
SU-29
BUILD GUIDE Ver. 1.1

FAIR DATA USE

Dear Pilots,

we are thrilled to bring you our latest creation and we can't wait for you to try it out.

However, we must bring to your attention the extensive process and resources that went into the development of this model. With this in mind, we humbly appeal to your fairness in protecting the integrity of our data.

Please do not forward or share the files you have acquired with any third parties, including friends or online communities. Your cooperation in maintaining the fairness of data use will enable us to continue bringing you new and innovative models.

Thanks for joining us in our mission to make 3D printed RC planes accessible and thrilling for all. We appreciate your understanding and support, and your love for aviation.

Best regards,
3DBlackbox

SAFETY PRECAUTIONS AND WARNINGS

- Always keep a safe distance in all directions around your model to avoid collisions or injury. This model is controlled by a radio signal subject to interference from many sources outside your control. Interference can cause momentary loss of control.
- Always operate your model in open spaces away from full-size vehicles, traffic and people.
- Always carefully follow the directions and warnings for this and any optional support equipment (chargers, rechargeable battery packs, etc.).
- Always keep all chemicals, small parts and anything electrical out of the reach of children.
- Always avoid water exposure to all equipment not specifically designed and protected for this purpose. Moisture causes damage to electronics.
- Never place any portion of the model in your mouth as it could cause serious injury or even death.
- Never operate your model with low transmitter batteries
- Always keep aircraft in sight and under control.
- Always use fully charged batteries.
- Always keep transmitter powered on while aircraft is powered.
- Always remove batteries before disassembly.
- Always keep moving parts clean.
- Always keep parts dry.
- Always let parts cool after use before touching.
- Always remove batteries after use.
- Always ensure failsafe is properly set before flying.
- Never operate aircraft with damaged wiring.
- Never touch moving parts.

IMPORTANT

While we strive to develop our models to the best of our knowledge and ability, we disclaim any liability for consequential damages and injuries resulting from improper use or incorrectly printed parts. Users are advised to handle motors, batteries, and propellers with care. Ensure your model is operated with appropriate insurance coverage and only in designated, approved areas.

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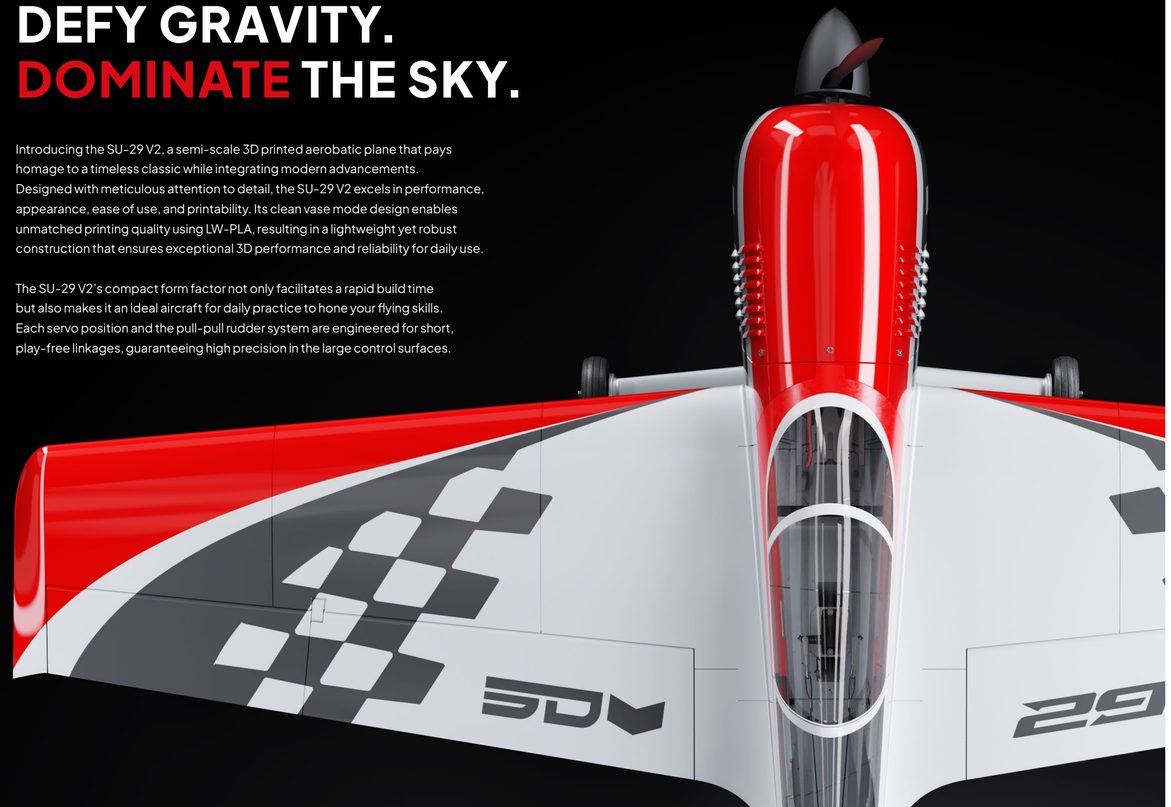
DEFY GRAVITY.
DOMINATE THE SKY.

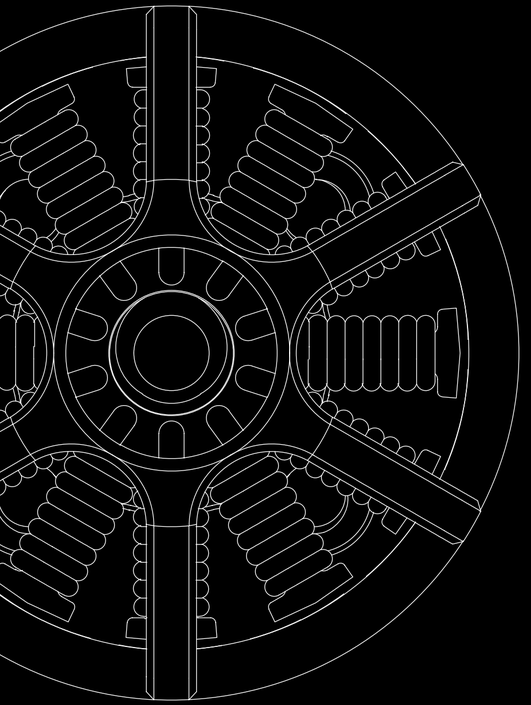
Introducing the SU-29 V2, a semi-scale 3D printed aerobatic plane that pays homage to a timeless classic while integrating modern advancements. Designed with meticulous attention to detail, the SU-29 V2 excels in performance, appearance, ease of use, and printability. Its clean vase mode design enables unmatched printing quality using LW-PLA, resulting in a lightweight yet robust construction that ensures exceptional 3D performance and reliability for daily use.

The SU-29 V2's compact form factor not only facilitates a rapid build time but also makes it an ideal aircraft for daily practice to hone your flying skills. Each servo position and the pull-pull rudder system are engineered for short, play-free linkages, guaranteeing high precision in the large control surfaces.



SPECIFICATIONS

Printed Weight	690 g
Take-Off Weight	1250 g
Stall Speed	28 km/h
Wing Span	1160 mm
Wing Loading	46g/ dm²
Wing Area	27 dm²
Length	1084 mm



01

HARDWARE

3D Printer

Minimum Printer Volume:
210×210×220 (X,Y,Z,)
Nozzle diameter: 0.4 mm

Filament

Airframe: LW-PLA
Accessories: PETG, ABS or PC
Tires: TPU A95/ Varioshore

Motor

3S: 2820 1250KV
4S: 2820 880KV

Servos

4 x Savöx SH-0255MG+
Alternatively, use servos of 22.8 x 12.0 x 29.4 mm and 3 kg/cm torque.

ESC

Current 55A
Voltage up to 14,8V / 4S
Ensure that the ESC fits your engine.

Receiver

4 – 5 Channel
Please note that a 4-channel receiver requires a Y-cable for the ailerons.

Battery

3S: 2400mAh - 2600mAh 30C
4S: 1800mAh - 2200mAh 45C

Propeller

Acro: 2 Blade 12×7 inch
Normal: 2 Blade 12×6 inch

Socket Head Cap Screw (SHCS)

ID	Part	Amount
55	**M3 x 30 mm** Wheel Axis	2 x
56	**M3 x 12 mm** Wing Mount	4 x
57	**M3 x 10 mm** Motor Mount	4 x
58	**M3 Nuts**	10 x

Self tapping Hex Screw

ID	Part	Amount
59	**M2× 8 mm Self-Tapping Screw** Cowl	5 x
60	**M2× 6 mm Self-Tapping Screw** Servo Cover	8 x
61	**M2× 4 mm Self-Tapping Screw** Spinner	2 x

Carbon Tubes / Rods

ID	Part	Amount
62	**Carbon Tube** 8 mm x 6 mm x 1000 mm – Wing	1 x
63	**Carbon Rod** 3 mm x 507 mm – Aileron	2 x
64	**Carbon Rod** 3 mm x 225 mm – Rudder	1 x
65	**Carbon Rod** 3 mm x 450 mm – Elevator	1 x
66	**Carbon Rod** 3 mm x 176 mm – Landing Gear	4 x
67	**Carbon Rod** 2 mm x 45 mm – Tail Wheel	2 x
68	**Carbon Rod** 2 mm x 16 mm – Tail Wheel Axis	1 x

Stop Collar

ID	Part	Amount
69	**Stop Collar** 3/8 – Landing Gear	2×

Ballpoint Pen Spring

ID	Part	Amount
70	**Spring** 0.4x5x25mm – Canopy Lock	1 x

Servo Linkages

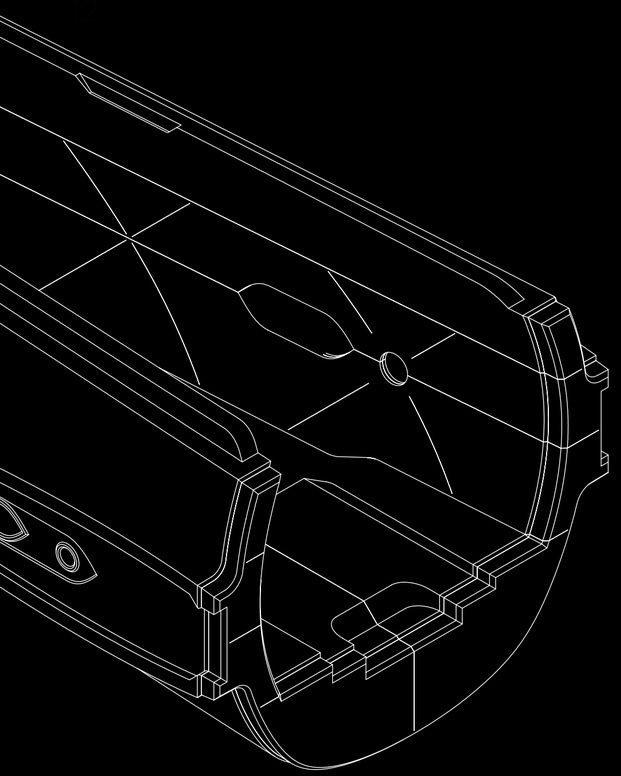
ID	Part	Amount
71	**M2 Clevis**	5 x
72	**Ball Joint Connector**	3 x
73	**M2 Threaded Rod**	3 x
74	**Pull/Pull Steel Wire**	~ 1200mm
75	**M2 Eyebolt**	2 x
76	**Wire Clamping Sleeve** 1.6 mm - 1.8 mm	4×

Velcro Strap

ID	Part	Amount
77	**Velcro Strap** 300 x 20mm – Battery	1 x

Required Tools

Tools
Scalpel
Drill 8mm, 10mm
CA Glue Medium
Screwdriver Hex, Phillips



02

PRINT FILES

WHAT’S INCLUDED

We are here to simplify your printing experience and bring your builds to the next level! Our print files are designed with the user in mind, providing all necessary information for a smooth and efficient printing process. Instead of the standard .stl format, we use .3MF/.factory, which includes all settings and part orientation details.

Additionally we have included detailed documents with screenshots of all slicer settings used. This way, you can easily replicate the settings and be on your way to creating amazing builds.

- Ready to use .gcode files
- .3MF files for Bambu Studio
- .3MF files for Prusa Slicer
- .3MF files and Profiles for Cura
- .factory files for Simplify3D
- .STL files

Download Folder → **Material** → **Profile** → **Select file & print**

00_Instructions
Documentation and Settings

01_Bambu Studio
Project files (.3MF) for Bambu Studio

02_Prusa_Slicer
Project files (.3MF) for Prusa Slicer

03_Cura
Project files (.3MF), print profiles (.curaprofile) and materials (.fdm_material) for Cura

04_Simplify3D
Project files (.factory) for Simplify3D

05_STL
3D Files (.stl) for the LED covers for SLA printing (optional)

06_GCodes
Ready to use print files (.gcode) for i3 style printers.

LW-PLA

PETG

PLA

TPU

Profile_P1

Profile_P2

Aileron_L1

Aileron_L2

Aileron_L3

Aileron_R1

Aileron_R2

Aileron_R3

Canopy_C1

Canopy_C2

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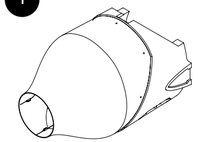
IMPORTANT

For further insight into the proper print settings, please refer to the print settings section beginning on page 23. Here, you'll find all the information you need to ensure successful 3D printing.

