

Introduction

Thank you for purchasing the Mirage 2000 from www.rbckits.com

For the first time, R/C enthusiasts have a choice in a scale and fun flyer aircraft design that combines accurate detailing with excellent flight performance.

Our goal—through advanced computer design and precision CNC production—is to offer aircraft that have rarely been modelled before. Many such aircraft, while not as famous as the P-51 or P-47, carry their own historical significance, charm, and unique flying qualities. The Mirage 2000 is one of these distinctive designs, sure to turn heads at any airfield.

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Unique Features

CAD Design

The Mirage 2000 is designed entirely in CAD, allowing strength to be built in without excess weight. Each part is computer-modelled for precision fit and alignment, resulting in a straight, strong, and accurate model.

CAD-Drawn Plans

The included plans are not copies but originals generated directly from the CAD model.

This ensures:

Perfect scale and zero paper shrinkage.

Colour-coded layouts for easy part identification.

Accurate placement of all components for straight building.

Lightening Holes

Wherever structurally possible, lightening holes have been CNC-cut into ribs and formers to reduce weight without sacrificing strength.

CNC-Cut Parts

The same CAD data that produces your plans also drives the CNC router. Every rib, former, and doubler is cut exactly to specification. This guarantees accuracy, consistency, and minimal waste—keeping the kit cost down and build quality up.

Plastic Components

High-quality polystyrene and PETG is used for the canopy. These materials provide durability and an excellent finish when painted.

General Building Information

The Mirage 2000 is a semi scale model intended for experienced builders.

If you have built only a trainer or basic sport aircraft, this project will be more challenging. It does not require unusual skills, but attention to detail and careful study of the plans and photos is essential.

 Important: Follow the building sequence carefully. Some assemblies depend on earlier steps being completed correctly.

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CNC-Cut Wood Notes

- Minor fraying on wood surfaces is normal and purely cosmetic.
- Some parts may not be fully cut through due to wood-thickness variation—use care when freeing them from the sheet.
- Lightly sand all tabs and slots for a smooth fit. Avoid forcing parts together.
- Parts that appear slightly warped will usually straighten during assembly.

Hardware and Power System

Hardware and an EDF unit are not included in the kit. There are so many choices for quality hardware that these choices are left to the individual preferences of the builder, rather than include something in the kit that you'll probably throw away anyway.

Safety and Responsibility

This model aircraft is not a toy. Operate it responsibly and in accordance with local R/C flight laws.

By assembling and flying this kit, you accept all responsibility for its proper construction and safe operation.

RBCkits assumes no liability for:

- Improper or unsafe assembly or operation.
- Damage resulting from modification, neglect, or abuse.
- Use of parts or equipment not supplied with or recommended for this model.

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1. Before You Begin – Materials and Tools

Tools

- Hobby (balsa) knife and Stanley knife
- Straightedge
- Building board (approx. 1700 × 750 mm)
- Sanding blocks and sandpaper (various grits)
- Small clamps, masking tape, building pins
- Drill and bending tools
- Wire cutter and pliers
- Safety goggles

Adhesives

- CA Glue: Thin, medium, and thick (approximate usage)
- 4 × thick CA – wing and stabilizer sheeting
- 2 × medium CA – rib gluing
- 1 × medium CA – fuselage formers
- White glue – general wood joints
- Epoxy – cowl, canopy, landing gear, and high-stress joints
- Canopy glue – clear canopy attachment

Finishing Supplies

- Glass 25-gram and 50gr 3mtr and filler dope or PS100 or epoxy 1 litre, brushes sanding paper 60,120,180, paint of your choice
- Primer for plastic parts (roughen surface first)
- Wheels (per plan), control horns, pushrods, motor, battery, servos

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1.1 Before You Begin Assembly

Study the drawings and reference photos carefully to understand how the kit is constructed before gluing any parts.

Familiarize yourself with the overall structure, component layout, and assembly sequence.

1.2 Marking CNC Parts

Important!

Many parts in this kit look very similar. To avoid confusion during construction, clearly mark all parts on the CNC sheets according to the drawings before removing them.

This step is crucial — it will save you significant time and help prevent assembly mistakes later on.

1.3 Builder Experience Level

The Mirage 2000 is not a beginner's kit.

It is designed for experienced R/C builders who are familiar with:

- Accurate part alignment and sanding,
- Proper adhesive use (CA, epoxy, white glue),
- Reading and interpreting building plans, and
- General R/C aircraft construction techniques.

Expect a detailed and time-intensive build that rewards patience and precision with a strong, true-flying, and highly realistic scale aircraft.

1.4 Reference Photos

Note:

A picture says more than a thousand words! Be sure to check the pictures included in the download files for additional information and visual reference.

These images clearly show part orientation.

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2. Preparation

2.1 Identifying the Parts

Carefully remove all fuselage parts from the CNC-cut sheets. Avoid damaging the tabs or edges during removal.

Using the plan as a reference, identify every part and mark each one with its corresponding designation and part number. This will greatly simplify the assembly process and help prevent mistakes later in the build.

Note: Use a soft pencil so the markings can be removed easily after sanding if desired.

Refer to: Fuselage Parts Layout on the plan.

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3. Rudder

3.1 Preparing the Sheeting

Cut the rudder skins from the specified sheet material as shown on the plan. Leave each skin slightly oversized (approximately 2–3 mm) to allow for final trimming after assembly.



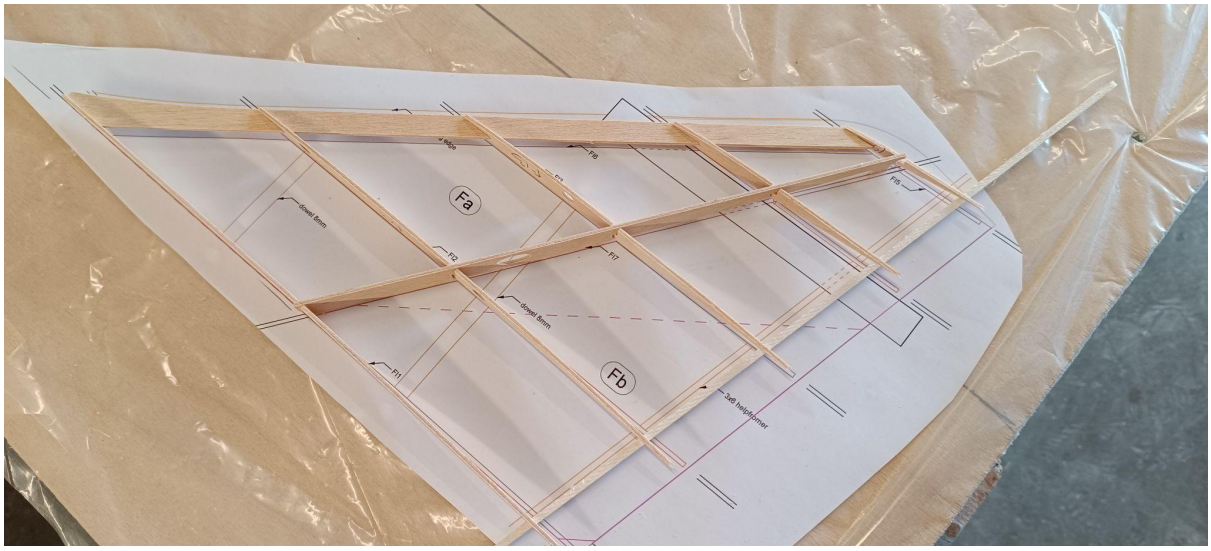
Note: Oversized sheeting ensures full coverage and allows the edges to be trimmed flush after bonding.

3.2 Building the Rudder Framework

Position the rudder components directly over the plan on a flat building board. Protect the plan with a sheet of clear plastic or wax paper to prevent the assembly from sticking to it.

Pin the structure securely to the building board, making sure all components remain aligned and flat.

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3.3 Installing the Dowel Rods

Install the 8 mm dowel rods in the locations shown on the plan. Verify that each dowel is fully seated and aligned before applying adhesive.

