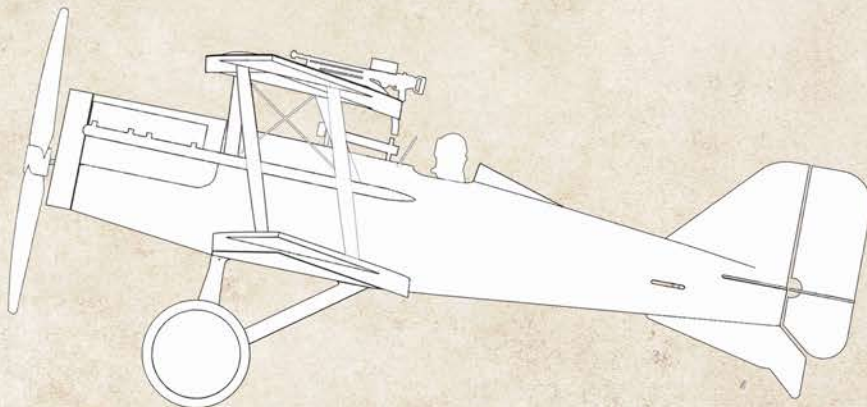




## Assembly Guide



Length	Wingspan	Wing area	Flying weight	Wing load
292mm / 11.5"	368mm / 14.5"	5.0 sq dm / 77.5 sq in.	38.5g / 1.3 oz	7.3g/sq.dm/2.39oz/sq.ft.
Scale	Skill level - Build	Skill level - Pilot	Required tools / glue	
1/24	Intermediate	Rookie	Scalpel, sanding stick, tweezers, UHU por	

### Recommended components required for flight

<b>Receiver:</b>	Parkzone PKZ3351, PKZ3352, PKZUA1151 or Spektrum AR6400/AR6410 (N.B. Tx mix or mode 4 required to use AR6400/AR6410 for rudder/aileron)
<b>Motor / Gearbox:</b>	Parkzone PKZ3624 (Parkzone UM P-51 Motor/Gearbox)
<b>Propeller:</b>	GWS 4040, GWS 4530 (require adapter to fit 1.5mm prop shaft)
<b>Battery:</b>	Single cell Lithium Polymer 100 - 180mAh with UM connector





## Introduction

Thank you for purchasing this Microaces Aero Kit. Designed using innovative ideas, advanced materials and detailed aircraft illustrations, this 1/24th scale aircraft will bring you hours of building enjoyment and many more exciting flying hours too. Please take your time to familiarise yourself with these instructions as the aircraft assembles in a very unique way, following a sequence of steps that should be adhered too to ensure a satisfactory and flyable model.

## Safety



It is extremely important to us that you and those around you remain safe while building and flying Microaces kits. *Please take note of the following notices of safety.* Microaces Aero kits contain parts and packaging unsuitable for handling by small children. Please ensure that children under the age of 6 years are prevented from handling the component parts or packaging of this kit. Although the resulting model is lightweight, we DON'T recommend that you fly it near or over others where there is a danger of striking someone. We DO recommend that the maiden flight is performed over long grass in calm weather away from others.

## Assembly











**Read all the instructions carefully before starting assembly.**

It is important to use the recommended glues or an equivalent with similar properties. Foam parts must be glued with a foam safe cement or permanent damage can result to components. Ensure your knife has a fresh or sharp blade installed to ensure a clean cut.

## Warranty

Microaces warrants this kit is supplied with all components present and that those components are free from cosmetic or structural damage to an extent that would impair the assembly of the kit, alter the aesthetics of the built model and/or the flight performance of the resulting model. If any parts are missing or damaged please contact us via email at: [support@microaces.com](mailto:support@microaces.com)

## Key

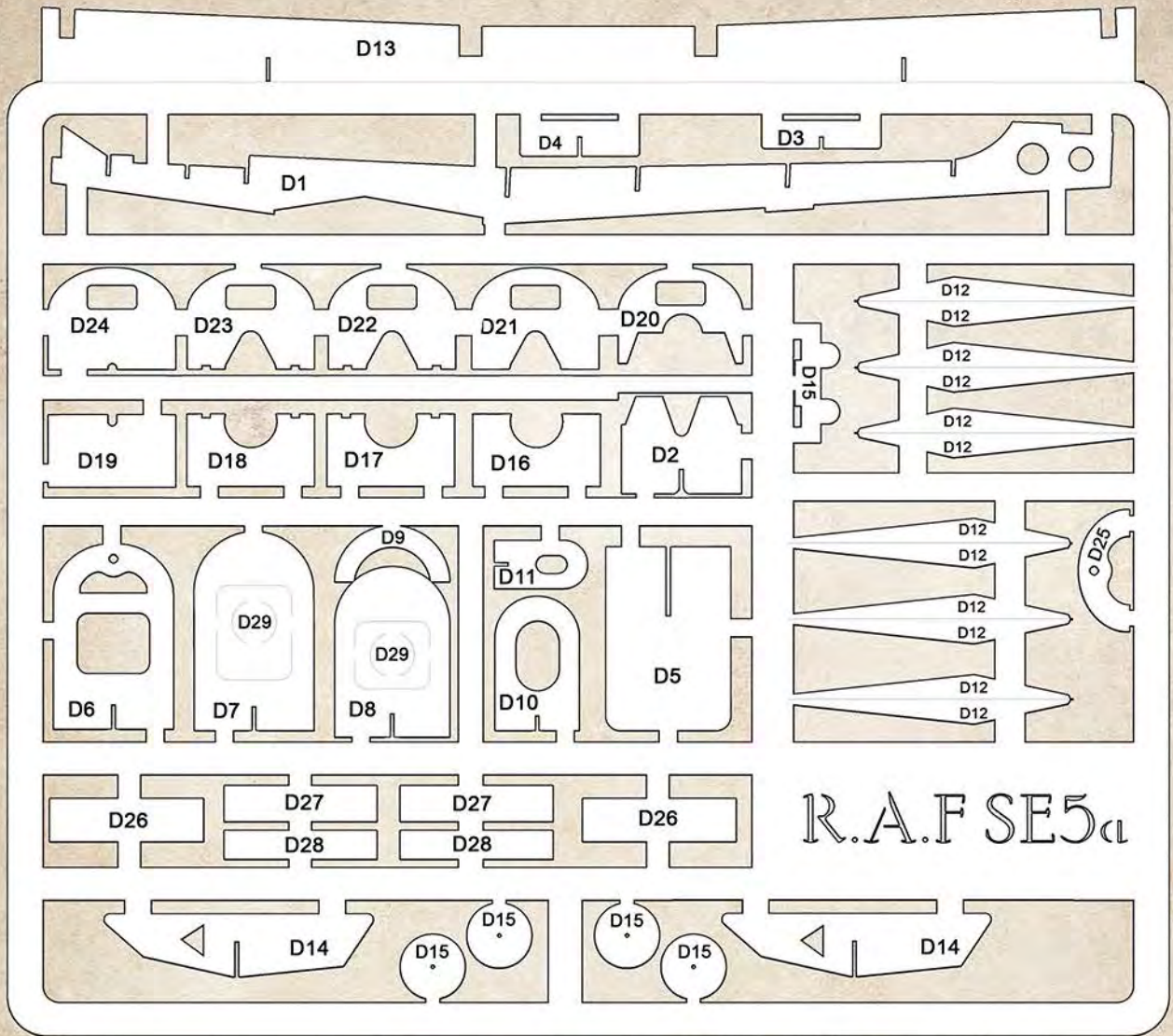
 <b>1</b>	<b>Assembly Step</b>		<b>Attention</b>
 <b>P1</b>	<b>Part Number</b>		<b>Do Not Glue</b>
	<b>Plastic Part</b>		<b>Score before assembly</b>
	<b>1mm Foam Part</b>		<b>Sticker</b>
	<b>2mm Foam Part</b>		<b>Assembled Parts</b>





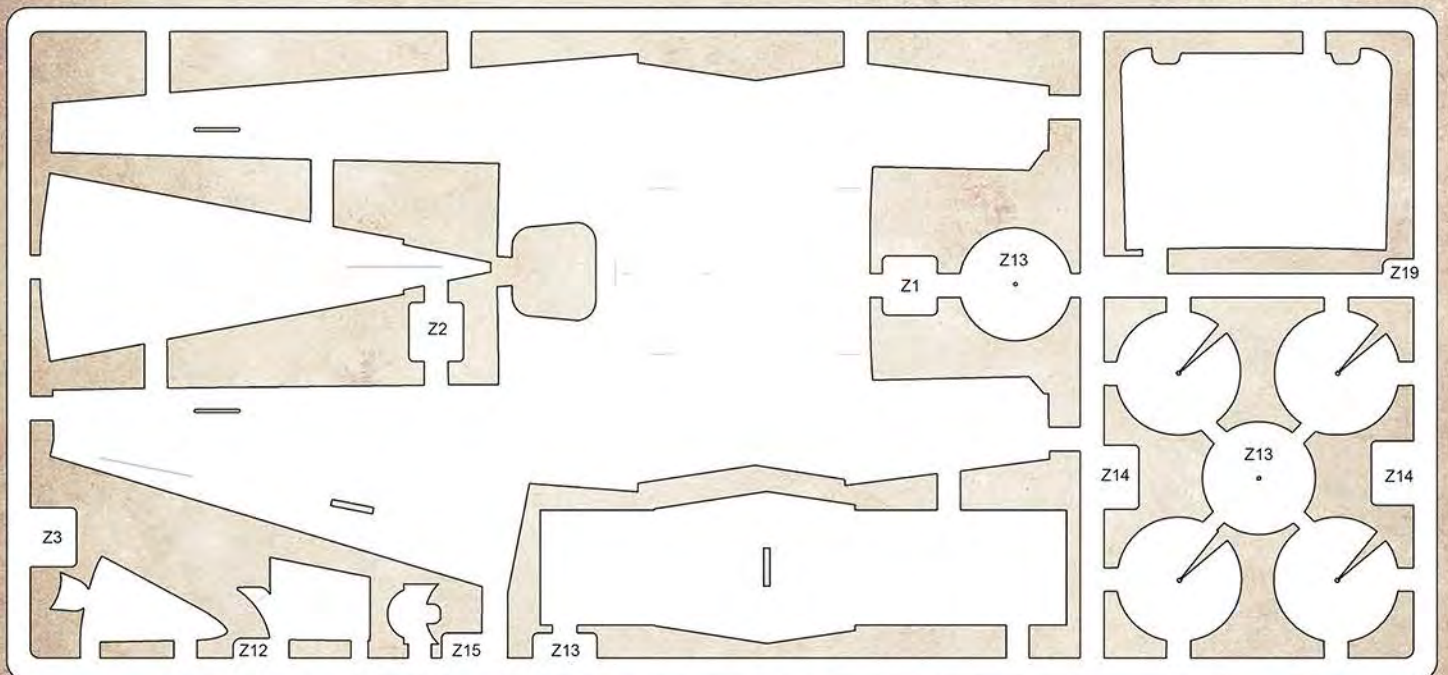
# Parts List

2mm Depron foam



R.A.F SE5a

1mm Depron foam

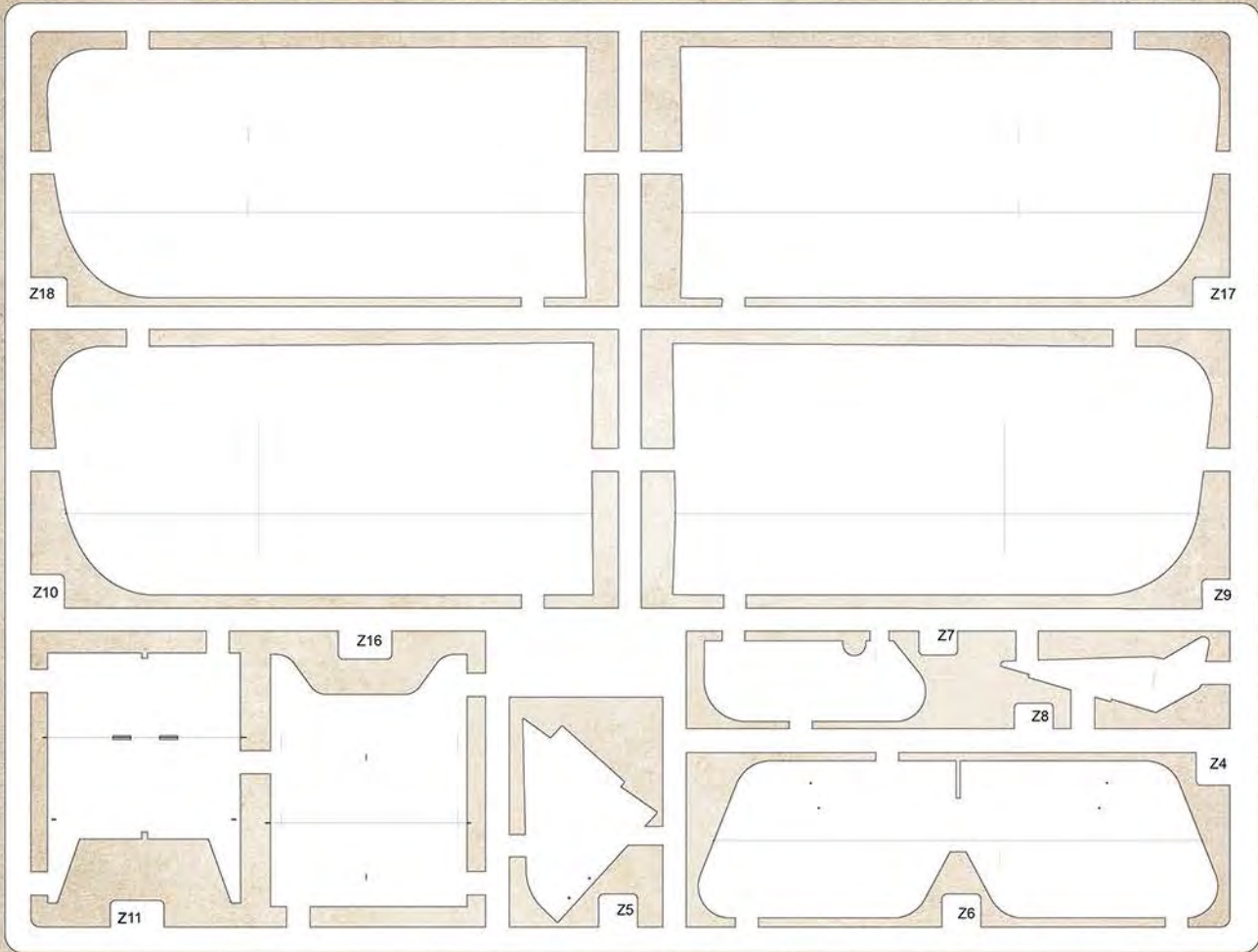


R.A.F. SE5a

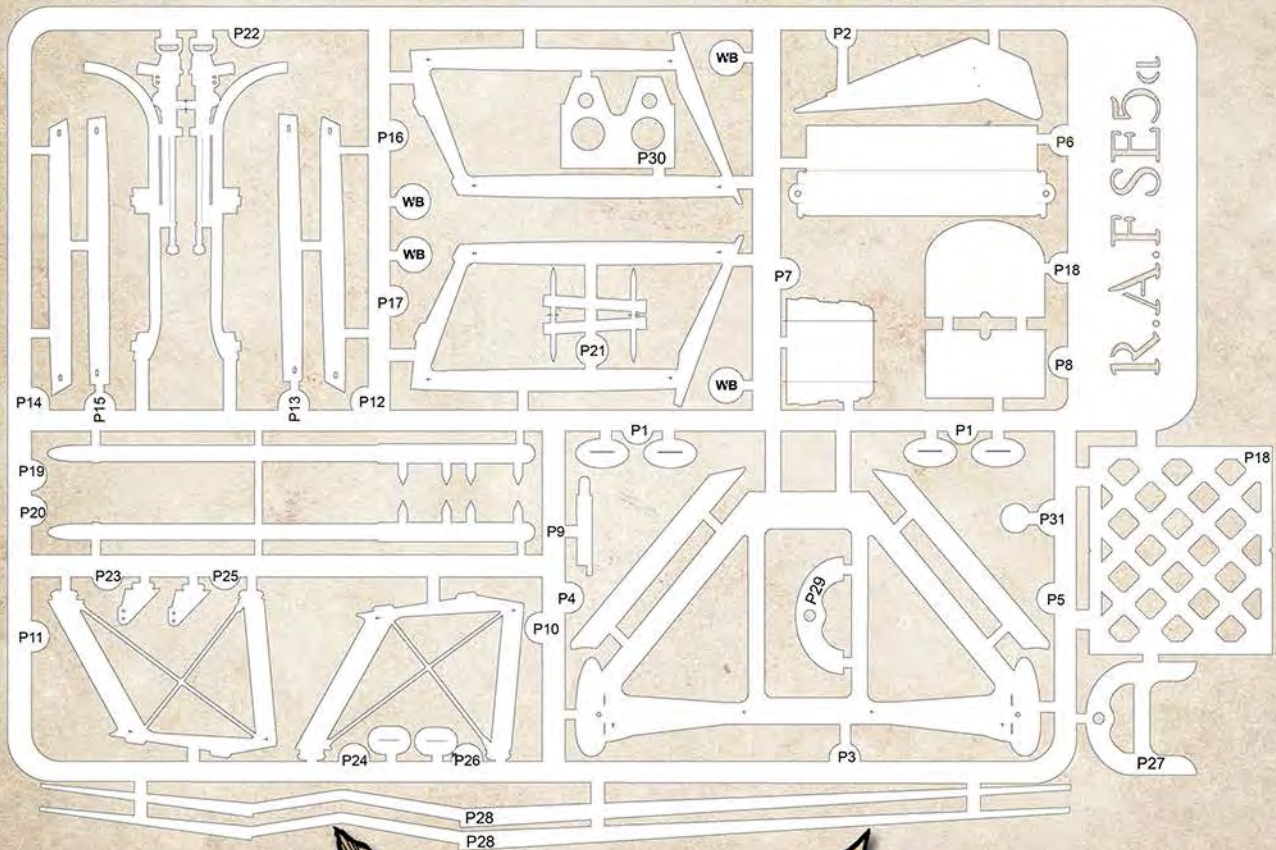


# Parts List

1mm Depron foam



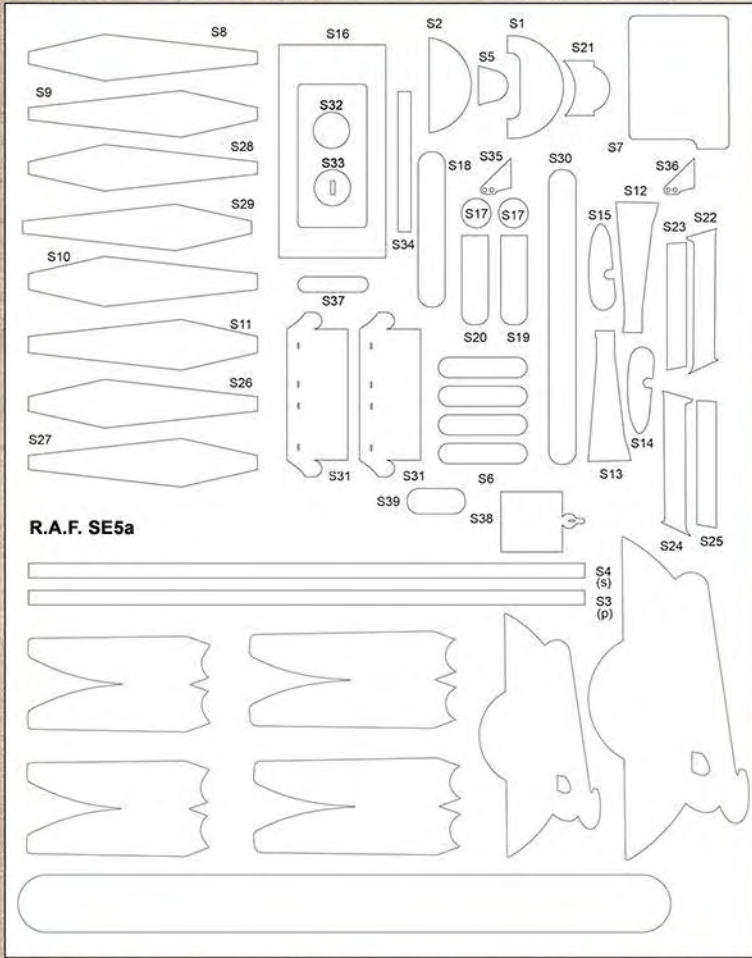
# Plastic parts



R.A.F. SE5a



# Parts List



R.A.F. SE5a

## Stickers



Rigging Wire

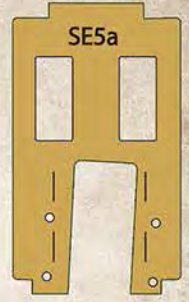
## Carbon Fibre

- ~140mm x 1.0mm x 0.4m (for LE of Elevator)
- ~360mm x 1.0mm x 0.4m (to be cut into lengths as specified in assembly guide)
- ~80mm x 1.0mm Ø (for axle)

