

Rok Sportjet

Introduction

Thank you for purchasing the Rok Sportjet from RBCkits.

The Rok Sportjet gives experienced R/C enthusiasts a semi-scale model that combines distinctive scale character with enjoyable flying performance. Designed with accurate detailing, practical construction, and reliable flight qualities in mind, it is sure to attract attention at any flying field.

RBCkits uses advanced CAD design and precision CNC production to offer models of aircraft that are rarely represented in kit form. While these aircraft may not be as well known as the P-51 or P-47, they have their own history, charm, and unique flying characteristics. The Rok Sportjet is one such design.

Kit Features

CAD-Designed Structure

The Rok Sportjet has been designed entirely in CAD. This allows strength to be built into the airframe without unnecessary weight. Every component is computer-modelled to provide accurate fit, alignment, and repeatable construction.

Original CAD-Drawn Plans

The supplied plans are original drawings produced directly from the CAD model—not copies of earlier plans. They provide:

- Accurate scale dimensions with no paper-shrinkage distortion
- Colour-coded layouts for easy part identification
- Precise component locations to support a straight, accurate build

Lightening Holes

CNC-cut lightening holes are incorporated wherever structural requirements permit. This reduces weight while maintaining the required strength of the airframe.

CNC-Cut Parts

The same CAD data used to produce the plans is used to cut the wood parts. Ribs, formers, doublers, and other components are machined to specification for accurate fit, consistent quality, and minimal material waste.

Plastic Components

The canopy is formed from high-quality polystyrene or PETG plastic. These materials are durable and can be painted to achieve an excellent finish.

Builder Experience

The Rok Sportjet is a semi-scale model intended for experienced R/C builders. It is not a beginner's kit.

Builders should be comfortable with:

- Reading and interpreting full-size plans
- Aligning and sanding wooden structures accurately
- Using CA, epoxy, and white glue correctly
- Installing conventional R/C hardware and linkages
- General balsa-model construction methods

The model does not require unusual techniques, but it does require patience, careful workmanship, and close attention to the plans and reference photographs.

Important: Follow the recommended assembly sequence. Later assemblies may rely on correct alignment and completion of earlier work.

CNC-Cut Wood Notes

- Minor fraying on CNC-cut wood surfaces is normal and cosmetic.

- Some parts may remain partly attached to their sheets because of wood-thickness variation. Free them carefully with a sharp knife.
- Lightly sand tabs and slots before assembly to ensure a smooth fit. Do not force parts together.
- Slightly warped parts will normally straighten when installed in the completed structure.

Hardware and Power System

Hardware and the EDF power unit are not included. This allows each builder to select equipment that suits their own preferences, operating conditions, and intended flying style.

Select suitable wheels, control horns, pushrods, servos, motor or EDF unit, speed controller, battery, and radio equipment in accordance with the plans and your selected power system.

Safety and Responsibility

This model aircraft is not a toy. Build and operate it responsibly and in accordance with all applicable local R/C flying laws and regulations.

By assembling and flying this kit, the builder accepts responsibility for its correct construction and safe operation.

RBCkits accepts no liability for:

- Unsafe or improper assembly, installation, or operation
- Damage caused by modification, neglect, or misuse
- Equipment, hardware, or power-system components not supplied or recommended for this model

Before You Begin

Study the drawings and reference photographs before applying glue. Familiarise yourself with the structure, part locations, orientations, and recommended build sequence.

Many CNC-cut parts look similar. Before removing them from their sheets, mark each part with its designation and number as shown on the plans. This simple preparation step prevents confusion and saves time during construction.

Reference photographs supplied with the kit are an important part of the instructions. They show part orientation and assembly details that may not be immediately apparent from the plans alone.

Tools Required

- Hobby knife and utility knife
- Straightedge
- Flat building board, approximately 1700 × 750 mm
- Sanding blocks and assorted sandpaper
- Small clamps, masking tape, and building pins
- Drill and wire-bending tools
- Side cutters and pliers
- Safety goggles

Adhesives

Keep the following adhesives available:

- Thin, medium, and thick CA glue
- White wood glue
- Epoxy resin
- Canopy glue

Approximate CA requirements:

- Four bottles of thick CA for wing and stabilizer sheeting
- Two bottles of medium CA for rib assembly
- One bottle of medium CA for fuselage formers

Use epoxy for high-stress joints and for mounting the cowl, canopy, and landing gear. Use canopy glue for clear plastic canopy attachment.

Finishing Materials

- 25 g and 50 g glass cloth
- Approximately 3 m of glass cloth, as required
- Filler dope, PS100, or approximately 1 litre of finishing epoxy
- Brushes
- Sandpaper in 60-, 120-, and 180-grit
- Primer suitable for plastic components
- Paint of your choice

Roughen plastic surfaces lightly before applying primer to improve adhesion.

Before You Begin Assembly

Study the drawings and reference photographs carefully before applying any glue. Familiarise yourself with the overall structure, component layout, part orientation, and recommended assembly sequence.

Marking CNC-Cut Parts

Important: Many CNC-cut parts look very similar. Before removing any part from its sheet, clearly mark it with the designation and number shown on the plans.

This preparation step will save time during construction and help prevent assembly errors.

Builder Experience

The Rok Sportjet is not a beginner’s kit. It is intended for experienced R/C builders who are familiar with:

- Accurate part alignment and sanding
- Correct use of CA, epoxy, and white glue
- Reading and interpreting building plans
- General R/C aircraft-construction techniques

This is a detailed, time-intensive project. Careful workmanship and patience will be rewarded with a strong, accurate, and realistic scale model.

Reference Photographs

Reference photographs included in the download files are an important part of the instructions. Review them throughout the build, as they provide additional detail and clearly show part orientation and assembly methods.

Wing Construction

1. Prepare the Parts

Check every slot and opening before assembly. Wood thickness can vary slightly, so parts should slide into place without force. Never force a rib, former, or tab into a tight slot; this can break the part or introduce unwanted stress into the structure.

If necessary, carefully enlarge openings with coarse sandpaper until the fit is smooth.



2. Prepare the Bottom Sheeting

Cut the lower wing sheeting slightly oversize. Transfer the rib and former positions from the plan onto the sheeting.

Position all ribs and formers dry, without glue, and check the complete layout for correct fit, alignment, and orientation. Once satisfied, glue the ribs and formers to the lower sheeting one at a time using medium CA.





3. Install the Retract Bearers

Make the retract bearers by joining the plywood strips with glass cloth—or preferably carbon fibre—and epoxy. When cured, trim the bearers to fit accurately between the wing ribs.

Add the specified vertical plywood reinforcements to strengthen the retract-bearer structure.

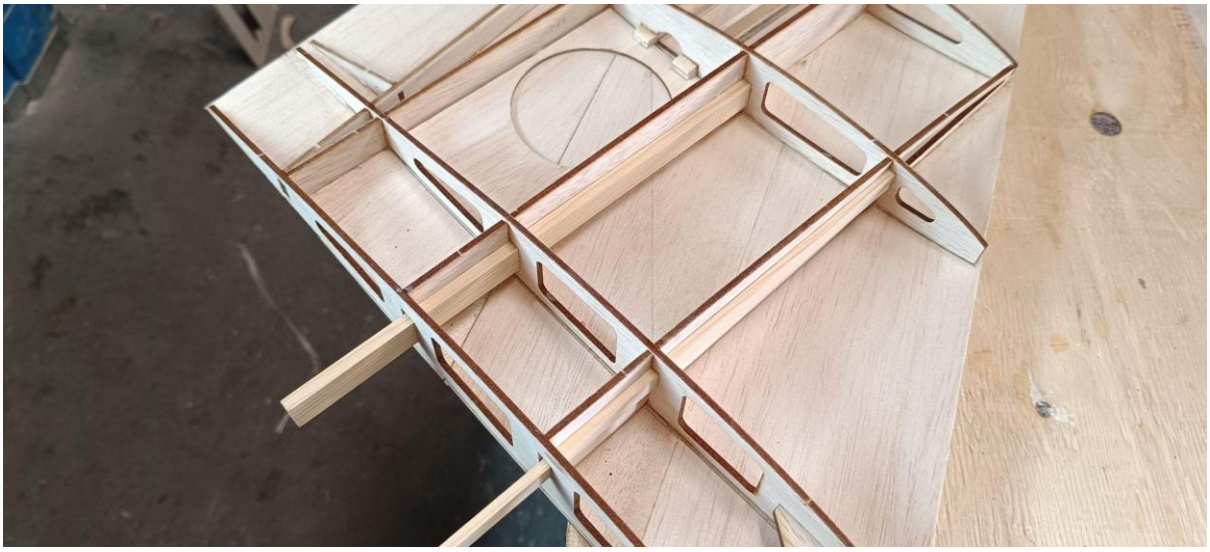




4. Test-Fit the Wing Joiners

Test-fit the wing joiners in both wing panels. They must slide into position easily and without forcing.

