

Albatros DIII

R/C Scale Model Instructions



CONTACT INFORMATION

The Albatros DIII was designed by
M.K. Bengtson
The prototype by Roger Huber

Manufactured and Distributed by:

Bengtson Company

e-mail: sales@aerodromerc.com
Web Site: www.aerodromerc.com

Albatros DIII

Thank you for purchasing the Albatros DIII model for electric flight

THE MODEL



Finished Model by Gary Germain

A semi scale adaptation of the Albatros DIII, this model is designed to be easy to build and exciting to fly.

POWER SET UP

The GWS 300C motor powers the model with the D gearbox and a 10x7 APC prop.

SPECIFICATIONS

More than 215 laser cut parts

Scale:	1/10th
Channels:	R/E/A/T
Wingspan:	36"
Wing Area:	319 sq in
Weight:	24 oz
Power System:	GWS 300C with D gearbox
Prop:	10X7
Wheels:	Balsa & plywood, Neoprene foam tires
Airfoil Type:	Flat bottomed
Cowl:	N/A
Spinner:	Foam and fiberglass
Decals:	Available on website
Covering:	Litespan or Polyspan covering

BUILDING THE MODEL

BEFORE STARTING

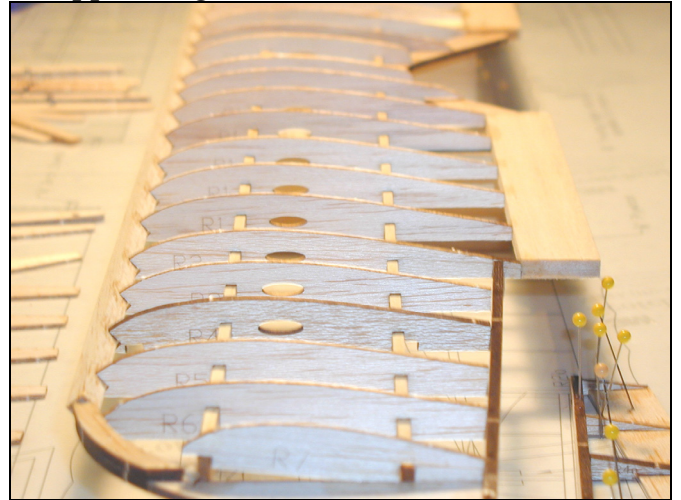
A note about the photos: The photos were taken of a prototype and the parts supplied may look slightly different from them. However, the concepts illustrated are the same.

WINGS

Wing Construction

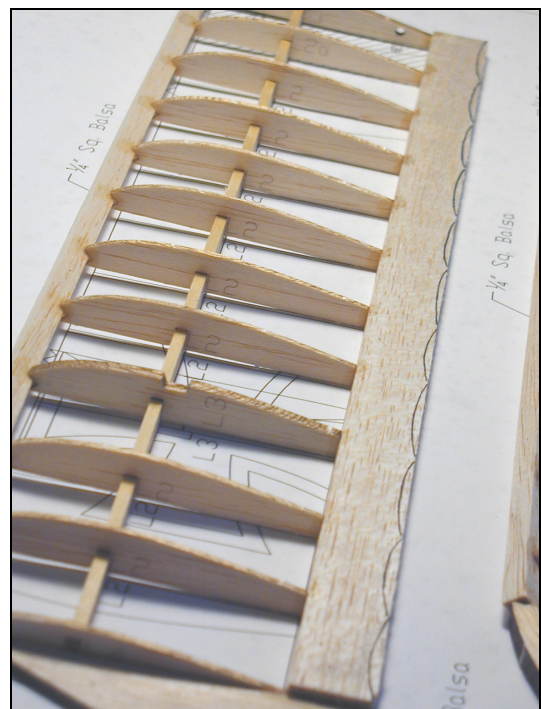
Pin down, over the plan, the t/e, spars and wing tip, gluing as required. Add the leading edge stock after the basic frame is done as the stock is inserted in a rotated fashion. Add the wing tips and align the front tip along the center of the leading edge. Sand the leading edge stock to be rounded and meet the ribs.