3.4 Applying the First Skin

Glue the first rudder skin to the framework while the assembly remains pinned to the building board.

Apply even pressure over the entire surface until the adhesive has cured.



Tip: Weights may be used to ensure a uniform bond.

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3.5 Applying the Second Skin

After the first skin has fully cured, carefully remove the rudder from the building board and turn it over.

Place the assembly back onto a perfectly flat surface before applying the second skin.



Important: Check continuously that the rudder remains perfectly straight. Any twist introduced during this step will be difficult to remove later.

Allow the adhesive to cure completely before proceeding.

3.6 Final Shaping

Trim the excess sheeting flush with the framework.

Install the leading edge and the tip pieces as shown on the plan.

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Sand the rudder to its final airfoil and outline, blending all joints smoothly.



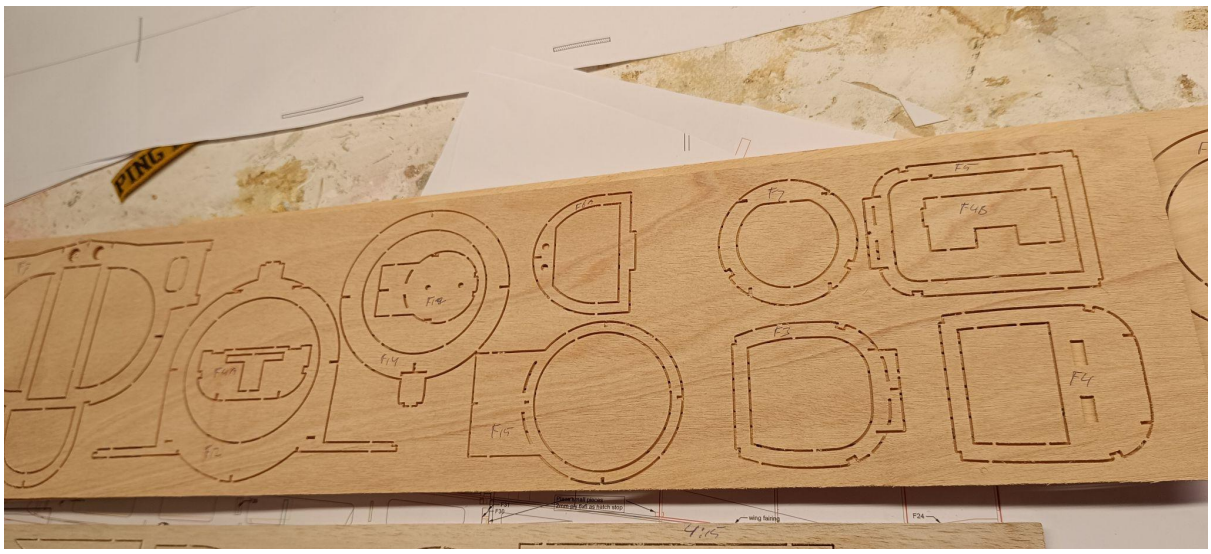
Finally, install the cosmetic detail pieces shown on the drawing.

Final Check: Verify that the completed rudder is straight, warp-free, and matches the outline shown on the plan before moving on to the next assembly.

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4. Fuselage Assembly

The fuselage is built directly over the plan on a flat building board. Before beginning, remove all CNC-cut parts from their sheets and identify each part using the designations shown on the drawings.



Tip: Mark each part with a soft pencil before removing it from the sheet. This will make assembly much easier later.

4.1 Wing Mount Assembly

The prototype is designed with removable wings. If you prefer to permanently glue the wings to the fuselage, several plywood wing attachment parts may be omitted to save a small amount of weight.

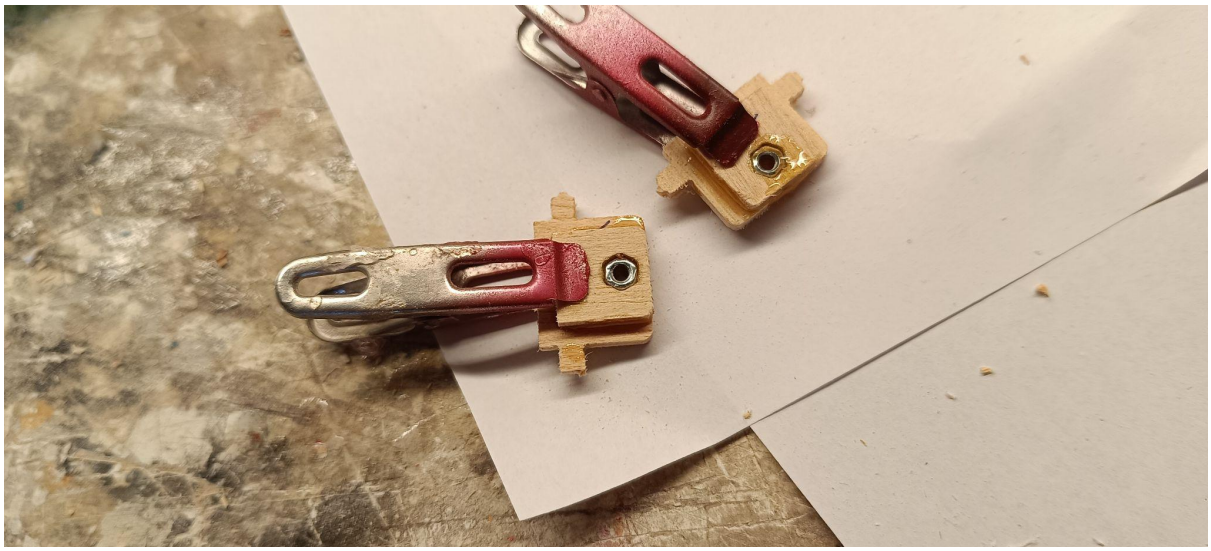
1. Join formers F19 and F21.



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2. Assemble the wing fastening plates.

3. Bond the M3 nuts into the plywood plates using epoxy. Take care not to get adhesive in the threads.



4. Assemble the main wing formers together with the wing contact plates.

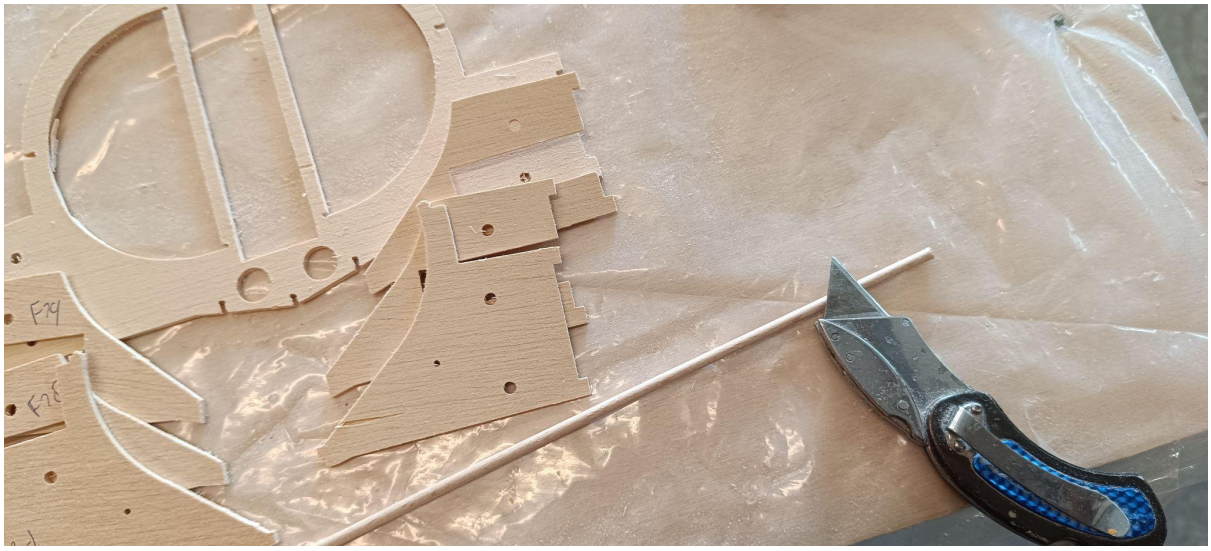


5. Use 4 mm dowels through the alignment holes to keep all parts square during assembly.

6. Position the 6 × 15 mm and 6 × 10 mm wing joiners between the formers and use them to align the complete centre section.

