



Mikes World War One

I have always held a fascination with early military aircraft. I served for 27 years in the Royal Air Force, then a further 20 years as a Military Aerospace Technical Author. Although, as most modelers, I got involved in the world of construction kits at an early age, I stopped for most of my service career and for some years afterwards.

I started modeling again in 2015 as preparation for my retirement in 2016, so now enjoy the challenge of building aircraft of World War One as my primary pastime. Since I started to post photographs of my completed models online, people have asked if I would create a 'build log' for future builds.

I certainly don't consider myself a 'master' of this craft, but hopefully the build logs I've written will be of some use in passing on some of what I've learned over the years. The builds logs can be downloaded from the 'Build Logs' pages on my website.

<https://mikesww1modelaircraft.com>

As such, here is my build log, which covers the build of the 'Wingnut Wings' 1:32 scale model of the Sopwith 2F.1 'Ships Camel'.

Mike 'Sandbagger' Norris
<https://mikesww1aircraftmodels.com>
sandbaggeruk@sky.com

Completed: September 2026

CONTENTS

INTRODUCTION

AFTER MARKET

PART 1 - AIRCRAFT DESCRIPTION

PART 2 - KIT REVIEW

PART 3 - THE AIRCRAFT MODELLED

PART 4 - WOOD EFFECTS

PART 5 - WEATHERING

PART 6 - DECALS

PART 7 - RESIN

PART 8 - RIGGING

PART 9 - PREPARATION AND MODIFICATIONS

PART 10 - ENGINE

PART 11 - PROPELLER

PART 12 - WEAPONS

PART 13 - FUSELAGE CONSTRUCTION

PART 14 - EXTERNAL CONSTRUCTION

PART 15 - FIGURE

PART 16 - DISPLAY BASE

PART 17 - COMPLETED MODEL PHOTOS

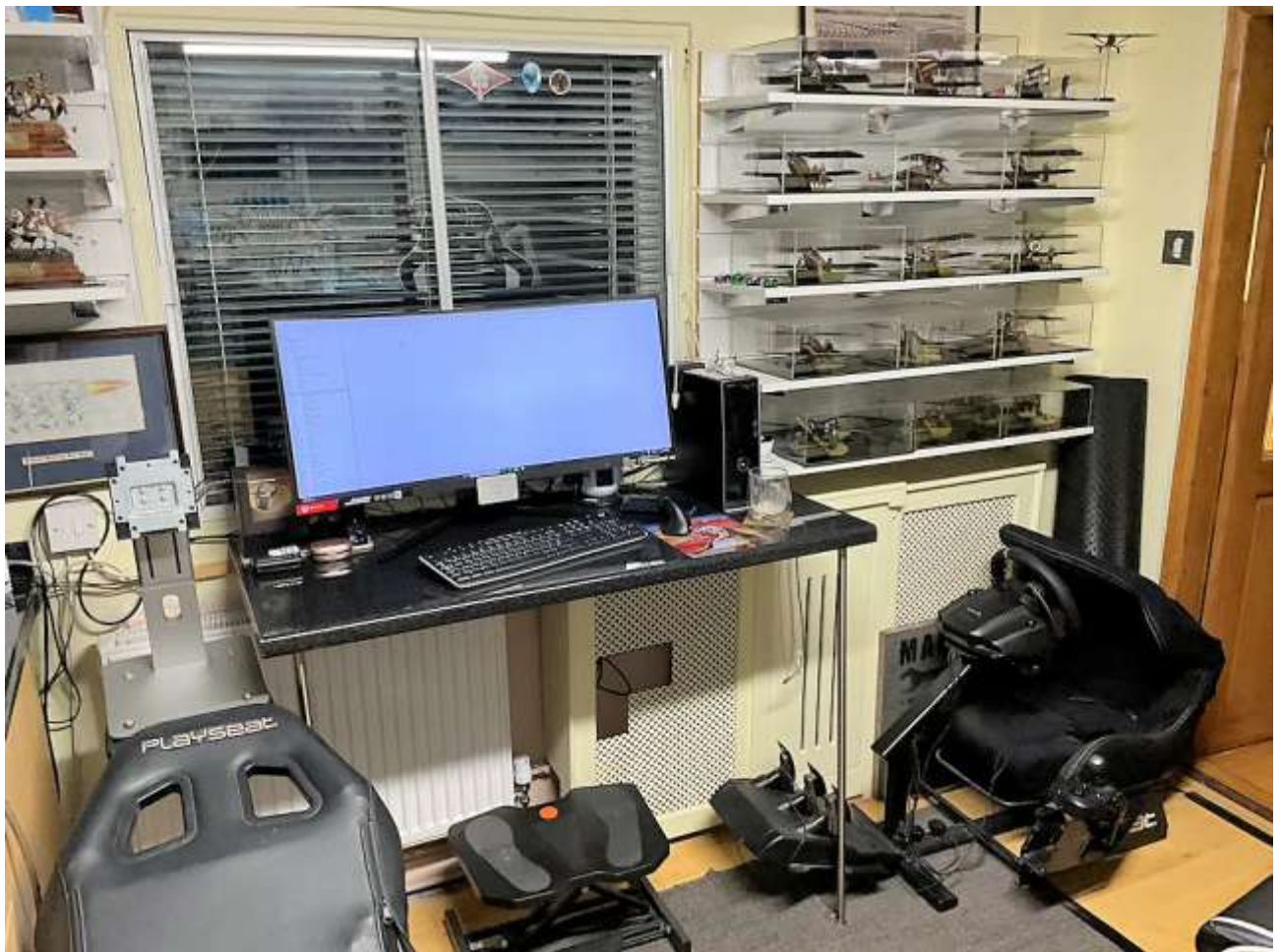
INTRODUCTION

INTRODUCTION

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







AFTER MARKET

AFTER MARKET

Figure

'Elan13 Miniatures' RNAS Pilot (EL36).

Propeller

'Proper Plane' Lang wood laminated (WP005).

Decals

'Aviatic' Clear Doped Linen Bleached (ATT32044).

Resin

'Barracuda Cast' resin seat (BR32233).

Rigging accessories (as required)

'Albion Alloy's' 0.4mm (MBT04) or 0.5 mm (MBT05) diameter Brass tube,

'Steelon' or 'Stroft GTM' fishing line (0.08 mm and 0.12 mm diameter),

'Infini Model' Medium Aero Black Rigging (0.135 mm),

'Proper Plane' 3D printed turnbuckles (RD-005)

'Bobs Buckles' 0.4 and 0.5 mm cut tubes,

'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, 'Mr. Color' Levelling Thinners 400.

Sundries (as required)

PVA Adhesive (e.g. 'MicroScale' Micro Krystal Clear),

'PlusModel' lead wire (various), 'MicroScale' MicroSol/MicroSet decal solutions,

'VMS Fleky' CA adhesive (Slow or Thin or Resin), 'Araldite' two-part epoxy,

'MFH' 0.4 mm diameter flexible black tube (P-961), Copper wire various diameters,

'Tamiya' masking sheet and tapes (various widths), 'Prismacolor' Verithin pencil 'Argent Metallique',

'UHU' White Tack, 'Abteilung 502' Liquid Mask, 'De-Solv-It' Sticky Stuff Remover,

AMMO Mig photoetch Burnishing Fluid (A.MIG-2021), 'Plastruct' styrene strip,

'EZ' heavy stretch line (White or Black), 'Signo' uni-ball silver pen (UM-153),

'VMS' Metal prep 4K, 'Tamiya' liquid cement (Thin and Extra Thin), 'Evo-stik' contact adhesive.

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

'Hobbies Ltd' white Maple planking bundle (WMP055),

'Inperspective' custom made acrylic base and cover,

Information plaque from 'TLS Engraving Ltd'.

PART 1

AIRCRAFT

DESCRIPTION

PART 1 - THE AIRCRAFT

References:

'Windsock' Data File 6 - Sopwith 2F.1 Camel (J.M.Bruce).
'Centenary' Data File 170 - 2F.1 Ship's Camel (C.A. Owers).
'Air Board Technical Notes' - Published 1917.
'Wingnut Wings' - Instruction Manual (IM).

NOTE: *The following description is based on extracted text from the 'Wingnut Wings' instruction manual.*

The iconic Sopwith Camel, so named for the 'hump' over its guns, is possibly the most famous of all First World War aircraft, if not by sight, then by name. Sopwith developed the Camel in late 1916 in an effort to overcome the single gun handicap suffered by their successful 80hp Pup and improve performance with a more powerful engine. The initial Sopwith F.I Camel prototype was unveiled in late December 1916 and featured a single piece top wing, 2 Vickers Mk.I machine guns and a 110hp Clerget 9Z engine. Unlike the previous Pup and Triplane, the Camel featured a top wing with no dihedral coupled with a high 5° dihedral bottom wing which, combined with its concentrated centre of gravity, would help contribute to its high manoeuvrability and well deserved reputation as a difficult (and frequently dangerous) aircraft to fly. Additional prototypes were produced with various improvements including a 3 piece top wing with centre section cut-out and 130hp Clerget 9B engine. Testing by selected operational pilots in early 1917 brought mostly positive reports along with a few recommendations for additional improvements, some of which made their way on to early production aircraft.

The Sopwith F.I Camel went into production in January 1917 and aircraft began equipping land based Royal Naval Air Service (RNAS) and Royal Flying Corps (RFC) Squadrons in May and June 1917.

In an effort to continue the great work done by shipboard Sopwith Type 9901a 'Pups', a Naval Camel was developed and a Clerget engine powered prototype appeared in March 1917. New features included steel tube cabane struts, lifting clevises on the centre section, a smaller wingspan and a two piece fuselage to facilitate loading and stowage aboard ships. A single Vickers gun was fitted in the front cowling and a Lewis gun was mounted upside down on the top wing. By June 1918 the Lewis gun was now positioned the right way up, a wireless and generator was installed and 8 Le Prieur 'anti-Zeppelin' rockets were attached to the interplane struts. As far as can be determined at this time, it appears that the wireless and rockets were not carried on production 2F.1. When the 2F.1 'Ship's Camel' eventually went into production in early September 1917 it featured floatation bags and redesigned elevator controls to ease assembly of the two piece fuselage. Almost all production 2F.1 Camels were powered by the 150hp BR.I (Bentley Rotary 1) engine which was the preferred powerplant of the Royal Navy. Most of the 276 Sopwith 2F.1 Camels built saw service aboard Royal Navy ships, taking off from very small platforms atop gun turrets, rudimentary early carriers or from towed Lighters and frequently had to ditch into the sea and await salvage if suitable land could not be reached. Sopwith 2F.1 Camels saw limited post war service with the RAF fighting the Bolsheviks in 1919 as well as with the Canadian Air Force and a few in Latvia. The last serving 2F.1 Camel was not retired in Canada until the late 1920s.

Specifications:

Wingspan - 26ft 11in (8.20m).

Length - 18ft 8in (5.69m).

Maximum weight - 1,530lb (693kg).

Maximum speed - 121mph (195kph).

Ceiling - 17,300ft (5,273m).

Engine - 150hp Bentley BR.1 rotary.

Weapons - 1 x 7.7mm Vickers Mk.1 and 1 x Lewis .303 machine guns. Also up to 100lb (45kg) of bombs.

PART 2

KIT REVIEW

PART 2 - KIT REVIEW
(‘Wingnut Wings’ Kit No.32076)



This particular aircraft has been released by ‘Wingnut Wings’ as four separate kits, three of which depict a different engine version and one of the Naval ship version. That said there are common parts included within each of the kits.

As expected, any model from ‘Wingnut Wings’ (WNW) is at the top of quality and accuracy. The kit components are not a numerous as many of their kits, which is good if you are building a WNW kit for the first time. The parts are manufactured from traditional ‘plastic’, not resin. There is minimal mould flash that needs to be removed and also virtually no ejection pin marks that need to be filled and sanded away. All of the main sprues, including the transparencies and photo-etch (PE) parts, are sealed in separate plastic bags, which prevents and sprue damaging another. There are the main sprues, one transparency and one photo-etch for this model, however some parts supplied are not required.

The decal sheets supplied are by ‘Cartograf’ so should be of the best quality in both colour and registration. However some modellers have experienced problems with the decals supplied in some Camel kits from Wingnut releases.

The instruction manual is in the well known format that WNW produce and has clear and concise instructions, including coloured illustrations and photos for reference. Also the manual has a lot of information on the aircraft.

The kit chosen (No.32076) is of the ‘Bentley BR.1’ engine type and includes decals for five different aircraft. The kit includes four parts gates, one transparency and one photo-etch sheet. These include common Sopwith Camel parts, Sopwith 2F.1 Camel specific parts and the 150hp Bentley BR.1 engine sprue.

PART 3

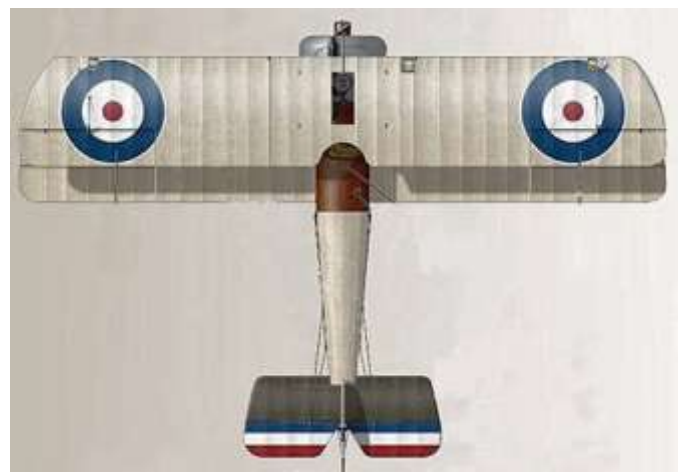
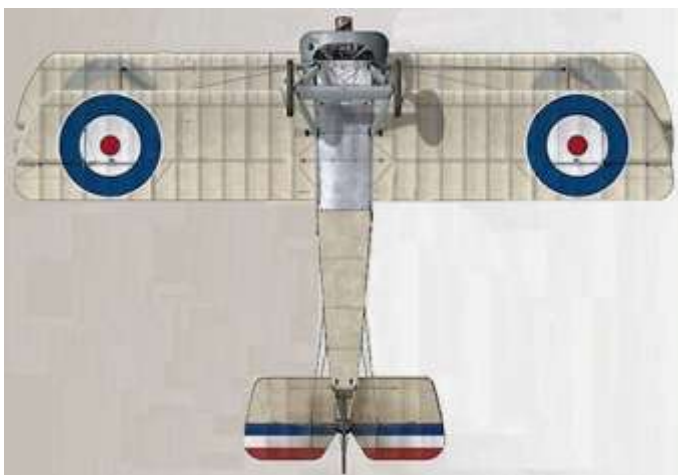
THE AIRCRAFT

MODELLED

PART 3 - THE AIRCRAFT MODELLED

Sopwith 2F.1 'Ships Camel', serial N-6764, operating from HMS Lion from April to June 1918.

This particular aircraft had a 150hp Bentley BR.1 rotary engine. The aircraft serial number N6764 was from a production order for 50 2.FI Camels placed with Sir William Beardmore & Co Ltd in January 1917 (numbers N6750 to N6799) and was completed in March 1918. It served all of its time at sea aboard HMS Lion in April, May and June of 1918. When new, N6764 would have been finished with 'standard' PC10 or PC12 upper surfaces. At sometime between April and June the fuselage and wings required re-covering and N6764 was photographed atop HMS Lion's Q turret ramp in the unusual Clear Doped Linen (CDL) finish. Whatever caused the re-covering of the fuselage and wings, possibly a particularly hairy ditching and recovery sea or blast damage from HMS Lion's guns, the tailplane appears to have escaped unscathed and wears its Beardmore factory finish with striped elevators and PC10 or PC12 upper surfaces. Interestingly all the cockades have been repainted with white borders. Sunlight shining through the translucent CDL upper surfaces cast shadows of the ribs and spars (and upper wing cockades) on the undersides. In the only photo available, the engine cowlings are obscured by a canvas covering so the colour is speculative.



PART 4

WOOD EFFECTS

PART 4 - WOOD EFFECTS

A basic technique:

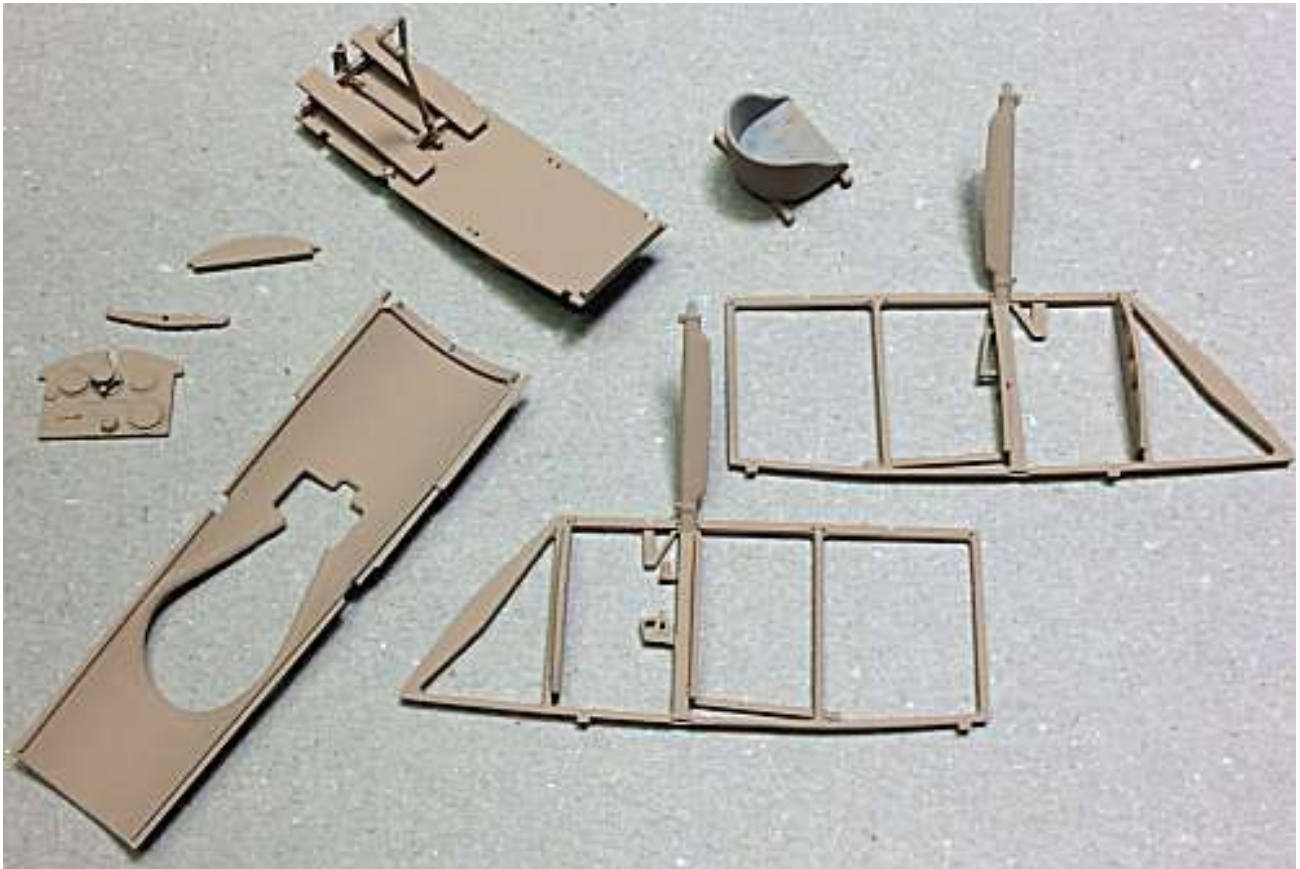
Parts of the model that are supposed to be made of wood can prove to be a challenge to replicate a wood finish to the part. Some aftermarket companies produce accurate wood decals, which can be used to cover larger areas, such as cockpit decking and fuselage panels. However, decals can't easily be used 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 5

WEATHERING

PART 5 - 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 is 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 6

DECALS

PART 6 - 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 gloss coat 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), 'MRP' Super Clear Gloss Varnish (MRP-048) 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 6 of this build log), for example 'Flory' clay washes or oil paint, I airbrush a semi-gloss clear coat, such as 'Tamiya' Semi-Gloss (X35) or similar.

'Aviattic' decals:

The 'Aviattic' decals are different in both production techniques and application to those of the more traditional decal manufacturers.

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

The 'Aviattic' decals are laser printed onto a very fine carrier film and although this film is thin, the decals are remarkably resilient and somewhat 'stretchy' when being applied. This allows them to be more easily moved and positioned before being finally applied. Also with most other decals, I've used softeners to help the decals conform to surface irregularities and contours, which is something I've found is not really required for 'Aviattic' decals, due to the nature of the carrier film.

'Aviattic' decals are laser printed onto either 'clear' or 'white' backing, the 'clear' being translucent which allows the application of pre-shading etc to the surface before the decal is applied. Minor gaps may be able to be covered with weathering. For more information, refer to the 'Aviattic' instruction sheet supplied with the decals.

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 'clear' backed 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. If necessary, lightly sand the surfaces with 1000 grit paper or similar

Airbrush at least two light sealing coats of a clear coat such as 'Mig' A-Stand Aqua Gloss (A.Mig-2503), 'Tamiya' Gloss (X22), 'MRP' Super Clear Gloss Varnish (MRP-048) or similar over the painted surface to form a gloss surface for applying the decals.

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

Soak each decal in warm water for approximately 20 seconds.

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

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

Align the decal to the shape of the model part.

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

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

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

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

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

Where decals cover location holes or other openings, prick or cut through the decal into the hole or opening then lightly apply 'Tamiya' X20A thinners, which will soften and adhere the decal into the hole or opening. Using X20A can also conform decals around curves edges etc. **Do not apply too much X20A** as it will melt the decal.

Protect and seal the decals by airbrushing a sealing coat over the decals. If more decals are to be added it's not really necessary to apply a gloss sealing coat before, as the /Aviattic' decals are glossy enough when applied. A final sealing coat of the desired finish should be applied, which will protect and seal the applied decals.

PART 7

RESIN

PART 7 - RESIN

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.

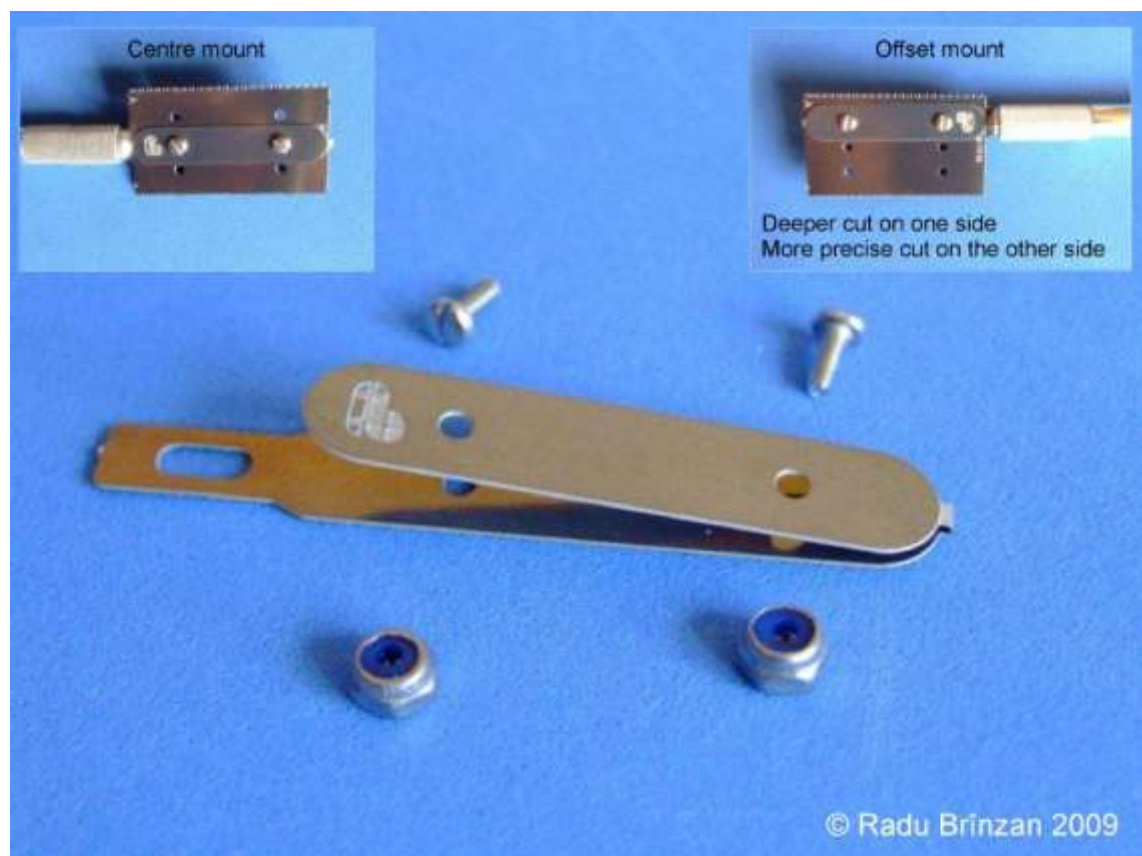
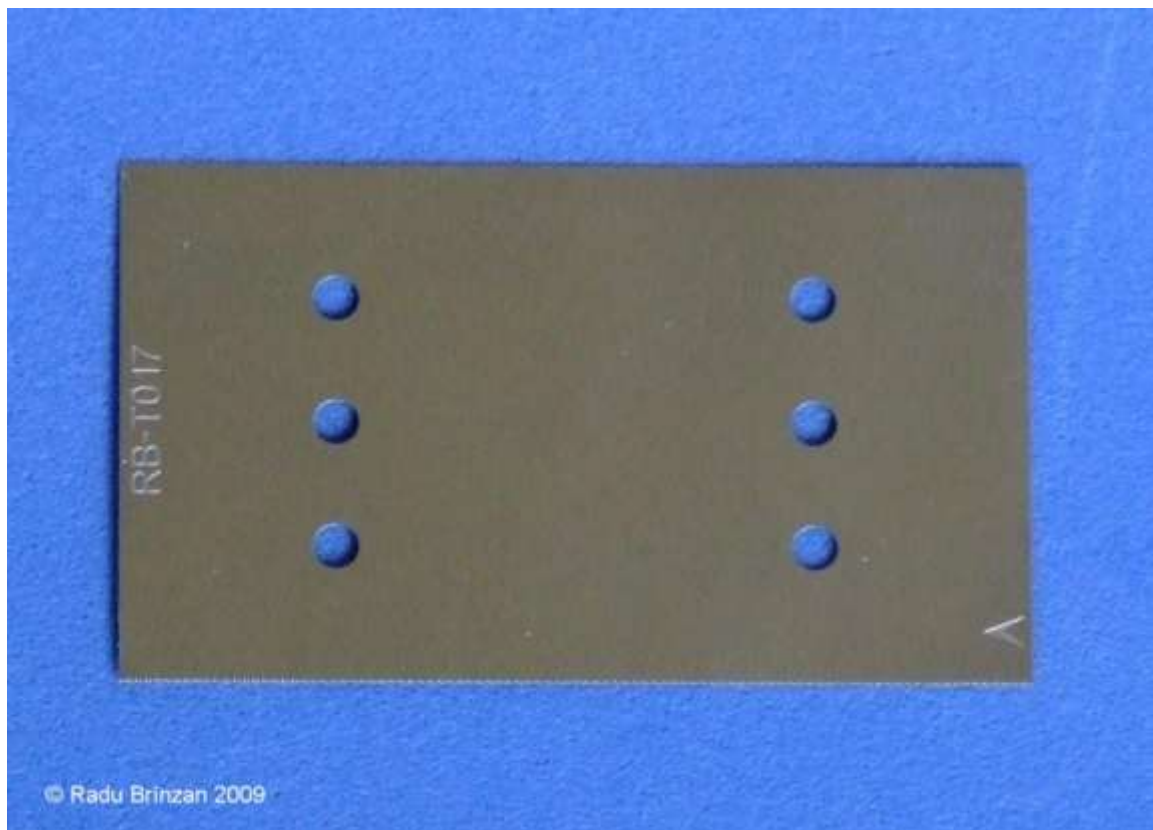
Plastic kits are assembled using solvent adhesives, which melt the surface where it is applied and 'weld' the joint together. Resin cast or 3D prints however will not react to this type of adhesive and can really only be glued using Cyanoacrylate (CA) adhesive. This adhesive reacts to moisture in the 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 8

RIGGING

PART 8 - RIGGING

References:

'Windsock' Data File 6 - Sopwith 2F.1 Camel (J.M.Bruce).
'Centenary' Data File 170 - 2F.1 Ship's Camel (C.A. Owers).
'Air Board Technical Notes' - Published 1917.
'Wingnut Wings' - Instruction Manual (IM).

