

Paper and Glue Glider



Date:	24-Mar-2018	Version:	2
Author:	Maarten Kylstra	Weight:	About 1.23 ounce = 35 grams
Name:	White Bird	Length:	About 15.75 inches = 40cm
		Wingspan:	About 21 inches = 53cm

This model airplane was intended to be flown in light winds outside in an area without obstructions and away from power lines. Since this airplane is made from paper and glue, it is not as sturdy as a regular model aircraft. So, do not throw it very hard. The intention of this design was to create a more aerodynamic high performance disposable cheap free flying airplane that is safe and can be enjoyed by all ages.

All free flying airplanes inevitably get stuck high in a tree or in an area where it cannot be retrieved. Hence, it is important that the airplane is biodegradable so you can fly it in areas like nature areas where if it cannot be retrieved, it would not hurt the environment. Furthermore, this airplane is designed to stay in a straight path of flight. This allows you to launch this airplane parallel to a ridge which should give you a nice long flight utilizing the updraft.

Materials Needed:

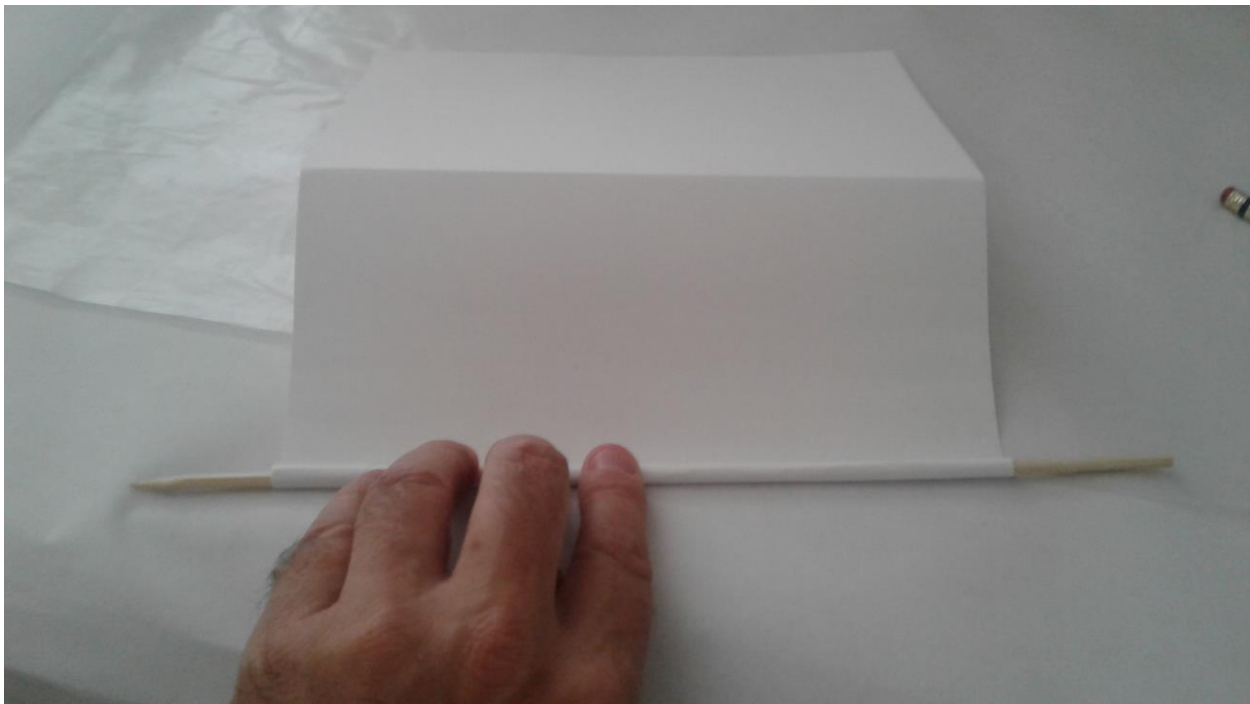
- 8.5 x 11 inch Printer paper (A4 = OK). About 8 sheets

- Non-toxic Glue. I use Tacky Glue for joining wings to body and stabilizers to fuselage. You can use Elmer glue as well. For all other areas, you can use Stick Glue. Some people use an Iron to speed up the drying process of the Tacky Glue.

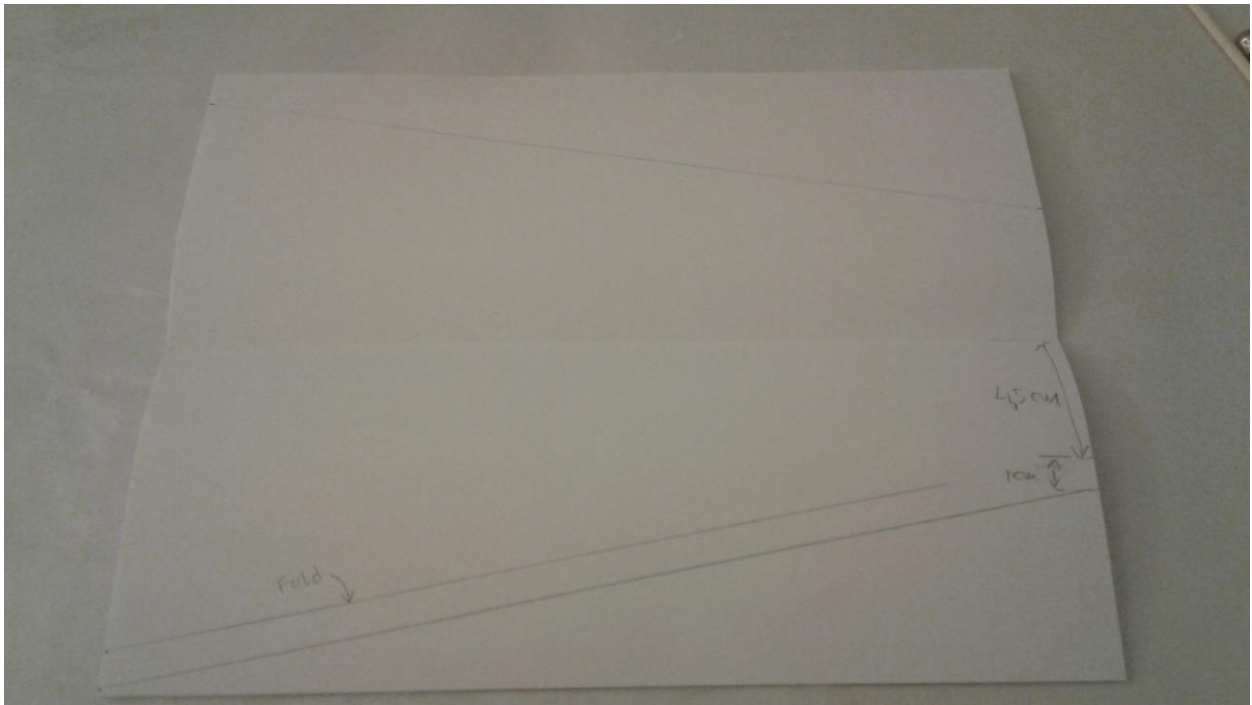
Tools:

- Scissors
- Skewer (or any other 1/8 inch = 4mm diameter rod).
- 2mm diameter metal wire/rod. I use part of a wire hanger.
- Something to smooth out glue. I cut up a plastic ketchup bottle
- Ruler
- Paper towel to wipe up spilled glue.

