

Instruction Manual CX5



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Autors: André Stier, Karsten Koch, Roland „Rollo“ Sommer

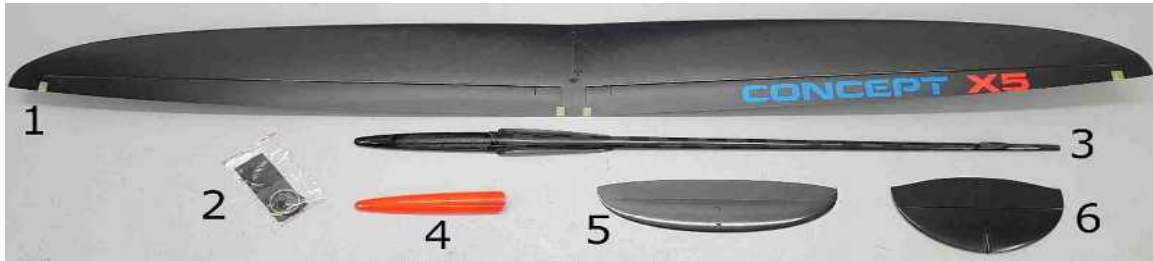
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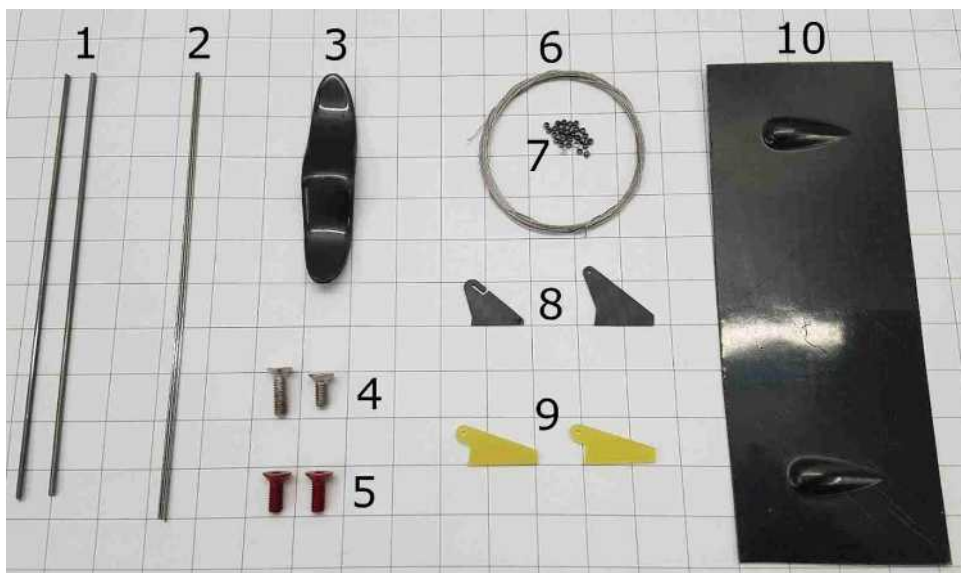
1. Content

1.1 Overview



1. Wing
2. Accessories
3. Fuselage
4. Nosecover
5. Elevator
6. Rudder

1.2 Accessories



1. 1.2 mm steel wire for the flaperons
2. 0.5 mm torsion springs for the tail set
3. Throw pin (Peg)
4. M3x7/10 steel screws T10 for the wing
5. M3x10 aluminum-screws 2 mm imbus for the elevator
6. 0,3 mm steel for the pull ropes for the tail set
7. Crimp-Pearls for the pull ropes
8. control horns for the tail set (single hole = rudder, slotted = elevator)
9. control horns for the flaperons
10. Bubble-Cover for the servo bays

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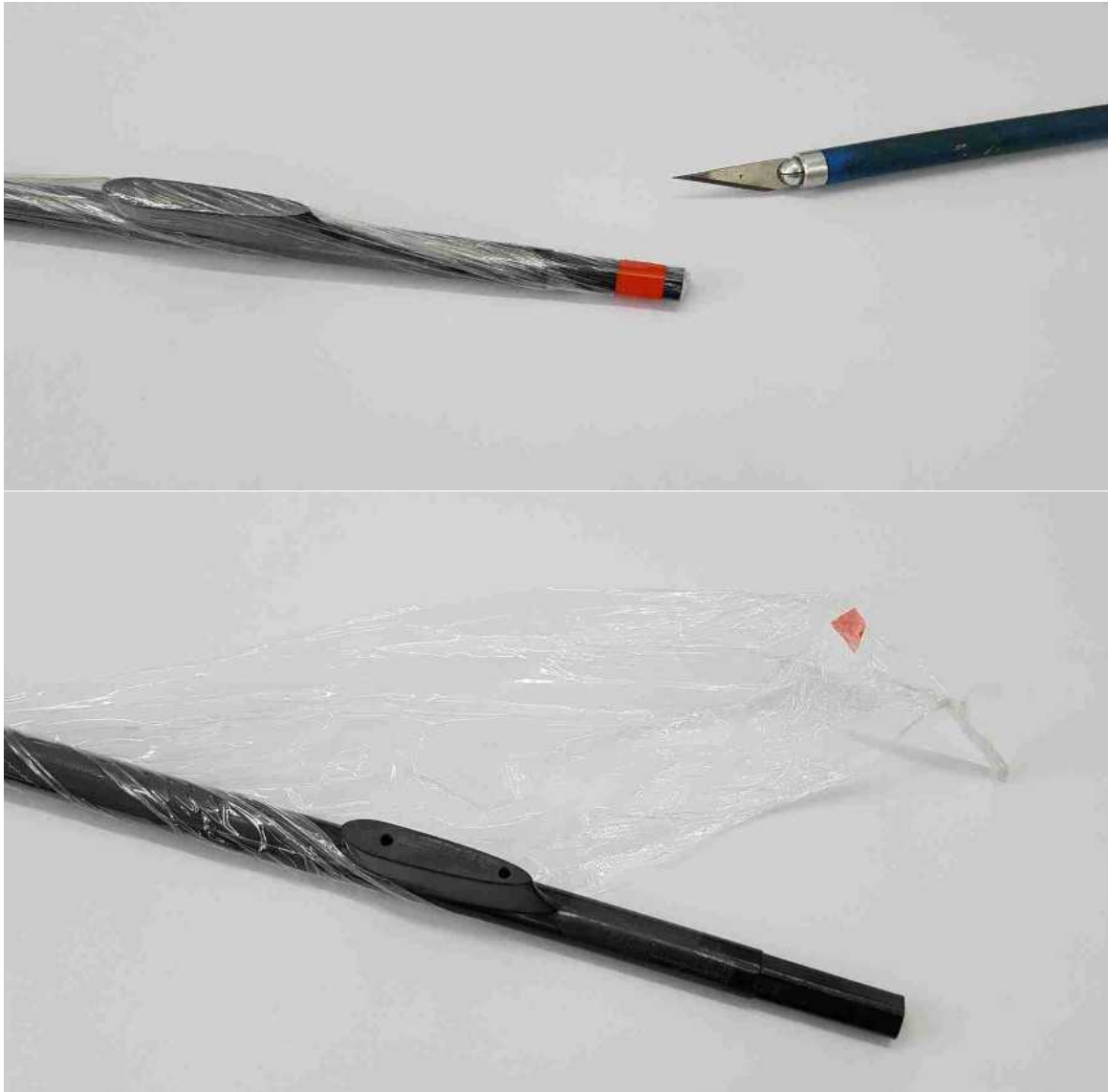
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1.3 Fuselage unboxing

The fuselage is wrapped in foil for protection. To unpack, remove the tape from the end of the fuselage. Afterwards you can unwind the foil without any problems.



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2 Tools and Auxiliaries

This kind of tools proofed to be a good help:

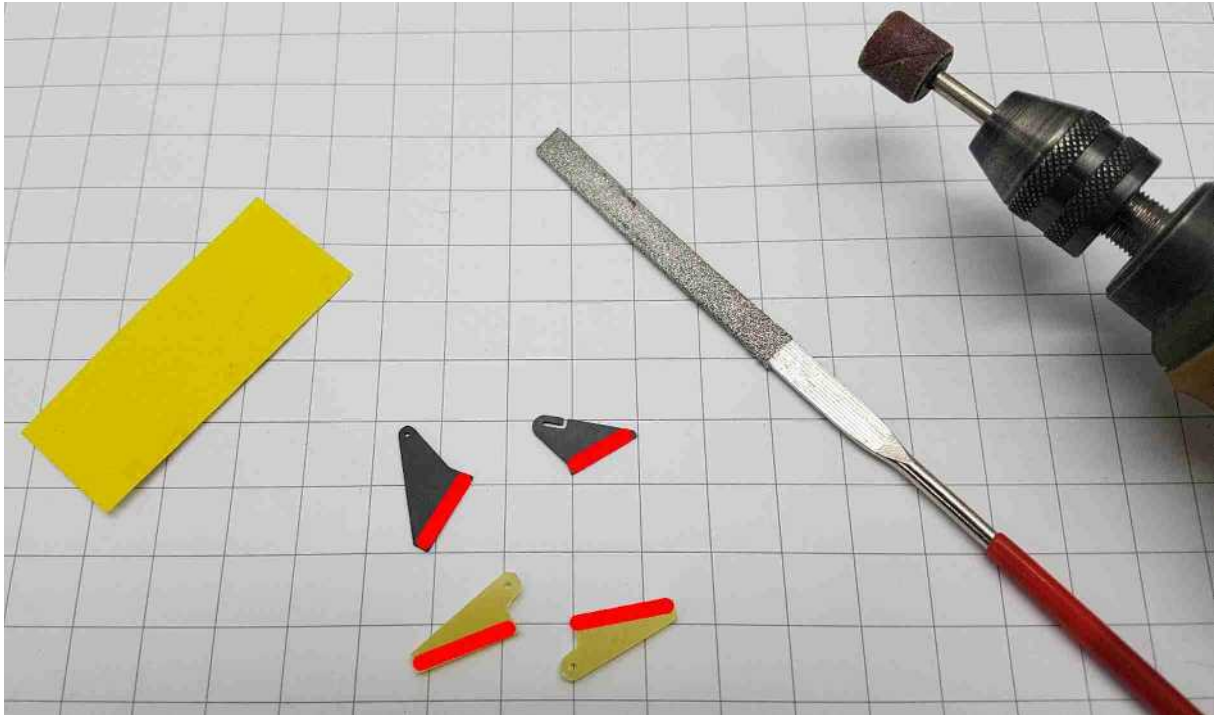
- Sandpaper
- Files
- Multitool („Dremel/Proxxon“)
- Cutter
- Pliers
- Side Cutter
- Imbus 2 mm
- Imbus 2 mm or Torx T10
- Phillips screwdriver PH1
- Soldering iron
- Ruler und geo triangel or oder angle
- Fine-Liner
- CA
- Epoxy (Lamination resin, UHU Plus Endfest or the like)
- Painter crepe

