

User Guide

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Version: 1.0

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CraycleCub



General Specifications

Length	: 510 mm	20 inches
Wingspan	: 800 mm	31.5 inches
Print Weight	: 240 g	8.46 oz.
Flying Weight	: 450-550 g	15.8-19.4 oz.
Wing Area	: 9.16 dm ²	
Wing Loading	: 49,1 g/dm ²	
Airfoil	: USA 35B	

Recommended Setup

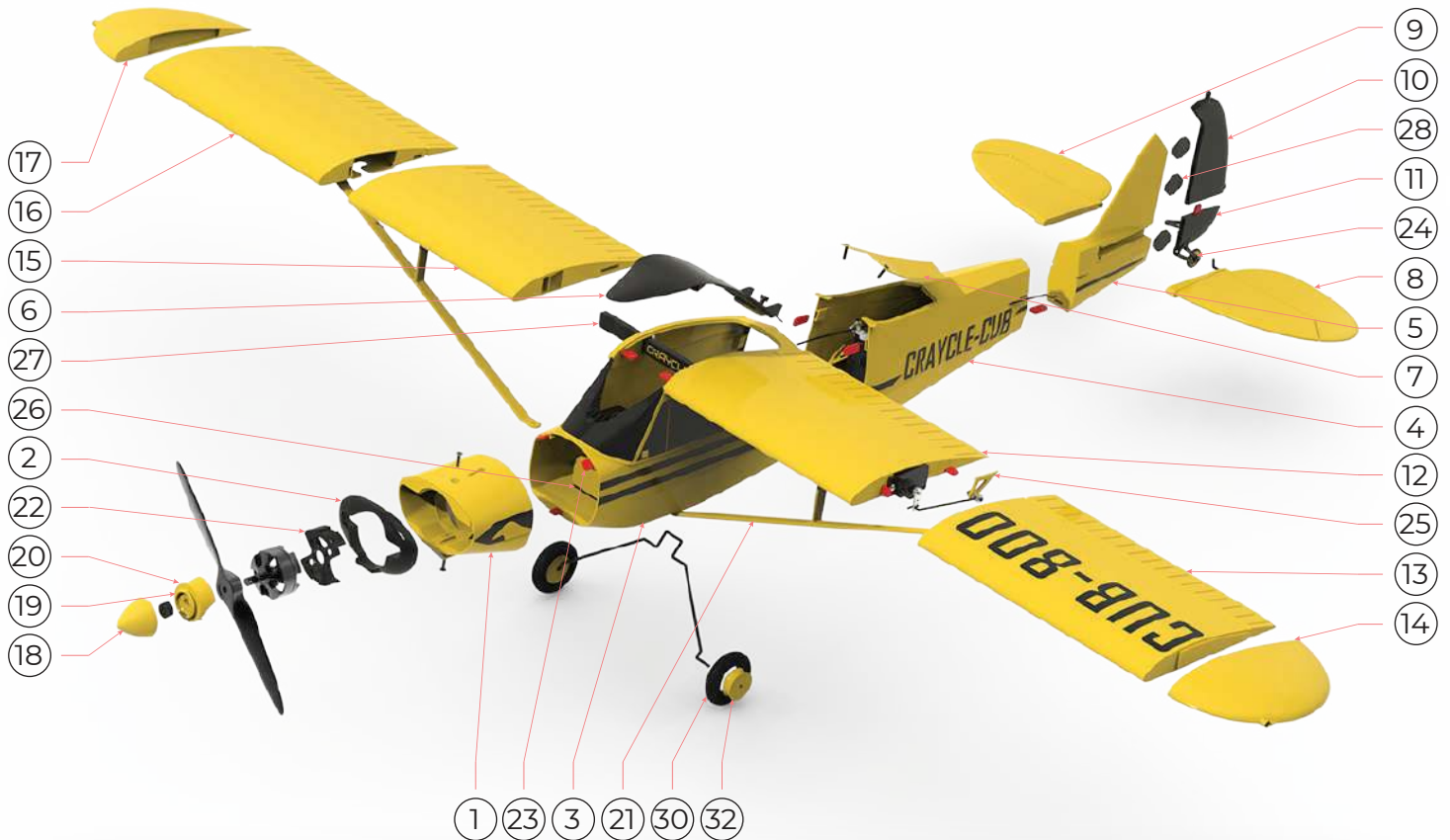
Motor	: 2204/5/6 1500/2500 kv
Propeller	: 5/6/7" - 2/3/4 Blade
ESC	: 15-30A
Servo	: 4 X 9 g
Battery	: 3s 850-2500 mAh
Analog/DJI/Vista FPV systems	

Maker Skill 
Pilot Skill 



Min. Printer Size
180*180*180 mm
Filament
Regular PLA

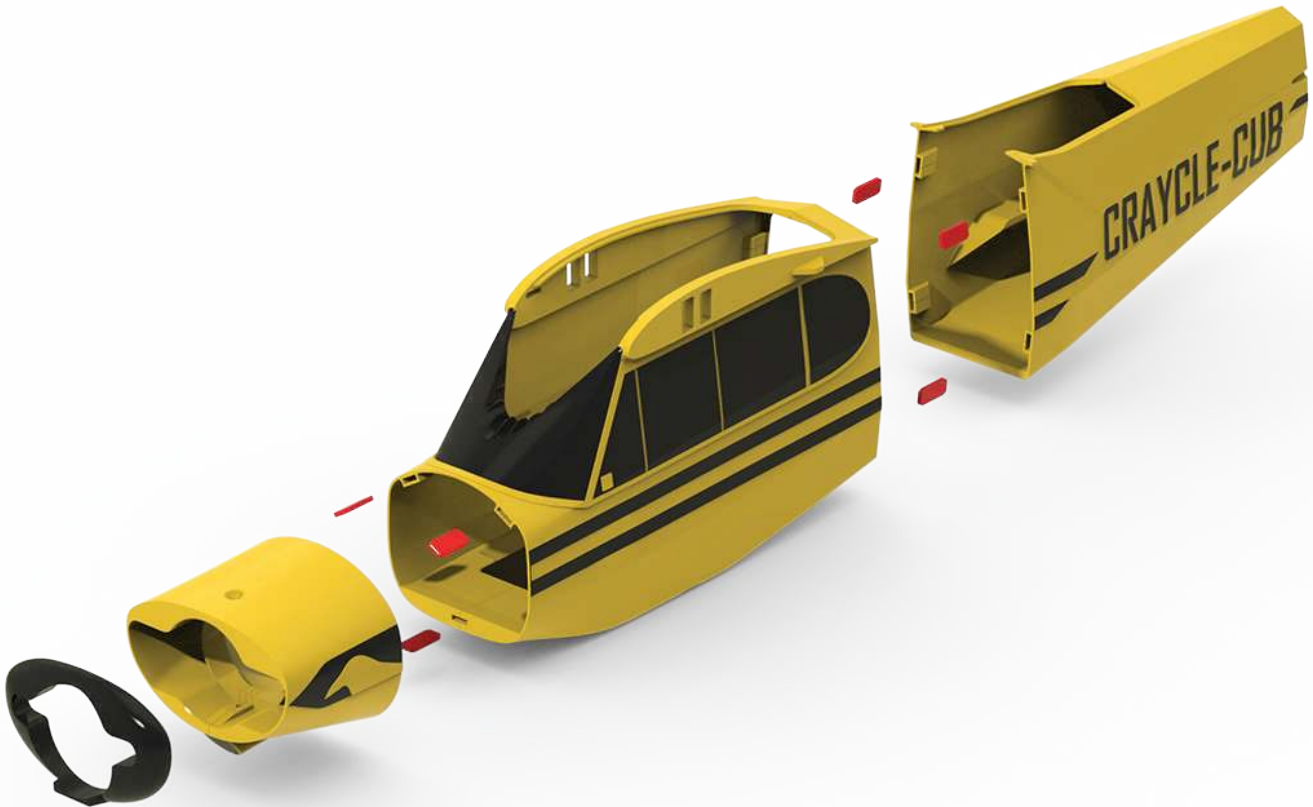
Part List



CraycleCub Part List

Number	Part Name	Quantity	Weight (gram)	Number	Part Name	Quantity	Weight (gram)
1	cub_fs1	1	10,5	18	5x15_spinner_cap	1	0,5
2	cub_fs1_nose	1	2,95	19	5x15_spinner_adaptor	1	0,15
3	cub_fs2	1	38,9	20	5x15_spinner_base	1	0,8
4	cub_fs3	1	27,73	21	cub_wingsupport	1	8,2
5	cub_fs4	1	7,2	22	motor_mount_3mm	1	2,3
6	cub_hatch1	1	6	23	cub_pim	15	2,17
7	cub_hatch2	1	3	24	cub_rearbracket	2	0,4
8	cub_elevator_l	1	5	25	cub_horn	4	1,14
9	cub_elevator_r	1	5	26	cub_lipomount	1	3,27
10	cub_rudder1	1	2,65	27	cub_wingspar	1	2,5
11	cub_rudder2	1	1	28	craycle_hinge (TPU)	12	1,7
12	cub_wing_l1	1	19,89	29	cub_wheel14_ring (TPU)	1	0,8
13	cub_wing_l2	1	23,84	30	cub_wheel35_ring (TPU)	2	4,8
14	cub_wing_l3	1	5,54	31	cub_wheel14_rim	1	0,21
15	cub_wing_r1	1	19,89	32	cub_wheel35_rim	2	1,86
16	cub_wing_r2	1	23,84	33	lock_body	1	0,5
17	cub_wing_r3	1	5,54	34	lock_catch	1	0,23
Total Model Weight = 240							

Assembly



STEP 1

Glue the "lipo_mount" part to "fs2", then glue the "fs1-nose-fs2-fs3" parts together using CA glue. You can insert the "cub_pim" parts (Ø3x12 mm) into the guiding holes for each parts to facilitate assembly.