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've 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 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.

This aircraft had structural wires which were of the streamlined solid forged type (RAF wires) and these had specific tension adjusters at both ends of the wires, not turnbuckles. However, the aircrafts control cables were of the standard wound type with adjustable turnbuckles fitted for adjusting the tension of the cables. The materials and after market parts used for the rigging of the structural wires and control cables are described in the relevant Parts of this build log.

NOTE: *Only control cables require turnbuckles as the structural wires are streamlined RAF wires.*

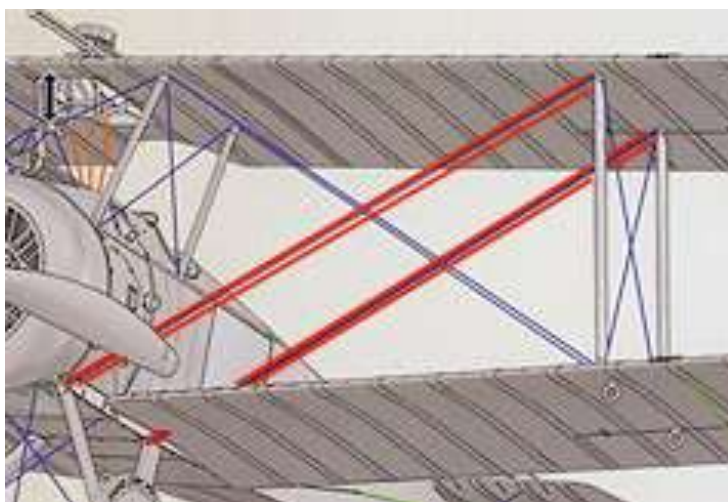
Structural rigging:

Flying wires:

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

The rear pair were attached to the underside of the upper wing, inboard from the top of the rear interplane struts and were routed diagonally down and through the lower wing roots to the bottom edge of the fuselage at the landing gear rear struts.

The front pair were attached to the underside of the upper wing, inboard from the top of the front interplane struts and were routed diagonally down to the bottom edge of the fuselage at the landing gear front struts.

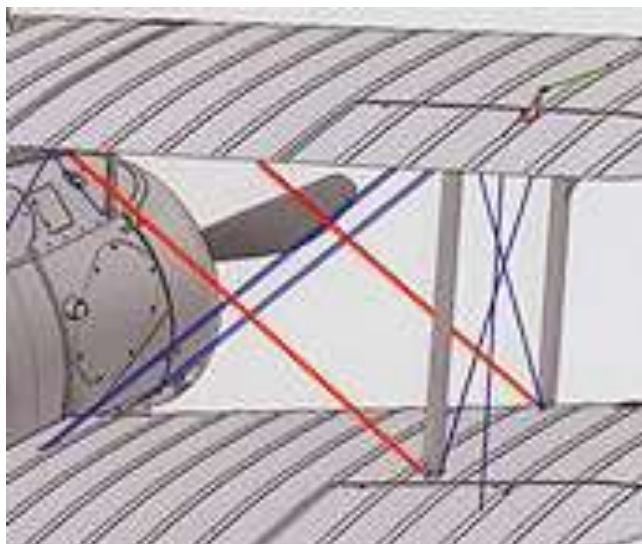


Landing wires:

Two single landing wires were fitted to both sides of the aircraft.

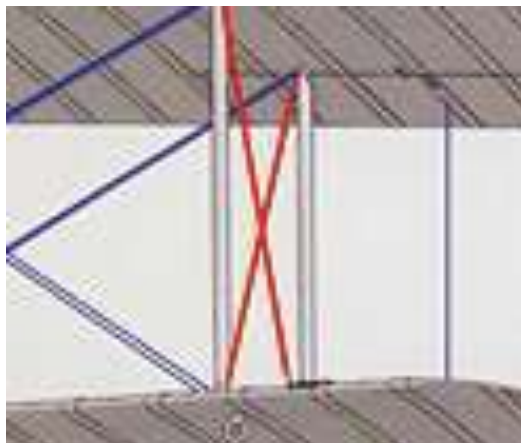
The rear landing wires were attached to the underside of the upper wing, outboard from the top of the fuselage rear cabane struts and were routed diagonally down to the top surface of the lower wings, inboard from the rear interplane struts.

The front landing wires were attached to the underside of the upper wing, outboard from the top of the fuselage front cabane struts and were routed diagonally down to the top surface of the lower wings, inboard from the front interplane struts.



Incidence wires:

Diagonally crossed single incidence wires were attached to the underside of the upper wing at the tops of the interplane struts and the top surface of the lower wings, at the bottom of the interplane struts.



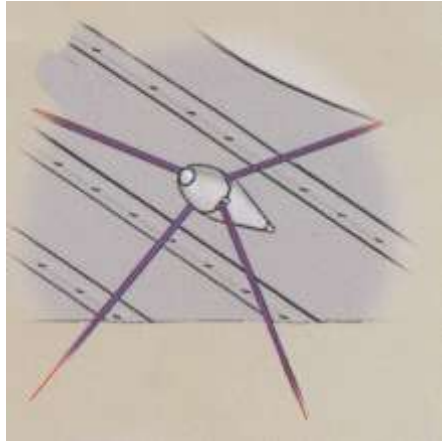
Cabane strut side bracing wires:

Diagonally crossed single bracing wires were attached to the underside of the upper wing at the tops of the fuselage cabane struts and the fuselage decking at the bottom of the cabane struts.



Cabane strut front bracing wires:

Four bracing wires were fitted between the front cabane struts and fuselage decking. The wires were attached to the underside of the upper wing, inboard from the tops of the front cabane struts and were routed through a retaining wire guide and into the decking each side of the cooling jacket of the Vickers machine gun.



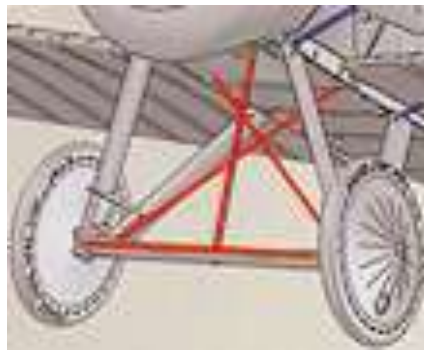
Landing gear bracing wires:

Diagonally crossed single bracing wires were fitted between the fuselage undertray and the outer ends of the landing gear axle fairing.

A single bracing wire was fitted between the fuselage undertray and was routed down into the centre of the landing gear axle.

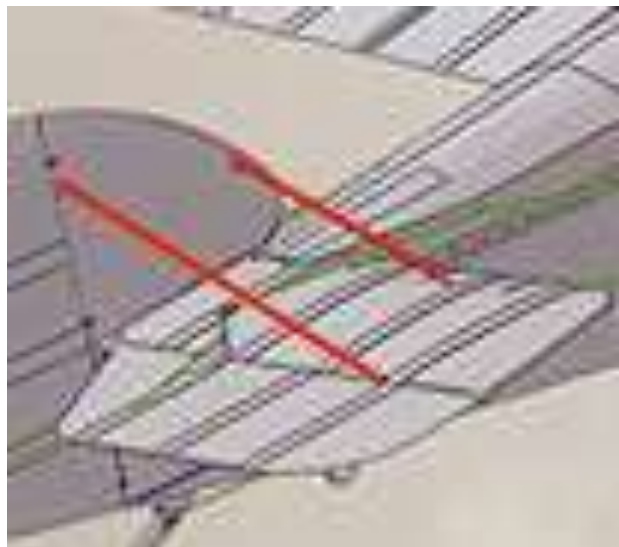
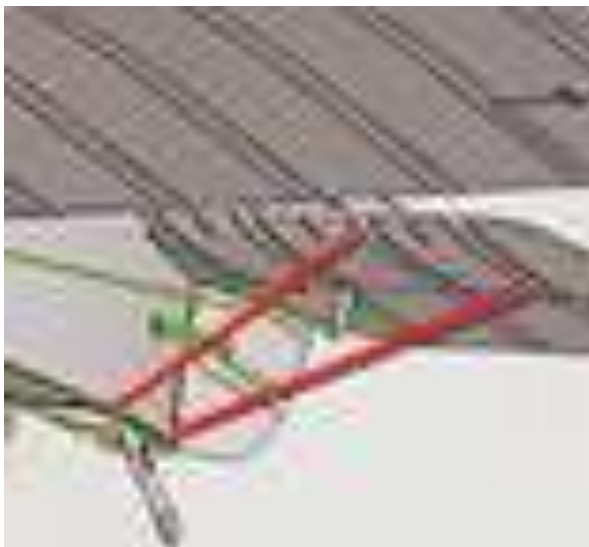
Two bracing cables were also fitted between the bottoms of the landing gear struts and across the leading edge of the landing gear axle.

A **turnbuckle** adjuster was fitted centrally between the two cables.



Fin bracing wires:

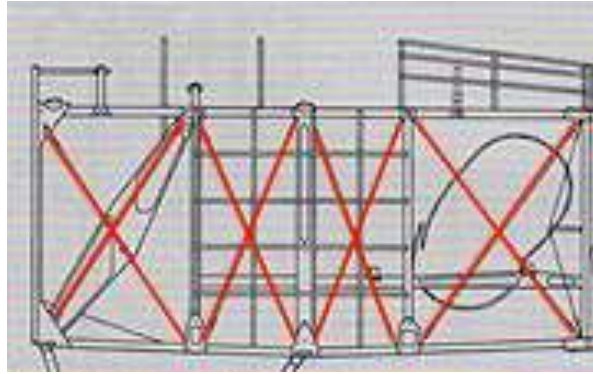
Eight bracing wires were fitted between the fin, tailplanes and bottom edge of the fuselage rear.



Fuselage internal bracing wires:

NOTE: *The only bracing wires that will be visible on the completed model are those forward from the fuselage separation joint at the rear of the internally fitted fuel tank.*

Diagonally crossed fuselage bracing wires were fitted between the corners of the fuselage frame bays.

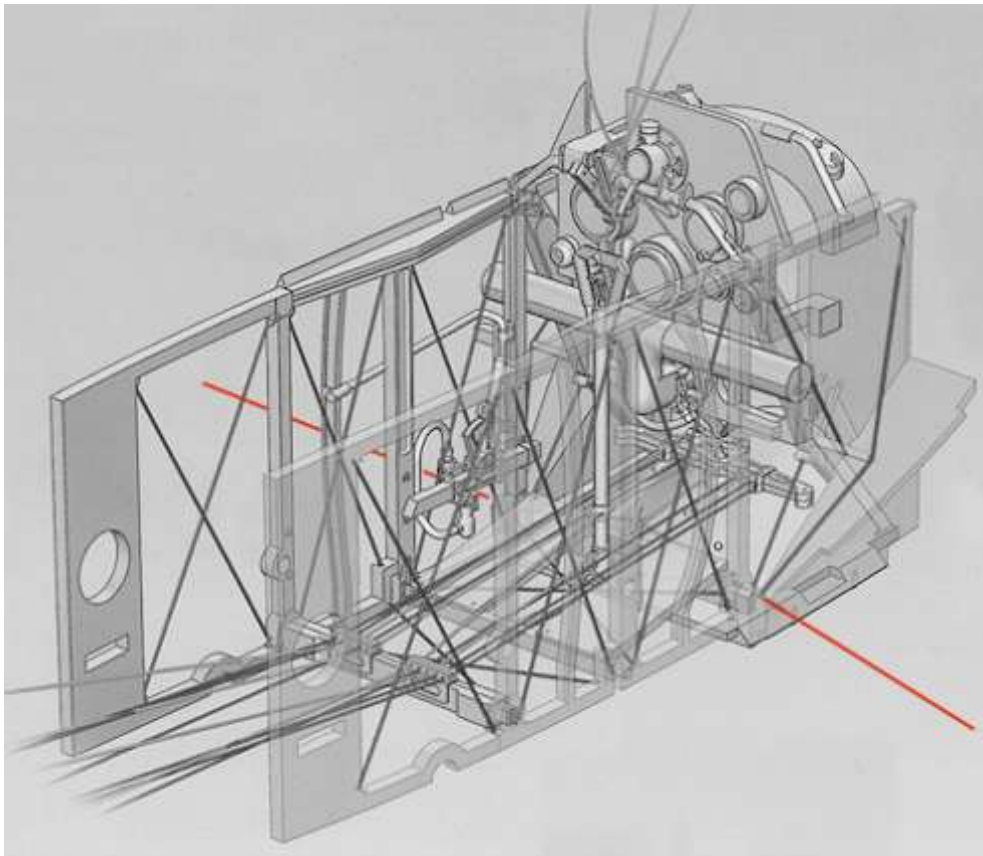


Control cables:

Aileron control cables:

Separate aileron control cables were attached to the double ended lever which was fixed to the front of a torsion bar. The torsion bar was attached the pilots control column. The cables were routed out of the fuselage and through the lower wings to a pulley, which turned the cables rearwards and out of the wing to the aileron underside control horns. A cable attached to the rear of the control horns was routed rearwards and through the aileron, vertically up between the wings and through the upper ailerons to the top control horns. A separate cable was attached to the top control horns and was routed forwards and into the upper wing, then around a pulley and internally across the wing to be joined together at an internal turnbuckle. A **turnbuckle** was fitted in both cockpit cables at the torsion bar levers.

As the pilot pushed the control column left, the right cable would tension and the left cable relax, causing the right ailerons to drop and the left ailerons to raise, causing the aircraft to bank (roll) to the left. The opposite occurred if the control column was pushed to the right.



Elevator control cables:

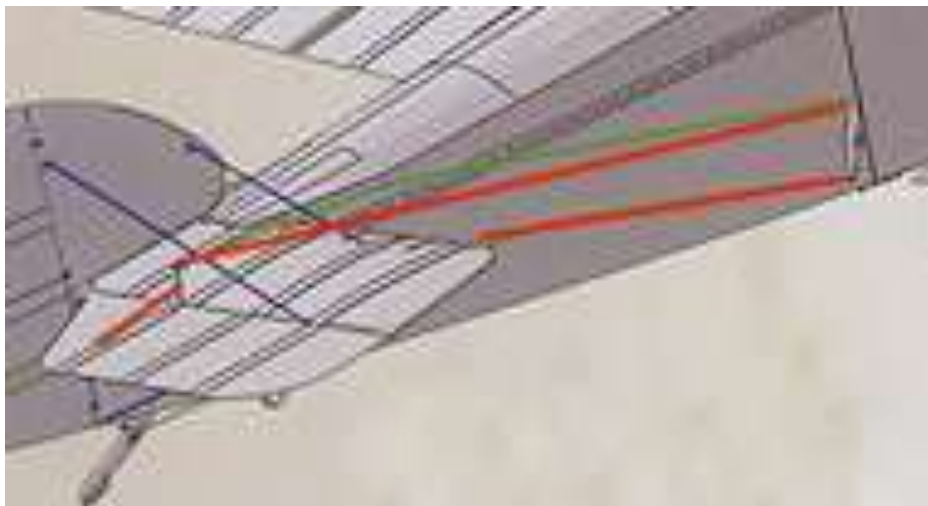
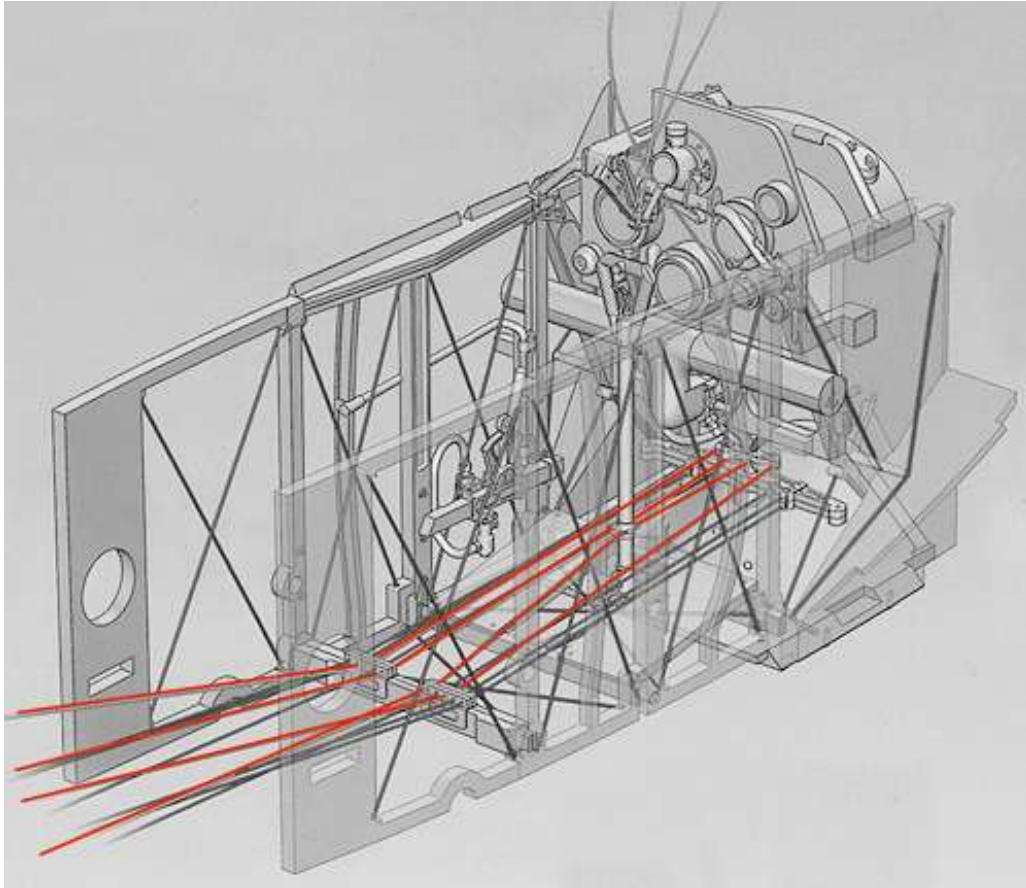
A left and right side elevator control cable was attached to the rear of the pilots control column and were routed rearwards to be connected to a control lever, fitted to a torque tube, which ran across the rear of the cockpit. An externally rotatable elevator control lever was attached to the end of the torque tube. A second left and right control cable was attached to the front of the pilots control column and these were routed forwards and around 'floating' cranks, then directed rearwards to a second lever attached to the torque tube and opposite to the other lever.

The top of the elevator external control lever was attached by a cable to the top elevator control horns.

The bottom of the lever was attached to the elevator underside control horns.

As the pilot pulled back on the control column, the cockpit forward cables would tension and the rear cables relax, causing the elevator to lift and the aircraft to climb (pitch). The opposite would occur if the control column was pushed forwards.

Turnbuckles were fitted in the cables at the external control levers.

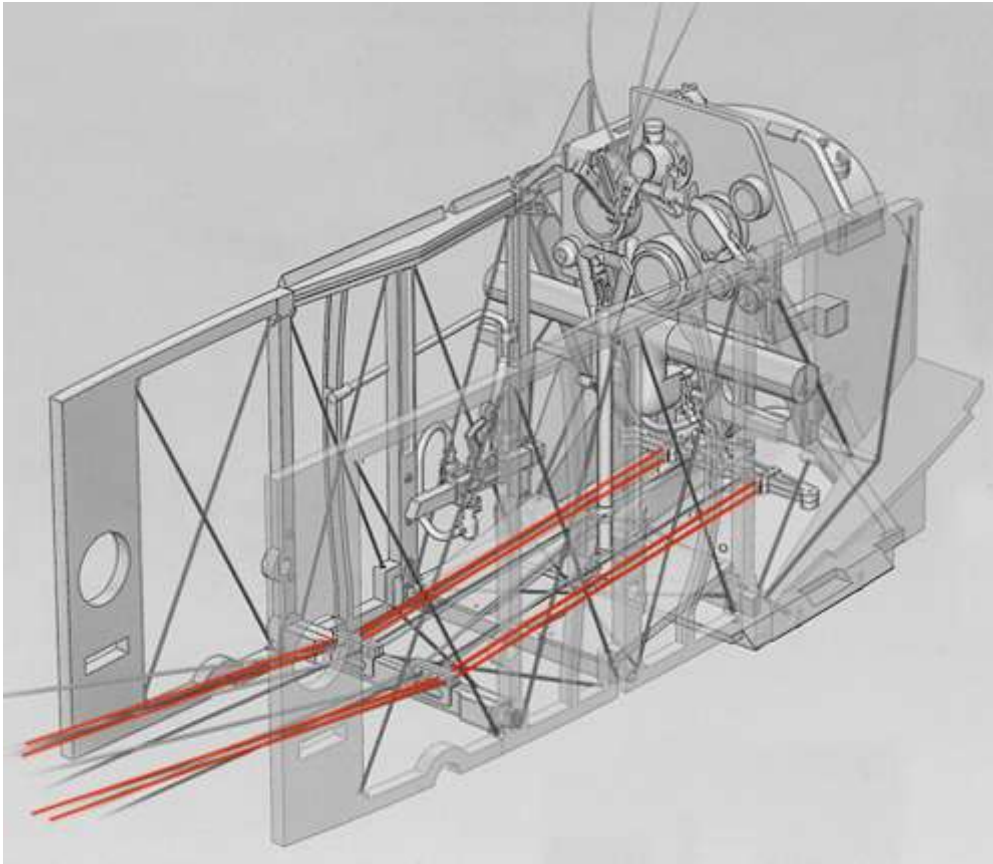


Rudder control cables:

Twin rudder left and right control cables were attached to each end of the pilots rudder bar. These cables were routed rearwards through the fuselage to exit the fuselage rear sides. The cable pairs were attached to the rudder control horns. A separate bracing cable was attached to the rear of the control horns through the rudder.

Turnbuckles were fitted in the cables at the pilots rudder bar.

As the pilot pushed the rudder bar left or right, the cables would either tension or relax to cause the rudder to turn and the aircraft to turn (yaw) left or right.



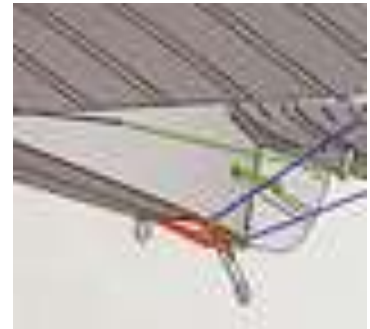
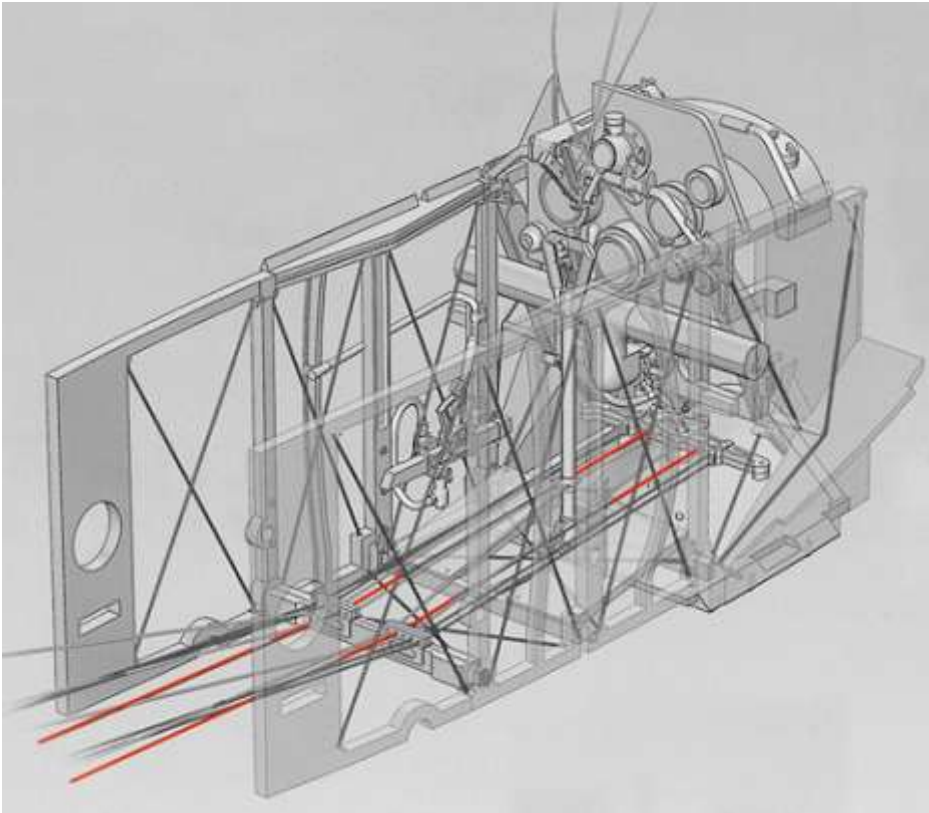
Tail skid control cables:

Single left and right tail skid control cables were attached to each side of the pilots rudder bar. These cables were routed rearwards through the fuselage to exit the fuselage underside at the tail skid.

The cables were attached to the tail skid control horns fitted at the bottom of the rudder post.

Turnbuckles were fitted in the cables at the pilots rudder bar.

As the pilot pushed the rudder bar left or right, the cables would either tension or relax to cause the tail skid to turn with the rudder, allowing the aircraft to be 'tail steered' when on the ground.

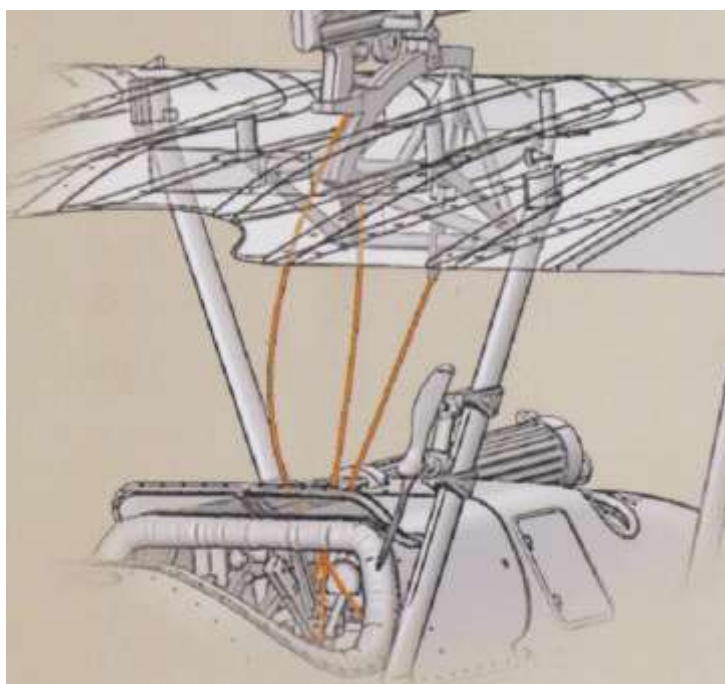


Lewis gun operating cables:

NOTE: Although the following illustration shows the cables and their attachment to the gun and gun mounting, there is no information as to where these cables were routed or attached to within the cockpit. Therefore, some educated guesswork is necessary.