Instructions:



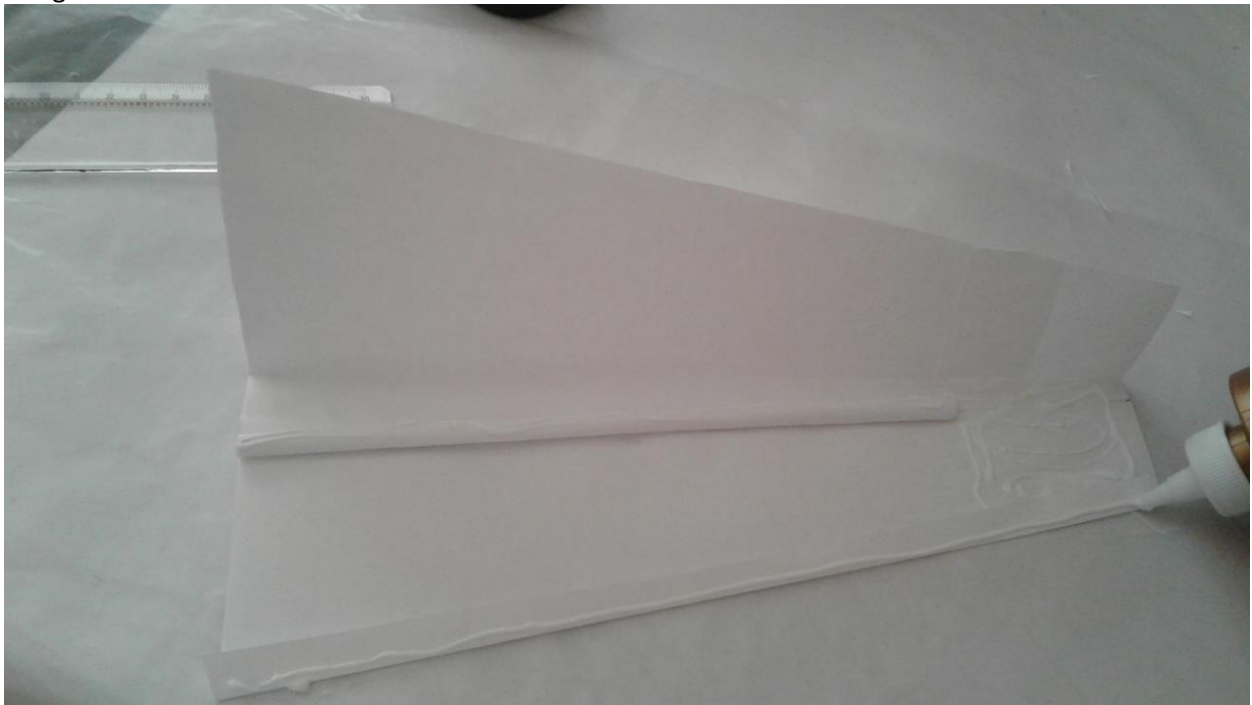
Inner wing: Roll paper along skewer and make sure to glue the first and fifth loop.



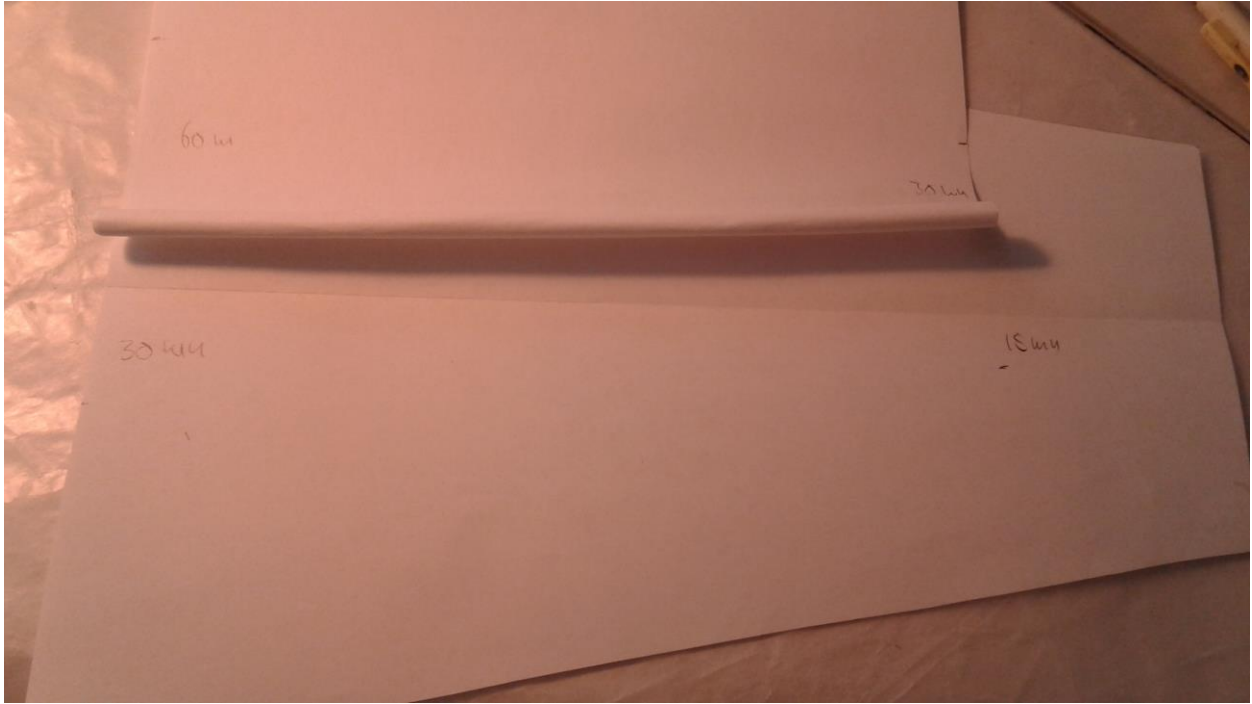
Wing:



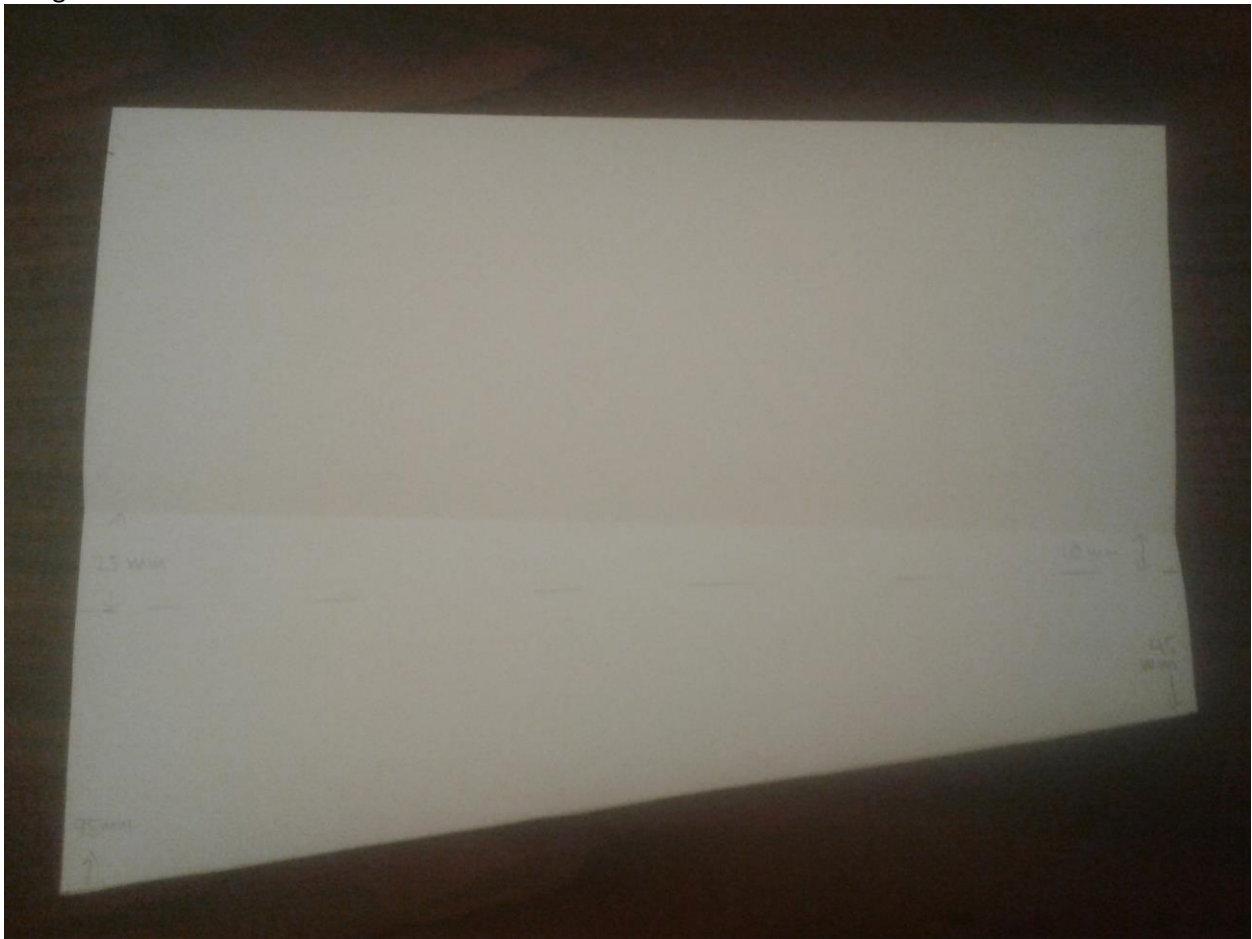
Wing: Cut



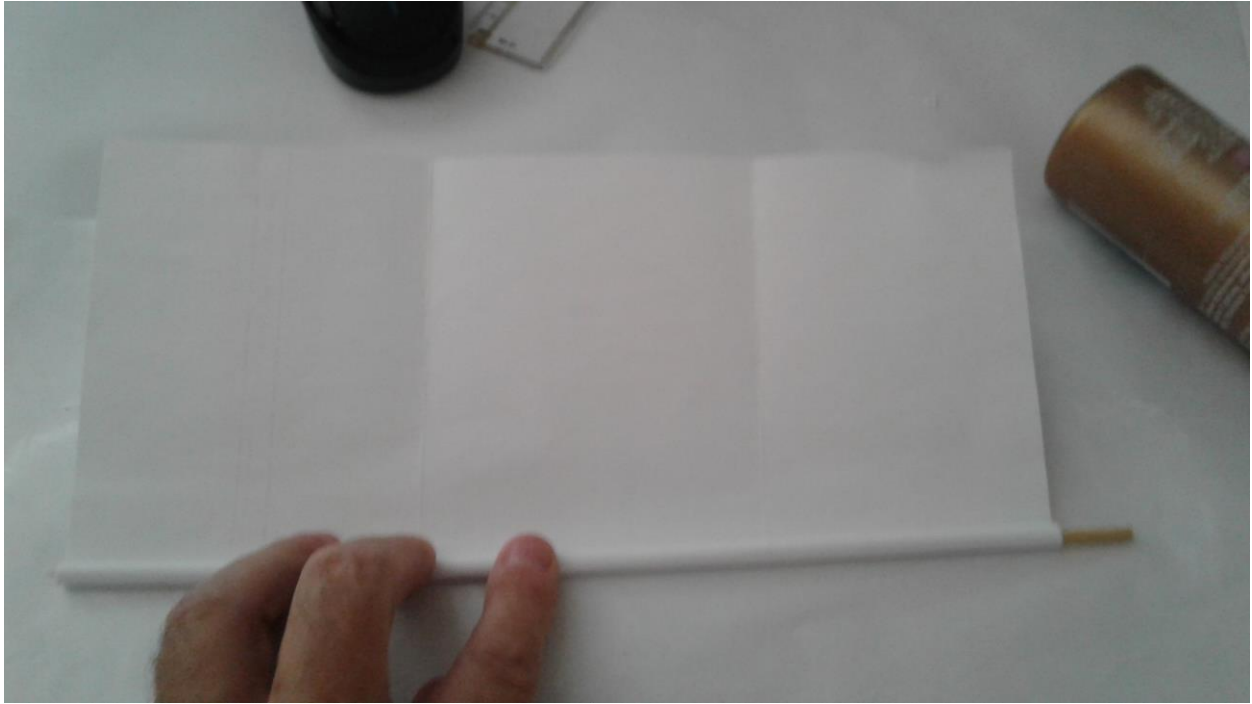
Wing: Glue inner wing and close each side.



