

ALDIJ

The Aldij sailplane is designed for general slope and speed (F3F). It is necessary at the time of construction to be very careful and set up all controls without play. Its small size makes it handy without conceding performance. To be able to exploit all slope conditions ballasting is of primary importance. One should not neglect this stage of construction. The recommended radio installation takes account of this constraint and we advise it to you. If nevertheless you must make a personal installation take into account that ballast is needed to adjust to all slope conditions. Painting is of an acrylic type which does not like solvent. It is necessary to avoid alcohol and other white spirit. Clean best with soapy water.

The duration of construction is approximately 15 to 20 hours.

Technical information :

Wingspan :	2200 mm
Chords :	180, 140, 90mm
Surface :	36 dm ²
Profile :	Selig 7003 modified
Length :	1150 mm
Unballasted weight :	1650 g
Ballast :	250, 550, 800 g
Wing Loading :	45, 52, 61, 68 g/dm ²
Maximum speed recorded :	210 km/h

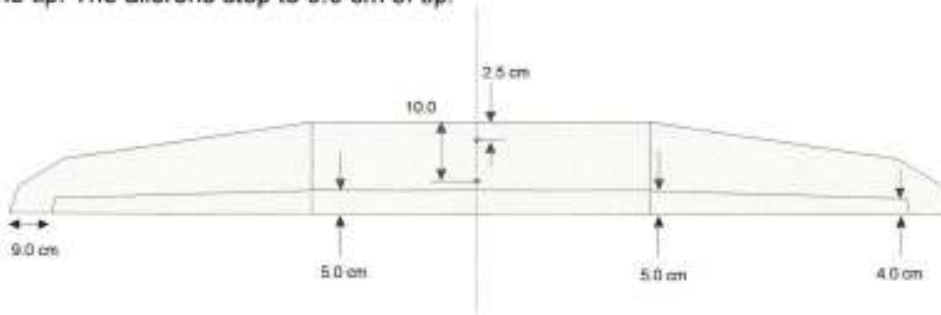
1. List of Accessories

- N 1 platinizes in CTP aviation of 20/10 of approximately 150mm X 40mm
- N 5 covers with jaw with dimensions servos
- N 5 covers with balls with dimensions control surfaces
- N 7 threaded rods m2 for the commands of aileron, shutter and the rods of stab
- N 2 carbon tubes diameter 4mm for the rods of stab
- N 3 reinforcements in CTP 20/10 of 10x10 to receive the control horn of shutter and ailerons
- N 2 live Nylon of 5mm of diameter
- N 2 nuts has claw M5
- N 2 small hard wood plates to stick the nuts to claw
- N 2 extensions of wire the servo one of 50cm
- N Adhésif double face pour la fixation des 3 servos dans le fuselage
- N 6 small wood screws for the fixing of the servos of ailerons and the radio operator turntable in the fuselage
- N 1 roller of Scotch tape glass fibre to ensure the servos fuselage
- N 1 Scotch tape hinge roller
- N 1 tubes of adhesive silicone for the hinges
- N 4 piano wires of 3mm X 60mm for the keys of stab
- N 4 tubes brass of interior diameter of 3mm X 26mm for the sleeves of stab
- N 2 PVC tubes of diameter 16mm X 300 mm for the tube with ballast
- N In option: 4 keys of wing steel of diameter 8mm X 195mm

2. Construction of the Wing

2.1 Cut out ailerons and Flap.

The cutting of the ailerons is done with the cutter along a metal straight edge. It is necessary to make several light passages by taking guard not to slip with the straight edge. One can tape the straight edge on the wing to be on which it does not slip. The flap makes 5.0 cm (27% of the cord) of depth over the entire length of the central section. The ailerons make 5.0 cm (27% of the cord) on the level of the dihedral break and 4.0 cm at the tip. The ailerons stop to 9.0 cm of tip.



To start by sawing with the hacksaw the ends of the ailerons. If the angle is respected, see drawing below, during sawing one can use this cutting like locates to place the metal straight edge. Attention, cutting

under-surface must be about 3 mm before cutting top surface.