Never spray the accelerator directly onto the CA glue! Spray on first piece and wait for 15 seconds to dry it. Then you can apply glue on the other piece and put the pieces together.

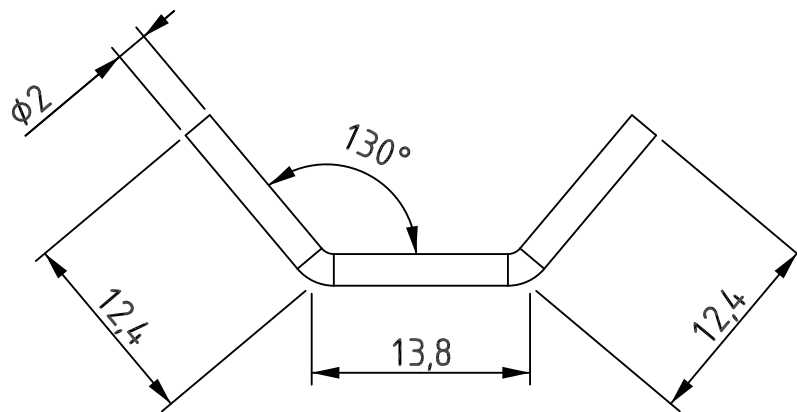
Note: Avoid excessive use of glue.

Assembly

STEP 2

Glue the "fs4" - "elevator_r" - "elevator_l" parts together. Take a little piece of 2 mm steel wire and bend with the dimensions (as millimeter) as below and glue into its slot under the elevator. This wire will distribute all the force to both sides.

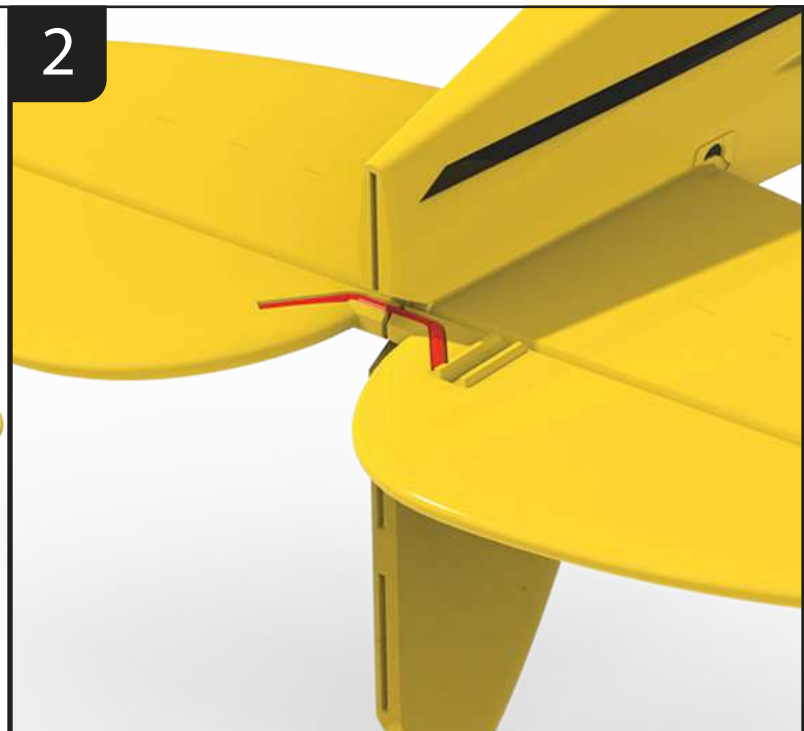
2 mm steel wire will also be required to make landing gear too.



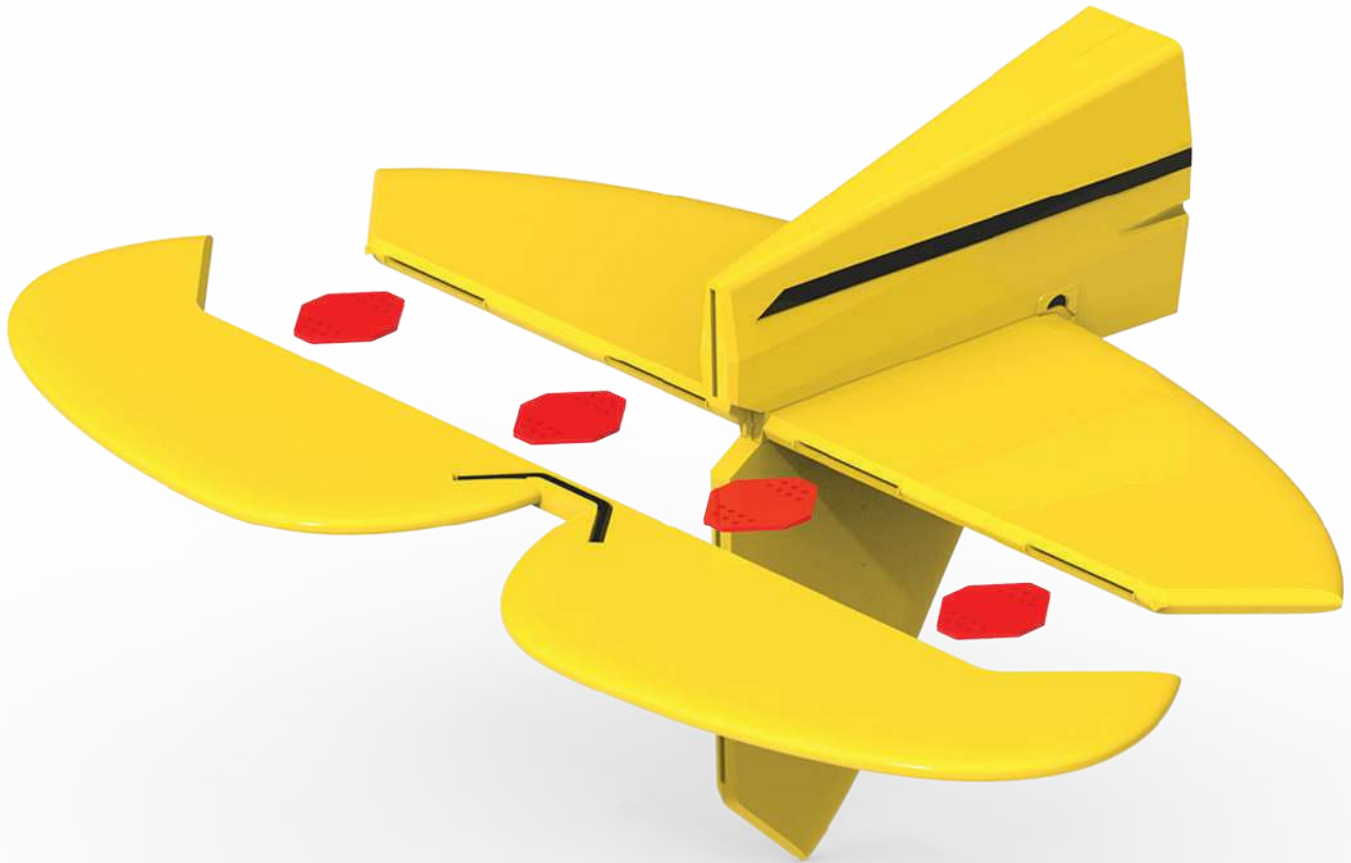
1



2



Assembly



STEP 3

Release the elevator flaps from the elevator by breaking it's tiny connections.

Reassemble and glue the flaps using TPU hinges or CA hinges that you prepared by using Hinge Maker Tool (Free on craycle.com).

Note: The CA accelerator sprayed to stick the elevator may have contaminated the hinge slots! Take your time, apply the glue onto the hinges one by one and insert into the slots on the flap first.

Assembly

STEP 4

Glue the "rudder1" and "rudder2" parts together by inserting "cub_pim".

Glue the rudder you prepared to the tail by inserting hinges into its slots.

Note: The CA accelerator sprayed to stick the elevator may have contaminated the hinge slots! Take your time, apply the glue onto the hinges one by one and insert into the slots on the rudder first.