3 Tailset

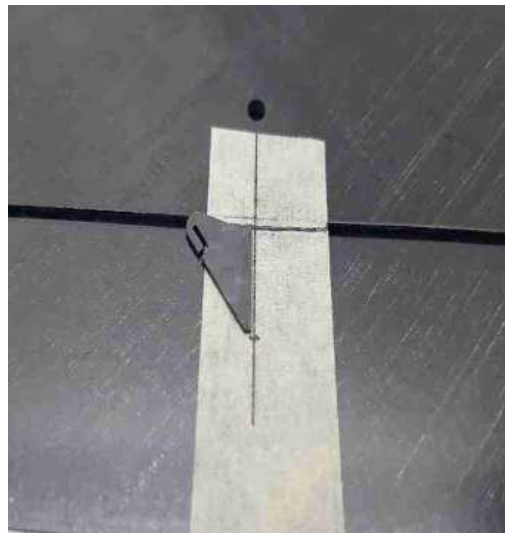
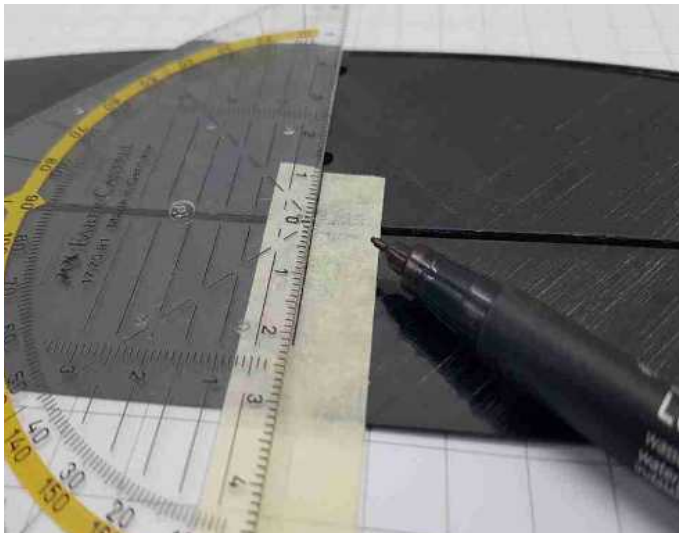
3.1 control horns

3.1.1 Elevator

Sand the control horns with a proper tool at the marked part (red).



Mark the proper position with 1 mm spacing to the hinge line.



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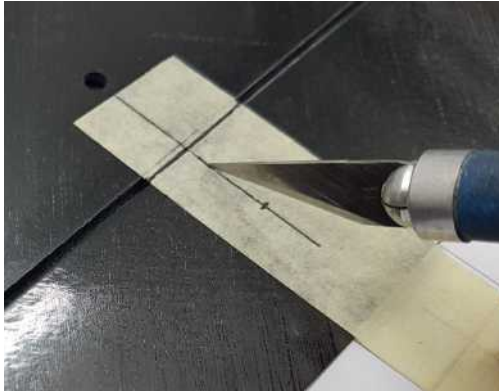
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Cut the UPPER part of the laminate and widen the slot with a thin file (less <1 mm). Check the fit with the control horn. (Attention: Don't cut through the lower part of the laminate)

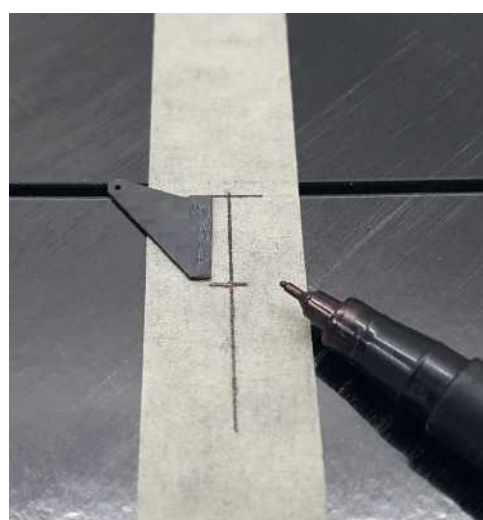


Glue the control horn into the slot. (UHU Plus Endfest, 24 h Epoxy, CA)



3.1.2 Rudder

Mark the proper position with 1 mm spacing to the hinge line on the rudder.



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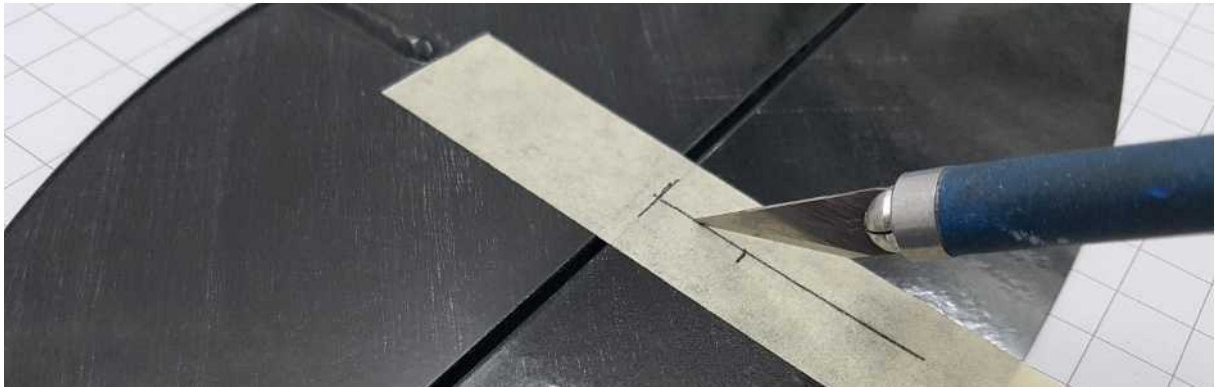
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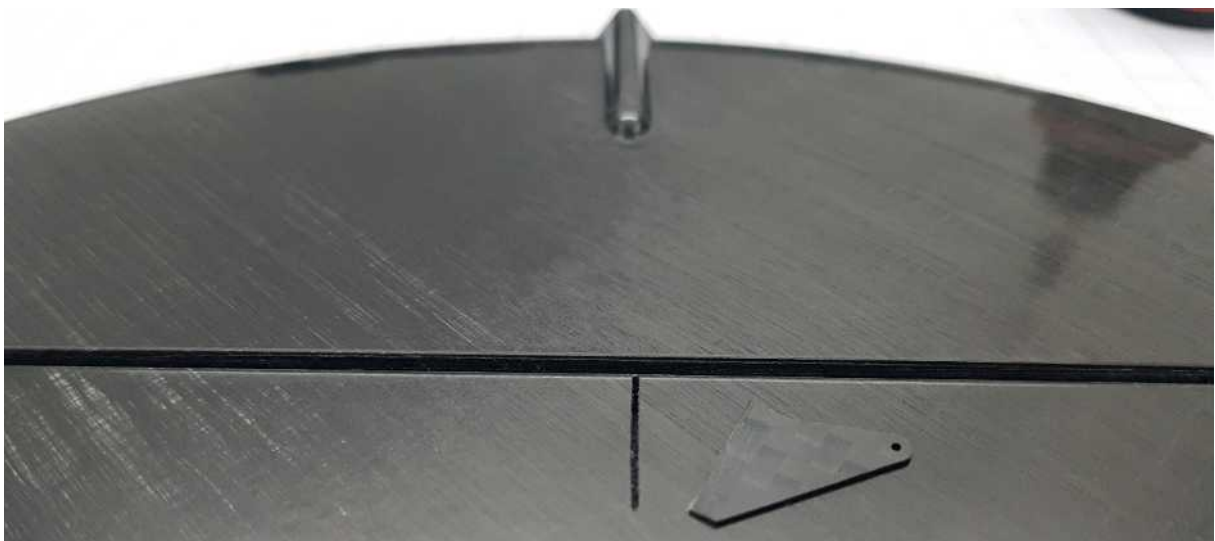
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Cut the UPPER part of the laminate and widen the slot with a thin file (less <1 mm). Check the fit with the control horn. (Attention: Don't cut through the lower part of the laminate)

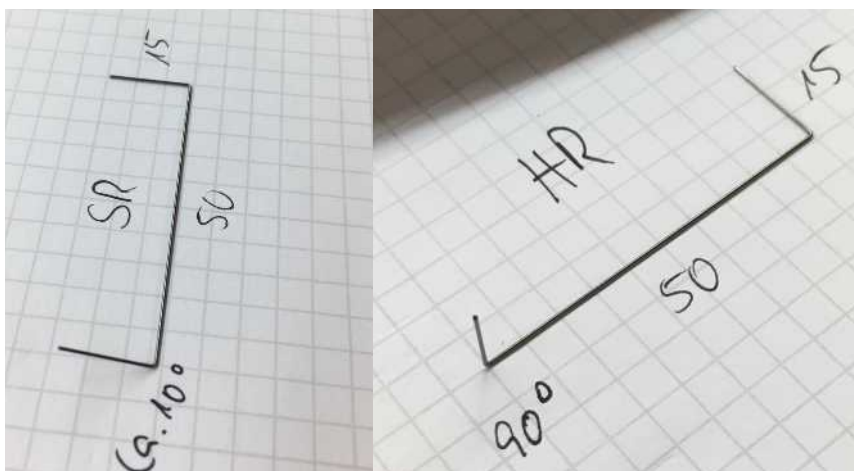


Glue the control horn into the slot. (UHU Plus Endfest, 24 h Epoxy, CA)



3.2 Inserting the torsion springs

Bend the torsion springs first like shown in the pictures. These are recommended dimensions, but you might change it a bit to fit your own needs as you can adjust the torsion power by the angles.