Do not glue the joiners at this stage.



5. Install Aileron and Flap Components

Cut hinge blocks from the 6 × 50 mm balsa sheet as shown on the plans.



Install the aileron and flap fill pieces. Make small orientation marks or reference cuts where useful so that the parts cannot be confused during final assembly.



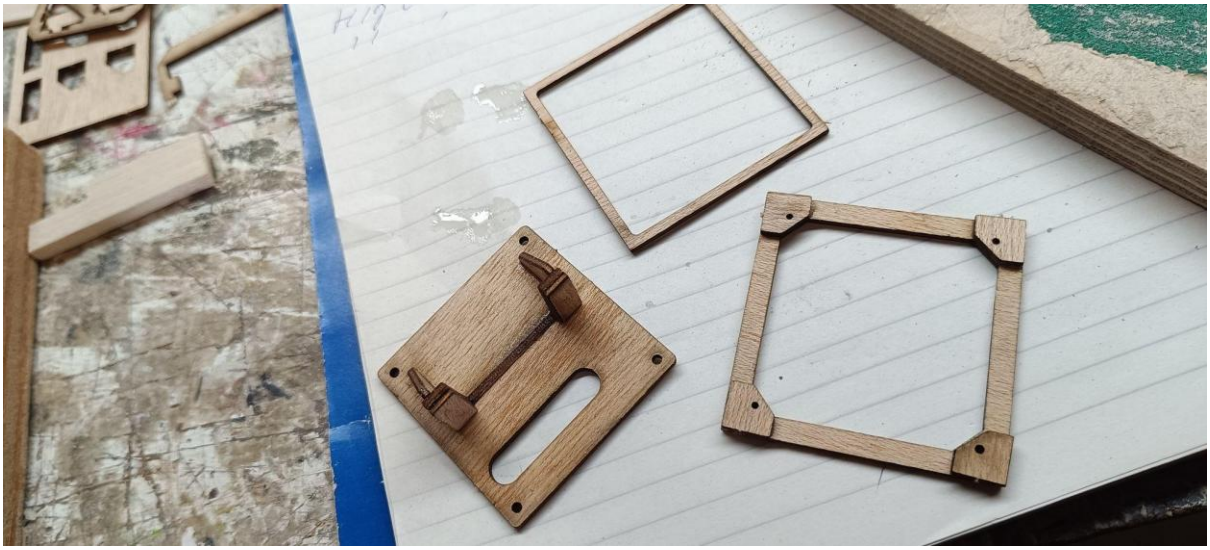
Fit the aileron and flap trailing-edge components according to the plans.

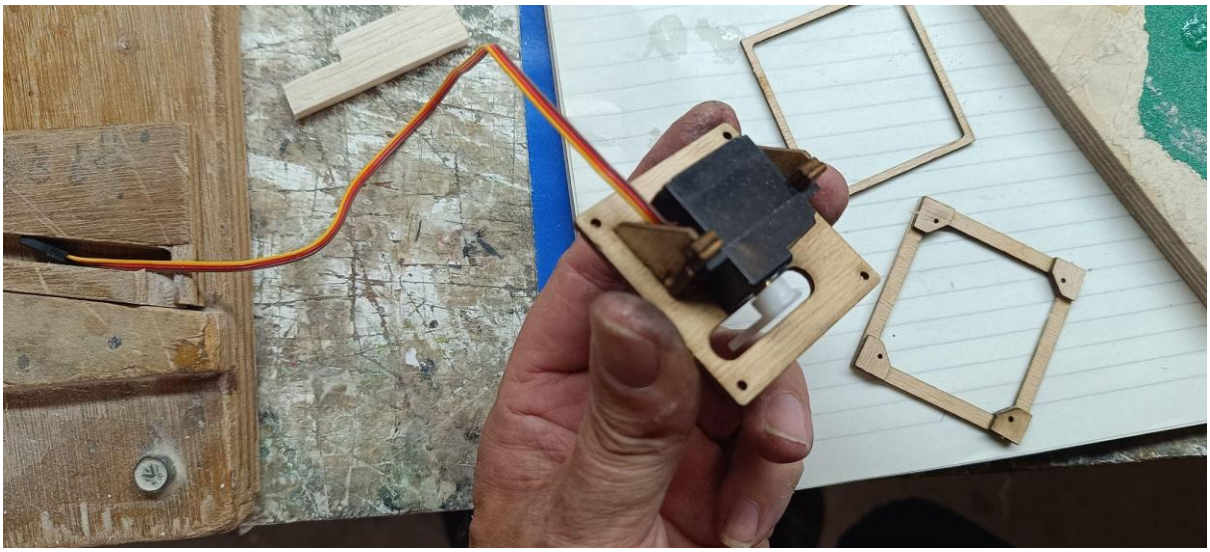


6. Prepare the Servo Mounts

Assemble the servo mounts and adjust the openings as required for the selected servos.







Fit the servo-mount frames into the wing structure. A 1.5 mm cover sheet is fitted over the servo plate to create a smooth wing surface.



Install servo extension leads before closing the wing. Confirm that the leads are accessible and long enough to reach the receiver installation.

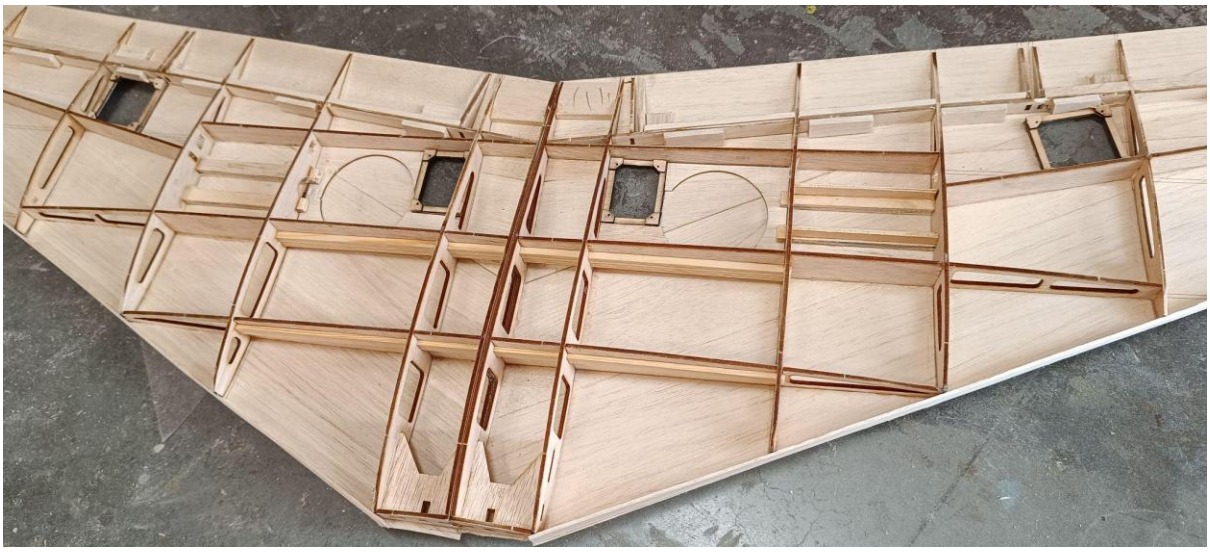


7. Join the Wing Panels

Once all internal components have been installed, test-fit both wing panels with the joiners in place.