Assembly



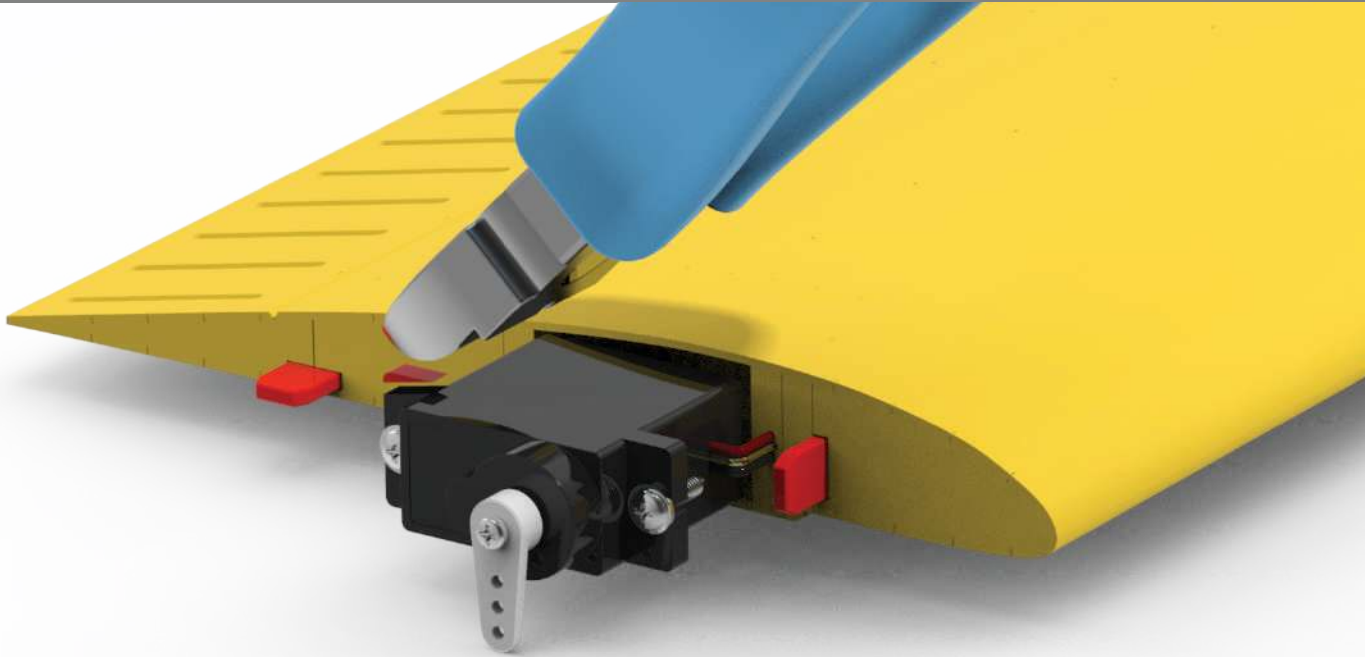
STEP 5

Clean the little “rearbracket” parts and glue onto the slots on the rudder. Assemble the “wheel14_rim” and “wheel14_ring” parts together to get rear wheel.

Assemble the rear wheel to the rudder by using a 2 mm servo mounting screw or something similar.

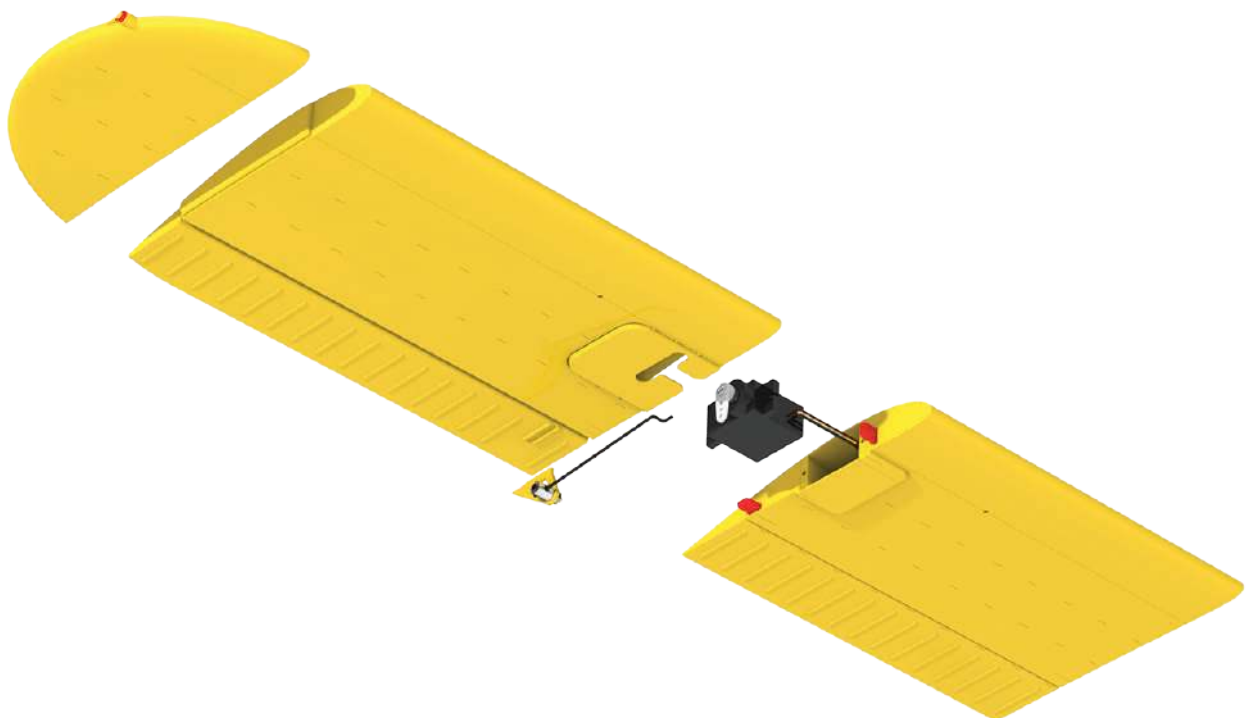
That's it! You have a rear landing gear with the steering system.

Assembly

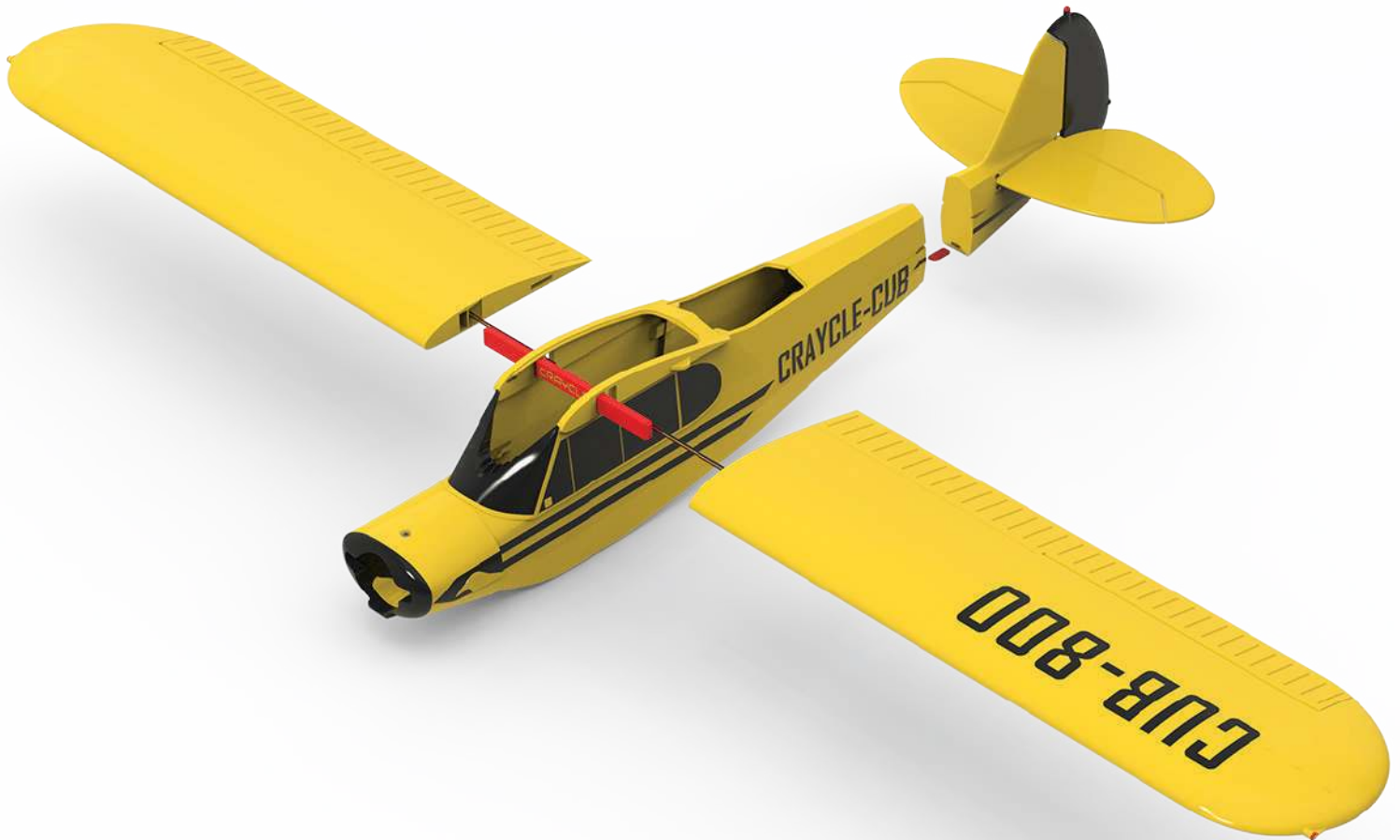


STEP 6

Take the servo as position as the same with the image above and screw onto the “wing1” part. Also, you need to trim the servo arm using cutting pliers as in the image above. Then you can glue the “wing1”- “wing2” and “wing3” parts together by inserting pims into the its slots. Be careful not to apply glue to the servo and same process goes for the other side.