The cutting of the ailerons is done with the cutter (new blade) along a metal straight edge. It is necessary to make several light passages by taking guard not to slip. Tape the straight edge on the wing so it does not slip.



1. Tracer jusqu'à cette limite en haut un rectangle au angle et puis découper le avec du cutter (couteau) puis raser.



2. pointer au verso avec un scallo et du papier de verre. Recouper l'arrière d'un cent millimètre.



3. Straighter l'arête et arrondir, par le dessous, avec un rebrousse un joint de cette aileron au niveau de la chambre.



Vérifier que le débordement vers le bas s'aligne par glissement de l'extrémité de l'aile et sous l'extrémité de l'aile. Au besoin pointer un peu pour qu'il y ait pas de bulles.

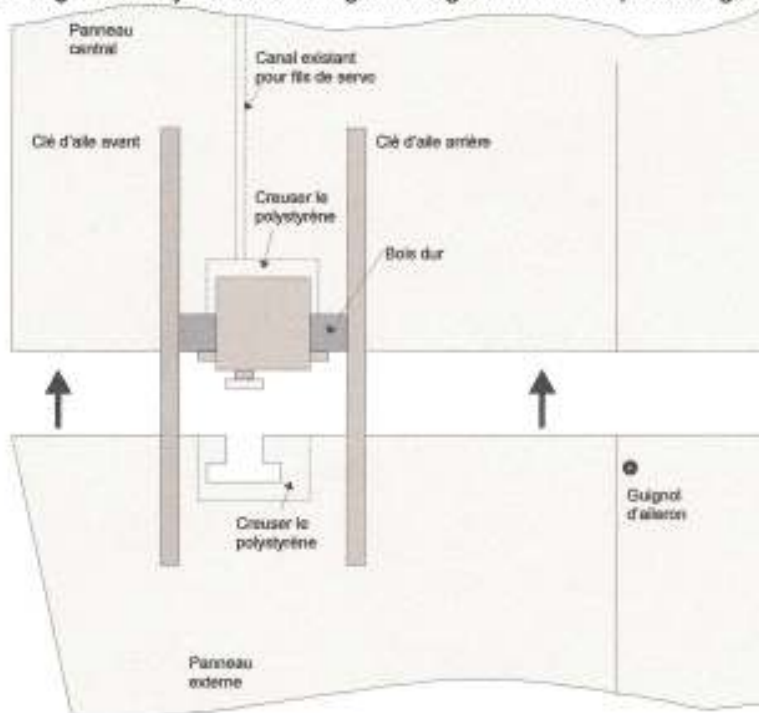
2.2 Installation of the control horn

The installation of the control horn is done classically. We recommend ball links for an easy assembly on the ground. It is necessary to insert and stick a small hard wood parallelogram in the aileron in which will be screwed and epoxy in the control horn. For the ailerons it is necessary to place the ball (pivot point) 10 mm from the lower surface and 6mm for the flap.



2.3 Installation of the aileron servos

Both servos of ailerons are installed on the section of each end of the central panel. Dig polystyrene between the 2 blocks of hard wood which are located between the 2 wing rods. Micro-servos with metal gears are screwed on these blocks of wood. The head and the top of servo exceed in the tip panel which must also be dug out. The skin under-surface must then be cut out in T to pass the control horn during the assembly of the wing. This installation has the advantage not weakening the wing and of avoiding an additional connector. During assembly-disassembling on the ground it is simple enough to clip the ball link to the aileron.



