

HALBERSTADT DIII 36''

R/C Scale Model Instructions



CONTACT INFORMATION

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HALBERSTADT DIII 36"

Thank you for purchasing the Halberstadt DII model plans for electric flight.



Finished Model BY Dave Ottney

The first single-seat scout product of the Halberstadter Flugzeug-Werke was the 100 h.p. Mercedes-engined D.I of late 1915. This was an orthodox slab-sided, two-bay aircraft typical of its period, with a flush-type radiator located in the starboard side of the center-section panel and a claw brake mounted in the center of the axle. The D.I was subsequently modified by installing a 120 h.p. Argus As.II engine which was completely cowled in behind a car-type radiator, with an ungainly exhaust manifold ejecting over the top wing. In 1916 the aircraft was again re-engined with the 120 h.p. Mercedes D.II, and in this form it went into production as the D II to supplement the Fokker D type biplanes, which were then replacing the obsolescent Fokker monoplanes. The Halberstadt D.II was a neat little aeroplane and its two bay wing structure made it exceedingly strong. Relatively few D.IIs and D.IIIIs were built, though some were constructed under license by Hannoversche Waggonfabrik. The report of the Inter-Allied Commission after the Armistice recorded that 100 Halberstadt D.II and D.IIIIs were at the Front in January 1917. They were supplied initially to the Kampfeinsatzkommandos serving with the Fl. AN. reconnaissance units for protection duties. However, with the formation of the first Jastas in the late summer of 1916 they joined the Fokker D IIIIs and D IVs, and some of the first Albatros D Is, to form a motley, composite equipage for these units. By the end of 1916 the Halberstadt D.II and D.III had become obsolescent and were largely withdrawn from the Western Front or relegated to quieter sectors. However, while on operations they were able to give a good account of

themselves and were certainly respected by their Allied adversaries.

THE MODEL

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

POWER SET UP

The model can be set up to be powered by the GWS 300C motor and the D gearbox and a 10x4.7 APC prop. Battery power pack can be 7 600maH Nicads or an equivalent weight Nimh

R/C GEAR

A four function mini receiver and four micro servos are all that are required.

SPECIFICATIONS

More than 160 laser cut parts

Scale:	~1/9
Channels:	R/E/A/T
Wingspan:	36"
Wing Area:	401 sq in
Weight:	23 oz ready to fly
Power System:	GWS 300C with D gearbox
Prop:	10x7
Wheels:	Balsa and plywood with Neoprene tires
Airfoil Type:	Flat bottomed
Cowl:	N/A
Spinner:	N/A
Covering:	Balsa and Litespan or Polyspan
Decals:	Available on the website
Prototype By:	Dave Ottney

BUILDING THE MODEL

BEFORE STARTING

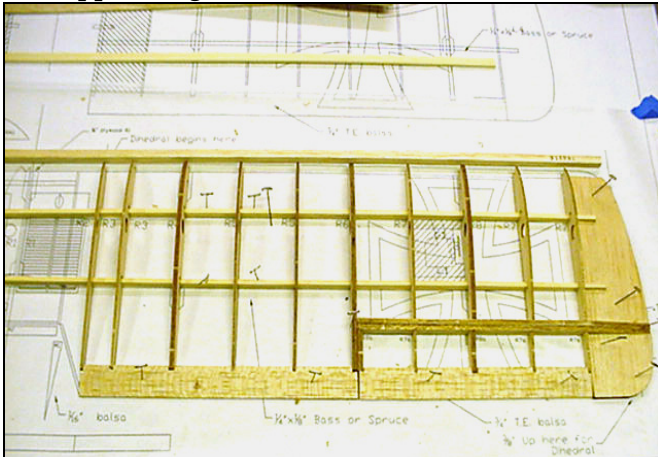
A note about the photos: The photos were taken of a prototype and the parts supplied may look slightly different from them. However, the concepts illustrated are the same.