Assembly



STEP 7

Insert the “wingspart” to the fuselage and glue it from the inside of the fuselage (Make sure it is centered with the reference lines on the wingspar).

Insert the servo cables to the fuselage. Assemble the wings to the fuselage and glue them together. Hold the wings as horizontal as possible during the gluing process. Wing supports will align the wings as well.

Stick the tail that you prepared to the fuselage by inserting it's pim to facilate assembly.

Assembly

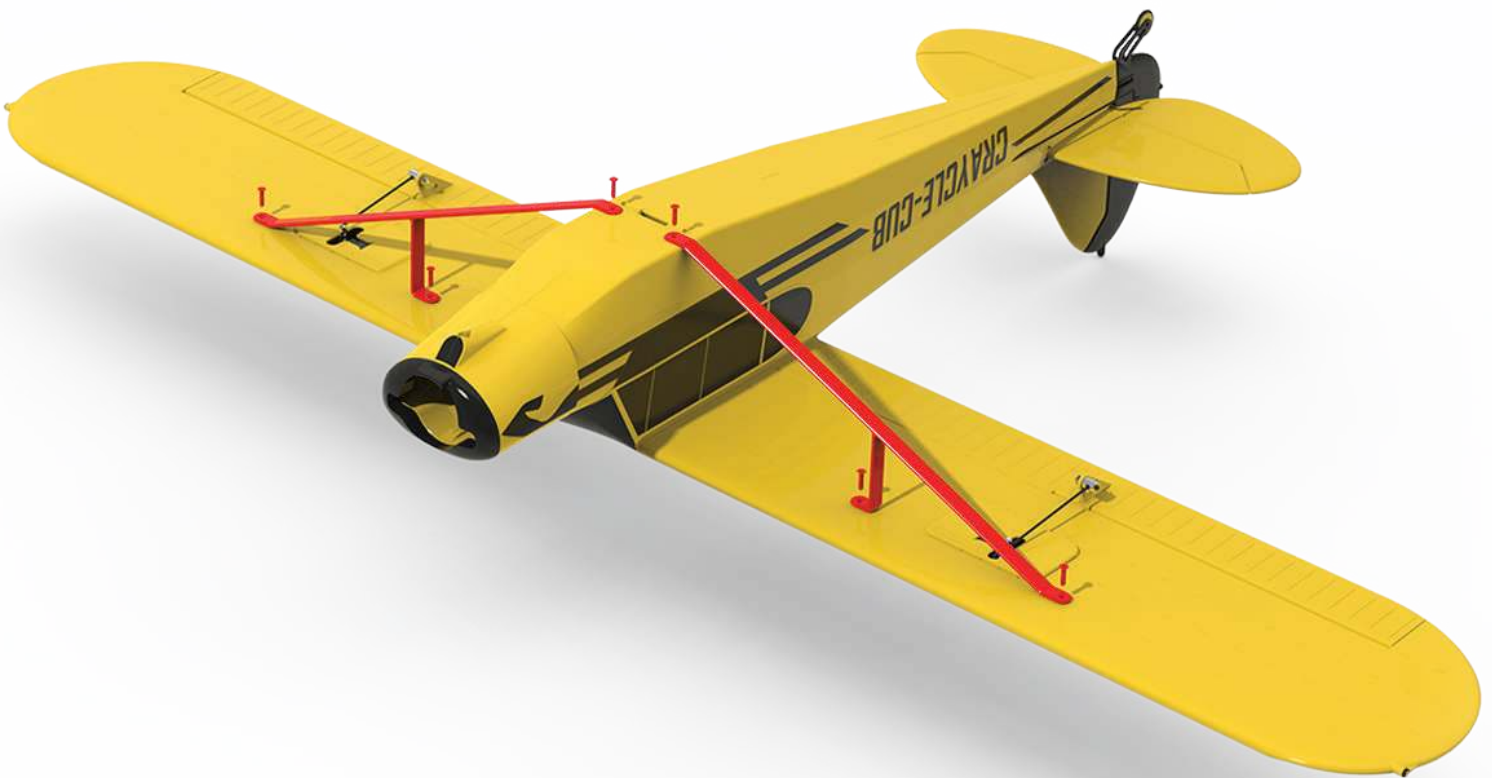
STEP 8

In this step, take your time and do it right!

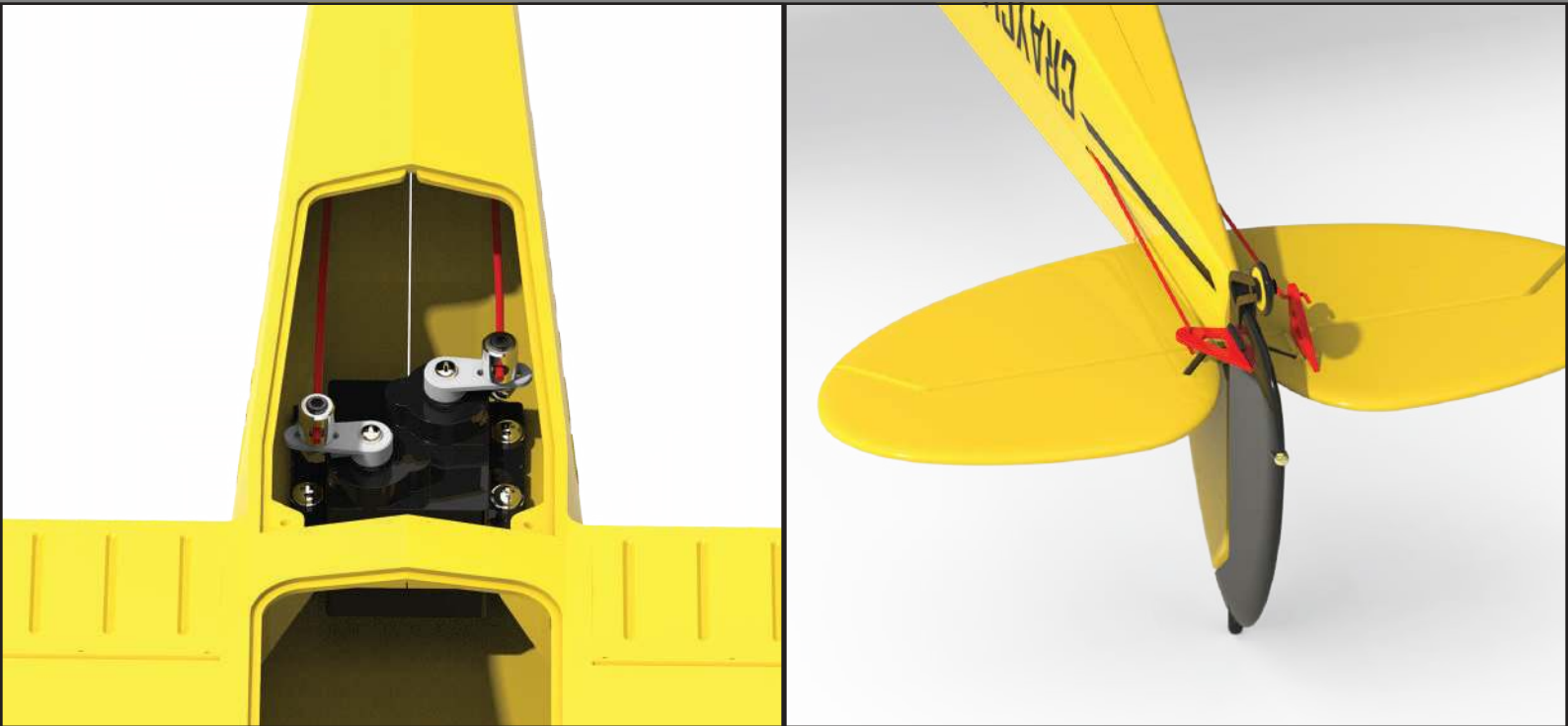
You need to be sure the wings are holded in a straight line (Hold the model upside down on the flat table).

Then you can screw the “wingsupport” part by using 2 mm screws (Servo mounting screws) into the holes on the wings and fuselage.

When assembly is complete, turn the model over and check the flatness of the wings.



