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 modelling again in 2015 and now enjoy the challenge of building aircraft of World War One. Since posting photographs of my completed models online, I've been asked if I would create fully detailed 'build logs' for future builds.

I don't consider myself a 'master' of this hobby, but hope to be able to pass on what I have learned. As such, here is my build log, which covers a model of a French Sopwith 1½ 'Strutter' (1.B2) based on the 'Roden' RFC 1:32 scale kit.

Mike 'Sandbagger' Norris

https://mikesww1aircraftmodels.com
sandbaggeruk@sky.com

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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 to the 'carpet monster'). 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

Figure

‘Kellerkind Miniaturen’ French mechanic with brush (54089),
‘Kellerkind Miniaturen’ French mechanic with coffee (54112).

Decals

‘Aviattic’ Weave Linen Effect (ATT32236) and unbleached linen (ATT32544).
‘Airscale’ generic WW1 instruments (AS32 WW1),
‘MDP’ Laser decal paper (Clear and White backed).

Propeller

‘Proper Plane’ Waring and Gillow wood (WP-046).

Weapons

‘Gaspatch’ Vickers Mk.1 (18-32126) and Lewis RNAS pattern (15-32074).

3D Printed or Resin cast parts

‘Aviattic’ engine cowl (ATTRES058),
‘Barracuda Studios’ Wicker seat/cushion (BR-32332).

Rigging accessories (as required)

‘Gaspatch’ metal turnbuckles 1:48th scale (Type A and C),
‘Albion Alloy’s’ Micro-tube (Brass or Nickel Silver, 0.4 or 0.5 mm diameters),
‘Steelon’ or ‘Stroft GTM’ fishing line (0.08 and 0.12 mm diameter),
‘SeaKnight’ Monster Blade blue fishing line (0.6),‘EZ’ black stretch line (Fine),
‘PART’ photo-etch control horns (S24-087),
‘Proper Plane’ Turnbuckles fork end (RD-019) and Turnbuckles (RD-005),
‘HGW’ 1/32nd scale Spoke Eyelets (132129).

Paints (as required)

‘Tamiya’ Acrylic, Humbrol Acrylic, ‘Mr. Metal Color’, ‘Alclad II’ Lacquers,
‘AK Interactive’ Primer (Grey AK758, White AK759) and Figure paints (various),
’Tamiya’ Fine Surface Primer (Grey/White), ‘Tamiya’ Paint Retarder,
‘AK Interactive’ Acrylic Thinner (AK712), ‘Mig’ A-Stand Aqua Gloss (A.Mig-2503),
‘MRP’ acrylic lacquers, ‘Windsor & Newton’ Griffin Alkyd oil paint, ‘Citadel’ Colour (various),
‘Mr. Surfacer’ 500/1000/1200/1500, ‘Mr. Finishing Surfacer’ 1500.

Sundries (as required)

’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’,
‘VMS’ Metal Prep 4K or ‘Mr. Metal’ Primer R, ‘Araldite’ two-part epoxy, ‘Black-It’ solution,
‘MFH’ 0.4 mm diameter flexible black tube (P-961) or clear (P-957), Copper wire various diameters,
‘Tamiya’ masking sheet and tapes (various widths), ‘Prismacolor’ Verithin pencils
‘Microscale’ Krystal Klear, ’UHU’ White Tack, ‘Tamiya’ masking tape (various widths),
‘Abteilung 502’ Liquid Mask, ‘De-Solv-It’ Sticky Stuff Remover, ’AK Interactive’ Weathering pencils,
‘Plastruct’ plastic rod (various diameters), ‘VMS’ Paper Shaper and WFU Modelling Paper.

Weathering mediums (as required)

‘AK Interactive’ (Kerosene AK-2039, Engine Oil AK-2019),
‘Tamiya’ Weathering Master sets,
‘Flory Models’ Clay washes or Pigments.

Display Base

‘Polak’ Wild Meadow Variation G (4707).
‘Inperspective’ custom made acrylic base and cover,
Information plaque from ‘TLS Engraving Ltd’.

THE AIRCRAFT

THE AIRCRAFT

References:

'Roden' kit instructions.
'Windsock' data file No.34 - Sopwith 1 1/2 'Strutter (J.M Bruce).
Various online resources (e.g. memorial-flight.com, albindenis.free.fr).

General:

NOTE: *The following text is based the 'Roden' kit instructions.*

Among British WWI warplanes the Sopwith 1 1/2 'Strutter' occupied an honoured place as it was the first Allied fighter equipped with a synchronized machine gun. Designed by the Sopwith Aviation Company in Kingston on Thames and led by Thomas Sopwith, it was first known as the Sopwith LCT (or Land Clerget Tractor). The first flight of the design took place in mid-December 1916 and after successful trials the Sopwith company received an initial order from the Admiralty. Soon the new Sopwith obtained its own unusual name of the 1 1/2 'Strutter', as its cabane struts had a distinctive W form reminiscent of half struts. The earlier built Strutters, which often had no armament for the pilot, began to appear in April 1916 and the first unit equipped with the type was No.5 Wing Royal Naval Air Service (RNAS). The Admiralty, satisfied by its performance, gave additional orders to the Sopwith Company. In addition, the Royal Flying Corps (RFC) also ordered the type. The two-seat version, designated Type 9400, was a fighter plane, and the single-seat (Type 9700) aircraft was for bombing roles. The Sopwith Company could not implement such a big order and licenses were given to the Morgan & Co, Hooper, Westland, Vickers, Mann & Egerton and Ruston & Proctor companies. Sopwiths and the subcontractors built a total of 1282 Strutters of all types.
At the same time France urgently needed a new type of fighter-bomber, as their Voisin and Farman aircraft were totally obsolete. Impressed by reports of Strutter's success, France first purchased a limited quantity directly from Britain, but soon obtained a license for the manufacture of Strutter. French built aircraft received their own designations. The 1.A2 was a two-seat reconnaissance and the 1.B2 a two-seat fighter-bomber. Together with the single-seat version, the 1.B1, France built over 4000 aircraft of the different types. Notwithstanding satisfactory performance, the 'Strutter' very quickly became obsolete. During mid-1917 the majority of British 'Strutters' were withdrawn from the front line. However, French aircraft fought until mid-1918 (nearly 395 aircraft with 1100 others in reserve). A total of 74 Escadrille operated the aircraft during WW1. The United States purchased 514 aircraft from France, primarily for use in the training role. Britain sold 148 Strutters to Russia, 27 to Belgium, 17 to Rumania, 15 to Japan and 10 to Greece. Very limited numbers of the type served in Latvia, Ukraine and Holland. After the end of WW1, 'Strutters' served for some time in Britain, France and Soviet Russia, but by the mid-1920's was regarded as obsolete.

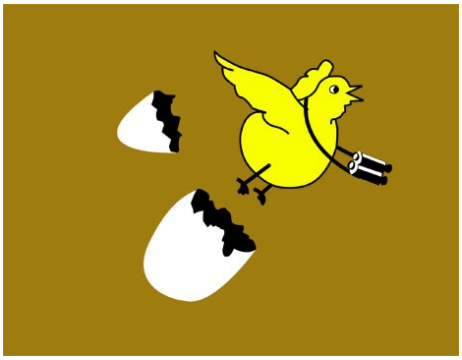
Specifications:

Wingspan - 33ft 6in (10.22m)
Length - 25ft 3in (7.7m)
Height - 10ft 3in (3.1m)
Empty weight (with Clerget 9B engine) - 1,305lbs (592kg)
Maximum weight (with Clerget 9B engine) - 2,150lbs (975kg)
Max speed (with Clerget 9B engine) - 100mph at 6,500ft (161kph).
Mac ceiling - 15,000ft (4,572m).
Engines - Clerget 9Z (110hp), Clerget 9B (130hp), Le-Rhone 9J (110hp) or Gnome Monosoupape (9B2 (100hp). French aircraft Clerget 9B (130hp), Clerget 9B (140hp) Le Rhone 9J (120hp).
Weapons - One Vickers 0.303 and one Lewis 0.303 machine guns.

Escadrille SOP 226:

Escadrille 226 first operated using Caudron G3 and G4 aircraft in the reconnaissance, artillery and bombing roles during 1916 and was designated as Escadrille C226. By 1917 the aircraft were deemed to be obsolete, being replaced with Sopwith 1.A2 and 1.B2 'Strutters' and the Escadrille was re-designated as SOP 226.

The Escadrille operated these aircraft until 1918 when they were in turn replaced by the Breguet 14 and the Escadrille was re-designated as BR226.
During WW1 the Escadrille was stationed at various airfields, being Esquennoy, Bray-Dunes, Trécon, Hondschoote, Vadelaincourt, La Vidamée and Vauxcastille.
Markings on the SOP 226 and BR 226 Escadrille aircraft included 'Le poussin qui éclót' (the chick that hatches) on the fuselage sides and a blue and yellow band on the fuselage and tailplane/elevators, the bands seemingly also denoted the reconnaissance role carried out by SOP 226. These bands were applied with the yellow band directed forward and the blue towards the rear.



A citation to the order of the army of the BR 226 squadron, dated January 2, 1919 stated:
"Elite unit, driven by the greatest brilliant offensive spirit. Under the energetic command of his leader, Lieutenant Duclos de la Haille, provided excellent artillery work of remarkable performance during these three operations, accomplishing, moreover, all the reconnaissance missions requested of him, fighting fourteen battles and ensuring several times, in excellent conditions, the supply of food and ammunition to infantry units on the front line."

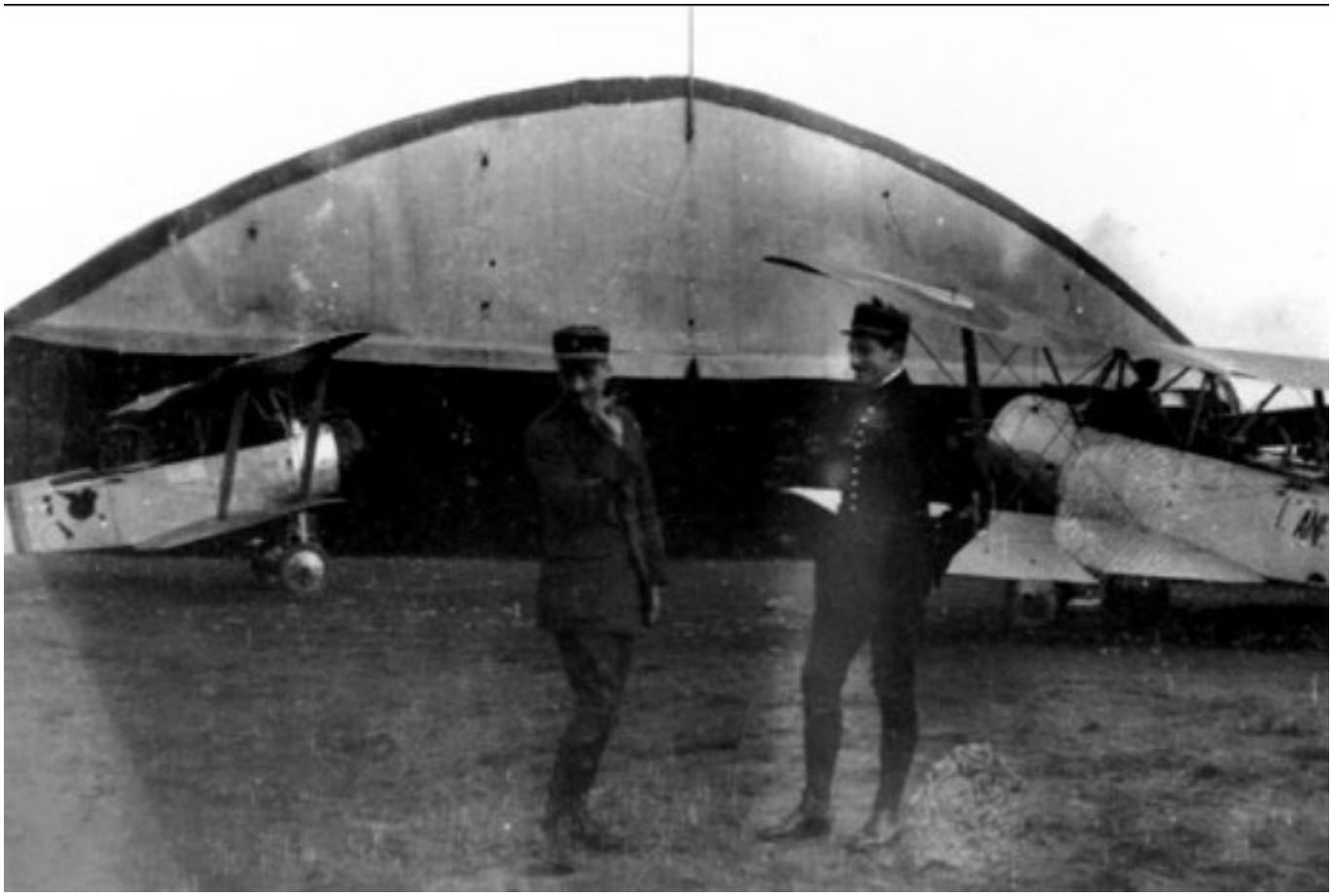
This model represents a Sopwith 1½ 'Strutter' (1.B2), Ser No.326 '7' of French Escadrille SOP226 during 1917.

NOTE: *The photograph is of poor quality and the shades of the fuselage markings is mis-leading. Therefore, some colours are, such as the red on the engine cowl, are based on conjecture.*

I had read of Aluminium doped 'Strutters', but was guided by the Windsock data file 34. It seems at the time of writing, doped Aluminium Strutters had not been known. From what I now read it seems a few Strutters were supplied to the French for evaluation. They were considered worth using and licenses were given to allow the French to build the aircraft for their use. The Sopwith aircraft built by the French were modified, even though they looked similar to the British counterpart. Production was slow to start, as happened with the earlier Caudron aircraft. The French aircraft possibly had reinforced wings.
However, only a few early models originally supplied British were clear dope linen. Later French built Strutters were probably Aluminium doped and by the end of 1917, the five coloured dope camouflage was universally adopted.
The camouflaged aircraft had the standard French 5 colours pigmented dope. On the upper wings pigmented dope was used, which is why a difference can sometimes been seen in hue between doped surfaces and the roundels. If the landing gear, cowlings and plywood coverings were camouflaged, it was with the standard paints.

On the Aluminium doped aircraft, the factory manual states the use of :
One coat of clear tautening dope
Two coats of Aluminium tautening dope
One coat of clear finishing dope
That fuselage and wings were similarly doped.
The cowlings left the factory burnished (sometime painted in unit level) and the exposed plywood decking was varnished. The landing gear was either painted silver (most often) or left with the blue -grey protective paint.
As with most WW1 aircraft research, very little can be confirmed. However, I decided to apply on this model an all-Aluminium doped finish.

Other Sopwith 1½ 'Strutter' (1.B2) of Escadrille SOP226.



PART 1
MODEL DESCRIPTION

PART 1 - MODEL DESCRIPTION

('Roland' - Sopwith 1 1/2 'Strutter - Kit No:635)

General:

This model by 'Roden' was a new tool release in 2023. Whilst 'Roden' are not considered to be in the same league as 'Wingnut Wings' or 'Copper State Models' for example, the kit is still of good quality. Enhancements to the basic kit have been released by 'Aviattic' and include:

3D printed instrument panel and two different engine cowls.

Eight different and complete decal sets for the Royal Flying Corps, Royal Naval Air Service, and Belgian Air Service.

Six separate bundle sets, which include the kit, a decal set, 3D printed parts and 'Gaspatch' weapons.

As usual, modifications to further enhance the model can be carried out. As such there are aftermarket items that can be added or used to replace kit parts. Any used on this particular model are listed on the 'Aftermarket' page of this build log.

Normally here I would write a basic description of the model, noting any points of interest or flaws. However, there is a good review on the IMPS Nederland website. Paste the link below into your internet browser to view the review.

https://ipms.nl/artikelen/recensies/vliegtuigen-militair/sopwith-strutter-roden-32-english

'Roden' kit No.635 box art.

PART 2
WOOD EFFECTS

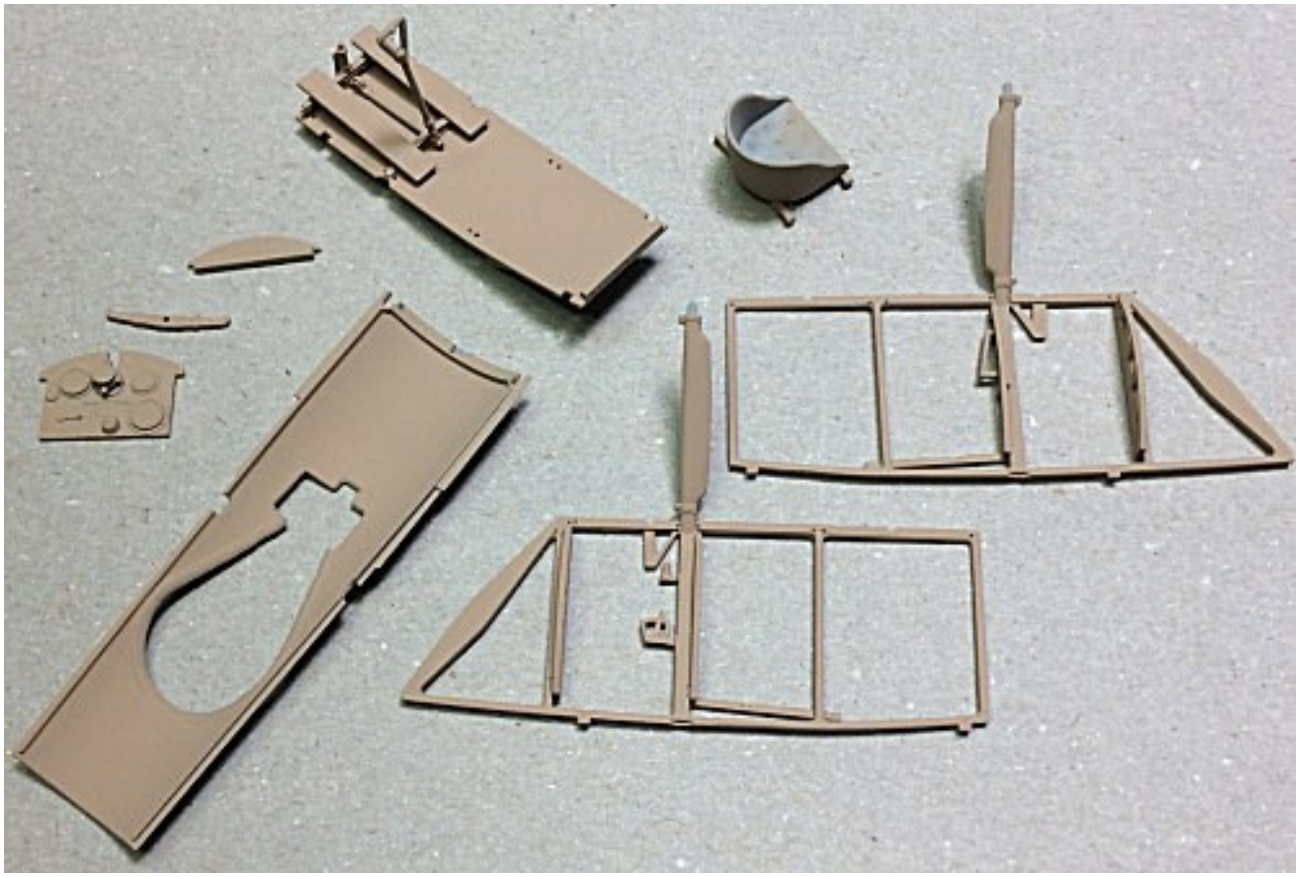
PART 2 - WOOD EFFECTS

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 aftermarket 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 creamier, 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 glossier 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, dabbing either onto a dry piece of 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 'homemade' 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 an 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 for decals on painted surfaces. 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 applied 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.

Remove the decal from its backing sheet after it has released in 'warm' water.

Carefully move the decal into the correct position.

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 roll a dry cotton bud (Q-tip) over the decal 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.

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.

To 'knock back' the sheen of the decals and painted surfaces 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 (Q-tip) etc, to expel any water from under the decal. Once fully dry, decal softeners, such as 'MicroSol' and/or 'MicroSet' can be applied 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 have 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 one or more sealing coats of a clear gloss 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.

Soak each decal in warm decal water for **approximately 5 seconds only**, then lay the decal on a non-absorbent surface to allow the decal to separate from its backing sheet.

NOTE: *The surface should be pre-wet with 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.*

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 a cotton bud (Q-tip) 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 3D printed parts, as opposed to the normal plastic used.

The reason for resin kit/parts is that in the past, using resin made it possible to produce much finer detail on kit parts than the plastic kit equivalents. Today, there are many producers of resin kits, 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 or 3D printed kits may make kits to order or have 'limited' runs, although aftermarket parts are usually readily available. Working with resin or 3D prints does present different challenges to the modeller, especially if it's the first time of building using resin.

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 or 3D printed kits/parts from plastic (styrene) kits:

When resin kits are cast in their moulds or 3D printed, a cast release agent or residual print resin may be present on the surface of the kit/parts. These can prevent paint or adhesives from adhering to the surfaces. The easiest way to remove cast release agent is to carefully and fully wash all of the model parts in warm soapy water, using an old, soft tooth brush, then thoroughly rinse all of the parts and leave to dry. Alternatively wipe the parts with such as 'Tamiya' X20A thinners or with a commercially available Isopropyl Alcohol (90% or higher grade).

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 or from the 3D printed support 'trees'. The best way to remove item is to cut them away with a fine-toothed razor saw or single blade cutters, then clean off any residual stubs on the edges of the parts.

Once parts are removed from resin casts, they may 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. Print layer lines may be evident on 3D printed parts, which if possible, should be sanded away.

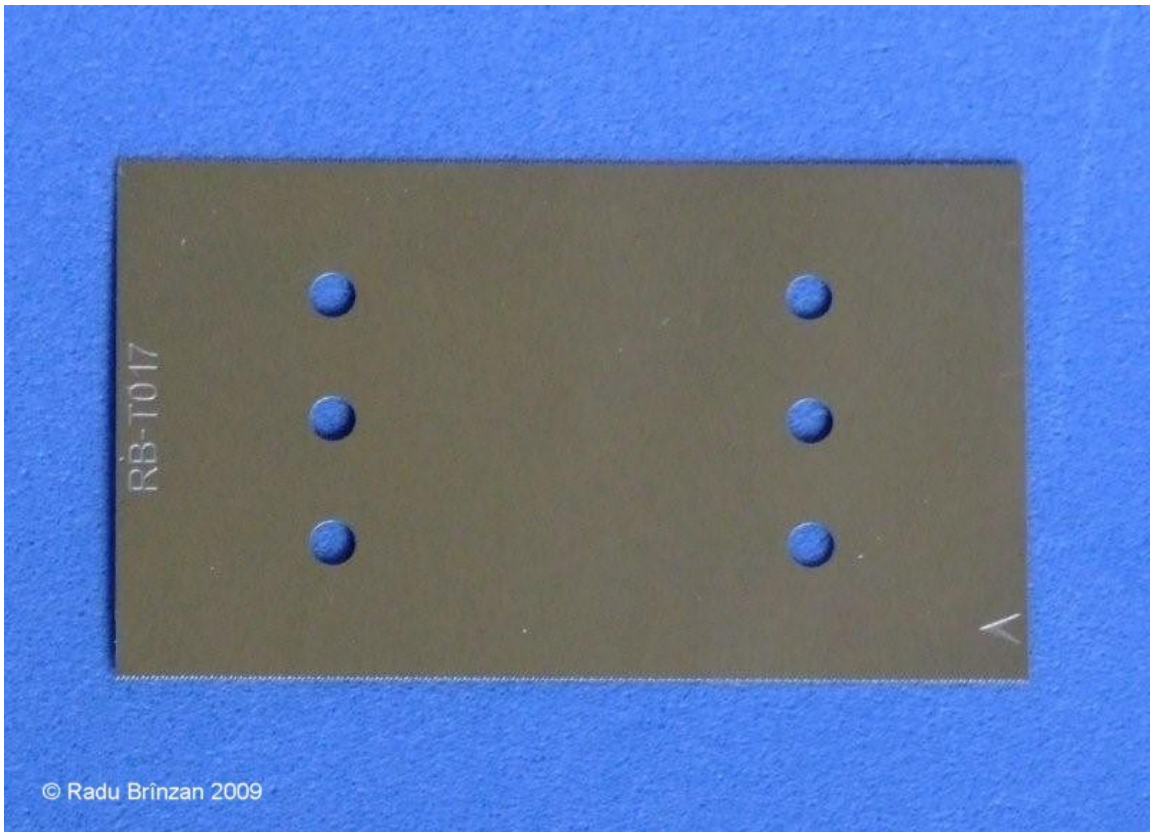
Plastic kits are assembled using solvent adhesives, which melt the surface where it is applied and 'weld' the joint together. Resin cast or 3D prints however will not react to this type of adhesive and can really only be glued using Cyanoacrylate (CA) adhesive. This adhesive reacts to moisture in the 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. It's always a good idea to have CA release agent available to use if necessary. Good ventilation is also advisable as the fumes from CA adhesive are noticeable and can irritate the eyes and lungs.

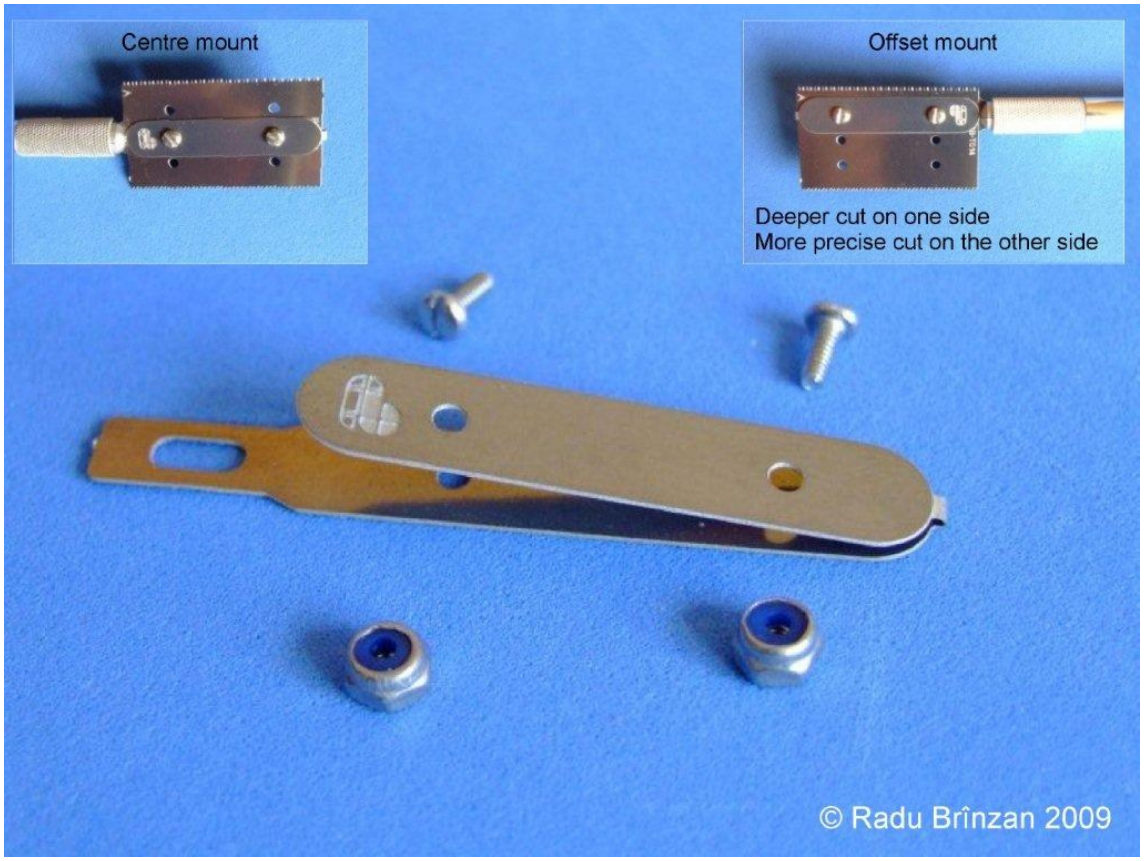
Cutting, sanding and drilling resin will create swarf and more importantly, resin dust. The dust is particular is dangerous, especially if inhaled. Therefore, always vacuum the working area and yourself, regularly. If you have a face mask or filtered respirator and find you can wear it whilst working, then do so. Some modellers wet the working surface to trap dust, although this is a messy method. 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 a problem, more so on some cast resin kits/parts. 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 can be 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.

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 modeller saw. The saw I use has a double sided and fine ’drag’ saw blade and with its holder, which was available from ’RB Productions’.





PART 6
RIGGING

PART 6 - RIGGING

References:
'Roden' kit instructions.
'Windsock' data file No.34 - Sopwith 1 1/2 'Strutter (J.M Bruce).
Various online resources (e.g. memorial-flight.com, albindenis.free.fr).

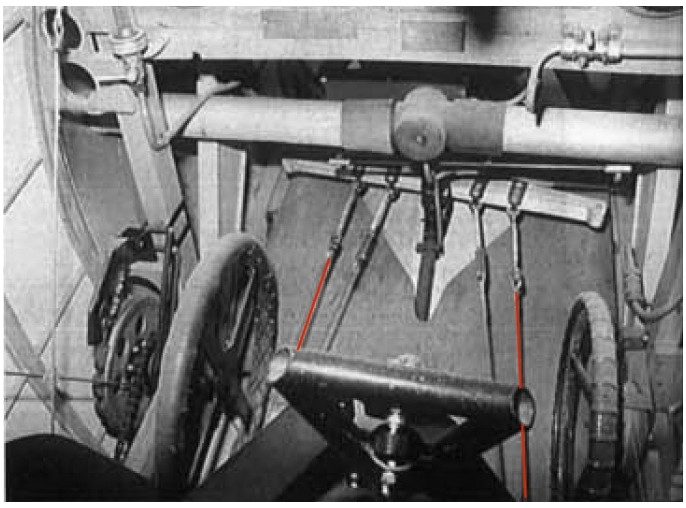
General:

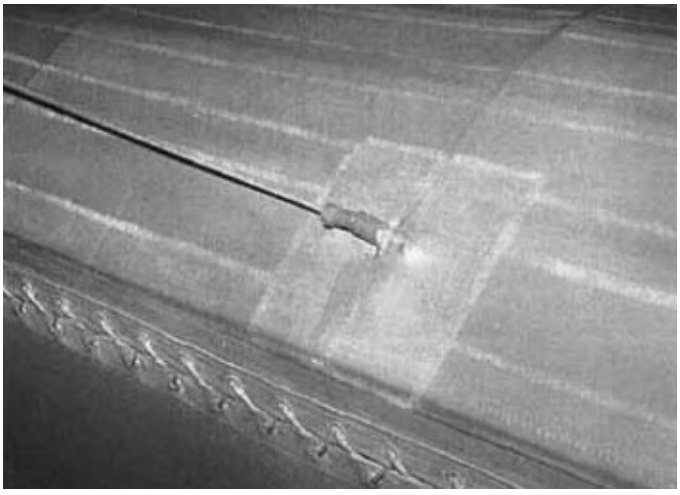
It's important to check where the various rigging attachment points are for this aircraft. Most models have these located on the model, but it's best to carry out research in reference books or research on line before drilling. Some modellers use micro drills manufactured for drilling printed circuit 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.
French aircraft used wire-wound rigging, as opposed to the British, who used streamlined solid rigging. Therefore, 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. Any turnbuckles used are either sintered metal or resin and can be obtained from such as 'Gaspatch Models' or 'Proper Plane'.

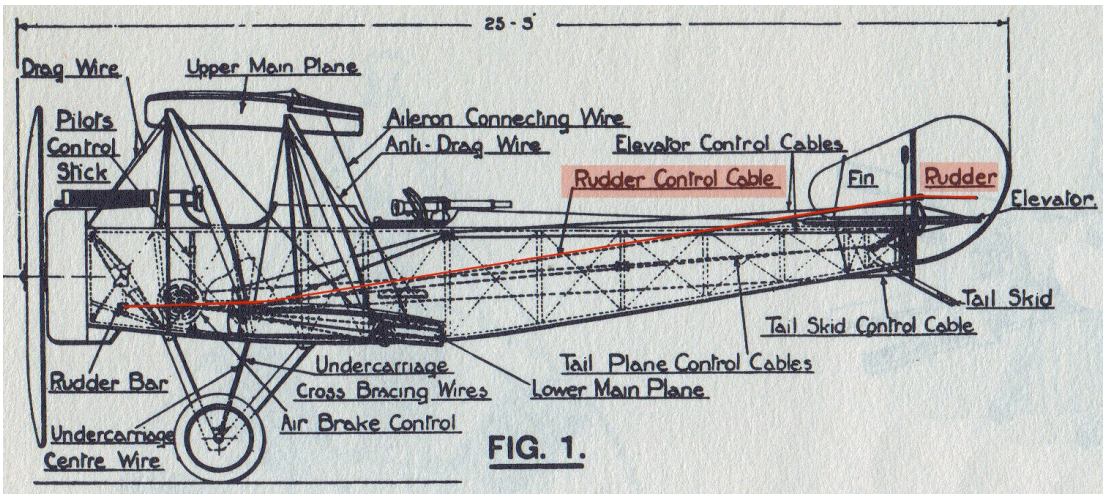
Control cables:

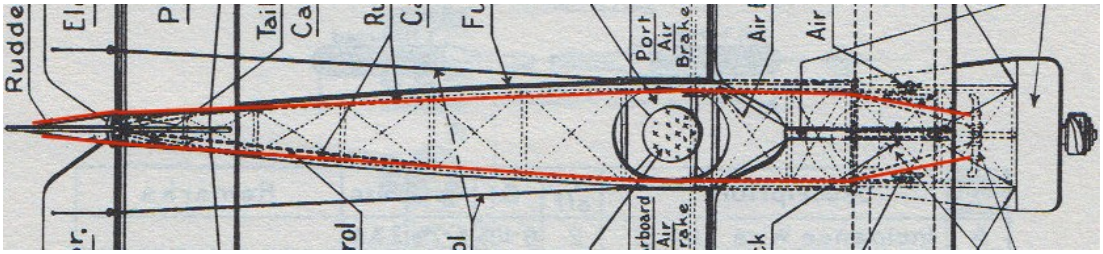
Rudder control cables:

A pair of rudder control cables were attached to the pilot's rudder bar and were routed rearwards through the fuselage . The cables exited the fuselage through ports in the top, rear of the fuselage. These cables were attached to the rudder control horns each side of the rudder. Wires from the rear of the control horns were routed rearwards and through the rudder. Turnbuckles were fitted at the rudder bar.
As the pilot pushed the rudder bar either left or right, the rudder was moved in the required direction causing the aircraft to turn (yaw).





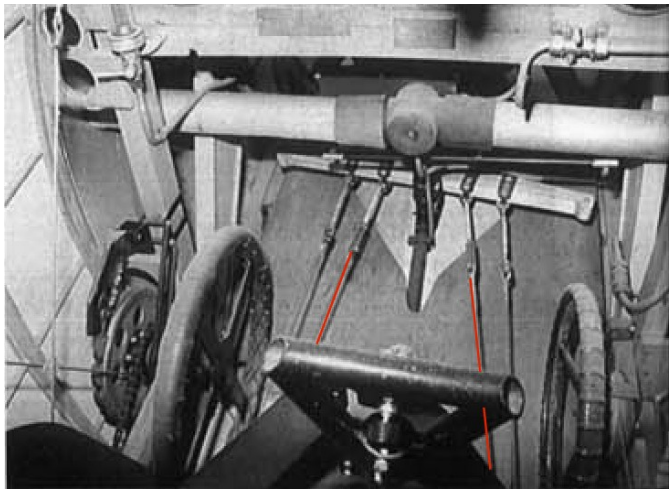




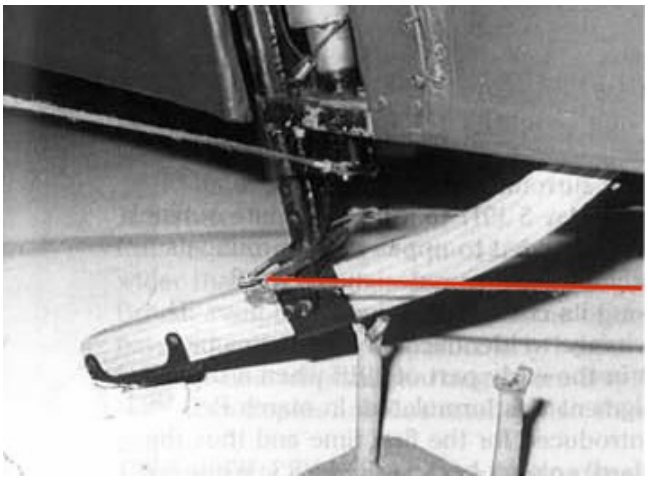
Tail skid control cables:

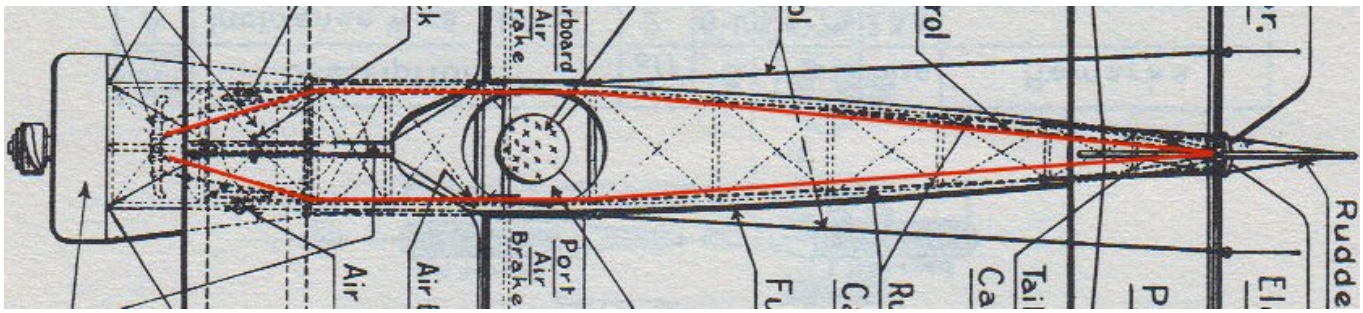
A pair of tail skid control cables were attached to the pilot's rudder bar and were routed rearwards through the fuselage . The cables exited the fuselage through ports in the underside, rear of the fuselage. These cables were attached to the tail skid control horns on the tail skid actuator. Turnbuckles were fitted at the rudder bar.
As the pilot pushed the rudder bar either left or right, the tail skid was moved in the required direction causing the aircraft to turn on the ground.

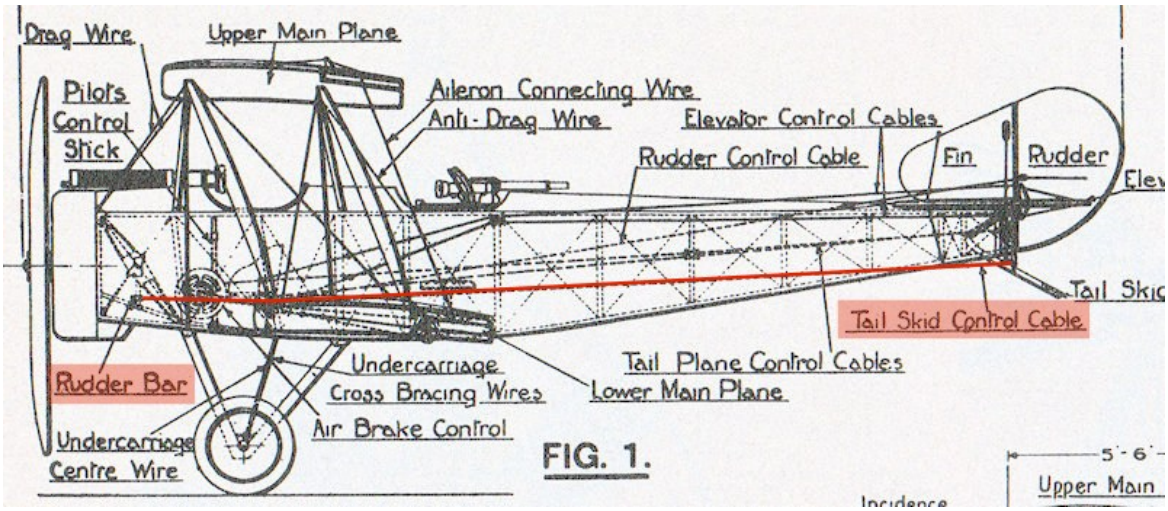
Cockpit



Exit from fuselage

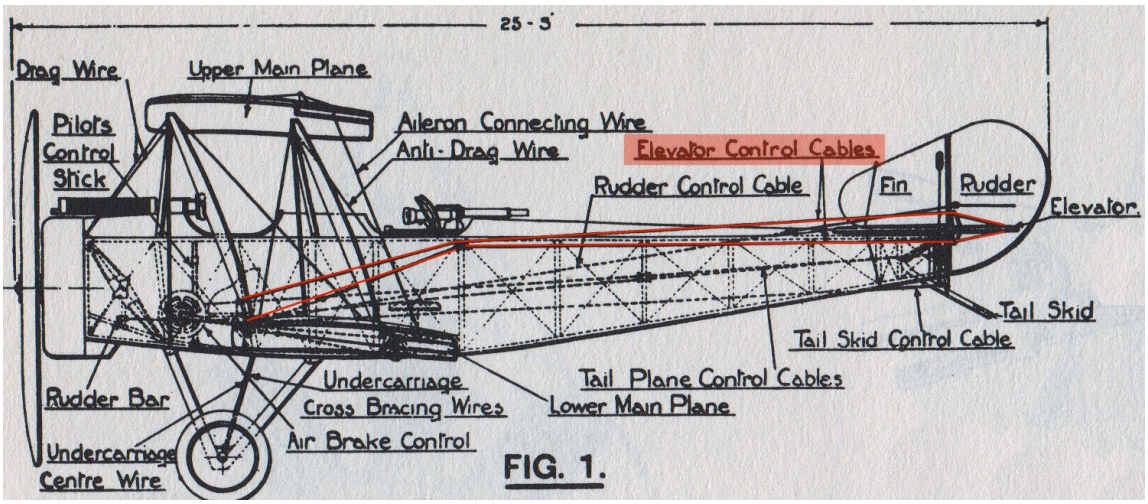


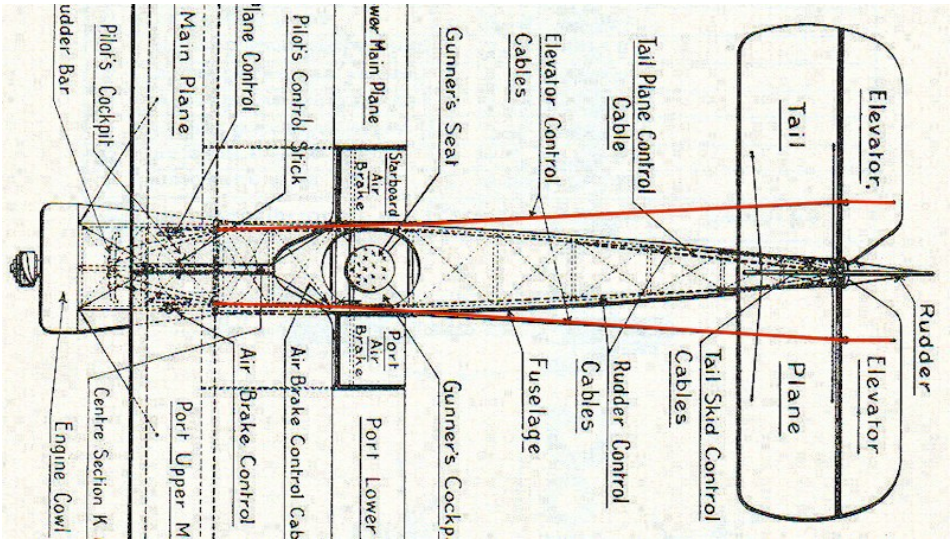




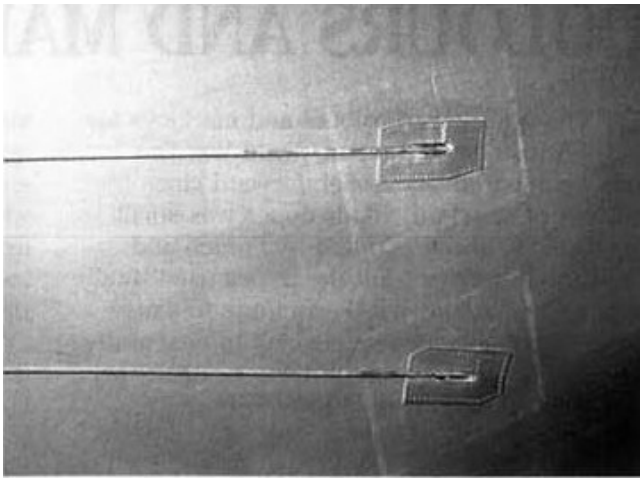
Elevator control cables:

The base of the pilot's control column was attached to a torque tube that was directed rearwards to under the pilot's seat. The rear end of the tube was attached to a second tube that was routed across the cockpit floor. At the ends of that tube were attached elevator control cable levers. Pairs of elevator control cables were attached to top and bottom ends of the control levers. The upper pair were routed rearwards and out the sides of the fuselage and continued rearwards to be attached to the elevator upper control horns. The lower pair of control cables were routed similarly but attached to the elevator underside control horns. An interconnecting cable from the upper and underside ends of the control horns were routed rearwards and through the elevators. Turnbuckles were fitted at the control levers in the pilot's cockpit.
As the pilot pulled rear or pushed forward the control column, the rear tube rotated and the cables caused the elevators to move up or down to cause the aircraft to climb or dive (pitch).

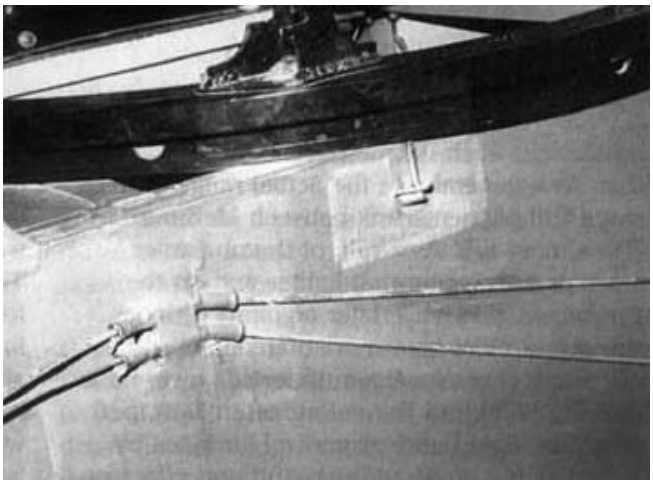




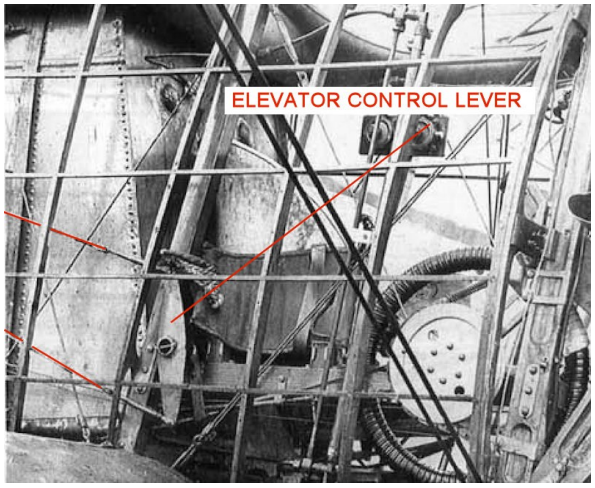
Exit from fuselage sides

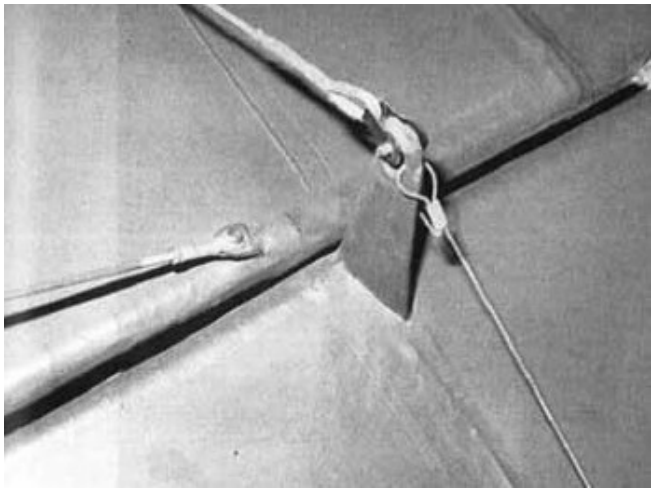


Cable attachment to fuselage sides

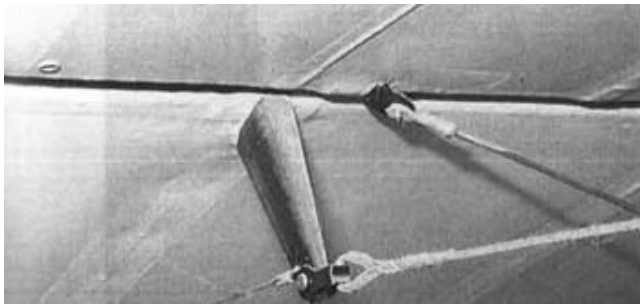


Top of elevators





Underside of elevators

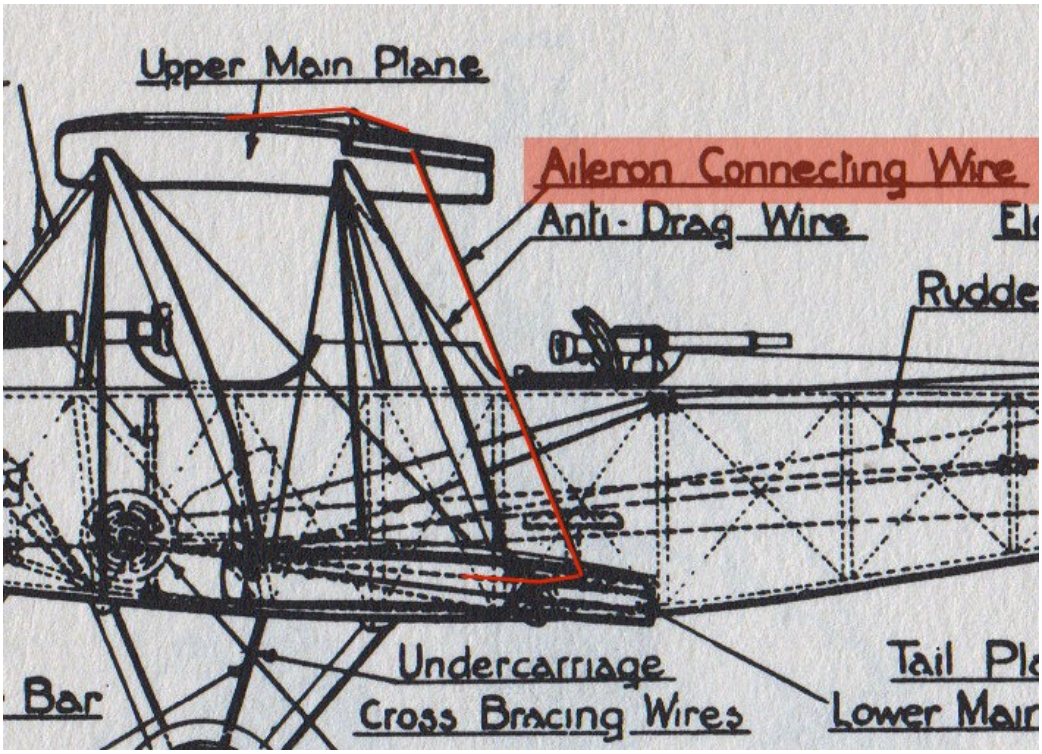


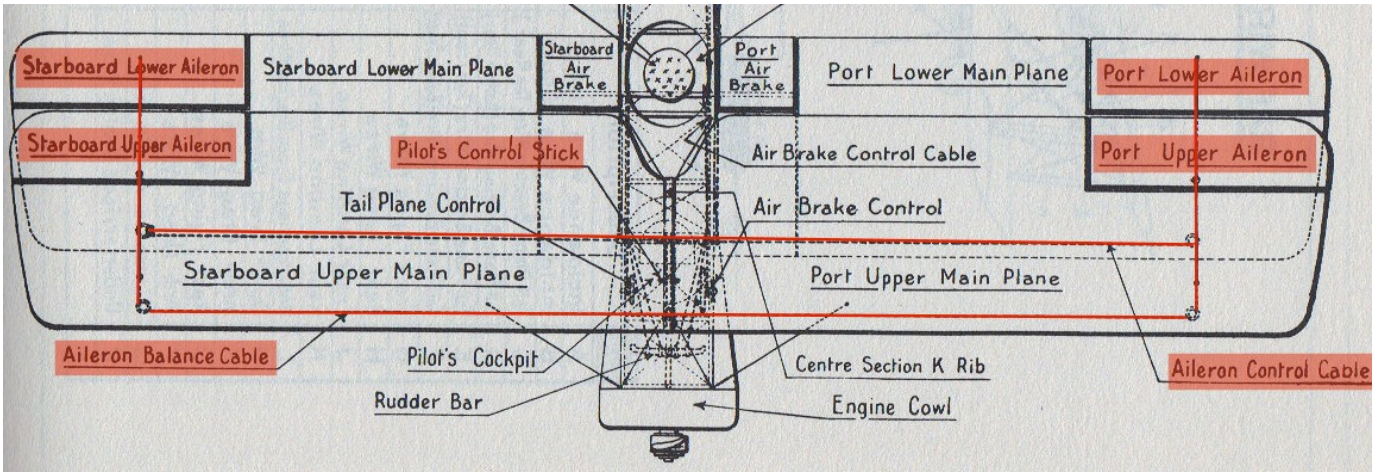
Aileron control cables:

NOTE: *As I could not find information for how the aileron control cables were configured in the cockpit, the following description is based on similar aircraft controls.*

The bottom of the pilot's control column was attached to left and right aileron control levers. A control cable was attached to each lever and were crossed (i.e. left lever connected to right wing cable and right cable to left wing). One of the cables was routed outboard through the lower wings and around a pulley towards the aileron on that side of the wing. The cable exited the underside of the lower wing and was attached to the underside aileron control horn. A second cable was attached to the control horn and was routed rearward and through the aileron and then up between the lower and upper wing and though the upper wing aileron to its upper control horn. A third longer cable (balancing cable) was attached to the control horn and routed forward and into the upper wing, where it was turned around a pulley and across to the other side of the upper wing.