## Control Wire



Straw



Plywood



Magnet x 6



Rubber Tyre x 2



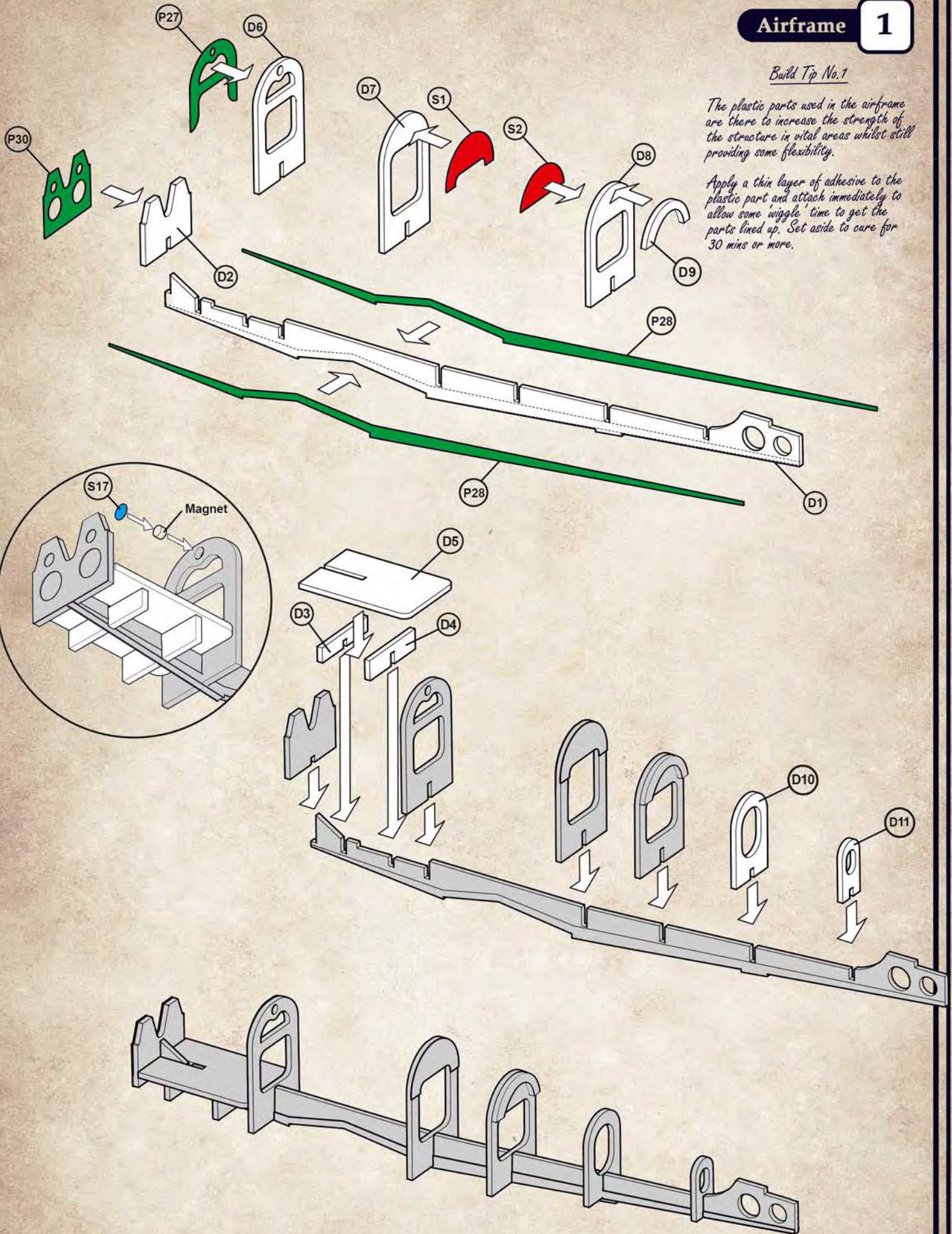
Profile Pilot



### Build Tip No.1

The plastic parts used in the airframe are there to increase the strength of the structure in vital areas whilst still providing some flexibility.

Apply a thin layer of adhesive to the plastic part and attach immediately to allow some 'wiggle' time to get the parts lined up. Set aside to cure for 30 mins or more.





Building Tip No.2

To create corners & curves in the foam fuselage skin, the reverse side of certain components needs to be scored.

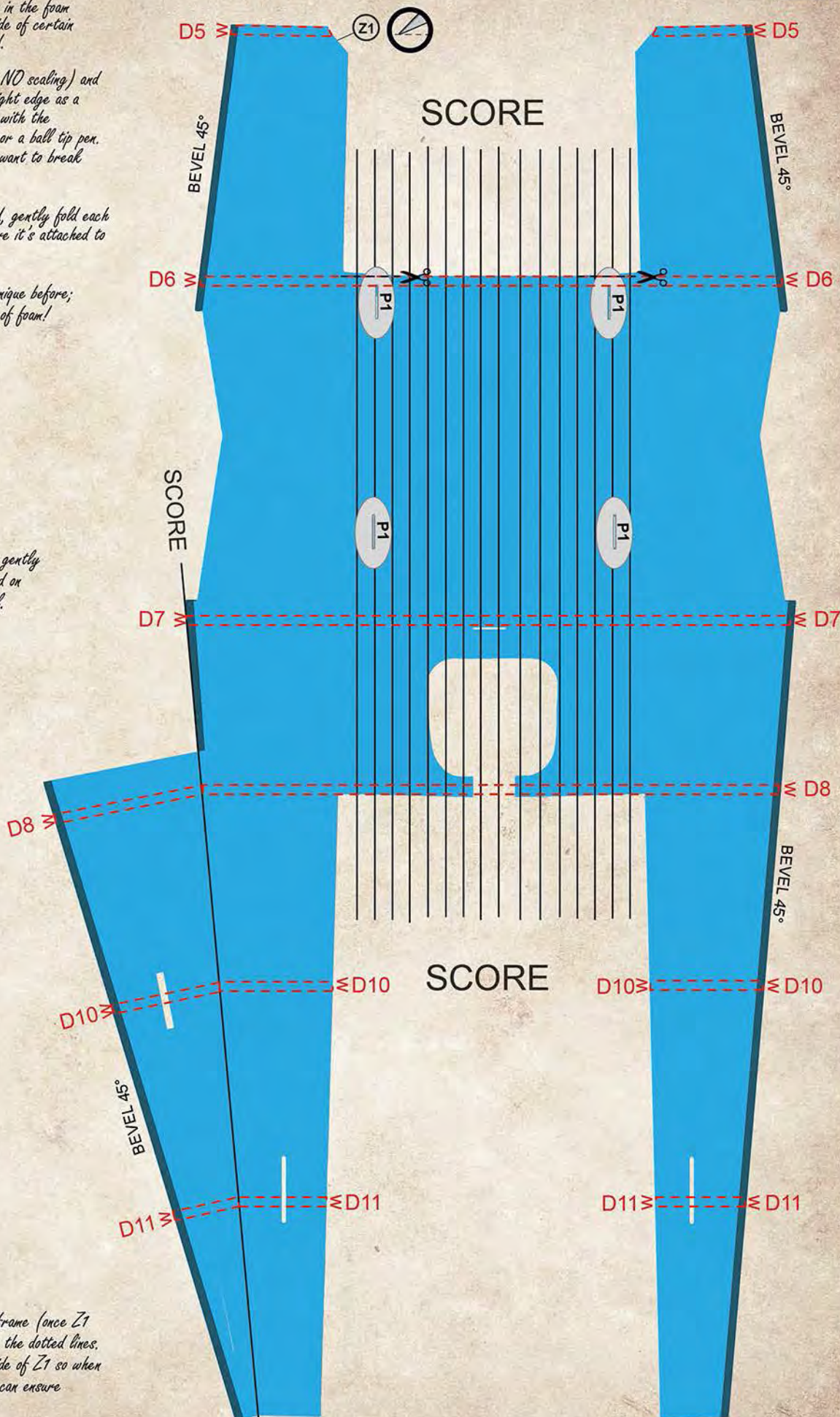
Print out this page (without ND scaling) and lay Z1 onto it. Using a straight edge as a guide, deeply score the foam with the REVERSE side of a scalpel or a ball tip pen. Be careful though, you don't want to break through to the other side.

Once the scoring is completed, gently fold each score to shape the part before it's attached to the airframe.

If you haven't used this technique before; PRACTICE on scrap pieces of foam!

Building Tip No.3

To ensure a good overall fit, gently sand the edges of Z1 indicated on the diagram to create a bevel.



Building Tip No.5

The positions of the fuselage frame (once Z1 is applied to it) is indicated by the dotted lines. Lightly mark these on the inside of Z1 so when you apply it to the frame you can ensure perfect alignment.



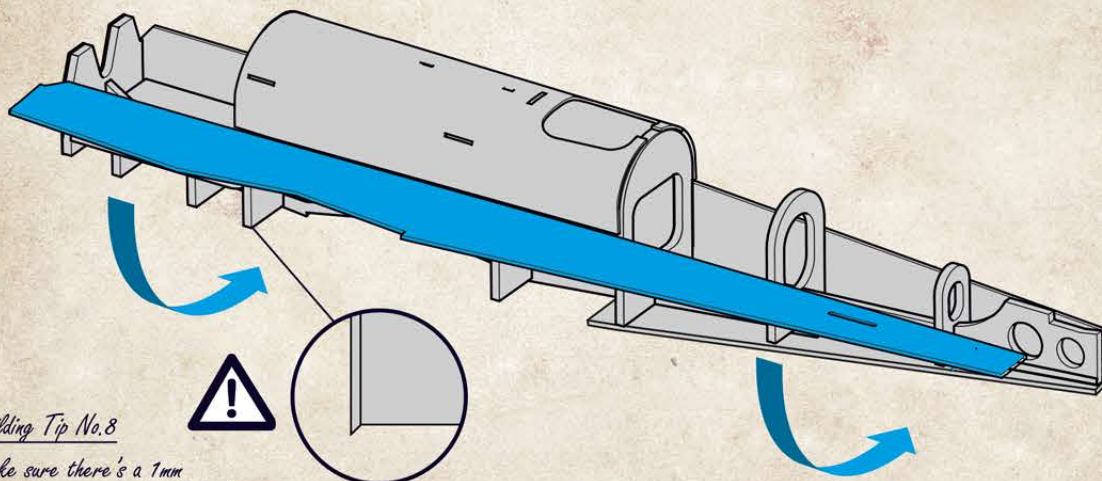
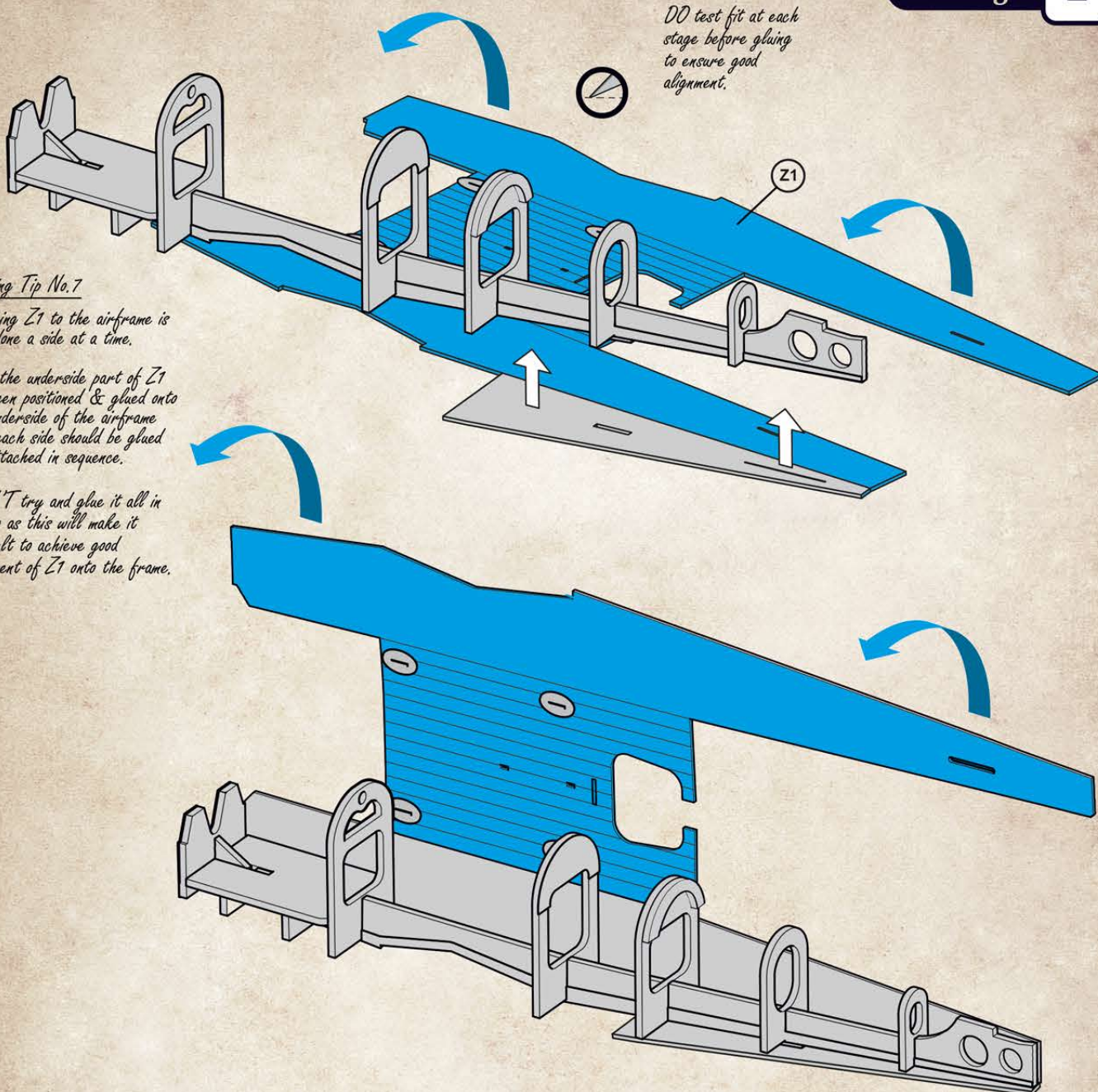
DO test fit at each stage before gluing to ensure good alignment.

*Building Tip No.7*

Applying Z1 to the airframe is best done a side at a time.

Once the underside part of Z1 has been positioned & glued onto the underside of the airframe then each side should be glued and attached in sequence.

DON'T try and glue it all in one go as this will make it difficult to achieve good alignment of Z1 onto the frame.



*Building Tip No.8*

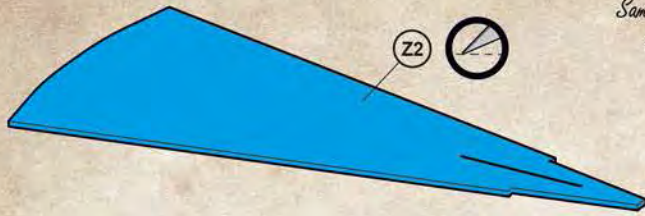
Make sure there's a 1mm overlap here so the bevelled edge of the fuselage is ready to accept the underside nose piece later on in the build.

HINT! - If you're struggling to get an equal overlap on both sides of the fuselage, try sanding the tops of fuselage formers D6 & D7.

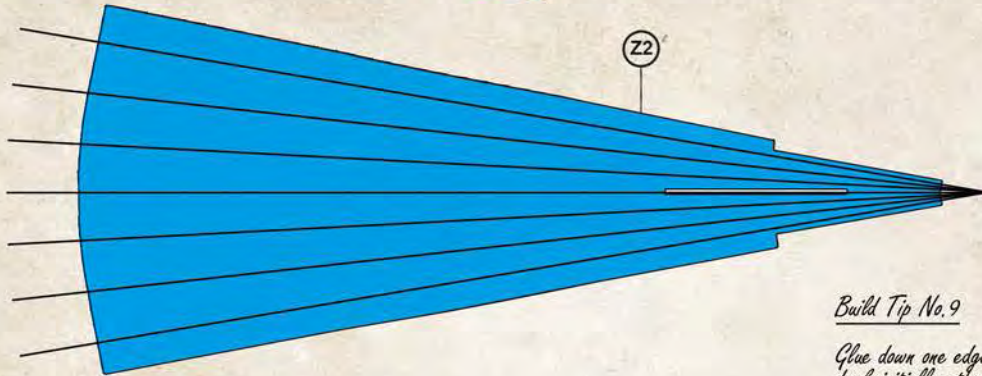


Same method applies to scoring and shaping Z2 as it did for Z1. (See page 5)

This part of the aircraft is known as the 'Turtle Deck' due to its curved, shell like appearance.



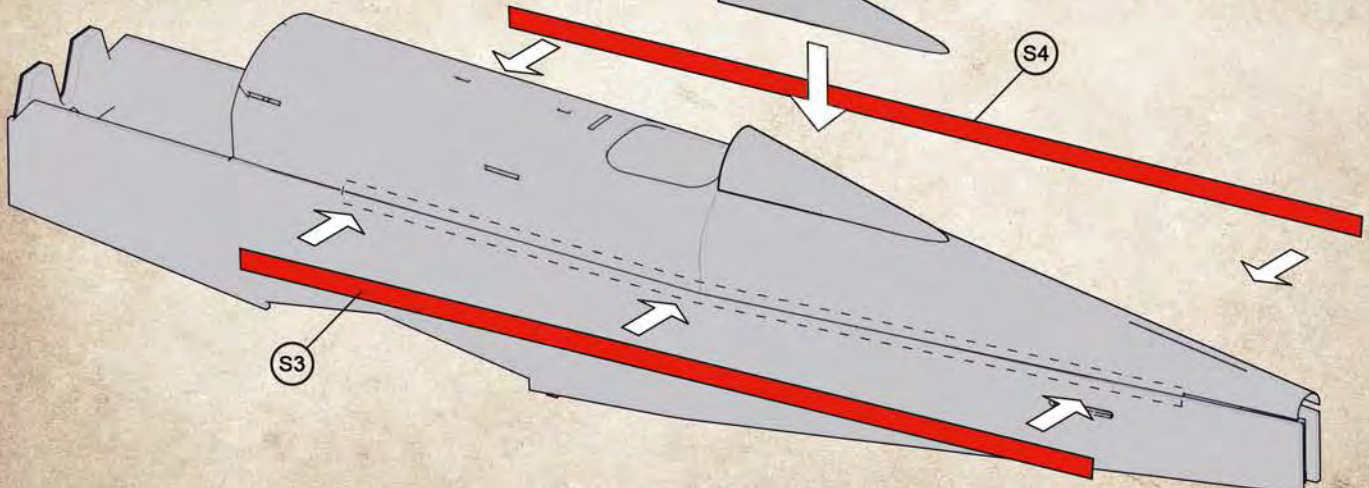
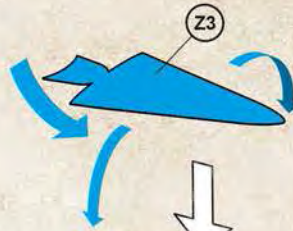
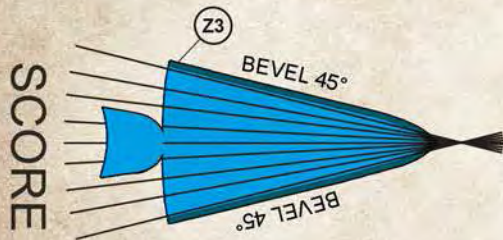
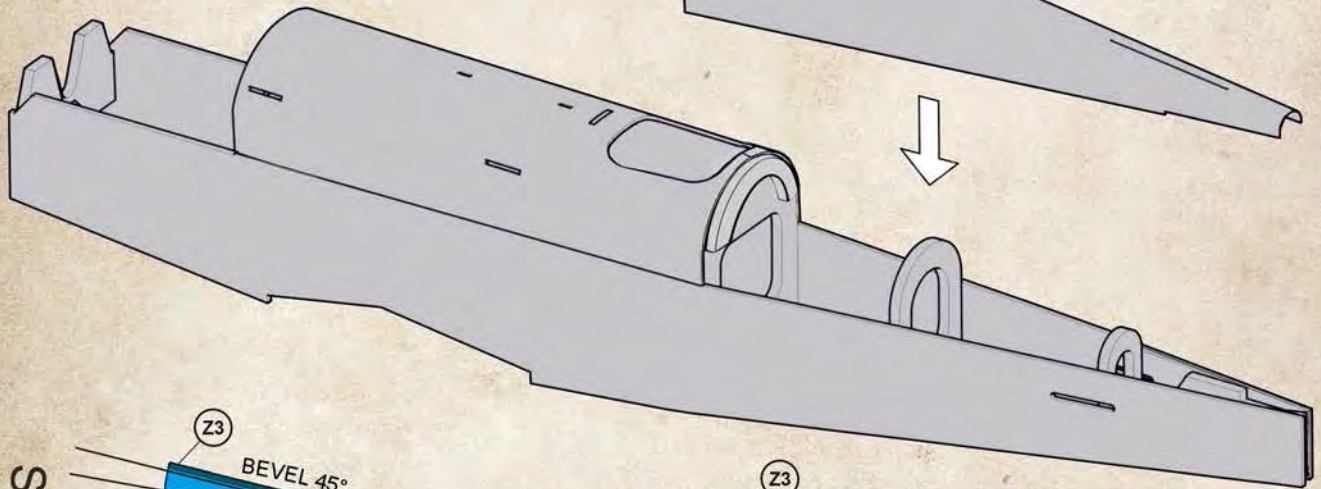
SCORE