When the fit is correct, glue the joiners permanently into one wing panel only. This will allow the wing to remain removable from the fuselage.



8. Fit the Upper Sheeting

Cut the upper wing sheeting slightly oversize. The curved upper rib profile is longer than the flat lower surface, so adequate excess material is essential.



Fit the helper former to one wing panel as shown on the plans. Pin the wing down at the marked “X” locations.





Ensure that the trailing-edge filler piece is installed; it supports the wing fasteners.





Attach the upper sheeting first at the trailing edge with masking tape. This lets the sheet be rolled smoothly over the ribs during installation.



Medium or thick CA with accelerator can be used for this operation. White glue is also suitable and provides more working time.



9. Complete the Centre Section

Fit the wing joiners into the second wing panel, then glue the panels and joiners together. Use the wing-dowel plate to maintain correct alignment.





Pin the completed wing to the building board and support the opposite panel so that both panels remain correctly aligned while the adhesive cures.



10. Finish the Wing

Remove the wing from the building board. Trim and sand the edges.



Prepare and fit the 6 mm balsa leading edge, then sand it to the profile shown on the plans.



Construct the wing tips and sand them smooth. Keep the centre leading-edge area slightly oversize until the wing has been fitted to the fuselage; final shaping can then be completed for an accurate fit.





Finally, apply a glass-cloth reinforcement band over the centre joint using epoxy.

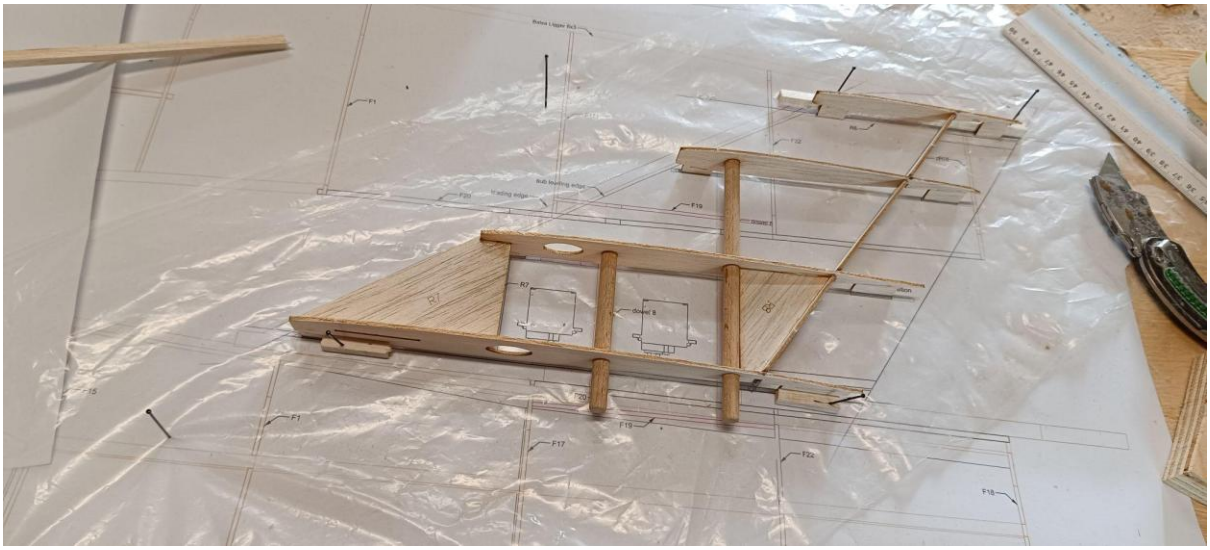


Vertical Stabilizer

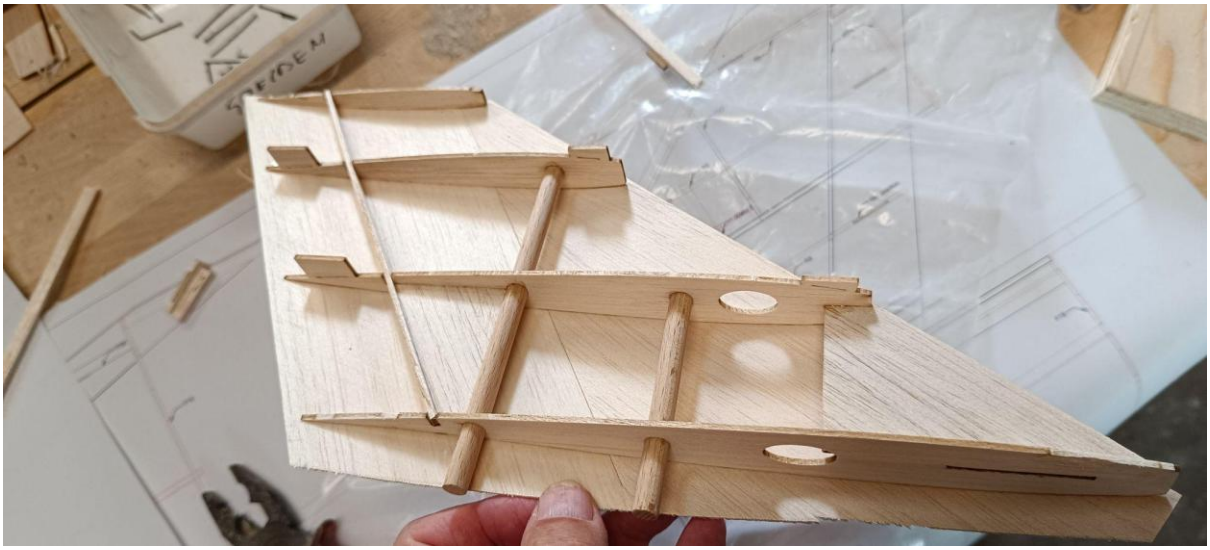
Cut the stabilizer sheeting to the shape shown on the plans, leaving it slightly oversize around all edges for final trimming and sanding.



Install the formers one at a time. Check alignment before securing each former, then tack-glue the former feet in position.



Fit the sheeting once the internal structure is correctly aligned.



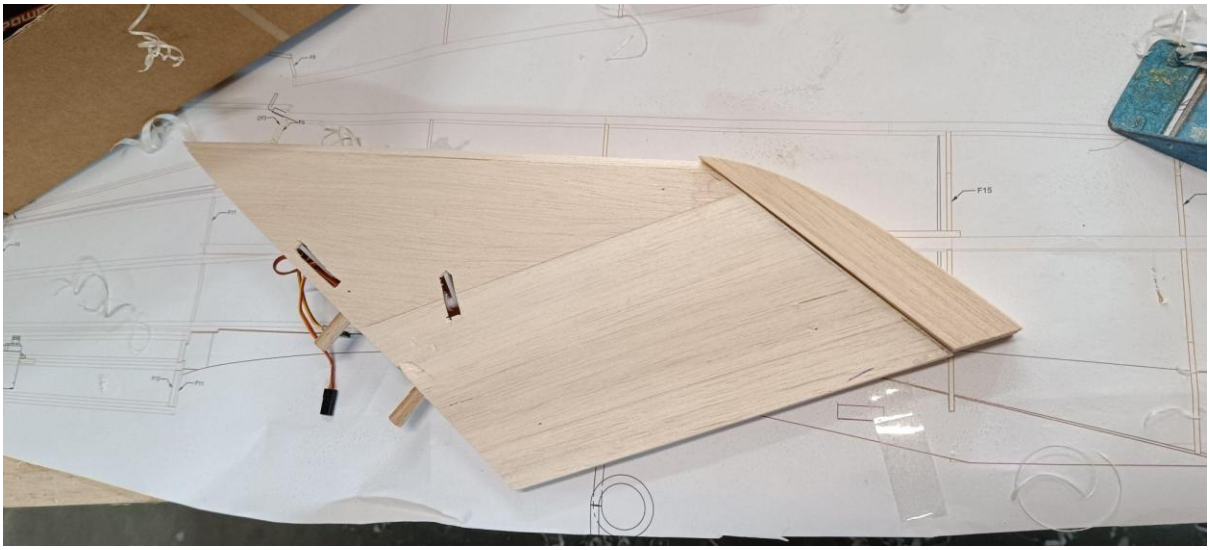
Install the rudder trailing-edge parts, hinge blocks, and hinge points as shown on the plans. Fit the rudder servo and the two stabilizer servos. Although only one stabilizer servo may be shown in some reference images, two servos are recommended for the completed model.