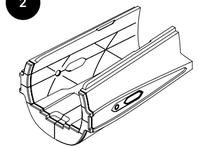
1



Fuse-F1

Profile: P1
Material: LW-PLA
Weight: 52.02 g

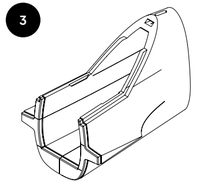
2



Fuse-F2

Profile: P1
Material: LW-PLA
Weight: 37.68g

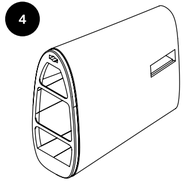
3



Fuse-F3

Profile: P1
Material: LW-PLA
Weight: 32.76 g

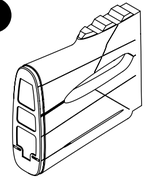
4



Fuse-F4

Profile: P1
Material: LW-PLA
Weight: 27.03g

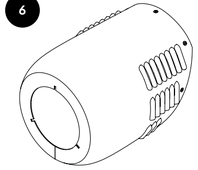
5



Fuse-F5

Profile: P1
Material: LW-PLA
Weight: 18.40 g

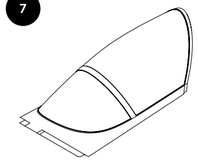
6



Cowl-C2

Profile: P1
Material: LW-PLA
Weight: 34.61 g

7



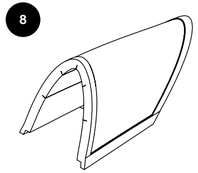
Canopy_C1

Profile: P1
Material: LW-PLA
Weight: 18.04 g

ADDITIONAL SETTINGS

Layer-Height: 0.14mm

8



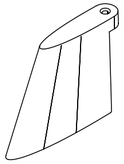
Canopy_C2

Profile: P1
Material: LW-PLA
Weight: 12.69 g

ADDITIONAL SETTINGS

Bottom Layers: 0

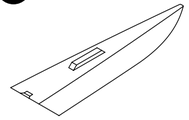
9



Stabilizer

Profile: P1
Material: LW-PLA
Weight: 3.49 g

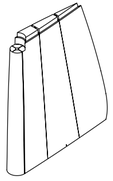
10



Rudder_R1

Profile: P1
Material: LW-PLA
Weight: 1.41 g

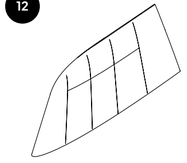
11



Rudder_R2

Profile: P1
Material: LW-PLA
Weight: 15.34 g

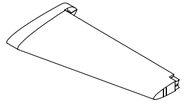
12



Rudder_R3

Profile: P1
Material: LW-PLA
Weight: 4.93 g

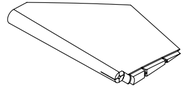
13



Elevator_L1/R1

Profile: P1
Material: LW-PLA
Weight: 11.46g

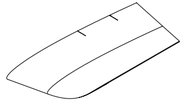
14



Elevator_L2/R2

Profile: P1
Material: LW-PLA
Weight: 10.49 g

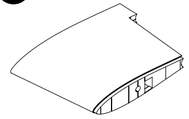
15



Elevator_L3/R3

Profile: P1
Material: LW-PLA
Weight: 3.97 g

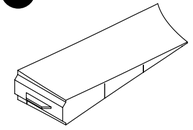
16



Wing_L1/R1

Profile: P1
Material: LW-PLA
Weight: 31.71 g

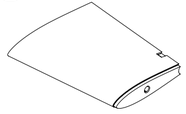
17



Wing_L2/R2

Profile: P1
Material: LW-PLA
Weight: 2.42 g

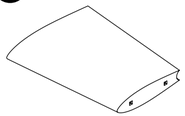
18



Wing_L3/R3

Profile: P1
Material: LW-PLA
Weight: 30.05 g

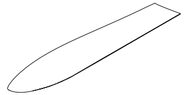
19



Wing_L4/R4

Profile: P1
Material: LW-PLA
Weight: 18.80 g

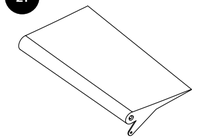
20



Wing_L5/R5

Profile: P1
Material: LW-PLA
Weight: 3.78 g

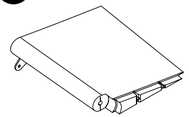
21



Aileron-L1/R1

Profile: P1
Material: LW-PLA
Weight: 10.69 g

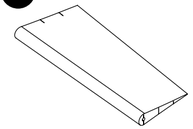
22



Aileron-L2/R2

Profile: P1
Material: LW-PLA
Weight: 6.25 g

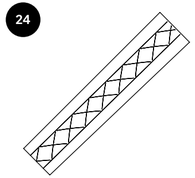
23



Aileron-L3/R3

Profile: P1
Material: LW-PLA
Weight: 9.07 g

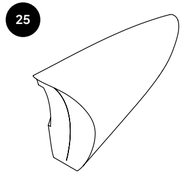
24



Landing_Gear_L1/R1

Profile: P1
Material: LW-PLA
Weight: 5.19 g

25



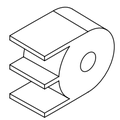
Wheel_Pants_L/R

Profile: P1
Material: LW-PLA
Weight: 2.03 g

ADDITIONAL SETTINGS

Layer Height: 0.14

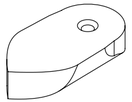
26



Elevator_Hinge_L/R

Profile: P2
Material: LW-PLA
Weight: 0.71 g

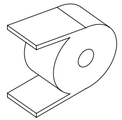
27



Rudder_Hinge

Profile: P2
Material: LW-PLA
Weight: 1.24 g

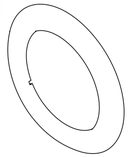
28



Wing_Hinge_L/R

Profile: P2
Material: LW-PLA
Weight: 0.76 g

29



Cowl_C1

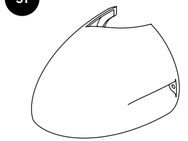
Profile: P2
Material: LW-PLA
Weight: 9.31 g

30

Rudder_Servohorn

Profile: P2
Material: LW-PLA
Weight: 3.18 g

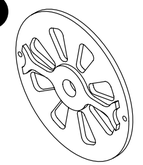
31



Spinner

Profile: P2
Material: PLA
Weight: 7.58 g

32



Spinner_Base

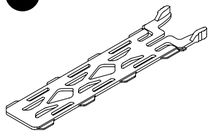
Profile: P2
Material: PLA
Weight: 4.03 g

33

Cowl_C3

Profile: P2
Material: PLA
Weight: 5.06 g

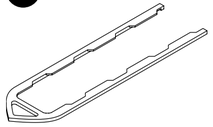
34



Battery_Mount

Profile: P2
Material: PLA
Weight: 9.48 g

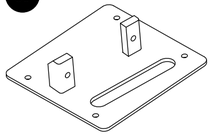
35



Battery_Mount_Rail

Profile: P2
Material: PLA
Weight: 5.48 g

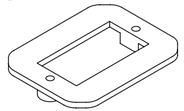
36



Servo_Cover_L/R

Profile: P2
Material: PLA
Weight: 4.18 g

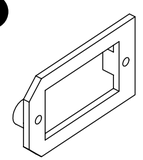
37



Rudder_Servo_Mount

Profile: P2
Material: PLA
Weight: 1.60 g

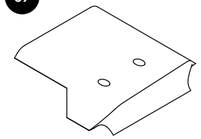
38



Elevator_Servo_Mount

Profile: P2
Material: PLA
Weight: 1.08 g

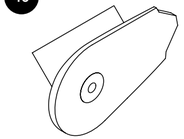
39



Landing_Gear_Mount_L/R

Profile: P2
Material: PLA
Weight: 9.01 g

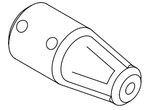
40



Landing_Gear_L2/R2

Profile: P2
Material: PLA
Weight: 5.02 g

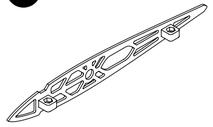
41



Tail_Wheel_Mount

Profile: P2
Material: PLA
Weight: 1.89 g

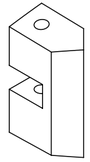
42



Wing_Mount_L/R

Profile: P2
Material: PLA
Weight: 5.95 g

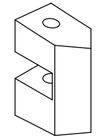
43



Wing_Mount_L1/R1

Profile: P2
Material: PLA
Weight: 2.55 g

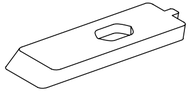
44



Wing_Mount_L2/R2

Profile: P2
Material: PLA
Weight: 1.77 g

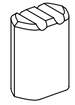
45



Canopy_Lock

Profile: P2
Material: PLA
Weight: 1.18 g

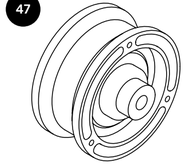
46



Canopy_Lock_Grip

Profile: P2
Material: PLA
Weight: 0.58 g

47



Wheel_L/R

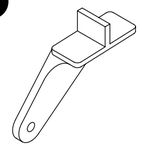
Profile: P2
Material: PLA
Weight: 4.19 g

48

Tail_Wheel

Profile: P2
Material: PLA
Weight: 0.69 g

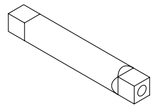
49



Elevator_Servohorn

Profile: P2
Material: PLA
Weight: 1.01 g

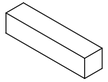
50



Elevator_Joint

Profile: P2
Material: PLA
Weight: 2.34 g

51



Alignment_Tab

Profile: P2
Material: PLA
Weight: 0.34 g

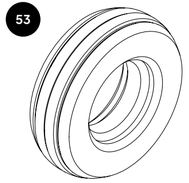
52

Motor_Mount

Profile: P2
Material: PETG or other high temperature resistant Material
Weight: 6.68 g

PRINT FILES › OVERVIEW › TPU › PROFILE-P3

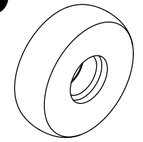
53



Tire_L/R

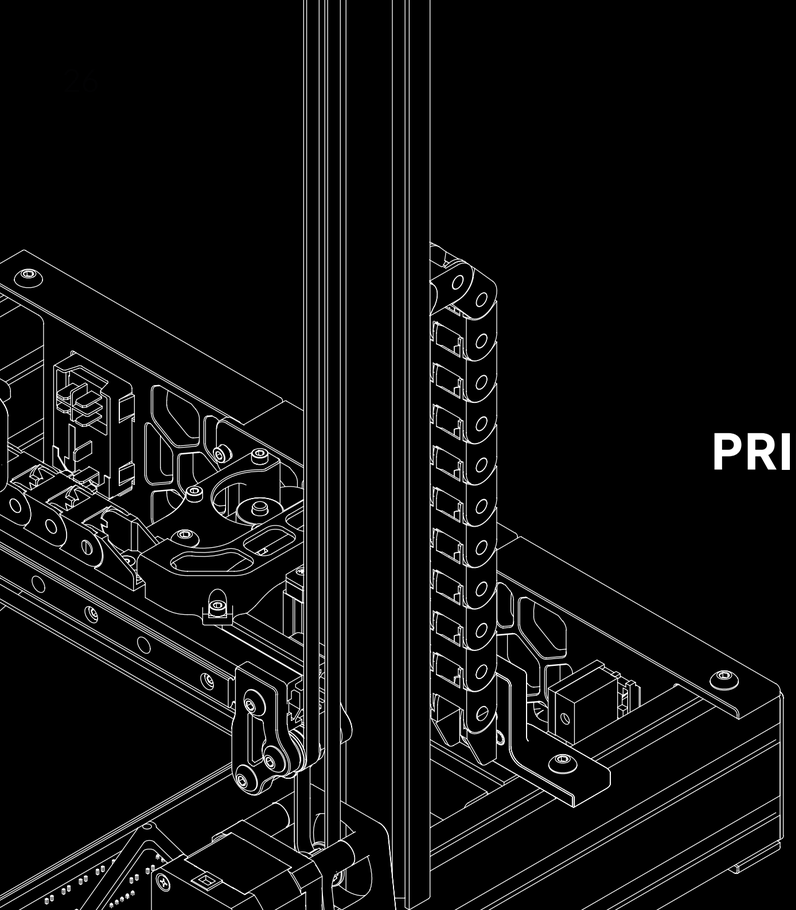
Profile: P2
Material: TPU Varioshore
Weight: 6.97 g

54



Tail_Tire

Profile: P2
Material: TPU Varioshore
Weight: 1.39 g



03 PRINT SETTINGS

SIMPLIFYING YOUR PRINT EXPERIENCE

Thin wall printing is a challenging aspect of 3D printing that requires precision and a well-calibrated printer. In order to produce high-quality prints, it's essential to have a printer that is properly set up and dialed in.

We understand that the 3D printing community encompasses a diverse range of users, each possessing unique levels of experience and expertise. The SU-29 has been created with the aim of maximizing user accessibility, making the building journey as convenient as possible. The files included in the package offer settings for the most commonly used slicers, as well as pre-made project files, to streamline your process.

The goal is to make 3D printing more accessible for everyone, regardless of the skill level, so you can effortlessly enjoy the advantages of this remarkable technology.

