



Jodel D-9 Bebe

by Laddie
Mikulasko


An electric-powered RC version of the French light home-built

FOR MANY YEARS, I set my sights on building a scale model of the famous French home-built Jodel D.9 Bébé. It has a long history. Eduardo Joly and Jean Delemontez began building the prototype in 1946. The name “Jodel” was derived from a combination of their names.

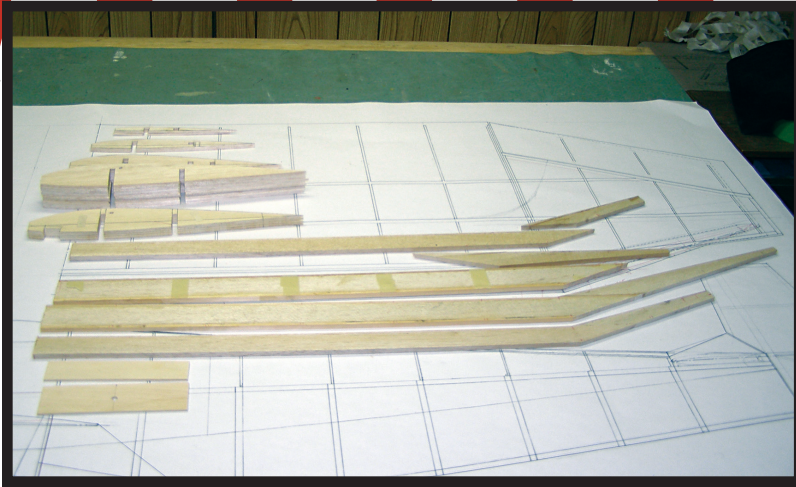
The pair started constructing the airplane without plans; they drew the individual parts’ shapes directly onto the wood. The D.9 was first flown in 1948 with an old 19-horsepower Poinard engine and showed excellent flying qualities. It soon became the most popular home-built in Europe, and then its popularity spread around the world.

More than 5,000 D.9s have been built from plans or kits, and many are constructed to this day. The D.9 was a starting point in the series of the manufacturers’ designs. The Jodel Company was eventually formed, and all of the additional designs were produced. A Volkswagen engine powered most of the early airplanes.

A beautifully painted D.9 that Bernard Schacknowski of Paris, Illinois, built in 1963 motivated me to build the model. His was one of the first, if not *the* first, of those aircraft constructed in the US. He streamlined the airplane’s nose by enclosing the Continental A-40 engine.



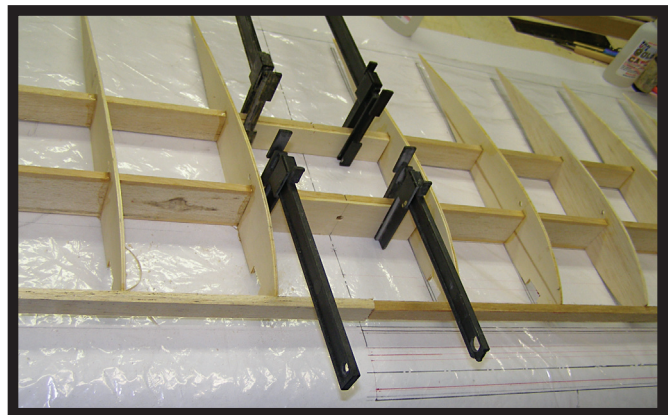
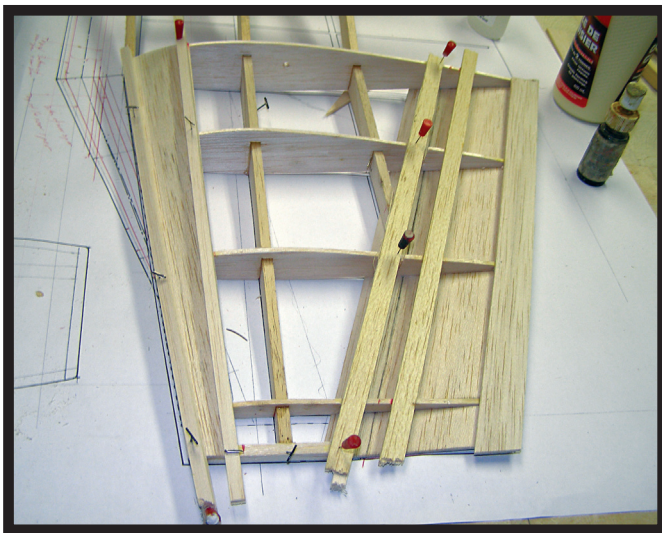
As is the full-scale version, this 1/4-scale Jodel D-9 Bebe is a sweetheart on landing.



