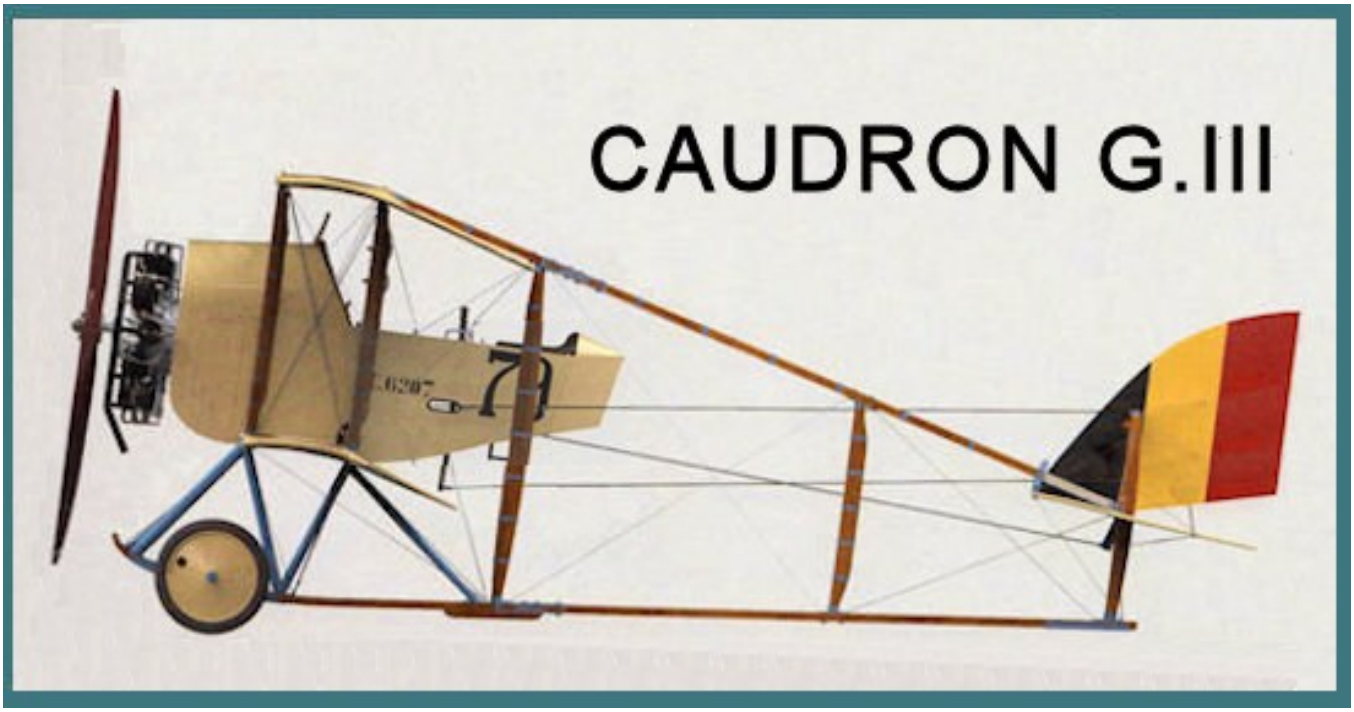


# World War One Aircraft Models

I have always held a fascination with early military aircraft. After serving for 27 years in the Royal Air Force, I became a Military Aerospace Technical Author. Although, as most modelers, I got involved in the world of construction kits at an early age, I stopped for most of my service career and for some years afterwards.

I started modeling again a few years ago and now enjoy the challenge of building aircraft of World War One. Since posting photographs of my completed models online, several people have asked if I would create a 'build log' for future builds.

I don't consider myself a 'master' of this craft, but hope to be able to pass on what I have learned. As such, here is my build log, which covers a 1:32 scale model of the Caudron G.III by 'Copper State Models'.

Mike 'Sandbagger' Norris

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sandbaggeruk@sky.com

*Completed: July 2025*

# CONTENTS

# INTRODUCTION

Before I start with the build log, I'd like to show how I've set up my work area.  I prefer to keep the work area as clear as I can (I've lost too many small items in the past). I think it's important to have the tools etc you need ready to hand and other, non-essential stuff tucked out of the way until needed.  I'm lucky in that I have my 'man cave', which is sorted into a modelling area, airbrush spray booth in addition to my work station PC and gaming PC

# AFTER MARKET

## AFTER MARKET

### Figures

'Kellerkind Miniaturen' USAAS pilot (54091),
'Kellerkind Miniaturen' French pilot smoking (54115).

### Decals

'Aviattic' clear backed Clear Doped Linen 'bleached' (ATT32044).

### Paper Maps

'Military Might UK' 1:33nd scale British maps (paper).

### Propeller

'Proper Plane' Waring and Gillow wood laminated propeller (WP-046).

### Rigging accessories (as required)

'Proper Plane' 1/32nd scale resin turnbuckles (RD-005, RD-018),
'GasPatch Elite Accessories' Turnbuckles and Anchor Points (1/48 scale),
'Albion Alloy's' Micro-tube (Brass or Nickel Silver, 0.4 and 0.5 mm diameters),
'Steelon' or 'Stroft GTM' Mono-Filament (0.08 and 0.12 mm diameter).

### Resin

'Barracuda Studios' resin seat cushion.

### Sundries (as required)

Paints ('Tamiya' Acrylic, Humbrol Acrylic, 'Mr. Metal Color',
'AK Interactive' Primer (Grey AK758, White AK759) and various black top paints,
'AK Interactive' Kerosene (AK2039) and Engine Oil (AK2019) washes, 'Alclad II' Lacquers,
'Tamiya' Fine Surface Primer (Grey/White), 'Mig' A-Stand Aqua Gloss (A.Mig-2503),
'MRP' acrylic lacquers, 'Mr. Surfacer' 500/1000/1200, 'Mr. Color' Levelling Thinners 400,
PVA Adhesive (e.g. 'MicroScale' Micro Krystal Clear), 'PlusModel' lead wire,
'MicroScale' MicroSol/MicroSet decal solutions, 'VMS Fleky' CA adhesive (Slow and Thin),
'Revell' Contacta Professional cement, 'Tamiya' extra thin liquid cement, 'Perfect Plastic Putty',
'White Spirits/Odourless Thinners', 'Windsor & Newton' Griffin Alkyd oil paint, 'VMS' Metal Prep 4K,
'Araldite' two-part epoxy, 'Modelkasten' 0.2 mm diameter black line (1.5), 'Black-It' solution,
'MFH' 0.4 mm diameter flexible black tube (P-961), Copper wire various diameters,
'VMS' Paper Shaper, 'Tamiya' masking sheet and tapes (various widths), 'Prismacolor' Verithin pencils.

### Weathering mediums (as required)

'Flory Models' Clay washes or Pigments,
'AK Interactive' (Kerosene AK-2039, Oil AK-2019),
'Tamiya' Weathering Master sets,
'Ammo MiG' Acrylic Filter Medium Brown (A.MIG-0823).

### Display Base

'Lars op't Hof' Scenery - Pasture Summer long,
'Inperspective' custom made Acrylic base and cover,
Information plaque from 'TLS Engraving Ltd'.

# THE AIRCRAFT

# THE AIRCRAFT

References:
'Windsock' Data File No.94 - Caudron G.3 (Jon Guttman).
'Copper State Models' - Kit instruction manual.
'Belgian Wings' - https://www.belgian-wings.be/caudron-g-iii-juvisy.

**NOTE:** *The following text is based on that from the kit instruction manual and the Windsock Data file.*

**Design:**

René Caudron

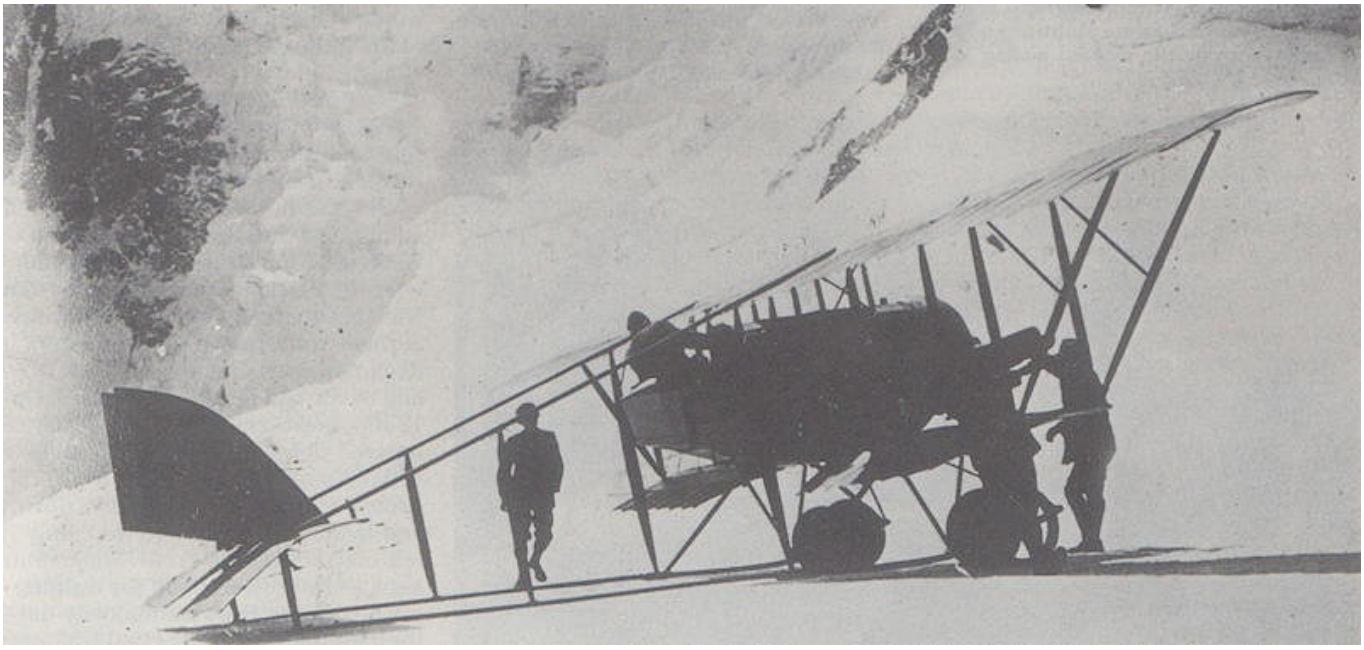
Alphonse Caudron

The Caudron G.III was designed by brothers Rene and Gaston Caudron. It was developed from their earlier G.2, specifically designed for military service and it first flew in 1914 at Le Crotoy aerodrome. Built in a sesquiplane configuration (the upper wing having more surface area than the lower wing), the design was distinct with its twin booms extending from the wings and angling back to the horizontal stabilizer and its shark fin style vertical stabilizers. The crew compartment (nacelle) had space for two, one behind the other with the pilot usually in the rear seat. Trainer versions had dual controls for instructor and trainee. It was powered by a single engine, with an 80 horsepower Le Rhone being standard on early models, but the final version was powered by a 100 horsepower Anzani 10 radial engine. The Caudron G.III was the only French military aircraft in production from the beginning of the war through to the Armistice and it saw widespread civilian use after the war in addition to serving in the military of several foreign Nations.
In total, approximately 2,400 Caudron G.III's were produced.

When World War I began, the Caudron G.III was in use with the French military, primarily in a reconnaissance role. It was developed into being used for artillery spotting and carrying bombs and machine guns for attacking ground targets. The G.III also saw use on clandestine operations, delivering spies behind enemy lines. However, its slow speed made it too risky for frontline service on most fronts by 1916 and was largely removed from combat roles, but saw widespread use as a trainer in multiple air forces.

There were no Caudron G.III's in service with the British military when the war began, but as the need for aircraft became apparent, the G.III was one of several French designs adopted by the Royal Flying Corps (RFC) and the Royal Naval Air Service (RNAS). In total, the French supplied 233 aircraft to the British. Italy also received 166 G.III's and the United States 192. Other Nations operated the G.III, included Belgium, Finland and Poland. Trainer versions included the Caudron D2, which had dual controls and the E2, which was a basic trainer and the R1, known as the 'Rouleur' (roller) for taxi training. It had clipped wings to prevent it from taking off.

The Caudron G.III also saw widespread use by civilians following World War I. On the 30th of July 1921, François Durafour of Switzerland landed a modified G.III on the highest slopes of Mont Blanc and took off again, a feat that wouldn't be repeated for another 30 years.



Another one of the most famous examples was when, on the 19th of January 1919, Jules Védrines landed a G.III on the roof of the Galeries Lafayette, a famous department store in Paris, to win a prize of 25,000 francs. The challenge was quite a feat, given the roof only measured 28 meters by 12 meters.

Also, Adrienne Bolland, a test pilot for Caudron, became the first woman to cross the Andes Mountains in 1921, flying a G.III from Argentina to Chile.

General specifications:

Length - 22.6ft (6.89m)
Wingspan - 45.5’ (13.26m)
Height - 8.5’ (2.59m)
Empty weight - 959 lb (435 kg)
Maximum weight - 1,567 lb (710.8 kg)
Engine - 100hp Anzani 10 cylinder radial (air cooled).

Performance:

Maximum speed - 65mph (105 km/h)
Service ceiling - 10,000ft (3,050m)
Endurance - 3h 30min

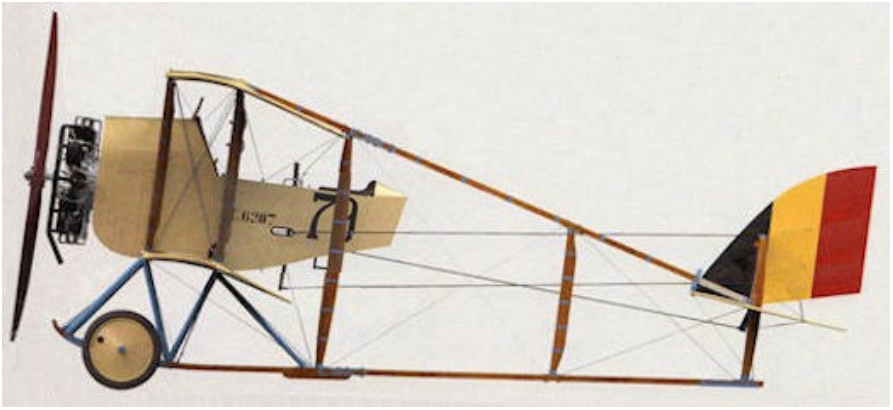
**Caudron G.III, No 79, Ser No: C.6207**

When on January 1st, 1918, the Belgian Air Service's pilot school (Ecole de Pilotage - Vliegschool) was moved from Etampes to Juvisy-sur-Orge (both in France) the Belgian Government acquired some 15 Caudron G.III elementary trainer aircraft, eleven of which were delivered in early 1918 and three more in September 1918. This first batch included 6 twin-seaters powered by a 90 or 100 hp Anzani ten cylinder engine. A least one more aircraft was delivered to Juvisy before the end of the war as images show aircraft numbers ranging from Nr 70 and Nr 84. With the end of the war a dedicated training airfield was established in Belgium at Asch. Only a handful of the original Caudron G.III aircraft operated at Juvisy-sur-Orge were transferred to Belgium in the month of May 1919, the fate of the remaining aircraft is unclear.

**Belgian Caudron G.III trainer, No.79, Ser No: C.6207, operating from the Belgian Air Service pilots school at Juvisy-sur-Orge in France during 1918.**

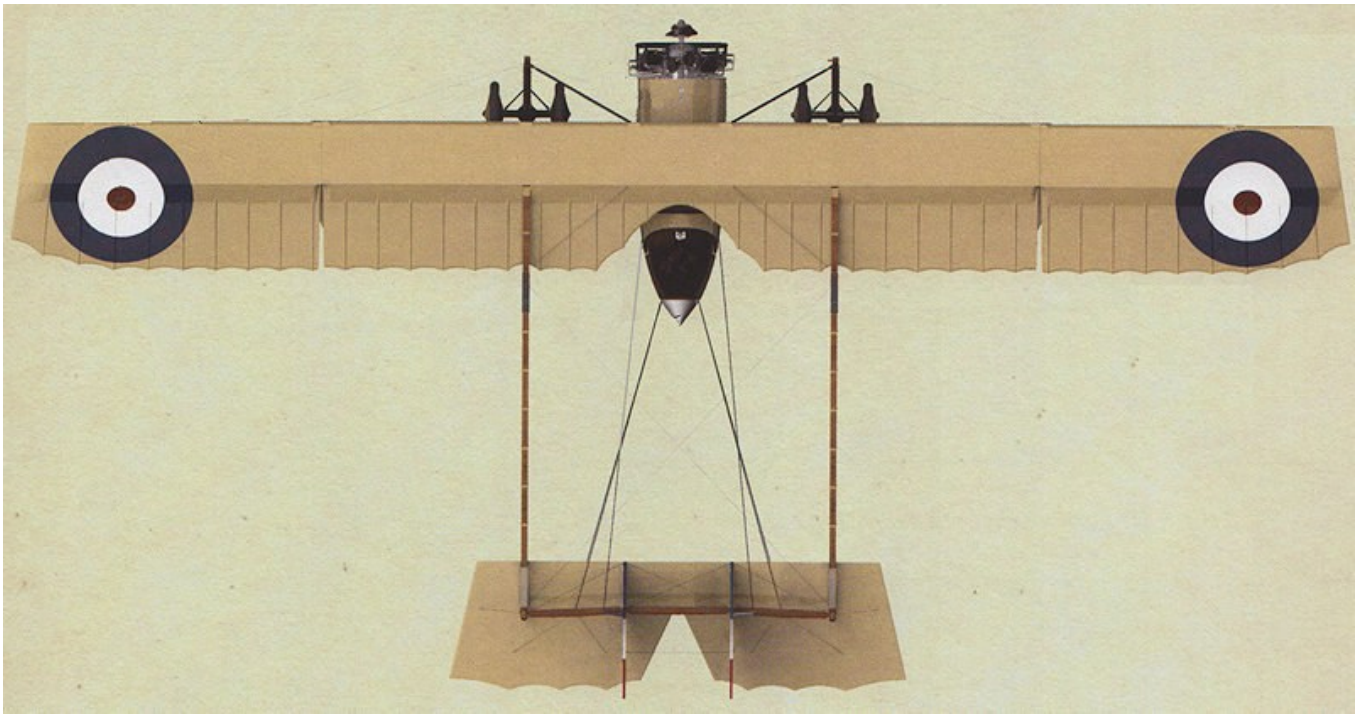
Student-pilot Paul Deheny posing in front of Caudron G.III No.79 at Juvisy-sur-Orge in March 1919.


Caudron G.III No.79, Ser No: C.6207 arrived at Juvisy-sur-Orge in February 1918 and left in 1919.

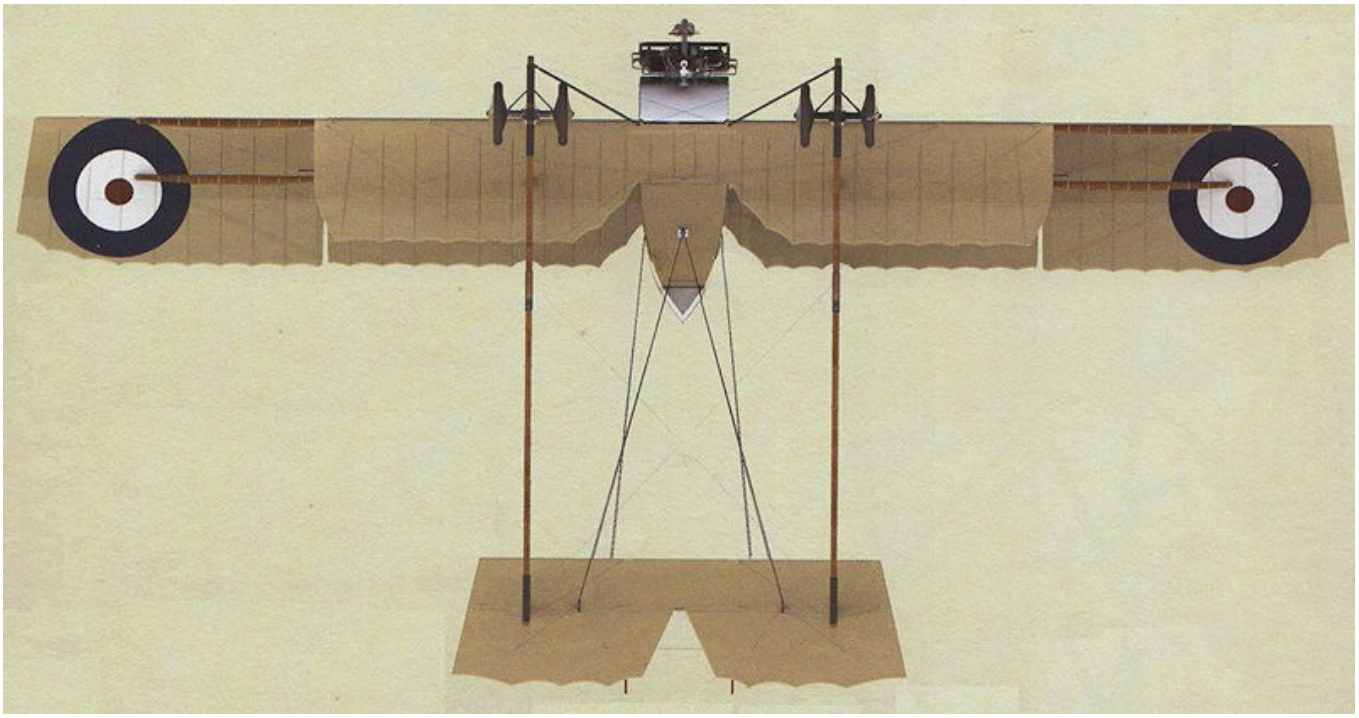


Illustrations show Royal Fling Corps (RFC) roundels on the wings (not Belgium)

Top view



Underside view



# PART 1
# MODEL DESCRIPTION

## PART 1 - MODEL DESCRIPTION

('Copper State Models' - Caudron G.III 'Anzani' - Kit No: CSM 32010)

This kit is from 'Copper State Models' and was built primarily using the kit instructions. This aircraft has been produced in three versions. The early Caudron G.III version, the later version and the version powered by the 'Anzani' radial engine. The differences between the three versions is shown in the following illustration.


Normally here I would write a basic description of the model, noting any points of interest or flaws. However, there is a good review from Andrew Birnie on the Large Scale Planes forum. Paste the link below into your internet browser to view the review.

https://www.largescaleplanes.com/reviews/review.php?rid=2415

When researching a particular aircraft, it's quite often found that some changes to the model may be required. These can be modifications to enhance the model to better represent the particular aircraft. Also some squadron aircraft had 'in-the-field' modifications made to improve the aircrafts operational capability. The following are changes that I found that were needed to enhance and reflect the particular aircraft being modelled.

Propeller:

The kit supplied propeller is of good quality. However, I chose not to use the kit supplied propeller and to replace it with a wood laminated version from Alexey Belov of 'Proper Plane'.

Other:

Other model details will be addressed as and if required, using 'After Market' parts if necessary.

# PART 2
# WOOD EFFECTS

## PART 2 - WOOD EFFECTS

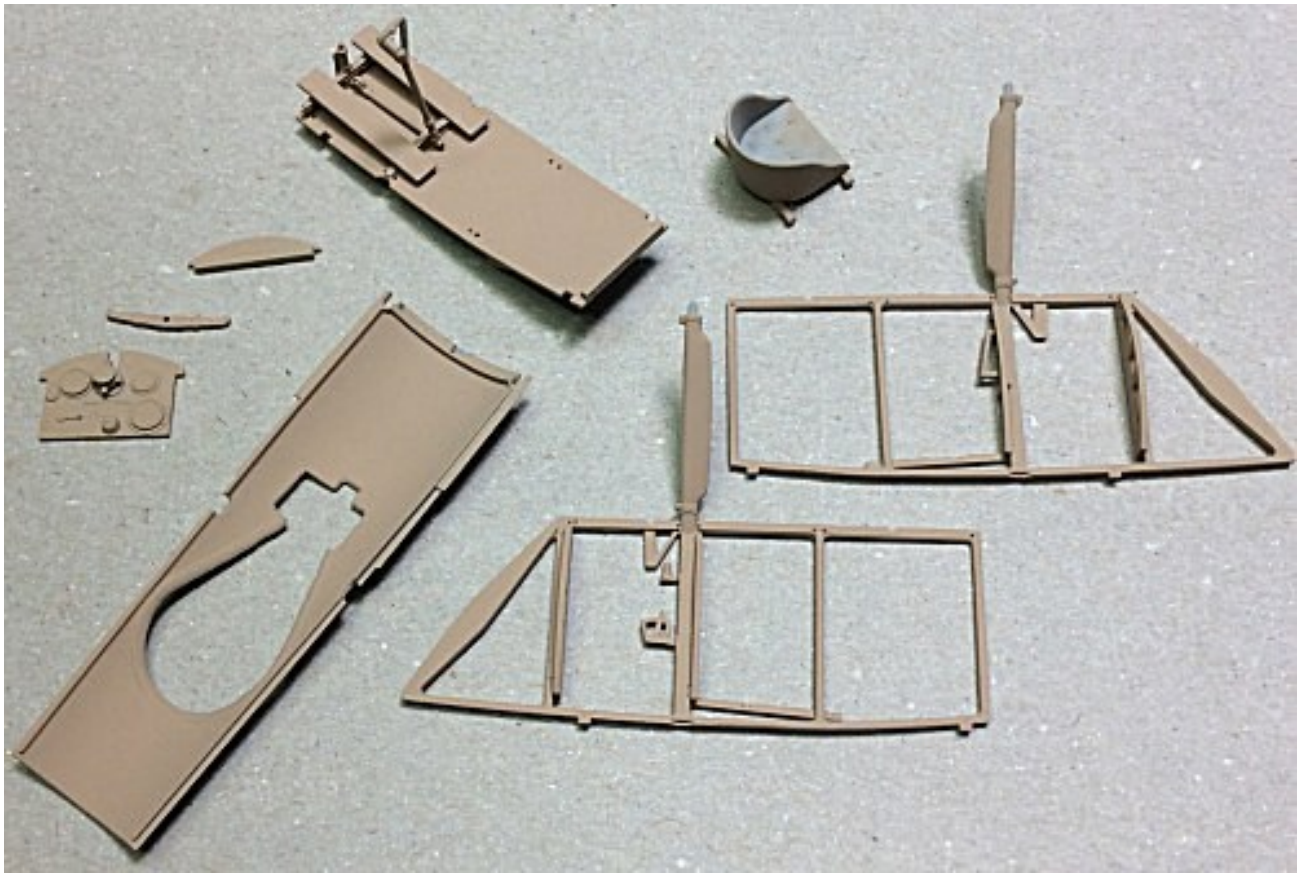
A basic technique:

Parts of the model that are supposed to be made of wood can prove to be a challenge to replicate a wood finish to the part. Some after market companies produce accurate wood decals, which can be used to cover larger areas, such as cockpit decking and fuselage panels. However, decals can't easily be used to create realistic wood finish to smaller items or parts that don't lend themselves to having decals applied. To do this requires brush painting, using such as oil paints, which can be enhanced with various washes or filters.

The first thing to do is to ensure the model parts are cleaned, normally with warm water with washing up fluid and something like an old tooth brush. Once cleaned and thoroughly dried, the primer coat can be applied. I use 'AK Interactive' Grey (AK758) or White (AK759) primer.
Once the primer is dry, you can start applying the wood effect to the applicable cockpit items, such the cockpit framework, decking, seat supports, rudder bar, instrument panel and of course, the wing struts. With practice, this method can also be used on fuselage panels and propellers.

To start, apply a suitable base colour. For most painting I use an airbrush and only resort to brush painting when dealing with small items, when I add a few drops of 'Mr. Color' Levelling Thinner', which aids brush painting. For most wood effect, I airbrush 'Tamiya' Wooden Deck Tan (XF78) or Dark Yellow (XF60), suitably thinned with 'Tamiya' Thinners (X20A). Allow this base coat to fully dry (if you can't smell the paint, then it's dry).

Example of base coat using 'Tamiya' Wooden Deck Tan (XF78).



**Wood effect - Method 1:**

DecoArt Crafters Acrylic' paints:

For the next step I use 'DecoArt Crafters Acrylic' paints, either Burnt Umber or Burnt Sienna. These are similar to standard acrylic oil paints, but are water based instead of oil based. This paint is not as thick as oil based paint and is more creamy, so can be brushed and controlled more easily. Also, as it is water based, it's easy to clean your brushes, and if really necessary, can be thinned slightly with water.
In addition, the paints dry as quickly as normal acrylic paints, avoiding the disadvantage of using true oil paints, which can take days to fully dry.

Place a small amount of the oil paint onto a non-absorbent surface and using a suitable oil paint brush (I use a slightly curved brush), wipe a small amount of the paint onto the brush. For larger areas, such as decking or panels etc I use a small piece of fine sponge to apply the paint.

Apply the paint to the applicable item, using light strokes and in the required direction. Apply the paint along struts and across instrument panels and other smaller items. This gives variation to the wood effect and for the wing struts, is correct for the direction of the wood grain. If you apply too much paint, just brush or sponge it off immediately before it dries. Although the paint is water based, don't try to thin any applied paint with water as it will lift the paint, which builds up into clumps. If required, a second light coat can be applied. Always wait until a first coat has fully dried before applying a second coat, otherwise the first coat will 'drag' and lift from the surface.

Once painting is complete, clean the brush in water.

Below is an example of the Burnt Sienna oil paint applied to a cockpit side frame.

**Wood effect - Method 2:**

Windsor & Newton' Griffin (Alkyd) oil paints:

Mask off the area as required.

**NOTE:** *When airbrushing 'Tamiya' acrylic paints, I thin the paints using 'Mr. Color' Self-Levelling Thinners (400), which is commonly referred to as 'unicorn tears' or just 'MLT'.*

Airbrush the areas with 'Tamiya' Dark Yellow (XF60) or similar.

Brush a covering coat of the 'Windsor & Newton' Griffin Alkyd paint , such as Burnt Sienna**,** over the areas.

Leave the oil paint to settle for about ten minutes.

Decant a small amount of White Spirits or 'AMMO Mig' enamel odourless thinners (A.Mig-2019), into a suitable dish.

Dip a broad flat oil brush into the thinners then wipe the brush on a sheet of kitchen roll, which should not deposit any fibres in the oil paint.

Brush the oil paint over the area, in the desired direction of the wood grain, wiping the brush on the sheet of kitchen roll to remove residual oil paint.

Repeat dipping and wiping the brush in the thinners and brushing the oil paint until the desired density and finish is achieved.

Leave the oil paint to fully dry, which normally takes approximately 24 hours.

If desired and once the oil paint is fully dry, airbrush a semi-gloss clear coat, such as 'Tamiya' Semi-Gloss (X35) or similar, with a few drops of 'Tamiya' Clear Orange (X26) to give a varnished look to the finish.

**Surface finish:**

Once the oil paint layers have dried, the final top coats can be applied to give the final effect of varnished wood.

'Tamiya' have 'Clear' coloured Acrylic paints, which are intended to be mixed with either Flat Clear (XF86), Semi-Gloss Clear (X35) or Clear (X22), to give the required finish but with a tint of the added 'Clear' colour. I use the Clear Yellow (X24) or Clear Orange (X26) to add a varnished tint to the clear coat.
If using the 'Tamiya' Clear, I normally add 'Mr. Color' Levelling Thinners, which does improve airbrushing and avoids pooling.

**NOTE:** *Once you are confident using this method of replicating wood finishes, you can vary both the colour of the acrylic base coat and tinting of the sealing coat, to replicate other types of wood used in aircraft construction.*

Once the clear coats are thoroughly dry, any detail painting, decals or final weathering can be applied to the parts, as required, prior to fitting them to the model.

# PART 3
# WEATHERING

## PART 3 - WEATHERING

There are many different types of weathering mediums available now to modellers of aircraft, ships, vehicles and figures, in model of any type. These weathering mediums can be washes based on enamel, clay or ink. Weather pastels, applied by sponge' as well as oil paints of various sorts are also plentiful. Some modellers have even used water colour paints, and pencils. The following are the basic weathering mediums I tend to use on most of my models.

Flory Model clay washes:
The washes I tend to use are the 'Flory Models' Clay Wash 'Grime' and 'Dark Dirt', which come in various shades and consist of a suspended and very fine clay pigment. They are brushed over the surface to be weathered and dry in around 30 minutes. When dry, use either a piece of good, absorbent kitchen roll or a soft brush to remove as much of the clay wash as you need to achieve the desired effect. Once dampened, the dried clay is re-activated and the clay wash can be removed or worked as required.

First I seal the surface with an airbrushed semi-gloss clear coat, such as 'Tamiya' Semi-Gloss (X35) or similar. A gloss coat tends to stop the clay wash 'gripping' the surface when it is applied and it can run off or just puddle. A matte coat can cause the clay wash to 'grip' too much, making it difficult to remove or even to wash it off completely.

**NOTE 1:** The more glossy the applied sealing coat is, the more the chance there is that the applied 'Flory' clay wash will not spread fully, but rather form puddles or beads of wash. If this happens, add a few drops of ordinary **kitchen washing up liquid** to the clay wash. This will break the surface tension of the wash, allowing it spread fully.

**NOTE 2:** Always decant the amount of clay wash you need, rather than dipping the brush directly into the wash bottle. Dipping into the wash bottle can transfer contaminants from the brush into the wash, will cause the wash to become thick and unusable.

**NOTE 3:** When a sealing coat is applied over areas treated with clay wash weathering, the intensity of the applied wash tends to darken. This should be considered when removing the clay wash, otherwise the final effect may appear too dark.

To apply the clay wash is just a matter of brushing all over the surface to be weathered. It doesn't matter really how much is applied as it can be left on for any period, as it is easily removed without any effect on the surface underneath. If you don't achieve your desired effect, you can wash it all off and start again. I use a soft brush, which has been very slightly dampened, to brush off the clay wash. For smearing effects, a very slightly damp brush or absorbent paper should be used, but even then I dab them onto a dry piece of the paper, until it's almost dry. Any wetter and you'll find that you are removing too much of the clay wash. If that happens you would have to re-apply the wash and start again. That said, if you're not happy with the final effect, you can easily remove the clay wash by brushing with a wet brush or even airbrush water over the surface. Dry off the surfaces washed and then re-apply the clay wash and try again until you are satisfied. The technique is to 'damp' brush or wipe over the surface to re-activate the clay wash and at the same time, to smear it over areas that had no clay wash. It'll dry more or less straight away. Then I'll very lightly brush and/or use a piece of damp absorbent paper to remove as much as I want until I get the desired effect. If I remove too much I just reapply clay wash to that area and repeat the removal procedure. Once finished, just run the brush under a tap to rinse out any residual clay pigments. Finally I usually seal the surface with airbrushed 'Tamiya' Semi-Gloss (X35) or similar, which will seal in the applied clay wash.

**NOTE 4:** 'Flory' current range of washes are: Dark Dirt, Grime, Black, Light (white), Mud, Sand, Rust and Concrete. All of these washes can be used as-is or mixed to create many colour shades for weathering.


**Chipping effects:**

To give the effect of chipped and weathered paint/varnish to metal engine cowls and forward fuselage panels etc, chipping fluids can be used. To achieve this effect, first prime the areas with a suitable primer then airbrush the metallic finish desired. Once dry, a chipping fluid, such as 'AK Interactive' Medium Chipping fluid or 'Vallejo' chipping fluid is airbrushed over the painted areas. An alternative is to use a cheap hair spray. This forms a barrier which will allow the top coat to be chipped off. Finally the required top coat colour is applied.
Once fully dry, moisten the top coat with water, which softens the paint. Then with a cut down (stiff) brush and wood cocktail stick, gently teased off the top coat paint. Take care when doing this as 'too much chipping' can't really be covered up. In that event you would have wet the top coat and remove it all with an old toothbrush or similar and then when dry, re-spray the top coat and try again. Once the desired effect was achieved, I sealed the surfaces with an airbrushed coat of 'Tamiya' Semi-Gloss (X35).


**'Tamiya' Weathering Master sets:** Each of these 'Tamiya' produced weathering sets contain three 'tablets' of different colours and an applicator, which has a brush on one end and a sponge on the other. The tablets have a wax look and feel and can be applied onto painted surfaces to reproduce various finishes. It's best to use these as the final surface treatment, as being a 'Wax', any treated surfaces can't be painted or sealed.


**Pigments:** Pigments, such as those produced by 'Flory Models' or 'Humbrol' are effectively very fine 'dusts', which can be applied to a model to re-create dust, dirt, stains etc. They can be applied by dry brushing or mixed with other mediums to create paintable solutions.


**Washes:** Washes can be applied to either enhance panel lines etc or to add a 'filter' of colour onto a painted surface. They can be purchased ready made from various manufacturers or can be 'home made' using such as oil paints with a suitable thinning agent. I tend to use 'AK Interactive' products.

**Water colour pencils:**

Water colour pencils can be used to add weathering detail. The colour s applied to the model part then brushed gently with a brush, slightly dampened with water. This dilutes the pencil marking, allowing it to be faded as desired. 'AK Interactive' produce these 'weathering' pencils, which are marketed specifically for the modeller, although other artist water colour pencils can be used, such as 'Derwent' Inktense 24 ink pencils.

**Oil paint:**

A technique used more frequently now is oil paint ‘dot and drag’. Basically an oil paint of the desired colour is placed onto a piece of cardboard, which over a hour or so, soaks out the oil in the paint, leaving a drier pigment. The pigment is ‘dotted’ onto the painted surface where it is required then dragged with a brush previously wetted with ‘Tamiya’ X20 enamel thinners then wiped virtually dry.

Softly ‘flick’ the brush to drag the pigment in the direction required, which will blend it in a thin layer.

The amount of pigment left showing depends on the effect you require. Always keep the brush wiped clean to avoid a build up of pigment and remoisten and wipe dry often. The more paint you drag, the less pigment is left showing. Blending different coloured pigments can create stains from smoke/ gun blast, rain marks/runs, dirt/dust and oil/fuel stains.

A good quality oil paint and thinners are essential to produce a good finish.

Some oil paints can be too ‘gritty’ once leached of the oil, so I use ‘Abteilung 502’ oil paints thinned with ‘Tamiya’ Enamel thinners (X20).


# PART 4
# DECALS

## PART 4 - DECALS

**Kit supplied decals:**

**NOTE:** *The following is **applicable only** for decals on a **painted surface**. If decals are to be placed on top of previously applied decals, the decal setting solutions may 'eat' into the previous decals. In this case a sealing coat of a clear coat of Tamiya' Clear (X22) or similar should be airbrushed over the first decals, to provide a barrier against the setting solutions.*

Ensure the painted surface is smooth and free from any surface imperfections.

Airbrush a clear gloss sealing coat, such as 'Mig' A-Stand Aqua Gloss (A.Mig-2503), 'Tamiya' Clear (X22) or similar to provide a smooth surface.

**NOTE:** *'MicroSet' solution softens the decal to allow it to conform to the painted surface. Do not attempt to move the decal too much or it may tear.*

Wet the area using a light coat of 'MicroScale' **MicroSet** solution.

Apply the decal after it has soaked in 'warm' water enough to start to loosen the decals from its carrier backing.

Carefully move the decal into the correct position.

Carefully press out any residual water from the decal by either pressing with a tissue or by gently rolling over the decal with a cotton bud.

**NOTE:** *'MicroSol' solution will soften the decal to allow it to conform fully to the painted surface. The solution usually causes the decal to wrinkle, but this is normal as the decal semi-dissolves to the surface. Once the solution has been applied, never try to disturb the decal as it will tear. Leave the solution for several hours to do its job, after which the decal will return to a smooth surface, but conformed fully to the painted surface.*

Wet the decal surface with a light coat of 'MicroScale' **MicroSol** solution.

Leave the solution for several hours to fully dry and set the decal.

Once fully dry and set, airbrush a sealing coat over the decal, dependant of your desired finish. I tend to use 'Tamiya' Semi Gloss (X35).

Once the decal is correctly positioned, use a flat brush to brush the water out from under the decal, working from the centre of the decal out towards the edges. I then use a dry cotton bud in the same manner. Finally, wearing cotton gloves, I apply slight pressure and slide my fingers across the decal to finally push the decal onto the surface.

Once the decals have been applied I airbrush a sealing coat of either 'Mig' A-Stand Aqua Gloss (A.Mig-2503), 'Tamiya' Clear (X22) or similar over areas of decals where more decals are to be applied.

Once the decals have been applied and are dry I airbrush a final sealing coat of 'Tamiya' Semi-Gloss (XF35) over the decals.

To 'knock back' the sheen for applying weathering effects (refer to Part 3 of this build log), for example 'Flory' clay washes or oil paint, I airbrush a sealing coat 'Tamiya' Semi-Gloss (X35).

**'Aviattic' decals:**

The 'Aviattic' decals are different in both production techniques and application to those of the more traditional decal manufacturers. Traditional decals are normally created using processes such as silk screen printing and are pre-shaped for the particular model markings. When placed in warm water they will detach from the backing sheet and can then be slid onto the model surface and when they are correctly positioned, wiped with a semi-dry brush or cotton bud etc, to expel any water from under the decal. Once fully dry, decal softeners, such as 'MicroSol' and/or 'MicroSet' can be applied, if necessary, to 'weld' the decal to the model surface. Finally a sealing coat of acrylic or lacquer gloss, semi-matt or flat is applied over the decal, to seal and protect the seal and protect the decal.

The ‘Aviattic’ decals are laser printed onto a very fine carrier film and although this film is thin, the decals are remarkably resilient and somewhat ‘stretchy’ when being applied. This allows them to be more easily moved and positioned before being finally applied. Also with most other decals, I’ve used softeners to help the decals conform to surface irregularities and contours, which is something I’ve found is not really required for ’Aviattic’ decals, due to the nature of the carrier film. In addition, unless the decals has been printed pre-shaped (‘cookie cut’), the decals will need to be cut out from the sheet, so care is required to cut the decals accurately to avoid leaving gaps, especially at the edges, where the white base colour will show. That said, minor gaps may be able to be covered with weathering. For more information, refer to the ‘Aviattic’ instruction sheet supplied with the decals.
Aviattic’ decals are laser printed onto either ‘clear’ or ‘white’ backing, the ‘clear’ being dependent on the base coat you apply and the finished effect you desire. The decals are supplied with very clear instructions on their application, including when to add pre-shading to the base coat, where desired, before you apply the decals.

Application:

First airbrush the parts to have decals applied with a primer coat of such as ’AK Interactive’ White (AK759) or Grey (AK758) or similar light colour for ‘clear’ backed decals or ’AK Interactive’ Grey (AK758) for ‘white’ backed decals. Appropriate base colours can be applied over the primer coat under ‘clear’ backed decal.

**NOTE:** *‘Silvering’ is caused by air being trapped in the rough surface of the paint, such as on a matte (flat) finish, which after the decal is applied and dries, causes silver sheen patches showing in the decal (’silvering’).*

Once dry, check the surfaces for any imperfections, such as trapped dust or raised areas of paint, which will cause ‘silvering’ under the decals. Any surface imperfections found should be carefully sanded or polished out.

Airbrush at least two light sealing coats of a clear coat such as ’‘Mig’ A-Stand Aqua Gloss (A.Mig-2503), ‘Tamiya’ Gloss (X22) or similar over the painted surface to form a gloss surface for applying the decals.

**NOTE:** *The surface must be pre-wet with like warm water with. Care needs to be taken when you slide the decal from the backing sheet and onto the model surface, as the thin decal can fold over on itself.*

Soak each decal in warm water for approximately 20 seconds.

Wet the surface of the model where the decal is to be applied.

Carefully slide the decal onto the wetted surface. Make sure the decal does not fold over on itself.

Align the decal to the shape of the model part.

Using a broad, soft brush, brush the decal from the centre outwards to remove any water from under the decal.

Adhere the decal to the model part surface by either pressure rolling over the decal with cotton buds or, as I do, by wearing lint free cotton gloves and rubbing the decal with your fingers.

Check to make sure the decal is in full contact with the surface of the model part and that there are no areas exhibiting ’silvering’ (trapped air under the decal). If so, gently prick through the decal and apply water then press out the water to adhere the decal back onto the model part.

Also check that there are no lifted decal edges around the model part.

Allow the decal to fully set, preferably overnight. Where decals have been applied to large areas, gentle heating using a hair dryer can accelerate the decal setting time.

Where decals cover location holes or other openings, prick or cut through the decal into the hole or opening then lightly apply ‘Tamiya’ X20A thinners, which will soften and adhere the decal into the hole or opening. Using X20A can also conform decals around curves edges etc.

Protect and seal the decals by airbrushing a sealing coat over the decals. If more decals are to be added onto the applied decals a gloss sealing coat should be used. Otherwise a sealing coat of the desired finish can be applied, which should also be done once all of the required decals have been applied.

# PART 5
# RESIN

## PART 5 - RESIN

This model contains aftermarket resin parts, as opposed to the normal plastic used. The reason for creating resin kits is that in years gone by, resin kits were able to produce much finer detail on kit parts than the plastic kit equivalents. Even today, there are many producers of resin kits and particularly after market replacement parts. However, plastic kit manufacturers have come a long way now and kits, such as those from 'Wingnut Wings' and 'Copper State' are equal to, if not better than resin kits. Manufacturers of resin kits these days tend to make kits to order or have 'limited' runs, although aftermarket parts are usually readily available. Working with resin does present different challenges to the modeller, especially if it's the first time of building a resin kit.
The properties of resin differ radically to those of plastic kits. Below I have listed what I have found to be the primary differences for resin /parts kits from plastic (styrene) parts/kits:

When resin kits are cast in their moulds, a release agent is applied to enable the cast resin parts to be more easily removed, which is similar to plastic kit moulding. This release agent can leave a film on the surface of the kit parts, which, if not removed, can prevent paint or adhesives from adhering to the surfaces. The easiest way to remove this film is to carefully and fully wash all of the model parts in warm soapy water, using an old, soft tooth brush, then rinse all of the parts thoroughly and leave to dry. Alternatively wipe the parts with isopropyl alcohol (e.g. 'Tamiya' X20A thinners).

Cast or 3D printed resin, by its nature, is very brittle and can be damaged or broken easily, especially when handling small parts. This is particularly evident when separating the individual items from the resin cast. The best way to remove item is to cut them away with a razor saw, then clean them up afterwards.

Once removed from the resin cast, parts will normally have 'resin flash' around or amongst parts, especially small items. This is easily removed with a sharp scalpel blade. Heavier residue can be scraped, filed or sanded away.

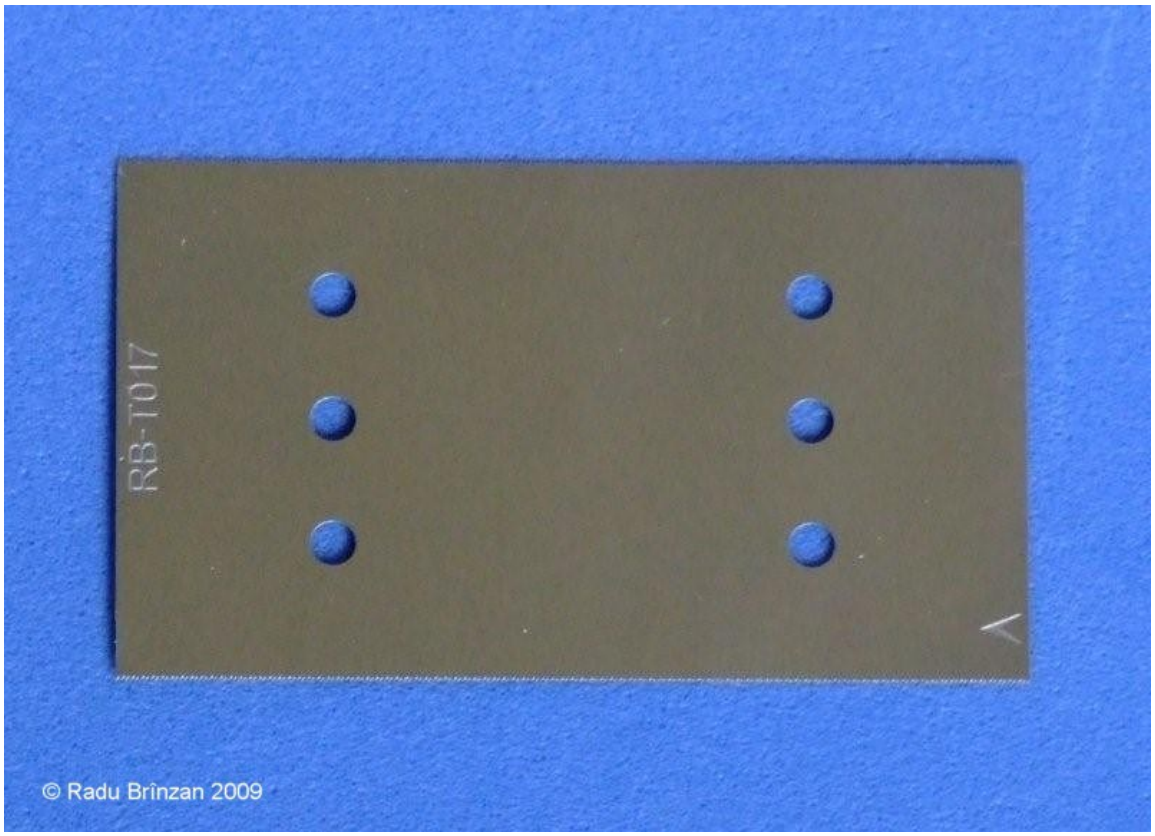
Plastic kits are assembled using solvent adhesives, which melt the surface where it is applied and 'weld' the joint together. Resin however will not react to this type of adhesive and can really only be glued using CA adhesive. This adhesive reacts to moisture in the air and on the surface to be joined. As most people know, it will also bond skin to whatever it touches, if the skin has CA adhesive on it. Obviously extreme care needs to be exercised when assembling resin kits using CA adhesive.

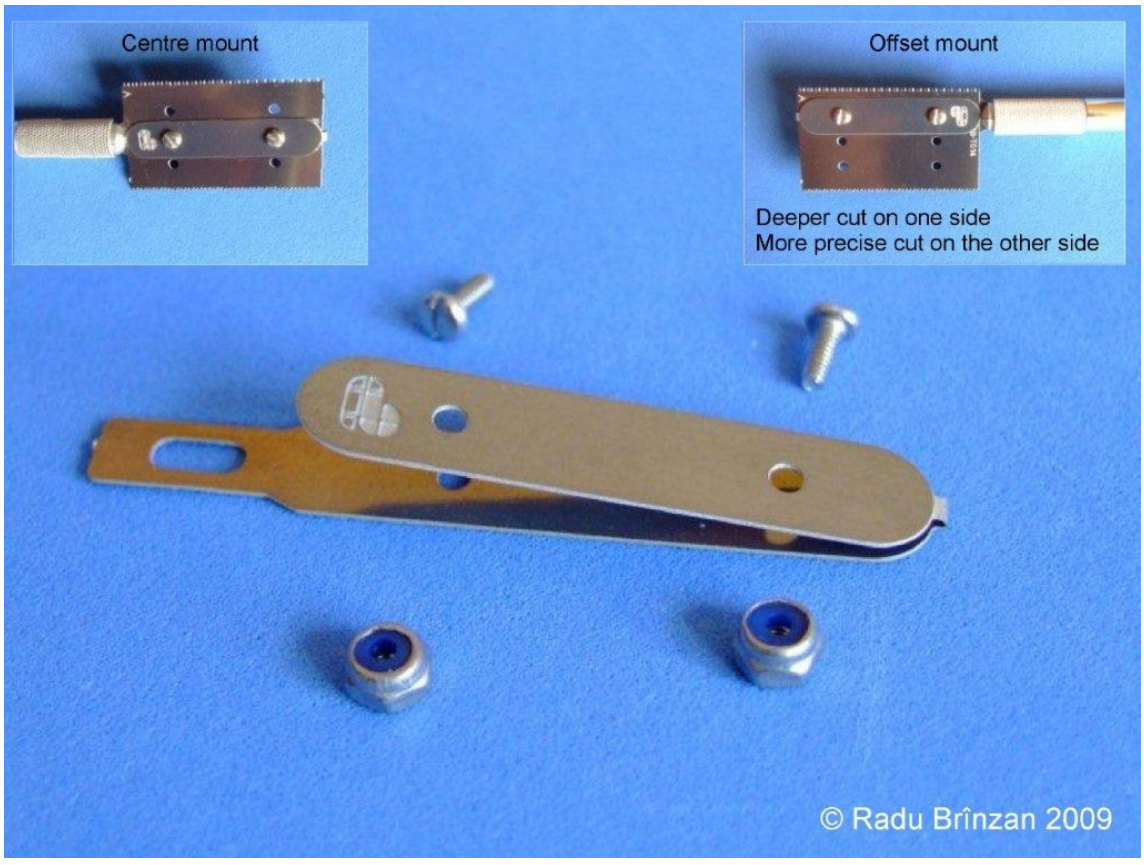
Cutting, sanding and drilling resin will create swarf and more importantly, resin dust. The dust in particular is dangerous, especially if inhaled. Therefore always vacuum the working area, and yourself, regularly. If you have a face mask or filtered respirator and find you can wear it whilst working, then do so. Resin can easily be drilled or scraped, but remember how brittle resin is when it is being handled.

It is not unusual to find imperfections in resin cast parts, such as surface blemishes, small 'blow' holes or ragged edges. This can be common on some resin kits. These imperfections can be rectified by sanding/ polishing and/or filling with modelling putty, then sanding/polishing.

Generally CA adhesive is supplied as 'instant bond' adhesive, but there are some manufacturers, such as 'VMS Fleky', that supply CA adhesive as standard, thin, slow and specific resin adhesive. Whichever adhesive is used you must ensure parts are correctly positioned and aligned before applying the adhesive. Trying to separate mis-aligned parts once the adhesive sets will prove very difficult and may result in irreparable damage to the parts.

**NOTE:** *To separate resin parts from the thin moulding backing sheet, use sharp scissors or a scalpel blade. To separate larger parts from the moulding base block, use a fine modellers saw. The saw I use has a double sided and fine 'drag' saw blade and with its holder is available from 'RB Productions'.*


RB-T017
© Radu Brînzan 2009


Centre mount
Offset mount
Deeper cut on one side
More precise cut on the other side
© Radu Brînzan 2009

# PART 6
# RIGGING

# PART 6 - RIGGING

References:
'Windsock' Data File No.94 - Caudron G.3 (Jon Guttman).
'Copper State Models' - Kit instruction manual.
'True Birds' - author Coline Béry.
'Online' - Resources.

**General:**

It's important to check where the various rigging attachment points are for this aircraft. Most models have these located on the model, but it's best to carry out research in reference books or research on line before drilling. Some modellers use micro drills manufactured for drilling printed circuit boards etc and these drill bits sometimes have identifying coloured collars fitted to the drill shanks. I have found that care needs to be taken when using these drills, as they are sharp and instead of easing their way into the plastic of the model, they tend to bite in and effectively 'cork screw' their way in, which causes jamming and lots of broken drills. This is not only expensive but can leave broken drill bits in the model, which are virtually impossible to extract. An alternative is to use High Speed Steel (HSS) drill bits, which are cheaper and have less 'bite' when in use, although again, they are very fragile and can very easily be broken.
Some modellers drill through the wings etc of the model and rig by pulling through the rigging line/EZ thread etc, gluing in position and then rubbing down the exposed line 'tag' and then re-painting that area. I prefer to drill only part way into the plastic and attach the applicable rigging fixture with CA adhesive.
With your research complete the rigging can be planned for the model in the subsequent Parts of this build log.
For the primary rigging, such as flying and landing wires and cross bracing wires, I used 'Steelon' or 'Stroft GTM' mono-filament (fishing line) of 0.12 mm diameter and for flight controls and 0.08 mm for flight control cables. These are effectively transparent but do give a look of steel, without the need of painting or colouring with a gel pen. The turnbuckles used are either sintered metal or resin and can be obtained from such as 'Gaspatch Models' or 'Proper Plane'.

**NOTE:** *The rigging of this aircraft follows the illustrations in the kit instruction manual, the **pages** of which are **noted** in the following **rigging descriptions**. Due to the complexity of the rigging on this aircraft, the different types of rigging are detailed under their type headings. This aircraft had dual controls for the rudder, elevators and for **wing warping** (this aircraft had no wing ailerons). Therefore, both cockpit occupants had interconnected control columns and rudder bars. Normally the pilot was seated in the rear of the nacelle with the observer in the front seat.*

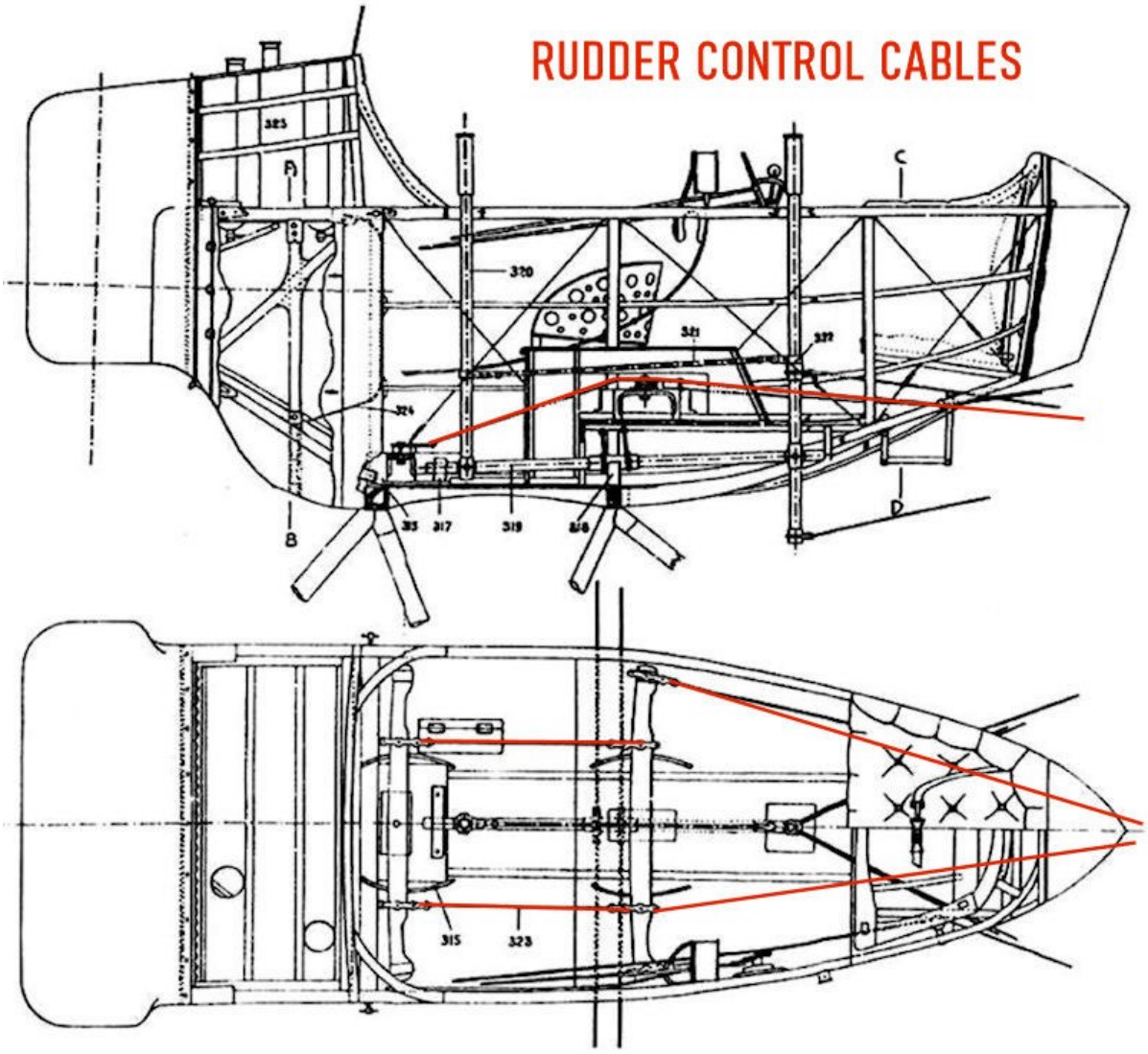
**Control cables:**

Rudder control/bracing cables (Page 4/5 and step 52/56/57/58 pages 15/16):

In the 'Carlingue' (cabin), the forward rudder bar (observer) had fitted to its ends control cables, which were routed rearwards and attached to the front of the pilots rudder bar. This model has those cables attached this way, probably as the model was based on Caudron Serial Number 3066 at the RAF Museum in Hendon, UK. However, other data shows the cables attached further towards the centre of the rudder bar.
Separate control cables fitted to the rear of the pilots rudder bar were routed rearwards at an outboard angle to exit the 'Carlingue' (cabin) through openings in the rear sides of the cabin. These two cables continued rearwards between the twin tail booms and were connected to control horns fitted to the upper, outer sides of the two rudders. Upper and lower interconnecting cables were attached to the control horns and were routed horizontally though and between the rudders.

These interconnecting cables were tensioned using adjustable turnbuckles. It appears turnbuckles were fitted to the cables from the rear rudder bar, but were adjustable between the two rudder bars. Turnbuckles were also fitted to the upper and lower interconnecting rudder cables the rear of the rudder control horns and to the rear of both rudder bar ends in the cabin.

As either occupant pushed their rudder bar left or right, the interconnecting cables moved the other rudder bar correspondingly. These rudder movements caused one rudder control cable to pull (tension) and the other to relax (slacken), allowing the two interconnected rudders to move together in the required direction. Movement of the rudders caused the aircraft to turn left or right (yaw).




Elevator control cables (Pages 4/7 and steps 53/57/58,59 pages5/16):

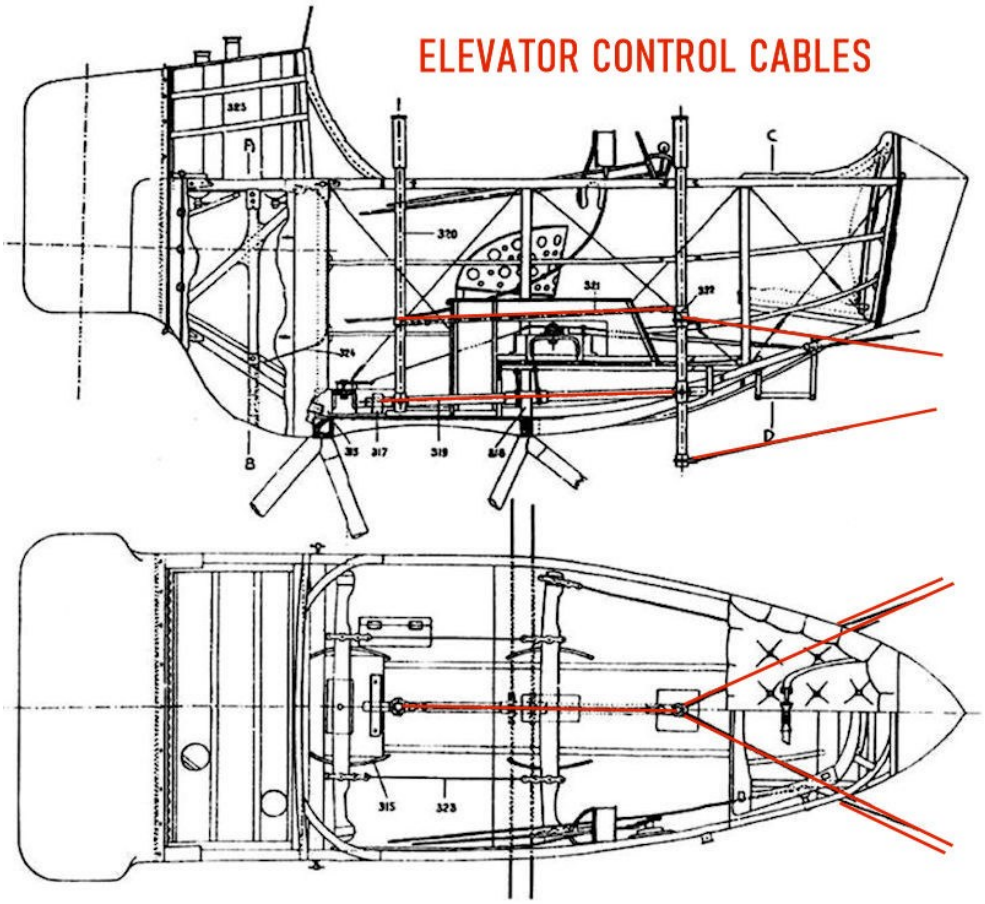
In the 'Carlingue' (cabin), the bottom of the forward control column was connected to the lower section of the rear control column by a torsion bar, which was routed under the floor of the cabin. The upper section of the forward control column was a connected to the upper section of the rear control column by a control rod, which was routed through the pilots seat support frame.

The rear (pilots) control column had the two elevator control cables attached to it above the cabin floor and two more cables attached to the bottom of the control column, which protruded through the underside of the cabin.
The upper cables were routed rearwards and down through a slot in the rear, underside of the cabin then rearwards between the tail booms and connected to the control horns on the underside of the elevators.
The underside cables were routed rearwards between the tail booms and connected to the upper control horns on the elevators.

Additionally, two bracing cables were attached to the rear of the upper and underside control horns. These interconnecting cables were routed rearwards and through the elevators.

These control cables were tensioned (rigged) using adjustable turnbuckles. It appears turnbuckles were fitted to the upper and underside cables at the pilots control column. In addition, turnbuckles were also fitted to the elevator bracing cables at the rear of the upper and underside control horns.

As either occupant moved their control column forward or rearward, the interconnecting bar and rod moved the other control column correspondingly. These control column movements caused one pair of control cables to pull (tension) and the other pair to relax (slacken), allowing the two elevators to move together in the required direction. Movement of the elevators caused the aircraft to either climb or dive (pitch).




Wing warping control cables (page 4 and steps 37/38 page 10):

**NOTE:** *Unlike convention wing ailerons, used the manoeuvre the aircraft, the Caudron G.III used wing warping, where cables tensioned and distorted the wing profile, causing the aircraft to bank (roll) left or right.*

In the 'Carlingue' (cabin), two control cables bell cranks were attached to the torsion bar, under the cabin floor, that interconnected the two control columns. These bell cranks were attached on the torsion bar forward from the rear (pilots) control column.

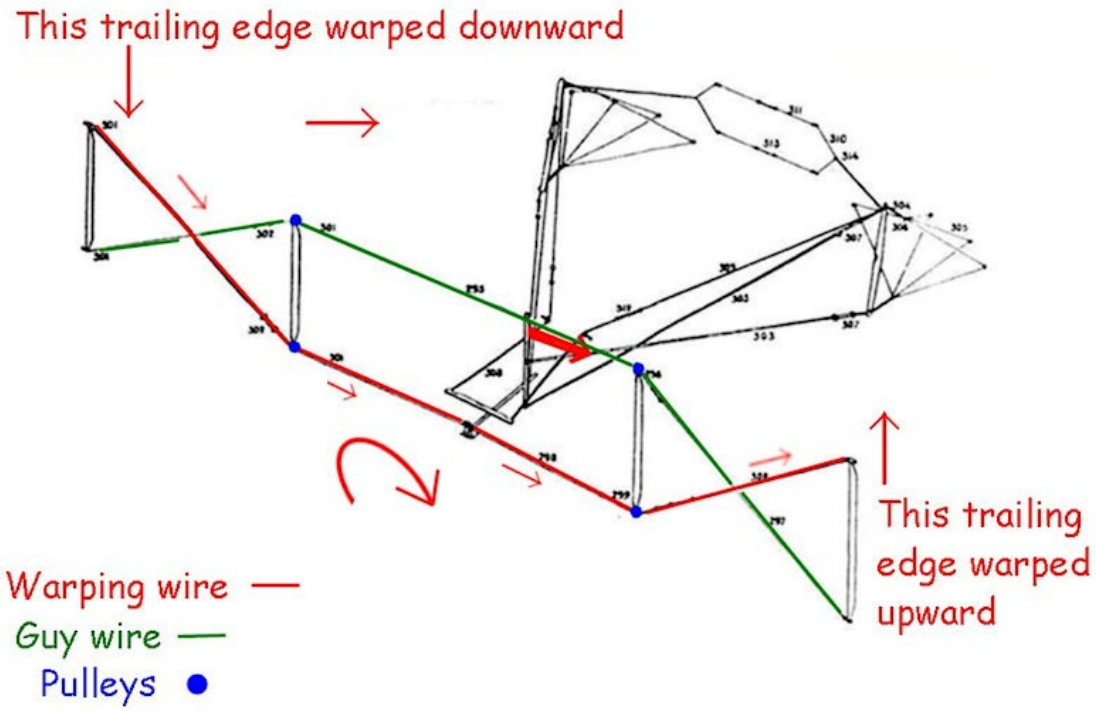
Two wing warp control cables were routed across the bell cranks and under the cabin floor, to exit the cabin through openings in the lower sides of the cabin. These cables were routed outboard across the lower wings and around pulleys fitted to the bottom of the inner, rear interplane struts. From there the cables were routed diagonally up and across to the underside of the upper wing, inboard from the top of the outer, rear interplane struts.