7. Do not glue it at this stage.

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Refer to: Fuselage Drawing – Wing Mount Assembly.

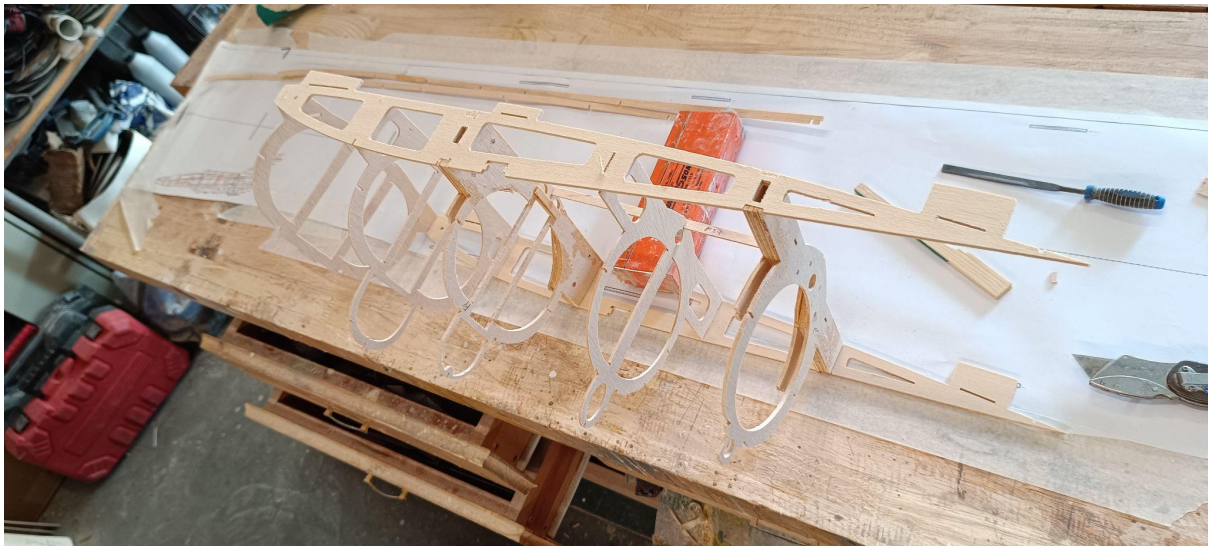
4.2 Building the Centre Section

Install root rib F38, but do not glue it at this stage.



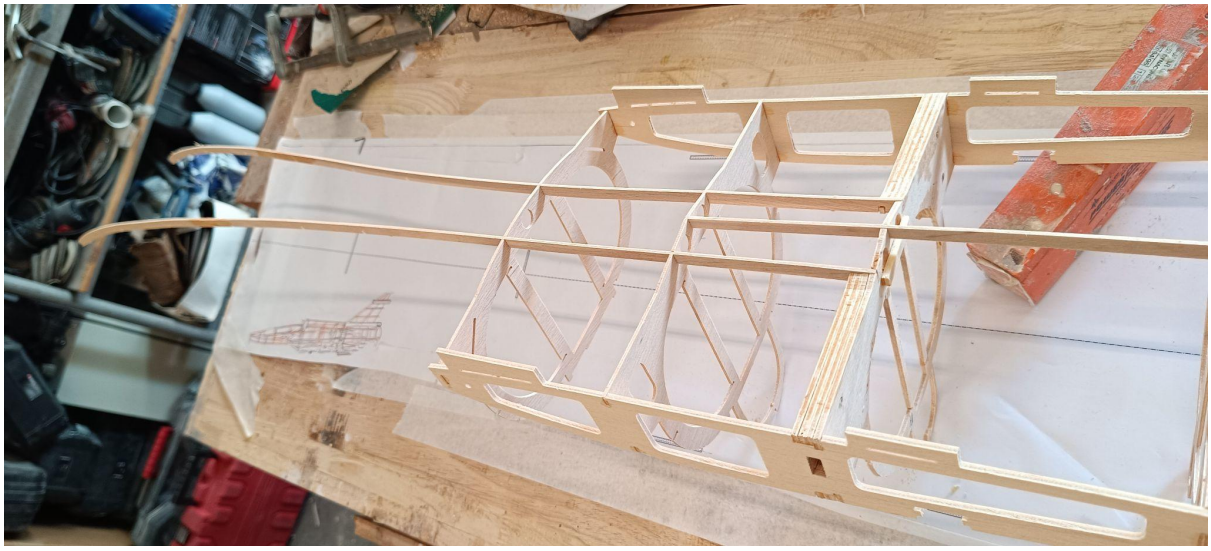
Repeat the procedure for the opposite side.

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4.3 Setting Up the Fuselage

Place the complete assembly over the top view of the fuselage shown on the plan.

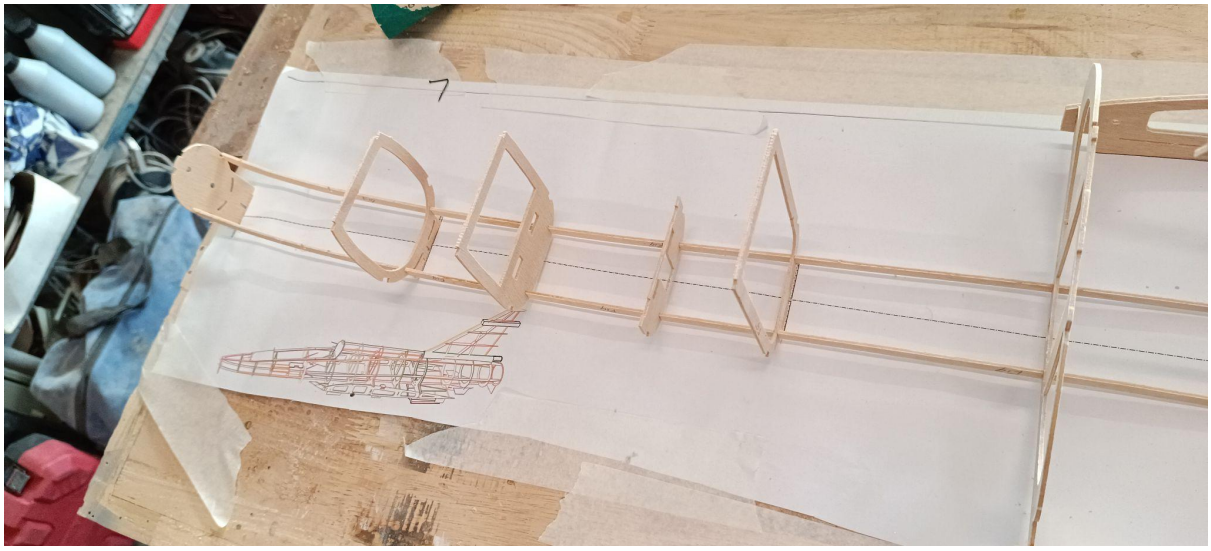


The grey dotted outlines on the drawing indicate the locations of the temporary support feet.

Important: Printed plans may vary slightly in size due to printing and humidity. Use the drawing as a guide, but always ensure the fuselage remains perfectly symmetrical.

Install the lower formers first before fastening the assembly to the building board.

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Check the alignment carefully before applying adhesive.