Above: All ribs are cut out, and the main and auxiliary spars are in the process of construction. The wing is built with a left and right half.



Right: The ribs for the left half of the wing are glued to the spars. Drill holes for the aileron flexible cable or for pulling the extension cable for the aileron servo.



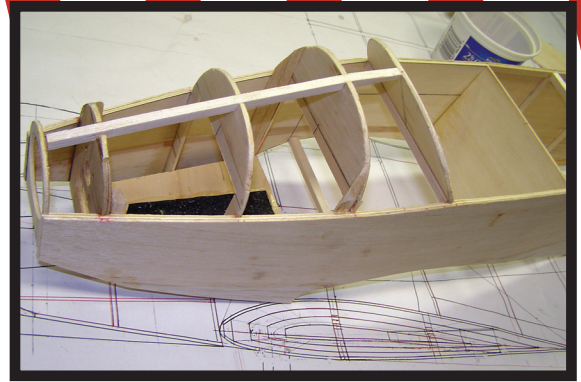
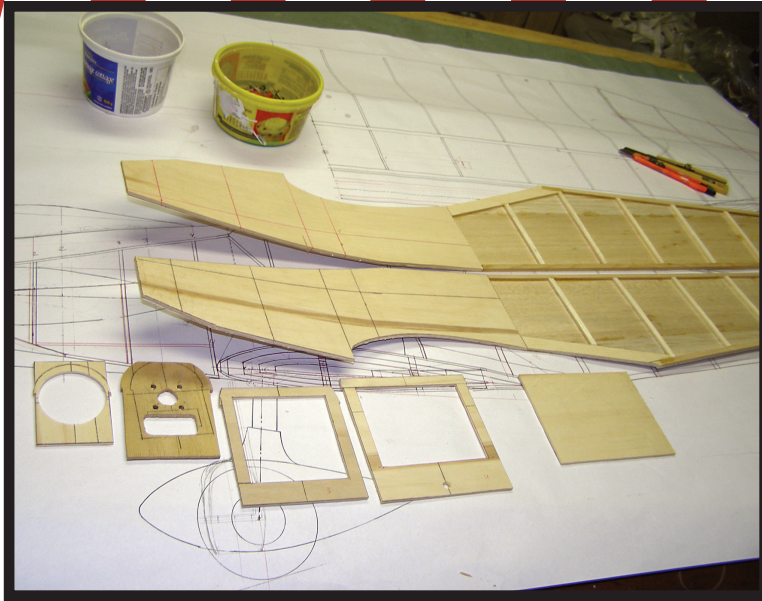
The wing halves are joined with plywood joiners. Notice that the location of the ribs is marked onto the spars.

Bottom aileron sheeting is glued to the ribs and the spar. The wingtip's top LE is adhered to the ribs and to the LE.