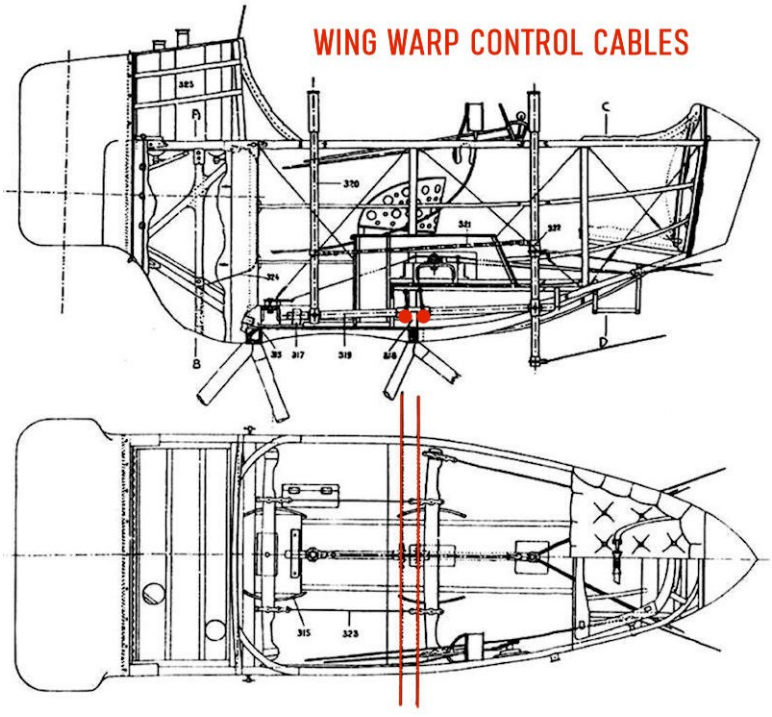
Additionally, a 'guy wire' (reaction cable) was routed across the underside of the upper wing between the fuselage rear cabane struts and pulleys at the top of the inner, rear interplane stuts. The cables were then routed diagonally down and across to the lower wings, inboard from the bottom of the outer, rear interplane struts.

These control cables were tensioned (rigged) using adjustable turnbuckles. It appears turnbuckles were fitted to the cable pairs outboard from the bottom of the inner, rear interplane struts. In addition, turnbuckles were fitted in the reaction cable outboard from the top of the inner, rear interplane struts.

As either occupant moved their control column left or right, the cable pair one side of the aircraft would tension and the opposite pair slacken, causing the upper wing one side to flex in one direction and the other side of the wing to flex in the opposite direction. My assumption is that the outer, rear interplane struts transmitted this movement to the lower wings and the 'guy wire' tensioned to move the relevant lower wing in the opposite direction, to match its upper wing. This wing warp caused the aircraft to bank (roll) left or right.

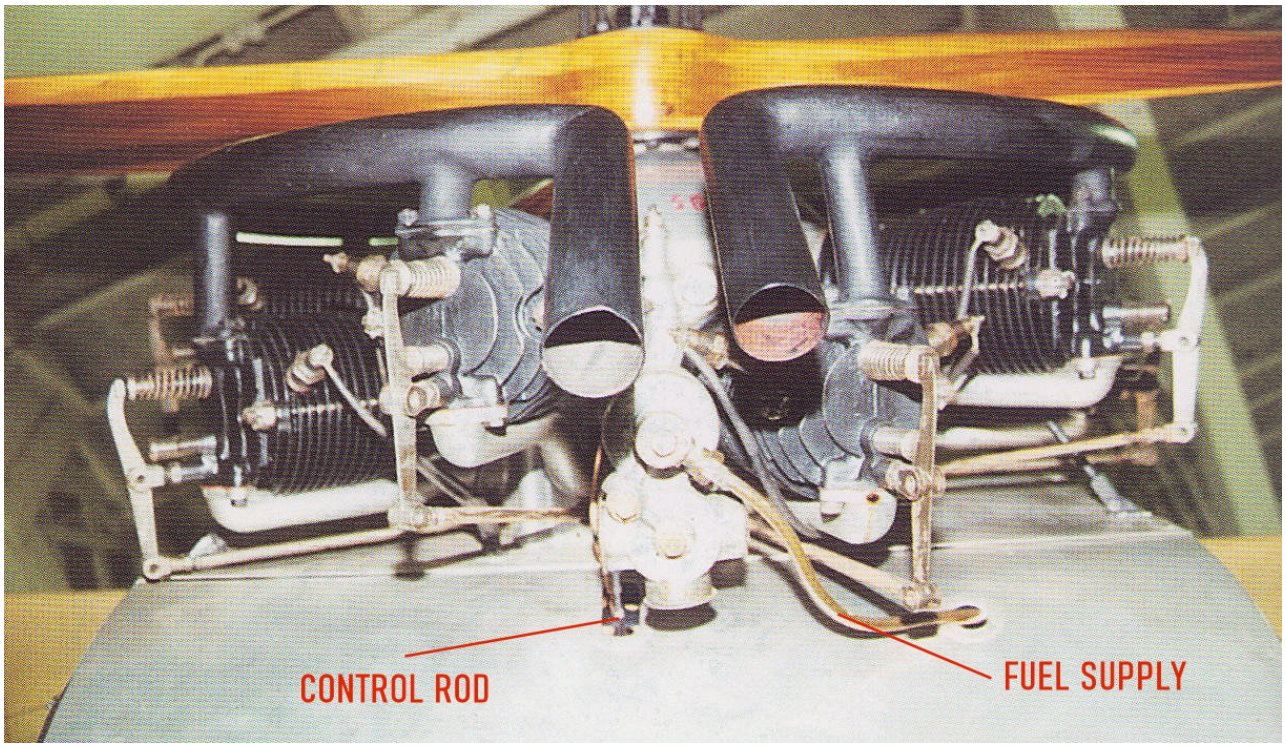
<u>Illustration below shows a single seat configuration.</u>



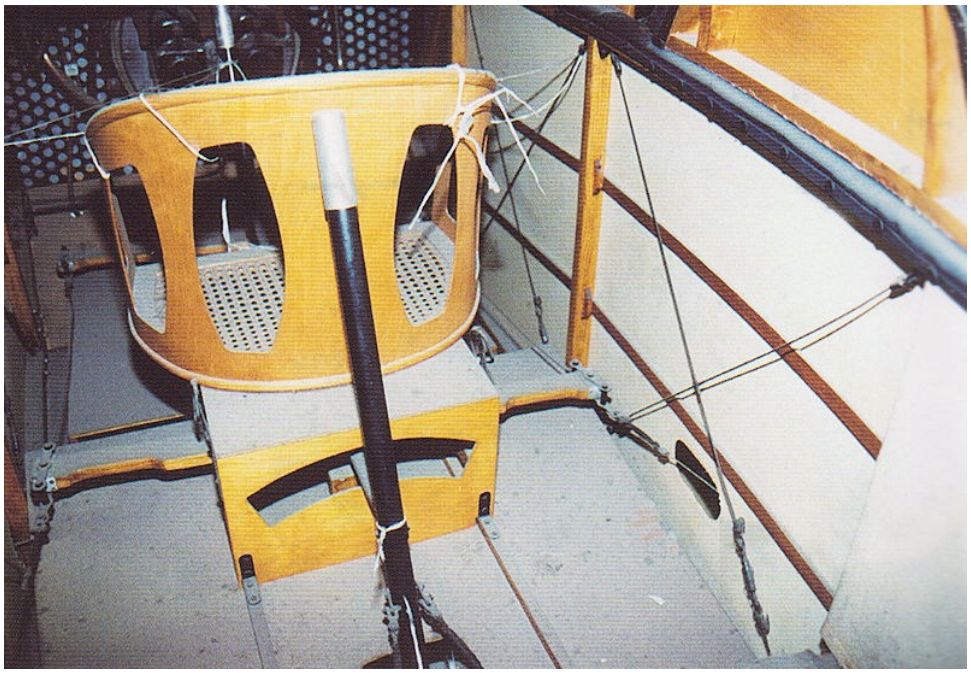
**Engine control cables (kit pages 4 and 5):**

In the 'Carlingue' (cabin), the engine controls were fitted on the longeron at the top, left side of the cabin, to the left of both seat occupants.
The centre and bottom of both control levers were interconnected with operating cables. The forward control lever had two cables attached at the same locations and these cables were routed down and connected to the top and bottom of a control lever, which was fitted on a control bar. That control bar was routed across the centre of the cabin floor, forward from the front rudder bar and terminated with a second control lever. That lever was connected to a control rod which in turn was connected to the engines carburettor to control the fuel supply.




**Cockpit bracing wires (refer to kit page 5):**

In the 'Carlingue' (cabin), diagonally crossed bracing wires were fitted between the forward three frame bays in the internal sides of the cabin. It seems turnbuckles were fitted in the bottom ends of the wires, above the cabin floor.



**External structural wires:**

Cabane strut bracing wires (Step 23, page 8):

Two pairs of diagonally crossed bracing wires were fitted on both sides of the 'Carlingue' (cabin). Both pairs of wires were attached to the underside of the upper wing outboard from the top of the front and rear cabane struts.

One shorter pair of wires were routed down and diagonally crossed and attached to the Carlingue' (cabin) sides at the cabane struts.

The second and longer pair of wires were routed down and diagonally crossed and attached to the lower wings at the bottom of the cabane struts.

These bracing wires were tensioned (rigged) using adjustable turnbuckles. A turnbuckle was fitted at the bottom of each bracing wire.

Incidence wires - interplane struts (Steps 25/26, page 8)):

A pair of crossed bracing wires were fitted between the inner and outer interplane struts, both sides of the aircraft. The wires were attached to the underside of the upper wing at the top of the interplane struts. The wires were routed down and diagonally crossed and attached to the lower wings at the bottom of their opposite interplane struts.

Turnbuckles were fitted to the wires at their lower ends.

Inner bracing wires (Steps 27/28, page 9):

A bracing wire was fitted on both sides of the aircraft, between the bottom of the forward cabane strut and diagonally up to approximately half way up the forward, inner interplane stut.

A second bracing wire awas fitted between the interplane strut and diagonally down to close to the leading edge of the lower wing and midway between the forward inner and outer interplane struts.

Turnbuckles were fitted to the wires at the interplane struts.

Middle vertical bracing wires (Steps 27/28, page 9):

A vertical bracing wire was fitted between the lower and upper wings on both sides of the aircraft, midway between the rear inner and outer interplane struts and aligned to the struts.

Turnbuckles were fitted to the wires at the lower wings.

Incidence wires - lift struts (Steps 33/35, page 10):

A pair of crossed bracing wires were fitted between the outer lift struts, both sides of the aircraft. The wires were attached to the underside of the upper wing at the top of the struts. The wires were routed down and diagonally crossed and attached to the lower wings at the bottom of their opposite struts.

Turnbuckles were fitted to the wires at their lower ends.

Outer bracing wires (Steps 33/35, page 10):

A bracing wire was fitted between the lower and upper wings on both sides of the aircraft, between the bottom of the outer rear interplane struts and the underside of the upper wing, midway between the interplane strut and the top of the diagonal rear lift strut.

Turnbuckles were fitted to the wires at the lower wings.

Flying wires (Steps 39/40, page 11):

Four pairs of twin flying wires were fitted to both sides of the aircraft.

The pairs were fitted between the bottom of the forward and rear cabane struts and the underside of the upper wing, inboard from the top of the inner, forward and rear interplane struts.

Single outer wires were fitted between the lower wings, outboard from the bottom of the inner forward interplane struts and the underside of the upper wing, inboard from the top of the outer, forward interplane struts.

Turnbuckles were fitted to the wires at the bottom of the cabane struts and the lower wings.

Landing wires (Steps 39/40, page 11):

Three landing wires were fitted to both sides of the aircraft.

The inner pair were fitted in the underside of the upper wing, outboard from the top of the forward and rear cabane struts and the lower wings, inboard from the bottom of inner, forward and rear interplane struts.

The outer wire was fitted in the underside of the upper wing, outboard from the top of the inner, forward and rear interplane struts and the lower wings, inboard from the bottom of outer, forward interplane struts.

Turnbuckles were fitted to the wires at the lower wings.

Tail boom bracing wires:

*Forward bay (Steps 43/54/55, pages 12/15):*

Single diagonally crossed bracing wires were fitted to both tail booms, between the upper and lower corners of the forward vertical struts and the wings.

The top end of the wires from the lower tail boom were attached to the underside of the upper wing, to the rear of the inner, rear interplane struts.

The bottom end of the wires from the upper tail boom were attached to the lower wings, to the rear of the inner, rear interplane struts.

Turnbuckles were fitted to tail boom ends of the wires.

*Centre bay (Step 43, page 12):*

Single diagonally crossed bracing wires were fitted to both tail booms, between the upper and lower corners of the central vertical struts.

Turnbuckles were fitted to top ends of the wires.

*Rear bay (Step 43, page 13):*

Single diagonally crossed bracing wires were fitted to both tail booms, between the upper and lower corners of the rear vertical struts.

The top end of the wires from the lower tail boom were attached to the underside of the tailplane, at the top of the rear tail boom vertical struts (king posts).

A turnbuckle was fitted to tailplane end of the wires.

The bottom end of the wires from the upper tail boom were attached to the lower tail boom, forward from the rear tail boom struts (king posts).

A turnbuckle was fitted to the top end of the wires.

*Cross bracing wires (Steps 61/62/63, page 17):*

Diagonally crossed bracing wires were fitted between the top of the two tail booms. In addition, bracing wires were fitted between the upper tail booms and lower wings and the lower tail booms and upper wing.

Diagonally crossed bracing wires were fitted across the top of the two tail booms. The wires were attached to the tail booms at the top of the forward tail boom struts and the rear of the tail booms, above the tailplane at the rear tail boom struts (king posts).

Turnbuckles were fitted to the wires at the forward tail boom struts.

Single bracing wires were fitted between the top of the forward tail boom struts and across to the lower wings at the bottom of the outer, forward interplane struts.

*Upper wing bracing wires (Steps 64/65, page 17):*

Single bracing wires were fitted between the top of the forward tail boom struts and across to the top of the upper wing, outboard from the rear cabane struts.

Turnbuckles were fitted to the wires at the forward tail boom struts.

Tailplane/Fin bracing wires:

*Top rear bracing wires (Step 56, page 15):*

Diagonally crossed bracing wires were fitted between the top and bottom rear of the two fins and between the rear of the two fins and the top and bottom of the upper section of the rear tail boom struts (king posts).

Single bracing wires were fitted from the top of the upper section of the rear tail boom struts (king posts) diagonally down to the ends of the tailplane.

Turnbuckles were fitted at the top of the king posts and fins.

*Top forward bracing wires (Step 60, page 16):*

Diagonally crossed bracing wires were fitted between the top rear of the two fins and the tailplane at the bottom front of the fins.

Single bracing wires were fitted between the bottom front of the fins and the top of the rear tail boom struts (king posts).

Turnbuckles were fitted to the wires at the top of the king posts.

*Underside bracing wires (Step 59, page 16):*

Single bracing wires were fitted between the bottom of the rear tail boom struts (king posts) and diagonally up and to the underside end of the tailplane.

Double bracing wires were fitted between the bottom of the rear tail boom struts (king posts) and diagonally up and to the underside end of the tailplane at the front and rear of the fin.

Turnbuckles were fitted to the wires at the underside of the tailplane.

Landing gear bracing wires:

**NOTE:** *Three sets of bracing wires were fitted between the lower tail booms and the underside of the lower wings.*

*Centre set 1 (Step 70, page 19):*

From a turnbuckle anchor point in the centre, rear of the underside of the lower wing, a bracing wire was routed down and across to the top of a turnbuckle anchor point on the lower tail boom, at the rear of the centre landing gear stuts, then up and outboard to the underside centre of the lower wing.

Turnbuckles were fitted to the wires at the outer underside of the lower wings

*Centre set 2 (Step 71, page 19):*

From rear of the underside of the lower wing, at the edges of the wing cut-out, a bracing wire was routed down and across to the bottom of the turnbuckle anchor point on the lower tail boom, at the rear of the centre landing gear stuts, then up and outboard to the underside leading edge of the lower wing.

Turnbuckles were fitted to the wires at the underside of the lower wings.

*Forward set (Step 72, page 20):*

Two bracing wires were fitted to the left and right sides of the aircraft.

The first wire was between the underside leading edge of the lower wing (at the bottom of the forward cabane strut) and was routed diagonally down and across to the front of the opposite tail boom, then diagonally up to the underside leading edge of the lower wing at the forward, outer interplane strut.

The second wire was between the underside of the lower wing at the bottom of the forward, outer interplane strut and was routed diagonally down and rearwards to the tail boom at the forward tail boom strut.

Turnbuckles were fitted to the wires at the underside of the lower wings.

# PART 7
# ENGINE

## PART 7 - ENGINE

This version of the Caudron G.III was fitted with the 'Anzani' ten cylinder air cooled radial engine, of either 80 or 100 hp. This model has the 100hp version of the engine.

**NOTE:** *The assembly of the engine follows page 18 of the kit instruction manual. The kit supplies the push rods/induction pipes (J1 and J2). In my particular kit, these are also suppled a 3D printed parts.*

**Preparation:**

**NOTE:** *The instruction manual annotates the two fillers as E6, but they are actually parts J6.*

Remove the engine parts from their mold gate (J) and if used, the replacement 3D printed parts for the push rods (J1 and J2).

File, sand or scrape away any mold or print seam lines or residual sprue gate stubs.

**Assembly:**

Cement engine halves (J11 and J8) together.

Cement engine halves (J9 and J10) together.

Once the cement has set and if necessary, carefully clean along the cylinder joint seam of any residual cement or plastic on both cylinder assemblies.

Cement the two engine halves together.

**NOTE:** *The locations for the filler (J6) are shallow shoulders and not positive, so I chose to drill locating holes instead. Refer to step 67 on page 18 of the kit instruction manual for the locations of the two fillers.*

Using a drill of 1.2 mm diameter, drill locating holes for the two fillers in the front and rear of the engine crank case.

Cement the two fillers (J6) into their location holes in the front and rear of the engine crank case.

**Painting:**

Airbrush the engine half assemblies, the two exhaust pipes (J3 and J4), the carburettor (J5) and the kit supplied (J1 and J2) or 3D printed push rods with a grey primer, such as 'AK Interactive' Grey (AK758) or similar.

Airbrush all of the parts with 'Tamiya' Gloss Black (X1) or similar.

Airbrush the engine assembly and carburettor with 'Alclad' Steel (ALC112) or similar.

Brush 'AK Interactive' Kerosene was (AK2309) over the engine assembly.

Brush paint the two caps on the fillers with 'Mr. Color' Stainless Steel (213) or similar.

Brush paint the spark plugs with 'Tamiya' Buff (XF57) or similar.

Brush paint the float chamber on the carburettor (J5) with 'Mr. Color' Brass (214) or similar.

Airbrush the two exhaust pipes with 'Alclad' Exhaust Manifold (ALC123) or similar.

Airbrush the painted exhaust pipe with a matte (flat) clear coat, such as 'Tamiya' Flat (XF86) or similar.

**NOTE:** *Refer to Part 3 (Weathering) of this build log for more information.*

Apply your desired weathering finish to the two exhaust manifolds. I used 'Flory Models' Dark Dirt or Grey fine clay wash.

Lightly sponge 'Tamiya' Weather Master Set B (Soot) around the outlet of the exhaust pipes.

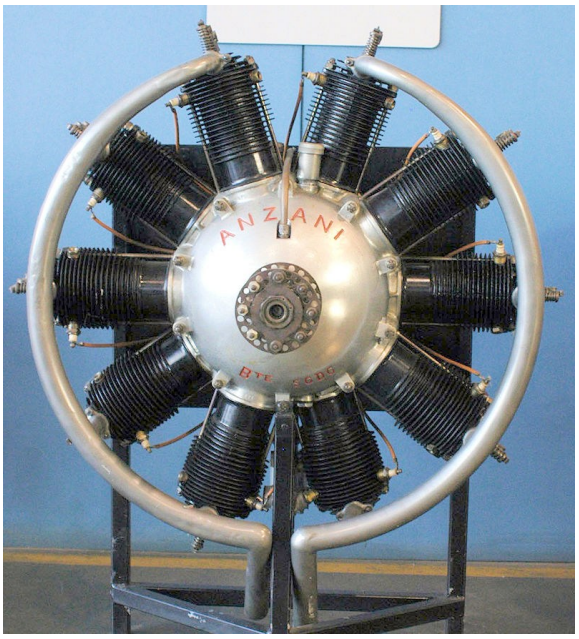
**Assembly (continued):**

Cement the carburettor (J5) onto its location on the bottom, rear of the engine.

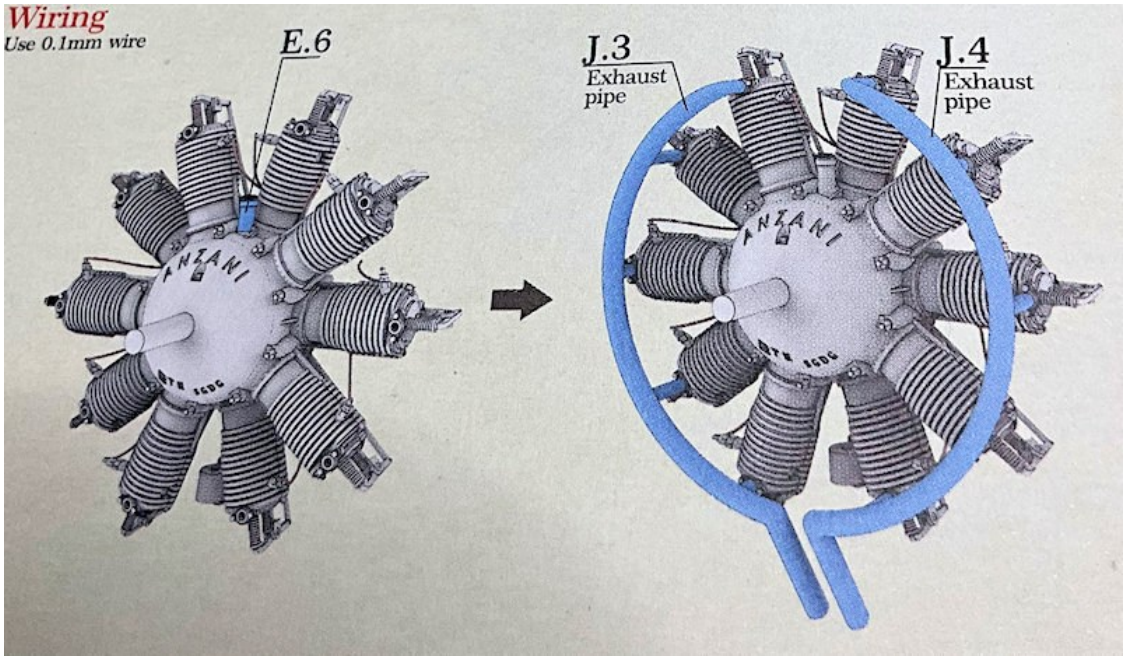
**Modifications:**

Spark plugs:

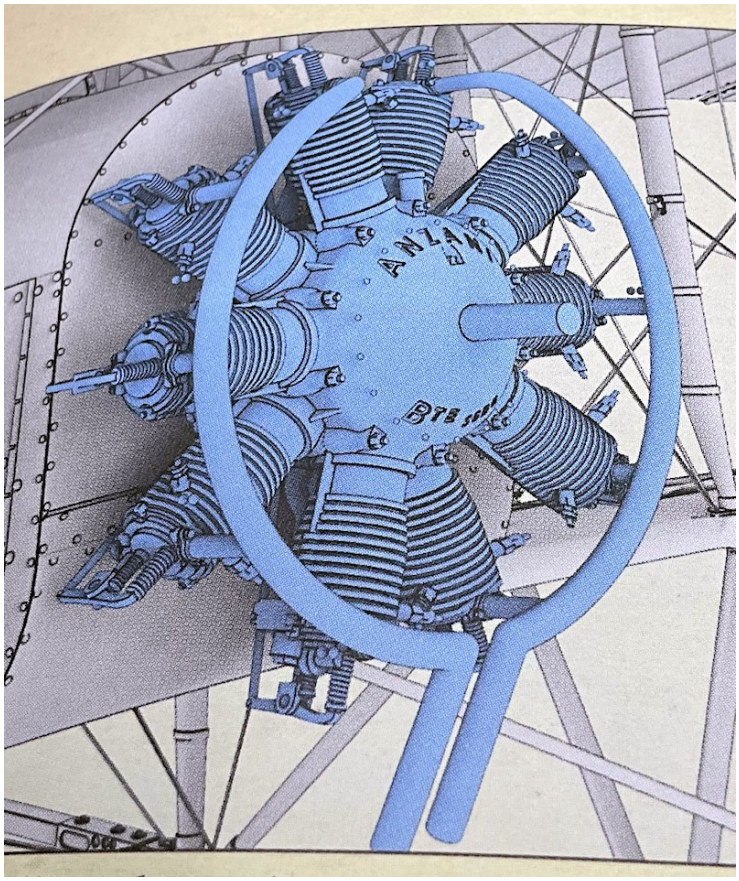
**NOTE:** *At this stage of the engine build I found what seems to be mis-positioning of spark plugs on some of the cylinders. The only references available are period photographs, museum engines and aircraft and the kit instruction manual.*
*Period photographs show little, if any, engine detail.*
*As most know, museum displays can be mis-leading due to reworking and display requirements, so they are not always authentic. As examples, in the following display photograph, the spark plugs on both banks of cylinders face left, but the Caudron G.IIIs in the RAF Museum in Hendon, UK and the Museum in Brussels, Belgium have two spark plugs fitted to each cylinder on their Anzani engines.*



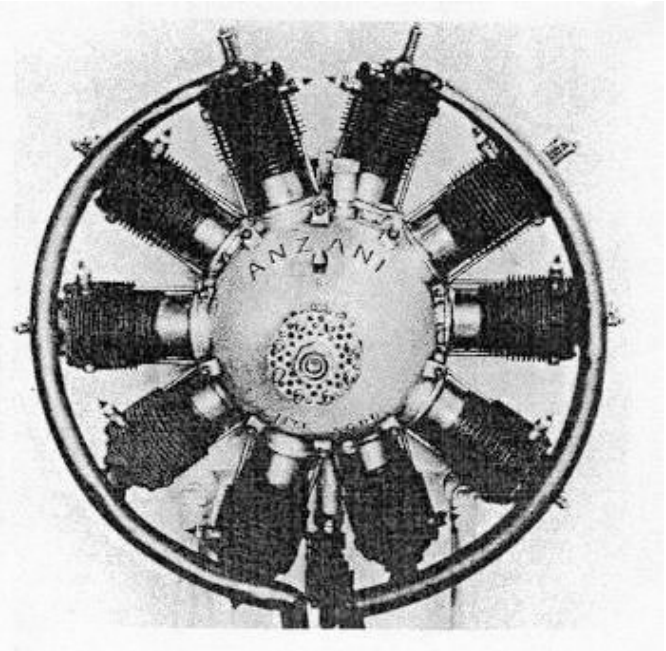
*The kit instruction manual at step 67 has completed engine illustrated. The left cylinders have their spark plugs facing right with the right cylinders facing left.*

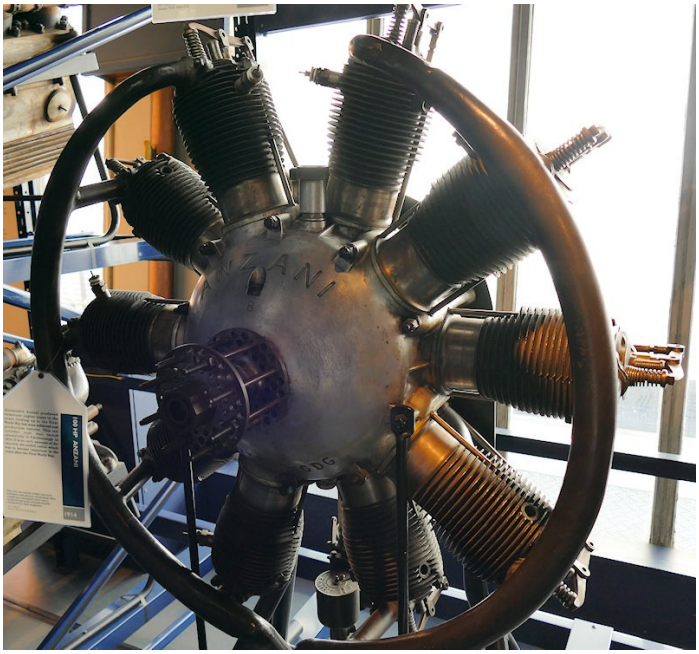



*Confusingly, step 68 shows the engine with what appears to be two spark plugs fitted in each cylinder, but it's possible one side of the cylinders may have blanks/plugs fitted, not spark plugs.*

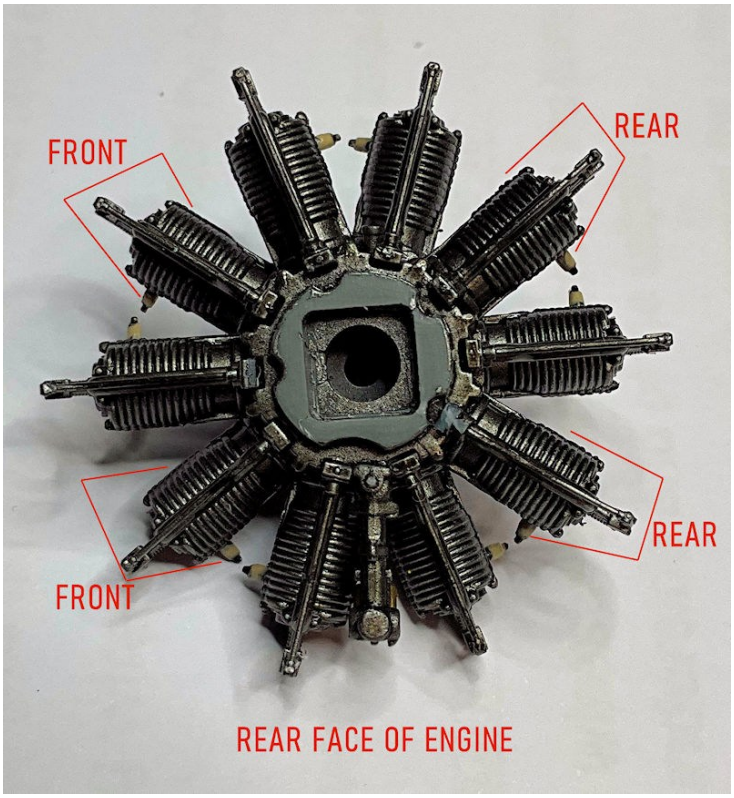



*Edgar at 'Copper State Models' supplied photographs of an Anzani engine and they clearly show the spark plugs fitted to the right side of the left cylinders and left side of the right cylinders. I found other photographs of what appear to be authentic engines and again, the spark plugs are located on the cylinders, as shown at step 67.*



*Therefore, the completed model engine would appear to have four spark plugs located on the wrong side of their cylinders, being on two front cylinders and two rear cylinders. Those spark plugs are highlighted in the following photograph and are the ones that will need to be either repositioned or replaced.*




*Rather than have kit molded spark plugs mixed with replacement plugs, I chose to replace all of the spark plugs.*

Cut away all of the kit molded spark plugs from the engine cylinders.

**NOTE:** *In the following step, looking at the engine front of the engine, the left spark plugs should be to the right side of their cylinders and the right spark plugs to the left of their cylinders.*

Drill holes of 0.5 mm diameter into the separate engine cylinders and in their correct spark plug locations.

Brush 'Mr. Color' Super Iron 2 (203) over any exposed cut away spark plugs on the cylinders.

Cut ten short lengths of 0.5 mm diameter Aluminium tube, such as ’Albion alloy’s’ MAT05) or similar.

Secure a tube into the pre-drilled holes in the cylinders, using thin CA adhesive.

**NOTE:** *The following steps are to provide a propeller shaft that will fit the ’Proper Plane’ replacement propeller.*

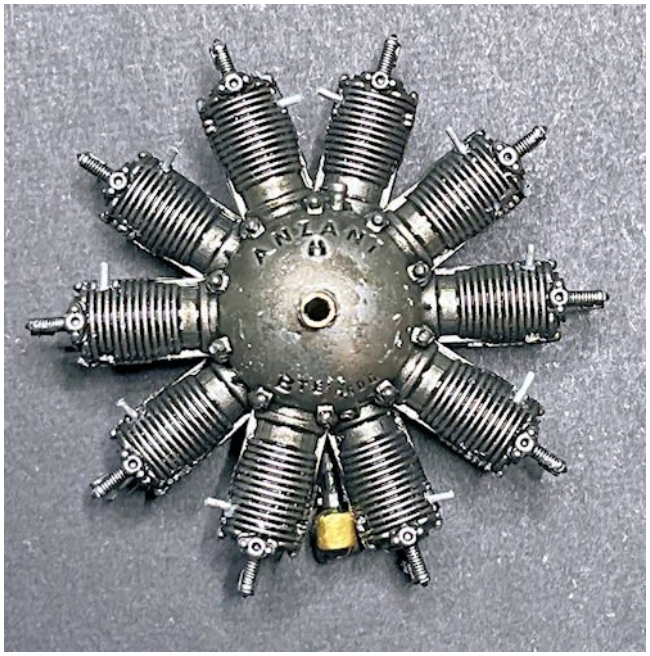
Cut away the propeller shaft from the engine.

Using the witness mark as a guide, drill a hole of 1.8 mm diameter through the engine crankcase.

Cut a length of 1.8 mm diameter Brass tube, such as ’Albion Alloy’s’ MBT18 or similar.

Secure the tube into the pre-drilled hole, leaving 5 mm exposed, using thin CA adhesive. Make sure no tube protrudes from the rear of the engine.

Brush ’Mr. Color’ Super Iron 2 (203) over the rear only of the replacement propeller shaft.



Ignition leads:

**NOTE:** *The following steps are required before adding the ignition leads to the spark plugs.*

*The kit engine bulkhead has a ring of pre-molded holes around the engine attachment boss. The holes are highlighted in step 16 of the kit instruction manual, but no reason is given why. My assumption is that these holes are provided to allow adding ignition leads to the cylinder spark plugs.*

Cement the engine assembly fully into its location boss in the centre of the engine bulkhead.

Cut ten long lengths of 0.2 mm diameter copper wire.

**NOTE:** *Annealing - Using a low heat source (e.g. cigarette lighter or candle flame) ‘wave’ the wires over the flame several times and watch for the part to discolour.* ***Keep the flame moving*** *or the wires may* ***melt****. Doing this anneals the wires, making it easier to bend. Wipe off any soot from the wires.*

Anneal the wires.

Insert a wire into each spark plug tube and secure in position using thin CA adhesive.

Bend the wires at the spark plugs towards their engine bulkhead locating holes.

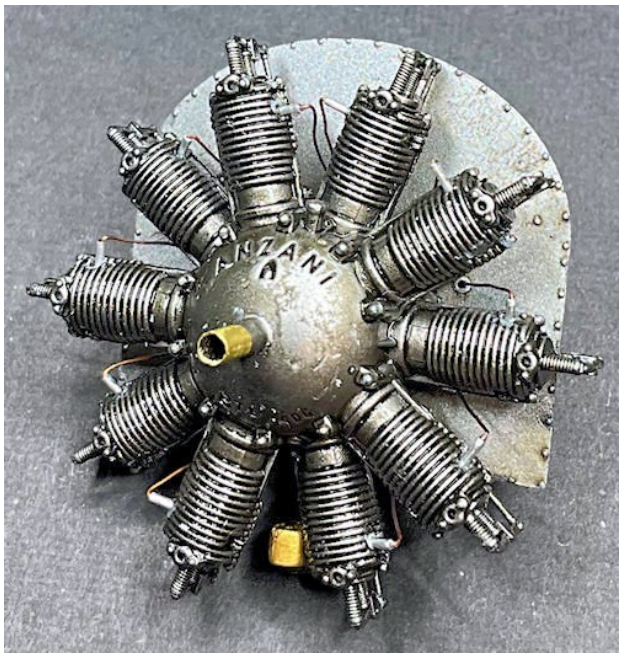
Pass the free end of the wires through their locating holes in the bulkhead.

From the rear of the bulkhead pull the wires taut.

Secure the wires in the holes in the rear of the bulkhead using thin CA adhesive.

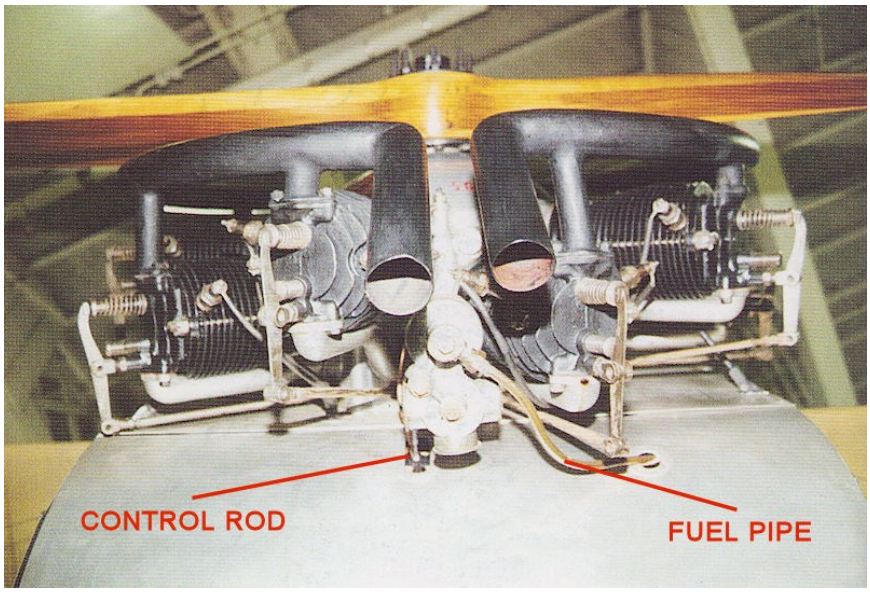
Cut away residual wires at the rear of the bulkhead.

Brush 'Tamiya' Semi-Gloss Black (X18) over the exposed wires at the rear of the bulkhead.




Fuel pipe:

**NOTE:** *The kit does not represent the fuel supply pipe from the cabin underside panel to the carburettor or the carburettor control rod. These modifications can only be added after the cabin has been assembled.*




Oil pipe:

**NOTE:** *The kit does not represent what I assume is an oil supply pipe from the engine bulkhead to the top of the engine crankcase.*

Cut a long length of 0.4 mm diameter copper wire.

**NOTE:** *Annealing - Using a low heat source (e.g. cigarette lighter or candle flame) 'wave' the wire over the flame several times and watch for the wire to discolour.* ***Keep the flame moving*** *or the wire may* ***melt****. Doing this anneals the wire, making it easier to bend. Wipe off any soot from the wire.*

Anneal the wire.

Drill into the top of the engine crankcase at the pre-molded pipe location, using a 0.5 mm diameter drill.

Insert one end of the wire into the pre-drilled hole and secure in position using thin CA adhesive.

Pass the other end of the wire rearwards, around the filler neck and through the pre-molded hole in the engine bulkhead.

Secure the wire in the holes in the rear of the bulkhead using thin CA adhesive..

Cut away residual wire at the rear of the bulkhead.

Brush 'Tamiya' Semi-Gloss Black (X18) over the exposed wire at the rear of the bulkhead.

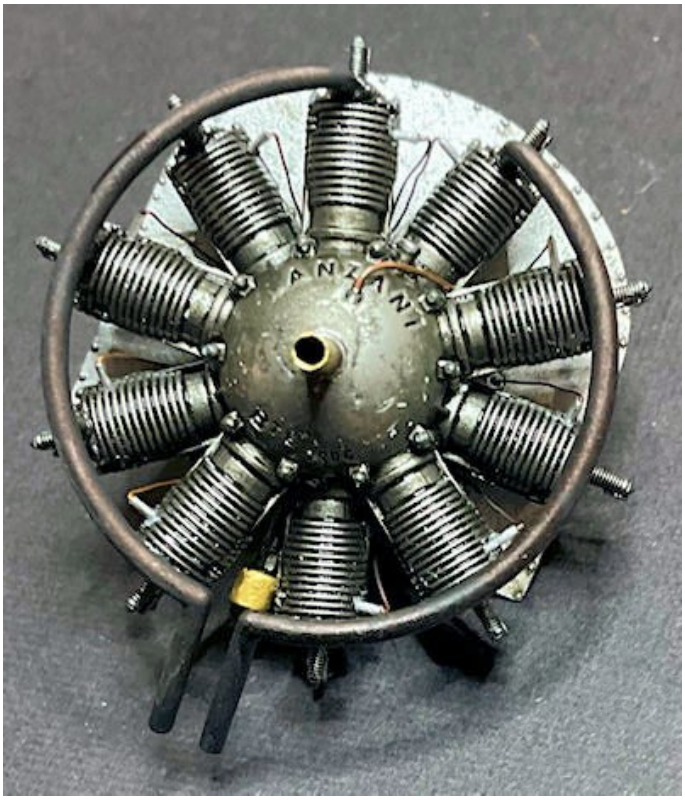
Exhaust pipes:

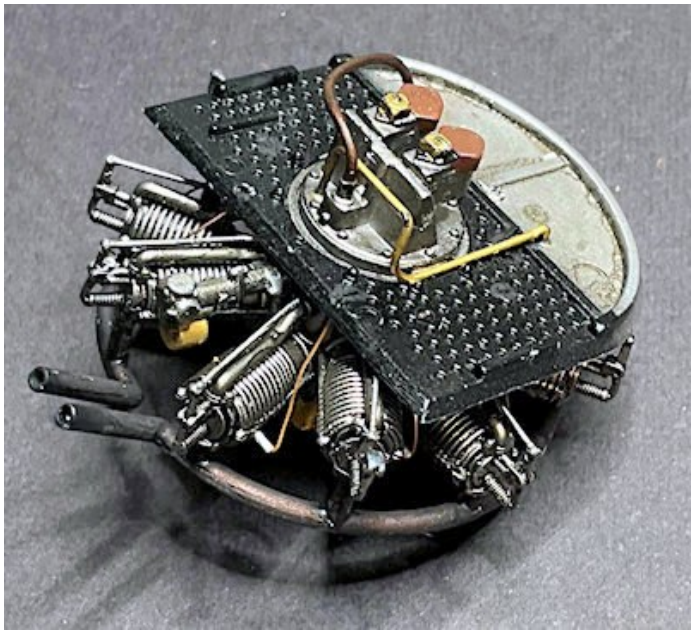
Using a 0.8 mm or if possible a 1.0 mm diameter drill, carefully drill out the end openings of both exhaust pipes (the kit pipes are molded with solid openings).

**Assembly (continued):**

Drill out the exhaust pipe pre-molded locating holes in the top, front of each engine cylinder, using a 0.6 mm diameter drill.

Cement the two exhaust pipes into their cylinder locating holes.





# PART 8
# PROPELLER

# PART 8 - PROPELLER

References:
'Windsock' Data File No.94 - Caudron G.3 (Jon Guttman).
'Copper State Models' - Kit instruction manual.
'Online' - Resources.

**NOTE:**
*The kit supplied propeller was not used and replaced with a 'Proper Plane' Waring and Gillow wood laminated propeller with resin hub plates (WP-046).*


**Preparation:**

**NOTE:** *Refer to Part 5 (Resin) of this build log.*

To match the replacement propeller shaft on the engine, drill through the centre hole of the rear hub plate, using a 1.8 mm diameter drill.

Carefully cut away the two resin propeller hub plates from their base block.

Sand the rear faces of the hub plates to reduce their thickness to that of the printed plates.

Brush paint the hub plates with 'Mr. Color' Stainless Steel (213) or similar.

**Assembly:**

Using thin CA adhesive, secure the rear hub plate onto the rear of propeller, making sure it is positioned centrally over the hole in the propeller.

Using thin CA adhesive, secure the front hub plate onto the front of the propeller, making sure it is positioned centrally.

**Decals:**

**NOTE:** *The decals used are the kit supplied propeller logos (10 x 4).*

Apply two logo decals centrally onto the front surface and rear surface of the propeller blades, approximately a third of the way into the blade.

**Finish:**

Airbrush the propeller with a semi-gloss clear coat, such as 'Tamiya' Semi-Gloss (X35) or similar.

**Weathering:**

Brush 'AK Interactive' Kerosene wash (AK2039) over the front and rear hub plates.

# PART 9
# ‘CARLINGUE’
# (CABIN)

## PART 9 - 'CARLINGUE' (CABIN)

References:
'Windsock' Data File No.94 - Caudron G.3 (Jon Guttman).
'Copper State Models' - Kit instruction manual.
'Online' - Resources.

**NOTE:**
*There are a number of parts on the part runners that are **not required** for this particular model version. Those parts are not highlighted on the runners as 'not required' on the parts call-outs page in the kit instruction manual. Therefore, make sure you **use only** the parts detailed in the instruction manual, **identified** by their **runner/part numbers**.*

*Construction of the cabin generally follows the applicable page/steps detailed on the relevant pages in the kit instruction manual. The parts required to build the cabin are detailed on pages 4 to 7 (steps 1 to 20) in the kit instruction manual.*

***Any changes or modifications to the model/parts or their construction sequence are detailed.***

**Preparation:**

General:

Remove all of the parts required to build the cabin from their runners.

File, sand or scrape away any mold seam lines or residual sprue gate stubs.

Drill the seat belt openings in the forward seat back (B8) using a 1.2 mm diameter drill.

Drill two pairs of control cable rigging holes (step 1) in the pilots control column (I1), using a 0.3 mm diameter drill.

Drill a control cable rigging hole (step 6) in both end tabs on the forward rudder bar (H1), using a 0.3 mm diameter drill.

Drill a control cable rigging hole (step 4) in both tabs on both ends of the pilots rudder bar (H2), using a 0.3 mm diameter drill.

Lap belts:

**NOTE:** *The prepared seat lap belts will be formed, painted and fitted in Part 10 (Construction) of this build log.*

Cut the two sets of photo-etch lap belt parts (PE1 to 8) from the supplied photo-etch sheet and file or sand away any residual photo-etch tags from the edges of the parts.

**NOTE:** *Annealing - Using a low heat source (e.g. cigarette lighter or candle flame) 'wave' the photo-etch part over the flame and watch for the part to discolour. **Do not linger** over the flame or the photo-etch part may **distort or even melt**. Doing this anneals the photo-etch, making it easier to bend. Wipe off any soot from the parts. The parts are pre-coloured and annealing will remove this. However, the belts will be painted anyway.*

Anneal all of the lap belt parts, except PE7 and 8.

Cut away the seat ends of the straps (PE3/PE4) as these ends will not be required.

Using thin CA adhesive, secure buckle end (PE7) onto the right lap belt PE1 (step 13).

Using thin CA adhesive, secure buckle end (PE8) onto the left lap belt PE2 (step 13).

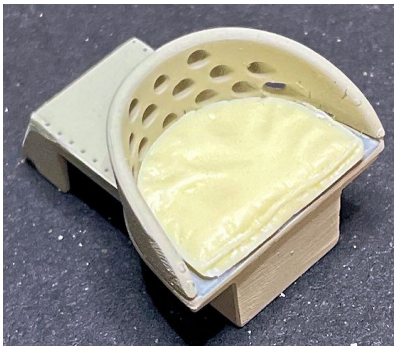
Using thin CA adhesive, secure lap belt assemblies (PE1/PE7) and (PE2/PE8) onto the ends of the seat straps.

Forward seat:

**NOTE:** *The kit supplied forward seat has weaved seat base, which is not clearly defined. Therefore, I replaced this with a resin seat cushion from 'Barracuda Studios'.*

File or sand the profile of the seat cushion to fit into the forward seat.

Scrape away the weaved detail on the kit seat base and sand the underside of the seat cushion (to reduce its thickness), until the seat cushion can be positioned on the seat and clear the pre-drilled lap belt holes in the seat back.



**Assembly:**

Cement the forward panel of the cabin floor (H10) onto the cabin floor (A7).

Cement the pilots seat back (B8) onto the seat frame (B10).

**NOTE:** *The photo-etch lap belt assemblies for the two seats can be fitted onto the assembled seats later in the build.*

Cement the forward seat back (B9) onto the seat base (B11).

Using CA adhesive, secure the resin seat cushion onto the forward seat.

Cement the engine ring (J7) onto the front face engine bulkhead (H8).

Cement the two magnetos (H13 and H14) onto the mounting plate (H15).

Cement the magneto/mounting plate assembly into the rear face of the engine bulkhead (H8).

Cement the two pipes (I2 and H11) into their locations on the rear of the engine bulkhead (H8).

**Painting:**

General:

**NOTE:** *Priming the parts includes the outer surfaces of the cabin sides and panels. This is done to avoid control cable lines, from inside the cabin that are routed to the outside, from being airbrushed if the outer surfaces of the cabin are painted after the cabin has been assembled.*

*Although the instruction manual does have annotation tabs for the colours to be used, not all model parts in the instruction manual are annotated, so some educated guesswork will be required.*

Airbrush all parts/assemblies, **except** the **photo-etch lap belt parts**, with a grey primer, such as 'AK Interactive' Grey (AK758) or similar.

Mask off the inside of the two cabin sides to leave just the forward metal panels exposed.

Airbrush the forward metal panels in the cabin sides, both sides of the engine bulkhead assembly, fuel tank (H5) (not the bottom support member) and the underside panel (A17) with 'Tamiya' Gloss Black (X1) or similar.

Airbrush the black painted surfaces with 'Alclad' Duraluminium (ALC102) or similar.

Remove the masking on the inside of the two cabin sides, then mask off the painted metal panels.

Airbrush the following parts or assemblies with 'Tamiya' Deck Tan (XF55) or similar:

Cabin sides (both sides).

Cabin floor assembly (top surface).

Pilots seat assembly.

Forward seat assembly.

Bottom support member of the fuel tank (H5) (mask the metal painted fuel tank).

Forward resin seat cushion (top surface).

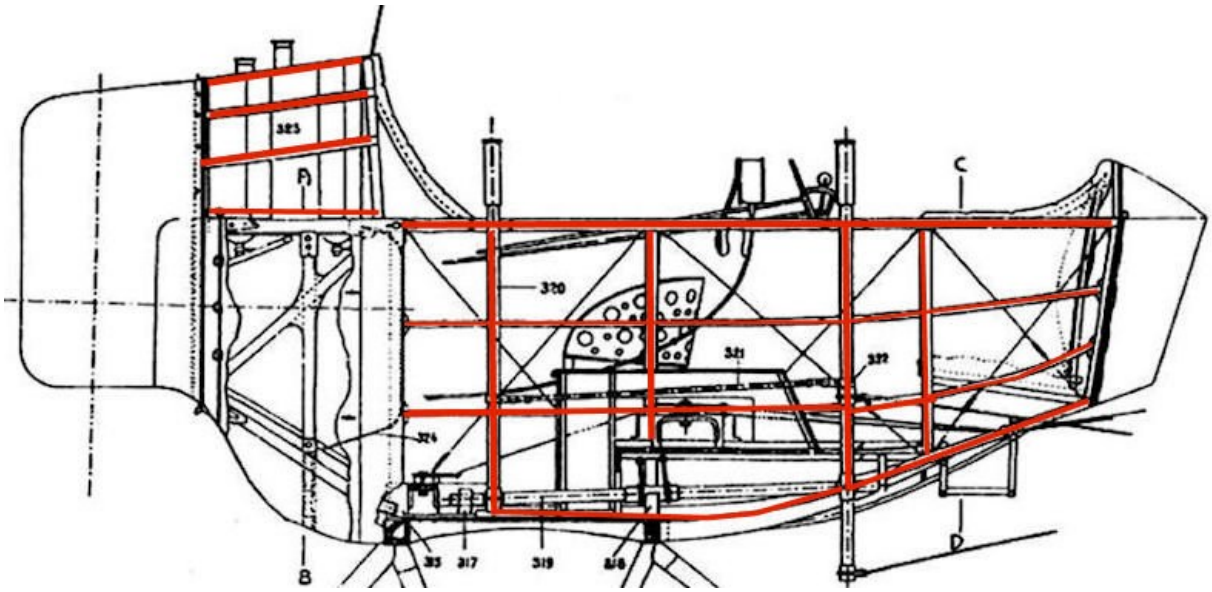
Cabin top panel (H7) (both sides - (Panel H6 not fitted to Belgian aircraft).

Cabin underside rear panel (A10) (both sides).

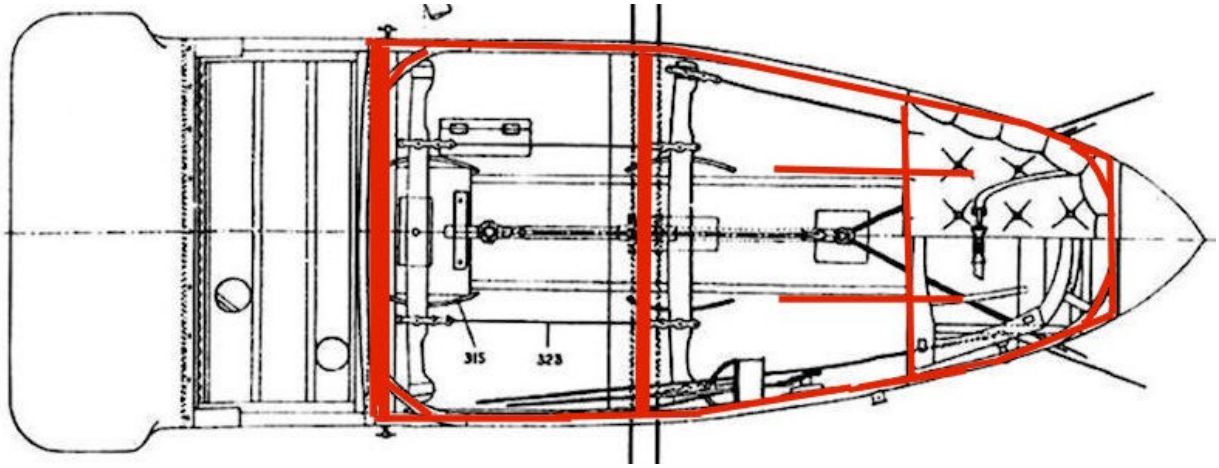
Both rudder bars.

**NOTE:** *The following steps are carried out to represent the slight 'see through' effect of the cabin structure as seen from the outside. The following illustrations highlight the basic internal structure of the cabin.*

Cabin side view.



Cabin underside view.



**NOTE:** *Refer to the above illustrations and the pre-mold detail on the model parts.*

Airbrush just along and across the highlighted structure on the inner and outer surfaces of the cabin sides using 'Tamiya' Red Brown (XF64) or similar.

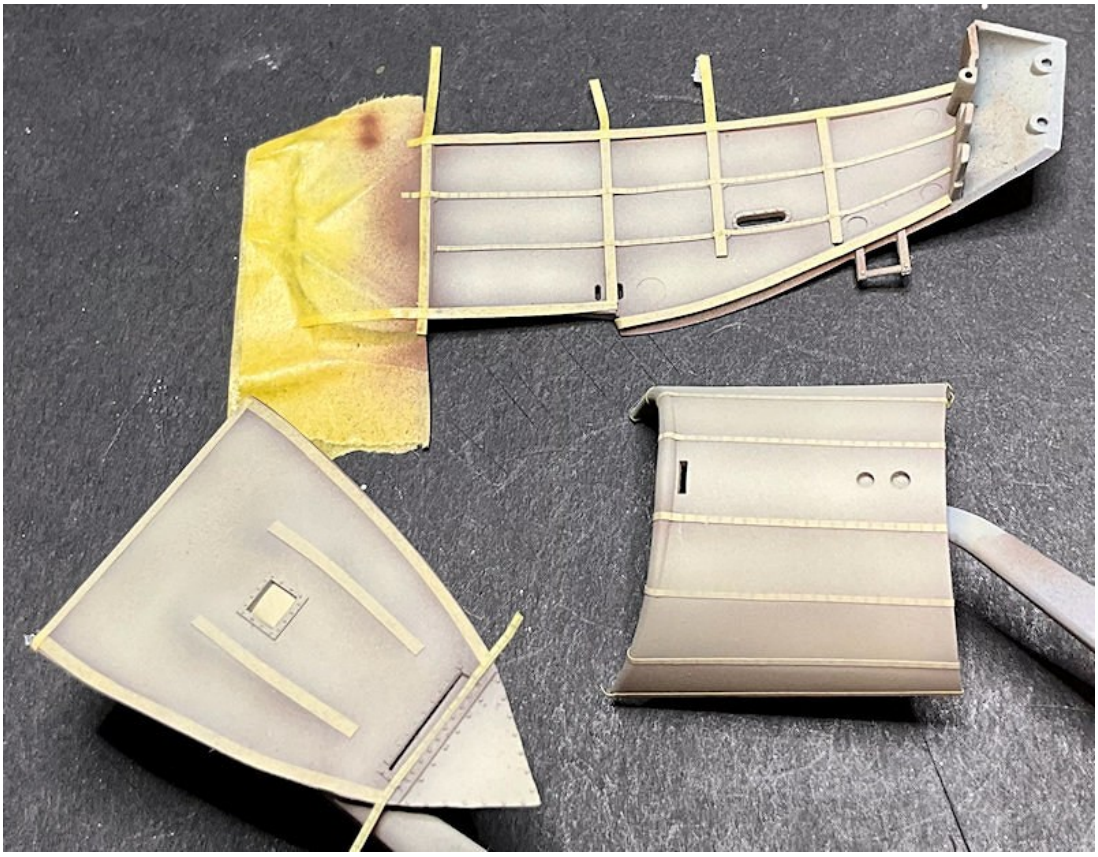
Airbrush the highlighted structure on the **external surfaces only** of the cabin top panel (H7) and the underside panel (H10), using 'Tamiya' Red Brown (XF64) or similar.

Using thin strips of masking tape, mask the internal structure over the painted Red Brown (XF64) on the cabin sides, inner and external surfaces.

Using thin strips of masking tape, mask the internal structure over the top panel (H7) and the underside panel (H10).

**NOTE:** *The intention of the following steps is to lightly cover the painted Red Brown (XF64) to the point where the visible paint is just visible under the top coat. It's best to apply a light misting coat and let it dry, then check the effect and if necessary airbrush again until the desired effect is achieved.*

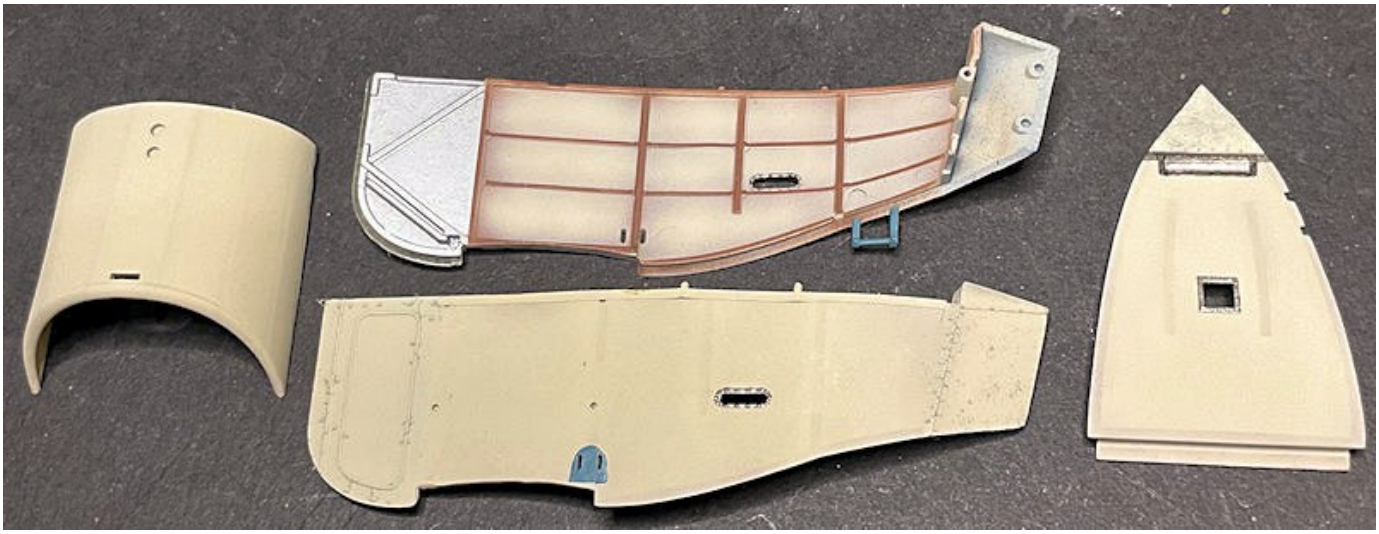
Lightly airbrush the internal/external surfaces of the cabin sides and external surfaces of the top panel (H7) and the underside panel (H10) with 'Tamiya' Deck Tan (XF55) or similar to fade back the surfaces around the masking.



Remove all masking except that on the inner surfaces.

Lightly airbrush the surfaces with 'Tamiya' Deck Tan (XF55) or similar to fade back the painted internal structure.

Remove all remaining masking.



Wood effects:

*Example:*

**NOTE:** *Refer to Wood effect - Method 2 in Part 2 (Wood Effects) of this build log for more information. The wood effect for this model was created using 'Windsor & Newton' Griffin (Alkyd) oil paints.*

Brush a covering coat of 'Windsor & Newton' Griffin Alkyd oil paint over the part.

Leave the oil paint to settle for several minutes.

Decant a small amount of White Spirits into a suitable dish.

Dip a flat oil brush into the White Spirit then wipe the brush on a sheet of kitchen roll (which should not deposit any fibres in the oil paint) to remove most of the White Spirit.

Brush the oil paint in the required direction and keep wiping the brush on the sheet to remove residual oil paint.

Repeat dipping and wiping the brush in the White Spirits and brushing the oil paint until the desired density and effect is achieved.

Leave the oil paint to fully dry. It should be touch dry in an hour or so and fully dry within 12 hours.

*Applying wood effects:*

Brush 'Windsor & Newton' Griffin Alkyd **Raw Sienna** oil paint over the following parts:

Both rudder bars.

Bottom support member of the fuel tank.

Remove residual oil paint to achieve the desired wood effect.

Brush 'Windsor & Newton' Griffin Alkyd **Burnt Umber** oil paint over the following parts:

Cabin floor assembly (top surface).

Forward seat assembly.

Remove residual oil paint to achieve the desired wood effect.

Brush 'Windsor & Newton' Griffin Alkyd **Vandyke Brown** oil paint over the pilots seat (not over the seat cushion). Use a brush stippling method to remove residual oil paint and create a worn leather appearance.

Brush 'Windsor & Newton' Griffin Alkyd **Burnt Umber** oil paint over the following parts:

Pilots seat cushion.

Forward seat cushion.

Support for pilots seat (bottom front member).

Use a brush stippling method, apply 'Windsor & Newton' Griffin Alkyd **Raw Sienna** oil paint over the pilots and forward seat cushions to create a worn leather appearance.

Internal detail painting:

Brush paint the various cabin internal details as follows:

**Pilots control column (I1) -** 'Tamiya' Medium Blue (XF18), hand grip Flat Black (XF1), top 'Mr. Color' Brass (216).

**Forward control column (H12) - '**Tamiya' Medium Blue (XF18), hand grip Flat Black (XF1), top 'Mr. Color' Brass (216).

**Throttle quadrants (H18/H19) -** 'Mr. Color' Stainless Steel (213), knob 'Tamiya' Hull Red (XF9).

**Control rod (I3) -** 'Tamiya' Medium Blue (XF18).

**Rear of engine bulkhead assembly -** Centre housing (H15)/magnetos (H13/H14) 'Mr. Color' Stainless Steel (213), magneto faces 'Mr. Color' Brass (216) and 'Tamiya' Hull Red (XF9), left pipe (H11) 'Mr. Color' Copper (215), right pipe (I2) 'Mr. Color' Brass (219).

**Pipe (H16) -** ‘Mr. Color’ Stainless Steel (213), valve ‘Mr. Color’ Brass (216).

**Rudders bar ends/centre bolt (H1/H2)** - ‘Tamiya’ Medium Blue (XF18).

External detail painting:

Brush paint the various cabin external details as follows:

**Wing warp cables exit plate/pilots foot step** - ‘Tamiya’ Medium Blue (XF18) - outside of cabin sides.

**Rudder cables exit ports** - ‘Mr. Color’ Stainless Steel (213) - inside/outside of cabin sides.

**Elevator cables exit slot ports** - ‘Mr. Color’ Stainless Steel (213) - outside of cabin underside rear panel (A10).

**Pilots control column exit port** - ‘Mr. Color’ Stainless Steel (213) - outside of cabin underside rear panel (A10).

**Tank fillers (B14/B15)** - ‘Mr. Color’ Stainless Steel (213) necks with Brass (219) caps.

**Weathering:**

**NOTE:** *Refer to Part 3 (Weathering) of this build log for more information.*

External paint wear:

**NOTE:** *The metal panels at the front of the cabin sides and underside and at the rear of the cabin were overpainted on the Belgian aircraft. It’s not clear if the forward, underside panel was painted. Therefore, only the two forward, side and the rear panels are weathered.*

*Several methods to create paint weathering or chipping can be used, such as dry brushing, chipping solution, sponge painting, etc. For this model I chose to use dry brushing.*

Mask off the cabin sides to leave just the forward metal side panels and cabin rear panels exposed.