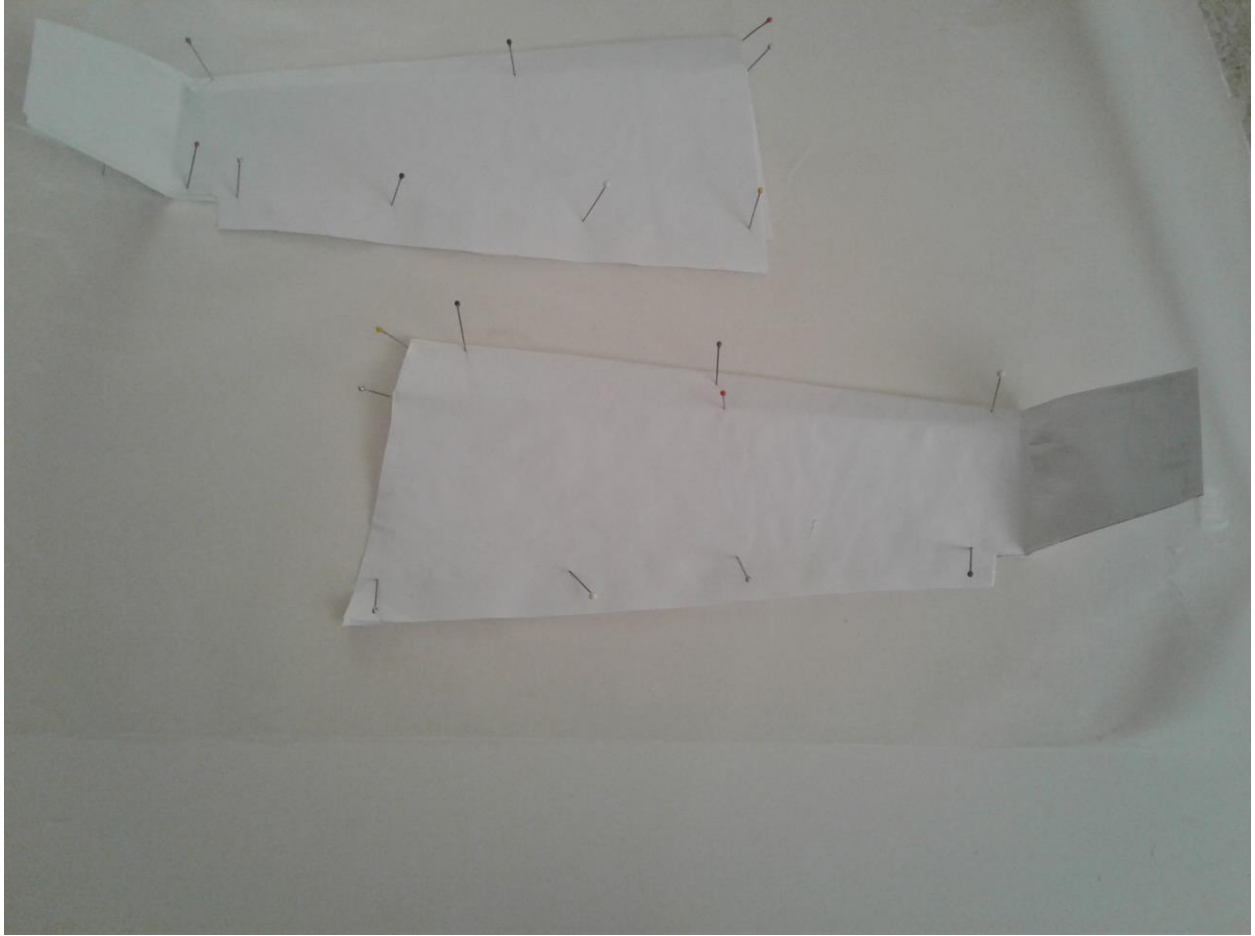
Wing: Alternative



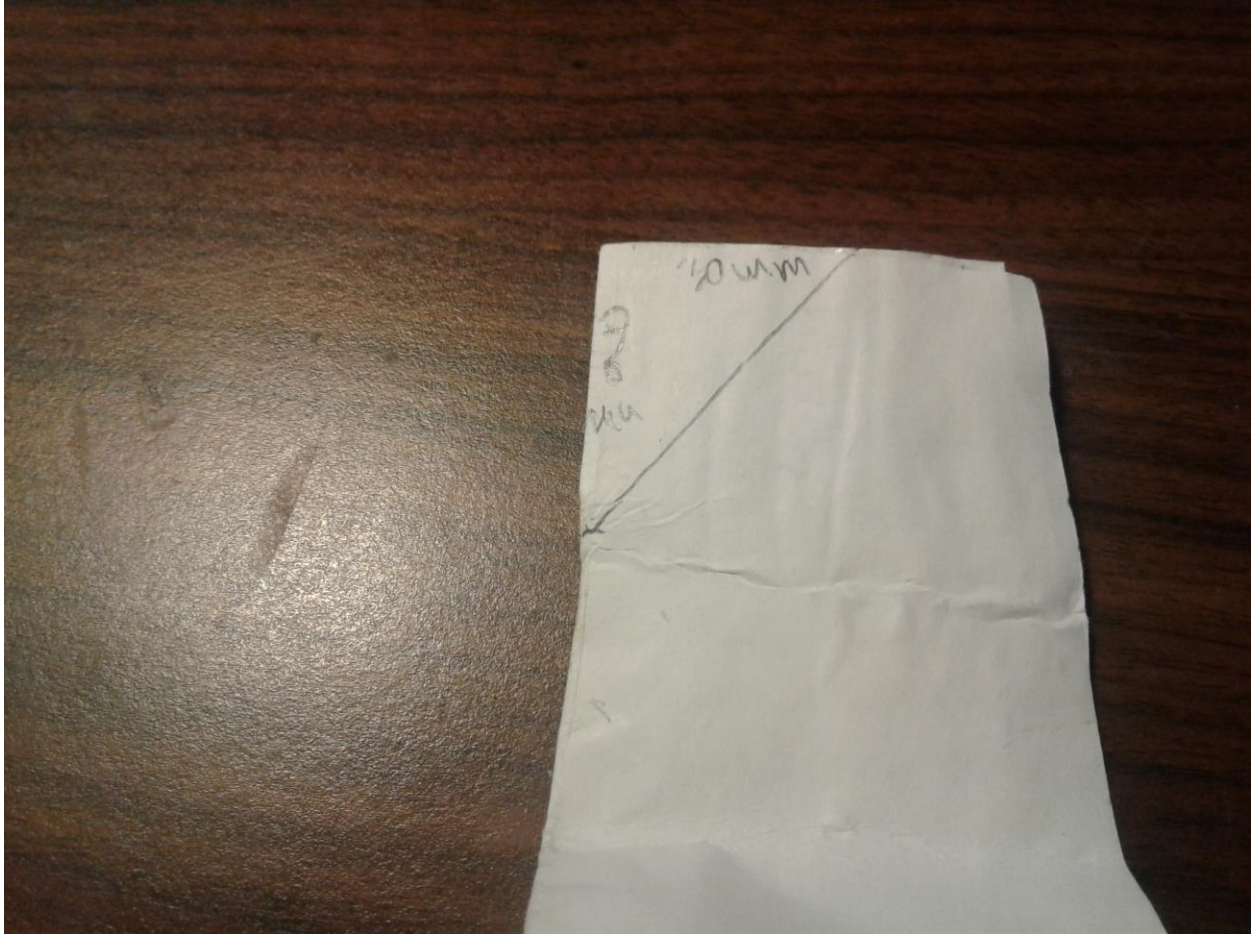
Wing: Alternative



Wing: Create extra rods to join wings together



Wing: You can use pins to hold in position

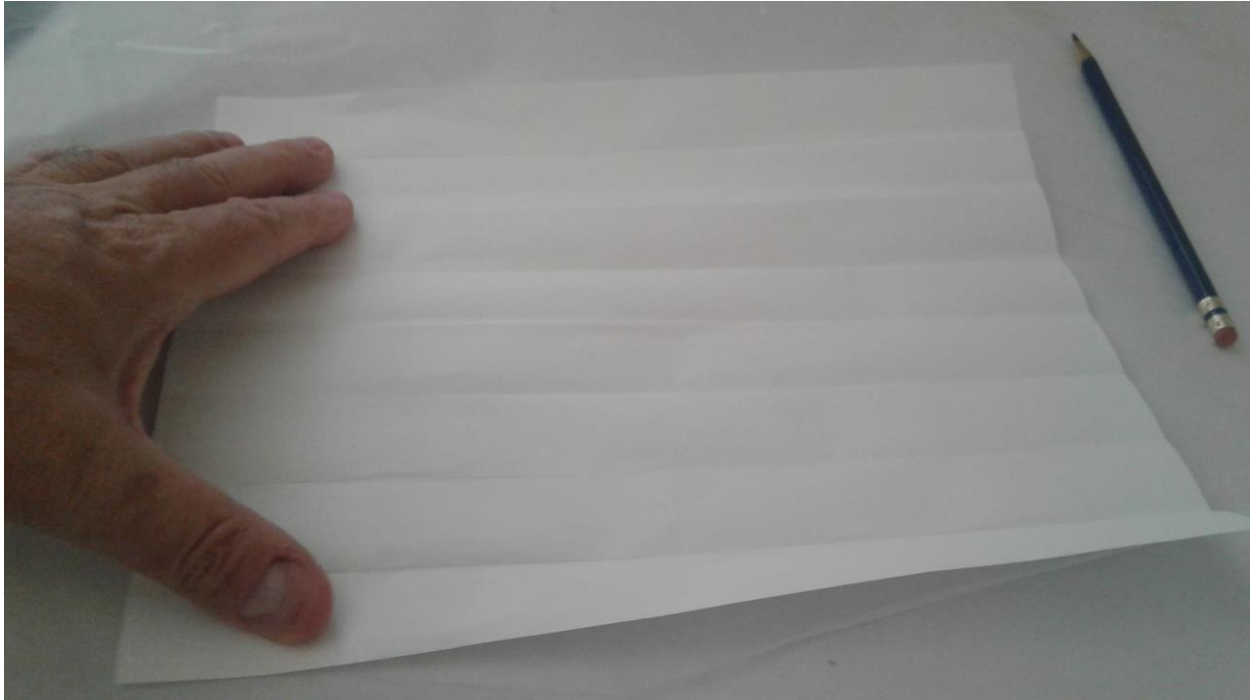


Wing: If you flying in an area with high winds, you may want to trim the leading edge of the winglets

