



World War One Aircraft Models

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

I started modeling again a few years ago and now enjoy the challenge of building aircraft of World War One. Since posting photographs of my completed models online, various modelers have asked if I would create 'build logs' for my future builds, which is what I now do for each build.

I don't consider myself a 'master' of this craft, but hope to be able to pass on what I have learned. As such, here is my twenty eight build log, which covers the 1:32 scale model of the Sopwith 'Comic' night fighter, based on a 'Wingnut Wings' kit.

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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.

Sorted



AFTER MARKET

AFTER MARKET

Figures

'Black Dog' Fighter Pilot 1914-18 No.1 (32001),
'Black Dog' RFC mechanic No.2 (32020).

Decals

'Aviatic' Linen Weave effect (ATT32236),
'Artool' Ultra Mask,
'DACO Products' setting solution (Strong, Medium or Light) (as required),
'MicroScale' MicroSol/MicroSet (as required), 'MDP' white decal paper (MDPWHTIWDP).

Propeller

'Proper Plane' laminated wood 'Lang' propeller (WP-005).

Weapons

'GasPatch' 1/32scale Lewis Mk.II machine guns (13-32056).

Resin parts

'Barracuda Cast' Camel seat and cushion (BR32332).

Rigging accessories (as required)

'GasPatch Elite Accessories' resin turnbuckles 1/48 scale (Type C),
'GasPatch Elite Accessories' metal Anchor Points 1/48 scale (Type C),
'Albion Alloy's' Micro-tube Brass or Nickel Silver tube (0.4 and 0.5 mm diameter).
'Steelon' mono-filament (fishing line) of 0.08 and 0.12 mm diameter.

Sundries (as required)

'Araldite' two part epoxy adhesive, Paints ('Tamiya' Acrylic, Humbrol Acrylic,
'Mr. Metal Colour', 'AK Interactive' Primer and micro-filler (Grey AK758, White AK759),
'AK Interactive' Filters (Wood AK-261) and figure paints, Kerosene AK-2039, Oil AK-2019
and Wash AK-2033), 'Alclad II' Lacquers, 'Alclad' Aqua Gloss 600, 'Mr. Colour' Levelling
Thinners, 'Vallejo' Model Colour, PVA Adhesive, 'MicroScale' Kristal Klear,
'VMS Fleky' CA adhesive (Standard and Thin) and Metal Prep 4K, 'Mr. Colour' Metal Primer R ,
'Bostik' Blue or UHU White Tack, 'AV' Masilla Plastica (401) putty, 'White Spirits',
'De-Lux Materials' Perfect Plastic Putty, Sanding and/or Polishing sticks from 'Flory Models',
'Humbrol' Maskol, 'Milliput' two part putty', 'Green Stuff' two part putty, 'UHU' White Tack,
'Vallejo' Still Water (26.230), 'Mr. Surfacer 500, 1000,1200', 'DecoArt Crafters Acrylic' (water
based) paints, 'Artool' Ultra Mask sheets, 'Plastruct' styrene rod, 'Mr. Surfacer' primer and filler
500 to 1200, 'Hataka' lacquer paints, 'Tamiya' liquid cement, 'PlusModel' lead wire,
'ANYZ' 0.8 mm Black braided line (AN015), 'Plastic Magic' liquid cement, 'Prismacolor' Verithin
Argent Metallique 753, 'Blacken-It' solution, 'Bare-Metal' Matte Aluminium foil,
'MFH' black 0.4 mm flexible tube (P-961), 'EZ' stretch line (fine or heavy black),
'Xtradecal' White letter/numerals (72158), 'Revell' Contacta Professional cement (39604),
'Citadel' paints range, 'MRP' paints, 'Krylon Industrial' Crystal Clear Acryli-Quik.

Weathering mediums (as required)

'Flory' Clay washes, Flory Pigments, AK Interactive engine washes,
'Tamiya' Weathering Master (Set C, D and E), 'Derwent' Inktense 24 ink pencils.

Display Base

Etched Plaque (name plate),
'Inperspective' custom made Acrylic base and cover,
'Polak' Wild Meadow (Variation C - 4703).

BACKGROUND

HOME DEFENCE UNITS

HOME DEFENCE UNITS

References:

- 'Wingnut Wings' instructions data.
- 'Windsock' International Vol 4 No.2 (1988).
- 'Wikipedia - online resource.