Add the specified wood reinforcements to strengthen the structure.



Fit the fin tip, then trim and sand the complete assembly to its final shape. Cut the necessary openings for the servo arms before covering or finishing.

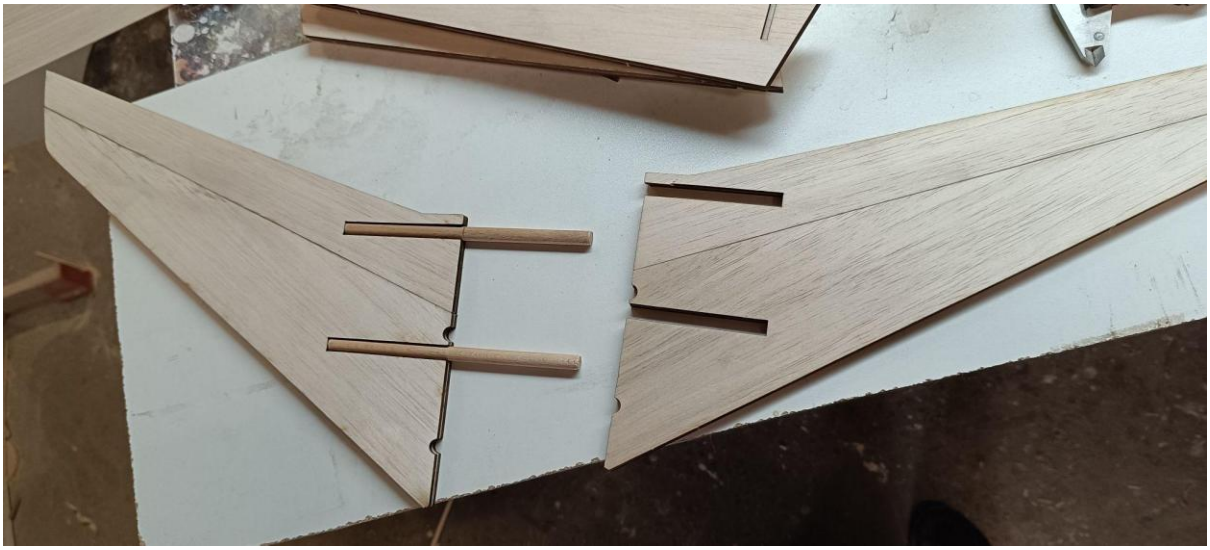


Horizontal Stabilizer

Join the stabilizer sheet panels as shown on the plans. A strip of 50 g glass cloth may be laminated between the sheets at the joint for additional strength, although this is optional.



Join the stabilizer halves using the 8 mm dowels. Check that both halves are correctly aligned before the adhesive cures.



Sand the stabilizer to a smooth, symmetrical airfoil profile.



Shape the elevators to fit the stabilizer, then prepare the openings required for the control horns and servo linkages.

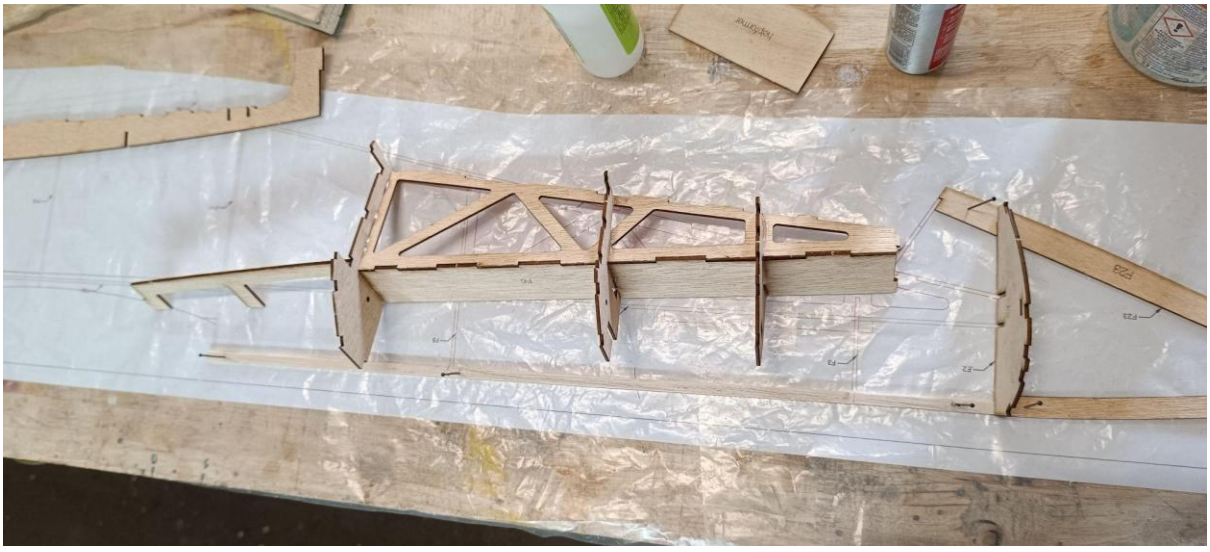


Fuselage Construction

The fuselage is built in two mirror-image halves directly over the plans. Accuracy at this stage is important, as it will make joining the two halves much easier later in the build.

Begin by positioning the front formers on the building board and dry-fitting the battery-compartment structure. Check the fit and alignment before applying glue.





Fit the 3 × 6 mm balsa stringers and install the remaining formers carefully. The 2 mm plywood parts can be brittle, so avoid forcing them into position. A small drop of CA may be used to secure minor parts while the structure is being assembled.



An optional 90 mm EDF version can be built using the additional supplied parts. These reduce the exhaust outlet to 75 mm.



Pin all parts securely to the building board. Any slight warping in the wood will normally disappear once the parts are pinned straight and incorporated into the structure.



Fit the wing former with care, followed by the remaining 3 × 6 mm balsa stringers. Install the upper and lower intake formers.







Join the duct side panels and install them in the fuselage. Make reference marks to ensure their positions can be checked during final installation.





Fit the outer duct panels one at a time, use the helpformer for this ,then install the remaining stringers.







Make the wing-fastener plates and glue them into place. Once the structure has been checked for straightness and correct alignment, glue the remaining formers with CA.



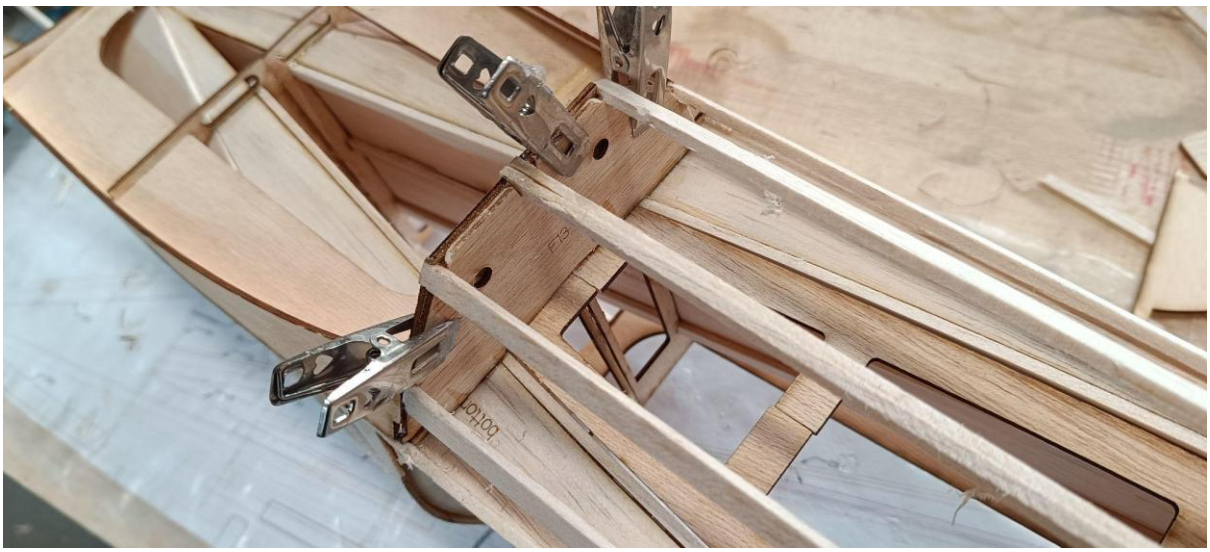
Remove the completed fuselage half from the building board and construct the second half in the same manner.