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 Construction Detail

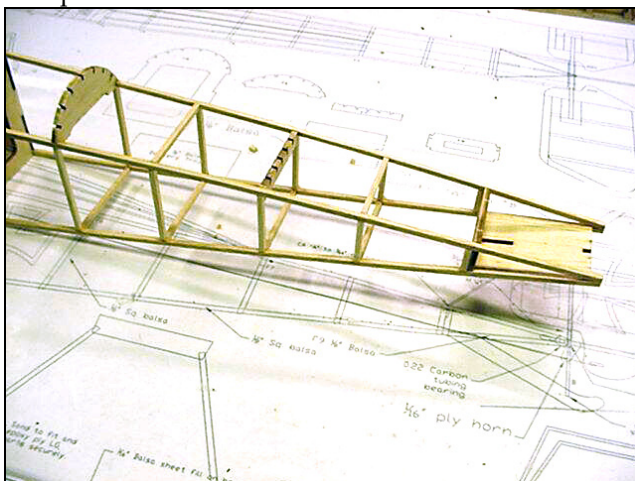
FUSELAGE CONSTRUCTION

The fuselage is built as two separate box structures, the front sheet area and the rear built up section, 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

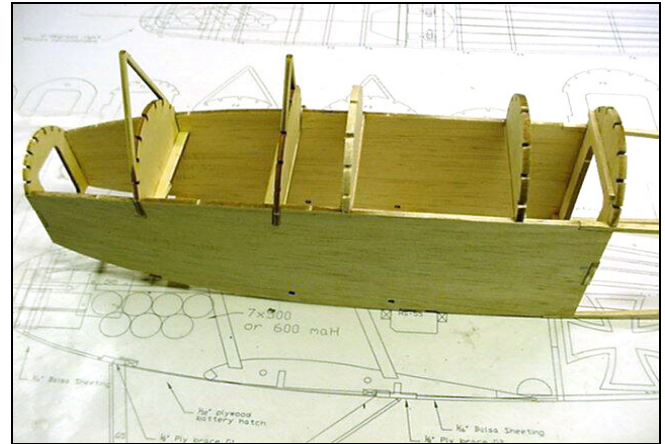
Begin by building two rear fuselage frames over the plan and allow to dry. Select hard balsa or basswood for the longerons. Build one frame and let it dry, then turn this over and build the other frame on top of it. Now they should both be identical. Use some thin polyethylene sheet between the assemblies to prevent them sticking either to the plan or to each other.

Join the two frames over the plan with cross braces and the tailskid mount. Check, check and check again that this and All other structures remain perfectly straight and square.



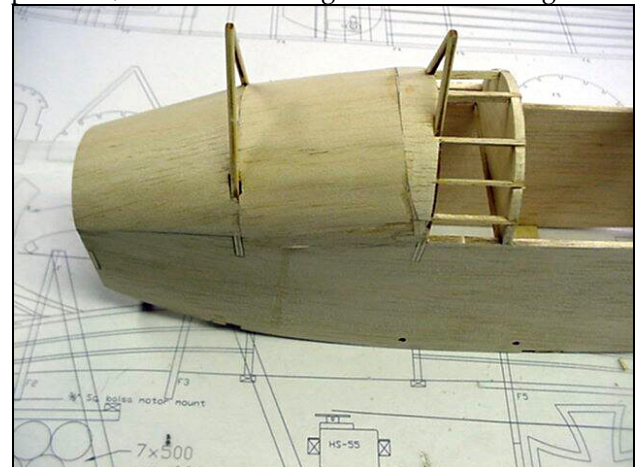
Fuselage Construction Detail

Strengthen the triangular sections of the formers with thin CA.