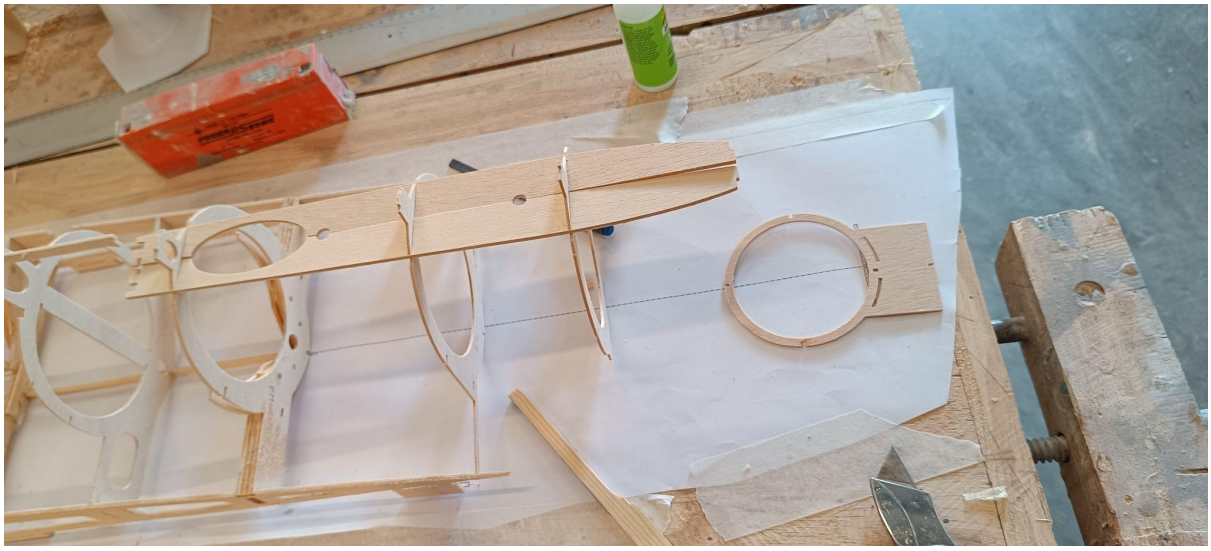
Continue installing the remaining formers one at a time, constantly checking that the fuselage remains perfectly straight.

4.4 Installing the Formers

Fit the remaining nose formers progressively from rear to front.



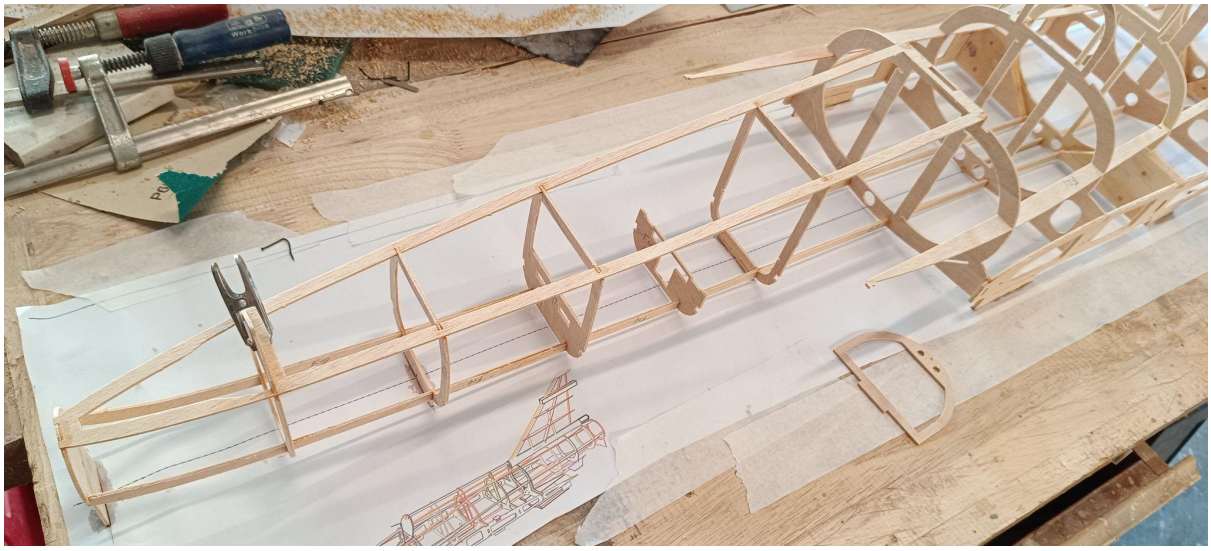
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After fitting each former:

- Check that it is square.
- Verify that the fuselage remains symmetrical.
- Glue only after the alignment has been confirmed.

Continue until the complete nose structure is assembled.

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4.5 Tail Section Exhaust Tube

Construct the tail cone using the hard paper exhaust tube supplied.

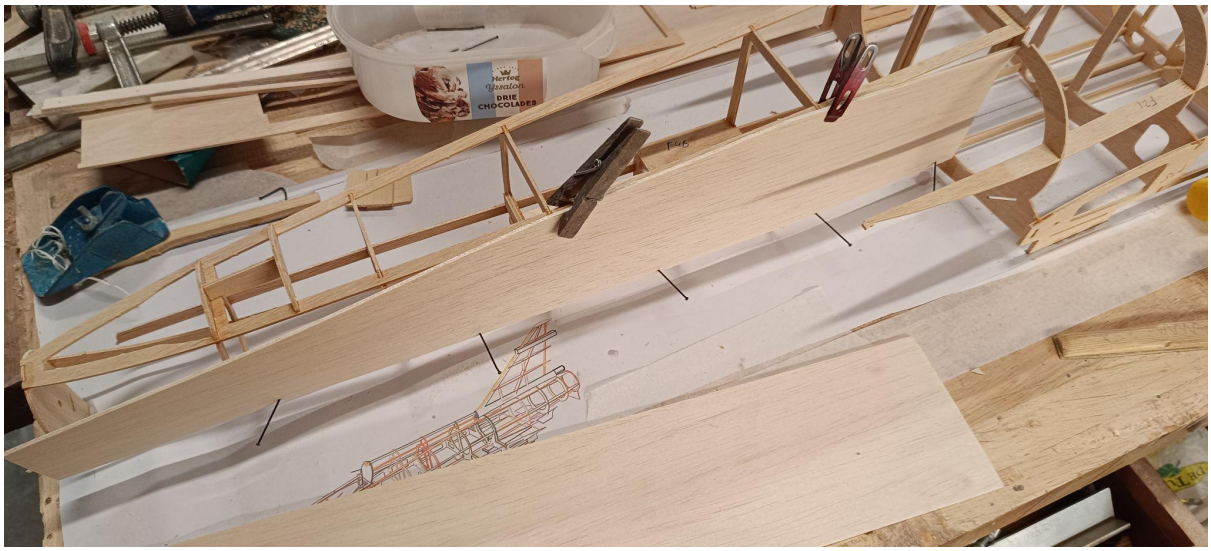


For increased durability, seal the paper with very thin epoxy or polyurethane varnish. This can be done before installation or after the fuselage has been completed.

Tip: Sealing the paper prevents moisture absorption and produces a smoother surface for finishing.

4.6 Nose Sheeting

Prepare the forward fuselage sheeting from 2 mm balsa.



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Work on both sides alternately to prevent introducing a twist into the structure.

Do not sheet completely to the nose yet. Leave the forward section open until the intake ducting has been installed.

4.7 Intake Ducts

Install the duct sides using 1.5 mm balsa.

Fit the inside duct sheeting. Each duct consists of two pieces to simplify installation.



Use temporary supports where necessary while the adhesive cures.



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Tip: A broom handle or similar round object is useful for pressing the inner sheeting firmly against the framework.

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Small locating tabs are provided on the CNC parts. Do not remove them before assembly. Instead, make small relief cuts in the sheeting where required. Once the glue has cured, sand the tabs flush with the surrounding surface.

Refer to the photographs included in the download package for additional guidance.

4.8 Stringers

Install all 3 × 6 mm stringers.