Joining the Fuselage Halves

Carefully join the two fuselage halves, checking that the centreline is straight and that all formers align correctly. Small spring clamps or pliers may be useful for holding narrow joints while the adhesive cures.



Install the remaining formers after the two halves have been joined.

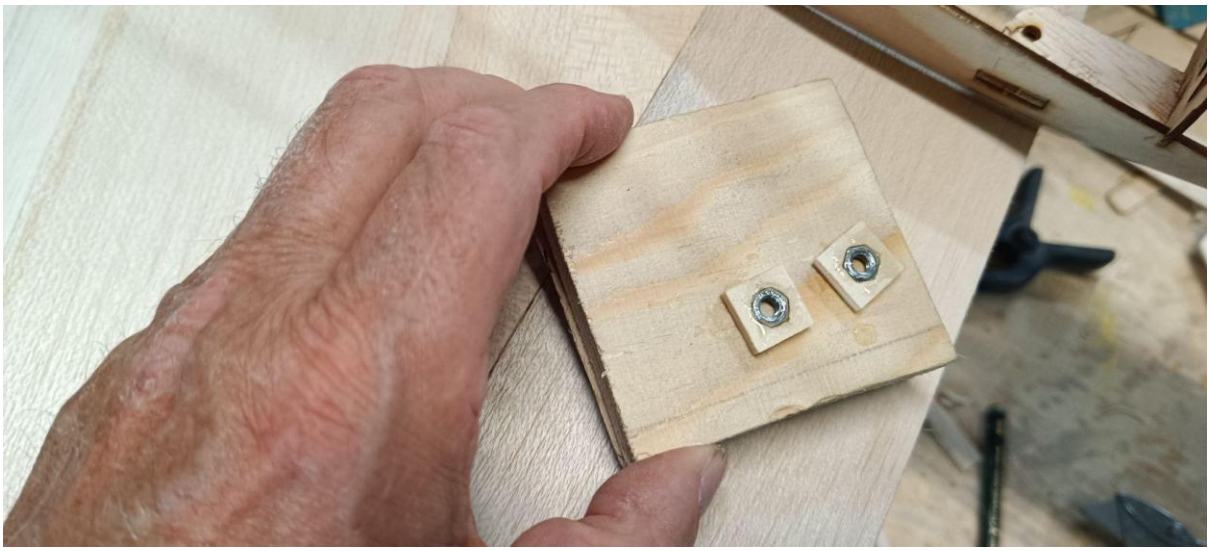




Fit the wing temporarily and mark the wing-fastener locations.



Install the M5 self-clinching nuts in the wing-fastener plates, then fit the specified wing fasteners and check their operation with the M5 bolts.



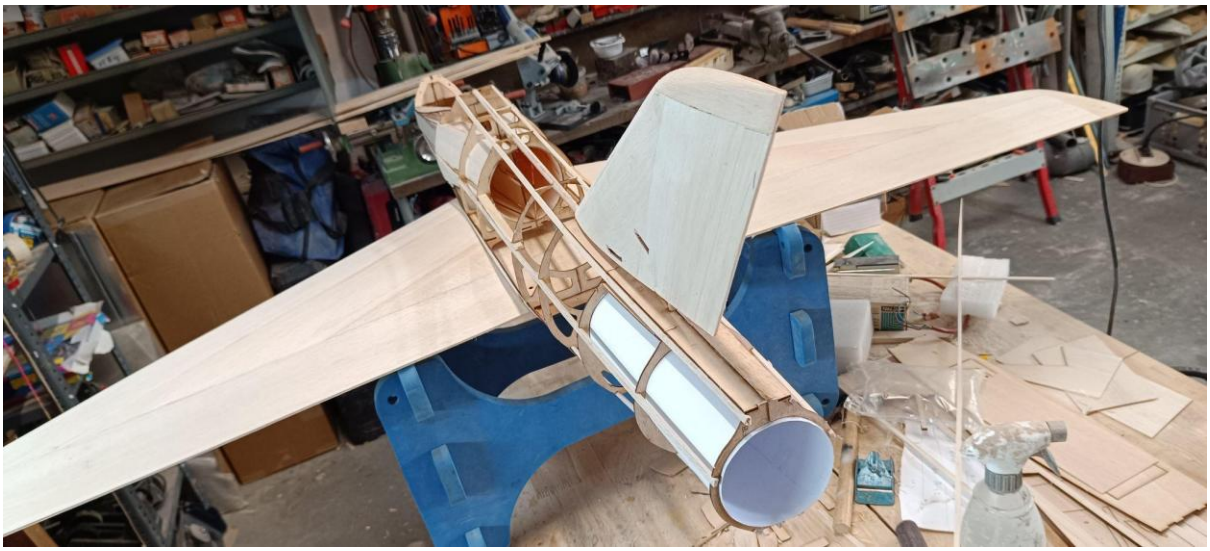


Exhaust Ducting and Alignment

Form the rear exhaust duct by rolling the tail duct section and sliding it into the fuselage. Mark the overlap, remove the duct, trim it to size, and refit it.



Temporarily fit the wing and rudder assembly to the fuselage. This allows the entire airframe to be checked for alignment before permanently gluing the ducting.



The fuselage can develop some twist at this stage. When the wing, rudder, and fuselage are correctly aligned, tack-glue the rear exhaust duct carefully.



Make and install the forward exhaust duct. Set the fuselage straight and confirm that all angles are correct before permanently gluing the duct sections. Once complete, the ducting becomes a rigid part of the fuselage structure.

Fuselage Sheeting

Remove the wing and rudder assembly, then begin sheeting the fuselage with the 3 mm top and bottom sheets.



Install the forward retract bearers before closing the relevant area. Decide at this stage whether the selected retracts will be top-mounted or bottom-mounted.



Continue fitting the fuselage sheeting, then temporarily refit the wing to check the fit while sheeting the smaller areas around the wing opening.

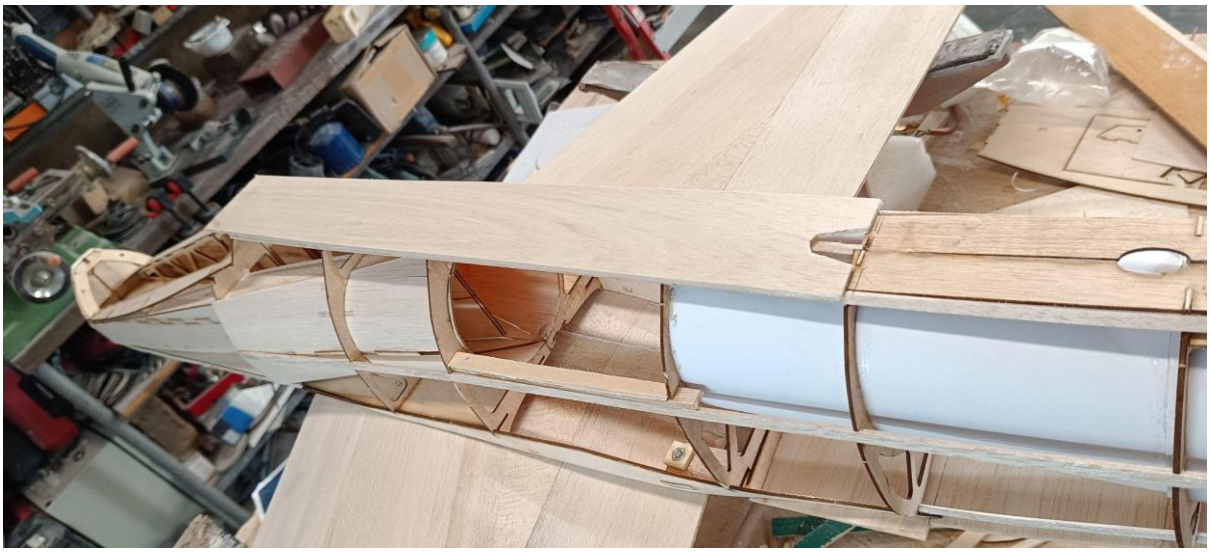


Note that the mid trailing edge at the fuselage is open to allow air flow



Fit the rudder assembly temporarily and install the upper fuselage sheeting.