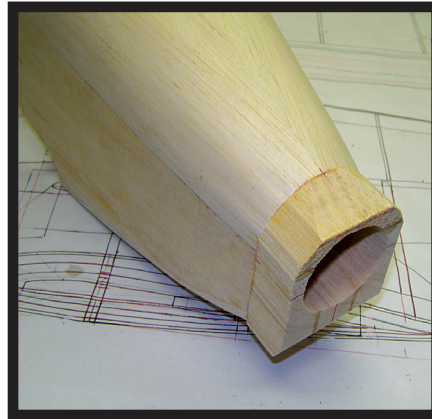
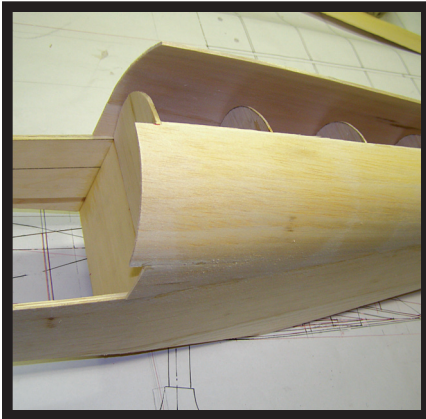
Above: The top TE is glued to the ribs. The hardwood landing gear block is glued to the ribs. Pre-drill the block for the 5/32-inch-diameter piano wire.

Left: Hardwood blocks for wing bolts are glued in. Sand the edge on this spar so that it follows the contour of the ribs.



Above: The fuselage is built upside-down and then top formers are glued on. Some formers are in two sections.

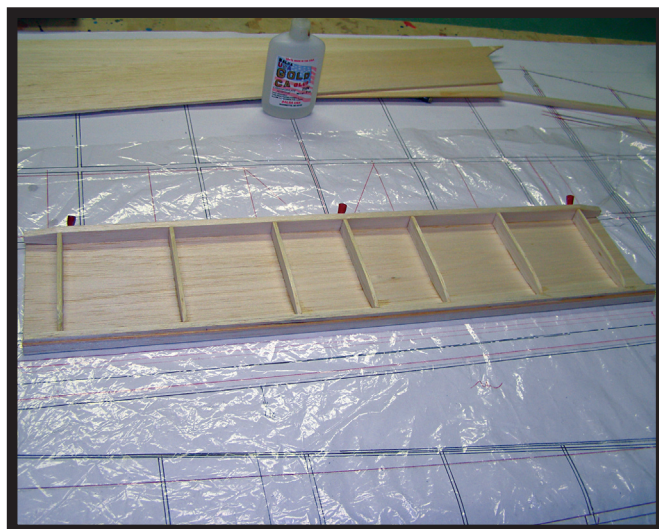
Left: Longerons and uprights are glued to the fuselage sides. The doubler is glued to the fuselage side. To get the bend, place shims under the fuselage sides while the glue is drying.



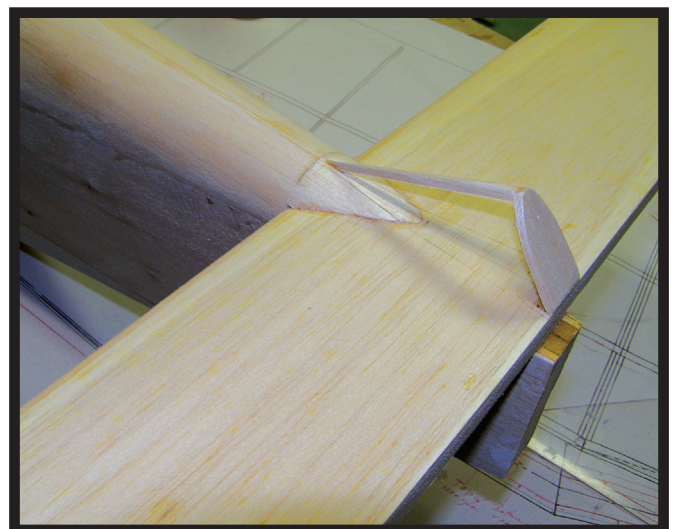
Use your favorite method to soften the sheeting in preparation for molding around the formers. It's time well spent.

Notice the large opening in front for the motor to go through. Consult the plans for the correct contour shape of the nose block.

The cheeks for the engine cowl are fabricated from balsa blocks. Making them identical can be tricky; take your time and use the plans as a template.