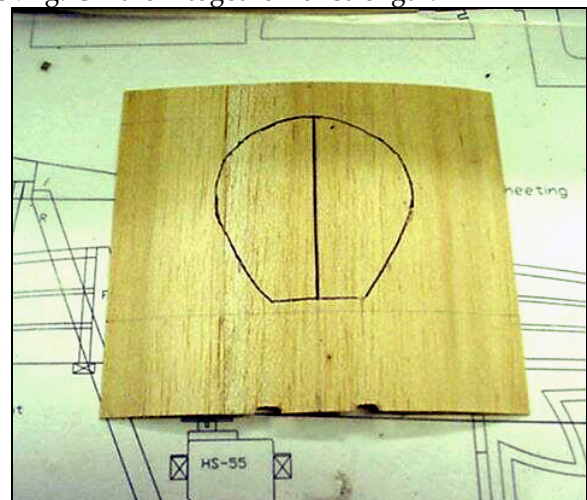
Fuselage Construction Detail

Optional 1/32" balsa sheeting shown over stringers.



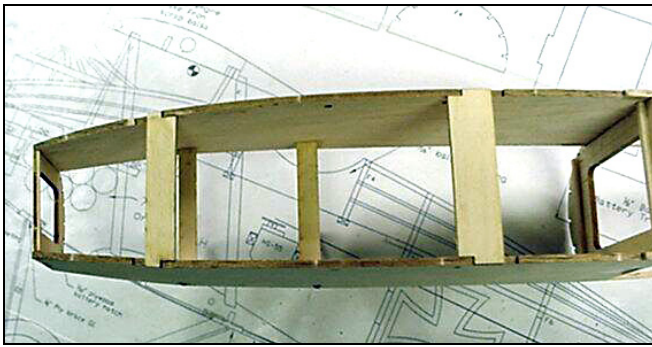
Fuselage Construction Detail

Here 2 lams of 1/32" balsa are used to make the cockpit decking. CA them together for strength.



Cockpit Decking Detail

Adding the Undercarriage Plates

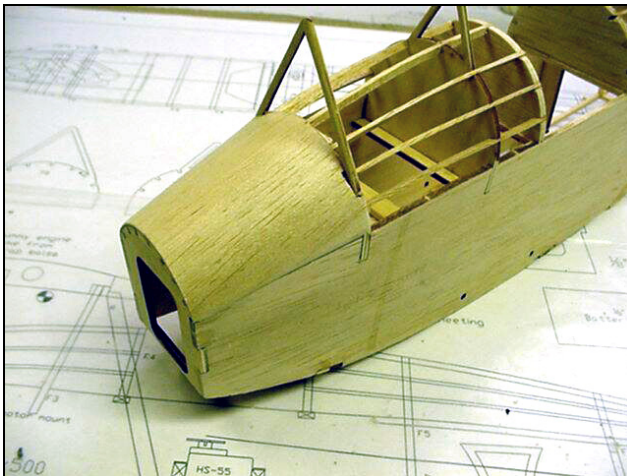


Undercarriage Construction Detail

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

Adding the Decking

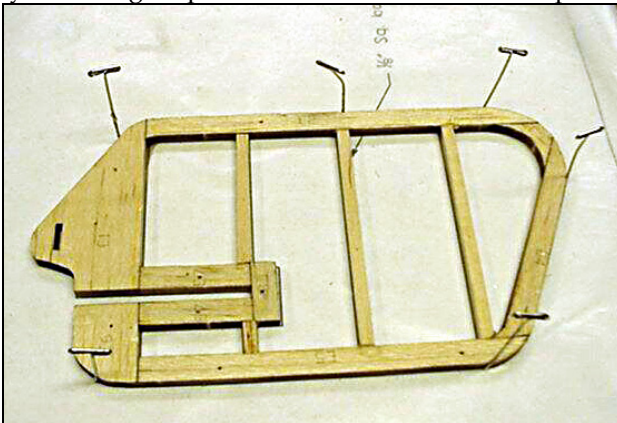
Add all the stringers and formers, and carefully trim to size and fit 1/32" sheeting (sheeting is optional).