It is also necessary to bore a hole of 8mm, on the bottom surface, in the middle of the central panel and 5.0 cm of the leading edge to pass the aileron wires to the fuse. The wire channel is already done for you. Debur the hole and solder on a connector. (4 pin deans or equivalent)

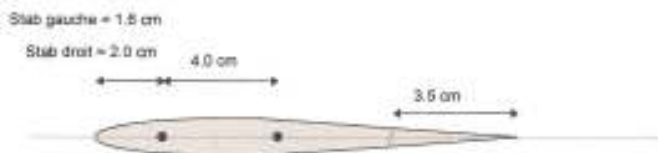
2.4 Wing bolt holes

The wing is attached to the fuselage by 2 screws Nylon of 5 mm X 25mm the central panel is reinforced at the places planned for the screws, bore vertically 2 holes diameter 5mm to 2.0 cm and 10.0 cm of the leading edge. (see drawing on page 2) For that the wing must be measured with precision. Then counter bore the top surface with a drill 9 mms in diameter and 3 mm of depth to receive the head of screw. *Attention, I advise to do it with the hand because a drilling machine is often too violent.*

3. The stab

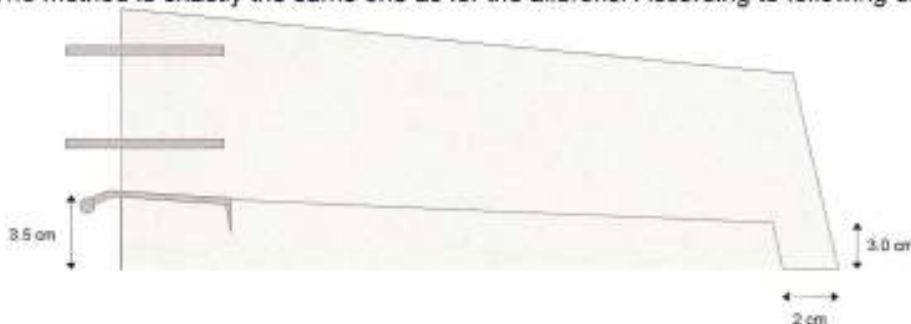
3.1 Installation of the keys of stab.

It is necessary to bore the holes which will receive the stab pins of 3mm of diameter. As these music wire stab pins cross in the fuselage it should be shifted 4mm (diameter of the brass tube in the fuselage) between the left stab and the stab right. To pay attention to be bored exactly on the axis of symmetry of the profile. Then cut out 4 stab pins 6 cm length. The pins are then epoxied in these holes. Finally they must exceed stab of 2.0 cm



3.2 Cut out elevators

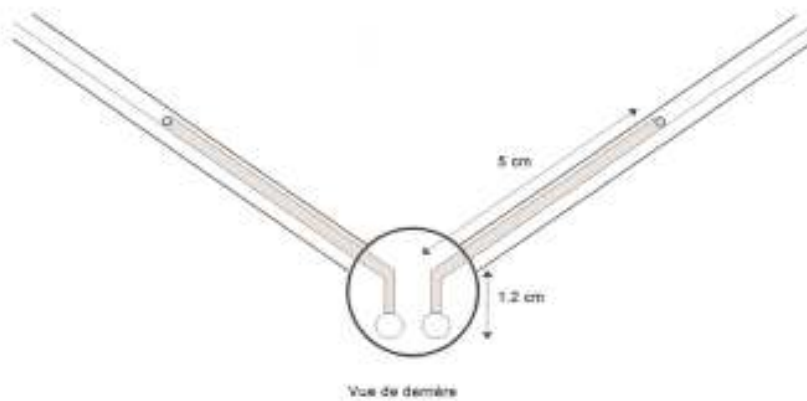
The method is exactly the same one as for the ailerons. According to following dimensions:



Scotch tape and making the joint silicone it is necessary to install the control horn.

3.3 Installation of the elevator control horn.

The control horns are made from piano wires of 2mm of diameter. Should initially cut 2 piece of 6cm length, to bend them to 1.2 cm with 55° (approximately!). On the bent ends, it is necessary to solder on the ball link ball. Then epoxy the control horn to the LE of the elevator with the end so that it is inserted in the elevator.



To finish the stabs by scotch tape the hinges and by applying a silicone joint silicone.