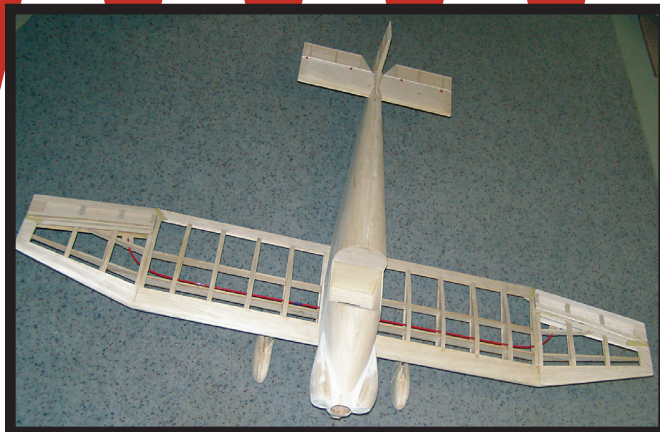
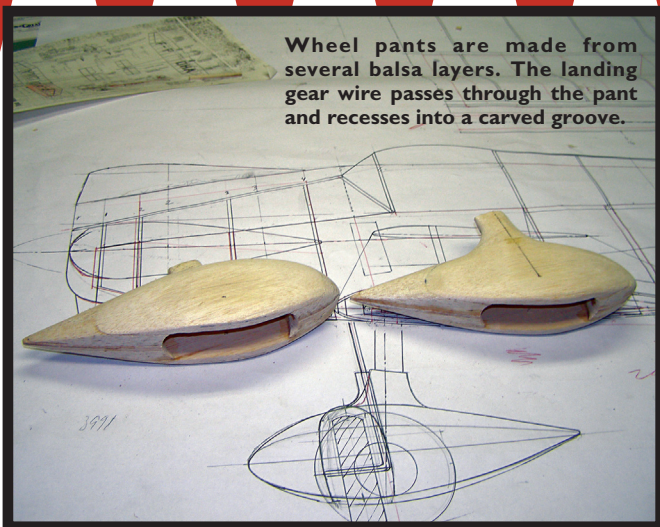


Stabilizer construction is simple, with ribs between the hinge spar and LE with sheeting top and bottom.

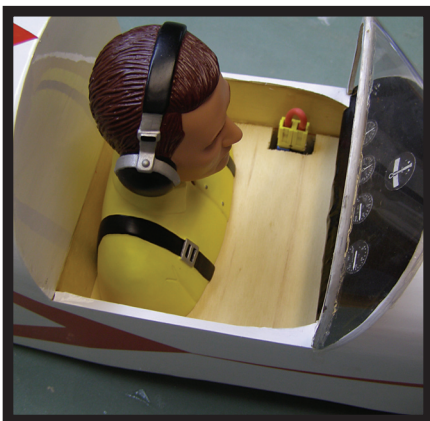


Once the stabilizer is glued to the fuselage, the rudder subfin can be constructed. Fill with sheeting and sand to a contour.

Wheel pants are made from several balsa layers. The landing gear wire passes through the pant and recesses into a carved groove.



The model is ready for covering. Lightweight filler is used to finish the shape of the cowl cheeks.



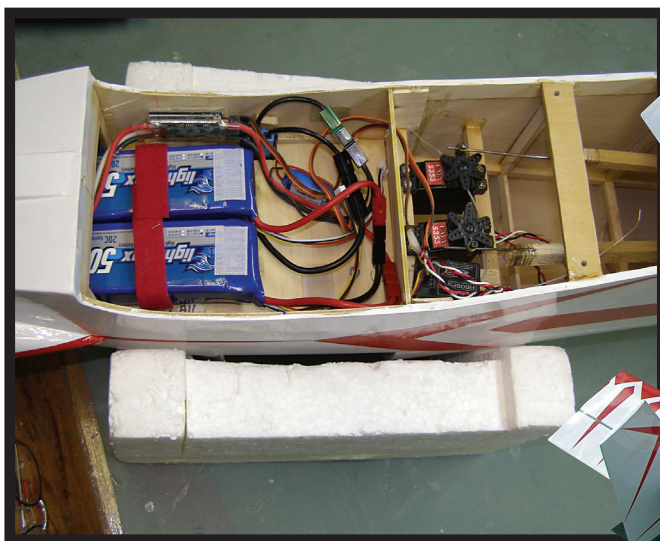
A 1/4-scale pilot can be trimmed to suit the open cockpit. A full canopy is another option. The open version hides a motor arming plug.