**NOTE:** *Dry brush by using a domed and soft brush, which has been dipped in the paint. Dab the brush on an absorbent paper to remove the liquid paint, leaving paint pigment on the brush.*

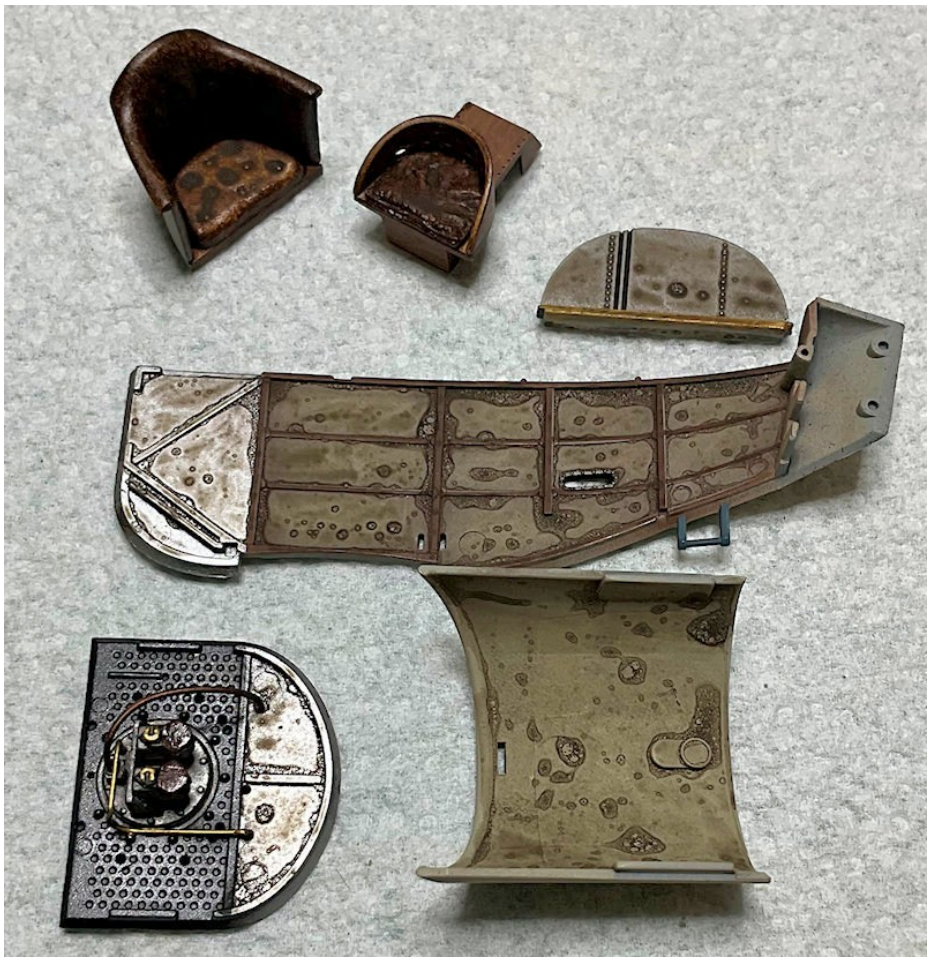
Dry brush across/on the exposed metal panels with ‘Mr. Color’ Super Iron 2 (203) or similar, to create a worn away paint surface.

Internal weathering:

**NOTE:** *For general internal weathering I chose to use the ‘Flory Models’ Dark Dirt and the Grime fine clay washes.*

Brush ‘Flory Models’ Dart Dirt fine clay wash, as desired, to the following parts:

Internal surface of the cabin sides - both seat cushions - fuel tank (both sides) - engine bulkhead (both sides) - inner surface of cabin top panel (H7).



Brush ‘Flory Models’ Grime fine clay wash, as desired, to the following parts:

Ends of both rudder bars - forward cabin floor - pilots cabin floor.

Remove the washes to achieve the desired level of weathering.

**Assembly (continued):**

General:

Cement the pilots rudder bar (H1) into its locating opening in the cabin rear.

Cement the forward seat assembly (B8/B10) into its locating slots in the cabin floor.

**NOTE:** *Step 3 on page 4 of the kit instruction manual calls for holes to be drilled through the two molded rings under the forward half of the cabin floor (A7). These are required to locate the forward control column. However, the pre-molded drill points do not match the locating pegs on the control cabin.*

Using the rear drilling point as a guide, drill a hole of 0.9 mm diameter through the cockpit floor.

Position the rear locating peg of the control column (H12) over the drilled hole and aligned centrally along the cabin floor.

Point mark the location of the front locating peg.

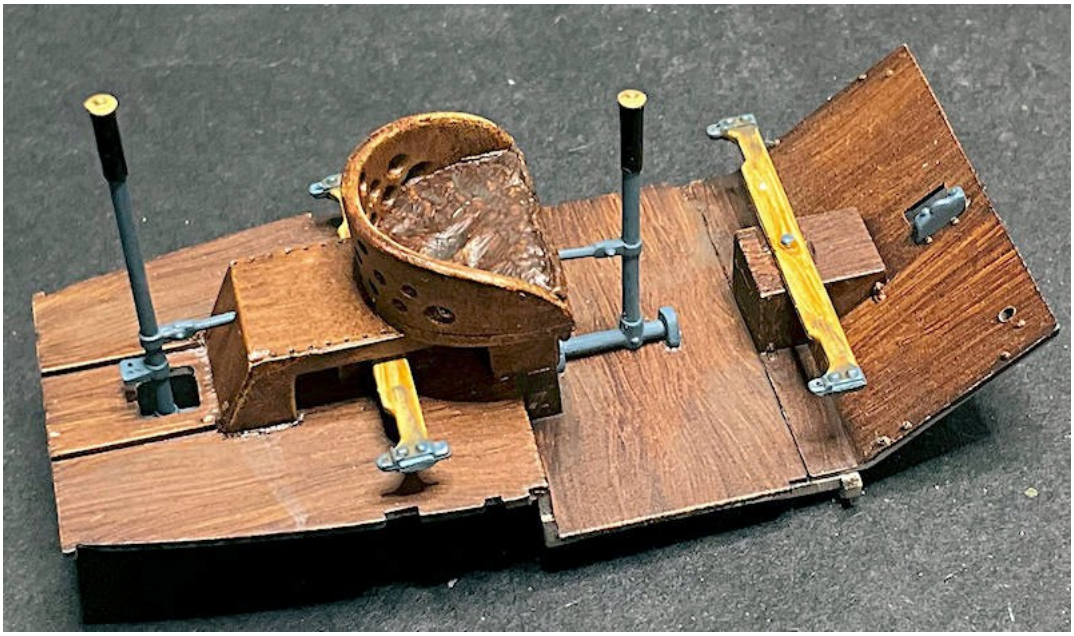
Using the point mark as a guide, drill a hole of 0.9 mm diameter through the cockpit floor.

Cement the forward control column (H12) into the pre-drilled holes.

Cement the forward rudder bar (H2) into its locating opening in the cabin.

Pass the pilots rudder bar (I1) through the cabin floor and cement it against its locating recesses in the floor underside.

Cement the control column interconnector (I3) onto its locating point on the pilots control column.



Pilots lap belts:

**NOTE:** *The lap belt parts were prepared earlier. The left lap strap is the PE2/PE8/strap assembly and the right lap strap is the PE1/PE7/strap assembly.*

Airbrush the two lap belts with a grey primer, such as ‘AK Interactive’ Grey (AL758) or similar.

Airbrush the two lap belts with ‘MRP’ Ochre Wood (MRP260) or similar tan colour.

Brush paint the metal fittings on two belts with ‘Mr. Color’ Stainless Steel (213) or similar.

Bend the seat strap end of the right belt assembly (PE1/PE7) so that it locates between the seat side and the seat cushion.

Press the belt assembly down onto the seat cushion and slightly bend up the end of belt PE2.

Repeat the procedure for the left belt assembly (PE2/PE8) on the seat.

Remove both belt assemblies from the seat taking car not to distort the formed belts.

Airbrush the two lap belt assemblies with a grey primer, such as ‘AK Interactive’ Grey (AL758) or similar.

Airbrush the two lap belt assemblies with ‘MRP’ Ochre Wood (MRP260) or similar tan colour.

Brush paint the metal buckle on belt PE6 with ‘Mr. Color’ Stainless Steel (213) or similar.

Using thin CA adhesive, secure both belt assemblies onto the seat as before and onto each other.

Brush ‘Ammo MiG’ Acrylic Filter Medium Brown (A.MIG-0823) over the belts to slightly darken them.

Forward seat lap belts:

**NOTE:** *The lap belt parts were prepared earlier. The left lap strap is PE5 and the right lap strap is PE6.*

Airbrush the two lap belt assemblies with a grey primer, such as ‘AK Interactive’ Grey (AL758) or similar.

Airbrush the two lap belt assemblies with ‘MRP’ Ochre Wood (MRP260) or similar tan colour.

Brush paint the metal buckle on belt PE6 with ‘Mr. Color’ Stainless Steel (213) or similar.

Pass the seat end of the right belt (PE5) through the pre-drilled hole in the right side of the seat back on the forward seat.

Bend the end of the strap down and under the side of the seat.

Repeat the procedure for the left belt (PE6) on the seat.

Using thin CA adhesive, secure both belt assemblies onto the seat as before and onto each other.

Brush ‘Ammo MiG’ Acrylic Filter Medium Brown (A.MIG-0823) over the belts to slightly darken them.

**Bracing wires:**

**NOTE:** *Refer to Part 6 (Rigging) of this build log for more information. At this stage of the build, it's best to pre-rig the cabin bracing wires before further assembly of the cabin. The rigging materials used are:*

*Tube - Blackened 0.4 mm diameter Brass tube, such as 'Albion Alloy's' MBT04 or similar.*

*Rod - 0.2 mm diameter Nickel-Silver rod, such as 'Albion Alloy's' NSR02 or similar.*

*Nickel-Silver or Brass tube can be chemically blackened by immersion in solutions such as 'Blacken-It' or similar then rinse and dry the blackened tubes to prevent powdering of the surfaces. I chose to use tubes, not turnbuckles, due to the space restrictions between the horizontal frames in the cabin bays.*

Cut twelve short lengths of blackened 0.4 mm diameter tube.

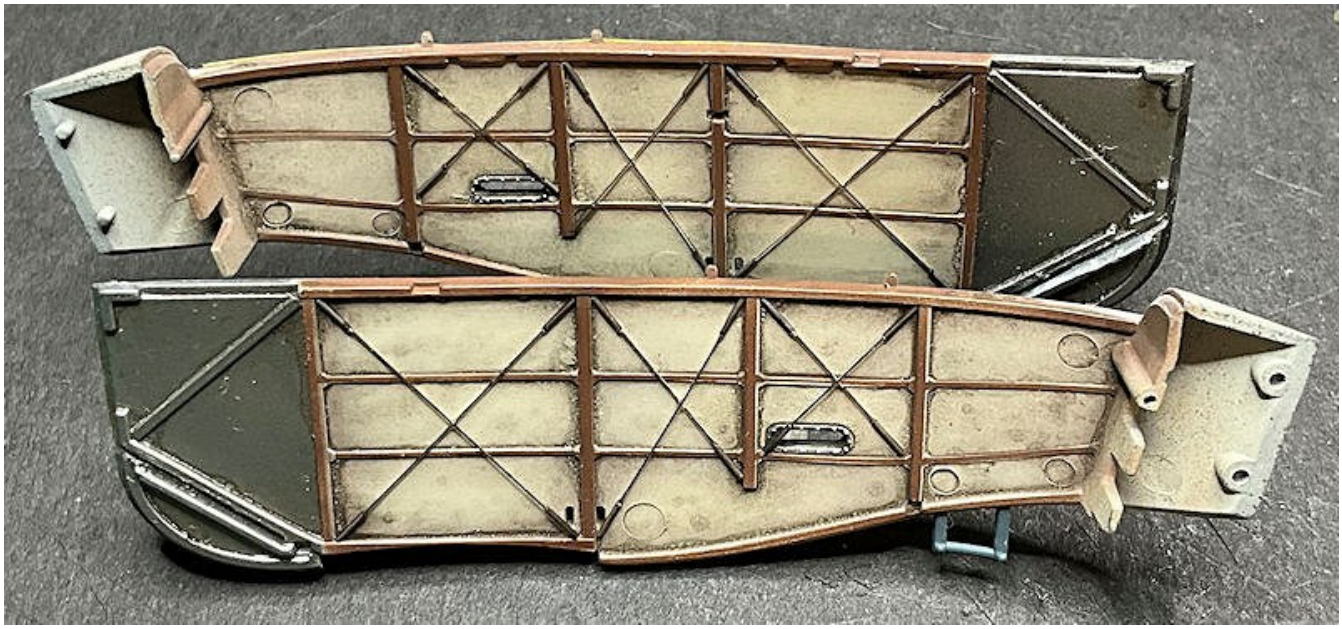
**NOTE:** *Refer to Page 5 step 10 for location of the cabin bracing wires.*

Cut twelve lengths of 0.2 mm diameter rod to match the length of the various bracing wires.

Insert each rod into two tubes and move the tubes to the ends of the rods.

Secure the tubes to the rods using thin CA adhesive.

Secure each rod/tube assembly into its location, directly across the relevant cabin frame, using thin CA adhesive.



**Assembly (continued):**

Engine throttle quadrants:

**NOTE:** *Only the interconnecting control rods between the throttle quadrants can be fitted at this stage of the build. The rods down to the operating tube on the cabin floor will be added later.*

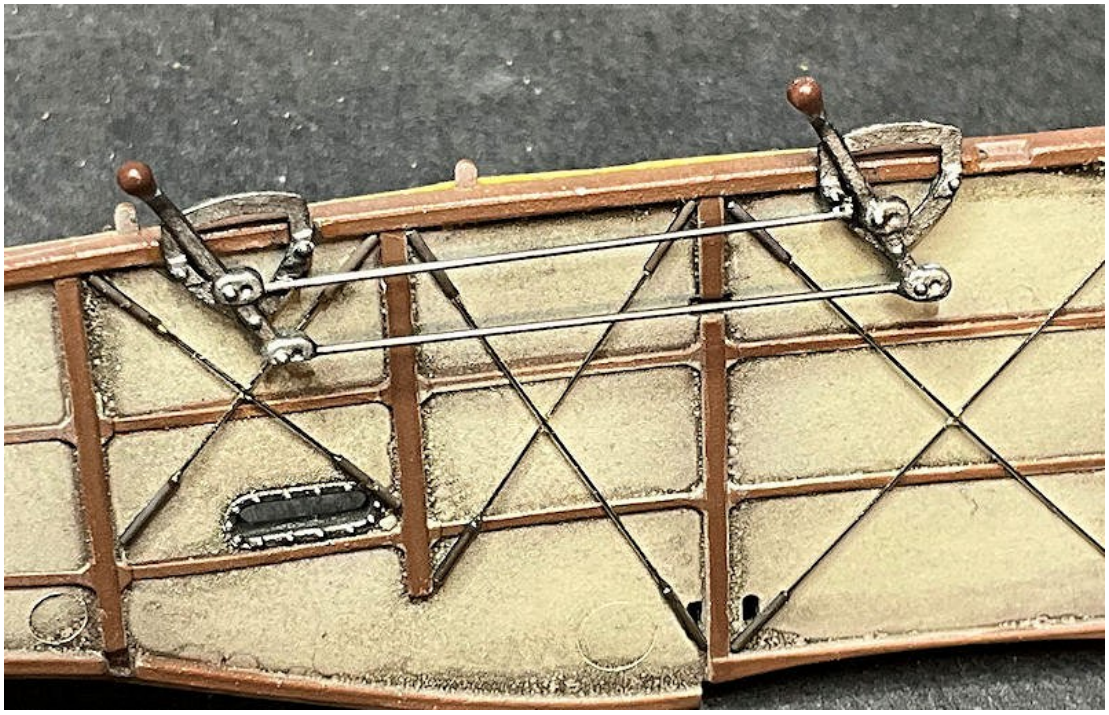
Cement the two throttle quadrants into their locating recesses in the underside of the top longeron on the cabin left side.

Cut two lengths of 0.4 mm diameter Nickel-Silver tube, such as 'Albion Alloy's' NST04 or similar.

Immerse the tubes in a blackening solution until the darken to a more steel colour, then remove and wipe dry on a tissue.

Trim the lengths of the tubes such that they fit between the attachment links on the throttle quadrants.

Secure the tubes in position using thin CA adhesive.



**Flight control cables:**

**NOTE:** *Refer to Part 6 (Rigging) of this build log for more information. At this stage of the build, it's best to pre-rig the rudder, elevator and wing warping control lines before further assembly of the cabin. The rigging materials used are:*

*Tube - Blackened 0.4 mm diameter Brass tube, such as 'Albion Alloy's' MBT04 or similar.*

*Line - 0.08 mm diameter mono-filament, such as 'Steelon' or 'Stroft GTM' or similar.*

*Turnbuckles - 'Proper Plane' 1/32nd scale resin turnbuckles (RD005).*

*Nickel-Silver or Brass tube can be chemically blackened by immersion in solutions such as 'Blacken-It' or similar then rinse and dry the blackened tubes to prevent powdering of the surfaces.*

Rudder:

Brush paint the centre barrels of two turnbuckles with a mix of 'Mr. Color' Brass (219) and Copper (215) to a ratio of 50/50%.

Use a razor blade or similar to cut out the two turnbuckles from their 3D printed frame. **Do not** try to remove any part of the surrounding frame first as this may stress the turnbuckles and damage the fragile end 'eyes'.

Cut five short lengths of blackened 0.4 mm diameter Brass tube, such as 'Albion Alloy's MBT04 or similar.

**NOTE:** *The following procedure describes adding interconnecting cables to one end of both pairs of rudder bars. The same procedure applies to the other end of both rudder bars.*

*Interconnecting control cables:*

Cut two long lengths of 0.08 mm diameter mono-filament.

Pass a line through a tube then through the 'eye' end of a turnbuckle.

Loop the line back and through the tube.

Keeping the line taut, move the tube up to, **but not touching**, the 'eye' end of the turnbuckle.

Secure the lines in the tube end furthest from the turnbuckle, using thin CA adhesive.

Cut away any residual tag of line at the tube end.

Pass a second line through a second tube then through the opposite 'eye' end of the turnbuckle.

Loop the line back and through that tube.

Pass one of the lines through the pre-drilled hole in one the end of the forward rudder bar.

Loop that line back and through the tube, which now has three lines passed through.

Tension both lines in that tube to draw the tube and turnbuckle towards the rudder bar, making sure that the line loops can move feely in the rudder bar and turnbuckle.

Apply thin CA adhesive to one end of that tube to secure the lines in the tube.

Carefully cut away any residual tags of line at the tube ends.

Pass the line at the opposite end of the turnbuckle rearwards and through a third tube then through the forward pre-drilled hole in the pilots rudder bar.

Loop that line back and through the tube.

Keeping the line taut, move the tube up to, **but not touching**, the rudder bar.

Secure the lines in the tube end furthest from the rudder bar, using thin CA adhesive.

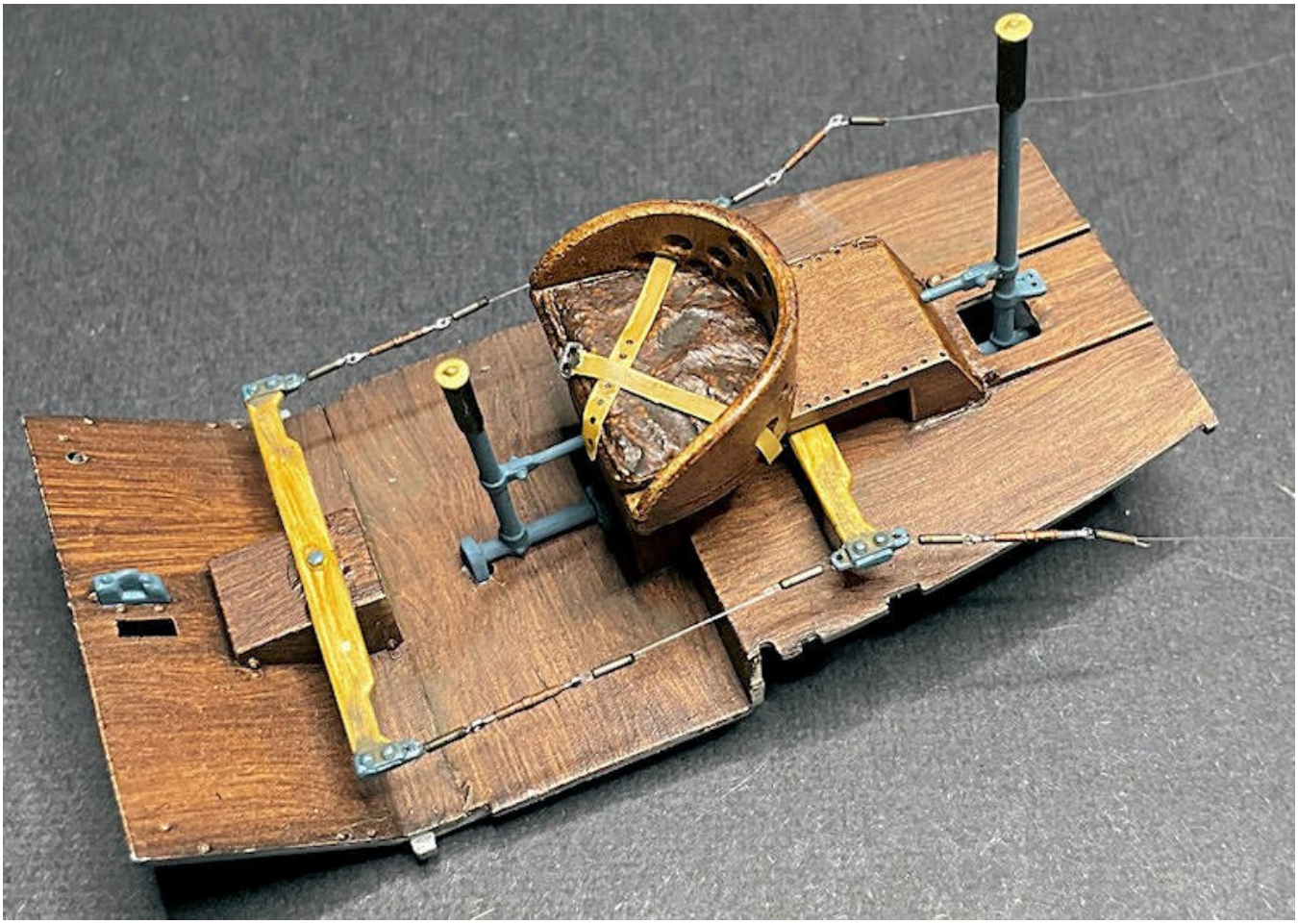
Cut away any residual tag of line at the tube end.

*Cabin to rudders control cables:*

Cut two long lengths of 0.08 mm diameter mono-filament, one being approximately 250 mm in length.

Using the shorter length of line, repeat the previous procedure to attach the turnbuckle to the rear pre-drilled hole in the pilots rudder bar.

Repeat the previous procedure to attach the 200 mm line to the opposite ‘eye’ end of the turnbuckle.



Brush paint the ‘eye’ ends of the turnbuckles with ‘Mr. Color’ Stainless Steel (213) or similar.

Elevators:

**NOTE:** *Refer to Part 6 (Rigging) of this build log for more information. The rigging materials used are:*

*Tube - Blackened 0.4 mm diameter Brass tube, such as 'Albion Alloy's' MBT04 or similar.*

*Line - 0.08 mm diameter mono-filament, such as 'Steelon' or 'Stroft GTM' or similar.*

*Turnbuckles - 'Proper Plane' 1/32nd scale resin turnbuckles (RD005).*

*Nickel-Silver or Brass tube can be chemically blackened by immersion in solutions such as 'Blacken-It' or similar then rinse and dry the blackened tubes to prevent powdering of the surfaces.*

Brush paint the centre barrels of four turnbuckles with a mix of 'Mr. Color' Brass (219) and Copper (215) to a ratio of 50/50%.

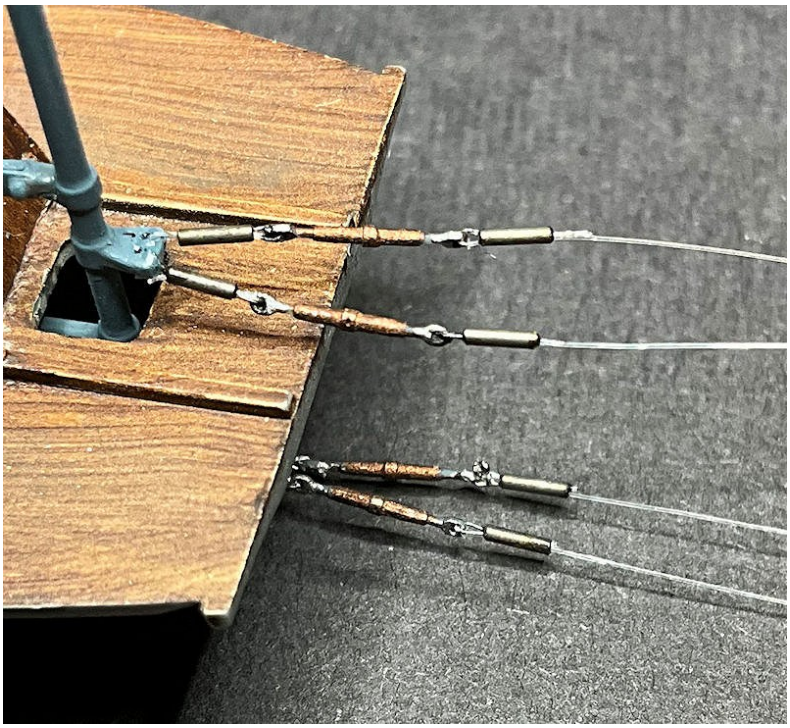
Use a razor blade or similar to cut out the two turnbuckles from their 3D printed frame. **Do not** try to remove any part of the surrounding frame first as this may stress the turnbuckles and damage the fragile end 'eyes'.

Cut eight short lengths of blackened 0.4 mm diameter Brass tube, such as 'Albion Alloy's MBT04 or similar.

**NOTE:** *The following procedure applies to both upper and lower pairs of elevator control cables at the pilots control column.*

Use the previous procedure to attach elevator control cables to the rear of the pilots control column, using four cut lengths of line of approximately 250 mm in length.

Brush paint the 'eye' ends of the turnbuckles with 'Mr. Color' Stainless Steel (213) or similar.



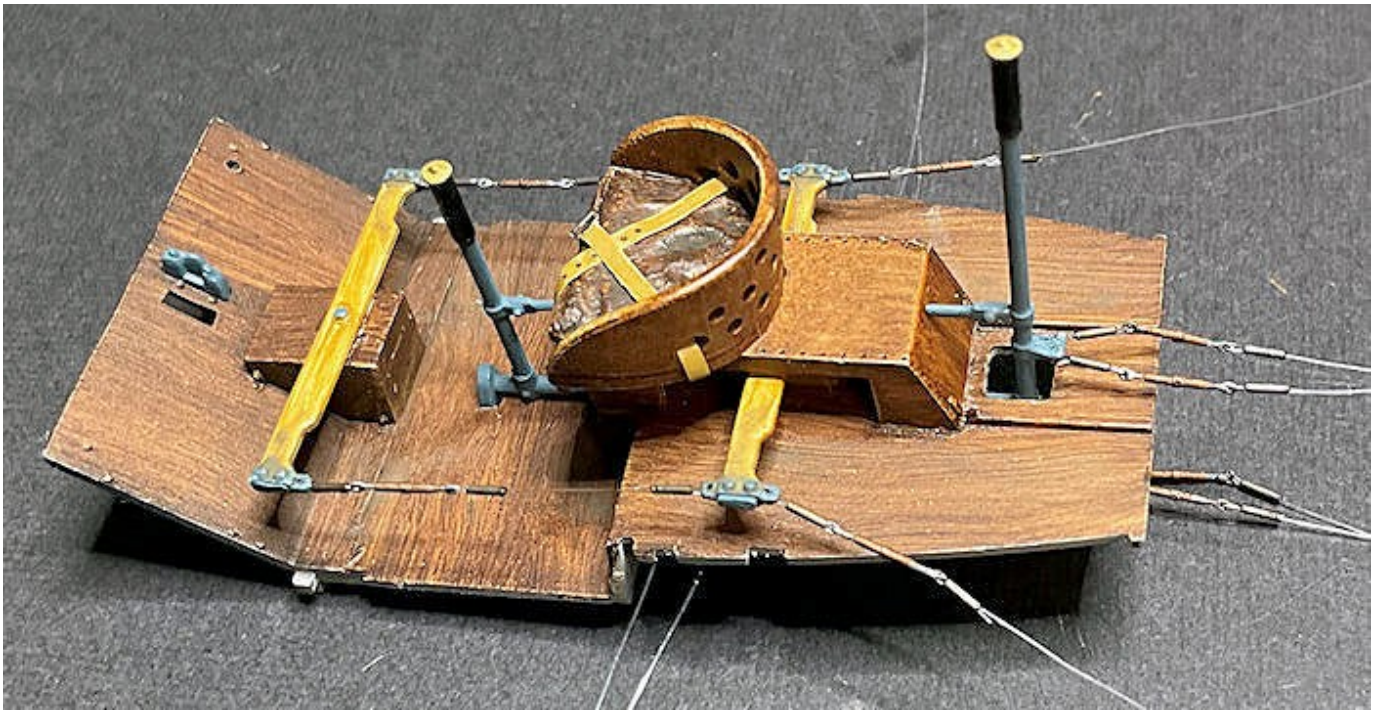
Wing warping:

**NOTE:** *Refer to Part 6 (Rigging) of this build log for more information. The rigging material used is 0.08 mm diameter mono-filament, such as 'Steelon' or 'Stroft GTM' or similar.*

Cut two lengths of line approximately 550 mm in length.

Wrap the lines around the control column torque tube under the cabin floor and at each side of the two cable guides, making sure equal length of lines extend from both sides of the cabin floor.

Secure the wrapped lines to the control column torque tube using thin CA adhesive.



**Assembly (continued):**

General:

**NOTE:** *Before assembly, make sure all paint/primer is removed from the various mating surfaces and locators for the cabin parts.*

*Also, make sure all pre-rigged control lines are kept clear of any areas to be glued.*

Fully locate the cabin floor into its locating slot and recess at the front of the cabin left side and its recess at the rear edge of the cabin side.

Cement the floor in position in the cabin left side.

Fully locate the cabin floor into its locating slot and recess at the front of the cabin right side and its recess at the rear edge of the cabin side. Also the locating stubs at the rear of the cabin sides.

Cement the floor in position in the cabin right side.

Pass the wing warp control line pairs out through their openings at the bottom of the cabin sides.

**NOTE:** *When fitting the rear, underside panel, the rigged elevator lines at the bottom of the pilots control column need to be passed through the opening panel.*

Cement the rear, underside panel into the underside of the cabin.

Pass the lines of the upper elevator control cables (on the pilots control column) out through the slot across the rear, underside panel.

Pass the lines of the rudder control cables out through their openings in the sides of the cabin.

Cement the pilots seat fully into the rear of the cabin.

Cement the fuel tank panel into its locating recesses in the to of the cabin upper longerons.

Cement the throttle control tube (H17) into its locating recess in the bottom, forward edge of the cabin left side and its recess in the centre fitting on the cabin floor.

Engine throttle rods:

Cut two lengths of 0.4 mm diameter Nickel-Silver tube, such as ‘Albion Alloy’s’ NST04 or similar.

Immerse the tubes in a blackening solution until it darkens to a more steel colour, then remove and wipe dry on a tissue.

Trim the lengths of the tubes such that they fit between the upper and lower linkages on the forward throttle quadrant and the upper and lower ends of the lever on the fitted control tube H17.

Secure the tubes in position using thin CA adhesive.

Cement the engine/bulkhead assembly onto the front of the cabin, making sure the bulkhead locates fully into and onto its locating recesses and shoulders on the cabin front sides.

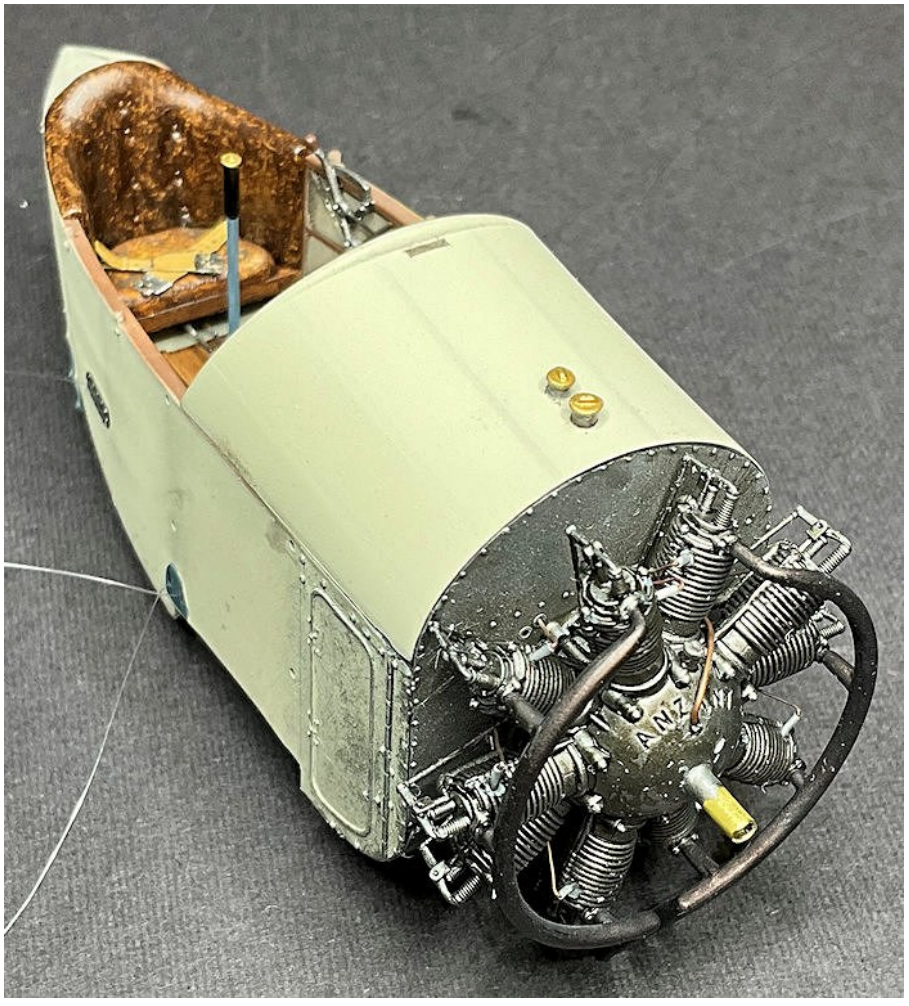
Cement the fuel supply pipe (H16) into it locating recess in the forward, lower left of the fuel tank panel and the rear of the engine bulkhead.

Cement the cabin decking panel (H7) onto the top of the cabin and into its locating recesses in the top of the cabin sides.

Cement the cabin forward underside panel (A17) into the cabin sides and against the bottom edge of the engine bulkhead.

Cement the rear filler (B14) into its locating recess on the top of the cabin decking panel (page 8, step 24).

Cement the front filler (B15) into its locating recess on the top of the cabin decking panel (page 8, step 24).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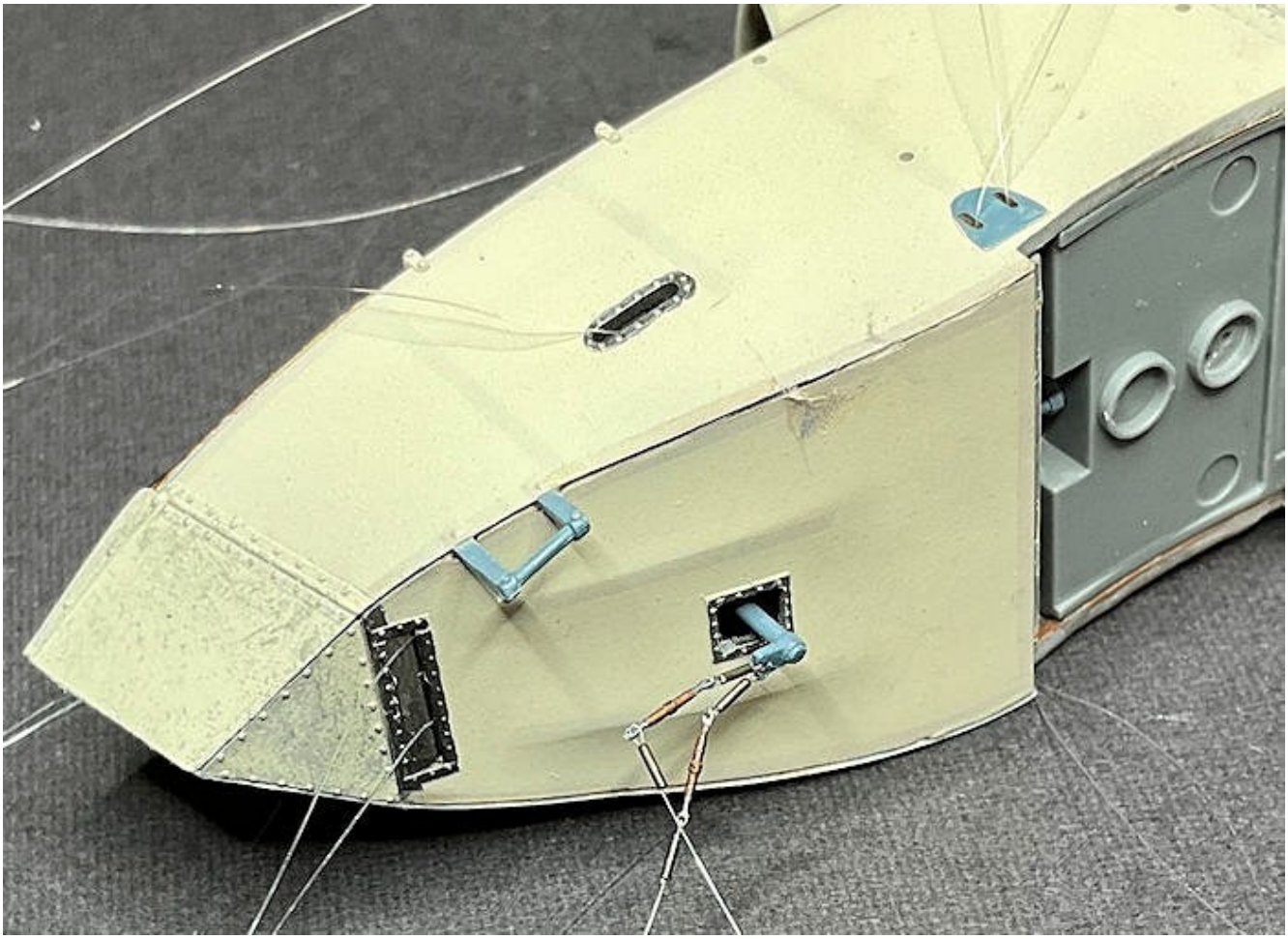
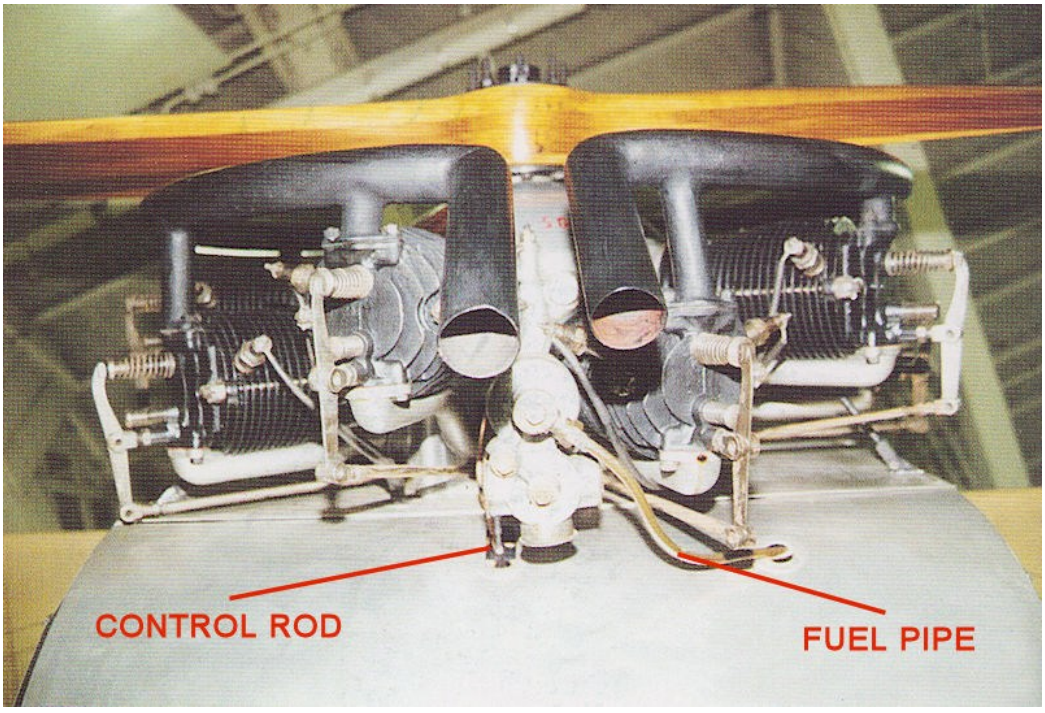


**Modifications:**

Fuel pipe:

**NOTE:** *The kit instruction manual shows the opening in the forward, underside panel for I assume the carburettor control linkage. However, the kit panel does not have the opening for the linkage and there are no kit parts to represent the fuel supply pipe from the cabin underside panel to the carburettor or the carburettor control rod.*



Drill two holes of 0.4 mm diameter through the cabin underside panel aligned to the bottom of the carburettor on the engine.

Cut two lengths of ‘PlusModel’ 0.3 mm diameter lead wire.

Secure one end of the wires into the pre-drilled holes, using thin CA adhesive.

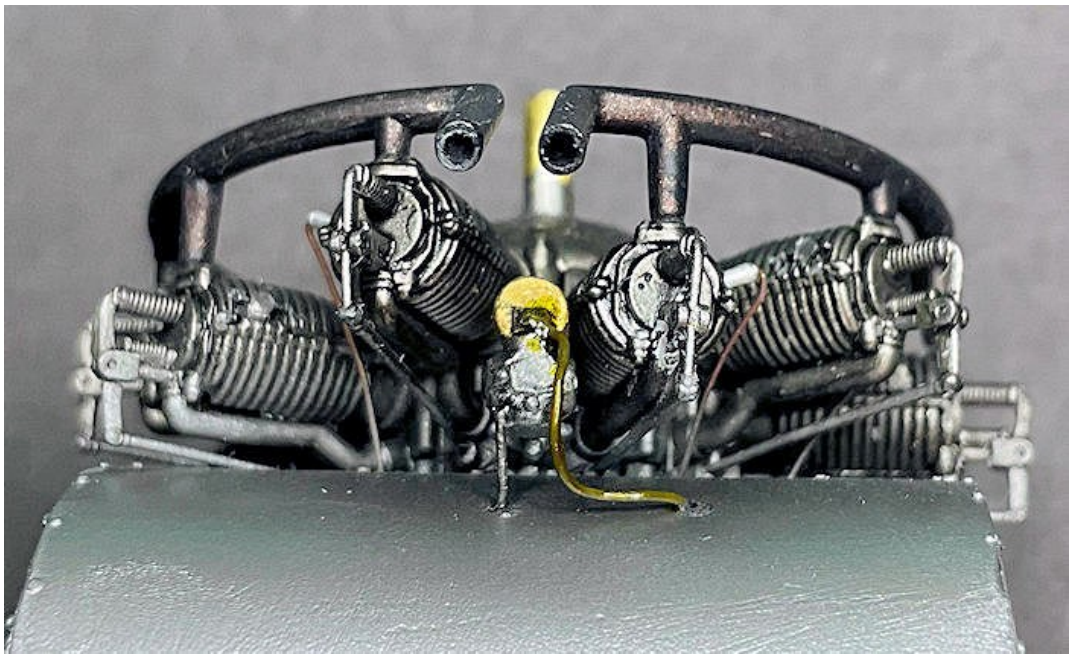
Cut the length of the left wire (control rod), when viewed from under the engine, so that it’s straight and touches the bottom left of the carburettor.

Cut the length of the right wire (fuel supply pipe), when viewed from under the engine, so that it bends towards then over the carburettor to the brass painted float chamber.

Secure the ends of the wires to the carburettor, using thin CA adhesive.

Brush paint the control rod wire with ‘Mr. Color’ Stainless Steel (213) or similar.

Brush paint the fuel supply pipe wire with ‘Tamiya’ Clear Yellow (X24) or similar.



**Painting (continued):**

**NOTE:** *The top, rear of the cabin has the seam join along its centre line. This seam needs to be worked so that it’s no longer visible.*

Sand the joint seam to blend the surrounding surfaces.

If any gaps or seam line is visible, fill by brushing over with ‘Mr. Surfacer’ 1000 or similar.

Once the filler has fully set, sand the joint seams to blend the surrounding surfaces.

Mask off the top, rear of the pilots seat.

Airbrush the worked area with a grey primer, such as ‘AK Interactive’ Grey (AK758) or similar.

Airbrush the primed area with ‘Tamiya’ Deck Tan (XF55).

Brush paint the forward padding surround of the cabin with ‘AK Interactive’ Brown Leather (AK3031) or similar.

**Decals:**

Pull the rudder control cables into the cabin to keep them clear when applying the side decals.

Airbrush several light coats of a clear gloss, such as ‘Mig’ A-Stand Aqua Gloss (A.Mig-2503) or ‘Tamiya’ Clear Gloss (X22) similar over the top decking panel, cabin sides and rear underside panel.

‘Aviattic decals:

**NOTES:** *The decals used are the ‘Aviattic’ clear backed Clear Doped Linen ’bleached’ (ATT32044). Refer to Part 4 (Decals) of this build log for more information.*

*The ‘Aviattic’ linen decals are unlike normal screen printed decals, in that when being applied, have the ability to be handled with slightly less care than normal and they have the ability to stretch slightly, which standard decals do not. That said, if you handle them too roughly, damage can occur.*

*Make sure the model surface for each decal to be applied is clean and smooth or particles on the surface may cause ‘silvering’ (trapped air) under the decals when dry.*

*These ‘Aviattic’ CDL decals being used are not ‘cookie’ cut to the shapes required. Therefore the decals must be hand cut to shape.*

*Example of applying ‘Aviattic’ decals:*

Lay the part with surface to have decal down onto the rear (blank) side of the decal sheet.

**NOTE:** *During the following step, do not press too hard when tracing the outline as this may mark the decal side of the sheet.*

Using a pencil, lightly trace the outline of the part onto the rear of the decal, allowing for any curvature of the part.

Carefully cut out the decal shape.

Check that the decal fits correctly over the surface of the part.

**NOTE:** *To aid in adhesion, you can mix a small amount of PVA (white glue) into the decal water.*

Wet the model surface with clean water.

Soak the decal in the warm decal water long enough to be able to move the decal on its backing sheet.

Carefully lift the decal on its backing sheet from the water. Make sure the decal does not fold over on itself, as it will be difficult to separate a fold once out of the water.

Carefully slide the decal off one end of the backing paper and position the decal end onto the surface and holding that end, slide out the backing paper.

Using large, flat brush or cotton buds, start to smooth out the decal at one end, removing any water from underneath and smoothing the decal onto the surface. Continue this along the length of the decal, taking care not to grip the decal surfaces with your fingers, as this will cause ripples in the decal.

Once the decal is smoothed down onto the model surface, apply pressure along the decal with soft and dry tissue paper or by finger pressure whilst wearing lint free cotton gloves. This will expel any remaining water and press the decal on to the model surface.

Check over the decal to make sure there are no tears or folds, which need to be rectified before the decal sets.

**NOTES:** *If the decal covers locating holes, slots or other openings, prick through the decal over holes or slice the decal over openings, then brush either ‘MicroScale’ MicroSol’ or* ***sparingly*** *’Tamiya’ X20A thinners into the holes or around the openings. This will soften and conform the decal.*

*If the decal needs to be conformed around curved edges etc, brush* ***sparingly*** *’Tamiya’ X20A thinners across the decal edge. This will soften and conform the decal.*

*Once fully dry and set, trim any excess decal from edges using a sharp blade, such as a shielded razor blade.*

*Paper templates:*

Some surfaces of models that require covering with a decal can be problematic due to their shape. In this case, I will cut out a paper template to check against the models surface and once happy, will use that template to trace out the shape on the actual decal sheet.

*Application:*

Using the previous examples as a guide, cut out and apply 'Aviattic' decal (ATT32044) to the top decking panel.

Using the previous examples as a guide, cut out and apply 'Aviattic' decal (ATT32044) to the sides of the cabin. Do not apply decal over the forward metal panels or over the rear cover panel of the cabin.

**NOTE:***I found it easier to create two separate decals, joined down the centre line of the underside panel.*

Using the previous examples as a guide, cut out and apply 'Aviattic' decal (ATT32044) to the cabin underside rear panel. Do not apply decal over the rear cover panel of the cabin.

Kit supplied decals:

**NOTE:** *Refer to page 23, illustration 5, for positioning the kit supplied decals. The kit supplied decals used are Number 79 (decal 1D x 2) and Serial No: C.6207 (decal 2D x 2).*

*The kit supplied decal are **very thin**. Take care when applying to avoid the decals from folding over themselves and use sufficient water to allow the decals to be position more easily.*

Apply the decals in their correct position on the cabin sides.

Once the decals are fully set, seal and protect all of the applied 'Aviattic' and kit supplied decals by airbrushing a semi-gloss clear coat, such as 'Tamiya' Semi-Gloss (x35) or similar.

**Weathering (continued):**

**NOTE:** *Refer to Part 3 (Weathering) of this build log for more information.*

Apply your desired weathering finish over the external surfaces of the cab. I used 'Flory Models' Dark Dirt fine clay wash.

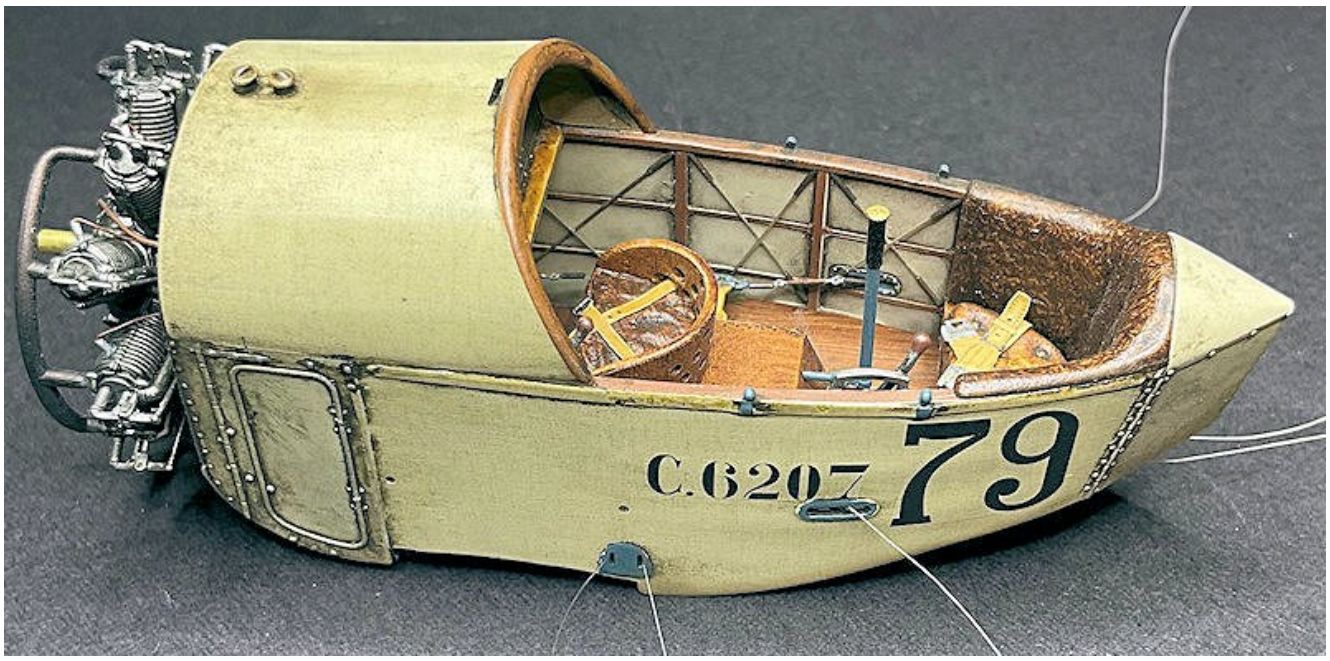
Seal and protect the applied weathering on the cabin by airbrushing a semi-gloss clear coat, such as 'Tamiya' Semi-Gloss (x35) or similar over the cabin inner and external surfaces.

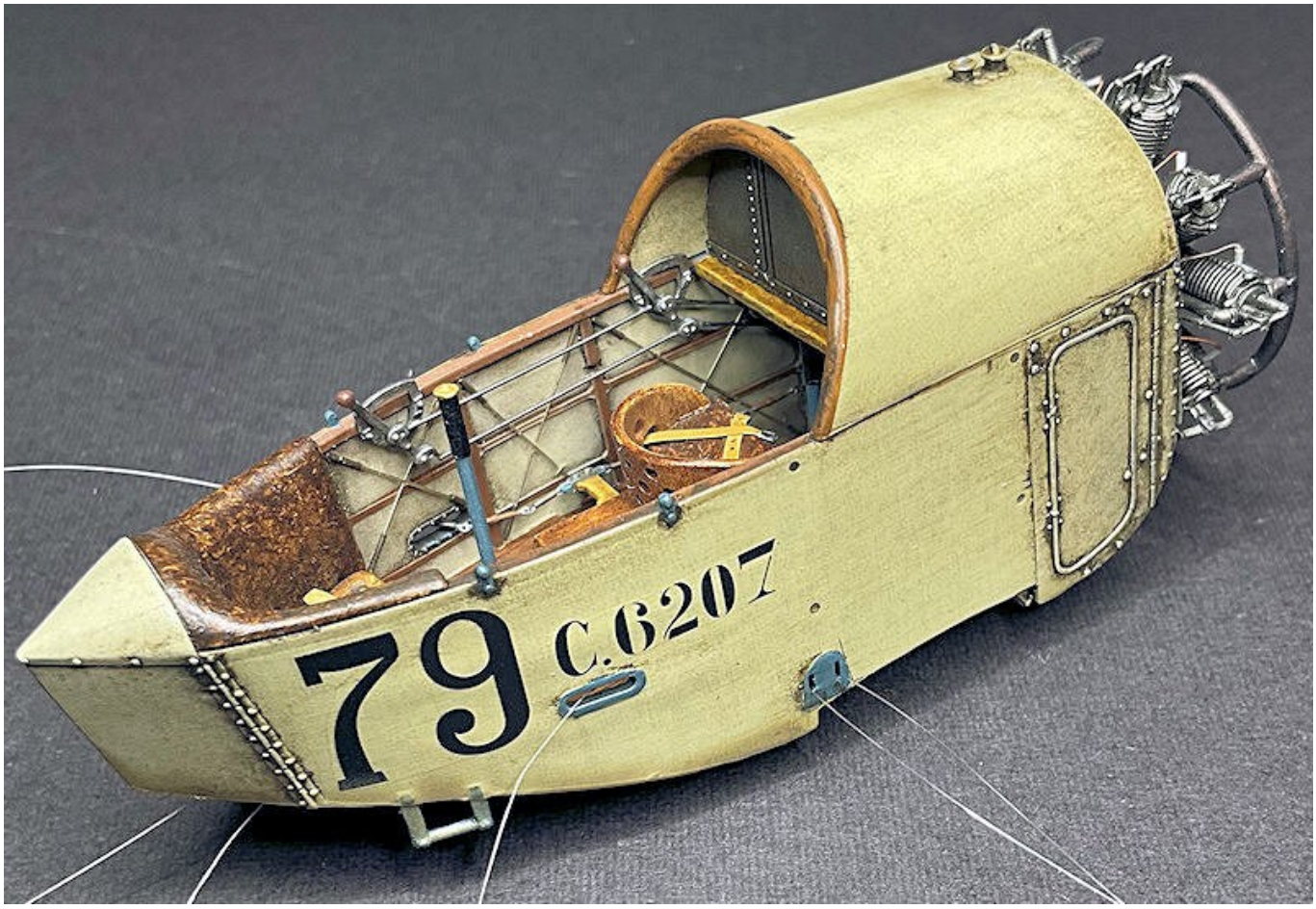
Lightly sponge 'Tamiya' Weather Master Set B (Soot) and/or Set D (Oil Stain) on the cabin underside to represent exhaust stain.

Lightly sponge 'Tamiya' Weather Master Set A (Mud) along the lower edges and underside rear of the cabin.

**Windscreen:**

The windscreen will be added to cabin at the end of the build, to avoid it being contaminated by the final semi-gloss clear coat on the applied rigging.

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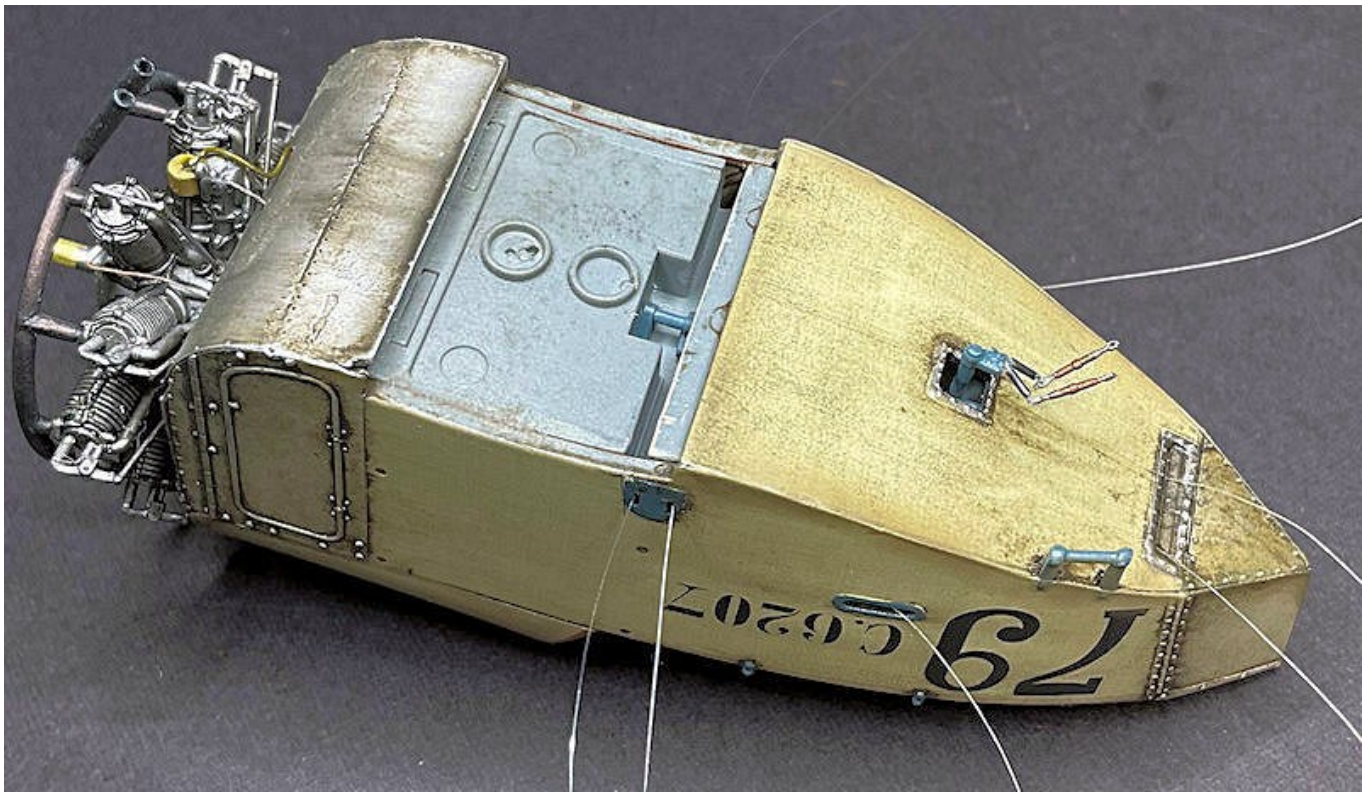
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# PART 10
# CONSTRUCTION

## PART 10 - CONSTRUCTION

References:
'Windsock' Data File No.94 - Caudron G.3 (Jon Guttman).
'Copper State Models' - Kit instruction manual.
'Online' - Resources.

**NOTE:** *There are a number of parts on the part runners that are **not required** for this particular model version. Those parts are not highlighted on the runners as 'not required' on the parts call-outs page in the kit instruction manual. Therefore, make sure you **use only** the parts detailed in the instruction manual, **identified** by their **runner/part numbers**.*

*Construction of the cabin generally follows the applicable page/steps detailed on the relevant pages in the kit instruction manual. The parts required to build the cabin are detailed on pages 8 to 20 ( steps 21 to 74) in the kit instruction manual.*

***Any changes or modifications to the model/parts or their construction sequence are detailed.***

**Preparation:**

General:

**NOTE:** *To avoid any confusion during construction, the various struts should be temporarily labelled with their part numbers.*

Remove all of the parts required to complete construction from their runners.

File, sand or scrape away any mold seam lines or residual sprue gate stubs.

Using the pre-molded 'divots' as guides, drill holes through the upper wing stitching (page 9, step 31), using a drill of 0.3 mm diameter.

Cement the three upper wing sections (G1, C5 and C6) together, making sure the joining tabs are fully located and the upper wing is flat once assembled.

Once the cemented joints have fully set, sand the joint seams to blend the surrounding surfaces.

If any gaps or seam lines are visible, fill them by brushing over with 'Mr. Surfacer' 1000 or similar.

Once the filler has fully set, sand the joint seams to blend the surrounding surfaces (page 9, step 30).

**NOTE:** *During the following step, temporarily locate the lower wing into the underside of the cabin.*

Test fit the cabin cabane struts (A13, A14 and I4) into their locating holes in the cabin sides and underside of the upper wing and top surface of the lower wings. If necessary, file or sane the inboard edges at the bottom of the struts to allow the struts to locate fully against the cabin sides.

**NOTE:** *The interplane struts have specific ends that fit into their relevant recesses.*

Test fit the wing interplane struts (D12 x2, D13 x2, D14 x2, I5 and I6) into their locating recesses in the underside of the upper wing and top surface of the lower wings. If necessary, slightly shorten the strut ends to allow them to fully locate into their recesses.

Test fit the outer wing bracing struts (B19, B20, B21 and B22) into their locating recesses in the underside of the upper wing and top surface of the lower wing. If necessary, slightly shorten the strut ends to allow them to fully locate into their recesses.

Test fit the support struts (D5 x2 and D6 x2) for the wing outer bracing struts into their locating recesses in the underside of the upper wing. If necessary, slightly shorten the strut ends to allow them to fully locate into their recesses. Also make sure the contact surface of the curved ends, for attaching to the outer bracing struts, are clear of any residual plastic.

Test fit the two tail booms (D4 x 2) into their locating recesses in the top surface of the upper wing and underside of the lower wings.

Test fit the tree fin support struts (B6, A8 and A9) into their locating recesses in the sides of the two fins (D7 x2).

Test fit the two landing gear bracing struts (A11 and A12) into their locating recesses in the underside of the lower wings and the tail boom inboard front edges. If necessary, slightly shorten the strut ends to allow them to fully locate into their recesses.

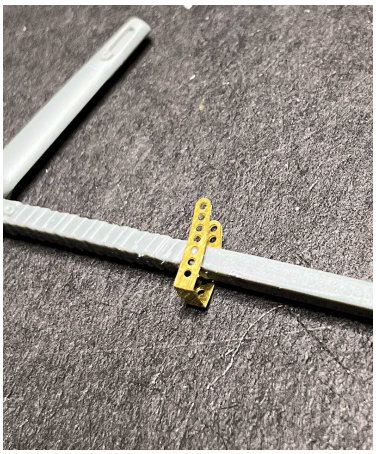
Photo-etch alternatives:

**NOTE:** *I chose to replace the pre-molded adjuster brackets, for altering the angle of the tailplane, with the kit supplied photo-etch parts (9 x 2). These photo-etch brackets will be fitted later in the build.*

Cut away the pre-molded brackets from the top, rear of the two tail booms.

File or sand away any residual witness marks.

Bend the up the two sides of both brackets and brackets and check that they fit over the sides of the tail booms.



Landing gear turnbuckle:

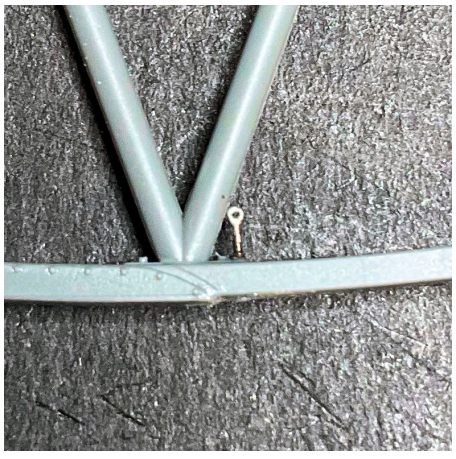
**NOTE:** *The two tail boom have a pre-molded turnbuckle at the rear of the landing gear struts. I chose to replace these turnbuckles as they would be too weak and break away during the rigging of the model.*

Cut away the turnbuckles from the two tail booms.

Drill a hole of 0.4 mm diameter up through the tail booms where the turnbuckles were located.

Using thin CA adhesive, secure a ‘Gaspatch’ 1/48th scale turnbuckle (One Ended) into the top of the pre-drilled holes.

If necessary, file away any of the turnbuckle stem protruding from the underside of the tail booms.



Wing warping tie wires:

**NOTE:** *This aircraft used wing warping instead of the now traditional ailerons on wings. Ties wires were threaded between the inner and outer section of the upper wing as shown on page 9, step 31 of the kit instruction manual.*

*For this I used 0.125 mm diameter copper wire.*

Cut a long length of 0.125 mm diameter copper wire or similar.

Pass the one end of the wire down through the inboard pre-drilled hole at the forward end of the wing warp opening in the upper wing.

Temporarily secure the wire to the underside of the upper wing using masking tape.

Following the illustration on page 9, step 31 of the kit instruction manual, thread the wire through the pre-drilled holes in a zig-zag fashion to the trailing edge of the upper wing, then reverse direction and zig-zag the wire back the front of the wing warp opening.

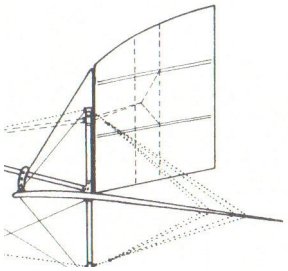
Remove the masking tape holding the starting end of the wire.

Secure the wire ends to the upper wing using thin CA adhesive.

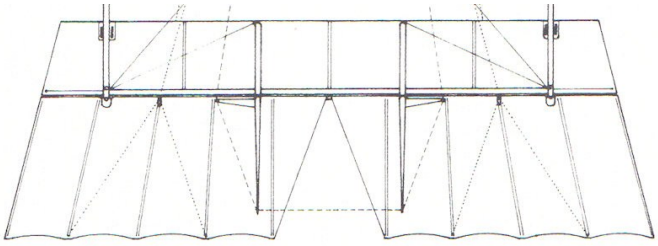
Rudder/elevator versions:

**NOTE:** *The early version of the Caudron G.III had a straight trailing edge with curved bottom edge on both rudders and the elevators had scalloped trailing edges that increased towards their inboard centres. This was the configuration for the early warping flight surfaces. The kit supplies both rudders as the early straight edged type, but the elevators are molded as the later version that had straight inboard edges at their centres. This was the later hinged elevator type flight surfaces. However, the following photograph clearly shows a Belgium Caudron G.III with earlier version rudders and later version elevators, which is how this Belgium aircraft will be modelled.*

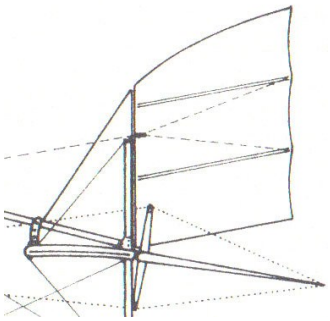
Early version rudder



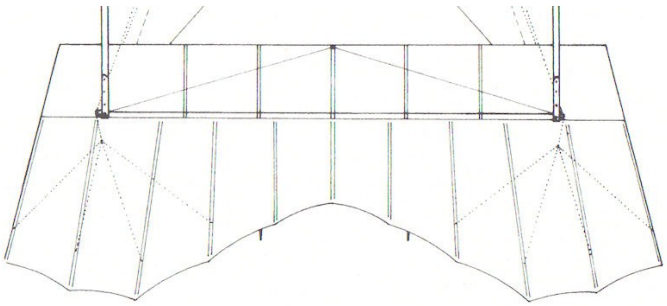
Later version elevators



Later version rudder



Early version elevators



**Painting:**

**NOTE:** *Although the instruction manual does have annotation tabs for the colours to be used, not all model parts in the instruction manual are annotated, so some educated guesswork will be required.*

Wood effects:

*Example:*

**NOTE:** *Refer to Wood effect - Method 2 in Part 2 (Wood Effects) of this build log for more information. The wood effect for this model was created using 'Windsor & Newton' Griffin (Alkyd) oil paints.*

Airbrush the part with a grey primer, such as 'AK Interactive' Grey (AK758) or similar.