Three operating cables were attached to the over wing Lewis machine gun.

1. Front cable for pulling the gun mounting back into locked position on the upper wing.
2. Rear cable for releasing the gun and pulling it back towards the cockpit for reloading.
3. Trigger cable for firing the gun.



PART 9

PREPARATION

AND

MODIFICATIONS

PART 9 - PREPARATION AND MODIFICATIONS

General:

NOTE: *The parts call-out page shows the kit gates with the various parts shown. Some may be 'blued out', which denotes those particular parts are not required but are included on the gates as they would be for other models of this kit. Also other parts may not be required during the particular aircraft build and those parts are denoted in the instructions by the letter (Scheme A, B, C etc) of the build in the kit.*

Some modellers work the various pieces whilst they are still attached to the main sprue, but I prefer to remove the pieces first so that I can clean them up more easily. However pieces like the cockpit frames are delicate and can easily be damaged when being removed. When parts are cut from the sprues, care should be taken as they can either break or get stressed at the cut point, which causes 'white' stress and/or deforming. For plastic kits, I use fine sprue cutters to cut away the kit part, not too close to the part, then sand off the tag. When I cut resin parts away from their mold blocks, I use a fine cutting saw, which has a more gentle cutting action.

Despite being a WNW kit, there are still some fine moulding lines around items such as the cockpit frames, but they are only slight and are easily removed using a sharp blade or sanding stick. I use a new scalpel blade to gently scrape off the mould lines. Some of the model items like the parts for the cockpit are very small and can easily 'fly off' when being handled, so take care. Remember to drill any holes needed for rigging or control wires by referring to the relevant pages and diagrams in the kit instruction manual.

Once the items have been removed from the sprue and prepared, You can gently wash them in warm, soapy water, to remove any handling 'grease' or mould release agent remaining on the items, although this is less of a necessity these days. I use an old toothbrush to do this. Once dry they can be primed ready for painting. Primer can be applied by brush, airbrush or from aerosol cans. These days I prefer to use 'AK Interactive' Primer and Micro-filler (Grey AK758) or (White AK759). These have good coverage as the base primer for acrylic or lacquer paints. Take care when spraying the primer as if you apply too much it will result in 'pooling' or 'runs', which would then need to be removed once the primer has dried. Make sure you spray in a well ventilated area or preferably, if you have one, use an extractor booth.

To hold items for priming I use self locking tweezers or carefully insert a toothpick into the item or I use a small piece of sticky putty, such as 'UHU White Tack', on the end of a tooth pick. Once applied the primer dries quickly, one of the main advantages of using acrylic paints rather than enamels or oil paints.

Preparation:

NOTE: *During this build I refer to the 'IM', which is the 'Wingnut Wings' instruction manual. Refer to pages 7, 8 and 10 of the IM for the parts required.*

Remove the following parts from their mold gates:

Fuselage decking panel B13.

Tailplane D4.

Lower wing ailerons D8 and D9.

Upper wing sections D18, B12 and D19.

Upper wing ailerons D15 and D16.

Sand or scrape away any mold seams and gate tags from the edges of the parts.

Lower wing ailerons:

NOTE: *As designed, the ailerons for the lower wings are intended to be fitted to the wings by a 'butt' joint only, which would be a weak joint. Also, I found that the aileron 'hinges' did not align fully with their recesses in the wings.*

Cut away the aileron hinge extensions. These are small and would be located in the underside of the wings, so can't easily be seen on the completed model.

Drill two holes of 0.6 mm diameter, equally spaced and centrally into the lower wings in the aileron

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

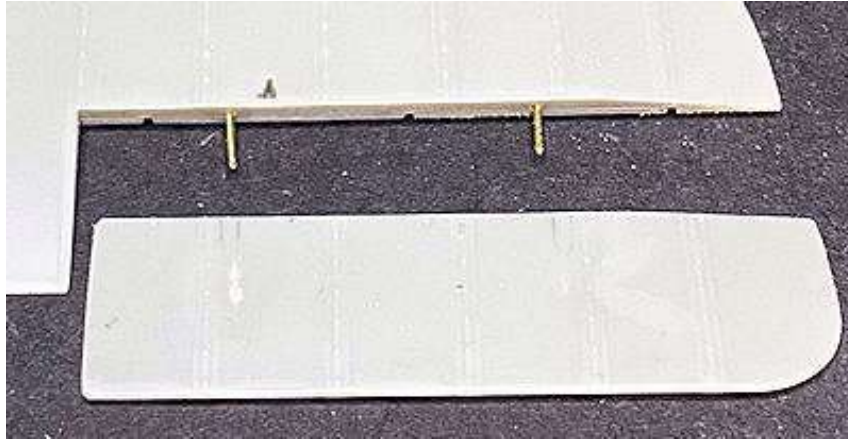
Using thin CA adhesive, secure a rod into each of the drilled holes.

Position the aileron against the lower wings and mark the location of the rods.

Test fit the ailerons fully onto the fitted rods, making sure the ailerons are fully against the wings.

Point mark the centre of the aileron leading edges at the marked locations.

Using the point marks as guides, drill two holes of 0.6 mm diameter centrally into the aileron leading edges.



Upper wing ailerons:

Repeat the previous procedure to attach the ailerons to the upper wing halves.

Aileron angles:

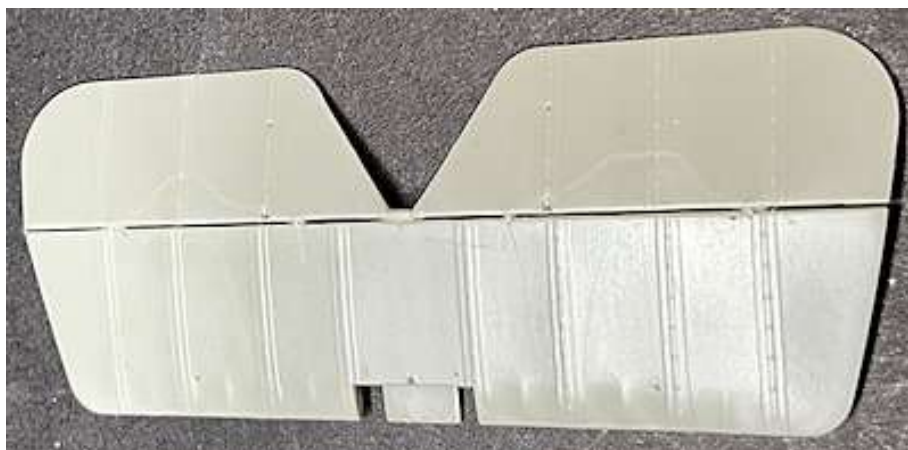
If desired, the ailerons can be bent to a slight upwards angle on one side of both the upper and the corresponding lower wing and slightly down and at the same angle on the opposite side of the upper wing and corresponding lower wing.

Elevator:

NOTE: *The following procedure is only necessary if the elevator is to be positioned at a downward angle.*

Carefully scribe along and through both side of the elevator to tailplane joint, making sure the hinges are avoided.

Carefully bend the elevator down at a slight angle.

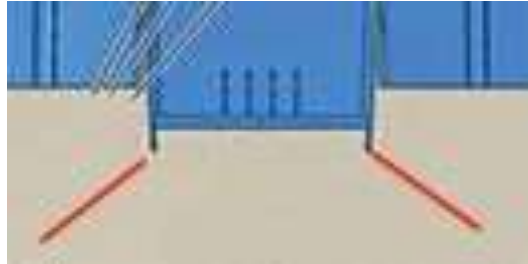


Fuselage joint turnbuckles:

NOTE: The fuselage of the 2F.1 Camel was designed to be separated into a front and rear section to enable it to be transported and stored onboard ships. The joint was at the rear of the pilots cockpit and the two fuselage halves were joined together with turnbuckle fasteners, located at the top and bottom edges of the fuselage. These fasteners are molded onto the lower wing centre section and the rear corners of the fuselage decking panel. These fasteners are small and weak and easily broken away. Therefore, I chose to replace them at a later stage of the build.



Rear of the fuselage decking panel.



Rear edge of the lower wing centre section.

Carefully file or sand away the molded turnbuckle fasteners from the fuselage decking panel and lower wing centre section.

Pilots seat:

NOTE: The kit supplied pilots seat represents the wicker seat and cushion used. However, seat wicker lacing across the seat back is molded solid. Therefore, I chose to replace the seat with the 'Barracuda Cast' resin seat (BR32233), which is more accurate.

The pilots seat base was carefully filed away from the seat frame and the replacement resin seat secured in position using thin CA adhesive.

PART 10

ENGINE

PART 10 - ENGINE

NOTE: *During this build I refer to the 'IM', which is the 'Wingnut Wings' instruction manual*

Preparation:

NOTE: *Refer to page 11 of the IM.*

Remove the following engine parts from their mold gates and sand or scrape away any mold seams and gate tags from the edges of the parts:

Crankcase halves E1 and E7.

Cylinder heads E3 (x 9).

Induction manifold E8.

Push rod assembly E2.

Engine mount E6, E4 and E5.

Assembly:

Cement together the two crankcase halves.

Cement the cylinder heads into the tops of the cylinders.

Cement the push rod assembly onto the front of the crankcase assembly.

Cement each push rod to its relevant tappet on each of the cylinders heads.

Insert the engine shaft through the induction manifold

Fit the circular engine mount fully onto the protruding shaft at the rear of the induction manifold.

Fit the shaft retainer ring into its groove at the rear of the shaft.

NOTE: *I chose to cement the following parts as I did not require the engine to rotate in the finished model.*

Cement the shaft retainer onto the shaft and engine mount.

Cement the collar of the shaft to the inside of the induction manifold.

Painting:

Airbrush the crankcase and induction manifold with a gloss black, such as 'Tamiya' Gloss Black (X1) or similar.

Airbrush the crankcase assembly with 'Alclad' Steel (ALC-112) or similar.

Airbrush the induction manifold with assembly with 'Alclad' Exhaust Manifold (ALC-123 or similar.

Brush paint the two spark plugs on each cylinder with 'Tamiya' Deck Tan (XF55) or similar.

Brush paint the cylinder tappets and top/bottom of each push rod with 'Mr. Metal Color' Copper (215) or similar

Assembly (continued):

NOTE: *Before any assembling any parts, make sure all primer and paints are removed from their mating surfaces, holes and recesses.*

Cement the induction manifold assembly onto the rear of the crankcase and the top of each manifold pipe to its cylinder head.

Decals:

NOTE: *Refer to Part 6 (Decals) of this build log for more information.*

Apply the engine data plate (decal 52) to the front of the engine crank case. I found that this decal was slightly too large to fit in the stated position on the engine crank case. Therefore, I trimmed the size of the decal to fit before it was applied to the engine.

Modifications:

Ignition leads:

NOTE: *The kit illustration shows the ignition leads but the kit does not supply the materials for the leads. 'Infini Model' Medium Aero Black Rigging (0.135 mm) was used to represent the ignition leads.*

Drill a hole of 0.5 mm diameter centrally through the rear of the induction manifold between the bottoms of the induction pipes.

Cut a long length of 'Infini Model' Medium Aero Black Rigging (0.135 mm) line.

Pass one end of the line through a pre-drilled hole.

Pass the line up the rear spark plug of that cylinder.

Secure the line around the end of the spark plug using thin CA adhesive.

Pass the opposite end of the line up to the front spark plug of that cylinder.

Keep the line slightly taut, secure the line around the end of the spark plug using thin CA adhesive.

Carefully cut away any residual ends of line at the spark plug.

Repeat the procedure to add ignition leads to the rest of the engine cylinders.

Painting (continued):

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

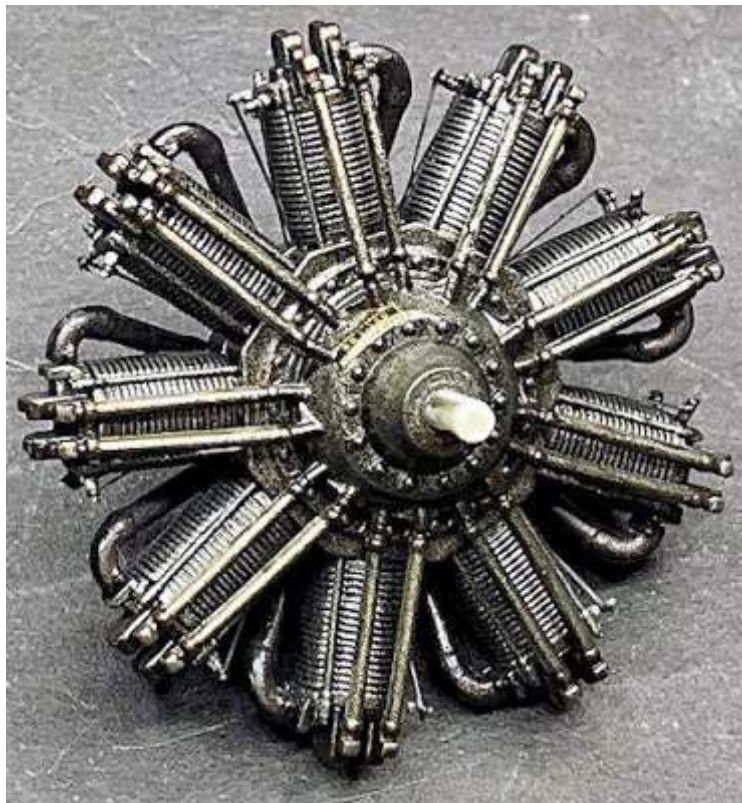
Weathering:

NOTE: *Refer to Part 5 (Weathering) of this build log for more information.*

Brush 'Flory Models' Dark Dirt fine clay wash over the central crank case. Once dry, remove the excess with a moistened piece of absorbent brush or cotton bud (Q-tip) to achieve the desired effect.

Brush 'AK Interactive' Kerosene wash (AK2039) around the cooling fins of each cylinder and the cylinder heads.

Brush 'AK Interactive' Engine Oil (AK2019) down each pair of push rods.





PART 11

PROPELLER

PART 11 - PROPELLER

NOTE: *Although the kit supplied propellers are of good quality, I chose to replace the propeller for this particular aircraft with a 'Proper Plane' Lang wood laminated (WP005) propeller.*



Preparation:

Make sure the wooden propeller is perfectly smooth and lightly sand if necessary.

Carefully cut off the two supplied crush plates from their moulding block.

Carefully sand the crush plates to the correct thickness.

Painting:

To represent a varnish finish to the propeller, airbrush light coats of 'Tamiya' Clear Orange (X26) thinned with 'Tamiya' X20A thinners over the propeller.

Mask off the central hub of the propeller leaving the two blades exposed.

Airbrush the exposed blades with 'Tamiya' Royal Light Grey (XF80) or similar.

Remove the masking.

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

Decals:

NOTE: *Refer to Part 6 (Decals) of this build log for more information. The decals required for this particular aircraft propeller are the kit supplied decals 59, 60 and 61.*

Refer to page 12 of the IM for decal positioning.

Apply decals 59 and 60 to the propeller central hub.

Apply decal 61 to the front surface of one blade of the propeller.

Painting (continued):

To seal and protect the decals, airbrush a light sealing coat of a semi-gloss clear coat, such as 'Tamiya' Semi-Gloss (X35) or similar over the propeller.

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

Assembly:

Position the crush plate onto the propeller and secure in position using CA adhesive.

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

Lightly brush 'AK Interactive' Kerosene wash (AK2039) over the two crush plates.



PART 12

WEAPONS

PART 12 - WEAPONS

Vickers machine gun:

NOTE: During this build I refer to the '**IM**', which is the 'Wingnut Wings' instruction manual. Refer to pages 4 and 8 of the IM. Before any assembling of parts, make sure all primer and paints are removed from their mating surfaces, holes and recesses.

Preparation:

Remove the Vickers machine gun parts A6, A7, A14, A15, A28 and B7 from their mold gates and sand or scrape away any mold seams and gate tags from the edges of the parts.

Remove the photo-etch end plate P1 from the sheet and sand away any photo-etch tags from the edges of the parts.

Assembly:

Cement the spent ammunition chute A28 onto the left side of the machine gun A7.

Cement the cocking lever A6 into its location on the right, rear of the machine gun.

Cement the Lewis gun lever B7 between its locating bracket on the gun mount at the rear of part B5.

Cement the two cooling jacket halves A14/A15 together.

Using thin CA adhesive, secure the photo-etch end plate P1 onto the front of the cooling jacket.

Drill a hole of 0.6 mm diameter centrally into the muzzle.

Painting:

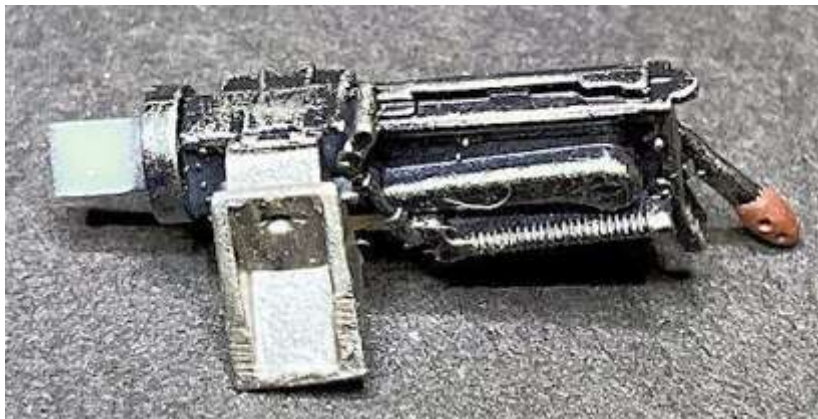
Airbrush the machine gun and cooling jacket with 'Alclad' Gun Metal (ALC-120) or similar.

Brush paint the machine gun ammunition chute with 'Mr. Metal Color' Stainless Steel (213) or similar.

Brush paint the hand grip on the machine gun cocking lever with 'Tamiya' Hull Red (XF9) 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 around the machine gun and cooling jacket with 'Mr. Color' Super Iron 2 (203) or similar, to create a worn metallic surface.



Lewis machine gun:

NOTE: *Refer to page 10 of the IM.*

Preparation:

Remove the Lewis machine gun parts B2 and B6 from their mold gates and sand or scrape away any mold seams and gate tags from the edges of the parts.

Assembly:

Cement the ammunition drum B2 onto the machine gun.

Painting:

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

Brush paint the hand grip with 'Tamiya' Hull Red (XF9) 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 around the machine gun and ammunition drum with 'Mr. Color' Super Iron 2 (203) or similar, to create a worn metallic surface.

Brush paint the hand strap on the ammunition drum with 'AK Interactive' British Uniform (AK3081) or similar.

Decals:

NOTE: *Refer to Part 6 (Decals) of this build log for more information.*

Carefully cut and separate the two halves of a decal 18.

Apply the decal halves to the top of the ammunition drum, each side of the hand strap.



PART 13

FUSELAGE

CONSTRUCTION

PART 13 - FUSELAGE CONSTRUCTION

References:

'Windsock' Data File 6 - Sopwith 2F.1 Camel (J.M.Bruce).
'Centenary' Data File 170 - 2F.1 Ship's Camel (C.A. Owers).
'Air Board Technical Notes' - Published 1917.
'Wingnut Wings' - Instruction Manual (IM).

Preparation:

NOTE: *During this build I refer to the 'IM', which is the 'Wingnut Wings' instruction manual.*

General:

NOTE: *Refer to pages 3 to 6 and 7 of the IM for the cockpit parts required.*

Remove the following parts from their mold gates:

- Cockpit required parts (IM pages 3 and 4).
- Two fuselage halves B10/B11.
- Lower wing B9.
- Engine plate A10.
- Fuselage decking panel B13.

Sand or scrape away any mold seams and gate tags from the edges of the parts.

Cut away the 'red coloured' parts of the ammunition containers (A22 and A31), as shown on page 3 of the IM.

Cement the two remaining ammunition containers together.

Cut away the 'red coloured' cabane struts from the cockpit side frames (A19 and A26), as shown on pages 3 and 4 of the IM.

File or sand away the residual bases of the rear cabane struts from the cockpit side frames.

File or sand away the top, front corner from both of the cockpit side frames, then test fit the frames into their fuselage halves, making sure the top, front corners locate under the shoulder on the fuselage halves.

Cement the combined ammunition containers onto the rear of the pilots instrument panel B4.

Cement the carburettor inlet manifold A18 into its location in bottom of the ammunition container frame.

Cement the instrument D12 into its location on the top, centre of the pilots instrument panel.

Cement the fuel tank A35 onto the pilots seat frame.

Drill a hole of 1.5 mm diameter through the fuselage inside the carburettor air intakes on the fuselage halves front sides.

Painting:

NOTE: *The parts of 'Wingnut Wings' kits are molded to tight tolerances. Therefore, too much applied primer or paint will cause fit issues during assembly.*

Airbrush the cockpit parts, fuselage halves, engine plate and the inside surface of the fuselage decking panel with a grey primer, such as 'AK Interactive' Grey (AK758) or similar.

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

- Left and right cockpit side frames A19 and A26.
- Pilots seat frame A23 and replacement seat.
- Instrument panel B4.
- Foot boards A21 - Cross member D11 - Rudder bar D7.
- Lower wing B9 centre section - inside of fuselage decking panel B13.

Airbrush the following with 'Alclad' Duraluminium (ALC-102) or similar.

Fuel tank A35.

Fuselage under shield A25.

Pilots control column D6.

Mask off the insides of the fuselage halves leaving only the front metal cowls exposed.

Airbrush the exposed areas with 'Alclad' Duraluminium (ALC-102) or similar.

Remove masking.

Mask off the metal painted areas and the fuselage rear of the wood panelled area.

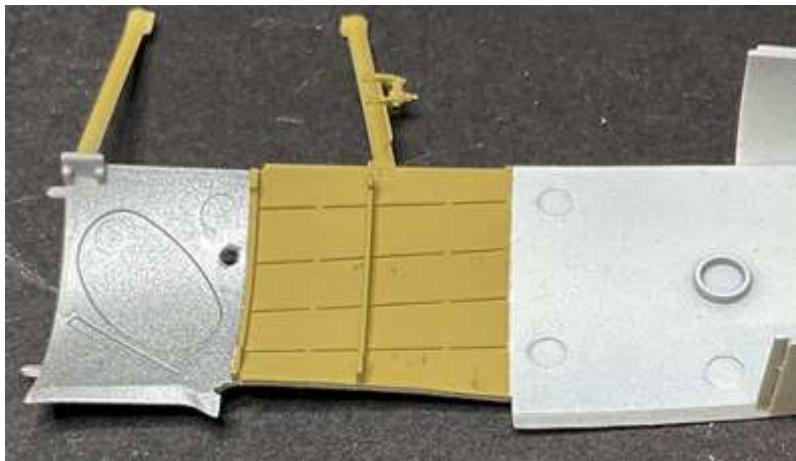
Airbrush the exposed areas with 'Tamiya' Dark Yellow (XF60) or similar.

Remove masking.

Mask off the wood and metal painted areas.

Airbrush the exposed areas with 'MRP' Clear Doped Linen (MRP-256) or similar.

Remove masking.



Wood effect:

NOTE: Refer to Part 4 (Wood Effects) of this build log for more information. The light colour wood effect for the internal fuselage and frames etc was created using 'Windsor & Newton' Griffin (Alkyd) **Raw Sienna** oil paint. When applying the oil paint, avoid applying too much over instruments and other details as this may obscure any surface details.

Brush a covering coat of the 'Windsor & Newton' Griffin Alkyd **Raw Sienna** paint over the following:

Left and right cockpit side frames A19 and A26.

Pilots seat frame A23 and replacement seat.

Pilot foot boards A21.

Cross member D11.

Lower wing B9 centre section.

Inside of fuselage decking panel B13.

Leave the oil paint to settle for approximately a minute.

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

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

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

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

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

NOTE: *The dark colour wood effect for the engine bearer and seat support frames was created using 'Windsor & Newton' Griffin (Alkyd) Burnt Umber paint.*

Use the same procedure, applying 'Windsor & Newton' Griffin Alkyd **Burnt Umber** paint over the:

Fuselage inside wood panel areas.

Rudder bar D7.

Instrument panel B4.

NOTE: *The leather effect on the pilot's seat cushion was created using 'Windsor & Newton' Griffin Alkyd oil paints.*

To create a leather effect, first apply the 'Windsor & Newton' Griffin Alkyd **Burnt Umber** over the seat cushion and when semi-dry, stipple brush on the 'Windsor & Newton' Griffin Alkyd **Raw Sienna**.

Detail painting:

Airbrush the oil tank/gun mount B5 with 'Tamiya' Ocean Grey 2 (XF82) or similar.

Brush paint the following with 'Mr. Metal Color' Stainless Steel (213) or similar:

Carburettor intake manifold A18.

Ammunition container and frame A22/A31.

Front panel of lower wing centre section.

Brush paint the straps around the fuel tank with 'Tamiya' semi-gloss black (X18) or similar.

Brush paint the hand grips on the control column with Flat Earth (XF52).

Brush paint the following with 'Mr. Metal Colour' Brass (219) or similar:

Hand pressure pump.

Filler cap on the fuel tank.

Filler cap on the oil tank.

NOTE: *During the following steps the paints used were 'Mr. Metal Colour' Brass (219), Copper (215), Stainless Steel (213), 'Tamiya' semi-gloss black (X18) and Clear Yellow (X24) or similar.*

Brush paint the instruments on the pilots instrument panel following the colours detail on the illustration on page 3 of the IM.

Brush paint any metal fittings on the cockpit parts as detail on the illustrations on page 5 of the IM.

Brush paint any pipes on the cockpit side frames as detail on the illustrations on page 5 of the IM.

Brush paint the details of the throttle levers area on the cockpit left side frame as detail on the illustration on page 5 of the IM.

Brush 'Tamiya' Clear Yellow (X24) half way up the oil pulsometer on the pilots instrument panel and the fuel content tube on the cockpit left side frame.

Finish:

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

Pilots lap straps:

NOTE: *The two lap straps are supplied as photo-etch parts P3 and P5. Annealing photo-etch parts is done by applying heat from such as a cigarette lighter or similar, along the part until the metal changes to a grey colour. This softens the metal allowing it to be formed/bent more easily. Avoid melting photo-etch parts by keeping the heat source moving over the part. Also avoid heating very small parts as these may easily melt.*

Remove the lap straps from the photo-etch sheet and file or sand away any edge tags from the straps.

Anneal the two straps to allow them to be easily formed over the pilots seat.

Carefully bend the straps to lay in natural positions over the edges of the seat and onto the seat cushion.

Remove the straps from the seat and brush 'VMS' Metal prep 4K or similar over the straps to aid in the adhesion of the paints.

Painting (continued):

Once fully dry, airbrush the two lap straps with 'MRP' Ochre Wood (MRP-260) or similar.

Brush paint the end strip of the long lap strap with 'AK Interactive' British Uniform (AK3081) or similar.

Brush paint the metal fittings with 'Mr. Metal Color' Stainless Steel (213) or similar.

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

Assembly:

NOTE: *Before any assembling any parts, make sure all primer and paints are removed from their mating surfaces, holes and recesses.*

Using thin CA adhesive, secure the seat cushion onto the pilots seat.

Using thin CA adhesive, secure the two lap straps over the seat edges and onto the seat cushion. The two side retaining straps are routed down the seat sides and around the seat rear cross member.

Cement the fuel tank onto its location on the pilots seat frame.

Weathering:

NOTE: *Refer to Part 5 (Weathering) of this build log for more information.*

Brush 'Flory Models' Grime fine clay wash over the two seat lap straps. Once dry, remove the excess with a moistened piece of absorbent brush or cotton bud (Q-tip) to achieve the desired effect.