The upper wing:



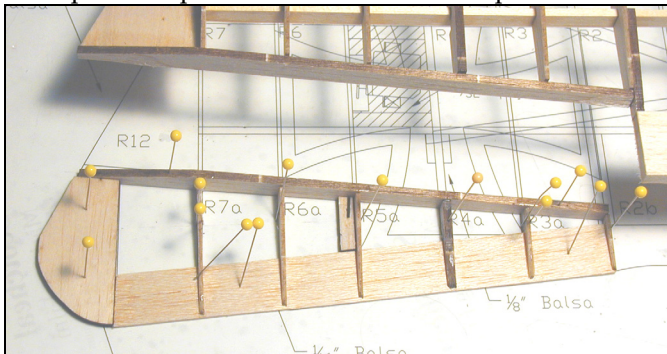
Upper Wing

Trailing edge stock can also be used. It saves a lot of finish sanding.



Scalloped Wing Detail

Scalloping can be done easily by fitting sandpaper on a dowel or other appropriately shaped object and simply sand the scallops. Start sanding at the center point of the scallop and stop as soon as the desired depth is reached.



Aileron

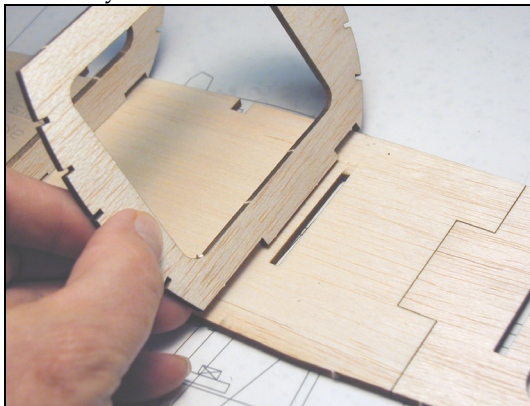
The leading edge of the aileron is rounded over with sandpaper to make the aileron movable with a minimum gap. The trailing edge of the wing in that section is left flat.

FUSELAGE CONSTRUCTION

The fuselage is built as two side structures, which are then joined over the plan. This system not only keeps each stage simple, but it also helps to ensure a straight fuselage.

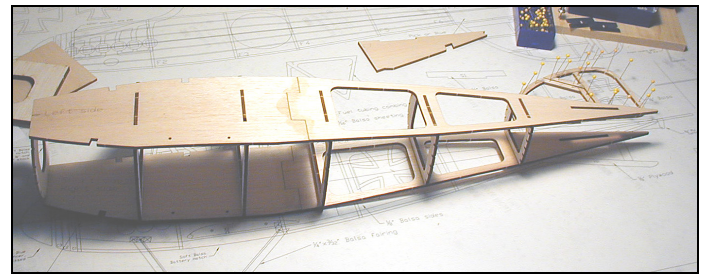
Building of the Right Side of the Fuselage

Begin by building two fuselage side frames over the plan and allow to dry.



Fuselage Frame Construction Detail

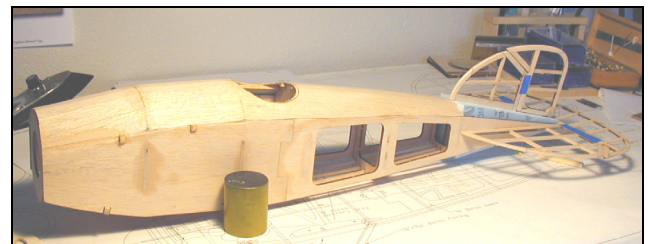
Join the two frames over the plan with cross braces and the tail skid mount F7. Check, check and check again that this and ALL other structures remain perfectly aligned. The right side of the fuselage is a bit shorter than the left side. This is to build in right thrust and allow the spinner to rotate properly on the model. Former F1 is also angled a bit for down thrust. Place F7 carefully. It is designed to run down the centerline of the fuselage. It serves to position the vertical stabilizer and tail skid. Use a length of 1/4" diameter birch or hard balsa dowel at the end of the fuselage. This gives the fuselage a nice rounded termination.