Airbrush the part with 'Tamiya' Dark Yellow (XF60) or similar.

Brush a covering coat of 'Windsor & Newton' Griffin Alkyd oil paint over the part.

Leave the oil paint to settle for several minutes.

Decant a small amount of White Spirits into a suitable dish.

Dip a flat oil brush into the White Spirit then wipe the brush on a sheet of kitchen roll (which should not deposit any fibres in the oil paint) to remove most of the White Spirit.

Brush the oil paint in the required direction and keep wiping the brush on the sheet to remove residual oil paint.

Repeat dipping and wiping the brush in the White Spirits and brushing the oil paint until the desired density and effect is achieved.

Leave the oil paint to fully dry. It should be touch dry in an hour or so and usually fully dry within 12 hours.

*Applying wood effects:*

**NOTE:** *In the following step, brush the oil paint in the direction of the wood grain.*

Airbrush both tail booms and all of the interplane, cabane and bracing struts with a grey primer, such as 'AK Interactive' Grey (AK758) or similar.

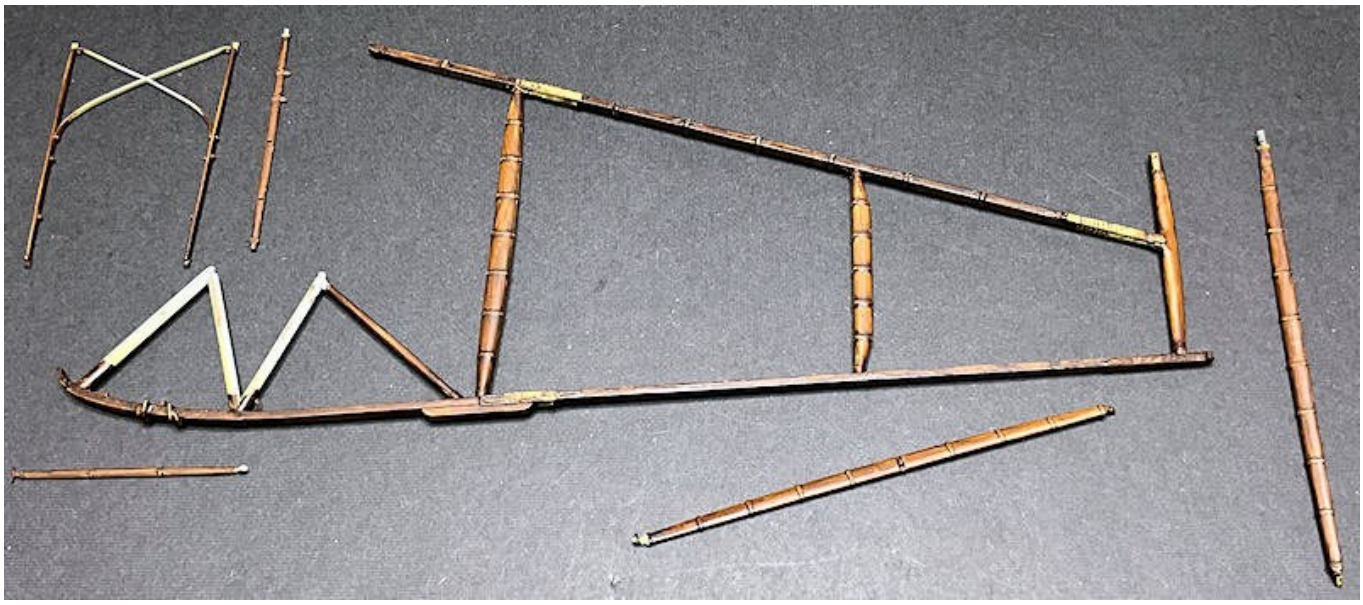
Airbrush both tail booms (**except** the three forward landing gear struts) and all of the interplane, cabane and bracing struts (except landing gear struts A11 and A12) with 'Tamiya' Dark Yellow (XF60) or similar.

Follow the previous example - Brush 'Windsor & Newton' Griffin Alkyd **Burnt Umber** oil paint over both tail booms (**except** the three forward landing gear struts) and all of the interplane, cabane and bracing struts.

Remove residual oil paint to achieve the desired wood effect.

Leave the oil paint for 24 hours to completely dry. This is necessary as the struts will need to have linen wrappings and metal fittings brush painted over parts of the struts.

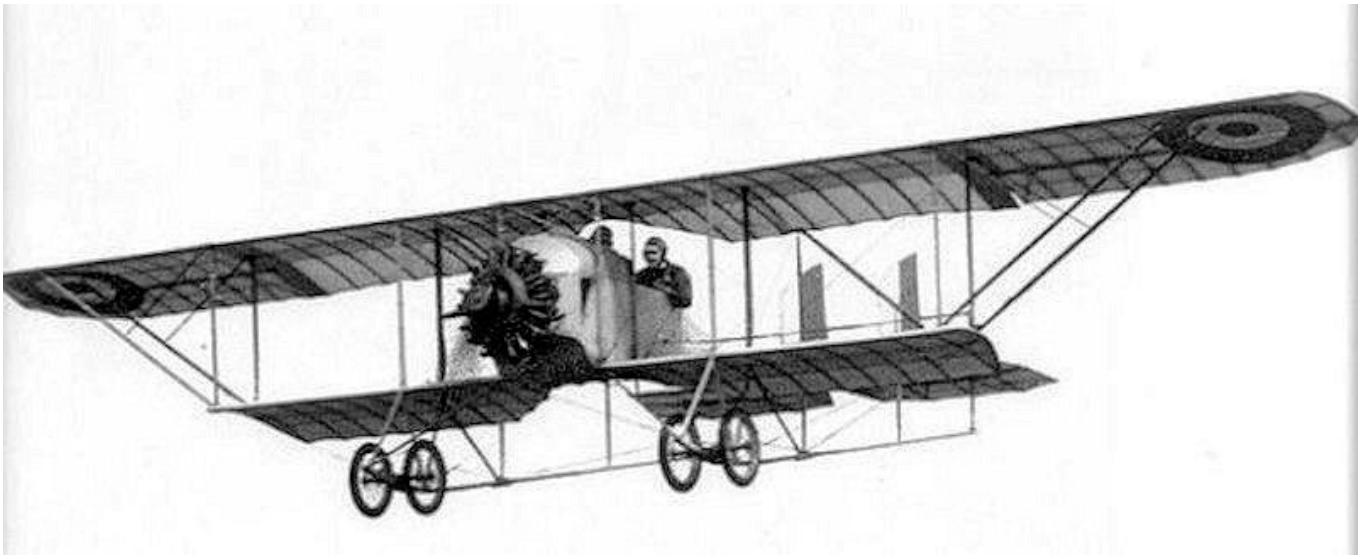
To seal the applied wood effect oil paint to allow over painting, airbrush the two tail booms and all painted struts with a semi-gloss clear coat, such as 'Tamiya' Semi-Gloss (X35) or similar.



‘Ghost’ structure:

**NOTE:** *The aircraft flight surfaces were covered with doped linen and in general, this covering was not overpainted, but left as Clear Doped Linen (CDL). As such, daylight was able to penetrate through the linen and this allowed the internal structures to be visible through the covering, especially viewed from the underside. The Belgium trainer aircraft had national roundels painted on the top surface and underside of the upper wing only and so would not show through the wing as ‘ghost’ outlines. The internal structures however would have been visible as ‘ghost’ outlines through the linen and would have been slightly blurred, not sharply defined. Therefore, internal structures need to be created by masking and painting. However, some guesswork is necessary, due to a lack of confirmed information.*

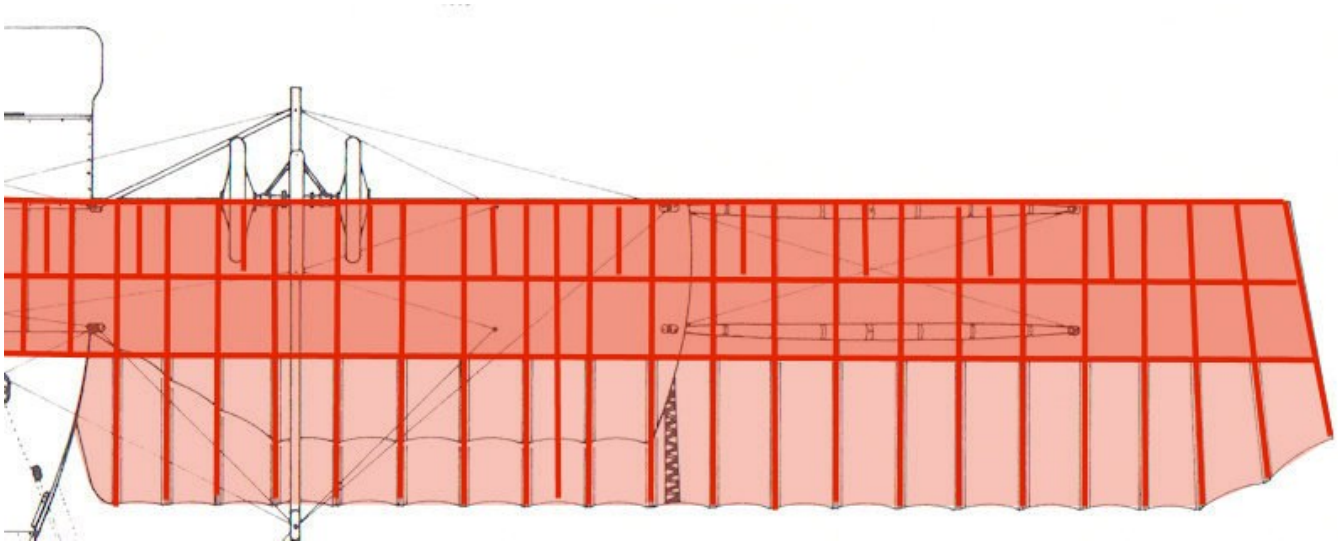
Examples of the transparency of Clear Doped Linen (CDL).



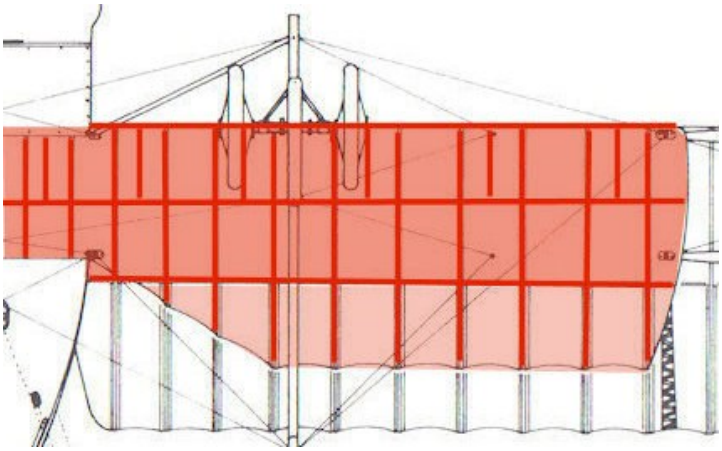
*Internal structures:*

The following illustrations show what I think is the internal structures of wing spars and ribs and those of the rudder and tailplane/elevators. The darker shading on the wings shows where the doped linen covering is less transparent. The lighter area shows where the doped linen covering is more transparent. The same structure outlines are seen on both sides of the surfaces.

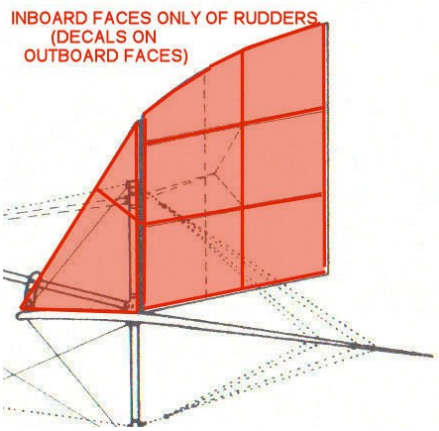
Upper wing structure



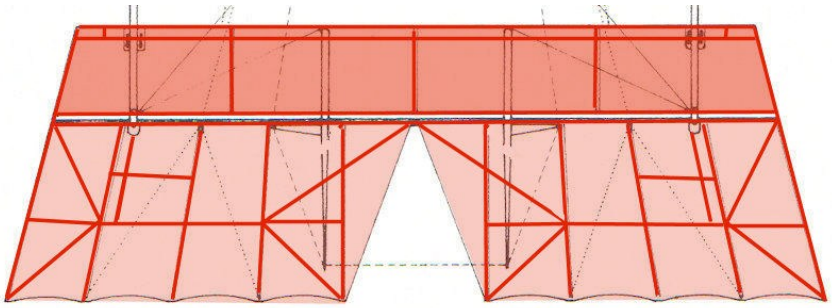
Lower wings structure



Fin/Rudder structure




Tailplane/Elevator structure



Airbrush the following parts with a grey primer, such as 'AK Interactive' Grey (AK758) or similar:

Upper wing assembly (G1, C5 and C6).
Lower wing (B1).
Tailplane (C11).
Elevators (C12 and C13).
Fin/rudders (D7 x 2).

**NOTE:** *Normally when the aircraft is on the ground, daylight will penetrate through Clear Dopped Linen (CDL) and reveal the internal structures of the flight surfaces as a dark 'ghost' outlines when viewed from the underside. The top surfaces tended to reflect more of the light and therefore showed less of the internal structures, but normally would show the linen tape coverings along the surface of internal ribs. To reflect the difference, painting of the internal structures on the undersides of the flight surfaces will be different to that on the top surfaces. Also the density of paint applied will vary due to the transparency of the different areas of the CDL covering.*

*Top surfaces:*

Airbrush the **top surfaces** of the following with 'MRP' Clear Doped Linen (MRP-256) or similar:

Upper wing.
Lower wings.
Tailplane.
Elevators.

Airbrush **one side only (inboard faces**) of the fin/rudders with 'MRP' Clear Doped Linen (MRP-256) or similar.

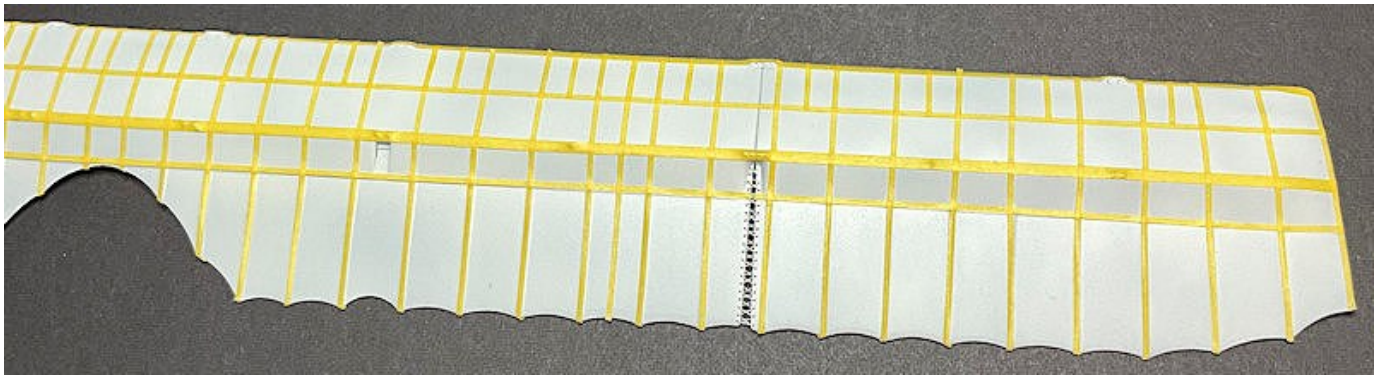
**NOTE:** *Use as guides the previous red line and shaded illustrations.*

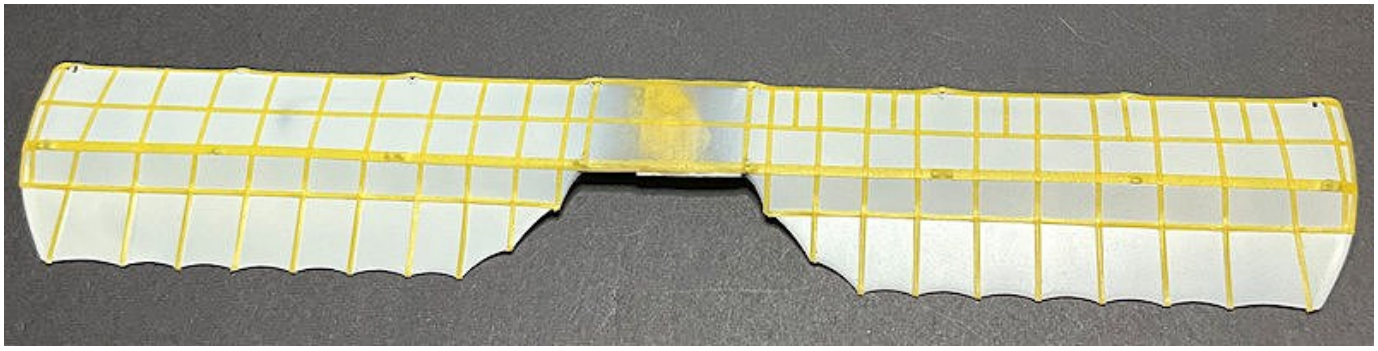
Mask off the internal ribs (leading to trailing edges and diagonals) of the following using 1.0 mm wide strips of masking tape:

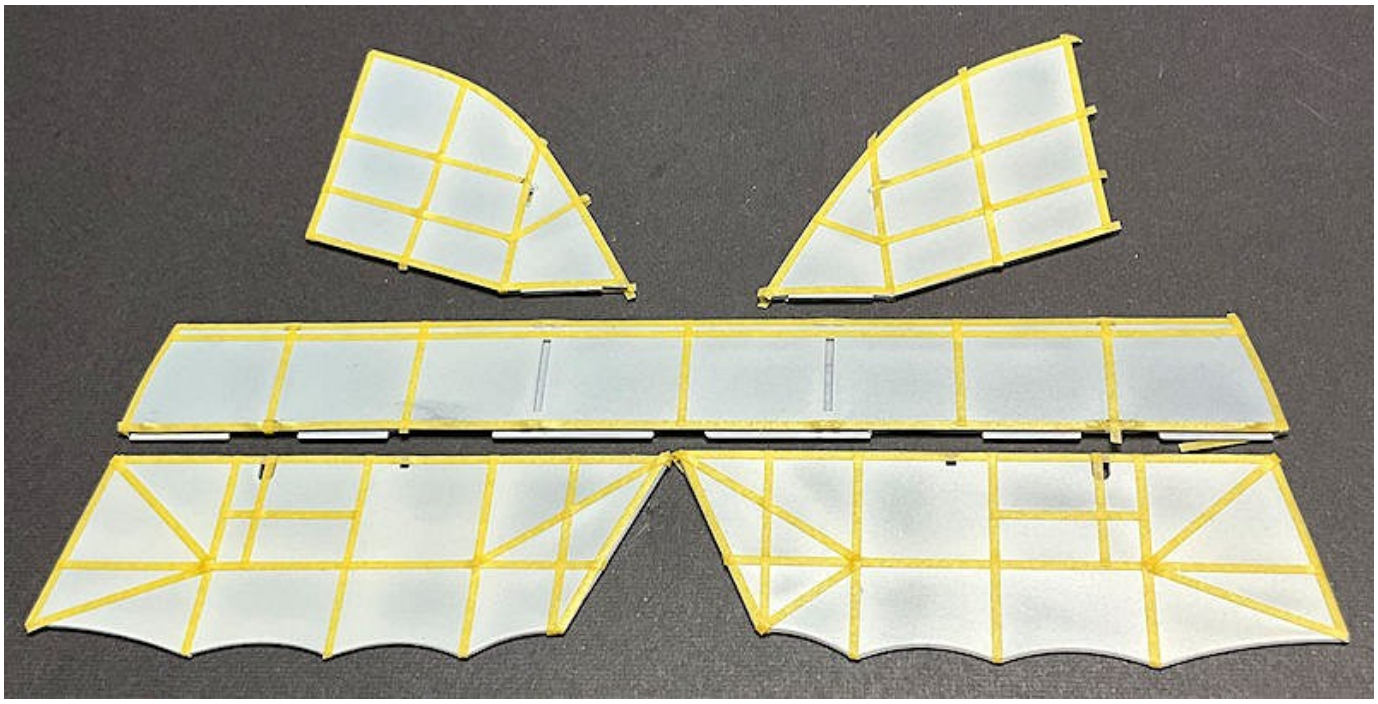
Fins/rudders (**inboard faces only**).
Tailplane.
Elevators.
Upper wing.
Lower wings.

Mask off the internal spars (horizontal lines) of the following using 2.0 mm wide strips of masking tape:

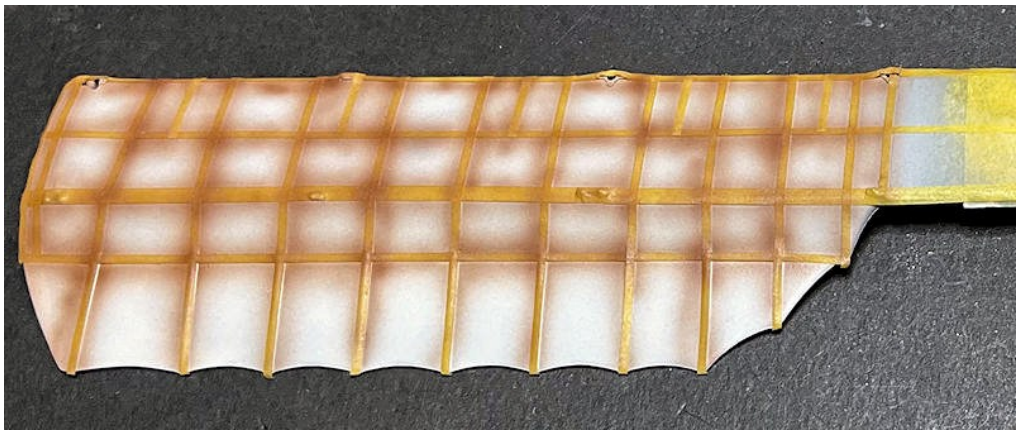
Upper wing (front and middle lines).
Lower wings (front and middle lines).





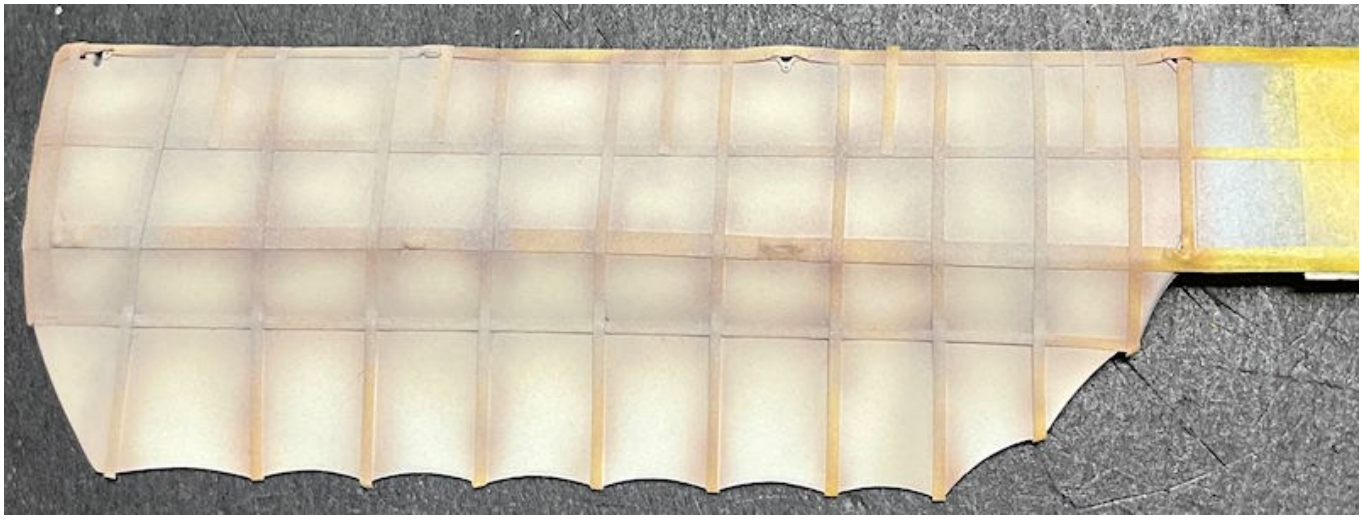


Airbrush along the masking strips with ‘MRP’ Dark Wood (MRP-262) or similar, to create shadow effects each side of the strips.

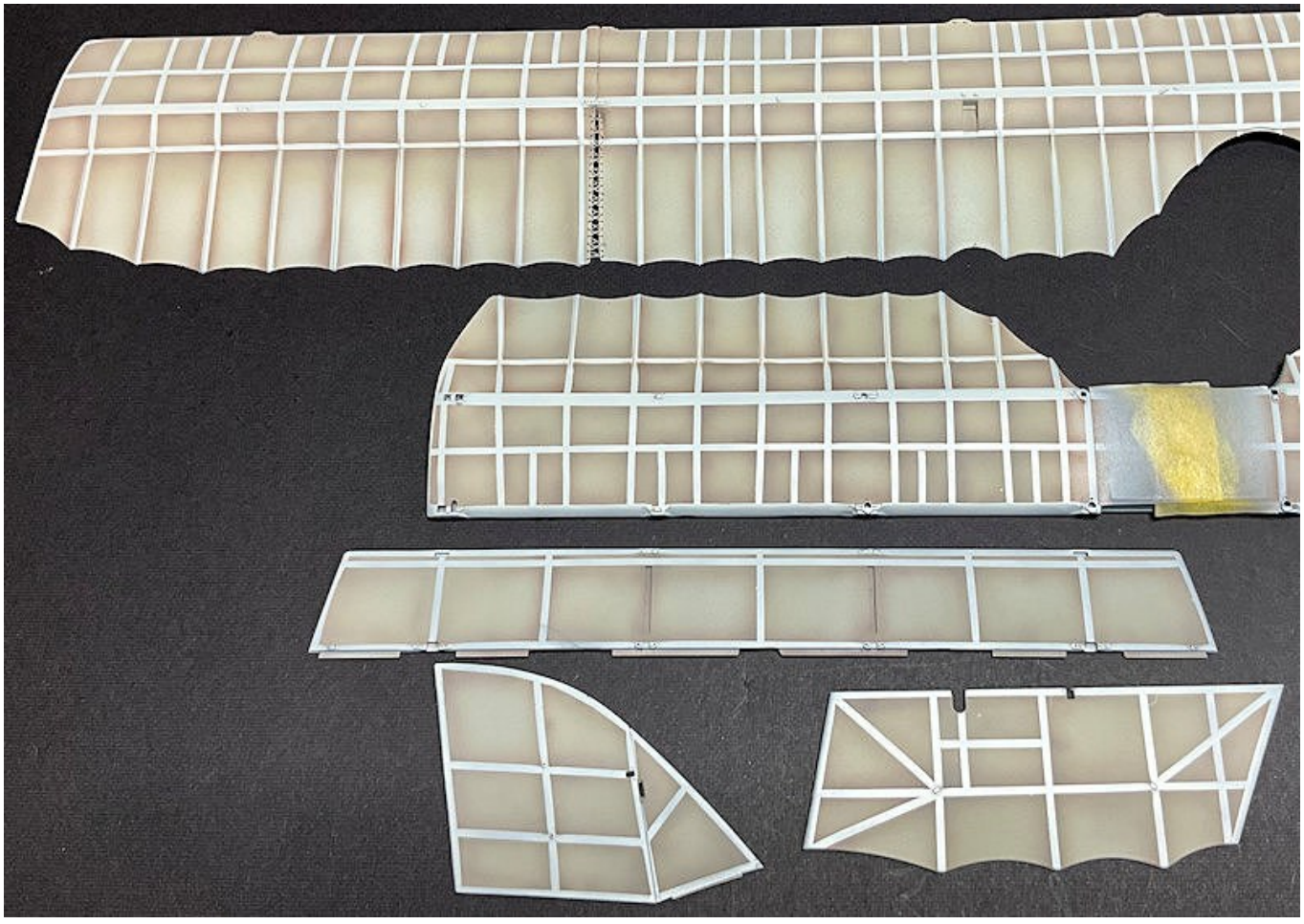


**NOTE:** *During the following step, the intention is to partially cover ('knock back') the painted Dark Wood with the Deck Tan top coat. Do not airbrush too much covering as a second Deck Tan will be required when the masking strips are removed.*

Lightly airbrush the masked/painted surfaces with 'Tamiya' Deck Tan (XF55) or similar to cover the surface, but only lightly fade the exposed Dark Wood paint.



Remove all of the strips of masking tape, to reveal the lighter painted structures.



**NOTE:** *The following steps **do not apply** to the two elevators.*

Mask off the trailing edge sections of the upper and lower wings.

Lightly airbrush the painted surfaces of the following with 'Tamiya' Deck Tan (XF55) or similar to cover the surfaces and further blend the lighter, previously masked lines:

Exposed upper wing surface.

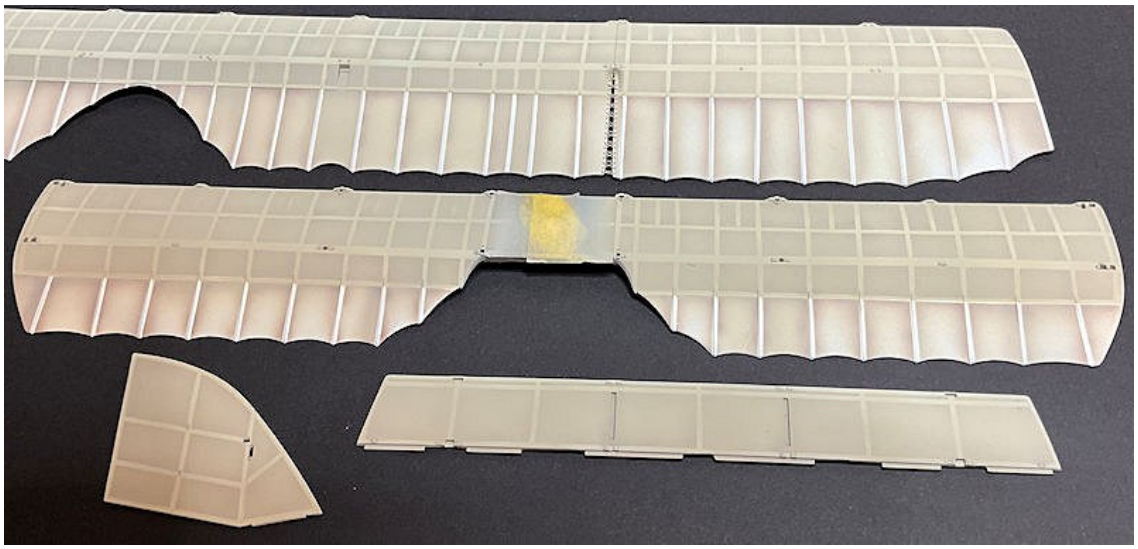
Exposed lower wing surface.

Painted sides of the two fin/rudders.

Painted fin on other side of rudder/fins.

Tailplane.

Remove all trailing edge masking.



**NOTE:** *The following steps are intended to fade back the previously painted lighter lines to their surrounding surfaces and also to create a slightly lighter shade of CDL, to represent the more transparent flight surfaces.*

Mix ‘Tamiya’ Deck Tan (XF55) with White (XF2) to a ratio of approximately 60/40%.

Mask off the upper and lower wings, leaving only their trailing edge sections exposed.

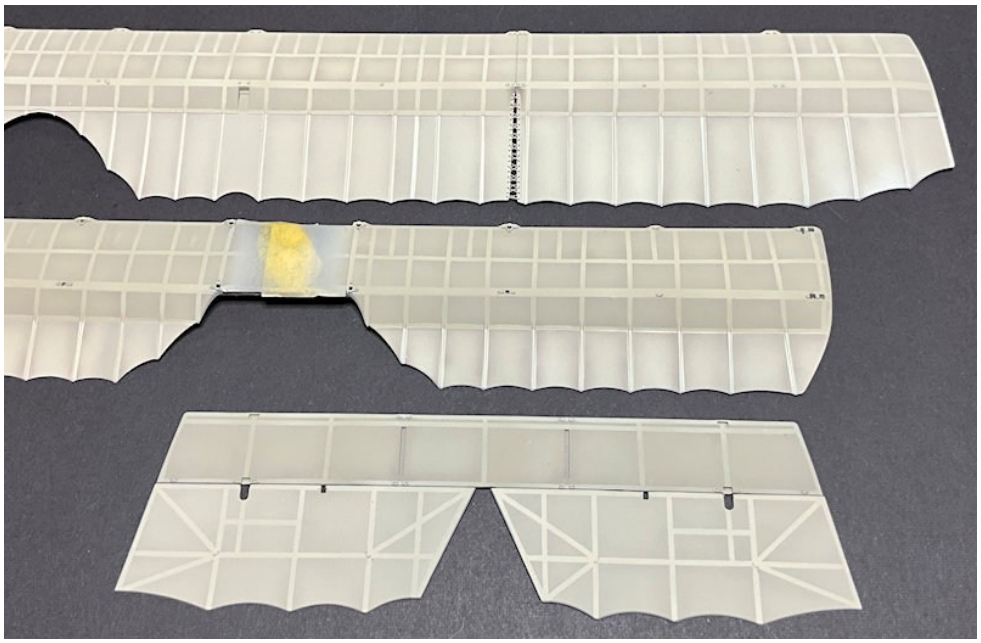
Lightly airbrush the painted surfaces of the following with the paint colour mix to cover the surfaces and fade/blend the lighter, previously masked lines:

Upper wing trailing edges.

Lower wings trailing edges.

Painted surfaces of both elevators.

Remove the masking from the upper and lower wings.



*Underside surfaces:*

Airbrush the primed underside surfaces of the following with ‘MRP’ Dark Wood (MRP-262) or similar:

Underside of upper wing.

Underside of lower wings.

Underside of tailplane.

Undersides of the two elevators.

**NOTE:** *Use as guides the previous red line and shaded illustrations.*

Mask off the internal ribs (leading to trailing edges and diagonals) of the following using 1.0 mm wide strips of masking tape:

Tailplane.

Elevators.

Upper wing.

Lower wings.

Mask off the internal spars (horizontal lines) of the following using 2.0 mm wide strips of masking tape:

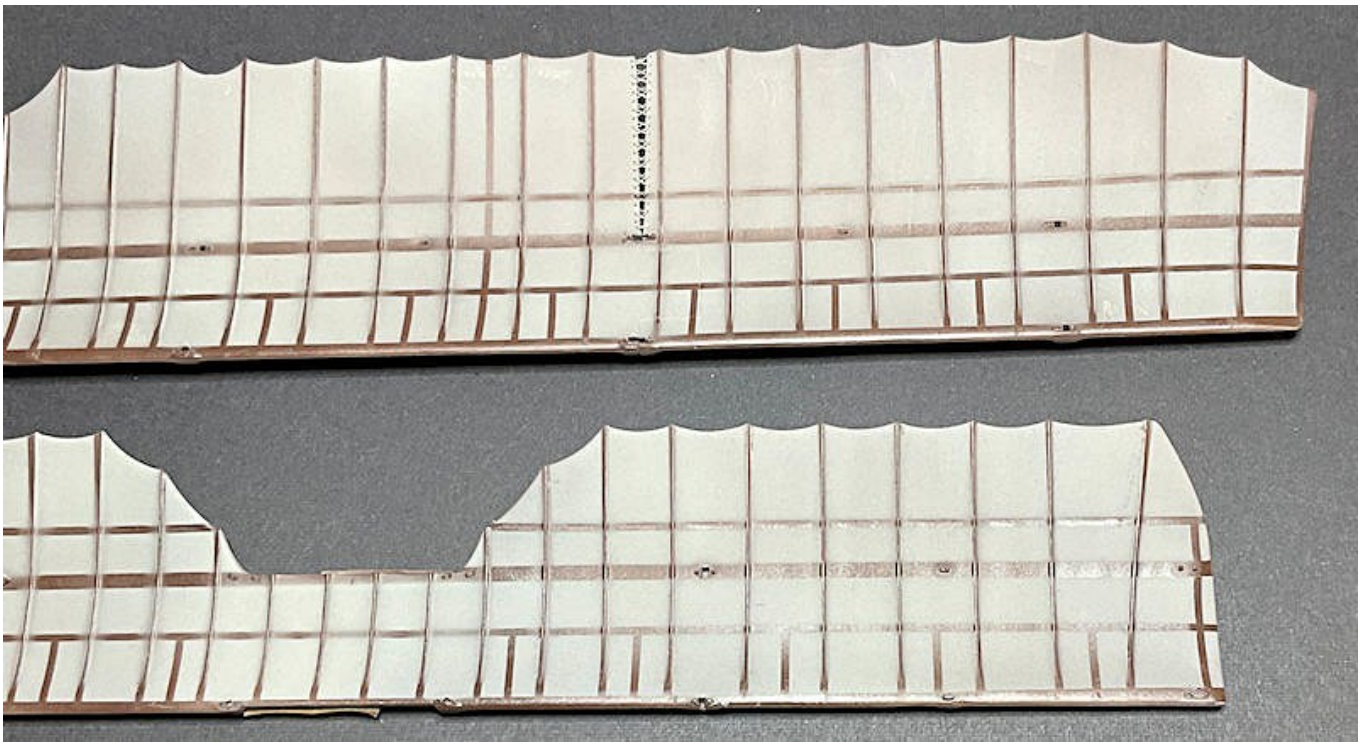
Upper wing (front and middle lines).

Lower wings (front and middle lines).

**NOTE:** *During the following step, the intention is to partially cover (‘knock back’) the exposed Dark Wood paint with the Deck Tan top coat. Do not airbrush too much covering as a second Deck Tan will be required when the masking strips are removed.*

Airbrush the painted undersides with ‘Tamiya’ Deck Tan (XF55) or similar to partially cover the exposed Dark Wood painted surfaces.

Remove all masking.



Airbrush the painted undersides with ‘Tamiya’ Deck Tan (XF55) or similar to further blend the Dark Wood surrounds and structure line.

**NOTE:** *The following steps are intended to fade back the previously painted CDL surfaces and also to create a slightly lighter shade of CDL, to represent the more transparent flight surfaces.*

Mix 'Tamiya' Deck Tan (XF55) with White (XF2) to a ratio of approximately 60/40%.

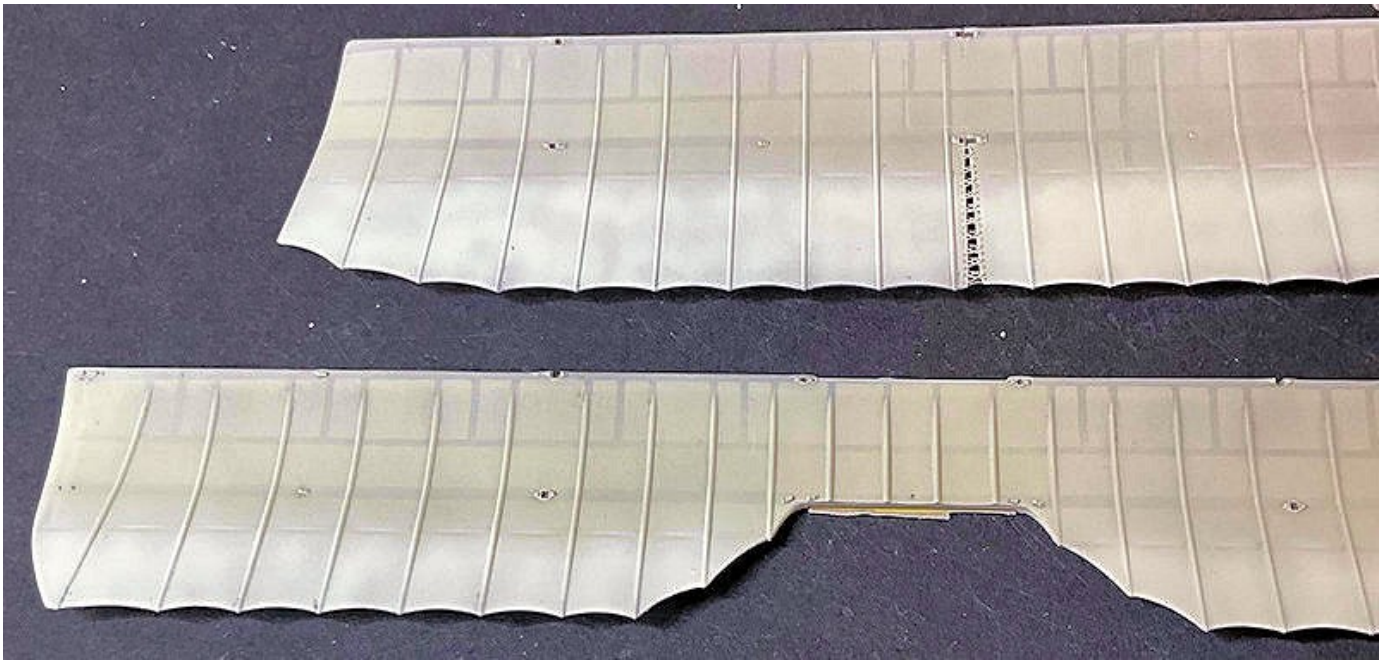
Mask off the upper and lower wings, leaving only their trailing edge sections exposed.

Lightly airbrush the painted surfaces of the following with the paint colour mix to cover the surfaces and fade/blend the lighter, previously masked lines:

Upper wing underside trailing edges.

Lower wings underside trailing edges.

Elevators underside surfaces.



Remove the masking from the upper and lower wings.

Surface finish:

**NOTE:** *The painted surfaces must be smooth and free of any surface imperfections, roughness and dust in order to prevent decal 'silvering', which is where air is trapped under the applied decal and shows as silvering through the dried decal.*

If necessary, to provide a good decal surface, rub the painted surfaces with a lint free or microfibre cloth to smooth out the surfaces.

***NOTE:*** *A clear gloss coat is applied to seal and protect the painted surfaces and to provide a good base for decals. The clear gloss coating used can be 'Mig' A-Stand Aqua Gloss (A.Mig-2503) or 'Tamiya' Clear Gloss (X22). If using 'Tamiya' (X22), I thin it with 'Mr. Hobby' Rapid Thinners, as this makes it easier to airbrush and also tends to give a more sheen finish than the standard 400 Levelling thinners.*

Airbrush several light coats of a clear gloss over both sides of the following:

Upper wing.

Lower wings.

Fin/rudders.

Tailplane.

Elevators.

Make sure the surfaces are glossy and free from any surface imperfections, roughness and dust.

**Decals:**

‘Aviattic' decals:

**NOTES:** *The decals used are the ‘Aviattic’ clear backed Clear Doped Linen ’bleached’ (ATT32044). Refer to Part 4 (Decals) of this build log for more information.*

*The ‘Aviattic’ linen decals are unlike normal screen printed decals, in that when being applied, have the ability to be handled with slightly less care than normal and they have the ability to stretch slightly, which standard decals do not. That said, if you handle them too roughly, damage can occur.*

*Make sure the model surface for each decal to be applied is clean and smooth or particles on the surface may cause ‘silvering’ (trapped air) under the decals when dry.*

*These ‘Aviattic’ CDL decals being used are not ‘cookie’ cut to the shapes required. Therefore the decals must be hand cut to shape.*

*Example of applying ‘Aviattic’ decals:*

Lay the part with surface to have decal down onto the rear (blank) side of the decal sheet.

**NOTE:** *During the following step, do not press too hard when tracing the outline as this may mark the decal side of the sheet.*

Using a pencil, lightly trace the outline of the part onto the rear of the decal, allowing for any curvature of the part.

Carefully cut out the decal shape.

Check that the decal fits correctly over the surface of the part.

**NOTE:** *To aid in adhesion, you can mix a small amount of PVA (white glue) into the decal water.*

Wet the model surface with clean water.

Soak the decal in the warm decal water long enough to be able to move the decal on its backing sheet.

Carefully lift the decal on its backing sheet from the water. Make sure the decal does not fold over on itself, as it will be difficult to separate a fold once out of the water.

Carefully slide the decal off one end of the backing paper and position the decal end onto the surface and holding that end, slide out the backing paper.

Using large, flat brush or cotton buds, start to smooth out the decal at one end, removing any water from underneath and smoothing the decal onto the surface. Continue this along the length of the decal, taking care not to grip the decal surfaces with your fingers, as this will cause ripples in the decal.

Once the decal is smoothed down onto the model surface, apply pressure along the decal with soft and dry tissue paper or by finger pressure whilst wearing lint free cotton gloves. This will expel any remaining water and press the decal on to the model surface.

Check over the decal to make sure there are no tears or folds, which need to be rectified before the decal sets.

**NOTES:** *If the decal covers locating holes, slots or other openings, prick through the decal over holes or slice the decal over openings, then brush either 'MicroScale' MicroSol' or* ***sparingly*** *'Tamiya' X20A thinners into the holes or around the openings. This will soften and conform the decal.*

*If the decal needs to be conformed around curved edges etc, brush* ***sparingly*** *'Tamiya' X20A thinners across the decal edge. This will soften and conform the decal.*

*Once fully dry and set, trim any excess decal from edges using a sharp blade, such as a shielded razor blade.*

*Paper templates:*

Some surfaces of models that require covering with a decal can be problematic due to their shape. In this case, I will cut out a paper template to check against the models surface and once happy, will use that template to trace out the shape on the actual decal sheet.

Upper surfaces:

*Upper wing:*

**NOTE:** *Due to the size of the upper wing and the trailing edge laced openings, it's best to apply the 'Aviattic' decals in separate sections. I created four separate decals, two outer sections and two centre sections.*

Using the previous example as a guide, cut out the four separate decals, making sure to take into account the 'step' across the centre of the wing surface.

Apply the decals to the upper wing, starting with an outer section then working across the wing to the opposite side.

*Lower wings:*

Repeat the procedure to apply decals to the lower wing, but in two whole wing sections. Do not apply decal to the top (cockpit side) of the centre section as this needs to be cemented into the underside of the completed cabin.

*Tailplane:*

Repeat the procedure to apply decal across the top surface of the tailplane.

*Elevators:*

Repeat the procedure to apply decal across the top surfaces of the elevators.

*Fin/rudders:*

Repeat the procedure to apply decal across the inboard face of the two fin/rudders.

Underside surfaces:

Repeat the previous procedures to apply decal to the undersides of the upper and lower wings, tailplane, the two elevators and the **inboard sides only** of the two fin/rudders.

Kit supplied decals:

**NOTE:** *Refer to Part 4 (Decals) of this build log for more information. The kit supplied decals used on this particular model are as follows:*

*Upper wing top roundels (2 x 2).*

*Lower wing underside roundels (2 x 2).*

*Fin/rudder outer side markings (4 x 2).*

*Fin/rudder inboard side text (3d, 5 and 7 x 2).*

*The kit decals are printed by 'Cartograph' in Italy and are thinner than most other decals. Although this does help the decals to better conform to the model surface, it also means the decals can be fragile and easily fold over themselves when being applied. Therefore, care is need when applying the decals to the model.*

*Refer to illustrations 1 and 5 of the kit instruction manual for the placement of the various decals.*

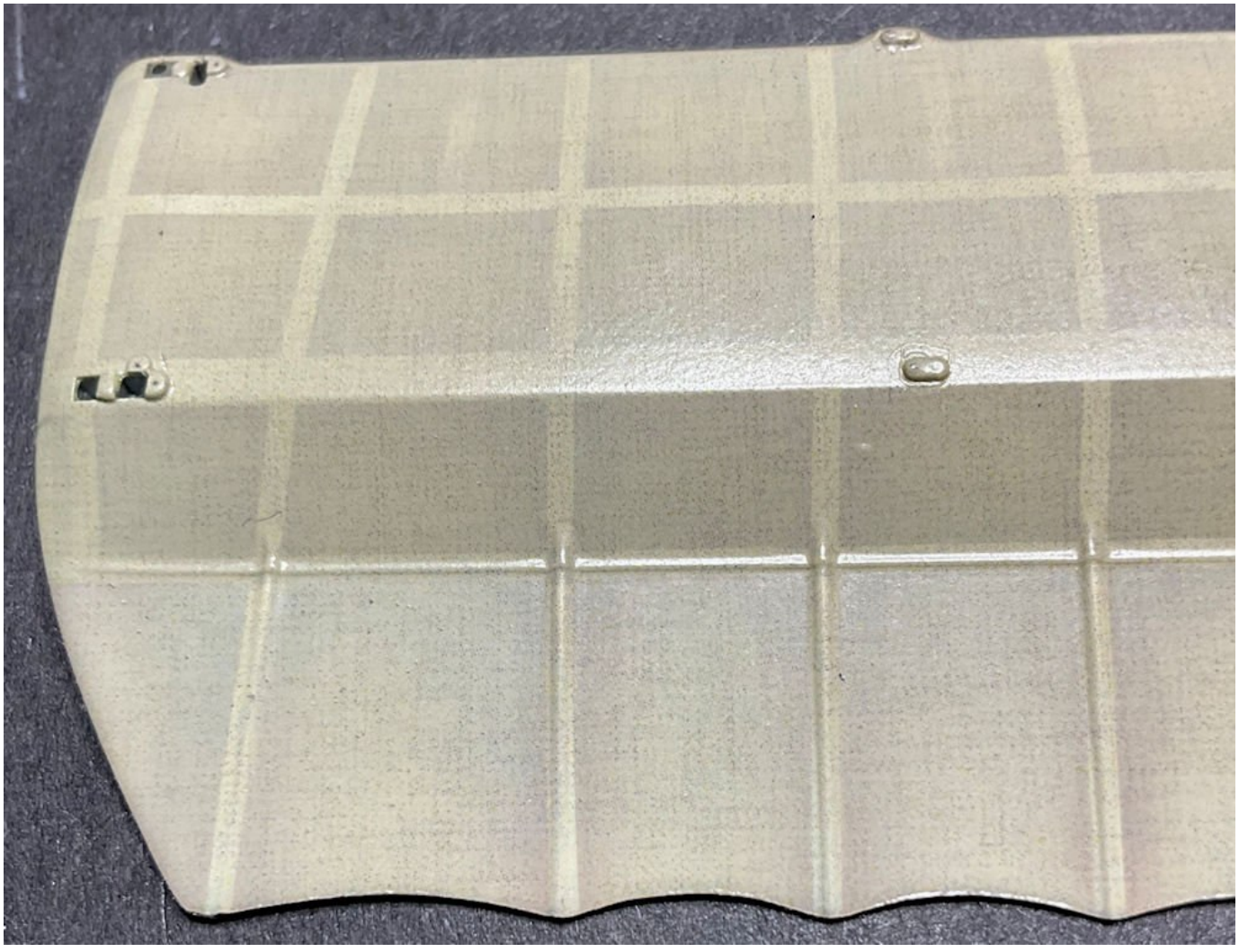
Apply the Belgium roundel decals 2 to the top surface of the upper wing (illustration 1).

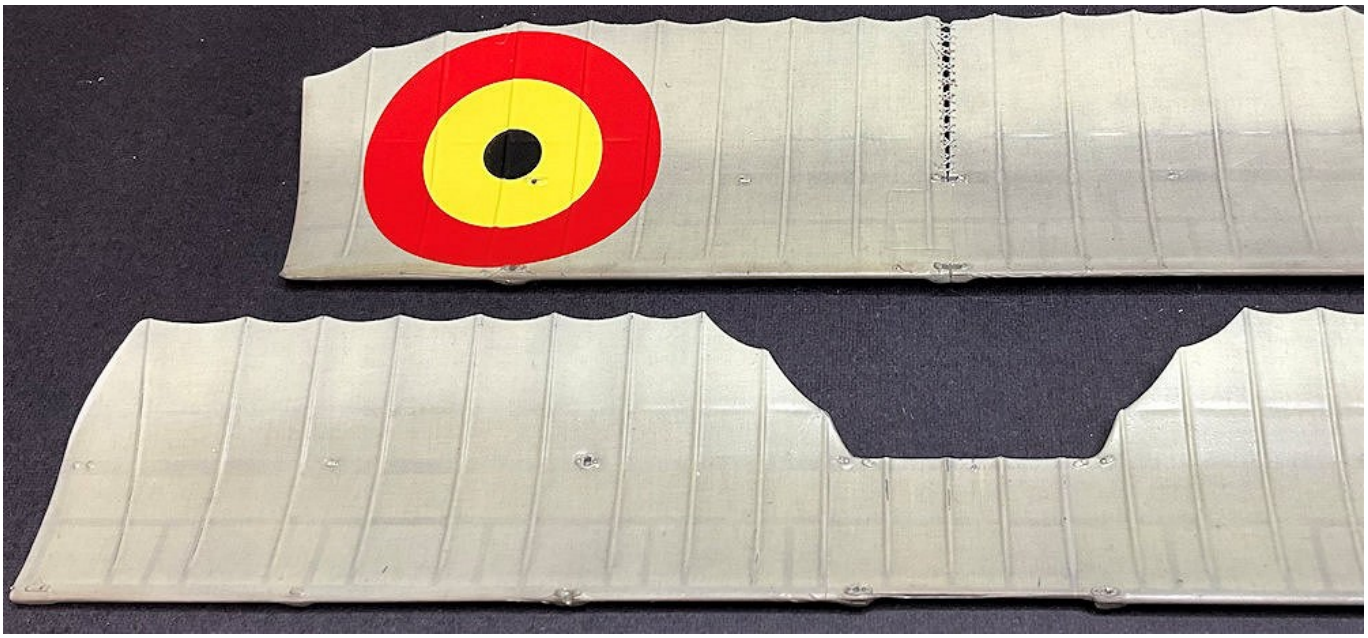
Apply the Belgium roundel decals 2 to the underside surface of the upper wing (illustration 1).

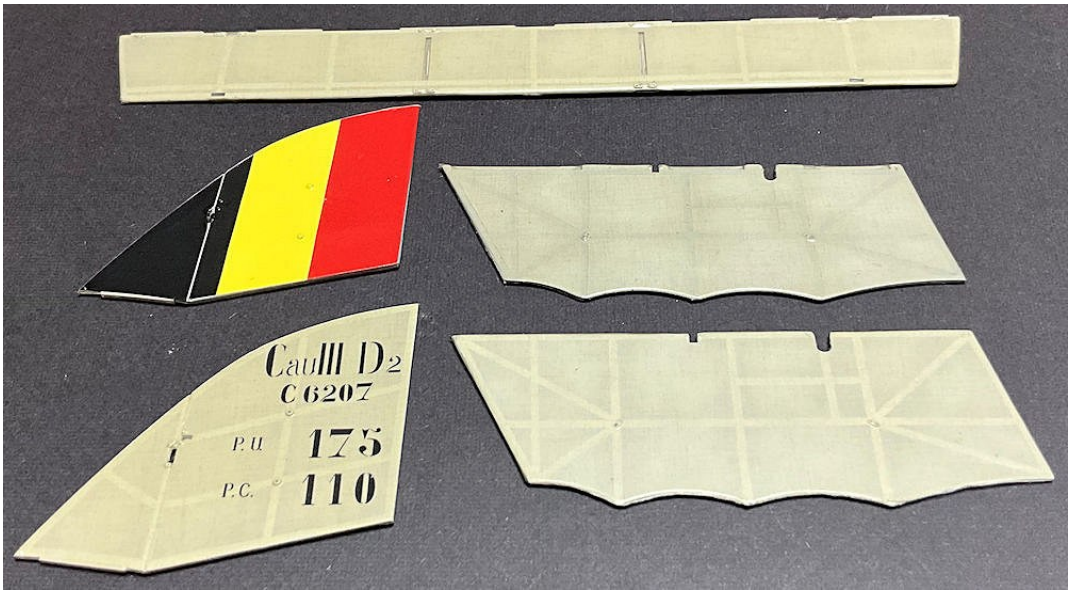
Apply the Belgium stripe markings (4) to the outer sides of the fin/rudders (illustration 5).

Apply the three separate text decals (3d, 5 and 7) to the inboard sides of both fin/rudders (illustration 5).

To seal and protect the applied decal, airbrush a semi-gloss clear coat, such as 'Tamiya' Semi-Gloss (X35), over the decals. This will also lessen the gloss of the applied decals to more of a doped linen sheen.



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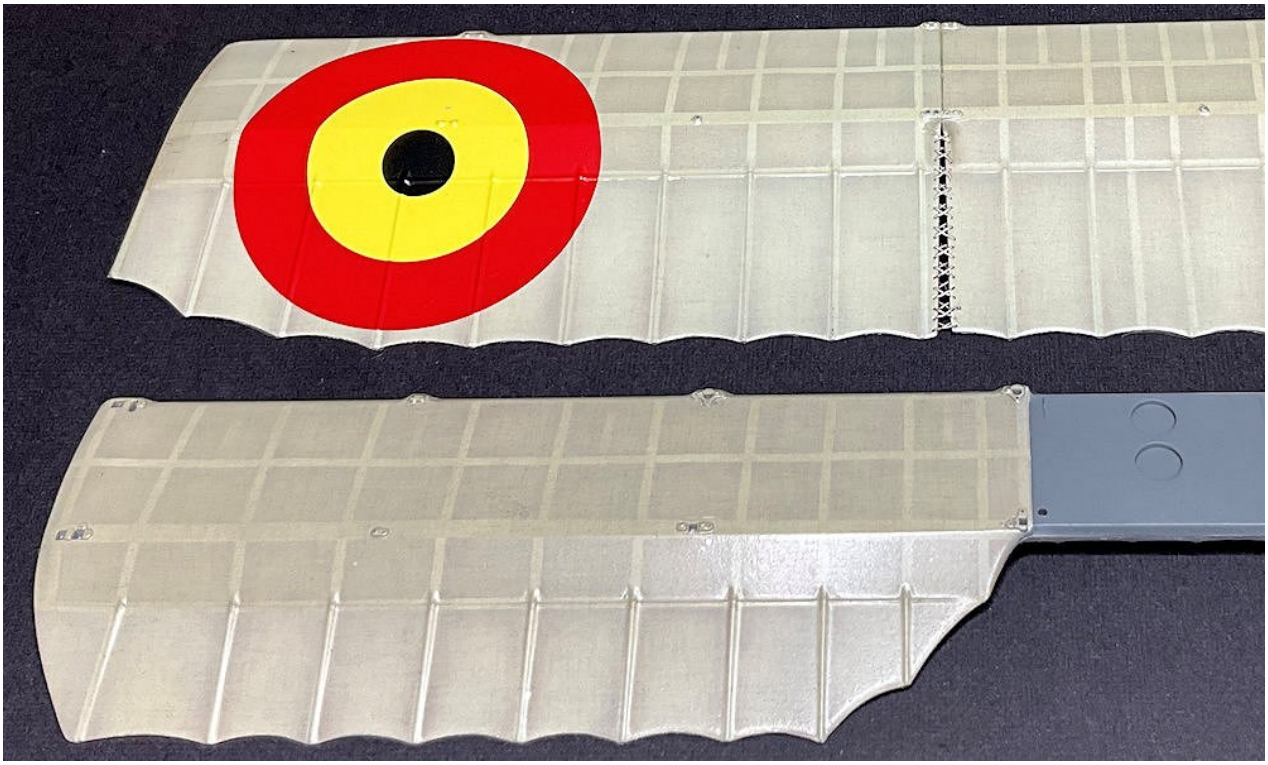


**Painting (continued):**

Brush paint the following with ‘Tamiya’ Medium Blue (XF18) or similar:

Linen wrapped bands and metal fittings/plates on the two tail booms and struts.

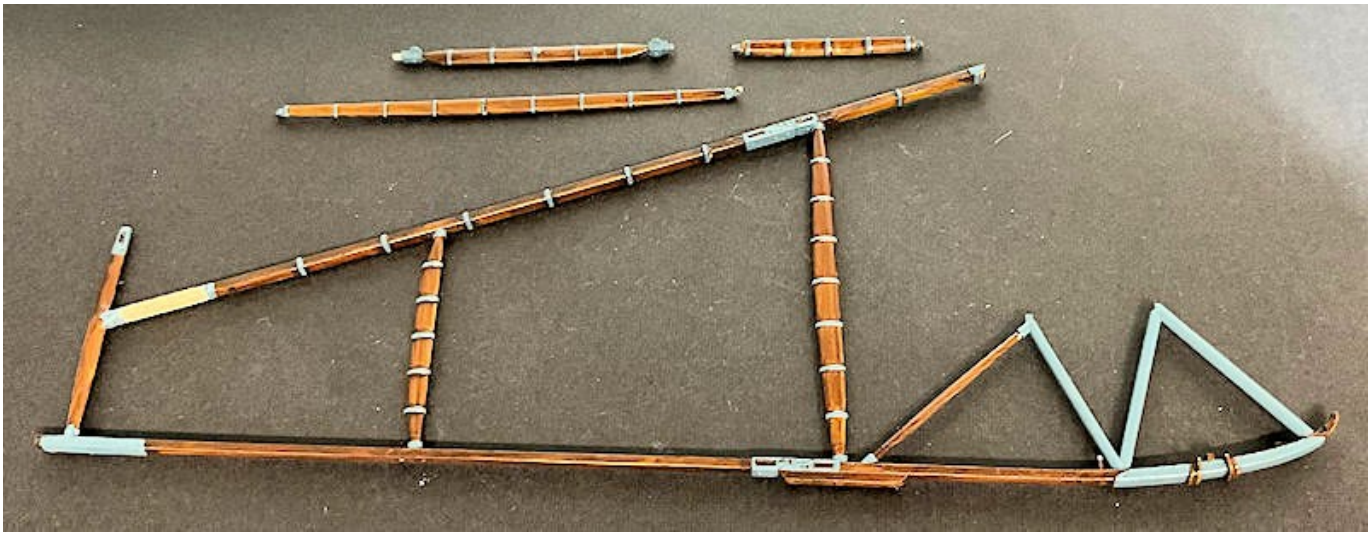
Linen wrapped bands and metal end fittings on all of the struts.

Metal fittings/plates on the upper and lower wings (both sides).

Brush paint the cord wrapped area at the top. Rear of the tail booms with ‘Tamiya’ Buff (XF57) or similar.

Brush paint the centre barrel of the added turnbuckle at the bottom front of the tail booms a mix of ’Mr. Color’ Brass (219) and Copper (215) to a ratio of 50/50%.

To seal the applied paints, airbrush the two tail booms and all painted struts with a semi-gloss clear coat, such as ‘Tamiya’ Semi-Gloss (X35) or similar.



Airbrush the following remaining model parts with a grey primer, such as ‘AK Interactive’ Grey (AK758) or similar:

Wheel axles (D11 x 2).

Wheels (D10 x 4).

Wheel covers (D9 x 4).

Rudder control horns (D2 x 2).

Elevator control horns (D3 x 2).

Gauges (A15 and A16).

Brush paint the following with ‘Tamiya’ Medium Blue (XF18) or similar:

Rudder control horns (D2 x 2).

Elevator control horns (D3 x 2).

Gauges (A15 and A16).

Landing gear bracing struts (A11 and A12).

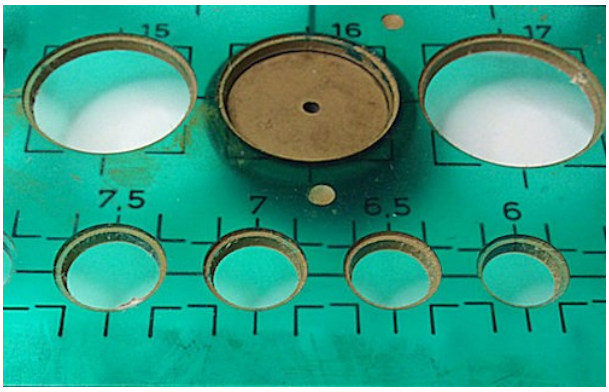
Wheel covers:

**NOTE:** *To airbrush the outboard and inboard wheel covers without over spraying the surrounding tyres, I used a circle drawing tool (Linex 1217 T). I selected the correct size of hole and positioned the wheel face under the hole.*

Using the (Linex 1217 T), airbrush the inboard and outboard wheel covers with ‘Tamiya’ Deck Tan (XF55) or similar.

To show the colour through the valve access hole in the wheel outer covers, brush the inside of the wheels with ‘Tamiya’ Deck Tan (XF55) or similar.

Example




Wheel axles:

Brush paint the centre section and attachment rods of both wheel axles with ’Tamiya’ Medium Blue (XF18) or similar.

Brush paint the ‘springs’ each side of the centre section of both wheel axles with ’Tamiya’ Rubber Black (XF85) or similar.

Lightly brush the painted the ‘springs’ each side of the centre section of both wheel axles with the side of a ‘Prismacolor’ Verithin Argent Métallique pencil (752).

Brush paint the ‘bungee’ type suspension cords around both axles with ’Tamiya’ Buff (XF57) or similar.

**Assembly:**

Make sure all paint and primer is removed from the axle and tail boom mating surfaces.

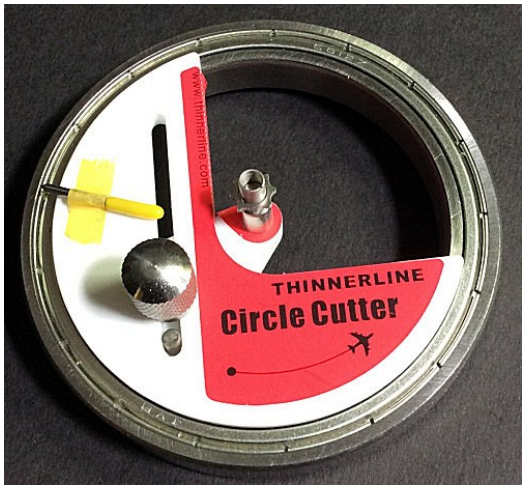
Cement the axles onto their locating stubs on the forward, bottom of the tail booms.

**Painting (continued):**

Brush paint the axle ‘bungee’ type suspension cords around both tail booms to blend with the axle cords, using ’Tamiya’ Buff (XF57) or similar.

**Decals (continued):**

**NOTE:** *The surfaces to have decals benefit from having a smooth, glossy finish. The ‘Aviattic’ decals used are the Linen Weave Effect (ATT32044). To cut these circular decals I used a ‘Thinnerline’ circle cutter. Other circle cutters are available, such as that from ‘DSPIAE’.*




In preparation for applying decals, airbrush the inboard and outboard wheel covers with a clear gloss, such as ‘Tamiya’ Clear Gloss (X22) or similar.

Test cut circles from a sheet of paper to determine the correct diameter for the decals to fit over the wheel covers without overlapping onto the tyres.

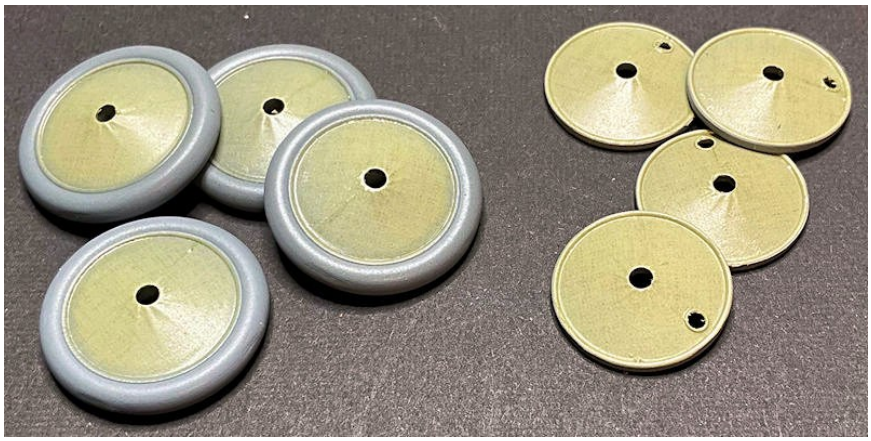
Cut the eight circular decals, as required, from the ‘Aviattic’ decal sheet.