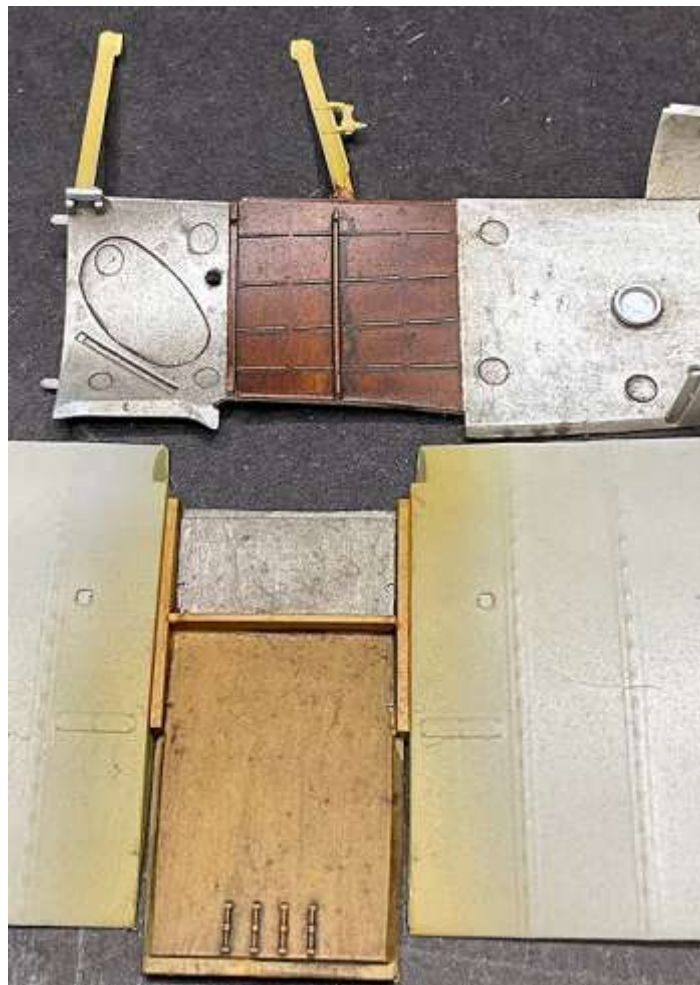
Brush 'Flory Models' Dark Dirt fine clay wash over the insides surfaces of the fuselage halves, the engine bulkhead, fuselage under shield, fuel tank and pilots foot boards. Once dry, remove the excess with a moistened piece of absorbent kitchen roll, brush or cotton bud (Q-tip) to achieve the desired effect.

Brush 'AK Interactive' Engine Oil wash (AK2019) around the filler cap of the oil tank.

Brush 'AK Interactive' Kerosene wash (AK2039) around the filler cap of the fuel tank and lightly over the pilots wicker seat.

Seal and protect the weathered surfaces by airbrushing with a semi-gloss clear coat, such as 'Tamiya' Semi-Gloss (X35) or similar.





Decals: Refer to Part 6 (Decals) of this build log for more information.

Brush the instrument faces on the pilots instrument panel with a gloss clear coat, such as 'Tamiya' Gloss (X22) or similar.

Refer to page 3 of the IM for the specific decals and their locations on the pilots instrument panel.

Apply the relevant decals to the instruments.

Once the decals have fully set, brush them with a gloss clear coat, such as 'Tamiya' Gloss (X22) or similar. I chose to apply UV clear resin to the instrument faces.



Assembly (continued):

NOTE: Refer to pages 3 and 4 of the IM. *During the initial steps of assembling the cockpit, **cement the parts into and onto one cockpit side frame only**. This will enable correct alignment of the parts before finally fitting the opposite cockpit side frame. I chose the **cockpit right side frame** as there is less detail on that side.*

Before assembling any parts, make sure all primer and paints are removed from their mating surfaces, holes and recesses.

Cement the rudder bar into its locating hole in the top surface of the fuselage under shield.

Cement the pilots foot boards frame into its locating holes in the side frame.

Cement the cross member D11 into its locating hole in the side frame.

Cement the fuselage under shield in position on the bottom, forward edge of the side frame and the locating lug on the underside of the floor boards cross member.

Dry fit the opposite cockpit side frame onto the floor boards frame and fuselage under shield, making sure the two cockpit side frames are vertical and parallel to each other.

Cement the pilots instrument panel assembly into its top and side locating recesses in the cockpit side frame and into the locating hole in the top, centre of the rudder bar.

Cement the oil tank/gun mounting into its top and side locating recesses in the cockpit side and the central 'leg' down into its location hole in the ammunition containers.

Make sure all parts are fully located and the cockpit side frames are still vertical and parallel to each other.

Allow the cemented parts to fully set.

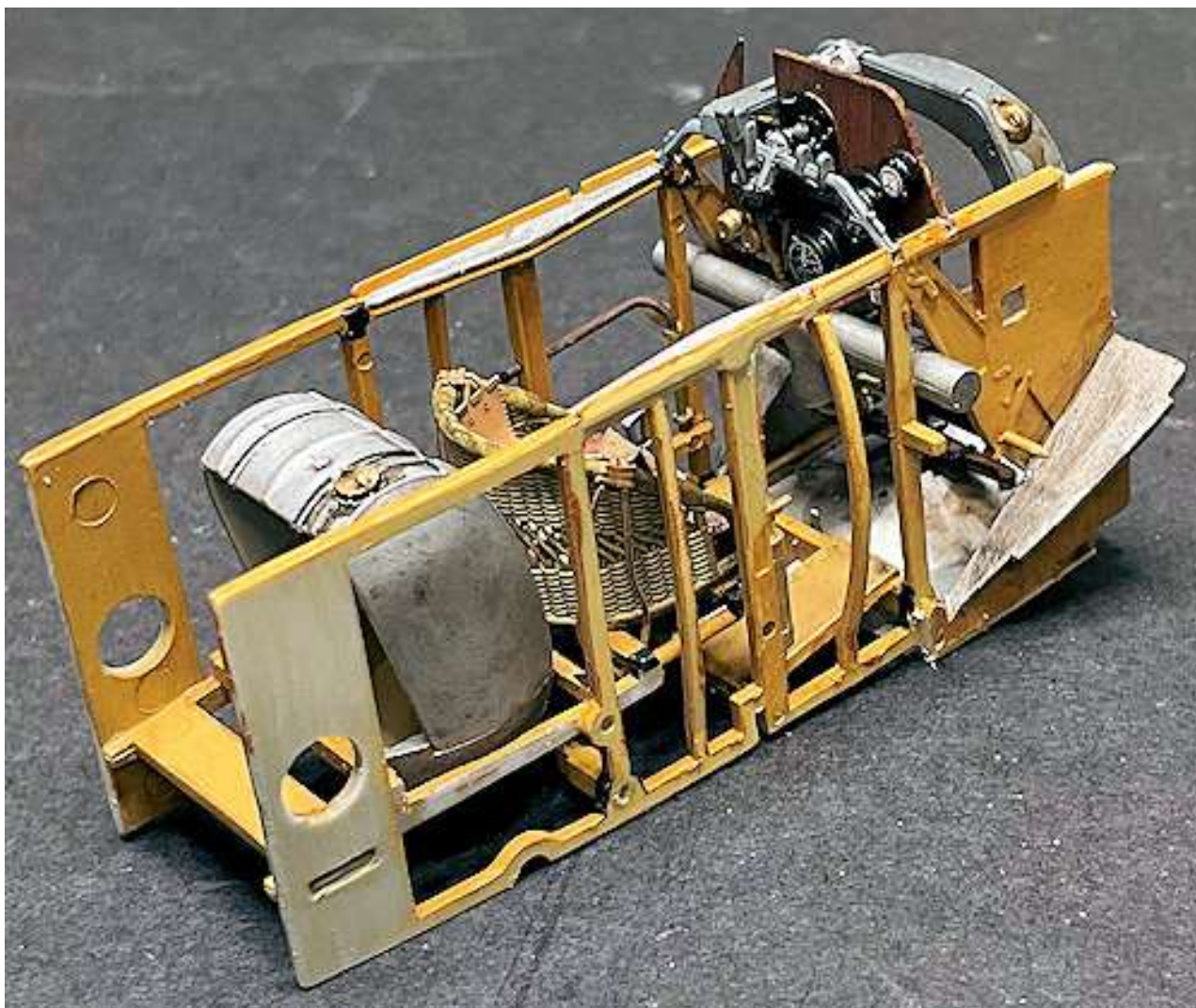
Carefully remove the 'dry' fitted side frame from the assembled parts.

Cement the pilots seat frame assembly into its locating holes in the cockpit side frame.

Cement the opposite cockpit side frame into and onto the locating pegs and shoulders of the fitted parts, on the assembled cockpit side frame, making sure the two cockpit side frames are vertical and parallel to each other.

Allow the cemented parts to fully set.

NOTE: *The control column and Vickers machine gun will be fitted later in this build.*



Modifications:

NOTE: *Refer to Part 8 (Rigging) of this build log and page 5 of the IM for more information.*

The following modifications add fuselage bracing wires, control cables, control rods and Vickers machine gun the operating cables. As internal rigging was streamlined wires, no turnbuckles will be fitted. The rigging material used is the 'Infini Model' Medium Aero Black Rigging (0.135 mm).

Side frame bracing wires:

Cut a long length of line.

Refer to the following photograph and using thin CA adhesive, add the line diagonally up and down along the one of the cockpit side frames and between the frame corners. Secure the line at each position before continuing. Pull slightly on the line between fixing points to keep the line taut.

Repeat the procedure to add the second line, but from the opposite frame corners.

Repeat the procedure to add the two lines to the opposite cockpit side frame.

Assembly (continued):

Cement the pilots control column onto the front end of the torque tube between the pilots foot boards.

Modifications (continued):

Elevator outer control cables:

Cut a long length of line.

Using thin CA adhesive, secure one end of the line to the left side of the rear, lower cockpit cross member.

Pass the through the relevant fairlead hole in the left side of the cockpit cross member D11.

Pass the line forward and around the two pulleys above the rudder bar.

Using thin CA adhesive, secure the lines around the pulleys.

Pass the line rearwards and through the relevant fairlead hole in the right side of the cockpit cross member D11.

Keeping the line taut and using thin CA adhesive, secure the line to the right side of the rear, lower cockpit cross member.

Cut away any residual end tags of line at the rear edge of the cross member.

Elevator inner control cables:

Cut a long length of line.

Using thin CA adhesive, secure one end of the line to the left side of the rear, lower cockpit cross member.

Pass the through the relevant fairlead hole in the left side of the cockpit cross member D11.

Pass the line forward and around the central support for the two pulleys above the rudder bar.

Keeping the line taut and using thin CA adhesive, secure the line to the left side of the pilots control column at the rigging lug.

Keeping the line taut and using thin CA adhesive, secure the line around the central support for the two pulleys above the rudder bar.

Pass the line rearwards and through the relevant fairlead hole in the right side of the cockpit cross member D11.

Keeping the line taut and using thin CA adhesive, secure the line to the right side of the pilots control column at the rigging lug.

Keeping the line taut, secure the line to the right side of the rear, lower cockpit cross member.

Cut away any residual end tags of line at the rear edge of the cross member.

Tail skid control cables:

Cut a long length of line.

Using thin CA adhesive, secure one end of the line to the left side of the rear, lower cockpit cross member.

Pass the through the relevant fairlead hole in the left side of the cockpit cross member D11.

Pass the line forward and over the left, top of the rudder bar near the centre.

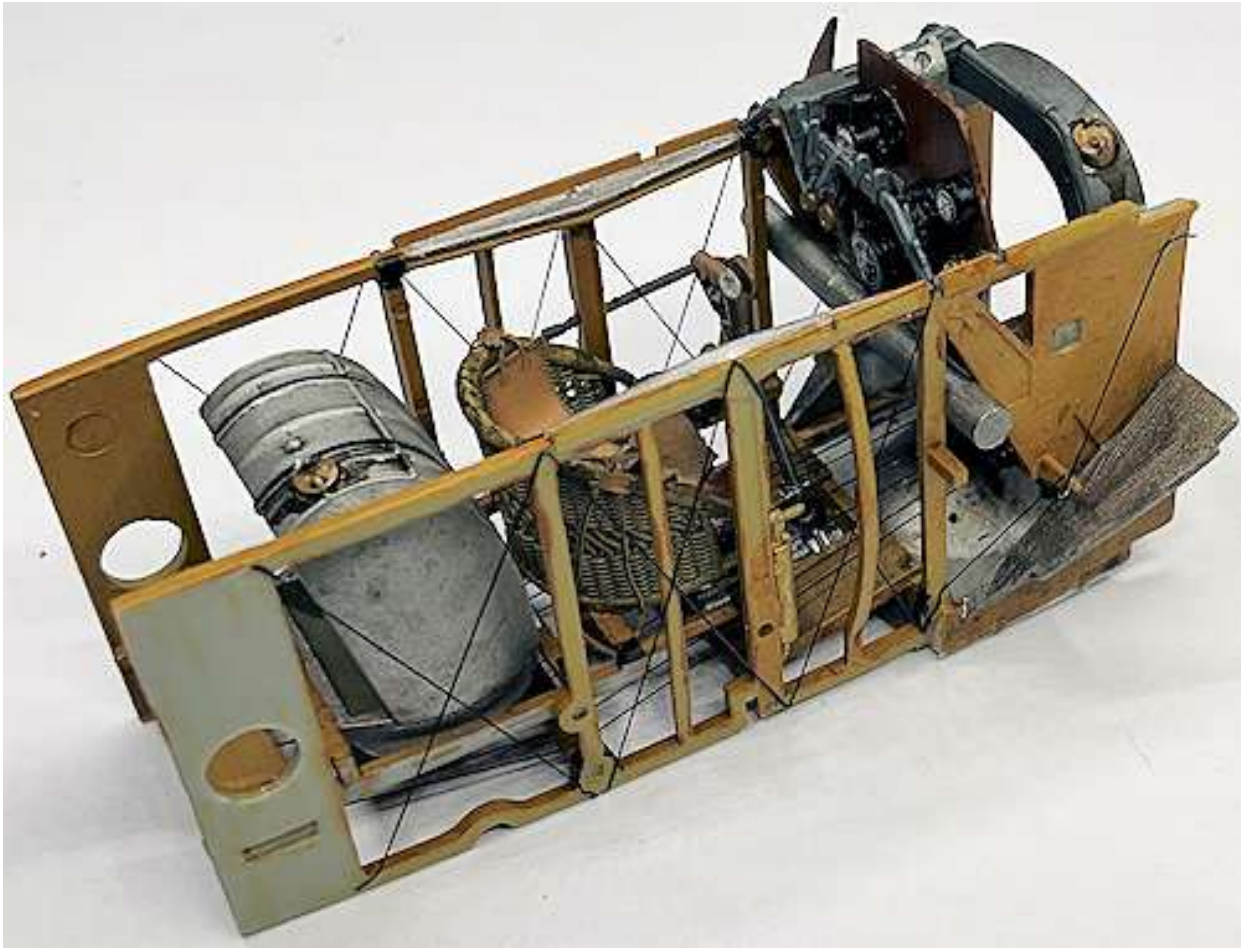
Keeping the line taut and using thin CA adhesive, secure the line to the top of the rudder bar.

Cut away any residual end tags of line at the front edge of the rudder bar.

Repeat the procedure to add the right side tail skid control cable.

Rudder control cables:

Repeat the previous procedure but secure the line over the molded rudder bar rigging brackets.



Assembly (continued):

NOTE: Refer to pages 6 and 7 of the IM. Before assembling any parts, make sure all primer and paints are removed from their mating surfaces, holes and recesses.

Cement the cockpit assembly fully onto the fuselage left half, locating the frame over the round location spigot and the front outer member into its slot in the fuselage front.

Fully locate the fuselage right half onto the assembly, making sure the cockpit assembly fully locates over the round location spigot and the front outer member into its slot in the fuselage front.

Cement the two fuselage halves fully together.

Cement the engine bulkhead onto the fuselage front with the four cowl fasteners located in their slots in the bulkhead.

Cement the Vickers machine gun into and onto its gun mount.

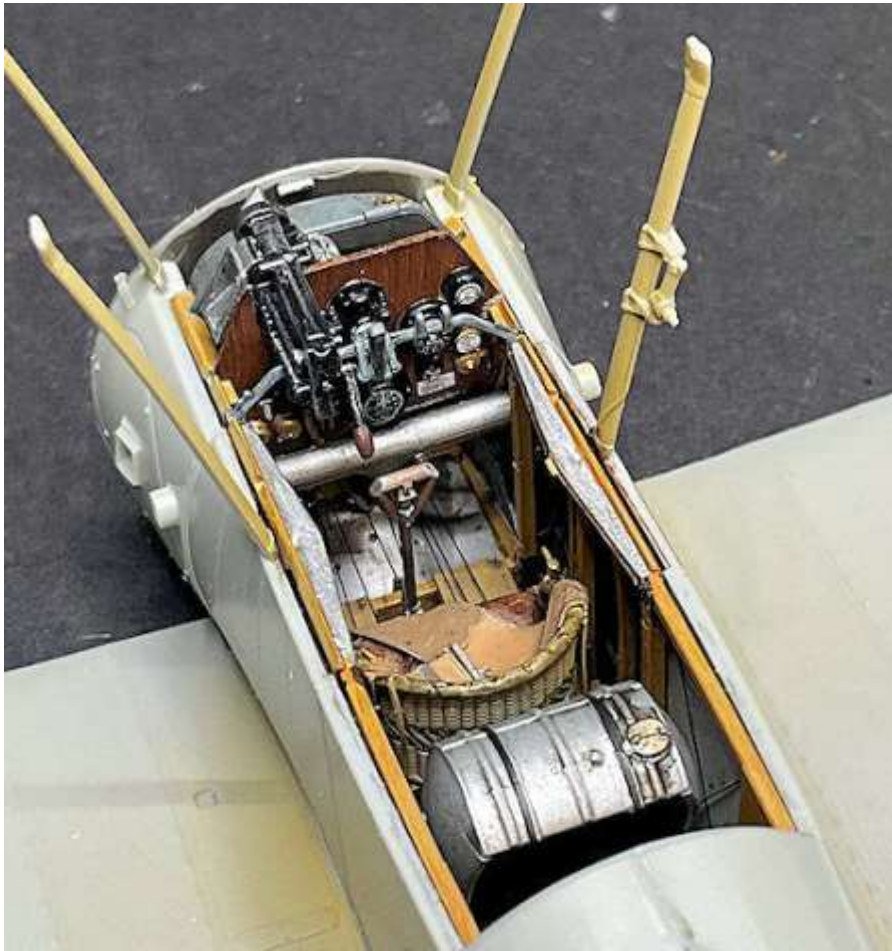
Dry fit the fuselage decking panel to make sure it will fully locate onto the top of the fuselage and around the four cabane struts and Vickers machine gun.

Cement the decking panel to the fuselage.

Dry fit the lower wing into the underside of the fuselage and make sure it locates fully at the front, rear and sides.

Cement the lower wing fully into the fuselage.

Once the cemented parts have fully set, sand along the fuselage joint seam to blend it with the surrounding surfaces. Airbrush a grey primer, such as 'AK Interactive' Grey (AK758) or similar along the seam joints. If any seam join or gap is visible, brush 'Mr. Surfacer' 500 or 1000 over the area and once fully set, sand then re-prime and check the finish, repeat as necessary until no seam imperfections are visible.





PART 14

EXTERNAL CONSTRUCTION

PART 14 - EXTERNAL CONSTRUCTION

References:

'Windsock' Data File 6 - Sopwith 2F.1 Camel (J.M.Bruce).
'Centenary' Data File 170 - 2F.1 Ship's Camel (C.A. Owers).
'Air Board Technical Notes' - Published 1917.
'Wingnut Wings' - Instruction Manual (IM).

Preparation:

NOTE: *During this build I refer to the 'IM', which is the 'Wingnut Wings' instruction manual. Refer to pages 8, 9, 10 and 12 of the IM for the parts required.*

Remove the following additional parts from their mold gates:

Rudder D5.
Interplane struts A1, A11 and A16 (x 2).
Landing gear struts A2 and A3.
Landing gear axle A44.
Wheels A43 x 2.
Wheel covers A42 x 2.
Engine cowl A47.

Sand or scrape away any mold seams and gate tags from the edges of the parts.

Assembly:

Cement the two upper wing outer sections D18 and D19 into the centre section B12, making sure the assembled wing is flat with no dihedral or anhedral angles.

Dry assemble the two landing gear struts and axle and locate the struts into their locating recesses in the underside of the fuselage.

With the landing gear located, cement the axle into the landing gear struts.

Once the cement has set, carefully remove the landing gear assembly from the fuselage.

Painting:

General:

Blank off or mask all openings and recesses for locating parts on the following:

Fuselage/lower wing assembly.
Upper wing assembly.
Upper wing ailerons.
Lower wing ailerons.

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

Fuselage/lower wing assembly.
Upper wing assembly.
Upper wing ailerons.
Lower wing ailerons.
Rudder.
Interplane struts.
Landing gear assembly.
Wheels.
Wheel covers.
Engine cowl.

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

Airbrush the inside surface of the engine cowl with 'Alclad' Duraluminium (ALC-102) or similar.



Mask off the lower wing roots and the fuselage wood side panels and decking panel.

Airbrush the exposed fuselage side panels and the front part of the decking panel with 'Tamiya' Medium Sea Grey (XF83) or similar.

Airbrush the outer surface of the engine cowl and the landing gear assembly with 'Tamiya' Medium Sea Grey (XF83) or similar.

Remove the masking.

Mask off the grey painted areas, the lower wing roots and the fuselage linen covered areas leaving just the wood side panels and decking panel exposed.

Airbrush the exposed wood panel areas with 'Tamiya' Dark Yellow (XF 60) or similar.

Remove all applied masking to reduce the chance of tape adhesive remaining on the painted surfaces.



Airbrush the four interplane struts with 'Tamiya' Dark Yellow (XF 60) or similar.

Brush paint the four fuselage cabane struts with 'Tamiya' Dark Yellow (XF 60) or similar.

Mask off the underside wing roots of the lower wings, fuselage and around the grey painted fuselage panels, leaving just the fuselage underside panel exposed.

Airbrush the exposed panel with 'Alclad' Duraluminium (ALC-102) or similar.

Remove the masking.

Mask off the top of the elevator.

Airbrush the top of the tailplane with a mix of 'Tamiya' Flat Brown (XF10) with Olive Drab (XF62) to a ratio of 60/40%.

Remove the masking.

Wood effect:

NOTE: Refer to Part 4 (Wood Effects) of this build log for more information. 'Windsor & Newton' Griffin (Alkyd) **Burnt Umber** oil paint is used to create the wood effect.

The following parts and fuselage areas should have wood effect applied:

Fuselage side panels and decking panel.

Four interplane struts.

Four fuselage cabane struts.

Mask off the fuselage and lower wings to leave just the dark yellow areas of the fuselage exposed.

Brush a covering coat of the 'Windsor & Newton' Griffin Alkyd **Burnt Umber** oil paint over the exposed areas, interplane struts and fuselage cabane struts.

Leave the oil paint to settle for approximately a minute.

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

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

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

Remove the masking before the oil paints starts to dry.

Decals:

'Ghost' roundels

NOTE: Due to the semi-transparent nature of the clear doped linen (CDL) covering of the aircraft, daylight would pass through the covering from above and any applied markings of the surfaces would show through the underside covering. Therefore, the roundels on the upper wing would be visible from the wing undersides as faded 'ghost' roundels. Also visible would be the internal wing ribs, spars and braces etc. These markings should be added before further painting of the upper wing and can be applied using cut masks or decals, if available. For ease I chose to use appropriate sized roundel decals from my 'spares' collection. Refer to Part 6 (Decals) for more information.

Airbrush the outer, undersides of the upper wing and undersides of the upper wing ailerons with a clear gloss, such as 'Tamiya' Clear (X22) or similar, making sure the coated areas are smooth and free of any surface imperfections.

Apply the roundel decals to the underside of the upper wing and in the correct position to match the top surface roundels, when applied.

Protect and seal the decals by airbrushing them with a semi-gloss clear coat, such as 'Tamiya' Semi-Gloss (X35) or similar.

'Aviattic' decals - example:

NOTE: The decal used for the linen covering of surfaces is the 'Aviattic' Clear Doped Linen Bleached (ATT32044). Refer to Part 6 (Decals) for more information on 'Aviattic' decals.

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

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

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

Carefully cut out the decal shape.

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

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

Wet the model surface with the decal water.

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

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

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

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

Once the decal is smoothed down onto the model surface, apply pressure along the decal with soft and dry tissue paper or by finger pressure whilst wearing lint free cotton gloves. This will expel any remaining water and press the decal on to the model surface. Check over the decal to make sure there are no tears or folds, which need to be rectified before the decal sets.

NOTE:

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

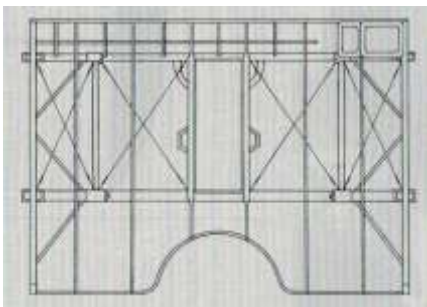
*If the decal needs to be conformed around curved edges etc, brush **sparingly** 'Tamiya' X20A thinners across the decal edge. This will soften and conform the decal.*

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

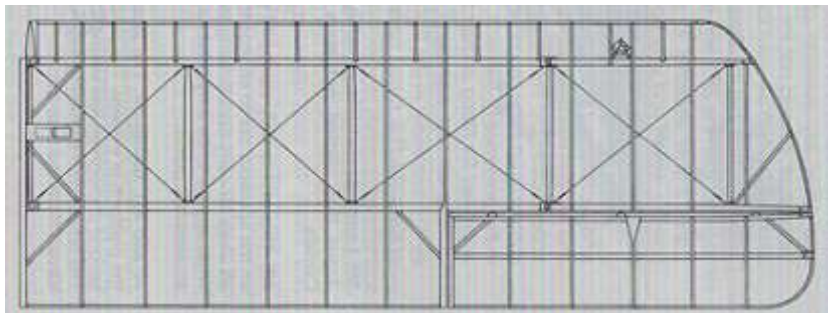
Internal structure - upper wing:

NOTE: The internal structure of the upper wing should be the same on the top surface and underside of the wing. Given the width of the upper wing, it's best to cut the two wing outer sections and the centre section as separate decals, which will make it easier to apply the decals.

Centre section



Outer section



Refer to the previous illustration and using a brown coloured pencil and a straight edge, lightly draw the internal wing spars (front and rear), the wing ribs and the corner bracings onto both sides of the upper wing.

Refer to the previous illustration and using a pencil and a straight edge, lightly draw the internal bracing wires onto both sides of the upper wing.

NOTE: *During the following step, airbrush light coats of the CDL colour and check between each to see the effect. Do not apply a heavy coat or the details will be covered.*

Airbrush both sides of the wing with 'MRP' Clear Doped Linen (MRP-256) or similar. The intention is to gradually fade back the drawn structure, bracing wires and the roundel decals on the underside whilst applying the CDL colour finish to the wing.

Once the desired faded effect is achieved, lightly sand the surface (I use 'Tamiya' 1000 grit sanding cloth) to smooth the surface and remove any imperfections ready for apply the linen effect decal from 'Aviattic'.

Start on the underside of the upper wing and using the previous example as a guide, cut out the decal required for one of the outer sections and apply it to the wing.

Repeat the procedure to apply a decal to the opposite outer section.

Repeat the procedure to apply a decal to the centre section of the wing.