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Prick through the laminate and insert the first end of the spring. Be careful not to damage the laminate. The core material is pretty stiff, but you might prefer to reinforce the hole with an 1mm PTFE-tube or the like.



Mark the second position and prick through the laminate again.



Glue the tube or the spring with a little use of CA.



That's how it looks afterwards



4 Wing

4.1 Servo Installation

Sand the servo trays (optional accessories) first at the bottom side and make it to fit into the servo slot.



The servo tray must be glued with the servo mounted to provide dents on the upper side of the wing. Prepare the servo with some wax or foil to prevent it from sticking. Glue the servo tray with UHU Plus Endfest or the like.



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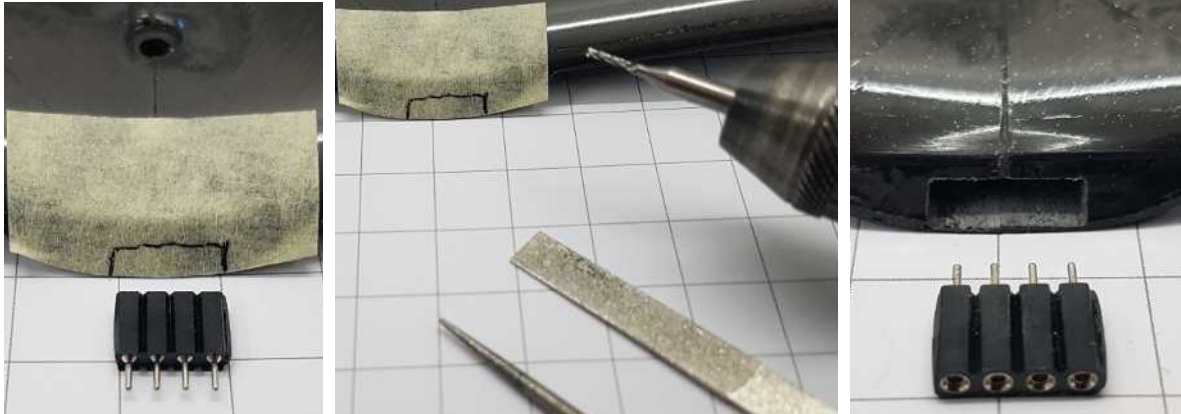
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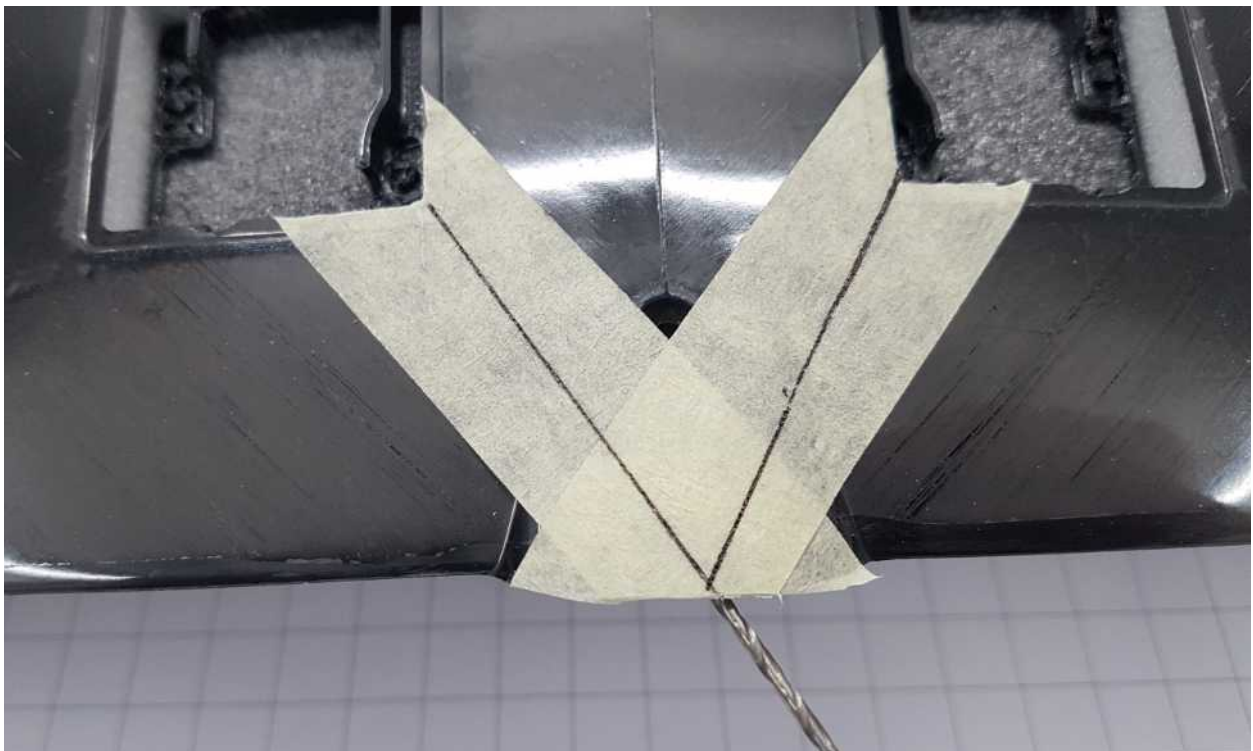
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4.2 Plug and socket for the wing servos

Choose a proper plug / socket combination. Common are 2,54 mm in and socket strips with 4 pins. Mark the dimensions on the wing and mill a cutout roughly. Finetune it with a file for a perfect fit. Attention: Max 25 mm deep as there is a hardpoint for the wing screws.

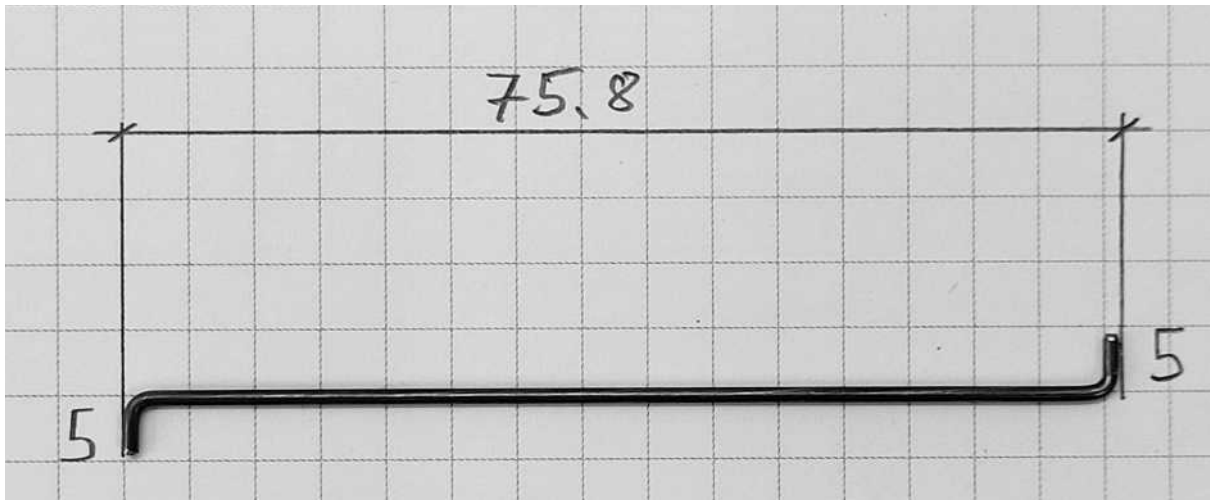


Remove the servos when the glue is dry. Prepare the path for the servo wires with a thin pointed file or use a long 2 mm drill. This should work without any force by hand. If you encounter an obstacle, you hit the tie-bar belt. Change the angle a bit until you found the path through the tie-bar.