Assembly



STEP 9

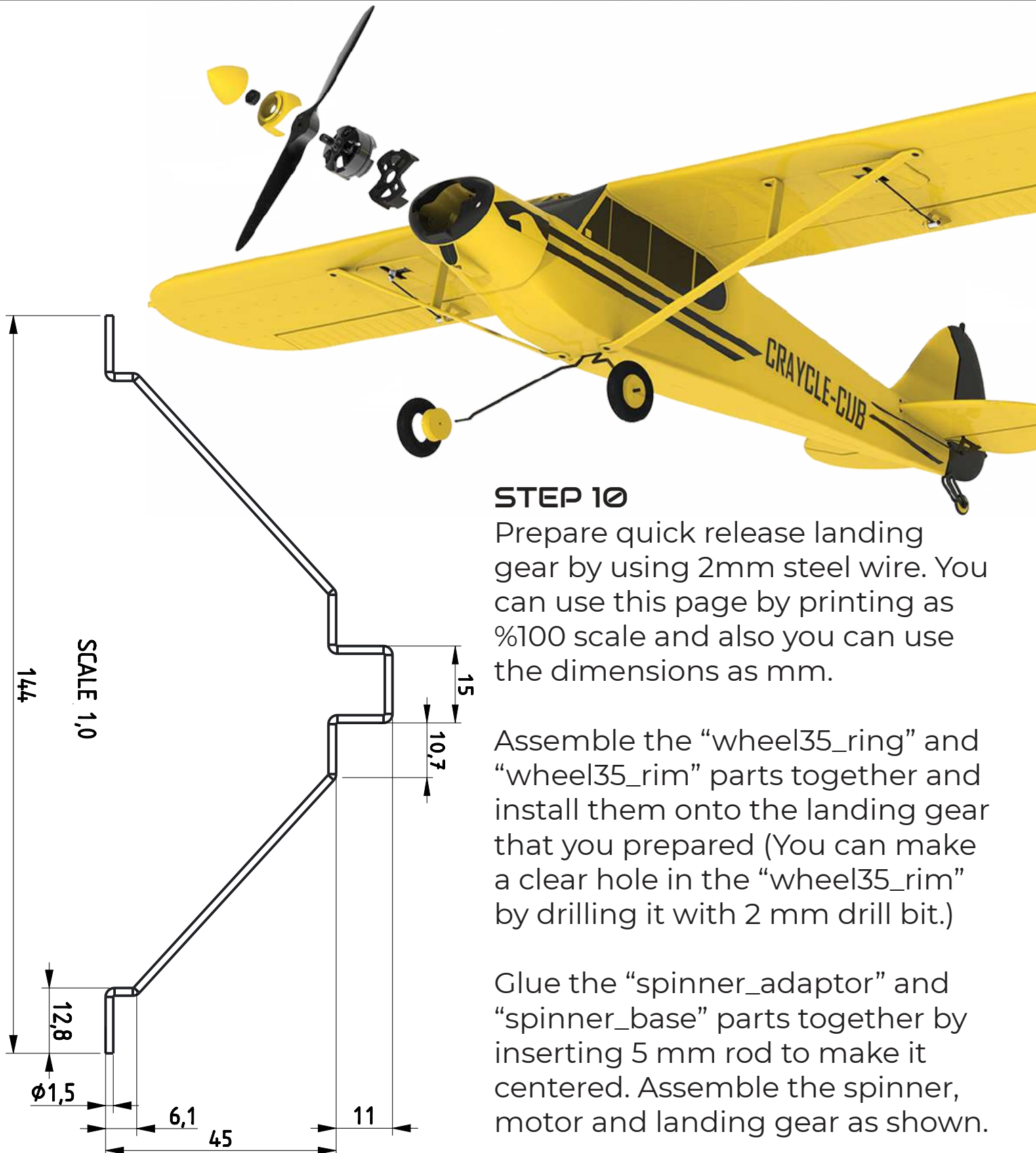
Install your servos to the fuselage and prepare 2 pieces of 1,2 mm pushrods which is approximately 210 mm length.

You can make Z bend for the both side or use rod linkage to make detachable and facilitate to set the flap positions.

For this model, the best way to mount the push rods is; Z-bend is mounted on the outside, the push rod connectors are mounted on the servo arms inside. In this way, connectors are installed quick, it becomes possible to deassemble the wires, and the objects that will create drag are reduced on the outside.

You can use cheap 9 gram servos for this model because of it's not required high sensitive on the control surfaces.

Assembly



STEP 10

Prepare quick release landing gear by using 2mm steel wire. You can use this page by printing as %100 scale and also you can use the dimensions as mm.

Assemble the “wheel35_ring” and “wheel35_rim” parts together and install them onto the landing gear that you prepared (You can make a clear hole in the “wheel35_rim” by drilling it with 2 mm drill bit.)

Glue the “spinner_adaptor” and “spinner_base” parts together by inserting 5 mm rod to make it centered. Assemble the spinner, motor and landing gear as shown.

Assembly

STEP 11

Now you can install all your electronics. Make transmitter settings (Use 40% Expo and set 11mm up 9mm down control movement for ailerons and elevators for the maiden. Set 11mm right and left for rudder).

Glue the “lock_body” part into the “hatch1”. Assemble the “lock_catch” part by using m3x8mm bolt (Comes with brushless motors). Insert and stick the “cub_pim” parts corresponding to the hatches into the fuselage (Red pims in front of the wingspar.) Assemble the “hatch2” to the fuselage by using 2 mm screws.



Epilogue



Center of Gravity is 29,5 mm behind from the leading edge (There is a marked point under the wing).

You can add extra weights into the “fs1” to make CG correct. You can also print FS3 and all tail parts with LW-PLA to make the rear lighter. You can also print this model completely LW but it’s not necessary at all. We are developing all of our models by using Regular PLA to provide accessibility.

We recommend 6” propellers for this model but if you want to make a trainer model, the bigger propellers will make the model slower in the air. So you can use 7” propellers to make a park flyer.

Epilogue



If there is a missing information in this guide, please let us know to fix that. We are always continue to improve the model after published. Usually this happens because of requests. For this model, if you need a feature that will improve your user experience to a good level please let us know by e-mail to info@craycle.com and join the Beta System for next project. Check Beta system details on craycle.com.

You will always able to reach this model's updated versions for free! Subscribe to our newsletter on craycle.com to get update notifications.

Thank you for supporting us by building our models!

Addons

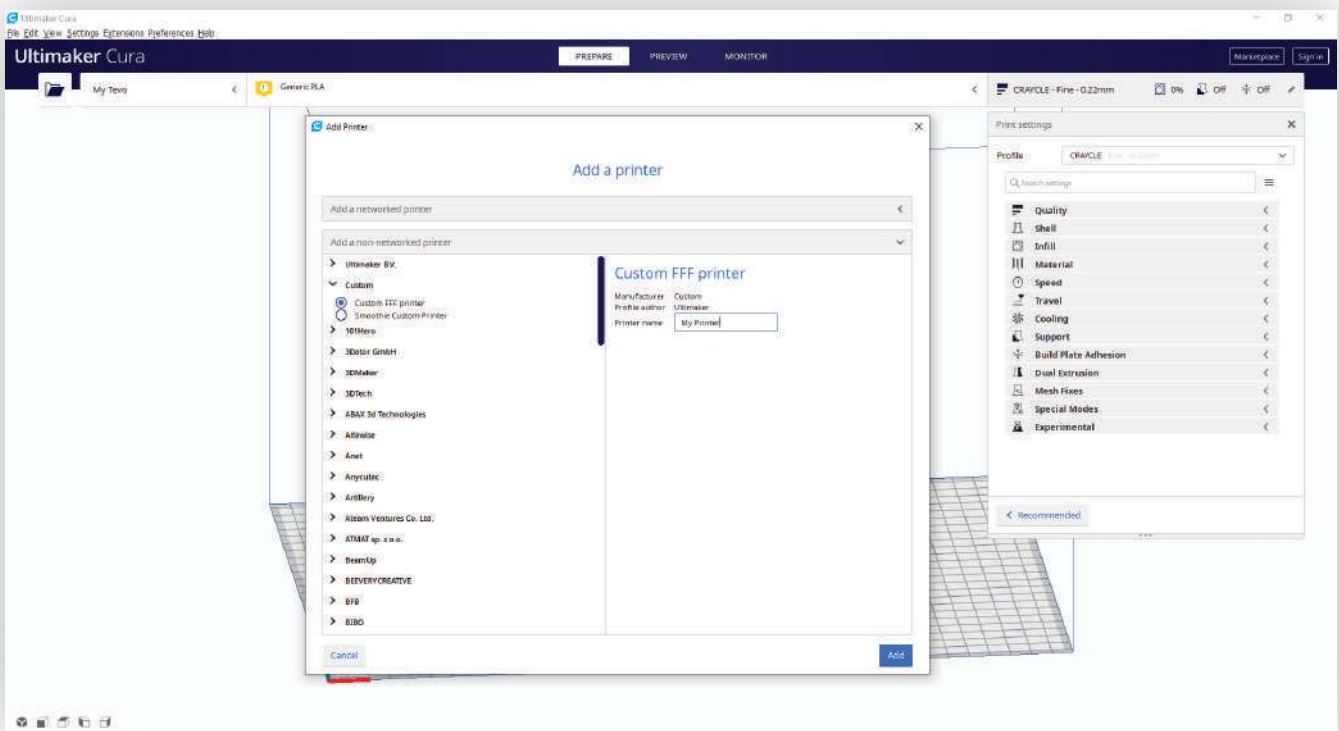
DJI Air Unit - Caddx Vista - Analog FPV compatible hatches and Flight Controller Mount are available on craycle.com. We are aiming to define which system are most common by separating this features! So it's never going to cost you too much.