Add small reinforcement strips made from scrap balsa to support the intake duct sheeting where required.

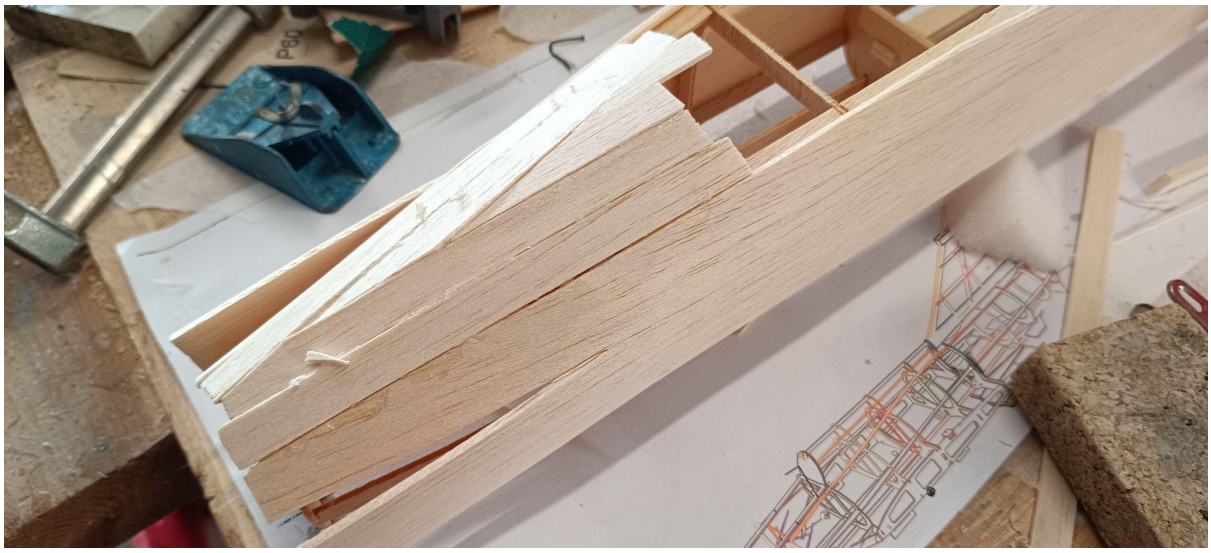


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4.9 Fuselage Sheeting

Begin sheeting the fuselage with 2 mm balsa.

Around the nose area, a horizontal relief cut may be required to allow the sheeting to conform to the compound curvature.





Lightly dampening the outside surface of the balsa with water will make bending easier.

The upper nose section has already been sheeted to increase rigidity during this process.

Install the wing fastening system before closing the fuselage.

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Fit part F23 and any remaining small plywood components.



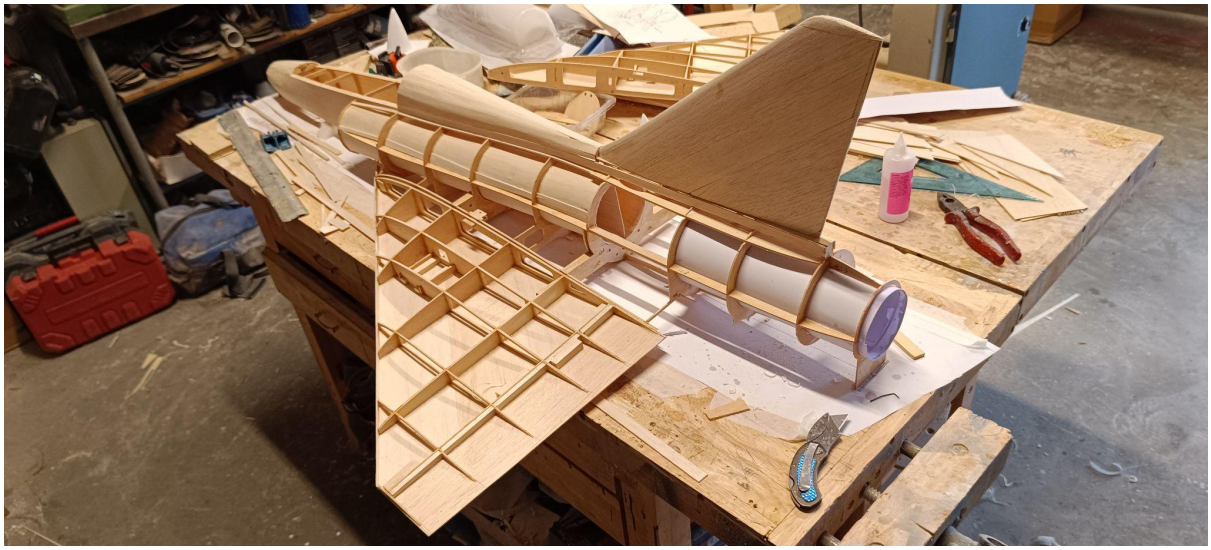
Complete the turtle deck sheeting.



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4.10 Trial Assembly

Temporarily fit the rudder and both wings.



Check:

- Wing fit
- Rudder alignment
- Overall symmetry

Do not permanently glue the rudder at this stage.

Any alignment corrections are much easier to make now than after final sheeting.

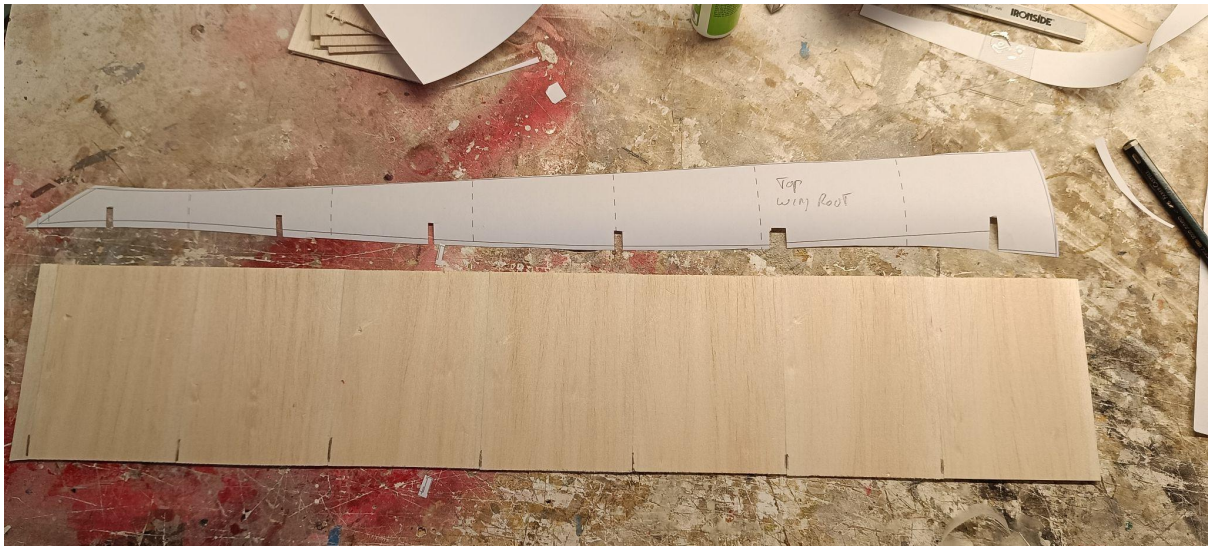
Sheet the fuselage with 2 mm x 12 mm strip balsa.



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4.11 Wing Root Sheeting

Prepare the wing root sheeting from 2 mm balsa using the supplied templates.



Glue the sheeting in place and allow it to cure completely.



At this stage the fuselage will have become sufficiently rigid to remove it from the building board.

Remove the temporary support feet, clean the remaining glue residue and complete the remaining fuselage sheeting.

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Install the lower wing root sheeting.

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4.12 Fan Hatch and Intakes

Cut the opening for the fan hatch as shown on the drawings.