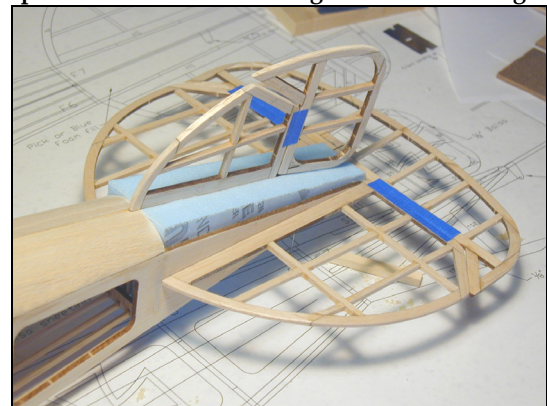
Fuselage Construction Detail

Adding the Decking

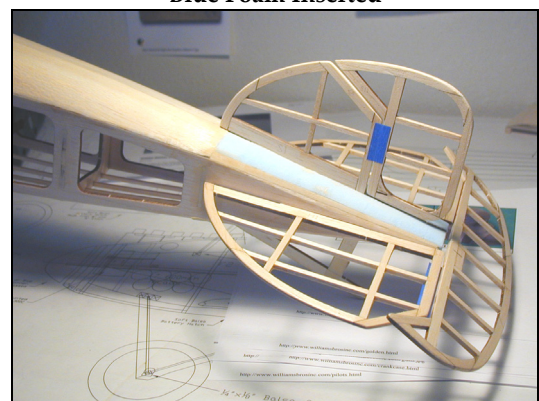
Add all the stringers and formers, and carefully trim to size and fit 1/32" sheeting (sheeting is optional). Some have also sheathed the fuselage sides with 1/32" balsa as well. Keep in mind that excess weight in the tail is to be avoided, so use these sheathing options with the lightest balsa available.



Optional 1/32" balsa sheeting shown over stringers



Blue Foam Inserted



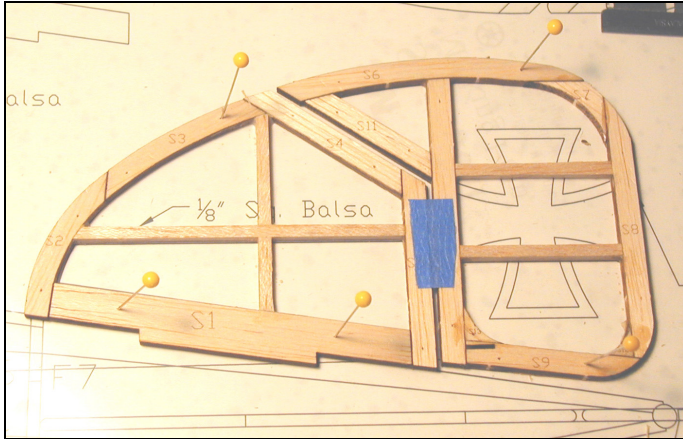
Sand the Blue Foam to Shape

Adding The Undercarriage Plates

Remove from the board and add the plywood crosspieces that serve as u/c plates.

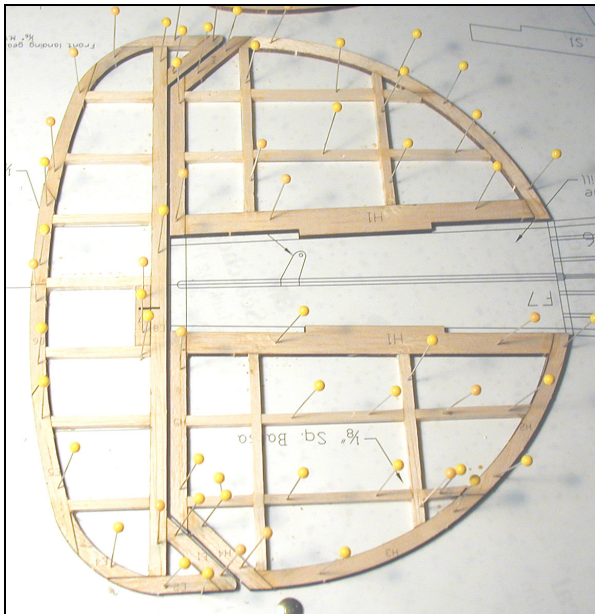
TAIL SURFACES

Lay-out and glue parts of the tail surfaces on the plans.