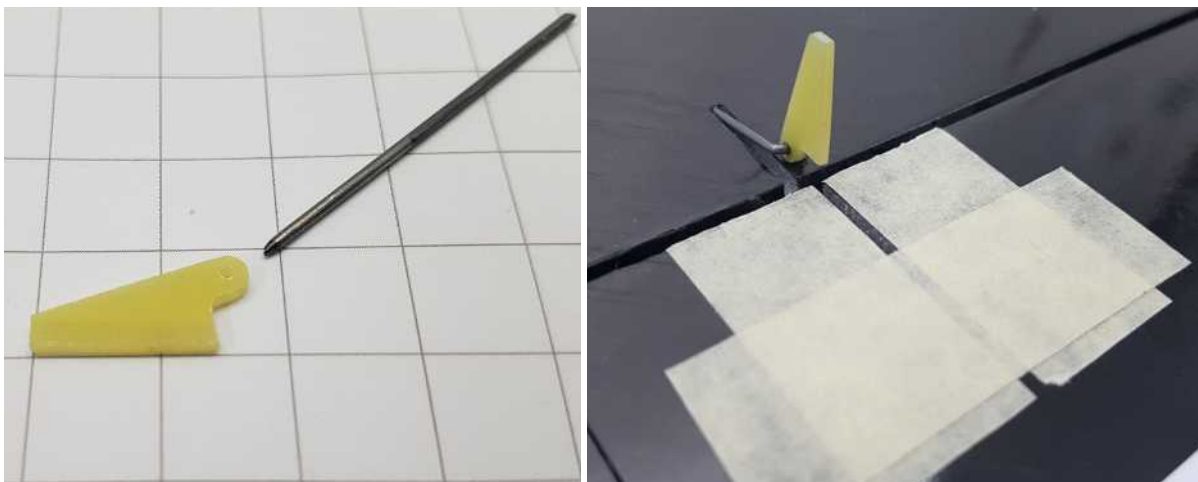
4.3.3 Flaperon linkage: Alternative 1

Make a wire like shown in the picture. This will work perfectly for the KST X08/A08 servos, and the servo trays made by stream (optional accessory). This will lead to a deflection of 13mm up and around 20mm down as we will use negative differentiation.



Use a rest of this 1,2 mm wire to rub the hole of the control horns for the flaperons to avoid any bearing clearance.

The linkage will be placed with the control horn mounted and then the control horn can be glued. (e.g., with UHU Plus Endfest or fixed with CA and strengthened with thickened Epoxy later).



Finally the linkage will be mounted at the servo horn and then the servo can be placed into the tray. Don't forget the screws to fix the servo.

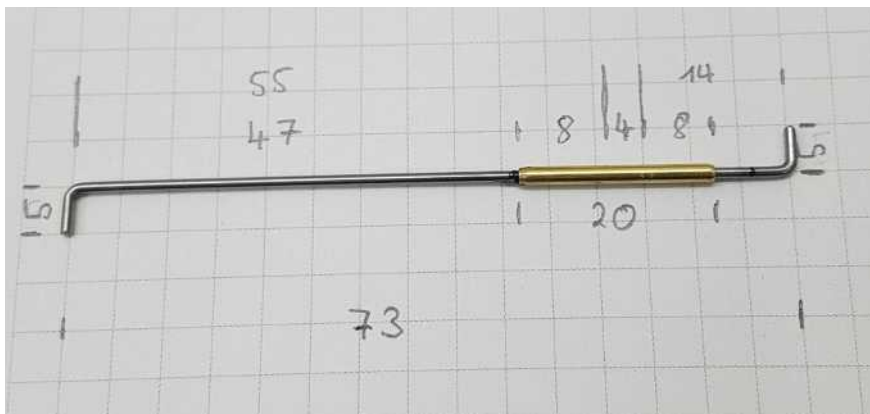
4.3.4 Flaperon linkage: Alternative 2

Here you will need an optional brass tube 2 x 1,4 mm

First the linkage will be prepared:



The length is not that critical as it adjusts itself with the final installation.



Use a rest of this 1,2 mm wire to rub the hole of the control horns for the flaperons to avoid any bearing clearance. Glue the long part into the brass tube. When dry it will be placed at the control horn.



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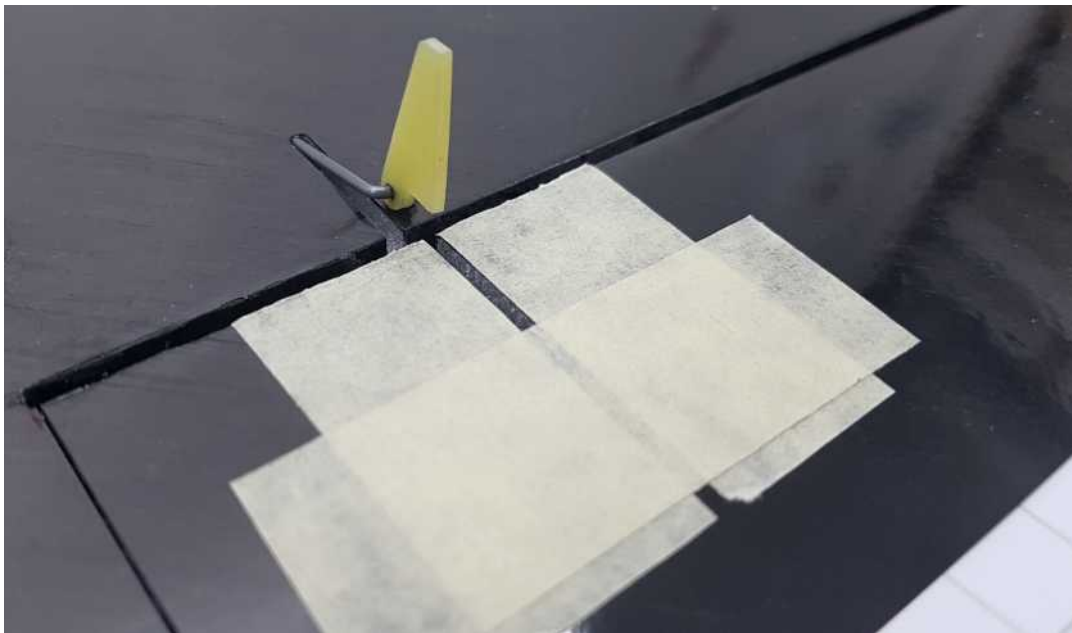
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The linkage will be inserted into the wing and the control horn will be glued. (e.g., with UHU Plus Endfest or fixed with CA and strengthened with thickened Epoxy later).



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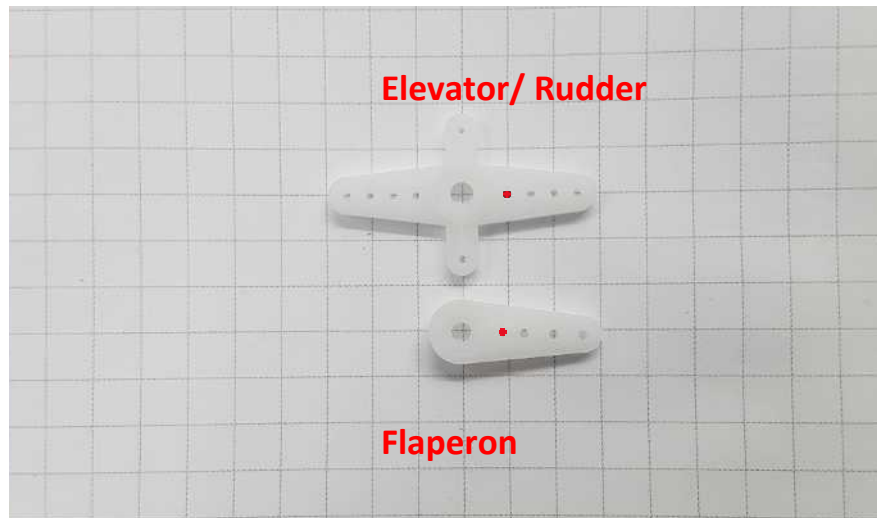
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Choose a servo horn which provides an almost rectangular angel with the servo in neutral position and it's position in the trays. For the flaperons we use the original KST Servo horn with the most inward hole (4,5 mm). This gives us a deflection of about 13 mm up and 45+ mm down.



Rub the servo horn for the flaperons in the same manner as you did for the control horns to avoid any clearance.



The short linkage parts are placed at the servo horns.



Insert the servos into the tray and use a servo tester to put the servo into the most forward position. See the next picture:

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Now you can glue the short part into the brass tube with Epoxy or UHU Plus Endfest. The flaperon must be fixed at the maximum upper position (13 mm).



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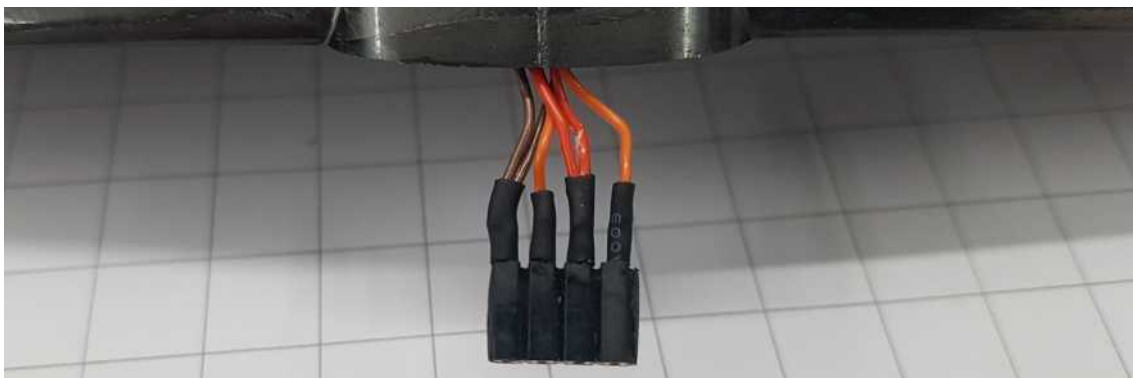
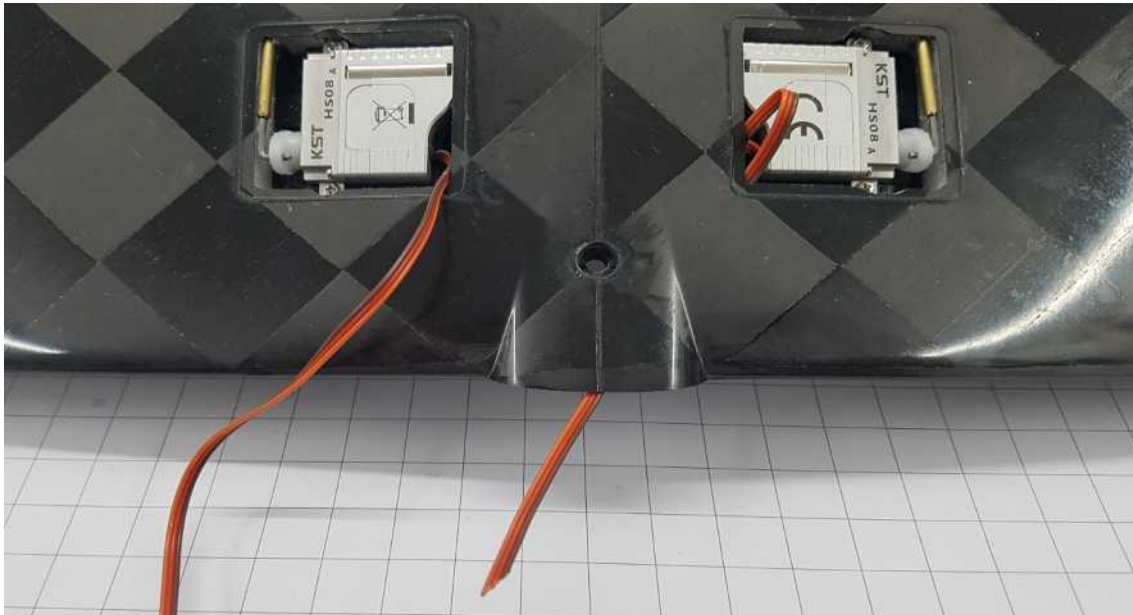
4.4 Wing-Connector