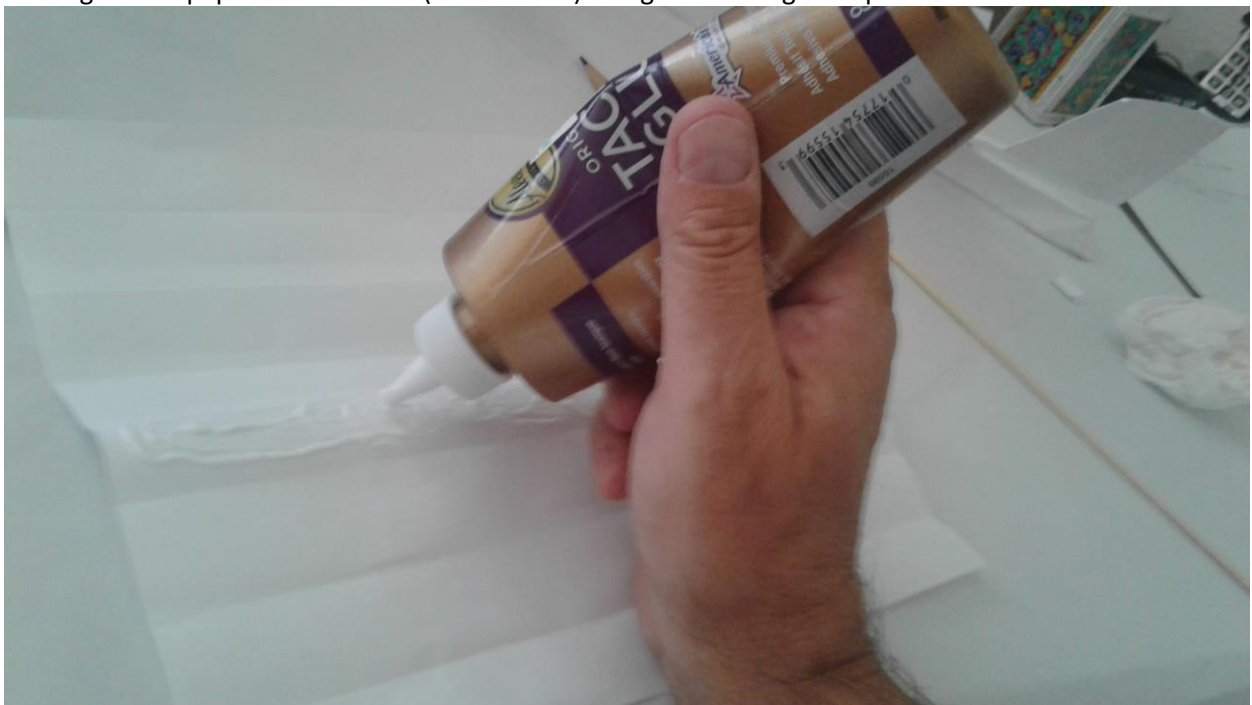


Wing: Prepare to join wings

Make sure you join the 2 wings with about 5 to 10 degrees dihedral. Wing tips have about 30 degrees dihedral angle.

