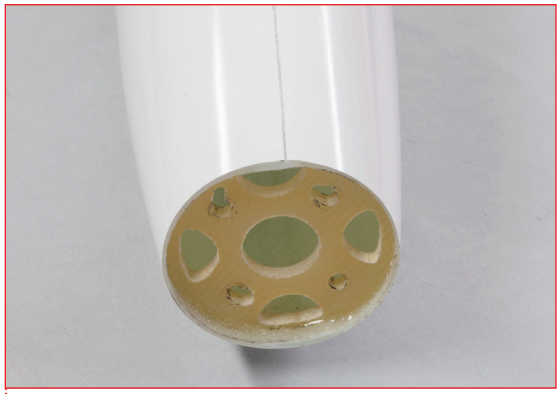
Look at how clean this motor mount is—four bolts and lots of holes to get cooling air into the motor and around it.

and high-powered motor runs, which will get it to soaring altitude in mere seconds.

The model I received for this review came with a white, gel-coated fiberglass fuselage and a transparent orange wing. Looking into the wing, you can see the leading edge tube is carbon fiber, which is trailed by laser-cut balsa ribs. The center section of the wing uses a big flap to control the airplane's landing speed. The outer panels sport ailerons, which are generously sized to give the model good roll control. Servo wells are built into the bottom of the two-piece wing for the flaps and the ailerons and are perfectly sized for the Hitec RCD servos. From spinner to rudder this model is built to be lightweight yet so strong it will deliver a superb soaring experience to its pilot—sport or competitor.



Once the nose of the fuselage is cut off you will want to sand the fiberglass back to the jig, which you will use to set the motor's incidence angles.



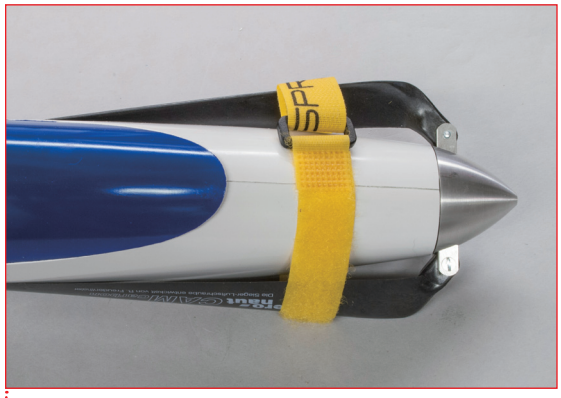
The motor mount glues into the nose of the fuselage. You'll do this by fitting the motor to the mount and using the spinner to align everything to the fuselage.

KIT CONTENTS

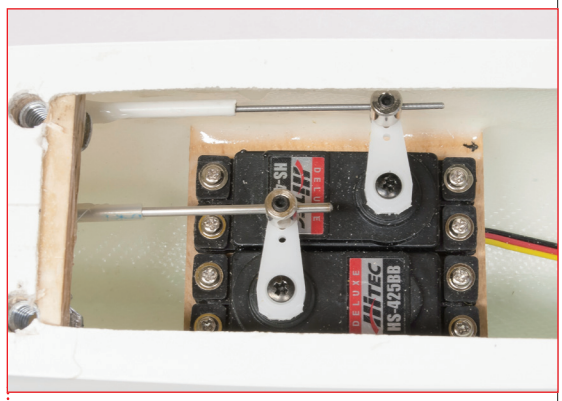
- Fuselage w/ canopy
- Wings
- Horizontal stabilizer
- Rudder
- Hardware package
- Pushrods & joiners
- Servo well covers
- Manual
- Decal Sheet

NEEDED TO COMPLETE

- ***Motor***
  (1) MVVS 3.5/960
- ***Controller***
  (1) Jeti Advance 40 Pro SB
- ***Battery***
  (1) TP2700-mAh 3S
- ***Servos***
  (2) HS-65HB (ailerons), (2) HS-65MG (flaps), (2) HS-85BB (rudder, elevator)
- ***Spinner***
  (1) BB 40/5/8 mm
- ***Propeller***
  (1) Aeronaut 12x8
- ***Connector***
  (1) Deans
- ***Extensions***
  (2) 36 in., (4) 6 in.
- ***Strap***
  (1) Velcro® for folding prop
- ***Jig***
  (1) Building Services
- ***Transmitter***
  Jeti DC-16
- ***Receiver***
  Jeti R7 w/ telemetry