4.4.1 Alternative 1: Servos are soldered directly to the socket

Cut off the servo plugs with an angle. This will help to push through the wires a bit. Solder the wires to the socket by this scheme (don't forget shrinking tube):

Pin 1: Minus, Pin 2: Signal servo 1, Pin 3: Plus, Pin 4: Signal servo 2

Glue the socket into the wing. (Hint: UHU Flinke Flasche or UHU Alleskleber. It's strong enough but can be removed if necessary)



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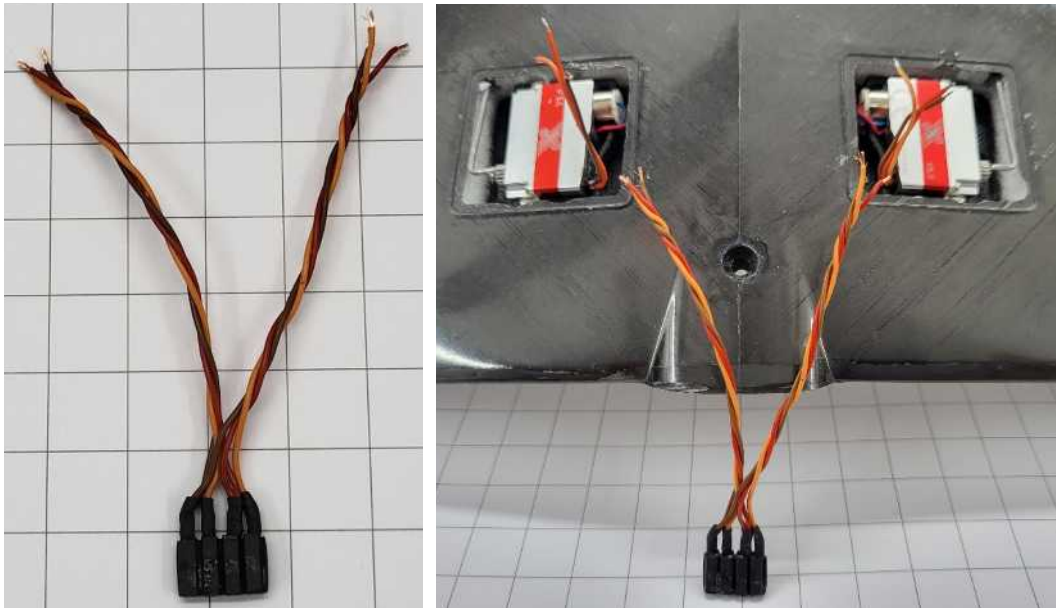
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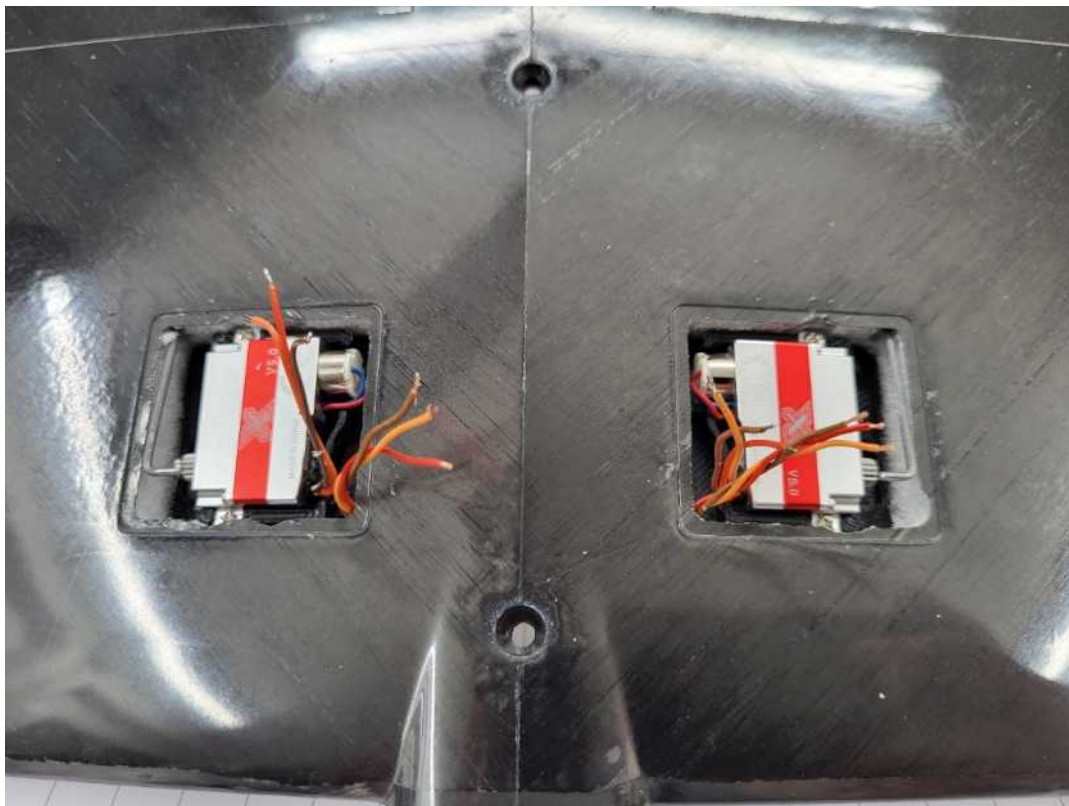
4.4.2 Alternative 2: Soldering within the servo socket

First you make ready the socket with some wires according to this scheme:

Pin 1: Minus, Pin 2: Signal servo 1, Pin 3: Plus, Pin 4: Signal servo 2



Afterwards the soldering takes place within the servo socket which makes a servo replacement easier if needed later. Don't forget the shrinking tube



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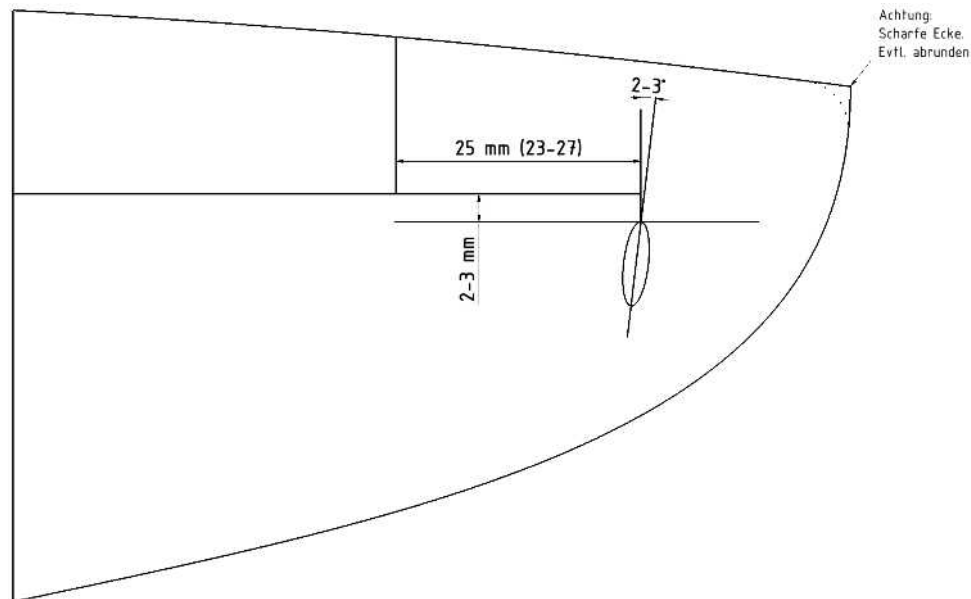
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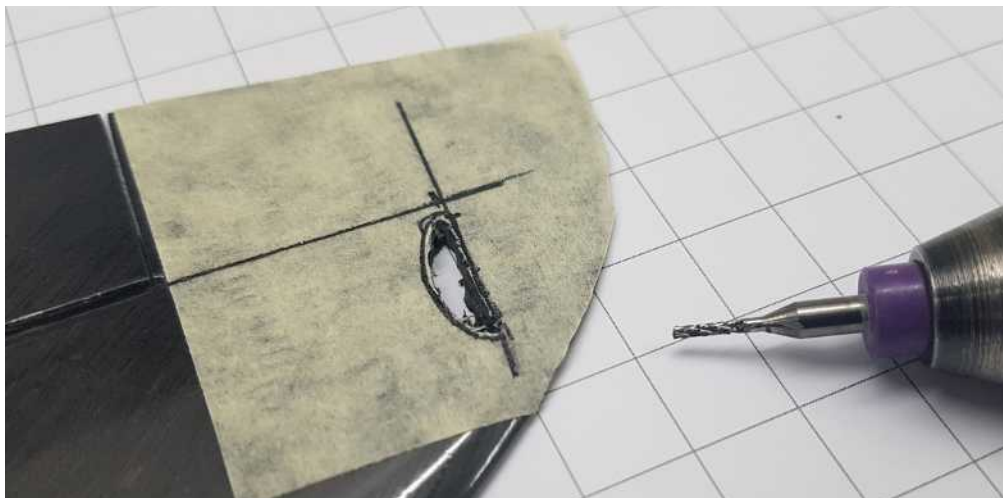
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4.5 Installation of the Peg

Mark the position on the wing.