Print Guide

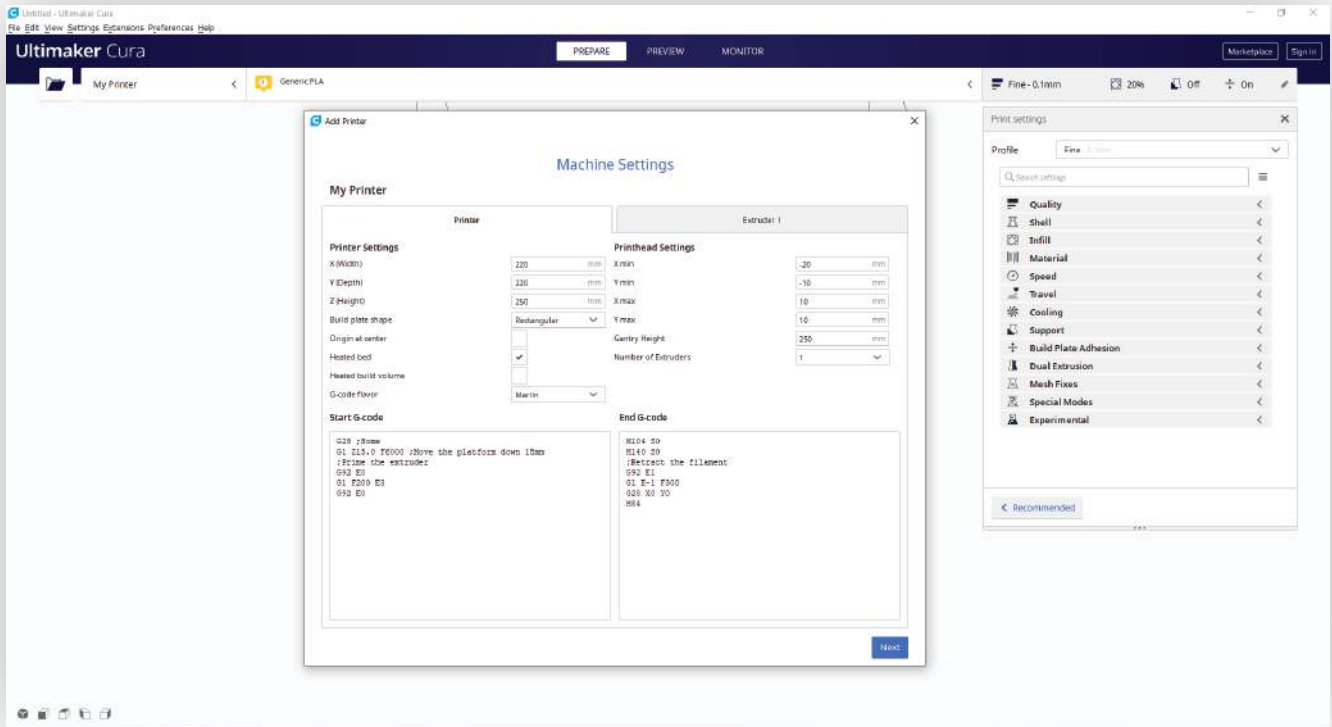
We have prepared printer profile on Cura Slicer for you. If you have a Marlin XYZ type printer, you can print directly with prepared gcodes as well. If you can't use the gcodes don't worry, just follow the instructions...

Download and install CURA Slicer on ultimaker.com. When you open the program, you can find your own printer from the printer list but if you are getting error on importing curaprofile, you will need to create Custom Printer to import a curaprofile successfully.

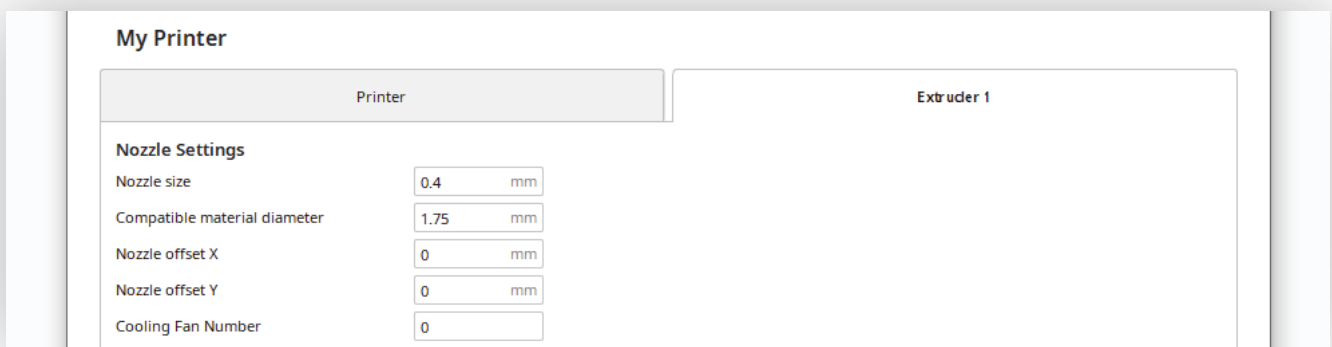


Open the Add Printer window, select Custom FFF printer, type your printer name and click to the add button for the next step

Print Guide



Set your printer x, y, z dimensions. Heated Bed is necessary for the wall printing.



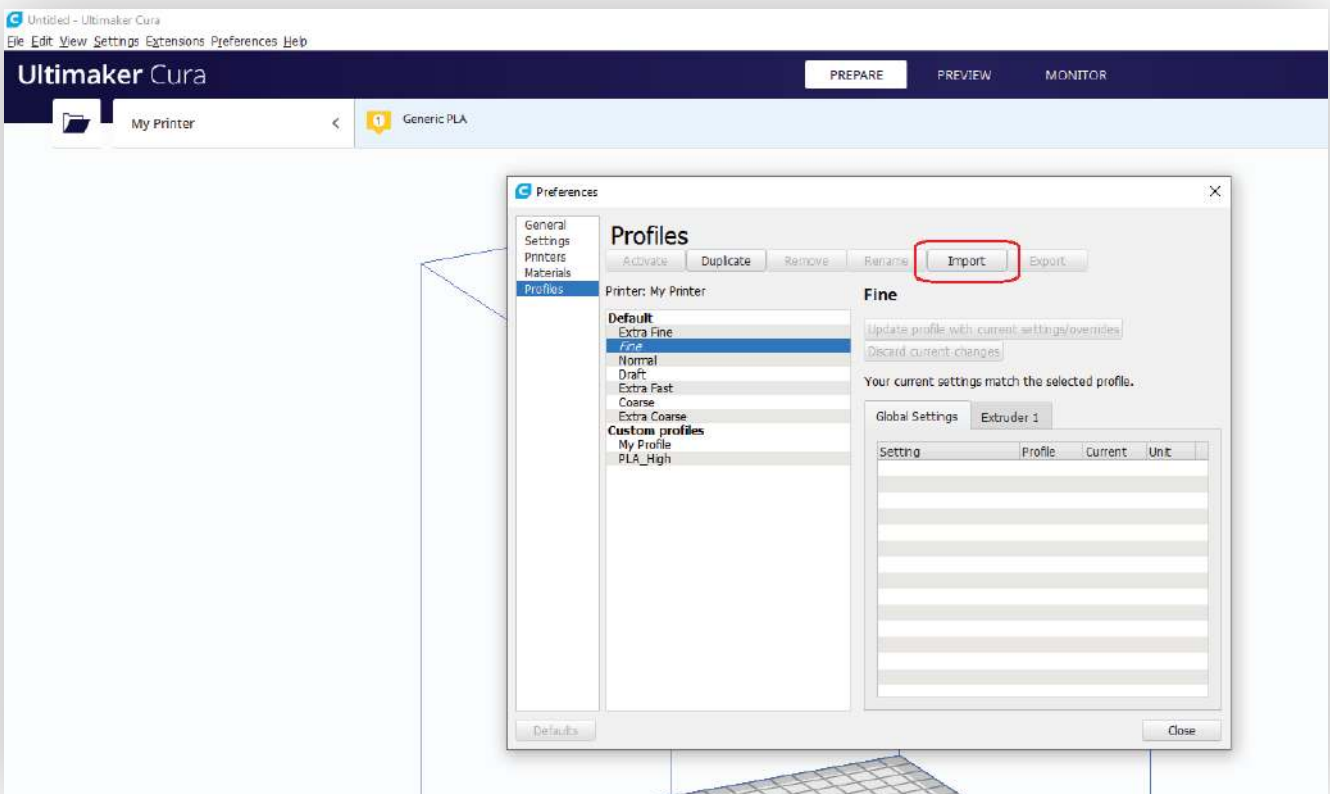
Nozzle size has to be 0,4 mm. If you have a different size nozzle then you have to change it with a 0,4 mm one.

