

RB Kits

“Pou du Ciel”

Construction of the Pou du Ciel

Use CA glue for all joints.

Use a light covering such as micafilm or litespan and don't shrink it too tight, as the light wingstructure will easily deform.

Wings:

Note that each wing has two dihedral breaks at rib position W3. Therefore the leading edge dowel and the leading edge sheeting has to be made in parts, shaped, and joined at the dihedral break.

The wingribs have subtle differences, it is best to mark the part numbers on them before cutting them loose from the sheets.

Front wing:

Construct the mainspar by joining parts FM1, and the secondary spar is made from parts FM2. Place the ribs as per plan. Place leading edge (3 parts) and trailing edge. Construct wingtip from parts W10,W11 and butt join to leading and trailing edge. Add top sheeting from 1,5mm balsa (3 pieces). Add parts W6 and W7, and the front wing is ready for covering.

Rear wing:

Use the same sequence as for the front wing, using parts RM1 and RM2 for main and 2nd spar respectively. The sheeting is made in 5 parts, as shown on the drawing.

Add parts W8 and W9(do not forget the self-clinching M4 nut) Push the 4mm dowels through the spar and glue to ribs W0, test fit part F11 before glueing. Place scrap filler pieces against W2A for smooth fuselage fitting. The rear wing is now also ready for covering.

Fuselage:

The fuselage is initially built upside down on the building board.

Glue together parts F19 and pin onto a flat building board. Reinforce F10 with short pieces of 2x6 spruce placed on either side of the servo hole and pre drill to take the servo mounting screws.

Slide formers F8, F10 and F12 onto both parts F13, place the whole assembly onto F19, position formers F14, F15 and F16, check for straightness and glue all joints.

Glue the self clinching M4 nut to F7, and glue to F8. Place F6 and F9.

Built up the bottom sheeting from 1,5 mm balsa sheet as per the template on the drawing. Glue the sheeting onto the inverted fuselage, aligning the front with the rear of F6. Make sure it is aligned properly lengthwise. Glue the sheeting piece forward of F6

Remove the fuselage assembly from the building board and glue 2x6 spruce rudder servo rails in position on F13. Lightly sand the edges of F19 and the bottom planking with a sanding block to get the right bevel and sheet the sides with 1,5mm balsa (grain runs vertical).

Place and sand a scrap filling piece at F6 and finish the rear end of the fuselage to a point with a balsa block glued to F16.

Reinforce the frontal opening with 2x10 balsa strips on the inside of the side sheeting and a piece of 2x8 spruce across at the underside of F19, between the 2x10 balsa strips.

Place F18 and cut a hole in the bottom sheeting for the wing mounting bolt (you can fit a tube from paper to guide the wing mounting bolt). Glue F11 to F12, make sure that the “shoulders” rest on F19. Place F17 (F17 contains a small piece of inner (white) cable to act as a bearing for the rudder). Place formers F4 and F5. Reinforce motor bearers MB1 with 2x6 spruce, chamfer inner sides of MB1 to fit the motor and place MB1 onto F19 / F4. Place F3.

Now sheet the top deck of the fuselage with strips of 2x15x150mm balsa, do not forget the openings for the wing cabanes. Make the cowl from F1,F1A and F2 and 0,4mm ply, and make snap retainers from scrap balsa. These retainers will slide inside the frontal fuselage opening and hold the cowl (=battery hatch) in place.

Make the wing cabanes as per plan from 2x8 spruce and part C1, position the cabanes into the fuselage, slide in the wing mounting wire to assist in alignment and glue the cabanes to the fuselage. IMPORTANT: make sure that the wing mounting wire is horizontal, square AND in the right position above the fuselage BEFORE glueing the cabanes !

Rudder:

Make the rudder from the 1,5mm balsa core as per plan and place 2x6 balsa stringer and ribs on one side first, do the other side with ribs also, place T7 and T1, place 2mm inner cable with the top flush with the upper side of the lower T8 and 4 mm protruding through the bottom of the rudder, this is to give sufficient clearance to hook the rudder into F17 Sheet at position of T8 with 1,5mm balsa and cut a slot for the pivot tube.

Laminate the tip and bottom with strips of 1,5mm scrap balsa for strength.

Make a 90 degree bent at the end of a piece of 0,8mm wire. Drill a 0,8mm hole into the middle of the 3,2x20mm plastic tube. Guide the wire through the inner cable and push it through the plastic tube .

Glue the 0,8mm wire into the 3,2mm plastic tube, but make sure that wire and tube remain free to rotate in the inner cable. Also leave enough room for the bearing bush in F17. Cover the rudder and place control horn H2.

Assembly:

If all parts are covered, it's time to assemble the model:

Place wing servo and screw into F10, Place F11, and place rudder servo and make small steering cable opening into fuselage and place steering cable Place rearward wing.

Make the frontwing mounting wire from 2mm mild steel, slide 3,2mm plastic tubes over the wire and bend as per plan (minor adjustments might be necessary), fix the wing mounting wire onto the wing with parts C2 and glue tubes onto C2. Place H1.

Place wing mounting wire into cabane (push the cabanes a little uot to pop the wire in).

Connect steering wire from servo to wing, the wing neutral is set at a negative incidence angle to the fuselage, the trailing edge is higher about 2 mm higher than the leading edge, as measured above F19.

Make the rudder braces from 1,5mm mild steel wire and 2mm scrap balsa as per plan, it is important to make the scrap balsa as tight as possible to the wing so there is a minimum of play between the rudder braces and the rear wing. The length of the two braces should match exactly.

Hook the rudder into F17. Hook the rudder braces into W8 and screw them to the plastic pivot tube with 2,2x6 sheet metal screws as per plan, make sure the rudder moves free and is straight and true to the wing. Bend the rudder pushrod as per plan and install. Trim the rudder neutral slightly to the right as per plan.

Place windscreen with small pieces of double-sided foam tape; do not use CA here as it will fog the clear plastic.

Motor:

Cut off all unnecessary parts from the gearbox and place the motor /gearbox into the Pou with help of rubber bands, the motor might move a little when powering up to full speed. A word of advice: do not use tie-wraps, as the motor will work itself loose from its bearers after a while due to the increased temperature.

Fit the landing gear with light wheels as per plan.

Balance the Pou du Ciel as per plan, the Pou is forgiving on the CG but when nose heavy a higher starting speed is required. Like any other plane, tail heaviness is a no-no.

Flying:

Flying the Pou is easy but it is sensitive on the rudder. Take care not to make the movements too large. Flying thermals is possible, but the Pou doesn't like strong winds.

Recommended equipment:

Motor/Gearbox:	Speed 400 6V 1:1,85 reduction (Graupner or Aeronaut)
Propellor:	Graupner SlimProp 8x4
Batteries:	7 or 8 cells 500 mAh.
R/C gear:	micro receiver and 18gram servo's