Mill with a Dremel / Proxxon the shape of the Peg. Widen the hole with a file carefully until the Peg fits tightly.



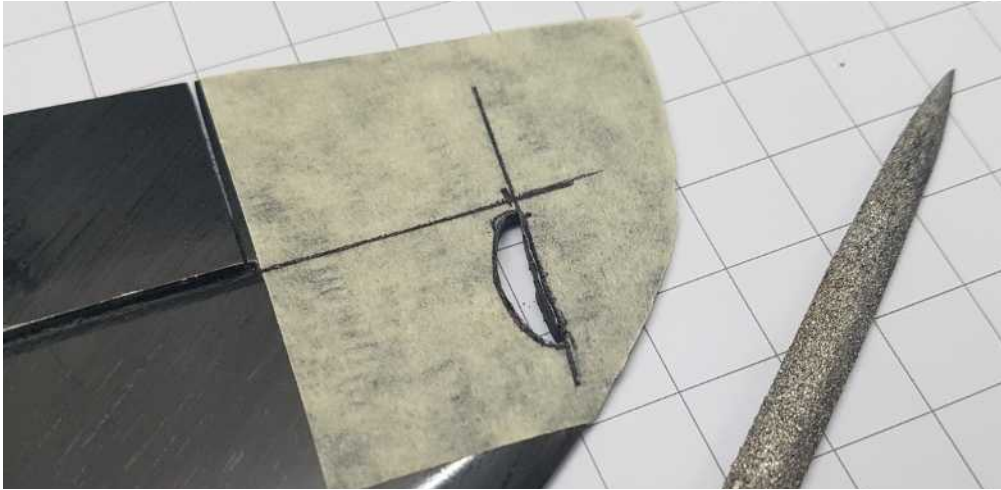
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Sand the part around the hole.



Use some CA just to fix the Peg for the wanted position. Use thickened Epoxy to strengthen the Peg. UHU Plus Endfest with CFK dust will make an almost perfect shape.



The best position of the Peg is a personal matter of taste. It should be between rectangular and an angle of about 10°. It depends on your ergonomics and personal feeling.

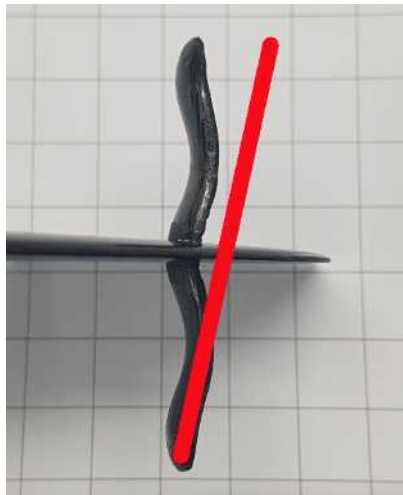
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4.6 Installation of the T-Peg

If you want to use a T-Peg order the appropriate wing without a hardpoint.

This tools are recommended:



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First you must prepare the T-Peg like this.



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Now prepare the wing like this.



Glue the T-Peg with thickened Epoxy or UHU Plus Endfest into the wing.



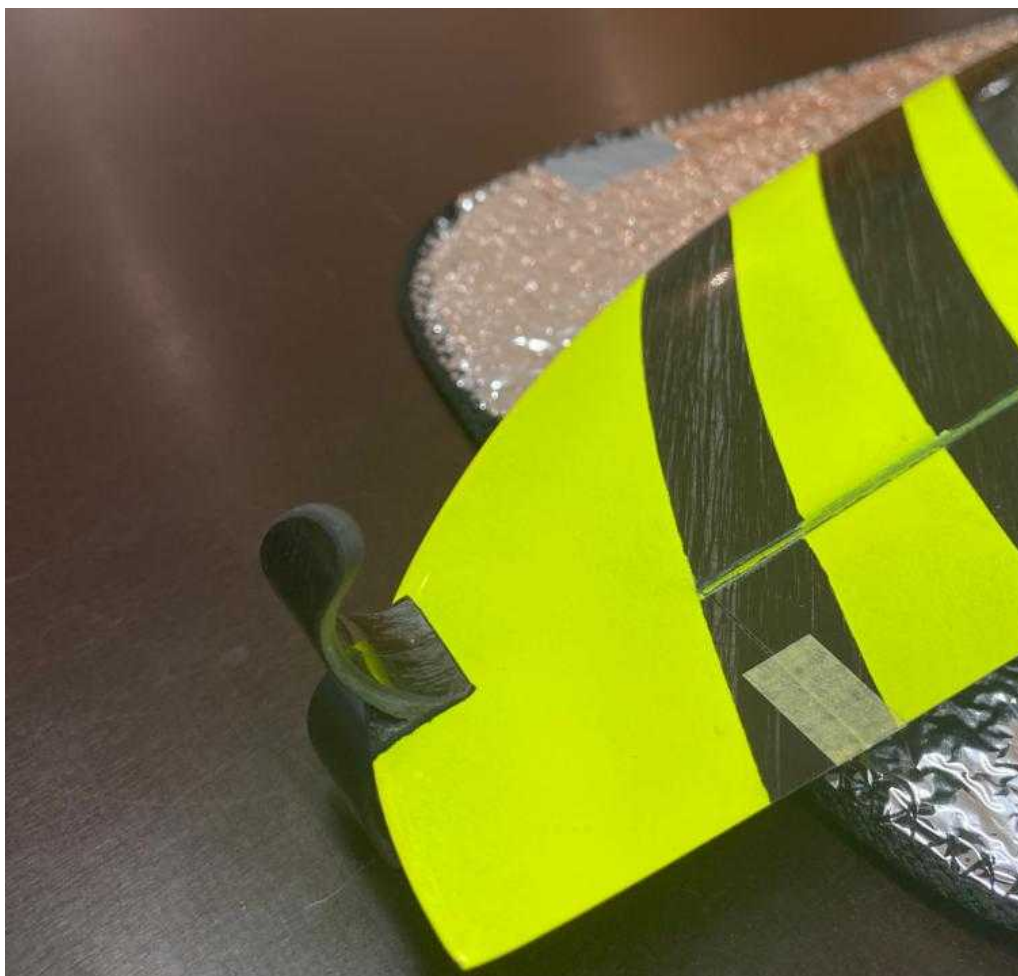
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5 Fuselage

5.1 Preparations of the pull ropes for the tail set

Mark the position for the rudder pull rope. As the new rudder is detachable the position should be more forward than some people might be used to. It should be ok to just fix the rudder with some tape. One might prefer to fix it with 5 min. Epoxy. In case of a rudder replacement the Epoxy can be warmed to 60°C.

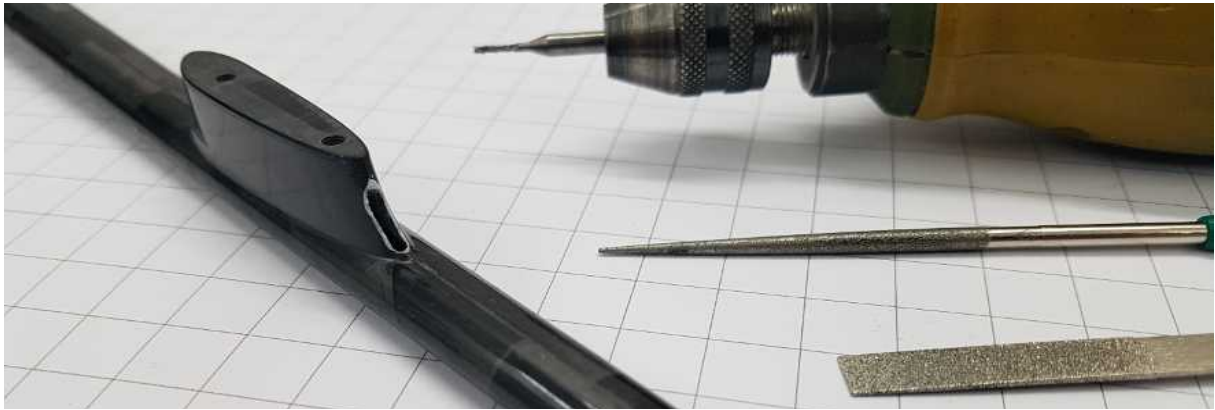
Right-handed = slot on the right side. Left-handed = slot on the left side.



The slot should be at a length of about 10 to 20 mm and a width of about 1 mm.