Tail Surfaces Laid out on Plans

Sand the tail parts, rounding off all edges. Don't add the horns or hinge the surfaces until after covering is complete.



Tail Surfaces Laid out on Plans

LANDING GEAR

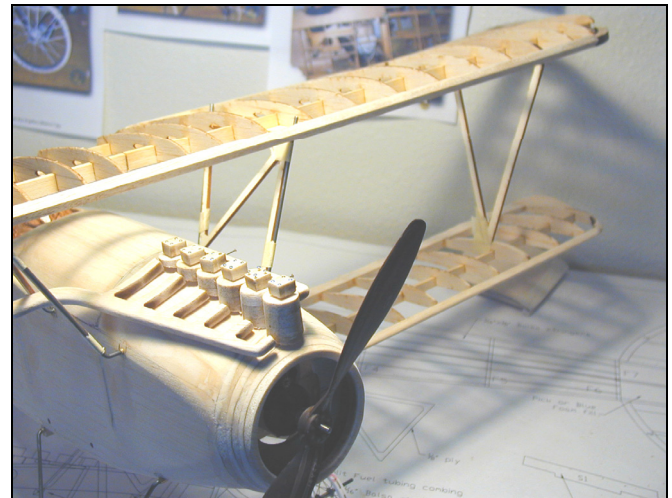
The undercarriage is made from two pairs of 1/16" wire cut to the shapes as shown on the plan. Each half inserts into the mounting blocks, which are attached to the fuselage. They are set in place using epoxy. The joints where the axle and U/C legs meet should be cleaned with the wire bush on a Dremel tool. With the joints nice and

shiny, a bit of brass or copper wire binds the joints. Solder using plenty of heat.

Some modellers prefer an alternate method. Instead of wire and solder, lash the parts together with Kevlar thread and CA glue. Finish the joint with epoxy. This method always works and avoids the cold solder joint that can fail in time. Be sure to use Kevlar or Nylon thread, as common cotton thread will fail.

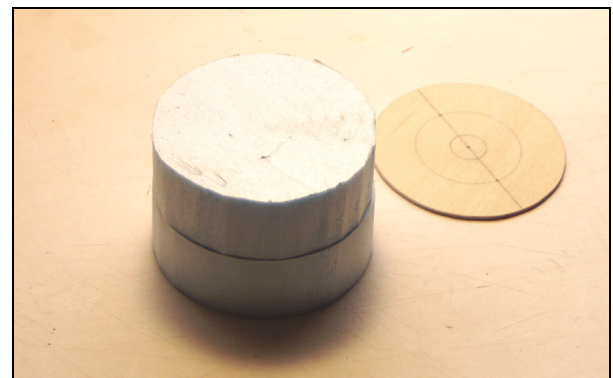
It is best to attach the landing gear after the bottom of the fuselage is covered and painted as covering and painting with the gear on is awkward.

DUMMY MOTOR



Dummy Motor Mounted In Place

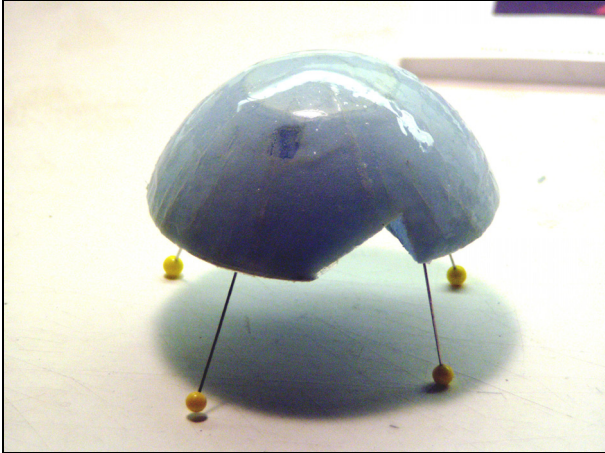
Assemble the dummy motor from the balsa parts supplied and sand to shape. Not all the parts of the engine are supplied as some are best fabricated from other materials. Solid 16 gauge copper electrical wire (black insulated) makes an excellent "radiator hose".