SCORE

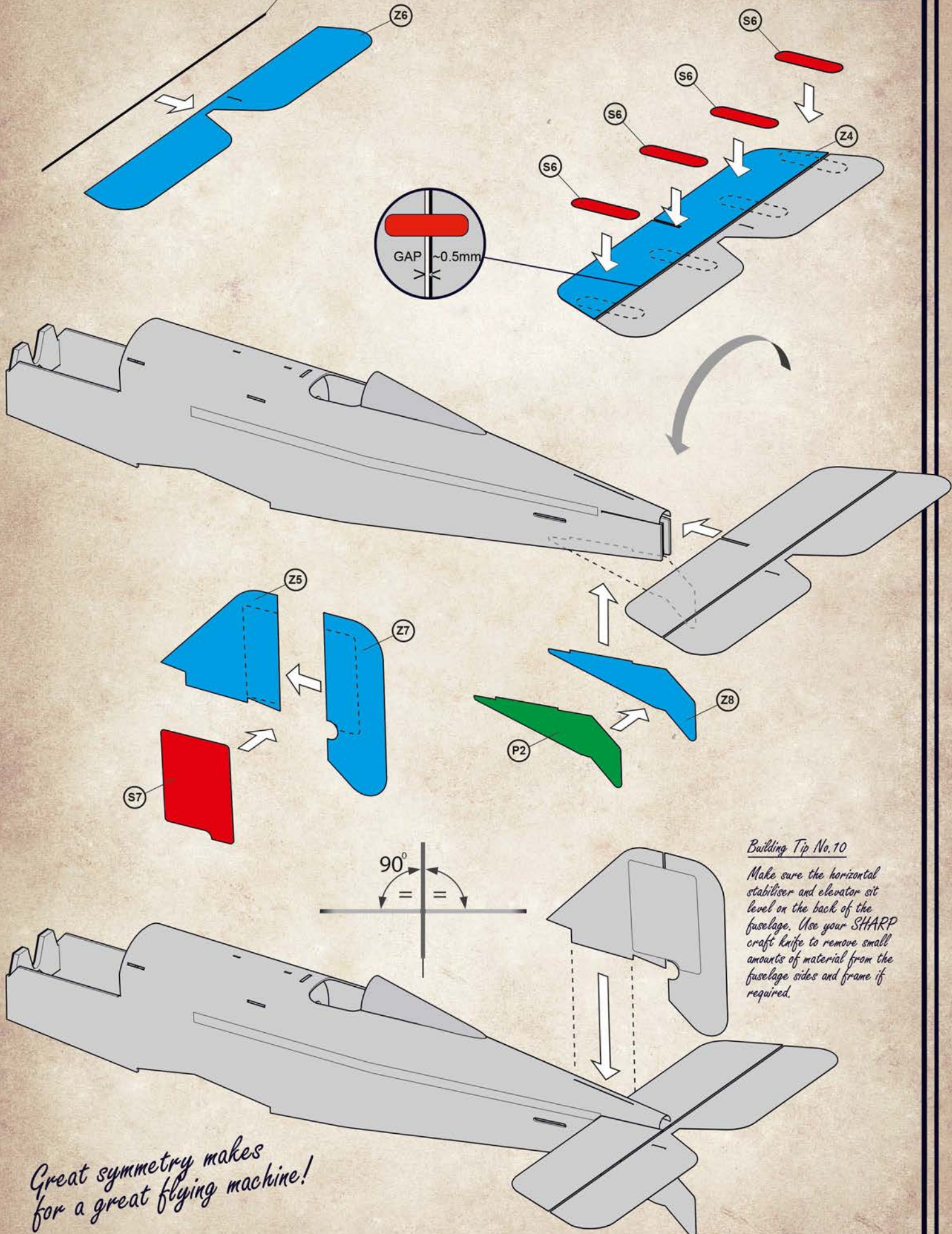
Build Tip No.9

Glue down one edge to attach the turtle deck initially, then, once the glue has cured, add more adhesive to the opposite side, allow to cure and then use its contact adhesive properties to grab the other edge.





Carbon Fibre: 140.0 x 1.0 x 0.4mm

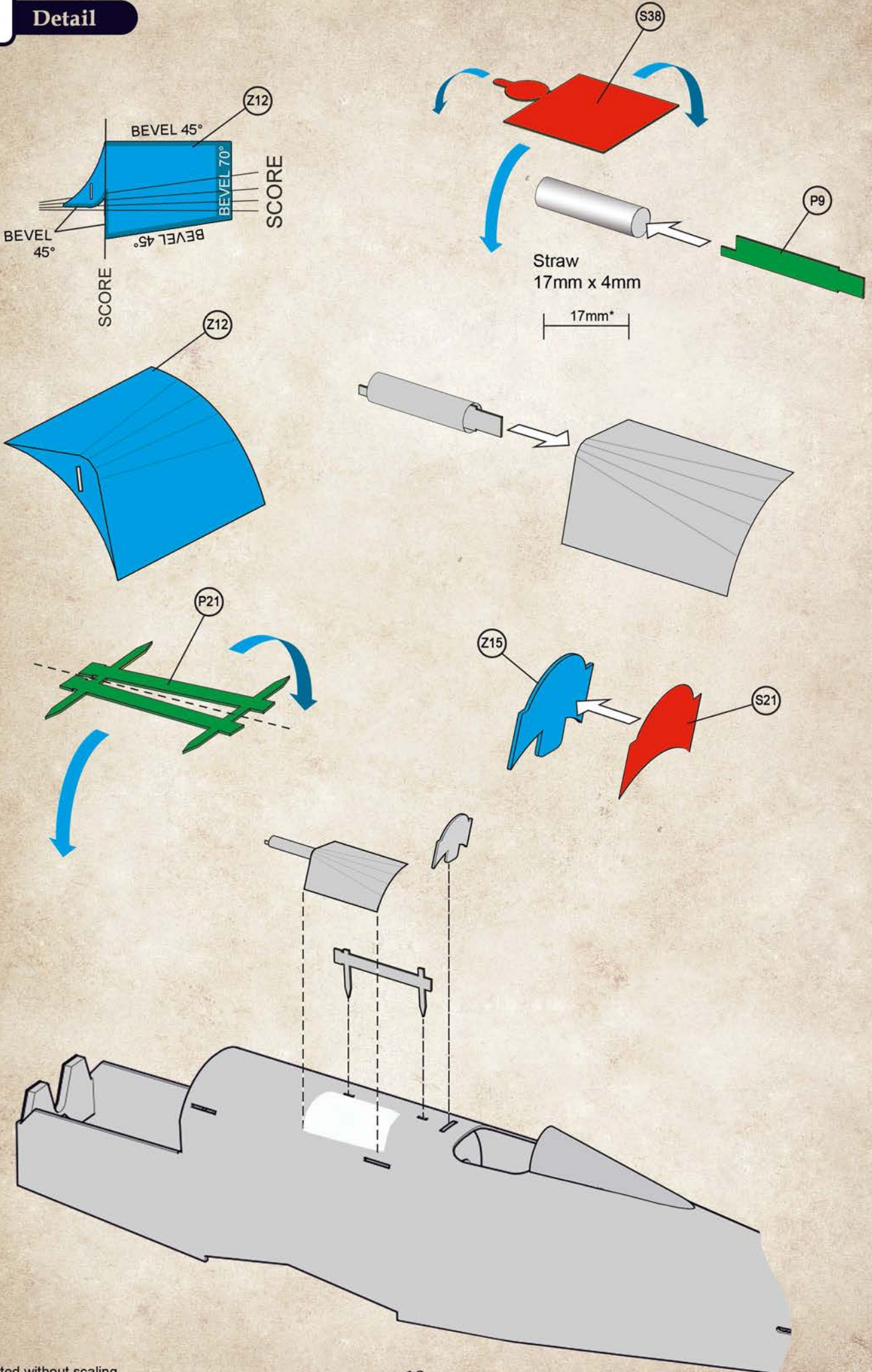


*Building Tip No.10*

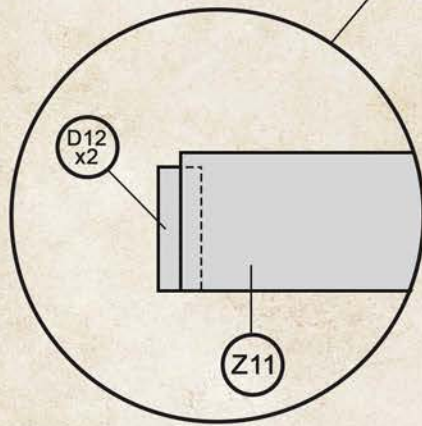
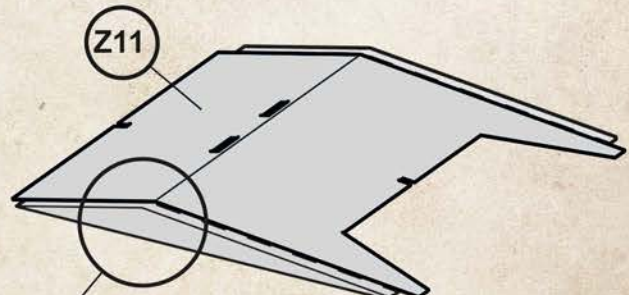
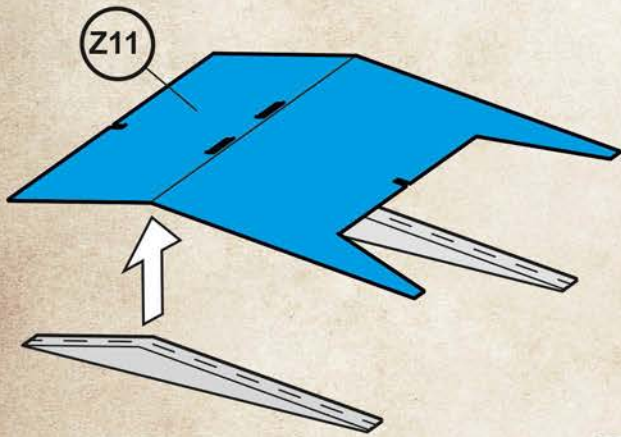
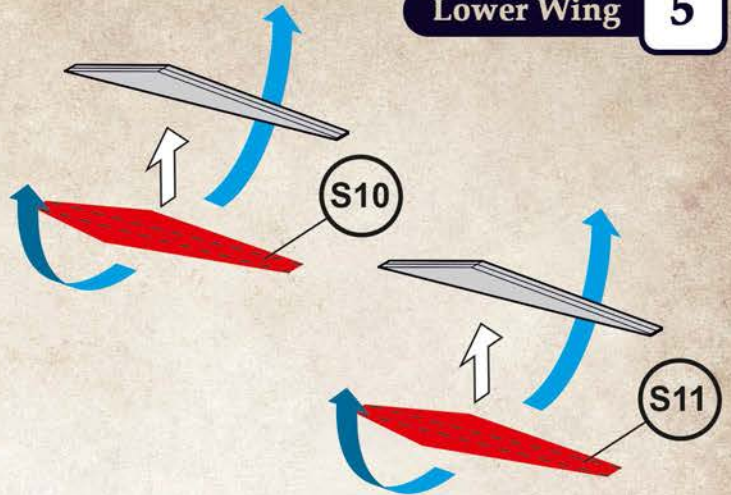
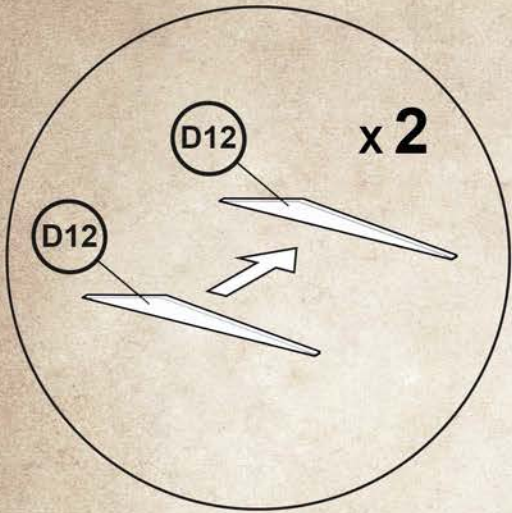
*Make sure the horizontal stabiliser and elevator sit level on the back of the fuselage. Use your SHARP craft knife to remove small amounts of material from the fuselage sides and frame if required.*

*Great symmetry makes for a great flying machine!*





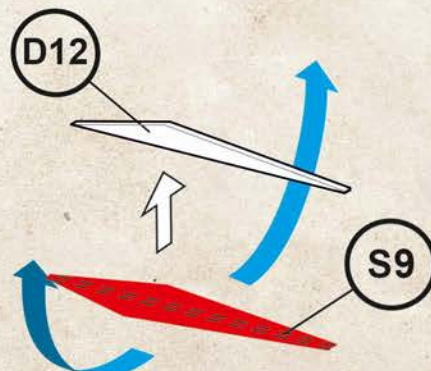
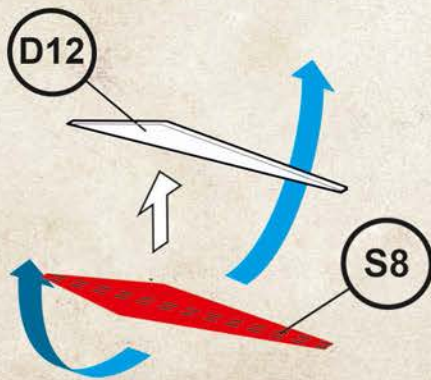




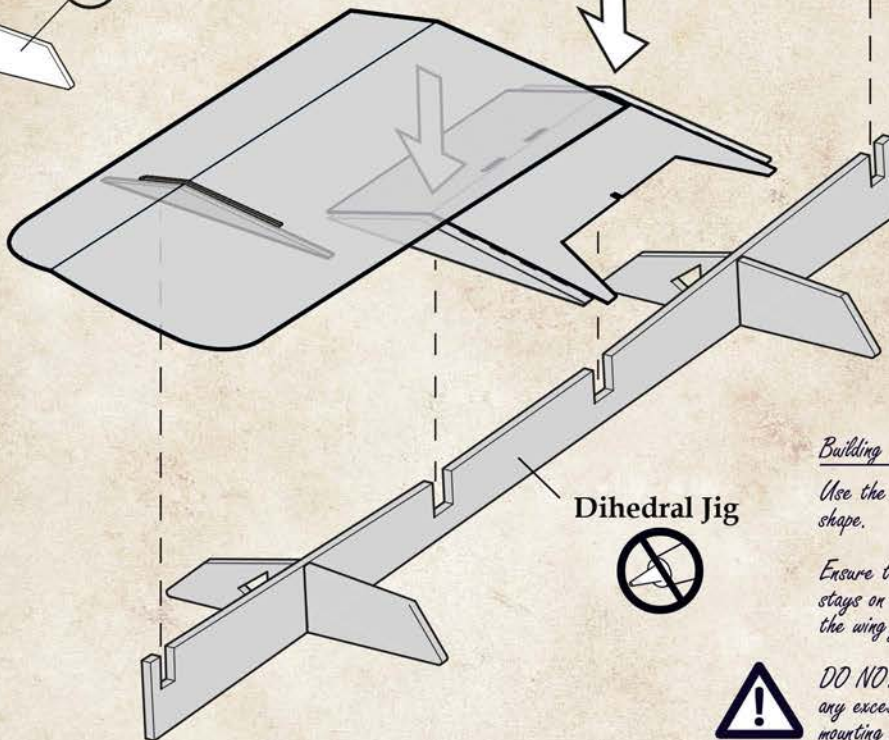
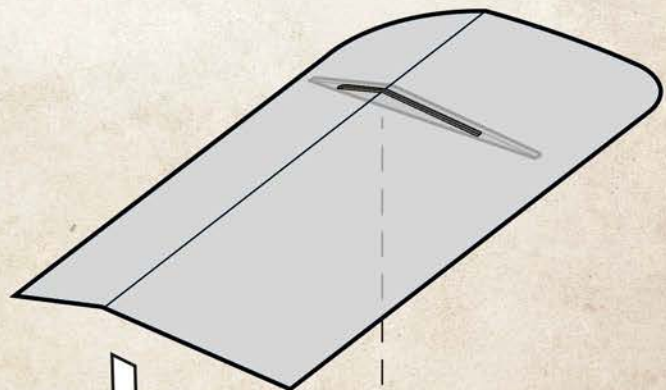
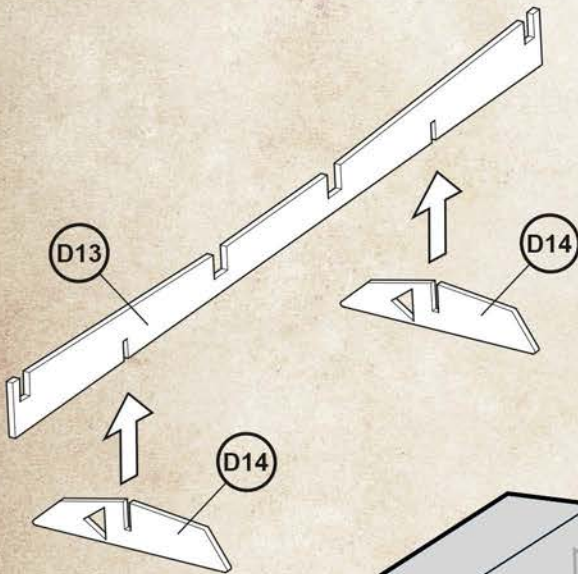
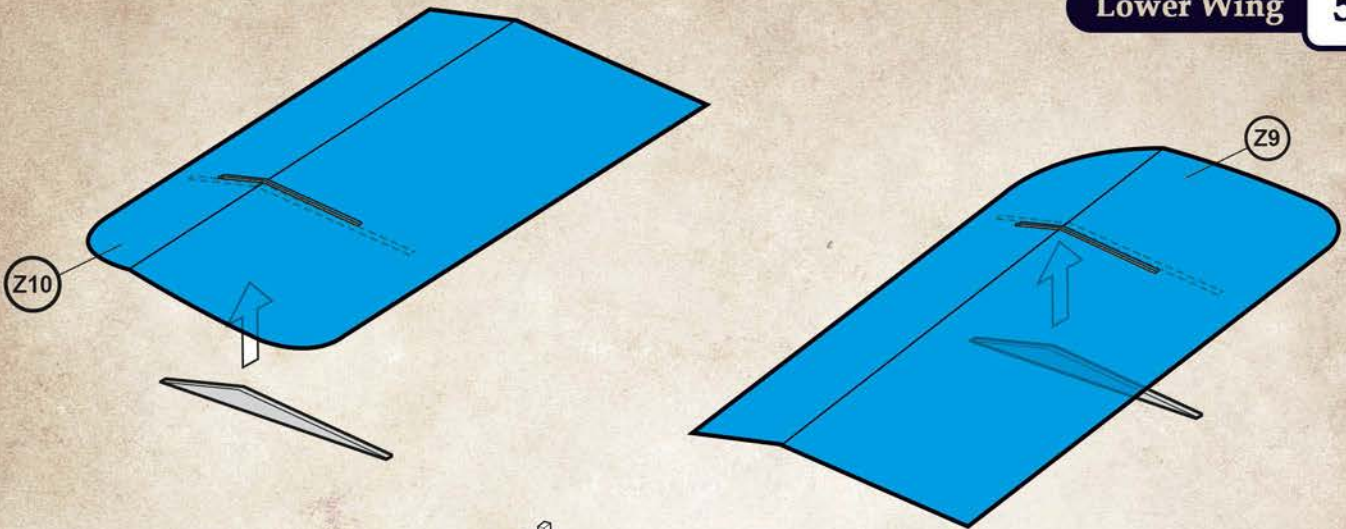
*Building Tip No. 13*

*Ensure that the doubled up wing formers create a 'step' once attached to the central wing part Z11.*

*This provides a surface for the main wing parts to adhere too.*







*Building Tip No. 14*

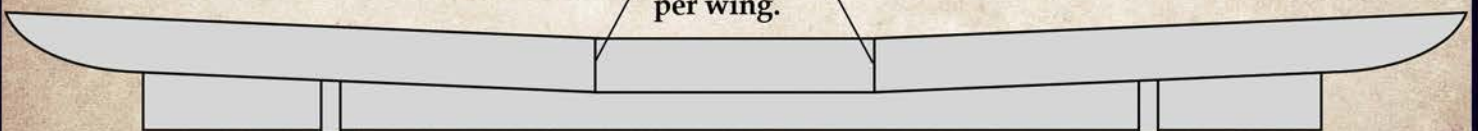
*Use the DIHEDRAL JIG to set the wing shape.*

*Ensure the wing is weighted to ensure it stays on the jig while the glue dries on the wing joints.*



*DO NOT glue the wing to the jig. Wipe any excess glue to prevent this before mounting the wing on the jig.*

2.5° dihedral per wing.