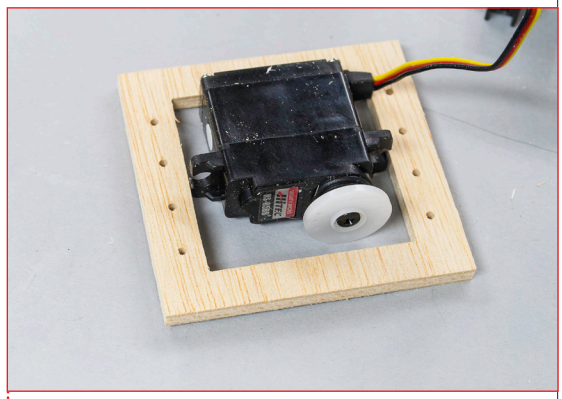


Esprit's hook-n-loop propeller retainer is a nice add-on to your order because it will keep the propeller out of harm's way during transit and storage.

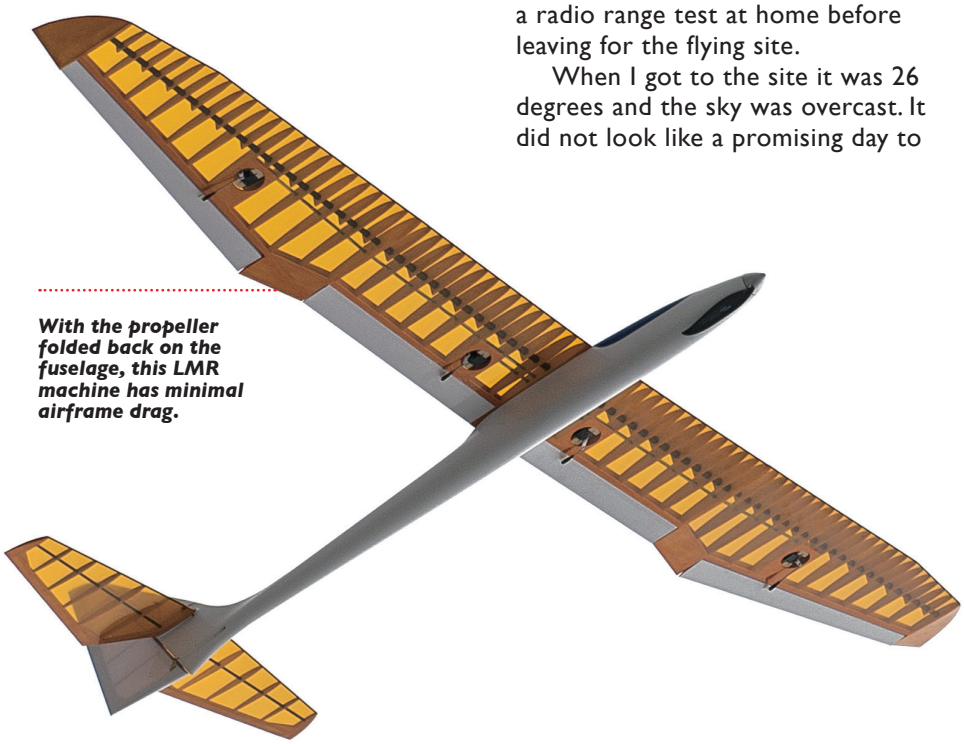


The elevator and rudder installation in the fuselage could not be easier to do. Adjustments are quick and simple too by way of easy connectors.

The piano wire pushrod uses a Z-bend at the rudder end. It runs through a sheath to the servos, so there is no slop in this control linkage.



The servo tray that came with my Albatros 2.4 was made for standard servos, so I made another mount to fit the Hitec servos my model is fitted with.