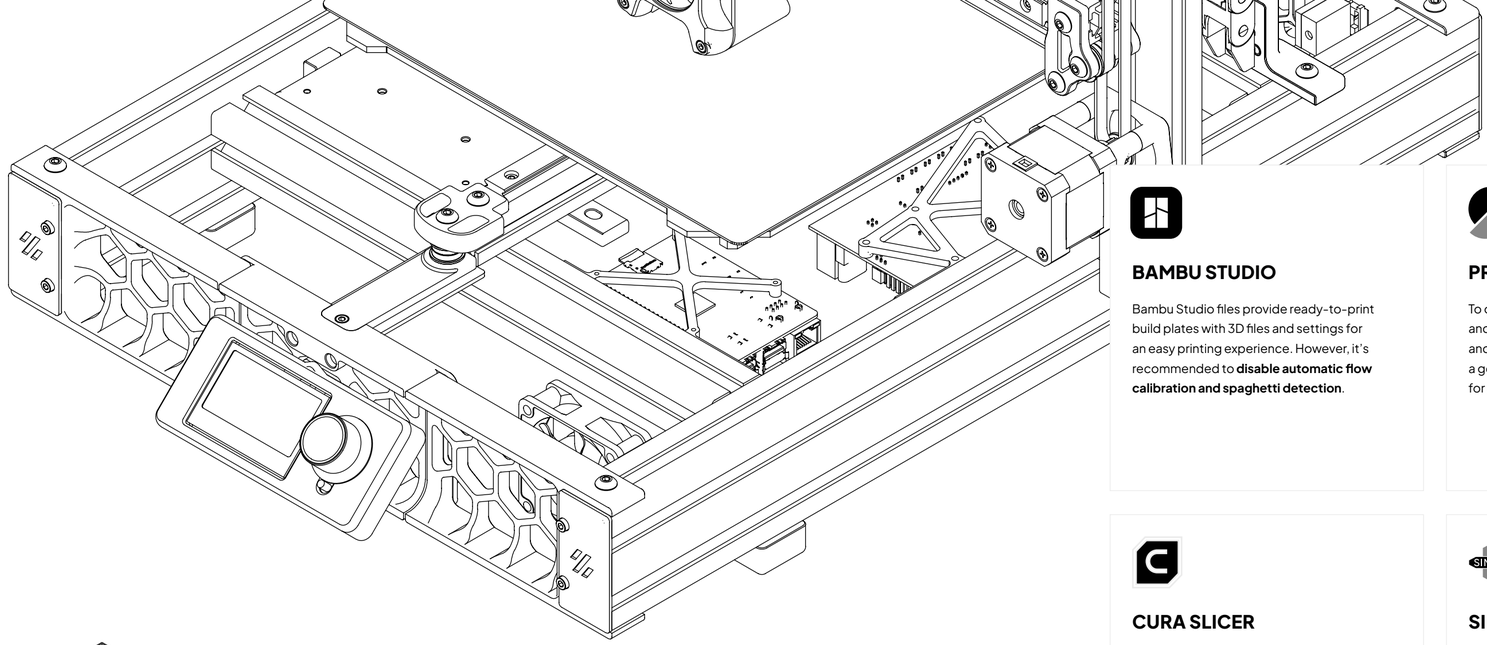
Although we strive to provide standardized settings for all 3D printers, it is important to note that every machine is unique and may require adjustments to achieve optimal results. We encourage you to experiment with these settings to find the best fit for your specific setup.

PRINT SETTINGS

ABOUT LIGHTWEIGHT PLA

LW-PLA is a specialized filament designed specifically for 3D printing. It is particularly useful for creating lightweight airplanes due to its unique properties. One of its key features is its active foaming, which causes the filament to expand as it is printed, resulting in a strong, durable and lightweight final product. These properties make it the perfect material for printing our planes.

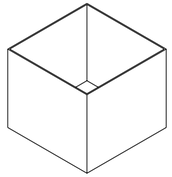
Due to its foaming properties, it is crucial to fine-tune your printer settings to ensure the parts fit correctly and maintain strong. If you encounter any issues with layer adhesion, try reducing the cooling fan. Using a heated bed is highly recommended, with a temperature range of 56–60° Celsius, to prevent warping.



CALIBRATION

The degree of foaming varies depending on parameters such as extrusion multiplier and temperature. Since every 3D printer is unique, it's essential to adjust these settings properly to ensure the parts fit together well.

We recommend using the provided test file to fine-tune your printer. Print the cube using Profile-P1 and measure the wall thickness with a digital caliper. Adjust the print temperature until the wall thickness reaches 0.58 mm (±0.02 mm).



Calibration_Cube

Profile: P1
Material: LW-PLA
Weight: 2.23 g

BAMBU STUDIO

Bambu Studio files provide ready-to-print build plates with 3D files and settings for an easy printing experience. However, it's recommended to **disable automatic flow calibration and spaghetti detection**.

PRUSA SLICER

To open a .3mf file in Prusa Slicer, simply drag and drop the file into the Prusa Slicer window and select "Open as Project". This will generate a generic Printer, printing profile, and materials for you to use as a starting point.

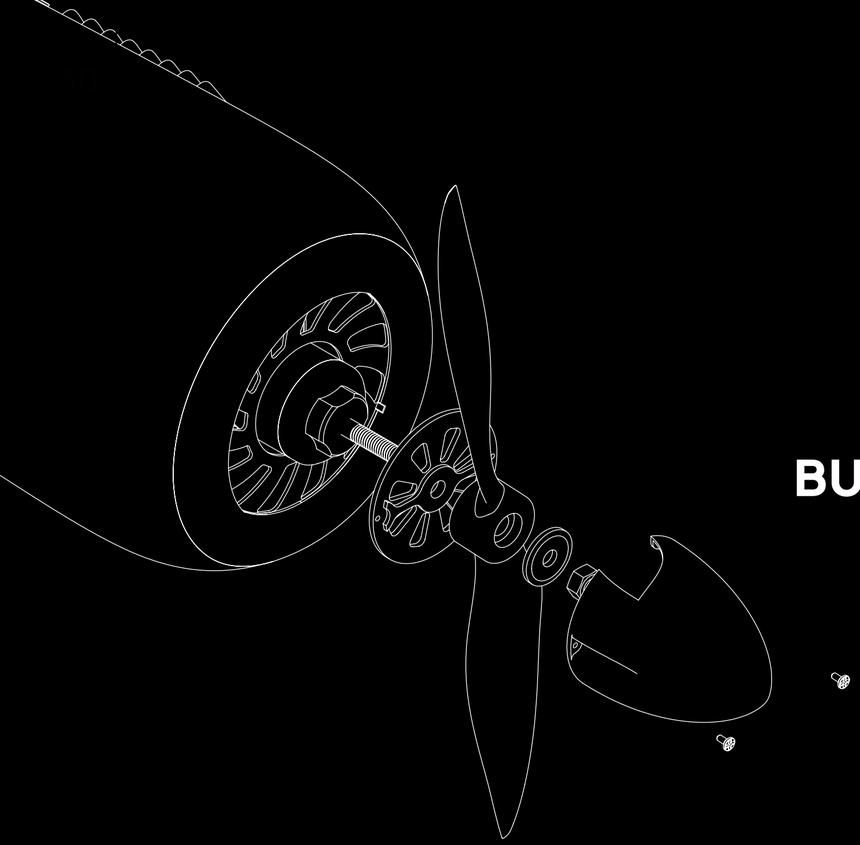
CURA SLICER

Although we provide Cura project files, it's best to import materials and profiles separately, using .3MF files only for part orientation to avoid compatibility issues. Create a new generic printer matching your own instead of using pre-defined machines.

03_Cura › Slicer_Settings.pdf

SIMPLIFY3D

The .factory files for S3D include all necessary print settings for compatibility with your printer. Simply adjust the build volume in the Gcode tab to match your printer's specifications, as well as modify the start and end routines in the Scripts tab according to your needs.

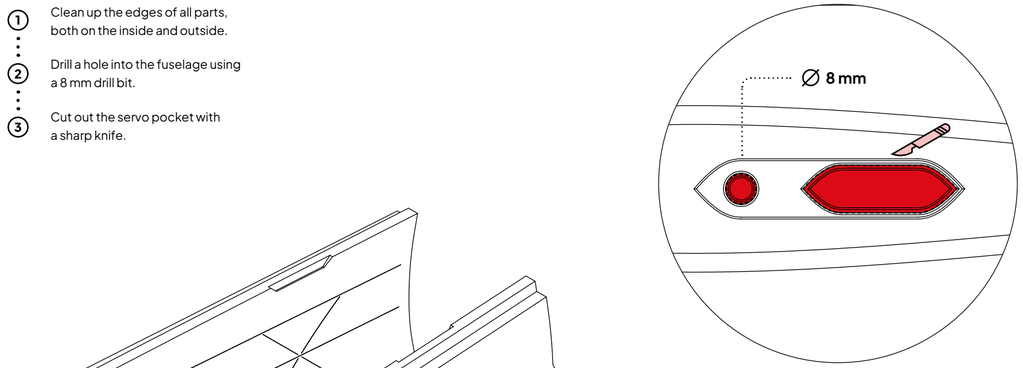


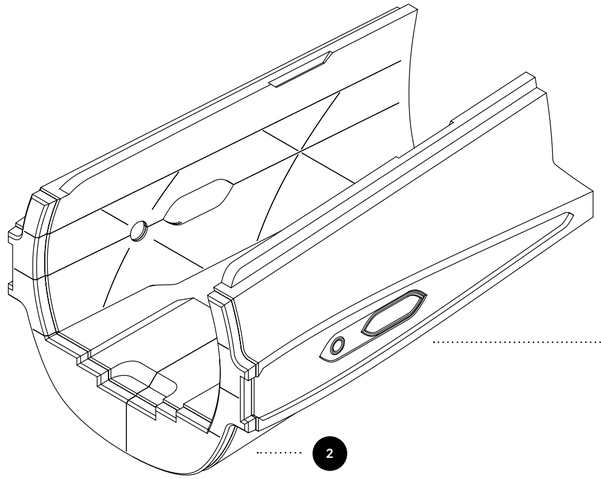
04

BUILD GUIDE

FUSELAGE

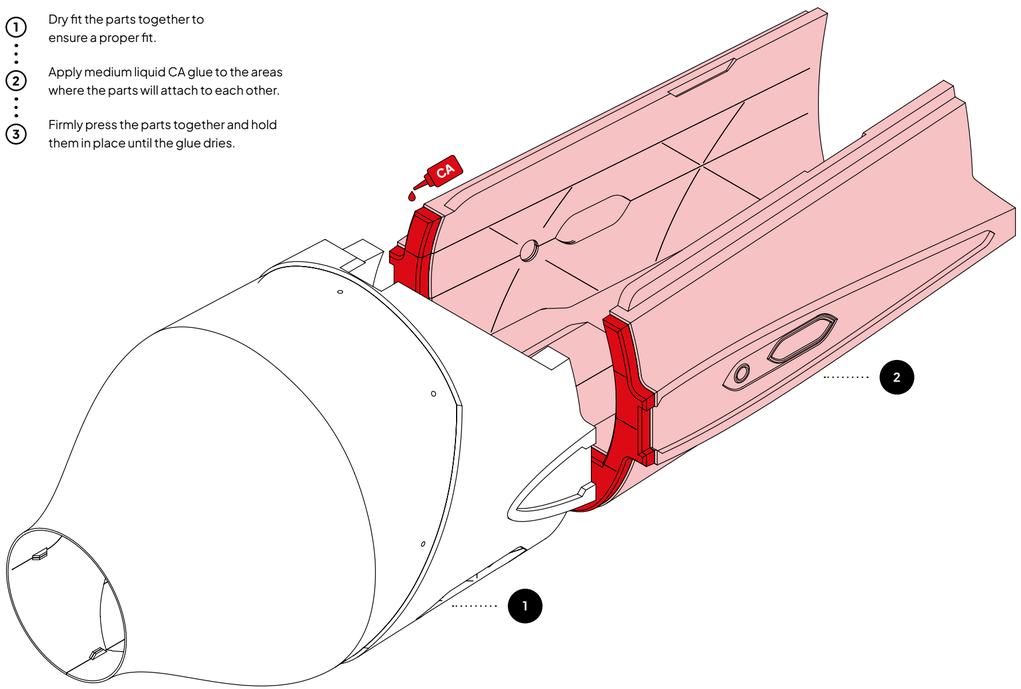
1. Clean up the edges of all parts, both on the inside and outside.
2. Drill a hole into the fuselage using a 8 mm drill bit.
3. Cut out the servo pocket with a sharp knife.





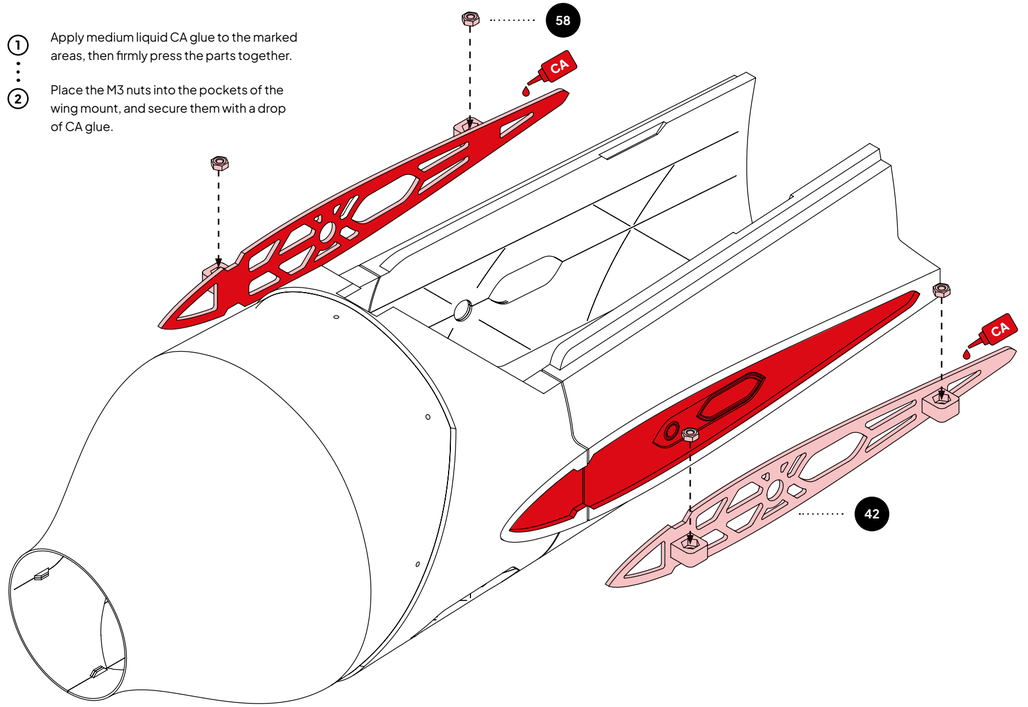
FUSELAGE

1. Dry fit the parts together to ensure a proper fit.
2. Apply medium liquid CA glue to the areas where the parts will attach to each other.
3. Firmly press the parts together and hold them in place until the glue dries.