Click the next button, your printer settings are ready!

Print Guide

Next step is importing the “craycle.curaprofile”. Follow the instructions.

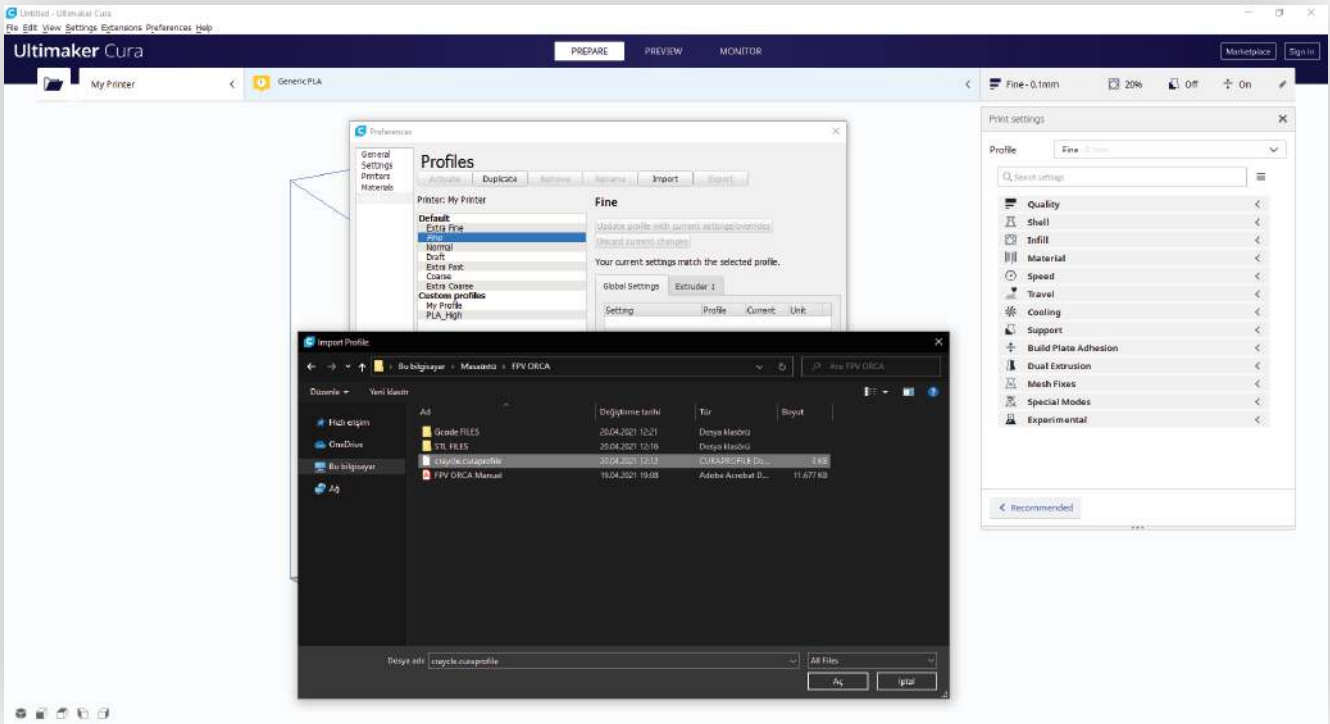
Setting - Printer - Manage Printers => Click to the Profiles on the left side.



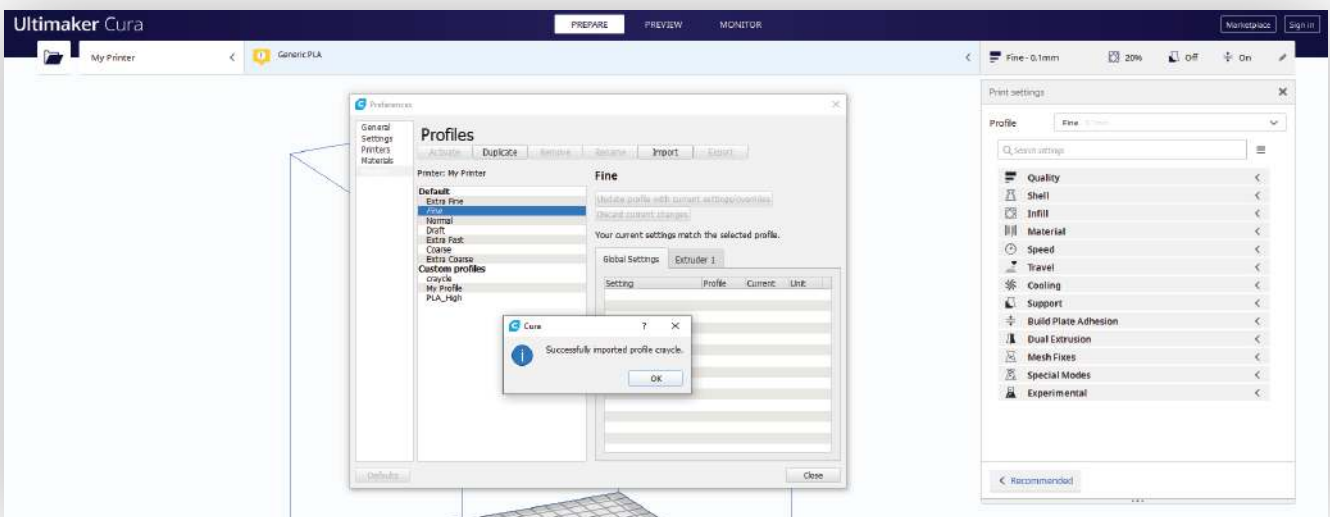
You can see your custom and default profiles in this panel. We are preparing the best print settings to our models for you and you will be able to use these settings but you need to check some settings for your printer first.

Click to the “Import” button and go to the next step.

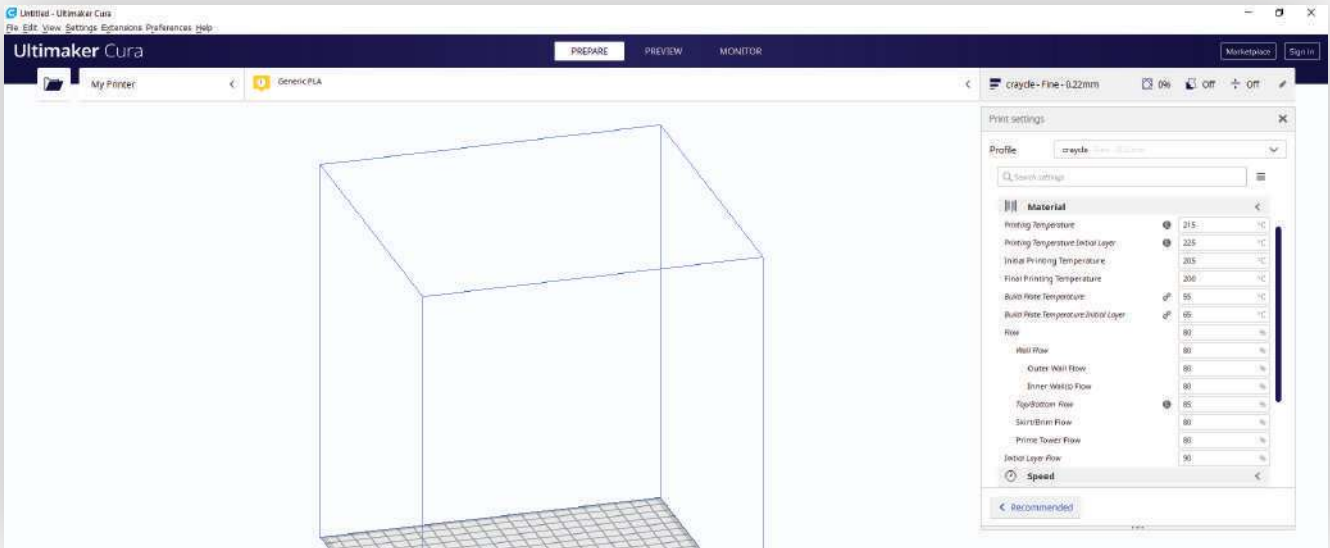
Print Guide



Select “craycle.curaprofile” and click to the open button. Now you have the Craycle Profile! If you have an error in this step, you need to create Custom Printer or update your Cura Slicer.