Using a sharp curved scalpel blade or similar, cut a thin wedge in each decal disc, from the centre to the outer edge. This will allow the decal to lay over the convex surface of the wheels.

Refer to Part 4 (Decals) of this build log and apply the decals. Use a damp finger tip to push the two edges of the cut out wedges together.

Once the decals have fully dried and set, prick through the decals at the various holes then **sparingly,** brush ‘Tamiya’ acrylic thinners (X20A) into the holes, which will conform the decals into the holes.

Airbrush the wheels with a semi-gloss clear coat, such as ‘Tamiya’ Semi-Gloss (X35).



**Weathering:**

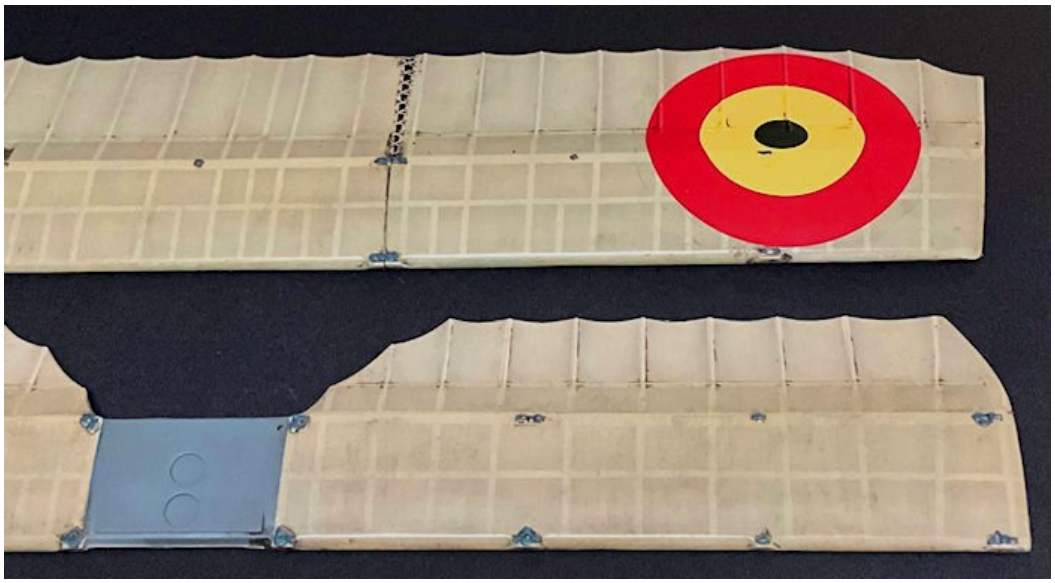
**NOTE:** *Refer to Part 3 (Weathering) of this build log for more information.*

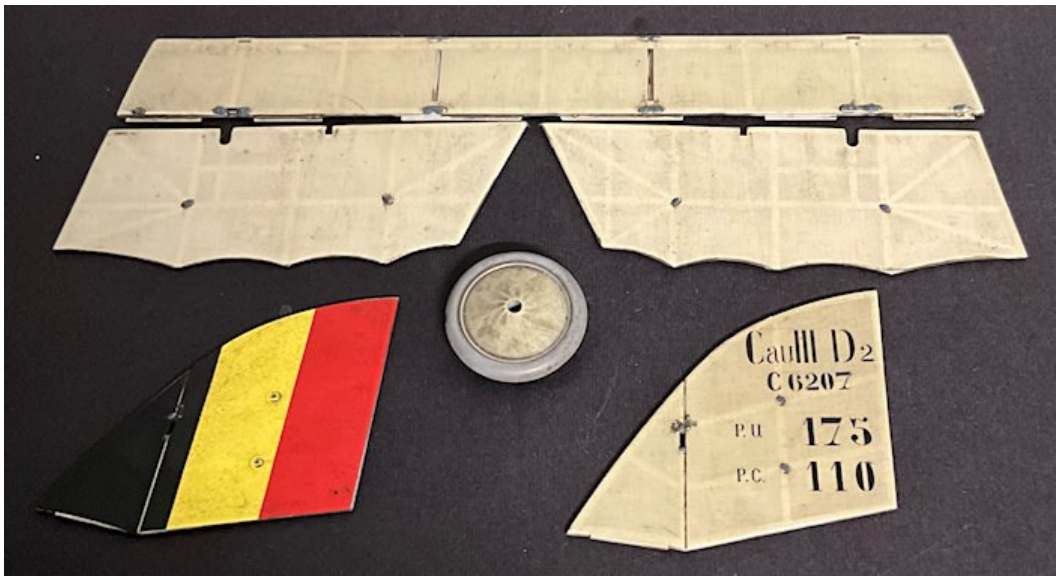
I chose to use the ’Flory Models’ Dark Dirt wash. Brush the ‘Flory Models’ Clay wash over the following:

Upper and lower wings.
Tailplane.
Elevators’
Rudder.
Wheels.
Tail booms and Struts.

Allow the wash to fully dry then remove to achieve your desired weathered effects.

Seal the applied wash by airbrushing with a semi-gloss clear coat, such as ‘Tamiya’ Semi-Gloss (X35) or similar.






**Rigging - final tensioning:**

Invariably when completing lines of rigging, usually during the final rigging stage, some lines may be slightly slack. This can be remedied by the careful application of heat along the line.

**WARNING:** *Care needs to be taken when using this method to tension line, as using a heat source is required.*

**NOTE:** *Where many rigged lines are required, it's best to tighten any slack completed lines as you add them, as trying to tighten a line amidst others may cause damage to the other lines. Take care not to linger at one area of a line with the heat source as this will melt the mono-filament causing the line to break. Also take care not to touch any part of the model or any other rigging, as this will also cause damage through melting.*

Carefully move a suitable heat source (I use a small electrical soldering iron) close to and along the slack line, keeping the heat source always moving. You will see the line tension as the applied heat takes effect, shrinking the line.

**Pre-rigging:**

**NOTE:** *Refer to Part 6 (Rigging) of this build log for more information. At this stage of the build, it's best to prepare and pre-rig as much of the structural wires as possible, before further assembly of the aircraft. This allows for easier access to complete the rigging later in the build. The rigging materials used are:*

*'Gaspatch' 1:48th scale metal Turnbuckles (Type A, C and One Ended).*

*'Gaspatch' 1:48th scale metal Anchor points.*





*'Proper Plane' resin turnbuckles (RD-005).*

*Blackened 0.4 and 0.5 mm diameter Brass tube, such as 'Albion Alloy's' MBT04/05 or similar.*

*Line - 0.08 and 0.12 mm diameter mono-filament, such as 'Steelon' or 'Stroft GTM' or similar.*

*Nickel-Silver or Brass tube can be chemically blackened by immersion in solutions such as 'Blacken-It' or similar then rinse and dry the blackened tubes to prevent powdering of the surfaces.*

*The relevant step/pages of the kit instruction manual are noted in the following entries.*

Cabane strut bracing wires (Step 23, page 8):

Make sure the four cabane strut locating holes/recesses in the cabin sides and in the lower wing are clear of any paint/primer.

Make sure the ends and the locating stubs on the forward and rear cabane struts are clear of any paint/ primer.

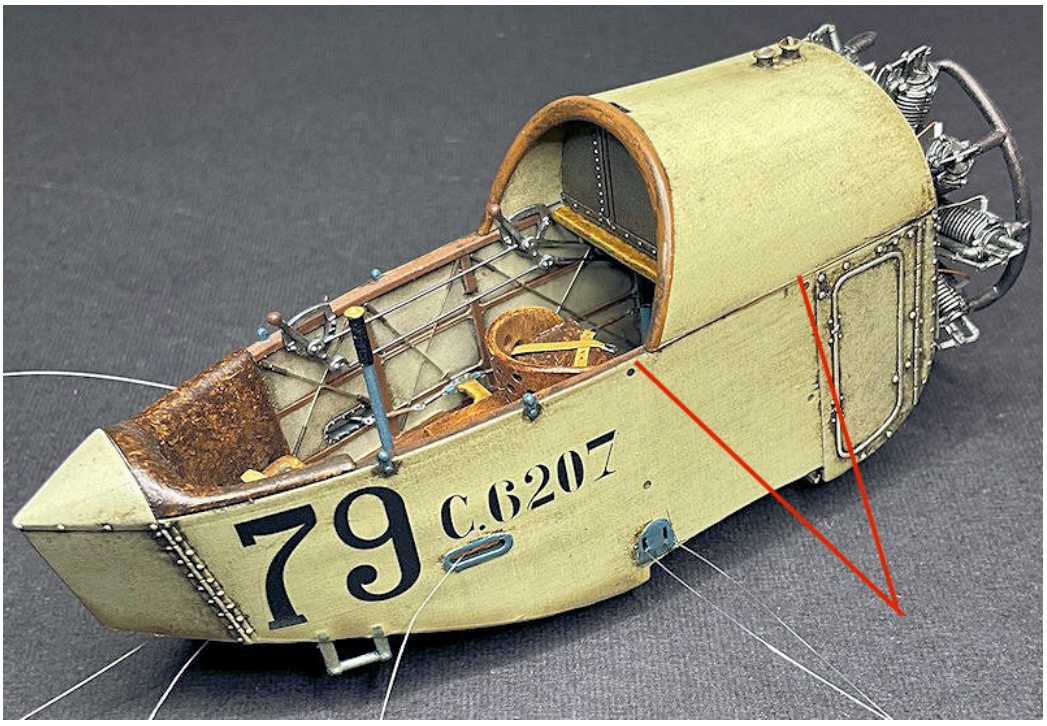
Temporarily fit the forward and rear cabane struts into their locating recesses in the lower wing.

Note the angle to be drilled diagonally between the bottom and tops of the struts.

Remove the cabane struts from the lower wing.

Using a drill of 0.3 mm diameter, drill holes at the required angles into, **but not through**, the lower wing rigging locations for the bottom of the two longer bracing wires.

Using a drill of 0.3 mm diameter, drill a hole through the sides of the cabin, just above the upper locating holes for the forward and rear cabane struts.




Cut four long lengths of 0.12 mm diameter mono-filament line.

Using thin CA adhesive, secure one end of each line into the pre-drilled holes in the cabin sides.

Using a drill of 0.3 mm diameter, drill holes into, **but not through**, the underside of the upper wing at the bracing wire rigging locations.

**NOTE:** *During the following step, make sure the added lines in the cabin sides are positioned correctly, rear lines forwards and forward lines rearward. This will ensure the lines are facing in the correct direction behind the struts.*

Cement the forward and rear cabane struts fully into their locating holes in the sides of the cabin.

Check fit the cabane struts/cabin assembly into the lower wing.

**NOTE:** *Before fitting any turnbuckles or anchor points, check that the 'eye' ends are clear and able to accept the mono-filament line. If not, try clearing the obstruction using a drill of 0.3 mm diameter or replace the part.*

Using thin CA adhesive, secure an Anchor Point into the pre-drilled holes in the underside of the upper wing. Check that the 'eye' end of the Anchor Point has not been contaminated with adhesive. If so, use a 0.2 mm diameter drill to clear the adhesive.

Using thin CA adhesive, secure a Type A turnbuckle into the pre-drilled holes in the lower wing.

Brush paint the centre barrels of the four Type A turnbuckles and four Type C turnbuckles with a mix of 'Mr. Color' Brass (219) and Copper (215) to a ratio of 50/50%.

**NOTE:** *The following applies to each of the four bracing wires from the lower wing turnbuckles.*

Cut a long length of 0.12 mm diameter line.

Pass the line through a blackened 0.5 mm diameter tube.

Pass one end of the line through the ‘eye’ end of the turnbuckle.

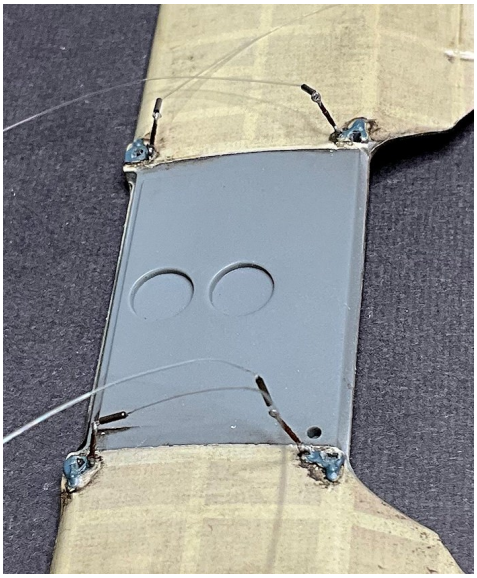
Loop the line back and through the tube.

Hold the lines and move the tube up to, **but not touching**, the ‘eye’ of the turnbuckle.

Using thin CA adhesive, secure the lines in the tube end furthest from the turnbuckle.

Check that the line is free to move in the turnbuckle.

Cut away the residual tag end of line at the tube end.



**NOTE:** *The following applies to each of the four bracing wires from the sides of the cabin.*

Repeat the previous procedure to attach the ’eye’ end of Type C turnbuckle to the line fitted in the side of the cabin, making sure the turnbuckle is close to the cabane strut.

Repeat the previous procedure to attach a new line to the opposite ‘eye’ end of the turnbuckle.

Interplane strut incidence wires (Steps 25/26, Page 8) :

Make sure the eight interplane strut locating holes/recesses in the lower wings and underside of the upper wing are clear of any paint/primer.

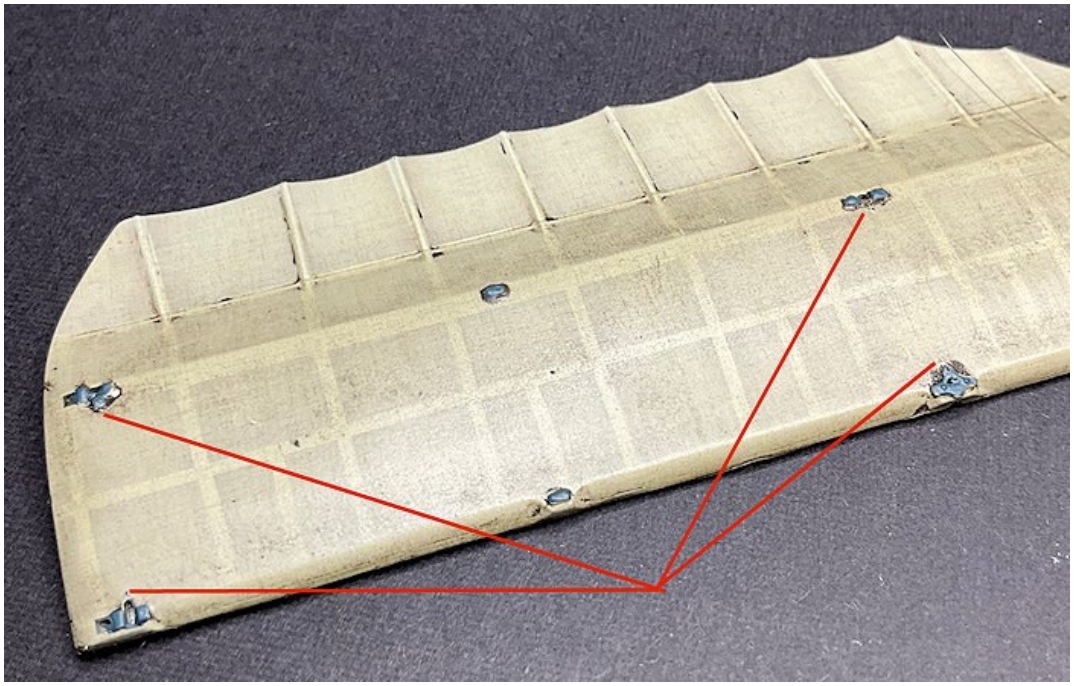
Make sure the locating ends of the interplane struts are clear of any paint/primer.

Temporarily fit a pair of interplane struts into their locating recesses in the lower wing.

Note the angle to be drilled diagonally between the bottom and tops of the struts.

Remove the interplane struts from the lower wing.

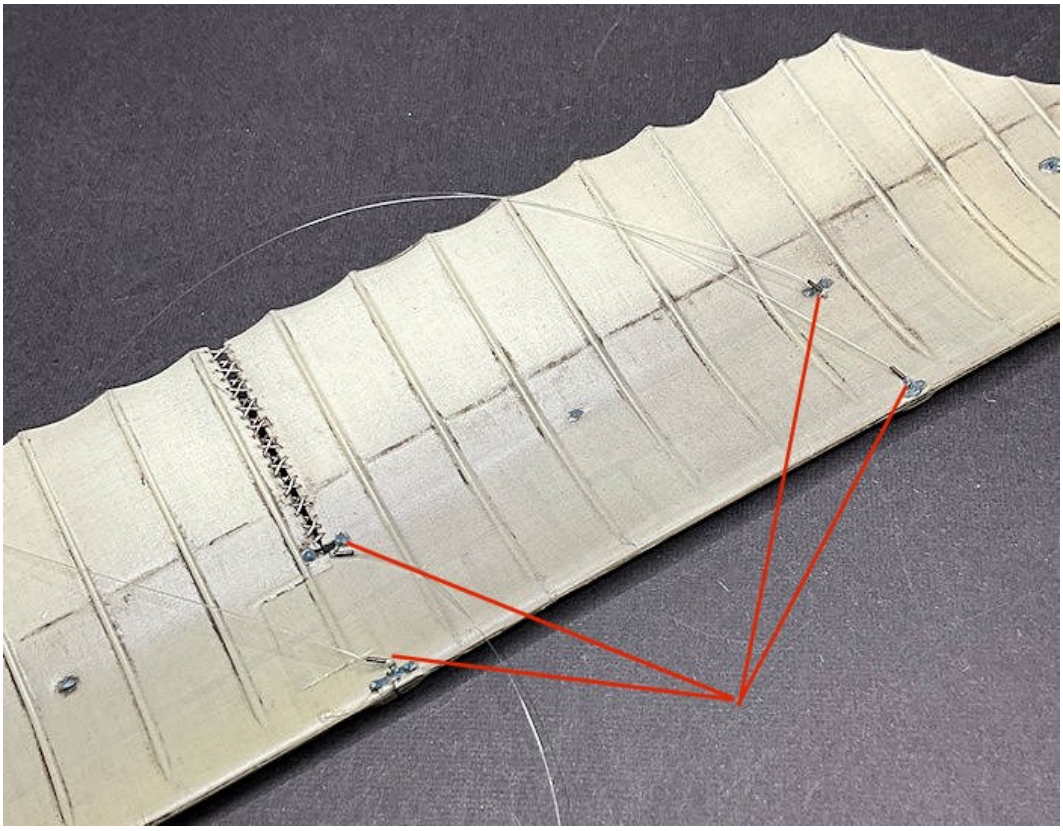
Using a drill of 0.4 mm diameter, drill eight holes into, **but not through**, the lower wing rigging locations for the bottom of the interplane strut incidence wires.



Using a drill of 0.3 mm diameter, drill eight holes into, **but not through**, the underside of the upper wing rigging locations for the top of the interplane strut incidence wires.

Using thin CA adhesive, secure an Anchor Point into the eight pre-drilled holes in the underside of the upper wing. Check that the 'eye' end of the Anchor Point has not been contaminated with adhesive. If so, use a 0.2 mm diameter drill to clear the adhesive.

Using the previous procedure attach a long length of line to each of the Anchor Points in the upper wing.



Inner bracing wires (Steps 27/28, page 9):

**NOTE:** *The following procedure applies to both interplane struts (A13).*

Using a drill of 0.3 mm diameter, drill a hole through the centre of the forward, inner interplane struts (A13).

Using the previous procedure attach a long length of line to an ‘eye’ end of a Type C turnbuckle.

Pass the free end of the line through the pre-drilled hole in the strut.

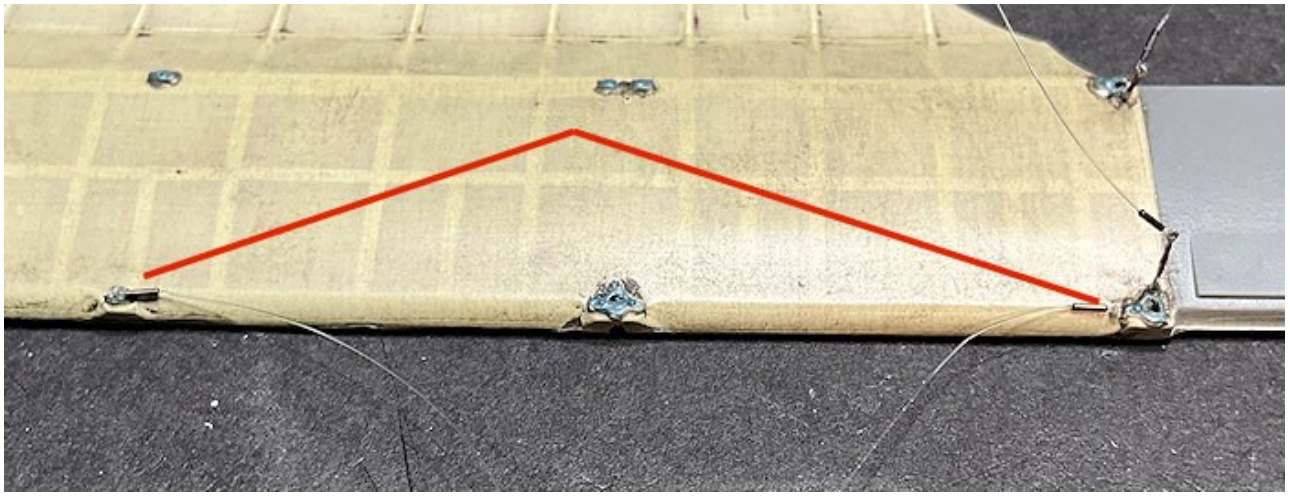
Using the previous procedure attach the free end of the line to an ‘eye’ end of another Type C turnbuckle, making sure the turnbuckles are close to the strut.

Brush paint the centre barrels of the four Type C turnbuckles with a mix of ’Mr. Color’ Brass (219) and Copper (215) to a ratio of 50/50%.

Using a drill of 0.3 mm diameter, drill four holes into, **but not through**, the lower wing rigging locations for the inner bracing wires in the lower wings.

Using thin CA adhesive, secure an Anchor Point into the four pre-drilled holes in the lower wings. Check that the ’eye’ end of the Anchor Point has not been contaminated with adhesive. If so, use a 0.2 mm diameter drill to clear the adhesive.

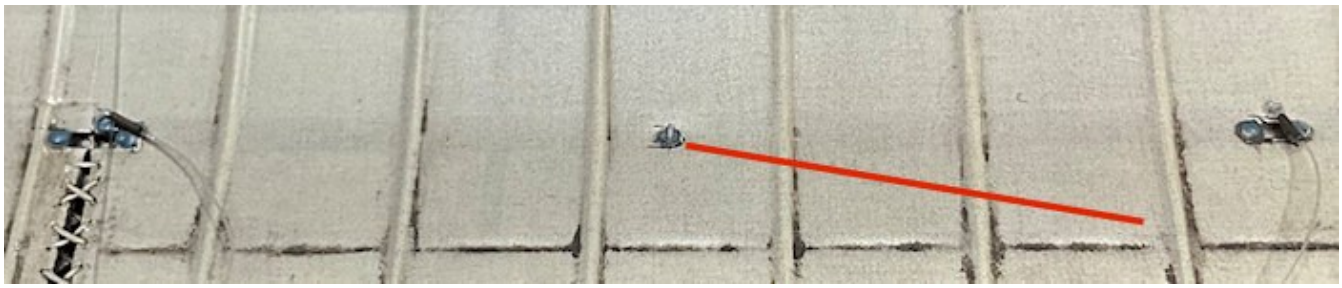
Using the previous procedure attach a long length of line to the four Anchor Points in the lower wings.

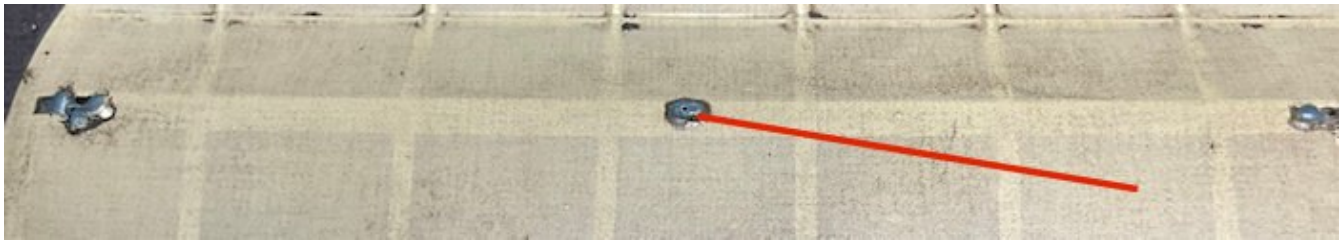


Middle bracing wires (Steps27/28, page 9):

Using a drill of 0.3 mm diameter, drill four holes into, **but not through**, the lower wing and underside of the upper wing at the rigging locations for the middle bracing wires between the wings.

Using thin CA adhesive, secure an Anchor Point into the two pre-drilled holes in the underside of the upper wing. Check that the ’eye’ end of the Anchor Point has not been contaminated with adhesive. If so, use a 0.2 mm diameter drill to clear the adhesive.





Lift strut bracing wires (Steps 33/35, page 10):

Using a drill of 0.3 mm diameter, drill four holes into, **but not through**, the underside of the upper wing rigging locations for the lift strut bracing wires.

Using thin CA adhesive, secure an Anchor Point into the four pre-drilled holes in the upper wing. Check that the 'eye' end of the Anchor Point has not been contaminated with adhesive. If so, use a 0.2 mm diameter drill to clear the adhesive.

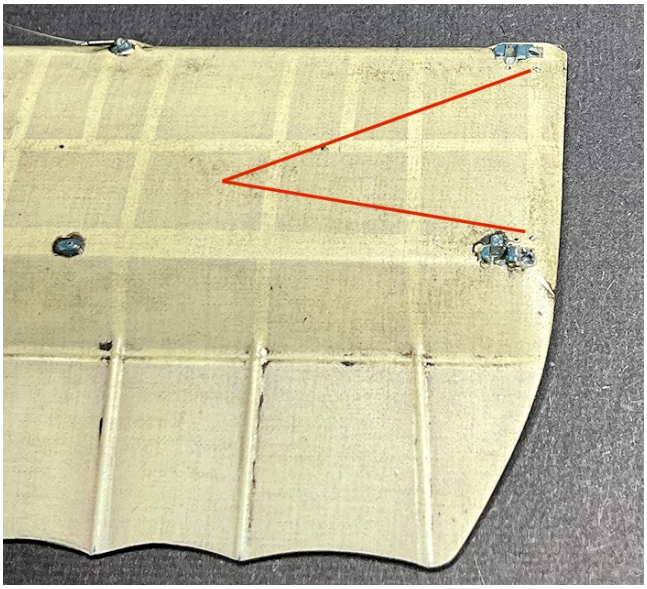
Using the previous procedure attach a long length of line to the four Anchor Points in the upper wing.

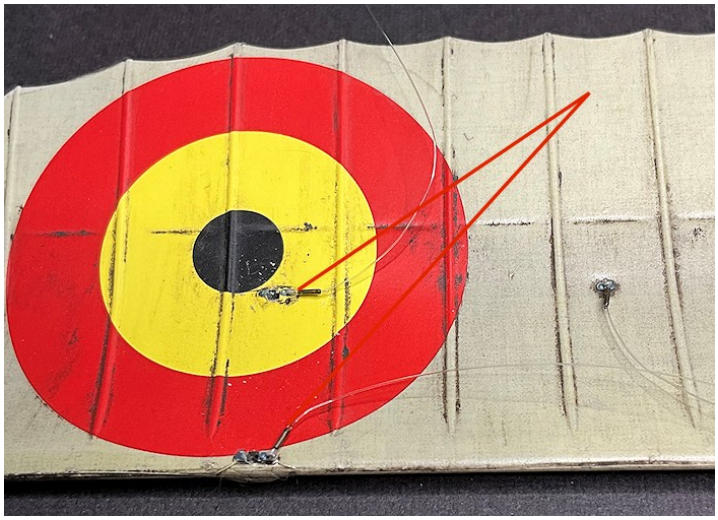
Temporarily fit a pair of lift struts into their locating recesses in the lower wing.

Note the angle to be drilled diagonally between the bottom and tops of the struts.

Remove the lift struts from the lower wing.

Using a drill of 0.3 mm diameter, drill four holes (at the required angles to cross the lines to the top of the struts) into, **but not through**, the lower wing rigging locations for the bottom of the lift strut bracing wires.

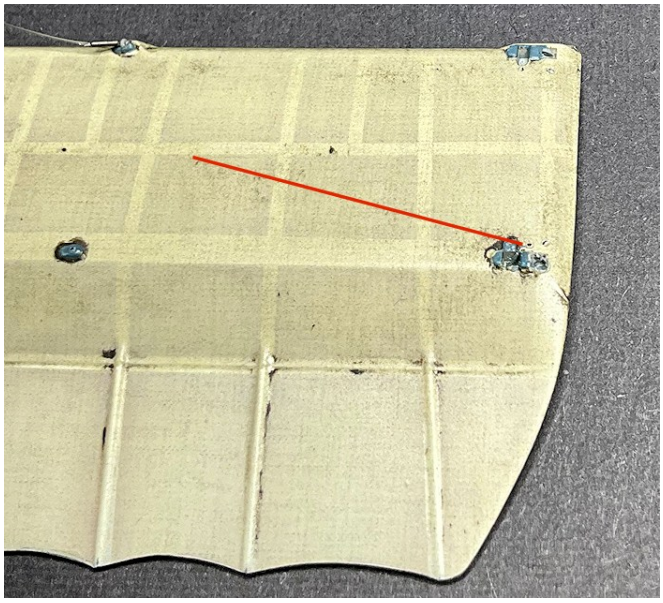


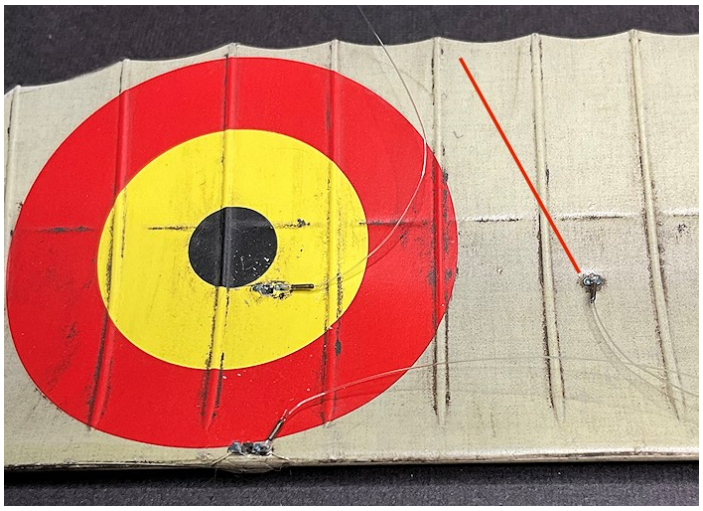


Outer bracing wires (Steps 33/35, page 10):

Using the previous procedure fit an Anchor Point into the outer bracing wire rigging location on the under-side of the upper wing then add a tube/line to the Anchor Point.

Using a drill of 0.4 mm diameter, drill a hole into, **but not through**, the end of the lower wing, between the rear rigging hole for the rear lift strut and locating recess for the rear interplane strut.





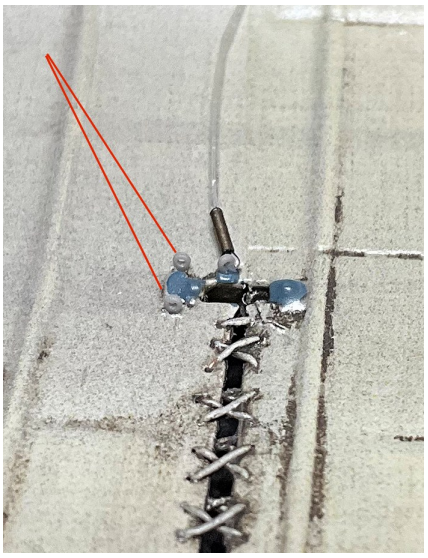
Wing warp control cables (page 4 and steps 37/38 page 10):

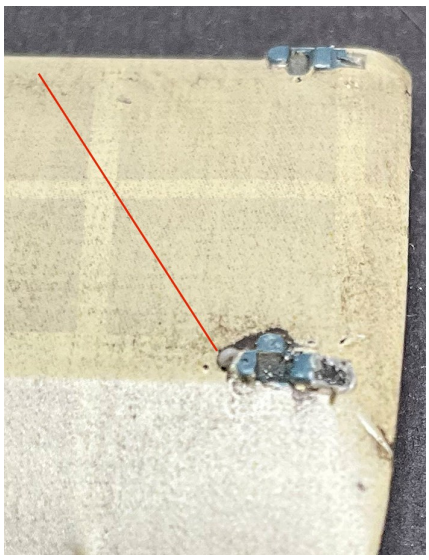
**NOTE:** *The twin wing warp control cables were fitted in the cabin during its construction in Part 9 of this build log.*

Using a drill of 0.3 mm diameter, drill four holes into, **but not through**, the underside of the upper wing rigging locations for the wing warp control cables.

Using a drill of 0.3 mm diameter, drill two holes into, **but not through**, the lower wing rigging locations for the wing warp control cables.

Using thin CA adhesive, secure an Anchor Point into the four pre-drilled holes in the upper wing and the two in the lower wings. Check that the 'eye' end of the Anchor Point has not been contaminated with adhesive. If so, use a 0.2 mm diameter drill to clear the adhesive.



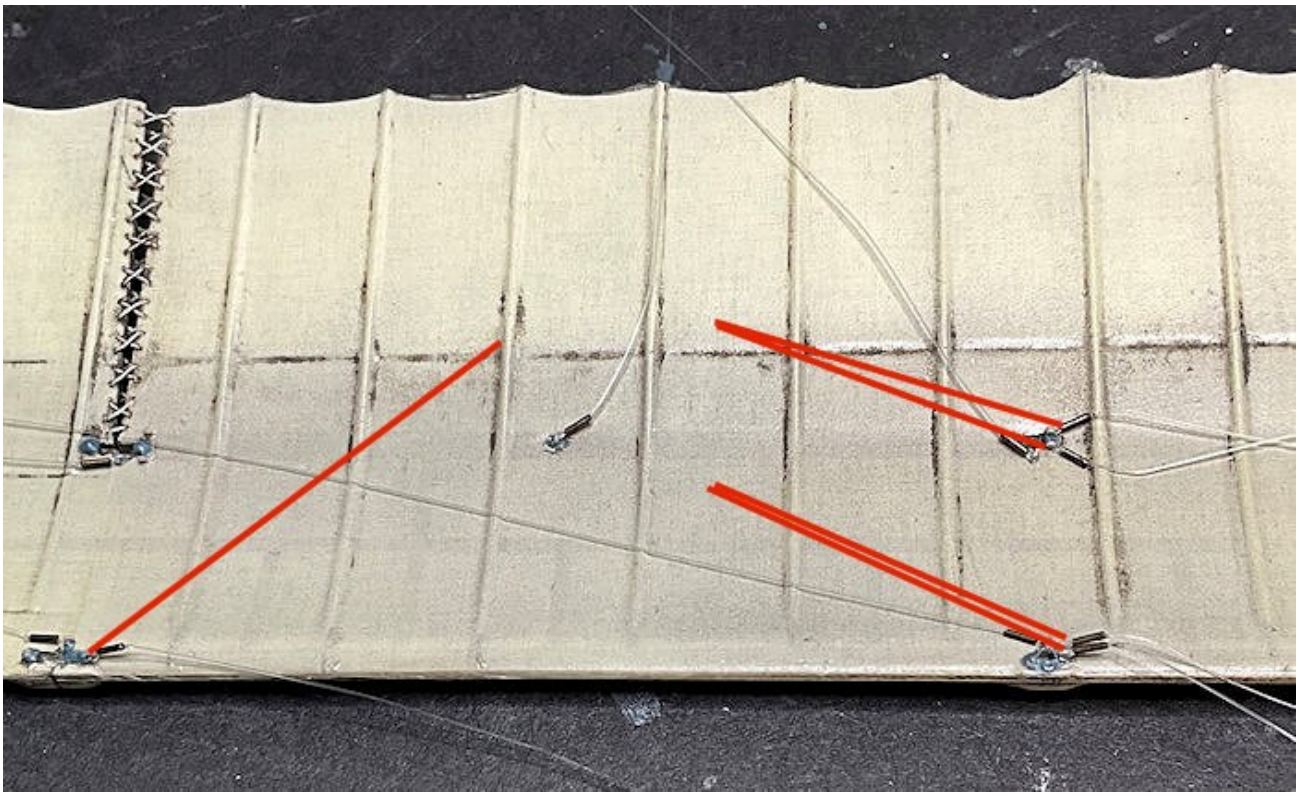


Flying wires (Steps 39/40, page 11):

Using a drill of 0.3 mm diameter, drill ten holes into, **but not through**, the underside of the upper wing rigging locations for the two twin and single flying wires.

Using thin CA adhesive, secure an Anchor Point into the ten pre-drilled holes in the upper wing. Check that the 'eye' end of the Anchor Point has not been contaminated with adhesive. If so, use a 0.2 mm diameter drill to clear the adhesive.

Using the previous procedure attach a long length of line to the ten Anchor Points in the upper wing.

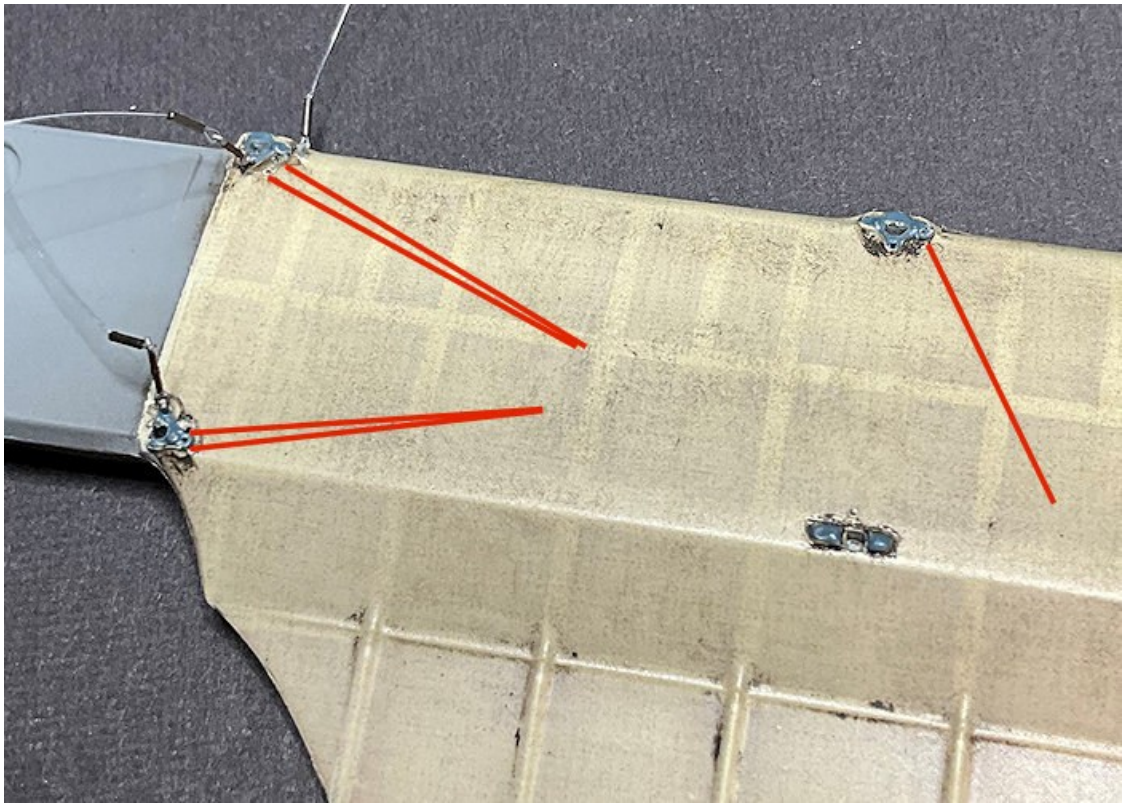


Temporarily fit a pair of inner interplane struts into their locating recesses in the lower wing.

Note the angle to be drilled diagonally between the edge of the cabin side (when fitted) and tops of the struts.

Remove the interplane struts from the lower wing.

Using a drill of 0.4 mm diameter, drill five holes into, **but not through**, both of the lower wings rigging locations for the flying wires.



Landing wires (Steps 39/40, page 11):

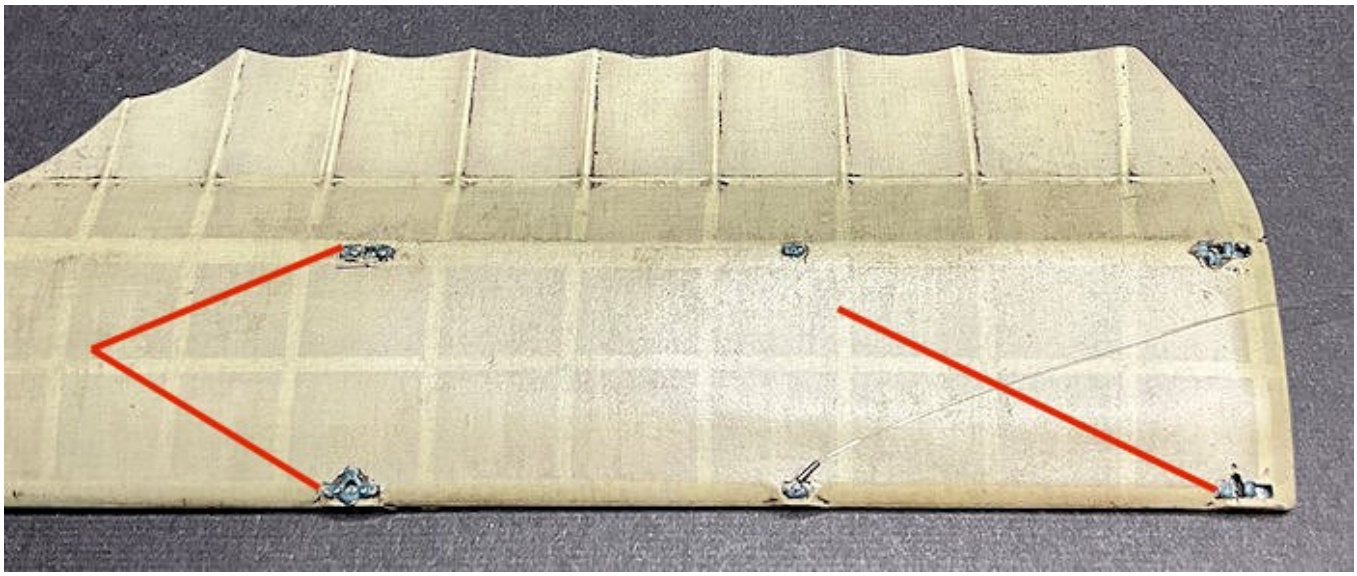
Temporarily fit interplane struts into their locating recesses in the lower wing.

Note the angle to be drilled diagonally between the tops of the cabane struts and bottom of the inner interplane struts.

Note the angle to be drilled diagonally between the bottom of the forward, inner interplane strut and the top of the forward, outer interplane strut.

Remove the interplane struts from the lower wing.

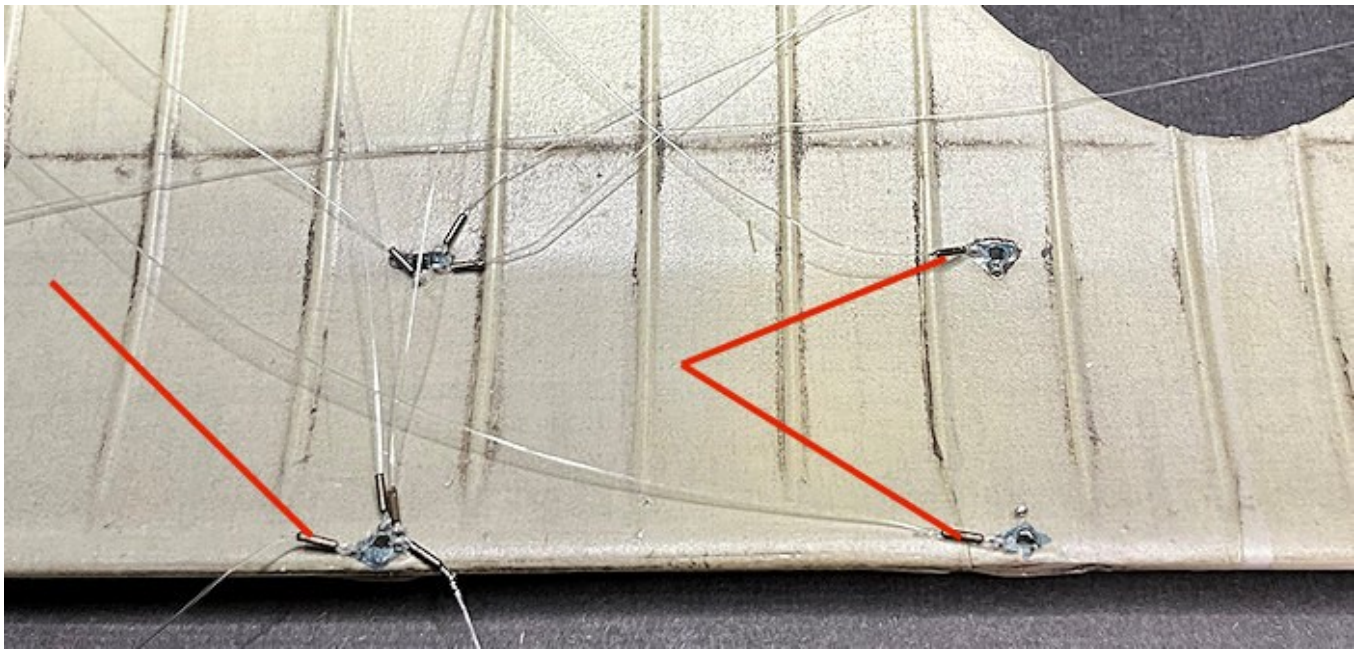
Using a drill of 0.4 mm diameter, drill three holes into, **but not through**, both of the lower wings rigging locations for the landing wires.



Using a drill of 0.3 mm diameter, drill six holes into, **but not through**, the underside of the upper wing rigging locations for the landing wires.

Using thin CA adhesive, secure an Anchor Point into the six pre-drilled holes in the underside of the upper wing. Check that the 'eye' end of the Anchor Points have not been contaminated with adhesive. If so, use a 0.2 mm diameter drill to clear the adhesive.

Using the previous procedure attach a long length of line to the ten Anchor Points in the upper wing.



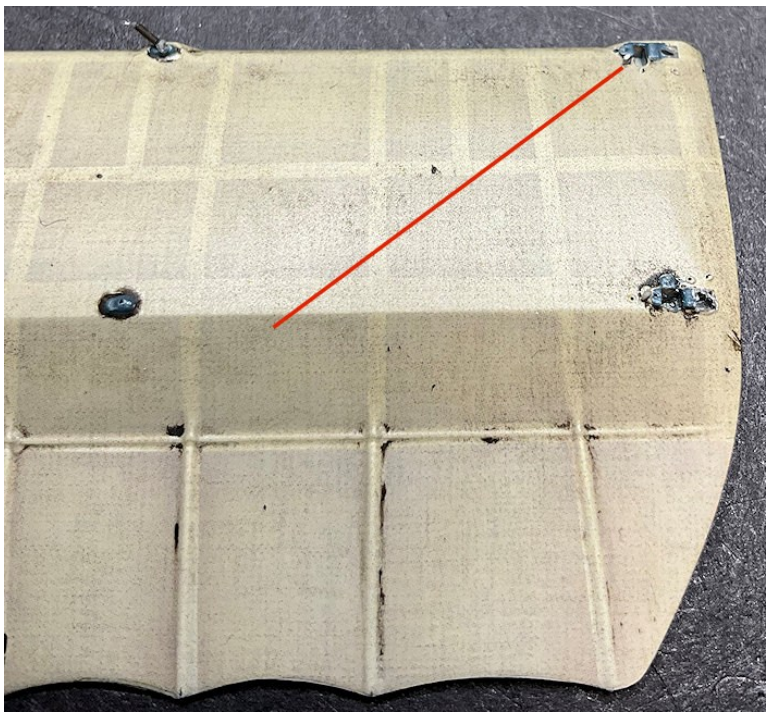
Tail boom bracing wires (Steps 43/48/54/55, pages 12/13/15):

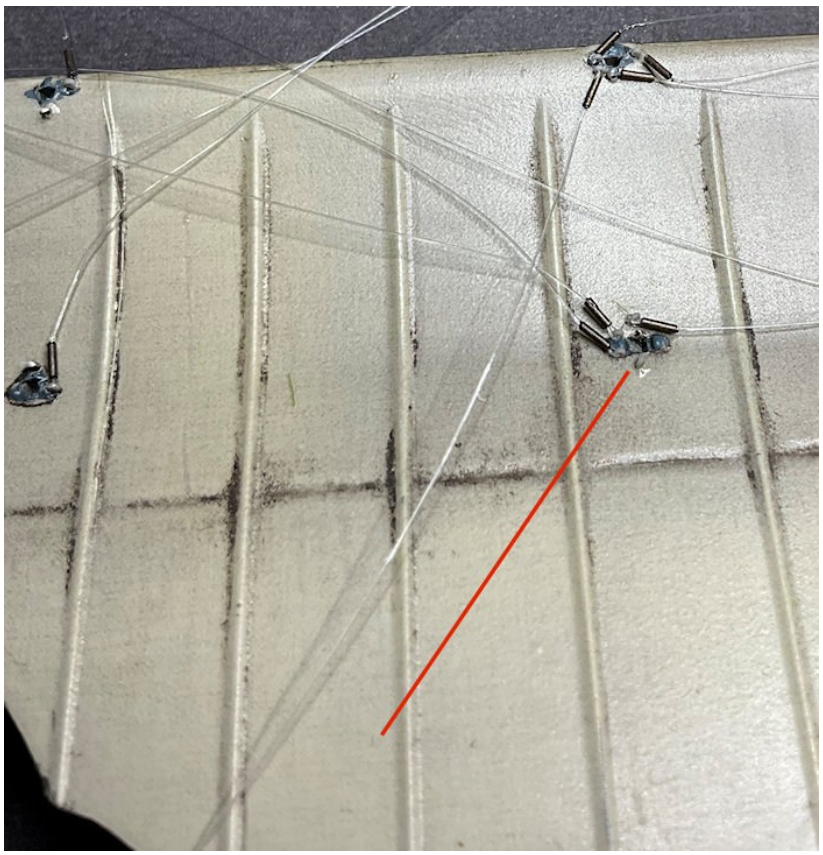
Using a drill of 0.3 mm diameter, drill a hole into, **but not through**, both of the lower wings rigging locations for the tail boom, upper bracing wire.

Using a drill of 0.3 mm diameter, drill two holes into, **but not through**, the underside of the upper wing rigging locations for the tail boom, lower bracing wire.

Using thin CA adhesive, secure an Anchor Point into the two pre-drilled holes in the lower wings and the underside of the upper wing. Check that the 'eye' end of the Anchor Points have not been contaminated with adhesive. If so, use a 0.2 mm diameter drill to clear the adhesive.

Using the previous procedure attach a long length of line to each of the two Anchor Points in the upper and lower wings.



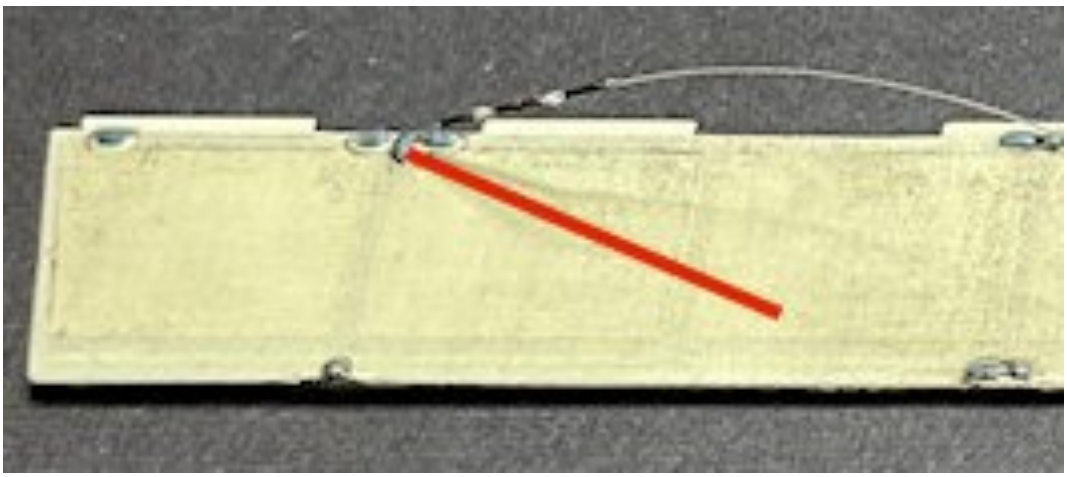


Using a drill of 0.3 mm diameter, drill a hole through both of the rigging locations in the tailplane for the tail boom, lower, rear bracing wire.

Using the previous procedure attach a long length of line to each end of a ‘Proper Plane’ 1:32nd scale turnbuckle (RD-005).

Pass one of the lines through the pre-drilled holes in the underside of the tailplane and leaving approximately 4 mm visible, secure in the tailplane using thin CA adhesive.

Cut away any protruding residual line at the top surface of the tailplane.

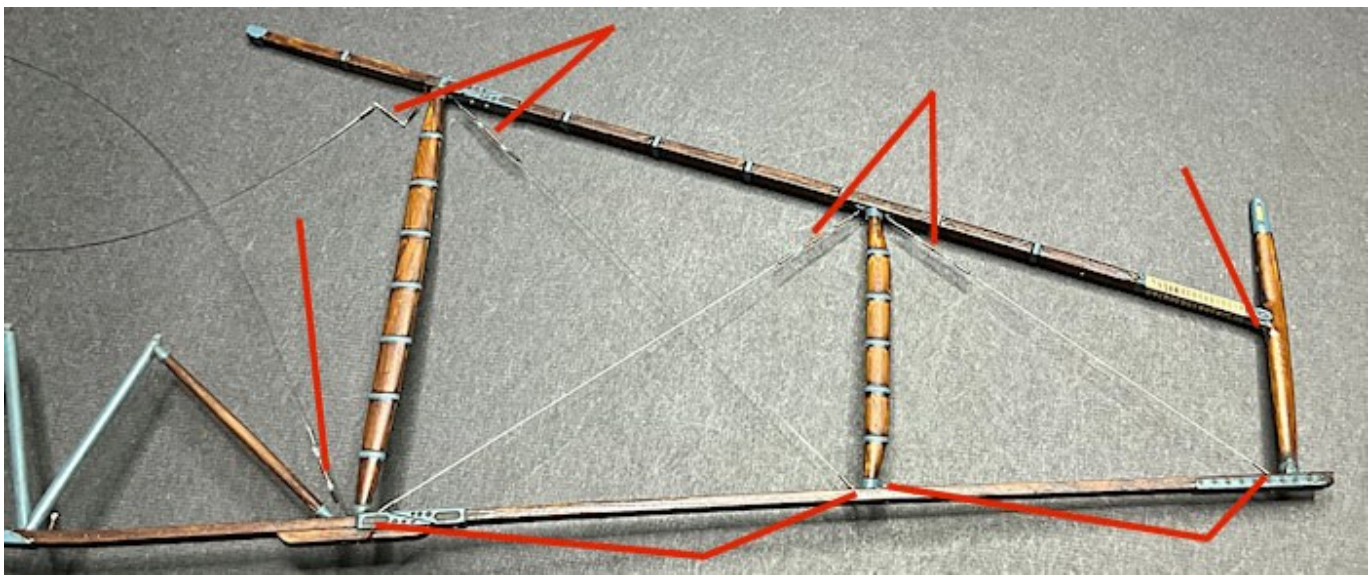


Using a drill of 0.3 mm diameter, drill hole through the upper and lower longerons of the tail boom, as highlighted in the following photograph.

Using the previous procedure attach long lengths of line to each end of ten ‘Proper Plane’ 1:32nd scale turnbuckles (RD-005).

Using the previous procedure, use thin CA adhesive to secure a turnbuckle line into the four pre-drilled holes in the upper longeron and the forward pre-drilled hole in the lower longeron.

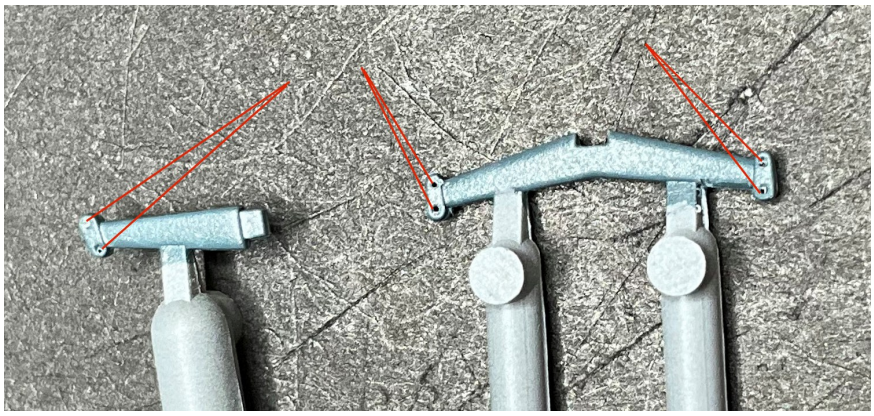
Cut away any protruding residual line at the top of the upper longeron and underside of the lower longeron.



Control horns (Steps 57, 58, page 16):

Using a drill of 0.2 mm diameter, drill a hole through both of the rigging locations in both ends of the two elevator control horns.

Using a drill of 0.2 mm diameter, drill two holes through both of the rigging locations in the end of the two rudder control horns.



Tail boom top bracing wires (Step 61, page 17):

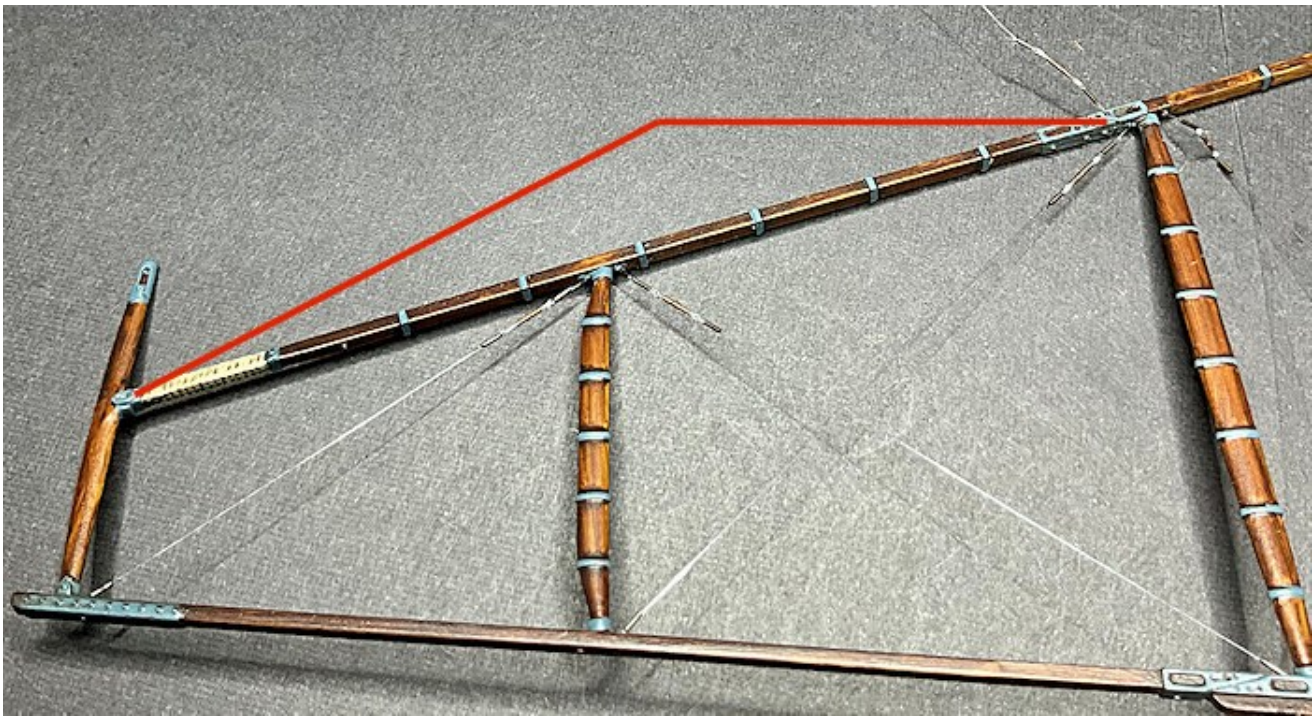
Using a drill of 0.3 mm diameter, drill hole through the upper and lower longerons of both tail booms, as highlighted in the following photograph.

Using the previous procedure attach long lengths of line to each end of two ‘Proper Plane’ 1:32nd scale turnbuckles (RD-005).

**NOTE:** *During the following step, make sure the lines are fitted on the inboard faces of the longerons for the left and right tail boom.*

Using the previous procedure, use thin CA adhesive to secure a turnbuckle line into the two forward pre-drilled holes in the upper longeron and from the inner faces of the longerons.

Cut away any protruding residual line at the outer faces of the upper longeron.



Tail boom/upper wing bracing wires (Steps 64, 65, page 17):

Using a drill of 0.3 mm diameter, drill hole through the upper longerons of both tail booms, as highlighted in the following photograph.

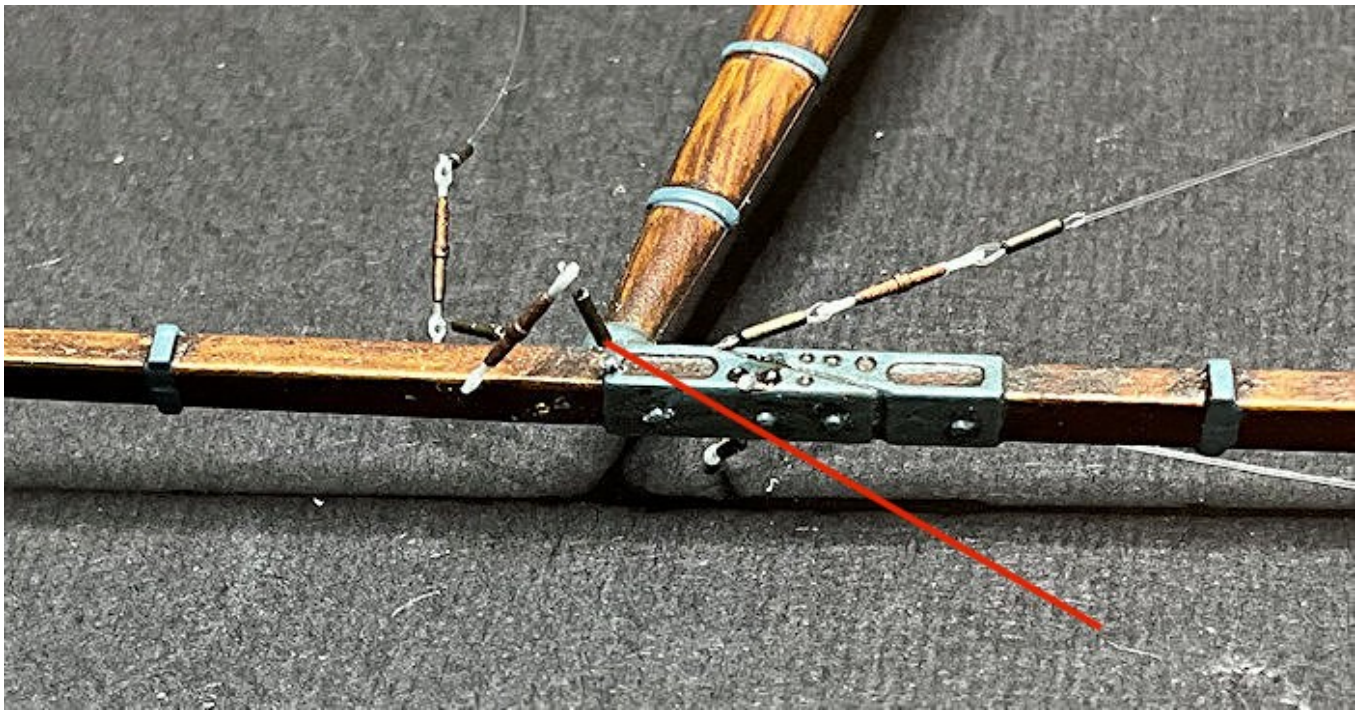
Using the previous procedure a long length of line to one of a ‘Proper Plane’ 1:32nd scale turnbuckles (RD -005).

**NOTE:** *During the following step, make sure the lines are fitted on the outboard faces of the longerons of the tail booms.*

Pass the line through the pre-drilled holes in the longerons, from the outer sides.

Secure the lines in the longerons using thin CA adhesive.

Cut away any protruding residual line at the inner faces of the upper longerons.

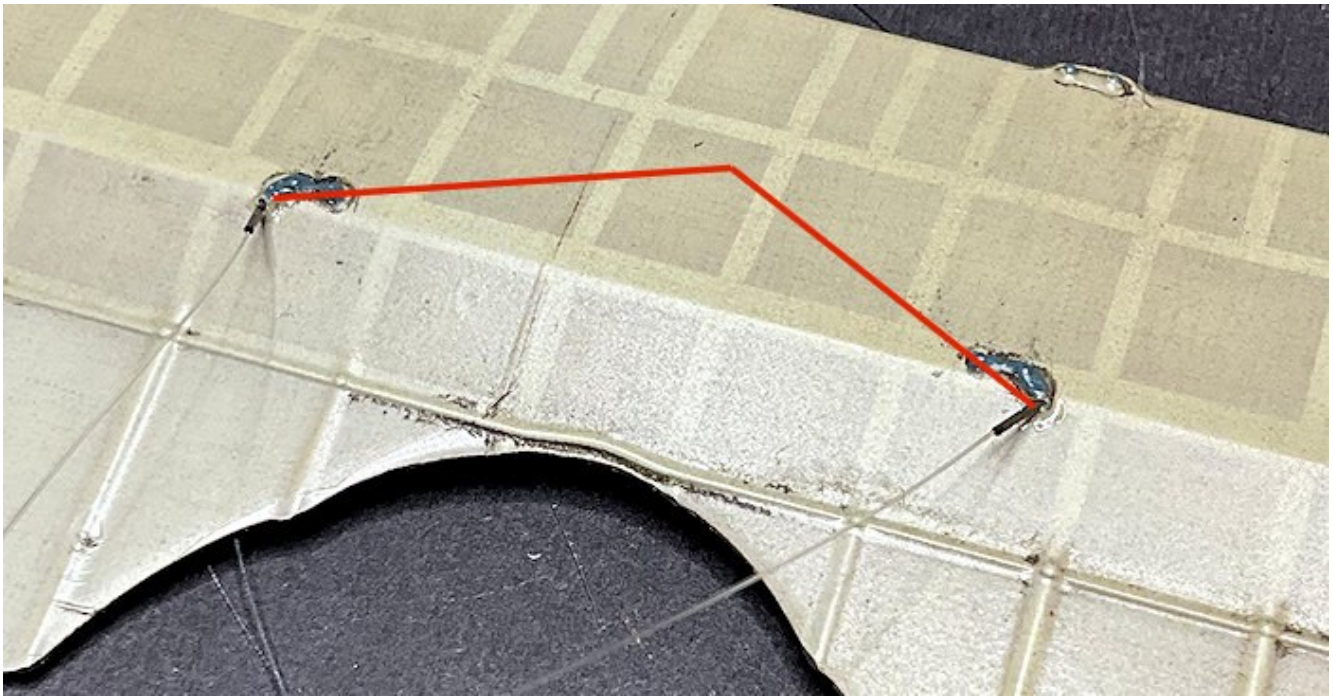


Using a drill of 0.3 mm diameter, drill hole into, **but not through**, the top surface of the upper wing at the rigging attachment locations.