Sand the fuselage edges as required to accept the 2 mm side sheeting.





If the tail or nose sheeting is difficult to bend into position, lightly dampen the outside surface of the wood. This makes the sheeting more flexible and reduces the risk of splitting.





Cut 2 × 12 mm strips from the remaining sheet material and use them to sheet the nose section.







Sand the completed fuselage smooth.

Final Tail Alignment

Separate the rudder from the fin as required.



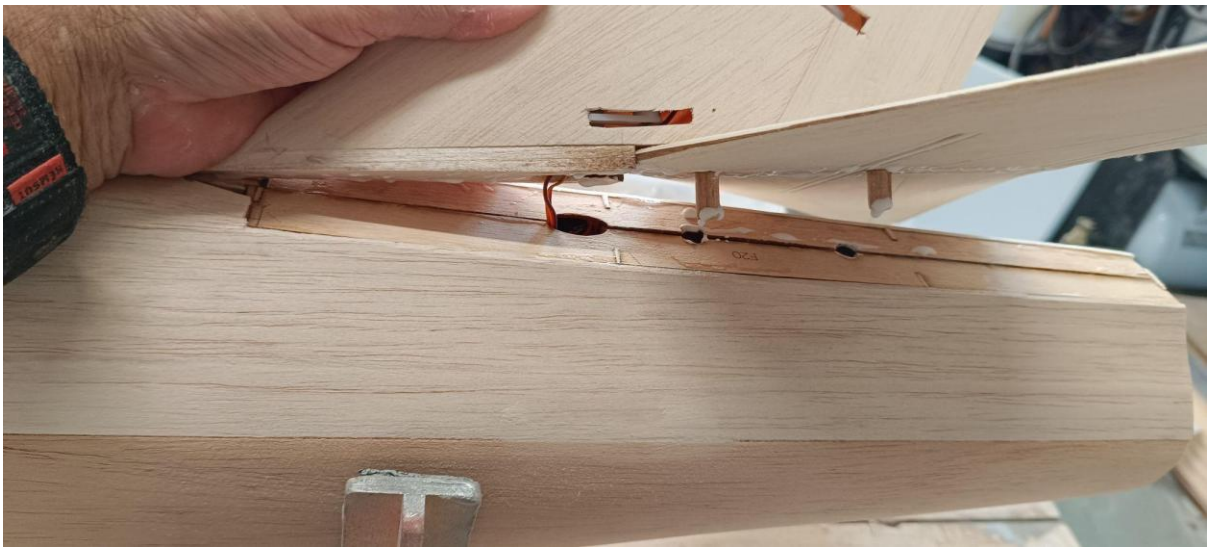
Install the rudder and horizontal stabilizer using slow-setting adhesive. Use the wing as the primary alignment reference and check the assembly with a spirit level.



Confirm that the stabilizer, fin, and wing are level and correctly aligned before the adhesive cures. Fit any remaining small parts and filler pieces, then sand the area smooth.









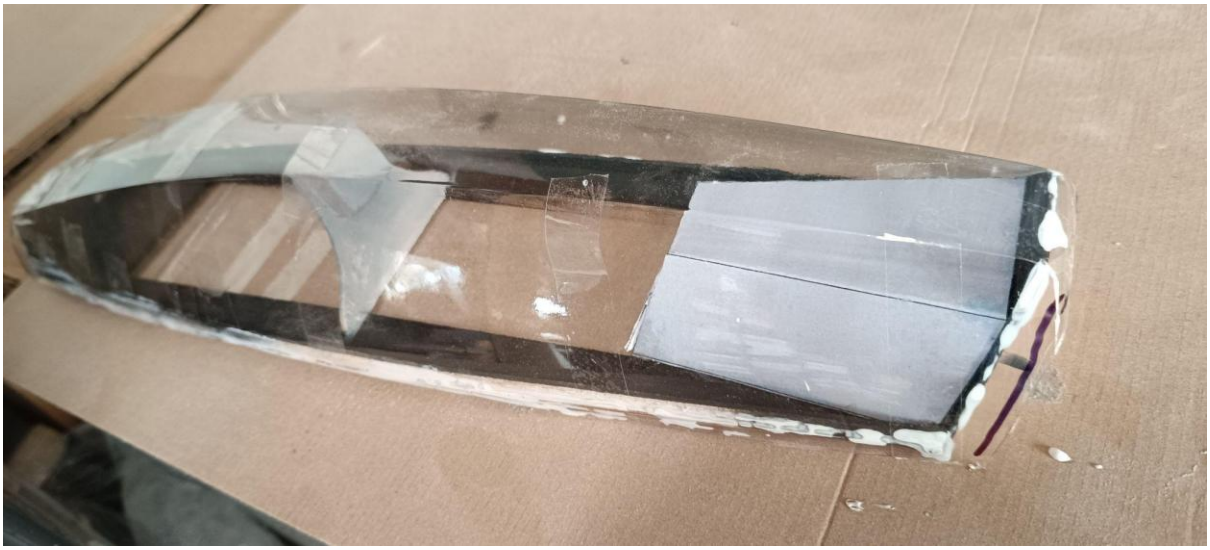


Canopy

Assemble the canopy frame from the canopy formers and plywood parts and paint.



Test-fit the completed frame inside the vacuum-formed canopy. Trim where necessary, then glue the frame into the canopy using canopy glue.



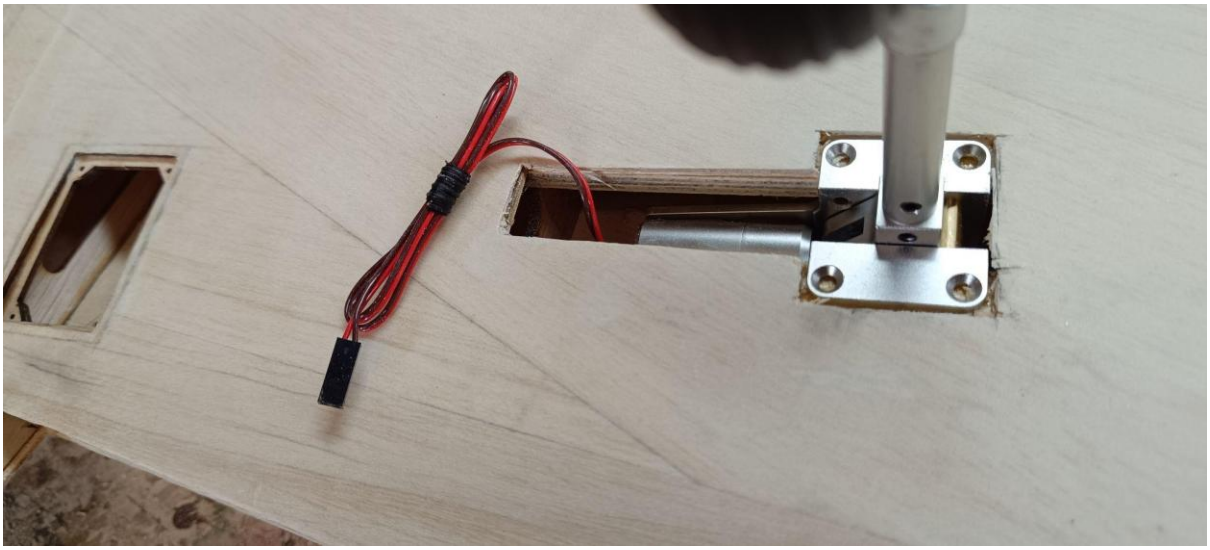
Final Control-Surface and Retract Preparation

Cut free the ailerons and flaps as shown on the plans.