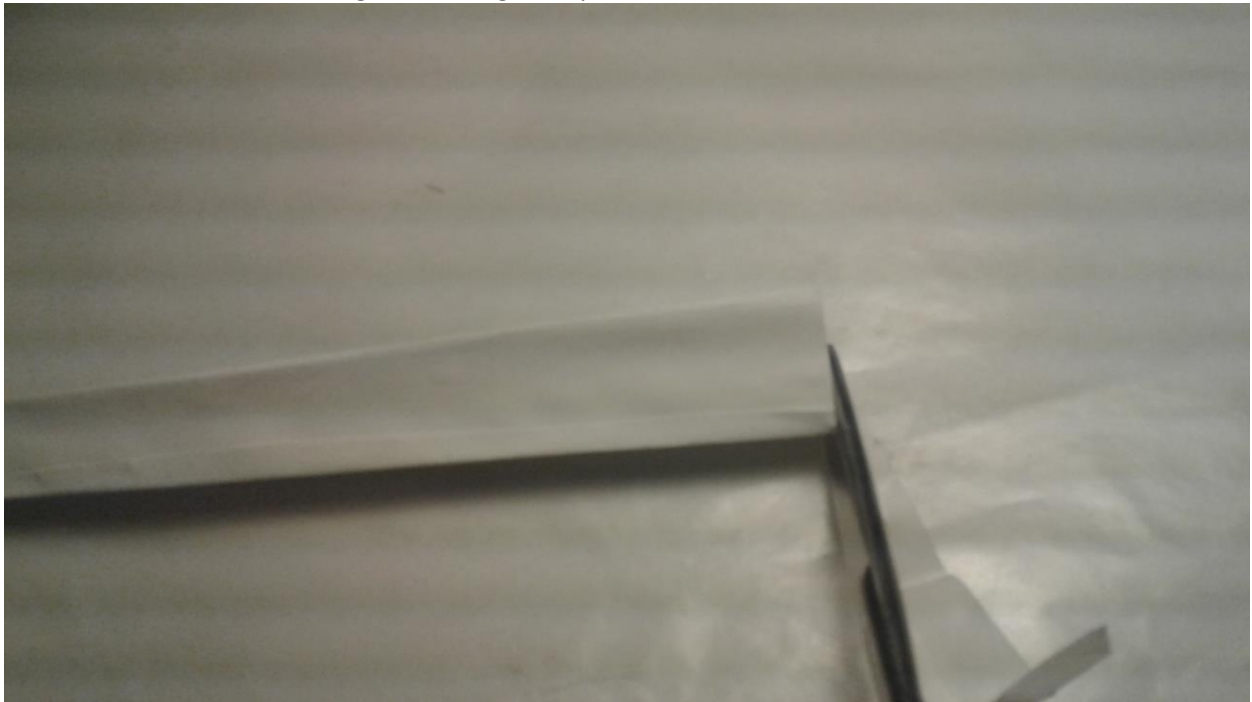


Fuselage: Fold paper as illustrated (25mm folds) and glue in triangle shape

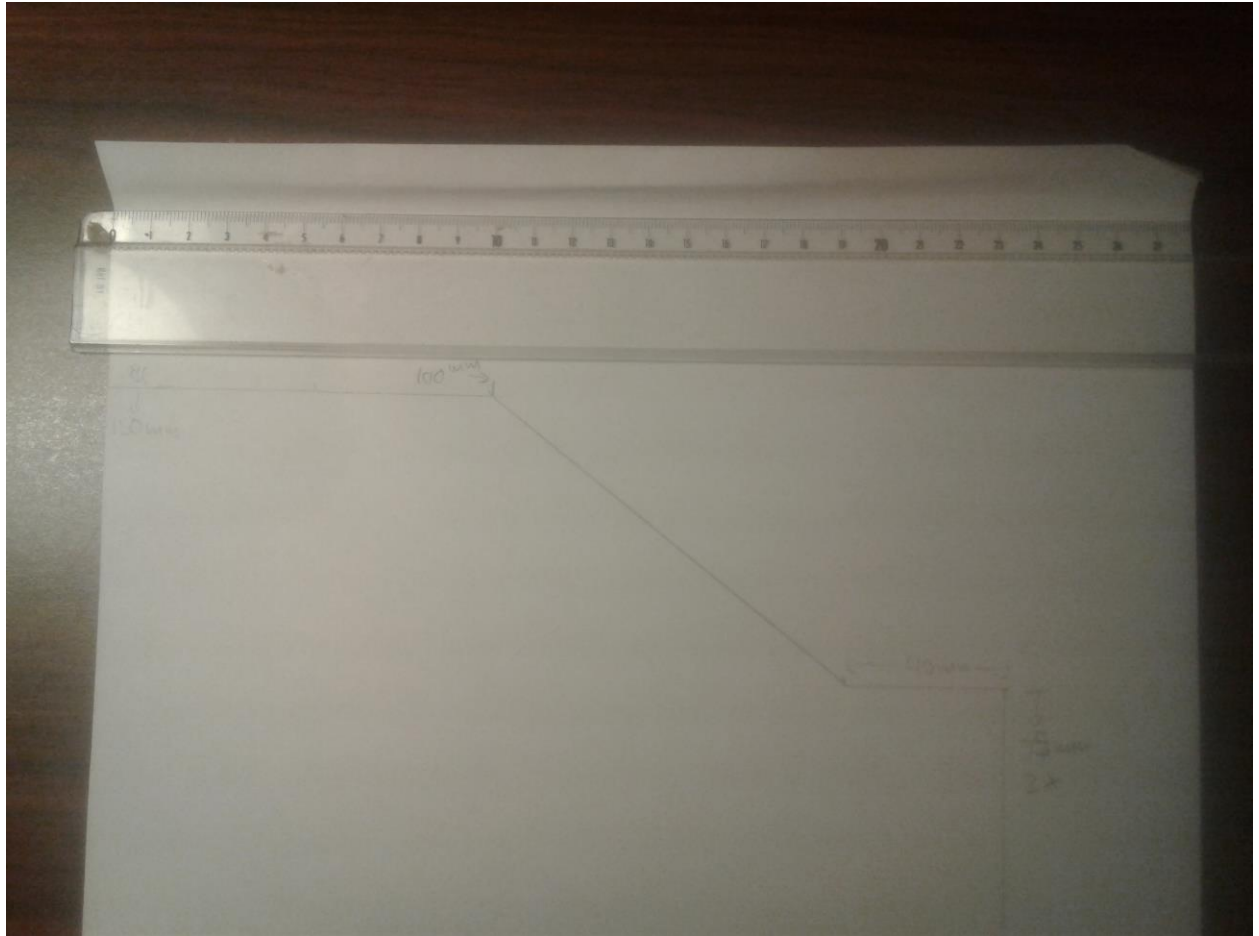




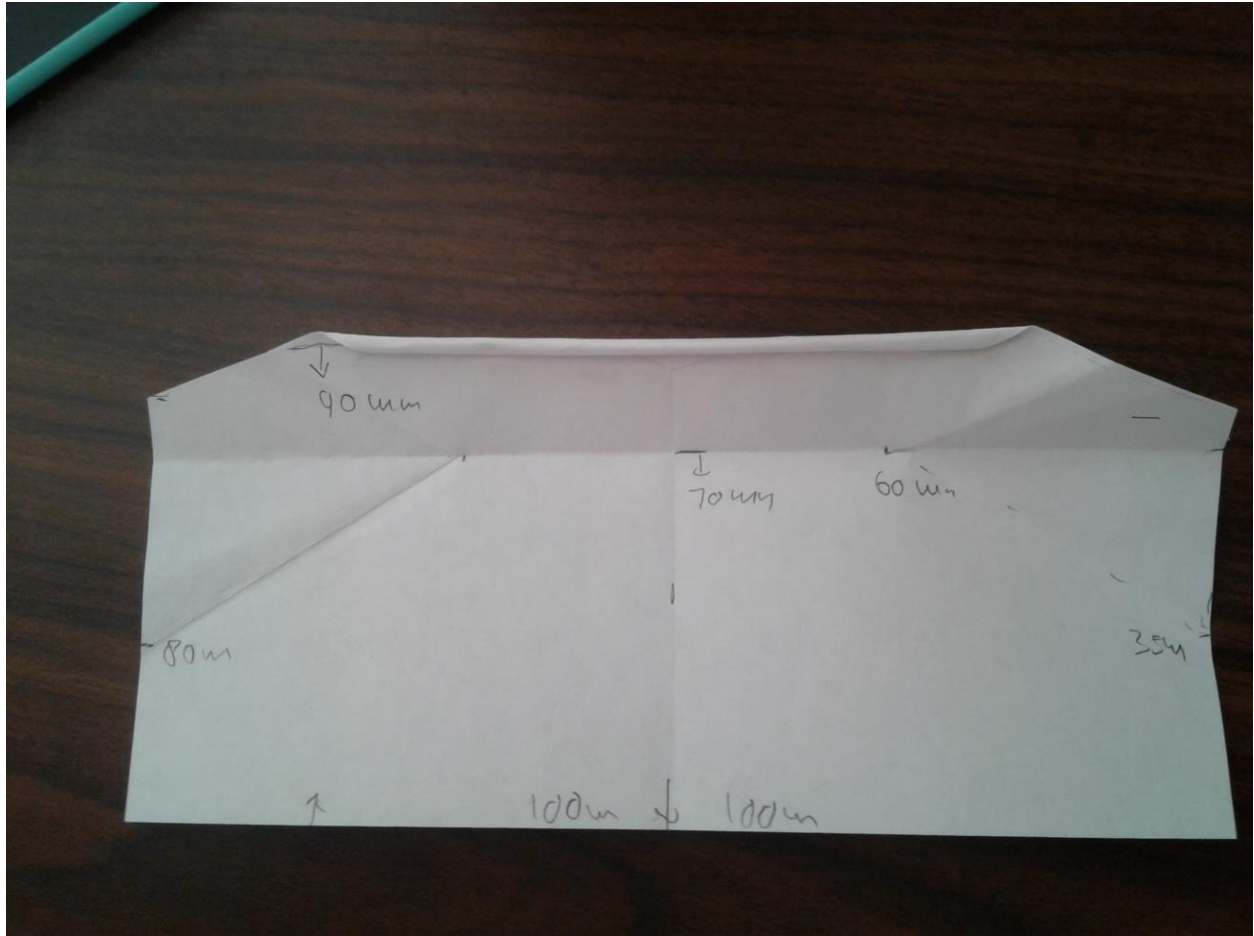
Tail: Fold and illustrated and glue in triangle shape.



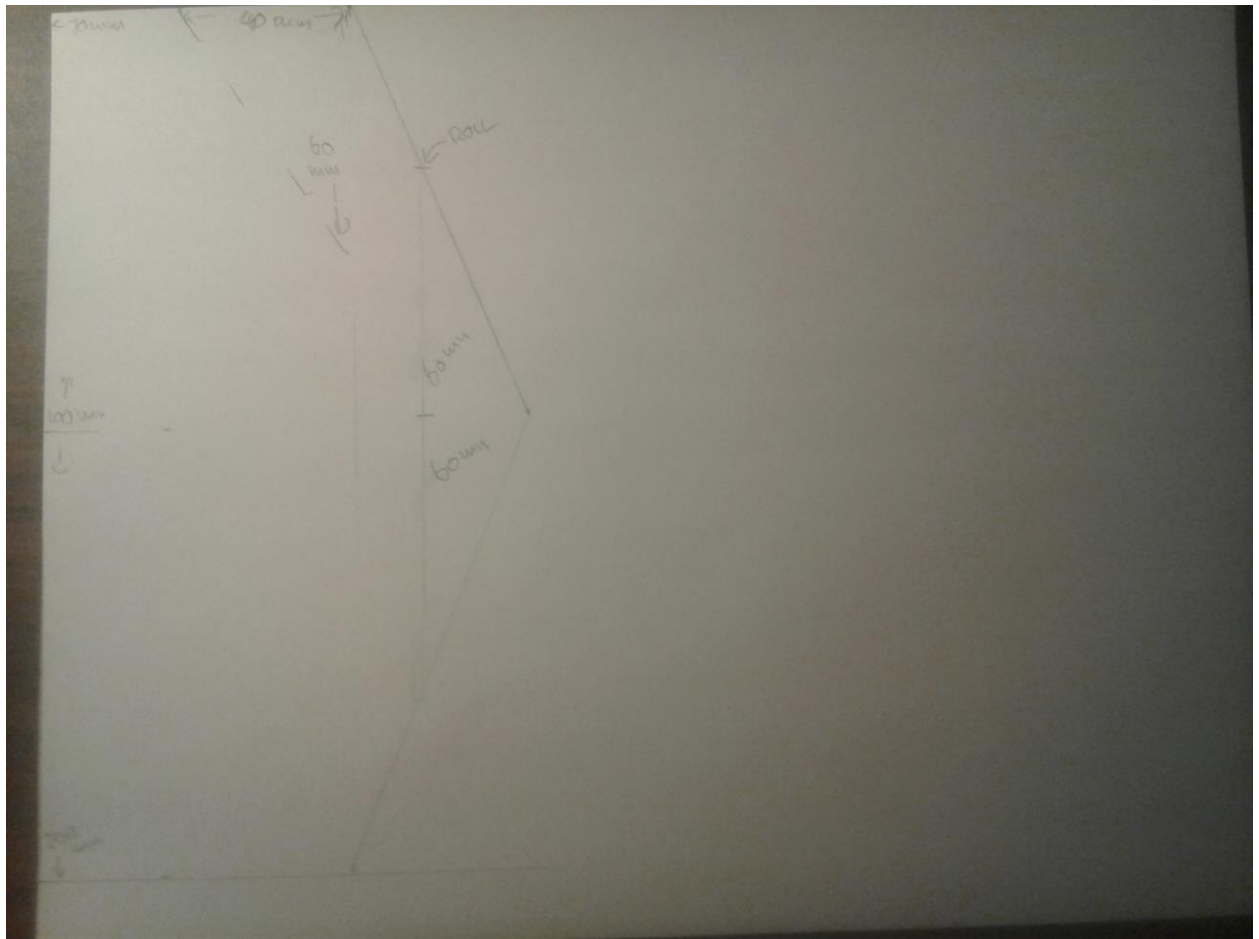
Tail: Trim both sides.