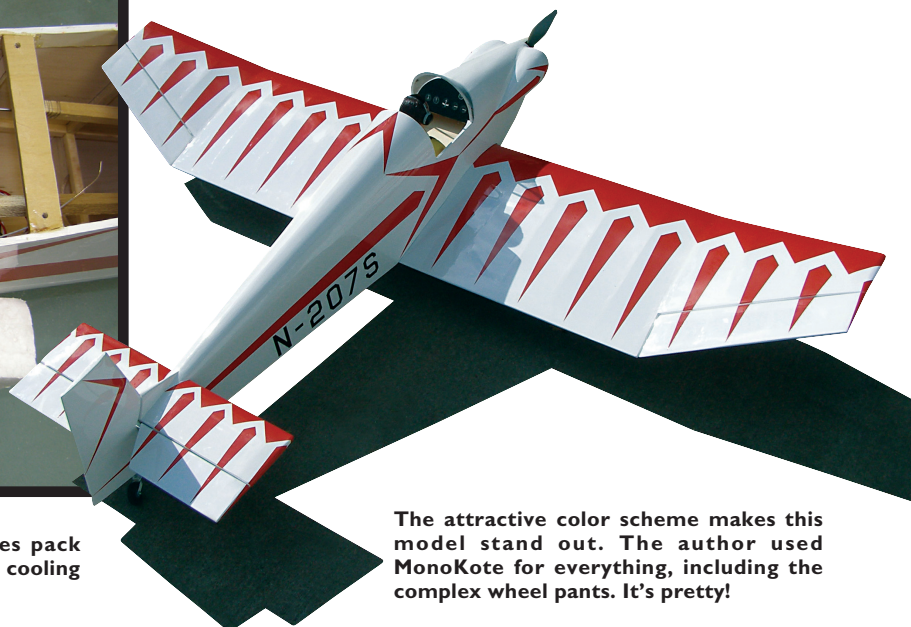
An AXI 4120/18 outrunner motor running on a 6S pack is equivalent to a .46-size two-stroke engine. An approximately 12 x 8 propeller works for this setup.



The author constructed a homemade tail wheel assembly to replicate the full-scale aircraft's. Conventional pushrods make radio setup easy.



The battery platform best accommodates a series pack installation. The large fuselage has provided enough cooling for the electronics.



The attractive color scheme makes this model stand out. The author used MonoKote for everything, including the complex wheel pants. It's pretty!

With more than 800 square inches of wing area, the Jodel is a floater with a flying weight of just 6.5 pounds.



The scale color scheme is visible from underneath. Trim outlines are the same on the top and bottom.



The Bebe is stable and capable of loops and rolls. On landing, it responds well to necessary corrections.



The author's model represents a beautifully painted D.9 that Bernard Schacknowski of Paris IL built in 1963.