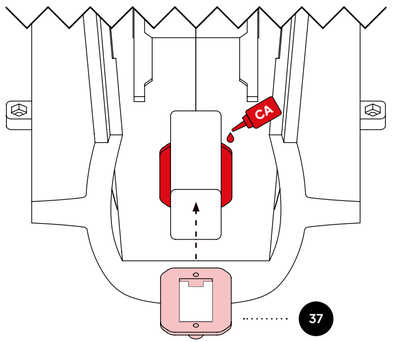


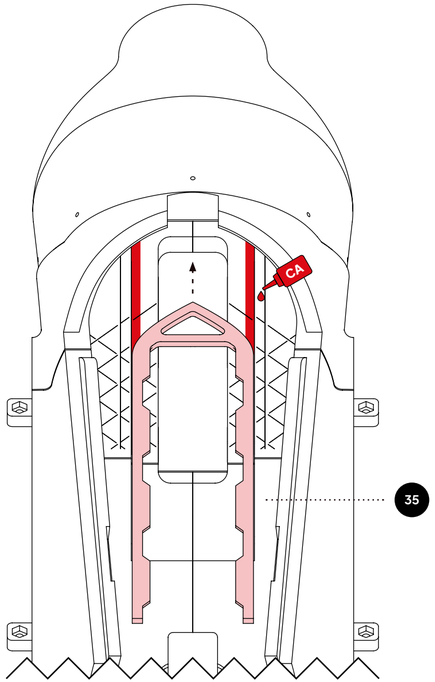
FUSELAGE

1. Apply medium liquid CA glue to the marked areas, then firmly press the parts together.
2. Place the M3 nuts into the pockets of the wing mount, and secure them with a drop of CA glue.

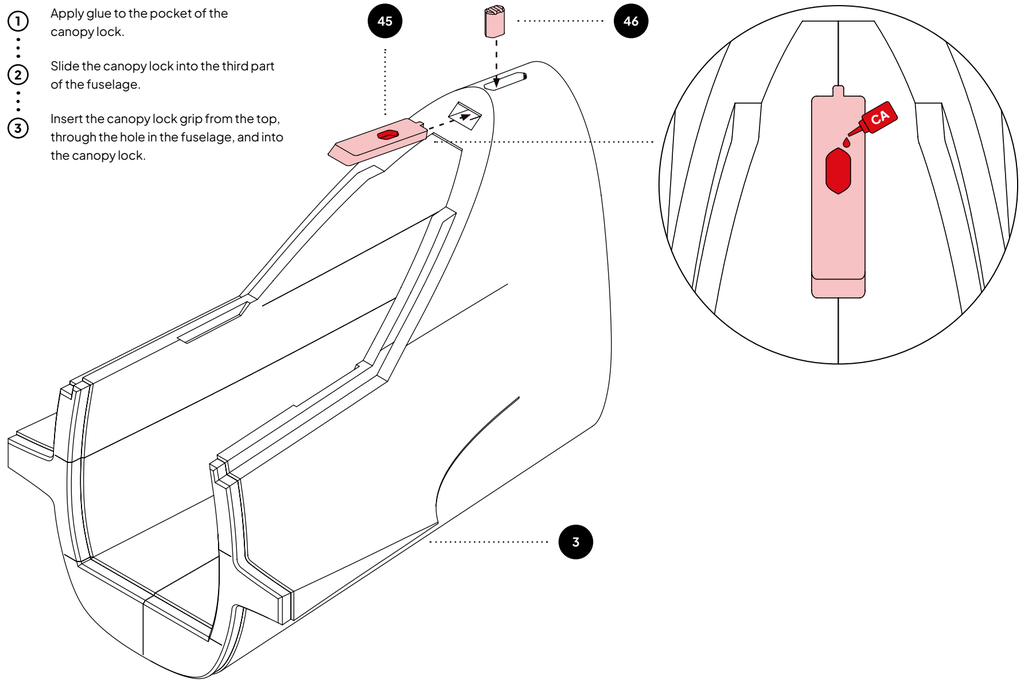


1. Apply medium liquid CA glue to the marked area.
2. Secure the rudder servo mount in place.
3. Apply glue to the underside of the battery mount rail.
4. Attach the rail, ensuring that only direct contact areas are glued to allow the battery mount to move freely.
5. Allow the glue to dry completely.



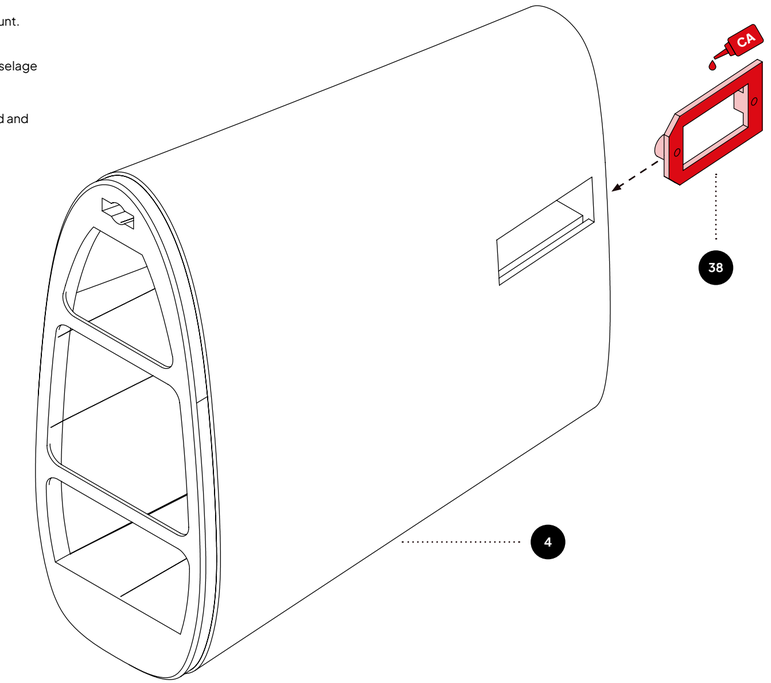


1. Apply glue to the pocket of the canopy lock.
2. Slide the canopy lock into the third part of the fuselage.
3. Insert the canopy lock grip from the top, through the hole in the fuselage, and into the canopy lock.



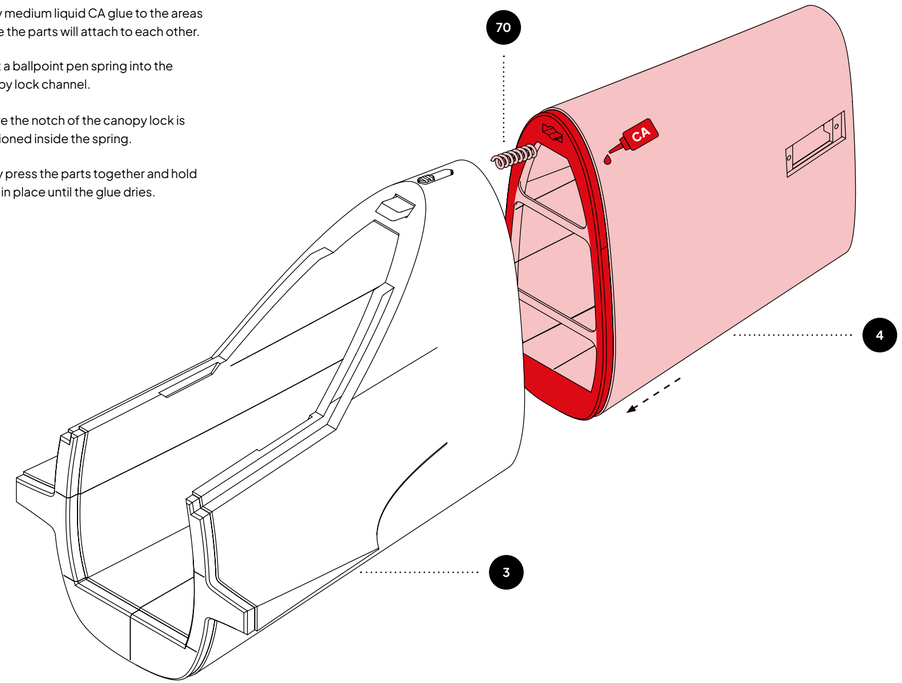
FUSELAGE

1. Apply glue to the elevator servo mount.
2. Carefully slide the mount into the fuselage part from the back.
3. Ensure the mount is properly aligned and allow the glue to dry.



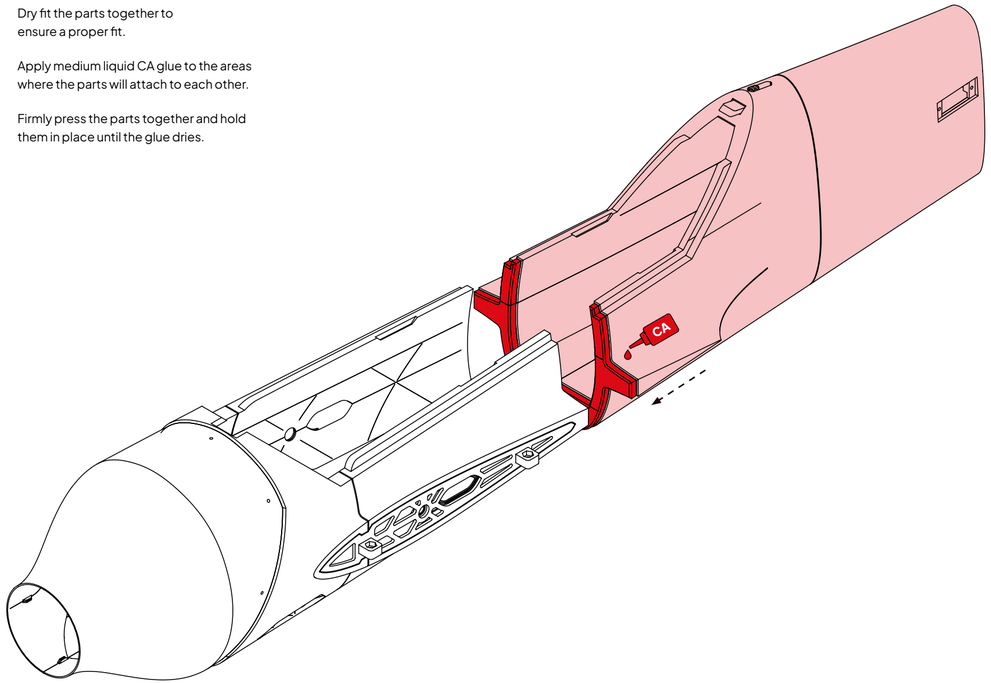
FUSELAGE

1. Apply medium liquid CA glue to the areas where the parts will attach to each other.
2. Insert a ballpoint pen spring into the canopy lock channel.
3. Ensure the notch of the canopy lock is positioned inside the spring.
4. Firmly press the parts together and hold them in place until the glue dries.



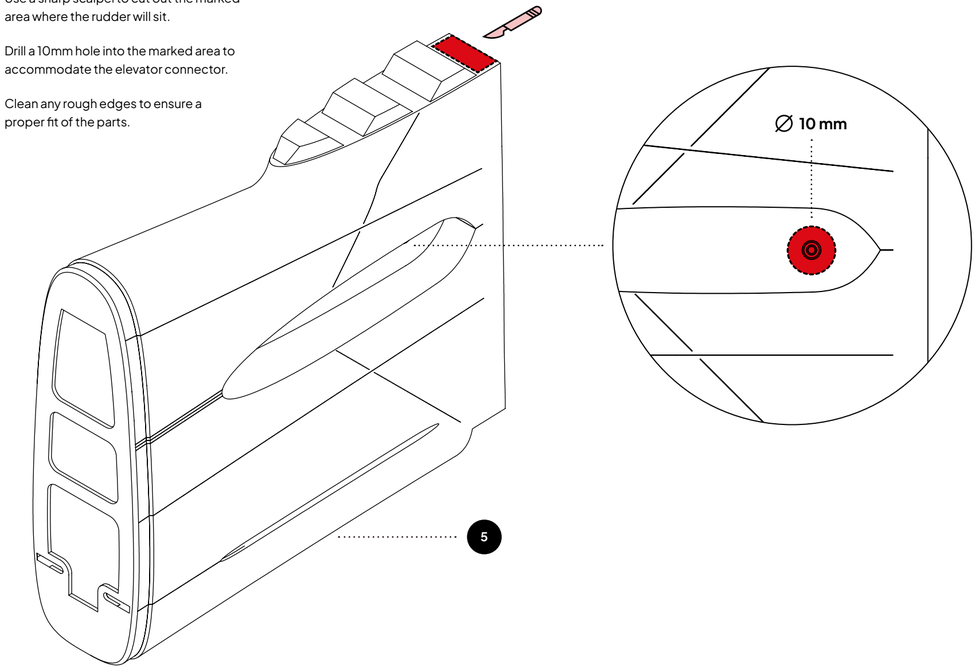
FUSELAGE

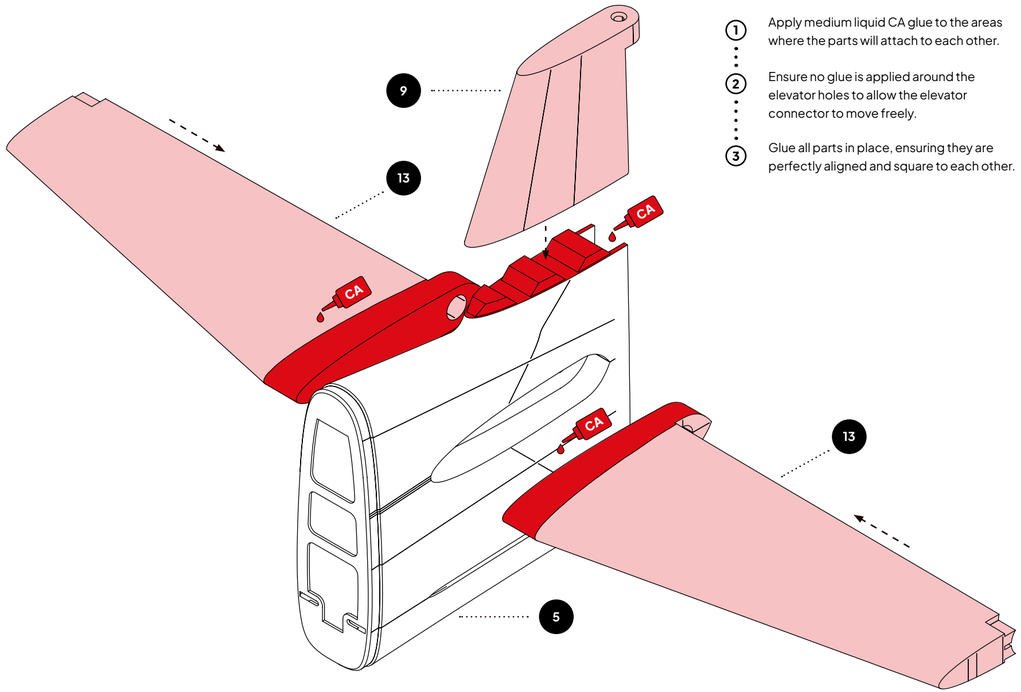
1. Dry fit the parts together to ensure a proper fit.
2. Apply medium liquid CA glue to the areas where the parts will attach to each other.
3. Firmly press the parts together and hold them in place until the glue dries.