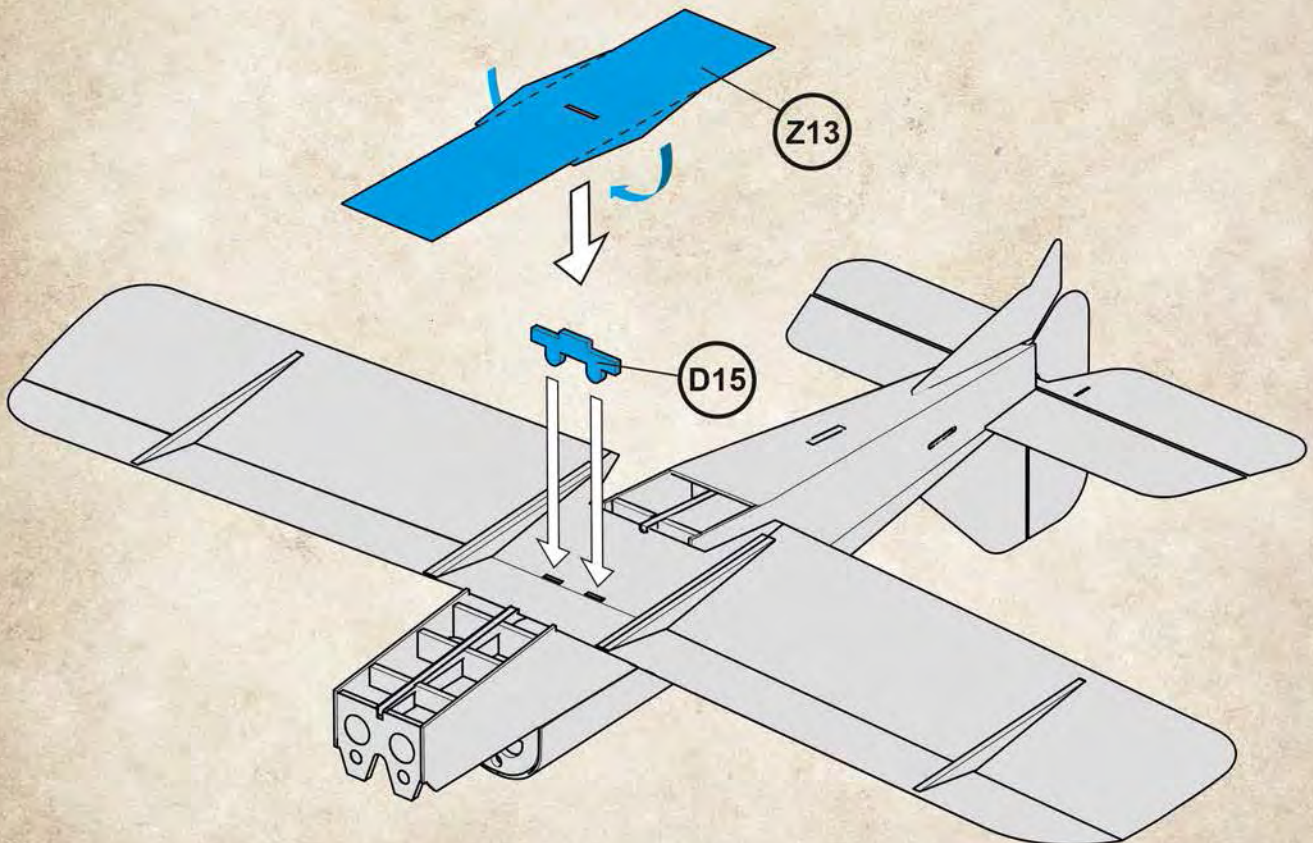
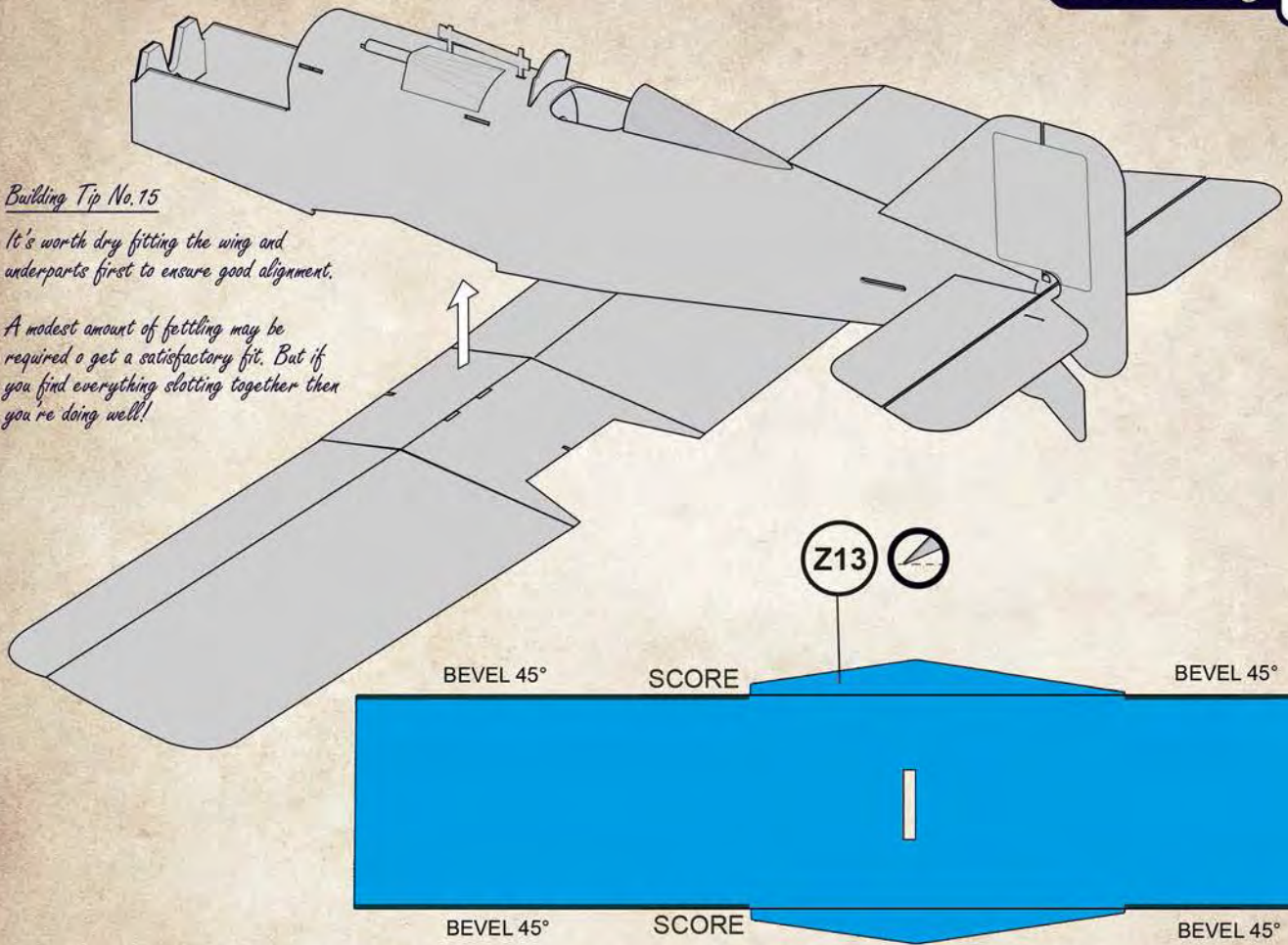




*Building Tip No.15*

*It's worth dry fitting the wing and underparts first to ensure good alignment.*

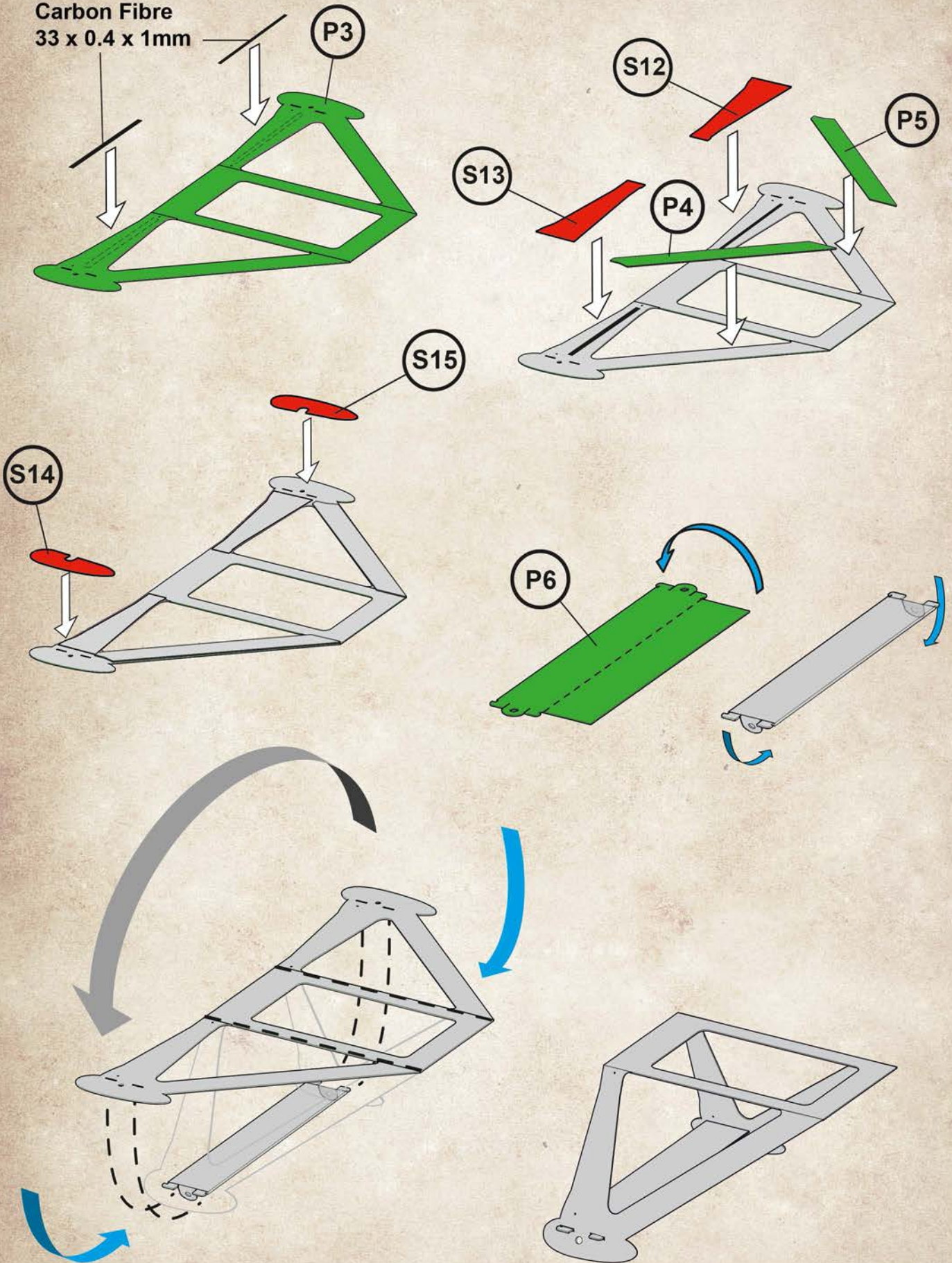
*A modest amount of fettling may be required to get a satisfactory fit. But if you find everything slotting together then you're doing well!*