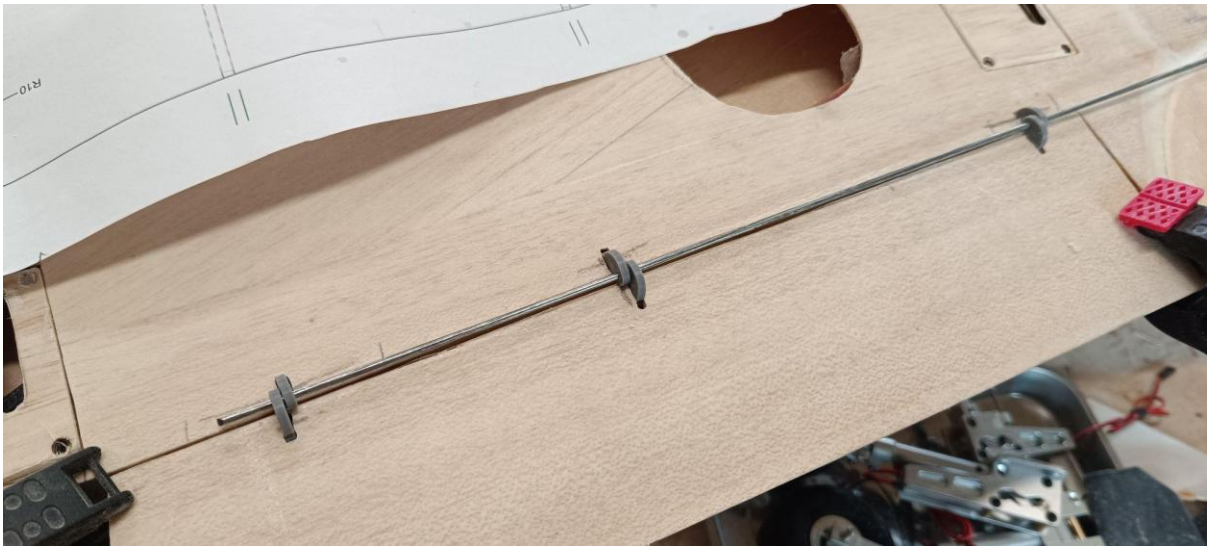


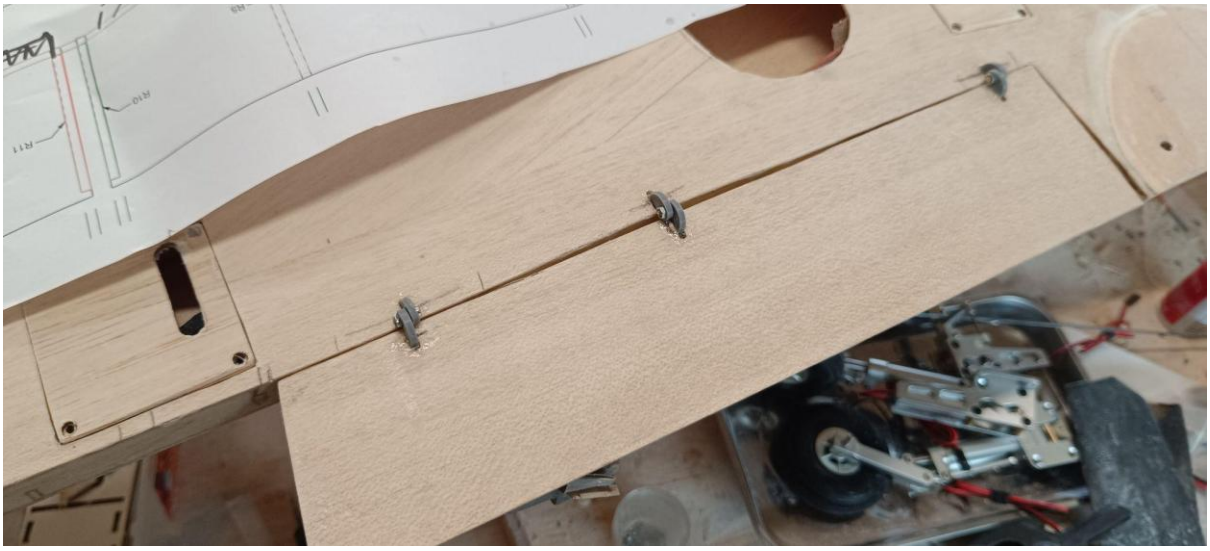
Cut the retract openings and check that the selected retract units operate without interference.





The model shown uses 3D-printed flap hinges, supplied in the download files. Align the hinges with a 2 mm wire before fastening them with M2 × 10 screws.







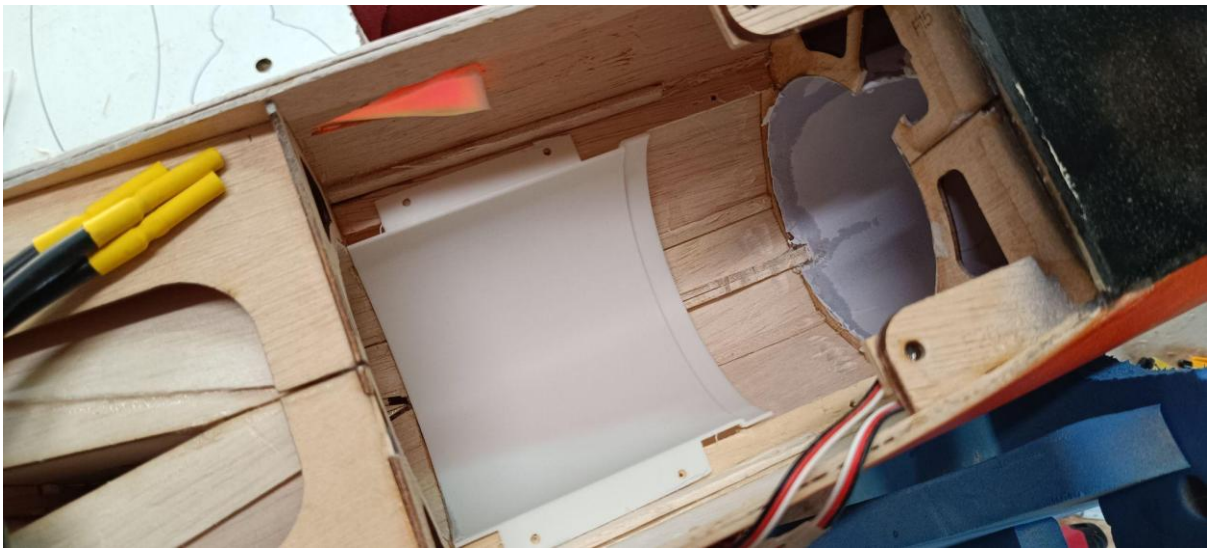
Power System and Equipment Installation

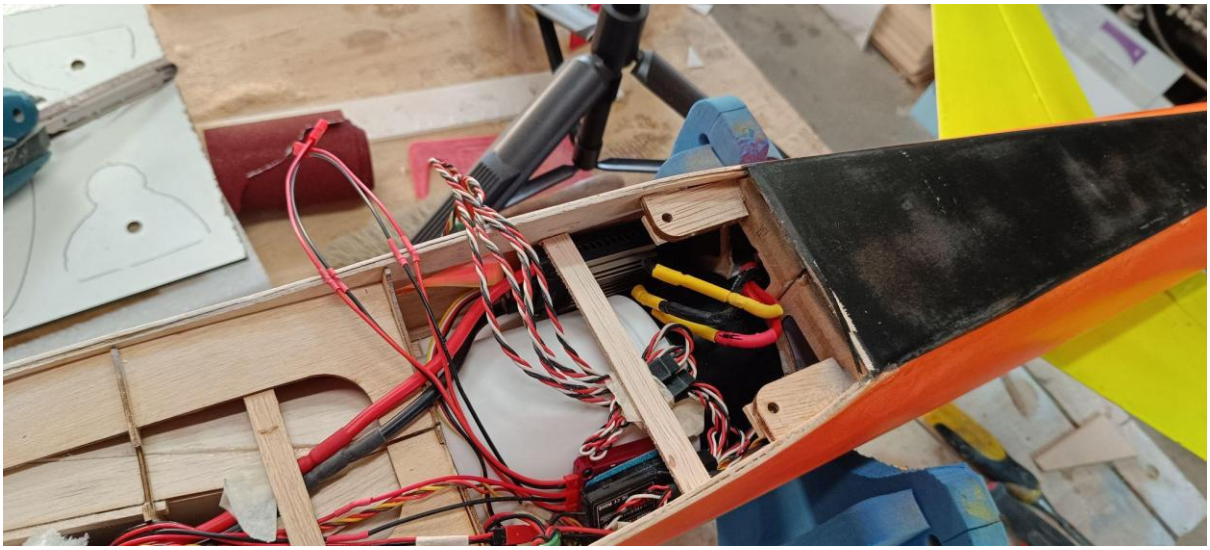
The prototype uses a 6S 5000 mAh HV battery with a standard drop-in EDF fan installation.