Again, it was routed around a pulley and routed rearward and out of the upper wing to the aileron control horn. A fourth cable was attached to the control horn a routed rearward and down though the aileron, between the wings, through the lower aileron and was attached to the underside aileron control horn. The final cable was attached to that control horn and routed forward into the lower wing, around a pulley and across the wing and into the cockpit, where it was attached to the opposite aileron control lever. This formed a push/pull cable loop. Turnbuckles were probably fitted in the cables at the control levers and aileron control horns.
The pilot moving the control column left would intend to bank the aircraft left. The right cable would be pulled into tension and the left cable would relax. This would pull down the ailerons on the right side and pull up the ailerons of the left side, causing the aircraft to bank (roll) left. The opposite would occur if the control, column was moved to the right. The ailerons were balanced and would self-align to the wings when the control column was centralised.



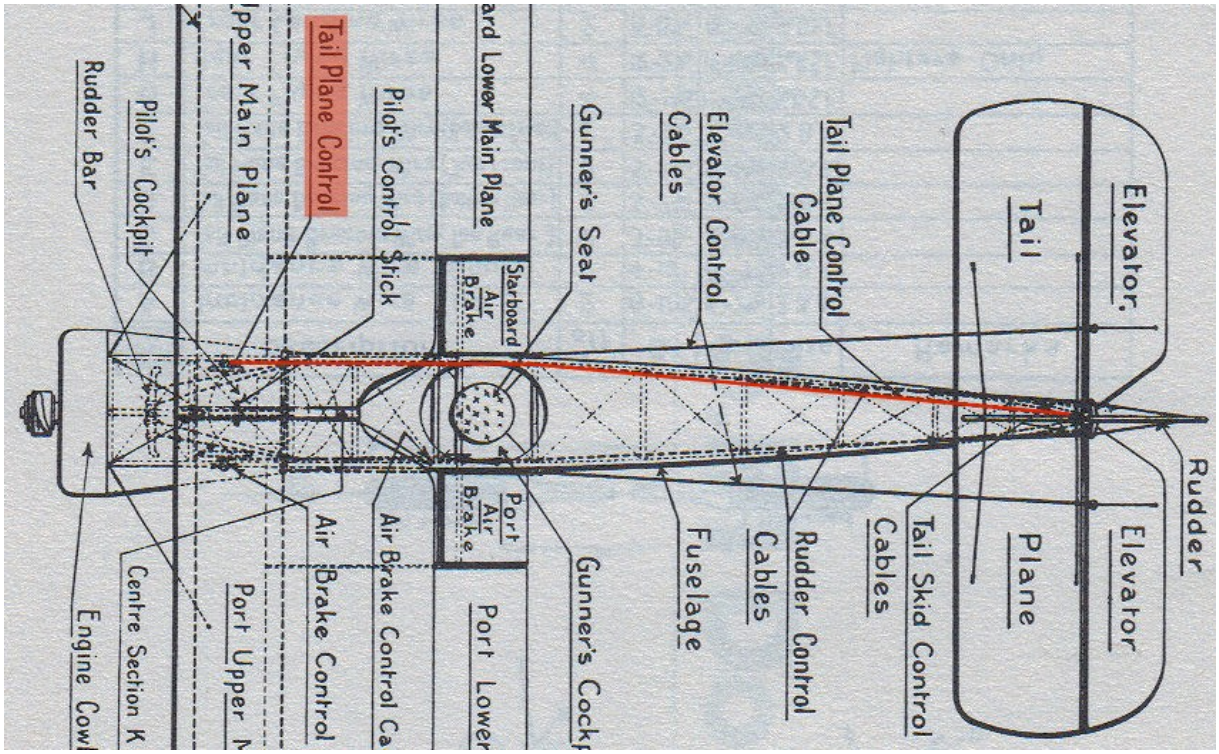


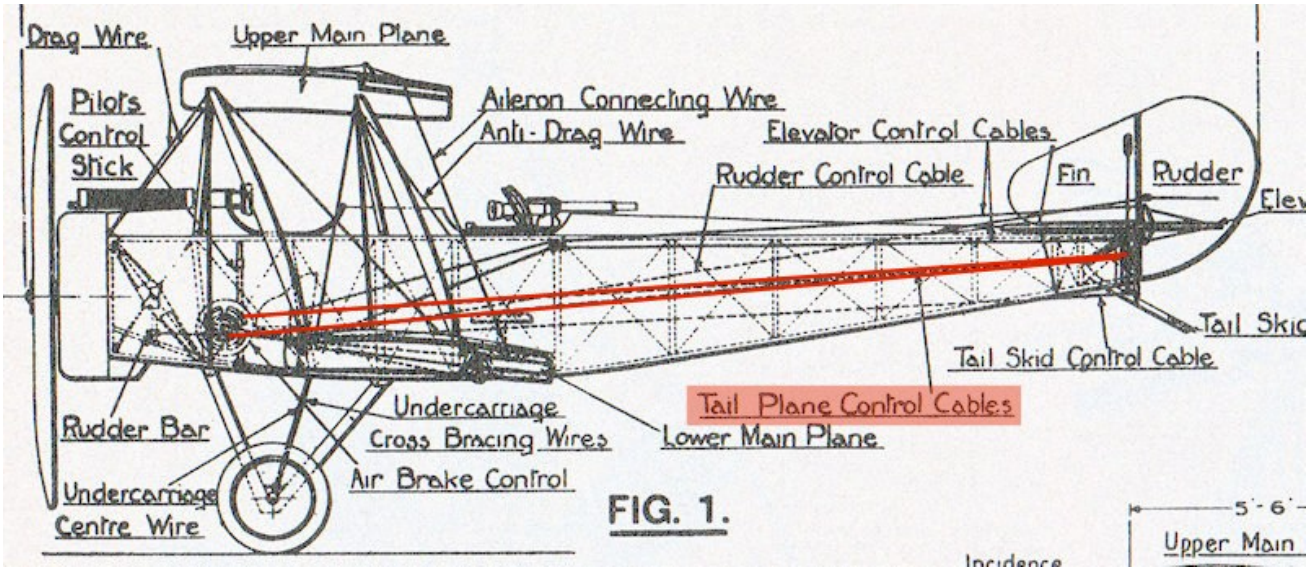
Tailplane incidence control cables:

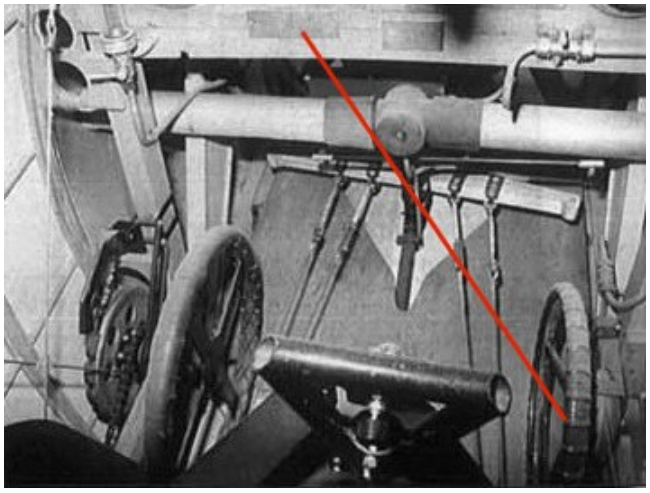
NOTE: *The front spar of the tailplane was hinged to the rear fuselage. A worm gear, actuated by a set of cables linked to a handwheel in the cockpit, allowed the pilot to change the angle of the entire tailplane in order to better trim the aircraft in flight.*

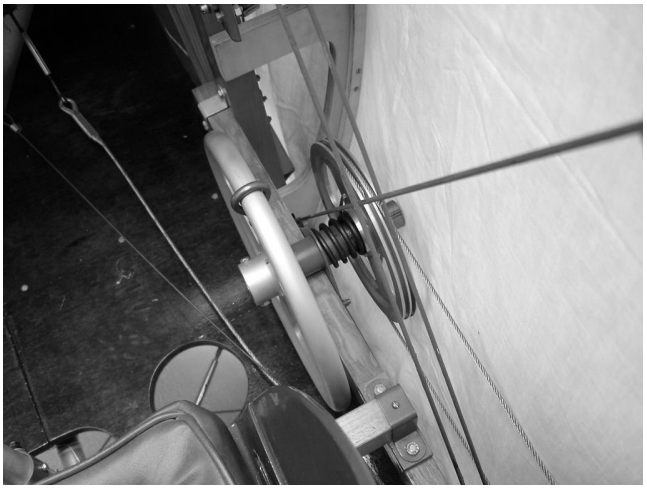
A large hand wheel was fitted to the right-side cockpit frame and outboard from the wheel was a dual grooved pulley. Operating cables were routed around the grooves in the pulley and were routed rearwards through the fuselage to the worm gear mechanism at the tailplane.

As the pilot rotated the handwheel forward or rearward, the cables would operate the worm gear mechanism to either lift or lower the hinged tailplane from the fuselage. Turnbuckles were probably fitted to the cables within the fuselage.





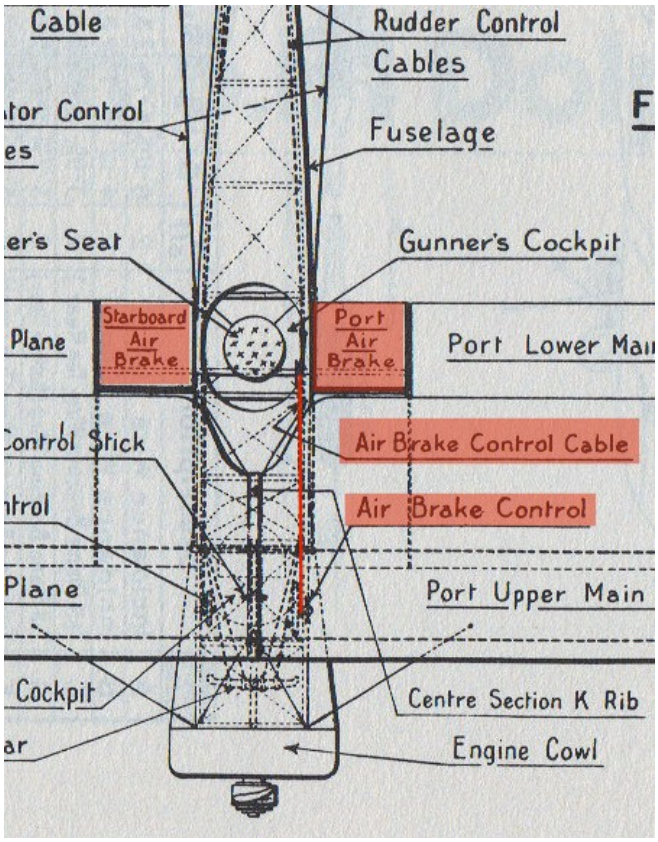


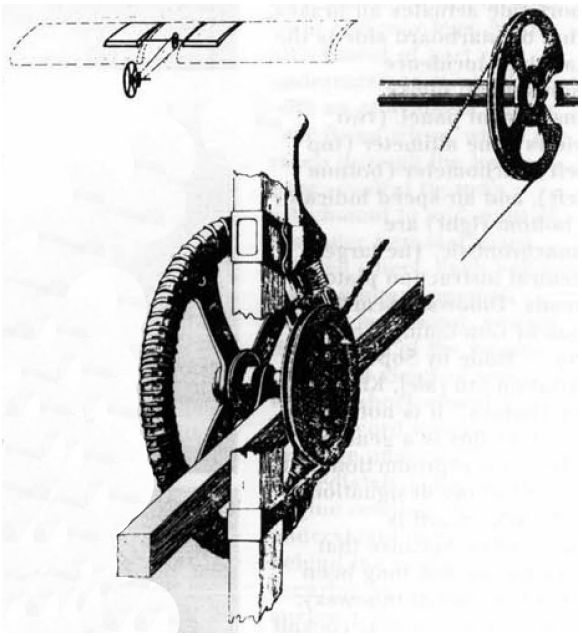


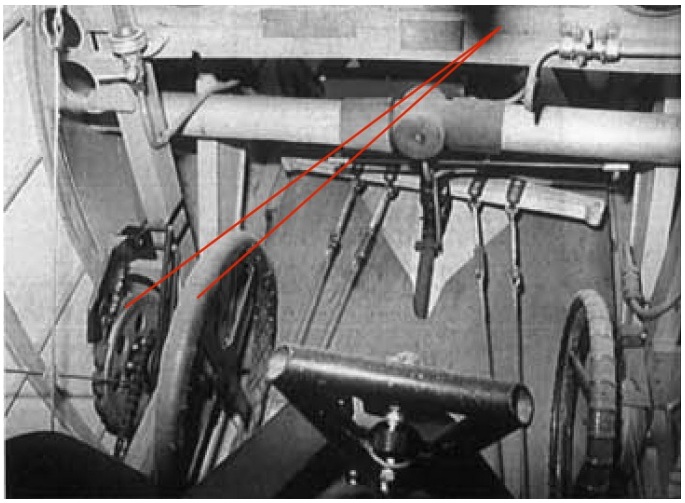
Airbrake control cables:

NOTE: *This aircraft was fitted with airbrakes, which were moveable panels fitted at the inboard trailing edges of the lower wings.*

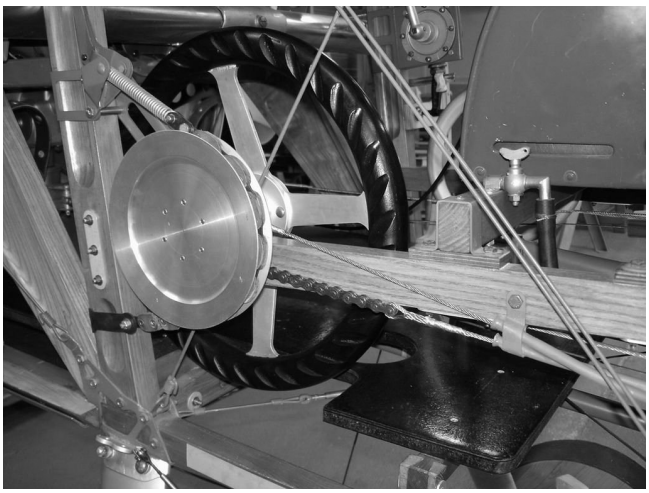
A large hand wheel was fitted to the left side cockpit frame and outboard from the wheel was pulley and outboard from that a cog wheel with an associated sprung loaded locking latch. Around the pulley was a chain on the ends of which were attached the airbrake operating cables. The operating cables were routed rearwards and attached to each side of an operating pulley. That pulley was fixed to the airbrake operating torque tube, which spanned across the cockpit and into the leading-edges of both airbrakes. Turnbuckles were fitted in the operating cables at the chain ends.
The pilot deployed the airbrakes by rotating the handwheel which in turn rotated the operating pulley to turn the airbrake torque tube and operate the airbrakes. The airbrakes could be locked by the pilot operating the latching lever, which engaged in the locking cog to lock the airbrakes in position.



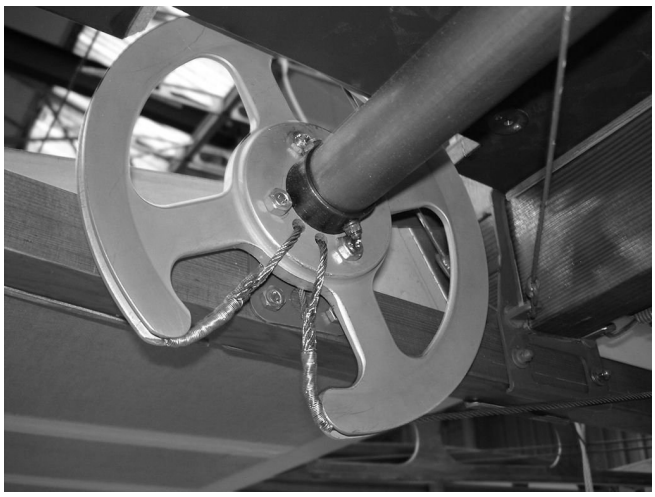




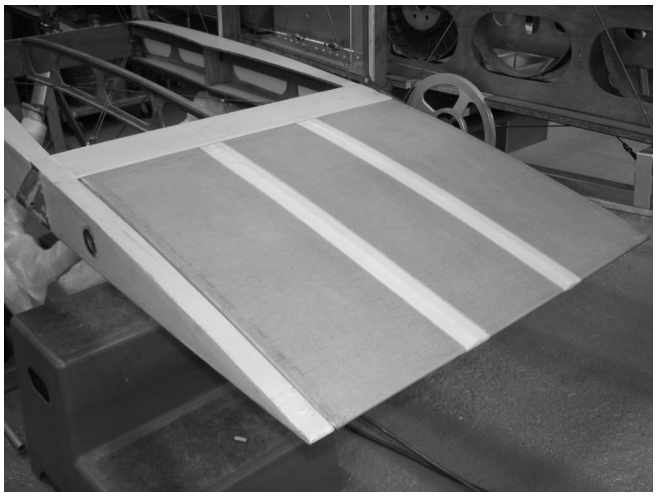
Pilot's handwheel and pulley



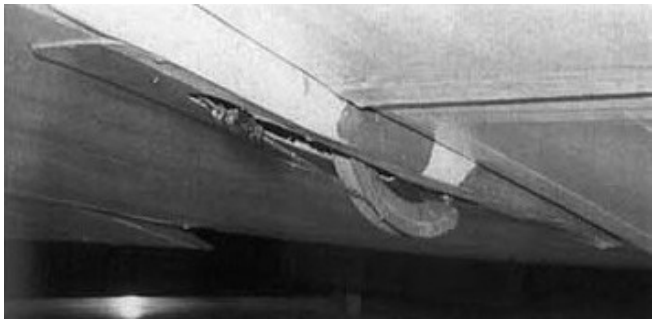
Operating pulley



Left side airbrake



Exposed operating pully



Example of deployed airbrakes

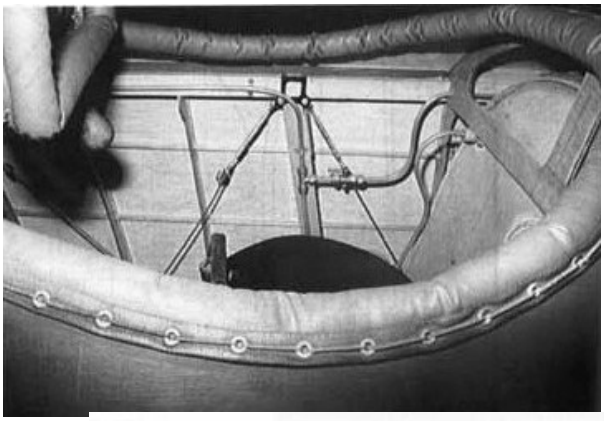
Primary wires:

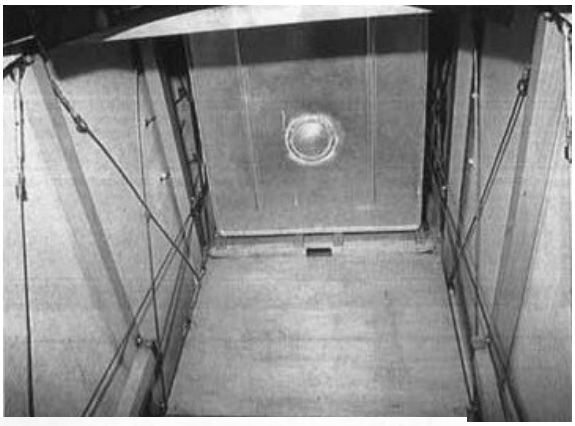
NOTE: *The primary rigging, such as flying wires, landing wires and bracing wires, were of the solid forged streamlined type, not wire wound cables and so had specific end fitting adjusters, not turnbuckles.*

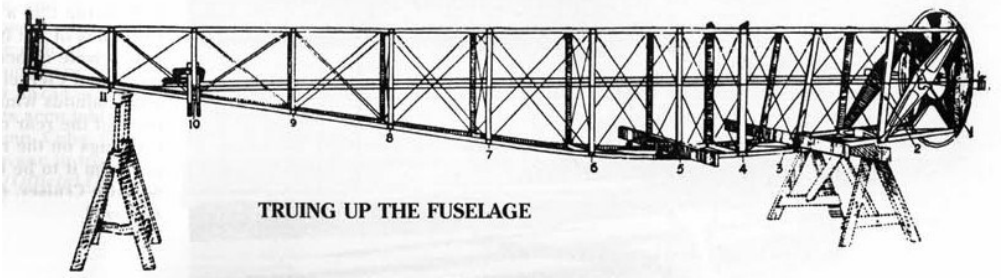
Cockpit bracing wires:

NOTE: Although *internal bracing wires were fitted in the fuselage, not many would be seen from the cockpit on the completed model. Therefore, only some bracing wires will be fitted into the fuselage of the model.*

Fuselage bracing wires were fitted in each frame bay along the fuselage and were diagonally crossed between the corners of the bays. Crossed bracing wires were also fitted at the rear of the observer/ gunners cockpit. Turnbuckles were fitted in the top ends of the wires.







TRUING UP THE FUSELAGE

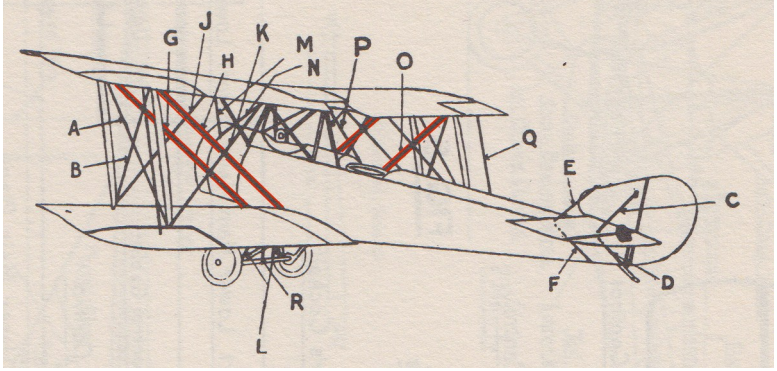
Flying wires:

Forward flying wires:

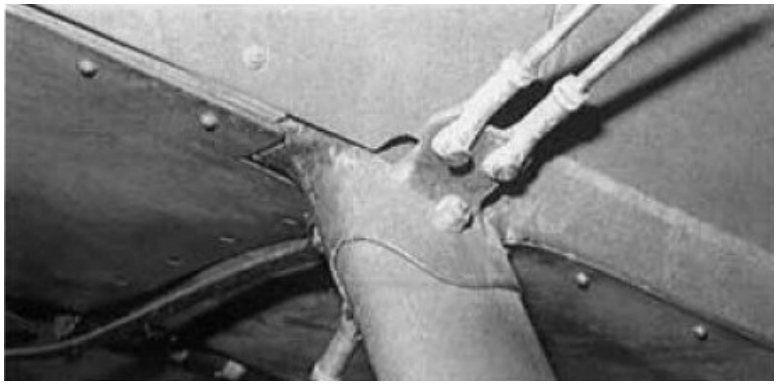
A pair of flying wires were fitted to both sides of the aircraft. They were attached to the underside of the upper wing, inboard from the top of the forward interplane struts. The wires were routed diagonally down and were attached to the outboard tops of the landing gear forward struts. Turnbuckles were fitted at the landing gear struts.

Rear flying wires:

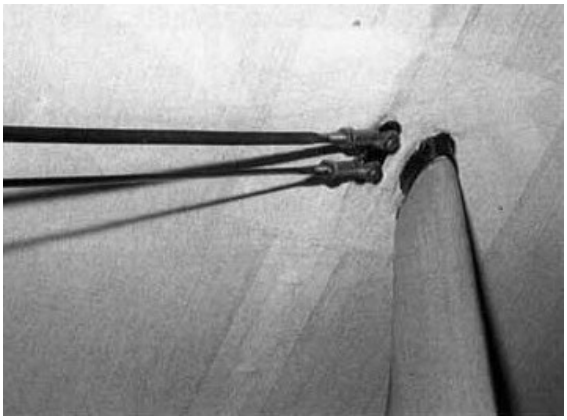
A pair of flying wires were fitted to both sides of the aircraft. They were attached to the underside of the upper wing, inboard from the top of the rear interplane struts. The wires were routed diagonally down and through the lower wing roots and attached to the inboard tops of the landing gear rear struts. Turnbuckles were probably fitted at the interplane struts as there was restricted access at the lower wings.



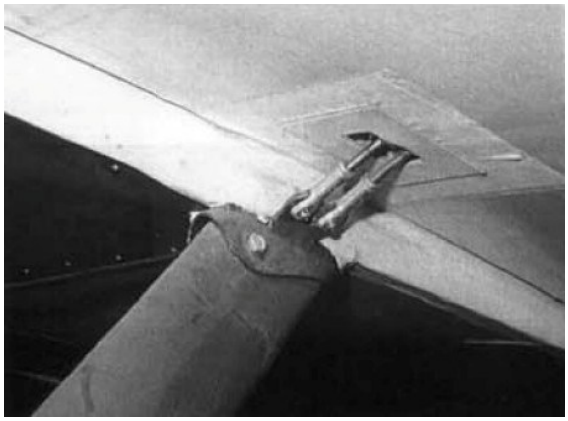
Forward flying wires to landing gear struts



Forward flying wires to upper wing



Rear flying wires to landing gear struts



NOTE: *These particular photographs show the British 'streamlined' wires, not the wire wound used on French aircraft.*

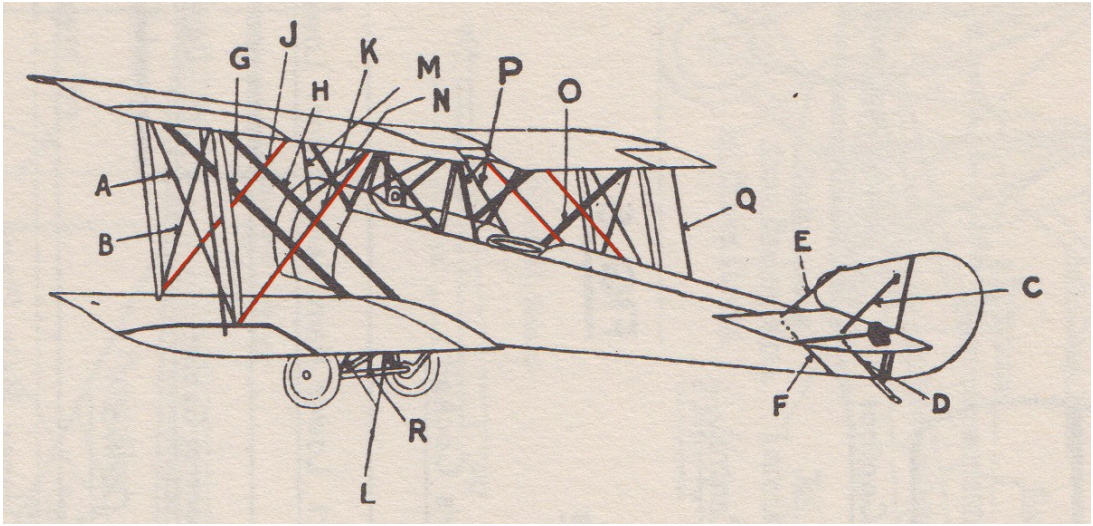
Landing wires:

Forward landing wires:

A single landing wire was fitted to both sides of the aircraft. They were attached to the top of the lower wings, inboard from the bottom of the forward interplane struts. The wires were routed diagonally up and were attached to the underside of the upper wing, outboard from the tops of the forward, outer cabane struts. Turnbuckles were fitted at the interplane struts.

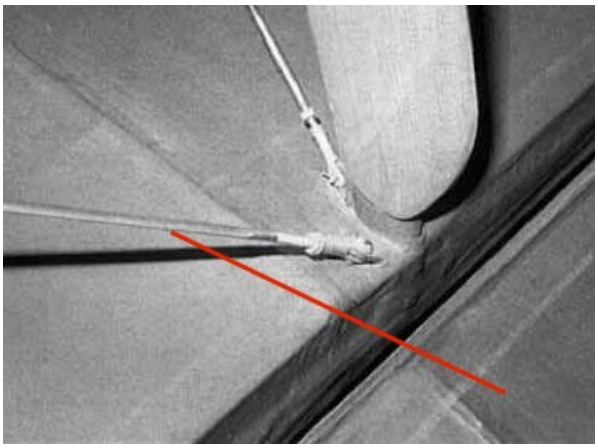
Rear landing wires:

A single landing wire was fitted to both sides of the aircraft. They were attached to the top of the lower wings, inboard from the bottom of the rear interplane struts. The wires were routed diagonally up and were attached to the underside of the upper wing, outboard from the tops of the rear, outer cabane struts. Turnbuckles were fitted at the interplane struts.



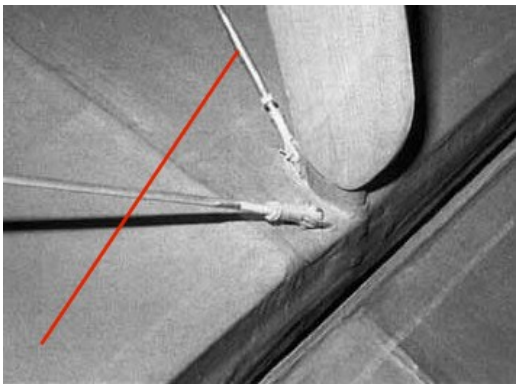
NOTE: *The following photographs show the British 'streamlined' wires, not the wire wound used on French aircraft.*

Landing wire at lower wing



Interplane strut incidence wires:

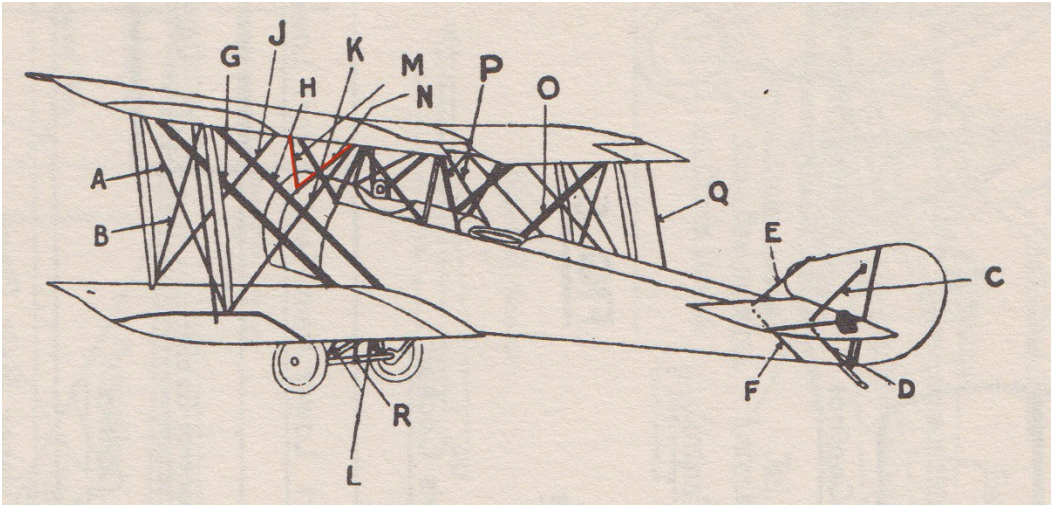
Two diagonally crossed incidence wires were fitted between the interplane struts on both sides of the aircraft. The tops of the wires were attached to the underside of the upper wing, forward from the rear strut and at the rear of the forward strut. The bottoms of the wires were attached to the lower wings, forward from the rear strut and at the rear of the forward strut. Turnbuckles were fitted at the bottom of the interplane struts.



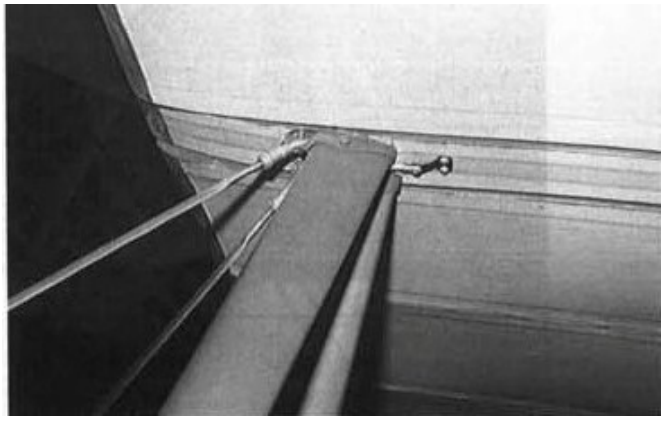
Forward drag wires:

NOTE: *Drag wires were fitted to stabilize the upper wing and prevent unnecessary movement during flight.*

Two drag wires were fitted on both sides of the aircraft. The wires were attached to the fuselage at the upper, rear of the engine cowl. One wire was routed up and back to the underside of the upper wing at the join of the two forward, inner cabane struts. The second wire was routed up and out to the underside of the upper wing, inboard from the top of the forward, outer cabane strut. Turnbuckles were probably fitted at the engine cowl ends of the wires.



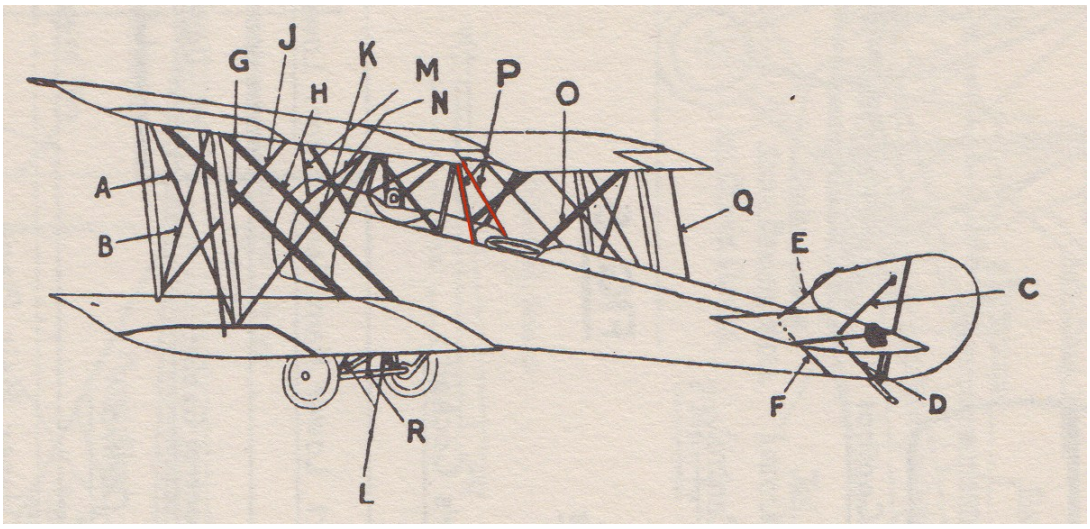
NOTE: *The following photographs show the British 'streamlined' wires, not the wire wound used on French aircraft.*

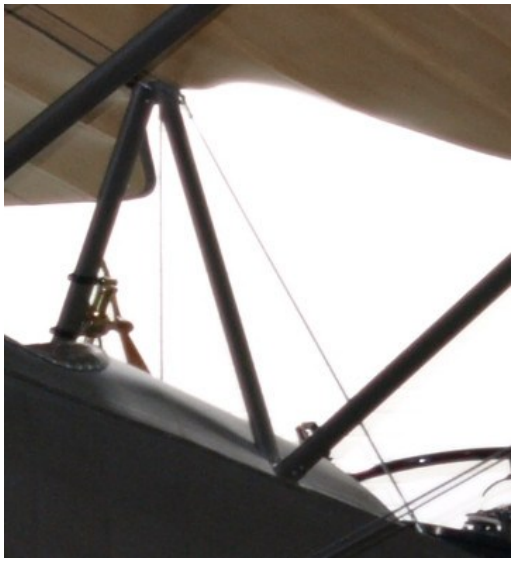


Rear anti-drag wires:

NOTE: *Drag wires were fitted to stabilize the upper wing and prevent unnecessary movement during flight.*

Anti-drag wires were fitted to the fuselage at the forward, outer edge of the observer/gunner cockpit. The two wires were routed diagonally up and attached to the underside of the upper wing, at the join of the two rear, inner cabane struts. The wires were sheathed presumably to protect the crew when boarding. Leaving the aircraft. Turnbuckles were probably fitted at the engine cowl ends of the wires.





Landing gear bracing wires:

Forward bracing wires:

Two landing gear bracing wires were fitted between the inboard tops of the landing gear forward struts. The wires were routed diagonally down and crossed to be attached to the outer, forward ends of the axle *fairing. Turnbuckles were fitted at the lower ends of the wires.*

Rear bracing wires:

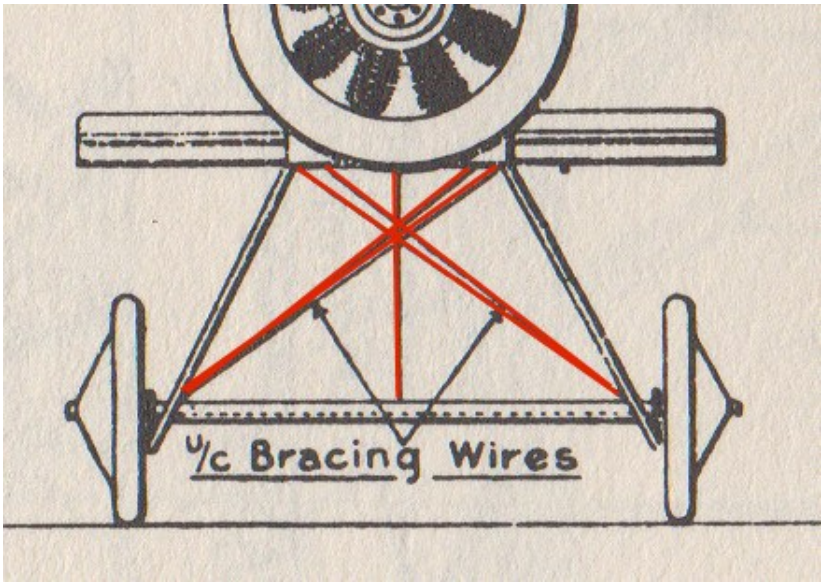
Two landing gear bracing wires were fitted on the underside edges of the fuselage, between the forward and rear landing gear rear struts. The wires were routed diagonally down and crossed to be attached to the outer, rear ends of the axle fairing. Turnbuckles were fitted at the lower ends of the wires.

Centre bracing wire:

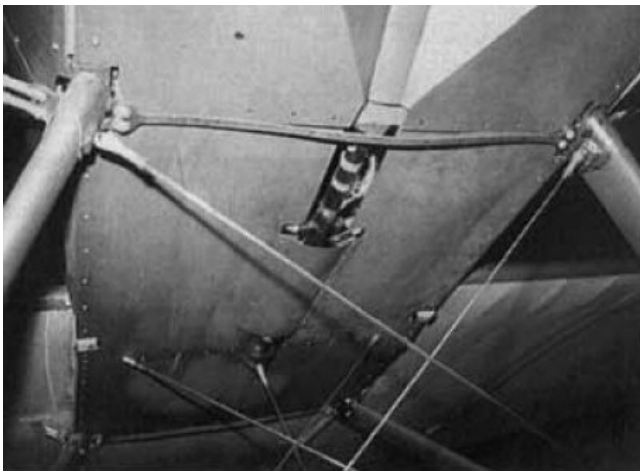
A single bracing wire was fitted centrally on the underside of the fuselage between the tops of the landing gear rear struts. The wire was routed diagonally down and forwards to be attached to the centre of the axle fairing. A turnbuckle was fitted at the top end of the wire.

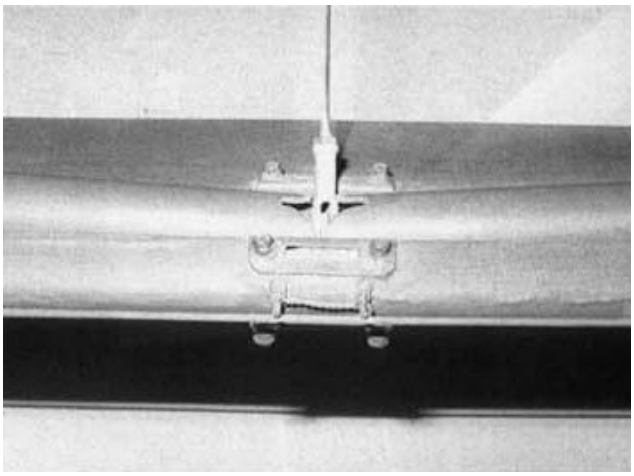
Tie cable:

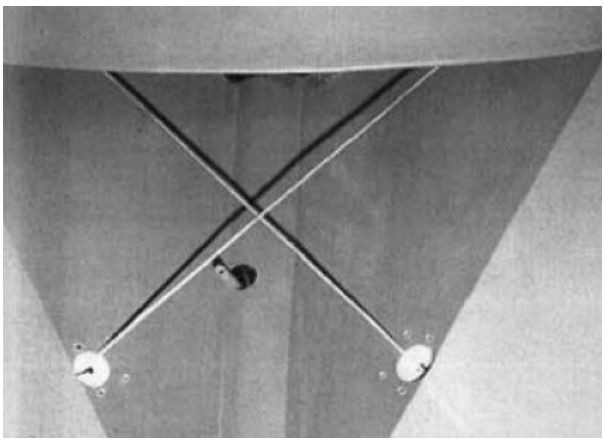
A single tie cable was fitted across the underside of the fuselage, between the inboard tops of the landing gear rear struts. A turnbuckle was fitted centrally in the wire.



NOTE: *The following photographs show the British 'streamlined' wires, not the wire wound used on French aircraft.*







Under shield bracing wires:

Two diagonally crossed bracing wires were fitted in the underside of the fuselage in the under shield, which was at the rear of the engine cowl.

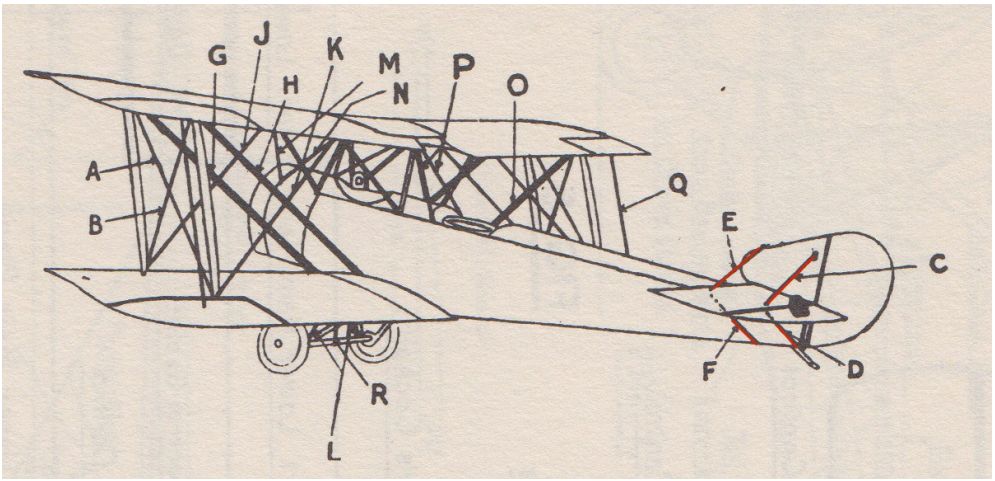
Fin bracing wires:

Forward bracing wires:

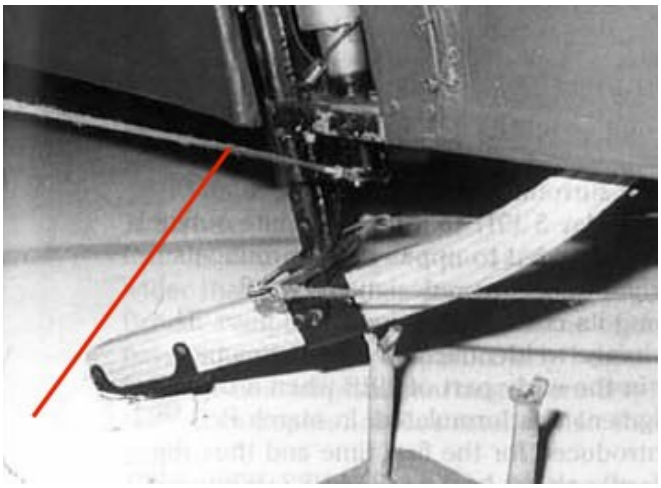
Two bracing wires were fitted between the top of the fin and down diagonally to be attached to the top of the tailplanes, rear of the leading-edges. Two more wires were fitted to the underside of the tailplane and were routed diagonally down to the bottom edge of the fuselage rear. Turnbuckles were probably fitted at the tailplane end of the wires.

Rear bracing wires:

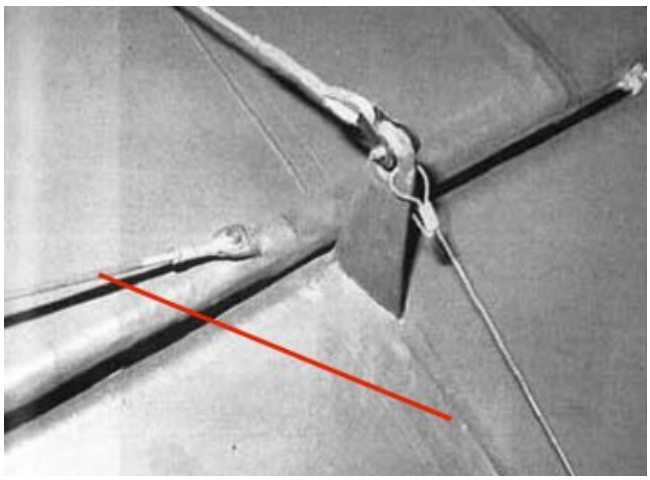
Two bracing wires were fitted between the trailing edge of the fin and the trailing edges of the tailplane. Two more wires were fitted between the underside of the tailplanes trailing edges and were routed diagonally down to the bottom rear of the fuselage rear, below the tail skid actuator. Turnbuckles were probably fitted at the tailplane end of the wires.



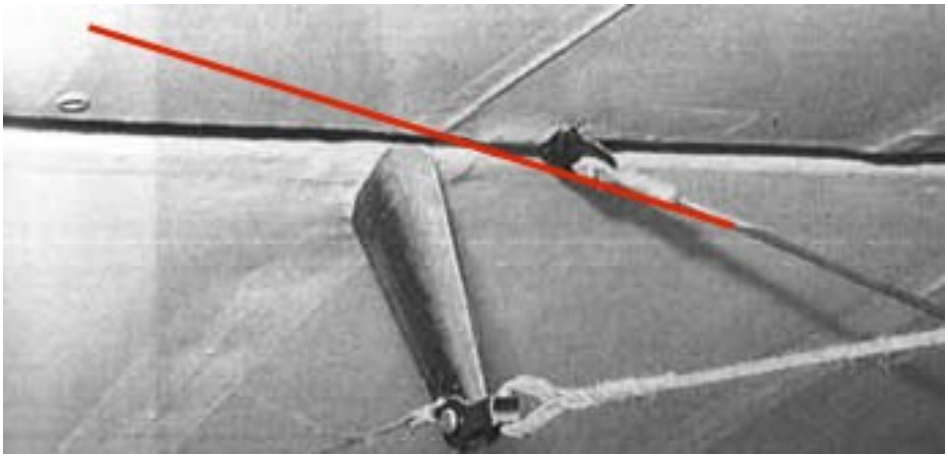
Underside rear bracing wire



Top rear bracing wire

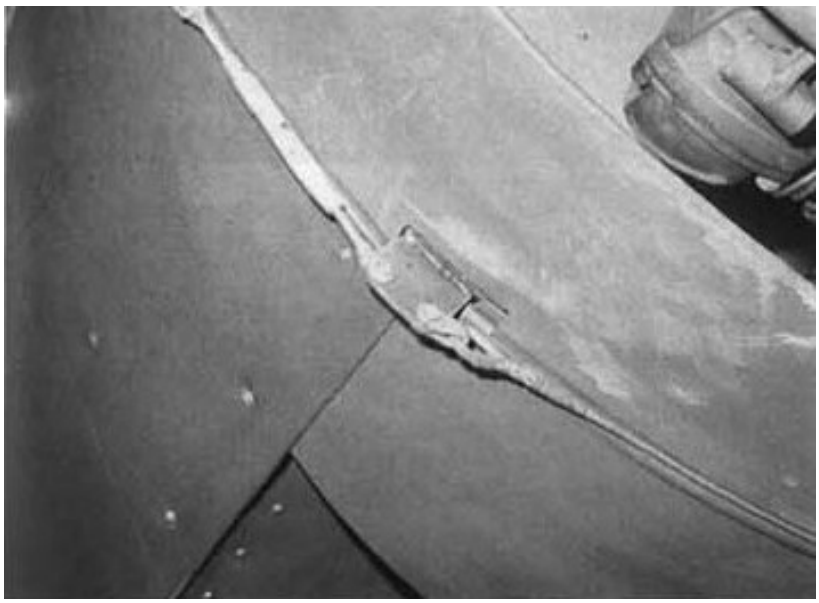


Underside rear bracing wire



Engine cowl retaining cable:

The rear of the circular engine cowl was held on the fuselage by a retaining cable. This cable was attached to both sides of an anchor, which was secured to the right side of the cowl at the corner of the under cowl. The retaining cable was routed around the rear edge of the engine cowl in a circumferential groove. A turnbuckle at the top of the anchor tightened the cable sufficiently to hold the cowl on the fuselage.



PART 7
ENGINE

PART 7 - ENGINE

References:

'Roden' kit instructions.
'Windsock' data file No.34 - Sopwith 1 1/2 'Strutter (J.M Bruce).
Various online resources (e.g. memorial-flight.com, albindenis.free.fr).

Preparation:

General:

Remove all of the parts as and when required from their runners.

File, sand or scrape away any mold seam lines or residual sprue gate stubs around the parts before any assembly is attempted.

Assembly:

NOTE: *The basic construction of the engine follows step 8 of the kit instructions.*

Cement the engine halves (6E and 7E) together, making sure the halves are aligned correctly.

NOTE: *During the following step, I found it best to drill out the cylinder head locating holes in the cylinders to 2.2 mm diameter, to allow the cylinder heads to better locate.*

Cement the cylinder heads (5E) into the tops of the engine cylinders, making sure the small rectangular lugs are facing the rear of the engine cylinders.

Cement the intake manifolds assembly (9E) over its circular location on the rear of the engine, making sure the tops of the manifolds locate and are cemented around the small rectangular lugs on the cylinder heads.

Cement the push rods assembly (8E) over its circular location on the front of the engine, making sure the tops of the push rods locate and are cemented against the front of the rocker arms on the cylinder heads.

Cement the engine locating spigot (3E) fully into its location hole in the engine bulkhead (1F), on the raised shoulder side of the bulkhead.