Spinner Parts
SPINNER

The spinner is composed of fibreglassed blue foam. The spinner is made from blue foam which is tack glued to a piece of 1/32" ply. Epoxy a short 1/4" diameter dowel to the back in the center of the disk. Place the assembly in a

drill chuck and sand the foam to shape while it spins. Glass the foam using standard glassing techniques. (Note: Minwax Polycrylic is an excellent substitute for epoxy). When the epoxy is set, cut the excess fiberglass away. Then remove the plywood and carve out the necessary recess for the propeller. Drill out the dowel on the plywood disk. Glue the spinner to the plywood disk after the prop is mounted to the model. It should be perfectly aligned with the fuselage. It looks complicated but in practice the process goes easily and works very well.



Spinner Detail

COVERING

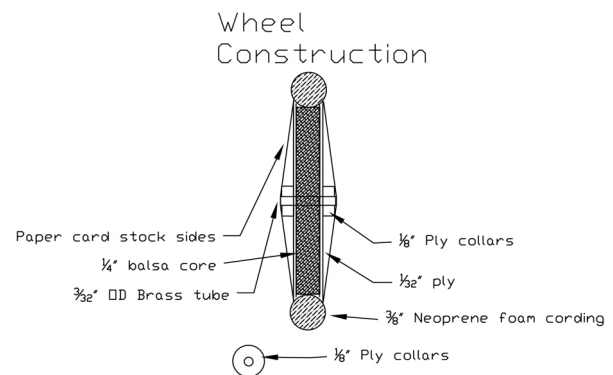
Any lightweight covering material can be used. Polyspan makes a good choice although Litespan is also popular. Roger Huber used Silkspan.

Downloadable decal outlines available on-line at <http://www.aerodromerc.com/decals.htm>

WHEELS

Gluing the ply sides on the 1/4" balsa core makes the basis for the wheels. Use the brass hub for alignment. Epoxy the hubs in place and add a sufficient amount of epoxy around the base of the hub to reinforce the connection of the hub to the ply. Plywood reinforcing hubs are provided that are to slip over the brass tubing as shown. Alternatively, gluing an additional 1/2" square piece of scrap 1/8" balsa with a hole drilled in the center can be substituted. Next, CA glue the neoprene cording together to form a "tire". Use thin CA sparingly as the CA bonds very aggressively to the rubber. Press the CA wetted ends together for an instant bond. The best way to align the ends is to glue them while they are in place on the wheel. Then attach the tires to the wheels and CA in place. A thin bead of CA around the rim makes for a secure tire. Paper cones are cut out. Use a ballpoint pen to score each line on the back to make an impression of "spokes". It is helpful to do this operation on a paper tablet so that the

pen makes a good crease. Fold the paper along the crease lines to exaggerate the raised lines. One of the sections forming a wedge is cut out. Make cuts to the center of the circle along a pair of the spokes. Close the paper cutout to form a cone and tape the joint inside the cone.



Wheel Detail

The inside cones may now be attached to the wheels. The outside cones may be attached at this point if wheel collars are to be used. Alternatively, after installing the wheels on the landing gear, a washer may be soldered to hold the wheel in place and then the cone is attached. This method makes a very nice scale appearance.

INSTALLING THE RADIO CONTROL GEAR

Aileron Servos

Aileron servos are mounted in wing and attached with short threaded rods to the ailerons. Use a "Y" wiring harness connector to wire the servos to a single radio connection. If differential aileron throws are desired, rotate each servo horn forward about 20 degrees, while maintaining the neutral position of the aileron. This should counter any adverse aileron yaw.

Battery Tray

After all the above has been placed, mount the battery tray made from 1/8" balsa and use the battery position to balance the model as shown on the plan.