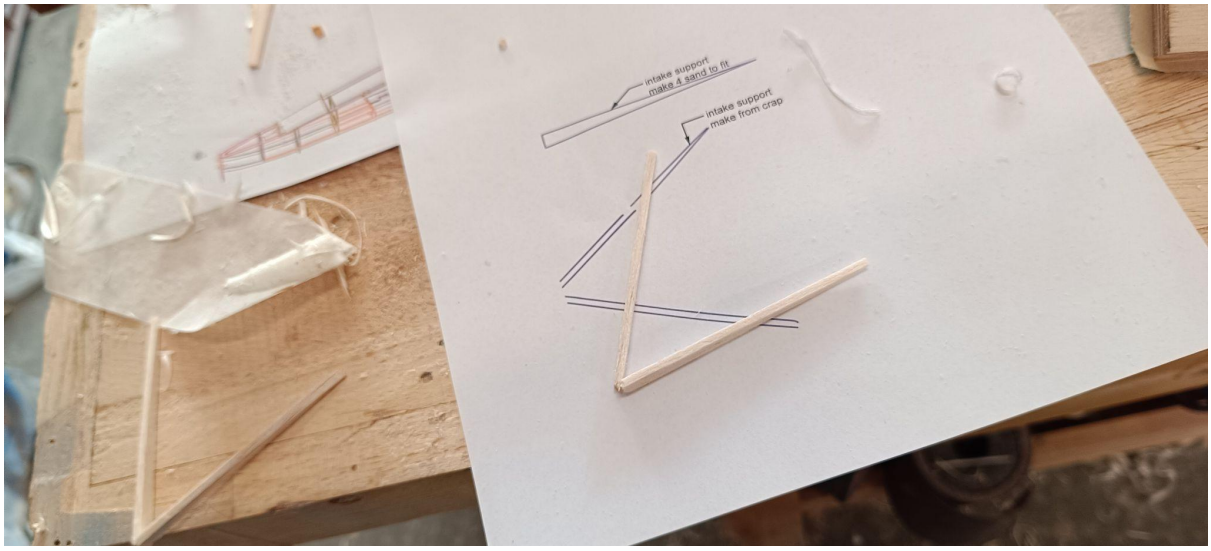


Sand the surrounding area smooth.



Fabricate small intake support blocks from scrap balsa to support the overhanging intake lips.

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Install the intake lips and blend them into the fuselage by sanding.



At this point the characteristic Mirage 2000 shape will begin to emerge.



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4.13 Retract Mounts

Install the retract mounting rails before closing the remaining structure.



The supplied mounts are designed for top-mounted JP Hobby retracts.

Bottom-mounted retracts may also be installed if preferred.

4.14 Final Fuselage Details

Install the rudder permanently.



Fit the wing fairing sheeting and sand smooth.

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Add all remaining cosmetic balsa details shown on the drawings.





The paper exhaust liner gives the tailpipe a realistic appearance.



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The exhaust cone may be built from balsa or replaced with the supplied 3D-printable STL file.

The nose is constructed from CNC-cut parts together with laminated 10 mm balsa blocks.

Shape the nose carefully to achieve the distinctive pointed Mirage profile.

A printable 3D nose is also included in the download package for builders who prefer that option.

The wing fairings are CNC-cut but require careful fitting. Builders may also fabricate these parts from sheet balsa if preferred.

The wing trailing edge is made from scrap balsa.





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4.15 Canopy and Cockpit

Assemble the canopy frame using the supplied canopy parts.



Reinforce the locating dowels before final installation.



Construct the instrument panel from paper, foam board or another lightweight material.

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Keep the cockpit as light as possible to minimise the amount of nose ballast required.

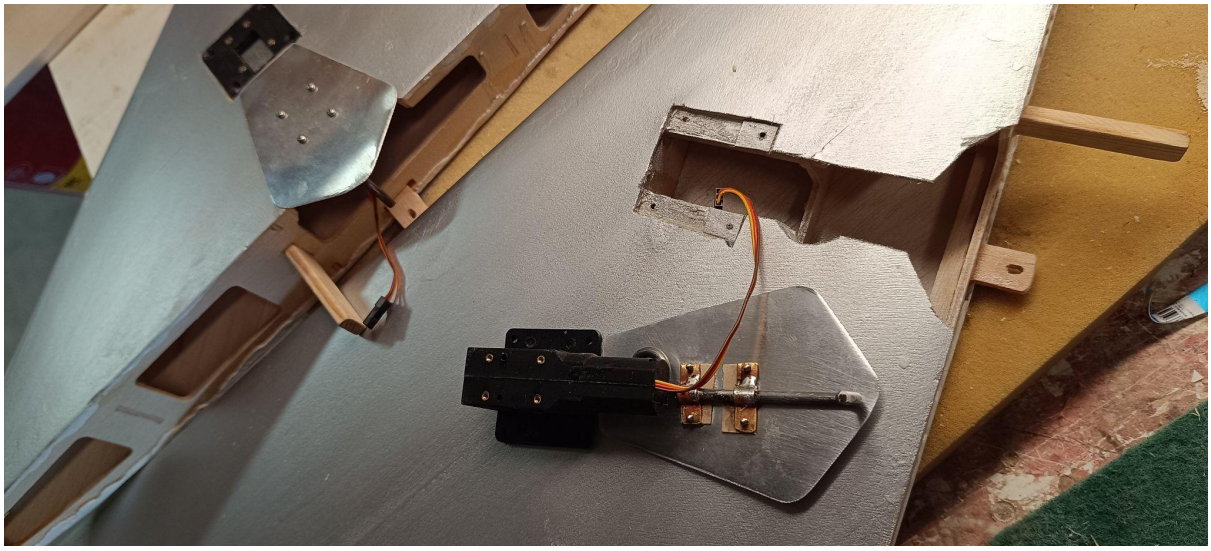


4.16 Landing Gear

The landing gear legs may be purchased ready-made or bent from 4 mm steel wire according to the plans.

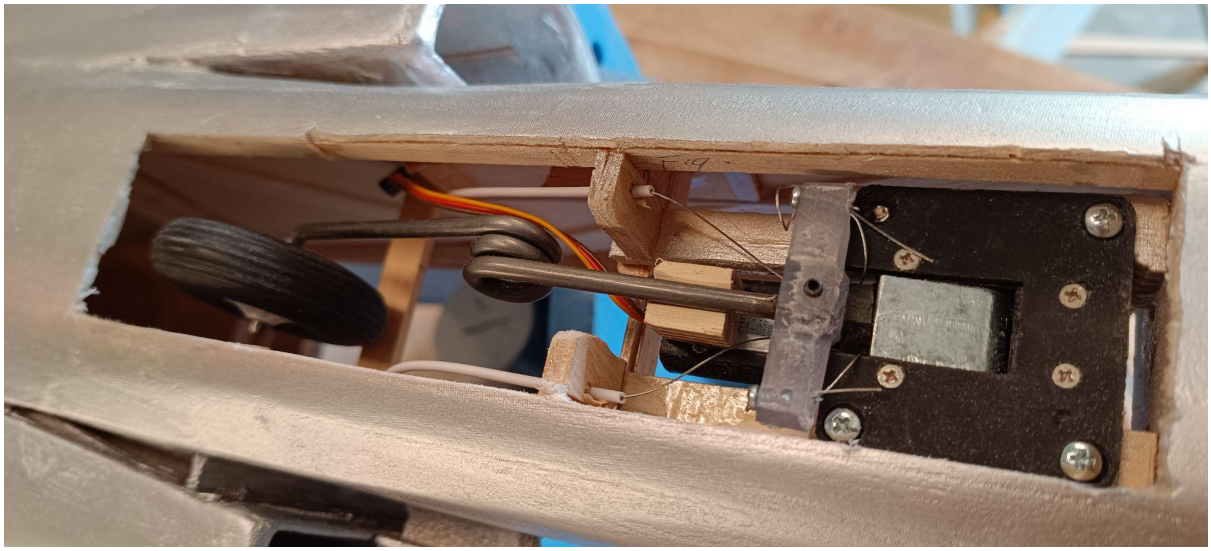
For operation from grass fields, we recommend bending your own gear and using the larger scale wheels shown on the prototype.