Cement the end piece (2E) centrally onto the end of the protruding spigot at the rear of the bulkhead, making sure the hole in the end piece is located against the spigot.

Painting:

Airbrush the engine assembly with a gloss black, such as 'Tamiya' Gloss Black (X1) or similar.

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

Brush paint the engine intake manifolds with 'Mr. Metal Color' Copper (215) or similar.

Brush paint the cylinder push rods with 'Mr. Color' Super Metallic Iron 2 (203) similar.

Brush paint the bottom and top swivel joints of the push rods with 'Mr. Metal Color' Brass (219) or similar.

Brush paint the rocker arms on the cylinder tops with 'Mr. Metal Color' Dark Iron (214) or similar.

Use a cotton bud (Q-tip) to lightly buff a metallic finish to the engine push rods, intake manifolds and cylinder head rocker arms.

Brush 'AK Interactive' Kerosene (AK2039) over the engine assembly and cylinders.

Modifications:

NOTE: *I chose to replace the pre-molded spark plugs with metal tubes.*

Cut away the pre-molded spark plugs from each engine cylinder.

Using the witness marks as guides, drill holes of 0.5 mm diameter into the cylinder heads.

NOTE: *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.*

Cut nine short lengths of blackened 0.5 mm diameter tube, such as ‘Albion Alloy’s’ MBT05 or similar.

Cut nine long lengths of 0.2 mm diameter copper wire.

Slide a tube onto the end of each coper wire and secure in position using thin CA adhesive.

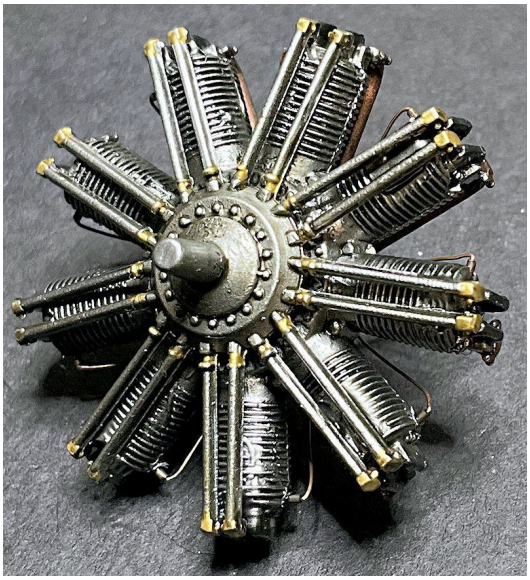
Insert a tube partly into each pre-drilled hole in the cylinder heads and secure in position using thin CA adhesive.

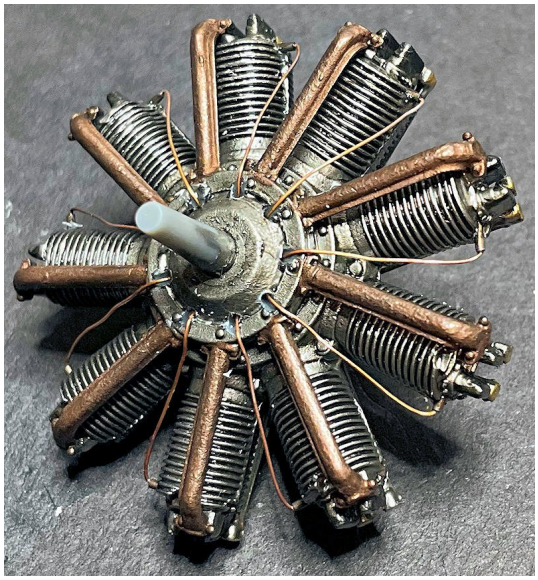
Point mark the rear circular location for the intake manifolds at the bottom of each manifold.

Using the point marks as guides, drill holes of 0.5 mm diameter into the circular location.

Cut the free ends of the wires such that they can be fully inserted into the pre-drilled holes.

Keeping the wires taut, secure the wires into the holes.





NOTE: *In the following step, the engine cowl used is the kit replacement ‘Aviattic’ engine cowl (ATTRES058 single cooling slot).*

Insert the rear engine shaft fully into the locating spigot on the engine bulkhead then locate the engine cowl over the engine onto the rim of the bulkhead.

Check that the engine cowl can be fully located without fouling the engine.

PART 8
PROPELLER

PART 8 - PROPELLER

References:
'Windsock' data file No.34 - Sopwith 1 1/2 'Strutter (J.M Bruce).
Various online resources (e.g. memorial-flight.com, albindenis.free.fr).

For this model I chose not to use the kit supplied propellers, but instead a wood laminated 'Waring and Gillow' propeller from 'Proper Plane' (WP-046). This propeller seems to be a match to those shown in the photographs.

Preparation:

Make sure the wooden propeller is perfectly smooth.

Carefully cut off the two supplied propeller bosses from their moulding block.

Sand the rear mounting faces to the correct thickness.

Brush paint the two propeller bosses with 'Mr. Metal Colour' Stainless Steel (213) and once dry, buff to a metallic sheen.

Decals:

NOTE: *There are no 'Waring & Gillow' propeller logo decals available. Therefore, I used similar decals from my 'spares' collection.*

Airbrush a sealing coat of clear gloss, such as 'Tamiya' Clear (X22) or similar, to provide a good surface for applying the decals.

Apply a kit supplied 'Niendorf' propeller logo decal (99) midway on the two propeller blades.

Airbrush a light semi-matte sealing coat over the propeller, such 'Tamiya' Semi Clear (X35) or similar.

Assembly:

Position the front boss onto the propeller and secure in position using CA adhesive.

Position the rear boss onto the propeller and secure in position using CA adhesive.

Brush both boss with 'AK Interactive' Kerosene wash (AK2039).

If desired, lightly sponge 'Tamiya' Weathering Master Set A (Sand) along the leading-edges of the propeller to simulate dirt and impact wear.

PART 9
WEAPONS

PART 9 - WEAPONS

References:
'Windsock' data file No.34 - Sopwith 1 1/2 'Strutter (J.M Bruce).
Various online resources (e.g. memorial-flight.com, albindenis.free.fr).

For this model I chose not to use the kit supplied weapons, but instead the 'Gaspatch' 1:32nd scale Vickers Mk.1 (18-32126).

NOTE: *The pilot's Vickers machine gun on British Sopwith 'Strutters' was positioned on the decking panel directly in front of the pilot. To prevent head injuries if the aircraft crashed, a padded rear gun mount was fitted on the rear of the weapons breach block. However, the French built 'Strutters' had the weapon mounted on the decking panel, but to the left of the cockpit, presumably to lessen the chance of any head injuries during a crash. Consequently, the padded rear gun mount was deemed to be unnecessary and was not fitted.*

Vickers machine gun:

NOTE: *The kit supplied padded rear gun mount (23G) is not required for this particular build.*

Modification:

File or sand away the front and rear gun mounts on the underside of the breach block (not required).

NOTE: *The Vickers machine gun was fitted with a scoop blast deflector under the muzzle.*

Cut a piece of 'VMS' WFU Modelling Paper and soak in 'VMS' Paper Shaper. Apply onto the front, underside of the cooling jacket/muzzle. Allow to fully dry and set, then gently sand the edges to for a scoop.

Fuselage decking panel:

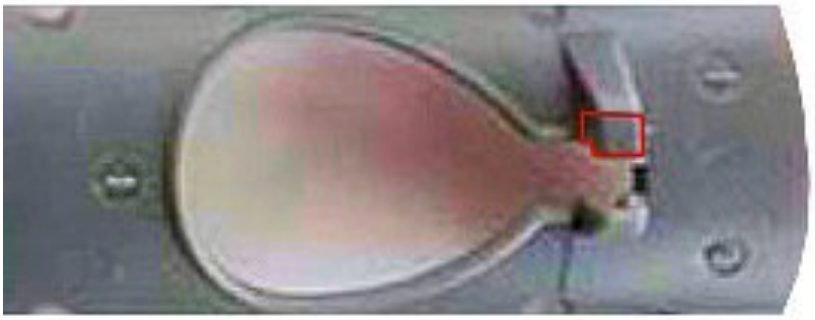
NOTE: *The kit supplied cockpit decking panel (I) requires modification to allow the 'Gaspatch' Vickers Mk.1 machine gun to be fitted.*

Preparation:

Remove the cockpit decking panel from its mold gate and remove any residual gate tags and flash from the edges.

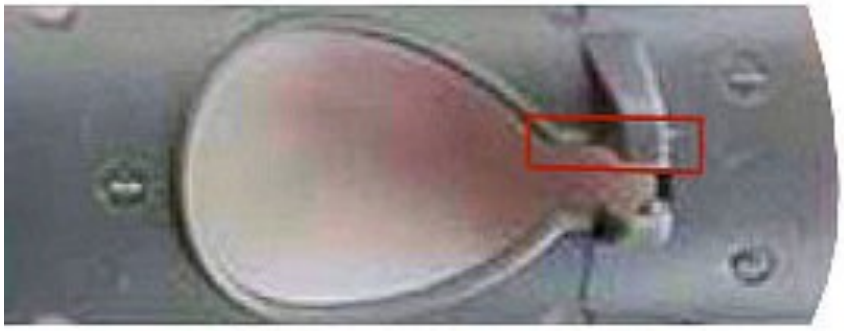
Modification:

Refer to the following photograph and carefully cut out the inboard end of the left, empty rounds chute.

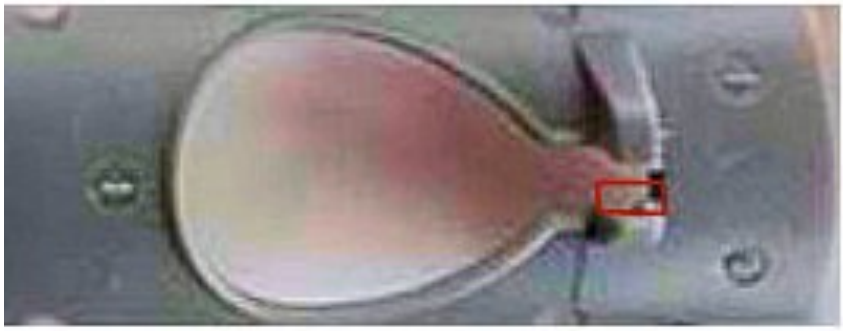


Refer to the following photograph and carefully cut out and create a slot from the left edge of the cockpit to beyond the left, empty rounds chute.

To allow the Vickers machine gun to locate fully against the left, empty rounds chute, file a shallow groove in the inboard edges of the chute to fit over the spring cover on the left side of the Vickers machine gun.



Refer to the following photograph and cement the cut away part of the left, empty rounds chute onto the right, ammunition feed chute.



File or sand away the inboard face of the right, ammunition feed chute so the Vickers machine gun can locate between the two chutes with its ammunition openings aligned to the chutes.

File or sand away the rectangular stub on the underside of the decking panel at the front of the ammunition chutes.

Refer to the following photograph and cut out a piece of 0.3 mm thick plastic card, large enough to span the underside width of the decking panel and long enough to cover the created slots but also extend into the cockpit opening.

Cement the plastic card in position on the underside of the decking panel, making sure it's in full contact with the panel surface.

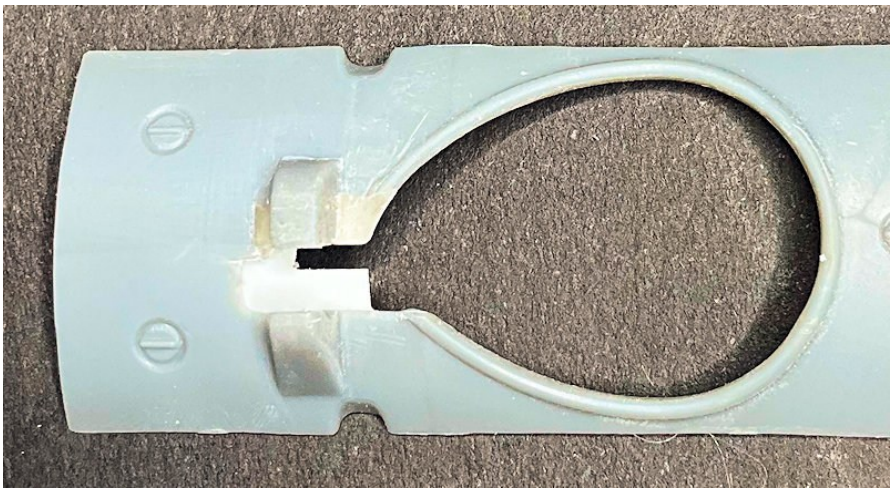
NOTE: *Refer to the following photographs. For the following step I used clear UV resin, which can be set almost immediately, is hard, does not shrink and can be filed or sanded.*

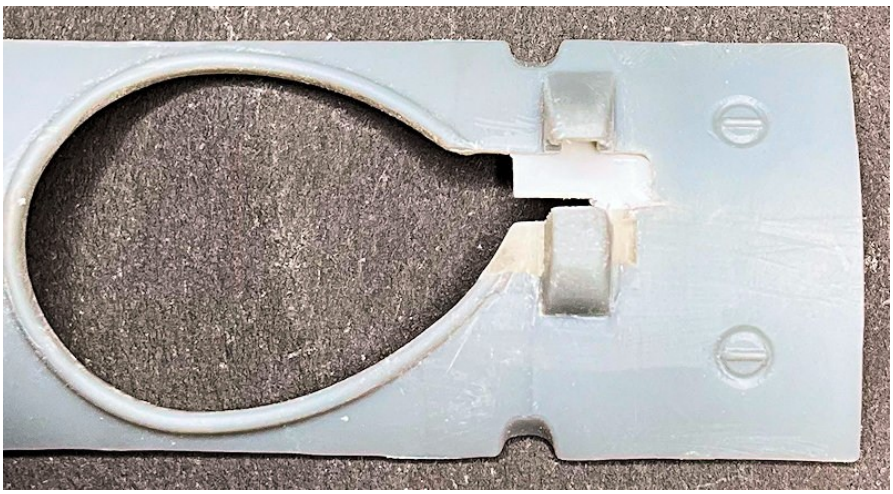
Fill any cut gaps around the right, ammunition feed chute, including the rear face of the chute and onto the plastic card surface.

Carefully cut away the rear edge of the added plastic card to form the front edge of the decking panel.

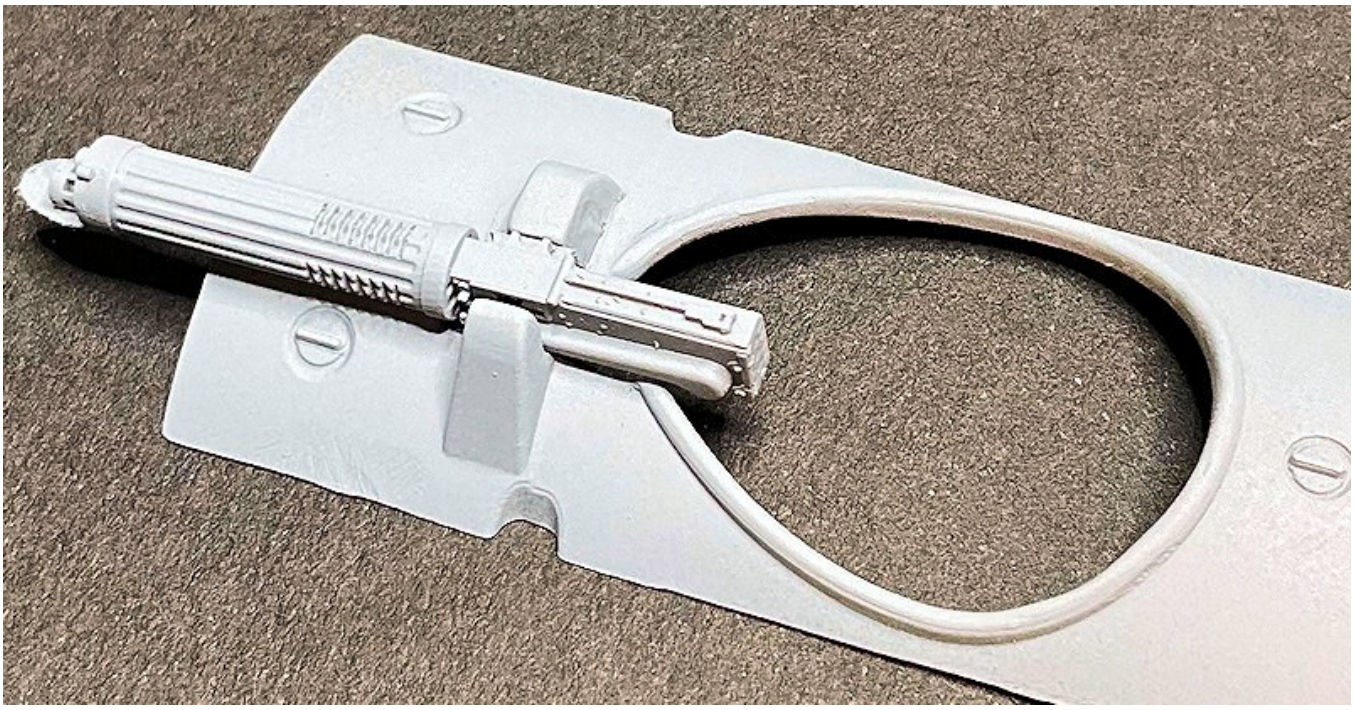
Sand or scrape the underside edges of the plastic card to merge them with the existing cockpit padding surround.

File, scrape or sand the filling used to remove residual filler and blend the filler with the surround detail. The filler at the rear of the empty rounds chute should be formed into a continuation of the cockpit decking panel with the cockpit surround padding.





Airbrush the Vickers machine gun and decking panel with a grey primer, such as ‘AK Interactive’ Grey (AK758) or similar then check the modified areas for any surface imperfections. If necessary, fill and/or sand then airbrush and check again until the surfaces are satisfactory.



Fuselage decking panel (continued):

NOTE: *The modified decking panel will be painted later in this build. I added a padding block on the rear of the breach block as there was not one supplied with this weapon.*

Vickers machine gun (continued):

Painting:

Airbrush the machine gun with a gloss black, such as ’Tamiya’ Gloss Black (X1) or similar.

Airbrush the machine gun with ‘Alclad’ Gun Metal (ALC-120) or similar.

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 the machine gun with ‘Mr. Color’ Super Iron 2 (203) or similar, to create a worn metal effect.

Brush paint the padding block with ‘AK Interactive. Brown Leather (AK3031) or similar.

Lewis machine gun:

Scarff mounting:

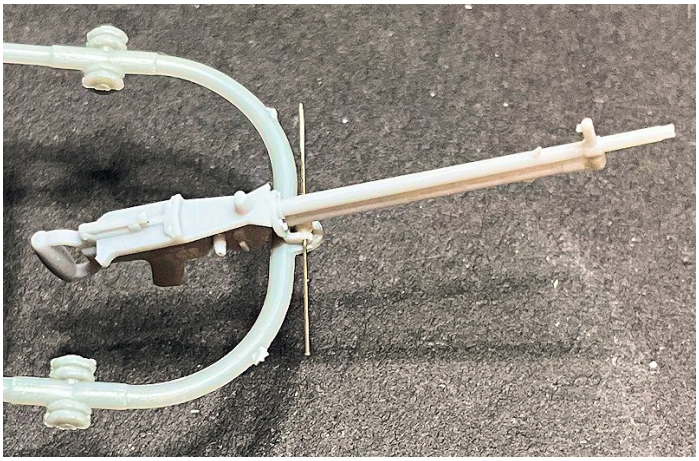
NOTE: *The kit supplied 'Scarff' mounting (6G) for the Lewis machine gun requires minor modification for fitting the 'Gaspatch' Lewis machine gun.*

Drill a hole of 0.3 mm diameter through the top mounting stem on the 'Scarff' mounting.

Cut a length of 0.2 mm diameter Nickel-Silver rod, such as 'Albion Alloy's' (NSR02) or similar.

Pass the rod through the holes in the mounting bracket of the 'Gaspatch' Lewis machine gun and the pre-drilled hole in the 'Scarff' mounting.

Remove the rod and machine gun from the 'Scarff' mounting for fitting later in this build.



Lewis machine gun:

NOTE: *Refer to Part 5 (Resin) of this build log for more information. For this model I chose not to use the kit supplied weapons, but instead the 'Gaspatch' 1:32nd scale Lewis RNAS pattern (15-32074). The empty rounds catch bag was not used for this model.*

Painting:

Airbrush the machine gun and ammunition drum with a gloss black, such as 'Tamiya' Gloss Black (X1) or similar.

Airbrush the machine gun and ammunition drum with 'Alclad' Gun Metal (ALC-120) or similar.

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 the machine gun and ammunition drum with 'Mr. Color' Super Iron 2 (203) or similar, to create a worn metal effect.

Brush paint the hand grips with 'Tamiya' Hull Red (XF9) or similar.

Brush paint the ammunition drum strap with 'AK Interactive' Brown Leather (AK3031) or similar.

PART 10
CONSTRUCTION

PART 10 - CONSTRUCTION

References:
'Roden' kit instructions.
'Windsock' data file No.34 - Sopwith 1 1/2 'Strutter (J.M Bruce).
Various online resources (e.g. memorial-flight.com, albindenis.free.fr).

Preparation:

NOTE: *The kit has parts that are likely intended for the Sopwith 1 ½ Strutter (Comic) version (Kit: Ro 637). Therefore, many parts are not required for this model. Some parts are* ***mis-identified*** *in the kit instructions and* ***corrected*** *in this build log.*

General:

Remove all of the parts as and when required from their runners.

File, sand or scrape away any mold seam lines or residual sprue gate stubs around the parts before any assembly is attempted.

NOTE: *Part 15G should read 18G, 24D should read 24G. In the observer/gunner cockpit, the support frame for the seat is parts F8 and F11 and the cockpit floor is F7.*

Remove and prepare the parts shown in the kit instructions (Seps 1 to 7).

Modifications:

Upper wing:

Remove the two pre-molded locations on the top, centre section of the upper wing, required for mounting the Lewis machine gun. The French aircraft did not have a Lewis machine gun fitted to the upper wing.

Aileron animation:

NOTE: *The ailerons on the upper wing are molded as part of the wing. The following steps are only necessary if the ailerons are to be fitted in positions not aligned to the wing, as could be the case when the aircraft was on the ground.*

Scribe through the aileron to wing seams to separate the ailerons from the wing.

File or sand away any residual from the cut surfaces.

File or sand around the top and underside leading-edges of the ailerons to create a slight curved edge.

NOTE: *From this point in the build, make sure to keep the ailerons matched to the upper wing. The pre-molded recesses for mounting the aileron control horn/cables are on the top surface of the ailerons.*

Position each aileron in its cut-out in the upper wing.

Pencil mark three locations across the wing trailing and aileron leading-edges.

Using the marks as guides, point mark the centre of the wing trailing and aileron leading-edges.

Using the point marks as guides, use a drill of 0.6 mm diameter to drill into the wing and ailerons, keeping the drill centred as you drill the holes.

Cut six lengths of 0.5 mm diameter Brass rod, such as that from 'Albion Alloy's' or similar.

Secure the rods into the pre-drilled holes in the ailerons, using thin CA adhesive.

Fully locate the ailerons into the pre-drilled holes in the upper wing.

Bend one aileron slightly up and the other slightly down and at the same angle.

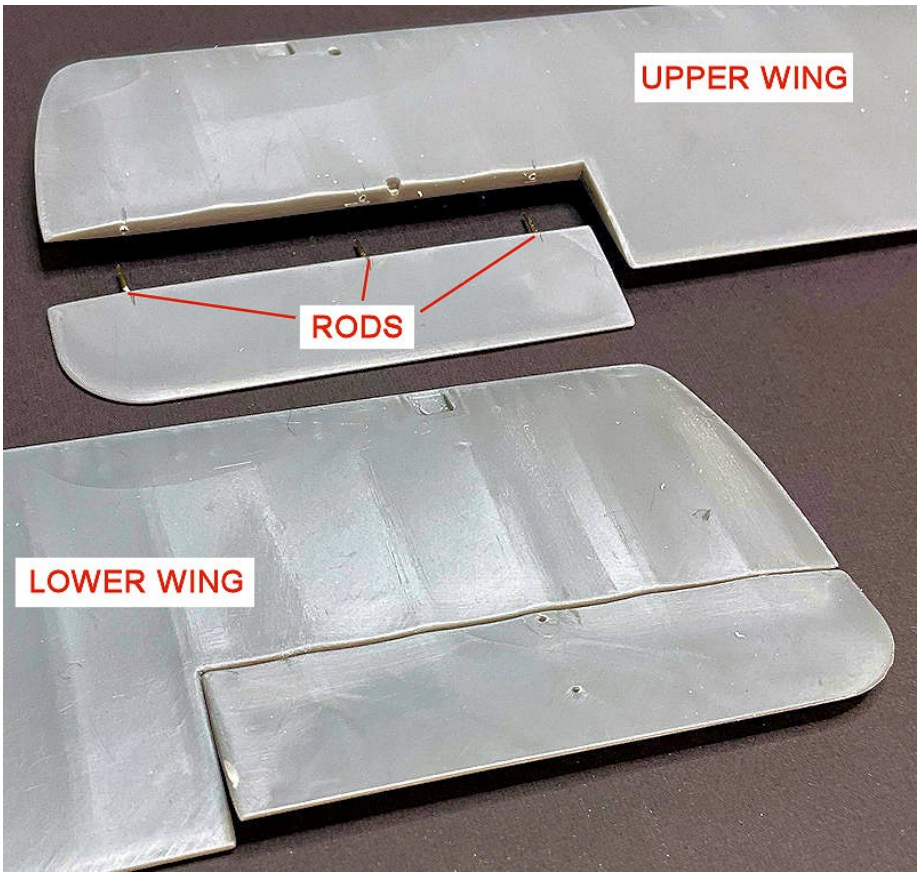
Remove the ailerons.

Lower wing:

NOTE: *The ailerons on the lower wing are molded as part of the wing.*

The following steps are only necessary if the ailerons are to be fitted in positions not aligned to the wing, as could be the case when the aircraft was on the ground.
From this point in the build, make sure to keep the ailerons matched to the upper wing. The pre-molded recesses for mounting the aileron control horn/cables are on the underside of the ailerons.

Repeat the procedure used for the upper wing.

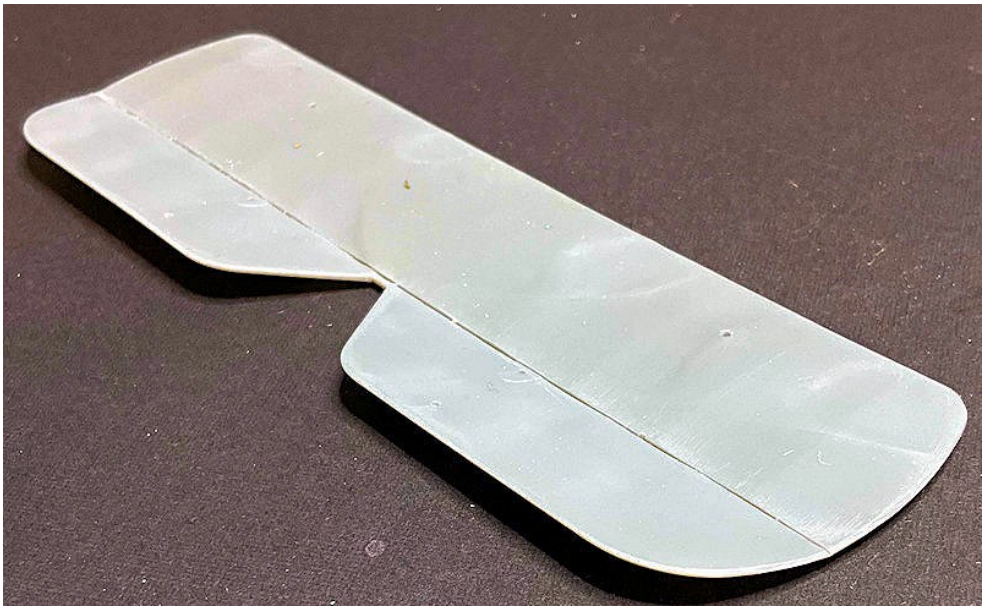


Elevator animation:

NOTE: *The elevator on the tailplane is molded as part of the tailplane. The following steps are only necessary if the elevator is to be shown angled slightly down, as could be the case when the aircraft was on the ground.*

Scribe along, **but not** through, the elevator to tailplane seam.

Carefully bend downwards the elevator slightly, as could be the case with the aircraft on the ground.



Rudder animation:

NOTE: *The rudder is molded as part of the fin assembly. The following steps are only necessary if the rudder is to be shown angled slightly to one side, as could be the case when the aircraft was on the ground.*

Scribe through the rudder to fin seam to separate the rudder from the fin.

File or sand away any residual from the cut surfaces.

Position the rudder against the fin.

Pencil mark two locations across the fin trailing and rudder leading-edges.

Using the marks as guides, point mark the centre of the fin trailing and rudder leading-edges.

Using the point marks as guides, use a drill of 0.3 mm diameter to drill into the fin and rudder, keeping the drill centred as you drill the holes.

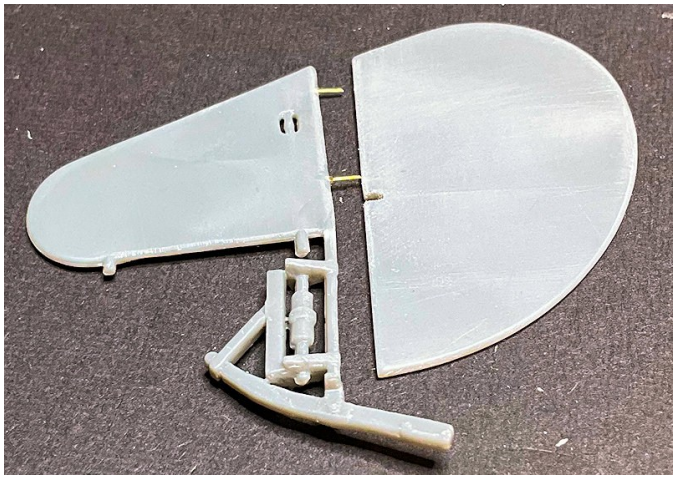
Cut two lengths of 0.3 mm diameter Brass rod, such as that from ’Albion Alloy’s’ or similar.

Secure the rods into the pre-drilled holes in the rudder, using thin CA adhesive.

Fully locate the rudder into the pre-drilled holes in the fin.

Bend the rudder slightly left or right.

Remove the rudder.



Vickers machine gun:

NOTE: *The pilot’s Vickers machine gun on British Sopwith ’Strutters’ was positioned on the decking panel directly in front of the pilot. To prevent head injuries if the aircraft crashed, a padded rear gun mount was fitted on the rear of the weapons breach block. However, the French built aircraft had the weapon mounted on the decking panel, but to the left of the cockpit, presumably to lessen the chance of any head injuries during a crash. Consequently, the padded rear gun mount was deemed to be unnecessary and was not fitted. The modifications required to the weapon and the decking panel are detailed in Part 9 (Weapons) of this build log.*

Lewis machine gun:

NOTE: *The ‘Gaspatch’ Lewis machine gun requires minor modification to be able to fit the gun mountings on the model. The modifications required to the weapon and the associated ‘Scarff’ gun mounting are in Part 9 (Weapons) of this build log.*

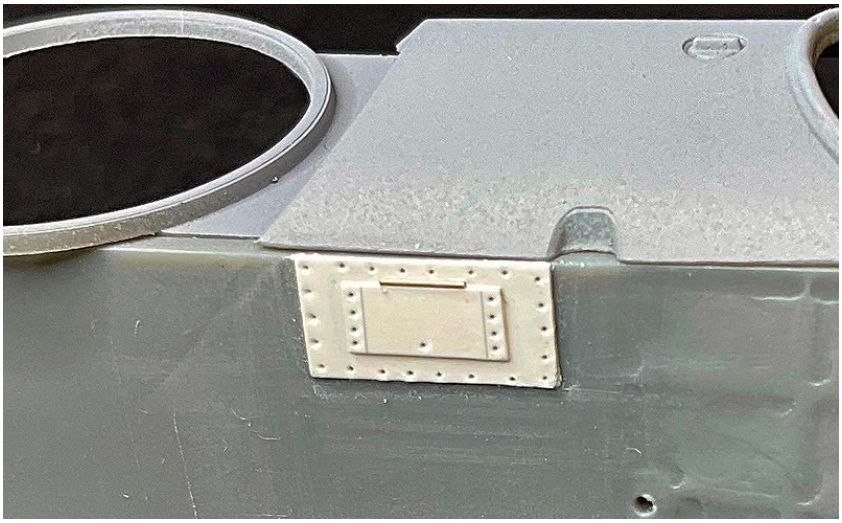
Engine cowl:

NOTE: *The kit supplied engine cowl parts (3F and 13F) are intended for the British version of the Sopwith ‘Strutter’, which has two cooling slots cut into the lower side of the cowl. However, the French aircraft had only one main cooling slot in the cowl. Therefore, the kit supplied parts are not used and replaced with a one piece, 3D printed engine cowl from ‘Aviattic’ (ATTRES058).*

Fuselage side panel:

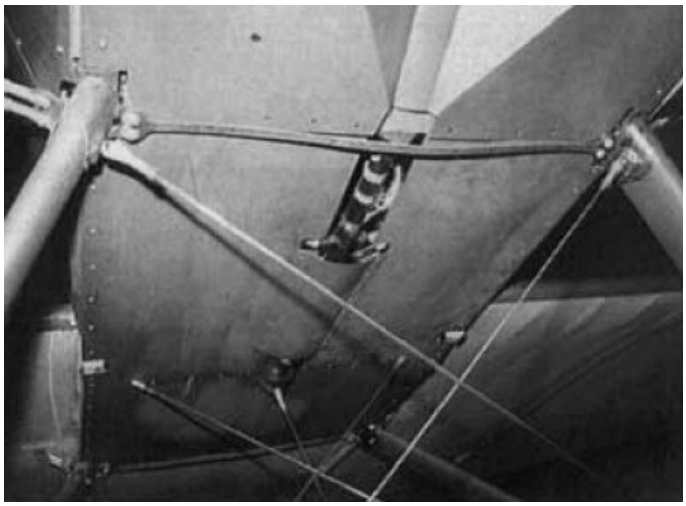
NOTE: *The French 'Strutters' appear to have had a panel fitted into the fuselage top sides forward from the observer/gunner cockpit, which gave access to the top of the vertical bomb cassettes.*

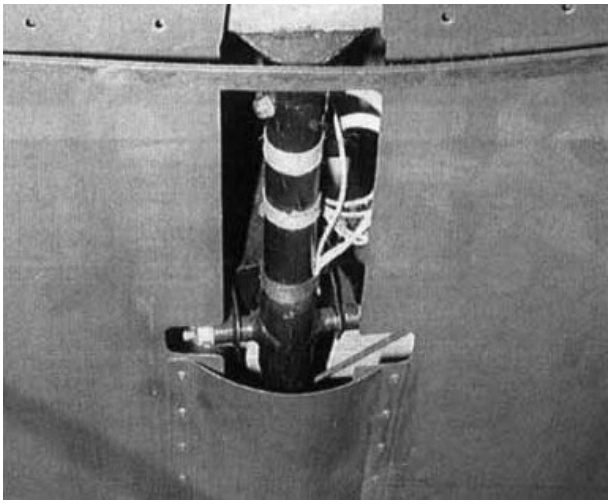
To represent the panels, I first cut a rectangle of 0.2 mm thick plastic card which was cemented onto the top of the fuselage halves, between the front of the observer/gunner cockpit and the location for the rear fuselage cabane struts. A second, smaller rectangle of plastic card was cut and cemented onto the first applied card. A short length of 0.2 mm diameter Nickel-Silver rod from 'Albion Alloy's' was cut and cemented centrally over the inner panel, to represent the panel hinge. Finally, I point marked around the panel edges to represent the panel fasteners and scribed two lines to represent the sides of the centre panel.

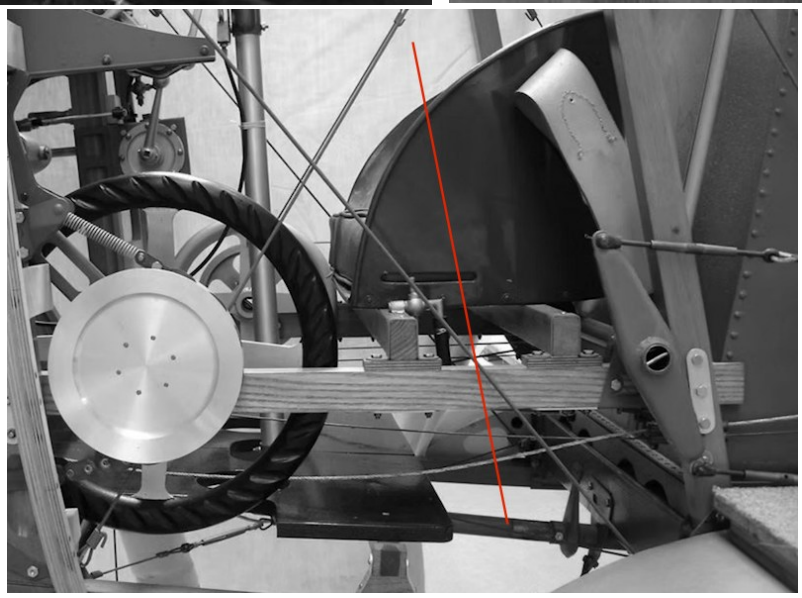


Rocking shaft:

NOTE: *An opening in the underside of the fuselage, below the pilot's cockpit, exposed the rocking shaft of the pilot's control column assembly. The opening was partly protected by a shroud panel that was fitted across the central section of the shaft.*







Rocking shaft:

Locate the cockpit forward floor panel in position on the inside of the lower wing.

Using a drill of 0.6 mm diameter, drill through the bottom of the lower wing using the pre-molded hole in the floor panel as a guide.

Remove the floor panel.

On the underside of the lower wing and using the pre-drilled hole as a guide, pencil mark along the centre line of the lower wing.

NORE: *Refer to the following photographs*.

Apply point marks (for drilling) along the length of the pencil line.

Using a drill of 1.4 mm diameter and point marks as guides, drill holes along the pencil line.

Cut through any residual plastic between the drilled holes.

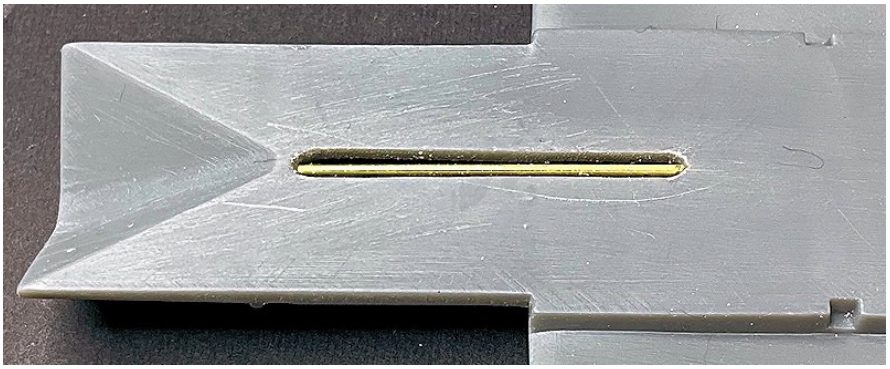
File the sides of the slot to remove drill marks and smooth the sides of the slot.

On the inside of the lower wing, drill or cut notches centrally at both ends of the slot (to locate the rocking shaft).

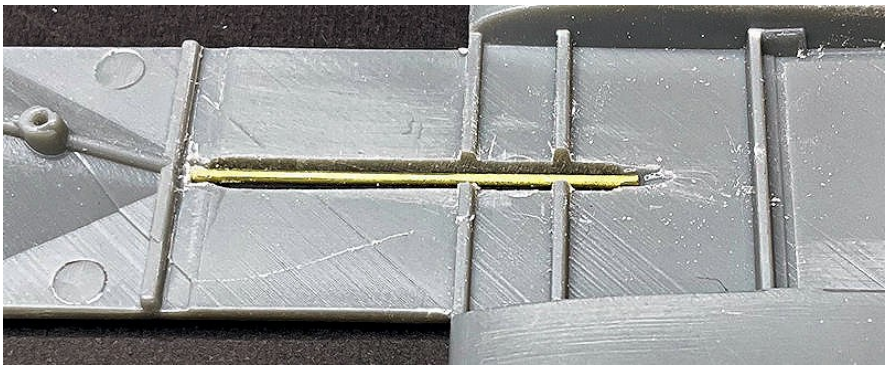
Cut a length of 0.8 mm diameter Brass rod, such as that from ‘Albion Alloy’s’ or similar. The rod should be cut to fully locate into the locating notches.

Using thin CA adhesive, secure the rod into the notches in the slot ends.

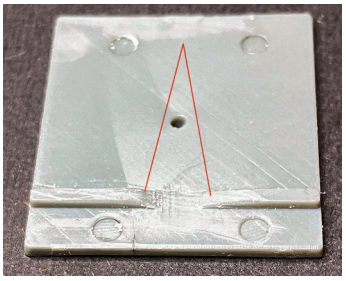
Fuselage underside



Fuselage inside



On the underside of the cockpit forward panel, cut away the centre area of the raised shoulder, to create clearance over the fitted rocking shaft in the lower wing.



Rocking shaft cover:

NOTE: *As can be seen in the previous photograph, a curved covering panel was fitted over the central area of the rocking shaft, leaving the front and rear ends open.*

Cut a piece of scrap photo-etch sheet.

Soften the photo-etch for bending by apply heat (e.g. cigarette lighter) across the metal until it changes colour to a light grey.

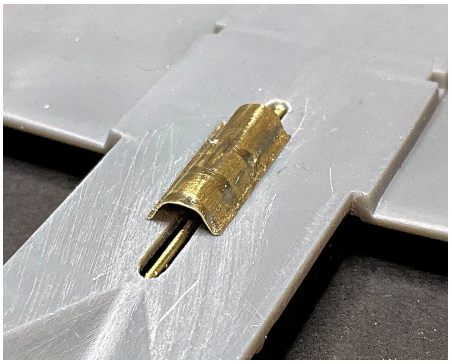
Cut the sheet to a length of approximately 15 mm.

Bend the sheet over the shank of a 2.8 mm diameter drill to form a long, rounded trough.

Use the jaws of flat nosed pliers vertically down both sides of the trough to create a flat lip along its length.

If necessary, hold each edge of the trough in a photo-etch bender or vice to flatten and distortion.

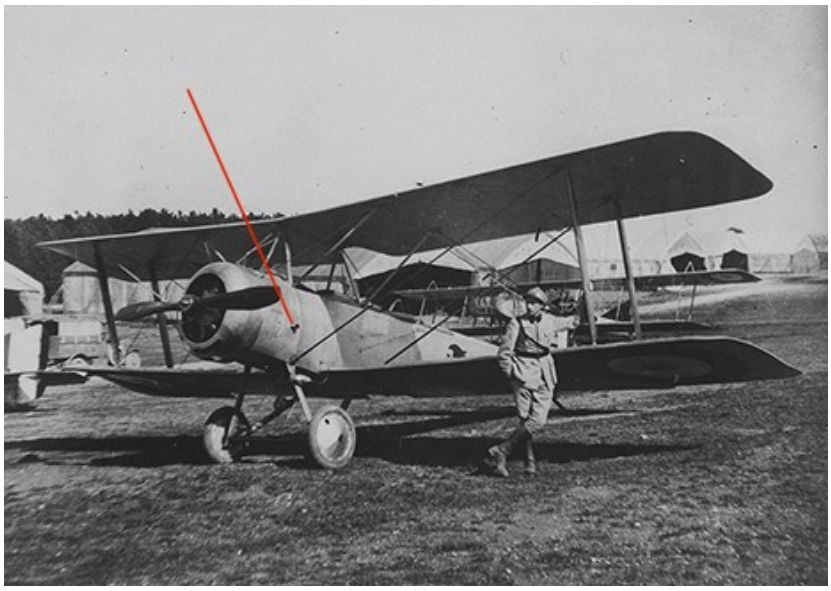
Cut away any excessive photo-etch at the flat sides to reduce their width.

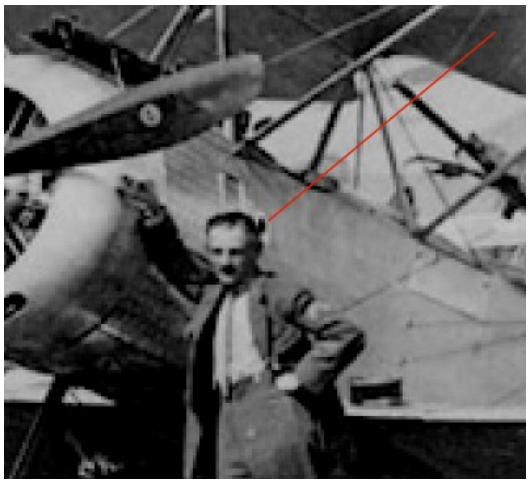


NOTE: *The created cover will be fitted to the lower wing later in this build.*

Carburettor air intakes:

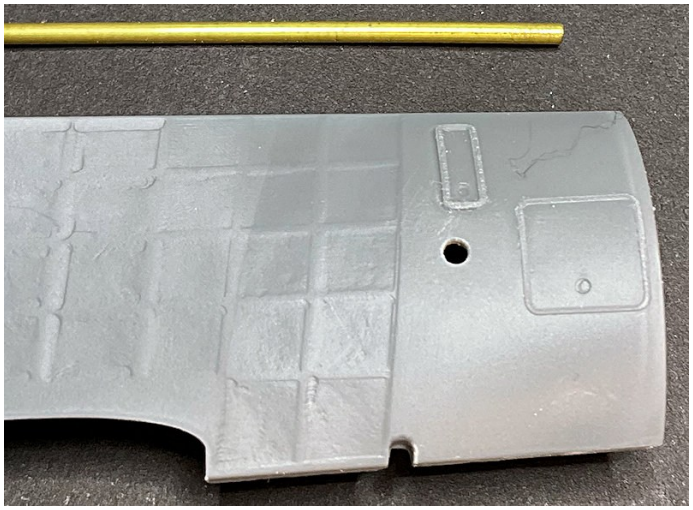
NOTE: *It seems that the kit supplied fairings (6D) for the carburettor air intakes were not used on some of the French aircraft. It's possible those fairings were fitted to aircraft in the Royal Naval Air Service (RNAS). Instead, many French 'Strutters', like the Royal Flying Corps (RFC), had tubular air intakes fitted for the carburettor. The left photograph is an aircraft that has no weapons fitted.*





I chose to not use the kit parts, but instead to fit tubular air intakes for the carburettor.

To represent tubular air intakes, I drilled out the locating recesses using a dill of 1.8 mm diameter. Brass tube of 1.8 mm diameter from 'Albion Alloy's' will be cut and inserted into the pre-drilled holes, but only after the fuselage has been base coated and had its external surface decals applied.



Empty ammunition chute:

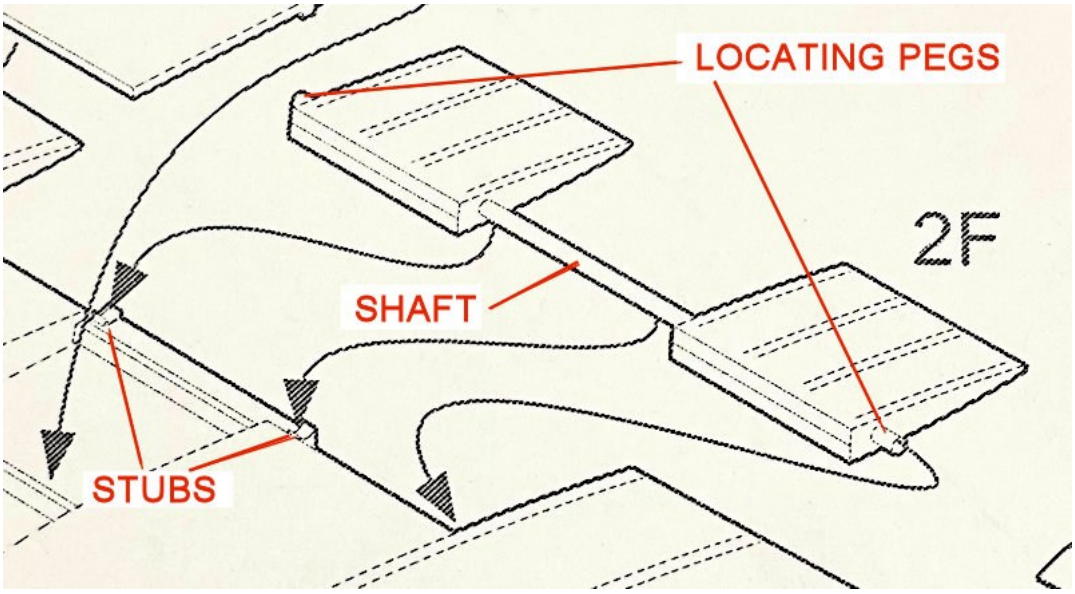
NOTE: *The pilot's Vickers machine gun was belt fed with ammunition from and internal ammunition container. Empty cartridges were not, it seems, retained in the aircraft, but instead ejected from the machine gun through a chute, which dumped the spent cartridges out of the underside of the fuselage. Exactly where the chute was located on the underside of the fuselage is unclear.*

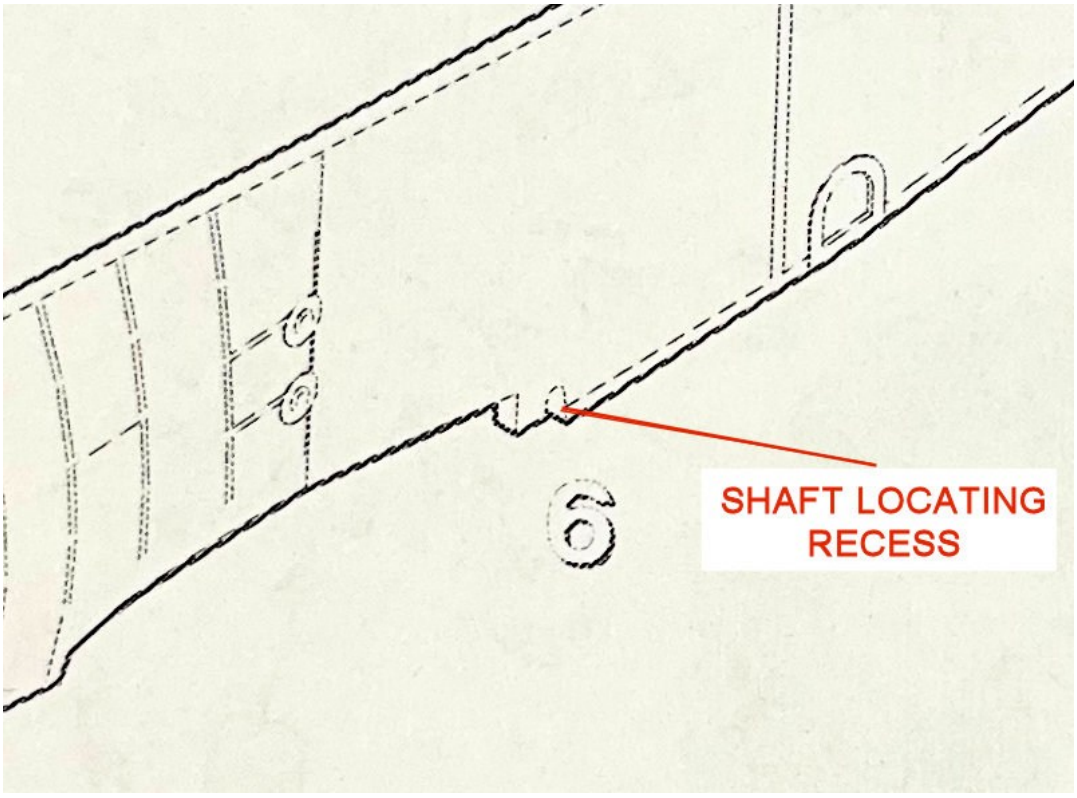
Airbrakes:

Airbrake fitting:

NOTE: *Refer to the following illustrations. The kit instructions show that the airbrake centre shaft should be located onto the rear edge of the cockpit floor on the lower wing, with the two outer locating pegs positioned into their recesses in the underside of the lower wing. The fuselage can then be located onto the lower wing with the shaft recesses in the fuselage side locating over the centre shaft of the airbrakes.*

The two airbrake centre shaft locators on the rear edge of the cockpit floor should, I believe, have been molded as semi-circular locators for the airbrake centre shaft. However, it seems that these have instead been molded as solid fillers for the two shaft recesses in the fuselage sides. As such it's impossible to fit the airbrake onto the lower wing as shown in the kit instructions.





Therefore, I found it easier to modify the airbrake installation, which will also include being able to pose the airbrake positions.

File or sand away the two airbrake shaft locators on the rear edge of the cockpit floor on the lower wing.