ASSEMBLY

Wing

Using Locating Dowels and Aligning Wing Panels



Bottom Wing Aligning

The first task is to epoxy the lower wings accurately onto the fuselage. Use 5-minute epoxy for this task. Apply epoxy to the wing rib that meets the fuselage. Attach the wings to the fuselage. Use the locating dowels to assist with aligning the wing panels. Allow epoxy to set. In this photo, Gary Germain has used nylon nuts and bolts. He wanted a removable wing set. While not necessary, they are a fine detail. After the lower wings are attached, the struts are inserted. Use music wire lashed with Kevlar thread and CA glued to the laser cut ply cabane struts as strengtheners and attachment points to be epoxied into hard bass blocks in the top wings. The top wing is added and epoxied in place.

Fitting Tail Surfaces

The horizontal stabilizer is in two halves and has tabs that fit into slots in the side of the fuselage. Insert the two halves, and dry fit the elevator using CA hinges. The elevator serves as an alignment tool so that the horizontal stab can be CA glued in place. The vertical stabilizer also fits into a slot in the top of the fuselage formed in F7.

Control Horns On The Pushrod Ends

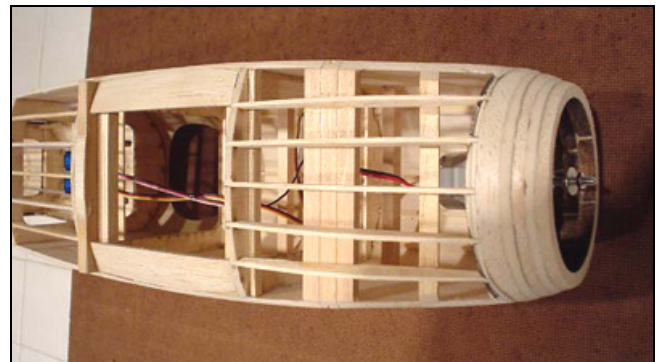
Slip the control horns onto the wire pushrod ends and, with both the servos and the control surfaces centered, glue the horns into their slots.

Fitting the Rigging Wires

Use strong thread or Kevlar fishing line or elastic beading cord to simulate rigging wires. Use small screws, fishing hook eyes, straight pinheads or small eyelets to attach the lines. While not technically required these wires can add a degree of strength to your model. Windsock Datafiles "Albatros Fighters" publication has details on placement and markings. Available at <http://www.airplanebooks.com/>

Battery hatch

Fashion a battery hatch from soft balsa.



Battery Hatch Location

Balancing The Model

Balance the model at the point shown. It is best to position the battery to do this operation.

FLYING

Gary Germain: "First of all let me say that your Albatros DIII is one of the best-engineered kits I've ever assembled; and I've built dozens of planes over 30 years in and out of the hobby. I'd never built or flown a bi-plane before and had little experience with scale models. I'm using a GWS 300C-C BB. The 5.33:1 ratio and a 10X7 APC prop work well with the 8X800 mAh NiMH battery pack. I tried 7 cells but I didn't have any reserve power. With 8 cells I only use full throttle for takeoff and the occasional aerobatic manoeuvre. I'm getting over 9-minute flights with this set-up and a plane that weighs in at 21 oz after trimming the CG. The plane flies beautifully and looks extremely realistic for such a small plane now that I have it properly trimmed and have the surface movements adjusted."

The model should ROG on pavement or hard surfaces. On grass, the model may require hand launching. Be careful that your hand or fingers do not catch on the lower rigging. Launch firmly and level.



Finished Model by Gary Germain

The tail surfaces should not need excessive throws. Let the model gain altitude slowly off the runway. Applying too much up elevator at slow speeds risks a stall. Make your turns gently as tight turns risk tip stalling in any model. Don't expect the elevator to make the model climb. Think of the elevator as a device to change the attitude of the model. The wing and airspeed ultimately make the model climb. Often down elevator applied at stalling can avoid a major crash. The most important details for proper flight operations are:

- 1) CG location. Tail-heavy models never fly well or at all.
- 2) Down and right thrust
- 3) Straight and non-warped wings.

CONTACT INFORMATION

Distributed by:
 Bengtson Company
 e-mail: sales@aerodromerc.com
 Web Site: www.aerodromerc.com