If heavier battery packs are used, move the fan unit farther aft as necessary to maintain the correct centre of gravity. A 3D-printed front extension is available for this installation.

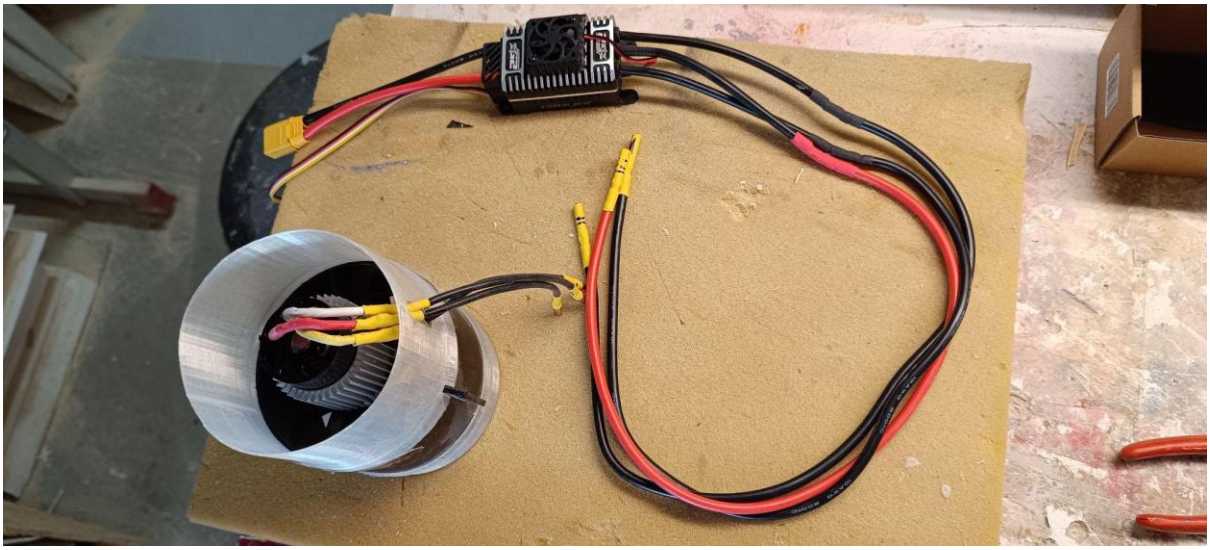
An 8S 6000 mAh HV setup may also be used. With this configuration, install the receiver and retract controller beside the fan unit to provide adequate space and maintain the correct balance.





The drop-in fan system used on the prototype can be 3D-printed by the builder or ordered from RBCkits.

Provide cooling air openings for the speed controller, as shown in the reference photographs. Ensure that the openings allow airflow through the compartment and that all wiring is kept clear of the fan and retract mechanisms.





Recommended Retract System

The following components were used on the prototype:

- Main retracts: JP Hobby ER-005 electric retracts



- Steerable nose retract: JP Hobby ER-005 nose gear retract



- Retract controller: JP Hobby ER-120 V1 HV tricycle controller



- Oleo struts: JP Hobby ER-005 V2 scale metal oleo struts

Equivalent components may be used, provided they are suitable for the model's weight and the selected wheel sizes.

Servos

Use suitable DS Power servos for the ailerons and stabilizer.



Use appropriate servos for the rudder and nose-wheel steering. A small 6 g metal-geared servo is suitable for nose-wheel steering or retract-hatch operation.



Typical specification for the 6 g servo:

- Metal and aluminium gears
- Low gear backlash
- Weight: 5.7 g
- Dimensions: 19.6 × 23.7 × 8.4 mm
- Torque at 4.8 V: 1.0 kg·cm
- Torque at 6.0 V: 1.5 kg·cm
- Speed at 4.8 V: 0.09 s/60°
- Speed at 6.0 V: 0.08 s/60°
- Operating voltage: 4.8–6.0 V
- Lead length: 200 mm, JR connector
- Dead band: 5 µs
- Electrical precision: 2.5 µs

Power System

The following power systems have been proven suitable:

6S Setup

- EDF: Midi Fan 100 Evo
- Motor: HET 700-75-1750
- Battery: 2 × 3S HV 6000 mAh packs
- ESC: ZTW Mantis G2 125 A, 3–8S, 8 A SBEC

8S Setup

- EDF: Midi Fan 100 Evo
- Motor: HET 700-75-1400
- Battery: 2 × 4S HV 6000 mAh packs
- ESC: ZTW Mantis G2 125 A, 3–8S, 8 A SBEC



https://www.jphobby.eu/en/esc/3918-ztw-mantis-g2-125a-esc-3-8s-sbec-8a.html?aff=48

Expected flying weight is approximately 4.2 kg. The prototype has been successfully operated from grass runways.

Required Materials and Hardware

- Building board: 1750 × 600 mm
- CA hinges: 10, for ailerons and rudder
- 3D-printed flap hinges: 6
- 1.5 mm steel wire: 1 m
- 0.5 mm steel wire: 500 mm, for nose-wheel steering
- Control horns: 7
- 4 mm steel landing-gear wire: 1 m
- Main wheels: 2 × 60 mm
- Nose wheel: 1 × 55 mm
- Servo-hatch screws: approximately 16 × 2.2 × 9 mm
- Retract-mounting screws: 12 × 2.9 × 12 mm
- Canopy latch: 1
- Wing bolts: 2 × M5 × 40 mm, with matching nuts

The supplied 3D-print files include the fan-system components, seat, and cockpit parts. The pilot figure must be sourced separately.

Final Finishing

Fill any dents or gaps with lightweight filler, then sand the airframe smooth.

Cover the model with 25 g glass cloth. For additional fuselage strength, 50 g glass cloth may be used where desired.

Suitable paint systems include Vallejo, Humbrol, and aerosol spray paints. A film-covered finish is also possible.

Model Specifications

Specification	Value
Wingspan	1520 mm
Wing area	42 dm²
Length	1522 mm
Flying weight	Approximately 4.2 kg

Flying Notes

When built straight and accurately aligned, the Rok Sportjet tracks well. Keep nose-wheel steering travel modest; excessive steering throw makes ground handling overly sensitive.

For take-off, apply full power and allow the model to accelerate until the elevator becomes effective. Lift off smoothly, then retract the landing gear as soon as the aircraft has established a safe climb.

On landing, the model glides well but loses height quickly. Maintain a small amount of power on final approach and use a normal landing circuit, adjusting the approach as conditions require.

Control Setup and Centre of Gravity

Use dual rates, particularly for the first flight.

Begin with the following control throws:

- Aileron: 10 mm up and 10 mm down
- Elevator: 18 mm up and 18 mm down

Reduce throws through dual rates if the model feels overly sensitive.

Set the centre of gravity at the 185 mm position indicated at the wing root on the plans. Confirm the balance with the completed model—including batteries and all flight equipment installed—before the first flight.

Final Notes

Refer regularly to the drawings throughout the build. If any assembly detail is unclear, stop and review the plans and supplied reference photographs before proceeding.

Additional reference images are included in the download package.

The Rok is designed by Luc Dietvorst and R.Bulk

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