Type: 1/4 scale

Skill level: Average

Wingspan: 69 inches

Wing area: 833 square inches

Length: 52.5 inches

Weight: 6.5 pounds

Power: AXI 4120/18 motor
or .46 glow engine

Radio: Four- to six-channel system, three to four standard servos

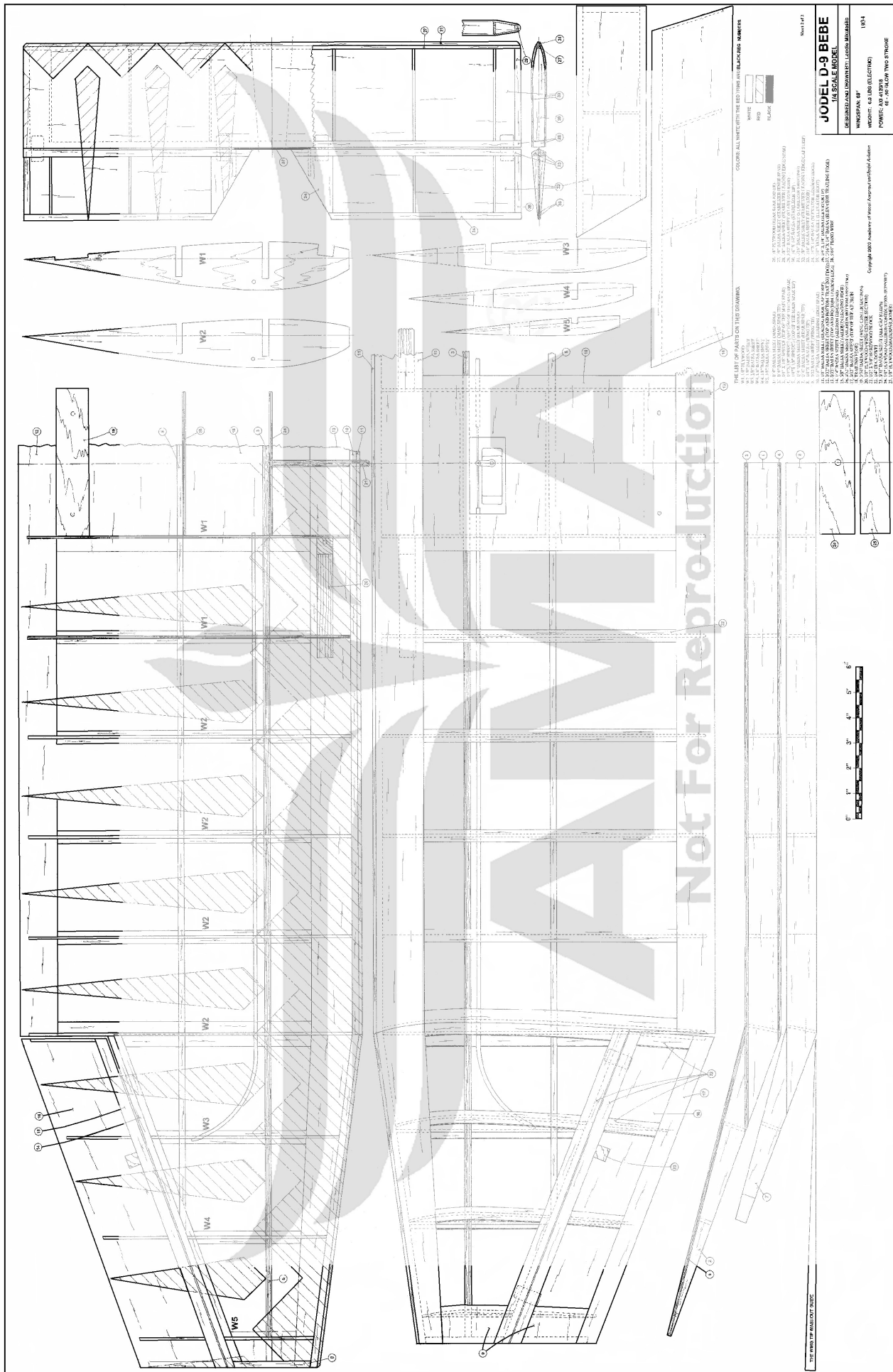
Construction: Balsa and plywood, wire landing gear

Finish: Jet White and True Red MonoKote

Power: Six-cell 3000-5000 mAh Li-Poly, Jeti 77 Opto ESC

Jodel D-9 Bebe





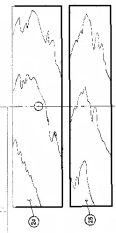
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COLORS ALL MATCH WITH THE RED LINE AND BLACK LINE NUMBERS

- WHITE
- RED
- BLACK

Model 147
JODEL D-9 BEBE
 1/16 SCALE MODEL
 MANUFACTURED BY: LODEL MANUFACTURING
 WINDSPAN: 63.0 (24.41)
 WEIGHT: 10.0 (3.52)
 POWER: 1/8 HP (0.0746 KW) TWO STROKE



I decided to build the model to 1/4 scale. It is of simple construction, using balsa, plywood, and spruce. I powered my version with a motor. I knew that the airplane would fly great, and I was not disappointed.