With the propeller folded back on the fuselage, this LMR machine has minimal airframe drag.

IN FLIGHT

I started the test flight of the new Albatros 2.4 S/E by performing a radio range test at home before leaving for the flying site.

When I got to the site it was 26 degrees and the sky was overcast. It did not look like a promising day to test a glider. Was I wrong! Although it was cold, it was the perfect day to test-fly this glider because the lift was weak, but just enough to really see if this model was soarable. It was!

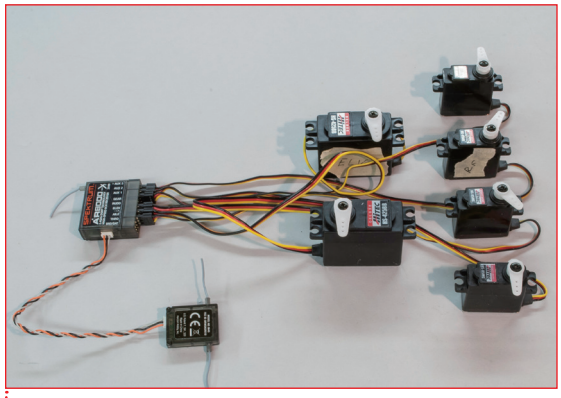
For the first flight I powered the model up to about 100 ft. The MVVS motor, getting electrons from the Thunder Power 2700-mAh battery pack, will take this glider straight up, so you don't need to push the throttle all the way up, unless of course you just want to have some fun. Once the power was pulled off it took just a slight touch of down elevator control to transition the glider to level flight. Then the fun really began.

This model took zero trimming of the controls in both roll and pitch, with two clicks of right trim for the rudder. It was well coordinated in the turns. As a rule, I fly my models with the rudder uncoupled, so I lead the turns with a little bit of rudder to keep them coordinated. Once in the thermal turn you'll need to

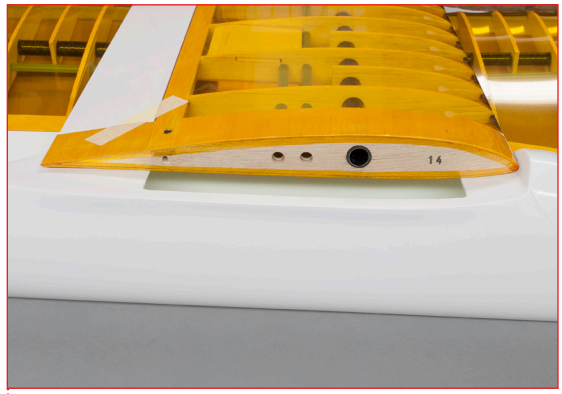
hold just a bit of back elevator control to have this model doing very flat and efficient circles. When I dropped the flaps I was completely surprised to find that the model needed an ever-so-slight amount of down elevator control. Additionally, once the flaps were down I found that I could let off the down elevator control and the model would stay in that attitude, which makes landing it a lot of fun.

What you'll enjoy about this model is that while it's not super fast it has a very flat glide. When I ranged it out and up and down the face of the hill (the wind was nearly non-existent) it indicated lift extremely well. Circling it in lift is very easy too. You'll be pleased with the way it climbs once in lift as well. You'll just want to hold back a bit on the up elevator control to maintain the airspeed in the circles, and the model will reward you by heading for the sky.

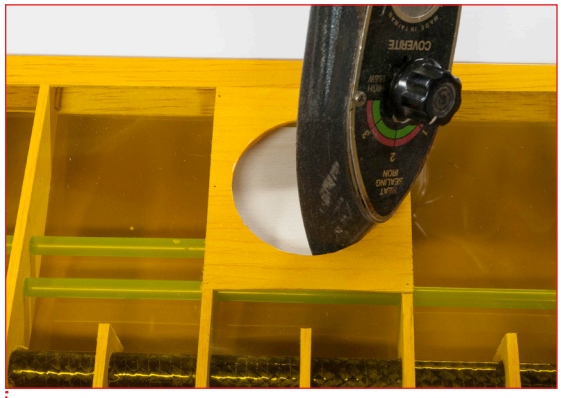
Finally, and I think this is very important, it does not have a nasty stall. It will break to the right or left when you slow it down, but it does not snap over hard. Recovery from the stalls is as easy as easing off the elevator control and letting it build speed for about 10 ft and then pulling the model to gliding speed again.