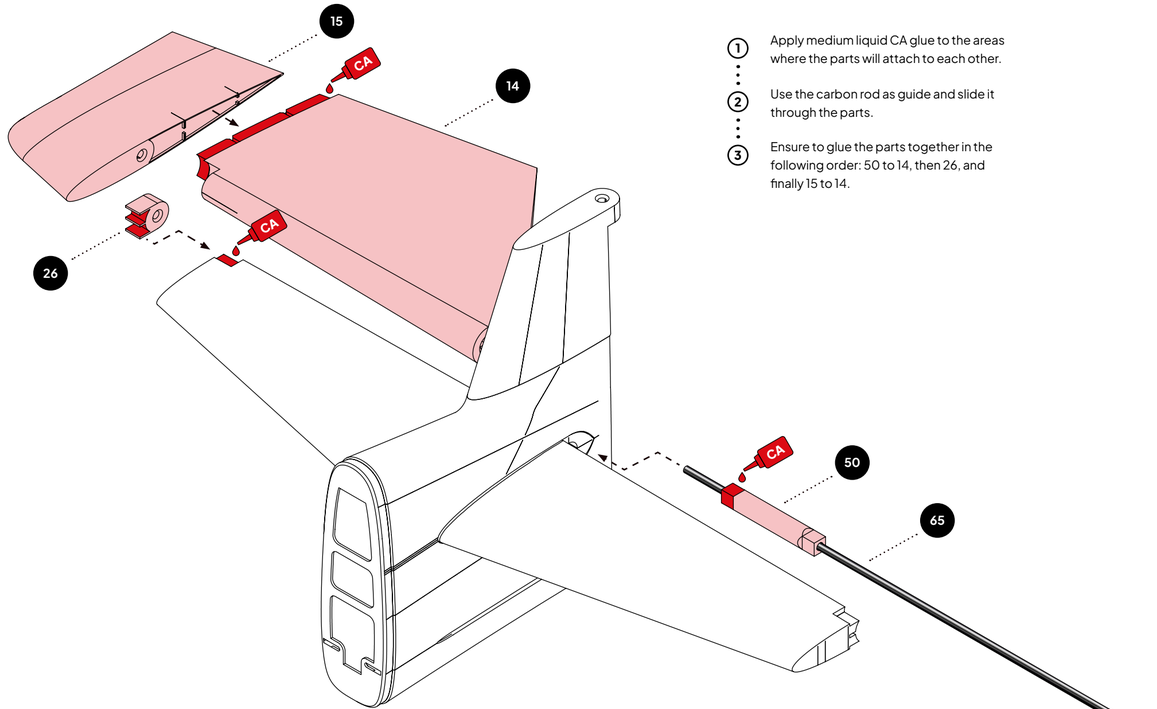
FUSELAGE

1. Use a sharp scalpel to cut out the marked area where the rudder will sit.
2. Drill a 10mm hole into the marked area to accommodate the elevator connector.
3. Clean any rough edges to ensure a proper fit of the parts.



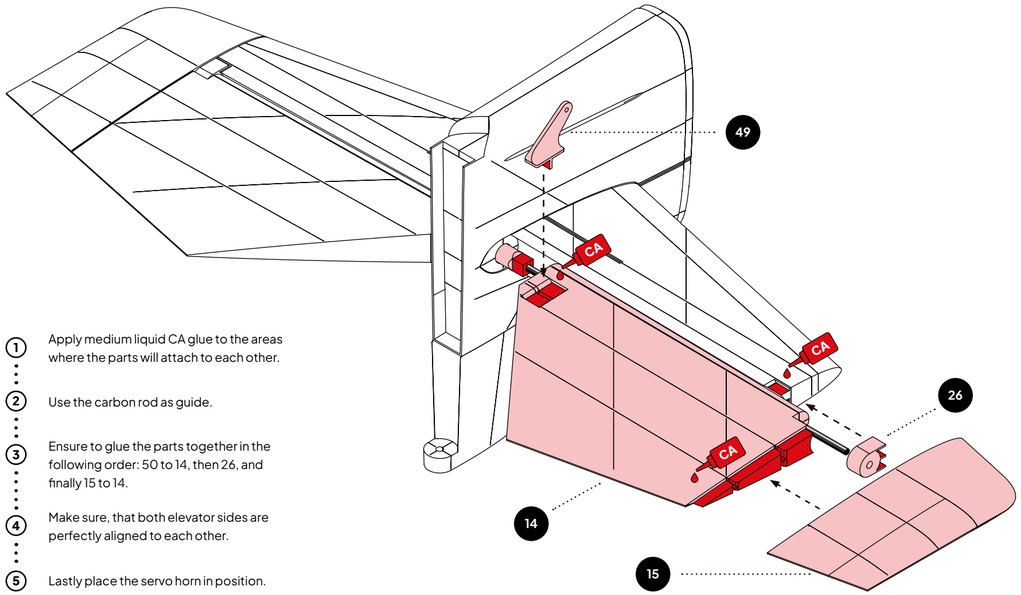


1. Apply medium liquid CA glue to the areas where the parts will attach to each other.
2. Ensure no glue is applied around the elevator holes to allow the elevator connector to move freely.
3. Glue all parts in place, ensuring they are perfectly aligned and square to each other.



1. Apply medium liquid CA glue to the areas where the parts will attach to each other.
2. Use the carbon rod as guide and slide it through the parts.
3. Ensure to glue the parts together in the following order: 50 to 14, then 26, and finally 15 to 14.

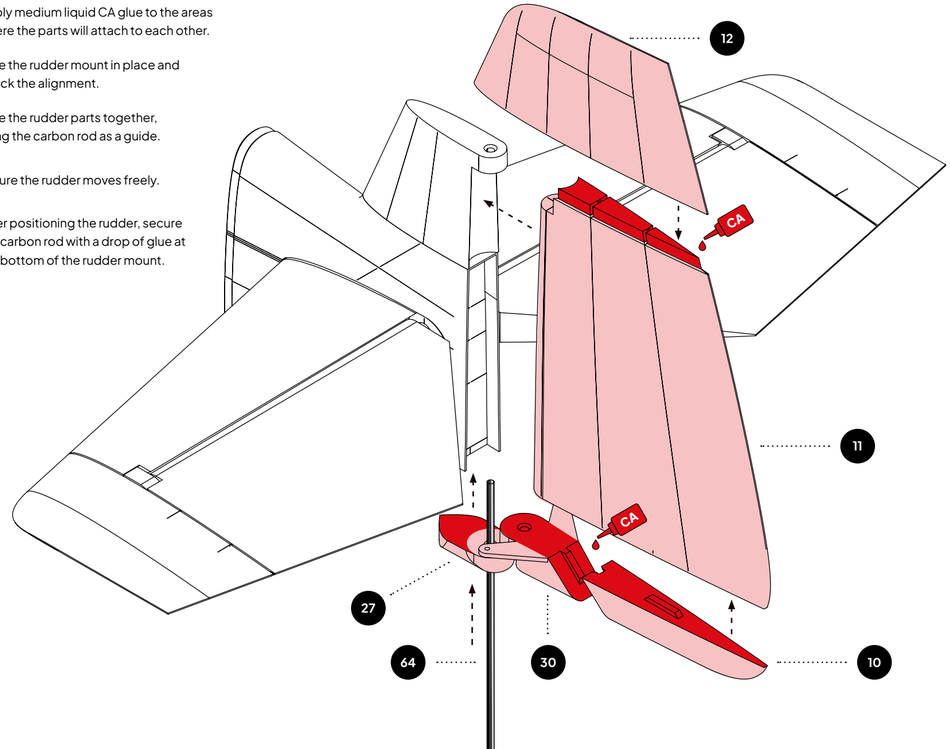
ELEVATOR



1. Apply medium liquid CA glue to the areas where the parts will attach to each other.
2. Use the carbon rod as guide.
3. Ensure to glue the parts together in the following order: 50 to 14, then 26, and finally 15 to 14.
4. Make sure, that both elevator sides are perfectly aligned to each other.
5. Lastly place the servo horn in position.

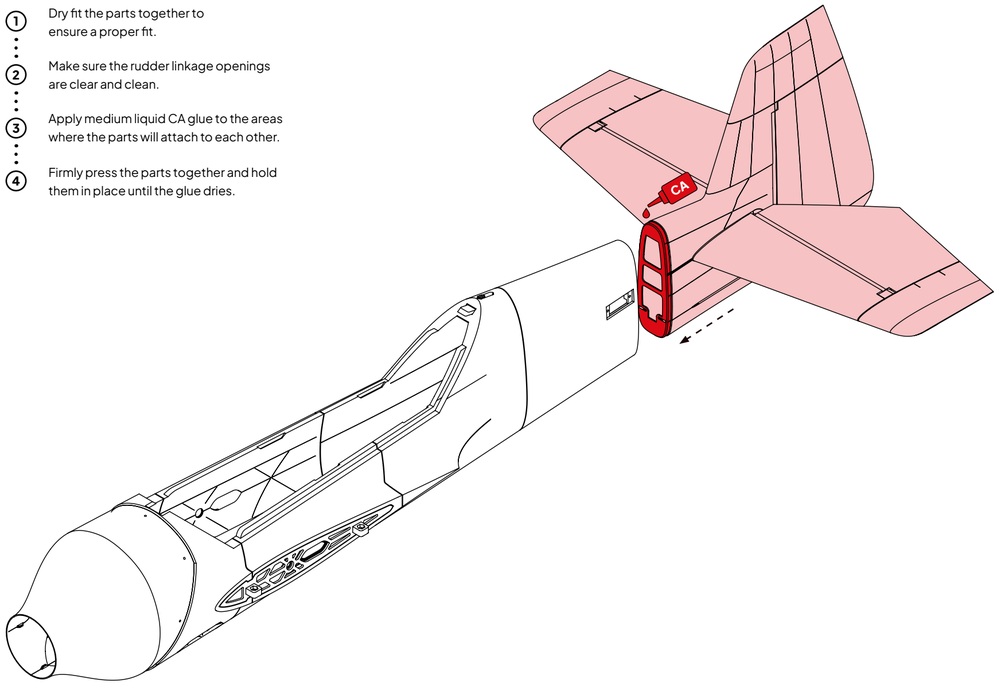
RUDDER

1. Apply medium liquid CA glue to the areas where the parts will attach to each other.
2. Glue the rudder mount in place and check the alignment.
3. Glue the rudder parts together, using the carbon rod as a guide.
4. Ensure the rudder moves freely.
5. After positioning the rudder, secure the carbon rod with a drop of glue at the bottom of the rudder mount.

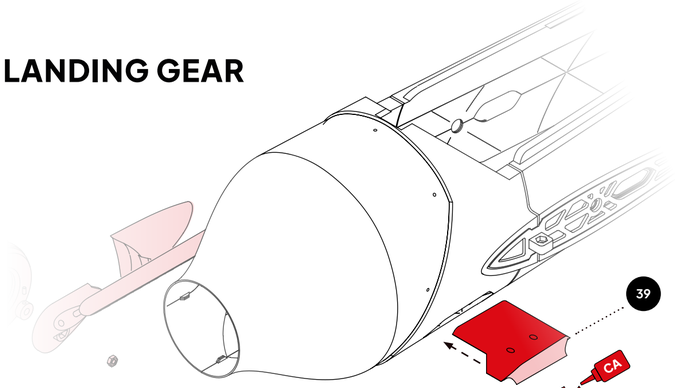


TAIL

1. Dry fit the parts together to ensure a proper fit.
2. Make sure the rudder linkage openings are clear and clean.
3. Apply medium liquid CA glue to the areas where the parts will attach to each other.
4. Firmly press the parts together and hold them in place until the glue dries.