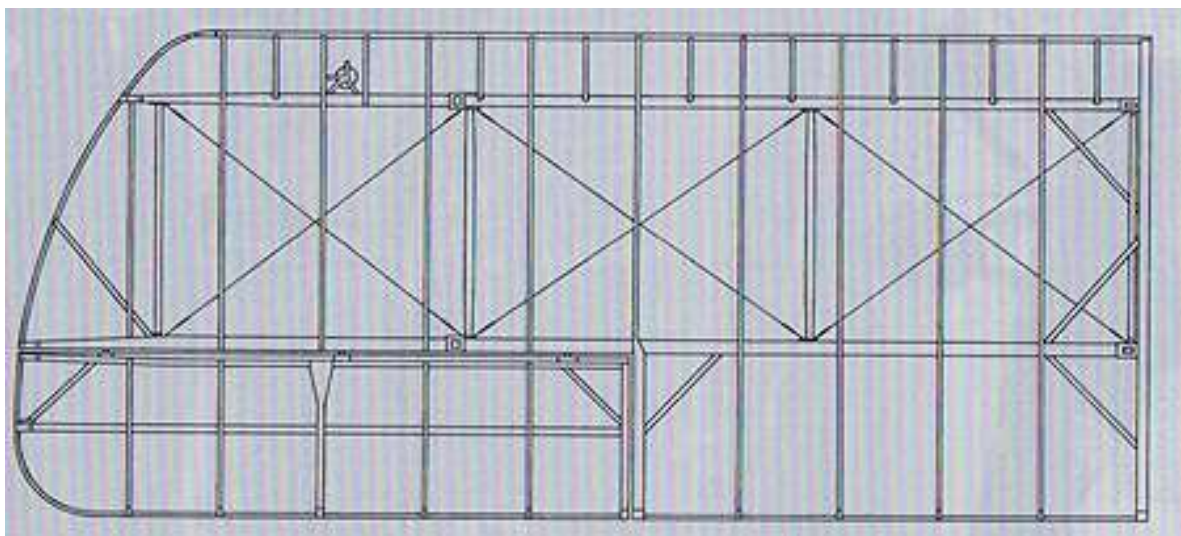
Repeat the procedure to apply decals to the top surface of the upper wing.

Underside of upper wing showing faded roundels and structures.



Internal structure - lower wings:

NOTE: *The internal structure of the lower wings should be the same on the top surface and underside of the wings.*

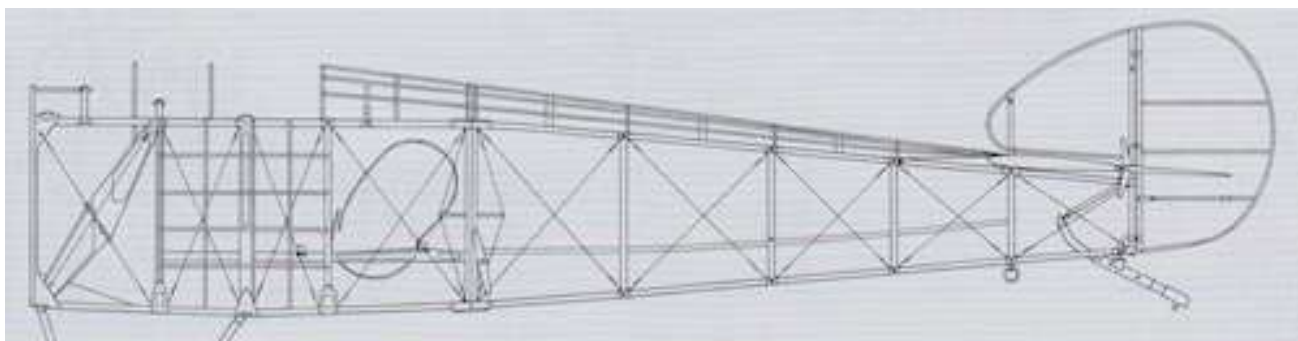


Repeat the procedure used for the upper wing to create the lower wing internal structures and bracing wires.

Repeat the procedure used for the upper wing to cut and apply the 'Aviattic' linen decals.

Internal structure - fuselage:

NOTE: *The internal structure of the fuselage should be the same on the sides, top and underside of the fuselage.*



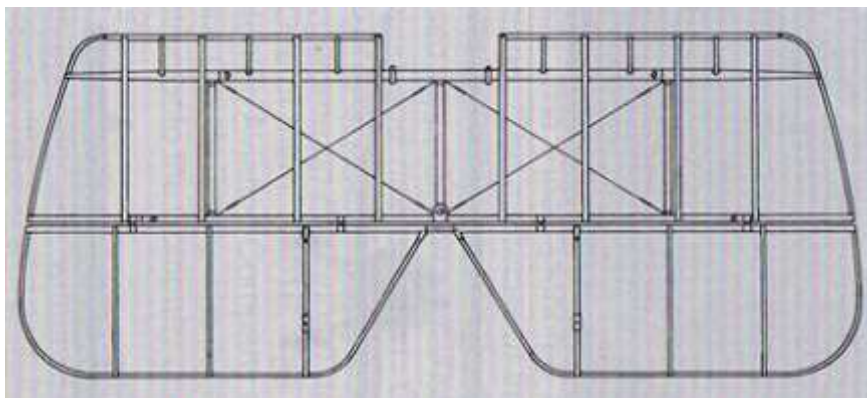
Repeat the procedure used for the upper wing to create the fuselage internal structures and bracing wires.

NOTE: *The fuselage requires separate decals for the two sides, top and underside.*

Repeat the procedure used for the upper wing to cut and apply the 'Aviatic' linen decals.

Internal structure - tailplane:

NOTE: *The internal structure of the tailplane should be the same on the top surface and underside of the tailplane.*

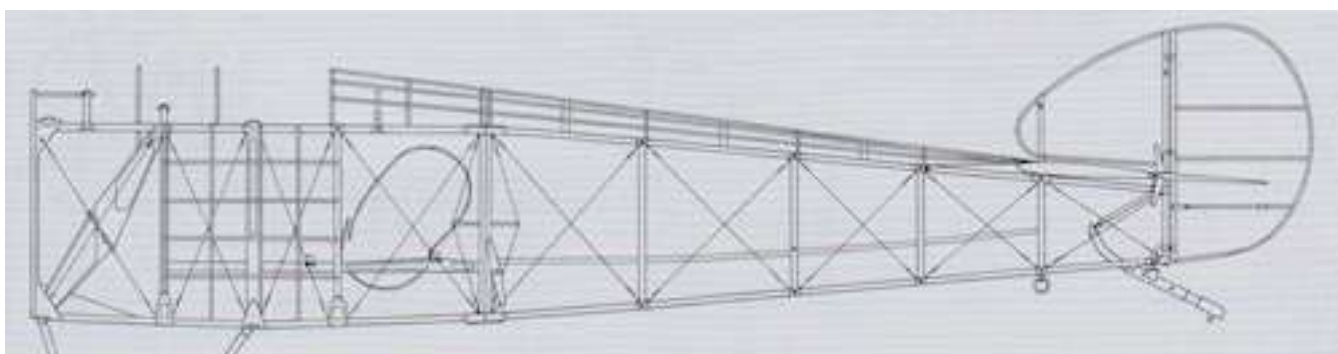


Repeat the procedure used for the upper wing to create the tailplane internal structures and bracing wires.

Repeat the procedure used for the upper wing to cut and apply the 'Aviatic' linen decals.

Internal structure - fin:

NOTE: *The internal structure of the fin should be the same on both sides of the fin.*



Repeat the procedure used for the upper wing to create the fin internal structures and bracing wires.

Repeat the procedure used for the upper wing to cut and apply the 'Aviatic' linen decals.

Kit supplied decals:

NOTE: Refer to Part 6 (Decals) of this build log for more information. Refer to the coloured illustration on page 16 of the IM for the location of the various decals.

Apply the required decals to the upper wing.

Apply the required decals to the lower wings.

Apply the required decals to the fuselage.

Apply the required decals to the rudder.

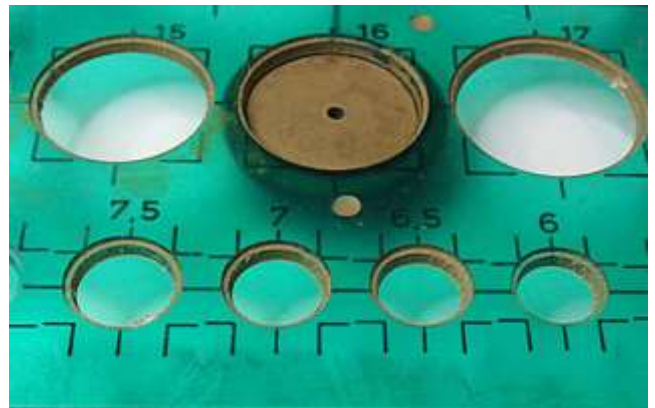
Apply the required decals to the elevator.

Apply the required decals to the four interplane struts.

Painting (continued):

Airbrush around the wheel tyres 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 wheel inners and the outer covers with 'MRP' Clear Doped Linen (MRP-256) or similar.

Brush paint the inflation valve and spokes on the inner surface of both wheels and in the access hole in the outer covers with 'Mr. Metal Color' Stainless Steel (213) or similar.

Brush paint the cockpit surround padding with 'AK Interactive' British Uniform (AK3081) or similar.

Brush paint the 'Rotherham' fuel pump components on the right, rear fuselage cabane strut as follows:

Pump body - 'Mr. Metal Color' Brass (219).

Support bracket and pipe - 'Tamiya' Rubber Black (XF85) or similar.

Pump propeller (D3) - 'Tamiya' Dark Yellow (XF60) or similar.

Brush paint the front filler cap in the fuselage at the rear of the cockpit with 'Mr. Metal Color' Brass (219) or similar.

Brush paint the 'bungee' suspension cords on the ends of the axle with 'Tamiya' Deck Tan (XF55) or similar.

Brush paint the aileron pulleys in both wings as follows:

Pulleys and cables - 'Mr. Metal Color' Stainless Steel (213).

Linen bases - 'Tamiya' Deck Tan (XF55) or similar.

Upper wing turnbuckle barrel - 'Mr. Metal Color' Copper (215) or similar.

Brush paint the 'bungee' suspension cords on the ends of the axle with 'Tamiya' Deck Tan (XF55) or similar.

Brush paint the foot boards on the lower wing roots with 'Mr. Metal Color' Stainless Steel (213) or similar.

Brush paint the pilots foot step surround with 'Mr. Metal Color' Stainless Steel (213) or similar.

Brush paint the wing aileron pulleys as follows:

Pulleys and cables - 'Mr. Metal Color' Stainless Steel (213).

Linen bases - 'Tamiya' Deck Tan (XF55) or similar.

Upper wing centre turnbuckle - 'Mr. Metal Color' Copper (215) or similar.

Wood spars - 'Tamiya' NATO Brown (XF68) or similar.

Pilots foot step surround - Metal Color' Stainless Steel (213) or similar.

Tie down rings (B1) - 'Tamiya' Medium Sea Grey (XF83) or similar.

Upper wing opening wood - 'Tamiya' Dark Yellow (XF60) or similar.

Rudder cable outlet surrounds - 'AK Interactive' British Uniform (AK3081) or similar.

Interplane strut end caps - 'Tamiya' Rubber Black (XF85) or similar.

Empty links chute (A36) - 'Mr. Metal Color' Copper (215) or similar.

Lewis gun mounting frame (B3) - 'Tamiya' Rubber Black (XF85) or similar.

Tail skid (D17) - 'Tamiya' Dark Yellow (XF60), Deck Tan (XF55), Rubber Black (XF85) and 'Mr. Metal Color' Stainless Steel (213) or similar.

Brush paint the frame of the windscreen (C9) with 'Mr. Metal Color' Stainless Steel (213) or similar.

Once painted, remove the windscreen frame from its mold gate.

Kit supplied decals (continued):

NOTE: Refer to Part 6 (Decals) of this build log for more information. Refer to the coloured illustration on page 16 of the IM for the location of the various decals.

Apply the required decals to the tyres on both wheels.

Apply the required decals to the outer wheel covers.

Assembly (continued):

NOTE: During this build I refer to the '**IM**', which is the 'Wingnut Wings' instruction manual. Refer to pages 6, 8, 10 and 12 of the IM. Before any assembling any parts, make sure all primer and paints are removed from their mating surfaces, holes and recesses.

Cement the engine into its locating recess in the engine bulkhead.

Cement the engine cowl onto the front of the fuselage.

Cement the landing gear assembly into its for locating recesses in the fuselage front underside.

Cement the four tie down rings into their location on the underside of the lower wing.

Cement the cooling jacket for the Vickers machine gun onto the front of the fitted gun.

Cement the empty links chute into its location on the upper, left of the fuselage.

Cement the tail skid into its locations inside the fuselage rear.

Surface finish:

To seal and protect the applied decals and to provide a good surface for weathering, airbrush the following with a semi-gloss clear coat, such as 'Tamiya' Semi-Gloss (X35) or similar:

Fuselage/lower wings assembly.

Upper wing.

Four interplane struts.

Rudder.

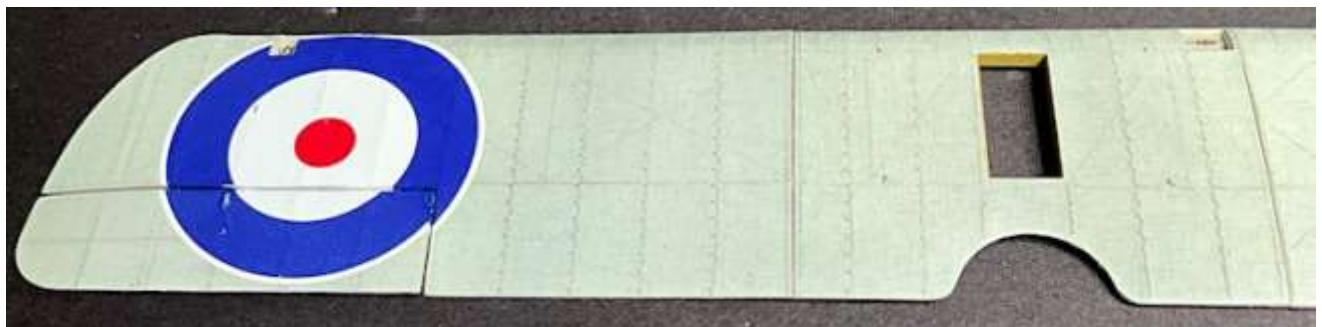
Elevator.

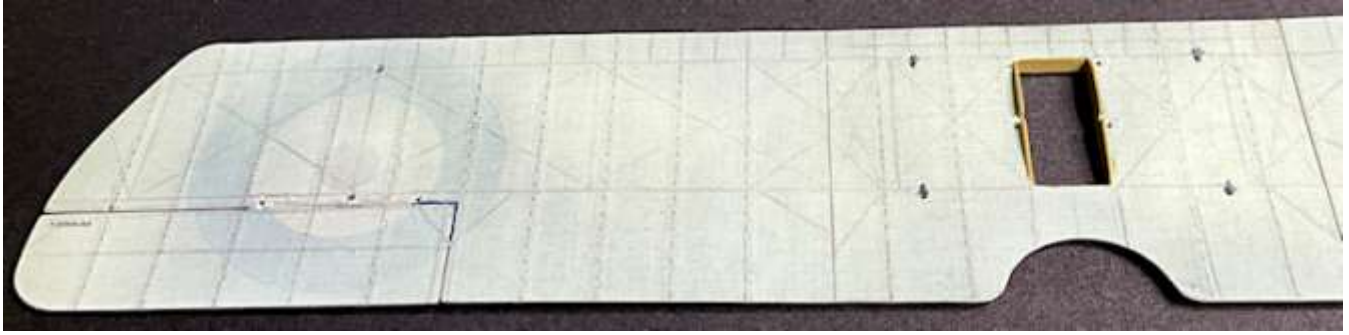
Wheels.

Wheel outer covers.

Landing gear assembly.

Engine cowl.





Weathering:

NOTE: Refer to Part 5 (Weathering) of this build log for more information.

Brush 'Flory Models' Dark Dirt fine clay wash over the surfaces of the fuselage assembly, upper wing, ailerons, wheels, wheel outer covers, fin/rudder and tailplane.



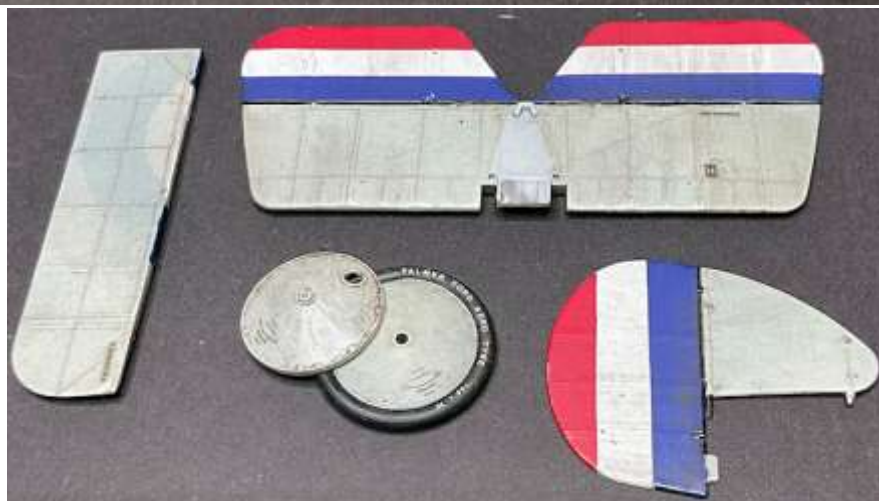
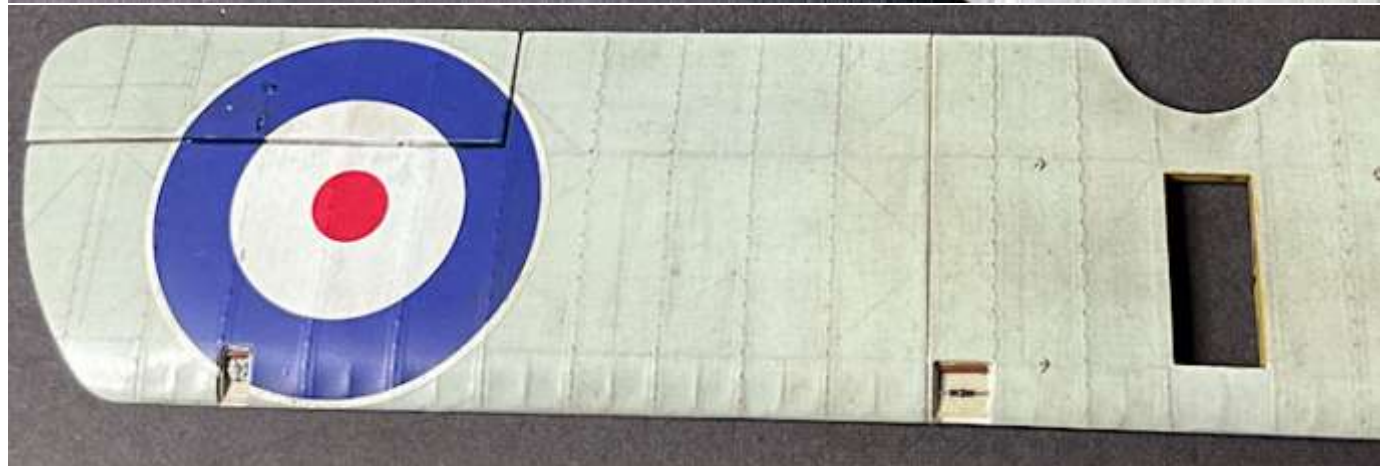
Once dry, remove the excess with a lightly moistened piece of absorbent kitchen roll, brush or cotton bud (Q-tip) to achieve the desired effect.

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 around the opening of the engine cowl and leading edges of the carburettor air intake pipes etc with 'Mr. Color' Super Iron 2 (203) or similar, to create a worn metallic surface

Lightly sponge 'Tamiya' Weathering Master Set D (Oil Stain) on the lower edges of the engine cowl and the fuselage under shield.

Lightly sponge 'Tamiya' Weathering Master Set A (Mud) along the lower edges of the fuselage and around the fuselage foot step.



Assembly (continued):

NOTE: During this build I refer to the '**IM**', which is the 'Wingnut Wings' instruction manual. Refer to page 10 of the IM. Before assembling any parts, make sure all primer and paints are removed from their mating surfaces, holes and recesses.

Cement the mounting frame (B3) for the Lewis machine gun into its locating recesses in the underside of the upper wing around the centre cut out.

Rigging preparation:

NOTE: Refer to **Part 8 (Rigging)** of this build log for more information. At this stage of the build the various rigging anchors and holes etc should be added before building the model continues. This will make access easier when finally rigging the built model.

The rigging anchors used are the 'HGW' 1/32nd scale Spoke Eyelets (132129).

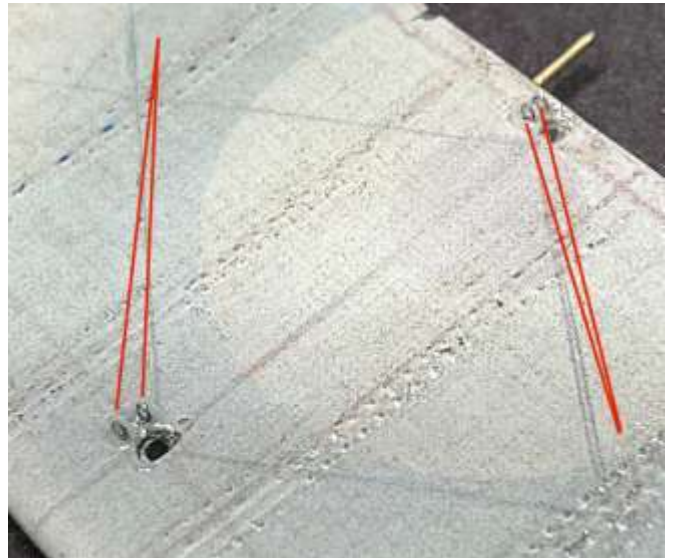
Flying wires:

NOTE: The four ends of the rear pairs of flying wires, at the underside of the lower wings will be rigged later in this build.

On the underside of the upper wing, inboard from the location recesses for the four interplane struts, drill two holes of 0.3 mm diameter into, **but not through**, the wing. The holes should be approximately 1.5 mm apart.

Using thin CA adhesive, secure a 'HGW' eyelet into each hole, with the eyelets parallel to the wing leading/trailing edges.

Use a 0.2 or 0.3 mm diameter drill to clear any Residual adhesive from the rigging hole in the eyelets.

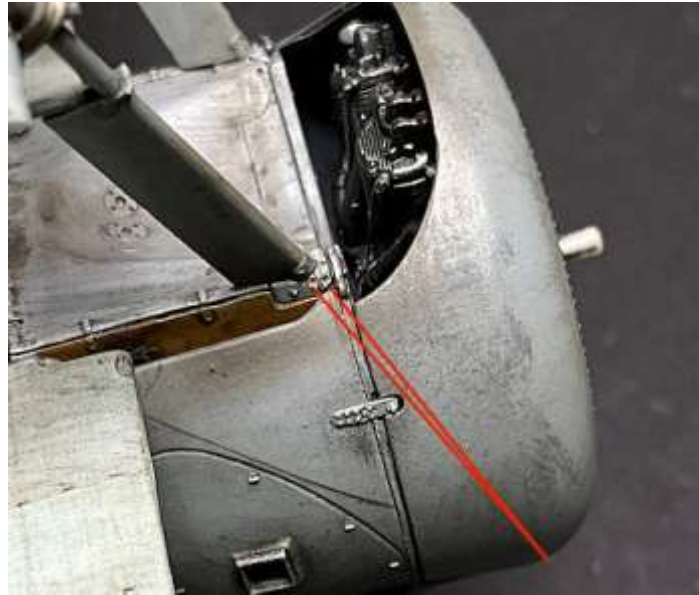


NOTE: It's easier to drill through the wing to rig the rear flying wires. Any evidence on the underside of the lower wing can be covered with weathering wash. The short run of the wires from the wing underside to the top of the landing gear rear struts will be added later in this build.

Using as guides the two dimples in the recess on the top surface of the lower wing roots, drill two holes of 0.4 mm diameter through the wing and angled approximately to the top of the rear landing gear struts, when fitted.



Using as guides the two dimples in the top of the landing gear front struts, drill two holes of 0.3 mm diameter through the struts.

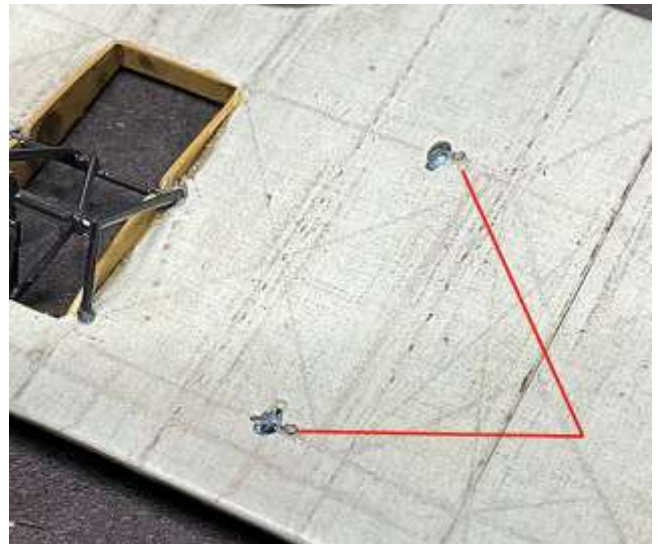


Landing wires:

On the underside of the upper wing, outboard from the location recesses for the four cabane struts, drill a hole of 0.3 mm diameter into, **but not through**, the wing.

Using thin CA adhesive, secure a 'HGW' eyelet into each hole, with the eyelets parallel to the wing leading/trailing edges.

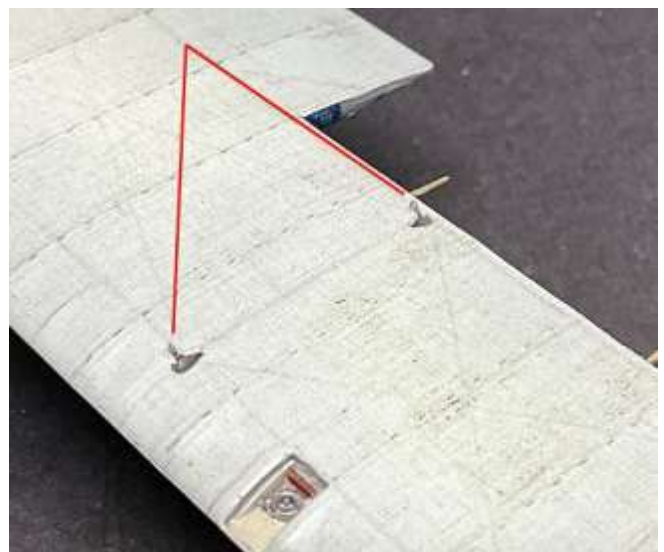
Use a 0.2 or 0.3 mm diameter drill to clear any residual adhesive from the rigging hole in the eyelets.



On the top surface of the lower wings, inboard from the locating recesses for the interplane struts, drill a hole of 0.3 mm diameter into, **but not through**, the wing and aligned to the top of the relevant cabane struts.

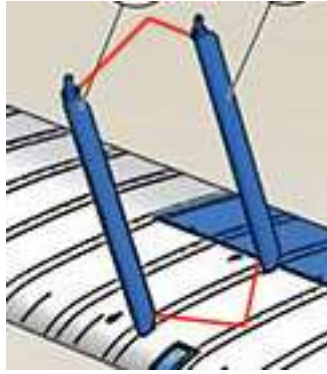
Using thin CA adhesive, secure a 'HGW' eyelet into each hole, with the eyelets parallel to the wing leading/trailing edges.

Use a 0.2 or 0.3 mm diameter drill to clear any residual adhesive from the rigging holes in the eyelets.