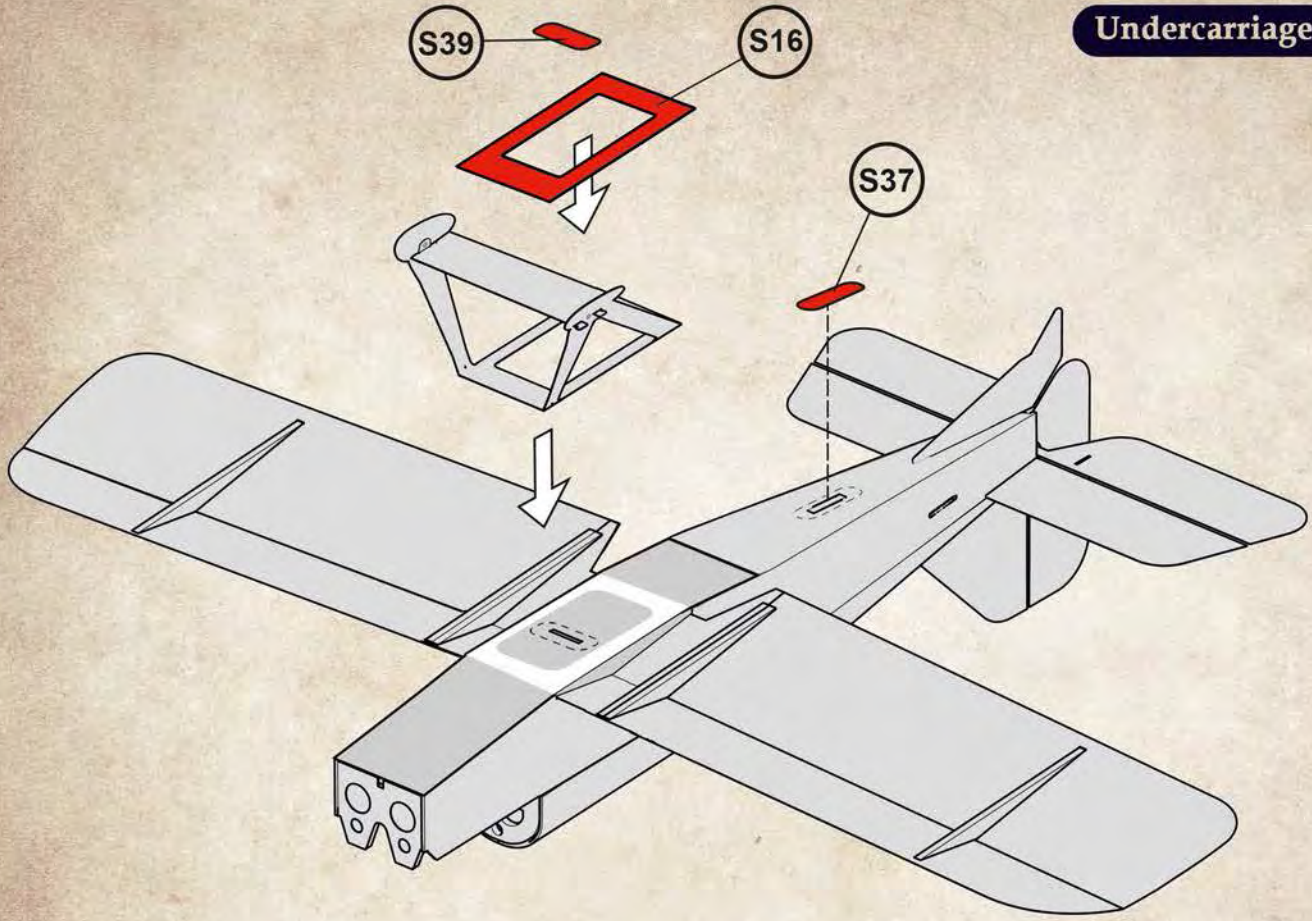


# 6 Undercarriage

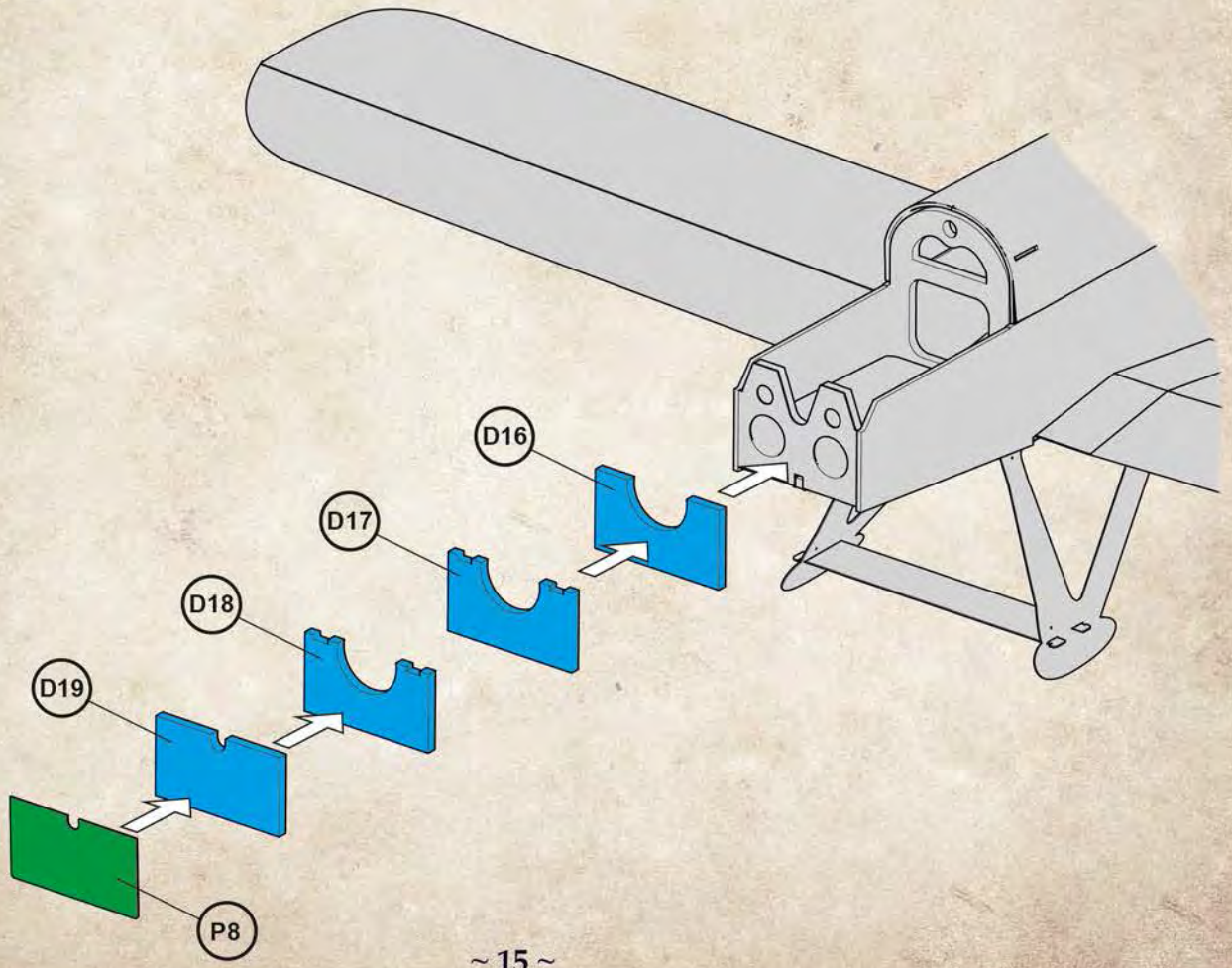
Carbon Fibre  
33 x 0.4 x 1mm



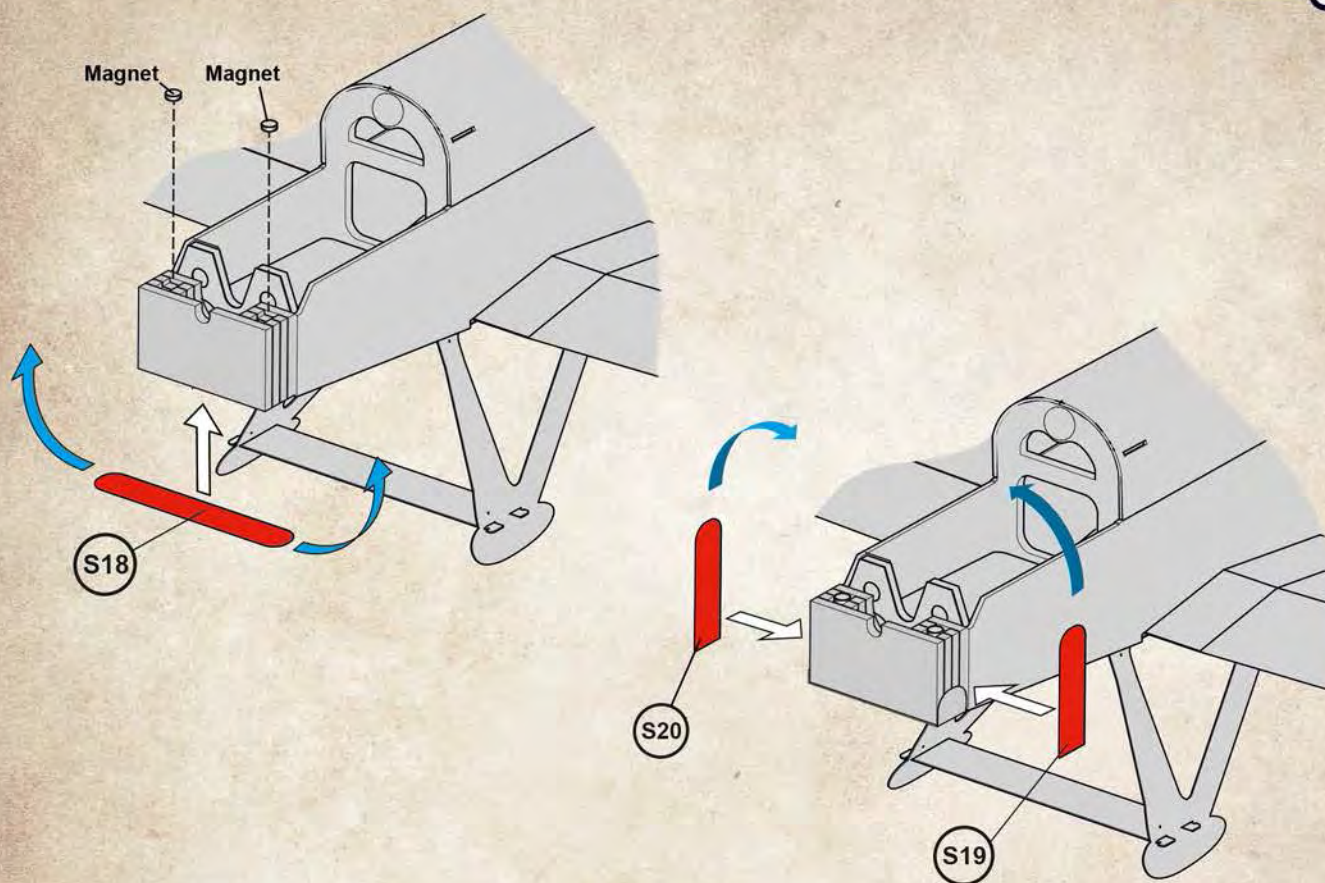




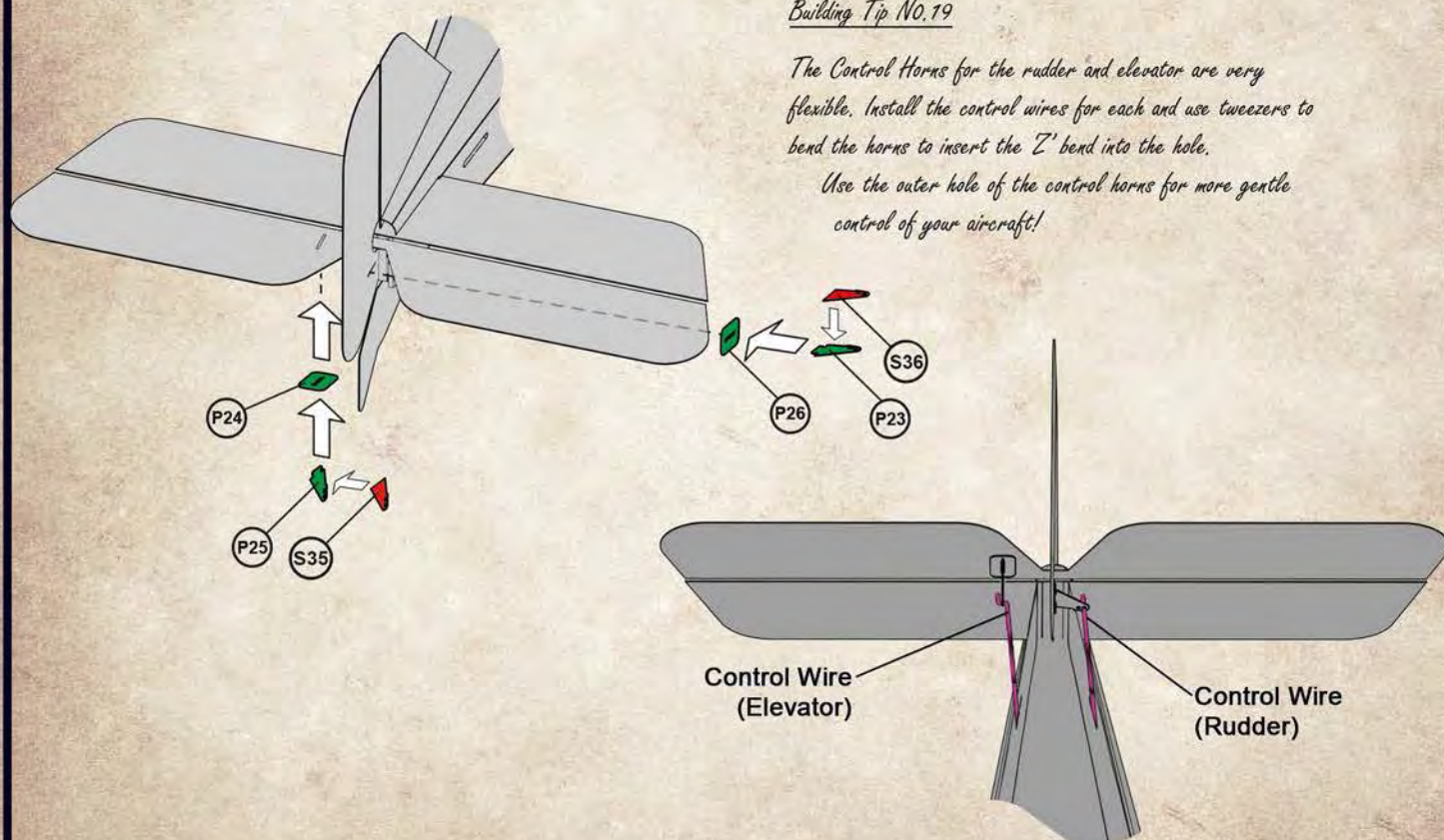
**7** Chin







## 8 Controls



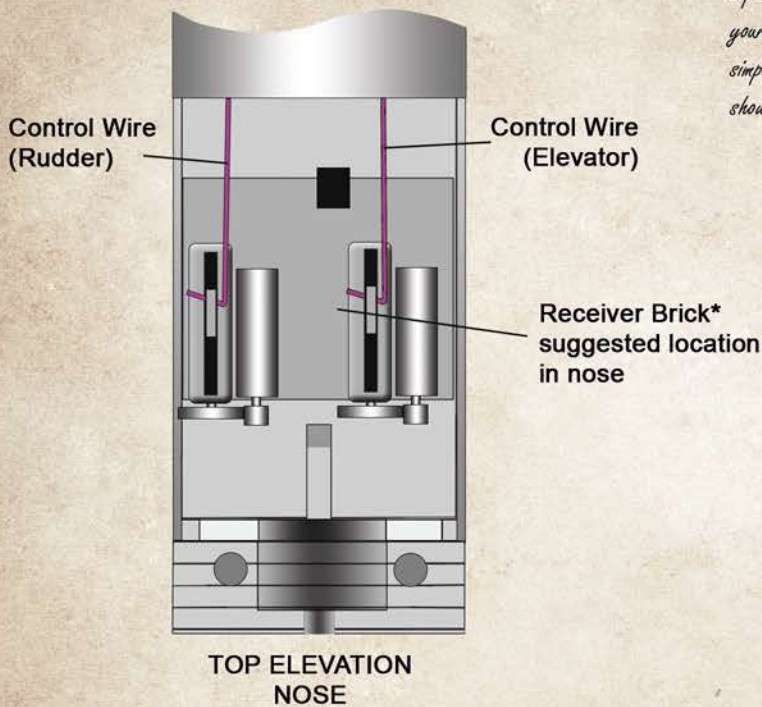
### *Building Tip NO.19*

*The Control Horns for the rudder and elevator are very flexible. Install the control wires for each and use tweezers to bend the horns to insert the 'Z' bend into the hole.*

*Use the outer hole of the control horns for more gentle control of your aircraft!*



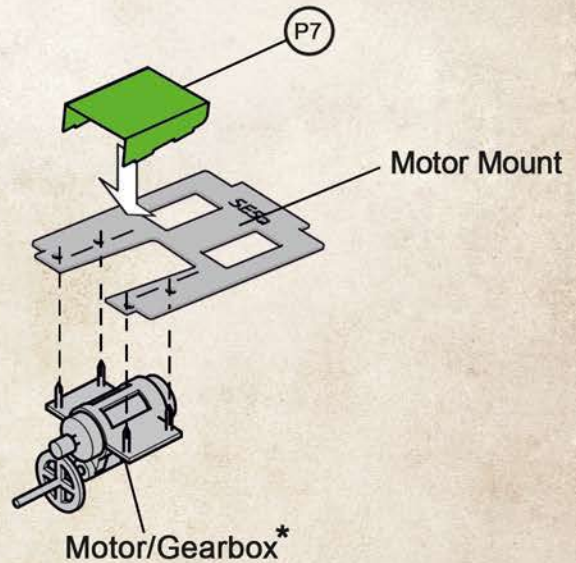
## 8 Controls



### Building Tip NO.20

Fix your receiver in place using a double sided sticky pad or tape. Once it's fixed trim the control rods so that they fit into your chosen servo arm hole. The rods can be kept in place by simply bending them beyond the 90 degree mark and trimming as shown in the diagram above.

*If you already use a trusted method to secure your control rods please feel free to employ it here!*



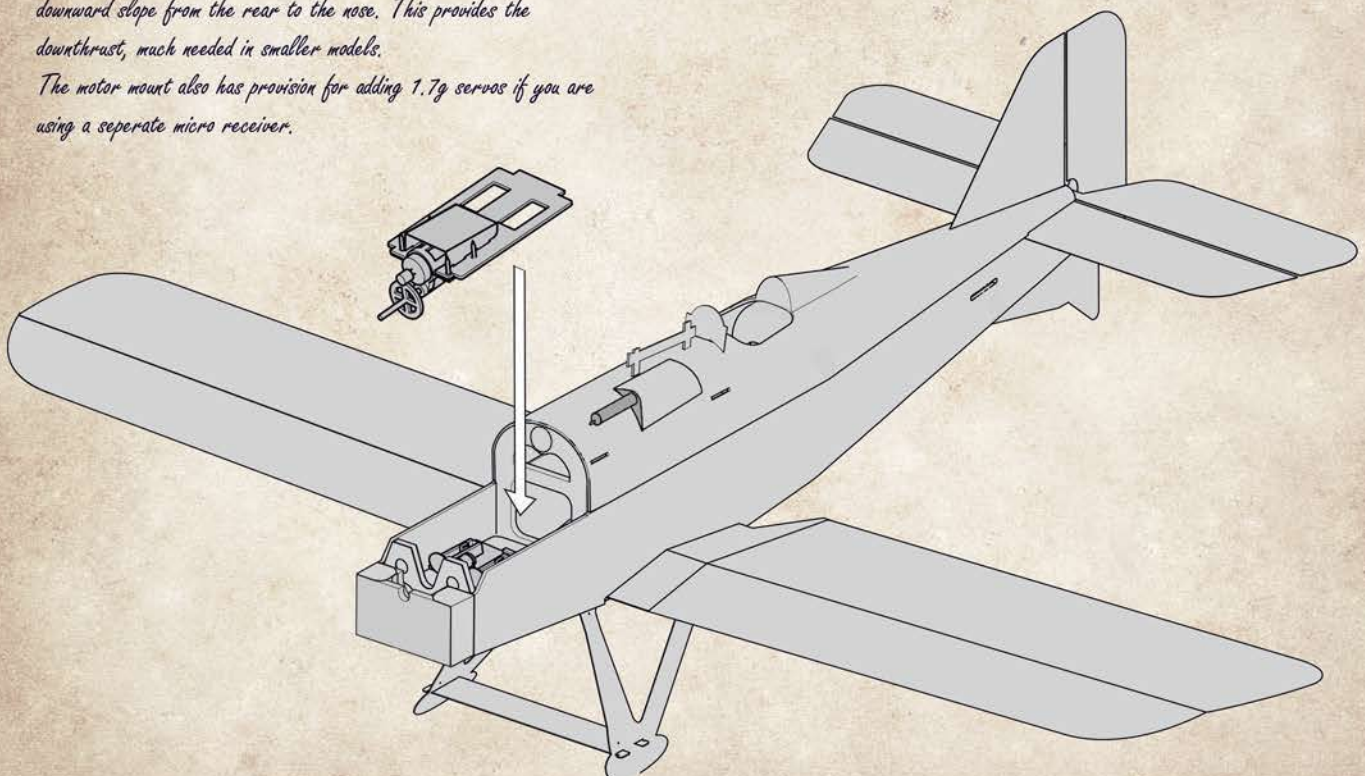
### Building Tip No. 21

Make sure the laser etched writing on the plywood motor mount is facing upwards!

You'll notice that the motor mount positions the motor/gearbox at a slight angle to the right. This provide much needed side-thrust to counteract the 'swing' of the prop.

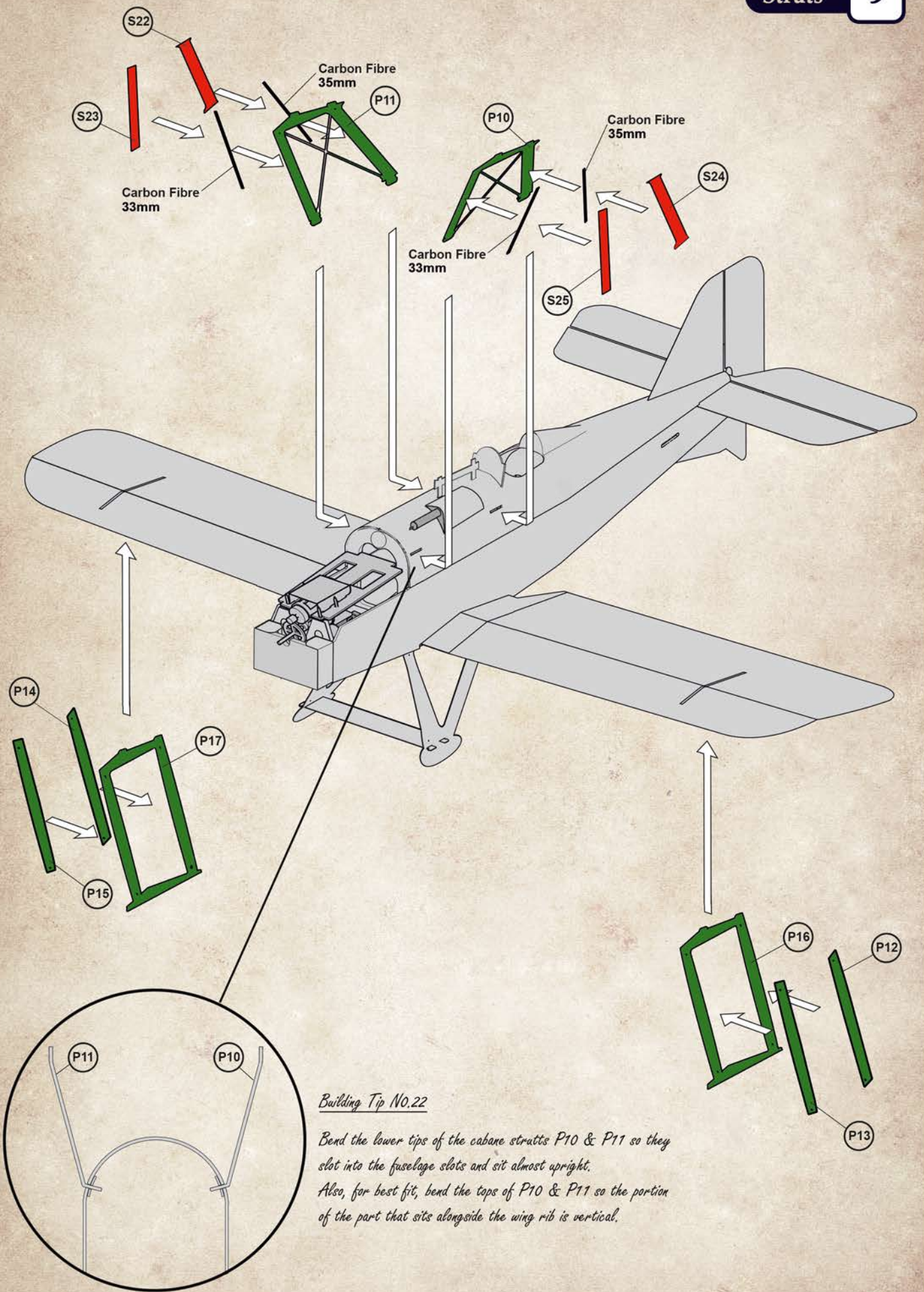
If everything has assembled well, the motor mount should also have a downward slope from the rear to the nose. This provides the downthrust, much needed in smaller models.

The motor mount also has provision for adding 1.7g servos if you are using a seperate micro receiver.



\*Motor//Gearbox not included in kit. Please refer to kit specification for recommended equipment.

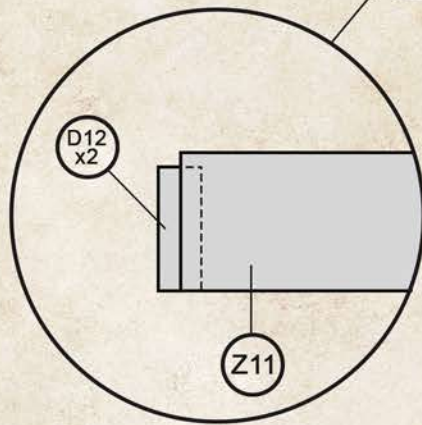
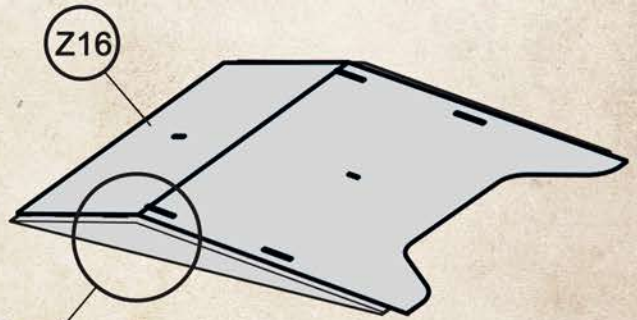
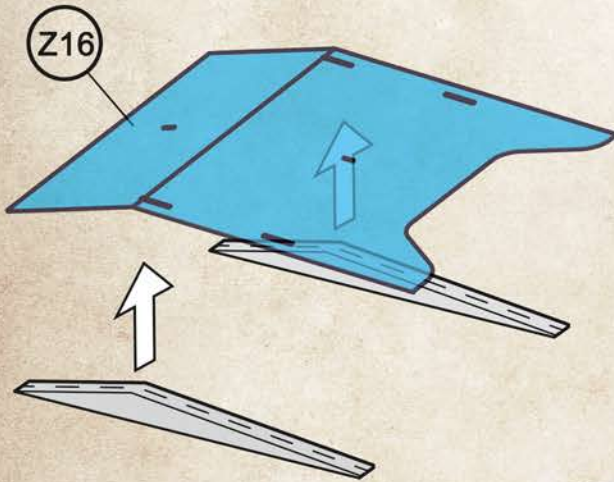
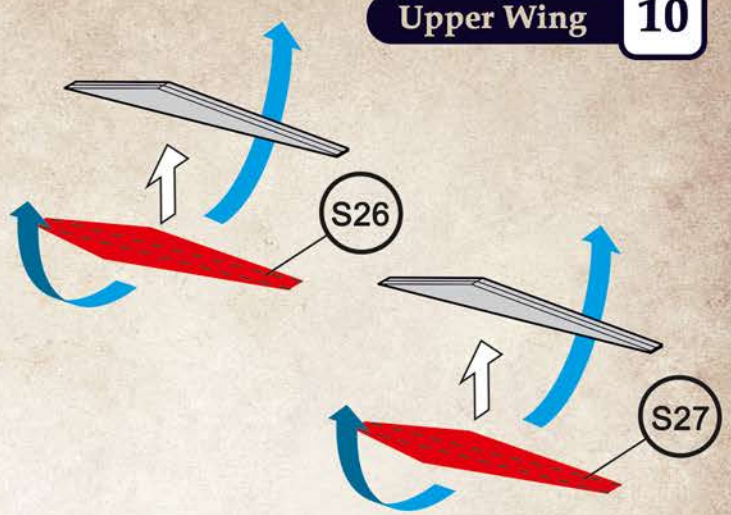
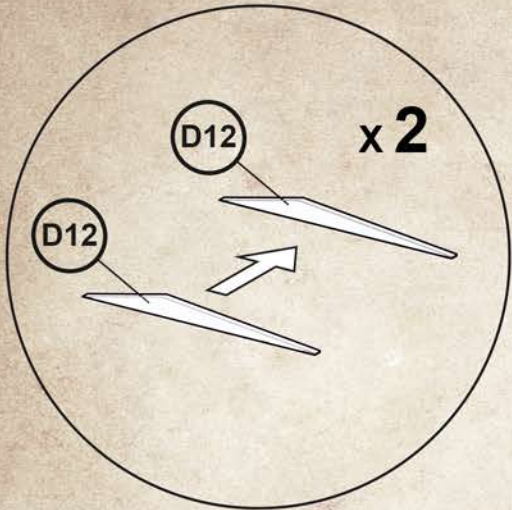




*Building Tip No.22*

*Bend the lower tips of the cabane struts P10 & P11 so they slot into the fuselage slots and sit almost upright. Also, for best fit, bend the tops of P10 & P11 so the portion of the part that sits alongside the wing rib is vertical.*