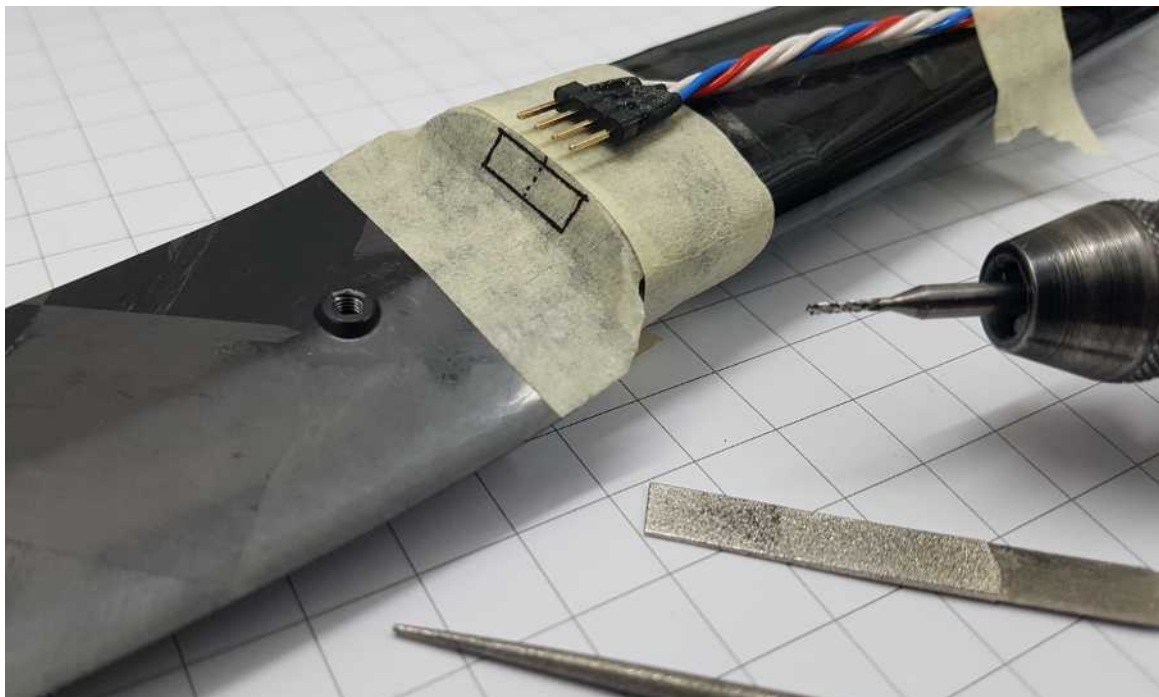


Similar procedure for the elevator.



5.2 Opening for the wing connector at the fuselage

Mark the shape of the opening on the fuselage. Mill the hole with a Dremel / Proxxon roughly and use a file for fine tuning.





5.3 Installation of the servo tray

Before installation of the servo tray the pull-ropes should be placed into the fuselage. Fix the ropes with tape.



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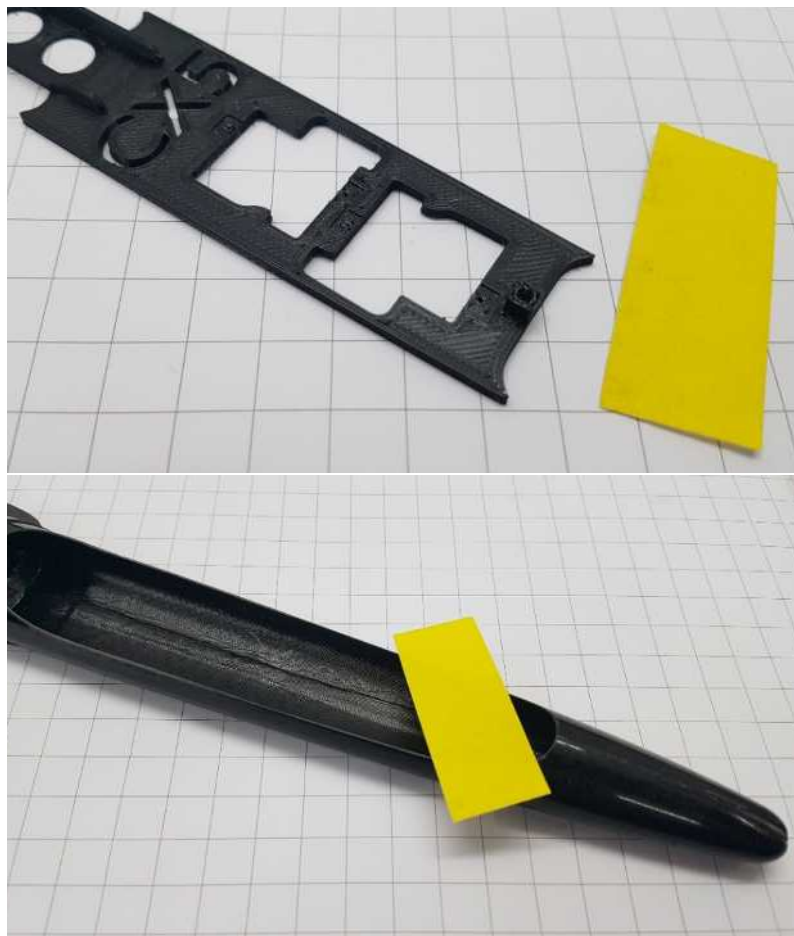
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Sand the sides of the servo trays and the corresponding parts within the fuselage.



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Put in the servo tray on one side and slide it back as far as possible. The pull ropes must be free and clear of the ballast rail. Push the servo tray on the other side at the front part into the fuselage and slide it carefully ahead with pressing it down simultaneously until it completely snaps into the fuselage.



Place the front screw into the fuselage completely. Slide back the servo tray until its 'nose' touches the screw. This is for the correct position of the servo tray. Mark this position of the tray. Now you have to remove the 'nose' as it will make the ballast stuck. With the servo tray at the marked position, it can be glued with CA. You might check if everything is fine with mounted servos and that the ballast can be moved easily beforehand.



5.4 Servo connector for the flaperon servos

For the connection you need a self-made cable to connect the receiver to the flaperon servos. Material: about 15 cm 4-wire servo cable, 4-pin pin strip 2,54 mm and two servo crimp plugs. The scheme as above. This avoids reversed polarity:

Pin 1: Minus, Pin 2: Signal Servo 1, Pin 3: Plus, Pin 4: Signal Servo 2

(The two unused pins of the second servo plug can be used for the battery connection.)

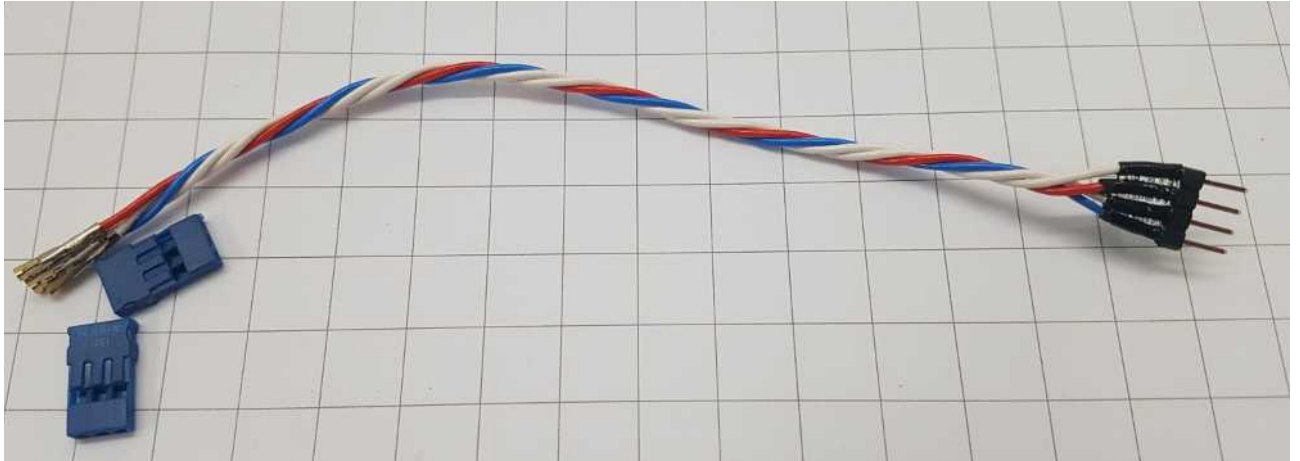
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5.5 Pull ropes at the rudder and the elevator

Just do it like it is shown at the pictures.