Incidence wires:

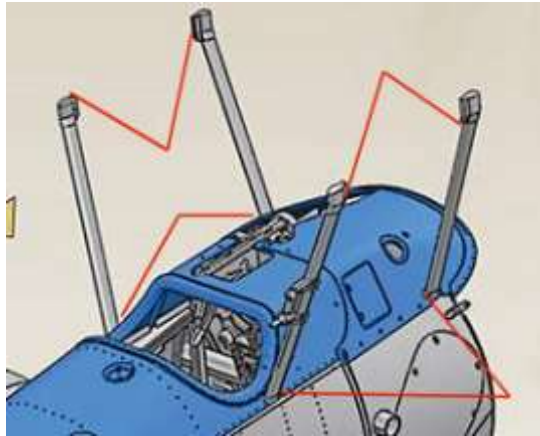
Using a 0.2 mm diameter drill, clear any residual paint from the pre-molded rigging rings at the end caps of the four interplane struts.



Cabane strut bracing wires:

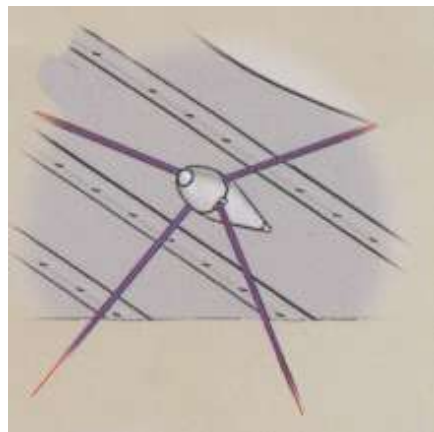
Using a 0.2 mm diameter drill, clear any residual paint from the pre-molded rigging rings at the top end caps of the four fuselage cabane struts. At the bottom end caps, drill through the rigging rings on the front struts and through the rigging rings and fuselage sides at the rear struts.

NOTE: *Pre-molded rigging rings are already on the end caps of the fuselage front cabane struts. Also, their rigging holes are in the decking panel. These are used to rig the front bracing wires.*



Cabane struts wire guide:

NOTE: *The diagonally crossed front bracing wires are attached to a wire guide, located centrally between the front cabane struts. The 'wire guide' is kit part A56 on page 13 of the IM.*

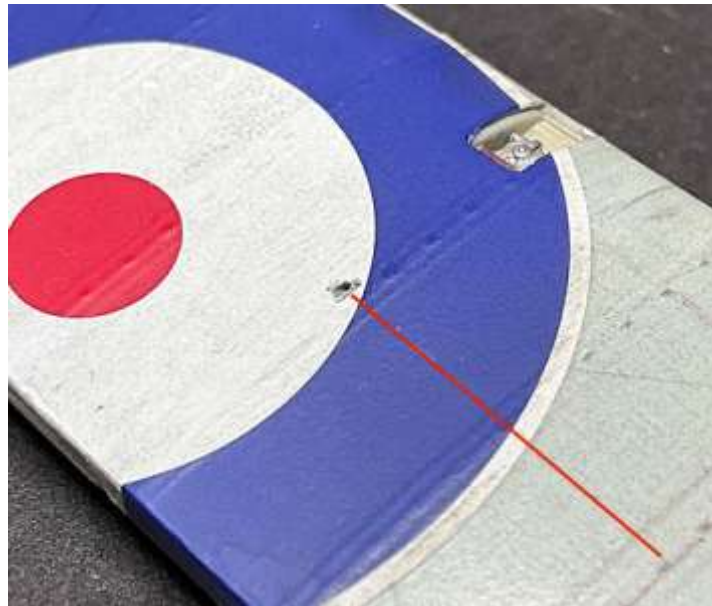


Using the pre-molded recesses in the wire guide, carefully drill holes of 0.4 mm diameter through the wire guide.

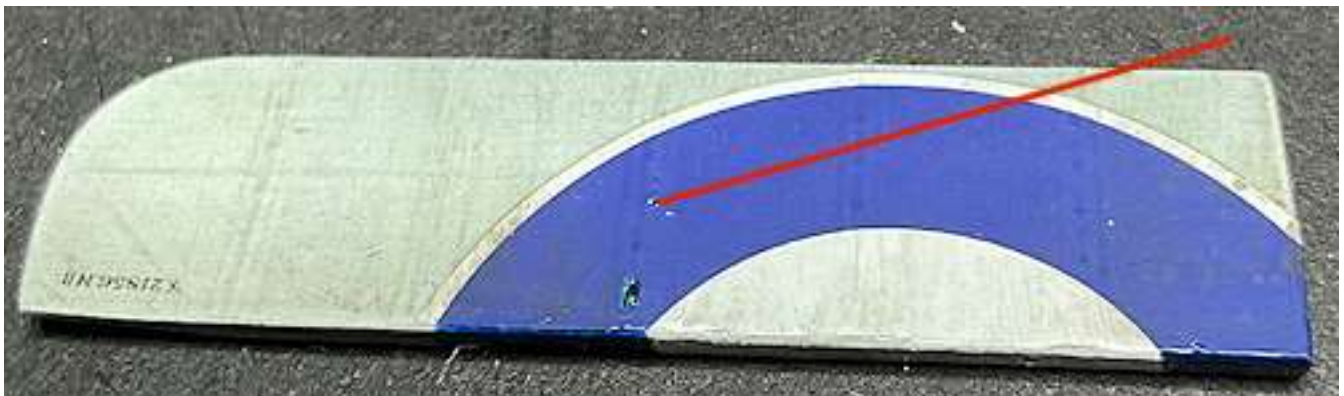
Aileron control cables:

On the top surface of the upper wing, drill a hole of 0.4 mm diameter at a shallow rearwards angle into, **but not through**, the wing at the aileron cable opening in the applied roundels.

On the underside surface of the lower wings, drill a hole of 0.4 mm diameter at a shallow rearwards angle into, **but not through**, the wings at the aileron cable opening in the applied roundels.

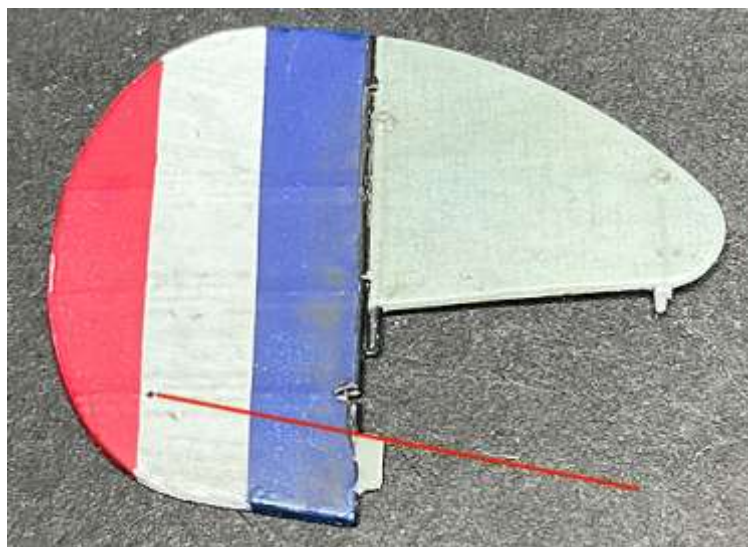


On the four ailerons at the pre-molded stubs, drill a hole of 0.4 mm diameter through the ailerons.



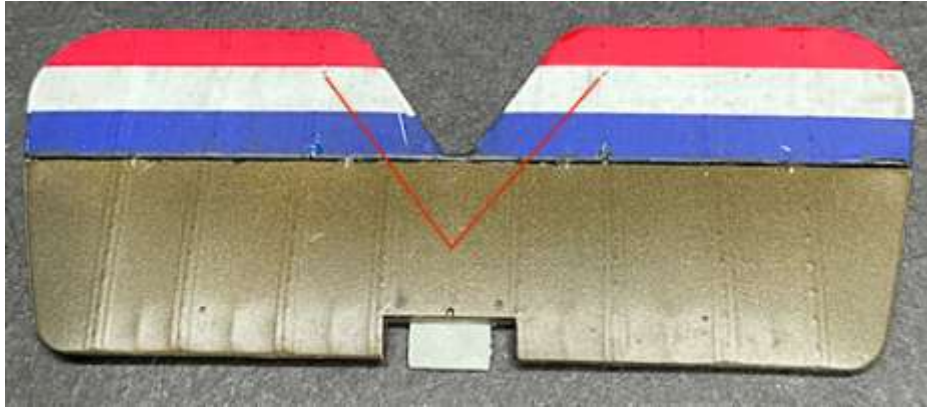
Rudder control cables:

Using the pre-molded recesses in the rudder, drill a hole of 0.4 mm diameter through the rudder.



Elevator control cables:

Using the pre-molded recesses in the elevator, drill holes of 0.4 mm diameter through the elevator.



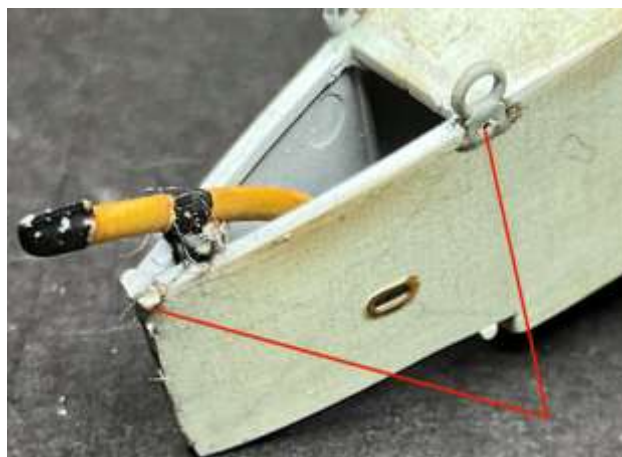
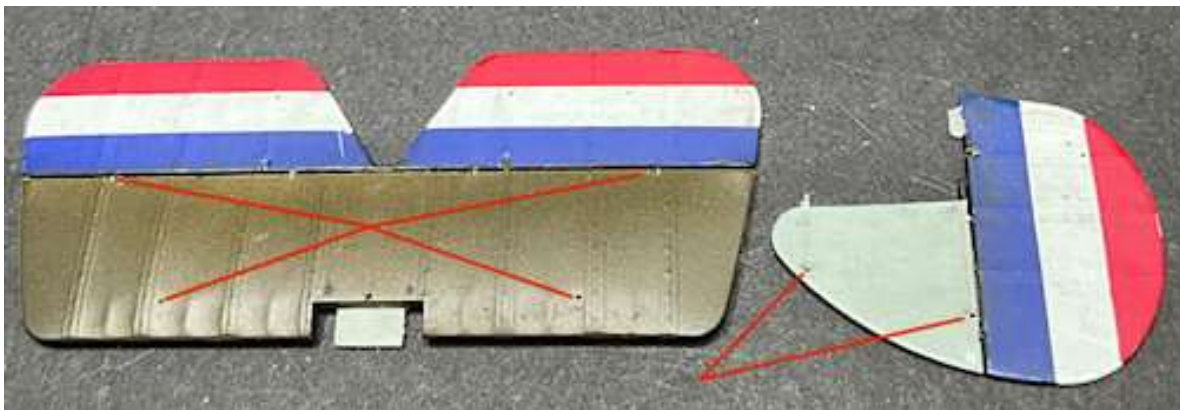
Tailplane bracing wires:

Using the four pre-molded recesses in the tailplane, drill holes of 0.4 mm diameter through the tailplane.

Using the two pre-molded recesses in the fin, drill holes of 0.4 mm diameter through the fin.

Using the two pre-molded recesses in the bottom rear of the fuselage, drill holes of 0.3 mm diameter through the fuselage at the tie down rings.

Drill holes of 0.3 mm diameter vertically through the ends of the two rigging tabs of the bottom, rear of the fuselage



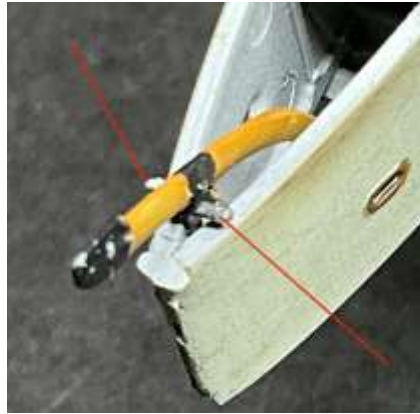
Tail skid control cables:

NOTE: The tail skid control cables exit the underside, rear of the fuselage. Refer to page 6 of the IM.

Drill two holes of 0.5 mm diameter through the rear, underside of the fuselage.

Brush paint the surround of the holes with 'AK Interactive' British Uniform (AK3081) or similar.

Drill a hole of 0.2 mm diameter through both ends of the tail skid control horn at the bottom of the tail skid.

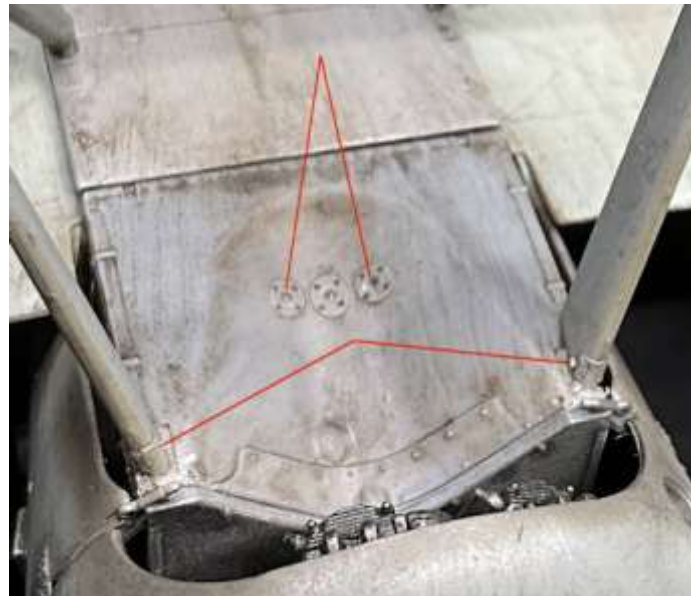


Landing gear bracing wires:

NOTE: The upper horizontal bracing wire is a continuation of the front flying wires. Refer to page 13 of the IM.

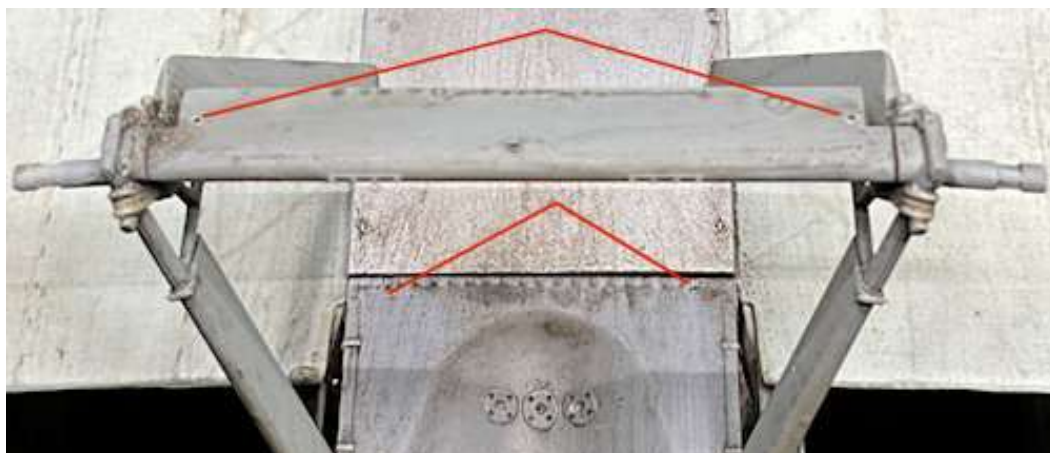
Front diagonally crossed wires:

Drill holes of 0.3 mm diameter through the fuselage under shield and the landing gear front struts.



Rear diagonally crossed wires:

Drill holes of 0.3 mm diameter through the fuselage under shield and the landing gear axle fairing.

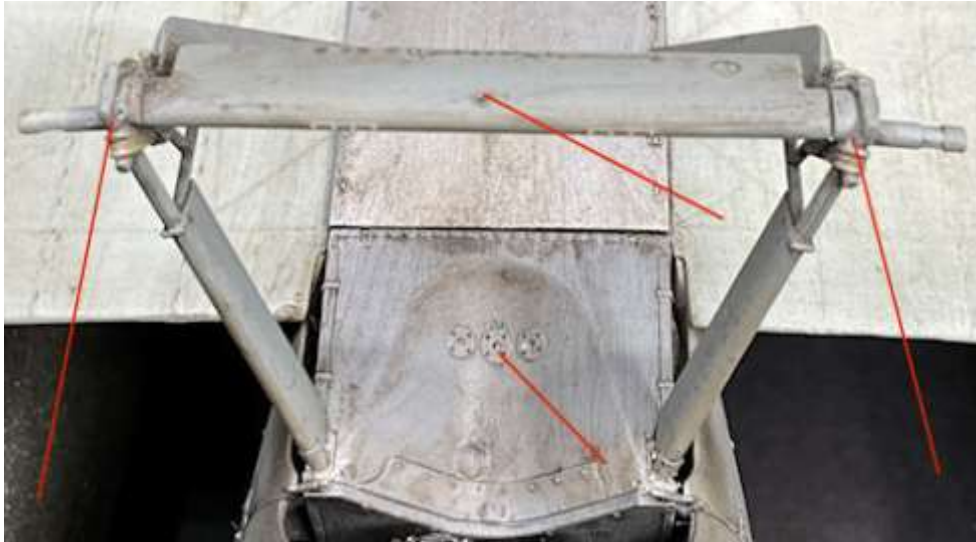


Vertical centre wire:

Drill holes of 0.3 mm diameter through the fuselage under shield and the centre of the landing gear axle fairing.

Horizontal axle wire:

Drill holes of 0.3 mm diameter through the landing gear front struts, just under the 'bungee' suspension cords, making sure the holes are aligned with the centre of the leading edge of the axle fairing.



Elevator control horns:

Drill a hole of 0.2 mm diameter through both ends of the two elevator control horns (B8).

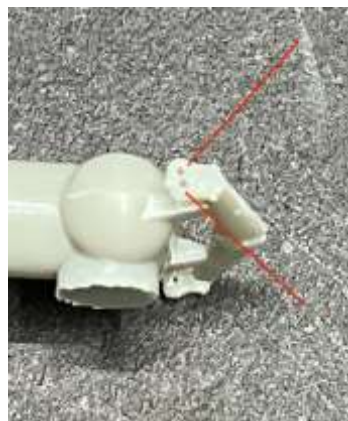


Drill two holes of 0.2 mm diameter through each of the four elevator control horns (D2).



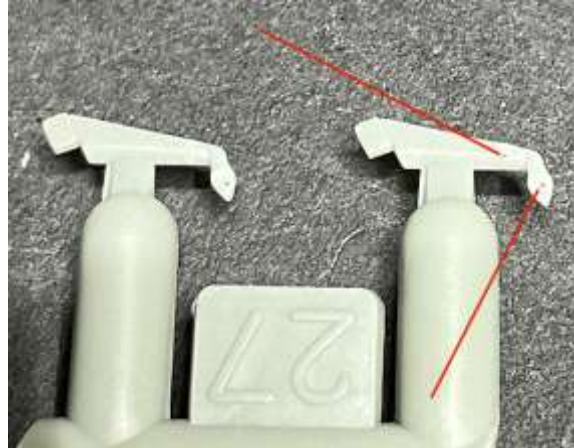
Rudder control horns:

Drill two holes of 0.2 mm diameter through both ends of the rudder control horn (A17).



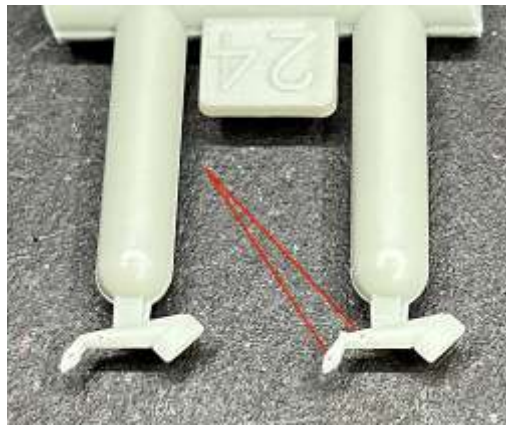
Aileron lower control horns:

Drill two holes of 0.2 mm diameter through each of the two elevator lower control horns (D27).



Aileron upper control horns:

Drill two holes of 0.2 mm diameter through each of the two elevator upper control horns (D24).



Pre-rigging:

NOTE: Refer to Part 8 (Rigging) of this build log for more information. At this stage of the build the various rigging wires or control cables should be added before building the model continues. This will make access easier when finally rigging the built model. **Not all** of the rigging wires and control cables need to be pre-rigged at this stage of the build.

The materials used are:

‘Albion Alloy’s’ 0.4mm (MBT04) or 0.5 mm (MBT05) diameter Brass tube.

‘Steelon’ or ‘Stroft GTM’ fishing line (0.08 mm and 0.12 mm diameter).

Cabane struts:

NOTE: The pre-rigging for the cabane struts should be left loose and not tightened and secured until the upper wing is fitted.

Cut a long length of 0.12 mm diameter line.

Pass one end of the line just through the rigging ring and pre-drilled hole at the bottom end cap of a rear cabane strut.

Using thin CA adhesive, secure the line in the fuselage side from the inside of the cockpit.

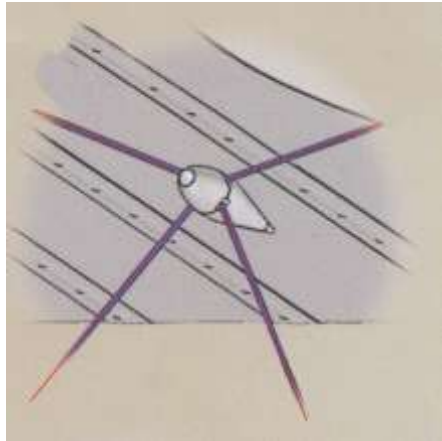
NOTE: Nickel-Silver or Brass tube can be chemically blackened by immersion in solutions such as AMMO Mig photoetch Burnishing Fluid (A.MIG-2021), then rinse and dry the blackened tubes to prevent powdering of the surfaces.

Slide two blackened 0.4 mm diameter tubes onto the line.

Pass the line, from the outside, through the rigging ring on the top of the front cabane strut.

Slide two blackened 0.4 mm diameter tubes onto the line.

Pass the line diagonally through the pre-drilled holes in the wire guide.



Repeat the procedure on the opposite cabane struts.

Cut a long length of 0.12 mm diameter line.

Pass one end of the line just through the rigging ring and into the fuselage at the bottom end cap of a front cabane strut.

Using thin CA adhesive, secure the line in the rigging ring and fuselage.

Slide a blackened 0.4 mm diameter tube onto the line.

Slide a blackened 0.5 mm diameter tube onto the line.

Pass the line, from the inside, through the rigging ring on the top of the rear cabane strut.

Repeat the procedure on the opposite cabane struts.



Landing wires:

Cut a long length of 0.12 mm diameter line.

Slide a blackened 0.5 mm diameter tube onto the line.

Pass one end of the line through a previously fitted landing wire eyelet on the underside of the upper wing.

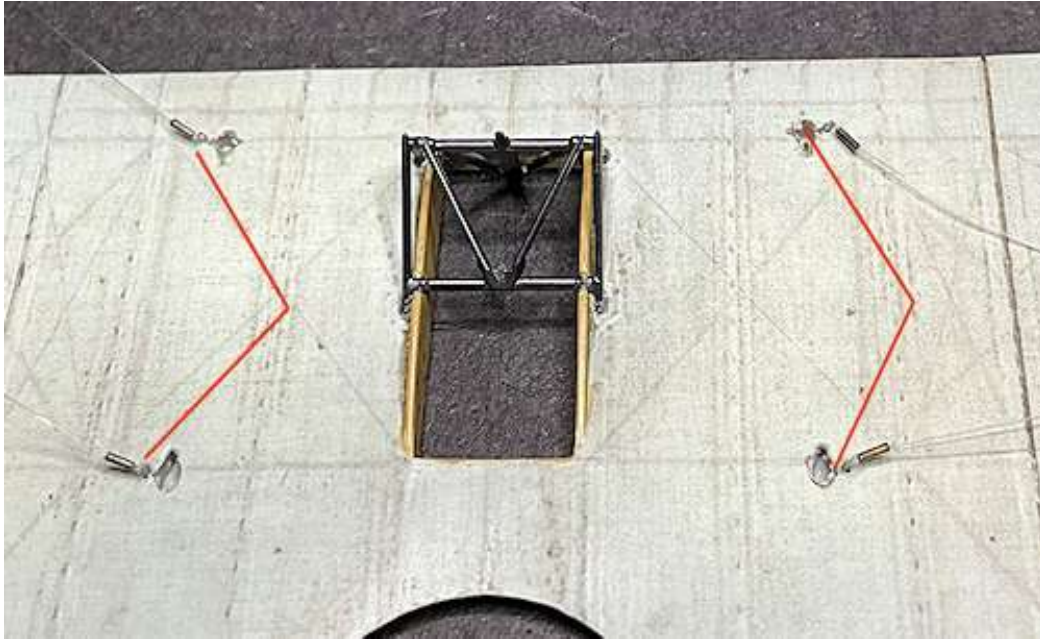
Loop the line back and through the tube.

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

Using thin CA adhesive, secure the lines in the tube.

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

Repeat the procedure on the remaining three landing wire eyelets.



Flying wires:

Rear flying wires:

Cut a long length of 0.12 mm diameter line.

Slide a blackened 0.5 mm diameter tube onto the line.

Pass one end of the line through a previously fitted rear flying eyelet on the underside of the upper wing.

Loop the line back and through the tube.

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

Using thin CA adhesive, secure the lines in the tube.

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

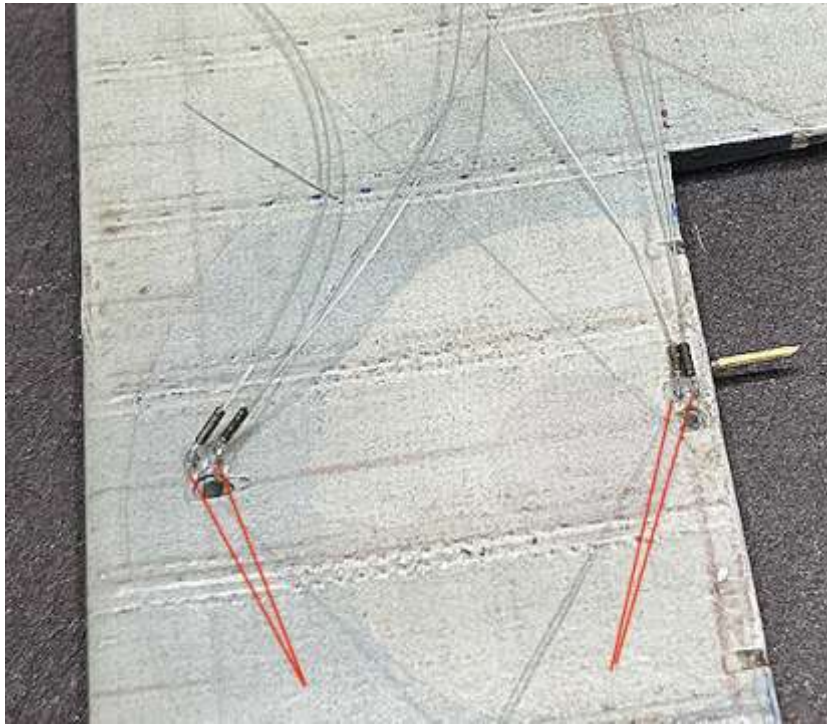
Repeat the procedure on the remaining three rear flying wire eyelets.