NOTE: *For the following steps I used clear UV resin, which can be set almost immediately, is hard, does not shrink and can be filed or sanded.*

Fill the two airbrake shaft recesses in the lower sides of the fuselage.

Fill the two recesses in the underside of the lower wing (for locating the outer pegs of the airbrake).

File, scrape or sand the filling used to remove residual filler and blend the filled recesses with the surrounding surfaces.

Cut away the two outer pegs and the centre shaft on the airbrakes.

Sand away any residual peg/shaft remains from the two separated airbrakes.

NOTE: *From this point in the build, make sure to keep the airbrakes matched to their lower wing locations.*

Position the airbrakes in their cut-outs in the lower wing.

Pencil mark two locations across the wing trailing and airbrake leading-edges.

Using the marks as guides, point mark the centre of the wing trailing and airbrake leading-edges.

Using the point marks as guides, use a drill of 0.8 mm diameter to drill into the wing and airbrakes, keeping the drill centred as you drill the holes.

Cut four lengths of 0.8 mm diameter Brass rod, such as that from 'Albion Alloy's' or similar.

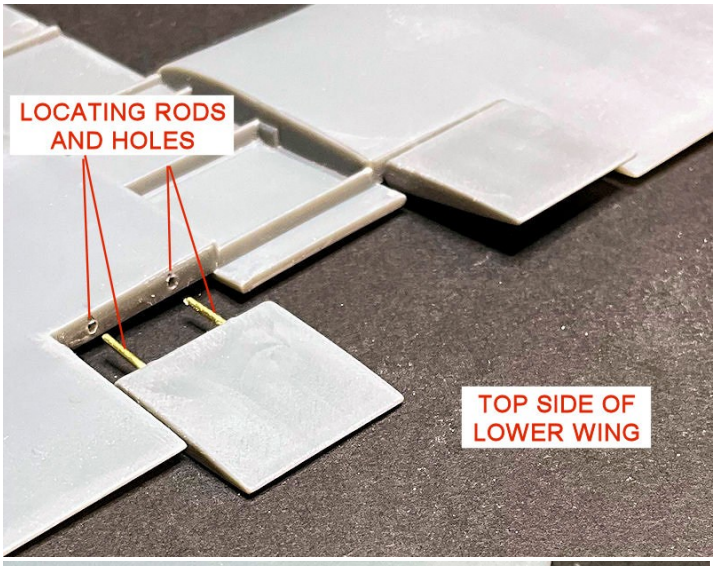
Secure the rods into the pre-drilled holes in the airbrakes, using thin CA adhesive.

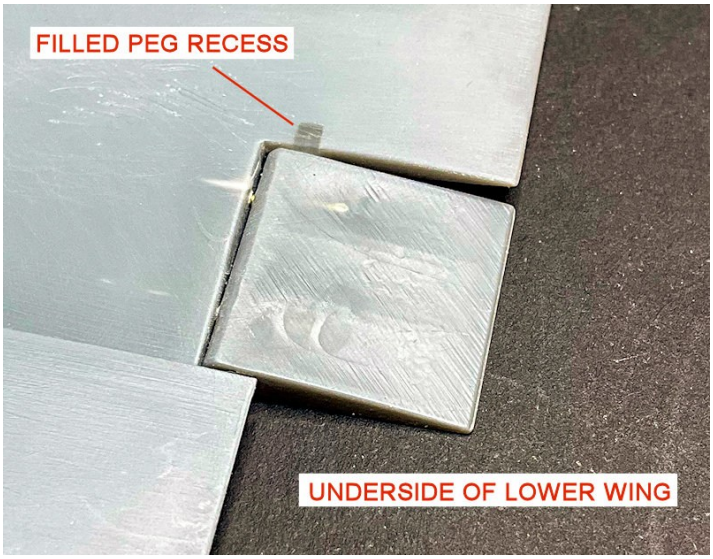
Fully locate the airbrakes into their pre-drilled holes in the lower wing.

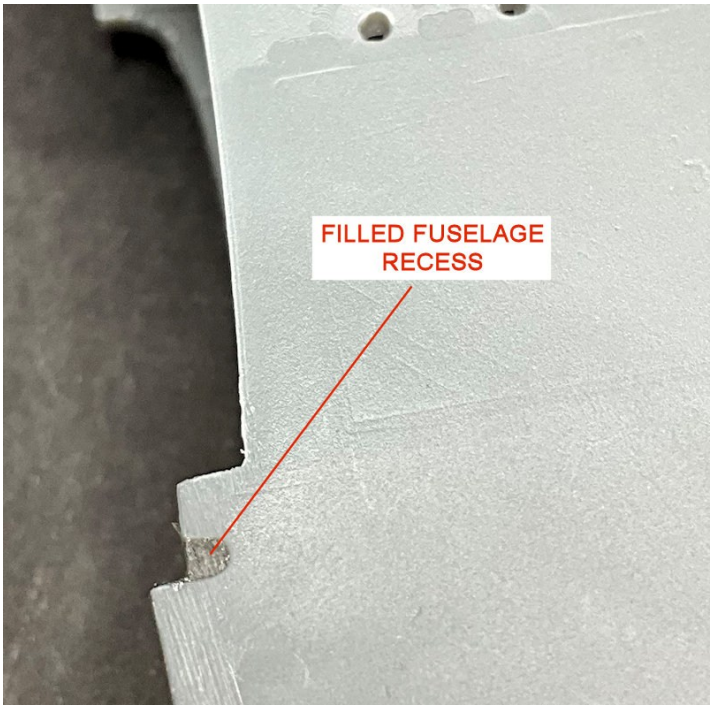
Bend both airbrakes slightly up and at the same angle.

Remove the airbrakes.

File, scrap or sand a slight curved along the leading-edges of the two airbrakes.

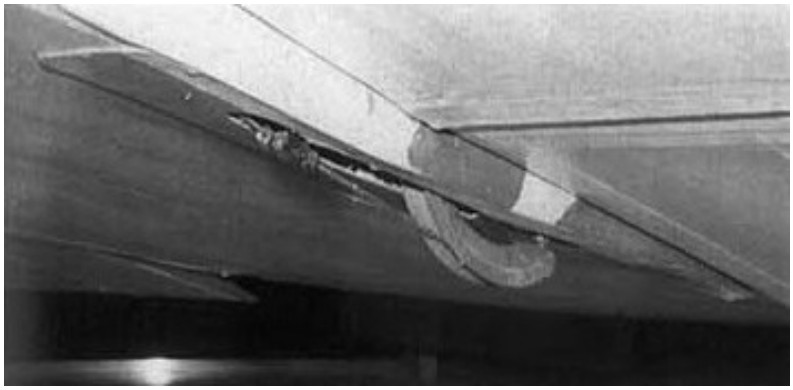






Underside airbrake pulley:

NOTE: *The bottom of the rear operating pulley for the airbrakes was exposed through the left, underside of the fuselage. The pulley used was from my 'spares' collection.*



Temporarily tape the two fuselage halves together and then tape in position onto the lower wing.

Pencil mark the location for the pulley slot onto the inside of the lower wing and fuselage left side.

Separate the fuselage and lower wing.

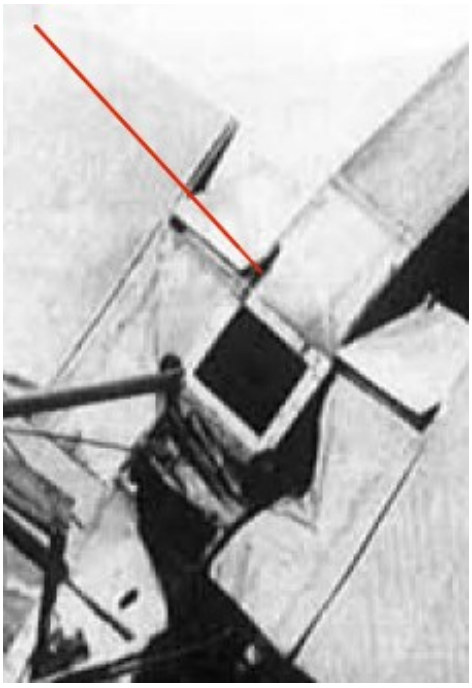
Cut the slot for the pulley slot into the inside of the lower wing and fuselage left side.

Temporarily tape the two fuselage halves together and then tape in position onto the lower wing.

Tape the observer/gunner cockpit floor panel in position inside the fuselage.

Cut a section from the pulley such that when inserted into the slot and against the underside of the cockpit floor panel, only a portion of the pulley is visible at the underside of the fuselage.

Remove the pulley and remove the lower wing.



Cut a further and narrower slot forward from the pulley slot. This will be used to show the exposed operating cable for the pulley.

Finally, refit the lower wing and insert the pulley to check that it looks correct.

Remove the pulley and separate the lower wing from the fuselage and separate the fuselage halves.

Cockpit false floor:

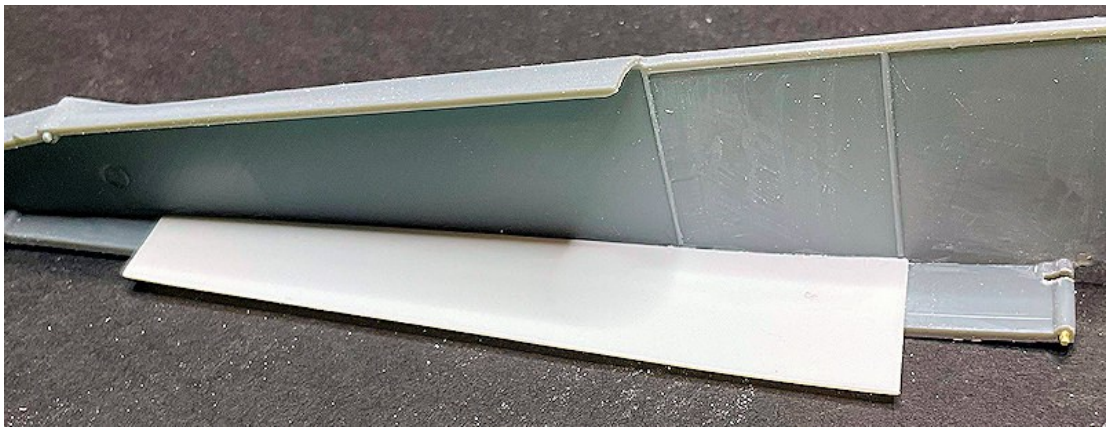
NOTE: *When to two halves of the fuselage are joined together, the joint seam on the underside of the fuselage will be visible to the rear of the observer/gunner cockpit. The joint should be covered to hide the joint seam.*

Remove 1.0 mm from the bottom of the two pre-molded vertical frames in the rear inside of the two fuselage halves. This is for clearance when fitting the false floor.

Cut a piece of 1.0 mm thick plastic card such that it will fit onto the bottom, rear of the fuselage halves when fitted together. The front edge of the false floor should be just forward from the first vertical frame in the fuselage halves.

Position and cement the false floor onto the fuselage left half.

Locate the fuselage right half onto the left half, making sure the fuselage halves fully locate against each other.



Ejector pin recesses:

NOTE: *The inner surfaces of the two fuselage halves had circular recesses made by the injection molding tooling. These would show in the completed fuselage and needed to be removed.*

Carefully sand or scrape the ejector recesses to merge them with the surrounding surfaces. I used a curved scalpel blade to scrape out the recesses.

Assembly:

Preparation:

Remove all of the parts as and when required from their runners.

File, sand or scrape away any mold seam lines or residual sprue gate stubs around the parts before any assembly is attempted.

Assembly:

NOTE: *The assembly follows the kit instruction steps, unless otherwise stated. Do not use the air intakes (6D) in Steps 6 and 7 (not used on this model.*

Cement the parts for the cockpit left frame (Step 1), but do not attach the assembly to the fuselage left half.

Cement the cockpit frame (9G) onto the fuselage left half (1B) (Step 6).

Cement the parts for the cockpit right frame (Step 2), but do not attach the assembly to the fuselage right half.

Cement the cockpit frame (4G) onto the fuselage right half (2B) (Step 7).

Cement the two ammunition drum storage racks for the Lewis machine gun (Step 4), but do not attach the separate ammunition drums.

Cement the seat support frame for the observer/gunner seat (Step 5).

Cement the two Lewis ammunition drum storage racks and the observer/gunner seat support frame onto the rear cockpit floor panel (Step 5).

Cement the fuel tank halves (2C and 3C) (Step 10).

Painting:

Preparation:

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

Inside surface of the two fuselage halves.
'Barracuda' resin pilot seat and cushion.
Cockpit left frame assembly.
Cockpit right frame assembly
Outer surface of cockpit decking panel.
Observer/gunner cockpit floor assembly.
Observer/gunner seat cushion.
Fuel tank assembly.
Pilot cockpit floor panel.
Instrument panel.
Pilot seat support frame.
Rudder bar and control column.
Carburettor air intake pipes (G8).

Airbrush the following parts with a gloss black, such as 'Tamiya' Gloss Black (X1) or similar:

Inside surface of engine bulkhead (1F).
Created airbrake pulley segment.
Ammunition drums for Lewis machine gun (25D x 4).
Ammunition drums for Lewis machine gun (26D x 2).
Forward metal panel on cockpit area on the centre section of the lower wing.

Painting:

Airbrush the following parts with 'Alclad' Aluminium (ALC101) or similar:

Inside surface of engine bulkhead.
Created airbrake pulley segment.
Forward metal panel on cockpit area on the centre section of the lower wing.

Airbrush the following parts with 'Alclad' Gun Metal (ALC120) or similar:

Ammunition drums for Lewis machine gun (25D x 4).
Ammunition drums for Lewis machine gun (26D x 2).

Airbrush the following parts with 'Tamiya' Medium Blue (XF18) or similar:

Fuel tank assembly.

Wood and leather effects:

Preparation:

Airbrush the following parts with 'Tamiya' Dark Yellow (XF60) or similar:

'Barracuda' resin pilot seat and cushion.
Cockpit left frame assembly.
Cockpit area in the centre section of the lower wing.

Cockpit right frame assembly.

Outer surface of cockpit decking panel rear of the feed chutes for the pilot's Vickers machine gun.

Observer/gunner cockpit floor assembly.

Observer/gunner seat cushion.

Pilot cockpit floor panel.

Instrument panel.

Rudder bar.

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

Inside surface of the two fuselage halves (mask off forward painted metal panels).

NOTE: *Refer to Part 2 (Wood Effects) of this build log for more information.*

Dark wood effect:

Use the chosen method to apply a wood effect. I followed Method 2 using Windsor & Newton' Griffin (Alkyd) oil paints:

Brush a covering coat of the **Burnt Umber** oil paint over the following parts:

Fuselage pre-molded forward side frames, including the top surface of the upper longerons where they will be visible when the cockpit decking panel is fitted (observer/gunners cockpit).

Cockpit left and right frame assemblies.

Outer surface of cockpit decking panel rear of the feed chutes for the pilot's Vickers machine gun.

Observer/gunner cockpit floor assembly and ammunition drum storage racks.

Pilot cockpit floor panel.

Instrument panel and rudder bar.

Cockpit area in the centre section of the lower wing.

Remove the oil paint to achieve the desired wood effect then leave to fully dry.

Remove the masking patches from the fuselage forward side frames.

NOTE: *The fuselage internal forward side frames should have wood effect applied, but not over the inner linen painted surfaces. To represent the wood finish, I used an 'AK Interactive' weathering pencil (Dark Rust, 10013, W13).*

Slightly dampen the lead of the pencil.

Carefully draw along the top of the various fuselage frames.

Mask off frames across the false floor.

Draw between the masking tape strips then remove the strips.

NOTE: *If necessary, brush across the dampened pencil lead to pre-load the brush.*

Slightly dampen a small, brush and carefully brush along the frames to blend the applied colour.

Light wood effect:

Brush a covering coat of the **Raw Sienna** oil paint over the 'Barracuda' resin pilot seat.

Remove the oil paint, particularly from between the separate wicker strands in the seat back, to achieve the desired wicker wood effect then leave to fully dry.

Leather effect:

Brush a covering coat of the applied the **Burnt Sienna** oil pant first, followed by stippled on **Burnt Umber** then leave the paint to fully dry:

Observer/gunner seat cushion.

'Barracuda' resin pilot seat cushion.

Brush paint the following parts as indicated:

‘Mr. Metal Color’ Stainless Steel (213):

Cockpit left frame assembly - airbrake hand wheel and pully, throttle lever and quadrant.

Cockpit right frame assembly - tailplane incidence hand wheel and pully, spark advance lever and quadrant.

Support frame for observer/gunner seat.

Vickers machine gun feed and empty round chutes on cockpit decking panel.

Forward metal panel areas on the inside of the two fuselage halves.

Carburettor air intake pipes (G8).

‘AK Interactive’ Brown Leather (AK3031):

Foot hoop restraints on rudder bar.

Grab handles on ammunition drums for Lewis machine gun.

Hand grips on pilot’s control column.

Pilot cockpit surround padding.

‘Tamiya’ Medium Blue (XF18):

Pilot’s control column.

Metal brackets and fittings on cockpit left and right-side frames.

‘Tamiya’ Rubber Black (XF85) - Rim around airbrake hand wheel.

‘Tamiya’ Hull Red (XF9) - Handle on throttle and spark advance levers.

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 the edges and surfaces of the following parts with ‘Mr. Color’ Super Iron 2 (203) or similar, to create a worn metal effect:

Fuel tank assembly.

Ammunition drums for the Lewis machine gun.

Instrument panel:

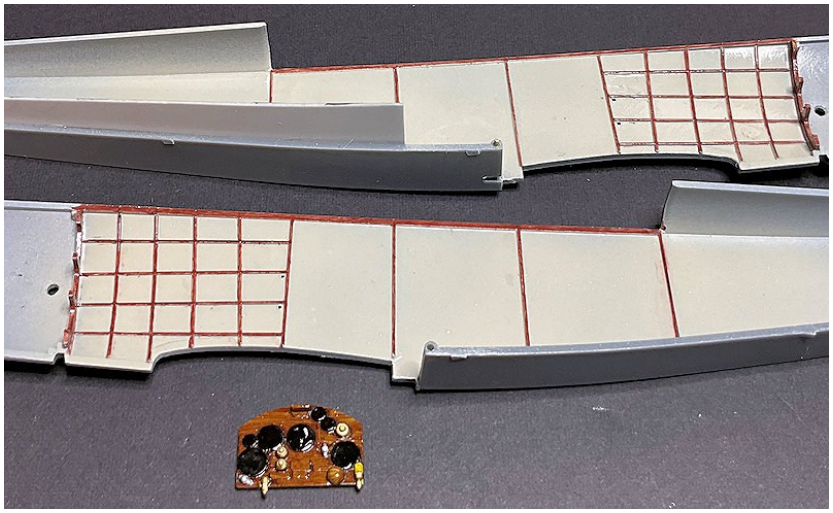
Brush paint the instrument panel detail as follows:

‘Mr. Metal Color’ Brass (219) - Ignition switches, air pressure relief valve, Pulsometer pipe.

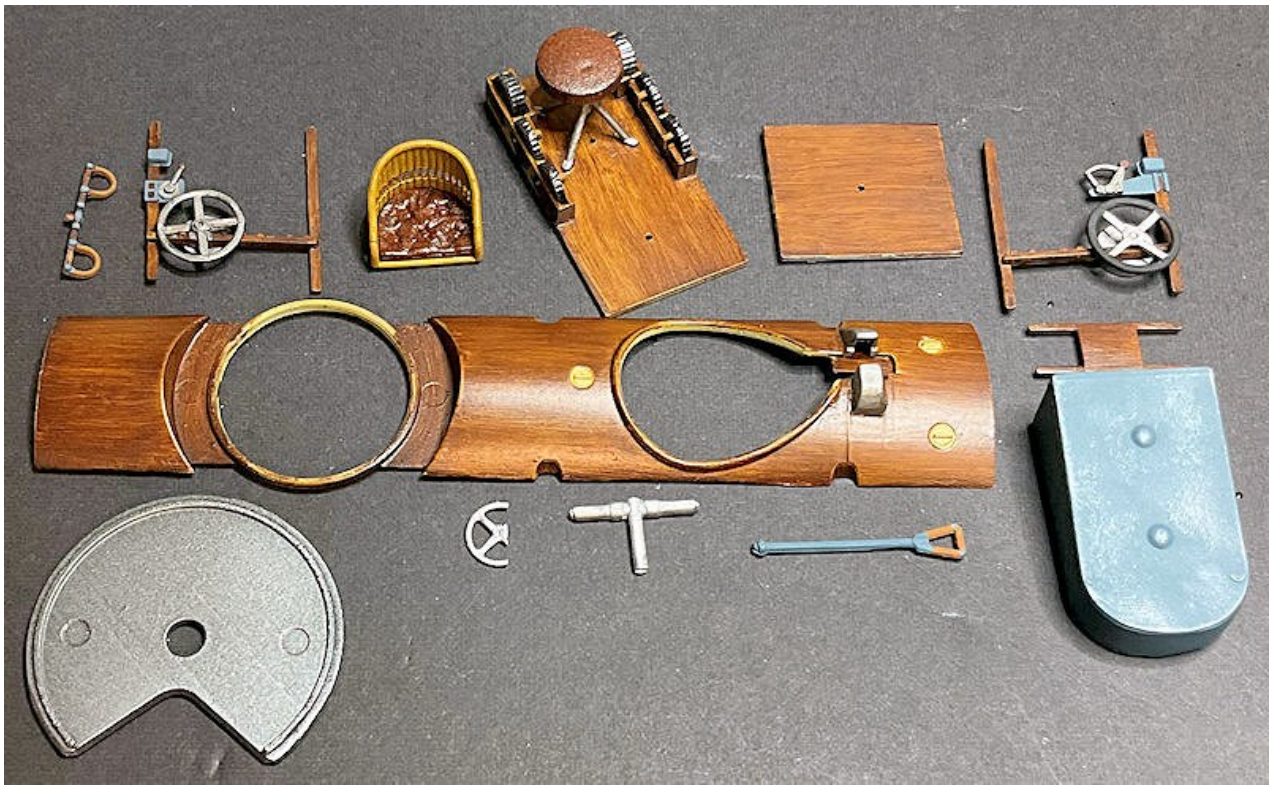
‘Tamiya’ Gloss Black (X1) - Instrument dials.

‘Tamiya’ White (XF2) - Pulsometer glass.

‘Tamiya’ Clear Yellow (X24) over the white Pulsometer glass.



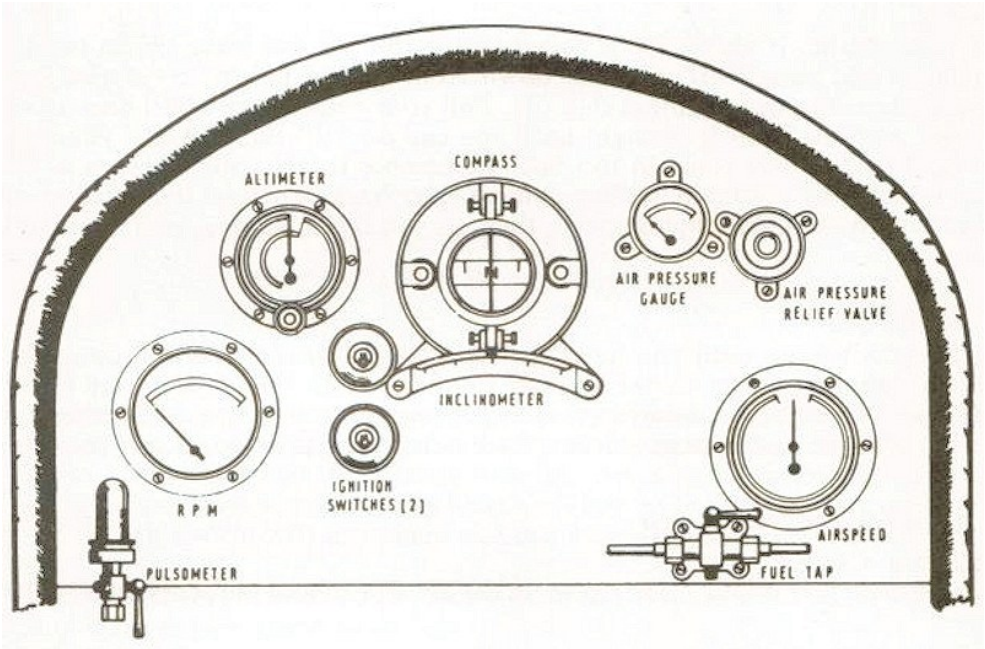
NOTE: *On the cockpit decking panel, forward from the feed chutes for the pilot's Vickers machine gun should be metal finish, not wood effect.*



Decals:

Instrument panel:

NOTE: *The basic Roden kit has no decals for the cockpits, including the pilot's instrument panel. To represent the various instruments I used applicable decals from the* 'Airscale' *generic WW1 instruments (AS32 WW1). The placard decals used were from my 'spares' collection.*



The kit supplied instrument panel has indicator 'needles' molded on the RPM and Airspeed instruments at the lower left and right of the panel. These should be sanded or scraped away to allow the decals to be applied flat to the surface.

NOTE: *Refer to Part 4 (Decals) of this build log for more information.*

Apply applicable instrument decals from the ‘Airscale’ set.

Seal and protect the applied decals by airbrushing a semi-matte clear coat, such as ’Tamiya’ Semi-Gloss (X35) thinned 60/30 with ’Mr. Color’ Rapid thinners.

Fuselage internal linen surfaces:

NOTE: *To present the fuselage internal linen I cut out the various decals using the ‘Aviattic’ unbleached linen (ATT32544).*

Airbrush the internal surfaces of the two fuselage halves with a clear gloss coat, such as ‘Tamiya’ clear gloss (X22) or similar.

Cut out to fit (59 in total), the following decals from the ‘Aviattic’ sheet:

False floor decal.

Three large side decals for the large panels on both fuselage halves.

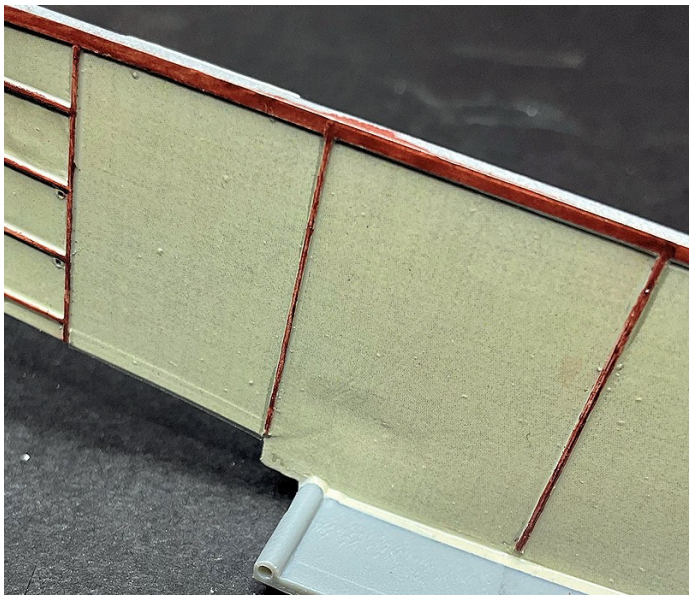
Two decals to cover the rear, sides of both fuselage halves.

All small decals to cover the individual panels in the forward frames of both fuselage halves.

NOTE: *Refer to Part 4 (Decals) of this build log for more information.*

Apply the applicable decals to their relevant locations.

Seal and protect the applied decals by airbrushing a semi-matte clear coat, such as ’Tamiya’ Semi-Gloss (X35) thinned 60/30 with ’Mr. Color’ Rapid thinners.



Assembly (continued):

Cement the six ammunition drums for the Lewis machine gun into their slots in the two storage racks on the observer/gunner cockpit floor.

Cement the seat cushion on the observer/gunner seat support on the observer/gunner cockpit floor.

Using CA adhesive, secure the ‘Barracuda Studios’ seat cushion onto the ‘Barracuda Studios’ pilot’s seat.

NOTE: *To make sure parts fully locate and fit correctly it’s best, during the following assembly steps, to dry fit each part with the fuselage halves temporarily taped together and taped to the lower wing.*

Cement the observer/gunner floor assembly in position on the lower wing.

Cement the pilot’s cockpit floor panel in position on the lower wing.

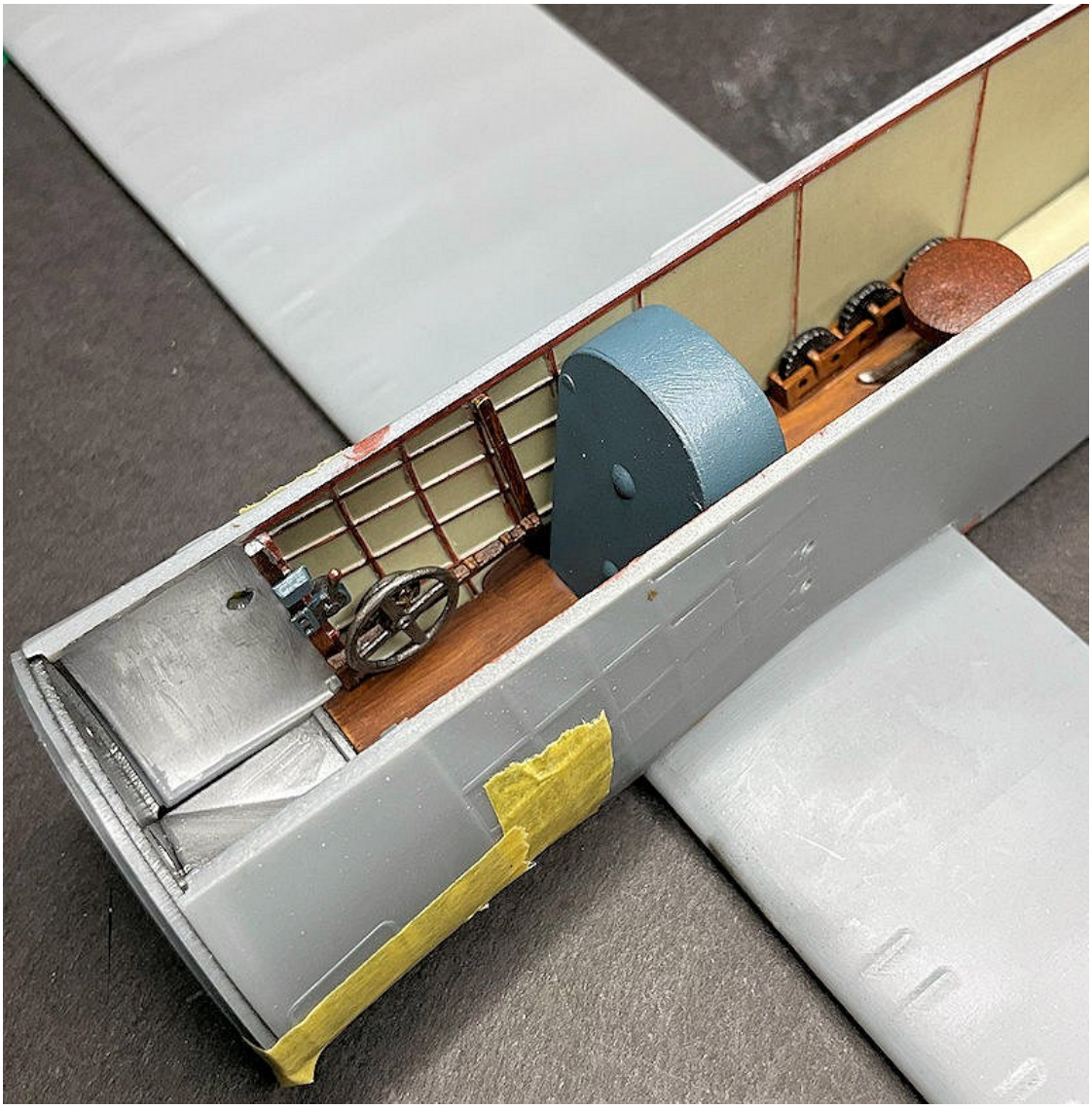
Cement the fuel tank onto the lower wing and between the two floor panels.

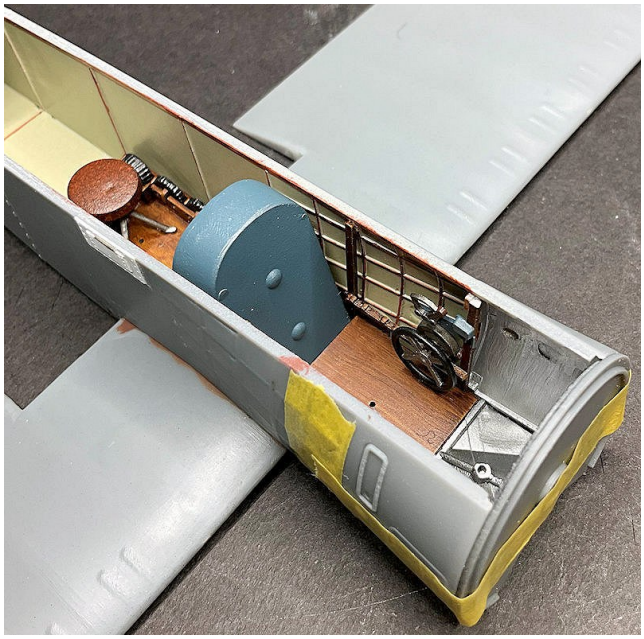
Cement the top and bottom of the front vertical member of the cockpit left frame onto the top and bottom front surface of the previously fitted curved frame on the fuselage half.

Cement the top of the rear vertical member of the cockpit left frame onto the top of the fuselage associated vertical side member.

Cement the top and bottom of the front vertical member of the cockpit right frame onto the top and bottom front surface of the previously fitted curved frame on the fuselage half.

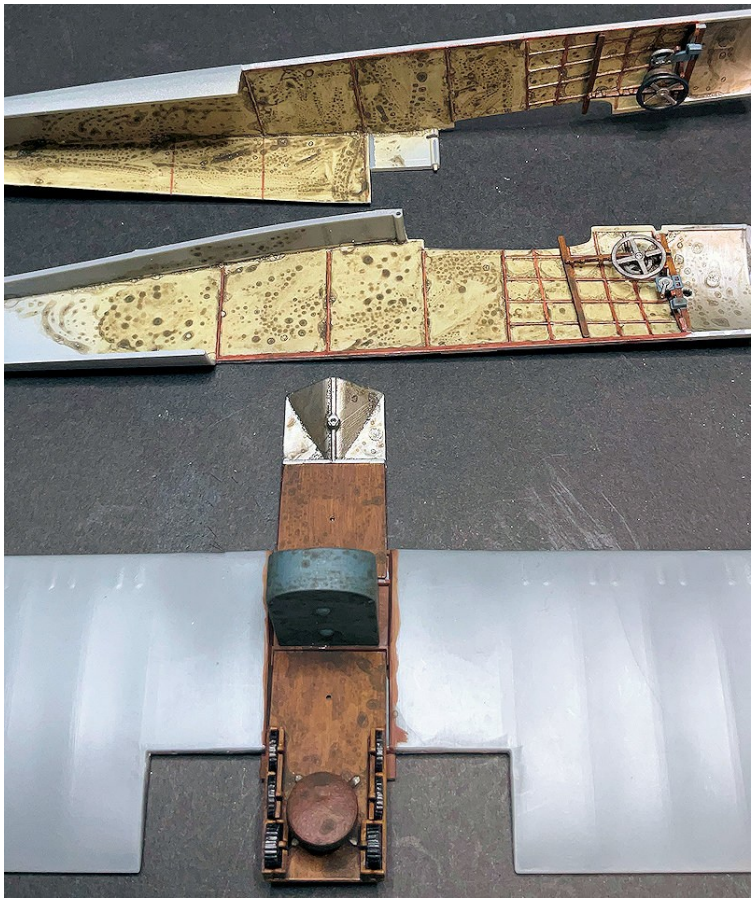
Cement the top of the rear vertical member of the cockpit right frame onto the top of the fuselage associated vertical side member.





NOTE: *On the cockpit decking panel, forward from the feed chutes for the pilot's Vickers machine gun should be metal finish, not wood effect.*

Remove the masking tapes and disassemble the fuselage halves from the lower wing.



Weathering:

NOTE: *Refer to Part 3 (Weathering).*

For general internal weathering I chose to use the 'Flory Models' Dark Dirt fine clay washes.

Brush 'Flory Models' Dart Dirt wash over the insides of the fuselage halves and cockpit area on the lower wing.

Remove the wash to achieve the desired weathering effect.

Fuselage rigging:

Bracing wires:

NOTE: *Refer to Part 6 (Rigging) for more information on the cockpit rigging. The rigging line used for bracing wires is 'SeaKnight' Monster Blade blue fishing line (0.6) as French aircraft tended to have blue coloured rigging wires.*

Fuselage side bracing wires:

NOTE: Cut twelve short lengths of blackened 0.4 mm diameter Brass or Nickel-Silver tube, such as 'Albion Alloy's' MBT04 or NST04 or similar.

Cut twelve long lengths of rigging line.

Secure a tube to one end of each line, using thin CA adhesive.

Using thin CA adhesive, secure each tube into the top corners of the frame bays on the fuselage left side, making sure the tube/lines are aligned diagonally to the opposite bottom corners of the fuselage frame bays.

Repeat the procedure to add twelve wires to the fuselage right side.

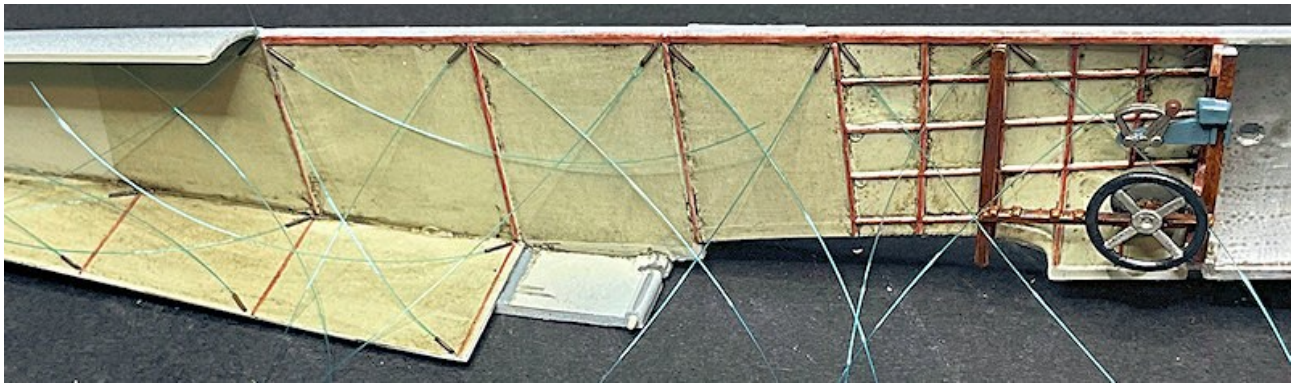
Fuselage bottom bracing wires:

Cut six short lengths of blackened 0.4 mm diameter Brass or Nickel-Silver tube, such as 'Albion Alloy's' MBT04 or NST04 or similar.

Cut six long lengths of rigging line.

Secure a tube to one end of each line, using thin CA adhesive.

Using thin CA adhesive, secure each tube onto the front corners of the horizontal members on the added false floor, making sure the tube/wires are aligned diagonally to the opposite rear corners.



Fuselage side bracing wires (continued):

Pass the free end of the second line from the front of the left fuselage side diagonally down and through the bottom opening in the forward frame.

Keeping the line taut, secure the line to the frame using thin CA adhesive.

Pass the free end of the forward and fourth wires from the front of the fuselage diagonally down and behind the vertical frame member.

Secure the wires to the fuselage using thin CA adhesive.

NOTE: *The following steps apply to the third line from the front of the fuselage and remaining wires on the fuselage side.*

Slide a tube onto each line.

Cut the end of each line such that when kept taut, the free end is against the diagonally opposite bottom corner of that frame bay.

Apply thin CA adhesive to the location point at the bottom of the frame bay.

Keeping the line taut and diagonally aligned, secure the tube and line to the fuselage side.

Cut away any residual line at the tube ends.

Repeat the procedure on the fuselage right side.

Fuselage bottom bracing wires (continued):

NOTE: *The following steps apply to wires added to the frame bays on the added false floor.*

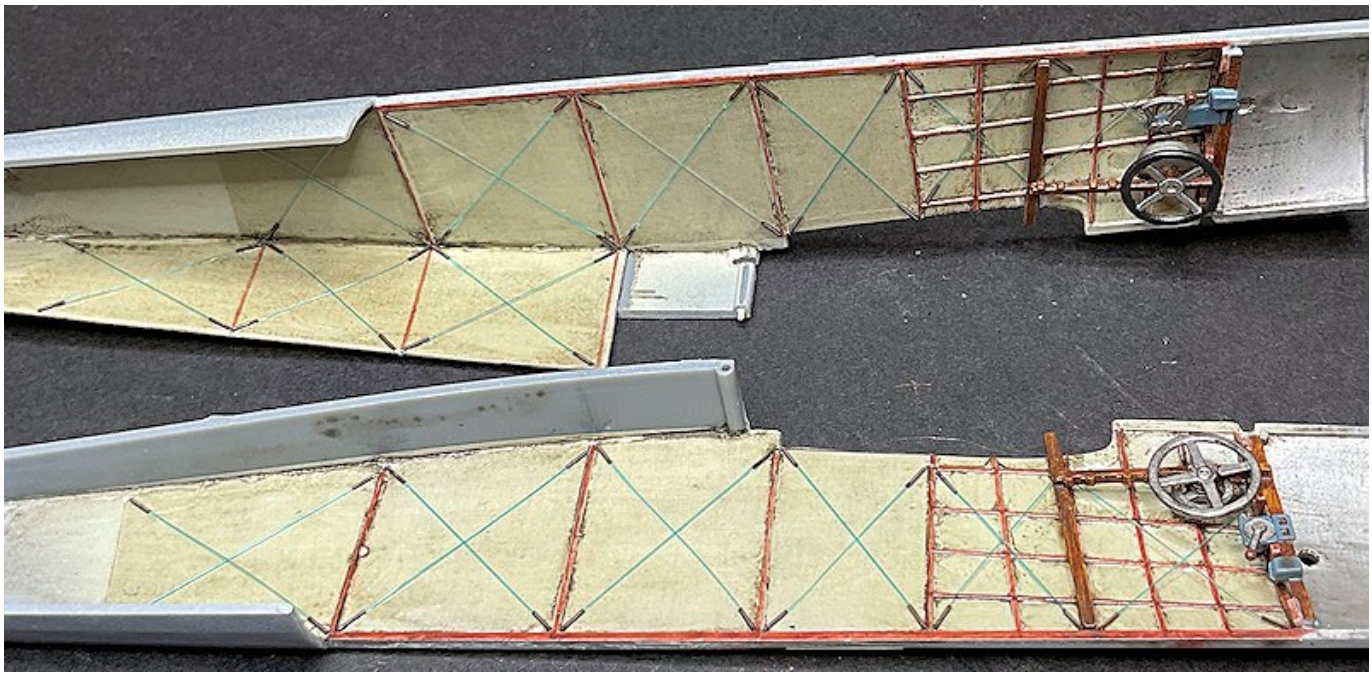
Slide a tube onto each line.

Cut the end of each line such that when kept taut, the free end is against the diagonally opposite rear corner of that frame bay.

Apply thin CA adhesive to the location point at the rear of the frame bay.

Keeping the line taut and diagonally aligned, secure the tube and line to the added false floor.

Cut away any residual line at the tube ends.



Fuselage rear cross bracing wires:

NOTE: *In the following step, the holes should be drilled at the angles required to align the diagonally crossed bracing wires, when fitted. The bottom ends of the wires will be fitted after the fuselage halves have been joined together.*

Drill holes of 0.3 mm diameter through the fuselage sides as follows:

At the fuselage frame (rear of observer/gunners cockpit) at the top of the frame member.

At the fuselage frame (rear of observer/gunners cockpit) at the bottom of the frame member.

Cut two short lengths of blackened 0.4 mm diameter Brass or Nickel-Silver tube, such as ‘Albion Alloy’s’ MBT04 or NST04 or similar.

Cut two long lengths of rigging line.

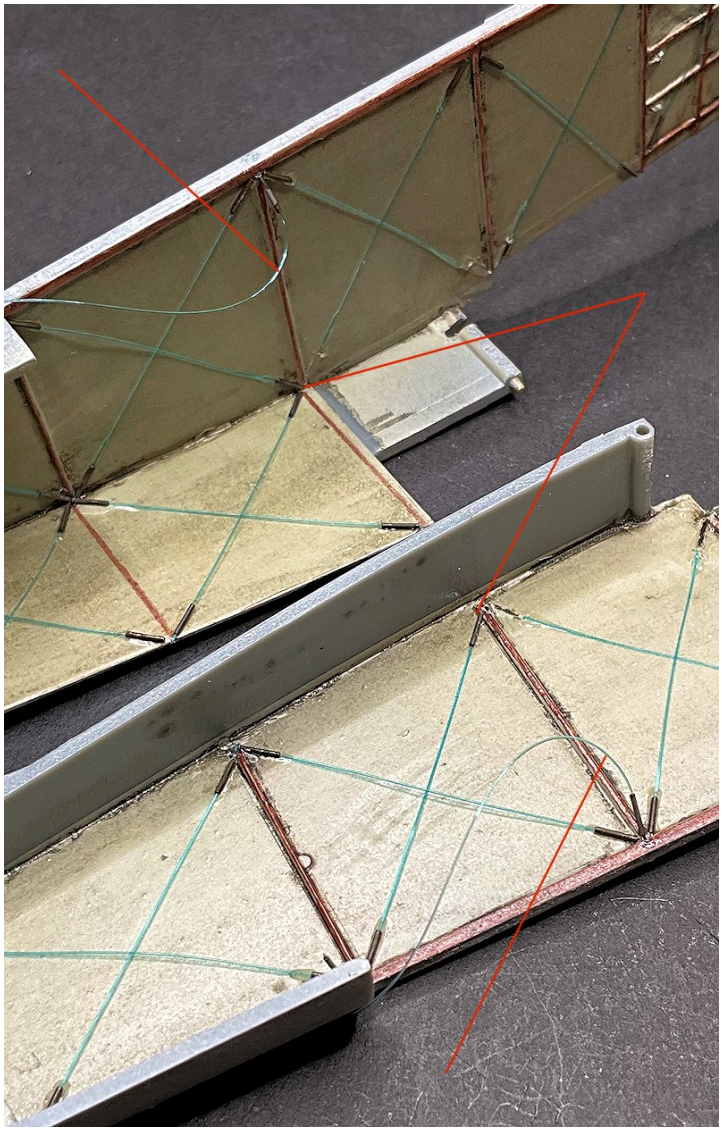
Slide a tube to onto one end of each line, leaving approximately 5 mm of line protruding.

Using thin CA adhesive, secure the tube to the line.

From the inside of the fuselage left half, pass the protruding end of a line through the top pre-drilled hole.

Secure the line in the fuselage using thin CA adhesive.

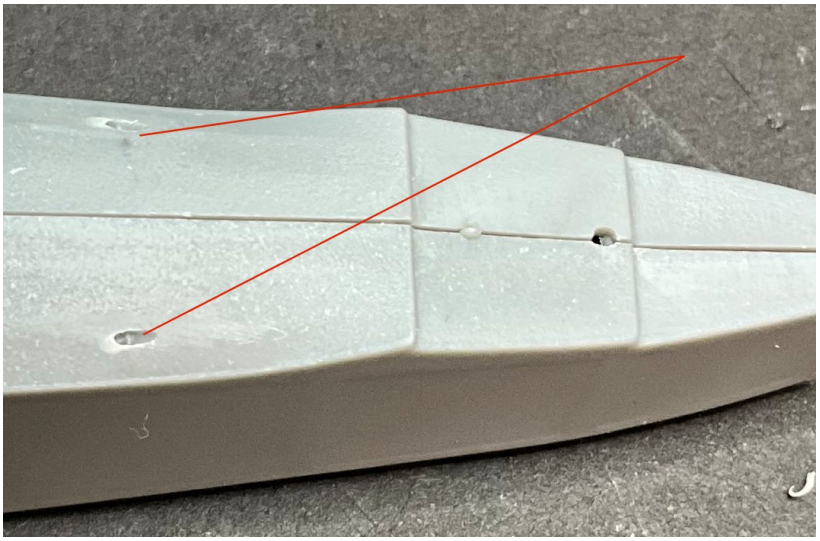
Repeat the procedure to add the other line into the fuselage right half.



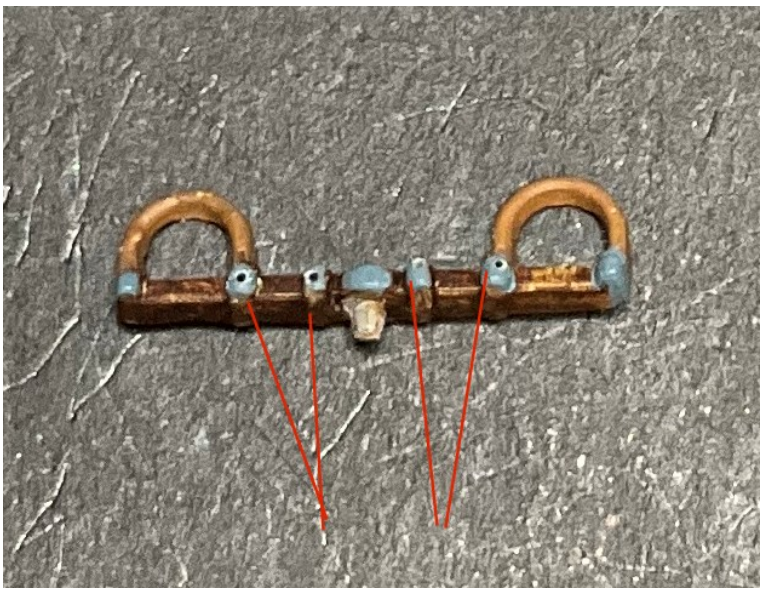
Rudder control cables:

NOTE: *Refer to Part 6 (Rigging) for more information on the cockpit rigging. During the following step, the holes should be drilled at a shallow angle towards the rear of the fuselage halves. The rudder control cables will be* ***added only after*** *the fuselage halves have been joined together.*

Drill a hole of 0.6 mm diameter through the top of the two fuselage halves. The holes should be approximately 14 mm from the tailplane locating edge and angled rearwards.



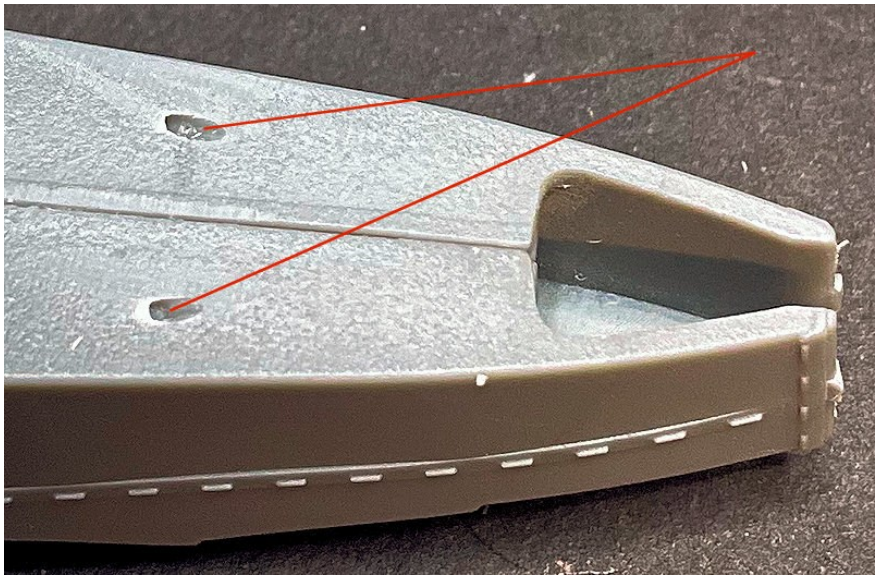
Drill holes of 0.3 mm diameter through the pilots rudder bar, as shown below.



Tail skid control cables:

NOTE: **NOTE:** *Refer to Part 6 (Rigging) for more information on the cockpit rigging. The tail skid control cables will be added after the fuselage halves have been joined together.*

Drill a hole of 0.6 mm diameter through the underside of the two fuselage halves. The holes should be approximately 23 mm from the rear of the fuselage and angled rearwards.



Aileron control cables:

NOTE: *Refer to Part 6 (Rigging) for more information on the cockpit rigging.*

The aileron control cables within the cockpit are under the cockpit floor so will **not be added** as they will not be visible in the completed model.

Elevator control cables:

NOTE: *The pre-molded external cable guides will be replaced with tube later in this build. The elevator control cables will be* ***added after*** *the fuselage halves have been joined together.*

Cut away the external cable guides, which are located at the top edge of the fuselage halves at the observer/gunners cockpit.