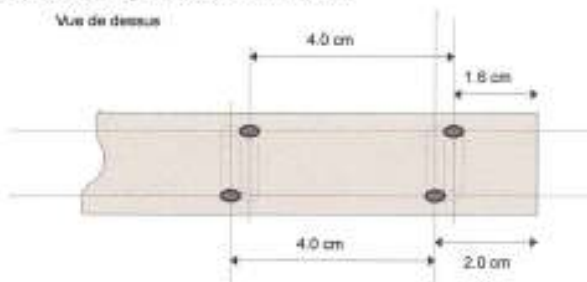
4. The fuselage

4.1 Attaching the wing

It is necessary to prepare 2 small rectangles out of hard wood of 20mm X 30mm X 5mm in which one bores a hole and one sticks blind nut of M5 (8-32) in the center. Then it is necessary to bore 2 holes diameter 5mm in the fuselage on the wing seat. For that to position the wing carefully and to make the crucifixion by checking the equity of the distances tip-tail and the distances tip-nose. Mark the fuselage through the clamp holes, remove the wing and bore. Epoxy the wood rectangles by maintaining them in place by a screw Nylon of 5. If required to wax the screws so that they do not hang.

4.2 Fixing of the stab

The stab plugs in on 4 sleeves out of brass installed in cross in the fuselage. The tubes of the stab of left are 4mm ahead of those of the stab of right-hand side to make it possible the tubes to cross. To install these sleeves to proceed as follows:

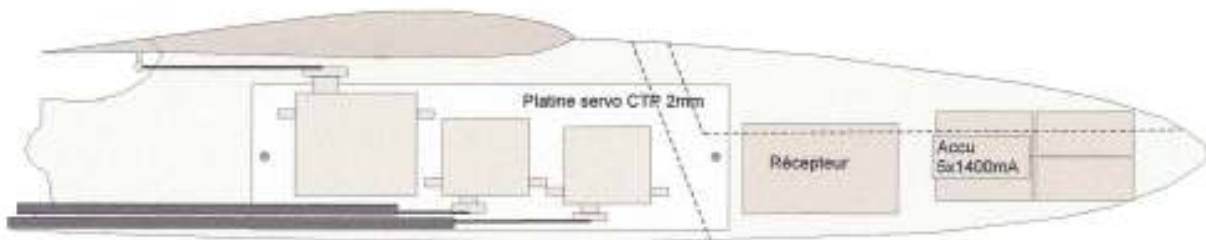


- Make a template to set the stabs with a 110° angle.
- Center the tail of the fuselage on this cross and to defer the 4 intersections of the right-hand sides and the spindle on the fuselage
- From these reference marks to plot 4 straight lines perfectly in the axis of the spindle forwards
- Deferring on these lines the positions of the keys of stab right and left
- Bore the 8 holes with a diameter 4 mm to the positions marked
- To make 4 brass tubes 3 mm in interior diameter and length 26 mm (diameter external of the spindle).
- Stick the tubes places from there at the cyano and to ensure joinings epoxy.

4.3 Installation radio

The fuselage receives the servos for the v-tails, the one servo of the flap the receiver have an battery of 5 elements 1400mAh. While placing the battery well in the nose one should arrive has a correct centering without lead addition. For the servos one can even find place for 3 servos standard but with minicomputers

one will be able to carry more ballast. It is necessary to make a rectangular turntable vertical in CTP 2mm of sufficient size to stick to the double face the 3 to it servos with the tail leu leu. One can then ensure them while rolling up around the servos and of the turntable of the Scotch tape armed out of glass fibre. Here an example with a servo standard for the flap and 2 minicomputer-servos for the stab:



The turntable is then slipped by the opening of the warhead into the fuselage and is screwed by 2 wood screws with head punt, directly by outside, on the right blank of the fuselage. Thus it is not necessary to perforate the base of the wing copiously what would weaken considerably the fuselage at this strategic place.

It is enough to bore a hole for the passage of the extensions of servos of ailerons and percer/limer another hole on the end of the pylon for the passage of the rod of ordering of the central shutter. It should be envisaged sufficiently large to have the place of clipser the cover with ball on the shutter during the assembly of the wing on the ground.