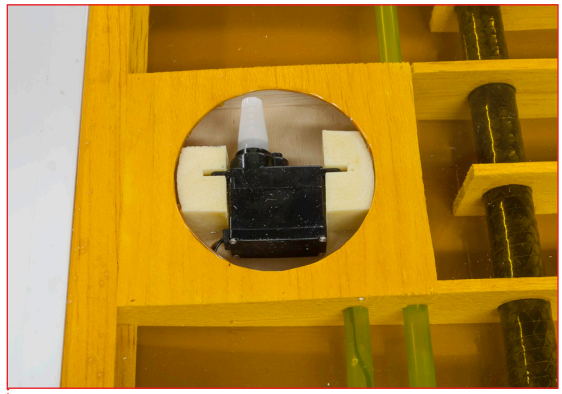
Do this—label the servos per their control surface and then center them relative to their respective control surface before putting them into the model.



As you can see, the airfoil has a bit of undercamber built into it, which means it is designed to help this model soar well.



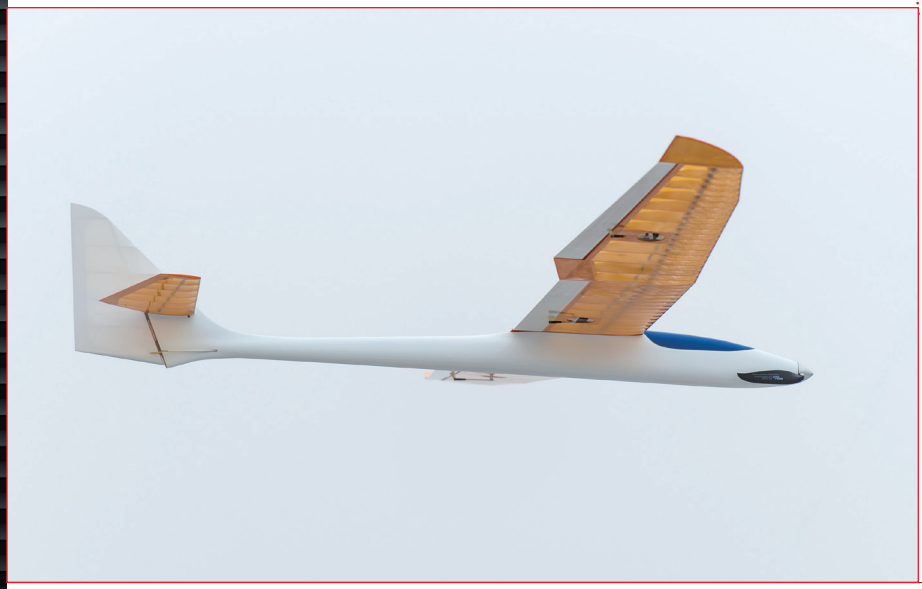
After you cut open the servo bays you'll want to use a covering iron to seal the covering tight to the opening's wood so it will not come loose later.



Hard foam blocks are used to index the servos in their respective positions in the servo well. They make short work of the install.

I suggest you use a square of some type to align the servo perpendicular to the control surface's hinge line.

As you can see, the Albatros 2.4S/E has very clean design lines, which make for low drag and a very respectable L/D ratio.



MY DEBRIEF

If you are getting enthused about flying LMR gliders or if you are looking for a new ALES machine, you should consider this model. It is not a super-fast glider, but it will range out if you command it to do so. Where this model really shines is in

You must program the ESC brake so that it stops the propeller from spinning once the power is off and the model is in glide mode.

In this profile shot of the model, you can see that the transparent covering shows up well, even against the overcast and gray sky.

the light lift and ease of handling. It does whatever you tell it to do. The other thing I like about this model is how well you can see it in the air. The transparent covering seemed to shine and made it extremely easy to spot at long distances. I think you will enjoy the Albatros 2.4S/E, so give it a close look when you are hunting for a new ALES glider for the upcoming soaring season.