Tailplane incidence control cables:

NOTE: *Refer to Part 6 (Rigging) for more information on the cockpit rigging. The rigging line used is 'Stroft GTM' fishing line (0.12 mm diameter).*

Cut a length of line twice the length of the fuselage right side.

Secure one end of the line to the inside centre, rear of the fuselage right half.

Pass the free end of the line forwards and through the opening behind the vertical fuselage frame.

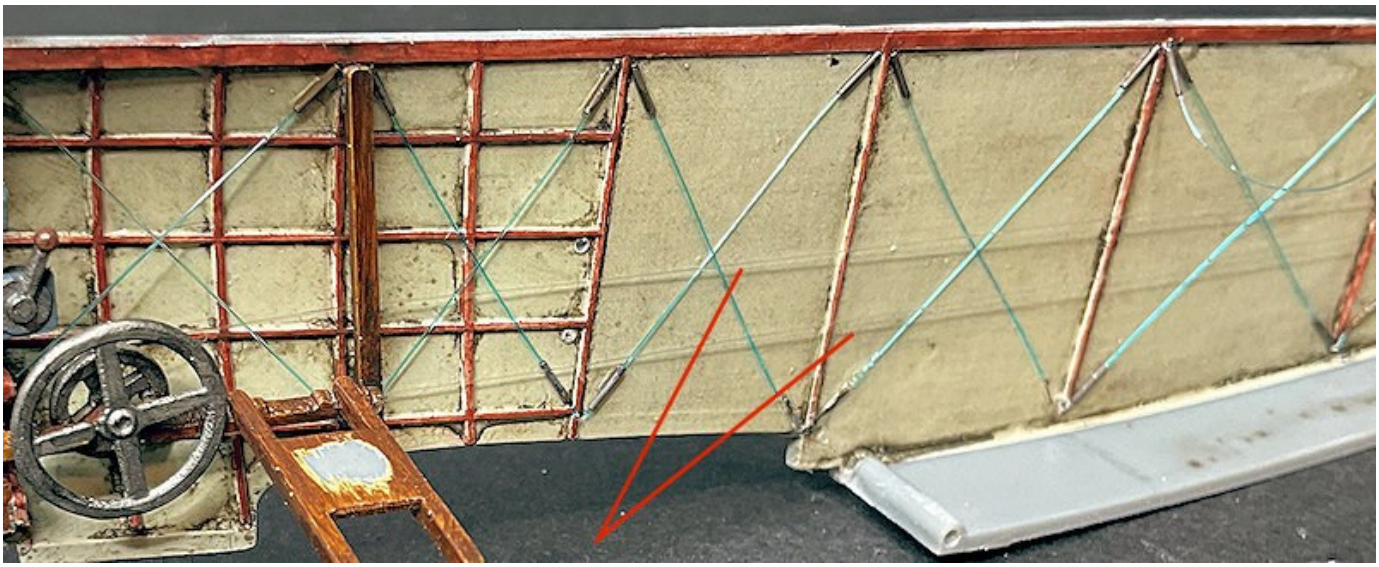
Pass the line around the outboard pulley of the tailplane incidence control wheel, making sure the line is kept taut.

Secure the line to the pulley using thin CA adhesive.

Pass the free end of the line rearwards to the inside centre, rear of the fuselage right half.

Keeping the line taut, secure the line to the fuselage using thin CA adhesive.

Cut away any residual line at the rear of the fuselage half.



Airbrake control cables:

NOTE: *Refer to Part 6 (Rigging) for more information on the cockpit rigging. The rigging line used is 'Stroft GTM' fishing line (0.12 mm diameter).*

Cut a long length of line.

Secure one end of the line to the bottom of the vertical fuselage frame member on the fuselage left half, as shown in the following photograph.

Pass the free end of the line forwards and through the opening behind the vertical fuselage frame.

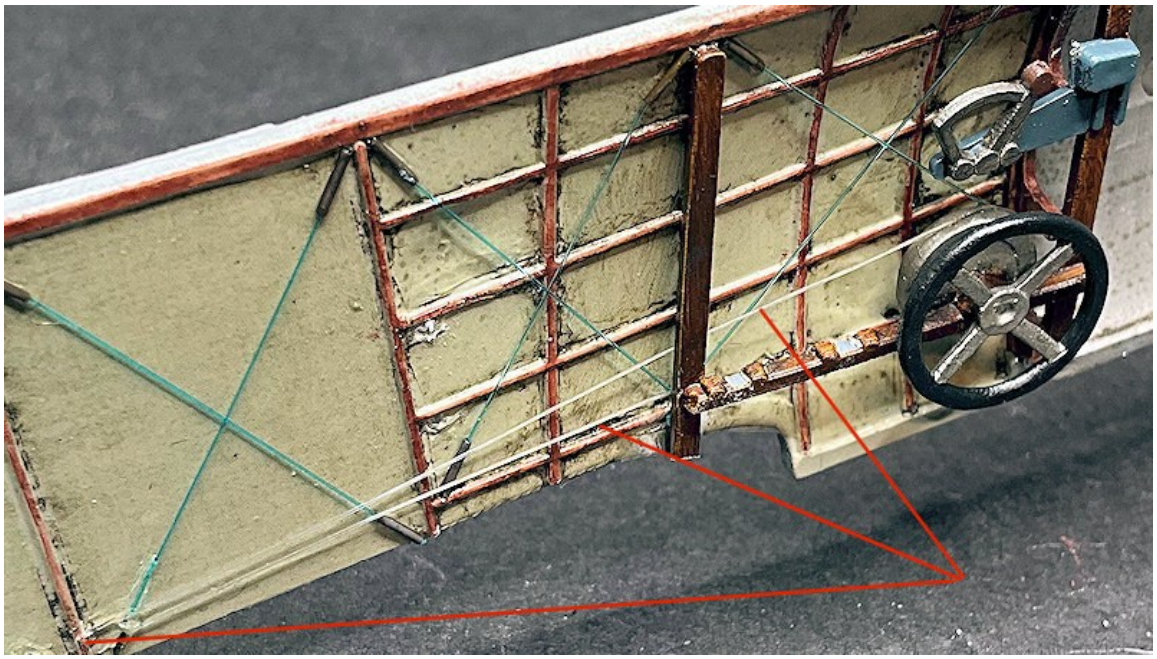
Pass the line around the outboard pulley of the airbrake control wheel, making sure the line is kept taut.

Secure the line to the pulley using thin CA adhesive.

Pass the free end of the line rearwards to the bottom of the vertical fuselage frame member, as shown in the following photograph.

Keeping the line taut, secure the line to the fuselage using thin CA adhesive.

Cut away any residual line at the rear of the vertical frame member.



Modifications (continued):

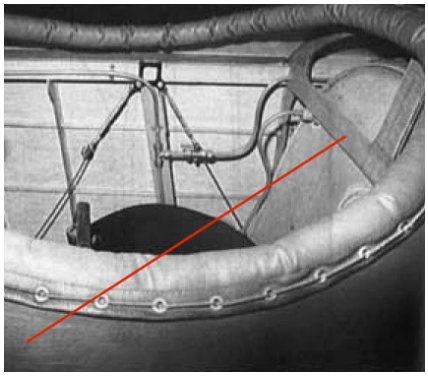
NOTE: *The kit as supplied, lacks some cockpit detail. As information is lacking for the equipment carried in the cockpits of the French 1.B2 aircraft, some guesswork and 'artistic licence' was used. Other details can be added from the information and photographs found on the reproduction build at the memorial-flight.com web site.*

Details such as the following can be added:

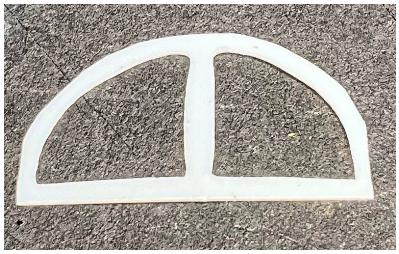
Frame over front top of fuel tank.

Forward detail in the observer/gunner cockpit.

Frame over front top of fuel tank:



To represent the fuel tank frame, I first temporarily assembled the fuselage to the lower wing. I then cut a paper template and test fitted it until the fit in the cockpit and over the top of the tank was correct. This template was then traced onto a piece of 0.3 mm thick plastic card and cut to shape. The inner openings were cut out using a sharp scalpel blade.



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

Airbrush the frame with ‘Tamiya’ Dark Yellow (XF60) or similar.

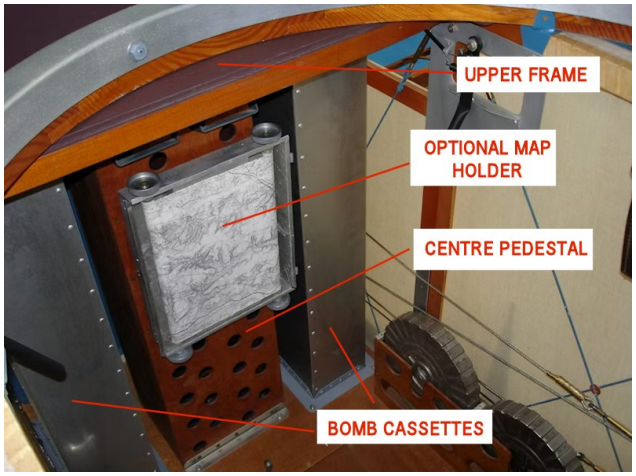
NOTE: *Refer to Part 2 (Wood Effects) of this build log for more information.*

Use the chosen method to apply a wood effect. I followed Method 2 using Windsor & Newton’ Griffin (Alkyd) oil paints:

Brush a covering coat of the **Burnt Umber** oil paint only over the front of the frame.

Remove the oil paint to achieve the desired wood effect then leave to fully dry.

Forward detail in the observer/gunner cockpit:



Bomb cassettes:

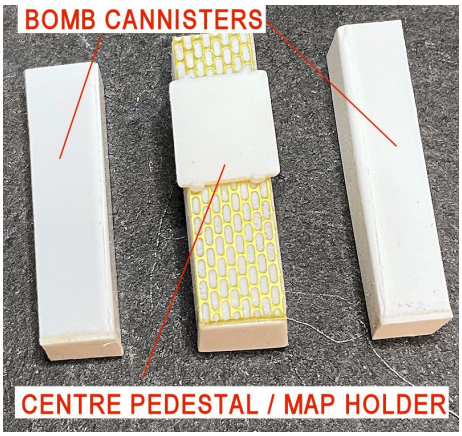
To represent the two bomb cannisters, I first cut two strips of 0.4 mm thick plastic card at 10 x 25 mm. Each was bent along the centre line to form two sided 5 mm x 25 mm right angles. These were cemented to a 5 mm square of 0.4 mm thick plastic card for the base.

Centre pedestal:

To represent the centre pedestal, I first cut three strips of 0.4 mm thick plastic card at 6 x 25 mm. Each was cemented to a 6 mm square of 0.4 mm thick plastic card (for the base) to form a three-sided 6 X 25 mm trunk. I then cut pieces of a photo-etch machine gun cooling jacket (from my spares collection) to represent the perforated front of the pedestal. These were secured to the front face of the trunk using CA adhesive.

Map holder:

To represent the map holder, I first cut an 8 x 9 mm rectangle of 0.8 mm thick plastic card. A smaller back piece square of card was cut and cemented to the centre of one side. CA adhesive was applied to the photo-etch surface of the centre pedestal and the side with the back piece positioned onto the photo-etch with the 9 mm long side vertical on the trunk. I then cut four thin slices of 1.5 mm diameter plastic rod. These were cemented to the top and bottom of the edges to represent the map turning wheels.



Airbrush the centre pedestal and the two bomb cannisters with a grey primer, such as ‘AK Interactive’ Grey (AK758) or similar.

Airbrush the centre pedestal with ‘Tamiya’ Dark Yellow (XF60) or similar.

NOTE: *Refer to Part 2 (Wood Effects) of this build log for more information.*

Use the chosen method to apply a wood effect. I followed Method 2 using Windsor & Newton’ Griffin (Alkyd) oil paints:

Brush a covering coat of the **Burnt Umber** oil paint over the front of the pedestal.

Remove the oil paint to achieve the desired wood effect then leave to fully dry.

Brush paint the map holder with ‘Mr Metal Color’ Stainless Steel (213) or similar.

Brush paint the four map turning wheels with ‘Tamiya’ Rubber Black (XF85) or similar.

Airbrush the two bomb cannisters with a gloss black, such as ‘Tamiya’ Gloss Black (X1) or similar.

Airbrush the two bomb cannisters with ‘Alclad’ Duraluminium (ALC102) or similar.

Decal:

NOTE: *The map used was printed from online sources.*

To represent a rolling map for the map holder, I printed a WW1 map from online resources. I then reduced its size on my PC software to the correct scale for the model and printed it on plain paper. It was then bent cut to size the secured onto the map holder using a small amount of PVA adhesive.

Forward upper frame:

To represent the forward upper frame, I cut a 3 x 18 mm strip of 0.8 mm thick plastic card. This was cemented onto the underside of the cockpit decking panel, just forward from the observer/gunners cockpit opening.

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

Airbrush the frame with ‘Tamiya’ Dark Yellow (XF60) or similar.

NOTE: *Refer to Part 2 (Wood Effects) of this build log for more information.*

Use the chosen method to apply a wood effect. I followed Method 2 using Windsor & Newton’ Griffin (Alkyd) oil paints:

Brush a covering coat of the **Burnt Umber** oil paint only over the front of the frame.

Remove the oil paint to achieve the desired wood effect then leave to fully dry.

Assembly (continued):

Temporarily tape together the following:

The two fuselage halves.

Lower wing into the fuselage.

Engine bulkhead into front of the fuselage.

Cement the rudder bar into its locating hole in the forward metal area of the lower wing centre section.

NOTE: *During the following step, test fit the cockpit decking panel to make sure the added frame does not foul the cannisters and pedestal.*

Cement the two bomb cannisters and centre pedestal in position on the cockpit floor at the rear of the fuel tank.

Temporarily tape the cockpit decking panel onto the fuselage.

Cement the fuel tank frame in position on the top, forward face of the fuel tank and under the cockpit decking panel.

Once the cemented parts have set, remove the cockpit decking panel and disassemble the fuselage/lower wing assembly.

Modifications (continued):

NOTE: *The kit as supplied, lacks some cockpit detail. As information is lacking for the equipment carried in the cockpits of the French 1.B2 aircraft, some guesswork and 'artistic licence' was used. Other details can be added from the information and photographs found on the reproduction build at the memorial-flight.com web site.*

Details such as the following can be added:

Fuel contents indicator tube.

Fuel supply pipes.

Oil Pulsometer pipe.

Control rods.

Ammunition container for the Vickers machine gun.

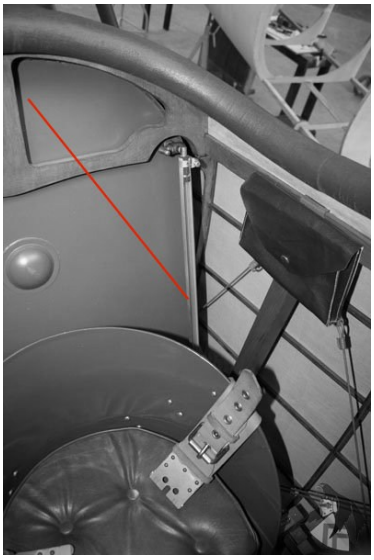
Engine blip and gun trigger cables.

Carburettor air intake pipe.

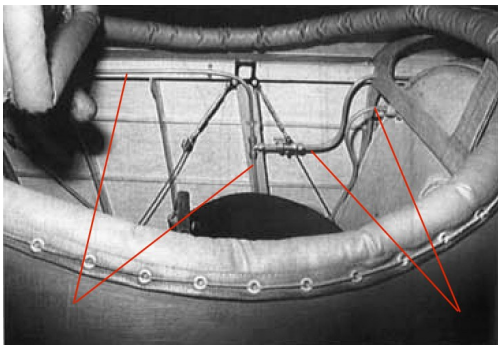
Pilot lap straps.

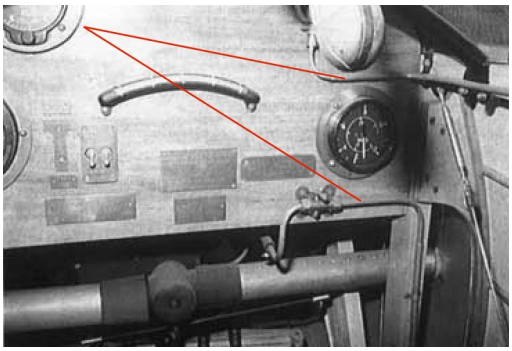
Fuel contents indicator tube:

To represent the fuel contents indicator tube, I drilled two holes of 0.3 mm diameter through the left side of the fuel tank. Two lengths of 0.2 mm diameter ‘Albion Alloy’s’ Nickel-Silver rod (NST02) were bent to 90 degrees and secured into the holes using thin CA adhesive. A length of ’MFH’ clear tube (P-957) was cut and slid onto the two rods then secured in position using thin CA adhesive.

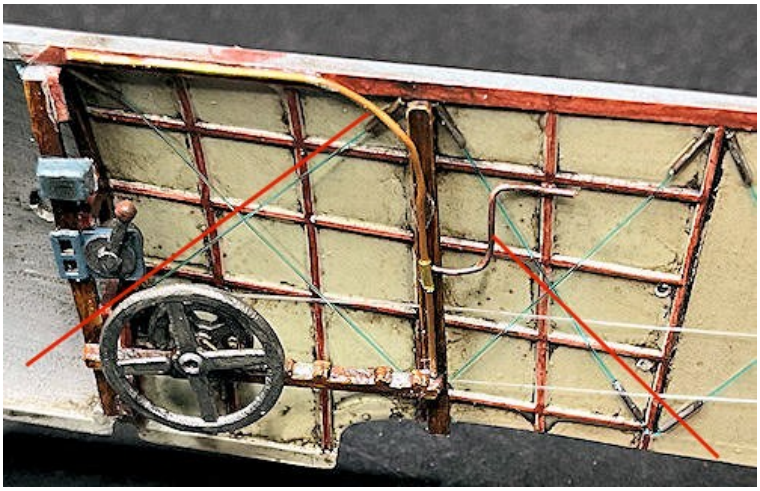


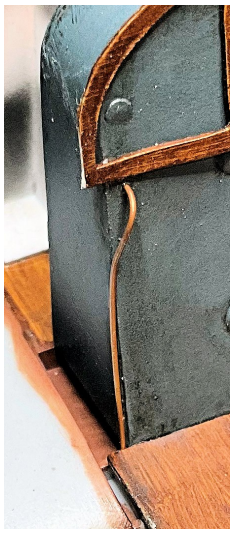
Fuel supply pipes:





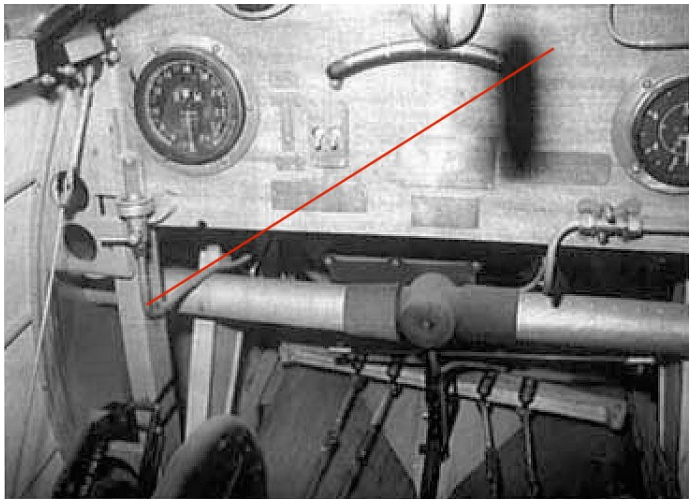
To represent just three of the fuel supply pipes, I cut three lengths of 0.4 mm diameter copper wire and a short length of 0.6 mm diameter ‘Albion Alloy’s’ Brass tube (MBT06). The first length of wire was bent to shape then the Brass tube slid onto the bottom section of the wire and secured in position using thin CA adhesive. The wire was then secured to the vertical frame member and along the upper longeron using thin CA adhesive. The second length of wire was bet to shape and secured in position against the Brass tube and vertical frame member, using thin CA adhesive. The third length of wire was secured into a 0.4 mm diameter hole drilled into the top, right front of the fuel tank and secured in the hole and side of the tank using thin CA adhesive.





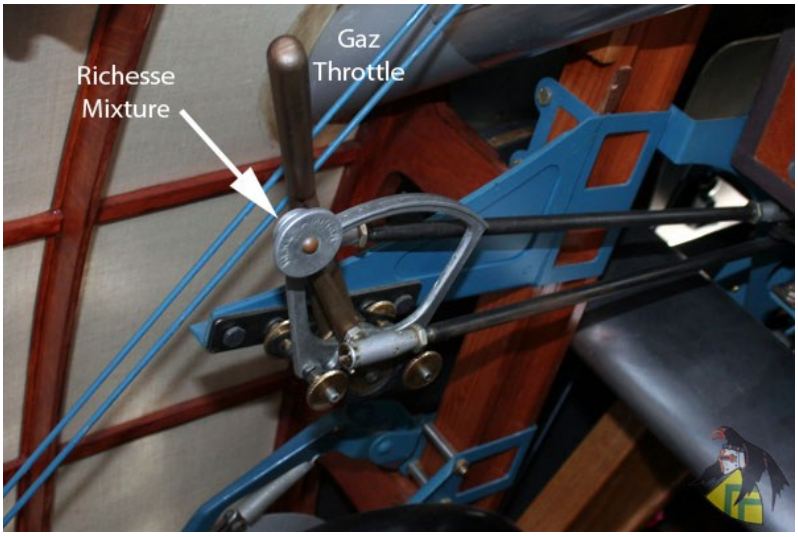
Oil Pulsometer pipe:

NOTE: *The oil Pulsometer is on the right, bottom edge of the kit supplied RFC type instrument panel, not on the bottom left edge as for the French instrument panel.*

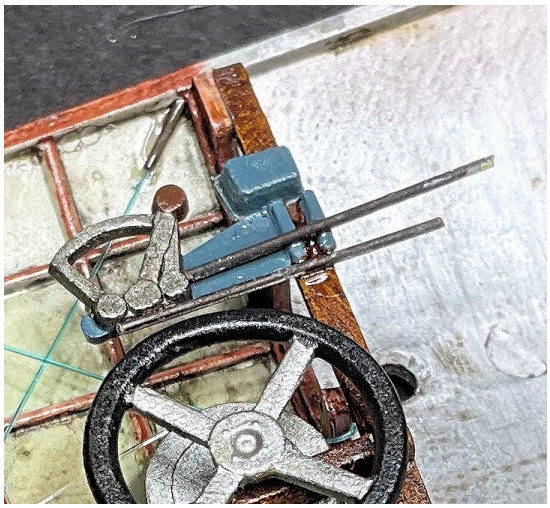


To represent the pipe, I first drill a hole of 0.3 mm diameter up into the centre of the oil Pulsometer. I then cut a short length of 0.2 mm diameter 'Albion Alloy's' Nickle-Silver rod (NSR02) which was bent to shape. The rod was secured in the Pulsometer and against the back of the instrument panel using thin CA adhesive.

Control rods:



To represent the throttle and mixture control rods, I cut two lengths of blackened 0.4 mm diameter 'Albion Alloy's' Brass tube (MBT04). These were then secured in position on the throttle quadrant using thin CA adhesive.

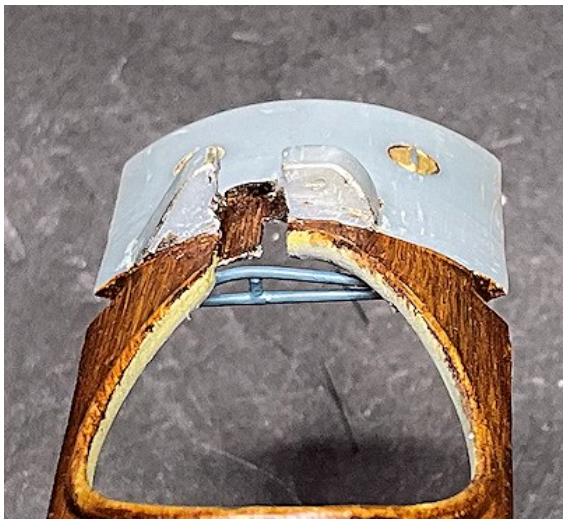


Ammunition container for the Vickers machine gun:

To represent the ammunition container, I cut a rectangle of 0.4 mm thick plastic card and cemented it to the back of the instrument panel. This was then 'stipple' brush painted with 'Mr. Metal Color' Stainless Steel (213) to represent the turned metal finish.

Gun support frame:

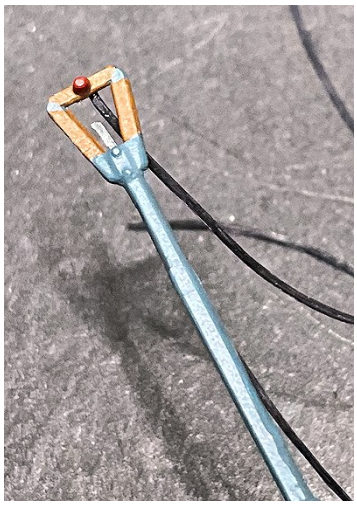
The 'Gaspatch' Vickers machine gun was temporarily taped in position between the ammunition chutes on the cockpit decking panel. To represent the cockpit support frame for the Vickers machine gun, I cut two lengths of 'Plastruct' 0.5 mm diameter plastic rod. One rod was bent to be able to contact the underside rear of the gun's breach block and to contact the underside of the cockpit decking panel. This rod was cemented in position. The second rod was cemented across the ends of the first rod to form the basic support frame. A short piece of rod was cut so as to fit between the frame rods under the gun's breach block and was then cemented in position. The frame was then primed grey and painted with 'Tamiya' Medium Blue (XF18).



Blip and trigger cables:

NOTE: *The modified control column with the cables attached will be fitted after the fuselage halves have been joined.*

To represent the engine blip and gun trigger cables, two lengths of 'EZ' black line (heavy) were secured to the front top of the pilots control column, using thin CA adhesive. The top of the gun trigger line was positioned inside the triangular hand grip and painted with 'Mr. Metal Color' Stainless Steel (213) to represent the gun trigger.



Carburettor air intake pipe:

NOTE: *The kit supplied carburettor air intake pipe (G8) will be replaced by Brass tube and fitted after the fuselage halves have been joined.*

To represent the carburettor air intake pipe, I cut a length of 'Albion Alloy's' 1.8 mm diameter tube to span across the joined fuselage. The locating holes in the fuselage were drilled out to 1.8 mm diameter.

Pilot lap straps:

Secure the replacement pilot's seat centrally onto the seat support frame (D2), using thin CA adhesive.

As the kit does not supply any seat belts, I created a set from spare 'HGW Models' fabric sets.

The two seat belts were secured in position on the pilots seat using thin CA adhesive.

Assembly (continued):

General:

NOTE: *Before assembly make sure all primer, paint or decal is removed from any mating surfaces.*

Temporarily tape the two pre-rigged cross bracing wires (in the rear of the observer/gunners cockpit) over onto the outside of the fuselage. This will prevent the wires from being snagged in the joint seam of the two fuselage halves.

Cement the two fuselage halves fully together.

To clear the lower wing during assembly, carefully prise slightly apart the front ends of the fuselage halves.

Insert the lower wing assembly fully into the fuselage, making sure to not catch any of the internal details.

Cement the lower wing assembly into the fuselage, including along the lower wing to fuselage joints and the bottom fronts of the fuselage sides to the forward sides of the cockpit floor.

Cement the engine bulkhead fully into its locating recess around the front of the fuselage halves.

Cement the pilot's seat assembly fully into its locating recesses in the cockpit side frames.

Cement the instrument panel onto its locating lugs on the fuselage side frame. The bottom corners on the forward face of the panel locate onto the lugs.

Cent the pilot's control column into its locating hole in the cockpit floor.

Pass the two wires from the control column down and under the instrument panel into the forward bay area.

Loop the wires up and secure them to the rea of the instrument panel using thin CA adhesive.

Remove the fuselage retaining tape from the two pre-rigged cross bracing wires (in the rear of the observer/gunners cockpit).

Pass the free ends of the two pre-rigged cross bracing wires diagonally down and across then through the pre-drilled holes in the bottom edge of the fuselage sides.

Keeping the wires taut, secure them in the holes using thin CA adhesive.

Cut away any residual line at the fuselage edges.

Slide the replacement tube for the carburettor air intake through the fuselage holes making sure to leave equal tube protruding at both sides of the fuselage.

Secure the tube into the fuselage by applying thin CA adhesive to the inside of the fuselage.

Brush paint the tube inside the fuselage with 'Mr. Metal Color' Stainless Steel (213) or similar.

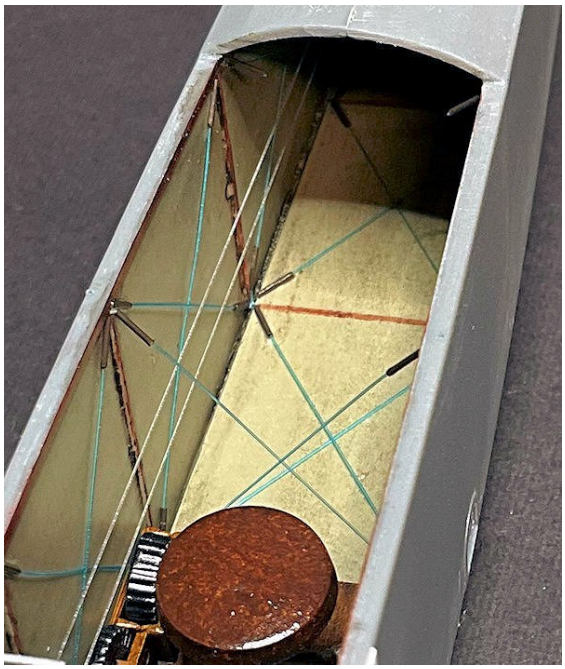
Test fit the replacement ’Aviattic’ engine cowl onto the engine bulkhead and, if necessary, file or sand away any protruding edge of the bulkhead to blend it with the rear edge of the engine cowl.

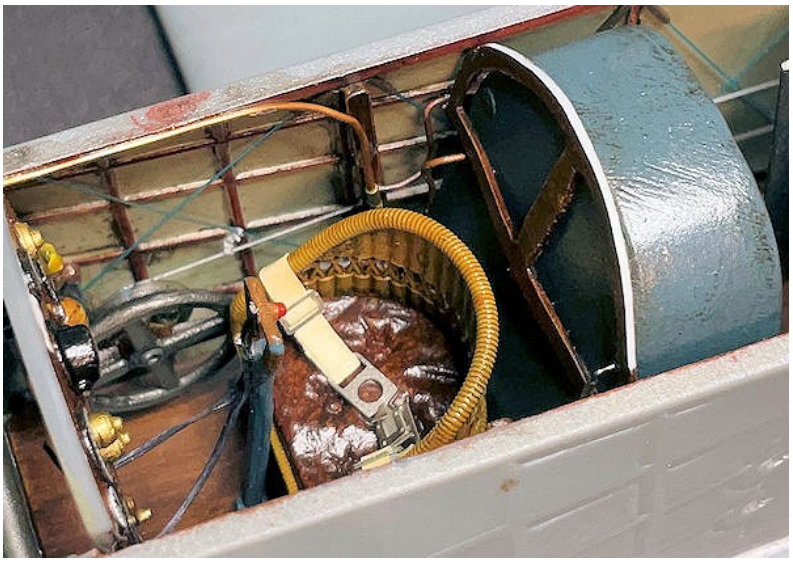
Test fit the cockpit decking panel onto the fuselage and, if necessary, remove material from the locating edges of the panel to make sure the panel, when fitted, aligns with the edges of the fuselage (no steps between the two edges). Also, sand the tops of protruding cockpit parts to allow the decking panel to contact the fuselage sides.

Airbrush the inside of the fuselage with a semi-gloss clear coat, such as ‘Tamiya’ Semi-Gloss (X35) thinned 60/30 with ’Mr. Color’ Rapid thinners. This will seal and reduce the sheen of the applied rigging.

Sand all seam joints to blend the adjacent surfaces. If necessary, fill any gaps with such as ‘Mr. Surfacer’ 500 or 100, then once set, sand the seam joint. Alternatively, wipe the surfacer with a cotton bud (Q-tip) dampened with ‘Mr. Color’ levelling thinners (400), which will remove excess surfacer.

The following photographs show the internal fuselage detail.





The cockpit decking panel temporarily fitted

Landing gear:

NOTE: *I drilled out the two locating recesses in the bottom of the two landing gear struts (25G and 27G) using a 0.8 mm diameter drill. I also reduced the thickness of the axle locating flanges on the inner, bottom of the axle halves (8D). These help to better locate the axle fairing and axle halves.*

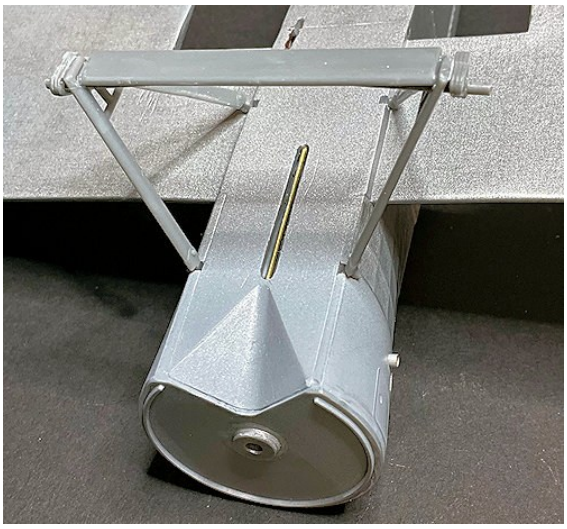
Pass the inner ends of the axle halves through the forward openings in the landing gear struts and fully locate the axle inner flanges into the locating recesses in the outer, bottom of the landing gear struts.

Cement the axle halves onto the landing gear struts.

Locate the flat bottom of the axle halves into the axle recesses in the axle fairing (12F) and the locating stubs at the fairing ends, into their drilled out locating holes.

Keeping the axles halves and landing gear struts fully together, cement the axle halves to the fairing and the fairing to the struts.

Before the cement fully sets, check fit the landing gear assembly into its locating recesses in the underside of the fuselage, making sure the assembly locates fully and is parallel to the to the fuselage underside and lower wing leading-edges.



Observers gun mounting:

Typical gun mounting

Bend the two support arms (24D) along the pre-molded crease lines at the top, sides.

Cement the two supports into their locating recesses in the swivel ring.

NOTE: *During the following step, make sure the drilled mounting spigot is uppermost.*

Slide the mount arm through the two support arms with the ends onto their location points.

Cement the mount arm to the swivel ring and support arms.

Painting (continued):

Make sure all surfaces of the following parts to be painted are free from surface oil, grease etc by wiping the surfaces with Isopropyl Alcohol or similar:

Fuselage/lower wing assembly:
Upper wing.
All four ailerons.
Both airbrakes.
Elevator.
Rudder.
Fin.

Blank off the open top of the fuselage and the added rocking shaft opening on the underside of the fuselage.

Airbrush all of the primed parts with a grey primer, such as 'AK Interactive' Grey (AK758) or similar.

Airbrush the following with 'Tamiya' Flat Aluminium (XF16), thinned 60/30 with 'Mr. Color' Rapid thinners, which leaves a semi-gloss finish:

Fuselage/lower wing assembly:
Upper wing.
All four ailerons.
Both airbrakes.
Elevator.
Fin.

Airbrush the rudder with 'Tamiya' White (XF2) or similar.

NOTE: *The following step is to provide a smooth surface for the application of decals.*

Airbrush the following with one or more coats of 'Tamiya' Clear Gloss (X22), thinned 60/30 with 'Mr. Color' Rapid thinners.

Fuselage/lower wing assembly:
Upper wing.
All four ailerons.
Both airbrakes.
Elevator.
Fin.

Decals (continued):

'Aviattic':

NOTE: *The decals to be applied to the linen covered areas of the model will be cut the 'Aviattic' Weave Linen Effect (ATT32236) decal sheet. Refer to Part 4 (Decals) of this build log for more information on applying these decals. These 'Aviattic' decals are not 'cookie cut' (pre-shaped), but are supplied as A4 sheets. Therefore, care is required to ensure the decals are cut out accurately to fit the various areas of the model. Make sure you cut away the white border around the decal sheet before cutting out the decals, otherwise the cut decals may include parts of the white borders. Make sure you trace the decal outlines onto the* ***rear surface*** *of the decal sheet.*

Flight surfaces:

NOTE: *Due to the width of the upper wing, it is advisable to cut two separate decals that join at the centre line of the wing. It's best to cut separate decals for both undersides of the tailplane, as this avoids covering the mating surface to the fuselage top, rear.*

Don’t apply too much pressure when outlining out the decals, otherwise the outline will show through on the printed decal surface.

Using sharp scissors or a scalpel blade, carefully cut out each decal. Make sure there is a clean cut through the decal sheet, as several cuts can cause slight ‘fraying’ at the cut edge, which can pull fine strips of the decal away when removed.

NOTE: *The ‘Aviattic’ 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, otherwise particles on the surface will cause ‘silvering’ (trapped air) under the decals when dry.

Wet the model surface with clean water.

NOTE: *Apply the upper surface decals first followed by the underside decals. Make sure the edges of the decals do not overlap, as this will ’double’ the decal and will show as being darker.*

Soak the decal in the prepared decal water for around 30 seconds or long enough to be able to move the decal on its backing sheet.

Lift the decal on its backing sheet from the water.

NOTE: *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 model and holding that end, slide out the backing paper to locate the remainder of the decal onto the model surface.

Position the decal correctly on the model surface.

Using a soft and wide brush, smooth out the decal, removing any residual water from underneath and smoothing the decal onto the surface. Continue this along the length of the decal, taking care not to touch the decal surfaces with your fingers, as this will cause ripples in the decal. If you must touch the decal, wet your fingers first.

Once the decal is smoothed down onto the model surface, apply pressure across the decal with a soft and dry tissue paper or cotton bud. This will expel any remaining water and press the decal onto the model surface. Check over the decal to make sure there are no tears, folds or trapped air bubbles, which need to be rectified before the decal sets.

Once the decals have set and if necessary, apply ’MicroSol’ or similar decal solution around any lifted edges of the decals. Where decals cover location holes or other openings, such as wing strut location holes, aileron pulley apertures, 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. Applying too much X20A can melt and damage the decal.

Allow these decals to fully set.

NOTE: *Even when applied and sealed, the decals can easily be damaged if handled roughly or scraped with a sharp edge. Once decals have been applied, I use either lint free cotton or rubber surgical gloves when handling those surfaces.*

Fuselage surfaces:

NOTE: *Due to the shape of the fuselage, it is best to create two paper templates for the two sides and another template for the top rear of the fuselage and the underside. Use the templates as cutting guides for the decals. It’s best to apply the fuselage side decals before the top and underside surfaces. Make sure the templates are cut around the added access panel at the top edge of the fuselage sides, forward from the observer/gunners cockpit.*

Using the upper and lower wings, four ailerons, tailplane/elevator and fin as guides, ‘lightly’ trace their outlines (both sides) onto the **rear** of the ’Aviattic’ decal sheets.

Using the paper templates as marking guides, ‘lightly’ trace the outlines of template onto the **rear** of the ’Aviattic’ decal sheets. Make sure you don’t apply too much pressure when marking out the decals, otherwise the outline will show through on the printed decal surface.

Using sharp scissors or a scalpel blade, carefully cut out each decal. Make sure there is a clean cut through the decal sheet, as several cuts can cause slight ‘fraying’ at the cut edge, which can pull fine strips of the decal away when removed.

Apply the fuselage decals as previously described. Once all of the decals are fully set (overnight), trim away any residual overhanging decal at the edges of the parts.

Aircraft markings:

Creation:

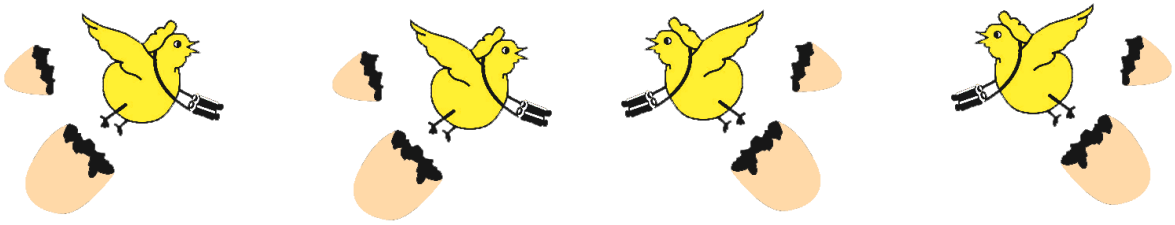
NOTE: *This kit supplies markings for an RFC aircraft, not a French aircraft. Therefore, the various markings for this model needed to be created. For this I used ‘Paint Shop Pro’ (2019) PC software, a Canon i-Sensys LBP631Cw Laser printer and ‘MDP’ Laser decal paper (White backed and Clear).*

*‘MDP’ Laser decal paper (**Clear** backed) - clear backed decal paper is better for intricate shapes, as this avoids the need to have to cut carefully around the decal to remove carrier film.*

*MDP’ Laser decal paper (**White** backed) - white backed decal paper is better for regular shapes, which are easier to cut around. Also, aa this decal paper is white back, it should stop any the surface under the decal from showing through the decal.*

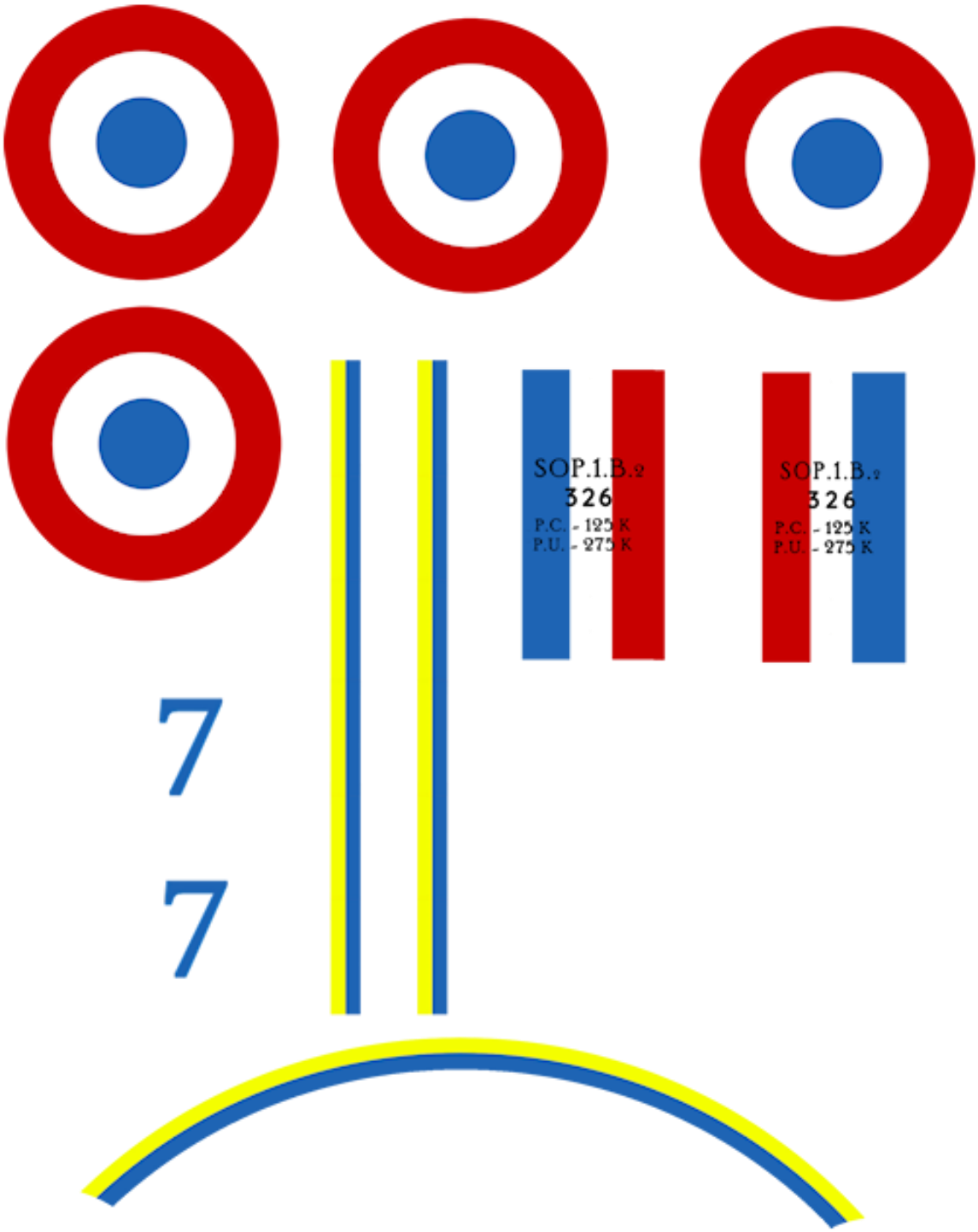
The various markings/roundels were created in the software and coloured and resized to fit the model. These were then printed on the laser printer. A laser printer seals the pigment colours onto the laser decal paper by fusing the pigments with heat. This means there should be no colour bleed when the decal is released from the backing paper with water.

The chick/egg decals were printed on ‘MDP’ Laser decal paper (Clear backed).



Example of French rudder markings.

The remaining markings/roundels were printed on ‘MDP’ Laser decal paper (White backed).



NOTE: *As the clear backed decal paper can be translucent, the surface under the decal may show through the decal. To lessen this the fuselage chick/egg markings were printed and applied twice (one on top of the previous).*

Also, the chick/egg and rudder markings were printed for the left and the right sides of the fuselage:

Chick facing forwards on the fuselage.

Red on the rudder at the rear of the rudder.

Print first on paper and check the colour and fit of the decals and adjust if necessary.

Application:

NOTE: *Refer to Part 4 (Decals) for more information.*

Apply the white backed printed roundels to the upper and lower wings. Position, mark then cut the roundels to create a wing and aileron decal.

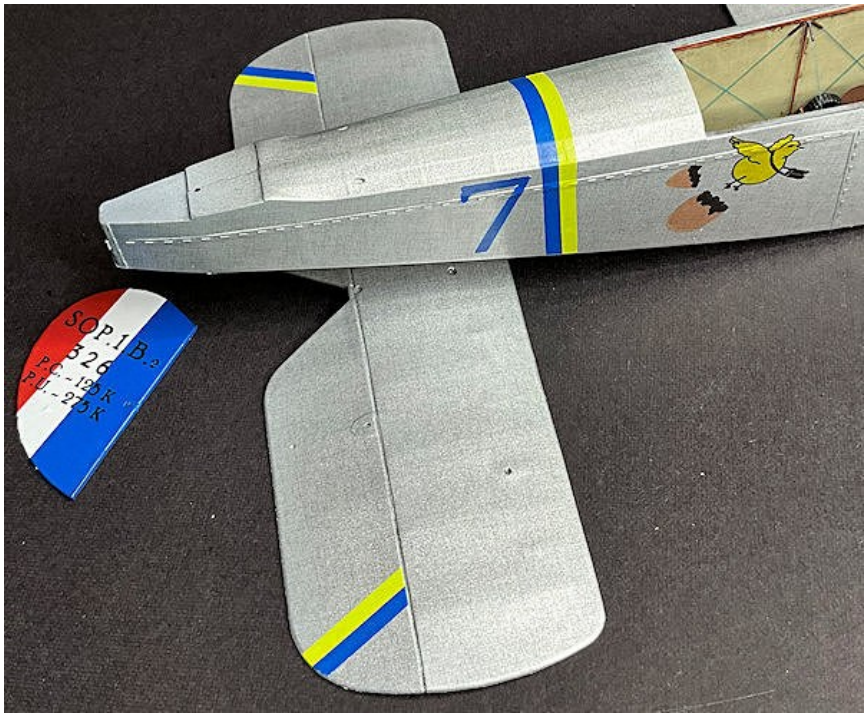
Apply the clear backed printed chick/egg to the fuselage sides. Then apply a second decal accurately over the first decals, making sure the decal edges are aligned.

Apply the white backed printed yellow/blue stripes around the top and sides of the fuselage, making sure the yellow-coloured band faces forwards.

Apply the white backed printed blue number seven to the sides of the fuselage.

Apply the white backed printed yellow/blue stripes to the elevator ends, making sure the blue coloured band faces outboard on both sides of the elevator.

Lay the rudder on the back of a white backed printed rudder decal, making sure the red coloured stripe is at the rear edge of the rudder. Making sure the text is positioned inside the rudder area, pencil outline the shape of the rudder edges. Carefully cut out the decal and apply it to the rudder side. Repeat the procedure to apply the decal onto the opposite side of the rudder.



Modifications (continued):

Underside opening panels:

NOTE: *As the lower wing is now part of the fuselage assembly, the underside opening panel for the bomb cannisters can be added.*

To represent two simple panels, I cut the panels from 0.1 mm thick plastic card and cemented them in positing on the fuselage underside. The panel hinges were represented but two short lengths of 0.4 mm diameter Nickel–Silver rod from 'Albion Alloy's (NSR04). These were secured in position using thin CA adhesive.

Painting (continued):

Blank off the parts (to prevent overspray contamination) to leave the following exposed for painting:

Cockpit decking panel at the rear of the forward metal panel area (including the two ammunition chutes).

Fuselage at the rear edge of the forward metal panels.

Underside of lower wings and fuselage at the rear of the added bomb cassette panels.

Inside of the created cover for the rocking shaft.

Airbrush the exposed areas with 'Tamiya' Gloss Black (X1) or similar.

Airbrush the exposed gloss black areas with 'Alclad' Steel (ALC112) or similar.

Remove all masking.

Brush paint the three filler caps on the cockpit decking panel with 'Mr. Metal Color' Brass (219) or similar.

Brush paint the cockpit surround padding on the cockpit decking panel with 'AK Interactive' Brown Leather (AK3031) or similar.

Brush paint the mounting ring for the observer/gunners weapon on the cockpit decking panel with 'Tamiya' Medium Blue (XF18) or similar.

Brush paint the exposed added rocking shaft in the fuselage underside, the tail skid frame and the tube in the fin with 'Tamiya' Medium Blue (XF18) or similar.

Brush paint the tail skid with 'Tamiya' Flat Earth (XF52) or similar.

NOTE: *The following step is to provide a base colour for the engine cowl, which will be subsequently painted red.*

Airbrush the replacement 'Aviattic' engine cowl with 'Tamiya' White (XF2) or similar.

Airbrush the replacement 'Aviattic' engine cowl with 'Tamiya' Red (XF7) with Black (XF1) to approximately 85/15% ratio.

Weathering (continued):

NOTE: *A semi-gloss clear varnished surface is better for applying weathering. Also, the varnish will seal and protect the applied decals.*

Airbrush the following with a semi-gloss clear coat, such as ‘Tamiya’ Semi-Gloss (X35) thinned 60/30 with ’Mr. Color’ Rapid thinners:

External surfaces of the fuselage/lower wing assembly.

Upper wing.

All four ailerons.

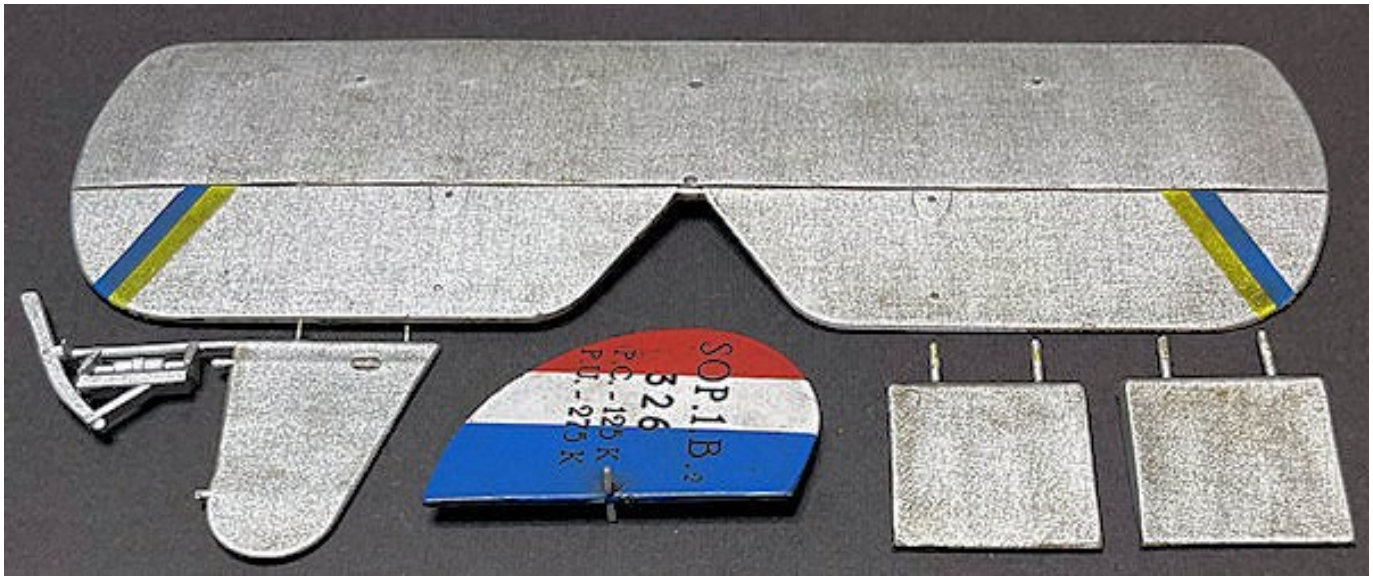
Tailplane/elevator.