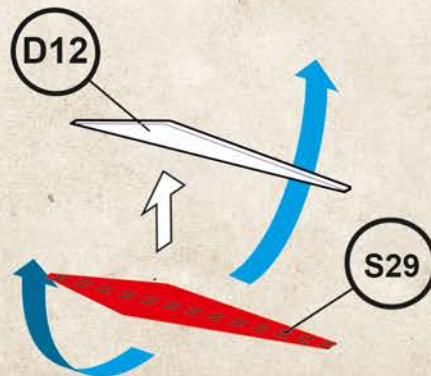
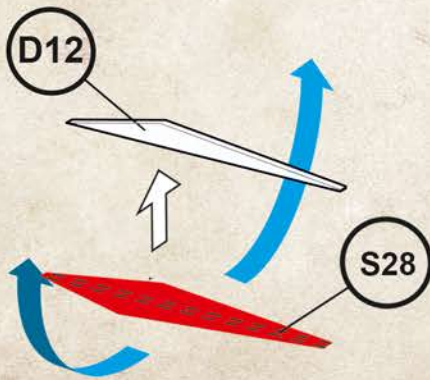




*Building Tip No.23*

*Ensure that the doubled up wing formers create a 'step' once attached to the central wing part Z16.*

*This provides a surface for the main wing parts to adhere too.*

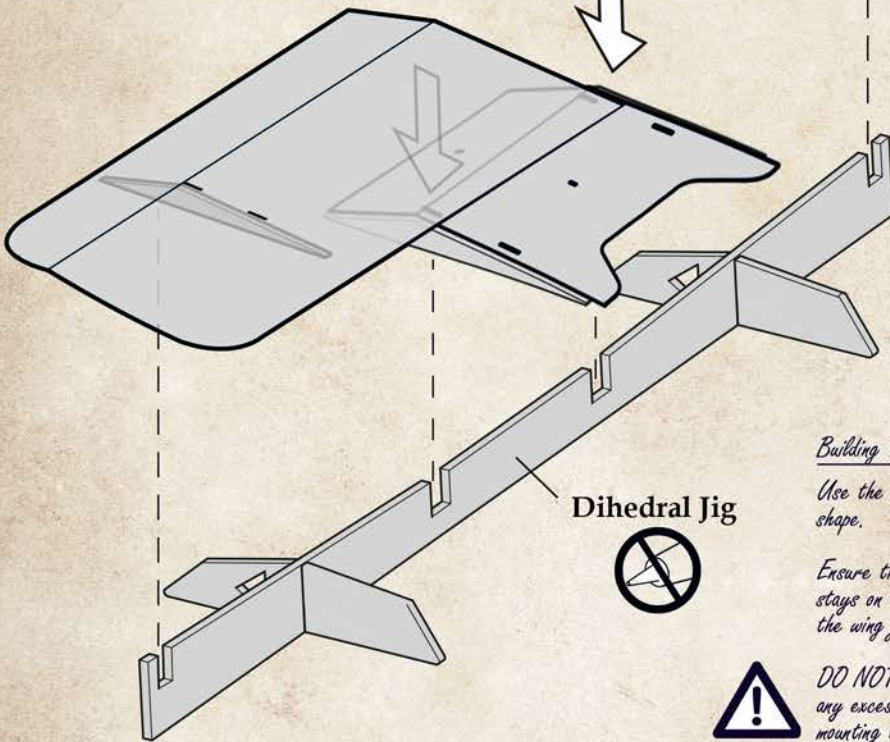
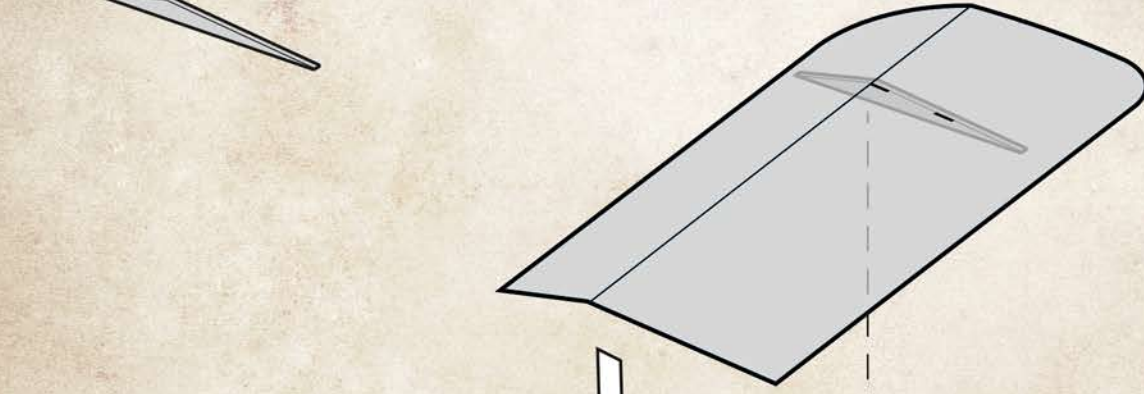
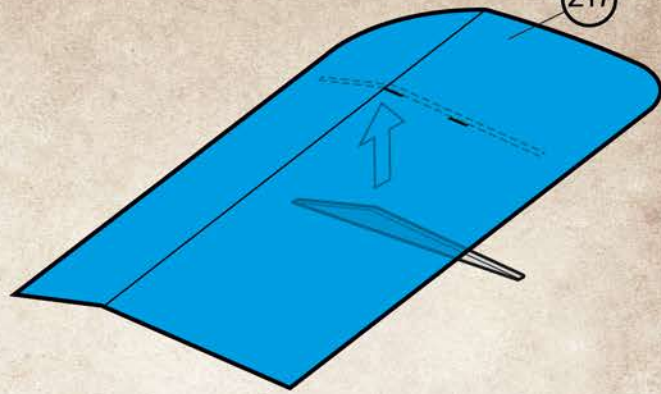
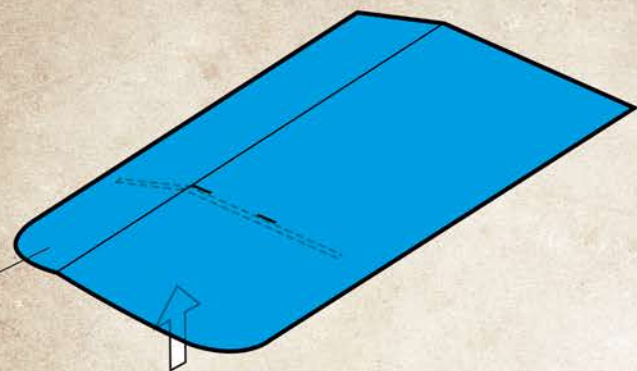




# 10 Upper Wing

Z18

Z17



Dihedral Jig



### Building Tip No.24

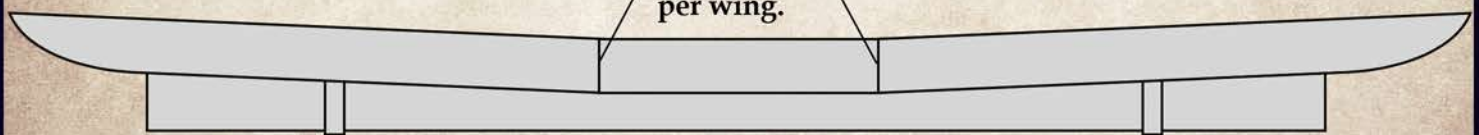
Use the DIHEDRAL JIG to set the wing shape.

Ensure the wing is weighted to ensure it stays on the jig while the glue dries on the wing joints.



DO NOT glue the wing to the jig. Wipe any excess glue to prevent this before mounting the wing on the jig.

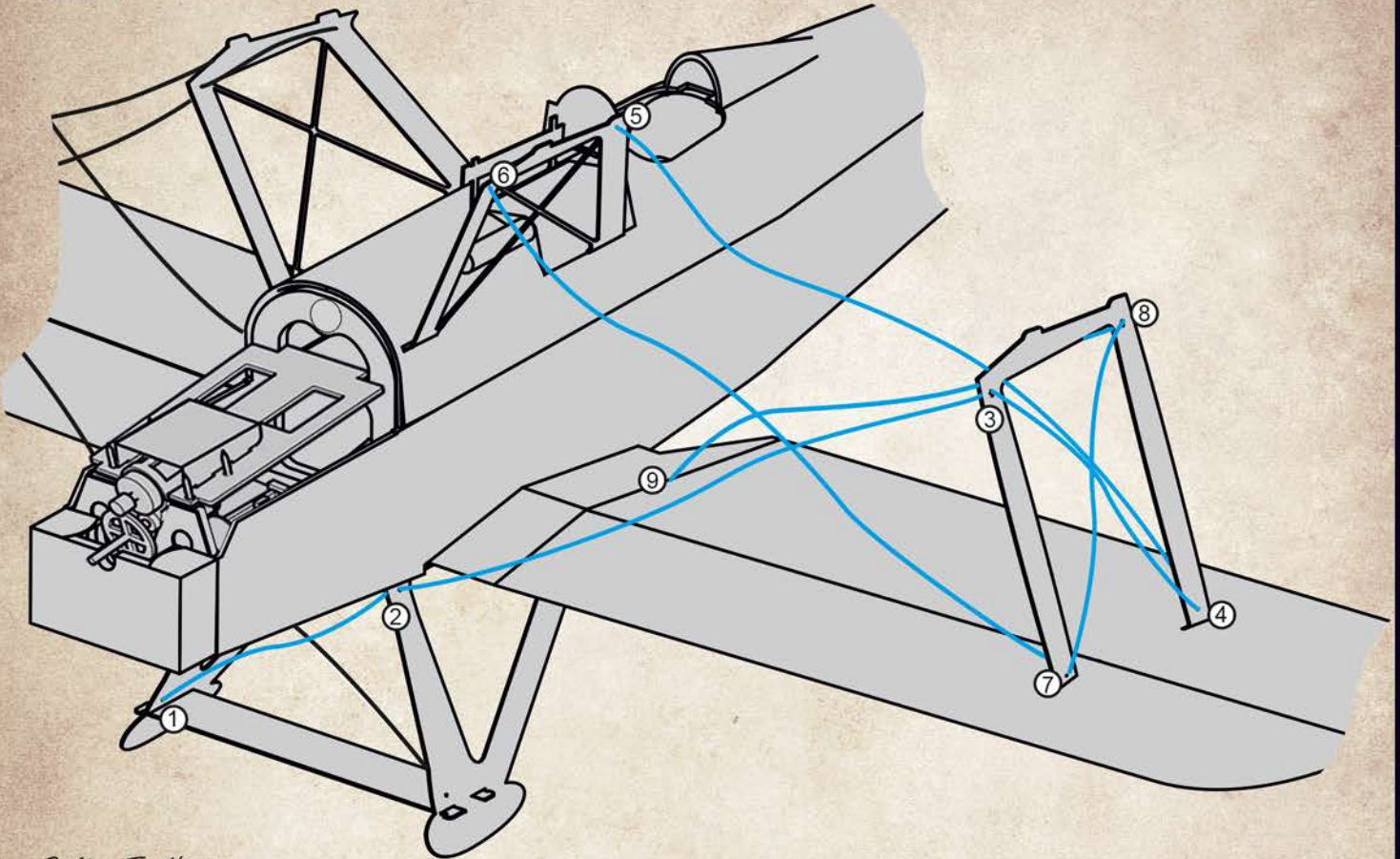
2.5° dihedral per wing.





# 11

## Rigging



### Building Tip NO.25

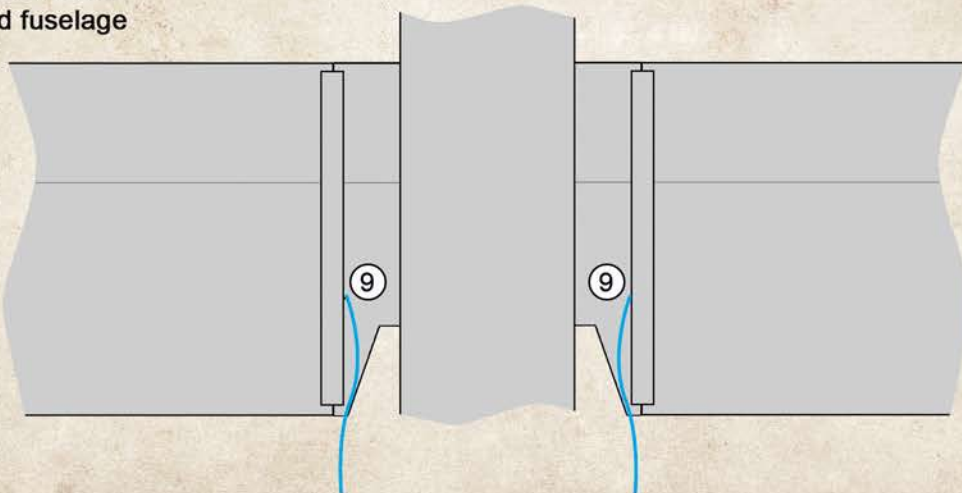
Feed the end of the rigging wire through hole ① from the inside of the undercarriage leg out and knot the end to prevent it pulling through. Use a needle or needle threading wire to assist.

Thread the wire in the sequence shown from ① to ⑨. The wire then threads through a small hole in the lower wing and sits on the inside of the inner wing spar on the underside of the wing (See diagram below).

Repeat the process for the opposite wing.

*NB.* At this stage **DO NOT** tension the wires. **DO NOT** glue the wires, but leave them slack until the top wing is secured in place.

Underside of lower wings and fuselage



Tail end of rigging wire



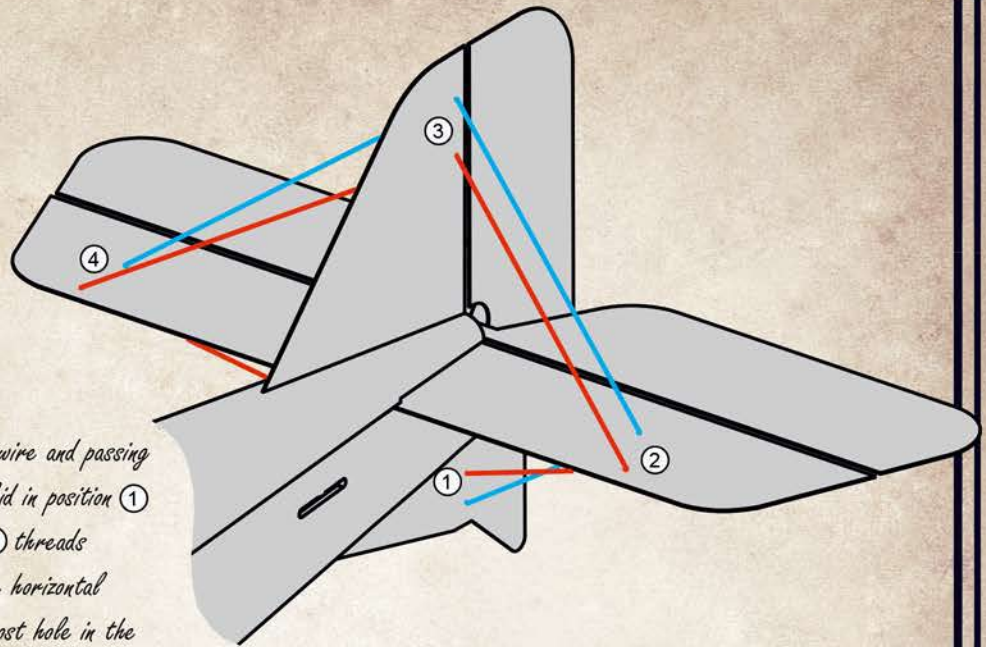
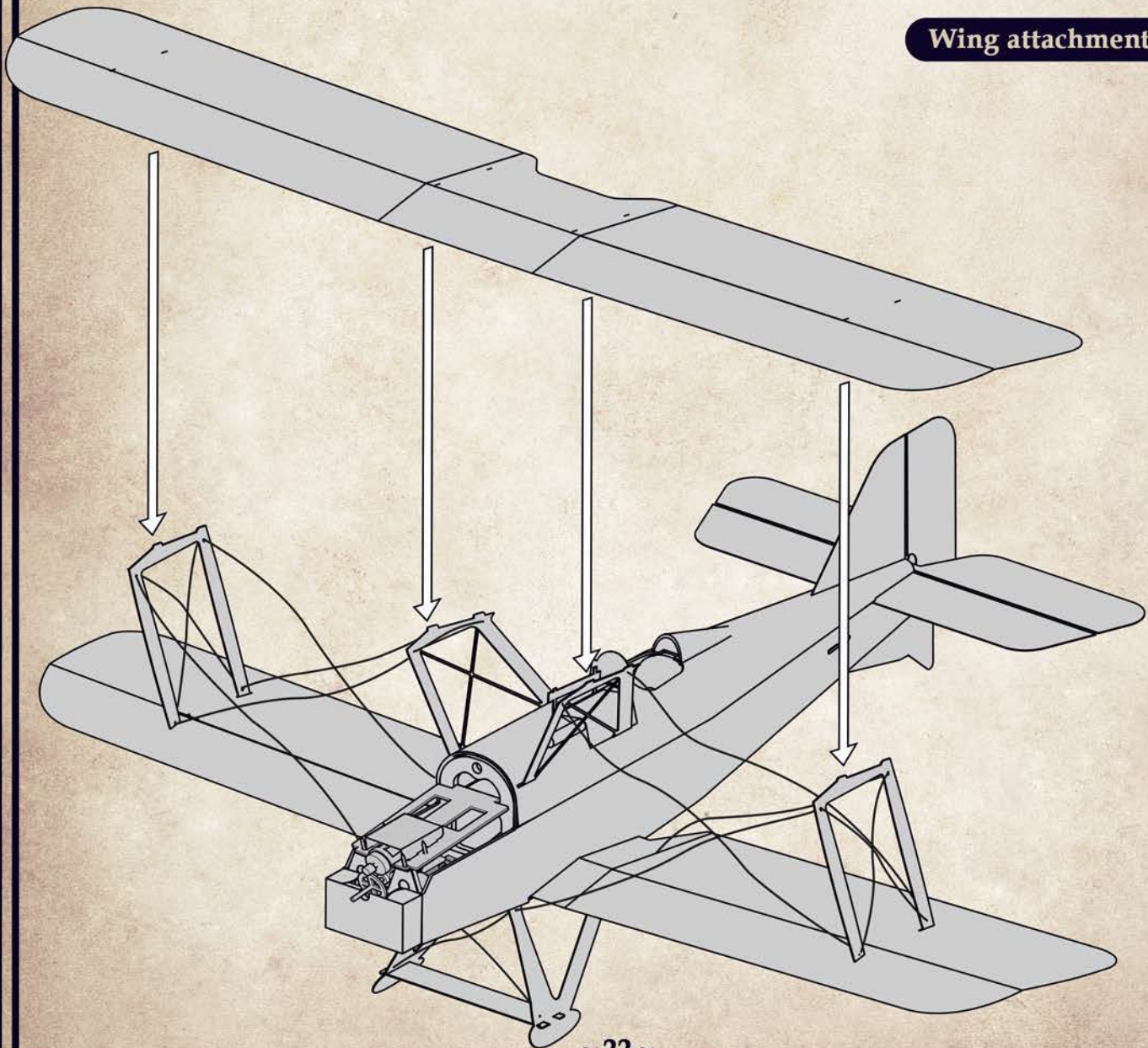
**11****Rigging***Building Tip No.26*

Rig the tail by knotting two lengths of rigging wire and passing them through the two holes in the lower tail skid in position ①

*NB.* The lower of the two wires at ① threads through the rear-most holes in the horizontal stabiliser and through the upper-most hole in the vertical stabiliser.

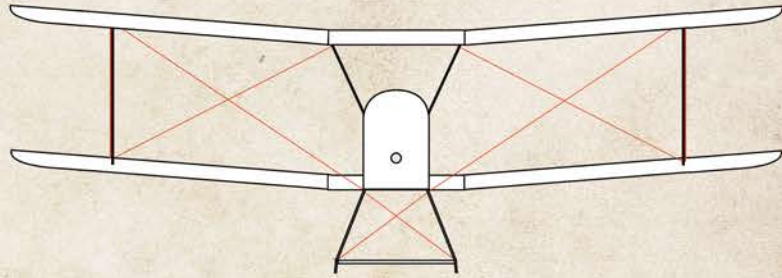
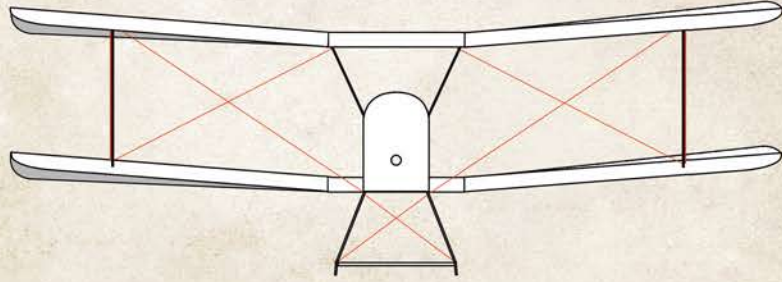
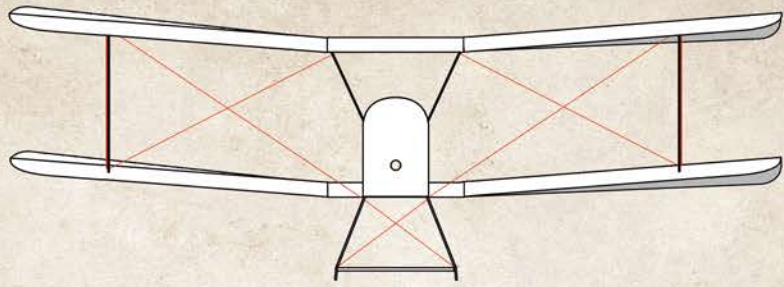
Follow the sequence of threading for both wires returning both to position ①.