Steering on the ground is excellent. When power is applied, the model tracks straight and becomes airborne in no time. Only a bit of down-trim on the first flight was required. My D.9 is stable and is capable of loops and rolls. On landing, it responds well to necessary corrections. I am extremely pleased with it.

CONSTRUCTION

All the pieces on the plans are numbered from 1 to 71, and the ribs and formers are identified with letters.

Wing: The wing is built in a left and a right half. Cut all the ribs; do W3, W4, and W5 in one piece.

Drill holes for the aileron flexible cable or for pulling the extension cable for the aileron servo. Cut out the main spar and rear spar. To reinforce the main spar (1), glue the spruce spars (3 and 4) to it. To reinforce the main spar tip (2), adhere the spruce spar (5) to it. Bond the tip spar to the main spar. Glue the tip (7) to the rear spar (6).

Mark the location of the ribs onto the spars. Slide ribs W1 and W2 onto the spars. Place the 1/8-inch shim under the rear spar. Pin and adhere the ribs to the spars. Attach the LE to the ribs. Lift the wing, and pin the wingtip spars to the building board. Glue ribs W3, W4, and W5 to the spars.

Adhere the wingtip LE to the ribs. Bond the 1/4 x 1/4 balsa tip (8) to the spar and to the LE. Slide the aileron bottom sheet (16) under the ribs, and slide the wingtip washout guide under that sheet.

Glue the ribs to the bottom sheeting (16). Attach the top LE and TE sheeting to the wingtip. Glue the capstrips (22) to ribs W3-W5, where the aileron hinge spar and aileron LE spar are going to be adhered.

Separate the aileron from the wingtip by cutting it off at the marked lines drawn on ribs W3-W5. Join the hinge spar (14) to the ribs. Glue the LE (15) to the aileron. Glue the capstrips to the ribs.

Attach the plywood plate (23) between ribs W3 and W4, to support the aileron horn. Slide flexible rod for the aileron control into the holes in the ribs. Remove the wing from the building board.

Use the same steps to build the other wing half. When both are completed, pin them to the building board so that the spars are touching. Adhere the plywood joiner piece (24) to the main spars and the joiner piece (25) to the rear spars.

Glue both the bottom and top TE sheeting (12) to all W1 and W2 ribs. Adhere the LE spar (10) to ribs W1 and W2. Sand the edge of this spar so it follows the ribs' contour. Bond the top LE sheeting (13) to all of the ribs.

Insert and glue the landing gear hardwood blocks (20) to ribs W1. Attach the bottom LE sheeting to all of the ribs. Glue in the wing-bolt-support plywood piece (19) to the W1 ribs. Adhere the servo tray in the center of the wing. Join sheeting (18) to the W1 ribs. Glue on the LE capstrip (11).

Sand the wing. Insert and glue in the dowel (21).

Stabilizer and Elevator: Pin the hinge spar (26) to the building board. Pin and glue all stabilizer ribs to the spar. Bond the LE spar (27) to the ribs. Glue the 1/4 balsa square stick (29) between the hinge

spar and the LE at the tips.

Attach the top sheeting (30). Glue on the bottom sheeting (30). Adhere the LE capstrip (31) to the stabilizer. Sand the stabilizer.

Cut the elevators (32) from 1/16 balsa. Glue the LE (33) and TE (36) to one side of the elevator sheet (32). Glue in the ribs and 1/4 balsa sheet (34 and 35). Sand that side. Flip the elevator, and glue the same items to that side; sand that side.