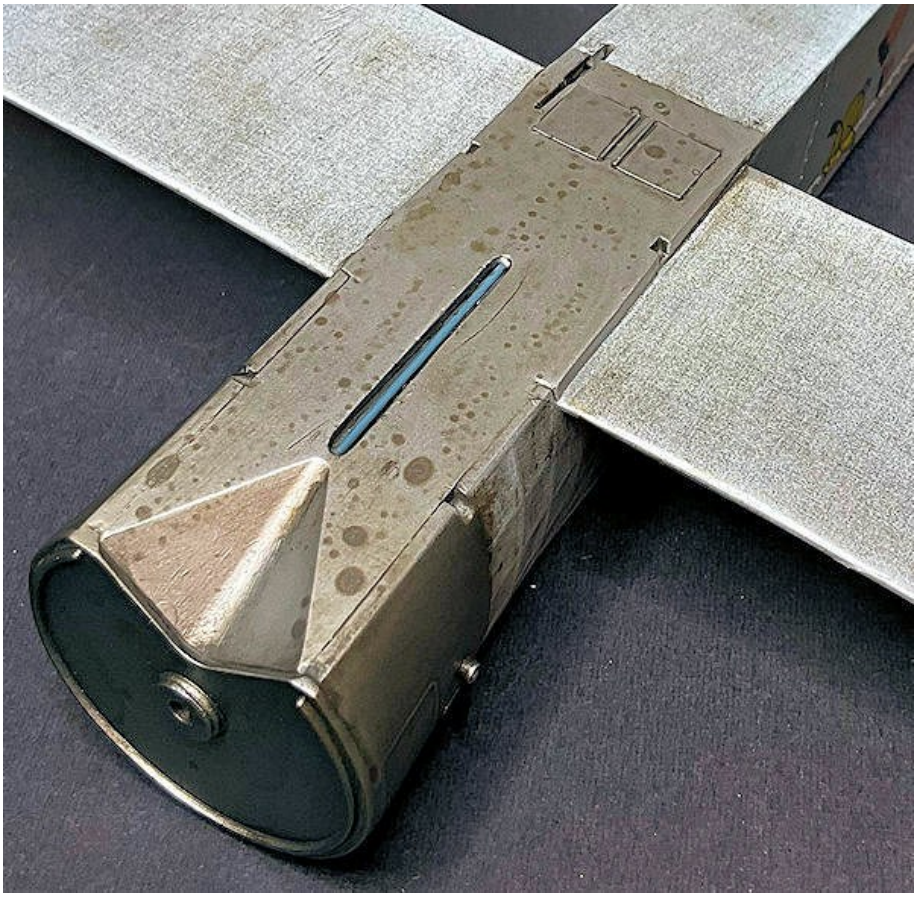
Fin.

Rudder.

Both airbrakes.

Cockpit decking panel.





Lightly brush ‘Tamiya’ Weathering Master (Set A - Mud) along the fuselage bottom edge, including the underside.

Lightly brush ‘Tamiya’ Weathering Master (Set D - Oil Stain) along the wings, airbrakes and the tailplane leading and trailing edges, along the aileron and elevator edges and the fuselage underside at the rear of the engine cowl.

Lightly brush streaking of ’AK Interactive’ Kerosene (AK2039) on the underside of the fuselage at the rear of the engine cowl.

To represent wheel splatter, brush flick ‘Flory Models (Grime) clay wash onto the underside of the lower wings at the rear of the landing gear wheels (position the landing gear on the fuselage as a guide).

Rigging (continued):

NOTE: *Refer to Part 6 (Rigging) for more information on the cockpit rigging. At this stage of the build the control cable rigging for the* ***rudder, tailplane incidence*** *and* ***tail skid*** *can be fitted. The rigging materials used are:*

'Stroft GTM' or 'Steelon' 0.12 mm diameter mono-filament.

Blackened 0.4 mm diameter Brass or Nickel-Silver tube from 'Albion Alloy's.

The ***elevator*** *control cables will be fitted later in this build.*

Tail skid control cables:

Fuselage right side:

NOTE: *The inboard locating holes for the tail skid control cables were pre-drilled through the fitted pilot's rudder bar previously. It's best to use straight pointed tweezers to guide the line through the fuselage.*

Cut two lengths of line longer than the fuselage length.

Cut two short lengths of blackened tube.

NOTE: *During the following step, the line will pass through the cavity of the fuselage.*

Pass a line through the pre-drilled hole in the right, underside rear of the fuselage.

Leave enough line protruding from the hole in the fuselage to be able to easily reach the tail skid (when fitted).

Apply a piece of masking tape to temporarily hold the line onto the fuselage.

Secure the line in the hole using thin CA adhesive.

Remove the masking tape.

Pass the free end of the line inside the fuselage, forwards along the right side of the fuselage, making sure the line is passed between the crossed bracing wires already fitted in the fuselage.

Pass the line between the fuselage side and the added bomb cassettes and fuel tank.

Pass the line under the bottom of the added frame on the front, top of the fuel tank, then down behind the rear cross member of the pilot's seat support frame.

NOTE: *During the following step, make sure the line is kept clear of the pilot's tailplane incidence control wheel.*

Pass the line under the pilot's seat frame then forwards and across the cockpit floor to the pilot's rudder bar.

Pass the line out of the fuselage then slide a blackened tube onto the line.

Holding the end of the line, pass the end through the inboard pre-drilled hole through the right side of the pilot's rudder bar.

Keeping the line taut, secure the line to the rudder bar, using thin CA adhesive.

Secure the tube to the line, using thin CA adhesive.

Cut away any residual line from the front of the rudder bar.

Fuselage left side:

Repeat the procedure to add the other control line on the fuselage left side, keeping it clear of the pilot's airbrake control wheel

Rudder control cables:

NOTE: *The outboard locating holes for the rudder control cables were pre-drilled through the fitted pilot's rudder bar previously.*

Cut two lengths of line longer than the fuselage length.

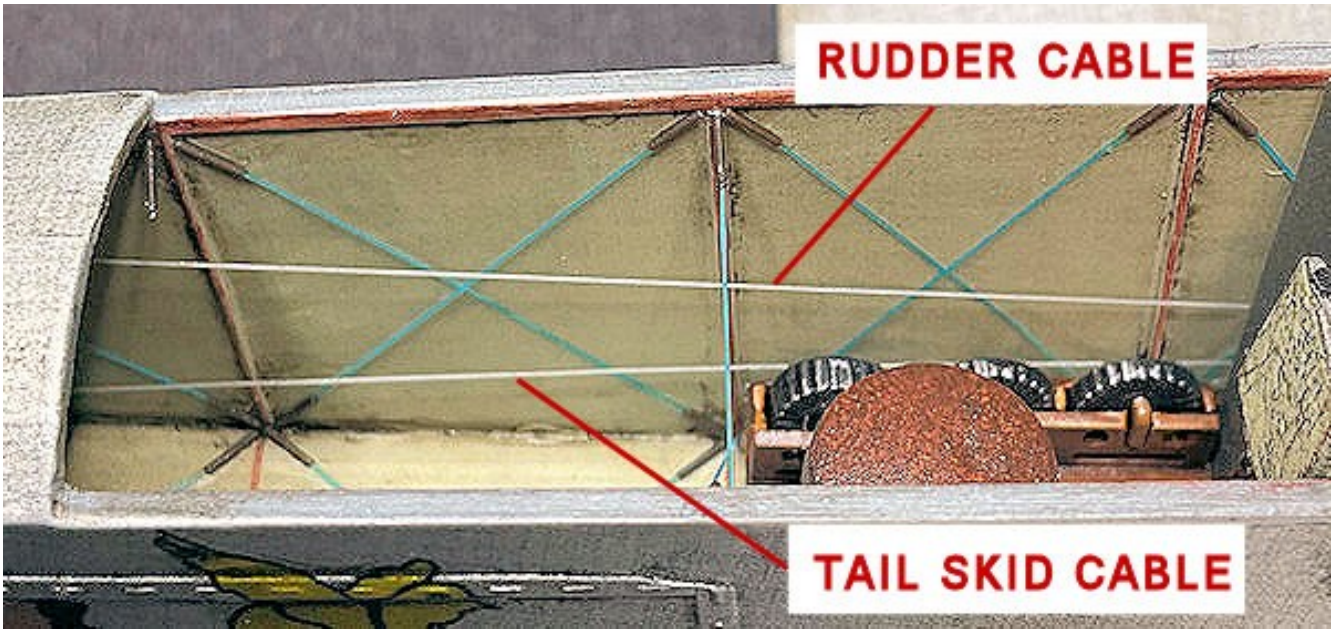
Cut two short lengths of blackened tube.

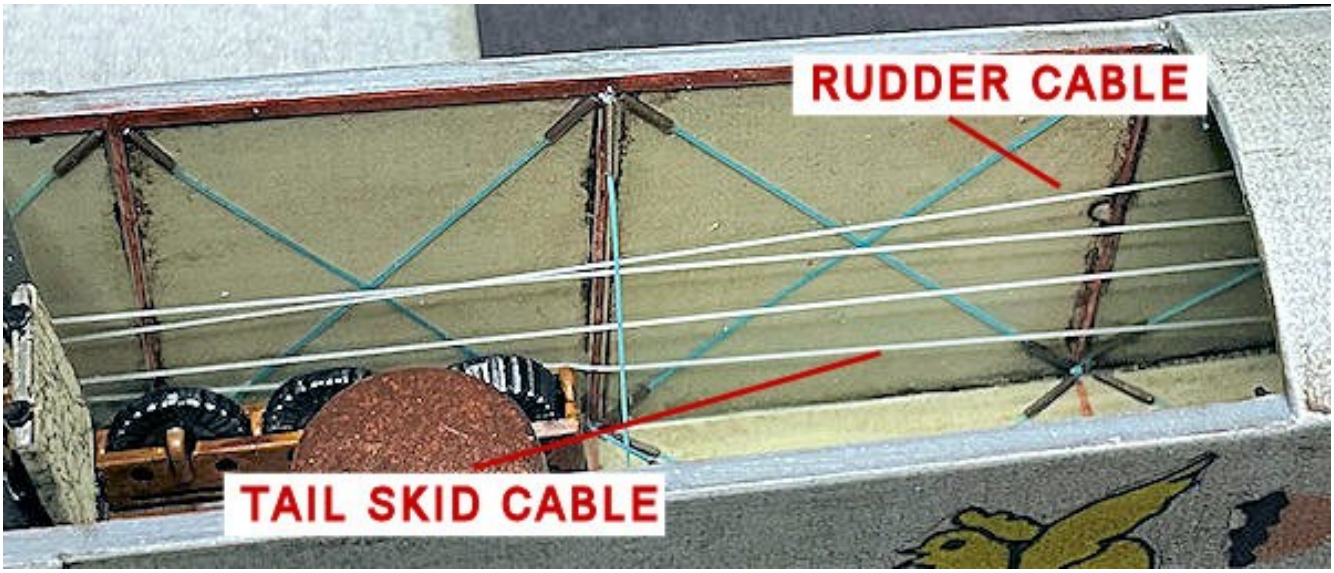
Repeat the procedure used for adding the tail skid control cables, but with the following differences:

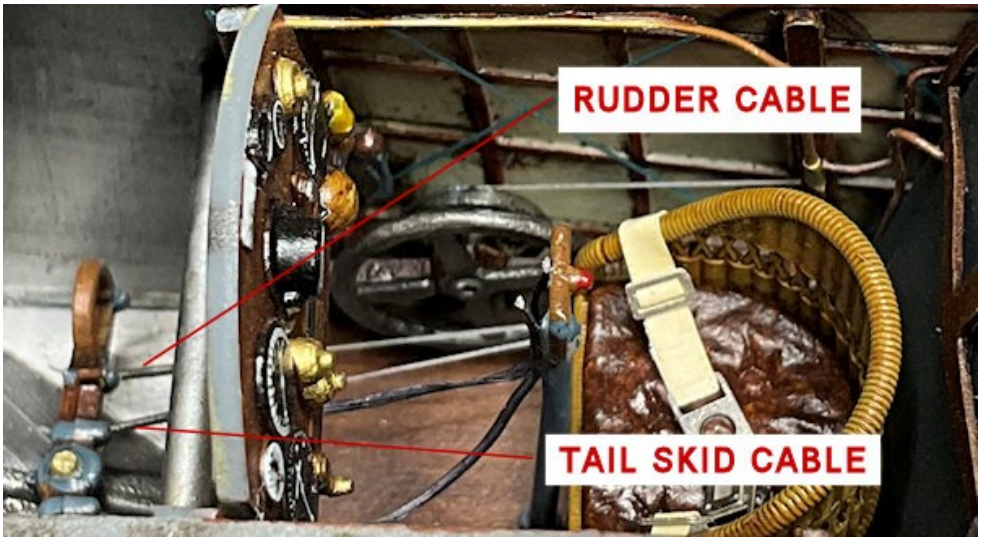
The pre-drilled holes for the rudder cables are though the top, rear of the fuselage.

Leave enough protruding line at the fuselage rear to easily reach the rudder.

The cables attached through the outer pre-drilled holes through the pilot's rudder bar.







Assembly (continued):

Apply a small amount of thin CA adhesive to the forward, top surface of the fuselage upper longerons.

Locate the cockpit decking panel into the fuselage and fully locate it onto the adhesive, making sure the sides of the fuselage are aligned to the edges of the panel.

Apply a small amount of thin CA adhesive to the centre, top surface of the fuselage upper longerons.

Fully locate the panel onto the adhesive, making sure the sides of the fuselage are aligned to the edges of the panel.

Apply a small amount of thin CA adhesive to the rear, top surface of the fuselage upper longerons.

Fully locate the panel onto the adhesive, making sure the sides of the fuselage are aligned to the edges of the panel.

Once the adhesive has set, apply cement along the length of the panel and across the front and rear edges to fully adhere the panel to the fuselage.

Control horns preparation:

NOTE: *The pre-molded aileron cables/horns (16D and 17D) supplied in the kit will be replaced, as they are oversized. The elevator control horns (mis-identified as 5C) will also be replaced to ensure that with the elevator positioned slightly down, the upper control cables will not contact and be bent over the tailplane leading-edge.*

Ailerons:

Cut out four of the longer control horns from the 'PART' photo-etch control horns (S24-087) sheet.

Using the horn locating recesses in the four ailerons as guides, drill holes of 0.3 mm diameter into, **but not** through, the upper and lower ailerons.

Using a sharp, curved scalpel blade, create a slit across towards the aileron leading-edges and across the pre-drilled holes.

Insert the ‘tang’ of the control horns into the pre-drilled holes and the bottom edge of the control horns into the created slits.

Secure the control horns into the ailerons, using thin CA adhesive.

Elevator:

Repeat the procedure for the aileron control horns to add upper and underside control horns to the elevator.

Rudder:

Drill a hole of 0.2 mm diameter close to the ends of the control horn for the rudder.

Tail skid:

Drill a hole of 0.2 mm diameter close to the ends of the control horn for the tail skid.

Assembly (continued):

Tailplane:

NOTE: *The underside of the tailplane has an aerofoil shape, whereas the mating surface on the fuselage rear is flat. Therefore, modification to achieve a correct fit is required.*

Test locate the tailplane onto its locating surface on the fuselage rear and pencil mark the outline of the fuselage onto the underside of the tailplane.

Note how much of the underside of the tailplane marked area needs to be removed and flattened to allow the tailplane to seat fully onto the fuselage with the top of its leading-edge level with the top, rear of the fuselage.

Remove by scrapping or filing the necessary amount of material to achieve the correct fit.

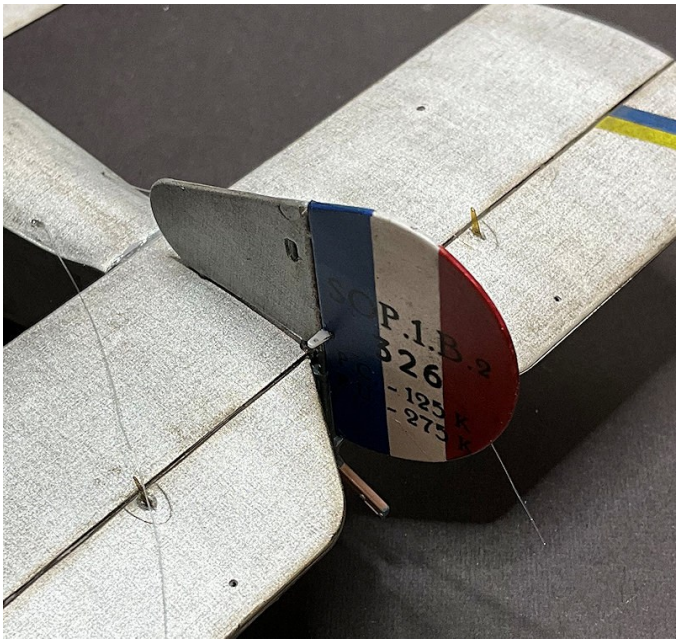
Cement the tailplane to the fuselage, making sure the tailplane is horizontal (aligned to the lower wings) when viewed from the front or rear. Also, that the tailplane is parallel to the lower wings when viewed from above.

Slide the locating block on the tail skid (below the fin) fully into its locating recess in the fuselage rear.

Locate the two posts at the bottom of the fin into their locating recesses in the top of the tailplane.

Cement the block on the tail skid into the fuselage rear and the fin posts into their tailplane locating recesses, making sure the fin is vertical on the tailplane/fuselage when viewed from the front or rear.

Insert the added rods in the rudder into their locating holes in the fin, apply thin CA adhesive to the rods then fully fit the rudder to the fin.



Insert the added rods in the two airbrakes into their locating holes in the lower wings, apply thin CA adhesive to the rods then fully fit airbrakes to the lower wings.

Apply thin CA adhesive to the cut edges of the airbrake control pulley then insert it fully into its created slot in the underside of the fuselage.

Cut a length of 0.12 mm diameter mono-filament, such as ‘Steelon’ or ‘Stroft GTM’.

Apply thin CA adhesive to the rear edge of the pulley and place the line onto the adhesive on the pulley.

Apply thin CA adhesive to the bottom edge of the pulley and hold the line onto the adhesive until it sets.

Trim the free end of the line and slide it into the front of the slot to represent the operating cable.

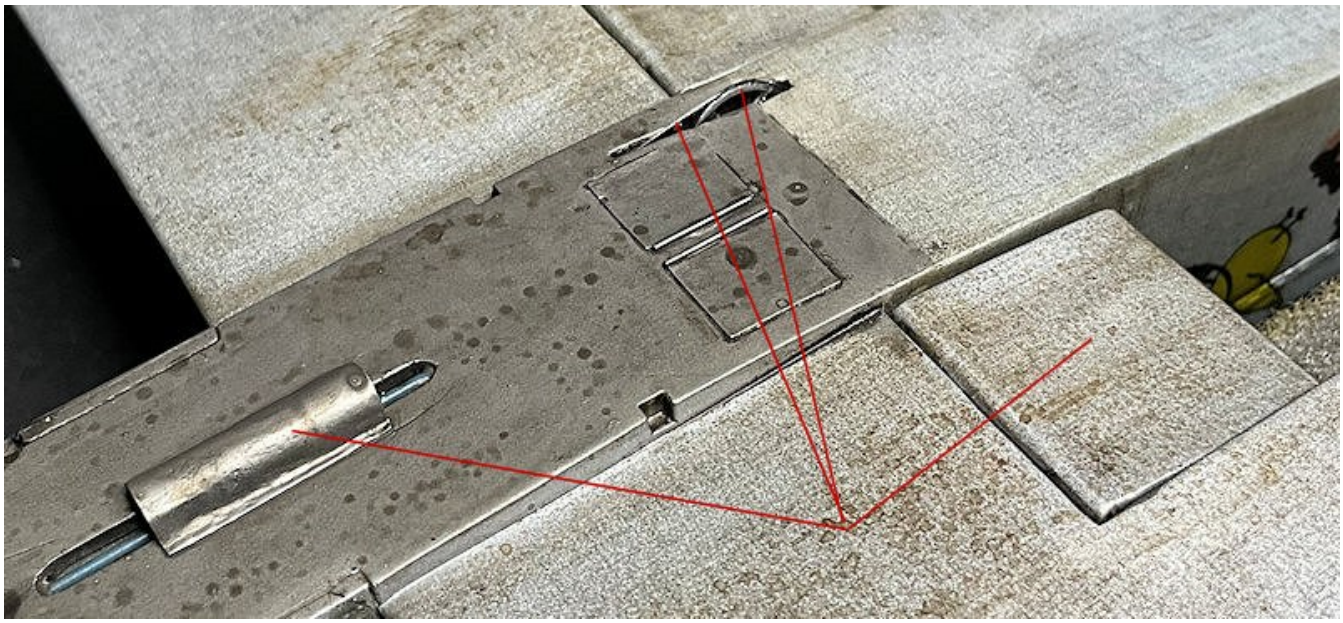
Apply thin CA adhesive to the underside end edges of the created cover for the rocking arm.

Position the cover over the rocking arm and its slot in the underside of the fuselage, making sure the cover is central over the slot.

Apply thin CA adhesive to the inside edges of the cover to create a strong bond.

Brush a semi-gloss clear coat, such as ’Tamiya’ Semi-Gloss (X35) over the cover.

Once dry, apply ’Flory Models’ Dark Dirt clay wash over the cover and once dry, remove to blend the finish with the surrounding area.



External rigging preparation:

NOTE: *Refer to Part 6 (Rigging) for more information on the external rigging.*

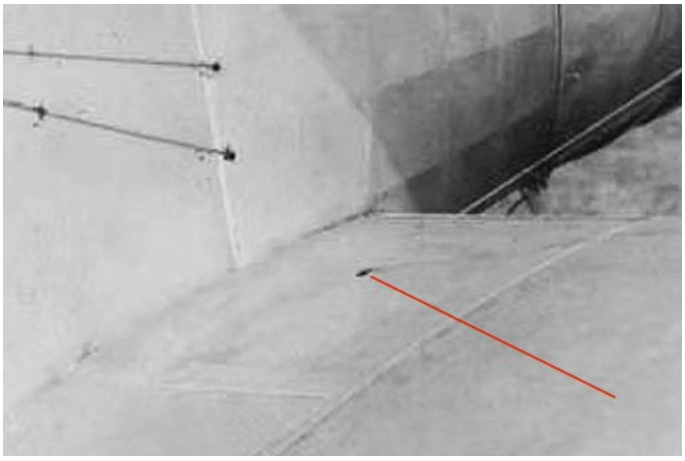
Flying wires:

Rear flying wires:

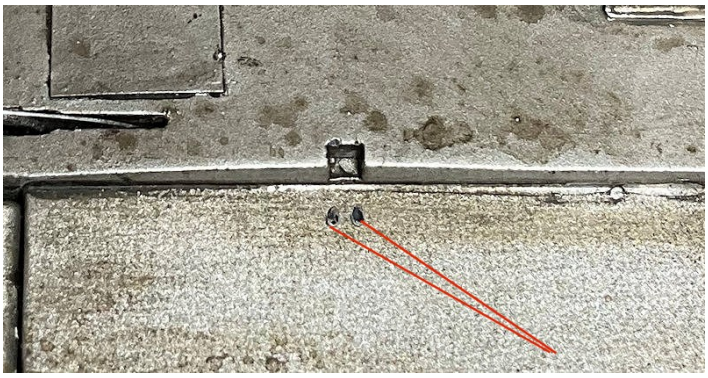
NOTE: *Temporarily locate interplane struts into the wings to gauge the angles to be drilled.*

From the underside of the lower wings, mark two points approximately 1.5 mm apart and 2.0 mm from the locating recess for the landing gear rear strut.

NOTE: *During the following step, drill carefully as the drill breaks through the top surface of the wings, to avoid lifting the applied decal on the wings.*



Using the point marks as guides, drill holes of 0.5 mm diameter through the wing keeping the drill angled at the corners of the strut recess.



Lower wing underside.

Lower wing upper surface.

From the underside of the upper wing, mark two points approximately 1.5 mm apart and 2.0 mm inboard from the locating recess for the rear interplane struts.

Using the point marks as guides, drill holes of 0.3 mm diameter into, **but not through**, the wing keeping the drill aligned too the previously drilled holes.

Mark two points approximately 1.5 mm apart at the top of the landing gear rear struts.

Using the point marks as guides, drill holes of 0.3 mm diameter through the struts.

Forward flying wires:

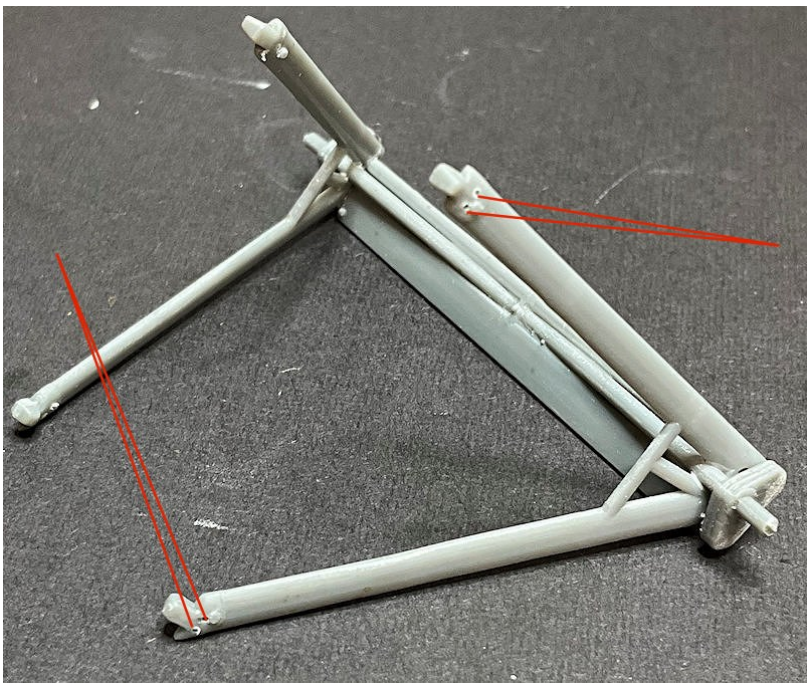
Mark two points approximately 1.5 mm apart at the top of the landing gear forward struts.

Using the **rear** point marks as guides, drill holes of 0.3 mm diameter through the struts.

Using the **forward** point marks as guides, drill holes of 0.4 mm diameter through the struts.

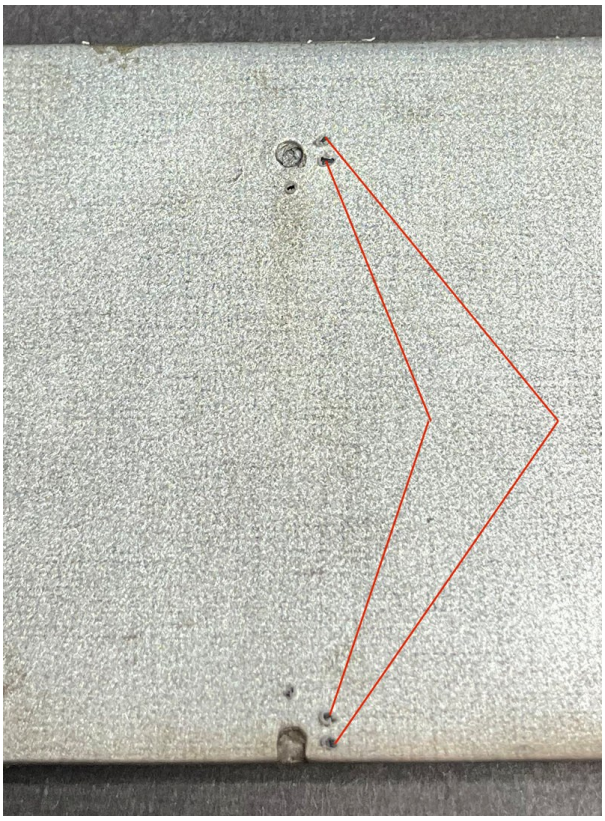
From the underside of the upper wing, mark two points approximately 1.5 mm apart and 2.0 mm inboard from the locating recess for the forward interplane struts.

Using the point marks as guides, drill holes of 0.3 mm diameter into, **but not through**, the wing keeping the drill aligned to the locating recess for the forward strut of the landing gear.



Landing gear assembly.

Underside of upper wing.



Landing wires:

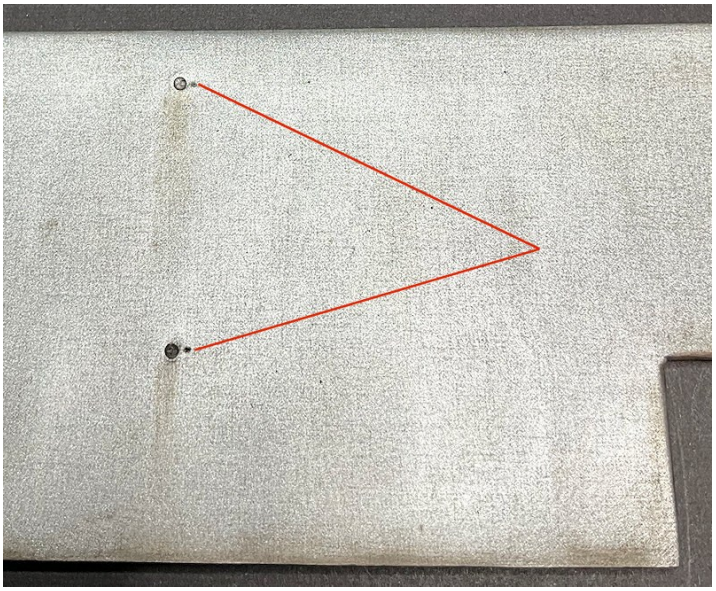
NOTE: *Temporarily locate interplane and cabane struts into the wings and fuselage to gauge the angles to be drilled.*

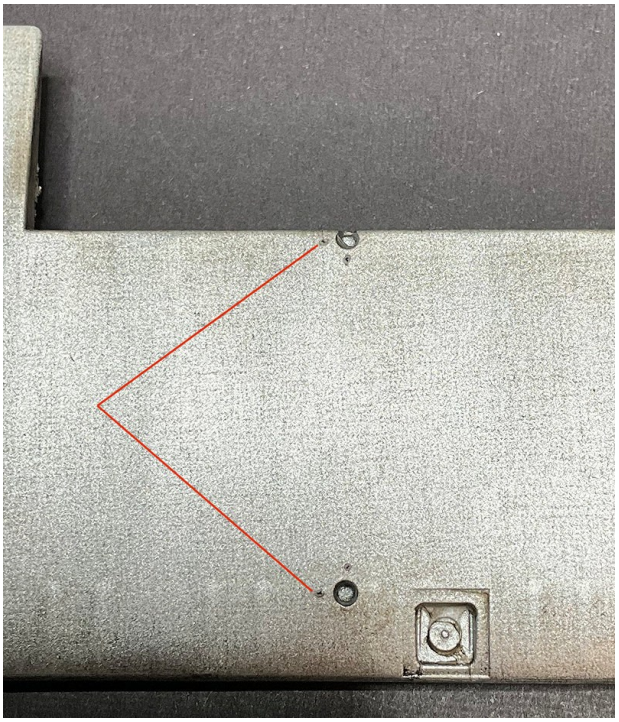
Point mark the top surface of the lower wings, inboard from the locating recesses for the interplane struts.

Using the point marks as guides, drill holes of 0.3 mm diameter into, **but not through**, the wings keeping the drill aligned to the tops of the fuselage outboard cabane struts.

Point mark the underside of the upper wing, outboard from the locating recesses for the interplane struts.

Using the point marks as guides, drill holes of 0.3 mm diameter into, **but not through**, the wings keeping the drill aligned to the bottom of the fuselage interplane struts.





Interplane strut incidence wires:

NOTE: *During the following steps, temporarily locate the interplane struts into the lower wing to gauge the angle to be drilled between the bottom and top of the struts.*

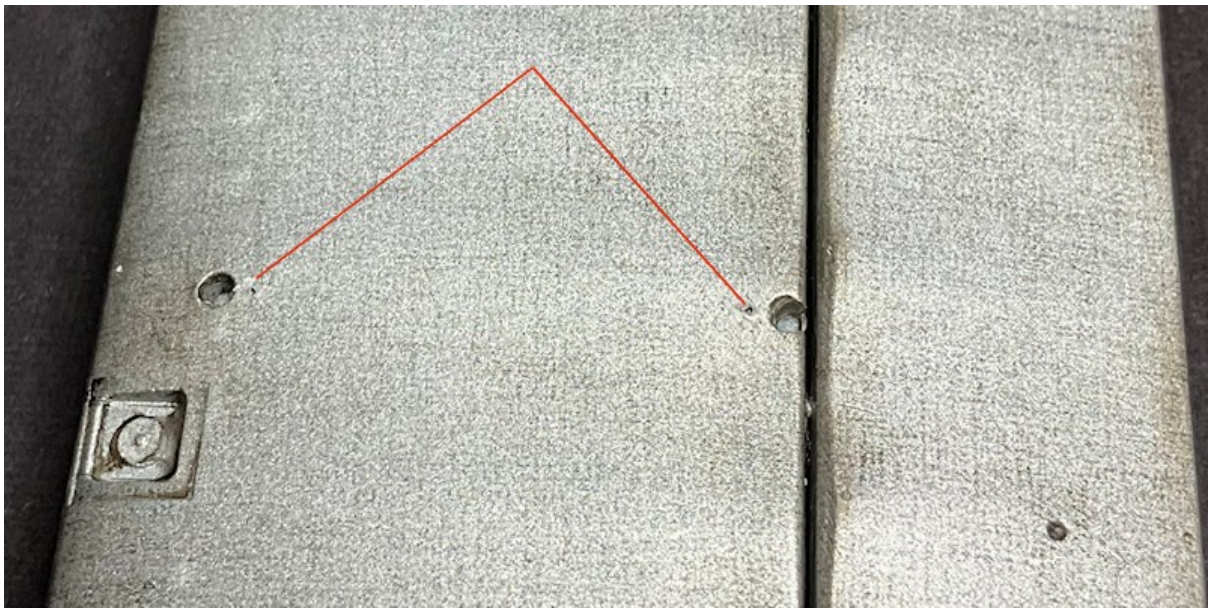
Temporarily locate the interplane struts into the lower wing.

At the rear of the forward struts and at the front of the rear struts, drill holes of 0.3 mm diameter into, **but not through**, the wings and at an angle to align with the tops of the opposite struts.

Temporarily locate the interplane struts into the upper wing.

At the rear of the forward struts and at the front of the rear struts, drill holes of 0.3 mm diameter into, **but not through**, the wings and at an angle to align with the bottom of the opposite struts.

Lower wing shown



Aileron control cables:

Using as guides the pre-molded recesses in the top surface of the upper wing, drill holes of 0.5 mm diameter into, **but not through**, the wing and at an angle to align with the top of the control horns.

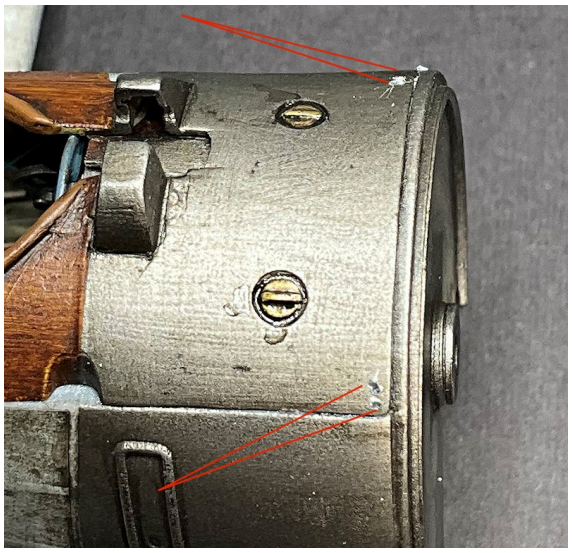
Using as guides the pre-molded recesses in the underside surface of the lower wings, drill holes of 0.5 mm diameter into, **but not through**, the wings and at an angle to align with the top of the control horns.

Using as guides the pre-molded recesses in the upper and lower ailerons, drill holes of 0.5 mm diameter through the ailerons.

Forward drag wires:

NOTE: *Temporarily locate the fuselage forward cabane strut to gauge the angles to be drilled.*

Mark two points on the lower, forward corners of the fuselage top, front panel.



Using the upper point marks as guides, drill holes of 0.3 mm diameter through the panel, keeping the drill aligned to the top, centre of the fuselage forward cabane strut.

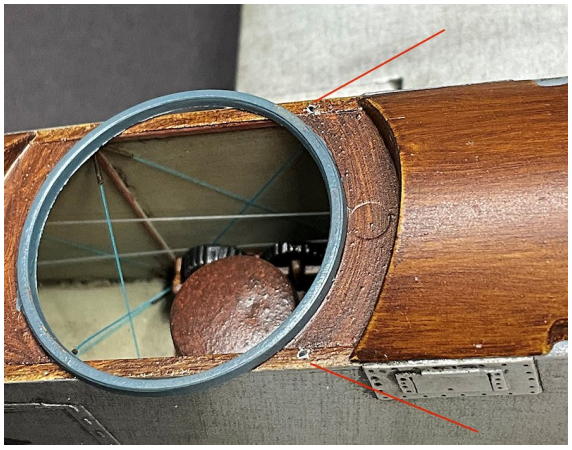
Drill a hole of 0.3 mm diameter into, **but not through**, the underside of the upper wing at each side and forward from the locating recess for the fuselage forward cabane strut. Keep the drill aligned too the previously drilled upper holes in the fuselage panel.

Using the lower point marks as guides, drill holes of 0.3 mm diameter through the panel, keeping the drill aligned to the top of the fuselage outer cabane strut.

Drill a hole of 0.3 mm diameter into, **but not through**, the underside of the upper wing at the locating recess for the fuselage outer cabane struts. Keep the drill aligned to the previously drilled lower holes in the fuselage panel.

Rear anti-drag wires:

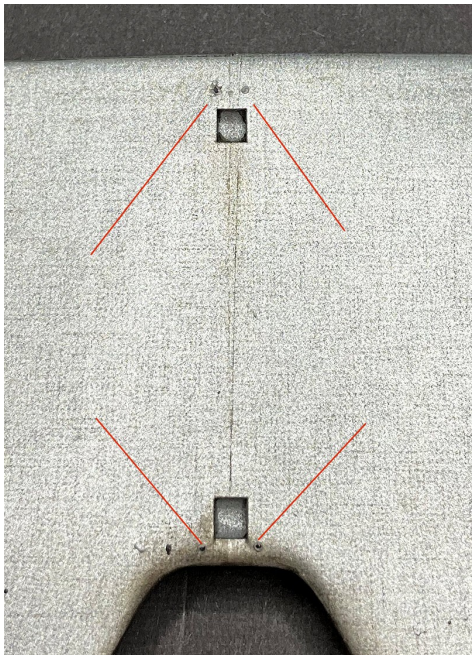
NOTE: *Temporarily locate the fuselage rear cabane strut to gauge the angles to be drilled.*



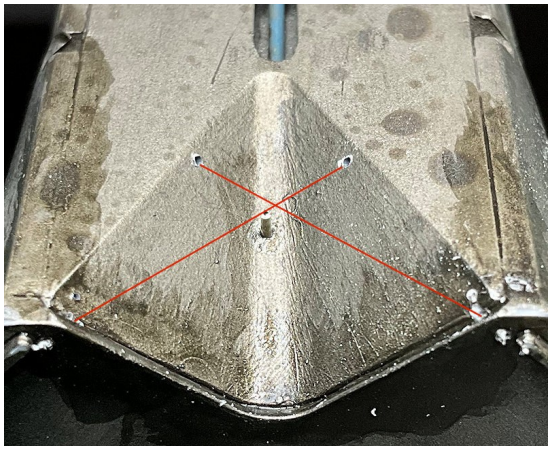
Mark a point on the top of the fuselage longerons, each side and forward from the observer/gunners cockpit.

Using the point marks as guides, drill holes of 0.3 mm diameter into the longerons, keeping the drill aligned to the top, centre of the fuselage rear cabane strut.

Drill a hole of 0.3 mm diameter into, **but not through**, the underside of the upper wing at each side and rearward from the locating recess for the fuselage rear cabane strut. Keep the drill aligned too the previously drilled holes in the fuselage longerons.



Under shield bracing wires:



NOTE: *Drill the holes diagonally opposite each other.*

Point mark the rear side edges of the undertray.

Point mark the forward, outer edges of the undertray at the engine bulkhead.

Using the rear point marks as guides, drill holes of 0.3 mm diameter through the undertray.

Using the forward point marks as guides, drill holes of 0.3 mm diameter through the engine bulkhead.

Landing gear bracing wires:

NOTE: *The landing gear was assembled previously.*

Forward bracing wires:

Point mark the forward, outer ends of the axle fairing.

Using the point marks as guides, drill holes of 0.3 mm diameter through the fairing, making sure the drill is angled diagonally to the opposite forward strut.

Rear bracing wires:

Point mark the rear, outer ends of the axle fairing.

Using the point marks as guides, drill holes of 0.3 mm diameter through the fairing, making sure the drill is angled diagonally to the opposite rear strut.

Centre bracing wire:

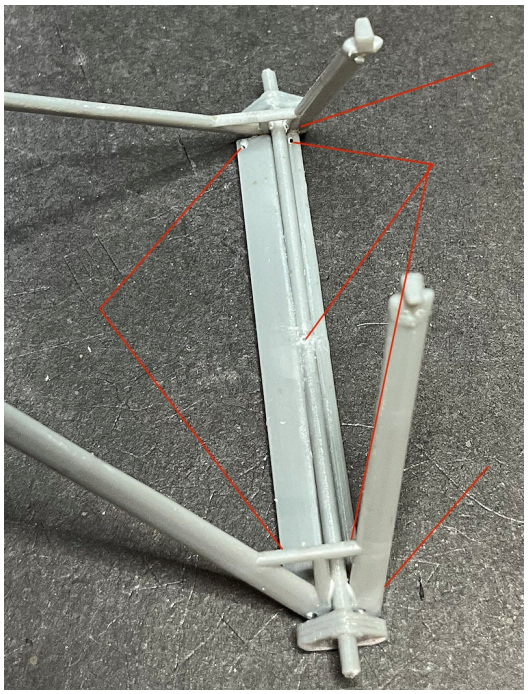
Drill hole of 0.3 mm diameter through the centre of the axle fairing.

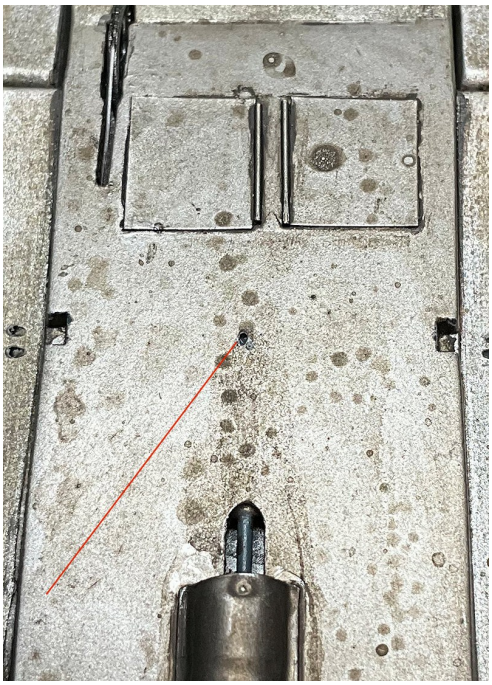
Drill hole of 0.3 mm diameter through the fuselage underside, centrally between the two locating recesses for the landing gear rear struts.

Tie cable:

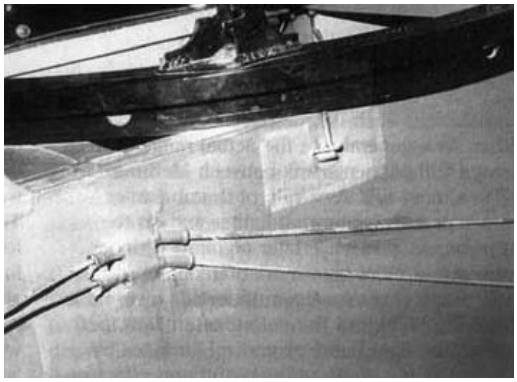
Point mark the inner face of the landing gear forward struts, aligned to the leading-edge of the axle fairing.

Using the point marks as guides, drill holes of 0.3 mm diameter through the struts, making sure the drill is aligned to the fairing.





Elevator control cables:



Cut and bend slightly four short lengths of 0.4 mm diameter Nickel-Silver tube, such as ‘Albion Alloy’s’ NST04 or similar, making sure the 0.2 mm diameter internal bore is free of metal cut burrs.

Using thin CA adhesive, secure a pair of tubes to the top edge of the fuselage sides at the rear of the observers/gunners cockpit. Make sure the forward ends of the tubes are aligned to the two control cable outlets in the fuselage sides at the pilot’s cockpit and the rear ends to the upper and lower elevator control horns on the elevator.

Using the pre-molded recesses in the elevator as guides, drill holes of 0.5 mm diameter through the elevator.

Make sure the two control cable outlets in the fuselage sides at the pilot’s cockpit are clear of paint and decal.

Fin bracing wires:

NOTE: *Not all of the necessary rigging locations are present on the tailplane.*

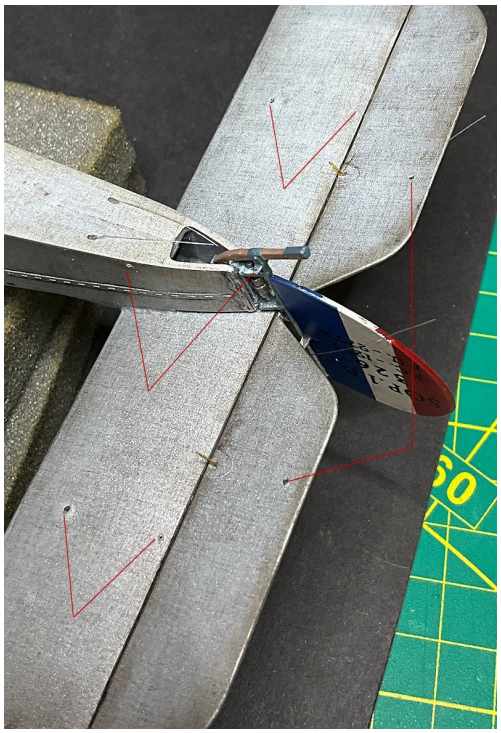
Forward bracing wires:

Using the pre-molded recesses in the tailplane, drill holes of 0.5 mm diameter through the tailplane.

Drill a hole of 0.3 mm diameter close to the top edge of the fin and aligned too the previously drill holes.

Point mark the bottom edge of the fuselage rear and aligned to the forward holes drilled in the tailplane.

Using the marks as guides, drill holes of 0.3 mm diameter through the fuselage sides.



Rear bracing wires:

Point mark the rear of the tailplane close to its trailing edge and aligned to the forward holes drilled in the tailplane.

Drill holes of 0.5 mm diameter through the tailplane.

Drill a hole of 0.3 mm diameter through the centre of the exposed blue tube in the top, rear of the fin .

Rudder control wire:

Drill a hole of 0.4 mm diameter through the rudder, aligned to and 15 mm to the rear of the rudder control horns.

Rigging anchor points:

NOTE: *Anchor points are required at one end of most rigged line, the opposite end having the adjustable turnbuckle fitted. Rigging for the fin, landing gear, drag wire and engine cowl do not require anchor points.*

The anchor points use are the photo-etch 'HGW' 1/32nd scale Spoke Eyelets (132129).

Remove twenty two (22) eyelets from the photo-etch sheet.

NOTE: *During the following step, make sure each eyelet is fitted parallel to the fuselage.*

Using thin CA adhesive, secure an anchor point (eyelet) into each of the following pre-drilled anchor points locations in the **underside of the upper wing**:

Four incidence wires at the interplane struts locations.

Eight flying wires at the interplane struts locations.

Four landing wires at the fuselage cabane strut locations.

Two forward drag wires at the outer fuselage cabane struts.

Two forward drag wires at the front, centre of the wing.

Two rear anti-drag wires at the rear, centre of the wing.

Once the adhesive has set, check that the eyelets are not blocked with adhesive and are firmly held in the wing.

Pre-rigging:

Underside of upper wing:

NOTE: *The rigging materials used are:*

'Albion Alloy's' micro-tube of 0.5 mm diameter (Brass MBT05 or Nickel Silver NST05).

0.12 mm diameter mono-filament, such as that from 'Steelon' or 'Stroft GTM.

Nickel-Silver or Brass tube can be chemically blackened by immersion in solutions such as 'Blacken-It' or similar.

Pre-rigging example:

NOTE: *The following example applies to each of the pre-rigged wires. The length of the wires should be much longer than required as this make it easier to attach to the opposite ends of the wires later in this build.*

Cut a longer than required length of mono-filament line, such as that from 'Steelon' or 'Stroft GTM'.

Cut a short length of blackened tube.

De-burr the bore of the tube with 0.3 mm diameter drill.

Pass the line through the tube then through 'eye' of the fitted eyelet.

Loop the line back and through the tube.

Slide the tube up to, **but not touching**, the 'eye' of the eyelet.

Secure the wires in the tube, using thin CA adhesive applied to the tube end farthest from the eyelet.

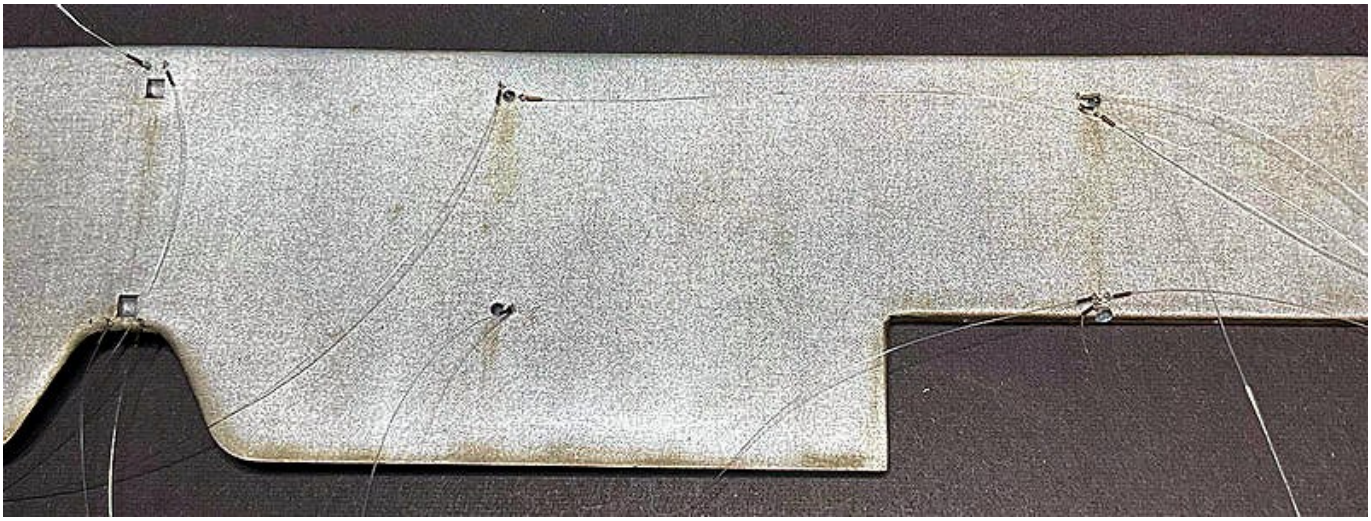
Cut away any residual end tag of line at the tube end.

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

Pre-rigging:

Using the previous pre-rigging example, attach a line to each of the twenty two (22) eyelets fitted in the underside of the upper wing.

The following photograph shows the pre-rigged wires attached to the underside of the upper wing.



Upper wing ailerons:

NOTE: *The following procedure applies only to the two upper wing ailerons. The ailerons on the lower wings will be rigged later in the build. The length of the wires should be much longer than required as this make it easier to attach to the opposite ends of the wires later in this build.*

The rigging materials used are:

'Albion Alloy's' micro-tube of 0.4 mm diameter (Brass MBT04 or Nickel Silver NST04).