Print Guide



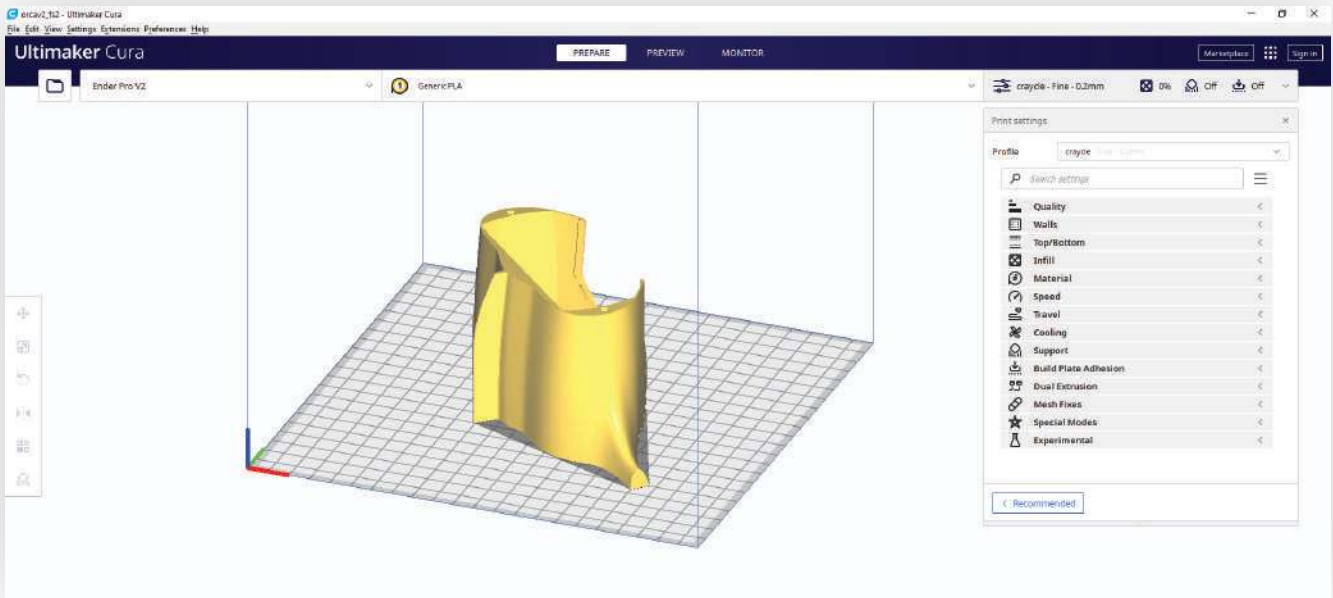
The settings you should set according to your printer:

- Material Settings.
 - Printing Temperature
 - Buildplate Temperature
 - Flow (wall flow is important!)
- Travel Settings.
 - Retraction distance
 - Retraction speed

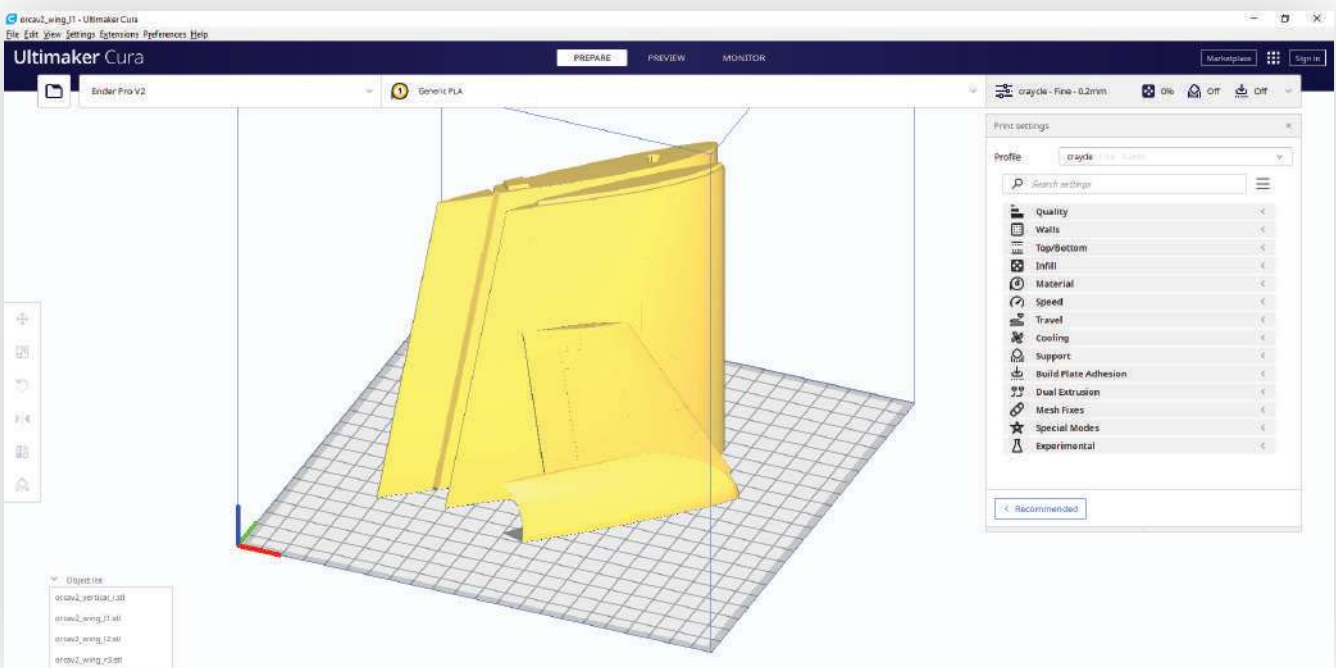
These settings might need adjustments according to your printer or filament. You should print a wing part to test your print quality. If your test print resulted in a successful way then you are ready to start the printing process for the rest of the parts.

Note: 0,2 mm layer height is the best setting for the Print Quality/Printing Time.

Print Guide



All parts are now pre-routed for Cura but if you want to print several pieces together, orient the pieces at 45 degrees to the bed. This way X and Y axis works coordinated and you can get maximum surface quality. Default Z Seam is Front-Left.



Print Guide

CraycleCub Slicer Settings									
No	Part Name	Layer Height	Infill	Top Layer	Bottom Layer	Initial BottomLayer	Support	Wall Line Count	Weight (gram)
1	cub_fs1	0,2	0%	0	2	2	no	1	10,5
2	cub_fs1_nose	0,15	10%	3	2	2	no	2	2,95
3	cub_fs2	0,2	0%	0	2	2	no	1	38,9
4	cub_fs3	0,2	0%	0	2	2	no	1	27,88
5	cub_fs4	0,2	0%	0	2	2	no	1	7,2
6	cub_hatch1	0,2	0%	0	2	2	no	1	6
7	cub_hatch2	0,2	0%	0	2	2	no	1	3
8	cub_elevator_l	0,2	0%	0	2	2	no	1	5
9	cub_elevator_r	0,2	0%	0	2	2	no	1	5
10	cub_rudder1	0,2	0%	0	2	2	no	1	2,65
11	cub_rudder2	0,2	0%	0	2	2	no	1	1
12	cub_wing_l1	0,2	0%	0	2	2	no	1	19,89
13	cub_wing_l2	0,2	0%	0	2	2	no	1	23,84
14	cub_wing_l3	0,2	0%	0	2	2	no	1	5,54
15	cub_wing_r1	0,2	0%	0	2	2	no	1	19,89
16	cub_wing_r2	0,2	0%	0	2	2	no	1	23,84
17	cub_wing_r3	0,2	0%	0	2	2	no	1	5,54
18	5x15_spinner_cap	0,15	0%	0	2	2	no	1	0,5
19	5x15_spinner_adaptor	0,15	0%	2	2	2	no	1	0,15
20	5x15_spinner_base	0,15	0%	5	5	5	no	1	0,8
21	cub_wingsupport	0,2	0%	4	4	4	no	2	4,1
22	motor_mount_3mm	0,2	20%	4	4	4	no	2	2,3
23	cub_pim	0,2	20%	4	4	4	no	1	0,14
24	cub_rearbracket	0,2	20%	4	4	4	no	1	0,2
25	cub_horn	0,2	20%	4	4	4	no	1	0,28
26	cub_lipomount	0,2	20%	4	4	4	no	1	3,27
27	cub_wingspar	0,2	20%	4	4	4	no	1	2,5
28	craycle_hinge (TPU)	0,2	20%	4	4	4	no	1	0,14
29	cub_wheel14_ring (TPU)	0,2	10%	4	4	4	no	1	0,25
30	cub_wheel35_ring (TPU)	0,2	10%	4	4	4	no	1	2
31	cub_wheel14_rim	0,2	10%	4	4	4	no	1	0,21
32	cub_wheel35_rim	0,2	10%	4	4	4	no	1	0,93
33	lock_body	0,2	0%	0	2	2	no	1	0,5
34	lock_catch	0,2	20%	3	3	3	no	1	0,24
Changed Values									

If you want to use a different slicer, you can use this table. Also you can compare print weights to optimize flowrate as well.



If you have any question, you can contact us at info@craycle.com.

Check out to the other models on www.craycle.com.

Enjoy your build!

@craycle