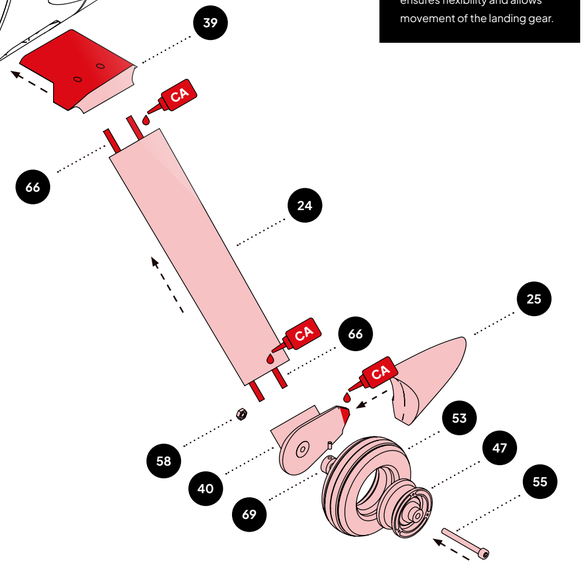
LANDING GEAR



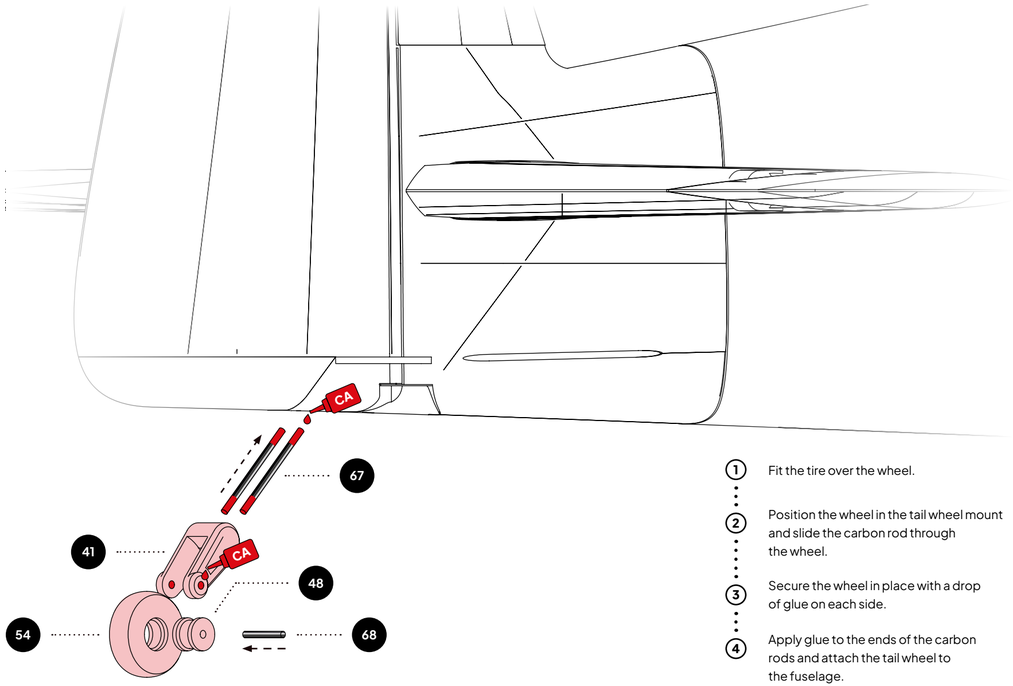
IMPORTANT

Only glue the ends of the carbon spars, avoiding the intersecting surfaces. This ensures flexibility and allows movement of the landing gear.

1. Fit the tire over the wheel.
2. Glue the wheel pants onto the landing gear.
3. Insert an M3 Nut into the pocket of the landing gear and secure it with a drop of glue.
4. Insert the M3 Screw into the wheel and secure the wheel with a stop collar.
5. Screw the wheel into the landing gear.
6. Slide the carbon rods into the landing gear.
7. Apply glue to the landing gear mount and attach it to the fuselage.



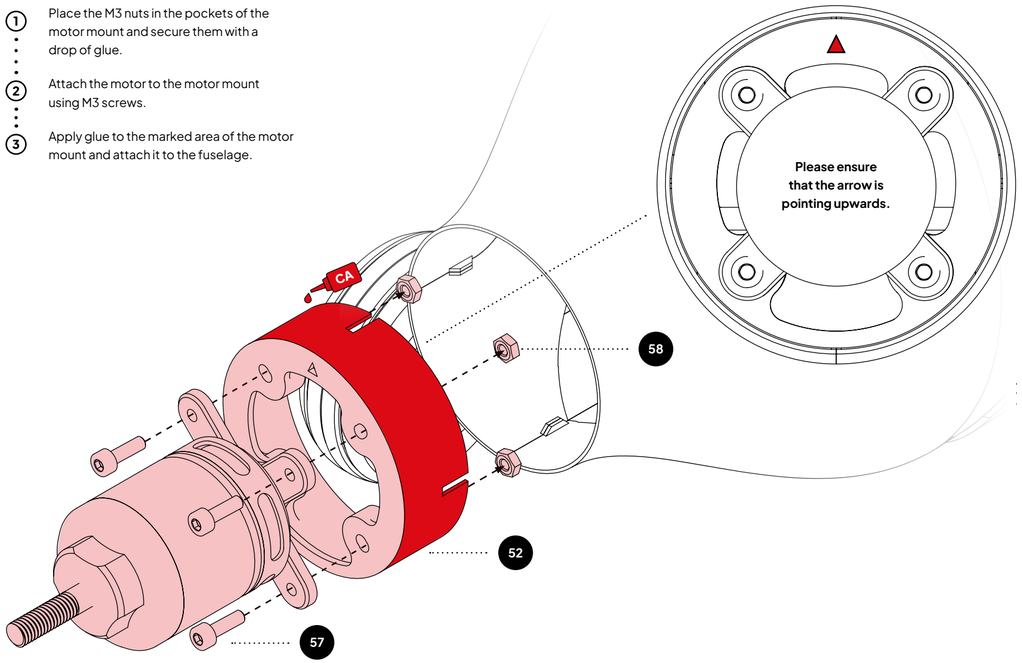
TAIL WHEEL



1. Fit the tire over the wheel.
2. Position the wheel in the tail wheel mount and slide the carbon rod through the wheel.
3. Secure the wheel in place with a drop of glue on each side.
4. Apply glue to the ends of the carbon rods and attach the tail wheel to the fuselage.

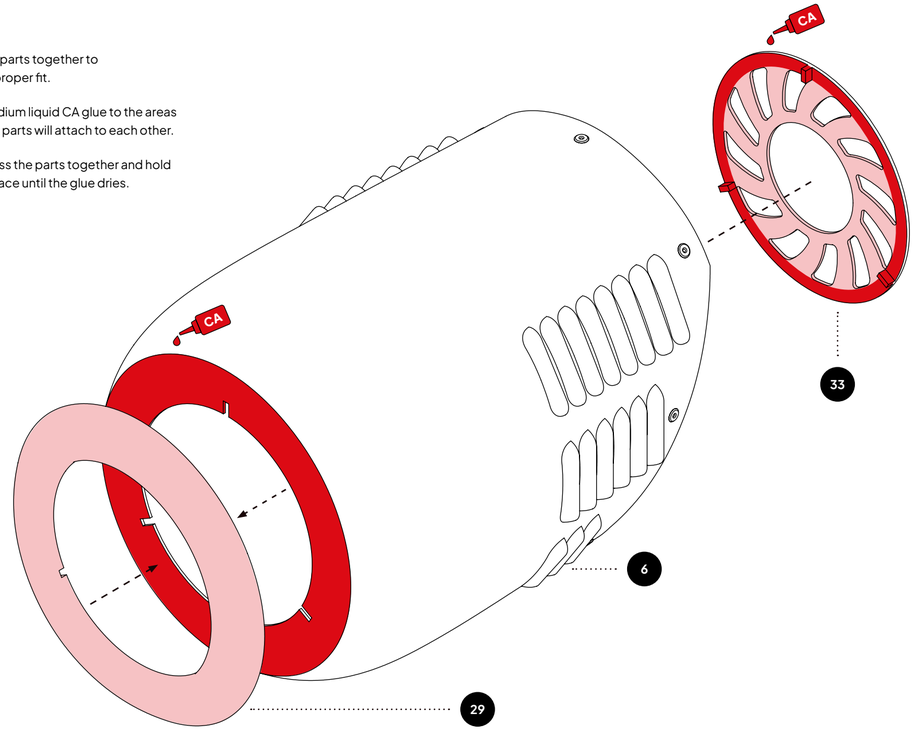
MOTOR MOUNT

1. Place the M3 nuts in the pockets of the motor mount and secure them with a drop of glue.
2. Attach the motor to the motor mount using M3 screws.
3. Apply glue to the marked area of the motor mount and attach it to the fuselage.



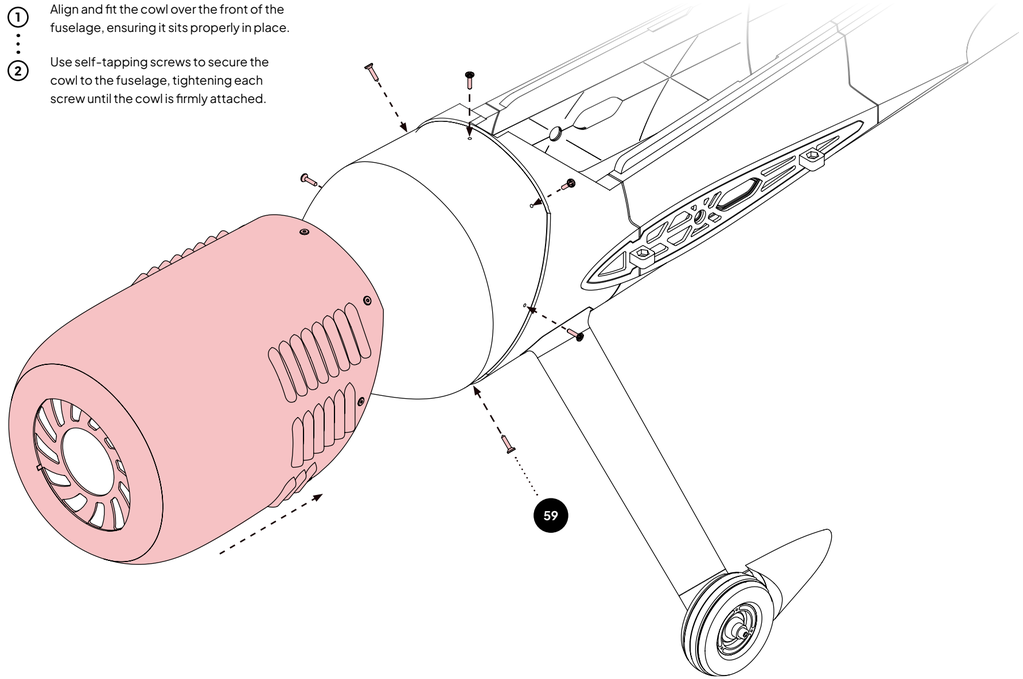
COWL

1. Dry fit the parts together to ensure a proper fit.
2. Apply medium liquid CA glue to the areas where the parts will attach to each other.
3. Firmly press the parts together and hold them in place until the glue dries.



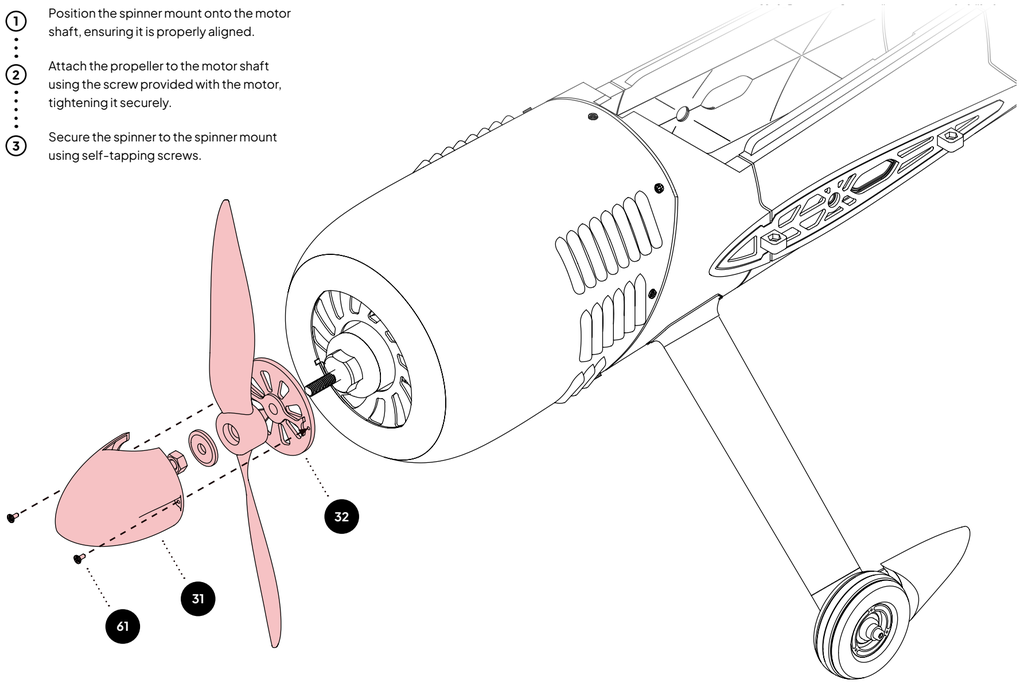
COWL

1. Align and fit the cowl over the front of the fuselage, ensuring it sits properly in place.
2. Use self-tapping screws to secure the cowl to the fuselage, tightening each screw until the cowl is firmly attached.



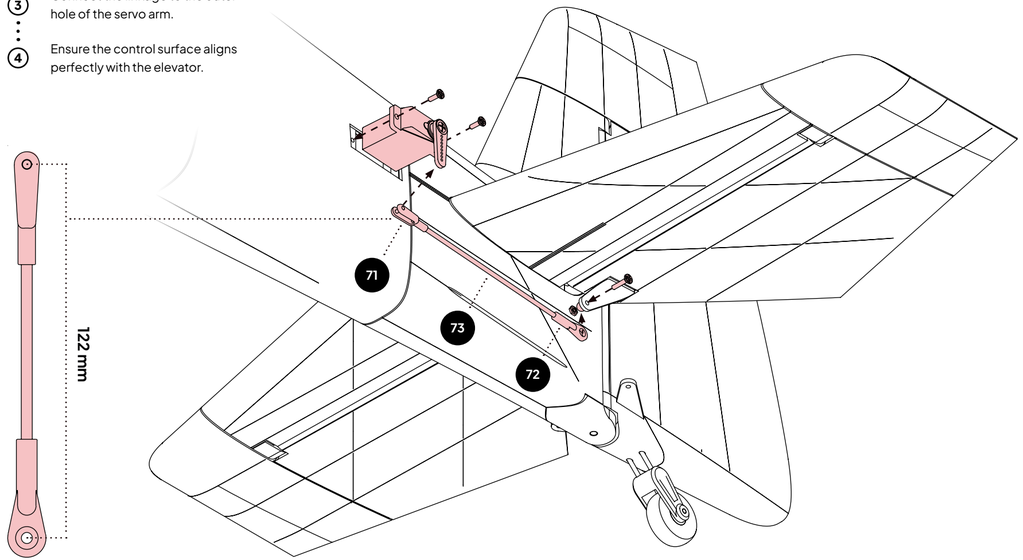
SPINNER

1. Position the spinner mount onto the motor shaft, ensuring it is properly aligned.
2. Attach the propeller to the motor shaft using the screw provided with the motor, tightening it securely.
3. Secure the spinner to the spinner mount using self-tapping screws.