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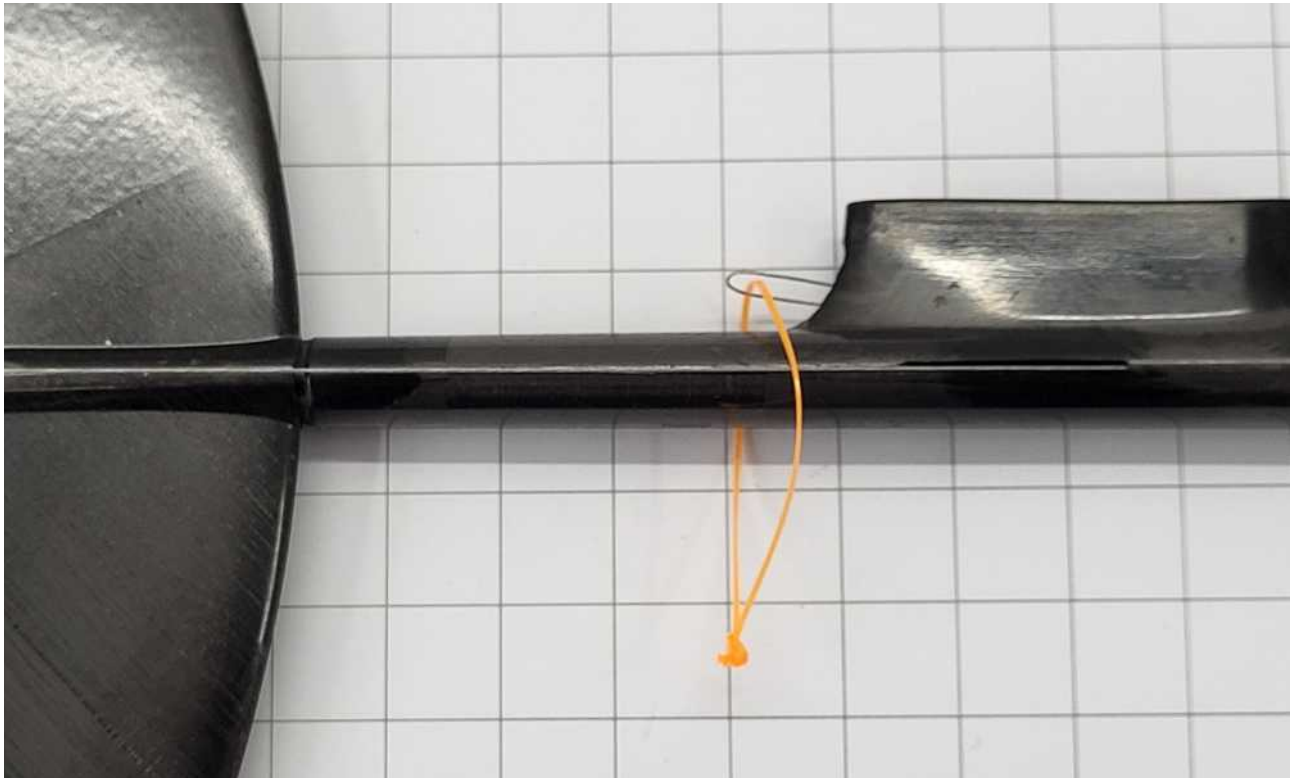
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For the elevator it is a good idea to have a big loop to avoid that the crimp pearls get stuck at the opening of the fuselage.



With the elevator detached it might be possible that the pull rope vanishes into the fuselage. To avoid that it should be secured like this:



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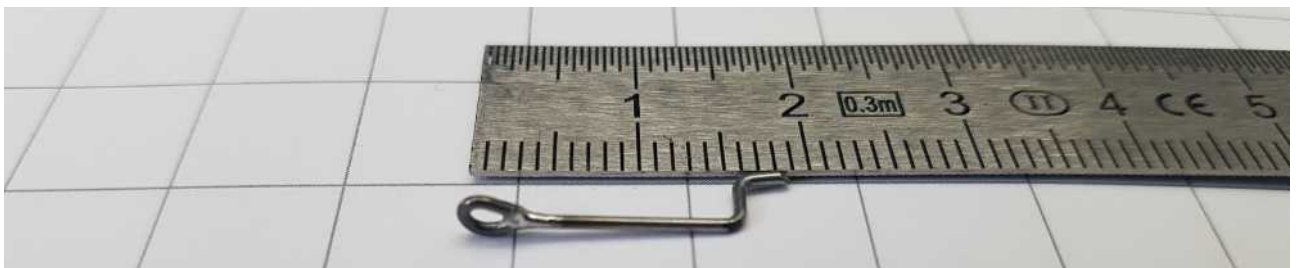
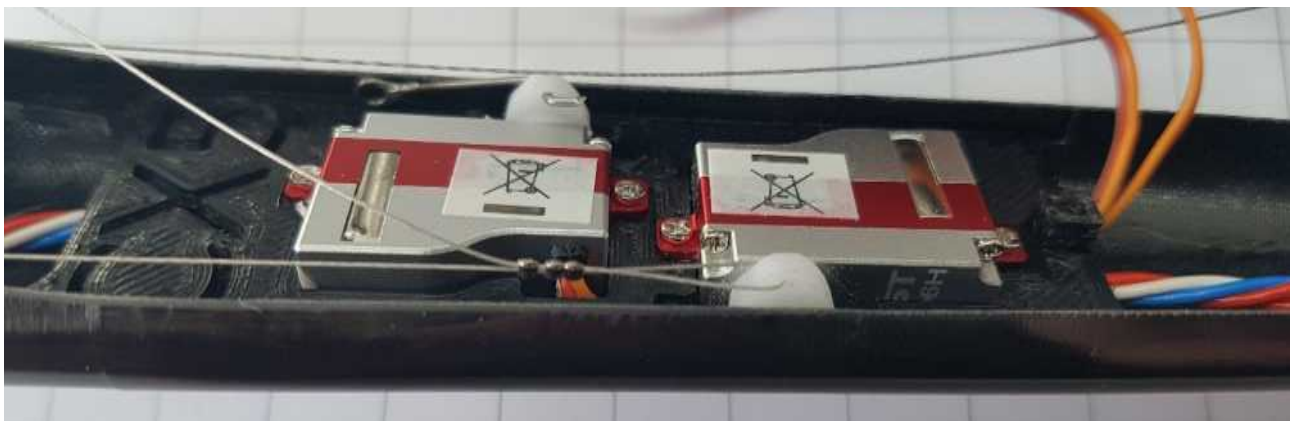
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The pull ropes will be crimped to the servo horns next. For the exact neutral position, the rudder and the elevator should be fixed by a clamp made from balsa wood like this:



Optional you might use a short wire on the elevator servo which should have less friction:



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5.6 Optional: Installation of Peppa Pig

Peppa Pig is a ballast system (optional accessories) for CG adjustment. Each pin moves the CG by 1 mm. There comes a template with Peppa Pig for the correct position. Cut the nose of the fuselage accordingly. Sand the area and glue the brass socket with CA.



5.7 Optional: Ballast-Set

There is an optional ballast set for stronger wind conditions. It must be adjusted to the CG



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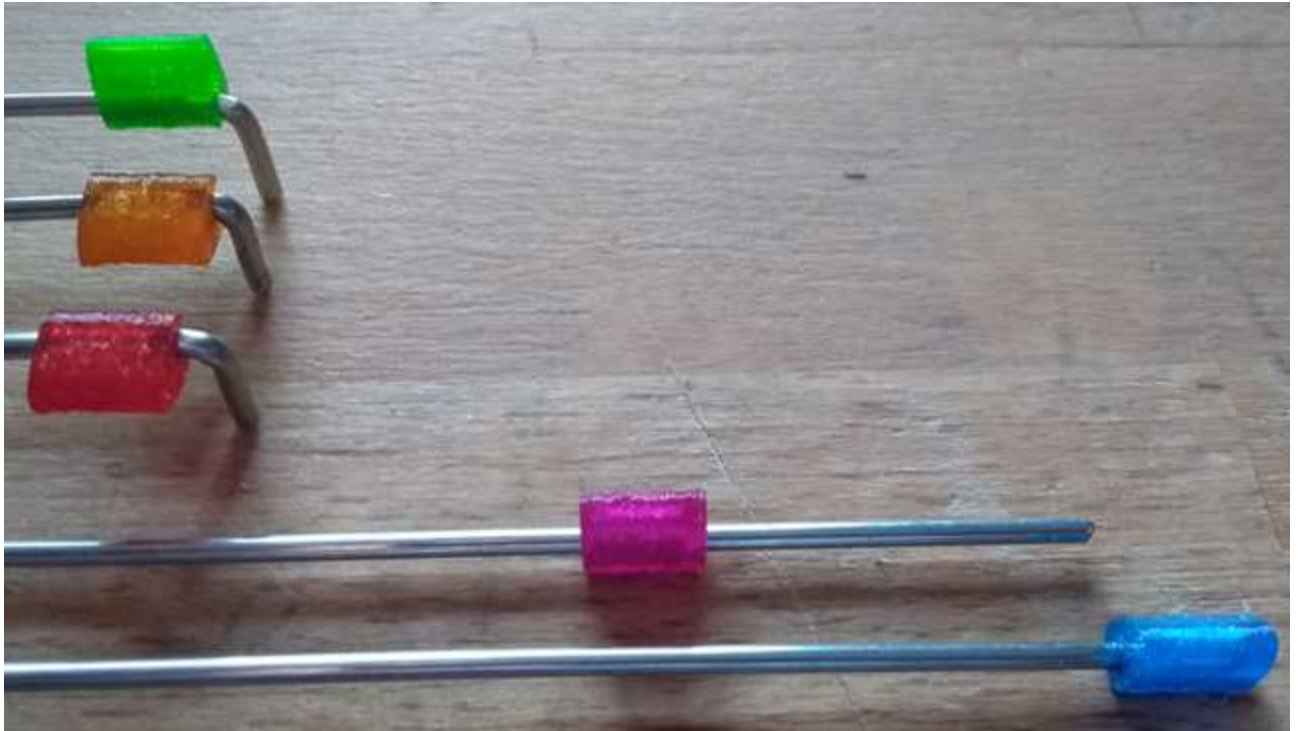
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The rod is cut to length to fit the center of gravity and bent 90 degrees at the end. The colorful handle piece is rotated upward for insertion and 90 degrees to the side in flight to ensure the canopy closes cleanly.



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6 Basic-Setup

6.1 Setup Stream Team (Roland "Rollo" Sommer)

CG:

Calm:	68,5 mm
Windy:	down to 65 mm

Deflection and mixer:

Elevator:	14 mm up, 8 mm down
Rudder:	± 14 mm
Flaperon (with neg. differentiation):	8 mm up, 14 mm down
Snap Flap (all Phases):	± 3 mm

Flight Phases:

	Flaperons	Elevator
Start:	0 mm	+ 1mm
Zoom:	-0,5 to -1 mm (up)	
Speed:	0 mm	
Cruise/Thermal 1:	2 mm	
Float/Thermal 2:	4 mm	