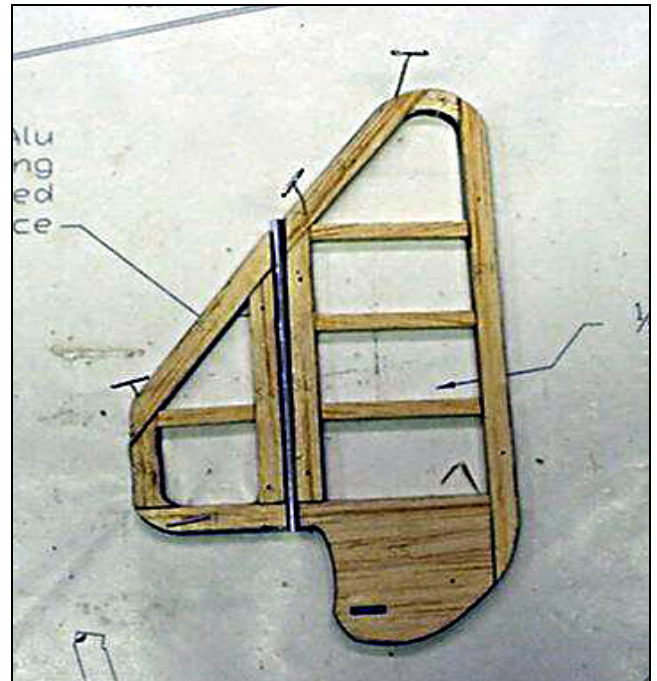
Decking Construction Detail

TAIL SURFACES

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



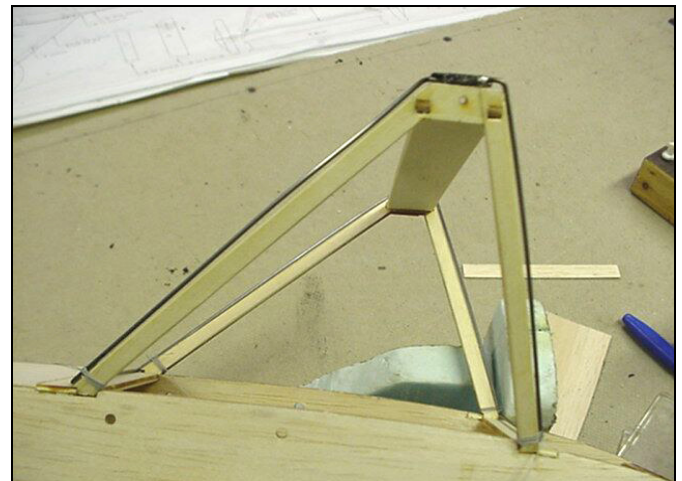
Tail Surface Construction Detail



Tail Surface Construction Detail

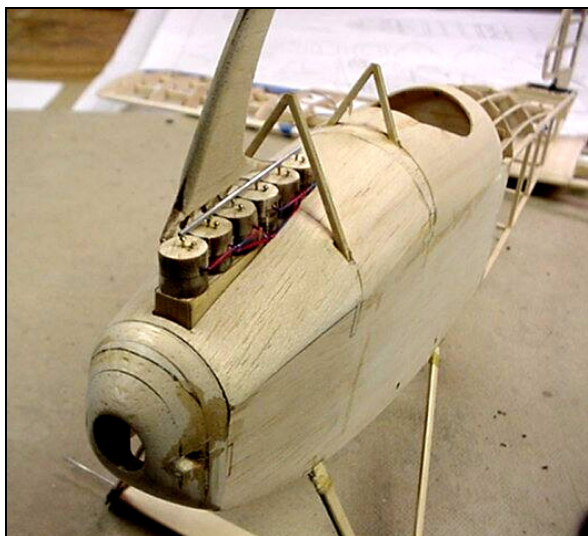
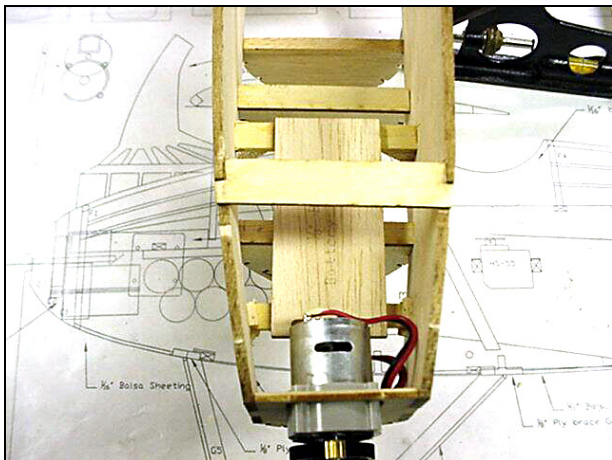
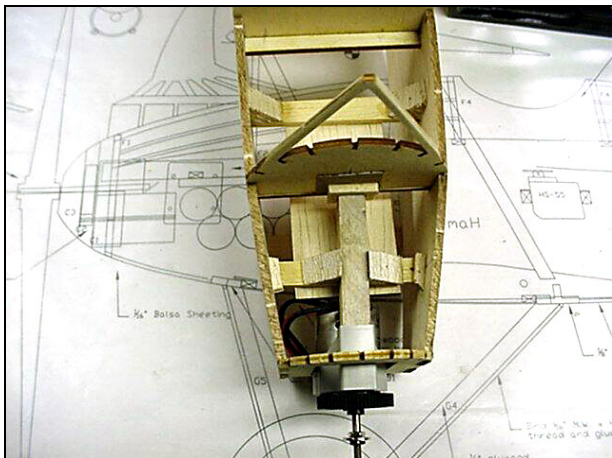
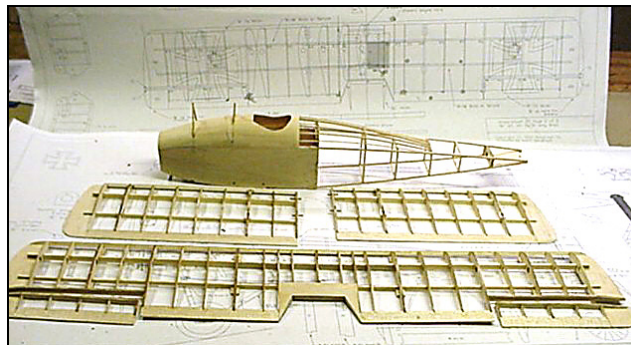
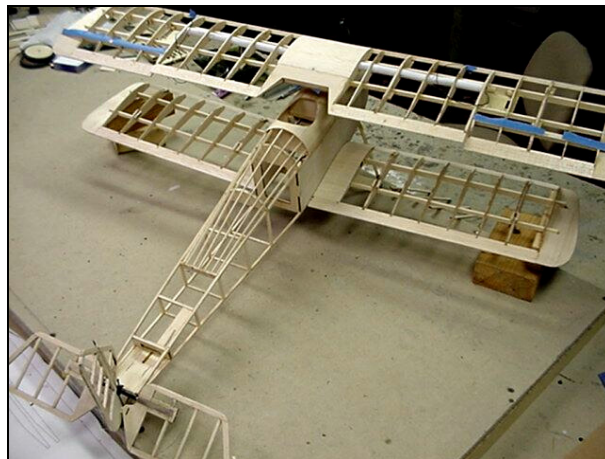
Join the elevators with the 1/8" dowel jointer that is inserted into the carbon tube bearing. Sand the tail parts, rounding off all edges. Don't add the horns or hinge the surfaces until after covering is complete.

LANDING GEAR

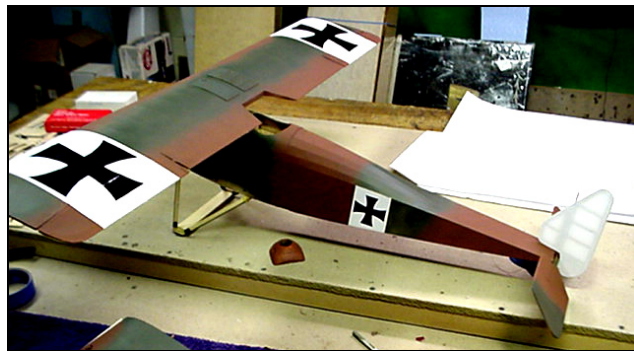


Landing Gear Construction Detail

Assemble ply landing gear parts and use them as templates for bending music wire reinforcements. CA strengthen the ply portions for strength. Secure the structure with kevlar thread. Attach landing gear to fuselage with kevlar thread.