Re-thread the wires through the original starting point, tension and secure with dot of CA or aliphatic resin.

**Wing attachment 12**



## FRONT VIEW



Ensure correct alignment when tensioning the rigging

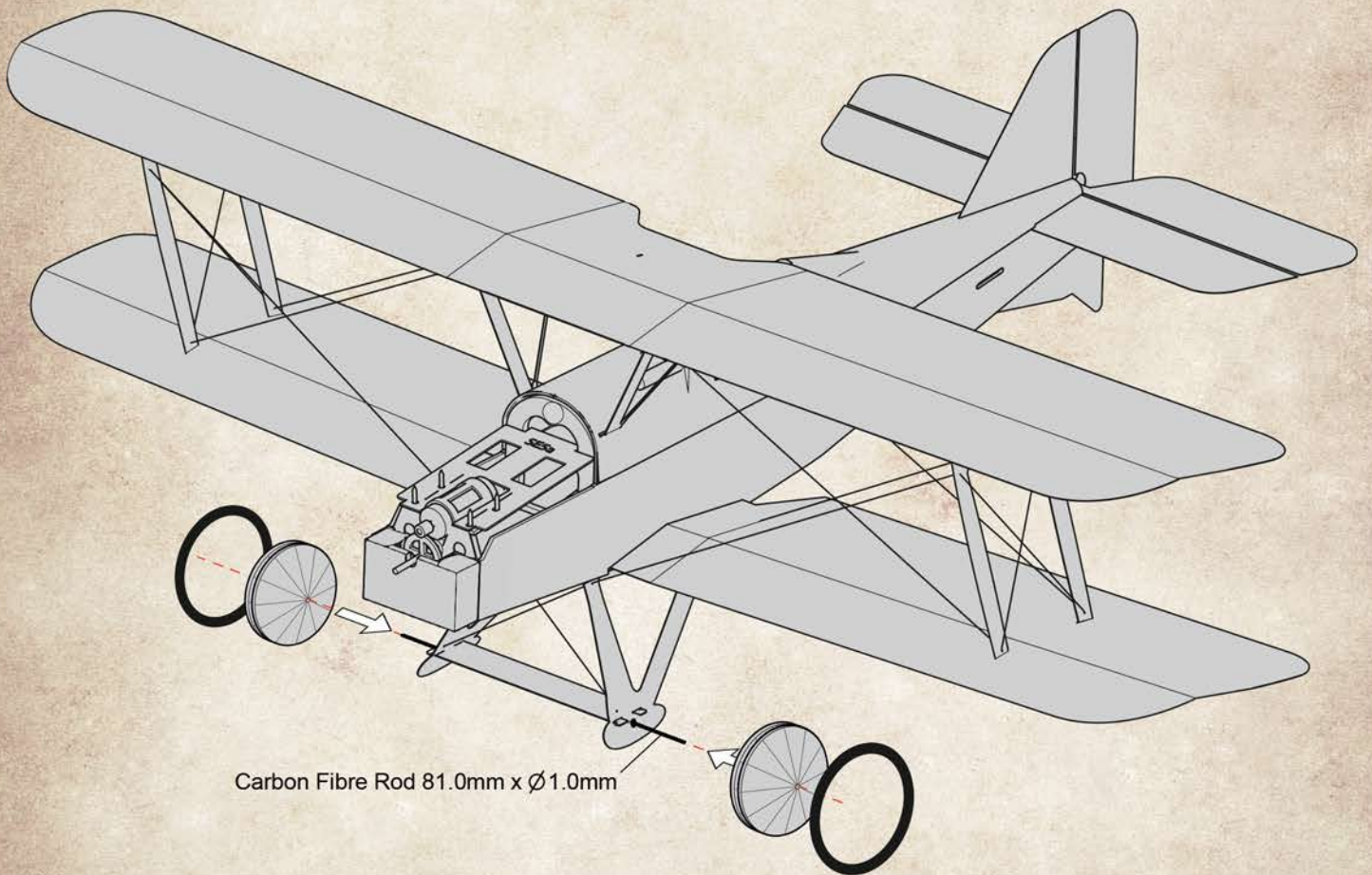
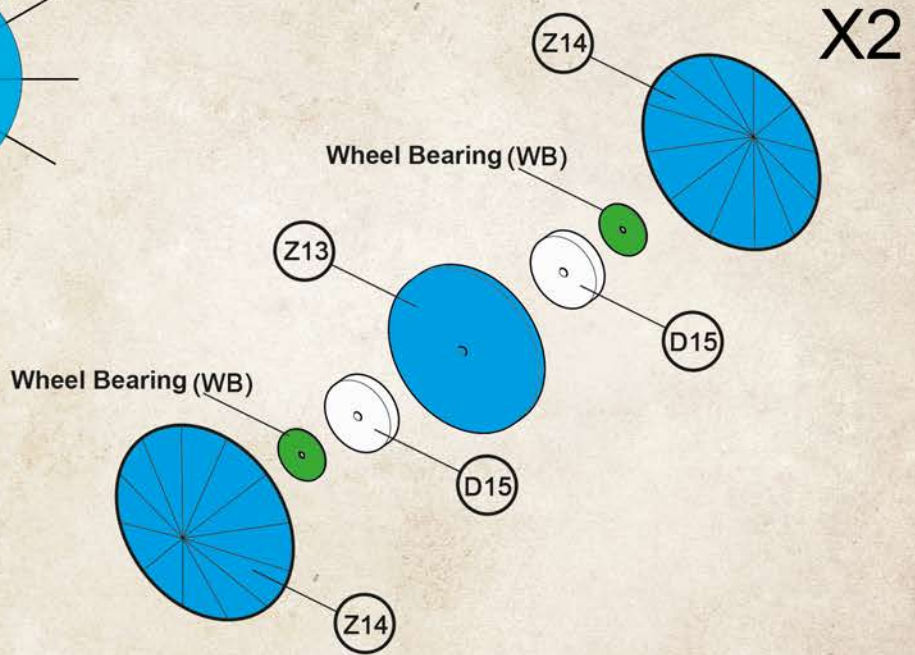
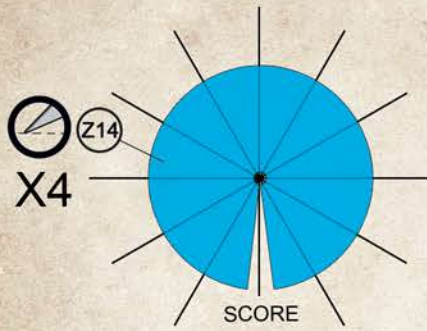
*Building Tip NO.26*

*The rigging on the SE5a IS functional. It strengthens and stabilises the wings to provide predictable flight characteristics so is important to get right!*

- ◆ *Stabalise the wire on both sides of the aircraft at the lower points on the undercarriage with some CA or Aliphatic resin adhesive.*
- ◆ *Tension the wire between struts. Because of the shape of the laser cut holes in the struts, you can lock the thread at each point that it passes through a rigging hole.*
- ◆ *Work on tensioning the wire on both sides of the aircraft simultaneously to help maintain symmetry. Stick the end points of the rigging to the underside of the wing once happy with the tension.*
- ◆ *Check alignment visually then add a small amount of adhesive to each point where the rigging passes through strutwork*

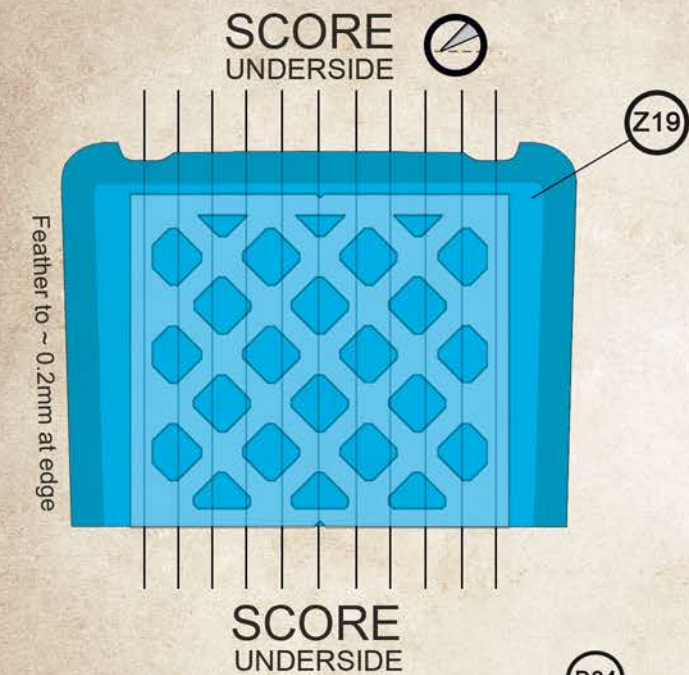


NB. Score each wheel hub on the inside then glue the 'V' together to create a shallow cone shape.



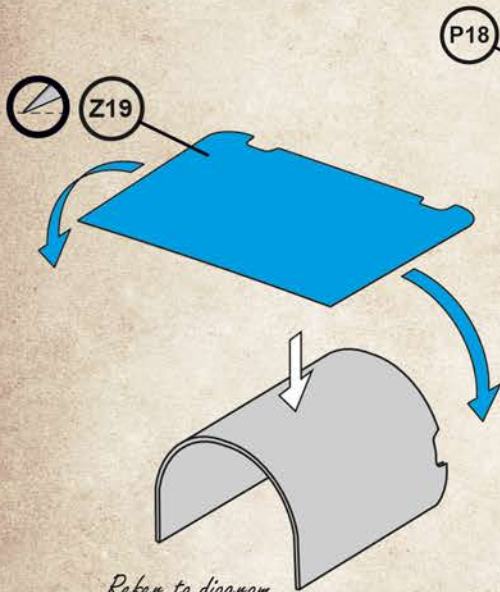


*NB. Position of P18a on Z19 shown in transparent on diagram below. But **don't glue** the two parts together until they have both been shaped!*

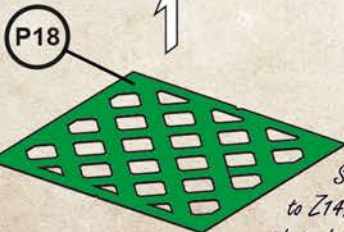
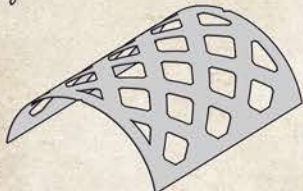


*Building Tip No.27*

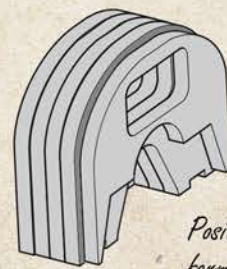
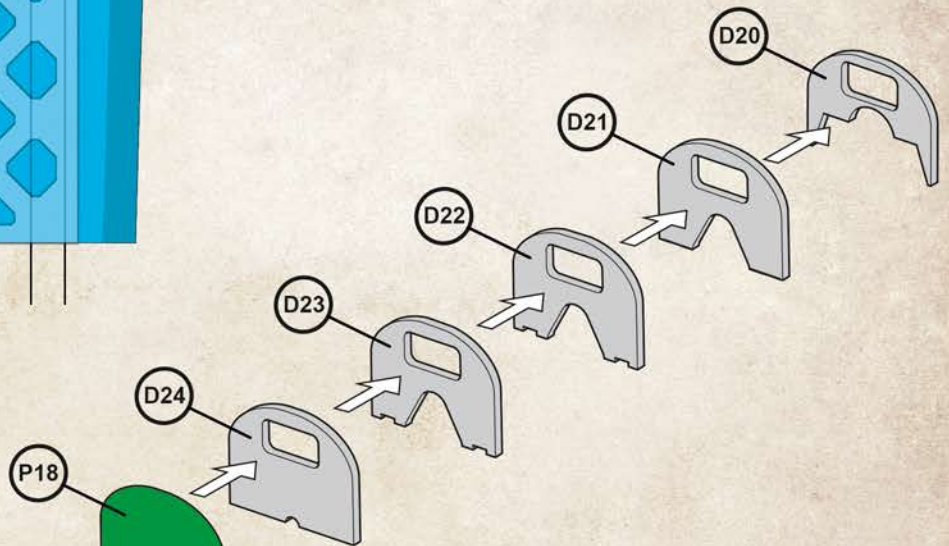
*Sand the edges of Z19 so they are relatively thin. Use sanding strokes in one direction only. If you try to sand in both directions you're likely to bend, fold or crack the thin Depron.*



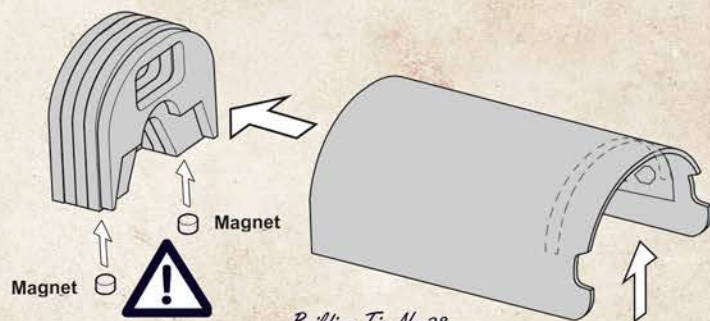
*Refer to diagram above for exact positioning of P18 on Z19*



*Shape the 'living daylight's' out of P18 before attaching to Z14. Don't forget that the plastic is strong and can withstand pinching and folding without breaking!*

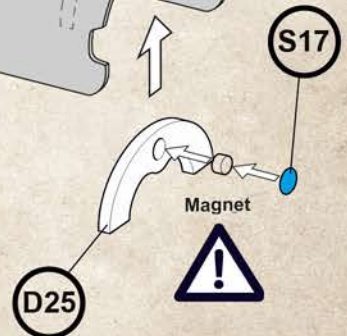


*Position D20 so a 1mm step forms around the edge.*



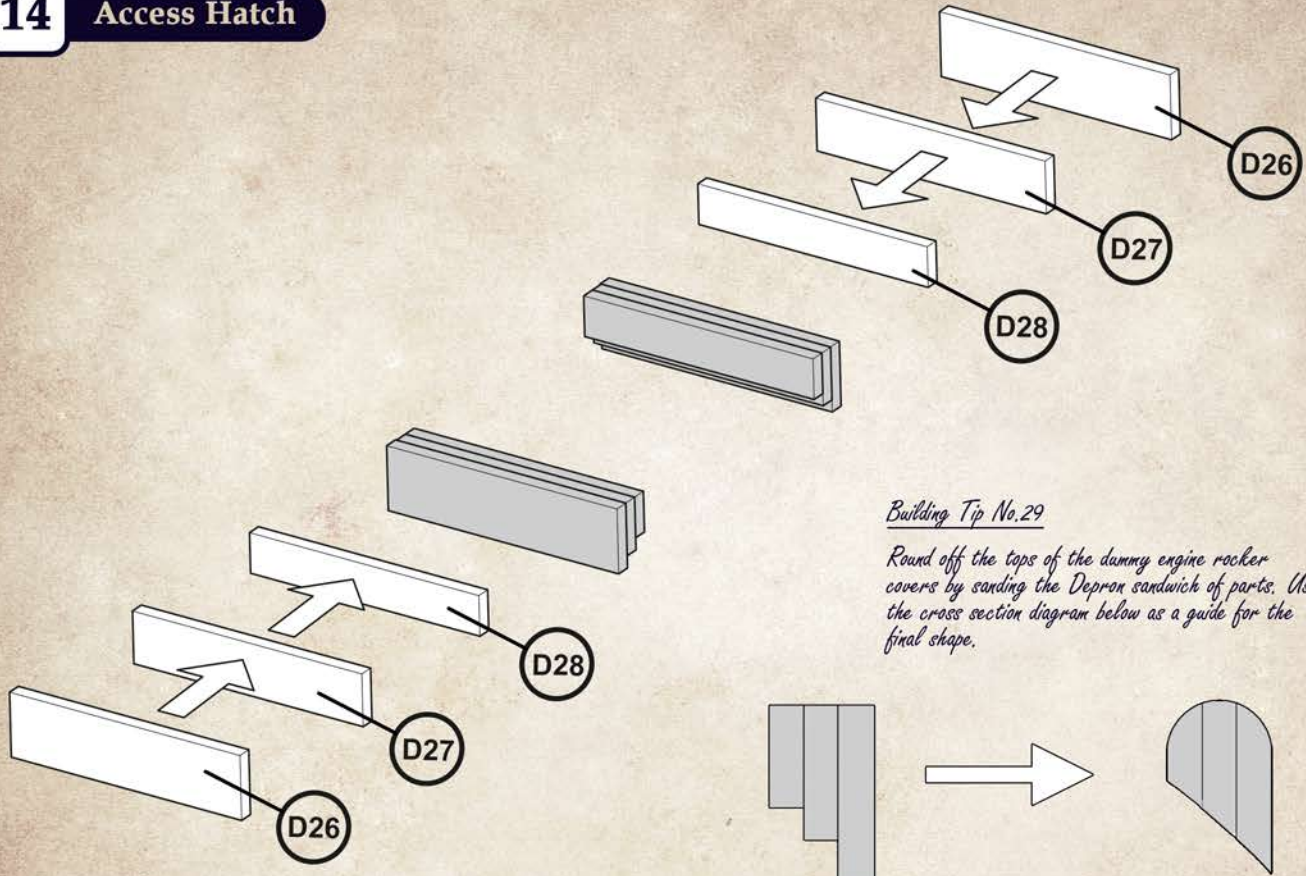
*Building Tip No.28*

*Check the **orientation** of the magnets before attaching. Do this by offering each one up to the corresponding magnets already installed in the fuselage and chin.*



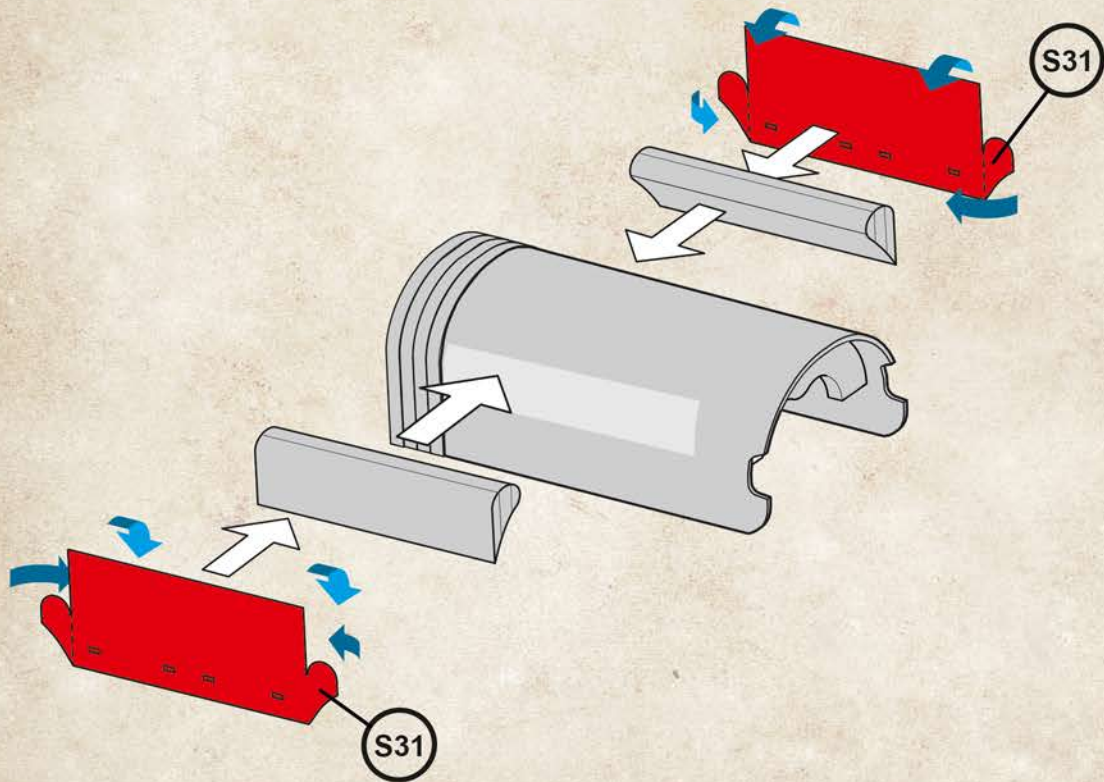
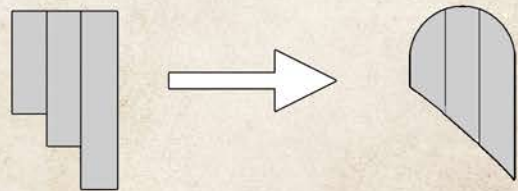