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Small wheels generate considerably more rolling resistance on grass and require a longer take-off run.

Several nose wheel steering arrangements are possible.



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The steering servo may be installed close to the nose gear or further aft using a pushrod or steering wire. Choose the arrangement that best suits your equipment installation.

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5. Wing Construction

The wing is built directly over the plan using the bottom sheeting as the building surface. Take your time during this stage, as an accurate wing will ensure the best flying characteristics.

1. Cut the bottom wing sheeting according to the plan. Leave the sheets slightly oversized and join them using medium CA.

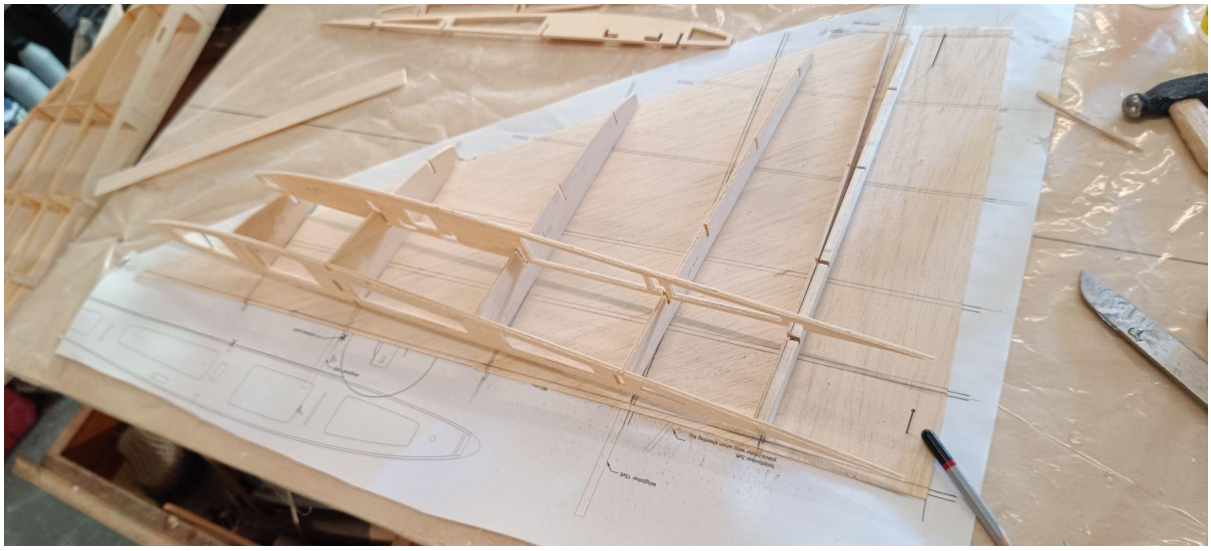


2. Draw the rib and former positions onto the sheeting.



3. Position all ribs and the centre former assembly on the wing. Check that everything fits correctly, but do not glue anything yet.

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4. Once satisfied with the fit, glue the ribs and formers to the bottom sheeting one at a time, ensuring they remain square and correctly aligned.



5. Install the 6 mm balsa hinge blocks and glue the sub-leading edges in place.

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6. Glue the 1.5 mm cross-grain balsa servo doublers to the inside of the wing sheeting.



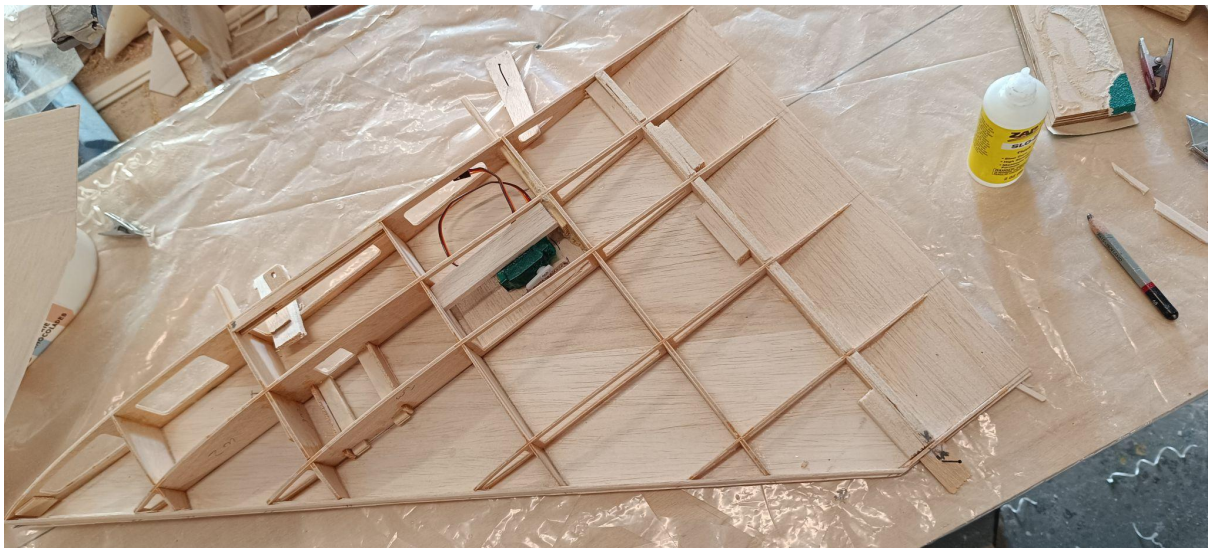
7. Assemble the plywood retract bearers and reinforce the joints with fiberglass cloth. Assemble the wing fastener in the same manner.

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8. Glue the servo mounts, wing joiner, retract bearers and wing fastener into the wing. Before continuing, mark the aileron cut-out locations.





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9. Fit the wing to the fuselage and adjust the wing fastener as required. Refer to the photographs included in the download package for guidance.



10. When you are satisfied with the fit of the wing to the fuselage, the top sheeting can be installed.

11. Cut and sand the helper formers to shape. Position them beneath the top sheeting exactly as shown on the plan.



12. Pin the wing down at the locations marked “X” on the drawing, using small scrap plywood pads to protect the wing surface.

13. Prepare the top sheeting according to the layout shown on the plan. Join the sheets together on your building board before fitting them to the wing.

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14. Glue the top sheeting in place using slow-setting wood glue, or medium CA if you are experienced and able to work quickly.

15. Glue the leading edges in place.



16. Sand the leading edges to their final airfoil shape.

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17. Assemble and glue the wing tips in place, then sand them to blend smoothly with the wing profile.



18. Cut the ailerons free at the locations marked earlier.

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19. Sand the ailerons and trailing edge to shape, then install the hinges in the 6 mm balsa hinge blocks.



20. To simplify connecting the wing servos and retracts, optional connector plates are supplied. These are designed to accept the Contra JS connector system and can be glued into the wing root for a clean, reliable installation.