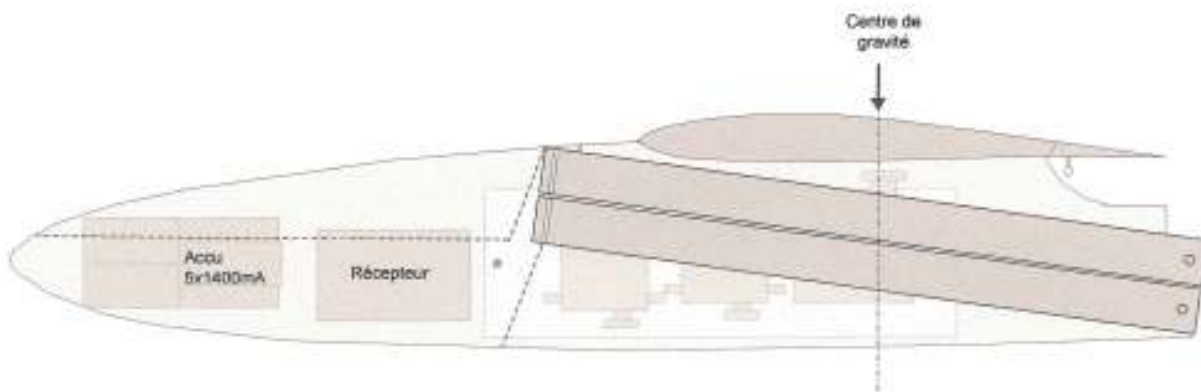
4.4 Control horns

The flap pushrod is closely measured and then fine adjustments are made by screwing the clevis on the threaded rod ends.

The 2 elevator pushrods will be made out of carbon tube of 4mm of diameter with inserts of threaded rods with each bonded with epoxy. For the length, the method is the same one as for the flap. The carbon rods of 4mm it is sufficient (it will not flex) and that makes it possible to pass between the sleeves of stab without too many problems.

5. Ballast tubes

To draw the best from Aldij should be able the ballast. For that one will install two tubes with ballast in the fuselage which can receive 250g each one. One will stick them one to the top of the other on the left blank of the fuselage. Tubes PVC of diameter 16mm (electric sheaths) are appropriate. It is necessary that the center of the tubes be on the centre of gravity



It is necessary to secure the ballast from moving during flight.

6. CG

CG is to 85 mm of the leading edge. With an battery of 5x1400mAh, it almost does not require lead. For the first flights one can advance the cg by 5mm i.e. to put 30g more in the nose.

8. Clearances and mixings

Positive (+) values refer to down movement of the control surface in question and are measured at root of the control surface.

Elevator:	+10 mm / -10 mm
Compensation with flap :	+3 mm
Rudder:	+16 mm / -15 mm
Ailerons:	+14 mm / -28 mm
Camber :	-2 / +4mm
Elevator w/flaps:	+8 mm / -5 mm
Air-brake :	-25 mm

8. Flights

8.1 First flight

The first flight will be done without ballast, all the control surfaces exactly with the neutral, centering with 75mm of the leading edge. Panels of wings being locked with the central panel by Scotch tape along the joint. Launch must be strong it is a question of a sailplane speed.

8.2 Following flights

Move back CG with 80mm of the leading edge according to your impressions. Reasonable back limit being 90mm. Start to familiarize yourself with the sailplane before adding ballast.

9. Ballast

Ballasting is an inaccurate science, nevertheless of many tests one shown the following rules:

No conditions: Time is very calm, the launch-hand are the only ones to fly correctly: No ballast.

Small conditions: As soon as that flies correctly without ballast then one can add 250 G in a tube of the fuselage.

Condition normals: The conditions where has little close all the sailplanes fly. Aldij is then in are element with 550g of ballast. This ballasting is obtained by addition of a tube of 250g in the fuselage and by replacement of the carbon wing rods with steel (8mm) which make on the whole 300 G.

Good conditions: that blows well one can then fill the 2nd tube with ballast with 250g additional what brings us to 800g.

Tempête: It is useless to exceed 800g because the performances in turn decrease.

To avoid ballaster 500g in the fuselage with keys of wings out of carbon tube. The keys fold in the turns!