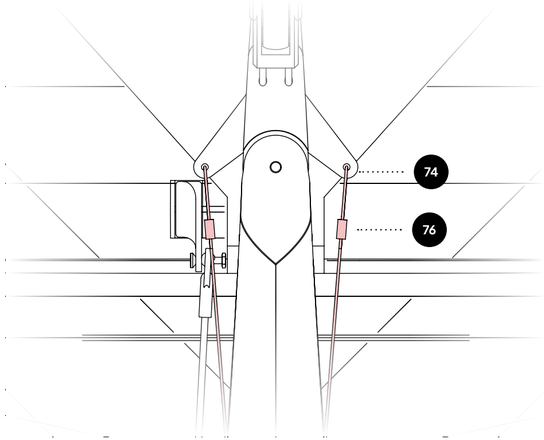
ELEVATOR SERVO

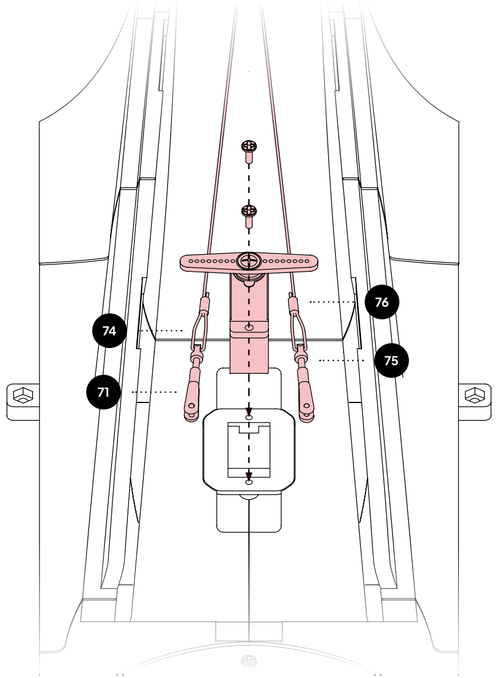
1. Use a servo tester, to center the servo arm.
2. Fasten the servo in place with the provided screws.
3. Connect the linkage to the outer hole of the servo arm.
4. Ensure the control surface aligns perfectly with the elevator.



RUDDER SERVO

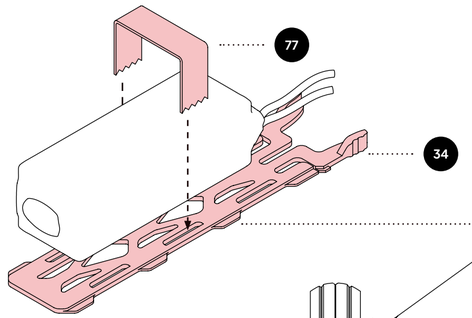
1. Use a servo tester, to center the servo arm.
2. Fasten the servo in place with the provided screws.
3. Cross the ropes of the pull-pull rudder linkage.
4. Make sure that the ropes are taut and attach the clevis to the outer holes of the servo arm.

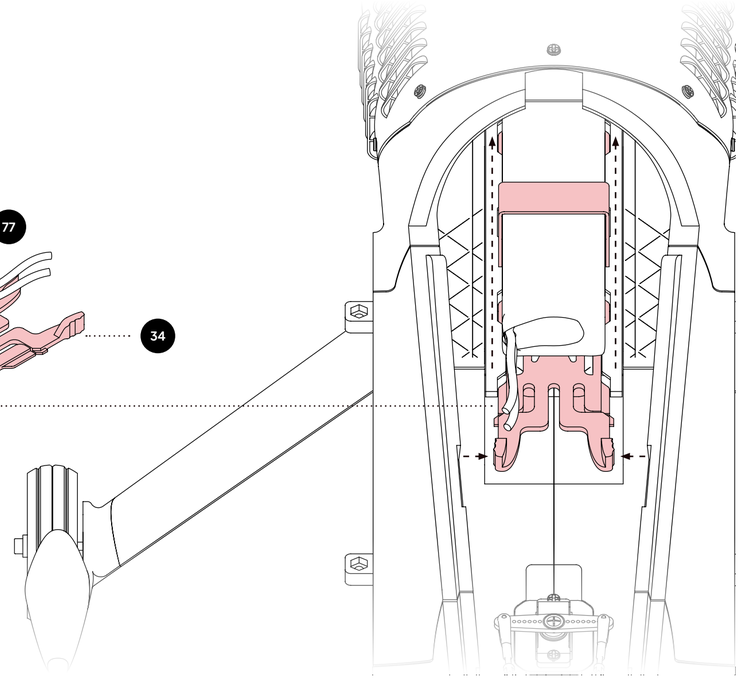




BATTERY

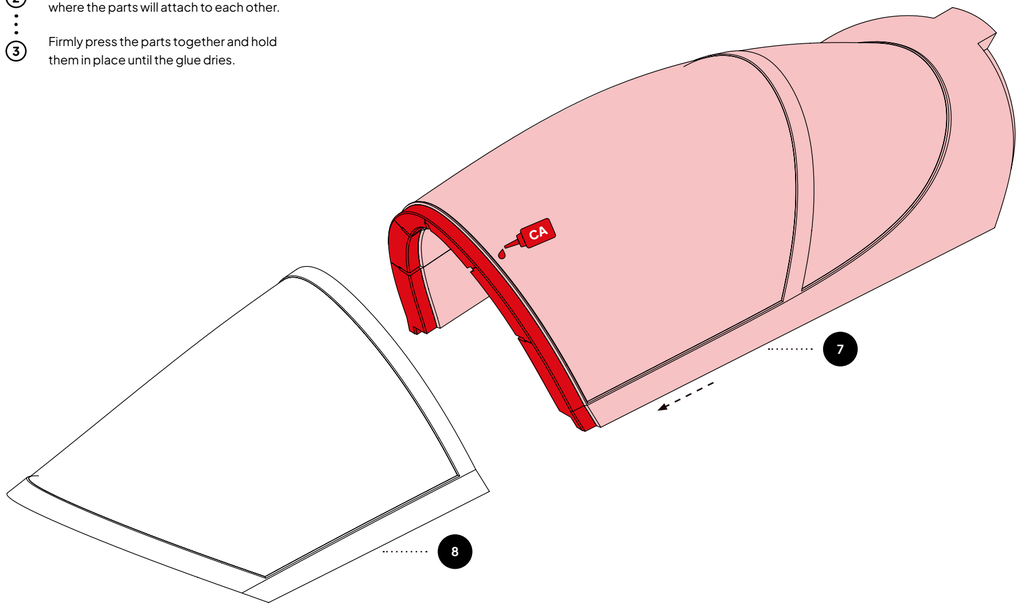
1. Strap the battery to the quick-lock battery mount.
2. Place the mount in the rail, press the handles, and slide it into place.





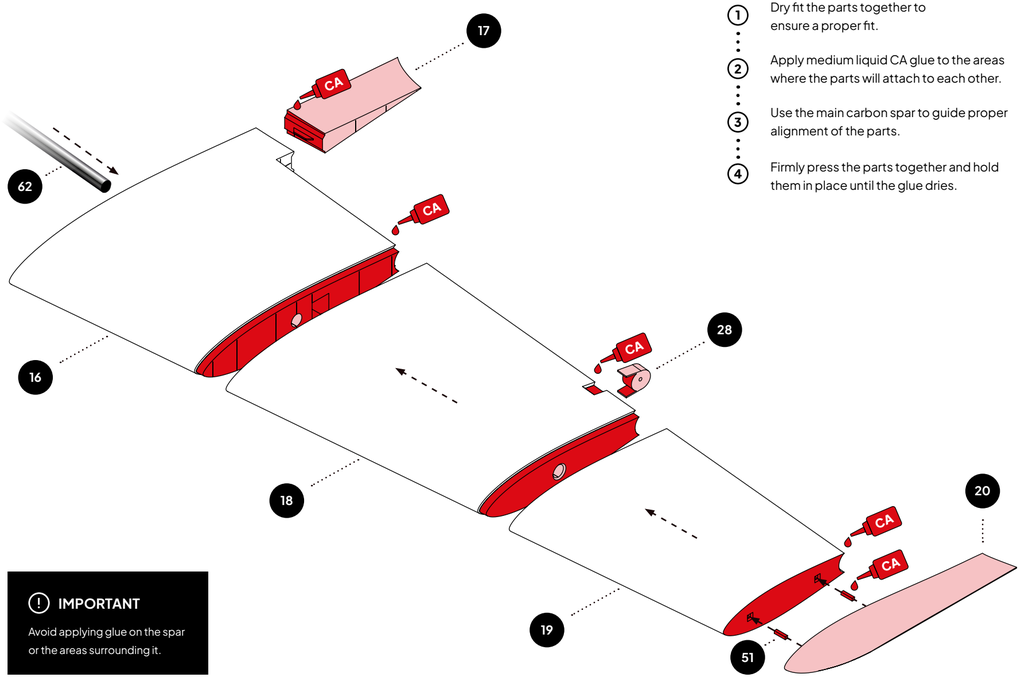
CANOPY

1. Dry fit the parts together to ensure a proper fit.
2. Apply medium liquid CA glue to the areas where the parts will attach to each other.
3. Firmly press the parts together and hold them in place until the glue dries.



WING

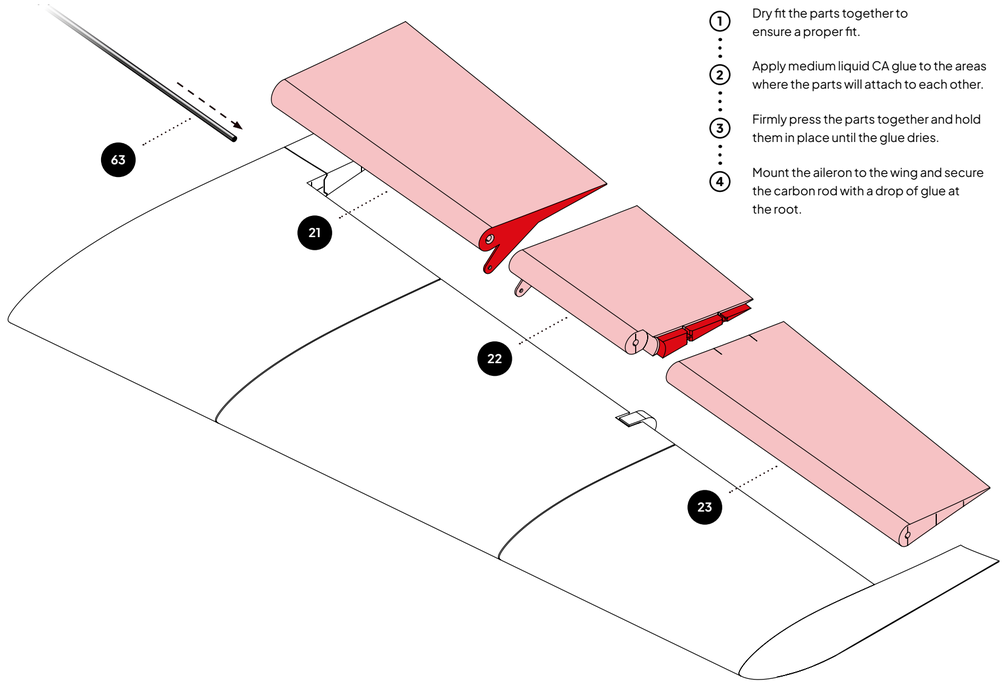
1. Dry fit the parts together to ensure a proper fit.
2. Apply medium liquid CA glue to the areas where the parts will attach to each other.
3. Use the main carbon spar to guide proper alignment of the parts.
4. Firmly press the parts together and hold them in place until the glue dries.



IMPORTANT

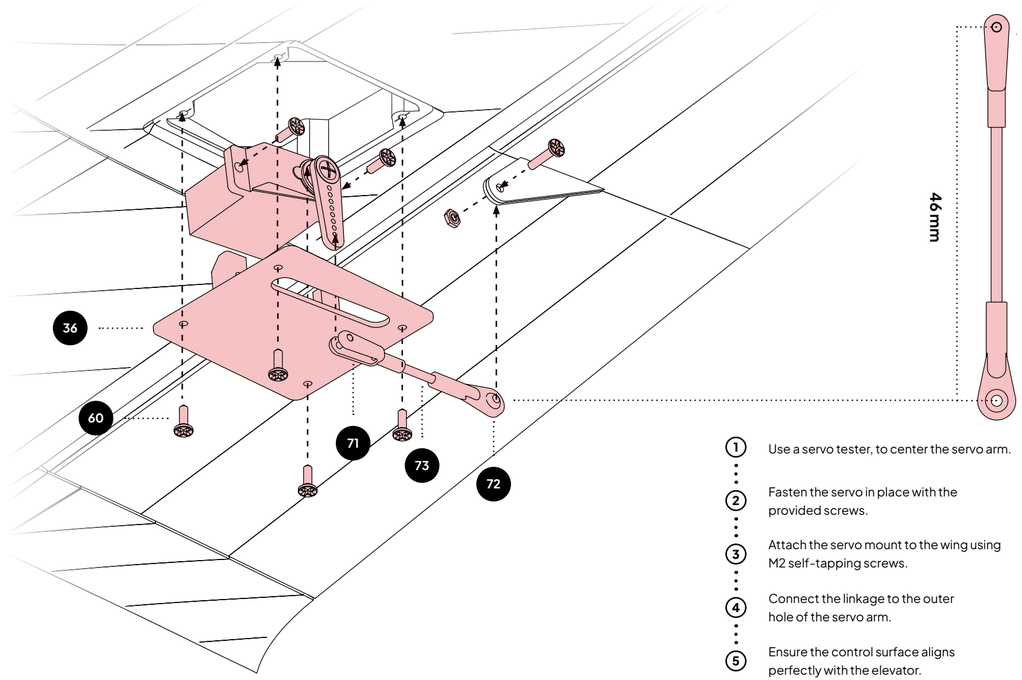
Avoid applying glue on the spar or the areas surrounding it.