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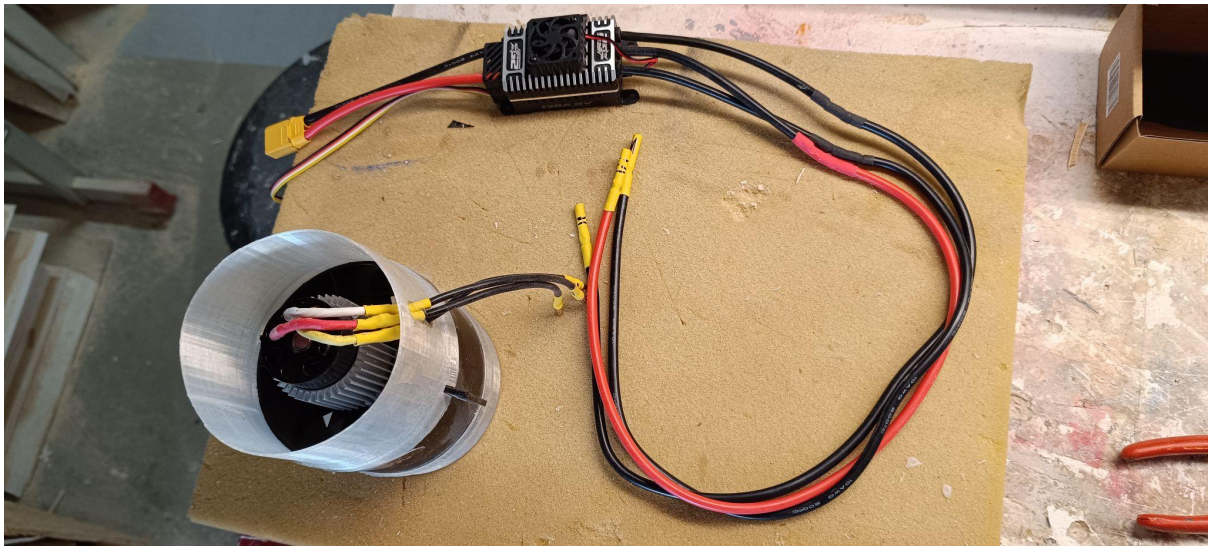


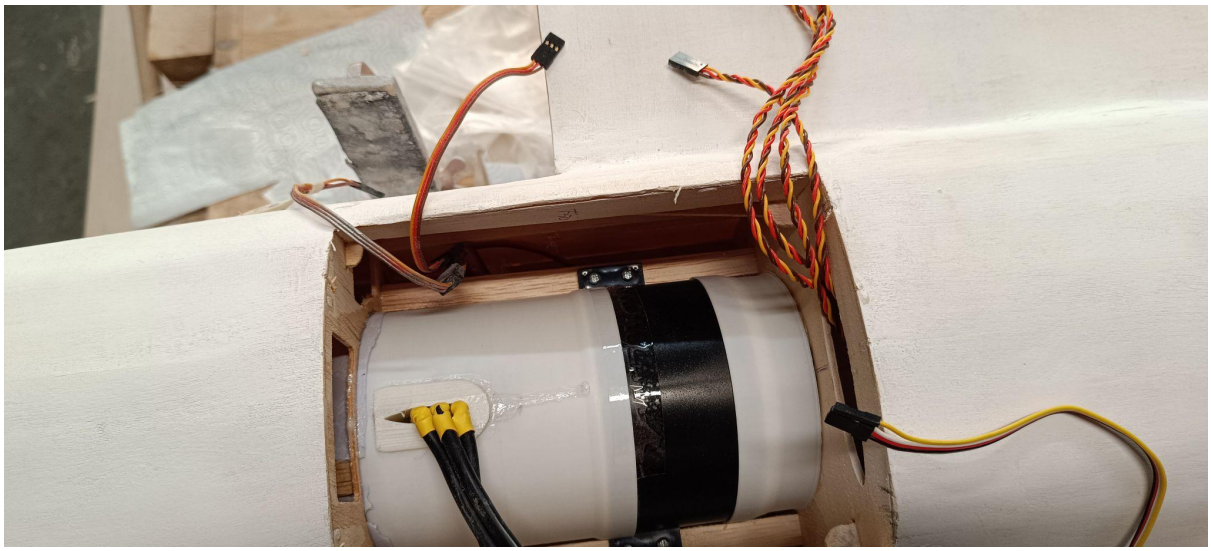
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6. EDF Installation

The model is designed to use our drop-in EDF mounting system. You can 3D print the parts yourself, or order the complete mounting system directly from us.

To ensure adequate cooling, air inlets for the electronic speed controller (ESC) have been incorporated into the design. Make sure these openings remain unobstructed during assembly to provide sufficient airflow and reliable cooling throughout the flight.





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7. Retracts

Mains
https://www.jphobby.eu/en/retracts/2268-jp-hobby-electric-retract-er-005-5mm-6kghighinside.html?aff=48



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Steering front retract
https://www.jphobby.eu/en/retracts/3028-jp-hobby-electric-nose-gear-retract-er-005-5mm-6kghighinside.html?aff=48



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Control box.
https://www.jphobby.eu/en/sequencer-modules-accesories/2440-jp-hobby-tricycle-controller-retract-box-er-120-v1-hv.html?aff=48



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Self made main legs from 4mm steel bend and a fill tube 5mm brass



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8. Servo’s

Aileron/Elevator: servo Corona DS339.

Model: DS339MG
Operating Voltage: 4.8V / 6.0V
Operating Current: 300mA / 4000mA
Operating Speed: 0.14sec.60º / 0.15sec.60º
Stall: 4.4kg.cm / 5.0kg.cm
Dimensions : 32.5 x 17 x 34.5mm
Weight: 32g
Dead Band: ≤3uSec
Operating Travel: 40º / one side pulse rising 400us



For steering or retract hatch you can use a small 12gr metal gear servo

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9. Power System, Specifications and Flying Instructions

Power System

The Mirage 2000 has been designed around the following proven power system:

- EDF Unit: Midi Fan Evo 90
- Motor: HET 650-68-2000
- Battery: 2 × 3S HV LiPo, 6000 mAh (connected in series for 6S operation)

This combination provides excellent performance while maintaining reliable operating temperatures.

Flying Weight

- Ready-to-fly weight: Approximately 3.8 kg

When built to the recommended weight, the model has been proven to take off from well-maintained grass runways without difficulty.

Required Materials

Building Board

- 1750 × 400 mm

Hinges

- 6 × CA hinges (ailerons and rudder)
- 4 × 3D-printed hinges (landing gear doors)

Steering Wire

- 1.2 mm steel wire (1 m)
- 0.5 mm steel wire (500 mm) for nose wheel steering

Control Horns

- 3 required

Landing Gear Wire

- 4 mm steel wire (1 m)

Wheels

- 2 × 80 mm main wheels
- 1 × 55 mm nose wheel

Fasteners

- Approximately 10 × 2.2 × 9 mm screws

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- 1 × canopy latch
- 2 × M3 × 25 mm wing bolts with matching nuts

3D Printed Parts

The STL files included with the kit allow you to print the following parts yourself:

- Nose cone
- Exhaust nozzle
- EDF fan mounting system

The pilot figure is not included and must be obtained separately.

Final Finishing

1. Fill any dents or imperfections with lightweight filler.
2. Sand the entire model until smooth.
3. Apply fiberglass cloth:
    - 25 g/m² recommended
    - 50 g/m² optional for additional fuselage strength
4. Finish the model using your preferred paint system, such as:
    - Vallejo
    - Humbrol
    - Quality spray paints

Model Specifications

- Model: Mirage 2000
- Wingspan: 1014 mm
- Length: 1522 mm
- Wing Area: 45 dm²
- Flying Weight: Approximately 3.8 kg

Flying Notes

If the model has been built accurately, it will track straight during takeoff.

Keep the nose wheel steering travel modest. Excessive steering angle makes taxiing difficult and overly sensitive.

Takeoff

- Apply full power.
- Allow the model to accelerate.
- Lift off once the elevator becomes effective.
- Retract the landing gear immediately after takeoff.

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Landing

The Mirage has a clean airframe and therefore retains its energy well. It also descends relatively quickly, so keep a small amount of power on during the final approach.

Use a normal landing circuit and adjust the approach as required for your flying field.

Control Setup

For the maiden flight, it is recommended to use dual rates.

High Rate

- Elevator: ±22 mm
- Ailerons: ±15 mm

Reduce the control throws using dual rates if the model feels too sensitive.

The recommended centre of gravity is 24 mm forward of the 6 × 15 mm wing joiner.

Final Notes

- Refer to the drawings regularly throughout the build.
- If you are unsure of any assembly step, study the plans before proceeding.
- Additional reference photographs are included in the download package.

We hope you enjoy building and flying your RBCkits Mirage 2000. Happy flying!



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