0.08 mm diameter mono-filament, such as that from 'Steelon' or 'Stroft GTM.

Nickel-Silver or Brass tube can be chemically blackened by immersion in solutions such as 'Blacken-It' or similar.

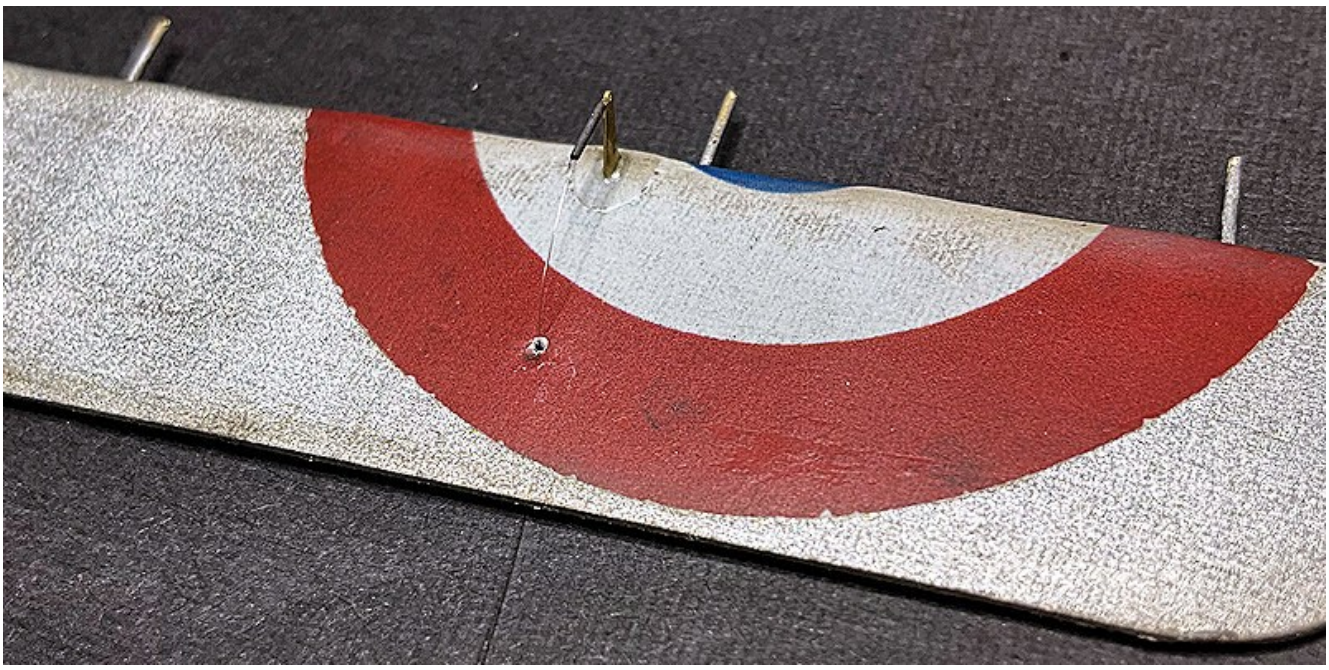
Using the previous pre-rigging example, attach a line to the top, rear of the replacement photo-etch control horns on the ailerons for the upper wing only.

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

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

NOTE: *The line is passed through the aileron and will eventually be passed between the upper and lower wings to be attached the control horns on the lower wing ailerons.*

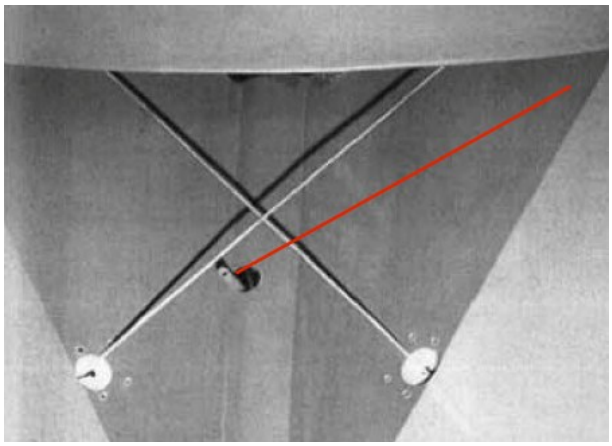
Pass the free end of the line rearwards and down, through the pre-drilled hole in the aileron.



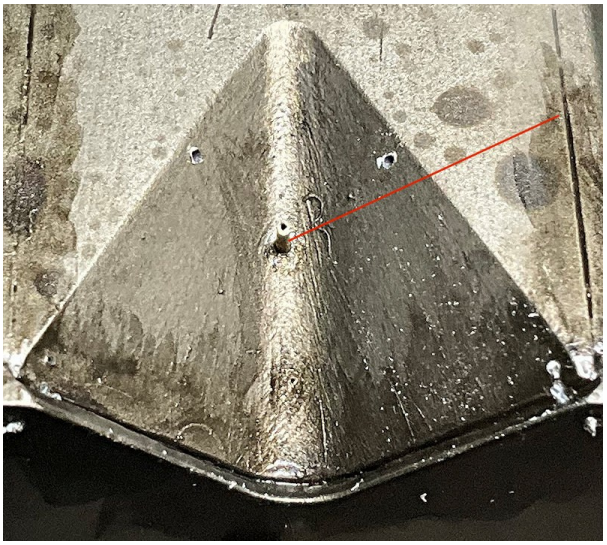
Modifications (continued):

Drain pipe:

NOTE: *A drain pipe was located in the undertray of the fuselage.*



To represent the drain tube, I first drilled a hole of 0.5 mm diameter into the fuselage undertray. A cut length of 0.5mm diameter Nickel-Silver tube (Albion Alloy's NST04) was inserted into the hole and secured in place using thin CA adhesive.



Interplane strut attachment locations:

NOTE: *The interplane and fuselage cabane struts have locating holes in the wings and fuselage that are too large for the associated locating pegs on the struts. Remove any sprue gate tags and mold seam lines from the interplane struts (28D x 3) and 28G).*

The following procedure applies to all four of the interplane stuts and their locating recesses in the upper and lower wings.

Cut two short lengths of 1.6 mm diameter Brass tube, such as 'Albion Alloy's' MBT16 or similar.

Using thin CA adhesive, secure the tubes fully onto the locating pegs at each end of the interplane strut.

Using a 1.6 mm diameter drill, carefully increase the depth of the locating recesses in the top surface of the lower wing and underside of the upper wing, making sure **you do not drill through** the wing.

Test fit each end of the strut into its associated locating hole and note how much material, if any, needs to be removed from the locating pegs to allow the strut to fully locate into the wings.

If necessary, sand away material from the ends of the locating tubed pegs to achieve a full fit in the wings.

Fuselage cabane struts:

NOTE: *The following procedure applies to both of the fuselage cabane stuts and their locating recesses in the upper wing and fuselage. Remove any sprue gate tags and mold seam lines from the fuselage cabane struts (30G and 31G).*

Cut two short lengths of 1.4 mm diameter Brass tube, such as ‘Albion Alloy’s’ MBT14 or similar.

Using thin CA adhesive, secure the tubes fully onto the locating pegs at the outer ends of the fuselage cabane strut.

Using a 1.4 mm diameter drill, carefully increase the depth of the locating recesses in the underside of the upper wing, making sure **you do not drill through** the wing.

Test fit each end of the strut into its associated locating hole, including the central locating lug in its Recess. Note how much material, if any, needs to be removed from the locating pegs on the strut to allow the strut to fully locate into the wings.

If necessary, sand away material from the ends of the locating tubed pegs to achieve a full fit in the wings.

NOTE: *The following procedure is intended to add a more positive location in the fuselage for the cabane struts.*

Drill a hole of 0.5 mm diameter into, **but not through**, the centre of the two fuselage mating ends of the strut.

Cut two short lengths of 0.5 mm diameter Brass rod, such as that from ‘Albion Alloy’s’ or similar.

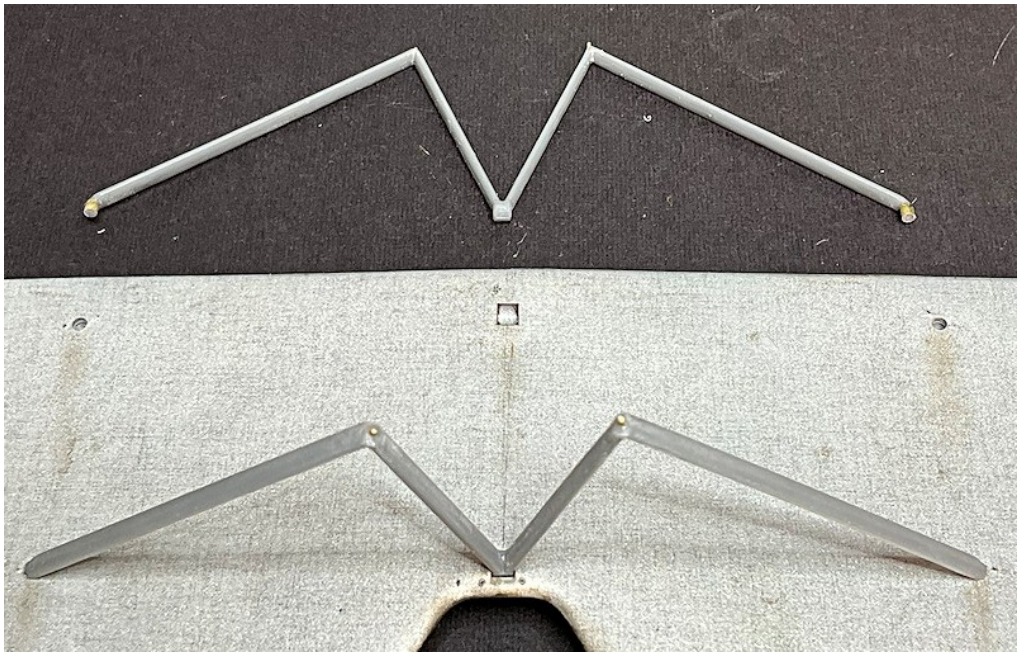
Using thin CA adhesive, secure the rods into the pre-drilled holes in the strut.

Point mark the centre of the fuselage strut locations in the top edge of the fuselage.

Using the point marks as guides, drill holes of 0.5 mm diameter into the top edge of the fuselage.

Test fit the cabane strut into its locating holes in the top edge of the fuselage, making sure the strut fits fully into the fuselage/decking panel location.

If necessary, sand away material from the inner surface and its edges of the struts mating ends to achieve a full fit into the fuselage.



Painting (continued):

Observer/gunners Scarff ring:

NOTE: *The Scarff ring was previously assembled.*

Painting:

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

Airbrush the ring assembly with ‘Tamiya’ Medium Blue (XF18) or similar.

Brush paint the two toothed arches and four pulleys with ‘Mr. Metal Color’ Stainless Steel (213) or similar.

Brush paint the support tube with ‘Mr. Metal Color’ Dark Iron (214) or similar.

Using a cotton bud (Q-tip) , lightly buff the Steel and Iron painted surfaces.

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 the blue painted ring with ‘Mr. Color’ Super Iron 2 (203) or similar, to create a worn metal effect.

Pulley cords:

To represent the pulley cords I cut lengths of ‘EZ’ black stretch line (Fine) and secured them in position each side of the Scarff ring, using thin CA adhesive.

Assembly:

NOTE: *The Lewis machine gun and ammunition drum were prepared earlier in Part 7 (Weapons) of this this build.*

Position the forked mounting of the Lewis machine gun over the mounting spigot on the support tube of the Scarff ring.

Pass the previously cut length of 0.2 mm diameter Nickel-Silver rod through the pre-drilled holes in the fork and spigot.

Move the machine gun to the desired orientation and secure it in position on the spigot, using thin CA adhesive.

Cut away residual rod from each side of the fork, using sharp nail scissors or similar.

Landing gear:

NOTE: *The landing gear was previously assembled.*

Painting:

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

Airbrush the landing gear assembly with ‘Tamiya’ Dark Yellow (XF60) or similar.

NOTE: *Refer to Part 2 (Wood Effects) of this build log for more information.*

Use the chosen method to apply light wood effect finish to the landing gear struts and axle fairing. I followed Method 2 using Windsor & Newton’ Griffin (Alkyd) **Burnt Umber** oil paint.

Brush paint the two half axles and the axle ends on the inner/outer wheel covers with ‘Mr. Metal Color’ Dark Iron (214) or similar.

Use a cotton bud (Q-tip) to lightly buff the painted dark iron surfaces to create a metallic sheen.

Brush paint the metal fittings and bracing tubes with ’Tamiya’ Medium Blue (XF18) or similar.

Brush paint the ‘bungee’ suspension cords at the axle ends with ‘Tamiya’ Buff (XF57) or similar.

Airbrush the landing gear with ‘Tamiya’ Semi-Gloss (XF35) or similar.

Brush ‘AK Interactive’ Kerosene wash (AK2039) over the ‘bungee’ cords.

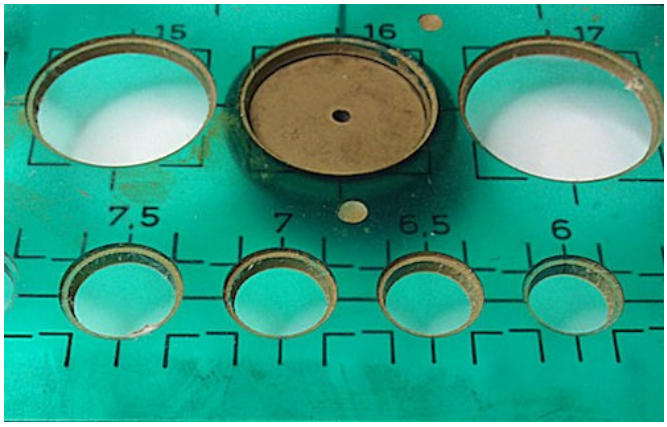
Wheels:

NOTE: *Remove any sprue gate tags and mold seam lines from the two wheels (11D) and front covers (4D).*

Airbrush the wheels, inner covers and the outer covers with a grey primer, such as ‘AK Interactive’ Grey (AK758) or similar.

Airbrush the wheels with ‘Tamiya’ Rubber Black (XF85) or similar.

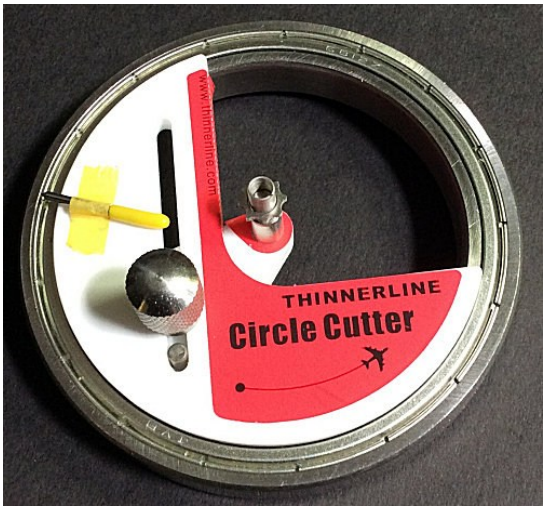
NOTE: *To airbrush the wheel covers without over spraying the surrounding tyres, I used a circle drawing tool (Linex 1217 T). I selected the correct size of hole and positioned the wheel face under the hole.*



Airbrush the wheels inner covers and the separate outer covers with ’Tamiya’ Flat Aluminium (XF16), thinned 60/30 with ’Mr. Color’ Rapid thinners, which leaves a semi-gloss finish.

Decals:

NOTE: *Refer to Part 4 (Decals) for more information. The decals used are the ‘Aviattic’ Weave Linen Effect (ATT32236). To cut these circular decals I used a ‘Thinnerline’ circle cutter. Other circle cutters are available, such as that from ‘DSPIAE’.*



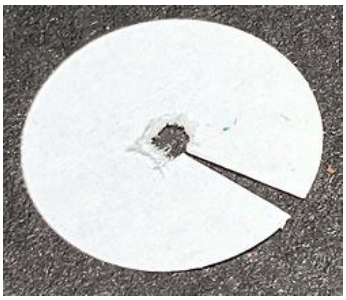
Use the circle cutter to cut circular templates from paper until the templates are of the correct diameter to fit into the inner and over the outer wheel covers.

Use a 2.0 mm diameter drill to drill through the centre of templates (to fit over the axle holes and axle ends on the outer wheel covers).

NOTE: *Due to the shape of the wheel covers, the decals need to have a narrow cut-out to allow the decals to conform to the covers without distortion.*

Cut a shallow triangle through one side of the templates and test fit the templates onto the outer and inner wheel covers. Make sure the templates reach the edges of the covers and the edges of the cut-out joins do not overlap.

Template example - the size of the triangular cut varies for different wheel and covers.



Cut circular decals for the outer and the inner wheel covers from the decal sheet.

Use a 2.0 mm diameter drill to drill through the centre of templates.

Cut a shallow triangle through one side of the decals, as carried out on the paper templates.

Airbrush the covers with ‘Tamiya’ Gloss clear coat (XF35) or similar.

Apply the decals to the outer wheel covers.

Apply the decals to the inner wheel covers.

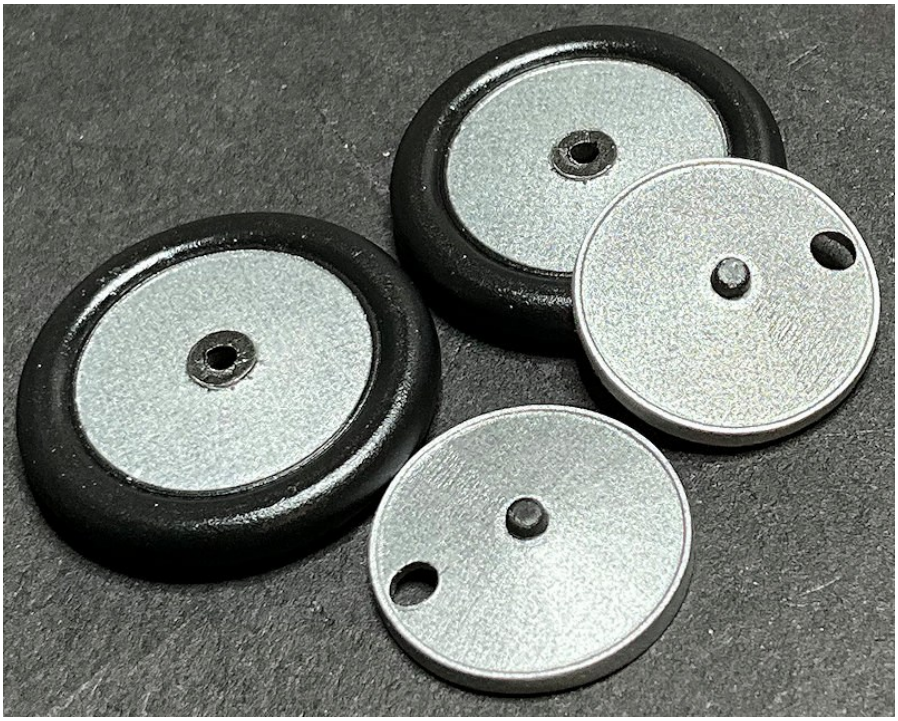
NOTE: *Applying ’Tamiya’ acrylic thinners (X20A) will soften the decal and allow it to conform around raised detail and into holes. Applying too much thinners or repeatedly brushing it over decals will melt the decal.*

Use a brush to dab thinners around the axle ends on the wheel outer covers, to conform the applied decal.

Pierce the decal covering the valve access opening in the wheel outer covers and the axle hole in the wheels.

Use a brush to dab thinners into the holes to conform the applied decal.

Airbrush the wheels and outer covers with ‘Tamiya’ Semi-Gloss clear coat (XF35) or similar.



Interplane and fuselage cabane struts:

Painting:

Airbrush the two fuselage cabane struts with ‘Tamiya’ Dark Sea Grey (XF54) or similar.

Airbrush the four interplane and two fuselage cabane struts with a grey primer, such as ‘AK Interactive’ Grey (AK758) or similar.

Airbrush the four interplane struts with ‘Tamiya’ Dark Yellow (XF60) or similar.

NOTE: *Refer to Part 2 (Wood Effects) of this build log for more information.*

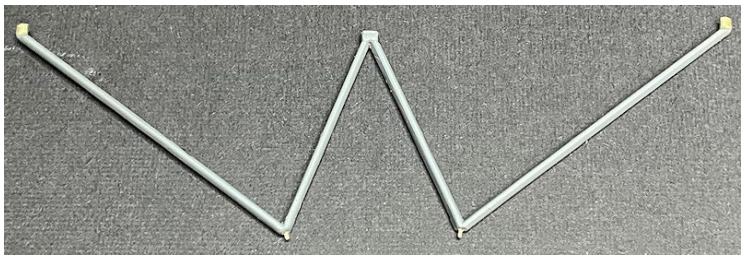
Use the chosen method to apply light wood effect finish to the landing gear struts and axle fairing. I followed Method 2 using Windsor & Newton’ Griffin (Alkyd) **Burnt Umber** oil paint.

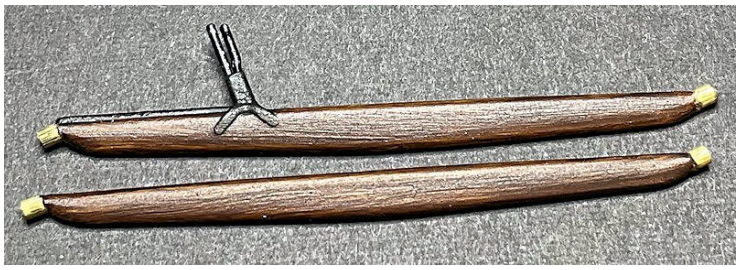
Brush paint the pitot static pipe body and strut bracket with ‘Mr. Metal Color’ Dark Iron (214) or similar.

Use a cotton bud (Q-tip) to lightly buff the painted dark iron part to create a metallic sheen.

Brush pint the pitot probes and tube on the strut with ‘Tamiya’ Semi-gloss black (X18) or similar.

Once dry airbrush the struts with ‘Tamiya’ Semi-Gloss clear coat (XF35) or similar.





Rotherham pump:

NOTE: *Remove any sprue gate tags and mold seam lines from the pump (11G).*

Painting:

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

Airbrush the pump body with ‘Mr. Metal Color’ Stainless Steel (213) or similar.

Brush paint the pump propeller with ’Tamiya’ Linoleum Deck Brown (XF79) or similar.

Airbrush the pump with ‘Tamiya’ Semi-Gloss clear coat (XF35) or similar.

Assembly (continued):

NOTE: *The engine, engine cowl, propeller and Vickers machine gun were all prepared earlier in this build.*

Make sure all primer and paint is removed from the mating surfaces between the engine bulkhead and engine cowl.

Apply a thicker, slower setting CA adhesive around the engine to fuselage bulkhead shaft. Using a slower setting adhesive allows time to adjust the position of the engine inside the engine cowl, if necessary.

Fully locate the engine into its locating hole in the fuselage bulkhead.

Apply a small amount of thin CA adhesive to each side of the mating surface around the engine bulkhead.

Fully locate the engine cowl onto the engine bulkhead.

Temporarily locate the prepared propeller onto the engine shaft and check that the propeller in central in the engine cowl, when viewed from the sides and above. If necessary, adjust the position of the engine to achieve this, before the slow CA adhesive sets.

Remove the propeller.

Airbrush the engine cowl with a semi-matte clear coat of 'Tamiya' Semi-Gloss (X35), thinned 60/30 with 'Mr. Color' Rapid thinners.

NOTE: *Refer to Part 3 (Weathering). For general internal weathering I chose to use the 'Flory Models' Dark Dirt fine clay washes.*

Brush 'Flory Models' Dark Dirt wash over the engine cowl.

Remove the wash to achieve the desired weathering effect.

Airbrush the engine cowl with a semi-matte clear coat of 'Tamiya' Semi-Gloss (X35), thinned 60/30 with 'Mr. Color' Rapid thinners. This will seal and protect the applied weathering.

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 the opening of the engine cowl and rear edge to with 'Mr. Color' Super Iron 2 (203) or similar, to create paint wear.

If desired, create paint chipping/scratches using a small piece of fine sponge. Dip the sponge into 'Tamiya' Aluminium (XF16) or similar, then dab the sponge onto tissue paper to remove most of the paint. Gently tap the sponge onto the engine cowl in various places to create chipping.

Using thin CA adhesive, secure the Vickers machine gun between the ammunition chutes on the cockpit decking panel, making sure:

It's parallel to the fuselage when viewed from the sides.

It's aligned to fuselage when viewed from above.

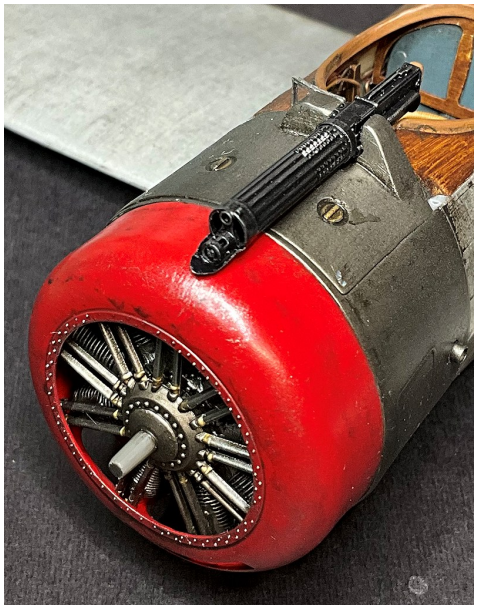
It's vertical in the fuselage when viewed from the rear.

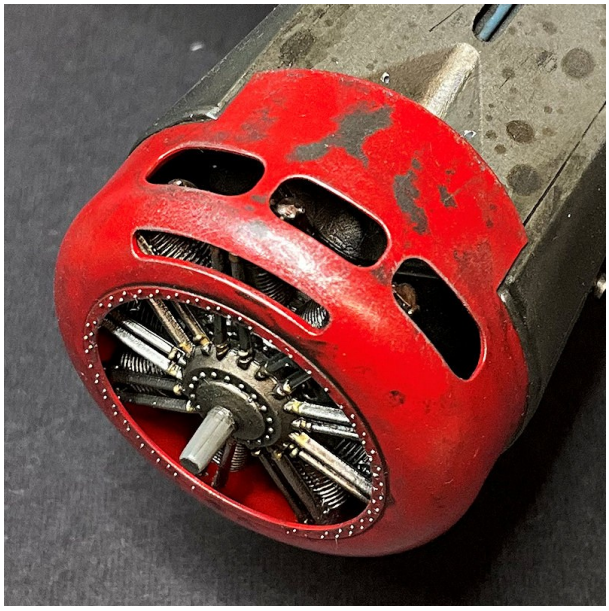
Modifications (continued):

Windscreen:

NOTE: *The kit supplies an outlined acrylic sheet from which the pilots windscreen is cut. However, the screen (2P) is intended to fit into the head padding at the rear of the Vickers machine gun, as fitted to the British aircraft. The French weapon was off-set to the left and a smaller windscreen was fitted to the right of the weapon's breach block. Also, it's not clear if, on French aircraft, a windscreen was routinely fitted at the observer/gunners cockpit, so that has not been modelled.*

To represent the pilot's windscreen, I used a transparency from my 'spares' collection. This was originally intended as a wing inspection window over an aileron control pulley. The bottom edge was filed to align with the contour of the cockpit decking panel. The side and top edges were brush painted with 'Mr. Metal Color' Stainless Steel (213). The windscreen was then secured in position using PVA (white glue) adhesive.





Assembly (continued):

Fuselage cabane struts:

NOTE: *The two fuselage cabane strut form the main strength for the support of the upper wing. Before assembly make sure all primer, paint or decal is removed from any mating surfaces, locating rods/holes and recesses.*

Using thin strips of masking tape, hold all of the pre-rigged wires clear of the interplane and fuselage cabane strut locating recesses in the underside of the upper wing.

Fully locate the fuselage forward cabane strut into its three locating recesses in the underside of the upper wing. Make sure the strut has a slight forward tilt.

Cement the centre locating boss into the upper wing.

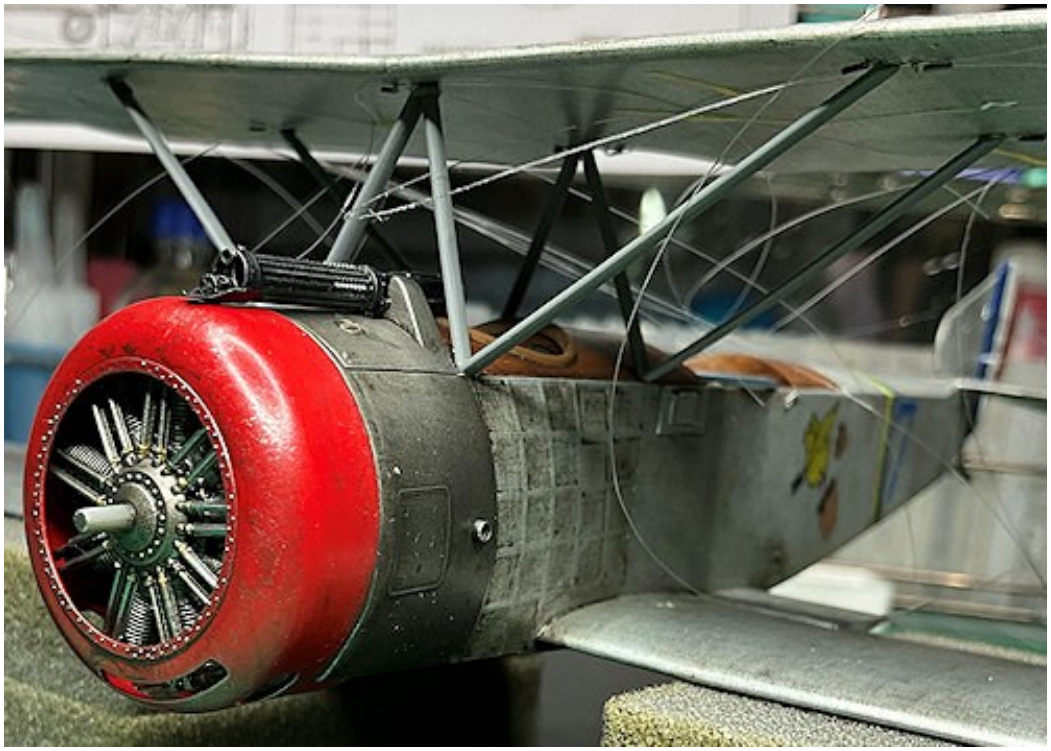
Apply thin CA adhesive around the Brass end fittings on the two outboard struts.

Repeat the procedure to fit the rear cabane strut to the underside of the upper wing, making sure the strut has a slight rearward tilt. The distance between the front and rear tops of the struts should match the distance between the strut locating recesses in the top sides of the fuselage.

Apply thin CA adhesive to the location recesses and pre-drilled holes in the fuselage top sides for the front and rear fuselage cabane struts, then fully insert the struts into the fuselage.

Once the adhesive has set and necessary, apply more thin CA adhesive around the strut to fuselage locations.

Check that the upper and lower wings are parallel to each other when viewed from above and from the front. The upper wing will be forward from the lower wings.



Interplane struts:

NOTE: *During the following step, using elastic bands around the upper and lower wing will help to hold the struts in the wings before applying adhesive. Before assembly make sure all primer, paint or decal is removed from any mating surfaces, locating rods/holes and recesses.*

Between the left wings, fully locate the front and rear interplane struts into their locating recesses in the underside of the upper wing and top surface of the lower wing. Make sure the Brass end fittings on the struts are fully inserted and that the struts are vertical between the wings and parallel to the fuselage when viewed from the front.

NOTE: *During the following step, avoid contaminating with adhesive the pre-drilled rigging locations around the struts in the lower wing.*

Apply thin CA adhesive around the wing to strut joints in the upper and lower wings.

Repeat the procedure to attach the two interplane struts between the right upper and lower wings.

Once the adhesive has set, remove any elastic bands, if used.

Remove all masking tape strips retaining the pre-rigged wires to the underside of the upper wing.

Ailerons:

NOTE: *Before assembly make sure all primer, paint or decal is removed from any mating surfaces, locating rods/holes and recesses. Make sure the ailerons are fitted to the correct wing.*

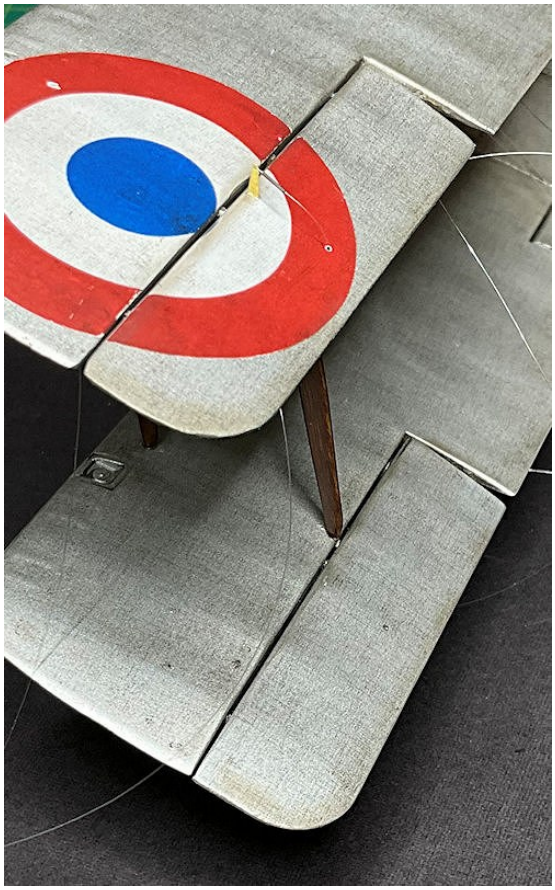
Partially locate the upper wing ailerons into the upper wing.

NOTE: *If the ailerons were slightly angled up or down, make sure they are fitted angled and in opposite directions on the wing.*

Apply thin CA adhesive around the locating rods then fully fit the ailerons into the upper wing.

Repeat the procedure to fit the ailerons to the lower wings.

CAUTION: *The photo-etch control horns on the ailerons and elevator can easily be bent or separated from the model parts, as CA adhesive is susceptible to shock loading. From this stage of the build, take care to* ***avoid damaging or breaking away*** *the added photo-etch control horns.*



Landing gear assembly:

NOTE: *Before assembly make sure all primer, paint or decal is removed from any mating surfaces and recesses.*

Fully locate the four struts of the landing gear assembly into their locating recesses in the underside of the fuselage.

Check that the landing gear axle/fairing is parallel to the lower wing.

Cement the landing gear struts into the fuselage.

Final rigging:

NOTE: *Refer to Part 6 (Rigging) for more information on the external rigging. During the following steps, do not pull too hard on the line or the photo-etch eyelet in the upper wing may pull out or break.*

The rigging materials used are:

*'GasPatch Elite Accessories' metal **1/48th** scale **Type A** and **C** turnbuckles.*

'Proper Plane' Turnbuckles fork end (RD-019) and Turnbuckles (RD-005).

Structural rigging:

'Albion Alloy's' 0.4 mm diameter tube (Brass MBT04 or Nickel Silver NST04).

0.12 mm diameter mono-filament, such as 'Steelon' or 'Stroft GTM.

Control cables:

'Albion Alloy's' 0.5 mm diameter tube (Brass MBT05 or Nickel Silver NST05).

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

Nickel-Silver or Brass tube can be chemically blackened by immersion in solutions such as 'Blacken-It' or similar.

Rigging - final tensioning:

Invariably after rigging has been completed, some wires may be slack. This can be remedied by 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: *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.

Turnbuckles:

Remove, as required, 'GasPatch' metal turnbuckles Type A from their mould plate.

Remove, as required, 'GasPatch' metal turnbuckles Type C from their mould plate.

Check the 'eye' end holes are clear of metal to allow rigging line to pass through.

Brush paint the centre barrels of each turnbuckle with 'Mr. Colour' Brass (214) and Copper (215) mixed to approximately 60:40% ratio.

Pre-rigging example:

NOTE: *The following example applies to each of the turnbuckles.*

Cut a short length of the relevant, blackened tube.

De-burr the bore of the tube with appropriate drill (0.4 mm tube/0.2 mm drill - 0.5 mm tube/0.3 mm drill).

Cut a longer than required length of the relevant line.

Pass the line through the tube then through ‘eye’ end of the relevant turnbuckle.

Loop the line back and through the tube, leaving the loop of line loose in the turnbuckle.

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

Structural rigging:

Forward drag wires:

Using the previous rigging example, attach a Type A turnbuckle to a forward drag wire from the centre section of the upper wing, leaving the loop of line loose in the turnbuckle.

Using thin CA adhesive, secure the ’leg’ of the turnbuckle into its pre-drilled hole in the cockpit decking panel upper hole, making sure the turnbuckle is aligned to the opposite end of the line.

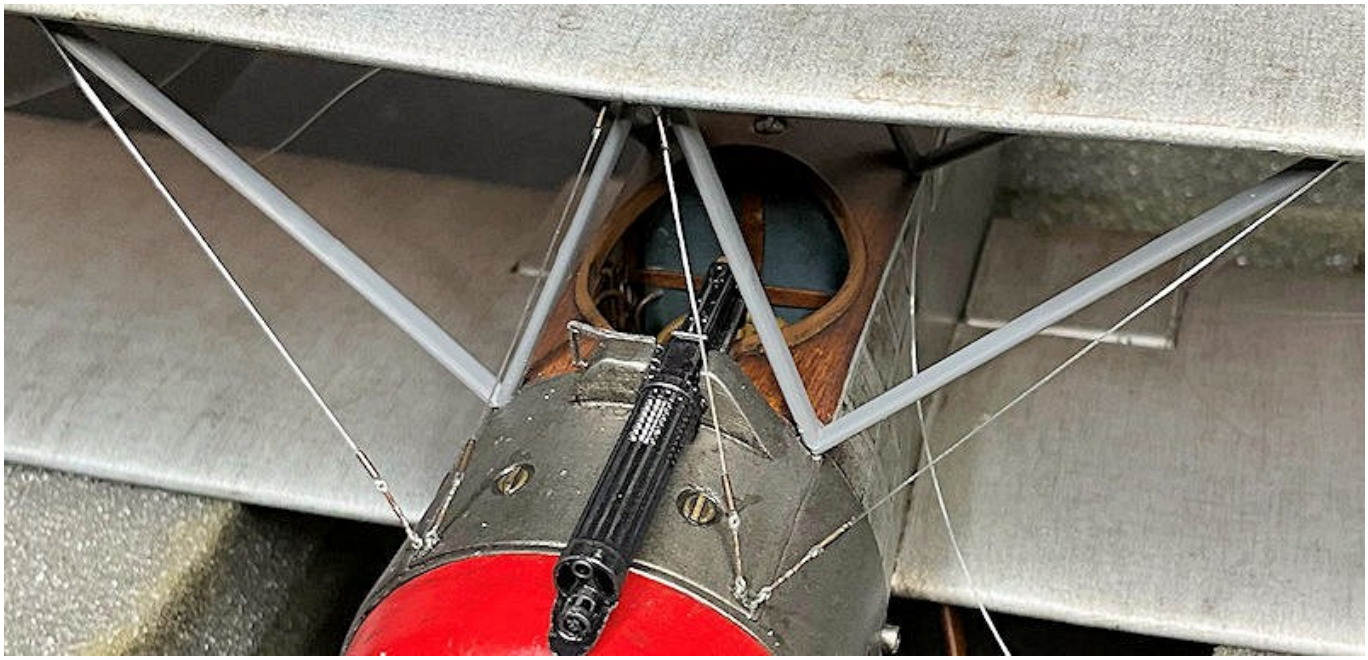
Pull on the free end of the line and slide the tube up to, **but not touching**, the ’eye’ of the turnbuckle, making sure the line is kept taut.

Using thin CA adhesive, secure the wires in the tube.

Cut away any residual end of line at the tube end furthest from the turnbuckle.

Repeat the procedure to attach the opposite forward drag wire from the centre section of the upper wing.

Repeat the procedure to attach the two forward drag wires from the underside of the upper wing, at the cabane struts, to the lower pre-drilled holes in the cockpit decking panel.



Rear anti-drag wires:

Slide a cut tube onto one of the rear anti-drag wires.

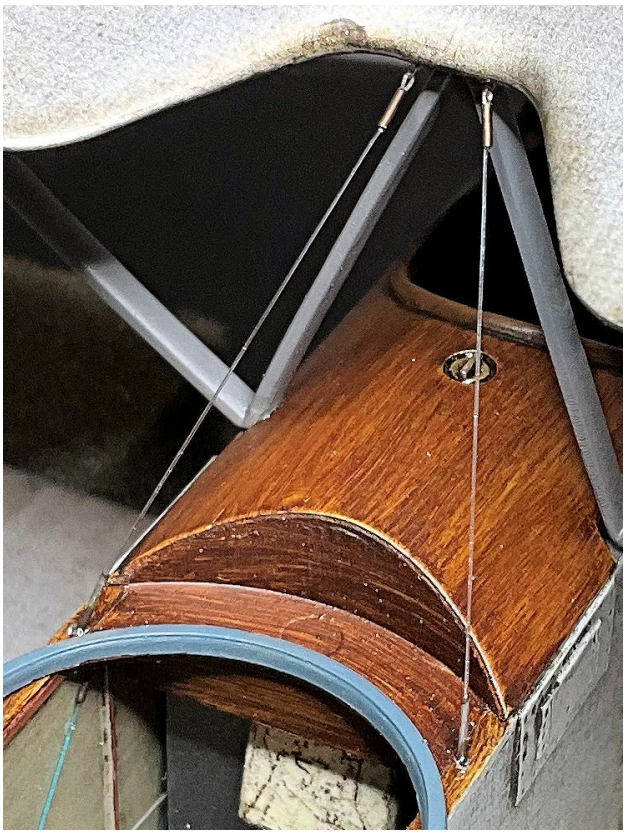
Pass the free end of the line down and through the pre-drilled hole in the top, side of the fuselage.

Keeping the line taut, slide the tube down to the top, side of the fuselage.

Secure the tube to the line and the line to the fuselage, using thin CA adhesive.

Cut away any residual end of the line from inside the fuselage.

Repeat the procedure to attach the opposite rear anti drag line.



Rear flying wire pair:

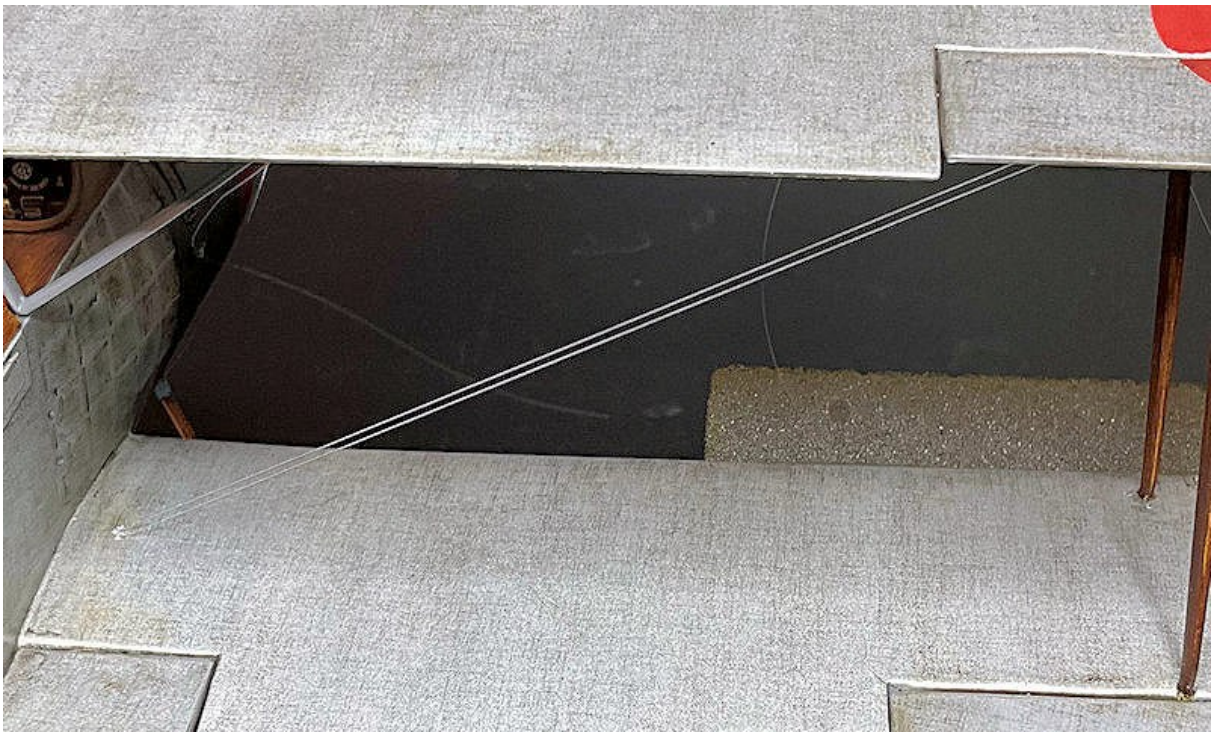
Pass the front and rear wires through their respective pre-drilled holes through the lower wing roots.

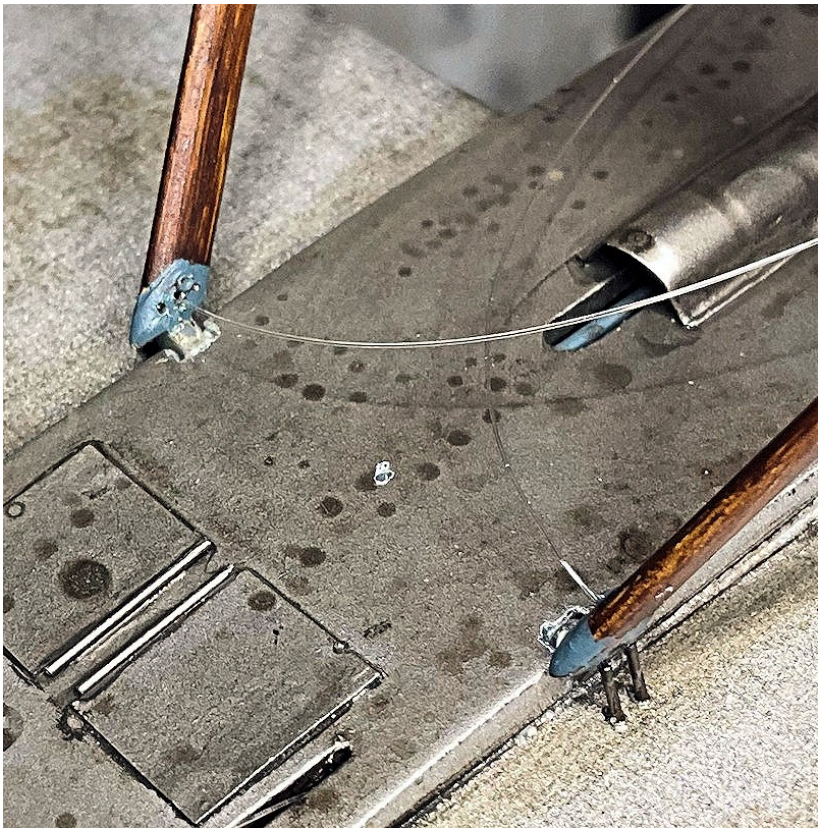
Slide a tube onto each of the flying wires.

Pass the front and rear wires through their respective pre-drilled holes in the top of the landing gear rear struts.

Keeping the wires taut, secure the wires in the lower wings and landing gear struts, using thin CA adhesive.

Cut away any residual line from the two **rear flying wires only**, as the forward wires will be used for landing gear bracing wires.





Forward flying wire pair:

Using the previous rigging example, attach a Type A turnbuckle to the two forward flying wires, leaving the loops of line loose in the turnbuckles.

Using thin CA adhesive, secure the ’leg’ of the two turnbuckles on the **rear** wires into their pre-drilled holes in the top of the landing gear forward struts, making sure the turnbuckles are aligned to the opposite ends of the wires.

Pull on the free end of the wires and slide the tubes up to, **but not touching**, the ’eye’ of the turnbuckles, making sure the wires are kept taut.

Using thin CA adhesive, secure the wires in the tubes.

Cut away any residual end of line at the tube ends furthest from the turnbuckles.

NOTE: *The intention of the following steps is to fix **both** the landing gear forward bracing line and the forward flying wire turnbuckle **into the landing gear forward strut**.*

Cut a long length of line.

Pass one end of the line up and through a forward pre-drilled hole in a landing gear forward strut.

Hold the line inside the pre-drilled hole.

Keep the line positioned and insert the ’leg’ of the turnbuckle on the relevant forward flying wire into the pre-drilled hole in the top of the landing gear forward strut, making sure the turnbuckle is aligned to the opposite end of the line.

Using thin CA adhesive, secure the line and the ’leg’ of the turnbuckle into the pre-drilled hole in the top of the landing gear forward strut.

Pull on the free end of the forward flying wire and slide the tube up to, **but not touching**, the ’eye’ of the turnbuckle, making sure the line is kept taut.

Using thin CA adhesive, secure the line in the tube.

Cut away any residual end of line at the tube end furthest from the turnbuckle.

Repeat the procedure to add the opposite forward flying wire to the landing gear opposite forward strut.

Landing wires:

Rear landing wires:

Using the previous rigging example, attach a Type A turnbuckle to the two rear landing wires, leaving the loops of line loose in the turnbuckles.

Pass the line to the rear of the installed rear flying wires.

Using thin CA adhesive, secure the 'leg' of the turnbuckles on the two rear wires into their pre-drilled holes in the top surface of the lower wings, inboard from the rear interplane struts, making sure the turnbuckles are aligned to the opposite ends of the wires.

Pull on the free end of the wires and slide the tubes up to, **but not touching**, the 'eye' of the turnbuckles, making sure the wires are kept taut.

Using thin CA adhesive, secure the wires in the tubes.

Cut away any residual end of line at the tube ends furthest from the turnbuckles.

Forward landing wires:

Repeat the procedure to attach the two forward landing wires into their pre-drilled holes in the top surface of the lower wings, inboard from the forward interplane struts.

Interplane strut incidence wires:

NOTE: *The following procedure applies to all four of the incidence wires between the interplane struts.*

Using the previous rigging example, attach a Type A turnbuckle to an incidence wires, leaving the loop of line loose in the turnbuckle.

Using thin CA adhesive, secure the 'leg' of the turnbuckle into its pre-drilled hole in the top surface of the lower wing, making sure the turnbuckle is aligned to the diagonally opposite end of the line.

Pull on the free end of the line and slide the tube up to, **but not touching**, the 'eye' of the turnbuckle, making sure the line is kept taut.

Using thin CA adhesive, secure the line in the tube.

Cut away any residual end of line at the tube end furthest from the turnbuckle.

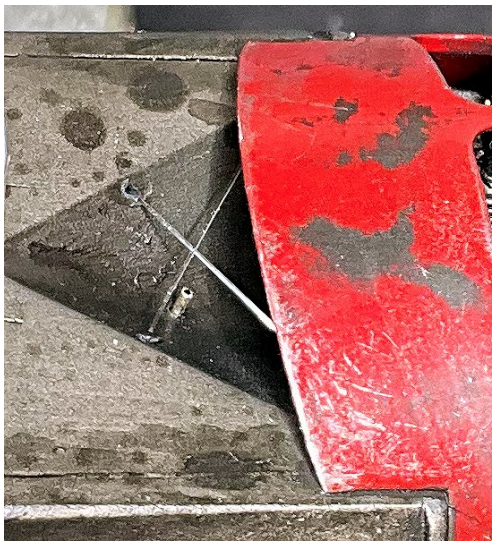
Under shield bracing wires:

Cut two lengths of line.

Pass the ends of the wires through the diagonally opposite pre-drilled holes in the fuselage under shield.

Using thin CA adhesive, secure one end of the wires in the pre-drilled holes.

Keeping the line taut, secure the opposite ends of the wires in their pre-drilled holes, using thin CA adhesive.



Landing gear bracing wires:

Rear bracing wires:

NOTE: *The modelled rear bracing wires are incorrectly attached to the tops of the landing gear rear struts. However, at this stage of the build access is limited to correct this. As modelled, the rear bracing wires for the landing gear use the remaining line from the already added rear flying wires.*

Slide two blackened tubes onto one of the protruding rear flying wires from the landing gear rear struts.

Using the previous rigging example, attach a Type A turnbuckle to the free end of the line.

Using thin CA adhesive, secure the 'leg' of the turnbuckle into its pre-drilled hole in the diagonally opposite, rear end of the axle fairing.

Cut away any residual end of line at the tube end furthest from the turnbuckle.

Repeat the procedure to attach the opposite rear bracing wire.