AILERON



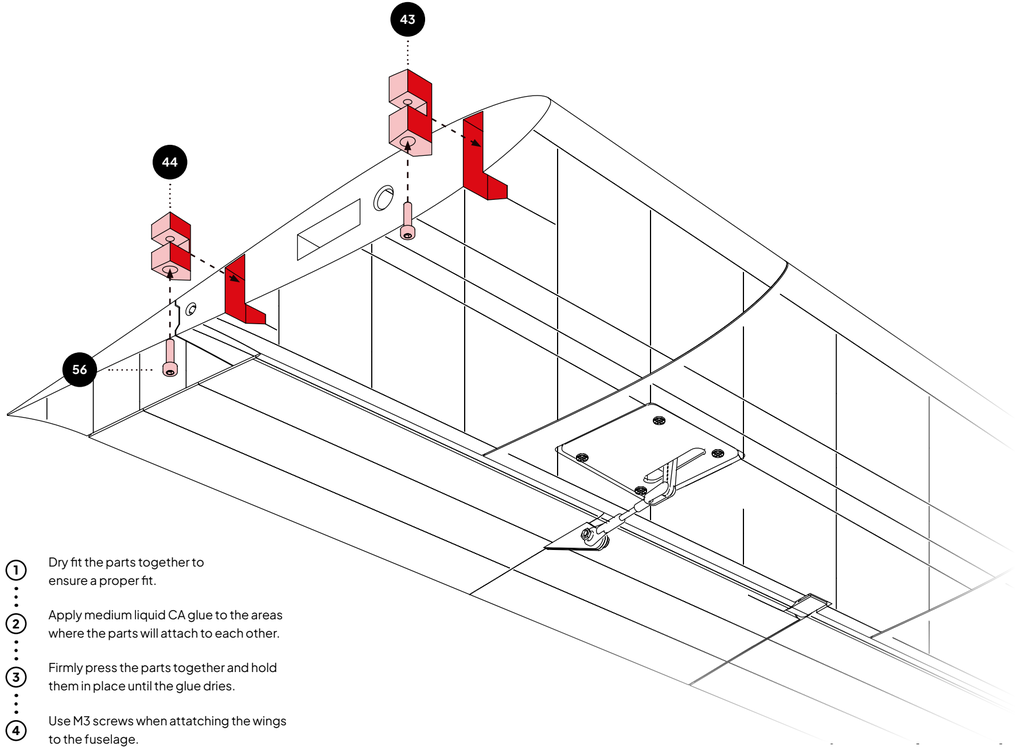
1. Dry fit the parts together to ensure a proper fit.
2. Apply medium liquid CA glue to the areas where the parts will attach to each other.
3. Firmly press the parts together and hold them in place until the glue dries.
4. Mount the aileron to the wing and secure the carbon rod with a drop of glue at the root.

AILERON SERVO



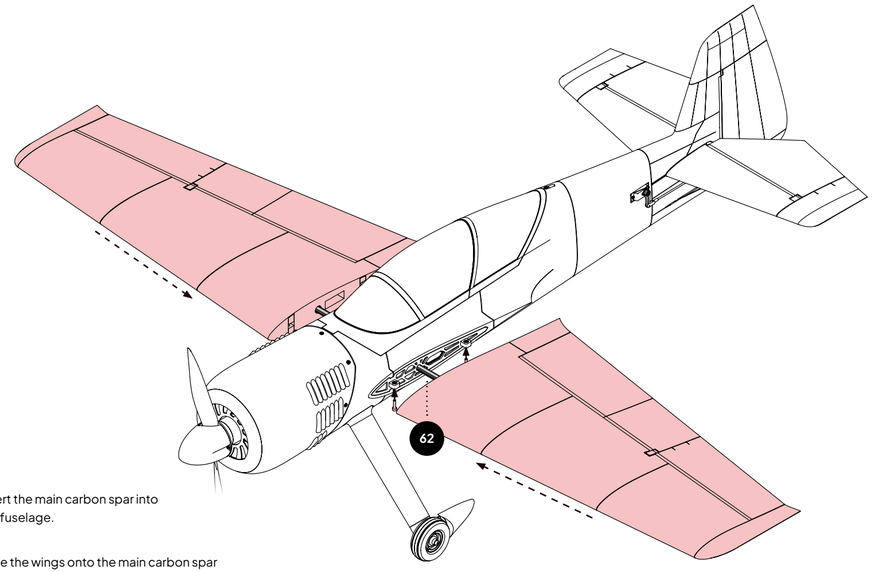
1. Use a servo tester, to center the servo arm.
2. Fasten the servo in place with the provided screws.
3. Attach the servo mount to the wing using M2 self-tapping screws.
4. Connect the linkage to the outer hole of the servo arm.
5. Ensure the control surface aligns perfectly with the elevator.

WING MOUNTING

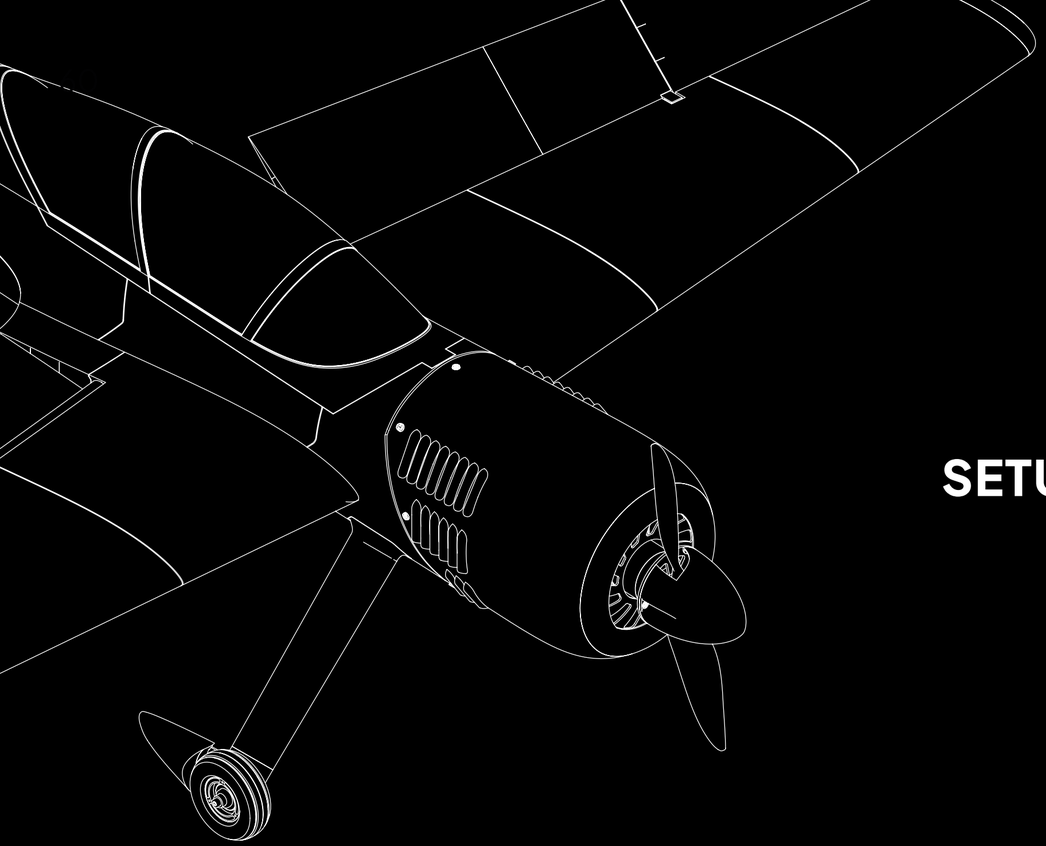


1. Dry fit the parts together to ensure a proper fit.
2. Apply medium liquid CA glue to the areas where the parts will attach to each other.
3. Firmly press the parts together and hold them in place until the glue dries.
4. Use M3 screws when attatching the wings to the fuselage.

FINAL ASSEMBLY



1. Insert the main carbon spar into the fuselage.
2. Slide the wings onto the main carbon spar
3. Secure the wings to the fuselage with M3 screws.
4. Connect all electronic components to the receiver.



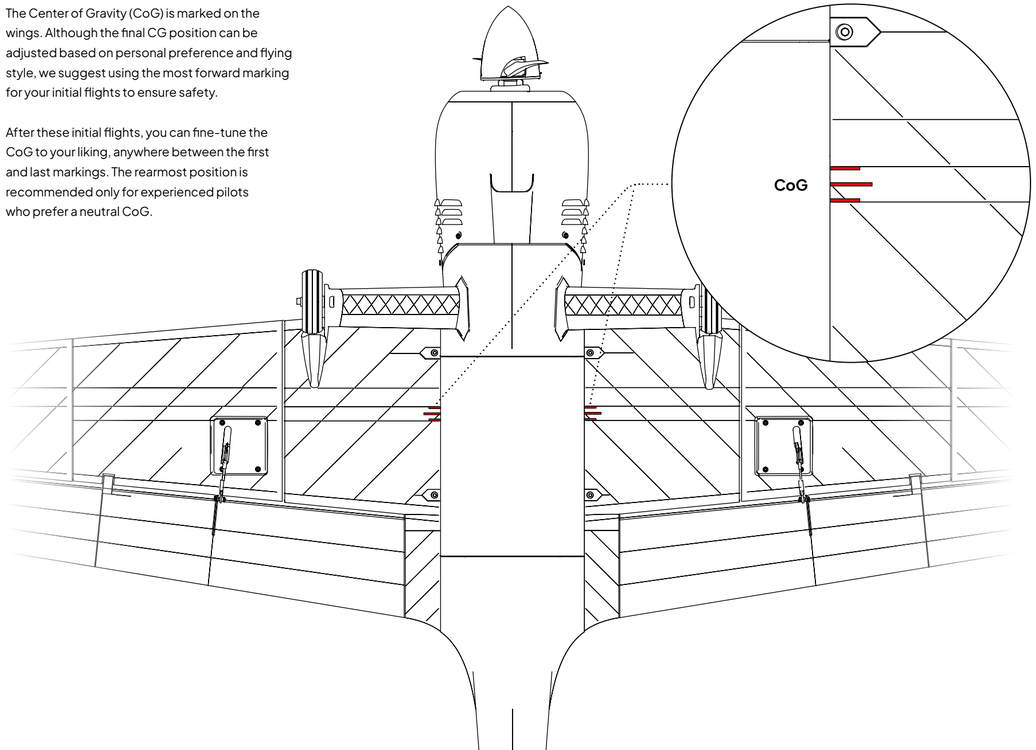
04

SETUP

CENTER OF GRAVITY

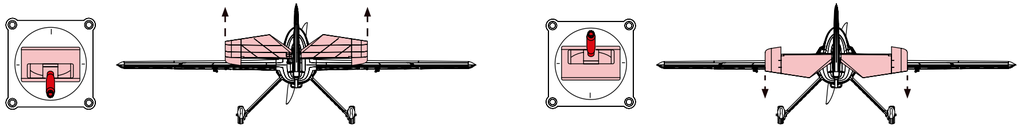
The Center of Gravity (CoG) is marked on the wings. Although the final CG position can be adjusted based on personal preference and flying style, we suggest using the most forward marking for your initial flights to ensure safety.

After these initial flights, you can fine-tune the CoG to your liking, anywhere between the first and last markings. The rearmost position is recommended only for experienced pilots who prefer a neutral CoG.

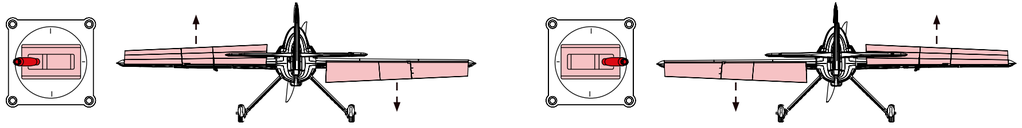


CONTROL DIRECTIONS

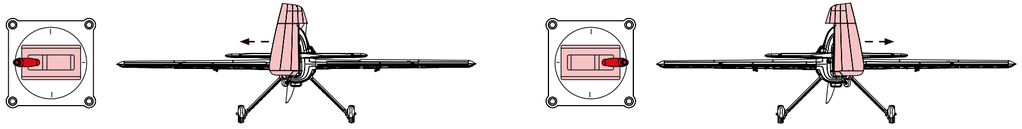
Pitch



Roll



Rudder



RATES & THROWS

Servo Travel > Dual Rate – Low

Stick input	Differential	Expo	Weight	Throw
Pitch	0%	40%	40%	22 mm
Roll	15%	40%	50%	20 mm
Rudder	0%	30%	50%	20 mm

Servo Travel > Dual Rate – High

Stick input	Differential	Expo	Weight	Throw
Pitch	0%	60%	100%	55 mm
Roll	15%	60%	100%	40 mm
Rudder	0%	60%	100%	40 mm

These basic settings are only a recommendation and can be changed according to your own preferences.

Dual Rates

Dual rates are a feature that adjusts the sensitivity of control surfaces like the ailerons, elevator, and rudder. This feature lets pilots switch between two levels of control surface movement (deflection) using a switch on the transmitter, providing flexibility and control to adapt to various flying styles and conditions.

Expo

This feature makes the control sticks less responsive around the center. This reduces unintended shaking and minimizes the impact of small stick movements. As the sticks are moved away from the center, the control surface becomes increasingly more responsive, following an exponential curve.

Differential

Differential aileron movement refers to the unequal movement of ailerons in opposite directions, with the upward movement being greater. This is due to the fact that a downward deflected aileron creates more drag than an upward deflected one, which tries to pull the airplane out of the turn . The implementation of differential aileron movement helps to mitigate the impact of adverse yaw during a banked turn, ensuring a stable and balanced flight.

STAY UP TO DATE WITH OUR FUTURE PROJECTS AND DEVELOPMENTS

Be the first to hear about our upcoming projects and to see our continuous development!
Thank you for your support! Your help makes the future a reality.

Contact

Do you have any questions or need assistance?
Don’t hesitate to reach out.

info@3dblackbox.io