Cut two long lengths of line and secure one end of each into the pre-drilled holes in the upper wing, using thin CA adhesive.

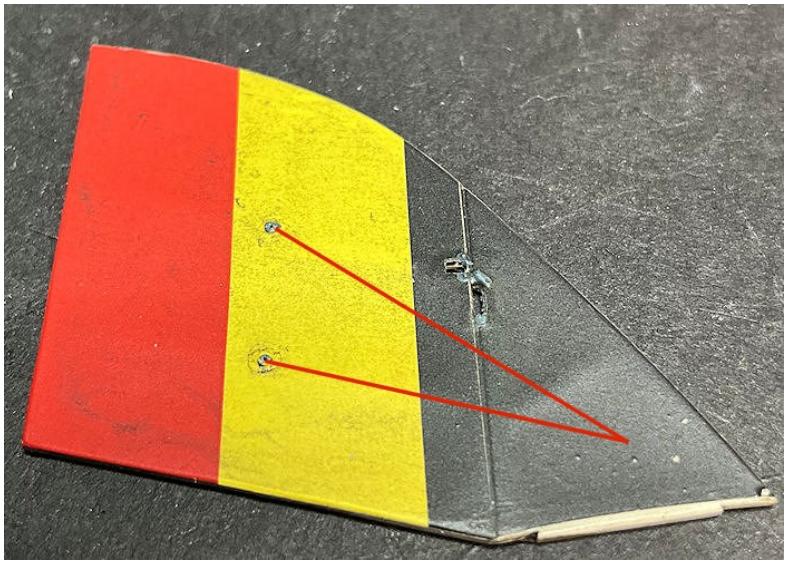
Slide a blackened 0.4 mm diameter Brass tubes, such as ‘Albion Alloy’s’ MBT04 or similar, onto each line.

Slide the tubes along the lines up to the upper wing and secure on the lines using thin CA adhesive.



Rudder control/bracing cables (Steps 57, 58, Page 16):

Using a drill of 0.3 mm diameter, drill hole through the two rudders rigging locations.



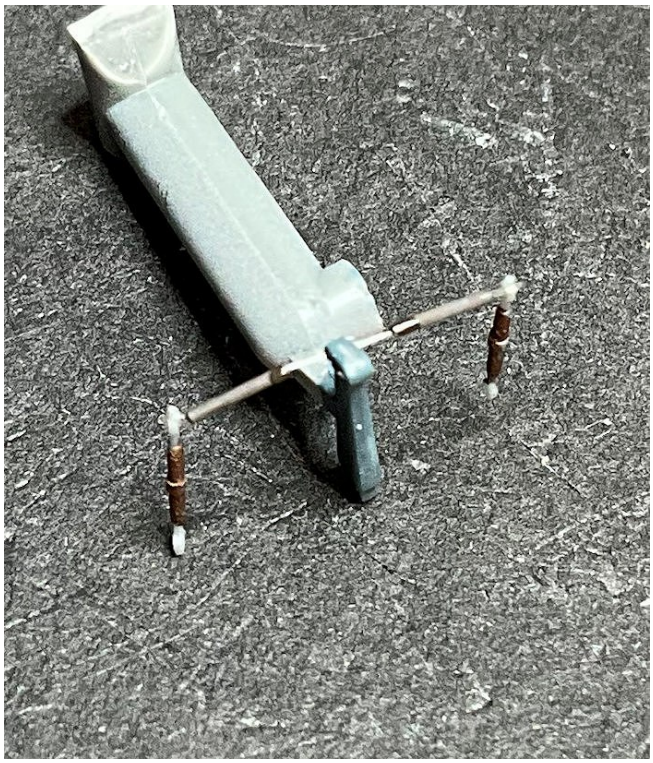
Using the previous procedure, but with 0.08 mm diameter line and 0.4 mm diameter blackened tubes, attach a long length of line to one end of two ‘Proper Plane’ 1:32nd scale turnbuckles (RD-005).

**NOTE:** *During the following step, rig the line through the rear pre-drilled hole in the top end of the control horns.*

Pass the free end of the lines through the rear pre-drilled holes in the two rudder control lines.

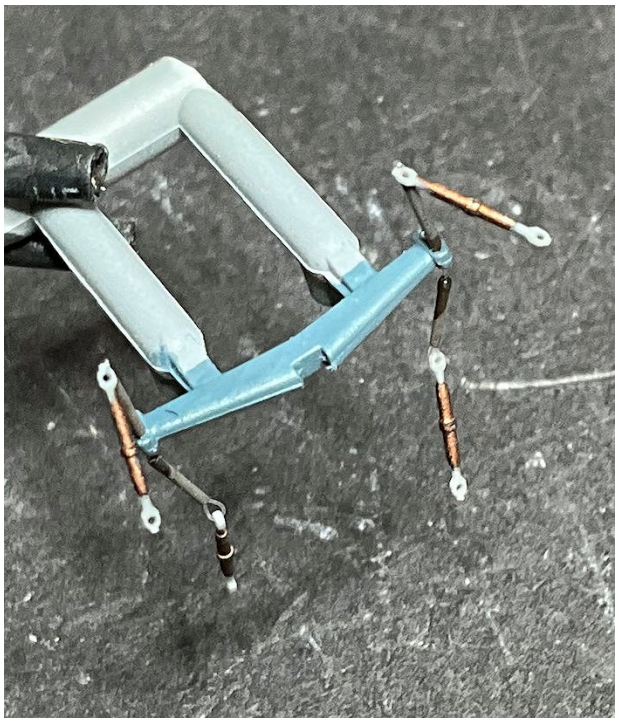
Using the previous procedure, attach the lines to a ‘Proper Plane’ 1:32nd scale turnbuckles (RD-005).

Cut away any protruding residual line at the tube ends.

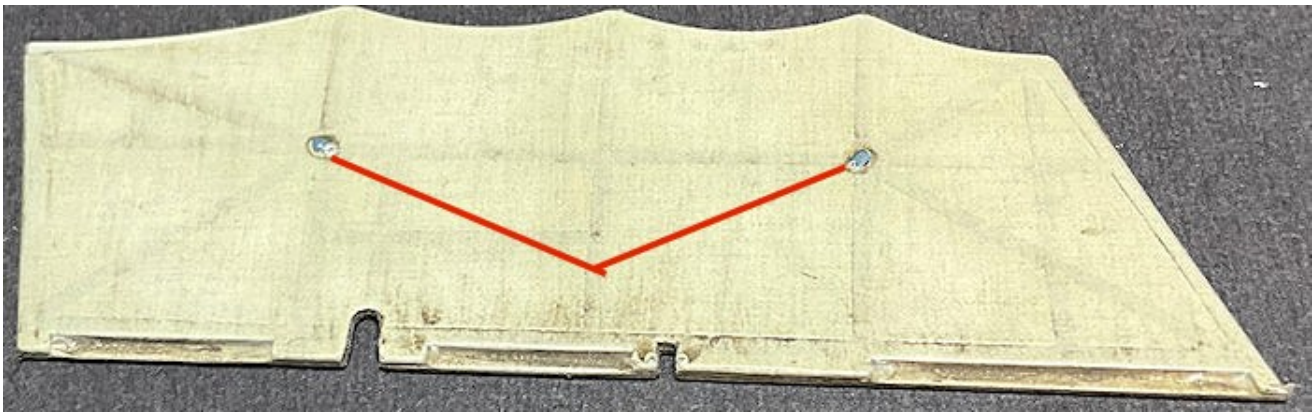


Elevator control cables (Pages 16, steps 57,58,59):

Use the previous procedure to add turnbuckle lines to the rear pre-drilled holes in both ends of the two elevator control horns.

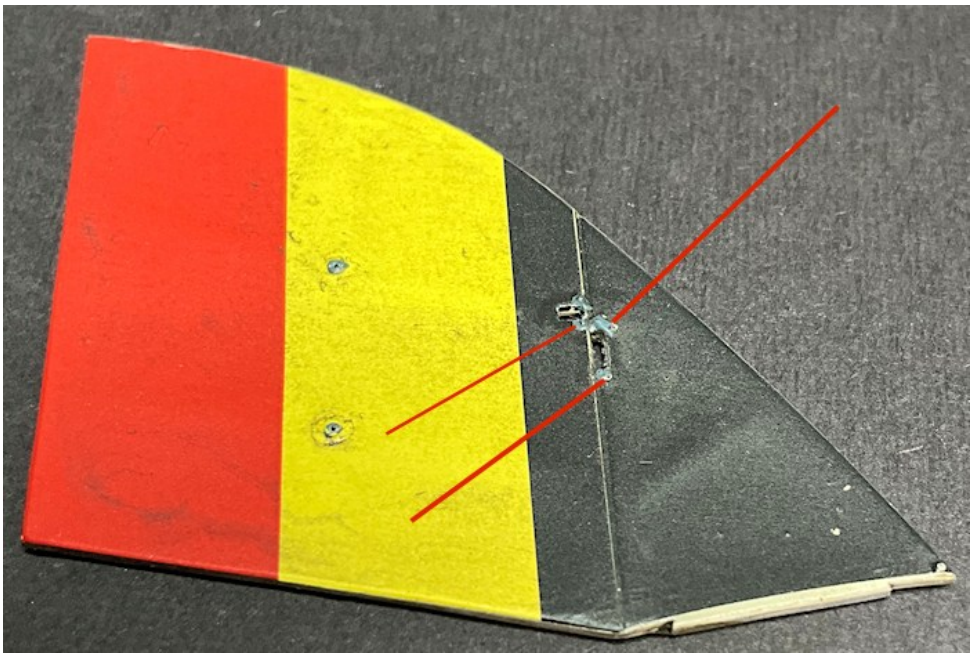


Using a drill of 0.3 mm diameter, drill hole through the two rigging locations on both elevators.

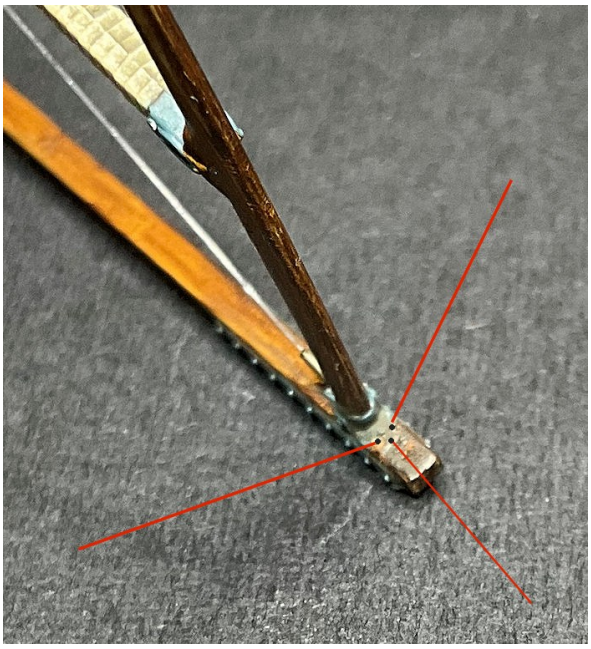


Tailplane/Fin bracing wires (Step 56, 59, 60, pages 15, 16):

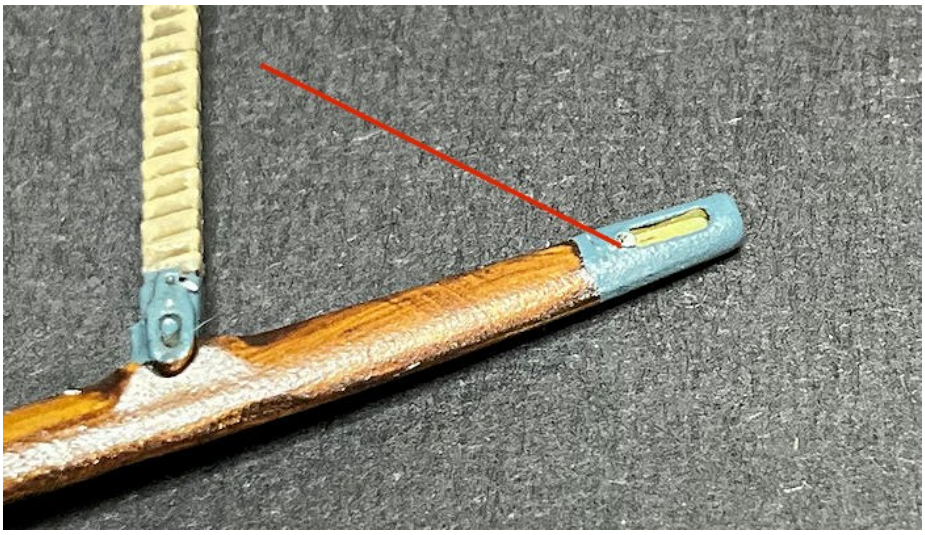
Using a drill of 0.3 mm diameter, drill holes through the two fin rigging locations.



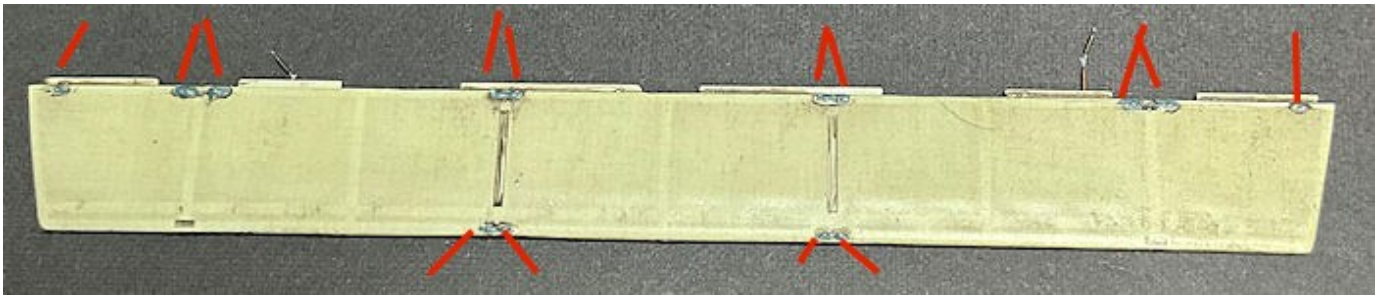
Using a drill of 0.3 mm diameter, drill three rigging locating holes through the rear of the bottom longerons of the tail booms.



Using a drill of 0.3 mm diameter, drill two rigging locating holes through the top of the king posts of the tail booms.



Using a drill of 0.3 mm diameter, drill rigging locating holes through the tailplane leading and trailing edges.



Landing gear bracing wires (Steps 70, 71, 72, pages 19, 20):

**NOTE:** *The kit supplied turnbuckle for the underside, centre of the lower wing is to weak to use. Therefore, it will be replaced by a 'Gaspatch' 1/48th scale metal turnbuckle (One Ended type).*

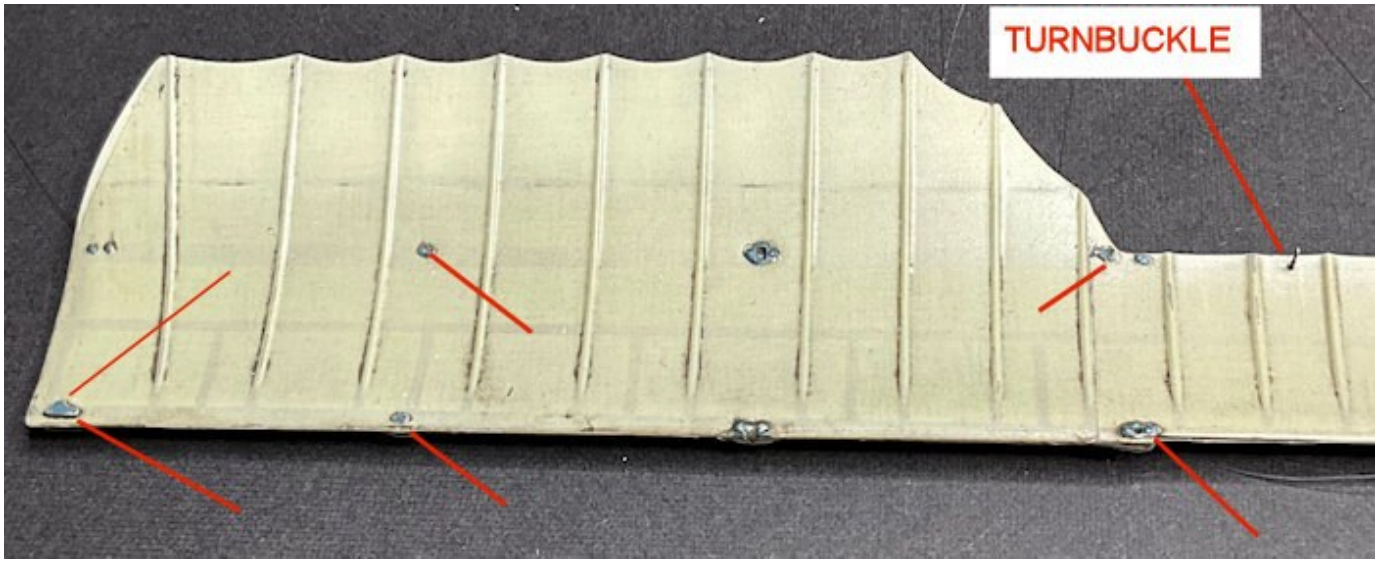
Using a drill of 0.3 mm diameter, drill a hole through the underside of the lower wing at the centre, trailing edge for the replacement rigging turnbuckle.

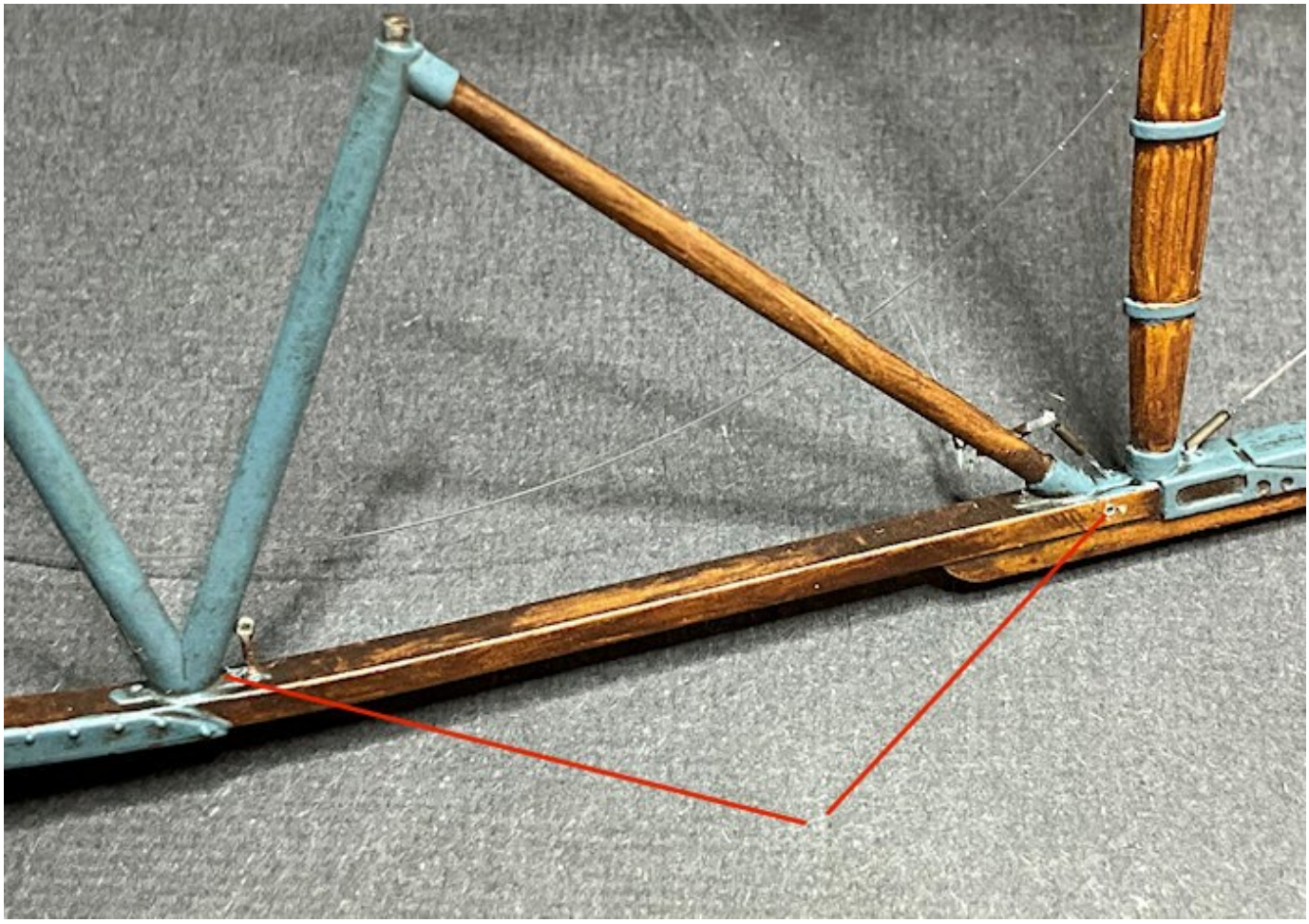
Using thin CA adhesive, secure a ‘Gaspatch’ 1/48th scale turnbuckle (One End type) into the pre-drilled hole.

**NOTE:** *Temporarily hold the landing gear booms in position on the underside of the lower wing, to note the angles the rigging holes need to be drilled for the lines.*

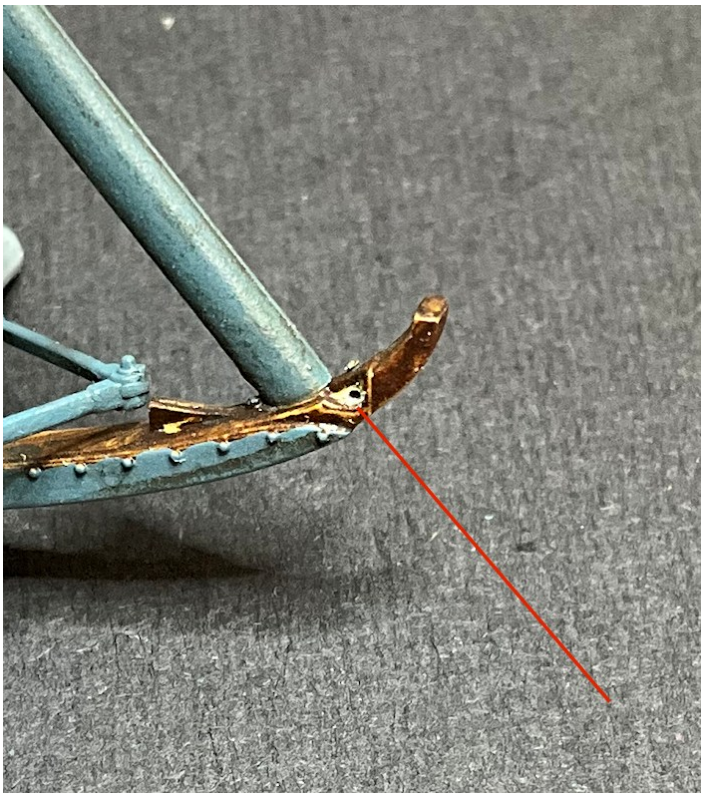
Using a drill of 0.3 mm diameter, drill at the required angles all of the rigging locating holes into, **but not through**, the underside of the lower wing.

Using a drill of 0.4 mm diameter, drill two holes through the two tail booms at the locations shown in the following photograph. The forward hole vertically, the rear hole horizontally through the tail booms.



Using a drill of 0.3 mm diameter, drill two holes through the two tail booms at the locations shown in the following photograph.



**Assembly (continued):**

**NOTE:** *During assembly of the model, make sure all rigging lines/turnbuckles are kept clear of any cemented joints.*

Test fit the cabin assembly onto the lower wing, making sure the bottom of the four cabin cabane struts locate fully into their locating recesses in the lower wing. Also that the bottom of the cabin locates fully onto the lower wing.

Remove the cabin from the lower wing.

**NOTE:** *During the following step only, I used 'Revell' Contacta Professional cement, which is a thicker and slower setting cement. This gives time to ensure the cabin and cabane struts are fully located to the lower wing.*

Apply Contacta cement to the lower wing centre section and secure the cabin fully onto the lower wing.

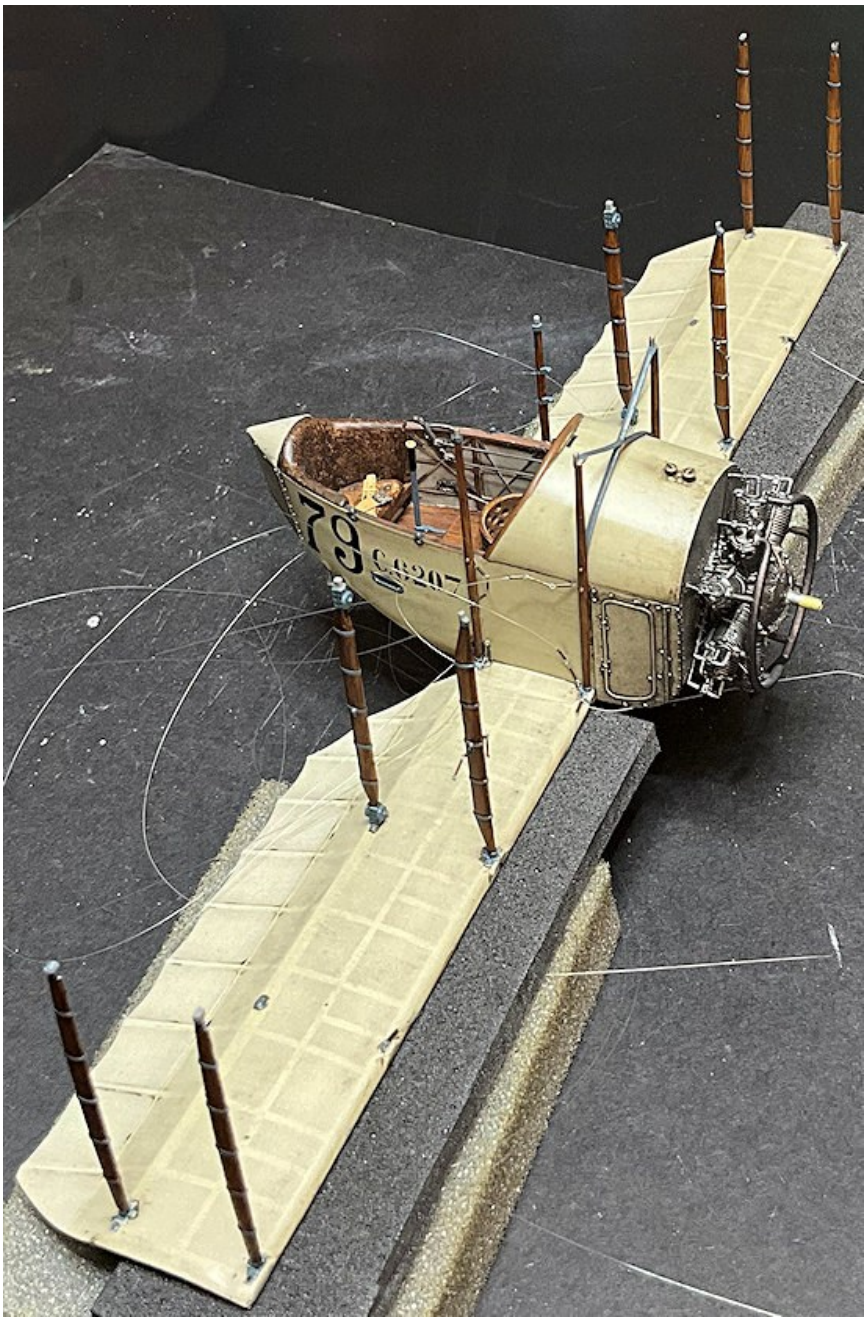
Cement the four cabane struts fully into their location recesses in the lower wing, making sure the pre-drilled rigging holes are not contaminated with adhesive.

Once the cemented joints have set, use a 0.4 mm diameter drill to make sure the pre-drilled rigging holes are clear of adhesive.

Refer to steps 25,26, page 8 of the instruction manual and cement each interplane strut into its locating recess in the lower wing. Make sure that:

- All struts are fitted with the chamfered top/bottom edges at the rear and the correct way up, especially struts I5/I6 (double pulleys at the bottom).
- All struts are vertical and aligned to each other on the wing, when viewed from the front.
- All struts are aligned to the cabin cabane struts, when viewed from the sides.
- The tops of each pair of struts are approximately 17.5 mm apart.

Once the cemented joints have set at the bottom of the struts, use a 0.4 mm diameter drill to make sure the pre-drilled rigging holes are clear of adhesive.



Once the cemented struts are fully set, lay the upper wing top surface down.

**NOTE:** *The join of the eight interplane struts is minimal in the lower wing. When fitting the upper wing, take care to not stress the interplane struts, as they can easily be deflected and damage or break away from the lower wing.*

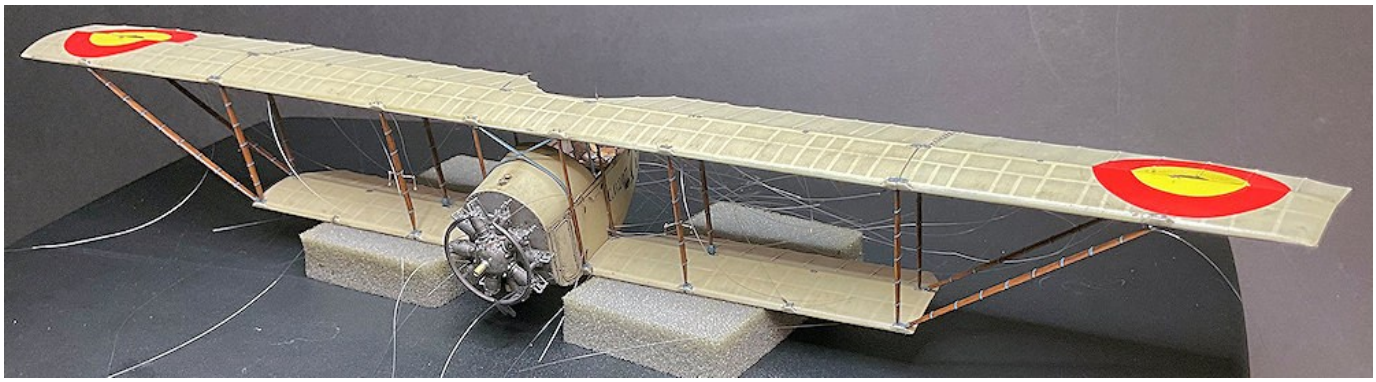
Invert the cabin/lower wing assembly and carefully test fit the cabane and interplane struts into their locating recesses on the lower wing, making sure they all fully locate.

**NOTE:** *Using elastic bands around the upper and lower wings may help to hold them together when being cemented.*

With the upper wing fully located on the cabane and interplane struts, cement the struts into their recesses in the upper wing, Avoid applying too much cement as that may contaminate the pre-rigged lines.

Once the cemented struts are fully set, cement the forward lift struts into their locating recesses between the upper and lower wings. B22 strut on the left side and B21 on the right side.

Once the cemented struts are fully set, cement the rear lift struts into their locating recesses between the upper and lower wings. B19 strut on the left side and B20 on the right side.



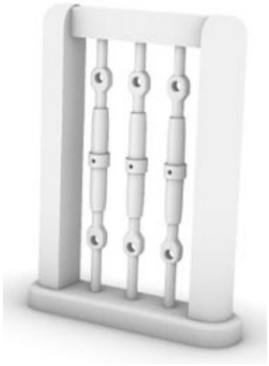
**Final rigging:**

**NOTE:** *To make final rigging of the wings more easily carried out, the two tail booms and rigging are not added until later in the build. Also, bracing struts for the outer lift struts are not yet fitted to give better access for wing rigging.*

*Refer to Part 6 (Rigging) of this build log for more information. The rigging materials used are:*

*'Proper Plane' resin turnbuckles (RD-005) and (RD-018).*

*RD-005*



*RD-018*

*Blackened 0.5 mm diameter Brass tube, such as 'Albion Alloy's' MBT04/05 or similar.*

As required, brush paint the centre barrels of 'Proper Plane' (RD-018) and (RD-005) turnbuckles with a mix of 'Mr. Color' Brass (219) and Copper (215) to a ratio of 50/50%.

Cut them from their print frames as required.

Cabane strut bracing wires (pre-rigged) (Steps 25,26, page 8):

**NOTE:** *The following procedure applies to all eight of the Cabane strut bracing wires. Two bracing lines will need to be passed through the 'eye' end of each Anchor Point.*

Pass the pre-rigged line through a 0.5 mm diameter blackened tube then diagonally up and through the opposite pre-fitted Anchor Point in the upper wing.

Loop the line back and through the tube.

Keep the lines taut and move the tube up to, **but not touching**, the 'eye' of the Anchor Point.

Using thin CA adhesive, secure the lines in the tube end furthest from the Anchor Point.

Check that the line is free to move in the turnbuckle.

Cut away the residual tag end of line at the tube end.

Flying wires - twin pairs (pre-rigged) (Steps 39, 40, page 11):

**NOTE:** *The following procedure applies to all eight of the flying wire pairs from the upper wing to the wing roots of the lower wings.*

Pass the free end of the pre-rigged line through a 0.5 mm diameter blackened tube then through the ‘eye’ end of a ‘Proper Plane’ RD-018 turnbuckle.

Loop the line back and through a tube.

Move the tube up to, **but not touching**, the ‘eye’ of the turnbuckle.

**NOTE:** *For ease of access fit the **four inner flying wires first** then the four outer flying wires.*

Using thin CA adhesive, secure the ‘leg’ of the turnbuckle into its relevant pre-drilled locating hole in the lower wing root. Make sure the turnbuckle is angled to align with the Anchor Point at the opposite end of the line.

**NOTE:** *The resin turnbuckles are weaker than metal versions. Therefore, support the turnbuckles when tensioning the flying wires and avoid flexing the turnbuckle or applying too much tension to the line, as that may cause the resin to break away.*

Keeping the line taut, move the tube up to, **but not touching**, the ’eye’ end of the turnbuckle.

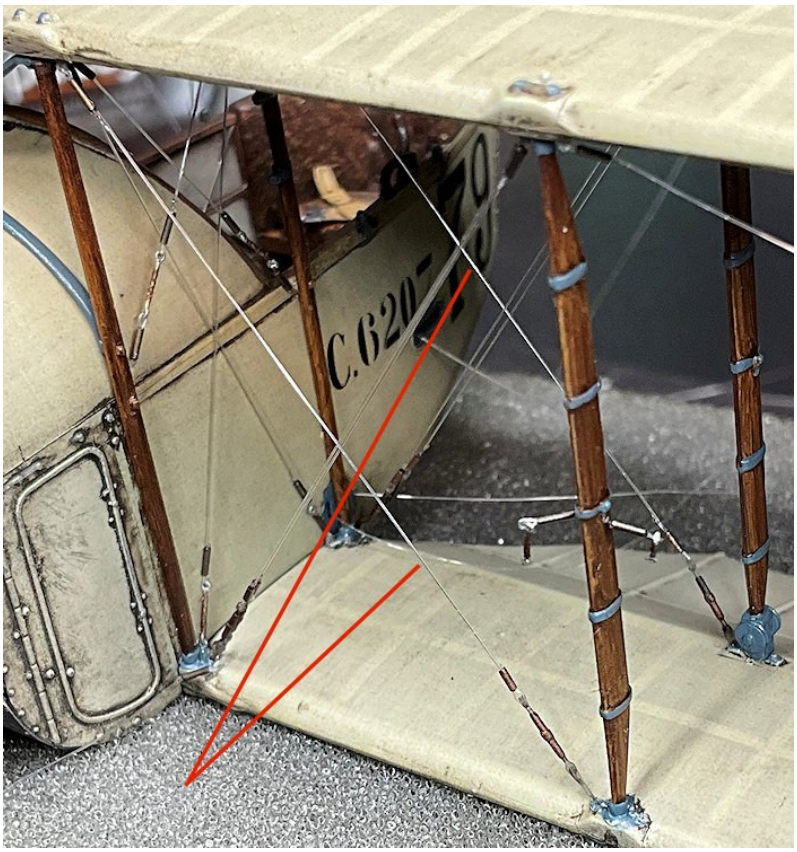
Secure the lines in the tube end furthest from the turnbuckle, using thin CA adhesive.

Cut away any residual tag of line at the tube end.

Landing wires - single (pre-rigged) (Steps 39, 40, page 11):

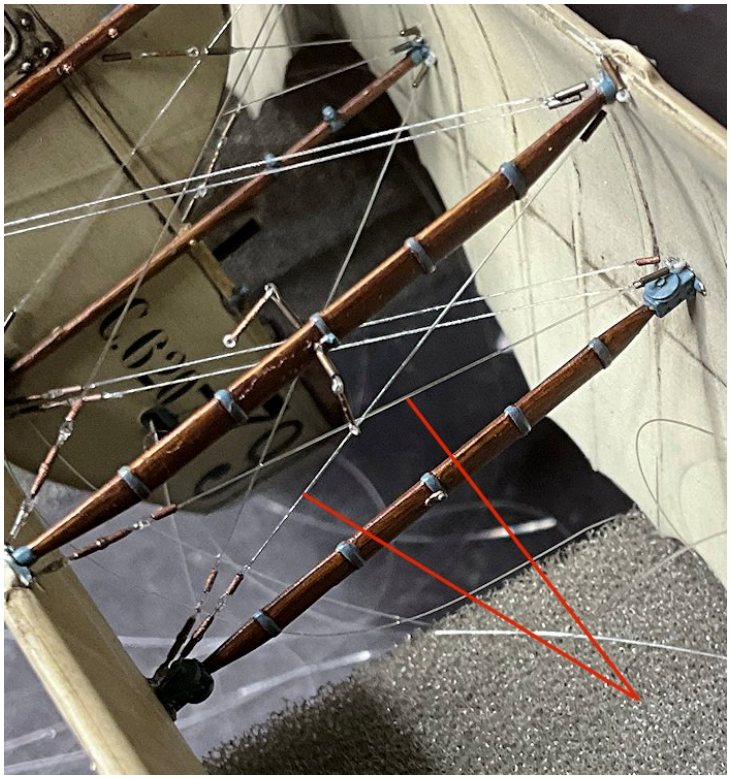
**NOTE:** *The single landing wires should be **passed between** the previously fitted pairs of flying wires.*

Repeat the previous procedure to fit the four inboard landing wires from the upper wing, to both lower wings (two wires on both sides) using ‘Proper Plane’ RD-018 turnbuckles.



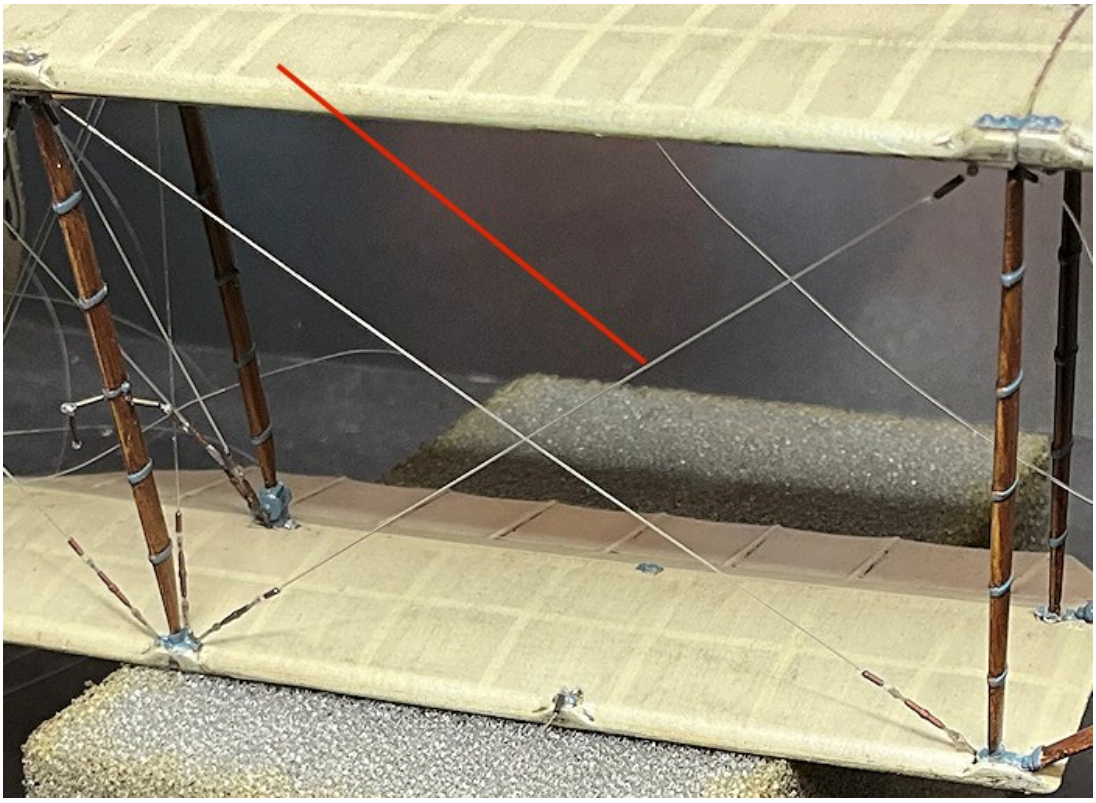
Incidence wires - inboard interplane struts (pre-rigged) (Steps 25, 26, page 8):

Repeat the previous procedure to fit the four crossed incidence wires from the upper wing, between the inboard interplane struts, to both lower wings (two wires on both sides) using ‘Proper Plane’ RD-018 turnbuckles.



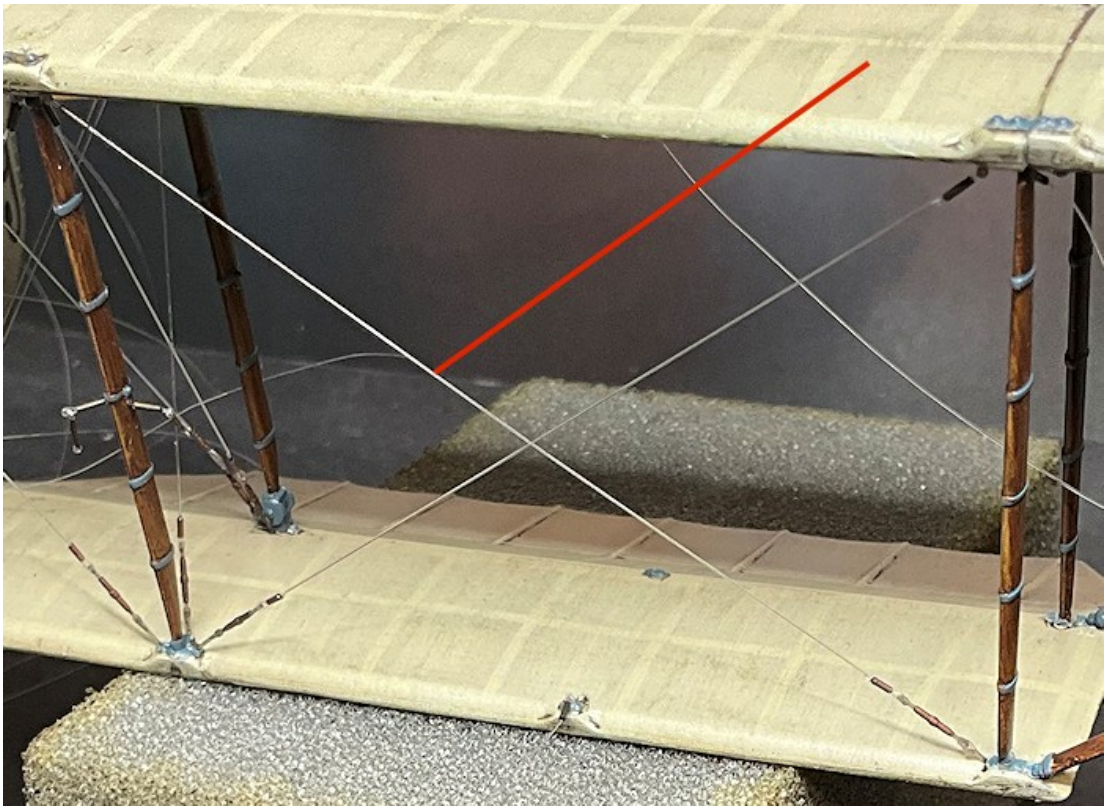
Flying wires - single (pre-rigged) (Steps 39, 40, page 11):

Repeat the previous procedure to fit the two single flying wires from the upper wing to both lower wings (one wire on both sides) using ‘Proper Plane’ RD-018 turnbuckles.



Landing wires - single (pre-rigged) (Steps 39, 40, page 11):

Repeat the previous procedure to fit the two single landing wires from the upper wing, to both lower wings (one wire on both sides) using ‘Proper Plane’ RD-018 turnbuckles.



Inner bracing wires - (pre-rigged) (Steps 27, 28, page 9):

**NOTE:** *The following procedure applies to the four inner bracing wires (two on both lower wings).*

Slide a tube onto the pre-rigged line.

Pass the line diagonally up and through the ‘eye’ end of the turnbuckle rigged on the inner, forward interplane strut.

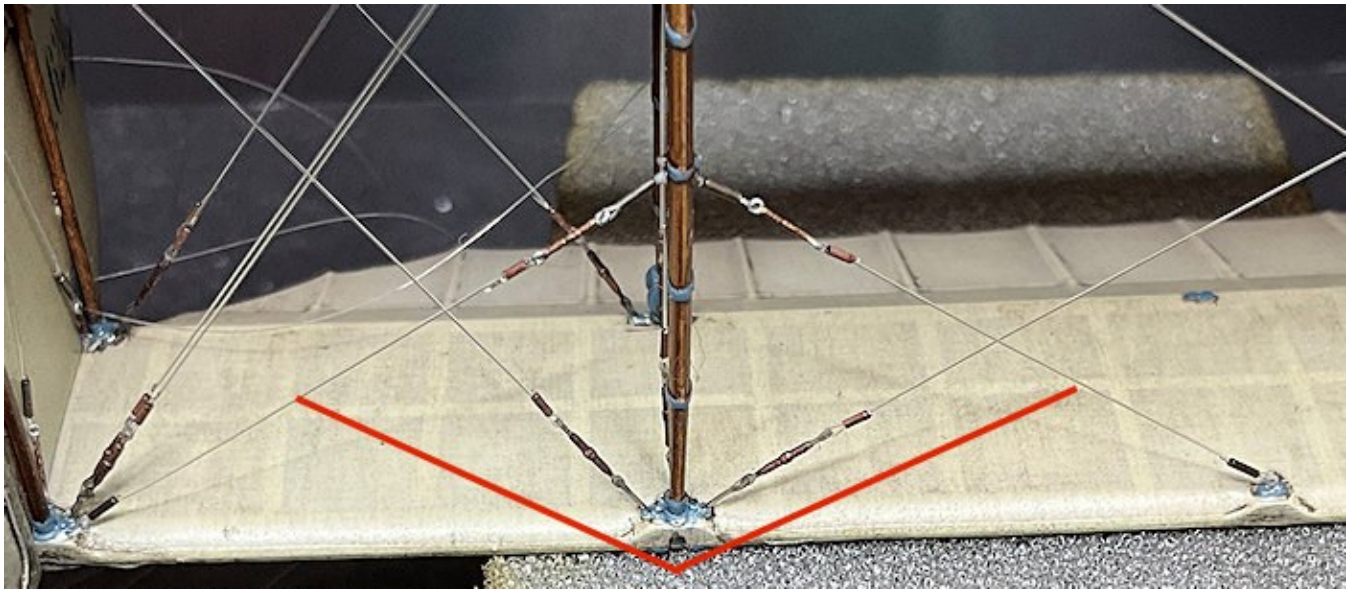
Loop the line back and through the tube.

Keeping the line taut, move the tube up to, **but not touching**, the ‘eye’ of the turnbuckle.

Using thin CA adhesive, secure the lines in the tube end furthest from the turnbuckle.

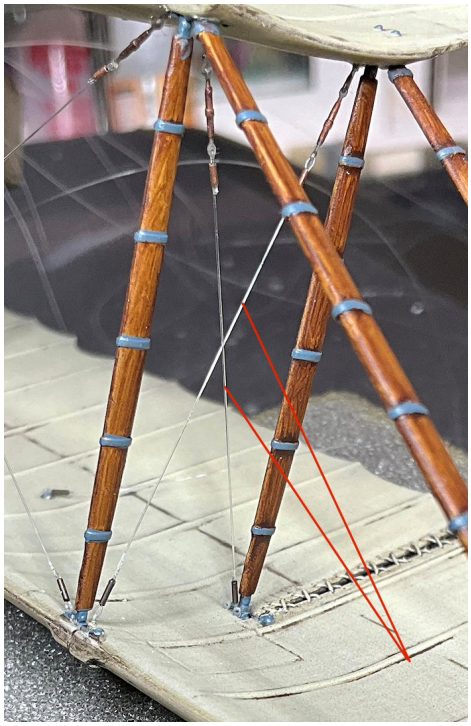
Check that the line is free to move in the turnbuckle.

Cut away the residual tag end of line at the tube end.



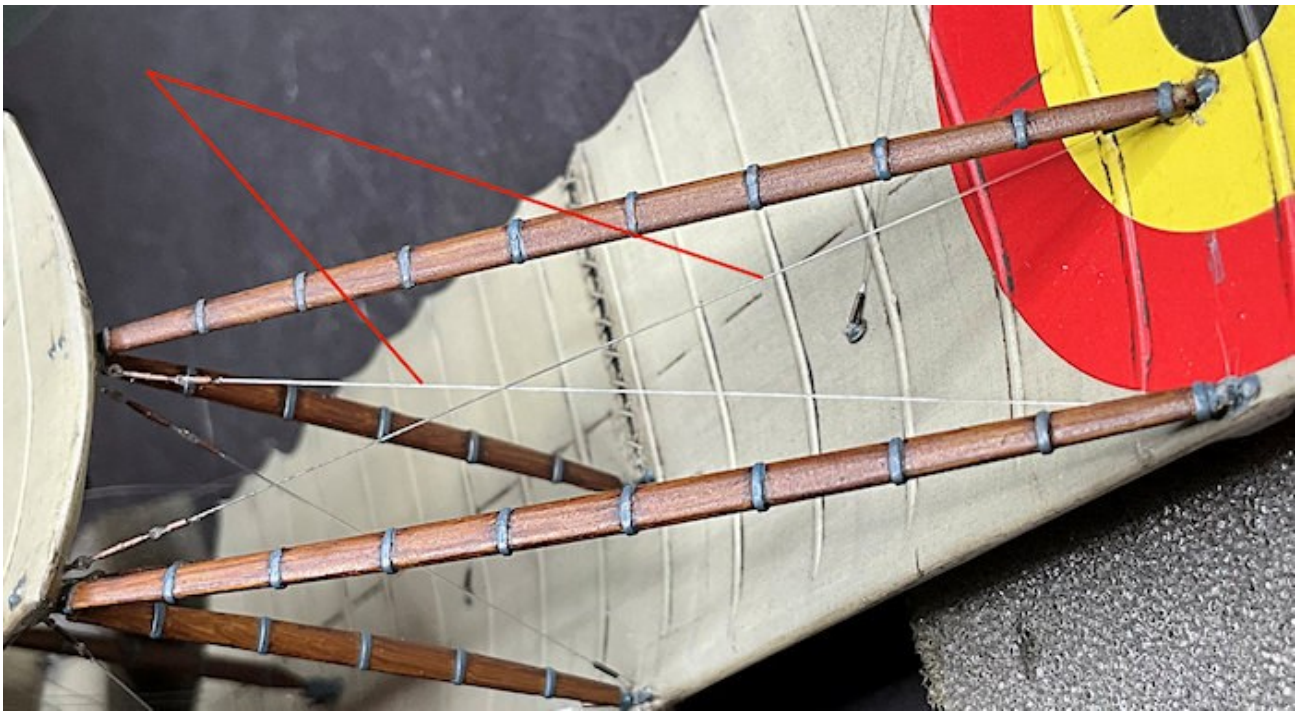
Incidence wires - outboard interplane struts (pre-rigged) (Steps 25, 26, page 8):

Repeat the previous incidence wires procedure to fit the four crossed incidence wires from the upper wing, between the outboard interplane struts, to both lower wings (two wires on both sides) using ‘Proper Plane’ RD-018 turnbuckles.



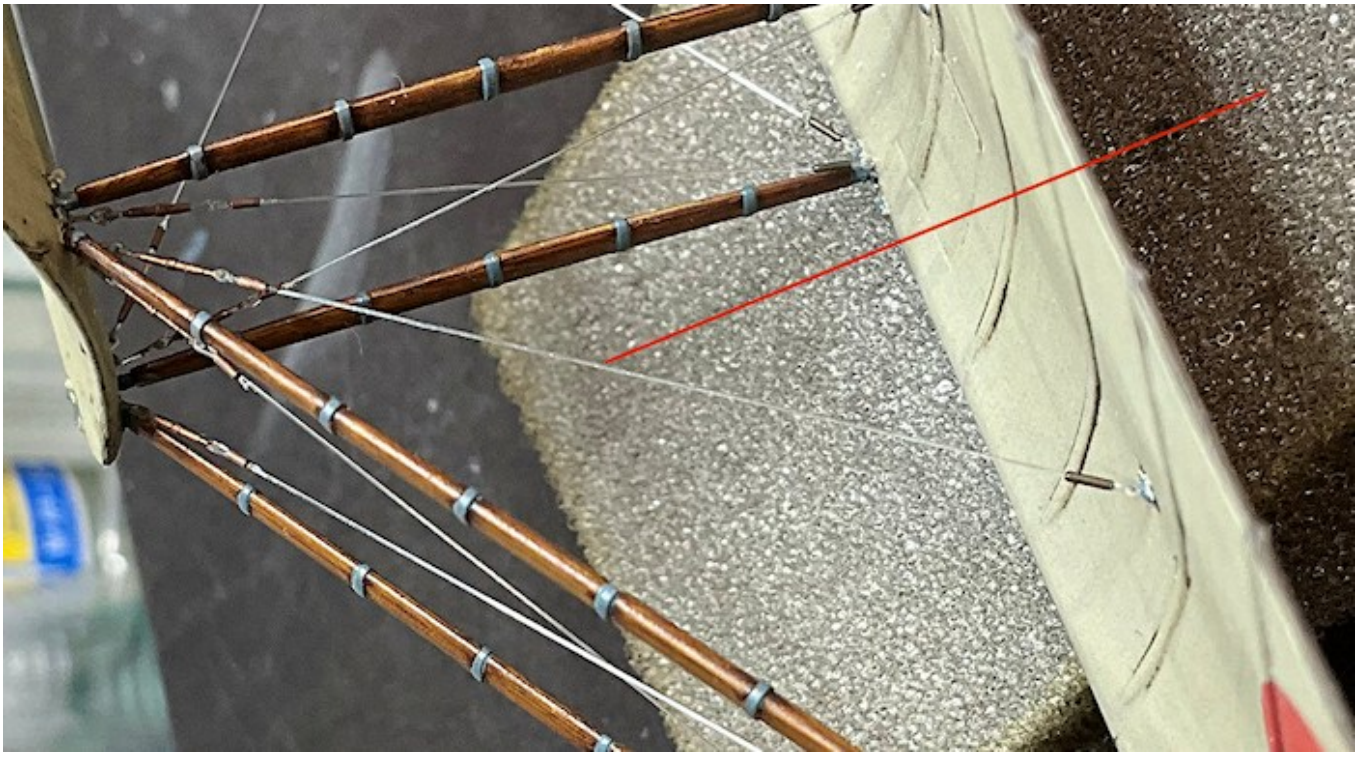
Incidence wires - outboard lift struts (pre-rigged) (Steps 33, 35, page 10):

Repeat the previous incidence wires procedure to fit the four crossed incidence wires from the upper wing, between the outboard lift struts, to both lower wings (two wires on both sides) using ‘Proper Plane’ RD-018 turnbuckles.



Bracing wires - outboard lift struts (pre-rigged) (Steps 33, 35, page 10):

Repeat the previous procedure to fit the two incidence wires from the upper wing to both lower wings (one wire on both sides) using ‘Proper Plane’ RD-018 turnbuckles.



Wing twin warping wires (pre-rigged) (Steps 37, 38 page 10):

**NOTE:** *The following procedure applies to the two pairs of wing warping wires (on both sides).*

Pass the forward pre-rigged wing warping line from the cabin across and under the pulley on the bottom front of the rear interplane strut.

Keeping the line taut, secure it under the pulley using thin CA adhesive.

Using the previous procedure, attach a ‘Proper Plane’ RD-005 turnbuckle to the free end of the line, but leave the loop of line loose.

Using the previous procedure, attach a long length of line to the fitted anchor point on the underside of the upper wing.

Using the previous procedure, attach the line from the upper wing to the free end of the turnbuckle, but leave the loop of line loose.

Gently pull the free end of the cabin line and slide the tube/turnbuckle close to the pulley.

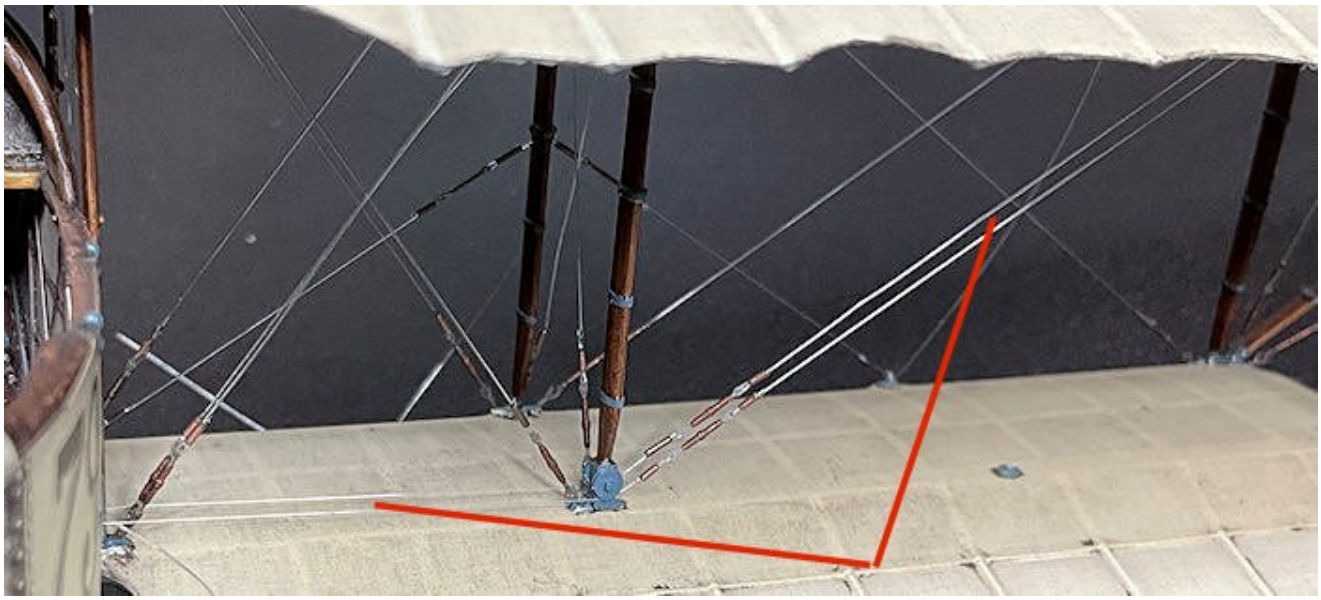
Secure the tube to the line using thin CA adhesive.

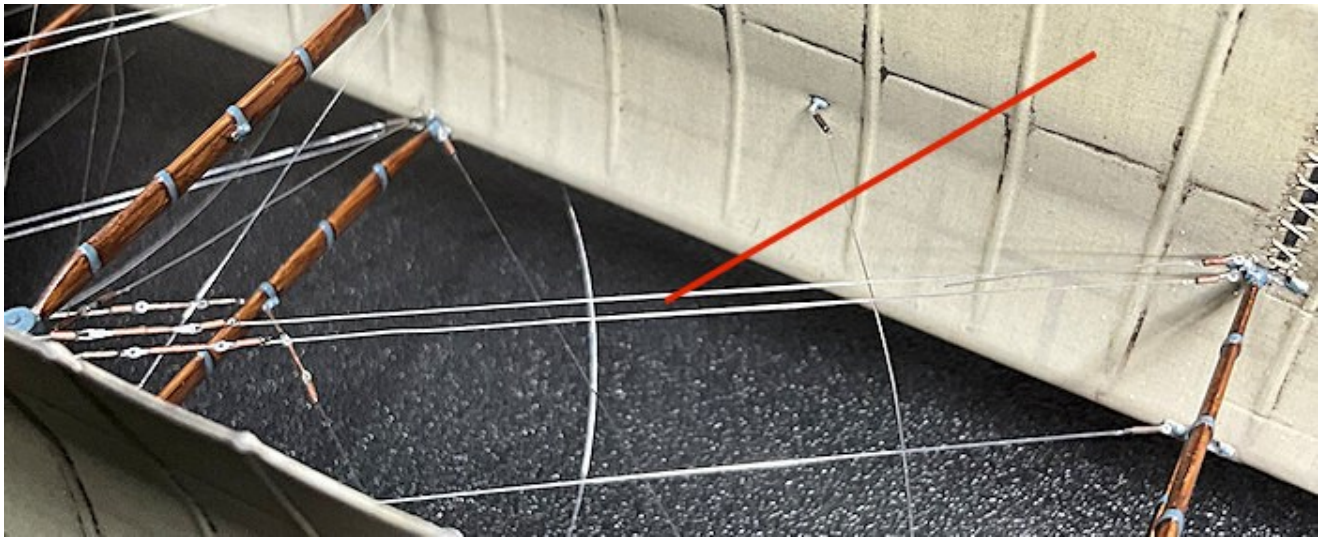
Gently pull the free end of the line from the upper wing and slide the tube up to, **but not touching**, the turnbuckle and to tension the lines.

Secure the tube to the line using thin CA adhesive.

Carefully cut away the residual tags of line at the tube ends.

Repeat the procedure for the rear wing warping line, but route the line under the pulley on the bottom rear of the rear interplane strut.





Single wing warping wires (pre-rigged) (Steps 37, 38 page 10):

Using the previous procedure, attach a long length of line to the fitted anchor point on the lower wings at the bottom of the rear, outboard interplane struts.

Using the previous procedure, attach a ‘Proper Plane’ RD-005 turnbuckle to the free end of the lines, but leave the loops of the lines loose.

Cut a long length of line and route it across the underside of the upper wing, between the fitted rigging lines and over the top of the two upper pulleys on the inboard, rear interplane struts.

Keeping the line taut, secure it to the tops of the two pulleys using thin CA adhesive.

Using the previous procedure, attach the free ends of the line to the previously attached turnbuckle, but leave the loops of the lines loose.

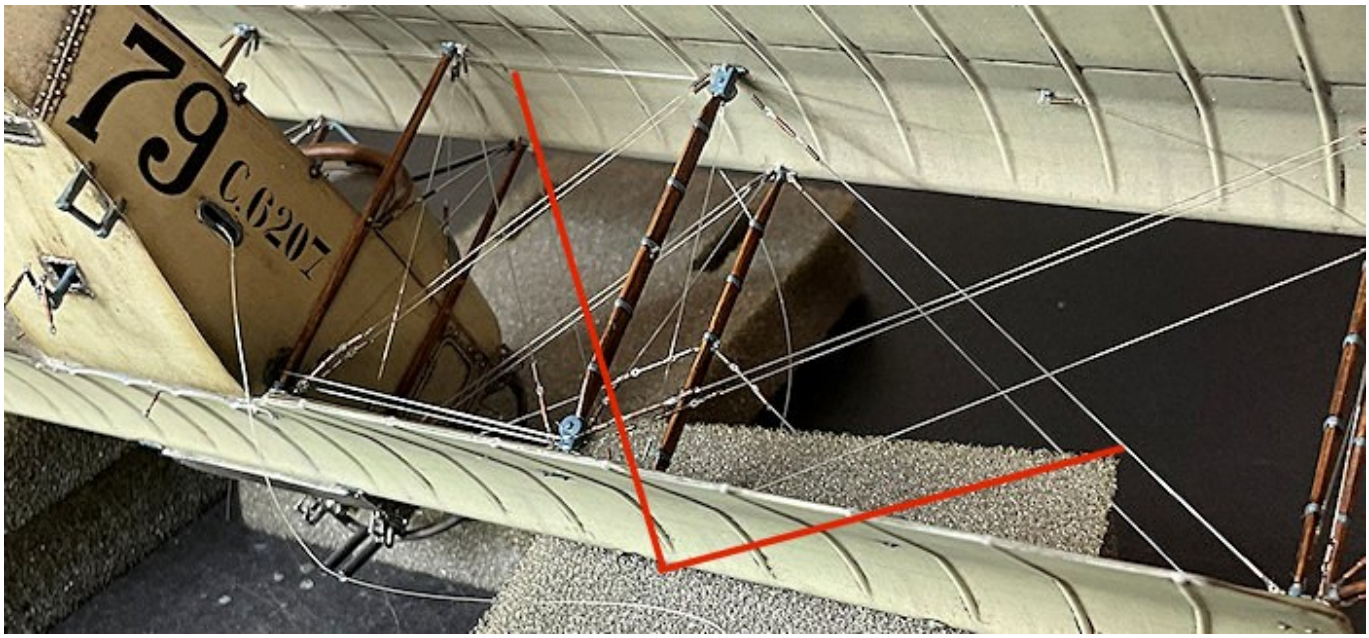
Gently pull the free ends of the under wing lines to draw the tube/turnbuckles close to the top of the interplane struts.

Secure the tubes to the lines using thin CA adhesive.

Gently pull the free ends of the lower wing lines to draw the tube close to the turnbuckle and tension the line.

Secure the tubes to the lines using thin CA adhesive.

Carefully cut away residual line at the tube ends.




Vertical wing bracing wires (pre-rigged) (Steps 27, 28, page 9):

**NOTE:** *The following procedure applies to the two bracing wires (one each side).*

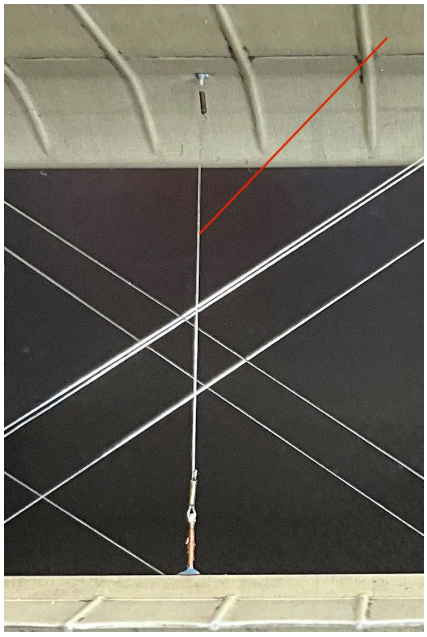
Using the previous procedure, attach the pre-rigged bracing line from the underside of the upper wing to a ‘Gaspatch’ 1:48th scale turnbuckle (One Ended type).

Secure the turnbuckle into the pre-drilled hole in the top surface of the lower wing.

Gently pull the free ends of the line to draw the tube close to the turnbuckle.

Secure the lines to the tube using thin CA adhesive.

Carefully cut away any residual line at the tube end.