Front flying wires:

Repeat the procedure on the rear two of the front flying wires.

Cut a long length of 0.12 mm diameter line. The length of the line should be more than long enough to be routed from one wing eyelet, down and across the landing gear then up to the eyelet on the opposite wing.

Repeat the previous procedure on a front eyelet for the front flying wires, **but on one wing only**. The opposite wing eyelet will be rigged later in this build.



Incidence struts:

NOTE: *The pre-rigging for the interplane struts should be left loose and not tightened and secured until the struts are fitted between the wings. Make sure the correct struts are matched for the left and right side of the aircraft.*

Left side - front strut (A11) - rear strut (A16).

Left side - front strut (A1) - rear strut (A16).

Cut a long length of 0.12 mm diameter line.

Slide a blackened 0.5 mm diameter tube onto the line.

Pass one end of the line through a rigging ring at the top end cap of a right side strut.

Loop the line back and through the tube.

Slide the tube up to, **but not** touching, the rigging ring.

Using thin CA adhesive, secure the lines in the tube.

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

Repeat the procedure on the top end cap of the opposite strut.

Slide a blackened 0.5 mm diameter tube onto both lines.

Pass the two lines diagonally down and across to the bottom end cap of the opposite struts.

Pass the ends of the lines through the rigging rings at the bottom end caps of the struts.

NOTE: *The lines should be left loose at the bottom end caps of the struts to allow them to be tightened and secured once the struts are fitted.*

Loop the line back and through the tube.

Slide the tube up to, **but not** touching, the rigging ring.

Leave both lines slack.

Repeat the procedure on the two left side interplane struts.



Elevator control cables:

Cut a long length of 0.08 mm diameter line. The length of the line should be more than long enough to be routed from the elevator control lever (B8) to the elevator when fitted to the fuselage rear.

Slide a blackened 0.4 mm diameter tube onto the line.

Pass one end of the line through a pre-drilled hole in one end of the control lever.

Loop the line back and through the tube.

Slide the tube up to, **but not** touching, the control lever.

Using thin CA adhesive, secure the lines in the tube.

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

Repeat the procedure on the opposite end of the control lever.

Repeat the procedure on the other control lever.

NOTE: *Only two of the four elevator control horns require pre-rigging. The remaining two control horns will be rigged later in this build.*

Cut a long length of 0.08 mm diameter line.

Slide a blackened 0.4 mm diameter tube onto the line.

Pass one end of the line through the pre-drilled hole in the rear edge of an elevator control horn (D2).

Loop the line back and through the tube.

Slide the tube up to, **but not** touching, the control horn.

Using thin CA adhesive, secure the lines in the tube.

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

Repeat the procedure on a second elevator control horn.



Rudder control cables:

Cut a long length of 0.08 mm diameter line.

Slide a blackened 0.4 mm diameter tube onto the line.

Pass one end of the line through a pre-drilled hole in one end of the rudder control horn (A17).

Loop the line back and through the tube.

Slide the tube up to, **but not** touching, the control horn.

Using thin CA adhesive, secure the lines in the tube.
Cut away any residual end tag of line at the tube end.
Repeat the procedure on the adjacent pre-drilled hole in the control horn.
Repeat the procedure on the opposite end of the control horn.



Aileron control cables:

Lower aileron control horns (D27):

Cut a long length of 0.08 mm diameter line.
Slide a blackened 0.4 mm diameter tube onto the line.
Pass one end of the line through the pre-drilled hole in the top end of the aileron control horn.
Loop the line back and through the tube.
Slide the tube up to, **but not** touching, the control horn.
Using thin CA adhesive, secure the lines in the tube.
Cut away any residual end tag of line at the tube end.
Repeat the procedure to add a line to the pre-drilled hole in the rear edge of the control horn.
Repeat the procedure on the other control horn.



Upper aileron control horns (D24):

NOTE: *The rear edge of the control horns will be rigged later in this build.*

Cut a long length of 0.08 mm diameter line.

Slide a blackened 0.4 mm diameter tube onto the line.

Pass one end of the line through the pre-drilled hole in the top end of the aileron control horn.

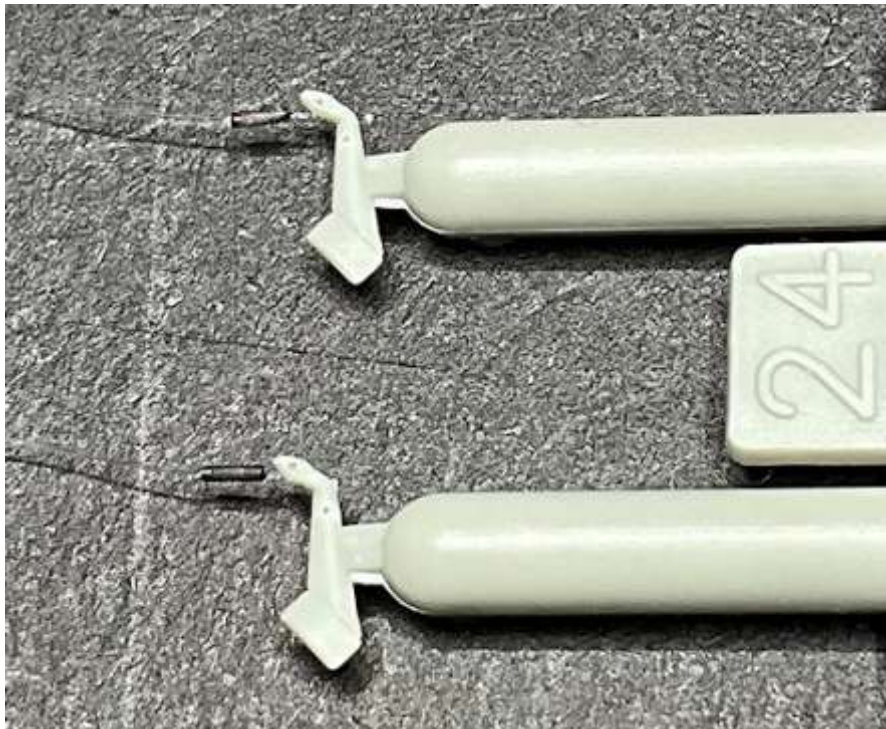
Loop the line back and through the tube.

Slide the tube up to, **but not** touching, the control horn.

Using thin CA adhesive, secure the lines in the tube.

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

Repeat the procedure on the other control horn.



Assembly (continued):

Remove the following pre-rigged control horns and levers from their mold gates:

- Elevator control levers (B8 x 2).

- Elevator control horns (D2 x 4).

- Rudder control horn (A17).

- Upper aileron control horns (D24 x 2).

- Lower aileron control horns (D27 x 2).

Scrape or sand away any residual gate tags from the edges of the parts.

Cement the lower aileron control horns into their locating recesses in the underside of the lower ailerons.

Cement the upper aileron control horns into their locating recesses in the top surface of the upper ailerons.

Cement the elevator control horns into their locating recesses in the top surface and underside of the elevator.

Cement the rudder control horn into its locating recess in the lower, leading edge of the rudder.

Painting (continued):

Carefully brush paint all of the fitted control horns and the elevator control levers with 'Tamiya' Rubber Black (XF85) 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.

Final rigging:

NOTE: *At this stage of the build, it's easier to final rig the landing gear without the upper wing and struts fitted. Rest the wings of the upturned fuselage and lower wings assembly on suitable packing, such as sponge or similar.*

Materials used are 'Albion Alloy's' 0.4 (MBT04) and 0.5 mm (MBT05) diameter Brass tube, 'Steelon' or 'Stroft GTM' fishing line (0.12 mm diameter) and 'Proper Plane' 3D printed turnbuckles (RD-005).

Horizontal bracing wire:

Cut a long length of 0.12 mm diameter line.

Slide a blackened 0.5 mm diameter tube onto the line.

Brush paint the centre barrel of the turnbuckle with 'Mr. Metal Color' Copper (215) or similar.

Pass one end of the line through an 'eye' end of a turnbuckle.

Loop the line back and through the tube.

Slide the tube up to, **but not touching**, the turnbuckle.

Using thin CA adhesive, secure the lines in the tube.

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

Repeat the procedure to the opposite end of the turnbuckle.

Pass the ends of the lines through the pre-drilled holes in the bottom, front of the landing gear struts.

Keeping both lines taut, position the turnbuckle at the centre of the axle fairing.

Using thin CA adhesive, secure both lines in the landing gear struts.

Cut away any residual ends of line at the outer edge of the struts.

Rear crossed bracing wires:

Cut a long length of 0.12 mm diameter line.

Using thin CA adhesive, secure one end of the line into one of the pre-drilled holes in the rear edge of the fuselage under shield.

Slide two blackened 0.4 mm diameter tubes onto the line.

Pass the end of the line diagonally down and through the pre-drilled hole in the opposite side of the axle fairing.

Keeping the line taut, use thin CA adhesive to secure the line in the axle fairing.

Cut away any residual end of line at the underside of the axle fairing.

Slide the tubes to the ends of the line and secure in place using thin CA adhesive.

Repeat the procedure to add the opposite crossed bracing wire.

Vertical bracing wire:

Cut a long length of 0.12 mm diameter line.

Using thin CA adhesive, secure one end of the line into the central pre-drilled hole in the rear of the fuselage under shield.

Slide a blackened 0.4 mm diameter tube onto the line.

Pass the end of the line vertically down and through the pre-drilled hole in the centre of the axle fairing.

Keeping the line taut, use thin CA adhesive to secure the line in the axle fairing.

Slide the tube to the under shield end of the line and secure in place using thin CA adhesive.

Cut away any residual end of line at the underside of the axle fairing.

Front crossed bracing wires:

Cut a long length of 0.12 mm diameter line.

Using thin CA adhesive, secure one end of the line into one of the outer pre-drilled holes in the rear of the fuselage under shield.

Slide two blackened 0.4 mm diameter tubes onto the line.

Pass the end of the line across and through the pre-drilled hole through the top of the landing gear front strut (not the two holes for the front flying wires).

Keeping the line taut, use thin CA adhesive to secure the line in the in the landing gear strut.

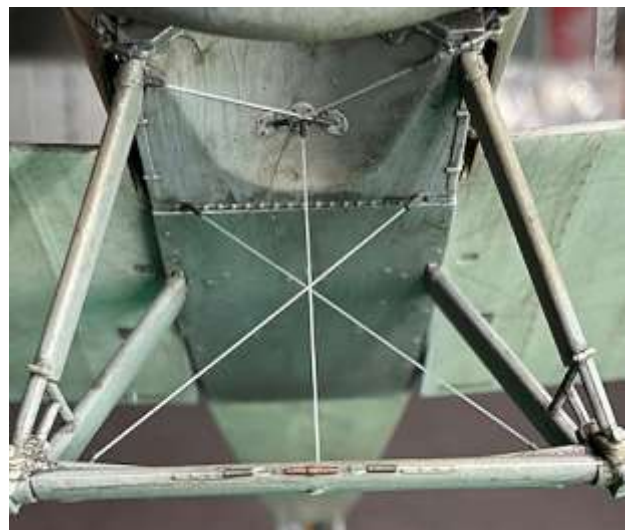
Slide the tubes to the ends of the line and secure in place using thin CA adhesive.

Cut away any residual end of line at the outside edge of the strut.

Repeat the procedure to add the opposite front crossed bracing wire.

Surface finish:

Lightly airbrush the applied rigging with a semi-gloss clear coat, such as 'Tamiya' Semi-Gloss (X35) or similar. This will fade the sheen of the mono-filament.



Assembly (continued):

NOTE: During this build I refer to the '**IM**', which is the '**Wingnut Wings**' instruction manual. Before assembling of parts, make sure all primer and paints are removed from their mating surfaces, holes and recesses. The tailplane, fin/rudder and ailerons will be fitted after the upper wing and wing rigging.

Use thin strips of masking tape to hold all rigging line away from the fuselage cabane and interplane strut locations.

Apply cement to the top end caps of the four fuselage cabane struts.

Fully locate the four fuselage cabane struts into their locating recesses in the centre, underside of the upper wing.

NOTE: During the following steps, make sure the pre-rigged pairs of interplane struts are fitted to the correct side of the aircraft and that the pre-rigged incidence wires are correctly and diagonally crossed.

Fully locate the right side interplane struts into their locating recesses in the underside of the upper wing and top surface of the lower wing.

Carefully apply cement around the top and bottom end caps of the struts.

Place an elastic band around the upper and lower wing to hold the wings in the struts whilst the adhesive sets.

Repeat the procedure to fit the interplane struts to the left side of the aircraft.



Final rigging (continued):

NOTE: The following rigging sequence will allow, as far as possible, the best access for final rigging the wings. Materials tubing used is blackened 'Albion Alloy's' 0.4 mm (MBT04) or 0.5 mm (MBT05) diameter Brass tube.

Cabane strut bracing wires:

Bottom front strut to top rear strut:

At the top of a rear cabane struts, loop the pre-rigged line back and through the nearest tube.

Keeping the line taut, slide the tube up to the top of the strut then secure in place using thin CA adhesive.

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

Using thin CA adhesive, secure the tube at the fuselage end of the line onto the line.

Repeat the procedure to the same cabane bracing line on the other side of the aircraft.

Crossed front bracing wires:

Apply slight tension to the ends of both front crossed lines below the wire guide.

Slide the two tubes on the side lines to the ends of the lines and secure in place using thin CA adhesive. Apply slight tension to both of the lines from the underside of the wire guide.

NOTE: *Suitable temporary packing can be positioned under the wire guide to lift it into position.*

With the lines taut, position the wire guide approximately 7 mm from the underside of the upper wing, making sure the wire guide is central between the front cabane struts.

Apply thin CA adhesive to secure the two upper lines into the wire guide.

Slide the two tubes on both lines to the top of the front strut and the wire guide and secure in place using thin CA adhesive.

Slide a 0.4 mm diameter tube onto both lower lines and up to the underside of the wire guide.

Secure the tubes in place using thin CA adhesive.

Pass the ends of the lower lines into their relative rigging hole in the decking panel.

NOTE: *During the following step, the lines can be held in the rigging holes using such as a toothpick or similar. Apply the adhesive, insert the toothpick then gently twist it as the adhesive starts to set then twist out to remove.*

Keeping the two lines taut, secure them into the rigging holes using thin CA adhesive.

Brush paint the wire guide with 'Tamiya' Hull Red (XF9) or similar.



Rear flying wires:

Pass the free ends of the rear pairs of flying wires diagonally down and through their pre-drilled holes in the lower wing roots.

Keeping the lines taut by tensioning the lines from under the lower wings.

Secure the lines in the lower wings using thin CA adhesive.

Cut away any residual end tags of line at the underside of the lower wings.



Front flying wires:

Rear wires:

Slide a 0.4 mm diameter tube onto both rear lines.

Pass the free ends of the lines through the rear, pre-drilled hole at the top of the landing gear front struts.

Do not tension or secure the two lines yet.

Front wires:

Slide a 0.4 mm diameter tube onto the long, pre-rigged front flying wire.

Pass the free end of the line through the front, pre-drilled hole at the top of the landing gear front strut.

Slide two 0.4 mm diameter tubes onto the line.

Pass the free end of the line through the front, pre-drilled hole at the top of the opposite landing gear front strut.

Slide a 0.4 mm then a 0.5 mm diameter tube onto the line.

Pass the end of the line through the previously fitted flying wire front 'eyelet' in the underside of the upper wing.

Loop the line back and through the tube.

Keeping the line taut, slide the tube up to, **but not touching**, the 'eyelet'.

Using thin CA adhesive, secure the lines in the tube.

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

Slide the remaining tubes up to the ends of their lines and secure in place using thin CA adhesive.



Landing wires:

NOTE: *The front landing wires should be passed behind the two front flying wires.*

Slide a 0.5 mm diameter tube onto a pre-rigged landing wire line.

Pass the end of the line diagonally down and through the previously fitted landing wire 'eyelet' in the top surface of the lower wing, inboard from the bottom of the interplane strut.

Loop the line back and through the tube.

Keeping the line taut, slide the tube up to, **but not touching**, the 'eyelet'.

Using thin CA adhesive, secure the lines in the tube.

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

Repeat the procedure to the remaining three landing wires.



Incidence wires:

NOTE: Each incidence wire between the interplane struts was previously pre-rigged with secured attachment at the top of the struts. The wires at the bottom of the struts were left loose. **Do not** pull on the lines too hard otherwise the rigging rings on the ends of the struts may break.

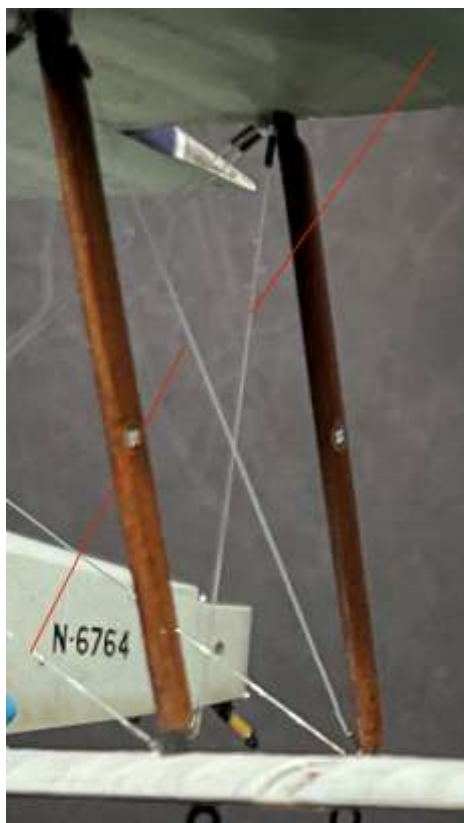
Pull gently on the free end of the line at the bottom of an interplane strut, enough to tension the line.

Keeping the line taut, slide the loose tube up to, **but not touching**, the rigging ring on the struts.

Secure the tube on the lines using thin CA adhesive.

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

Repeat the procedure to the remaining three incidence wires.



Assembly (continued):

Underside flying wires:

To represent the short flying wires between the underside of the lower wings and the landing gear rear struts, I cut short lengths of 0.2 mm diameter Nickel-Silver rod (NSR02) from 'Albion Alloys'. These were held in position using thin CA adhesive.



Ailerons:

Use thin CA adhesive applied to the added support rods for the ailerons and fully locate the four ailerons against the trailing edges of the upper and lower wings.

Final rigging (continued):

Aileron control cables:

Pass the free end of line, attached to the top of the aileron control horn, forwards to the pre-drilled locating hole in the wing.

Trim the length of the line so it can be fully inserted into the hole without any obvious slack in the line.

Insert the line into the hole and keeping the line taut, secure in place using thin CA adhesive.

Repeat the procedure to the remaining three aileron control horns.

Pass the free end of a pre-rigged line at the rear of an aileron control horn rearwards and through the pre-drilled holes in the aileron.

Pass the line vertically between the wings and through the pre-drilled hole in the aileron on the other wing.

Slide a 0.4 mm diameter tube onto the line.

Pass the line through the pre-drilled hole in the rear edge of the aileron control horn.

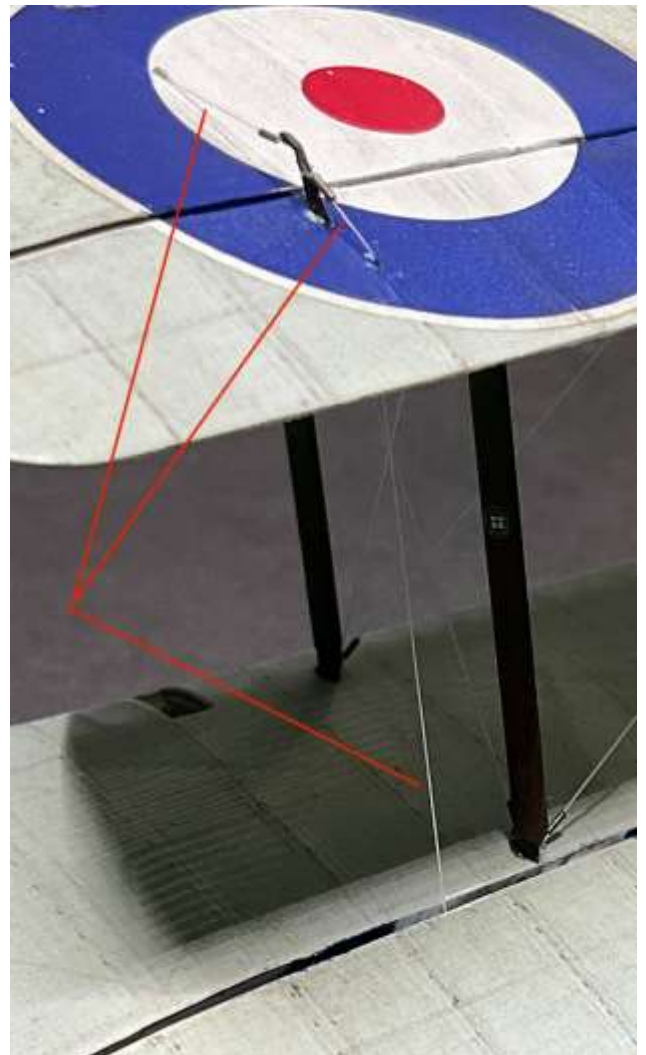
Loop the line back and through the tube.

Keeping the line taut, slide the tube up to, **but not touching**, the control horn.

Using thin CA adhesive, secure the lines in the tube.

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

Repeat the procedure on the opposite side ailerons.



Assembly (continued):

NOTE: Before any assembling any parts, make sure all primer and paints are removed from their mating surfaces, holes and recesses.

Tailplane:

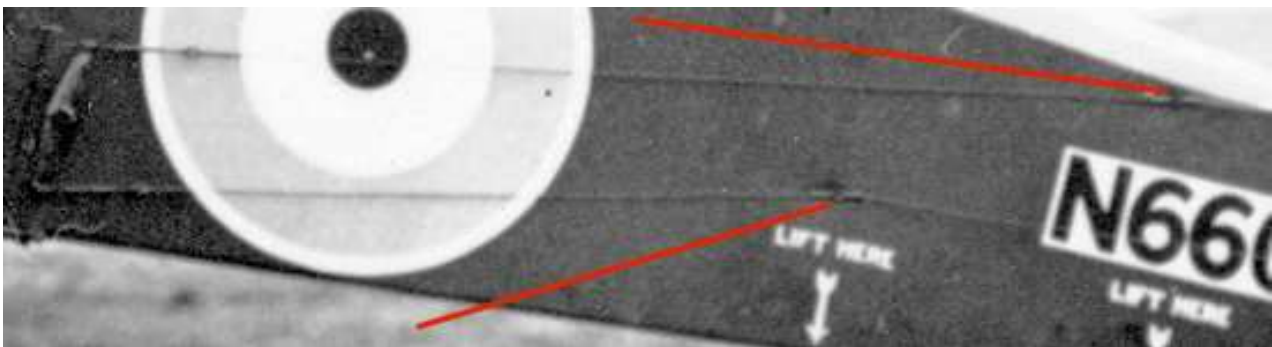
Cement the tailplane fully in and onto the opening in the top, rear of the fuselage, making sure the tailplane is horizontal when viewed from the rear.

Cement the two pre-rigged elevator control levers into their locating holes in the fuselage sides. The tops of the levers should be angled slightly forwards.

Final rigging (continued):

Elevator control cables:

NOTE: The elevator control cable were routed from the control levers rearwards through fairleads to the elevator control horns. 'Proper Plane' 3D printed turnbuckles (RD-005) are used at the elevator.



At the front end of the four, pre-molded fairleads on the fuselage sides, drill a hole of 0.3 mm diameter through the fuselage sides. The holes should be drilled as far as possible to align with the elevator control levers on the fuselage sides.

Pass the upper pre-rigged lines from the control levers rearwards and through the pre-drilled holes in the front end of the upper pre-molded fairleads on the fuselage sides. If the lines are long enough they may pass through the fuselage and exit at the tail skid opening.

Apply slight tension to the lines to draw them close to the fuselage then secure them at the fairleads using thin CA adhesive.

Cut away and residual line from within the fuselage.

Repeat the procedure to the two lower lines from the control levers, passing them through the pre-drilled holes in the front end of the lower pre-molded fairleads on the fuselage sides.

Pass the pre-rigged line from an elevator control horn rearwards and through the pre-drilled holes in the elevator.

Slide a 0.4 mm diameter tube onto the line.

Pass the line through the pre-drilled hole in the rear edge of the elevator control horn.

Loop the line back and through the tube.

Keeping the line taut, slide the tube up to, **but not touching**, the control horn.

Using thin CA adhesive, secure the lines in the tube.

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

Repeat the procedure on the opposite side of the elevator.

At the rear end of the four, pre-molded fairleads on the fuselage sides, drill a hole of 0.3 mm diameter through the fuselage sides. The holes should be drilled as far as possible to align with the elevator control horns on the elevator.

Cut a long length of 0.08 mm line.

Brush paint the centre barrel of a 'Proper Plane turnbuckle (RD-005) with 'Mr. Metal Color' Copper (215) or similar.

Slide a 0.4 mm diameter tube onto the line.

Pass the line through an 'eye' end of the turnbuckle.

Loop the line back and through the tube.

Keeping the line taut, slide the tube up to, **but not touching**, the turnbuckle.

Using thin CA adhesive, secure the lines in the tube.

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

Cut a short length of 0.08 mm diameter line and pass it through the pre-drilled hole in the top of an elevator control horn.

Slide the free 'eye' end of the turnbuckle onto the line and against the control horn.

Secure the turnbuckle to the line and control horn using thin CA adhesive, making sure the turnbuckle is angled towards its relative fairlead on the fuselage side.

Carefully cut away any residual line at the sides of the control horn.

Repeat the procedure on the three remaining elevator control horns.

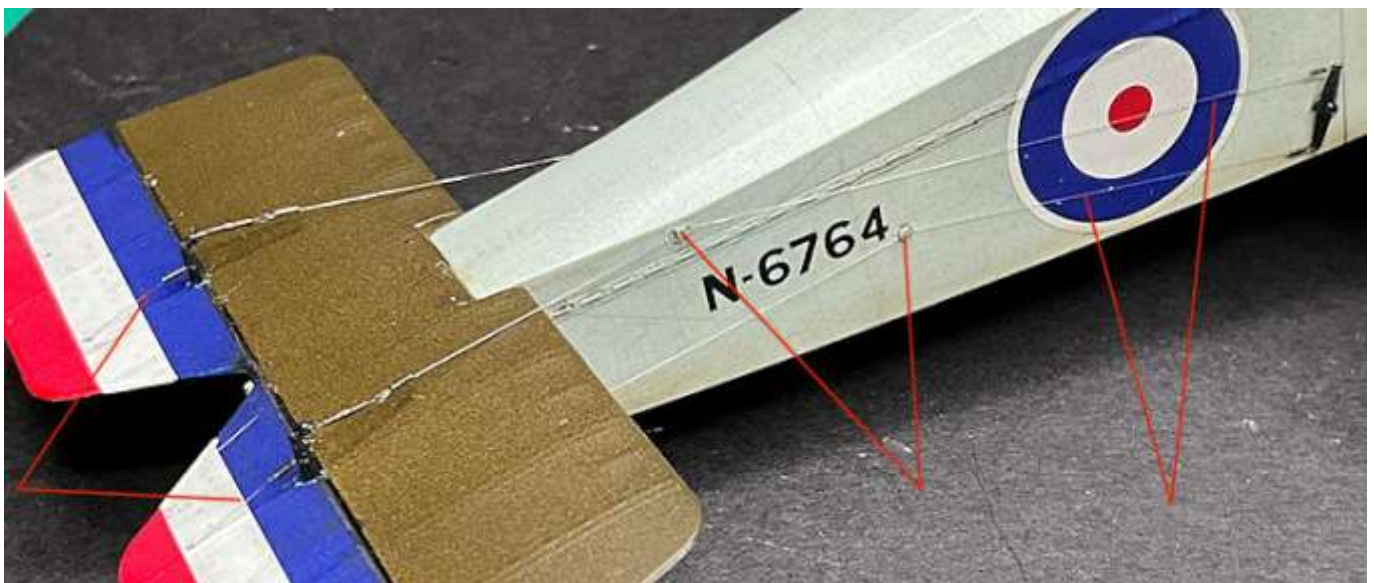
At the rear end of the four, pre-molded fairleads on the fuselage sides, drill a hole of 0.3 mm diameter through the fuselage sides. The holes should be drilled as far as possible to align with the elevator control horns.