Forward bracing wires:

NOTE: *The forward bracing wires for the landing gear use the remaining line from the already added forward flying wires.*

Repeat the previous procedure to attach the two forward bracing wires to the pre-drilled holes in the forward ends of the axle fairing.

Centre bracing wire:

Cut a long length of line.

Using the previous rigging example, attach a Type A turnbuckle to one end of the line.

Using thin CA adhesive, secure the 'leg' of the turnbuckle into its pre-drilled hole in the underside of the fuselage, between the rear struts of the landing gear.

Slide a blackened tube onto the free end of the line.

Pass the line forwards and down through the pre drilled hole in the top, centre of the axle fairing.

Keeping the line taut, secure the line in the axle fairing using thin CA adhesive.

Slide the tube down to the axle fairing and secure to the line using thin CA adhesive.

Cut away any residual end of line at the underside of the axle fairing.

Tie cable:

Using the previous rigging example, attach a line to both ends of a Type C turnbuckle.

Slide a blackened tube onto both lines.

Pass the free ends of the line through the pre-drilled holes in the bottom, front of the landing gear forward struts.

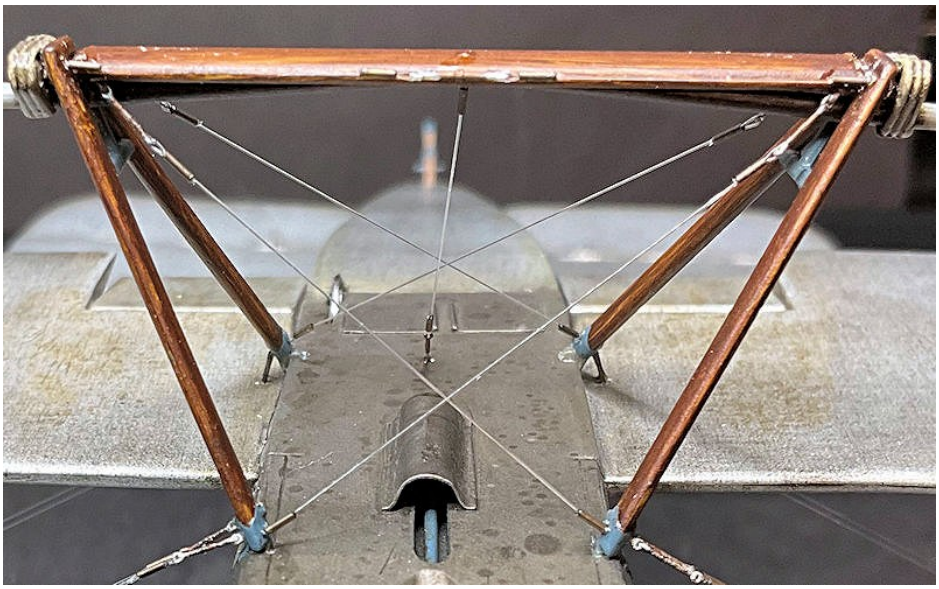
Position the turnbuckle centrally to the axle fairing

Secure one line into its landing gear strut, using thin CA adhesive.

Pull the opposite line and keeping the lines taut, secure that line into its landing gear strut, using thin CA adhesive.

Cut away any residual end of line at the landing gear struts.

Slide the two tubes up to the landing gear struts and secure them to the lines, using thin CA adhesive.



Control cables rigging:

Rudder control cables:

Slide a blackened tube onto the free end of the already fitted two rudder control cables.

Pass the lines through the pre-drilled holes in the rudder control horn.

Loop the lines forwards and through the tubes.

Keeping the lines taut, slide the tubes up to, **but not** touching, the rudder control horn.

Secure the lines in the tubes, using thin CA adhesive.

Cut away any residual end of line at the tube ends furthest from the control horn.

Cut a long length of 0.08 mm diameter mono-filament, such as that from ‘Steelon’ or ‘Stroft GTM’.

Cut two short lengths of blackened ‘Albion Alloy’s’ 0.4 mm diameter tube (Brass MBT04 or Nickel Silver NST04).

Use the same procedure to add a bracing wire from the rudder control horns, through the pre-drilled hole in the rudder.

Tail skid control cables:

Repeat the previous procedure to attach the two tail skid control cables to the control horns on the rudder post.

Aileron control cables:

Rear cables:

NOTE: *The pre-rigged upper ailerons have already been fitted.*

Pass the free ends of the lines in the pre-rigged upper ailerons down and through the pre-drilled holes in the lower wing ailerons.

Slide a blackened tube onto the free ends of the lines.

Pass the lines through the holes in the ends of the photo-etch control horns on the underside of the lower ailerons.

Loop the lines rearwards and through the tubes.

Keeping the lines taut, slide the tubes up to, **but not** touching, the aileron control horns.

Secure the lines in the tubes, using thin CA adhesive.

Cut away any residual end of line at the tube ends furthest from the control horn.

Forward turnbuckles/cables:

NOTE: *The kit supplied aileron control cable/horns (16D and 17D) are replaced with modified 'Proper Plane' Turnbuckles fork end (RD-019).*

Use a shielded razor blade to cut out four of the RD-019 turnbuckles from their support frames.

Brush paint the centre barrels on the turnbuckles with 'Mr. Metal Color' Copper (215) or similar.

Brush paint the end fittings on the turnbuckles with 'Mr. Metal Color' Stainless Steel (213) or similar.

Carefully cut away the cables, leaving the 'eye' ends of the cables intact.

Carefully cut away the surround supports around the fork ends, leaving the fork ends intact.

Cut four long lengths of 0.08 mm diameter mono-filament, such as 'Steelon' or 'Stroft GTM.

Cut four short lengths of blackened 'Albion Alloy's' 0.4 mm diameter tube (Brass MBT04 or Nickel Silver NST04).

NOTE: *The following procedure applies to all four forward control turnbuckle/cables.*

Pass a line through a tube.

Pass one end of the line through the 'eye' end of the turnbuckle.

Loop the line back and through the tube.

Slide the tube up to, **but not touching**, the ‘eye’ end of the turnbuckle.

Keeping the turnbuckle and tube aligned, secure the line in the tube using thin CA adhesive.

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

NOTE: *During the following step,* u*sing slow adhesive allows time to position the turnbuckles.*

Apply a small amount of a slow setting CA adhesive, such as ‘VMS Fleky’ CA adhesive (Slow) or similar to the fork end of the turnbuckle.

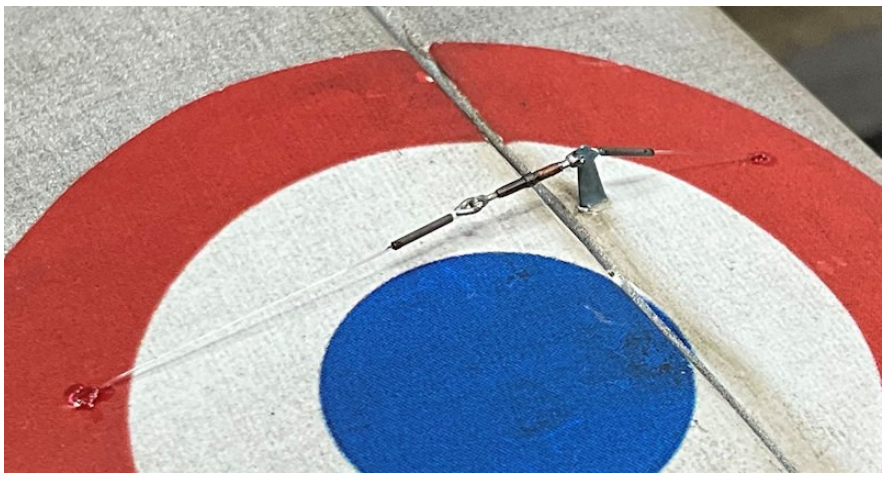
Position the fork end of the turnbuckle around the top of the photo-etch control horn.

Before the adhesive starts to set, place a suitable wedge under the tube end of the turnbuckle to align it with the pre-drilled cable hole in the surface of the wing.

Allow the adhesive to fully set.

Trim the length of the line such that it can be fully inserted into the pre-drilled hole with the minimum of bow or bend in the line.

Using thin CA adhesive, secure the end of the line into the pre-drilled hole.



Structural rigging (continued):

Fin bracing wires:

Forward bracing wires:

Cut five long lengths of 0.08 mm diameter mono-filament, such as that from ‘Steelon’ or ‘Stroft GTM’.

Cut six short lengths of blackened ‘Albion Alloy’s’ 0.4 mm diameter tube (Brass MBT04 or Nickel Silver NST04).

Use a shielded razor blade to cut out four of the RD-005 turnbuckles from their support frames.

Brush paint the centre barrels on the turnbuckles with ‘Mr. Metal Color’ Copper (215) or similar.

Brush paint the end fittings on the turnbuckles with ‘Mr. Metal Color’ Stainless Steel (213) or similar.

NOTE: *The following procedure applies to create three bracing wires.*

Pass a line through a tube.

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

Loop the line back and through the tube.

Slide the tube up to, **but not touching**, the ‘eye’ end of the turnbuckle.

Keeping the turnbuckle and tube aligned, secure the line in the tube using thin CA adhesive.

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

Pass a line through the opposite end of a pre-rigged turnbuckle.

Pass both ends of that line down through a pre-drilled forward hole in one side of the tailplane.

Slide a tube onto the pre-rigged line.

Pass that line through the pre-drilled hole in the forward, top edge of the fin.

Slide a tube onto the pre-rigged line.

Attach a turnbuckle, as before, onto the free end of the line, leaving loose the loop of line through the turnbuckle.

Pass a line through the opposite end of a that turnbuckle.

Pass both ends of that line down through the pre-drilled forward hole in that side of the tailplane.

At the underside of one side of the tailplane, pass the two protruding lines through the open 'eye' end of a pre-rigged line. The lines should be passed through the 'eye' from opposite sides.

Pull on the two ends of the line to draw the turnbuckles up to the tailplane surfaces, leaving enough slack in the line to allow the turnbuckles to be able to be angled towards the fin.

Repeat the procedure to secure the lines in the opposite tailplane in position.

Apply thin CA adhesive to both lines to secure them into both tailplanes.

Pull on the loose line in the turnbuckle and keeping the line taut, slide the tube up to, **but not touching**, the 'eye' of the turnbuckle.

Keeping the line taut, secure the lines in the tube, using thin CA adhesive.

At the two underside pre-rigged lines, trim the length of the lines such that can be fully inserted into the forward pre-drilled holes in the bottom, rear edge of the fuselage.

Keeping the lines taut, secure the lines into their fuselage holes using thin CA adhesive.

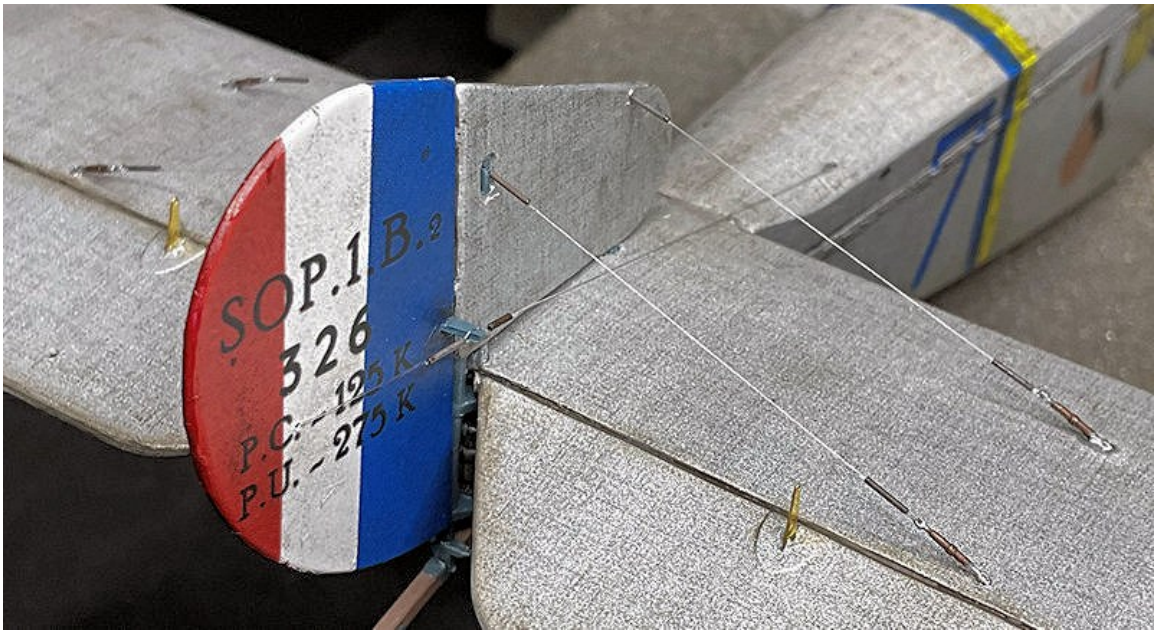
Rear bracing wires:

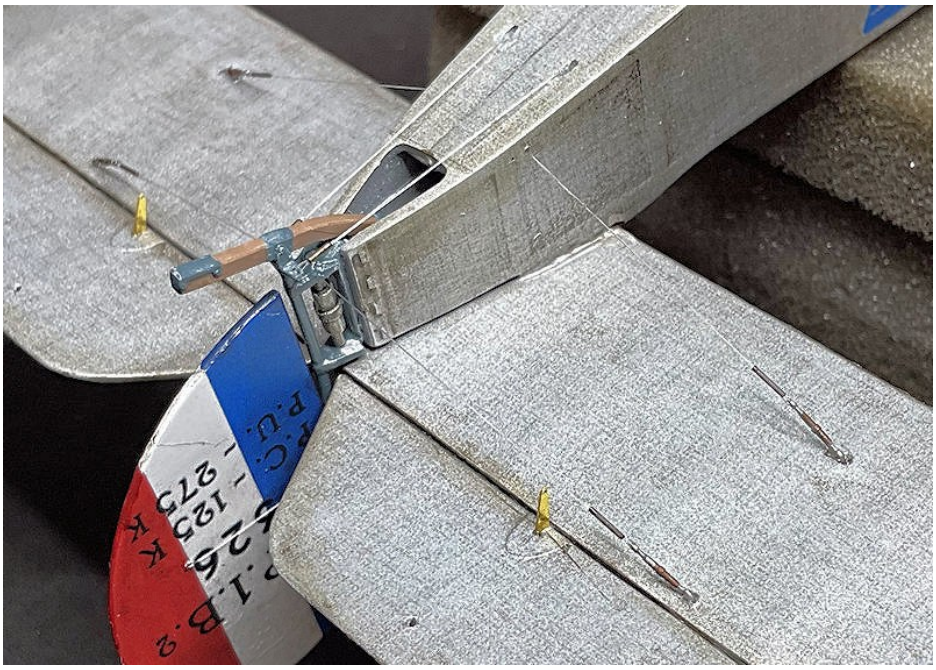
Repeat the previous procedure to attach the rear bracing wires, except that:

The turnbuckle rigging holes are in the tailplane trailing edges.

The upper wires pass through the pre-drilled hole in the exposed tube in the fin.

The underside wires are secured across the underside of the tail skid frame.





Engine cowl retaining cable:

Cut a long length of 0.12 mm diameter mono-filament, such as that from ‘Steelon’ or ‘Stroft GTM’.

Cut two short lengths of blackened ‘Albion Alloy’s’ 0.5 mm diameter tube (Brass MBT05 or Nickel Silver NST05).

Brush paint the centre barrel of a ‘Gaspatch’ Type C turnbuckle with ‘Mr. Metal Color’ Copper (215) or similar.

Using the previous example, attach one end of the line to the turnbuckle.

NOTE: *The intention of the following step is to create a large loop of line.*

Using the previous example, attach the free end of the line to the open ‘eye’ end of the turnbuckle, leaving loose the loop of line through the ‘eye’ of the turnbuckle.

Pass the loop of line over the engine cowl, with the turnbuckle positioned on the right side of the cowl, just above the corner of the under cowl.

Pull on the loose line end at the turnbuckle to tighten the line around the engine cowl and slide to tube up to the turnbuckle. Make sure the line is located in the groove around the rear edge of the engine cowl.

Using thin CA adhesive, secure the lines in the tube.

Cut away any residual end tag on line at the tube end farthest from the turnbuckle.

If desired, use thin CA adhesive to secure the line in the fuselage groove. Avoid apply adhesive to the line over the underside of the engine cowl.

Control cables rigging (continued):

Elevator control cables:

Cut four very long lengths of 0.08 mm diameter mono-filament, such as that from ‘Steelon’ or ‘Stroft GTM’.

Cut four short lengths of blackened 0.4 mm diameter tube, such as ‘Albion Alloy’s’ Micro-tube (Brass MBT04 or Nickel Silver NST04).

Make sure the four pre-drilled holes in the fuselage sides are clear so the lines can pass through.

Pass a line through the upper and lower cable guides tubes, which were added earlier in this build, at the top edge of the fuselage sides.

Insert the upper line fully into the upper pre-drilled hole in the fuselage sides.

Insert the lower line fully into the lower pre-drilled hole in the fuselage sides.

Secure the lines in their holes using thin CA adhesive.

NOTE: *The following procedure applies to each of the four control cable lines.*

Pass the line rearwards and under the fin bracing wires.

Slide a tube onto the line.

Pass the free end of the line through the hole in the top of the relevant elevator control horn.

Loop the line forwards and back through the tube.

Pull the free end of the line to tension the line and slide the tube up to the control horn.

Keeping the line taut, secure the lines in the tube, using thin CA adhesive.

Cut away any residual end tag of line at the tube end farthest from the control horn.

Cut two lengths of 0.08 mm diameter mono-filament, such as that from ‘Steelon’ or ‘Stroft GTM’.

Cut four short lengths of blackened 0.4 mm diameter tube, such as ‘Albion Alloy’s’ Micro-tube (Brass MBT04 or Nickel Silver NST04).

NOTE: *The following procedure applies to both elevator rear cables.*

Slide a tube onto the line.

Pass the line through the hole in the top of the relevant elevator control horn.

Loop the line rearwards and back through the tube.

Slide the tube up to, **but not touching**, the control horn.

Secure the lines in the tube, using thin CA adhesive.

Cut away any residual end tag of line at the tube end farthest from the control horn.

Pass the free end of the line rearwards and down through the pre-drilled hole in the elevator.

Slide a tube onto the line.

Pass the line through the hole in the top of the relevant elevator control horn.

Loop the line rearwards and back through the tube.

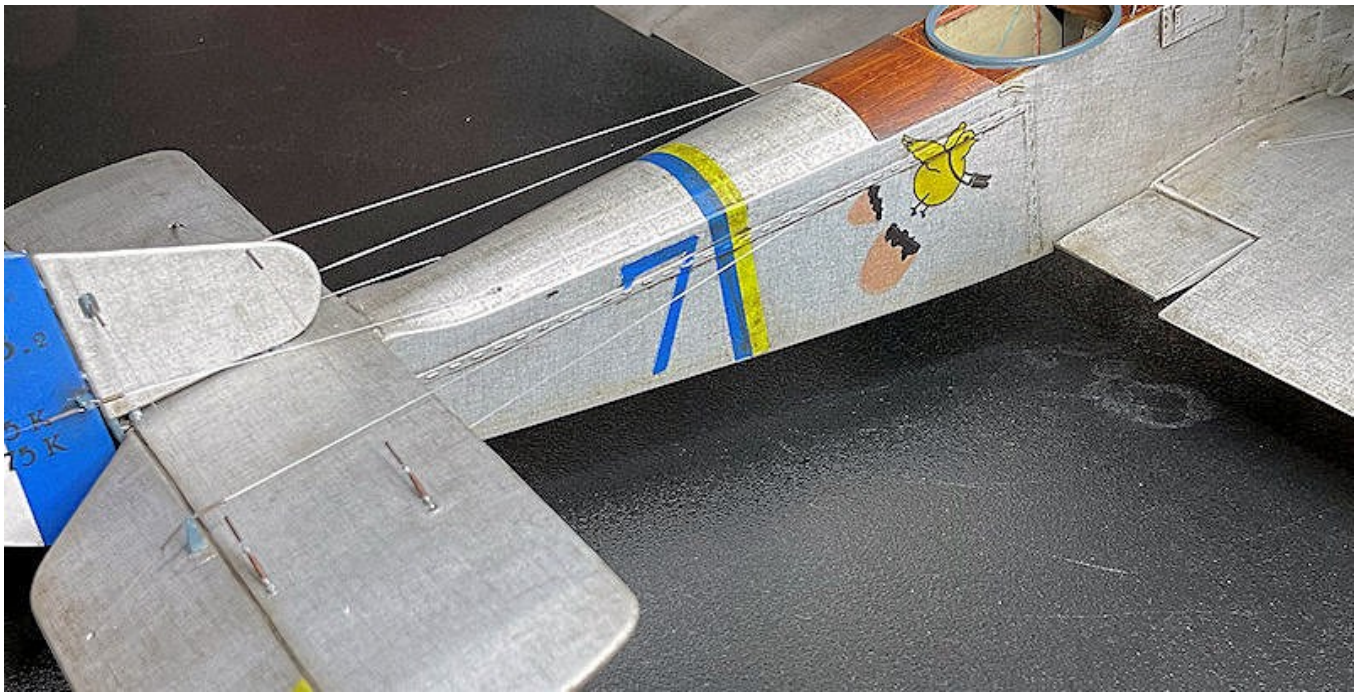
Keeping the line taut, slide the tube up to, **but not touching**, the control horn.

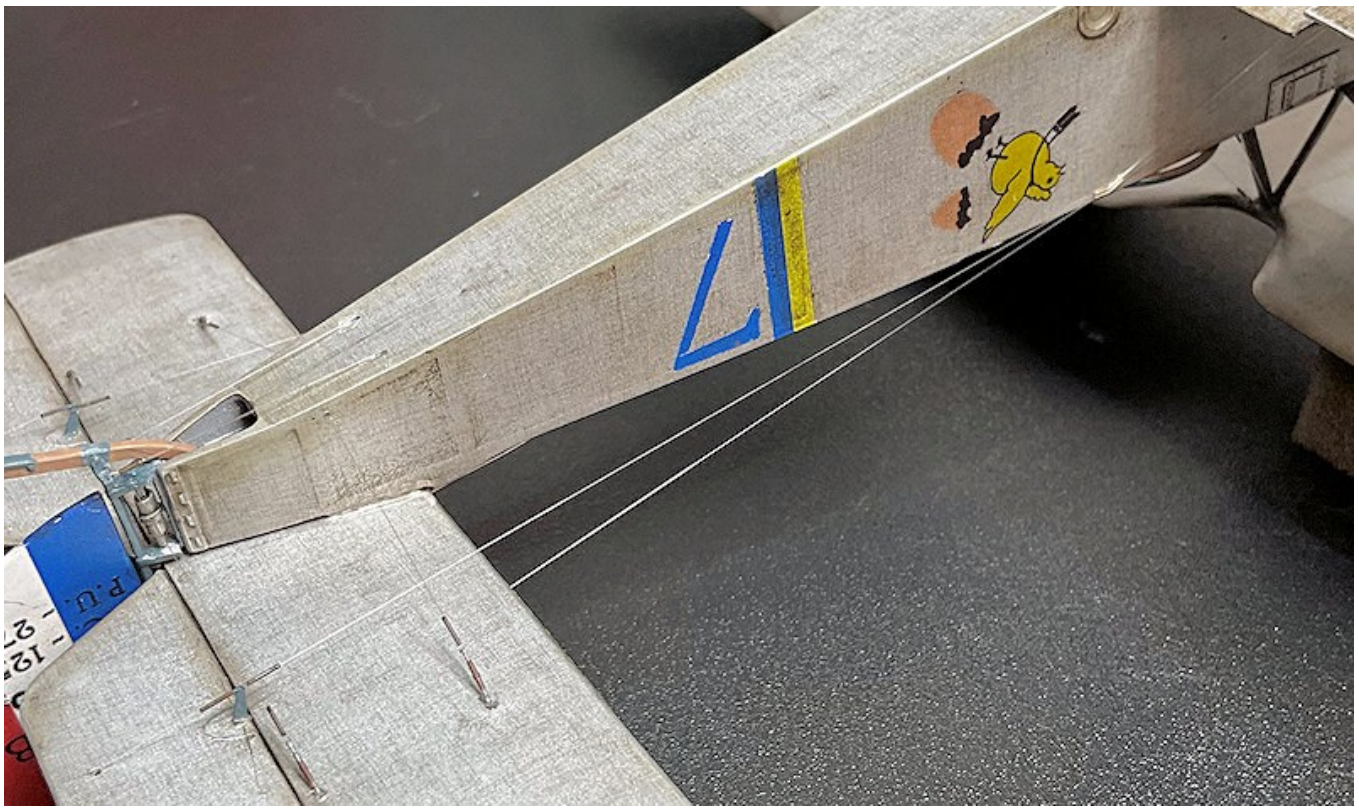
Secure the lines in the tube, using thin CA adhesive.

Cut away any residual end tag of line at the tube end farthest from the control horn.

Rigging surface finish:

To reduce the surface glare of the mono-filament rigging, airbrush a semi-matte clear coat, such as ’Tamiya’ Semi-Gloss (X35) thinned 60/30 with ’Mr. Color’ Rapid thinners over all rigging lines.





Painting (continued):

Brush paint the aileron, rudder and elevator control horns with ‘Tamiya’ Medium Blue (XF18) or similar.

Weathering (continued):

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

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

NOTE: *After removing the clay wash to achieve your desired effect, it’s best to seal the surfaces with a clear coat. The clear coat will be absorbed by the clay wash, which slightly darkens the clay wash effect. Therefore, it’s better to remove slightly more of the wash before applying the sealing coat to avoid the end result looking too ‘heavy’.*

Brush apply ‘Flory Models’ Clay wash over the wheels and outer covers, allow to dry then remove to achieve your desired weathered effects. I chose to use the ’Flory Models’ Grime wash.

Brush apply ‘Flory Models’ Clay wash over the fuselage cabane struts, allow to dry then remove to achieve your desired weathered effects. I chose to use the ’Flory Models’ Dark Dirt wash.

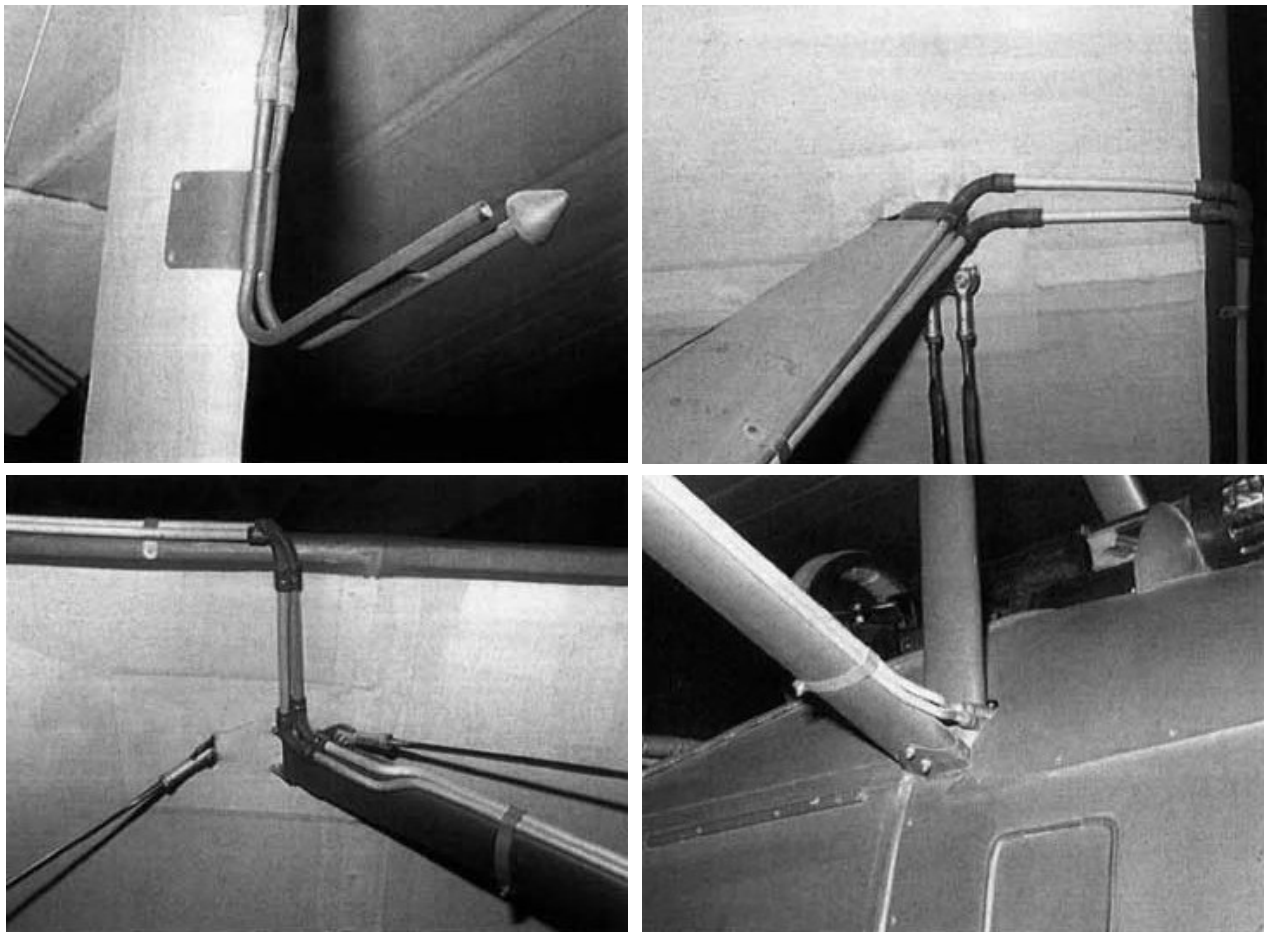
If desired, ‘flick’ ‘Flory’ Grime Clay wash onto the underside of the lower wings to increase the amount of dirt/mud thrown up by the landing gear wheels.

To seal and protect the applied weathering, airbrush a semi-matte clear coat, such as ’Tamiya’ Semi-Gloss (X35) thinned 60/30 with ’Mr. Color’ Rapid thinners over the applied weathered surfaces.

Modifications (continued):

Pitot static pipes:

The pipes from the dual pitot static probes were routed up the leading edge of the right, forward interplane strut and then inboard along the upper wing leading edge to the fuselage forward cabane strut. The pipes were then routed down the leading edge of the cabane strut, through the cockpit decking panel into the fuselage.



To represent the pitot static pipes, I used ‘MFH’ 0.4 mm diameter flexible black tube (P-961) and thin CA adhesive.
Two long and equal lengths were cut and the ends at one end were secured together. The secured ends were then secured to the underside of the right, forward cabane strut, with the ends against the fuselage. The tubes were laid together along the cabane strut to the underside of the wing and secured in place, then curved towards the wing leading edge and secured in place. Both pipes were then routed together along the wing underside leading edge to the forward interplane strut. There, they were secured in place then curved rearwards to the top of the interplane strut. The pipes were trimmed to fit against the top of the interplane then secured in position. ‘Mr. Metal Color’ Stainless Steel (213) was finely brushed in places along the pipes to represent attachment straps.

Rotherham pump:

NOTE: *The Rotherham wind driven pump had a pipe, which was connected between the rear of the pump body and the fuselage.*

Drill a hole of 0.5 mm diameter centrally into the rear of the pump body.

Cut a length of 'MFH' 0.4 mm diameter flexible black tube (P-961).

Secure one end of the tube into the drilled hole in the pump body, using thin CA adhesive.

Carefully scrape away the outboard surface oil paint from the landing gear left, forward strut where the Rotherham pump is to be fitted.

Scrape away any paint from the strut mating surface on the pump.

Cement the pump two thirds the way up the landing gear left, forward strut.

Point mark the fuselage left, underside edge between the landing gear struts.

Using the point mark as a guide, drill a hole of 0.5 mm diameter into the fuselage.

Trim the length of the pipe such that it can be inserted into the fuselage hole with a curve between the pump and fuselage.

Secure the pipe in the fuselage, using thin CA adhesive.

Aileron pulley inspection windows:

NOTE: *The kit supplies an outlined acrylic sheet from which the four inspection windows for the wing mounted aileron control pulleys are to cut. I chose to disregard the acrylic windows and instead used UV curing clear resin.*

Make sure any decal is removed from the aileron control pulley recesses in the upper and lower wings.

Brush paint the recesses with 'Tamiya' Wood Deck Tan (XF78) or similar.

Brush paint the aileron pulleys with 'Mr. Metal Color' Stainless Steel (213) or similar.

Using a sharp pencil, draw the aileron control cables around the aileron pulleys.

To create the inspection windows, I used UV curing clear resin, applied with a toothpick and cured using a UV light torch.

Assembly (continued):

Wheels:

Make sure all paint/primer is removed from the axle ends on the landing gear and from around the inside, centre are of the wheels.

Fully locate the wheels onto the landing gear axle.

Locate the wheels retainers on to the axle ends and against the inside of the wheels.

Apply cement to secure the wheels and retainers to the axle.

Once the cement has set, fully locate the wheel outer covers into the wheels and cement them in place.

Observer/gunners Lewis machine gun:

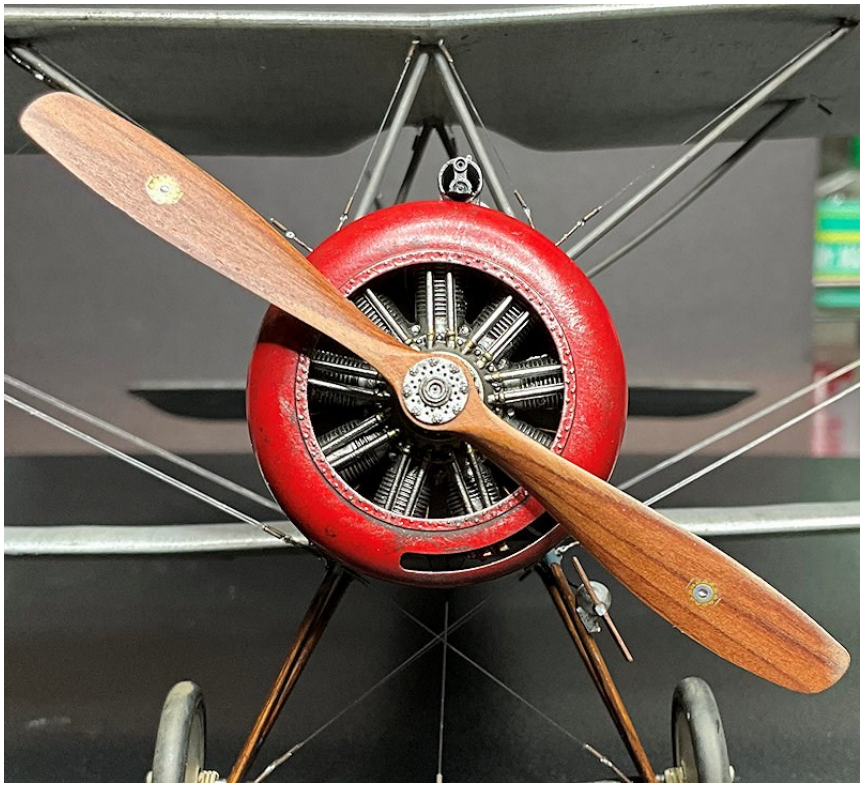
Make sure all paint/primer is removed from the top surface of the fuselage mounting ring and the underside of the swivel ring on the Lewis machine gun assembly.

Insert the gun assembly into the fuselage mounting ring and position the weapon in the fuselage, as desired.

Cement the gun assembly to the fuselage swivel ring.

Propeller:

Apply CA adhesive to the engine propeller shaft and fully locate the propeller, in the desired position, on the shaft.



PART 11
FIGURES

PART 11 - FIGURE

The figures used with this model are the 'Kellerkind Miniaturen' French mechanic with brush (54089) and the French mechanic with coffee (54112).

The figure of the French mechanic with brush is supplied as the body, right arm and paint pot.

French mechanic with brush:

NOTE: *This figure is supplied as the body, right arm and paint pot.*

Preparation:

Cut and sand away the casting bases on the bottom of the feet, arm and paint pot.

Remove any casting seam or surface artifacts.

Drill a hole of 0.8 mm diameter vertically up into the left leg, making sure to keep the drill central to avoid drilling through the side of the leg.

Drill a hole of 0.8 mm diameter vertically up into the bottom, **but not through**, the paint pot.

Cut two lengths of 0.8 mm diameter Brass rod, such as that from 'Albion Alloy's' or similar.

Using thin CA adhesive secure the rods fully into the pre-drilled hole in the leg and pot. These will be used for painting the figure and pot and for mounting them into the display base.

Assembly:

Using thin CA adhesive, secure the right into its location on the body.

If necessary, fill any gaps with the CA adhesive.

Painting:

Airbrush the figure and paint pot with a grey primer, such as 'AK Interactive' Grey (AK758) or similar.

NOTE: *The paints used are:*

'AK Interactive' Figure paints thinned with 'AK Interactive' Acrylic Thinner (AK712).

'Tamiya' Acrylic paints, thinned with 'Tamiya' paint retarder.

'Citadel' Colour paints, thinned with water.

Brush paint the figure with the following or similar paints:

Trousers/Jacket - 'Tamiya' Deck Tan (XF55) with Desert Yellow (XF59) highlights.

Buttons - 'Mr. Metal Color' Stainless Steel 9213).

Shoes (Clogs) - 'Tamiya' Hull Red (XF9).

Shirt/Rag - 'AK Interactive' Faded White (AK3029).

Hat - 'AK Interactive' French Uniform Base (AK3101) mixed with Uniform Shadow (AK3103). Peak and strap 'Tamiya' Semi-Gloss Black (XF18).

Paint brush - Stem 'Tamiya' Hull Red (XF9) with Red (XF7).

Paint pot - 'Mr. Metal Color' Stainless Steel 9213), buffed with a cotton bud (Q tip) with Red (XF7).

Hair - 'Tamiya' Flat Earth (XF52).

Flesh - 'Citadel' Bugman's Glow as base coat, followed by Cadian Flesh Tone and finally Kislev Flesh highlights.

Finish:

Brush paint the shoes (Clogs) with a semi-matte clear coat, such as 'Tamiya' Semi-Gloss (XF35).

Weathering:

Lightly sponge 'Tamiya' Weathering Master Set A (Mud) over the shoes (Clogs).
Lightly sponge 'Tamiya' Weathering Master Set D (Oil Stain) over the pockets and elbows.

French mechanic with coffee:

NOTE: *This figure is supplied as the body, right arm and left arm.*

Preparation:

Cut and sand away the casting bases on the bottom of the feet and arms.

Remove any casting seam or surface artifacts.

Drill a hole of 0.8 mm diameter vertically up into the left leg, making sure to keep the drill central to avoid drilling through the side of the leg.

Cut a length of 0.8 mm diameter Brass rod, such as that from 'Albion Alloy's' or similar.

Using thin CA adhesive secure the rod fully into the pre-drilled hole in the leg. This will be used for painting the figure and for mounting it into the display base.

Assembly:

Using thin CA adhesive, secure the right and left arms into their locations on the body.

If necessary, fill any gaps with the CA adhesive.

Painting:

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

NOTE: *The paints used are:*

'AK Interactive' Figure paints thinned with 'AK Interactive' Acrylic Thinner (AK712).
'Tamiya' Acrylic paints, thinned with 'Tamiya' paint retarder.

Brush paint the figure with the following or similar paints:

Trousers - 'AK Interactive' French Uniform Shadow (AK3103) with Black Uniform Base (AK3002) highlights.

Boots - 'AK Interactive' Brown Leather (AK3031).

Shirt - 'AK Interactive' Faded White (AK3029).

Sweater - ’Tamiya’ Olive Green (XF58) with Rubber Black (XF85) highlights.

Hat - ‘AK Interactive’ French Uniform Base (AK3101) darkened with Uniform Shadow (AK3103). Peak and strap ‘Tamiya’ Semi-Gloss Black (XF18).

Cup - ‘Mr. Metal Color’ Stainless Steel 9213), buffed with a cotton bud (Q tip). ‘Tamiya’ Flat Earth (XF52) for the coffee.

Rag - ‘AK Interactive’ Faded White (AK3029).

Hair - ‘Tamiya’ Rubber Black (XF85) with Medium Sea Grey (XF86) highlights.

Flesh - ‘Citadel’ Bugman’s Glow as base coat, followed by Cadian Flesh Tone and finally Kislev Flesh highlights.

Finish:

Brush paint the boots with a semi-matte clear coat, such as ‘Tamiya’ Semi-Gloss (XF35).

Weathering:

Lightly sponge ‘Tamiya’ Weathering Master Set A (Mud) over the shoes (Clogs).

Lightly sponge ‘Tamiya’ Weathering Master Set D (Oil Stain) over the pockets and elbows.

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 the 'Polak' Wild Meadow Variation G (4707).

The information plaque was engraved by 'TLS Engraving Ltd'.

Grass mat:

The grass mat was cut to the desired shape to fit under the model. The mat was then laid onto the display base and positioned to ensure the model would clear the display top when located. A pointed scriber was used to carefully and lightly trace the outline of the mat onto the display base. The inside of the marked area was scuffed using sand paper, to provide a grip surface for the adhesive. The plastic sheet was removed from the backing of the mat then PVA (white glue) adhesive was applied to the scuffed area on the display base. The grass mat was then laid back onto the base and aligned to the scribed outline and gently pushed down to make proper contact. Any PVA adhesive that was squeezed from the edges of the mat were removed using a cotton bud (Q-tip) dampened with water. The grass mat was then 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 with the display base and more PVA adhesive was applied if required. Finally, the grass mat was gently brushed to remove any flatness of the fibres.

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 and possible damage when being moved around, as it might 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 firmer location and avoid the wheels 'sitting' on the top of the mat fibres.

Figures and accessories:

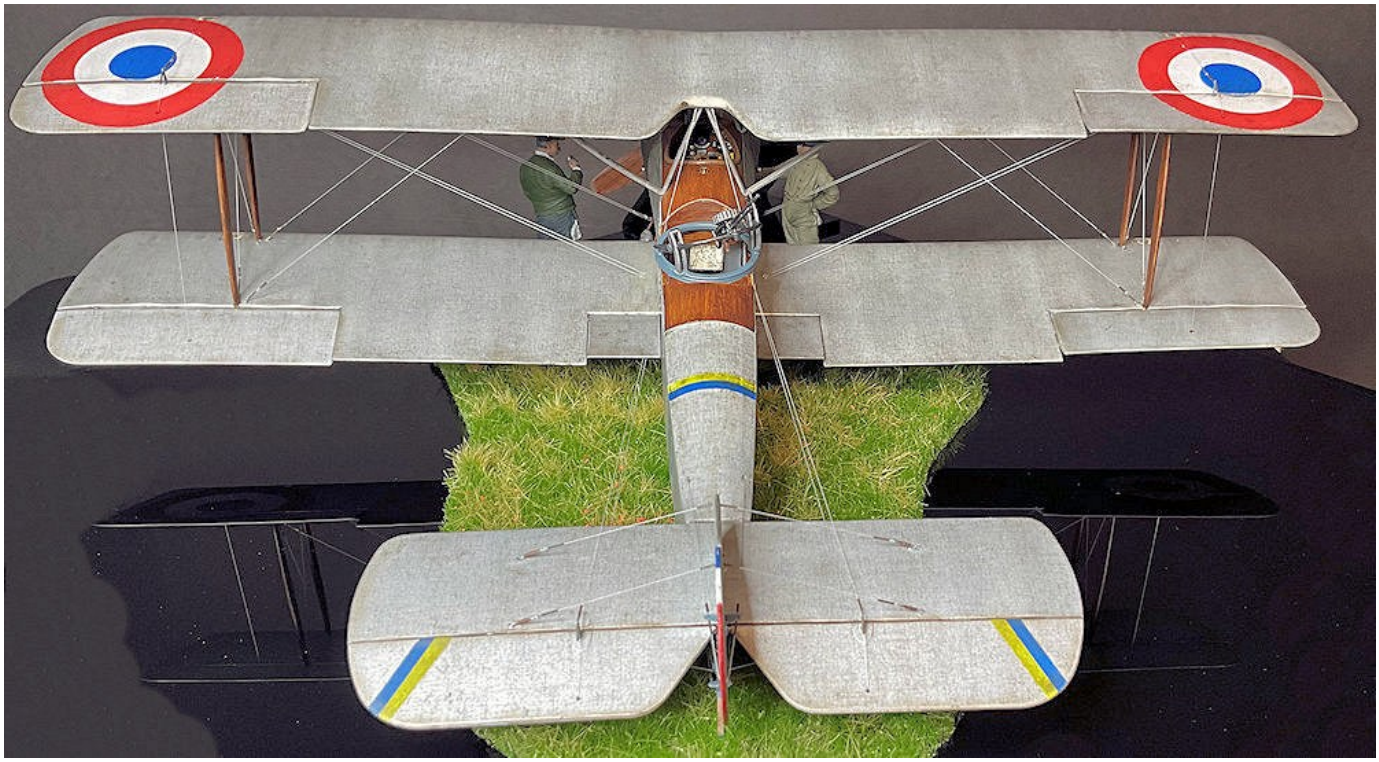
With the model positioned on the grass mat, the figures were positioned on the base in their final positions and the location of the pins in the legs of the figures and the paint pot were marked on the grass mat. Using the marks as guides, holes of 1.0 mm were drilled through the grass mat and into (not through) the display base. PVA or thin CA adhesive was then applied to the pin of the standing figures and paint pot, which were then fully located into the drilled holes. Light pressure was applied to each to ensure they were fully located into the base.

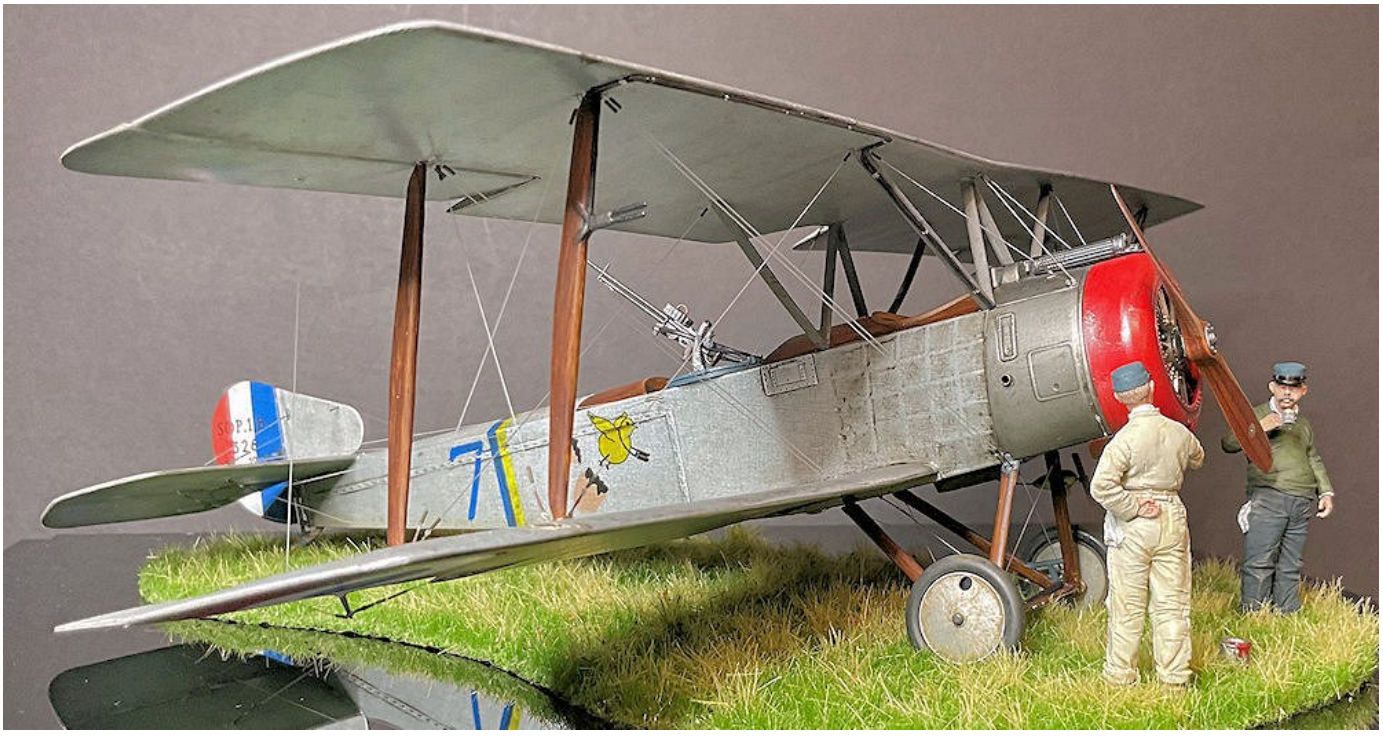
Information plaque:

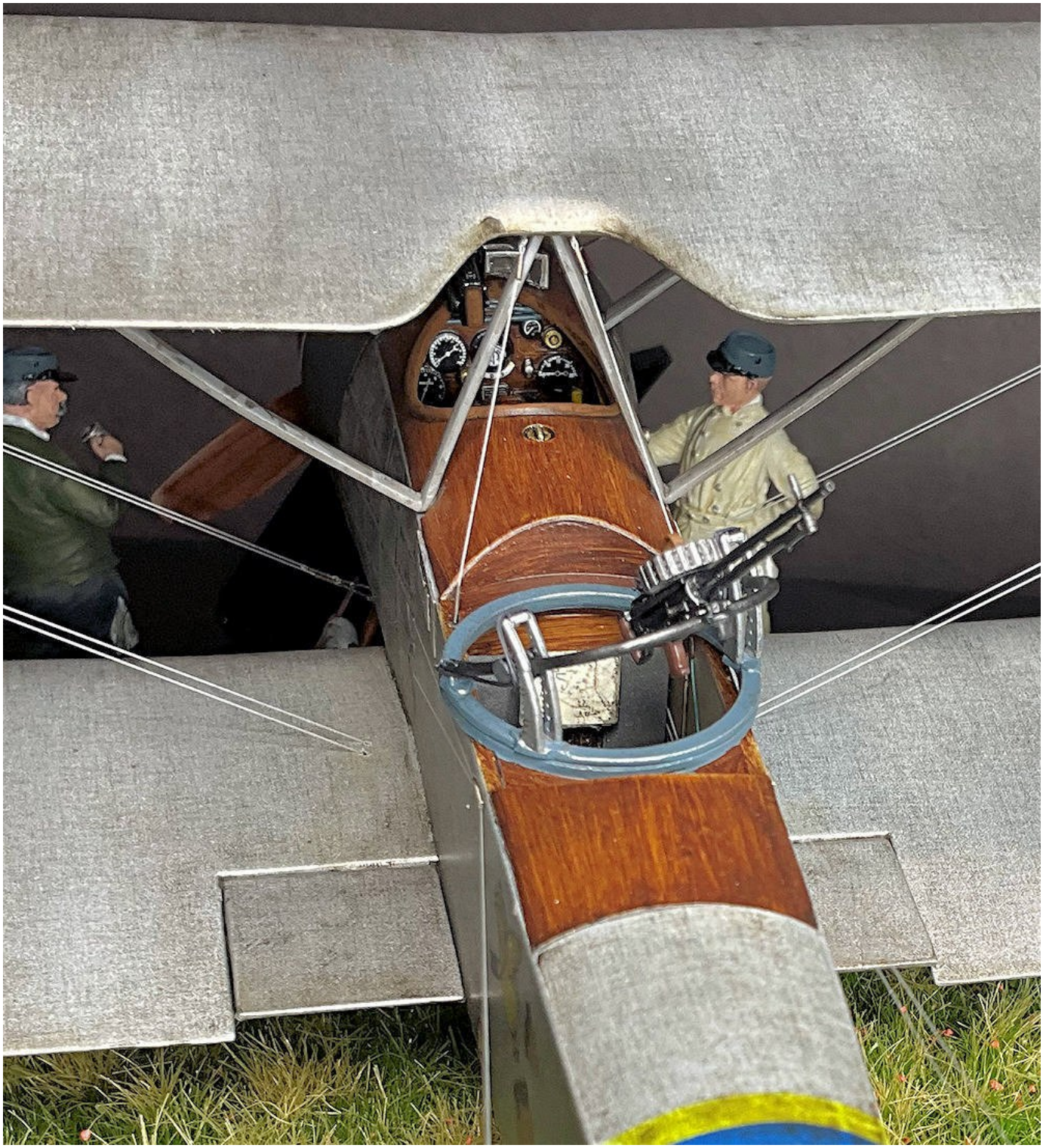
The acrylic stand for the information plaque was scuffed with sand paper on its bottom surface. It was then position in the left corner of the display base and its outline lightly scored with a pointed scriber. The area inside the scribed outline was scuffed with sand paper. An adhesive, such as a contact 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


7







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