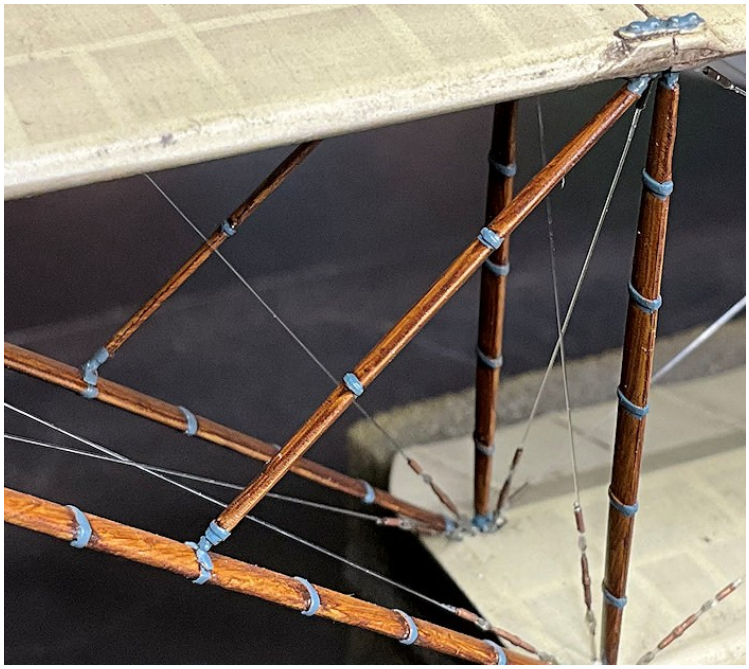
**Assembly (continued):**

**NOTE:** *Before assembly, make sure all paint/primer or decal is removed from the various mating surfaces and locators for the parts.*

*Also, make sure all pre-rigged control lines are kept clear of any areas to be glued.*

Brace struts (Steps 34, 36, page 10):

Cement the brace struts for the outer lift struts into their locating recesses in the underside of the upper wing and against the lift struts. Struts D6 are the forward struts and D5 the rear struts.



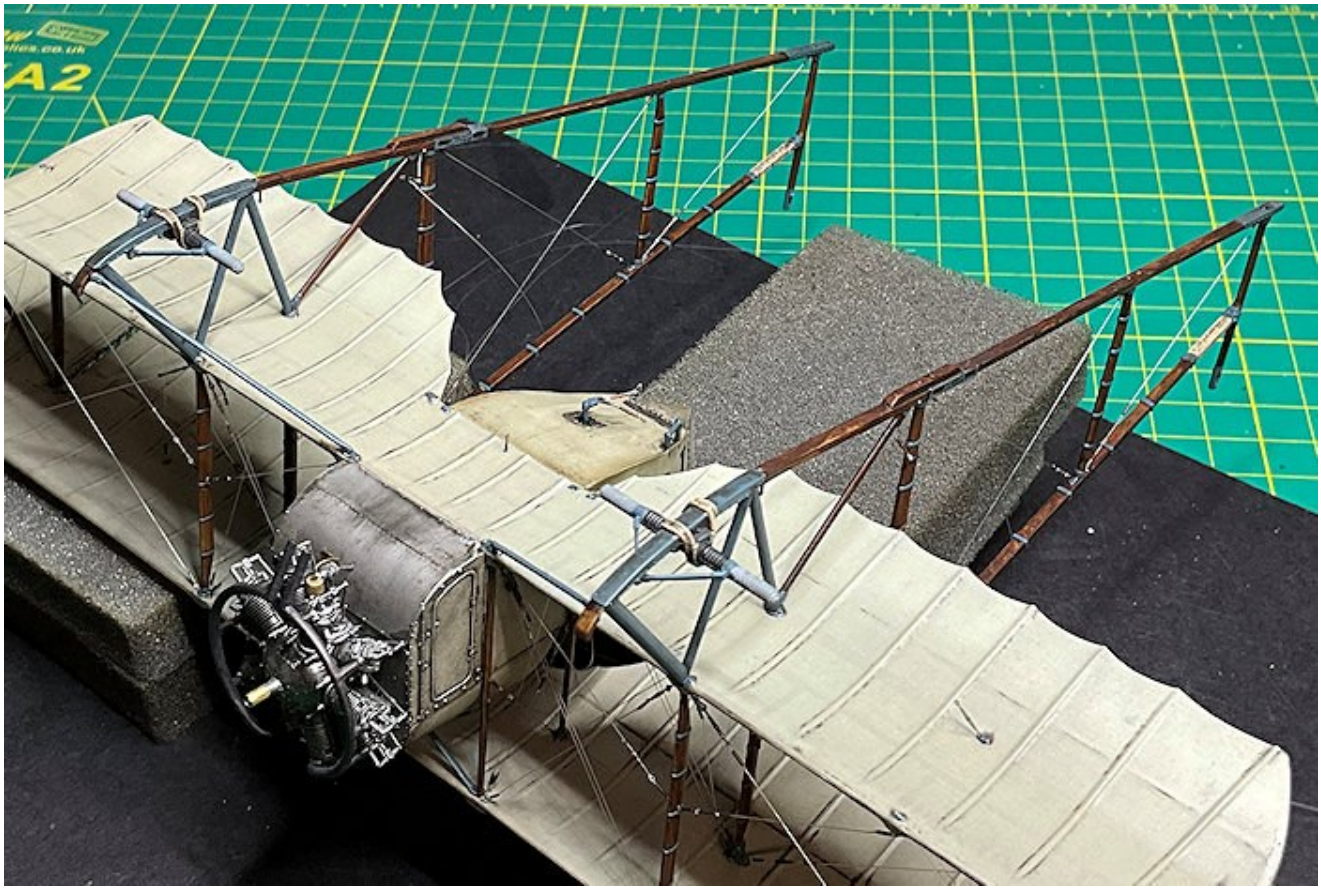
Tail booms (Step 45, page 11):

**NOTE:** *Make sure the tail booms are fitted to the correct sides, as they were rigged for left/right for the upper wing bracing wires (steps 64, 65, page 17).*

Cement the two tail booms into their locating recesses in the top surface of the upper wing and also in the underside of the lower wings. Make sure the tail booms are vertical to the wings when viewed from the front and the axles of the landing gear parallel to the lower wings.

Landing gear bracing struts (Step 66, page 18):

Cement the two landing gear bracing struts into their locating recesses in the underside of the lower wings and the forward, inboard side of the tail booms. Strut A11 on right side and A12 on the left side.



**Final rigging (continued):**

**NOTE:** *Refer to Part 6 (Rigging) of this build log for more information. The rigging materials used are:*

*Gaspatch' 1:48th scale metal Turnbuckles (Type One Ended).*


*Blackened 0.5 mm diameter Brass tube, such as 'Albion Alloy's' MBT05 or similar.*

*Line - 0.12 mm diameter mono-filament, such as 'Steelon' or 'Stroft GTM' or similar.*

*Nickel-Silver or Brass tube can be chemically blackened by immersion in solutions such as 'Blacken-It' or similar then rinse and dry the blackened tubes to prevent powdering of the surfaces.*

*Brush paint the centre barrels of the required turnbuckles with a mix of 'Mr. Color' Brass (219) and Copper (215) to a ratio of 50/50%.*

Landing gear bracing wires (Step 70, page 19):

Cut a long length of line.

Using the previous procedure, attach one end of the line to a turnbuckle.

Secure the turnbuckle into the pre-drilled hole in one underside of the lower wing.

Slide a tube onto the free end of line.

Pass the free end of the line through the ‘eye’ end of the turnbuckle previously fitted into the forward top of the tail boom on that side.

Slide two tubes onto the free end of line.

Pass the free end of the line through the ‘eye’ end of the turnbuckle previously fitted into the centre underside of the lower wing.

Slide two tubes onto the free end of line.

Pass the free end of the line through the ‘eye’ end of the turnbuckle previously fitted into the forward top of the other tail boom.

Using the previous procedure, attach one end of the line to a turnbuckle, but leave the loop of line loose.

Secure the turnbuckle into the pre-drilled hole in that underside of the lower wing.

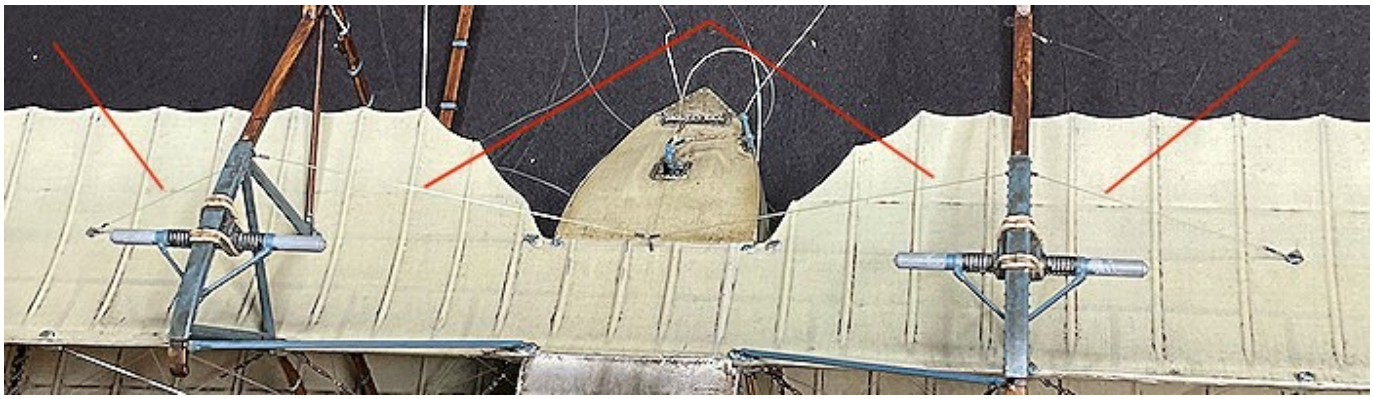
Pull on the free end of the line to tension the line and move the tube close to the turnbuckle.

Secure the lines to the tube using thin CA adhesive.

Cut away any residual line at the tube ends.

Slide the remaining tubes up to the turnbuckles on the tail booms and in the centre of the lower wing.

Secure the tubes to the lines using thin CA adhesive.



Landing gear bracing wires (Step 71, page 19):

Cut four long lengths of line.

Using the previous procedure, attach one end of each line to a turnbuckle.

Secure the turnbuckles into the pre-drilled holes in the underside leading edge and central trailing edge of the lower wing. The turnbuckles face inboard towards the pre-drilled holes at the previously fitted turnbuckles in the bottom tail booms.

Slide a tube onto the free end of the four lines.

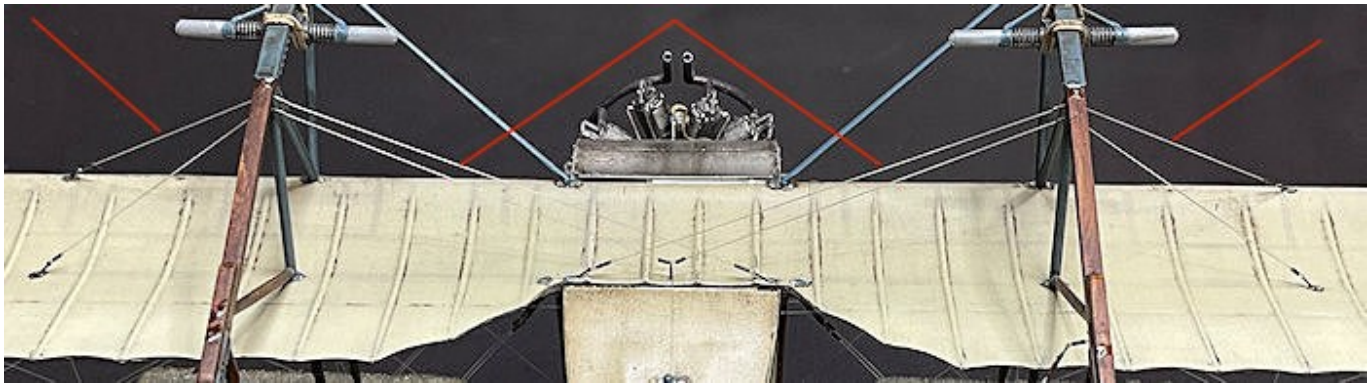
Pass the free ends of the two outer lines through the top of the pre-drilled hole in both tail booms, at the previously fitted turnbuckle.

Diagonally cross the free ends of the two central lines and pass them through the top of the pre-drilled hole in the opposite tail booms, at the previously fitted turnbuckle.

At both tail booms, pull both lines to tension them and secure in the tail booms using thin CA adhesive.

Slide the four tubes up to the sides of the tail booms and secure to the lines using thin CA adhesive.

Cut away any residual lines at the underside of the tail booms.



Landing gear bracing wires (Step 72, page 20):

**NOTE:** *At this stage of the build, only the four bracing wires between the leading edge of the lower wins and front of the tail booms will be rigged. Attaching the two outer, rear pre-rigged tail boom lines to the lower wings may cause the booms to be pulled inwards towards each other, due to the tension in the lines. This could cause problems in aligning and fitting the tail unit parts.*

*Leading edge wires:*

Cut four long lengths of line.

Using the previous procedure, attach one end of each line to a turnbuckle.

Secure the turnbuckles into the pre-drilled holes in the underside leading edge of the lower wing. The outer turnbuckles face inboard towards the front of the tail booms. The inner turnbuckles face towards the opposite wing and the front of the tail booms.

Slide a tube onto the free end of only the four leading edge lines. The two outer rear lines will be final rigged later in this build.

Pass the free ends of the two outer lines through the top of the outer pre-drilled hole in the front of the tail boom on that side.

Diagonally cross the free ends of the two inner lines and pass them through the top inner pre-drilled hole in the front of the tail boom on that side.

At both tail booms, pull both lines to tension them and secure in the tail booms using thin CA adhesive.

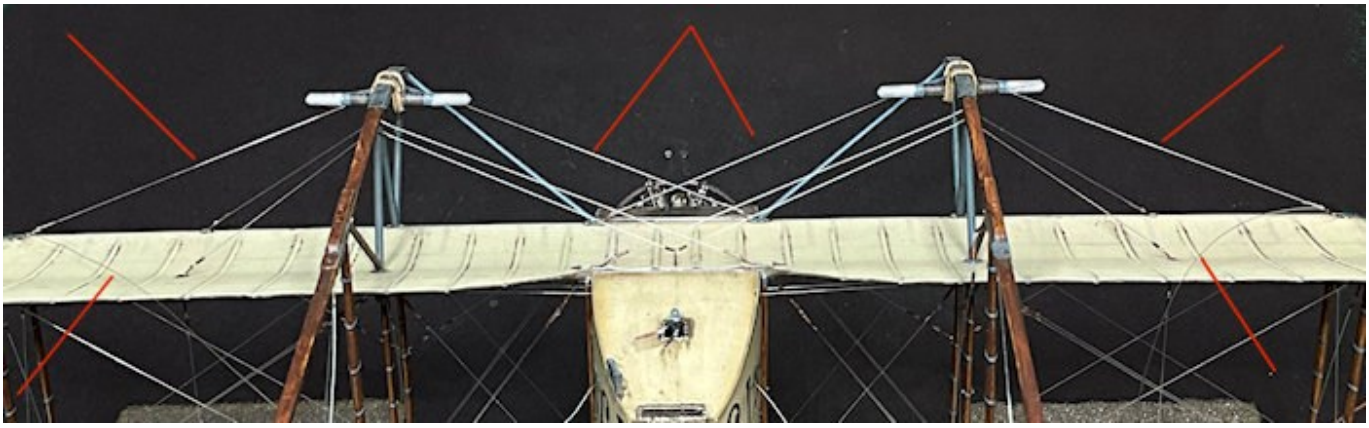
Slide the four tubes up to the tail booms and secure to the lines using thin CA adhesive.

Cut away any residual lines at the underside of the tail booms.

*Outer rear wires:*

Cut two long lengths of line.

Using the previous procedure, attach one end of each line to the outer rear Anchor points.



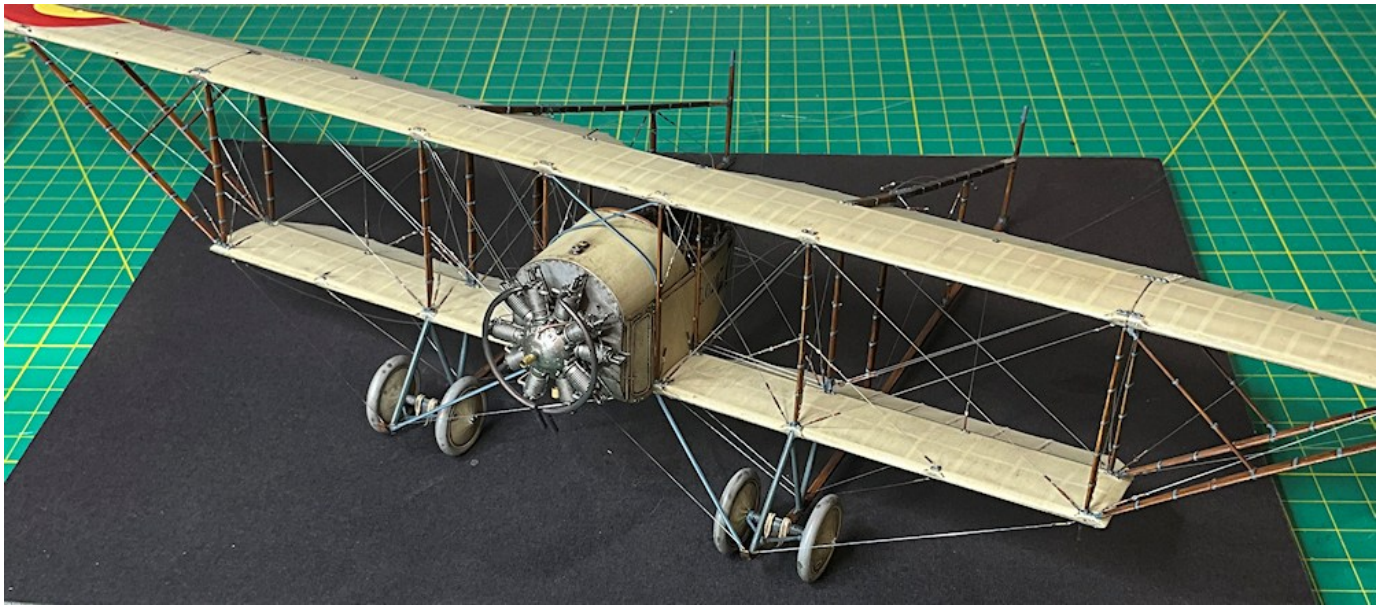
**Assembly (continued):**

Wheels:

Cement the outer wheel covers fully into the wheels.

Check fit the wheels onto the axles with the valve access hole in the wheel covers facing away from the axle ends. Make sure the wheels can be slid onto the axles without using force.

Cement the wheels onto the axles.



Tail unit:

Make sure all mating faces of tail unit parts are clear of any paint/decal.

Make sure all pre-drilled rigging holes in the tailplane, elevators, rudders and control horns are clear of any paint/decal.

Cement the rudder control horns (D2) into their locating recesses in the outer face (Belgium markings) of the rudders. Make sure the pre-rigged turnbuckles face rearwards.

Cement the elevator control horns (D3) into their locating recesses in the leading edge of the elevators. Make sure the pre-rigged turnbuckles face rearwards.

**NOTE:** *I chose to use the photo-etch tailplane adjustment brackets (step 46, page 13). The brackets are intended to fit into recesses in the leading edge of the tailplane. However, the recesses are too small and therefore required enlarging.*

Using the created photo-etch brackets as a guide, I carefully enlarged the locating recesses in the tail-plane, using a straight edged scalpel blade and narrow chisel.

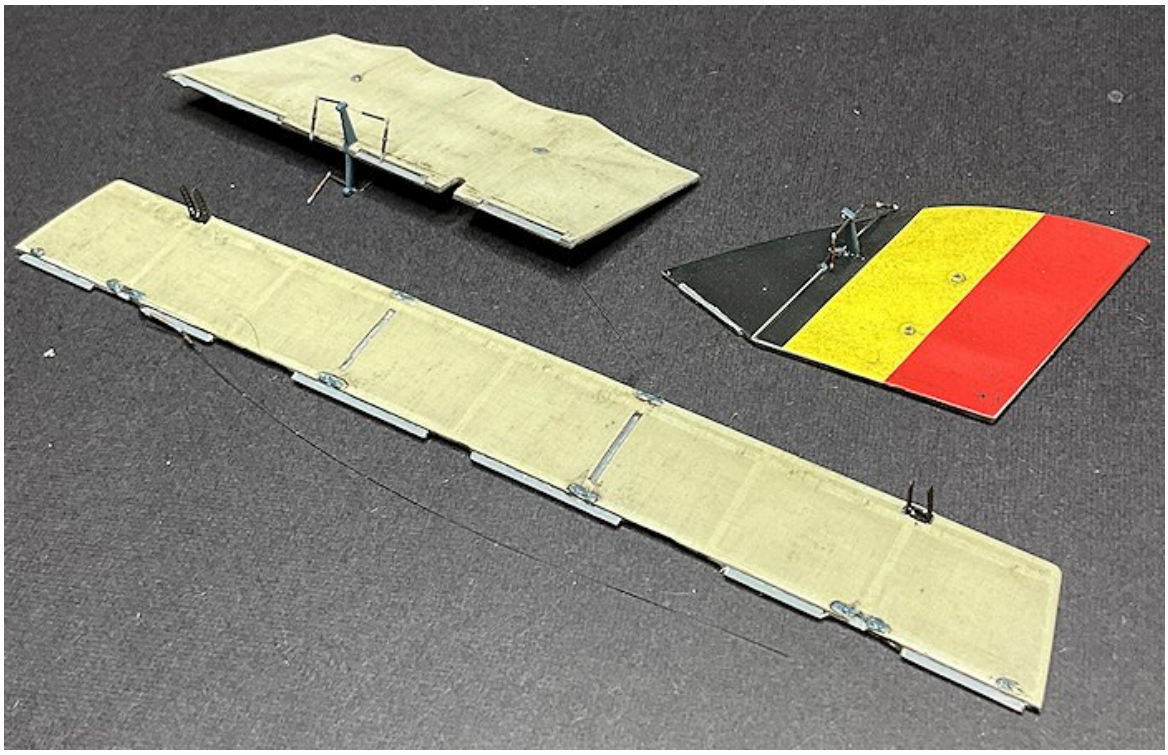
The two photo-etch brackets were immersed in 'Black-It' solution to blacken them both.

**NOTE:** *The photo-etch alternative brackets need to be secured into their tailplane recesses. I chose to use two-part epoxy adhesive instead of cement or CA adhesive, as this will give a more secure bond.*

Sand the underside of the treated photo-etch brackets to remove any blackening.

Mix a small amount of 'Araldite' two-part epoxy or similar and apply it into the bracket recesses in the leading edge of the tailplane.

Secure the photo-etch brackets into their locating recesses, making sure the curved uprights are directed rearwards.



**NOTE:** *By design the tailplane assembly is secured to the tail booms by a cemented butt joint at the rear, undersides of the tail booms. As the tailplane assembly comprises tailplane, elevators and rudders, plus all of the associated rigging, the assembly needs to be secured adequately in position. Therefore, I chose to use two-part epoxy adhesive instead of cement or CA adhesive.*

Mix a small amount of 'Araldite' two-part epoxy or similar and apply it to the tailplane locating shoulder on the rear, underside of the tail booms.

Slide the tailplane through the tail booms, avoiding the pre-rigging, and locate the photo etch brackets over the upper tail boom longerons.

Fully locate the tailplane onto its adhesive applied shoulders on the rear, underside of the tail booms.

Clamp the tailplane to the tail booms using appropriate clamps. I used self-gripping tweezers.

Temporarily fit appropriate wedges (I used pieces of tooth pick) between the top of the tailplane leading edge and the rear of the photo-etch brackets. Position the wedges to give the same amount of the brackets showing above the tail booms.

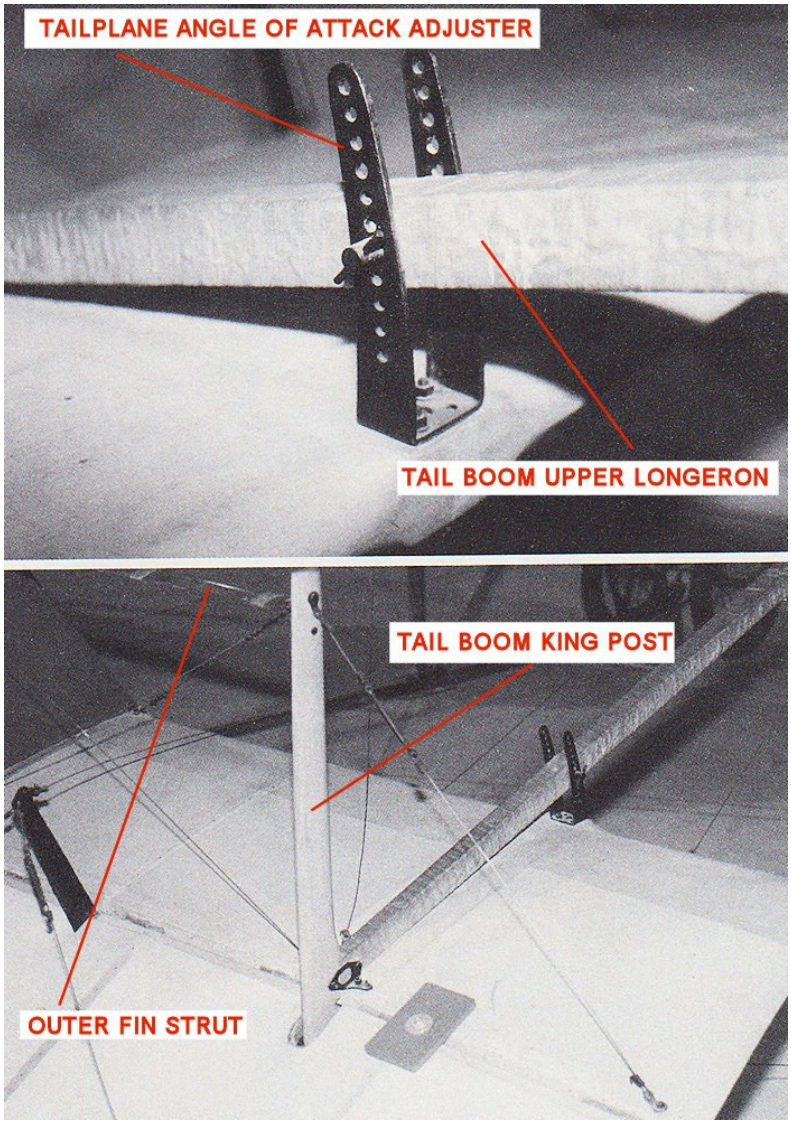
Once the adhesive has fully set, remove the clamps and wedges.

**NOTE:** *The tailplane of this aircraft could be adjusted to either increase or decrease the angle of attack (AOA) of the tail unit. Lifting the tailplane leading edge increased the AOA and lowering decreased the AOA. Bracing struts were fitted between the tops of the king posts on the tail booms and the fins and also between the fins. As the fin/rudder assemblies were fixed to the tailplane, if the AOA of the tailplane was altered, it meant the fin/rudders would move up or down with the tailplane.*

*Although the centre strut between the fins could be fixed in position, the outer struts attached between the fixed king posts and fins must have been able to move with the change in tailplane AOA.*

*With the tailplane AOA in the neutral position, the three struts would most likely be parallel to the tailplane when viewed from above. If the AOA was increased the fins and therefore the outer struts would move up and rearwards. If the AOA was decreased the fins and therefore the outer struts would move down and forwards.*

*My assumption is that the end fittings of the outer struts must have been able to pivot to allow the struts to move as required.*




*I used the optional photo-etch adjuster brackets and have the tailplane secure in the brackets at a decreased AOA and therefore the fin end of the outer struts are slightly forwards when viewed from above. This means the distance between the king posts and fins is slightly increased and the kit supplied struts do not fully span the gap between them.*

*To avoid any problems **I would advise** having the tailplane AOA fixed in the neutral (mid) position to allow the struts to fit correctly and be parallel to the tailplane.*

**NOTE:** *The sides of the upper tail booms have small 'pips' which are intended to locate into the holes in the brackets and secure them to the tail booms. However, to provide a more secure bond I found it easier to remove the 'pips' and secure the brackets directly against the sides of the tail booms, with additional mono-filament support. This will hold the front of the tailplane/brackets to the tail booms more securely.*

Carefully cut away the locating 'pips' on both sides of the upper longerons of the tail booms.

Drill a hole of 0.4 mm diameter through a hole in the brackets and through the longerons to the other sides.

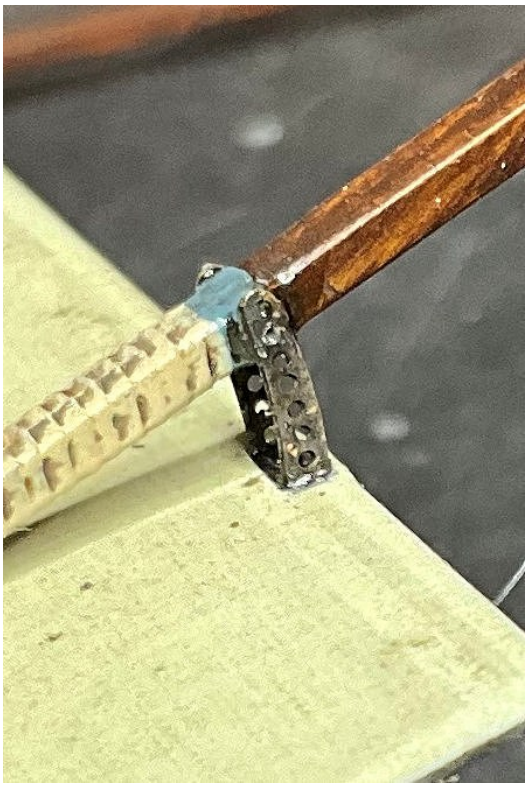
Clear away any plastic swarf from between the brackets and longerons.

Cut two lengths of 0.3 mm diameter mono-filament, such as that from 'Steelon' or similar.

Pass the lines through the bracket sides/longerons/bracket sides.

Secure the bracket sides and mono-filaments to the tail booms using thin CA adhesive.

Cut away any protruding mono-filament line at the bracket sides.



**Final rigging (continued):**

Landing gear bracing wires (Step 72, page 20):

**NOTE:** *At this stage of the build, rigging the lines from the lower wings back to the tail booms at the base of the first tail boom strut can be carried out, as the tail booms and tail unit assembly is more rigid and the tail booms are less likely to be pulled outwards, due to the tension in the lines.*

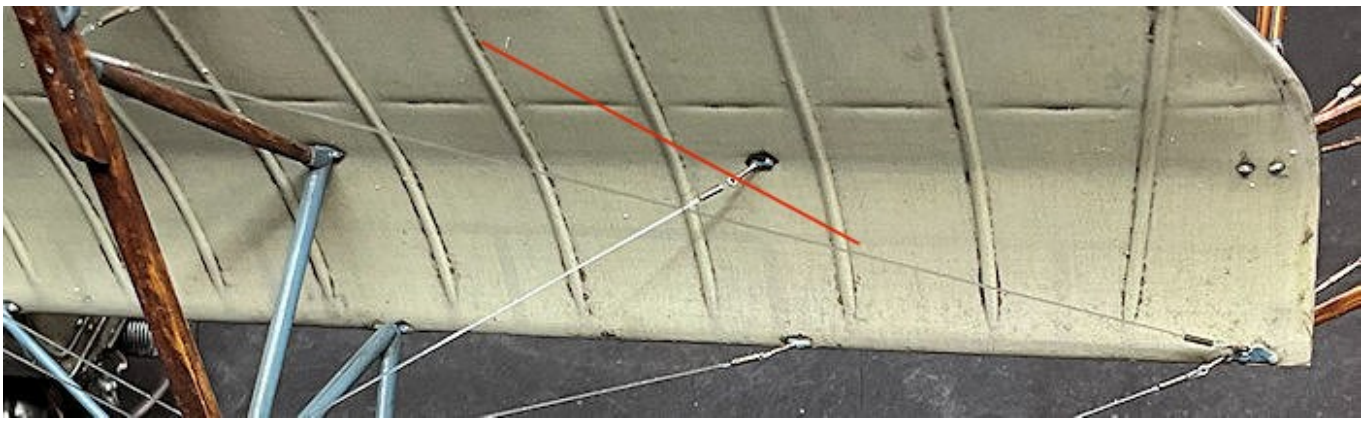
Slide a blackened 0.4 mm diameter tube onto the outer, rear pre-rigged lines on the underside of the lower wing.

Pass the free end of the outer, rear pre-rigged lines on the underside of the lower wing rearwards and through the pre-drilled hole in the bottom longeron of the tail booms.

Keeping the lines taut, secure them inti the tail booms using thin CA adhesive.

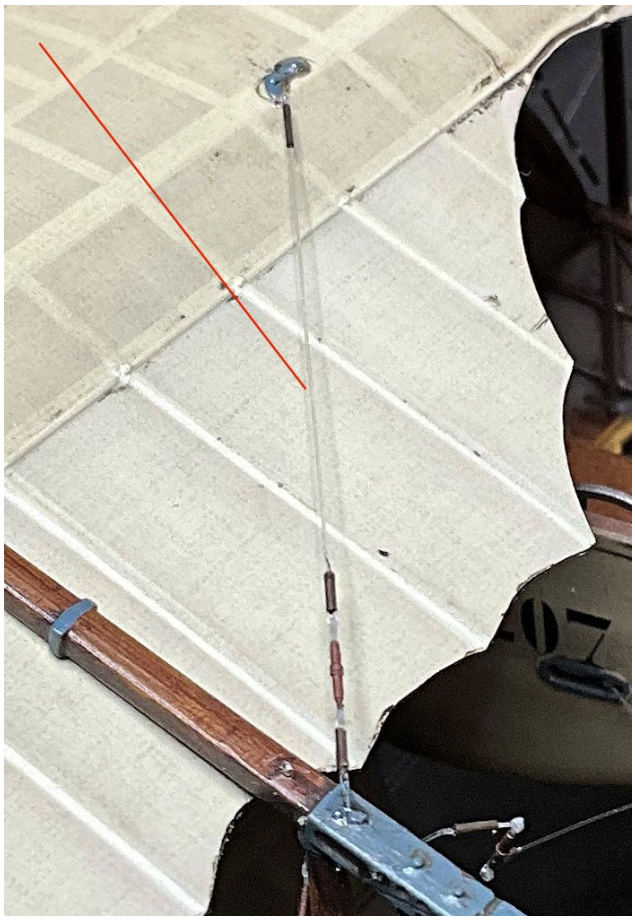
Slide the tube up to the tail booms and secure on the line using thin CA adhesive.

Cut away any residual line at the tail booms.



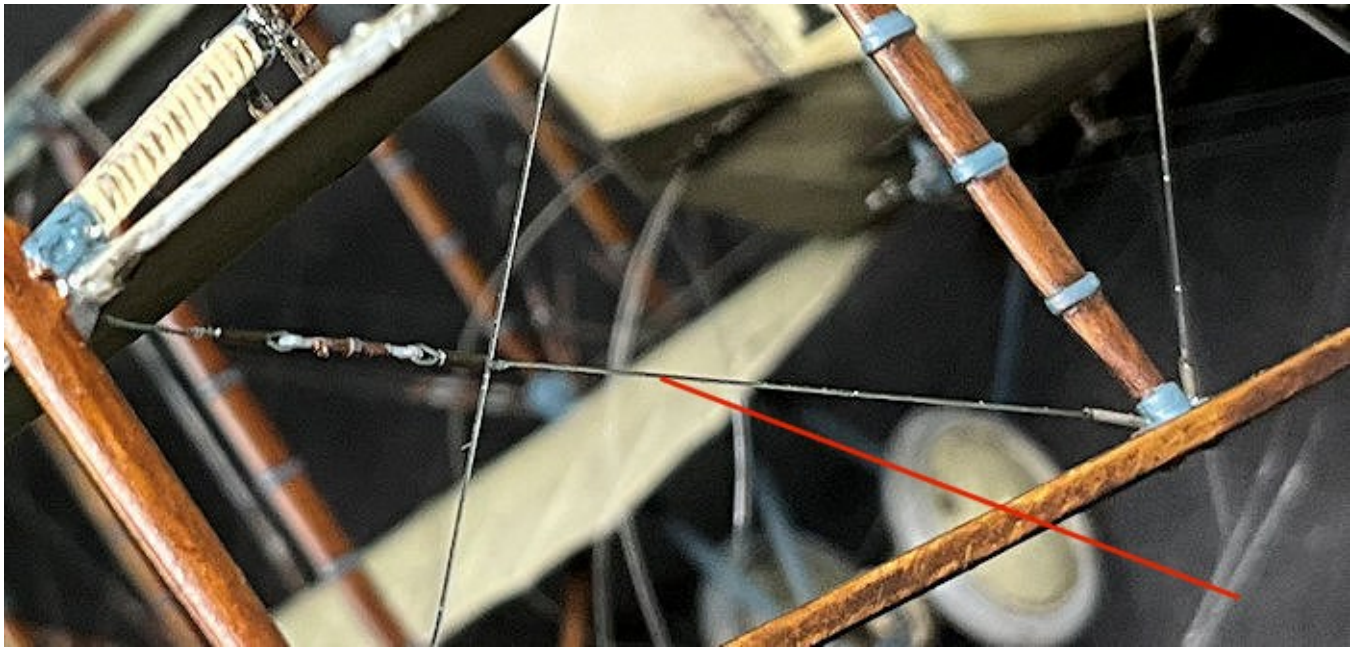
Bracing wires (Steps 64, 65, page 17):

Using the previous procedures, attach the pre-rigged lines on the top, centre surface of the upper wing to the pre-rigged turnbuckles at the forward, outer face of the tail booms.



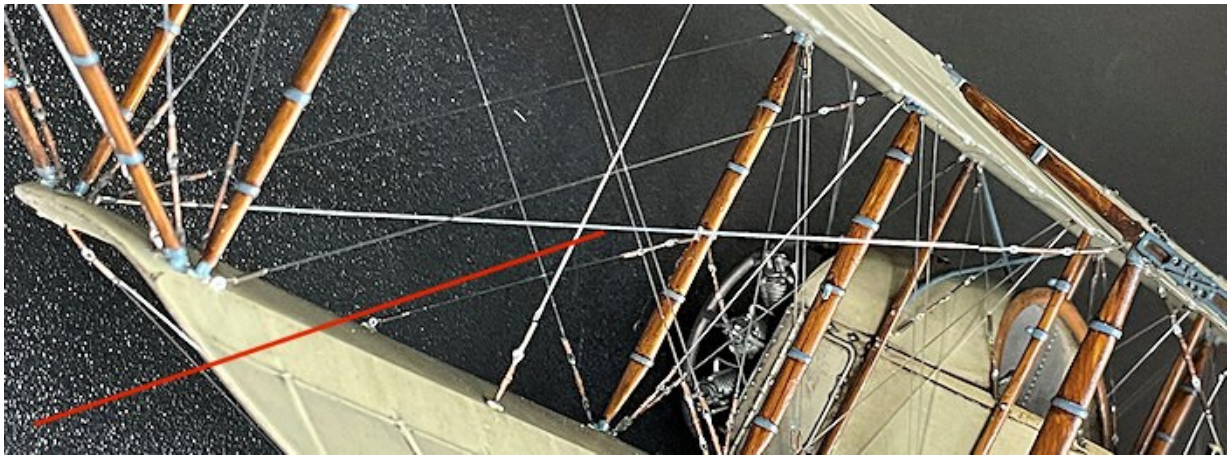
Bracing wires (Step 48, page 13):

Using the previous procedure, attach the pre-rigged lines from the underside of the tailplane to the pre-drilled hole in the bottom longeron of the tail booms.



Bracing wires (Steps 62, 63, page 17):

Using the previous procedures, attach the pre-rigged lines on the forward top longerons of the tail booms to the Anchor Points fitted in the top surface of the lower wings at the forward, outer interplane struts.



Bracing wires (Step 54, page 15):

Using the previous procedures, attach the pre-rigged lines on the forward bottom longerons of the tail booms to the Anchor Points fitted in the underside of the upper wing at the top of the rear, inner interplane struts.

Bracing wires (Step 55, page 15):

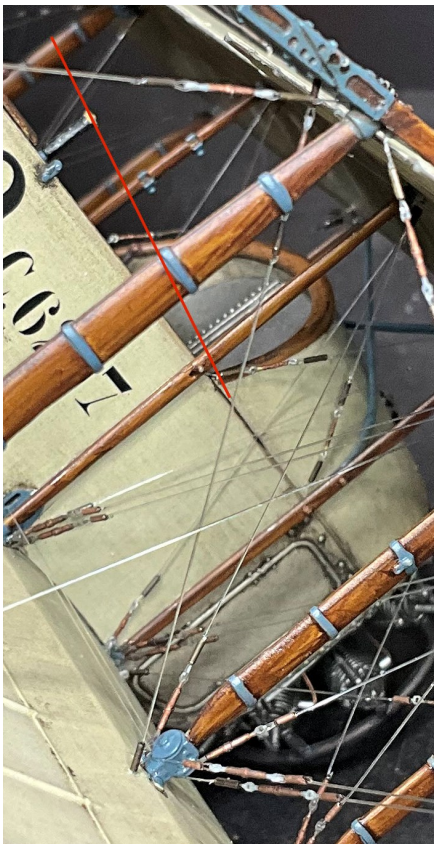
Dill a hole of 0.3 mm diameter through the lower wings at the bottom of the rear, inner interplane struts.

Slide a blackened tube of 0.4 mm diameter onto the pre-rigged lines from the forward top longerons of the tail booms.

Pass the free ends of the lines through the pre-drilled hole in the lower wings at the bottom of the rear, inner interplane struts.

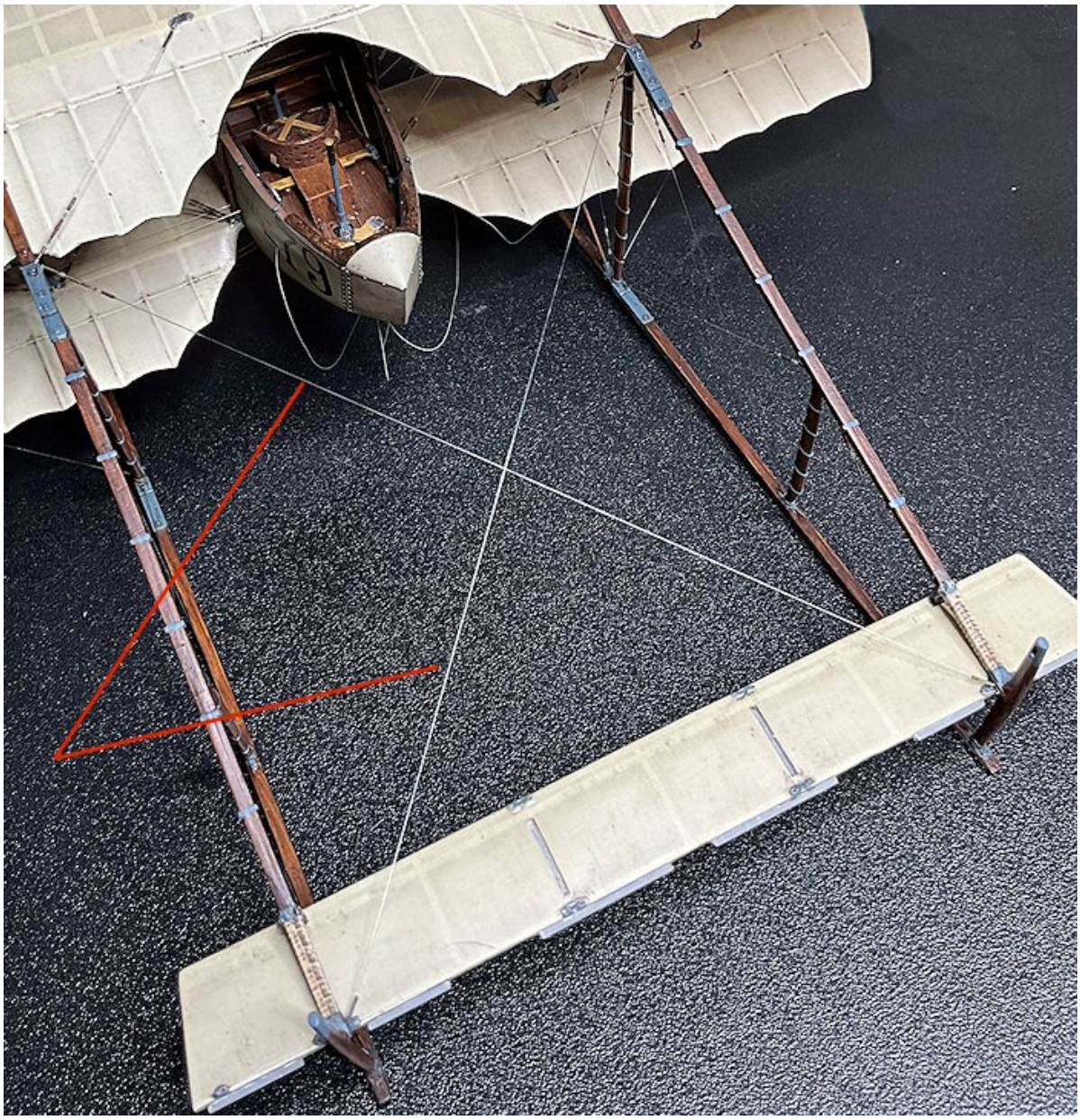
Keeping the lines taut, secure them in the lower wings using thin CA adhesive.

Slide the tubes up to the lower wings and secure them to the lines using thin CA adhesive.



Bracing wires (Step 61, page 17):

Using the previous procedure, attach the pre-rigged lines diagonally crossed between the forward top of the longerons of the tail booms to the pre-drilled holes in the rear of the longerons.



**Assembly (continued):**

Make sure all mating faces of the fin/rudders and elevators are clear of any paint/decal.

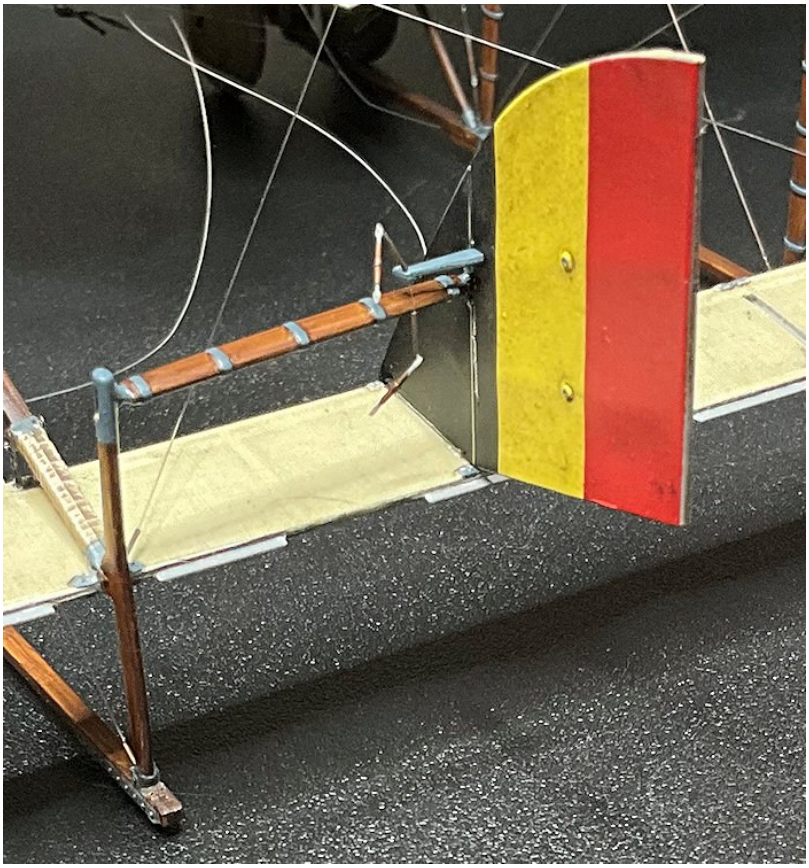
Make sure all pre-drilled rigging holes in the tailplane, elevators, rudders and control horns are clear of any paint/decal.

Locate the left bracing strut A8 into its locating recess in the left fin/rudder, but do not cement it. Make sure the pre-rigged line on the rudder control horn is behind the strut.

**NOTE:** *The tailplane has two slots for locating the two fin/rudders. However, these slots and the locating shoulders on the fins are shallow and do not provide a firm location. Therefore, I also added CA adhesive to strengthen the joints.*

Cement the left fin/rudder/strut assembly into its locating slot on the top surface of the tailplane and the bracing strut into its locating recess in the king post of the tail boom. Make sure the fin/rudder is fully located and vertical on the tailplane.

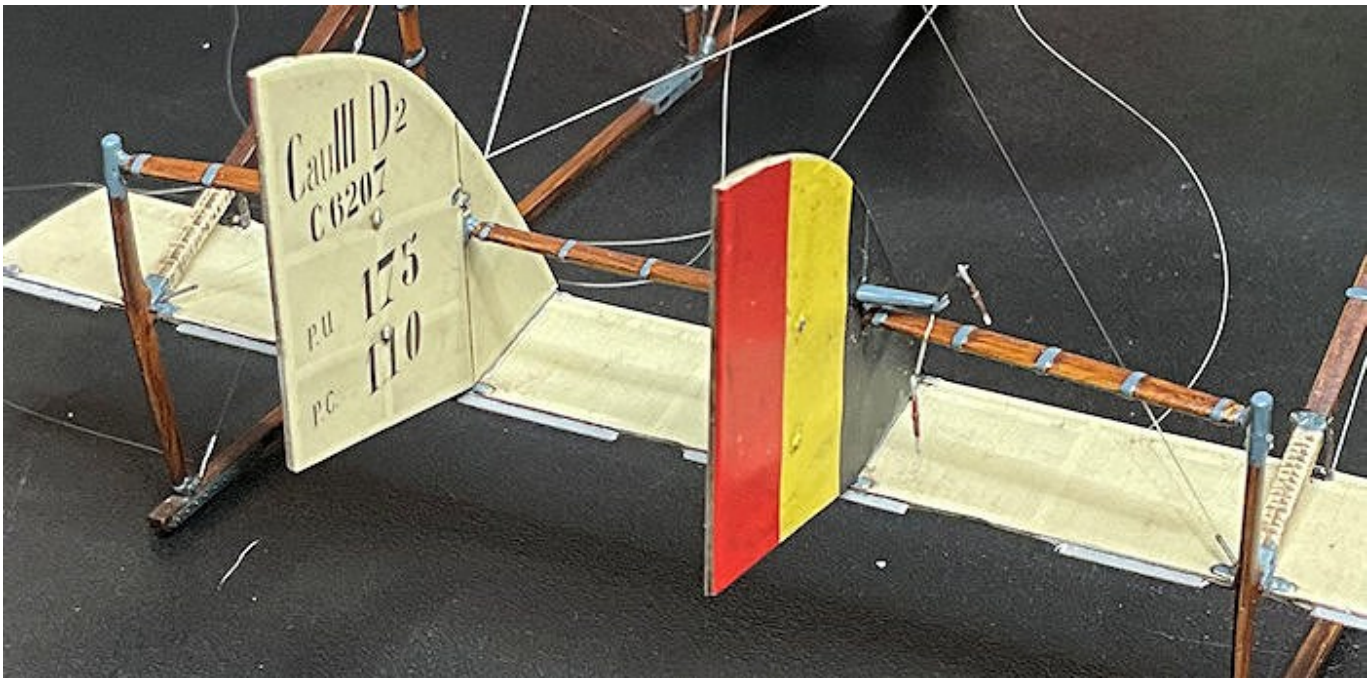
Apply thin CA adhesive along the bottom of the fin to tailplane joints.



Repeat the procedure to fit the right fin/rudder and bracing strut A9.

Cement the centre bracing strut B6 into its locating recesses between the insides of the fin/rudders.

**Final rigging (continued):**




**NOTE:** *For easier access to rig the tailplane and fin/rudders, it's best not to fit the elevator at this stage of the build. The materials used to rig the tailplane are as follows:*

***0.08 mm** diameter mono-filament, such as that from 'Steelon' or 'Stroft GTM'.*

***0.4 mm** diameter blackened Brass tube, such as 'Albion Alloy's' MBT04 or similar.*

*'Proper Plane' resin turnbuckles (**RD-005**)*

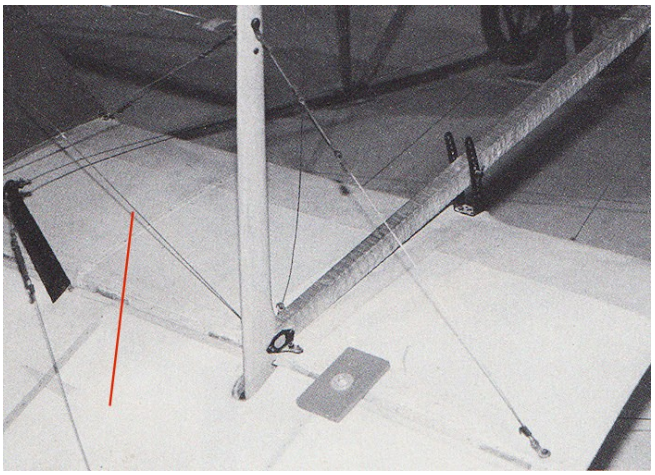
*Some of the pre-drilled rigging holes may need to have more than one rigging line passed through.*

Brush paint the centre barrels of 18 ‘Proper Plane’ RD-005 turnbuckles with a mix of ’Mr. Color’ Brass (219) and Copper (215) to a ratio of 50/50%.

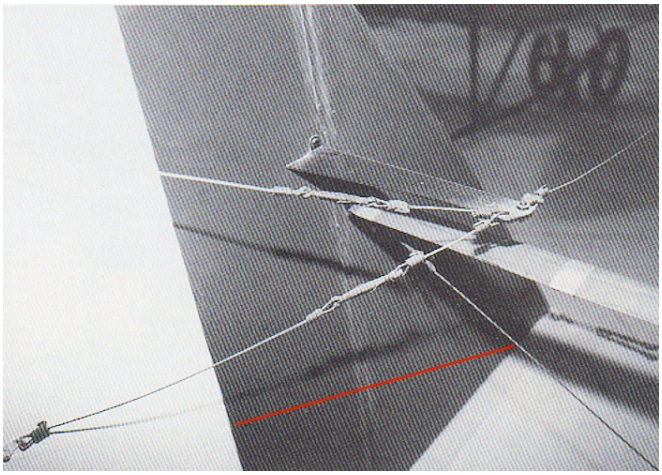
Cut them from their print frames.

**NOTE:** *The following photographs are of the Caudron G.III at the RAF Museum, Hendon, England and are used for guidance only.*

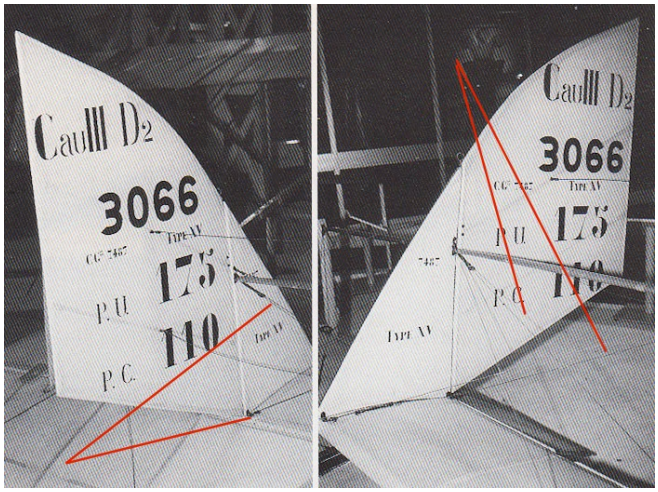
Fin **rear** cross bracing wires - **SET ONE** (Steps 56, 59, pages 15, 16):



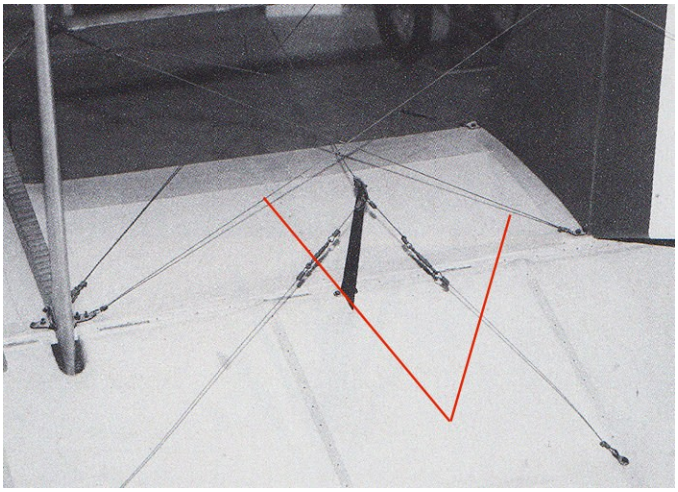
Tailplane to king post



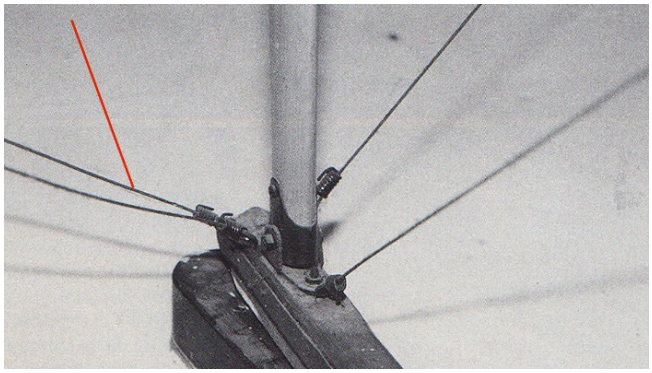
Tailplane to king post




Inboard of the fins

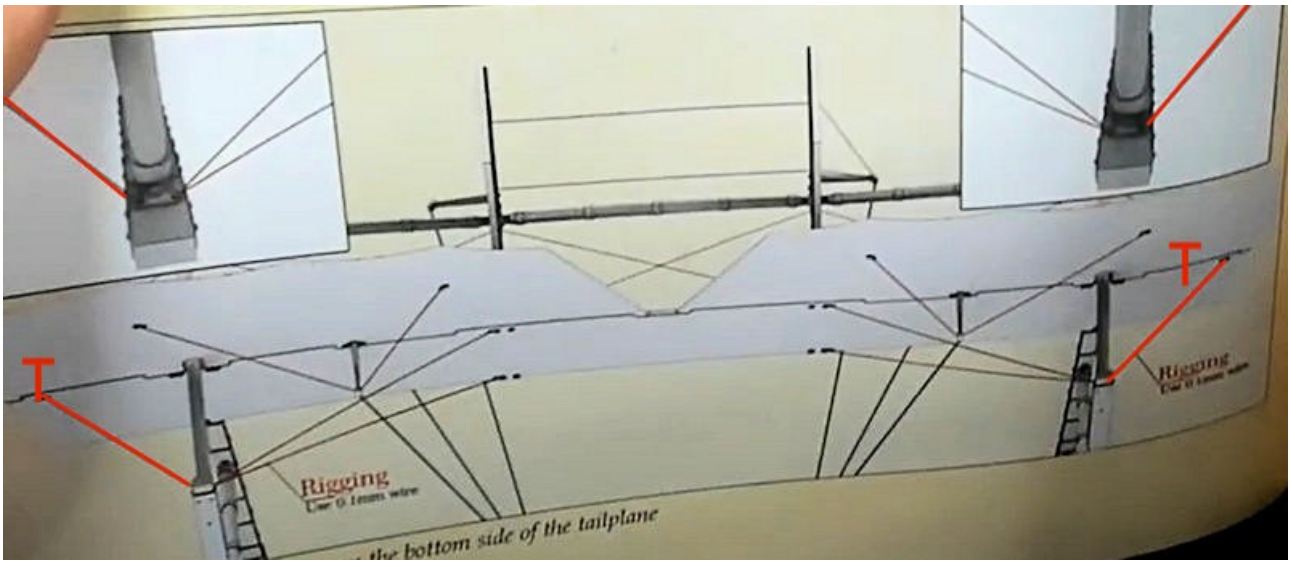


Inboard of the fins

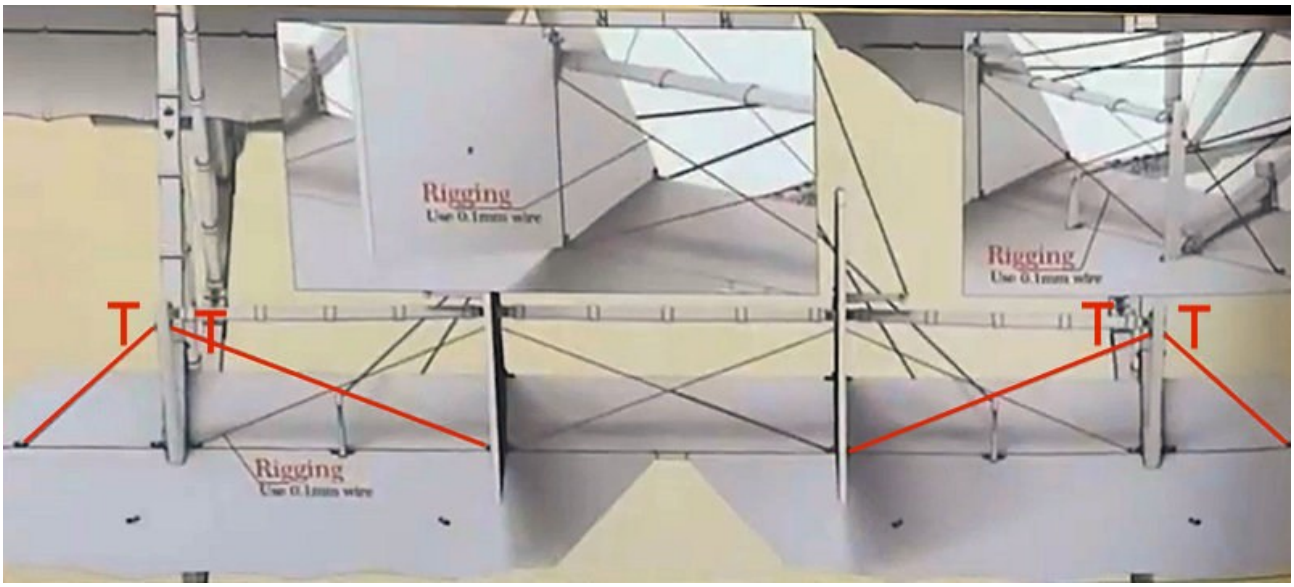


Bottom rear of tail boom

Underside of tailplane




Top of tailplane (T denotes turnbuckle)




**NOTE:** *During the following steps,* ***leave all lines loose*** *in the turnbuckles until prompted to tighten and secure in place.*

Cut two long lengths of line.

Using previous procedures, attach a line to both ends of a turnbuckle.

Slide a tube on to one line.

Pass that line down through the pre-drilled outer hole in the rear of the tail boom.

Pass the other line up and through the pre-drilled outboard hole in the trailing edge of the tailplane.

Attach that line to a turnbuckle.

Cut a length of line and attach it to the opposite end of the turnbuckle.

Pass that line through the pre-drilled hole in the top of the king post.

Cut a long lengths of line.

Attach the line to one end of a turnbuckle.

Attach the line from the king post to the opposite end of the turnbuckle.

Pass the free end of the line down and through the pre-drilled hole through the tailplane trailing edge at the bottom, rear of the fin.

Secure the line in the tail boom by applying thin CA adhesive to the line on the underside of the tail boom. Make sure adhesive does not contaminate the adjacent pre-drilled hole.

Gently pull on the free end of line at the turnbuckle under the tailplane to draw the tube/turnbuckle close to the tailplane.

Do the same to the tube/turnbuckle outboard from the top of the king post.

Do the same to the tube/turnbuckle inboard from the top of the king post.

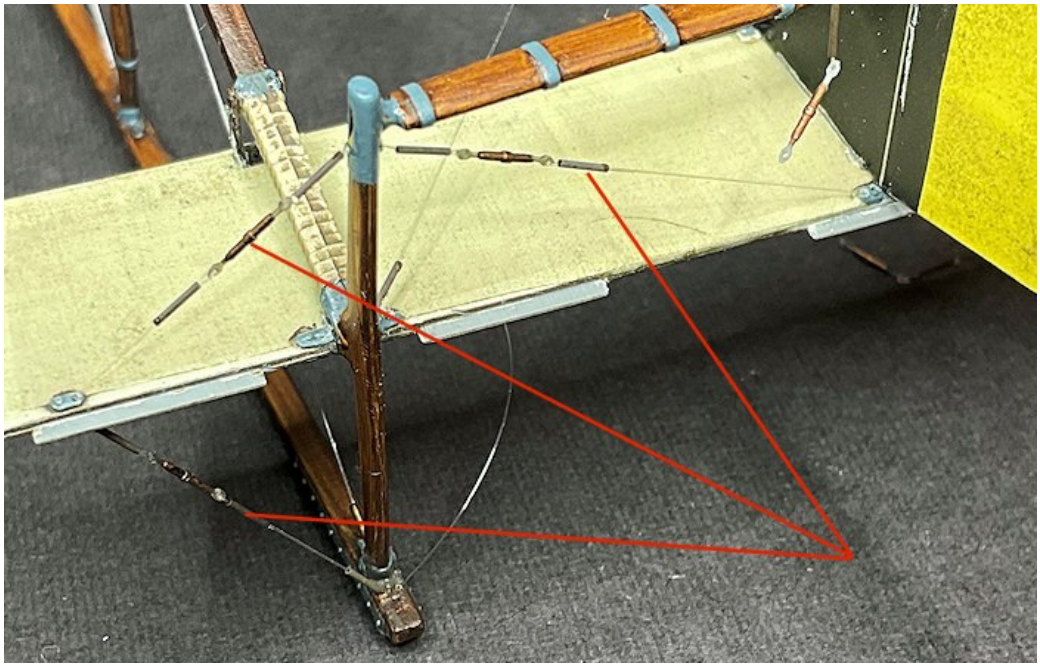
Gently pull the line taut from under the tailplane at the fin.

**NOTE:** *During the following step,* ***do not*** *apply adhesive to the second hole in the king post, as a second line needs to be passed through the king post.*

With all lines tensioned secure the tubes to the lines using thin CA adhesive.

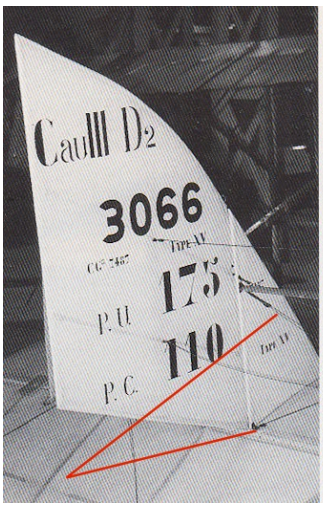
Carefully cut away any residual ends of line at the tube ends.

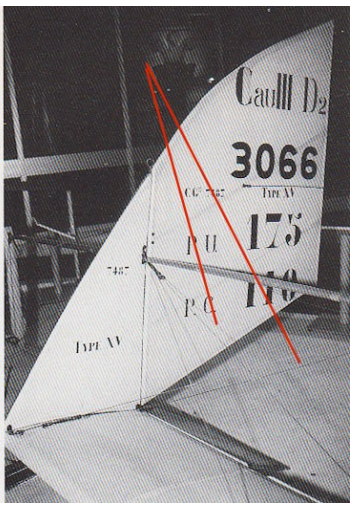
Repeat the procedure to rig the same lines on the other side of the tailplane.