Fuselage and Rudder: Cut out as many parts as possible; notice that some formers are in two sections. The bottom is plywood and the top is balsa. This was done so that when the fuselage is being built upside-down, formers F2, F3, F4, F7, and F8 can touch the building board.

Former F2 is showing the motor mounting holes for the AXi, from Hobby Lobby, that I am using. You might need to modify the mounting to suit your setup.

Adhere the doublers (41) to the fuselage side (40). Glue on the longeron (42 and 43) and all of the uprights (44) to the fuselage sides. Pin the fuselage sides to the building board.

Insert and glue in formers F4 and F8. Use the squares to position everything accurately. Glue in former F8 and all crossbraces (45).

At the aft end, glue in the rudder-hinge support block (48). Glue in formers F3, F2, and F1.

Adhere the battery floor (56) and the cockpit floor (57). In the nose section, attach the fuselage bottom (51) and the balsa block (53). Glue the plywood plate (58) between the fuselage sides.

Flip the fuselage right-side up, and glue on formers F2A, F3A, F4A, F5, F7A, F8A, and F9-F14. Adhere the top longerons (46 and 47). Glue the top sheeting (50) over formers F1-F5. Glue on the rear top sheeting (49). Join the nose block (54) to the fuselage, and then sand that structure.

Cut the cowl's cheeks (55) from the balsa blocks. Sand them and then adhere them to the fuselage sides. Bond the air scoop (52) to the bottom of the cowl. Fill in imperfections with lightweight filler and sand them.

Glue the stabilizer to the fuselage. Glue subfin former F15 to the stabilizer, and then attach the balsa sides (65) to this former and to the stabilizer.

Cut the rudder from 1/16 sheet (59); glue the hinge spar (60) to it. Adhere the LE (61)

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and TE (62) to the rudder sheet. Glue in ribs R1-R5. Sand this side of the rudder. Flip the rudder onto the other side, and glue in the identical parts to that side.

At the bottom, glue in the plywood plate (63). Glue in a plywood plate (64) to one side of the rudder, to hold the rudder control horn.

Bend $\frac{1}{16}$ - or $\frac{3}{32}$ -inch-diameter piano wire to make the leg for the tail wheel. Drill the hole in the hinge spar (60) and insert the tail-wheel wire. Wrap a piece of fiberglass around the wire and the rudder spar. Use instant glue to bond the fiberglass to the hinge spar.

Wheel Pants and Landing Gear: The wheel pants are made from four parts, one of which (66 and 67) has the shape of wheel pants, including the leg. The second pair of parts (66 and 67) has the shape without the legs.

Cut the shapes of the wheel pants. In the part (66), cut out the wheel well. Glue two (66) parts and glue them to each other. Adhere parts (67) to both sides of (66) parts.

Drill a hole for the landing gear axle. Sand the wheel pants to the shape as shown on the drawing. At the back of the wheel pants part (67) cowl, cut and make the groove for accepting landing gear wire (69).

Bend and cut the $\frac{5}{32}$ -inch-diameter piano wire to the proper shape and length. Insert the wire into the groove in the wheel pants for a trial fit. If satisfied, remove the wire from the wheel pants. The landing gear wire will be permanently installed after the wheel pants are finish-covered.

Final Assembly: Cover the model with your favorite material; I used MonoKote. Install the hinges, controls, and motor. I mounted my AXi with four Allen-head screws that hold it in from the back, using a long-handle screwdriver.

When installing the motor, the speed controller is already connected to it. I used a Jeti 77 Opto ESC from Hobby Lobby, modified with a Castle Creations CC BEC.

For safety's sake, I installed an arming plug in series with the battery that is accessible from the cockpit. Without this plug in, there is no power to the speed controller and motor. I urge you to use this setup for the D.9 and all other larger models you have.

I reviewed this model's flight at the beginning of the article.

Good luck! **MA**

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Sources:

The Jodel Company
www.jodel.com

Hobby Lobby International
(866) 512-1444
www.hobby-lobby.com

Top Flite MonoKote
(217) 398-8970
www.monokote.com

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