Pass the upper pre-rigged lines from the control levers rearwards and through the pre-drilled holes in the rear end of the upper pre-molded fairleads on the fuselage sides.

Apply slight tension to the lines to draw them close to the fuselage then secure them at the fairleads using thin CA adhesive.

Pass the lower pre-rigged lines from the control levers rearwards and through the pre-drilled holes in the rear end of the lower pre-molded fairleads on the fuselage sides.

Apply slight tension to the lines to draw them close to the fuselage then secure them at the fairleads using thin CA adhesive.



Assembly (continued):

NOTE: *Before any assembling any parts, make sure all primer and paints are removed from their mating surfaces, holes and recesses.*

Fin/rudder:

Cement the fin/rudder onto the rear of the fuselage. The locating peg on the bottom, front of the fits into its locating hole in the tailplane. The locator on the bottom of the rudder locates into its slot in the rear of the fuselage.

Final rigging (continued):

Rudder control cables:

Pass the two rudder control cables through their openings in the rear sides of the fuselage.

Keeping the two lines separated and taut, secure them to the inside of the fuselage sides, through the tail skid opening, using thin CA adhesive.

Cut a long length of 0.08 mm diameter line.

Pass the line around the end of one side of the rudder control horn.

Slide a 0.4 mm diameter tube onto the line.

Loop the line back and through the tube.

Slide the tube up to, **but not touching**, the rear outer edge of the control horn.

Using thin CA adhesive, secure the lines in the tube.

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

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

Slide a 0.4 mm diameter tube onto the line.

Pass the line around the end of the other rudder control horn.

Loop the line back and through the tube.

Keeping the line taut, slide the tube up to, **but not touching**, the rear outer edge of the control horn.

Using thin CA adhesive, secure the lines in the tube.

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

Tail skid control cables:

Cut two lengths of 0.08 mm diameter line.

Pass the lines through the pre-drilled holes in the underside, rear of the fuselage.

Secure the lines in their locating holes using thin CA adhesive.

Slide a 0.4 mm diameter tube onto both lines.

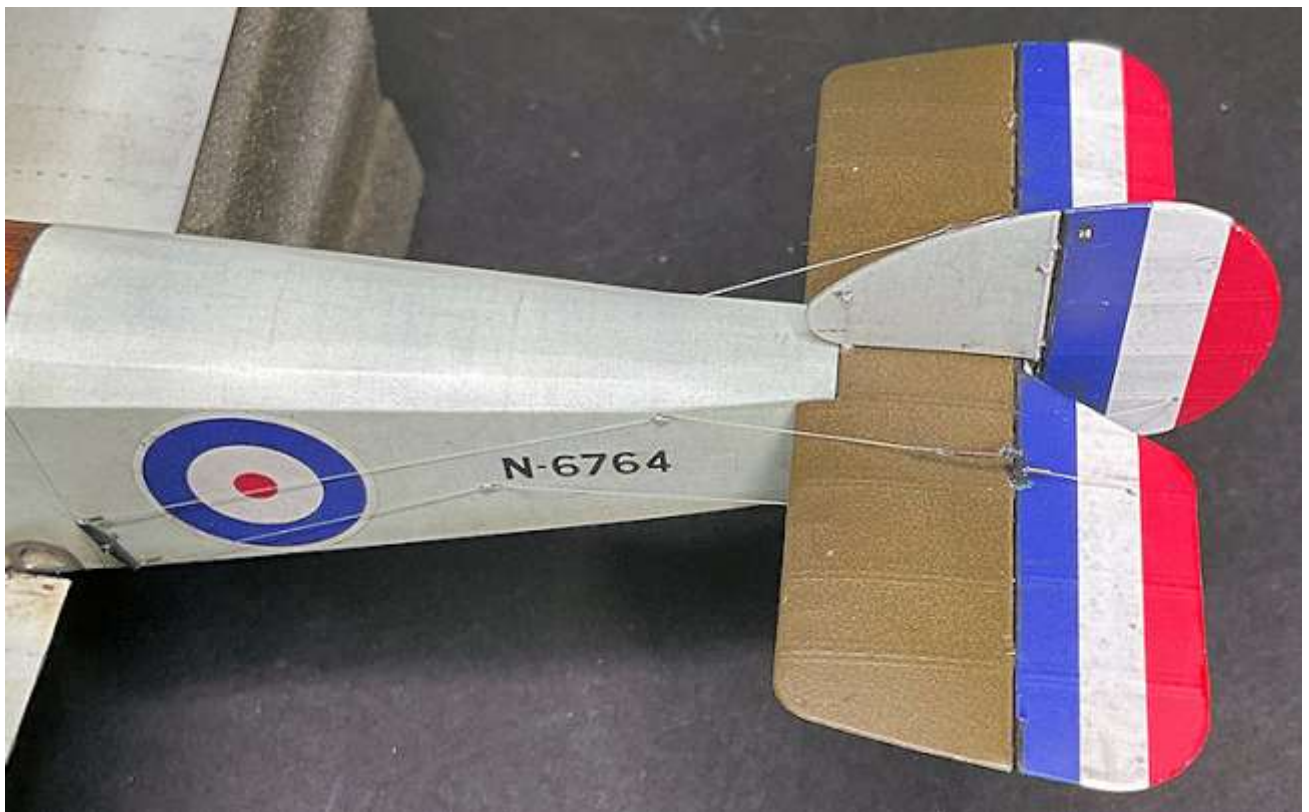
Pass the free ends of the lines through the pre-drilled holes in the tail skid control horn.

Keeping the lines taut, secure the lines in the control horn using thin CA adhesive.

Slide the tubes up to the control horn.

Using thin CA adhesive, secure the tubes on the lines.

Cut away any residual end tag of line at the control horn ends.



Fin bracing wires:

Front bracing wires:

Cut a very long length of 0.08 mm diameter line.

Insert one end of the line into one of the pre-drilled holes in the bottom rear of the fuselage at the tie down ring.

Secure the line in the hole using thin CA adhesive.

Slide two 0.4 mm diameter blackened tubes onto the line.

Pass the line diagonally up and through the forward pre-drilled hole in the tailplane.

Slide two 0.4 mm diameter blackened tubes onto the line.

Pass the line diagonally up and through the forward pre-drilled hole in the fin.

Slide two 0.4 mm diameter blackened tubes onto the line.

Pass the line diagonally down and through the forward pre-drilled hole in the tailplane.

Slide two 0.4 mm diameter blackened tubes onto the line.

Pass the line diagonally down and through the pre-drilled holes in the bottom rear of the fuselage at the tie down ring.

Keeping the line taut, secure the line in the hole using thin CA adhesive.

Cut away any residual end tag of line from within the tail skid opening in the fuselage.

Slide each tube to the ends of it line and secure on the line using thin CA adhesive.

Rear bracing wires:

Cut a very long length of 0.08 mm diameter line.

Slide a 0.5 mm diameter tube onto the line.

Pass the line through one of the pre-drilled holes in the rigging lugs at the bottom rear of the fuselage.

Loop the line back and through the tube.

Slide the tube up to, **but not touching**, the rigging lug.

Using thin CA adhesive, secure the lines in the tube.

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

Repeat the previous procedure to add tubes and route the line through the tailplane and fin to the opposite rigging lug.

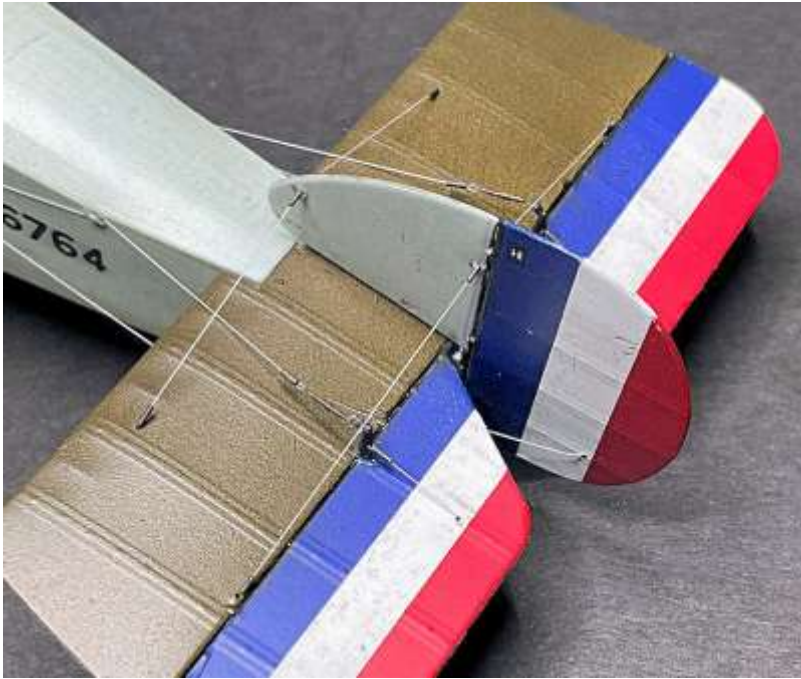
Pass the line through the pre-drilled hole in the rigging lug.

Loop the line back and through the tube.

Keeping the line taut, slide the tube up to, **but not touching**, the rigging lug.

Using thin CA adhesive, secure the lines in the tube.

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



Rigging surface finish:

Lightly airbrush the applied between wings rigging and all added control cables with a semi-gloss clear coat, such as 'Tamiya' Semi-Gloss (X35) or similar. This will fade the sheen of the mono-filament.

Assembly (continued):

NOTE: Before any assembling any parts, make sure all primer and paints are removed from their mating surfaces, holes and recesses.

Wheels:

Slide the wheels onto the ends of the axle.

Fully insert the wheel retainers (D13) over the recesses in the axle ends.

NOTE: The following step is only necessary if the wheels are to be fixed onto the axle.

Cement the wheels and retainers onto the axle ends, making sure the wheels are angled correctly on the axle. That is with the wheels angled out at the bottom.

Cement the outer wheel covers onto the wheels, with the cut-out on the covers over the molded spokes and inflation valve.

Fuselage joint turnbuckles:

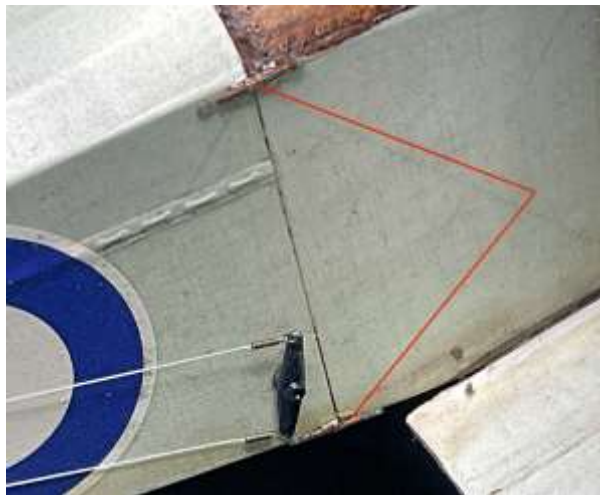
NOTE: *The pre-molded joint fasteners were removed earlier in the build. These fasteners have been referred to as 'bolts'. However, the photograph of a museum aircraft shows what appears to be turnbuckles, which is how I have chosen to represent them on this model.*



Carefully sand a slight flat one side of four 'Proper Plane' turnbuckles (RD-005).

Brush paint the centre barrels of turnbuckles with 'Mr. Metal Color' Copper (215) or similar.

Secure each turnbuckle onto the corner edges of the fuselage at the front to rear section joint.



Lewis machine gun and operating cables:

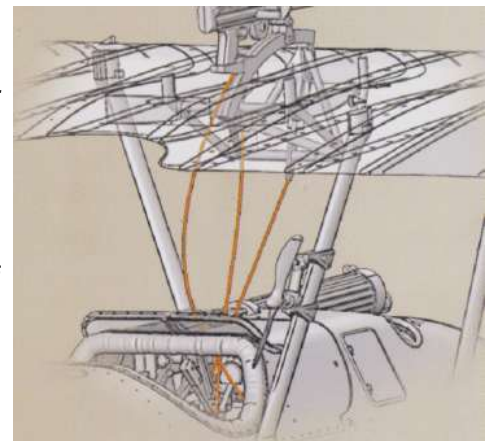
NOTE: *The Lewis machine gun had three operating cables attached.*

Cut three long lengths of 0.3 mm diameter lead wire from 'PlusModel' or similar.

Gun latch cable (locking the gun back on the mounting):

Using thin CA adhesive, secure one end of a wire to the rear edge of the bottom extension at the centre, front of the gun mounting.

Pass the wire rearwards and through the opening in the decking panel at the rear of the Vickers machine gun.



Trim the length of the wire to locate on the operating lever of the gun mounting.

Secure the end of the wire to the lever using thin CA adhesive.

Lewis machine gun:

Drill a hole of 0.4 mm diameter across the extension on the bottom, rear of the Lewis machine gun.

Drill a hole of 0.4 mm diameter up through the Lewis machine gun rail, just forward from the hand grip.

Using thin CA adhesive, secure the end of a wire into the pre-drilled hole in the extension on the bottom, rear of the Lewis machine gun.

Pass a wire up through the pre-drilled hole at the hand grip and secure the wire to the front edge of the hand grip, using thin CA adhesive.

NOTE: *During the following step, pass the remaining two wires rearwards and through the opening in the decking panel at the rear of the Vickers machine gun.*

Cement the Lewis machine gun onto its front locating shoulder and also onto the centre of the rear cross bar of the gun mounting.

Gun release cable (lowering the gun for loading):

Pass the wire from the extension on the bottom, rear of the Lewis machine gun, rearwards and through the opening in the decking panel at the rear of the Vickers machine gun.

Trim the length of the wire to locate on the right side of the operating lever of the gun mounting.

Secure the end of the wire to the lever using thin CA adhesive.

Gun trigger cable:

Pass the wire from the hand grip of the Lewis machine gun, rearwards and through the opening in the decking panel at the rear of the Vickers machine gun.

Trim the length of the wire to locate down to the front of the control column at the gun triggers.

Secure the end of the wire to the edge of the opening in the decking panel, using thin CA adhesive.



Inspection windows:

Brush paint the framing around the edges of the five inspection windows, using 'Mr. Metal Color' stainless Steel (213) or similar.

Test fit each window into its location and if necessary, carefully file or scrape the edges to make sure the windows do not stand proud of the wing surfaces.

Fully insert each window into its location and secure in place using a small amount of cement.



Windscreen:

Apply a small amount of a PVA (white glue) adhesive, such as 'MicroScale' Micro Krystal Clear or similar, to the two locating pegs on the bottom edge of the windscreen.

Fully locate the windscreen into its locating holes in the decking panel, just in front of the cockpit opening.



'Rotherham' fuel pump propeller:

Cement the propeller onto its locating stub on the 'Rotherham' fuel pump.



Propeller:

Using CA adhesive, secure the propeller, in the desired orientation, onto the engine propeller shaft.



PART 15

FIGURE

PART 15 - FIGURE

The figure I chose for this model is the 'Elan13 Miniatures' RNAS Pilot (EL36). This figure is supplied as a complete body with separate head.

NOTE: Refer to Part 7 (Resin) of this build log.

Preparation:

Sand or scrape away any mold seams and resin flash from the figure or head.

File or sand away residual mold resin from the undersides of the boots.

Drill a hole of 0.8 mm diameter centrally up into one of the legs.

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

Secure the rod fully into the pre-drilled hole in the leg of the figure, using thin CA adhesive.

Using thin CA adhesive, secure the head into the body.

NOTE: The inside of the coat tails on the figure are cast solid. The following steps are only necessary if you want to open up the coat tails to make them hollowed out.

Using drills of different sizes, drill out the resin from inside the coat tails, making sure the drill is close to the coat edges and does not break through the sides of the coat.

Use straight and curved scalpel blades, cut/scrape away the residual resin inside the coat tails to smooth the surface and thin the edges.

Painting:

NOTE: The figure was painted using 'AK Interactive' and 'Tamiya' acrylic paints. Thin the 'AK' paints with their acrylic thinners (AK712).

Airbrush the figure with a grey primer, such as 'AK Interactive' Grey (AK-758) or similar.



Leg gaiters/shoes/tie - 'Tamiya' Rubber Black (XF85) or similar.

Jacket/Trousers - 'Tamiya' Flat Blue (XF8) mixed with Rubber Black (XF85) to approximately 60/40 %.

Flight coat - 'AK Interactive' British Uniform (AK3081) with Sand/Desert Uniform Base (AK3111) highlights.

Cap - 'AK Interactive' Faded White (AK3029), 'Tamiya' Rubber Black (XF85) and 'Mr. Metal Color' Brass (219) or similar.

Scarf ends - 'Tamiya' Olive Green (XF58) or your colour of choice.

Shirt - 'AK Interactive' Faded White (AK3029) or similar.

Buttons - 'Mr. Metal Color' Stainless Steel (213) or similar.

Rank badges - 'Mr. Metal Color' Brass (219) or similar.

Hair - 'Tamiya' Desert Yellow (XF59) or your colour of choice.

Lace studs on gaiters - Light rub with a pencil lead to give a metallic sheen.

Flesh:

NOTE: *The 'Citadel' paints used are water based and can be thinned as required using water, which is also used to clean the brushes. It's easier to use a 'wet palette' when applying these paints as this keeps the paint from drying and allows mixing of paints as required. A basic wet palette can be a water proof plastic lid with dampened kitchen roll paper laid inside. The paints are then dripped onto the damp paper and applied from there.*

'Citadel Colour' Cadian Flesh Tone with Kislev Flesh highlights.

Weathering:

Brush the flight coat, leg gaiters/shoes and peak of the cap with a semi-matte clear coat, such as 'Tamiya' Semi-Gloss (X35) or similar.

Lightly sponge 'Tamiya' Weathering Master Set A (Mud) over the shoes.

Lightly sponge 'Tamiya' Weathering Master Set D (Oil Stain) over the elbows of the flight coat.



PART 16

DISPLAY BASE

PART 16 - DISPLAY BASE

The display case is made from piano black and clear acrylic sheet of 3mm thicknesses. 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.inperspective.com

The representation of a wooden platform is made from 'Hobbies Ltd' white Maple planking bundle (WMP055).

The information plaque was engraved by 'TLS Engraving Ltd'.

Wooden platform:

NOTE: The 'Hobbies Ltd' white Maple planking bundle (WMP055) comprises five 1 meter long strips, 6 mm wide.

Eighteen strips of 205 mm length were cut from the supplied bundle.

Two straight steel rules were taped onto the cutting mat, using the vertical lines as guides. The distance between the rules was 205 mm.

Five off-cuts from the bundle strips were vertically taped and equally spaced between the two rules.

Several cut strips were passed under the vertical strips and pushed together.

The strips were then aligned to a horizontal line on the cutting mat with one end of the strips protruding from the outside of an end vertical strip.

PVA (wood glue) adhesive was brushed onto the horizontal strips at the protruding end side of the vertical strips.

The strips were then pushed under the vertical strips with a straight edge, to make sure the strip ends were aligned to the outside vertical strips.

Making sure the horizontal strips were pushed together, suitable weights were placed on the glued vertical strips to ensure the vertical and horizontal strips were in full contact for bonding together.



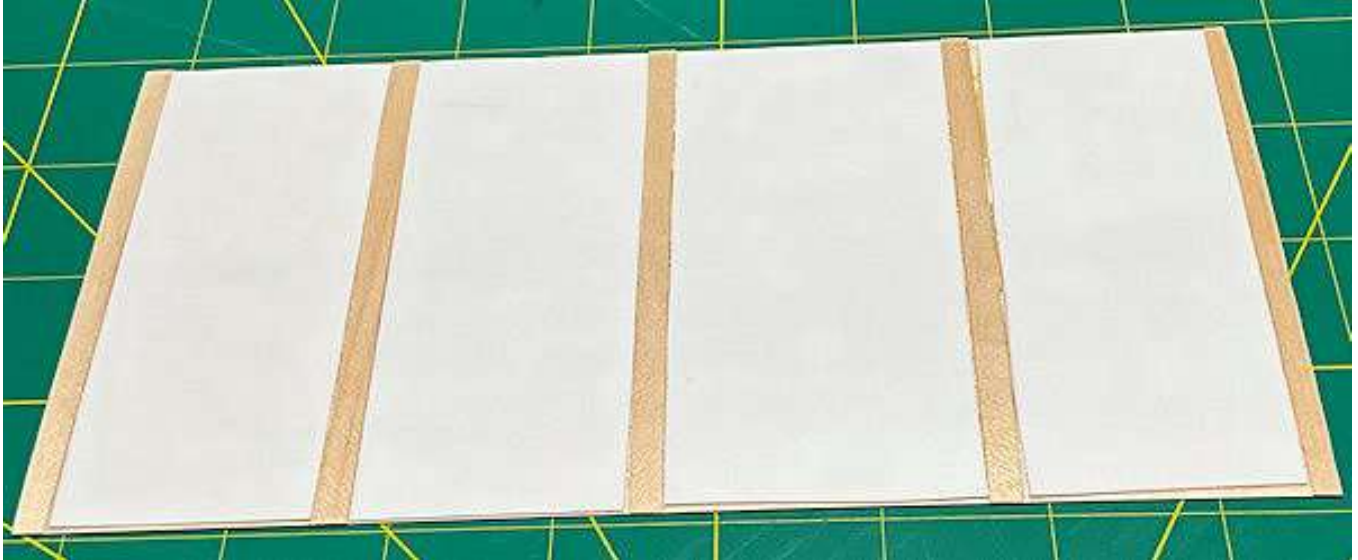
Once the adhesive had fully set, the weights were removed.

The procedure was then repeated, securing several horizontal strips in position at a time, until all eighteen were secured to the vertical strips.

NOTE: As the vertical strips on the underside of the platform are spaced along its length, the horizontal strips in between will flex slightly. Therefore, the underside of the platform was reinforced. The strips of Maple are 0.5 mm thick.

Cut four rectangles of 0.5 mm thick plastic card to fit between the vertical strips on the underside of the platform.

Secure the plastic cards in between the vertical strips using a contact adhesive, such as 'Evo-stik' contact adhesive or similar.



To represent the dark wood effect, brush 'Windsor & Newton' Griffin Alkyd oil paint Burnt Sienna along the upper side of the platform, brushing hard to blend the oil paint into the wood.



The platform was positioned with the model on the display base, making sure they were both clear of the transparent cover when located. The model was removed and the location of the platform lightly marked on the display base. A contact adhesive, such as 'Evo-stik' contact adhesive, was applied along the vertical strips and plastic card inserts on the underside of the platform and onto the contact area on the display base. Once the adhesive was tacky to the touch, the platform was carefully positioned on the display base with weight applied (e.g. books) on top to hold the platform onto the display base until the adhesive has fully set.

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 any shock loading when being moved around, as it might be if fixed on the display.

Figure:

With the model positioned on the wooden platform, the figure was positioned in its final position and the location of the rod in the leg marked on the platform. A hole of 1.0 mm was drilled through the platform and into (not through) the acrylic base. PVA or thin CA adhesive was then applied to the rod of the figure, which was then carefully seated into the drilled hole. Light pressure was applied to the figure to ensure it was fully located into the base.

Information plaque:

The acrylic stand for the information plaque was scuffed with sand paper on its bottom surface. It was then positioned in the left corner of the display base and its outline lightly scored with a pointed scribe. The area inside the scribed outline was scuffed with sand paper. A two-part epoxy adhesive, such as 'Araldite' 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 17
COMPLETED
MODEL
PHOTOGRAPHS

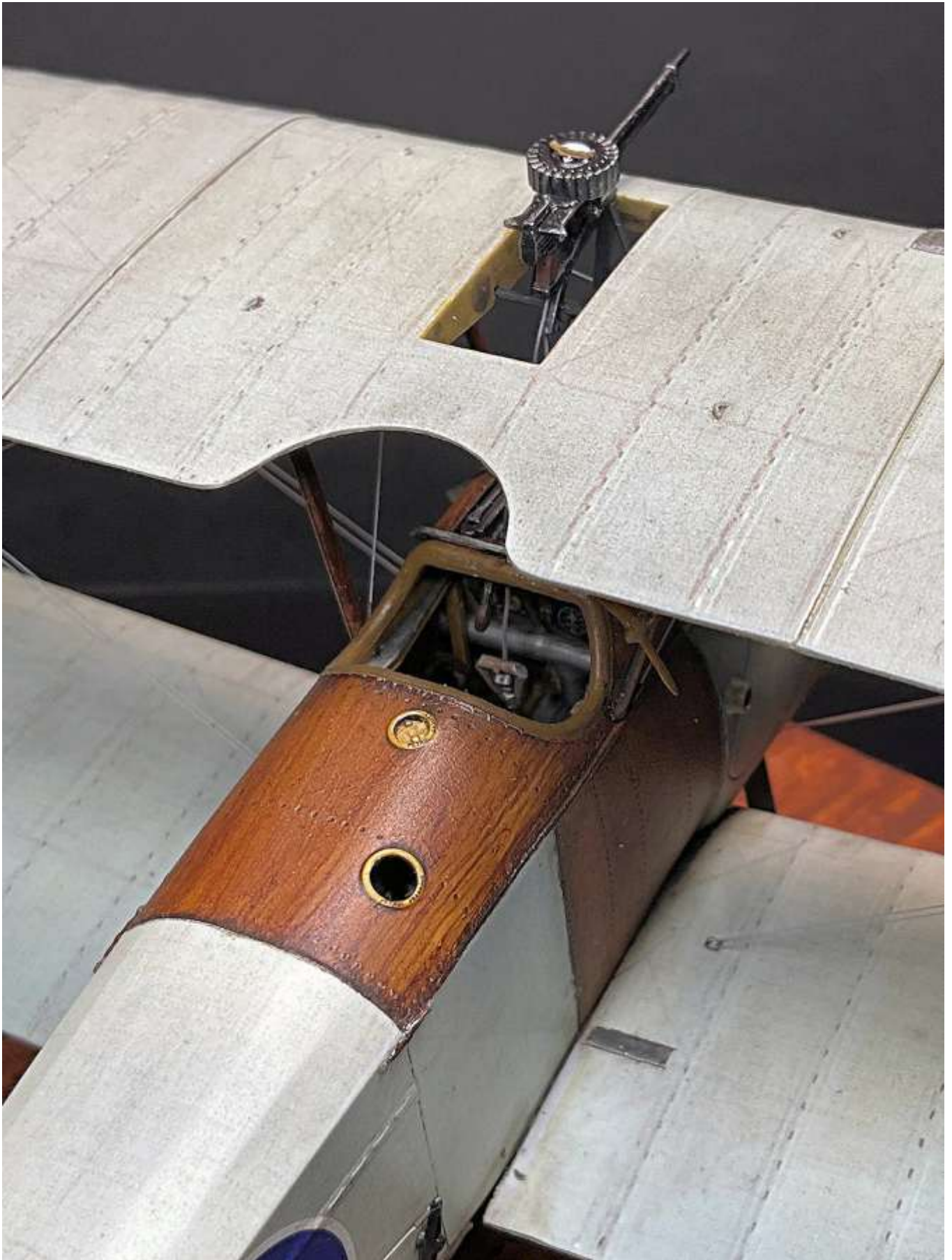












END