Specifications

Wingspan	96 in.
Length	54.5 in.
Airfoil	MH 32
Wing Area	846 in.^{2}
Wing Loading	9-10 oz/ft^2
Weight	52 oz
Motor	MVVS 25 2.3/960 brushless
ESC	Jeti Advance 40 Pro SB
Battery	Thunder Power 2700-mAh 3S
Propeller	Aeronaut 12x8 folder
Spinner	BB 40/5/8 mm folder
Price	$395

Distributor

Esprit Model
1240 Clearmont St NE, Unit 12
Palm Bay, FL 32905
Phone: 321-729-4287
Espritmodel.com

Control Throws

	Up	Down	Expo
Ailerons	3/4 in.	1/4 in.	20%
Elevator	1/4 in.	1/4 in.	20%
Rudder	1-1/2 in.		
Flaps	45^0 & 90^0		

Center of Gravity

Placed at leading edge of wing tube.

BUILD

Building the Albatros 2.4 is about as straightforward as it gets. The manual is only a pictorial, but it takes you step by step through the assembly.

I started with the wings. The wing servos' mounting locations require that you remove the covering. You'll want to cut the covering approximately 1/8 in. inside the opening. Then you'll make slits around the circumference so that you can iron the covering down around the edges of the opening.

You'll need to hinge the flaps and ailerons with clear Mylar hinge tape, which you can also buy from Esprit.

For my Albatros glider I used 12-in. servo extensions to the aileron servos. I carefully removed the male connector (see *Making Servo Leads* in this issue) so as not to damage their plastic locking tabs. The wire was then routed through the tube built into the wing to the root. There the connector was reattached to the servo's lead.

The center section of the wing then required two 24-in. and two 36-in. extensions. Again, the male ends were removed and the leads routed to the center wing panel where the connectors were then reattached. To make removal of the wing easy, an eight-pin Multiplex connector was soldered to the lead about three inches from the bottom wing's surface.

Mounting the wing servos was a snap. The hard Rochelle foam mount blocks needed a small notch cut in them to fit tightly to the servos (in my case Hitec RCD). Also, the blocks' thickness required sanding to fit under the lower wing skin just a fraction.

Before gluing the servo blocks, with servos, in place, I checked them for fit and centered them with respect to their individual control surfaces. I used five-minute epoxy to glue them securely in place. Do one servo at a time and be sure to use the epoxy sparingly.

I encountered a slight problem when installing the fiberglass wing joiner rod—a restriction at the second rib location. I removed it by attaching sandpaper to a rod and then sanding that location until the restriction was gone.

Note that mounting the wing required that the plywood wing plate be bonded forward of the opening in the fuselage. Pay attention to this so that there is plenty of material there for the blind nuts.

Installing parts in the fuselage is so straightforward that even a beginner could do it, albeit with some supervision for confidence. Esprit sells a jig that makes the motor installation about as easy as it gets, without having the firewall factory install. The jig is designed to hold the fuselage in precisely the right position for cutting the nose off. You only need a nice, sharp razor. When you cut against the jig, it will put the proper down and right thrust angle into the nose of the fuselage for the motor. You'll fit the motor to its mount and then bond the mount in place with epoxy. I held the mount in place while the epoxy cured, using the spinner's collet as a guide relative to the nose of the fuselage.

You'll want to glue the servo tray in the fuselage with a fillet of epoxy and flocked cotton fiber. Installing the servos is detailed in the pictorial.

I recommend you program the Jeti ESC for brake and battery type next. You'll do so by following the ESC instructions, which combine throttle stick movements with turn procedure. The motor and speed control are then removed and reinstalled in the glider. Be certain to use 3-mm cap screws and blue thread locking compound so they don't back out in flight. Attach the collet spinner to the motor and fit the propeller.

My Albatros balanced with its Thunder Power 2700-mAh 3S LiPo pack placed about one inch behind the motor and on the left side of the fuselage.