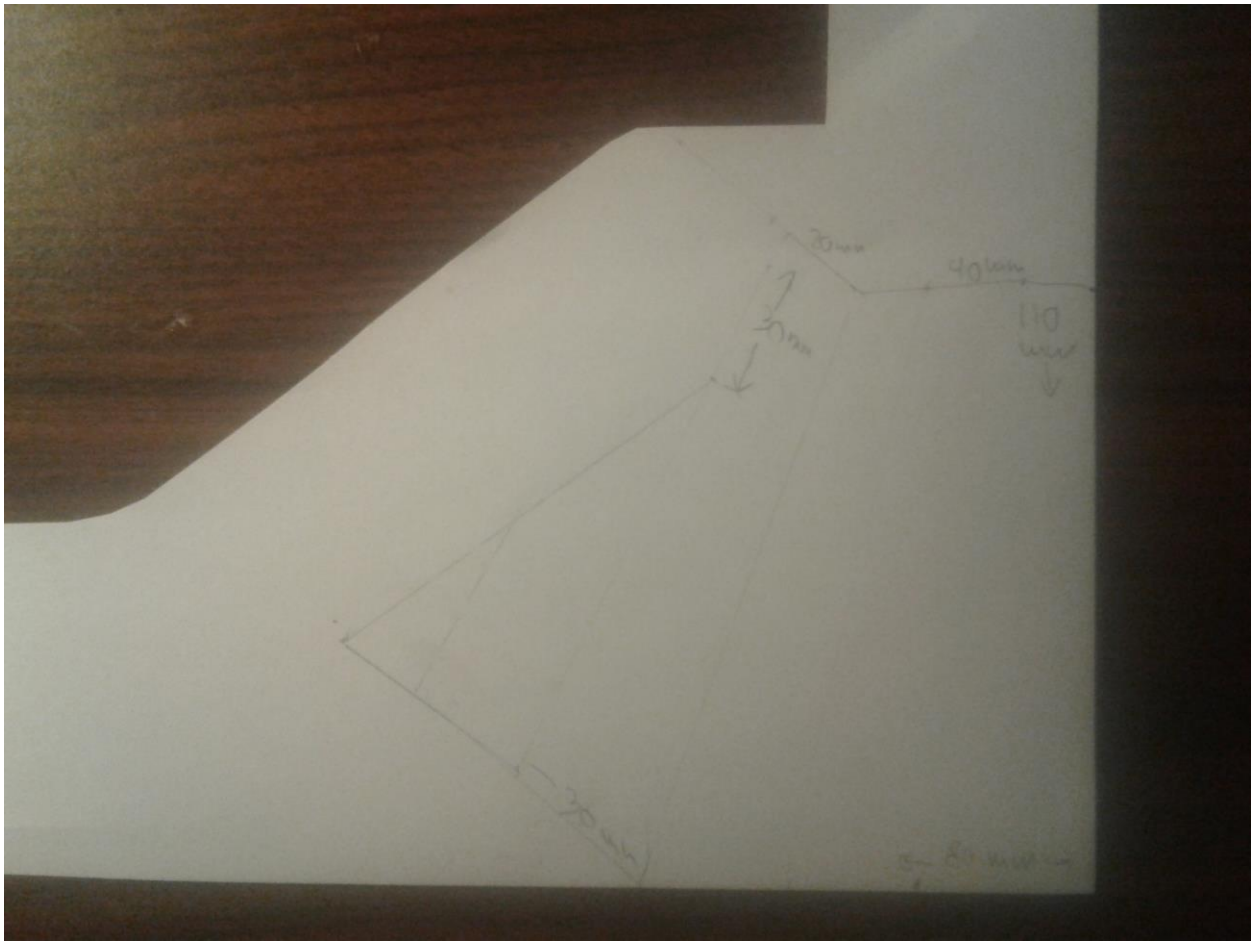
Tail: Boom



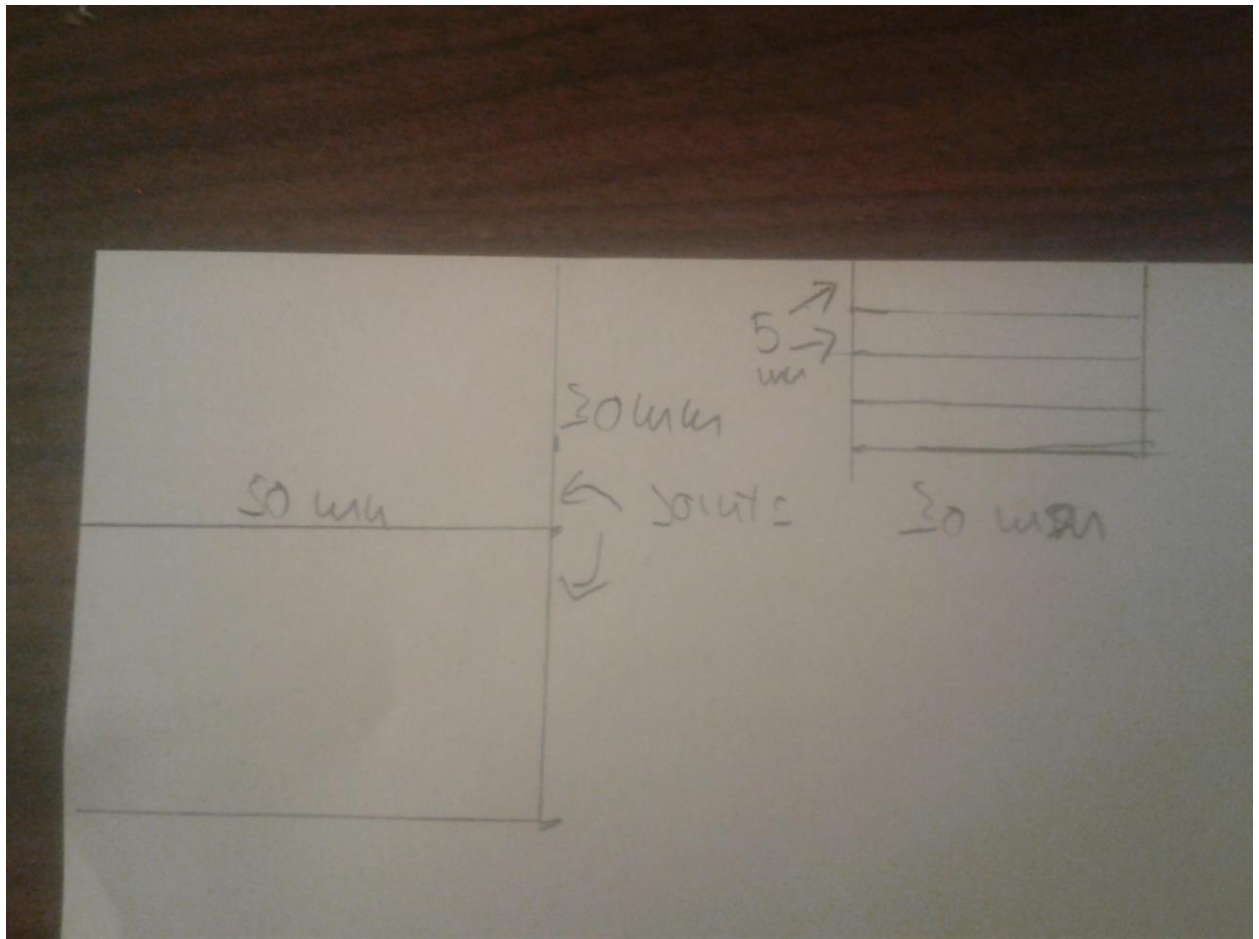
Horizontal Stabilizers: Cut out.