# 14 Access Hatch

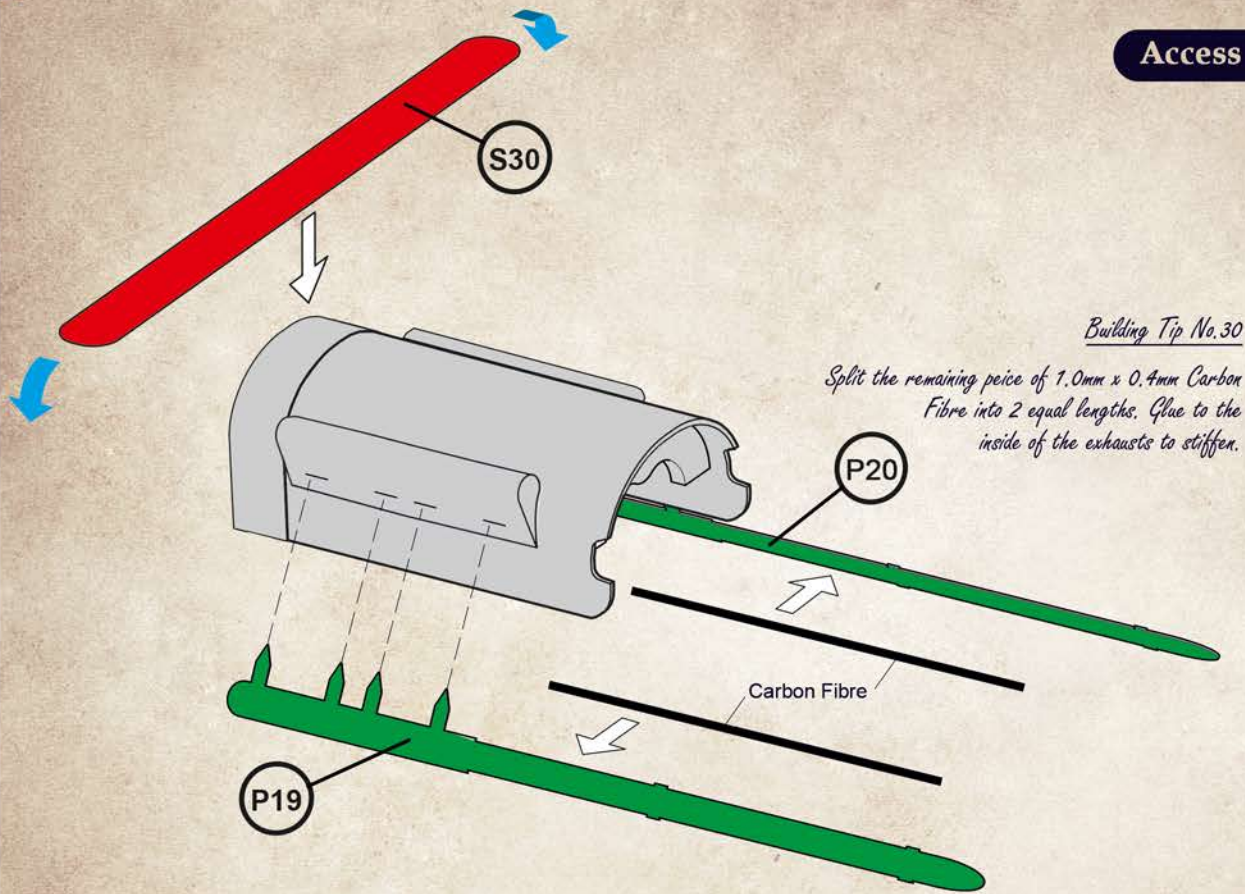


### *Building Tip No.29*

*Round off the tops of the dummy engine rocker covers by sanding the Depron sandwich of parts. Use the cross section diagram below as a guide for the final shape.*



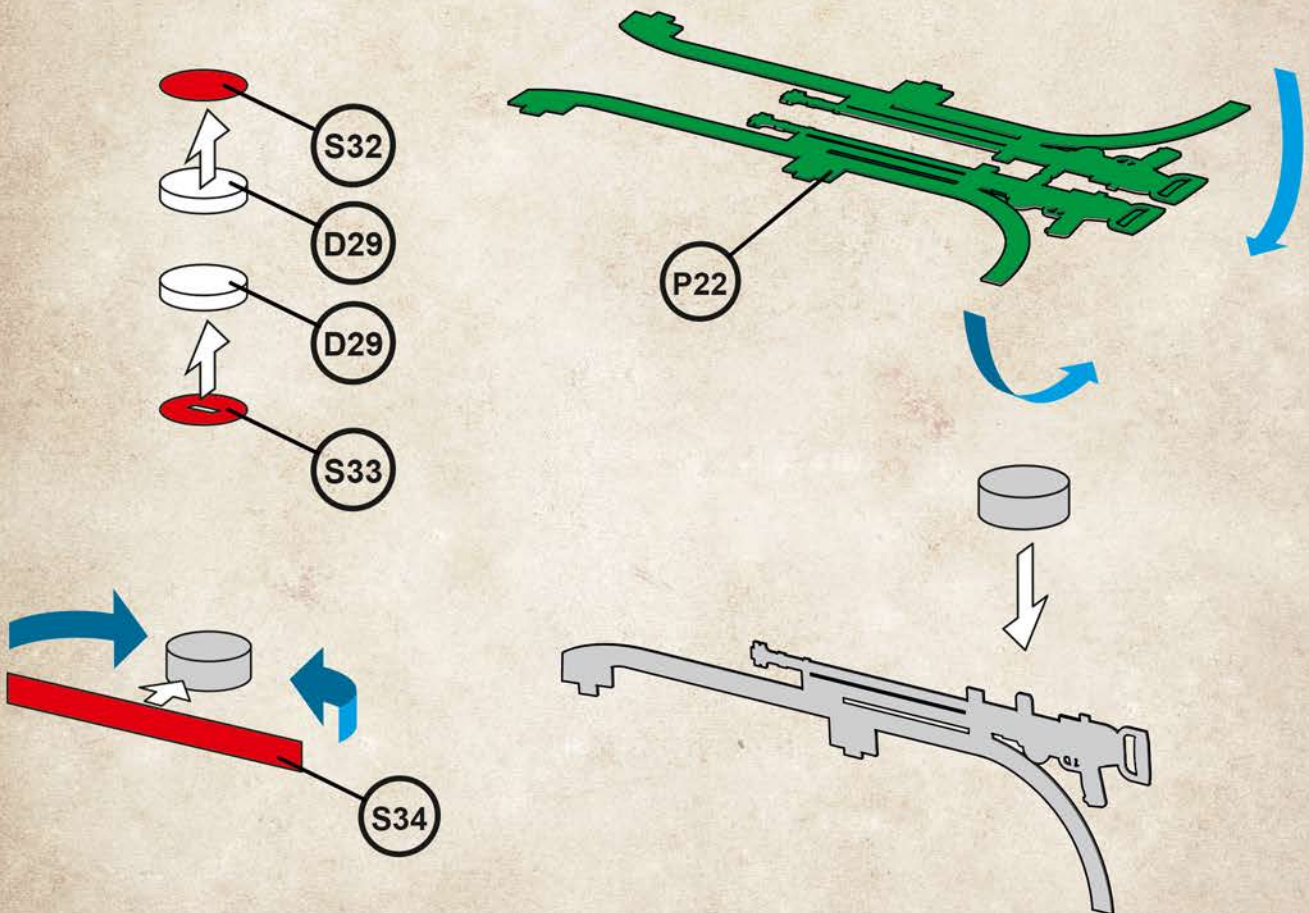




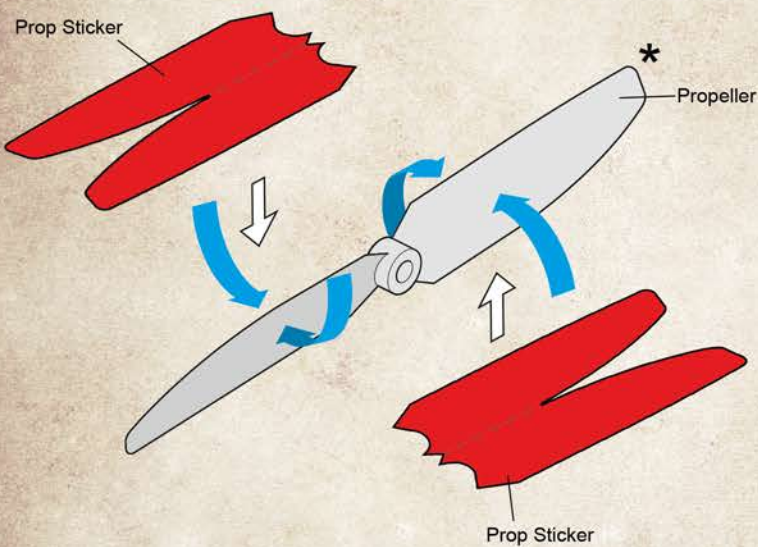
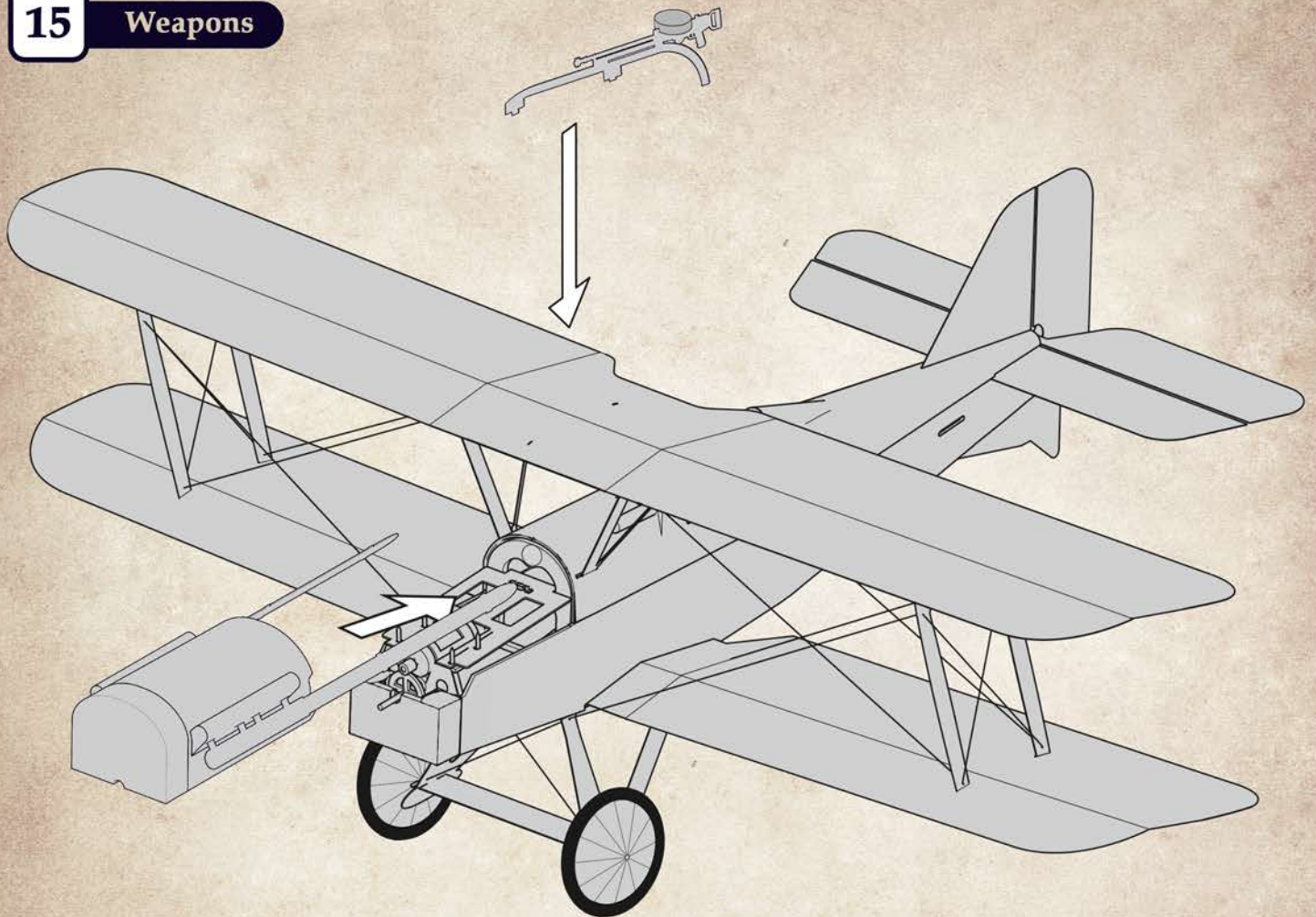
*Building Tip No.30*

*Split the remaining peice of 1.0mm x 0.4mm Carbon Fibre into 2 equal lengths. Glue to the inside of the exhausts to stiffen.*

**15 Weapons**





*Building Tip No.31*

Included with the kit are 2 sets of prop stickers that provide a very effective wooden prop look to the recommended GWS 4040 & 4530 propellers.

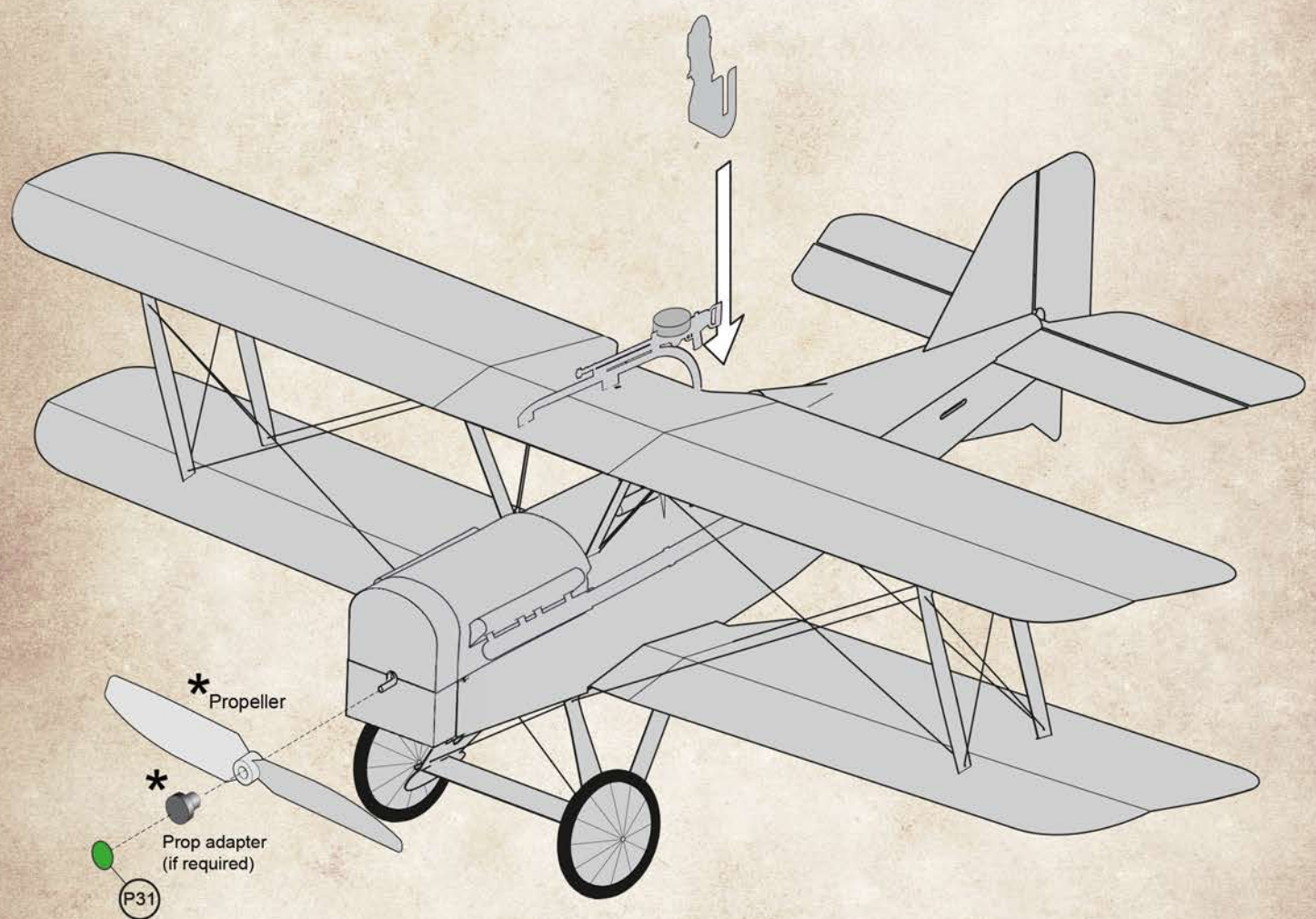
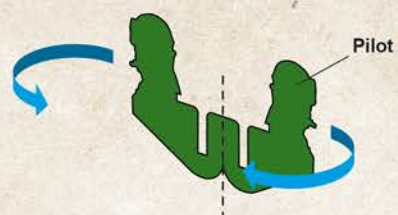
To apply the stickers it is recommended that they are wetted prior to application to allow final positioning before they stick firm.

Please feel free to use the prop stickers on other props and just trim any excess sticker to fit the prop profile once they have been applied.

\* Parts NOT included in kit.



# 16 Finishing Touches



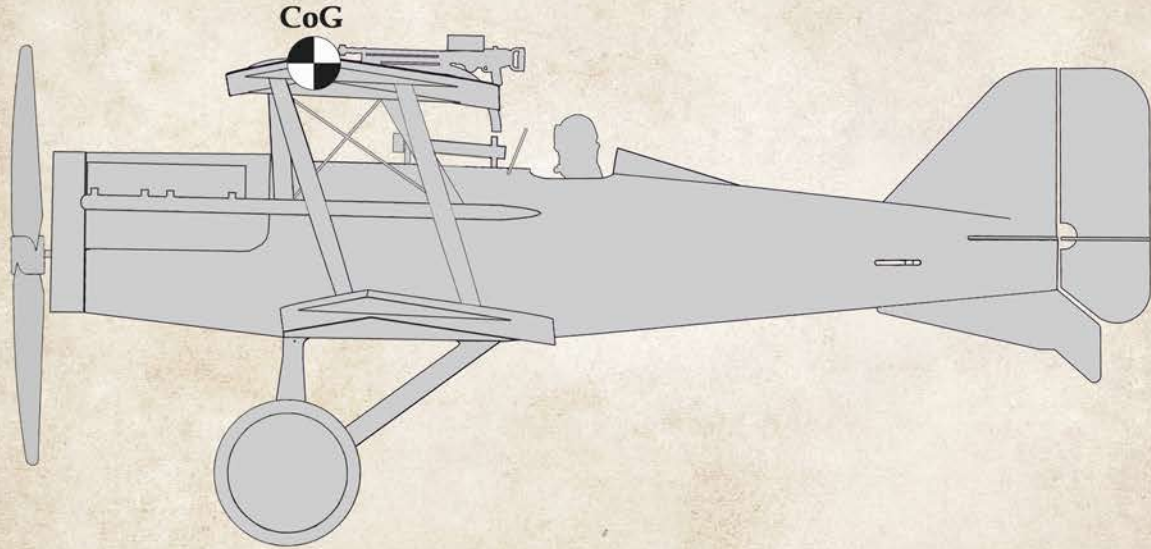
\* Parts NOT included in kit.



Centre of Gravity (CoG)

With all the electronics installed including the battery, the CoG should be around the apex of the top wing as shown on the diagram below.

Balance on finger tips to see if the aircraft balances at this point. Before adding any weight it is advisable to perform a glide test. Add weight accordingly to obtain a smooth glide.

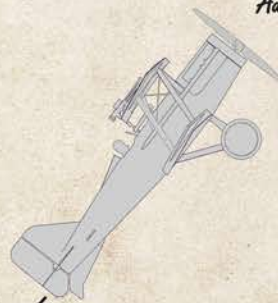


Glide Test - How to!

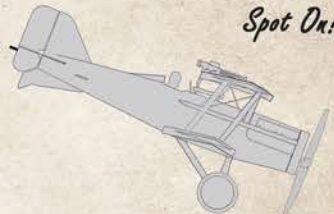
Find a suitable test space with a forgiving landing area, e.g. over long grass or onto soft furnishings. Ensure all control surfaces are in the neutral position. Gently toss the model straight and level. Observe the results and add balancing weight if required.



*Tail Heavy  
Add weight to nose!*



*Spot On!*



*Nose Heavy  
Add weight to tail!*



Radio Control Recommendations

The control surfaces are very effective on the SF5a. Set your transmitter (Tx) control rates to low or if you have a computerised Tx, set the expo to 50% for both the rudder and the elevator.

Feel free to adjust these to suit your flying style after the maiden flight!

*Happy Flying!*