DUMMY MOTOR**Dummy Motor Detail****MOTOR****Motor Mount Detail****Motor Mount Detail****COVERING****Assembled Wings and Fuselage Ready To Fit****Assembled Components Test Fit**

Test fit components for proper fit before covering
 Any lightweight covering material can be used.
 Polyspan makes a good choice Litespan is also popular.
 This prototype was covered in Coverlite
 Downloadable decal outlines are available on-line at
<http://www.aerodromerc.com/decals.htm>

**Painting In Progress****WHEELS**

Gluing the ply sides on the $\frac{1}{4}$ " 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 ball point 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.

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.



Wheel Construction Detail

INSTALLING THE RADIO CONTROL GEAR

Servo Bay

It is as well to get the bulk of your R/C gear fitted at this stage, and also the motor.

Battery Tray

After all the above has been placed, mount the battery tray and use the battery position to balance the model as shown on the plan.

ASSEMBLY

WING

Using Locating Dowels and Aligning Wing Panels

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.

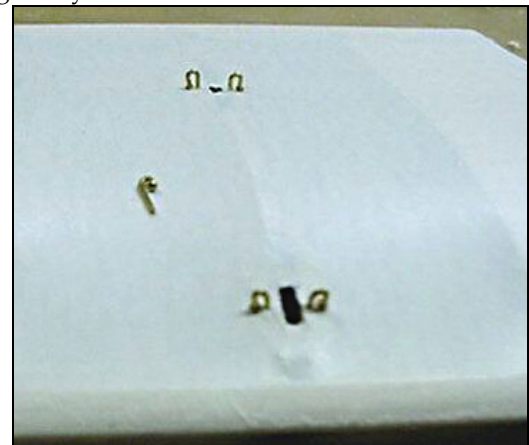
After the lower wings are attached, the struts are inserted. The top wing is added and epoxied in place. The triangular formers aid in getting the wing incidence accurately placed.

Fitting Tail Surfaces

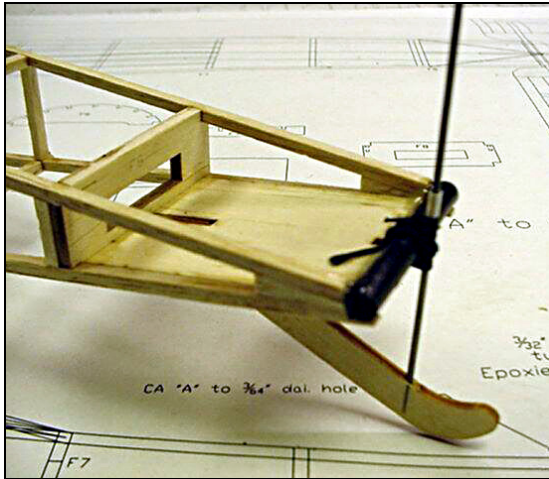
Slip the control horns onto the wire pushrod ends and, with both the servos and the control surfaces centered, glue the horns into their slots.

Fitting the Rigging Posts and Guy Wires

Use strong thread or Kevlar fishing line or elastic beading cording to simulate rigging wires. Use small screws, fishing hook eyes, straight pinheads or small eyelets to attach the lines to the mounting crosspieces placed in the wing during assembly. While not technically required these wires can add a degree of strength to your model



Construction Detail



Tail Skid Construction Detail

BALANCING THE MODEL

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

FLYING

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. While the tail surfaces are small, they should not need excessive throws. Let the model gain altitude slowly off the runway. Applying too much up elevator at slow speeds asks for 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.

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