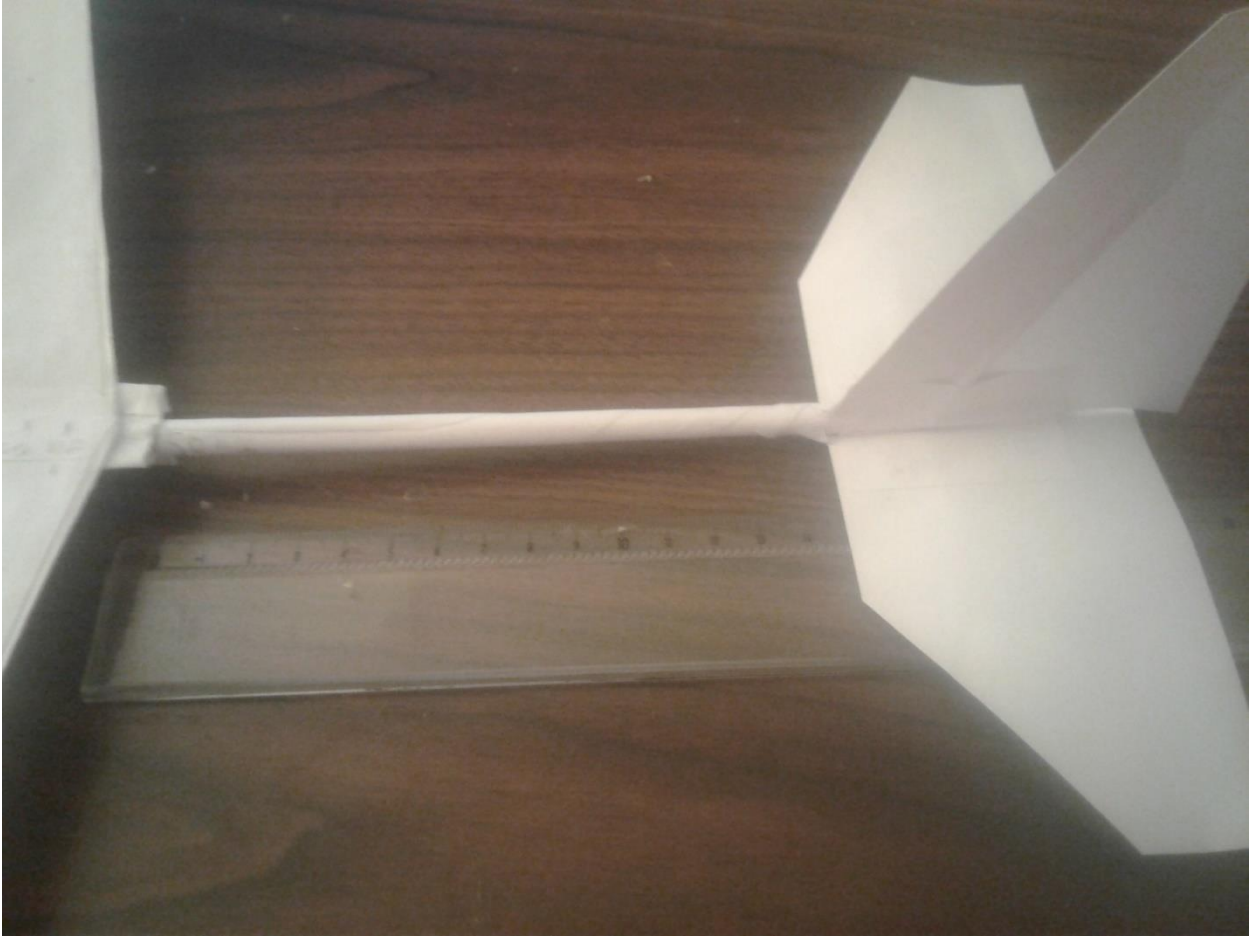
Horizontal Stabilizers:



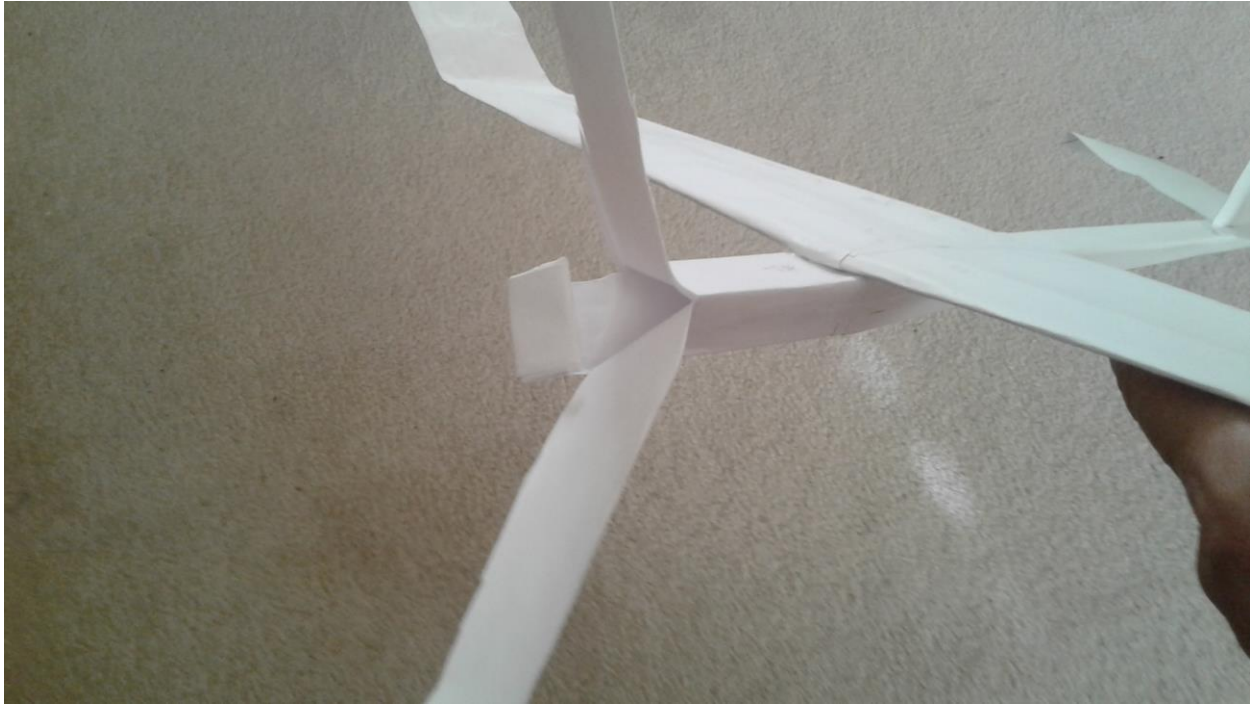
Vertical Stabilizer:



Vertical Stabilizer mount pieces:



Fuselage: Join tail to fuselage



Cut the front fuselage and fold.





Ensure the Center of Gravity is 60mm from front of main wing:

Have fun.

Avoid **flying** over or **near** obstacles, **crowds**, high voltage **power lines**, trees or bodies of water. **Do not retrieve the airplane if this will endanger you, somebody else, takes you into an area that is not public property.**



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1					
2	Wing:				
3	Span	210 mm	*2		
4	Root Cord	95 mm			
5	Tip Cord	55 mm			
6	AC	18.75 mm	from front		
7	Area	15750 mm ²			
8	SM	7.5 mm	10% of MAC		
9					
10	Horizontal Tail				
11	Span	100 mm	*2		
12	Root Cord	70 mm			
13	Tip Cord	30 mm			
14	AC	37.5 mm	from back		
15	Area	5000 mm ²			
16					
17	Vertical Tail				
18	Span	110 mm	*2		
19	Root Cord	80 mm	Last version: 73 mm		
20	Tip Cord	40 mm	Last version: 35 mm		
21	AC	45 mm	from back		
22	Area	6600 mm ²			
23					
24	L Hor	250 mm	Last version: 230 mm		
25	L Vertical	260 mm	Last version: 250 mm		
26	D	60.241 mm			
27	CG	71.491	from front main wing		
28	VH	0.83496	.35 is less effective and .8 is SUPER effective.		
29	VV	0.25941	.02 is a less effective tail and .05 is a SUPER effective tail.		
30					
31					



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SX