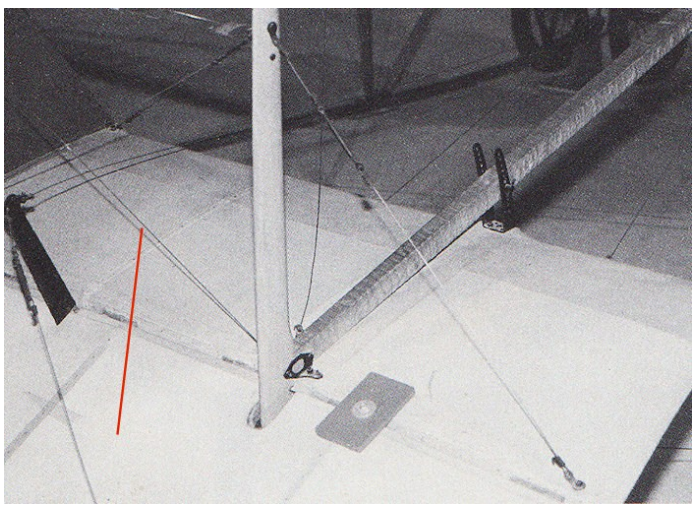
Fin rear cross bracing wires-**SET TWO** (Steps 56, 59, pages 15, 16):

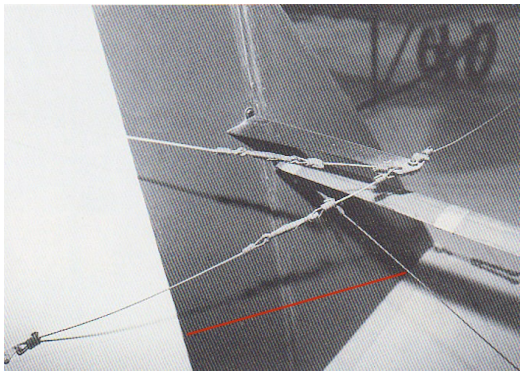
Inboard of fins



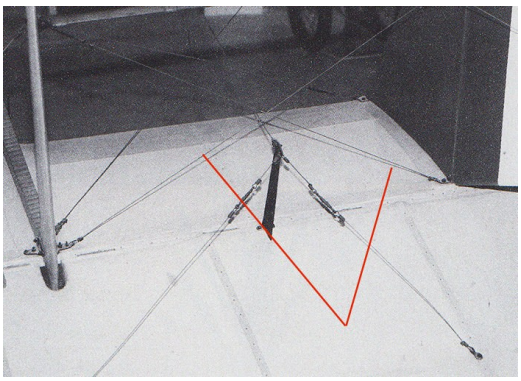




Tailplane to fin outer



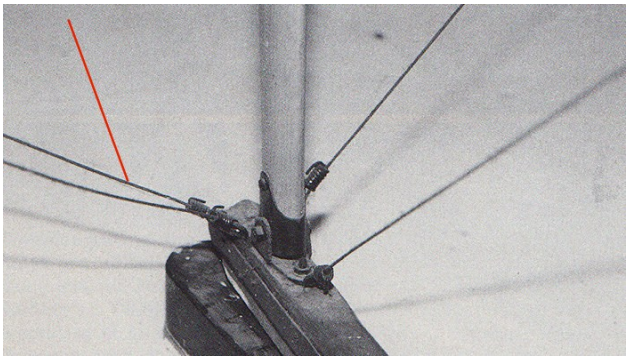


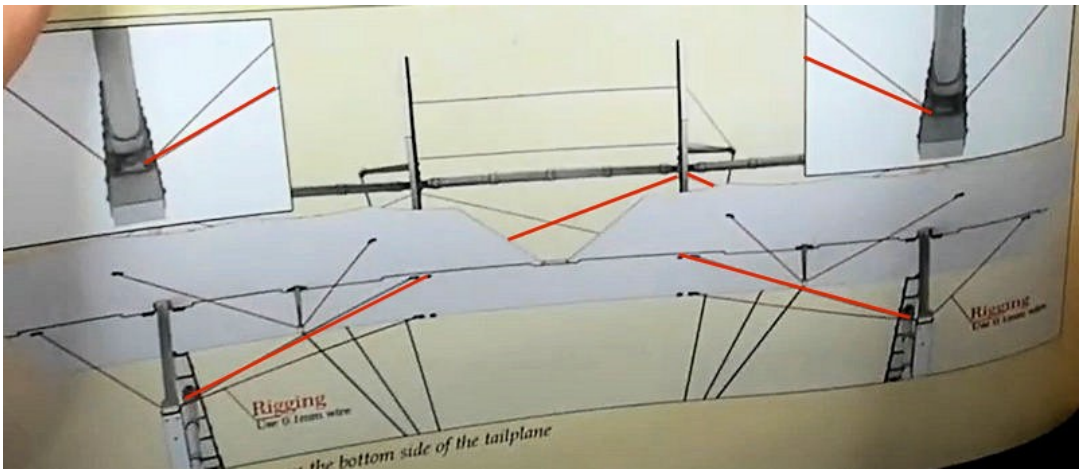
Tailplane to fin outer



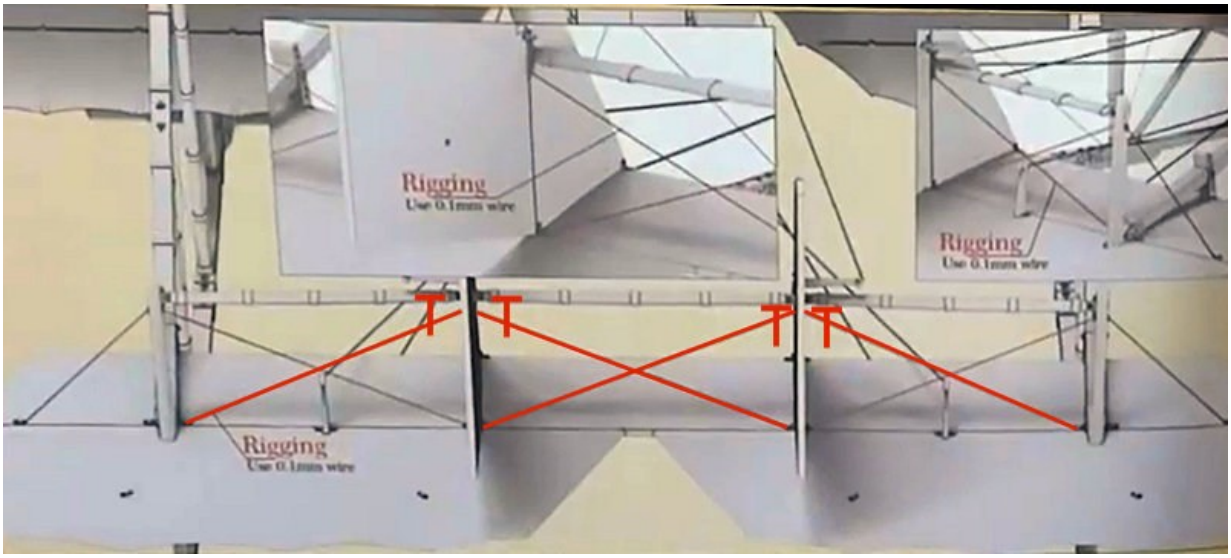
Tailplane/king post to fin outer

Rear of bottom tail boom






Underside of tailplane (T denotes turnbuckle)

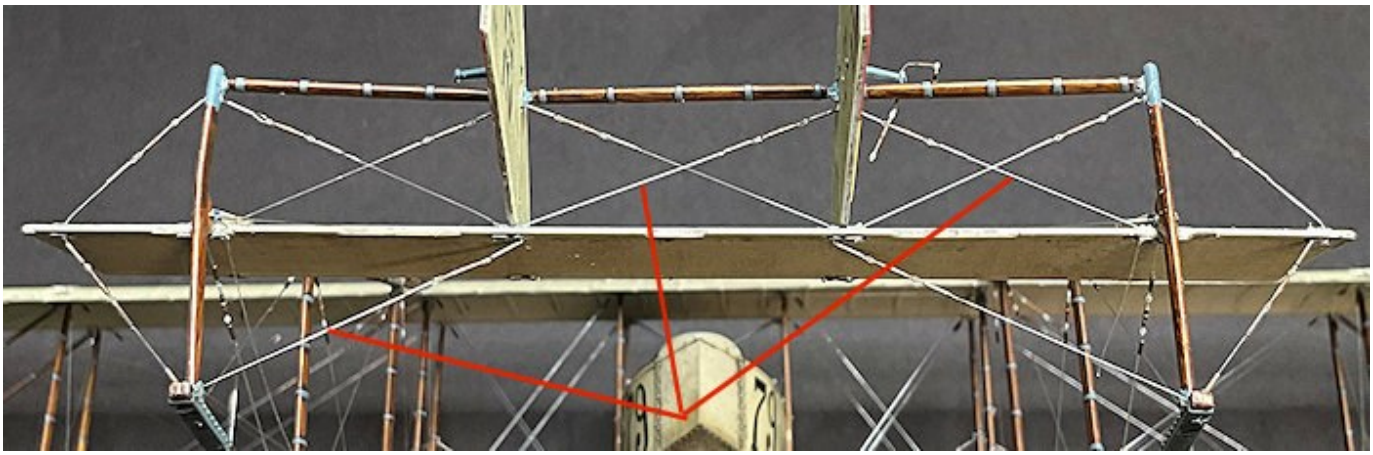



Top of tailplane (T denotes turnbuckle)

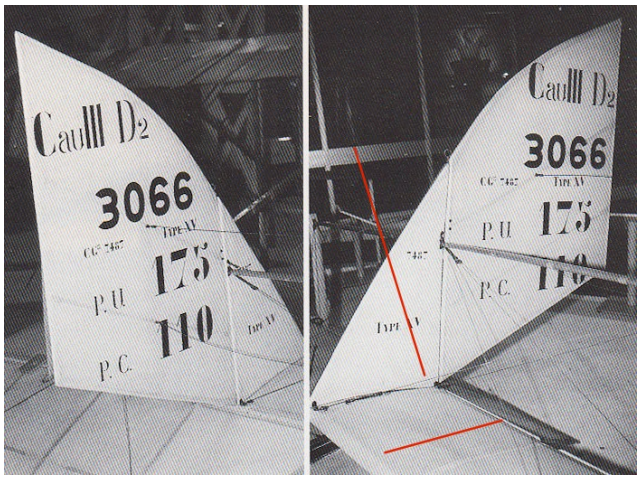
Following the previous procedure and rig the various lines as follows:

Top, rear of bottom tail boom longeron and up and through the pre-drilled hole in the tailplane trailing edge, inboard from the bottom rear of the fin. Route the line diagonally up and through the upper pre-drilled hole in the tailing edge of the fin then diagonally down and through the pre-drilled hole in the tailplane trailing edge, inboard from the king post.

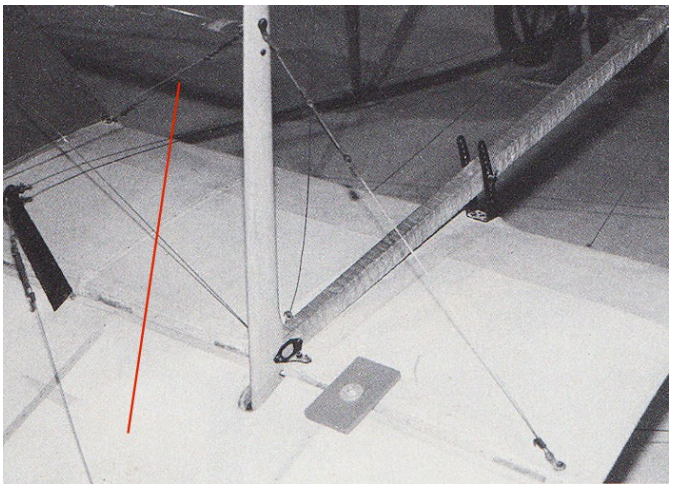
Repeat the produce to rig the lines from the other side of the tailplane.



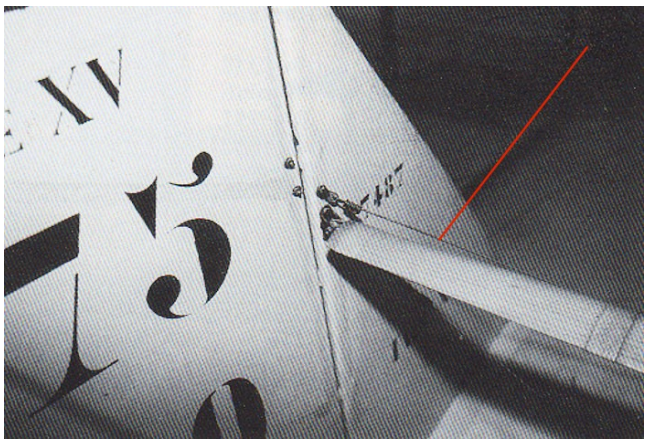
Fin **front** cross bracing wires (Steps 56, 60, page 16):



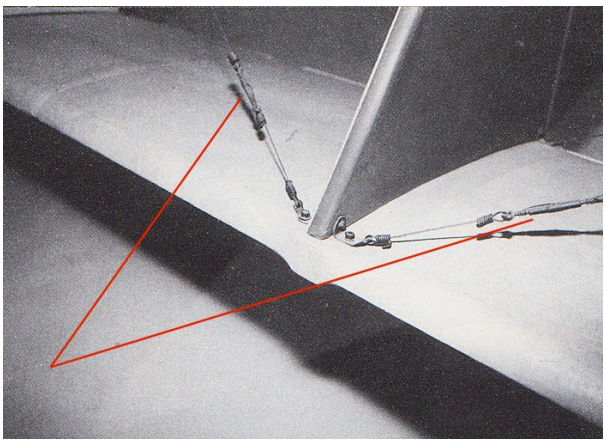

Tailplane to fin



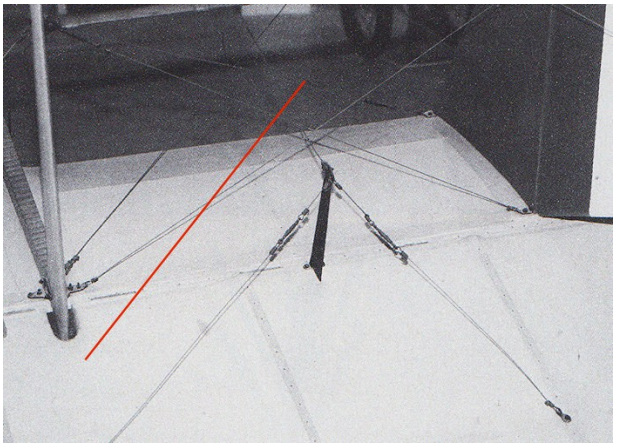
King post to tailplane



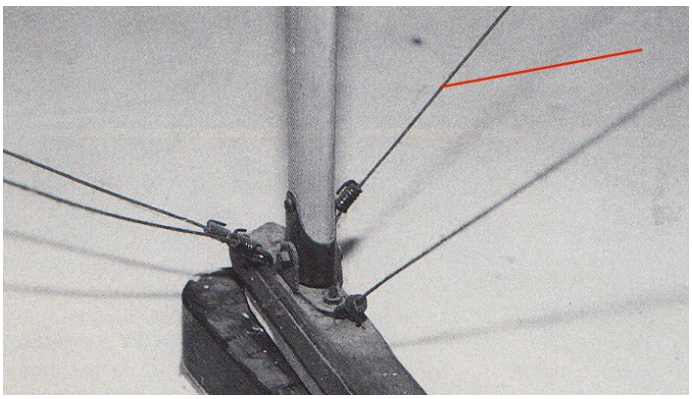
Tailplane to fin inner



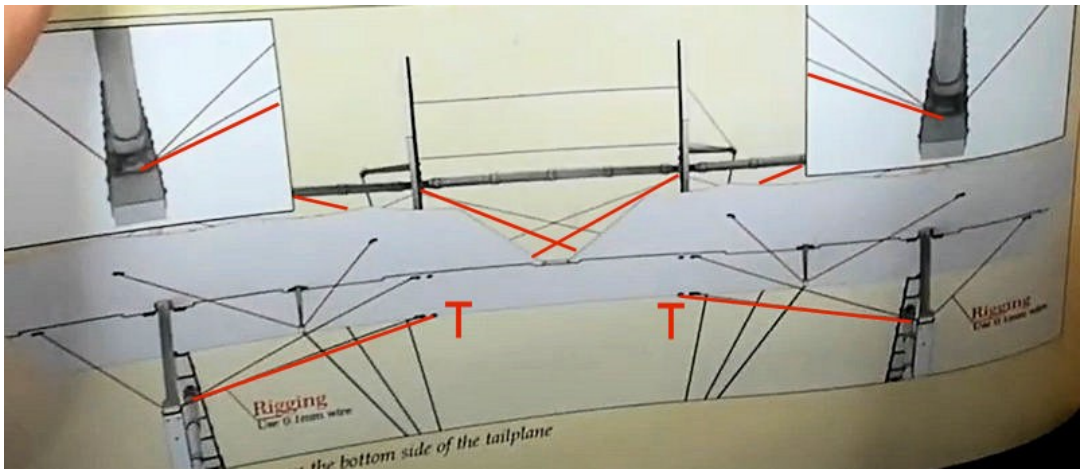
Tailplane to king post and fin inner



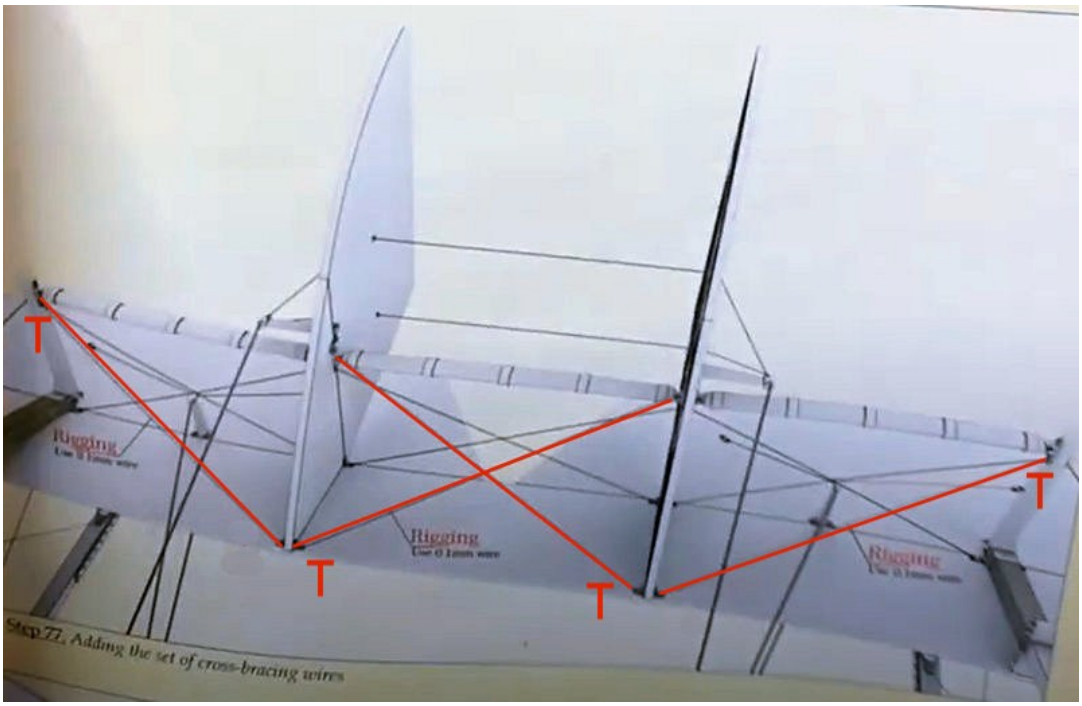
Tailplane to fin outer



Bottom rear of tail boom




Tailplane underside (T denotes turnbuckle)




Top of tailplane (T denotes turnbuckle)

Cut two long lengths of line.

Using previous procedures, attach a line to both ends of a turnbuckle.

Pass one line through the pre-drilled hole in the top of the king post.

Pass the other line down and through the pre-drilled hole in the leading edge of the tailplane, outboard from the bottom, front of the fin.

With the line tensioned and the turnbuckle at the king post, secure it to the king post and the tailplane using thin CA adhesive.

Carefully cut away any residual ends of line at the king post and underside of the tailplane.

Repeat the procedure to rig the same line on the other side of the tailplane.

Cut two long lengths of line.

Using previous procedures, attach a line to both ends of a turnbuckle.

Pass one line through the pre-drilled hole through the top, rear of the bottom longeron of the tail boom.

Pass the other line up and through the pre-drilled hole in the leading edge of the tailplane, inboard from the bottom, front of the fin.

With the line tensioned and the turnbuckle at the underside of the tailplane, secure the line to the king post using thin CA adhesive.

Using previous procedures, attach the line to both a turnbuckle.

Cut a long length of line.

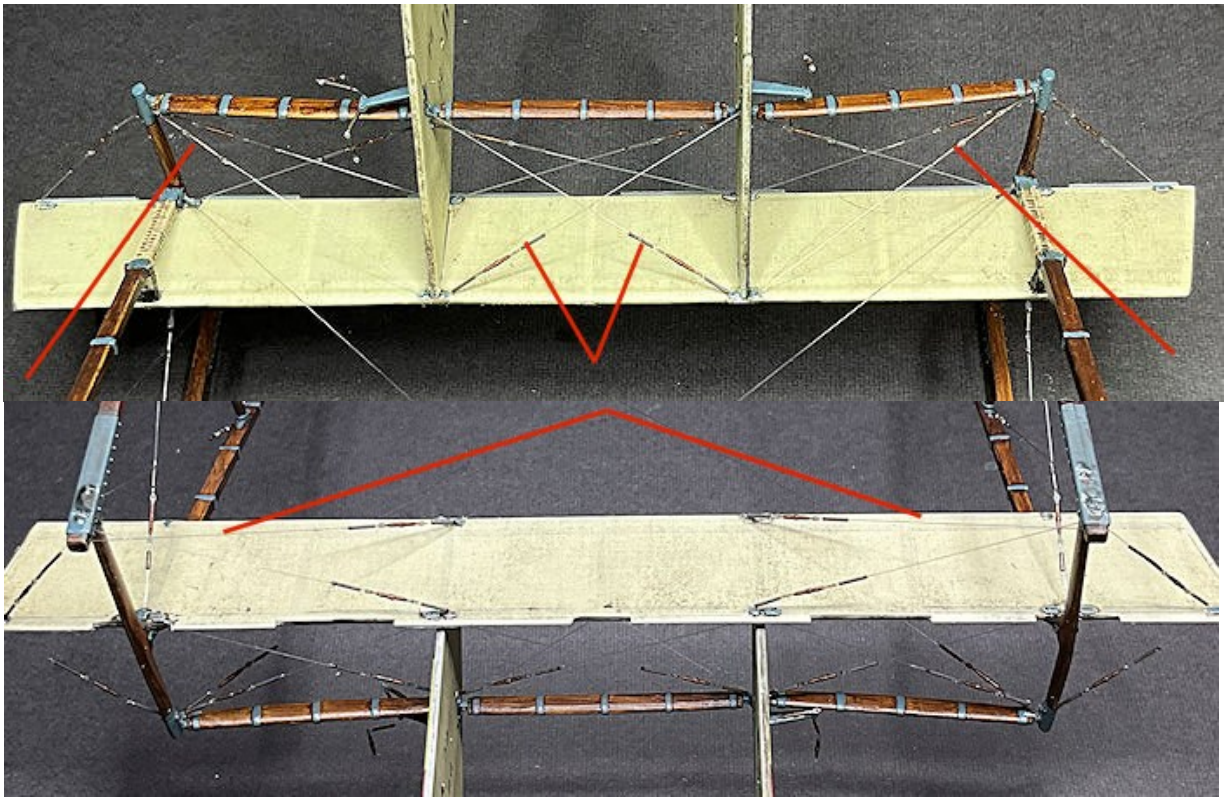
Using previous procedures, attach the line to the other end of the turnbuckle.

Pass the free end of the line diagonally up and across to the pre-drilled hole through the fin above the bracing strut.

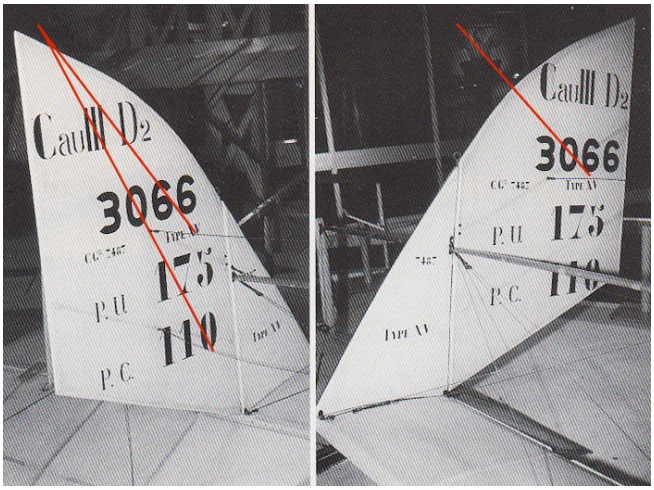
With the line tensioned and the turnbuckle at the underside of the tailplane, secure the line to the king post using thin CA adhesive.

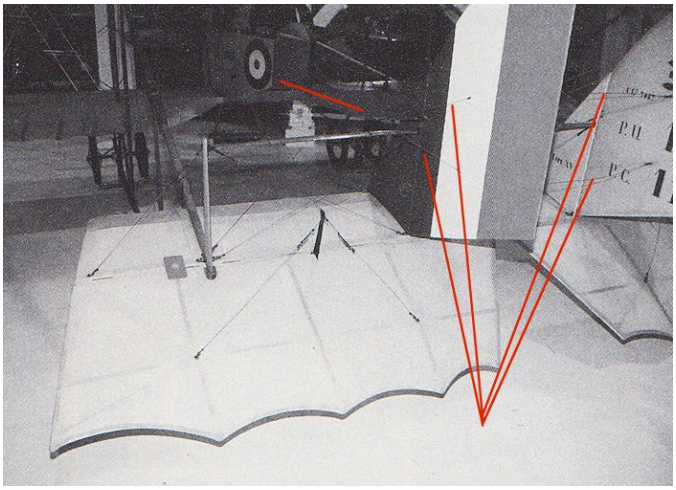
Carefully cut away any residual ends of line at the tail boom and fin.

Repeat the procedure to rig the same line on the other side of the tailplane.



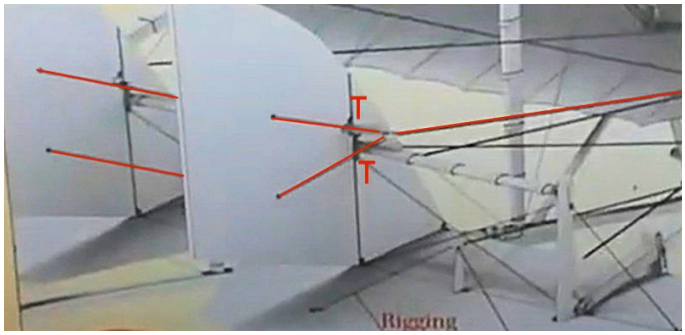
Rudder control cables (Steps 57, 58, page 16):

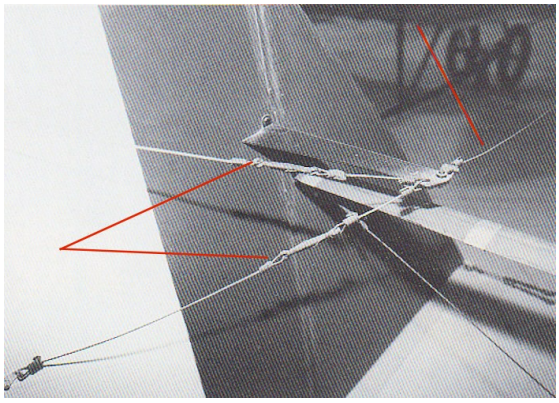


Rudder inner faces

Rudder inner/outer faces



Rudder inner/outer faces and control horn (T denotes turnbuckle)

Cut a long length of line.

Slide a tube onto the line.

Pass the line through the lower pre-rigged turnbuckle on a rudder control horn.

Loop the line back and though the tube.

Slide the tube up to, **but not touching**, the turnbuckle.

Secure the line in the tube using thin CA adhesive.

Pass the free end of the line rearwards and through the lower pre-drilled holes in the two rudders.

Slide a tube onto the line.

Pass the line through the lower pre-rigged turnbuckle on the rudder control horn.

Loop the line back and though the tube.

Slide the tube up to, **but not touching**, the turnbuckle.

**NOTE:** *During the following step, do not over tension the line to avoid stressing or moving the two rudders.*

Keeping the line taut, secure the line in the tube using thin CA adhesive.

Cut away any residual line at the tube ends.

Repeat the procedure to rig the rudder upper control line.

Slide a tube onto the right pre-rigged rudder control line from the side of the cabin.

Pass the line through the forward pre-drilled hole in right rudder control horn.

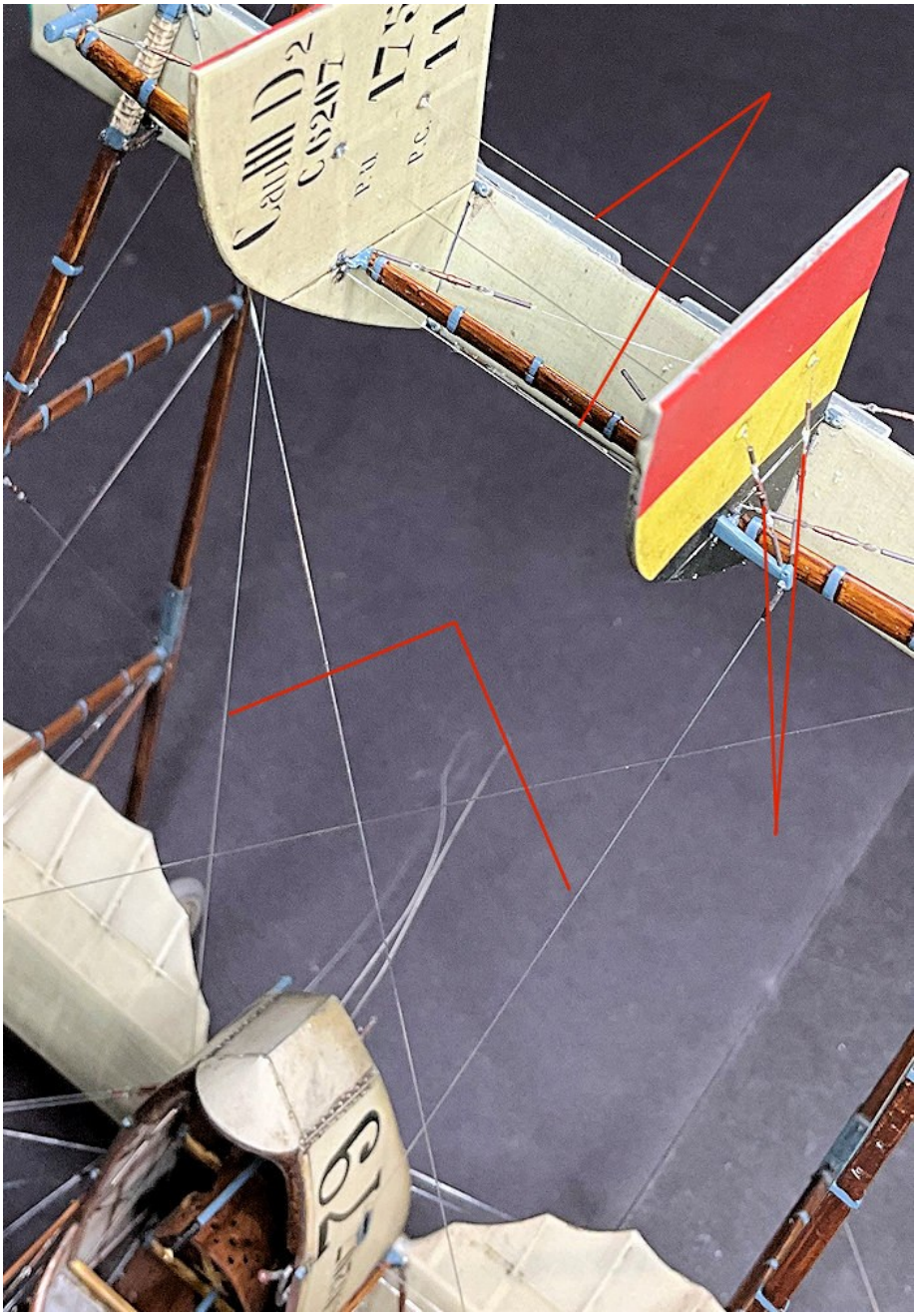
Loop the line back and though the tube.

Slide the tube up to, **but not touching**, the control horn.

Keeping the line taut, secure the line in the tube using thin CA adhesive.

Cut away any residual line at the tube end.

Repeat the procedure to rig the left rudder control line.



**Assembly (continued):**

Make sure all mating faces of the elevators and trailing edge of the tailplane are clear of any paint/decal.

Make sure all pre-drilled rigging holes in the elevators and control horns are clear of any paint/decal.

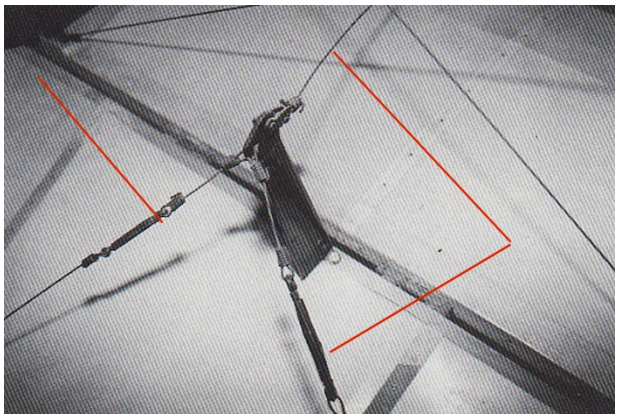
Check fit the elevators onto the trailing edge of the tailplane, making sure they fully locate and are flush to the tailplane.

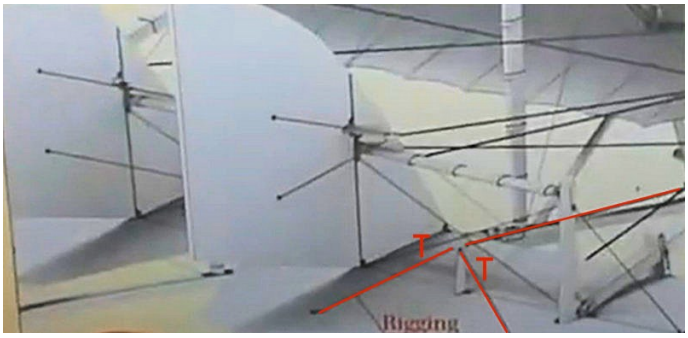
Cement the elevators to the tailplane.

**Final rigging (continued):**

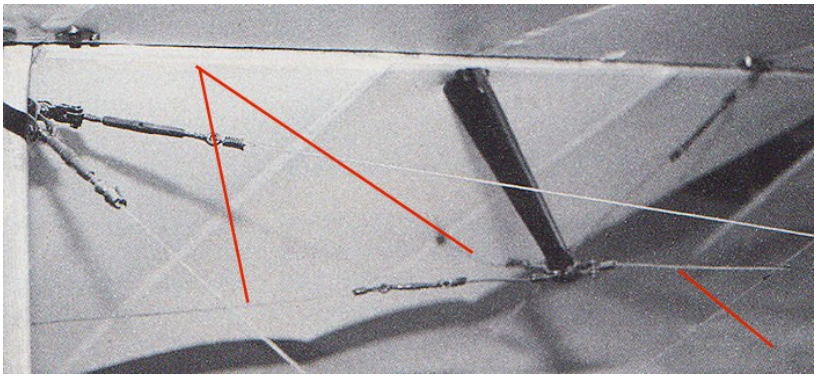
Elevator control cables (Steps 57, 58, 59 page 16):

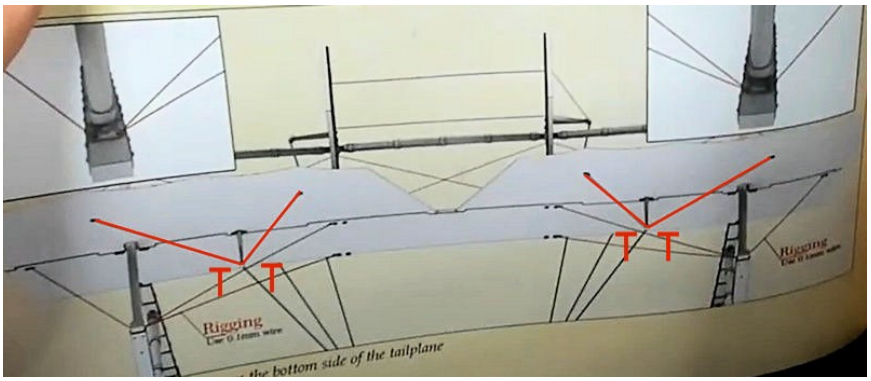
Elevator top control horn (T denotes turnbuckle)






Elevator underside horn (T denotes turnbuckle)






Cut a long length of line.

Slide a tube onto the line.

Pass the line through the end of a pre-rigged turnbuckle on an elevator control horn.

Loop the line back and though the tube.

Slide the tube up to, **but not touching**, the turnbuckle.

Secure the line in the tube using thin CA adhesive.

Pass the free end of the line rearwards and through the appropriate pre-drilled holes in the elevator.

Repeat the process to attach a line to the remaining three elevator control turnbuckles.

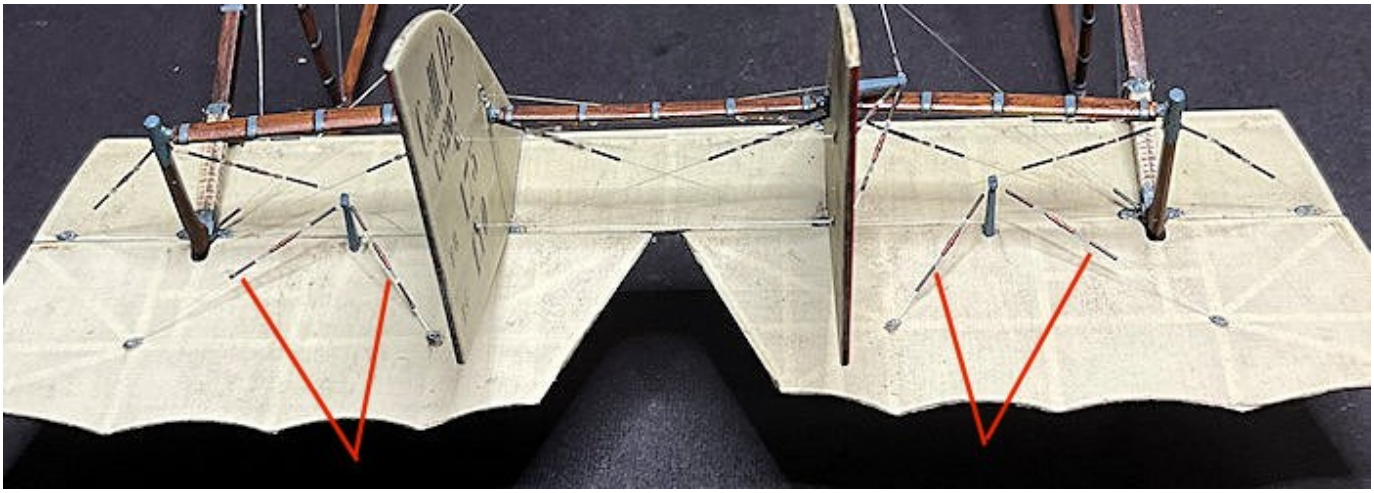
Lay the model upside down and repeat the procedure to attach a line to the four remaining elevator control turnbuckles.

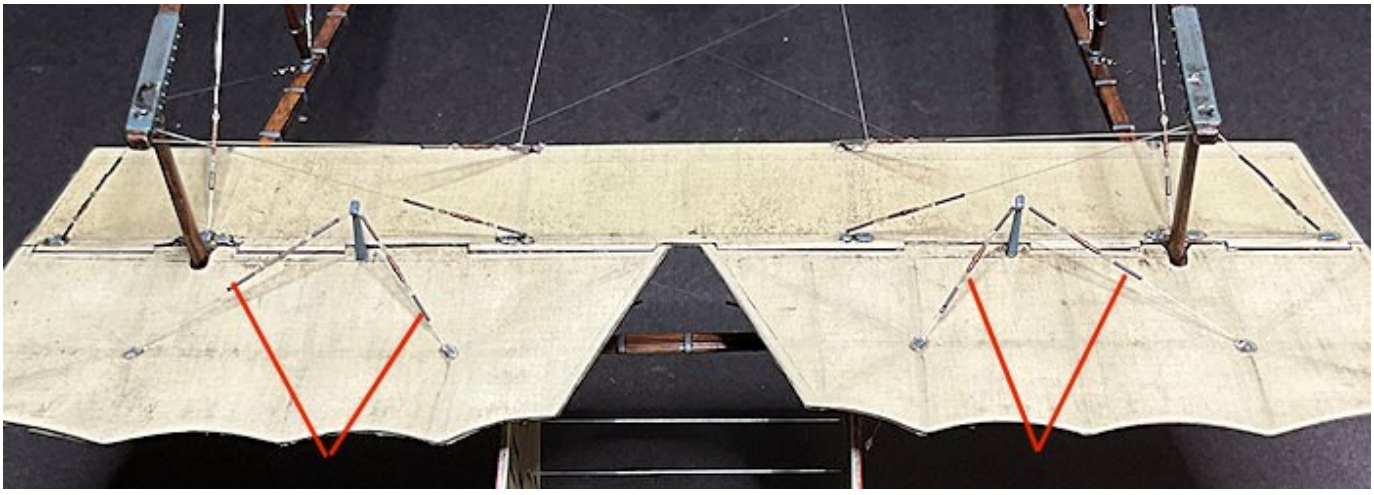
**NOTE:** *During the following step, do not over tension the lines to avoid stressing or moving the two elevators.*

Keeping the lines taut, slide the tubes up to, **but not touching**, the turnbuckles.

Secure the lines in the tubes using thin CA adhesive.

Cut away any residual line at the tube ends.





**NOTE:** *The two elevator control cables attached the protruding bottom of the pilots control column are attached to the upper control horns on the elevators. The two elevator control cables at the underside slot in the cabin rear are attached to the underside control horns on the elevators.*

Slide a tube onto a line.

Pass the line through the pre-drilled hole through the top, front of the relevant elevator control horn.

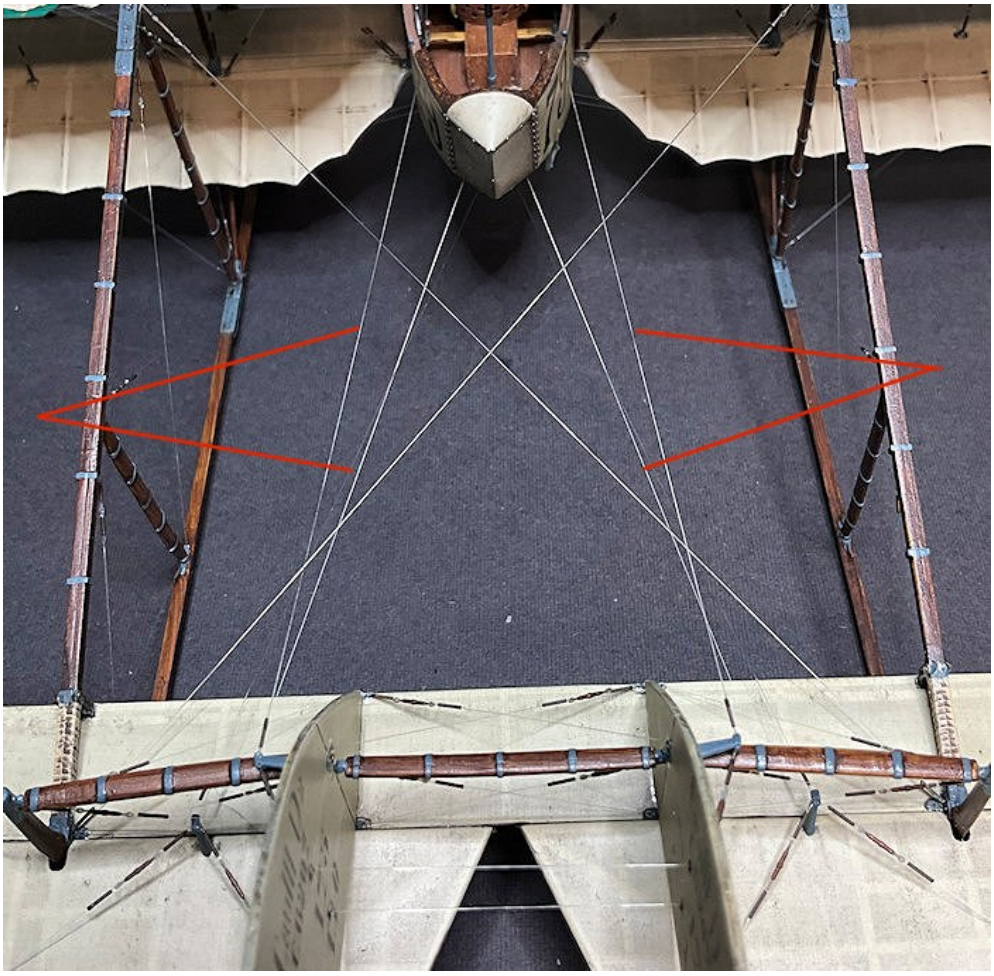
Loop the line back and though the tube.

Slide the tube up to, **but not touching**, the control horn.

Keeping the line taut, secure the line in the tube using thin CA adhesive.

Cut away any residual line at the tube end.

Repeat the process to attach the three remaining control lines to their relevant elevator control horns.



**Final rigging - finish:**

Lightly airbrush the applied rigging with a semi-gloss clear coat, such as ‘Tamiya’ Semi-Gloss (X35) or similar. This will dull the sheen of the mono-filament rigging and also make the rigging more visible.

**Painting (continued):**

Airbrush the two instrument gauges (A15, A16) with a grey primer, such as ’AK Interactive’ Grey (AK758) or similar.

Airbrush the two instrument gauges with ‘Tamiya’ Medium Blue (XF18) or similar.

Brush paint the frame of the windscreen with ‘Tamiya’ Medium Blue (XF18) or similar.

Once dry, brush paint the frame of the windscreen with a semi-gloss clear coat, such as ’Tamiya’ Semi-Gloss (X35) or similar.

**Decals (continued):**

Brush a gloss clear coat, such as ‘Tamiya’ Gloss (X22) or similar over the faces of the instrument gauges.

Apply decal 8 to instrument gauge A15.

Apply decal 9 to instrument gauge A16.

Brush a gloss clear coat, such as ‘Tamiya’ Gloss (X22) or similar over the applied decals.

**Assembly (continued):**

Cement instrument gauge A16 to its locating point on the inner surface of the left, rear fuselage cabane strut.

Cement instrument gauge A15 to its locating point on the inner surface of the left, rear fuselage cabane strut and above instrument gauge A16.

Using PVA adhesive (white glue), secure the windscreen into its locating slot in the top of the cabin, forward from the cockpit.

Using CA adhesive, secure the ‘Proper Plane’ propeller, in the desired position, onto the engine propeller shaft.

# PART 11
# FIGURES

## PART 11 - FIGURES AND ACCESSORIES

The figures I chose to use are the 'Kellerkind Miniaturen' U.S.A.A.S pilot (54091) and the French pilot smoking (54115).

**NOTE:** *The figures are made of resin, refer to Part 5 (Resin) of this build log.*

**U.S.A.A.S pilot:**

Preparation:

Remove the figure and combined arms from their moulding blocks.

File or sand away residual mounting block resin from the parts.

Check that there are no surface imperfections and if necessary, fill and/or sand to restore the surface finish.

Assembly:

Using CA adhesive, secure the two arms onto the figure.

Painting:

**NOTE:** *The figure was painted using 'AK Interactive'/'Tamiya' acrylic and 'Citadel' paints. Thin the 'AK' paints with their acrylic thinners (AK712).*

Airbrush the figure parts with a grey primer, such as 'AK Interactive' Grey (AK-758) or similar.

*Gaiters* - 'AK Interactive' Brown Leather (AK3031), Tamiya' Semi-Gloss (X18), Lacing studs Buttons 'Mr. Colour' Stainless Steel (213).

*Shoes* - 'Tamiya Flat Brown (XF10).

*Trousers/Jacket Collar* - 'Tamiya' Olive Green (XF58) with J.A. Green (XF13) shadows.

*Flying coat* - 'AK Interactive' Brown Leather (AK3031), British Uniform (AK3081) shadows. Buttons and belt buckle 'Mr. Colour' Stainless Steel (213).

*Wool hat* - 'Tamiya' Deck Tan (XF55).

*Glove in pocket* - 'Tamiya' Buff (XF57).

*Goggles* - 'Tamiya' Buff (XF57) with Flat Brown (XF10) highlights. Lenses 'Mr. Colour' Stainless Steel (213) and Tamiya' Clear Orange (X24). Strap 'Humbrol' Leather (62).

Finish - 'Tamiya' Semi-Matte clear coat (X35) or similar.

*Flesh* - 'Citadel Colour' Cadian Flesh Tone/Kislev Flesh highlights.

Weathering:

Lightly sponge 'Tamiya' Weathering Master Set A (Mud) over the shoes.

Lightly sponge 'Tamiya' Weathering Master Set D (Oil Stain) over the pockets and elbows of the flying coat.

Lightly brush 'Flory Models' Dark Dirt clay wash over the wool hat.

**French pilot smoking:**

Preparation:

**NOTE:** *This figure is supplied as a complete resin cast and the supplied wheel is not used. No assembly is required. The intention was to pose this figure on one of the Caudron's wheels. However, the rigging around the wheels prevented this. Therefore, I adapted the figure to be seated on a crate.*

Cut away the figure from its base block.

Check the figure for any mould seams or flash and any surface artifacts and remove as required.

File, sand or scrape away resin from the underside of the figure until it's 'sits' naturally on the top of the crate (refer to the following).

Drill a hole of 0.8 mm diameter centrally up into the underside of the figure (used to hold the figure whilst being painted and to mount the figure).

Cut a long length of 0.8 mm diameter Brass rod, such as that from 'Albion Alloy's' or similar.

Using thin CA adhesive, secure the rod into the pre-drilled hole in the left figure.

Painting:

Airbrush the figure with a grey primer, such as 'AK Interactive' Grey (AK758) or similar.

Brush paint the figure as follows:

*Flight overalls* - 'AK Interactive' British Uniform Light (AK3082) with British Uniform (AK3081) as shadows. Fur lining 'Tamiya' Deck Tan (XF55) dry brushed with 'AK Interactive' Brown Leather (AK3031). Buttons 'Mr. Color' Stainless Steel (213).

*Shoes* - 'Tamiya' Red Brown (XF64) or similar.

*Helmet/lining, gloves* - 'AK Interactive' Brown Leather (AK3031).

*Belt* - 'AK Interactive' British Uniform (AK3081) or similar.

*Scarf/Cigarette* - 'AK Interactive' Faded White (AK3029).

*Instrument on leg* - 'Mr. Color' Stainless Steel (213), strap 'Humbrol' Leather (62).

Finish - 'Tamiya' Semi-Matte clear coat (X35) or similar.

*Flesh* - 'Citadel Colour' Cadian Flesh Tone with Kislev Flesh highlights.

Weathering:

Lightly sponge 'Tamiya' Weathering Master Set A (Mud) over the shoes.

Lightly sponge 'Tamiya' Weathering Master Set D (Oil Stain) over the pockets and elbows of the flying coat.

Lightly brush 'Flory Models' Dark Dirt clay wash over the scarf.

Decal:

An appropriate decal from my 'spares' collection was applied to the instrument on the left leg.

**Crate:**

**NOTE:** *The crate is resin and was from my 'spares' collection.*

Preparation:

Check that there are no surface imperfections and if necessary, fill and/or sand to restore the surface finish.

Mark the top of the crate for the location of the rod in the seated pilot figure when the figure is mounted.

Using the mark as a guide, drill a hole of 0.8 mm diameter vertically down into the crate.

Test fit the seated figure onto the crate and if necessary, bend the rod in the figure to achieve a full and natural posed figure on the crate.

Painting:

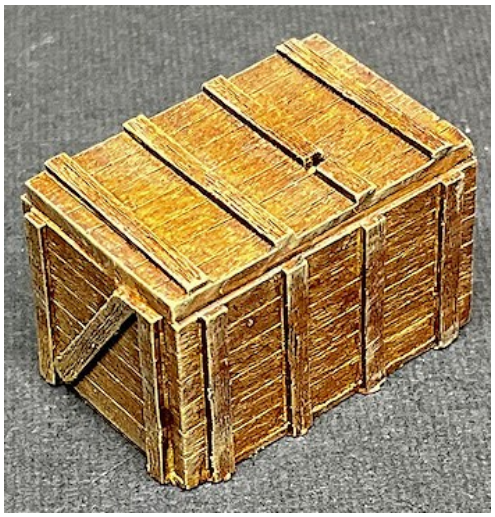
Airbrush the crate with a grey primer, such as 'AK Interactive' Grey (AK758) or similar.

Airbrush the crate with 'Tamiya' Dark Yellow (XF60) or similar.

**NOTE:** *Refer to Wood effect - Method 2 in Part 2 (Wood Effects) of this build log for more information. The wood effect for this model was created using 'Windsor & Newton' Griffin (Alkyd) oil paints.*

Brush a covering coat of 'Windsor & Newton' Griffin Alkyd oil paint (Burnt Umber) over the crate.

Once the oil paint has fully dried, dry brush 'Tamiya' Desert Yellow (XF59) over the edges to create a worn wood effect.



**Petrol can:**

**NOTE:** *The petrol can is resin and was from my 'spares' collection.*

Preparation:

Check that there are no surface imperfections and if necessary, fill and/or sand to restore the surface finish.

Mark the centre, underside of the can.

Using the mark as a guide, drill a hole of 0.8 mm diameter vertically up into the can.

Cut a long length of 0.8 mm diameter Brass rod, such as that from 'Albion Alloy's' or similar.

Using thin CA adhesive, secure the rod into the pre-drilled hole in the can.

Painting:

Airbrush the can with a grey primer, such as 'AK Interactive' Grey (AK758) or similar.

Brush paint the can with 'Mr. Colour' Stainless Steel (213).

Using a cotton bud, buff the painted surfaces to create a metallic effect.

Weathering:

Brush ‘Flory Models’ Dark Dirt clay wash around the can.

Brush ‘AK Interactive’ Kerosene wash (AK2039) down the spout and top rim of the can.

**Map:**

**NOTE:** *The map used is from the 1:32nd scale British WW1 maps set (paper) from ‘Military Might UK’. ‘VMS’ Paper shaper is a solution that when applied to paper, allows the paper to be brushed into various shapes and once dry can be removed for painting, if required.*

Preparation:

Cut out a map of your choice from the ‘Military Might UK’ sheet. The intention is to have the map laying on the top of the crate next to the seated figure.

To protect the oil painted crate, cover the intended are with kitchen ‘Cling Film’ or similar.

On a non-absorbent surface, such as plastic sheet or similar, create a puddle of the ‘VMS’ Paper Shaper solution.

Lay the cut out map onto the solution and leave it until the solution has completely soaked the paper map. The map can be lifted with tweezers and inverted onto the solution for more soaking if necessary.

Application:

Lift the paper map and lay it onto the crate area.

Using a soft brush, dipped in the solution, gently move and fold the paper map as desired, making sure the map is fully in contact with the crate top and sides.

Once the desired effect is achieved, leave the paper map to fully dry out and set.

Carefully lift the paper map from the crate and remove the Cling Film covering.

Using PVA adhesive, secure the paper map back in position on the crate.

# PART 12
# DISPLAY BASE

# PART 12 - DISPLAY BASE

The display case in made from piano black and clear acrylic sheet of 3mm thickness. The Base plinth is 5 mm thick. The shoulder around the plinth is for locating the clear cover and is a second thickness on top of the base plate. This case was purpose built by Paul Moss, who has a retail outlet on Ebay - www.inperspextive.com

The grass mat used was 'Lars op't Hof' Scenery - Pasture Summer long. The information plaque was engraved by 'TLS Engraving Ltd'.

## Grass mat:

The grass mat was cut to the desired shape. The mat was laid onto the display base and positioned to ensure the model would clear the display top when located. A soft pencil was used to lightly trace the outline of the mat on the display base. Inside the marked area was scuffed using sand paper, to provide a grip surface for the adhesive. PVA (whit glue) adhesive was then applied to the scuffed area and the grass mat was then laid back onto the base, aligned to the pencil outline and gently pushed down to make proper contact. The grass mat was covered with a sheet of paper and several heavy books were then stacked onto the paper, to press the grass mat fully in contact with the display base. The books and paper were removed after several hours, when the edges of the grass mat were checked for contact (apply more PVA adhesive if not). The grass were gently brushed to remove any flatness.

## Aircraft model:

The aircraft was not fixed to the display base, but left as 'free standing'. Although this may not be as secure as fixing the model to the display base, it does mean the model will not be subjected to shock loading when being moved around, as it might be if fixed on the display. However, the location of the wheels and tail skids were scored through the grass mat to give the model a more firmer location.

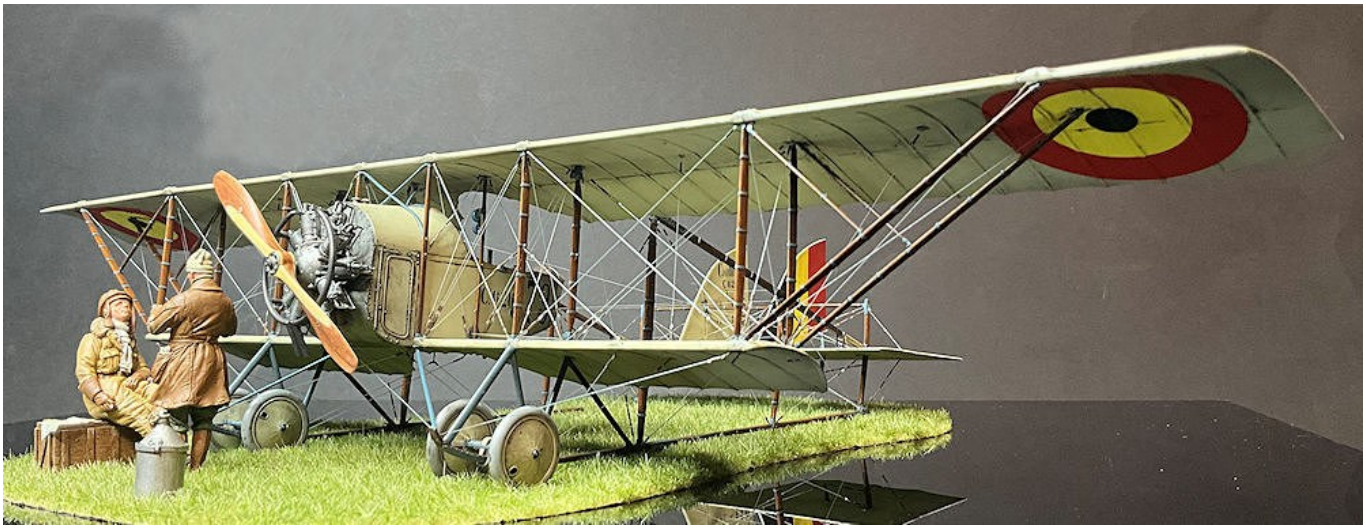
## Figures and accessories:

With the model positioned on the grass mat, the figures, crate and can were positioned on the base in their final positions and the location of the pin in the leg of the standing figure was marked on the grass mat. The location of the crate and can were marked on the mat.
A hole of 1.0 mm was drilled through the grass mat and into (not through) the base plinth. PVA or thin CA adhesive was then applied to the pin of the standing figure, which was then carefully seated into the drilled hole. Light pressure was applied to the figure to ensure it was fully located into the base.
The locations of the crate and can were cut through the grass mat to the display base and the crate and can were then secured in the cut-outs using CA adhesive.

## Information plaque:

The acrylic stand for the information plaque was scuffed with sand paper on its bottom surface. It was then position in the left corner of the display base and its outline lightly scored with a pointed scriber. The area inside the scribed outline was scuffed with sand paper. An adhesive, such as a contact or two-part epoxy adhesive was applied to the scuffed surfaces and the stand positioned onto the scribed outline on the display base. Once the adhesive had fully set, the information plaque was secured onto the stand, using the self-adhesive tape on the rear face of the plaque.

# PART 13
# COMPLETED MODEL PHOTOGRAPHS

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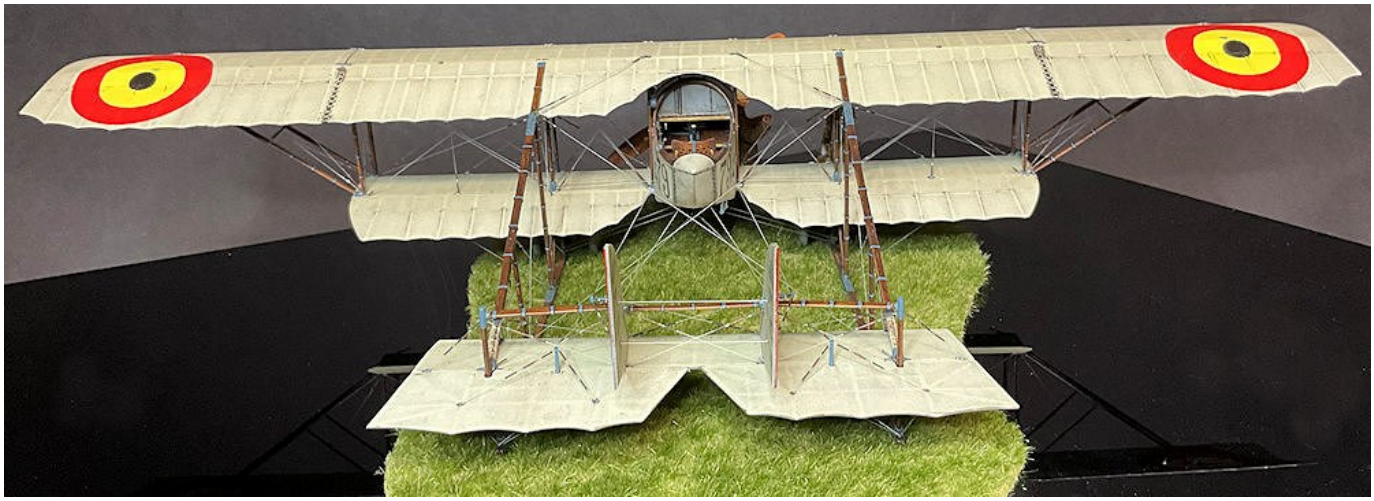

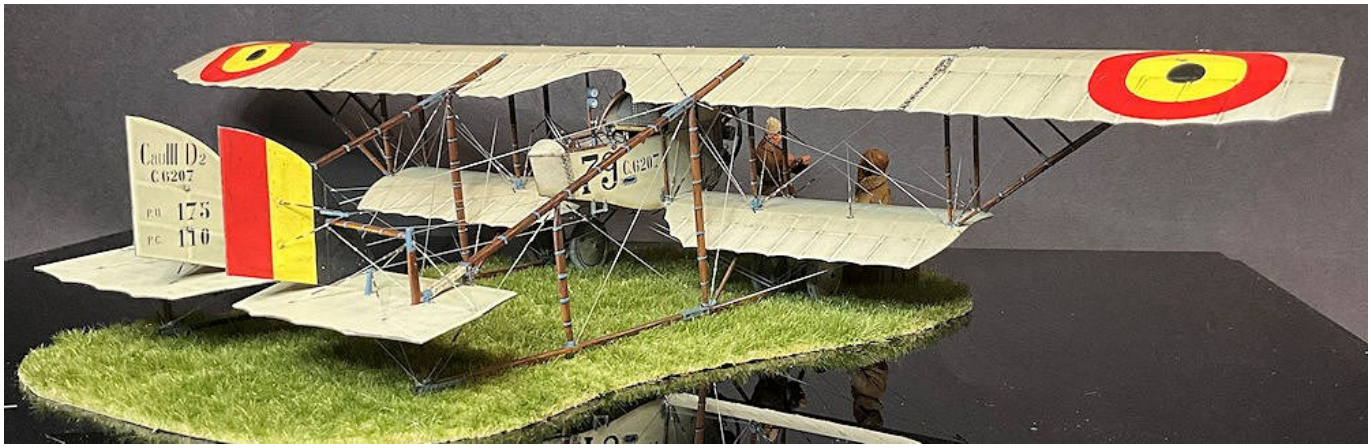
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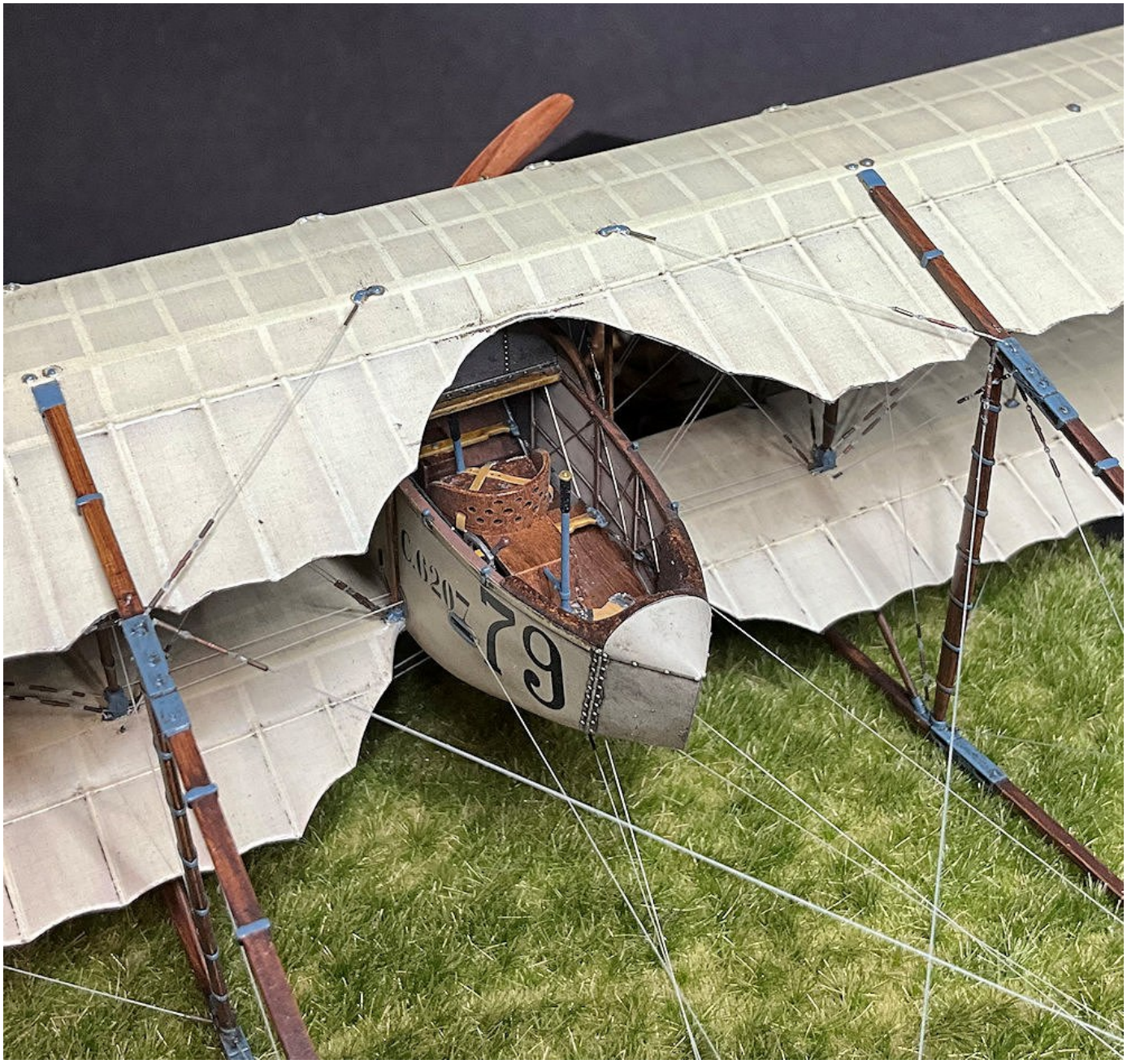
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