Home Defence (HD):

When the raids of the German Zeppelins and strategic bombers against the British Isles began, this new military tactic did not pose any great threat from the point of view of financial or human losses, but they had an enormous psychological impact. Britain could never have felt absolutely safe, despite being apart from continental Europe, but the press highlighted every new raid by the German aircraft as examples of the helplessness of the government to protect the civilian population. Great Britain was the first country in the world to comprehensively make a review of the use of aviation in the defence of its own territory. As a result it created its own anti-aircraft force, the 'Home Defence'.

At first, out-of-date aircraft were passed to newly formed Home Defence units, machines which by now could not compete with the latest enemy fighters. These also included unsuccessful types, built in small numbers, and sometimes even prototypes or pre-production machines. Gradually, in the course of testing new tactics, it became obvious that Home Defence needed its own specialized aircraft.

The first attempts were two-seat multi-purpose Sopwith 1 1/2 Strutters, converted into a single-seat interceptors, which pilot's of No.78 Squadron (HD) gave the ironic nickname of the 'Comic' fighter, due to its helplessness in air combat and weak flying performance. However, the appearance of one of the best fighters of that period, the Sopwith F.1 Camel and its employment in Home Defence tasks, encouraged aircraft designers to modify it as a specific HD interceptor. The type received its semi-official name of Sopwith 'Comic', possibly due to the similarity with the previous Sopwith Strutter design. In total, 100 to 150 aircraft were produced and from different companies and all served with the various HD units.

These aircraft did not achieve any famous victories and were quickly forgotten, being overshadowed by their more famous relative, the Sopwith F.1 Camel. However, the Sopwith 'Comic' did achieve some successes and initiated the concept of air defence, becoming a basis for the development of more modern types in the future for Home Defence purposes.

Organisation:

The Royal Flying Corps (RFC) officially took over the role of Home Defence in December 1915 and at that time had 10 permanent airfields.

At the date of formation of the RAF, Home Defence Squadrons were:

- No.33 (FE2) at Gainsborough
- No.36 (Bristol F2b) at Seaton Carew
- No.37 (BE12, FE2, Strutter) at Woodham Mortimer
- No.39 (Bristol F2b) at Woodford
- No.44 (Camel) at Hainault Farm
- No.50 (Camel) at Bekesbourne
- No.51 (Avro 504) at Marham
- No.61 (SE5a) at Rochford
- No.75 (BE12) at Elmswell
- No. 76 (Bristol F2b) at Ripon
- No.77 (Avro 504) at Penston
- No.78 (Strutter) at Sutton's Farm

No.141 (Bristol F2b) at Biggin Hill

No. 143 (Camel) at Detling

By December 1916 there were 11 RFC HD Squadrons, which were:

No.33 (FE2) at Gainsborough

No.36 (BE2, BE12, FE2) at Seaton Carew,

No.37 (BE12, FE2) at Woodham Mortimer

No.39 (BE2) at Woodford

No.43 (Sopwith Strutter) at Northolt

No.50 (BE2, BE12) at Harrietsham

No.51 (BE2, BE12) at Hingham

No.75 (Avro 504NF) at Goldington

No.76 (BE2, BE12) at Ripon

No.77 (BE2, BE12) at Turnhouse

No.78 (BE2, BE12) at Hove

At the Armistice, the active HD Squadrons were:

No.39 (Bristol F2b) at North Weald Bassett

No.44 (Camel) at Hainault Farm

No.78 (Camel) at Sutton's Farm

No.141 (Bristol F2b) at Biggin Hill

No.37 (Camel) at Stow Maries

No.61 (Camel) at Rochford

No.75 (Avro 504) at Elmswell

No.50 (Camel) at Bekesbourne

No.112 (Camel) at Throwley

No.143 (Camel) at Detling

No.33 (Avro 504) at Kirton-in-Lindsay

No.36 (Bristol F2b) at Usworth

No.50 (Camel) at Bekesbourne

No.77 (Avro 504) at Penston (training Squadron only).

THE AIRCRAFT

THE AIRCRAFT

The 'Comic' design:

The design of the 'Comic' version of the Sopwith Camel involved replacing the standard twin Vickers machine guns on the fuselage to Lewis machine guns, located on the upper wing. This was due to muzzle flash from the fuselage guns temporarily blinding the pilot when night flying and the risks involved in firing incendiary bullets. Lewis machine guns mounted over the upper wing negated this. Therefore, the forward fuselage Vickers machine guns and their famous 'hump' were removed. The forward decking 'hump' was eliminated and a lowered and rounded decking was extended from the cowling to the new cockpit position. The new armament consisted of a pair of Lewis machine guns, which were fitted above the centre section of the upper wing and on 'Foster' type mounting. This enabled the machine guns to be lowered for re-loading and removed the chances of muzzle flash affecting the pilot's sight. Some 'Comics' had one of the Lewis guns, usually the starboard one, fixed to fire upward at 45 degrees. Due to the location of the Lewis machine guns, the cockpit had to be moved rearwards by one bay, to allow the pilot to reach the weapons. This modification required that the main pressure and gravity fuel tanks, which were behind the original cockpit, being removed and replaced by a smaller capacity fuel tank of 18 gallons. The upper wing also had a larger centre section opening. This was the type fitted to the BE2e aircraft was fitted forward from the cockpit. This tank held less fuel than the original standard fuel tank of 37 gallons and was located forward from the re-positioned cockpit. The internal forward area of the fuselage, to the rear of the fuselage firewall, had the engine oil tank, then the main fuel tank and a smaller auxiliary tank, all located behind the instrument panel. The conversion improved the aircraft's performance and the VI Brigade regarded it as the best of its night fighters.

Specifications:

Engine - Clerget 9 cylinder 130 hp (97kW) air cooled rotary

Maximum speed - 117mph (188km/h)

Endurance - 2hr 30min

Service ceiling - 19,000ft (5,790m)

Wing span - 28ft (8.53m)

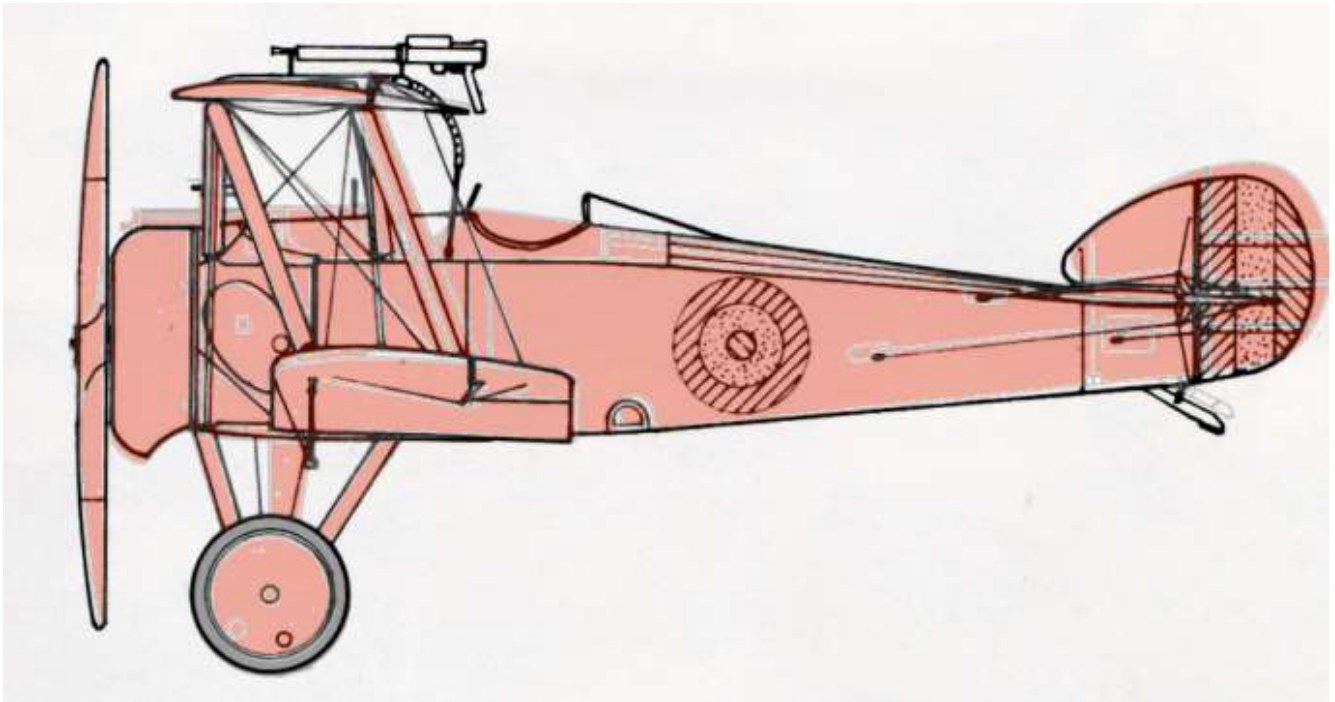
Length - 19ft (5.72m)

Height - 9ft (2.6m)

Weight - 1,450lb (659kg) maximum take-off

Armament - two 0.303in (7.7mm) Lewis machine guns.

Side view - differences between the 'Camel' and the 'Comic'



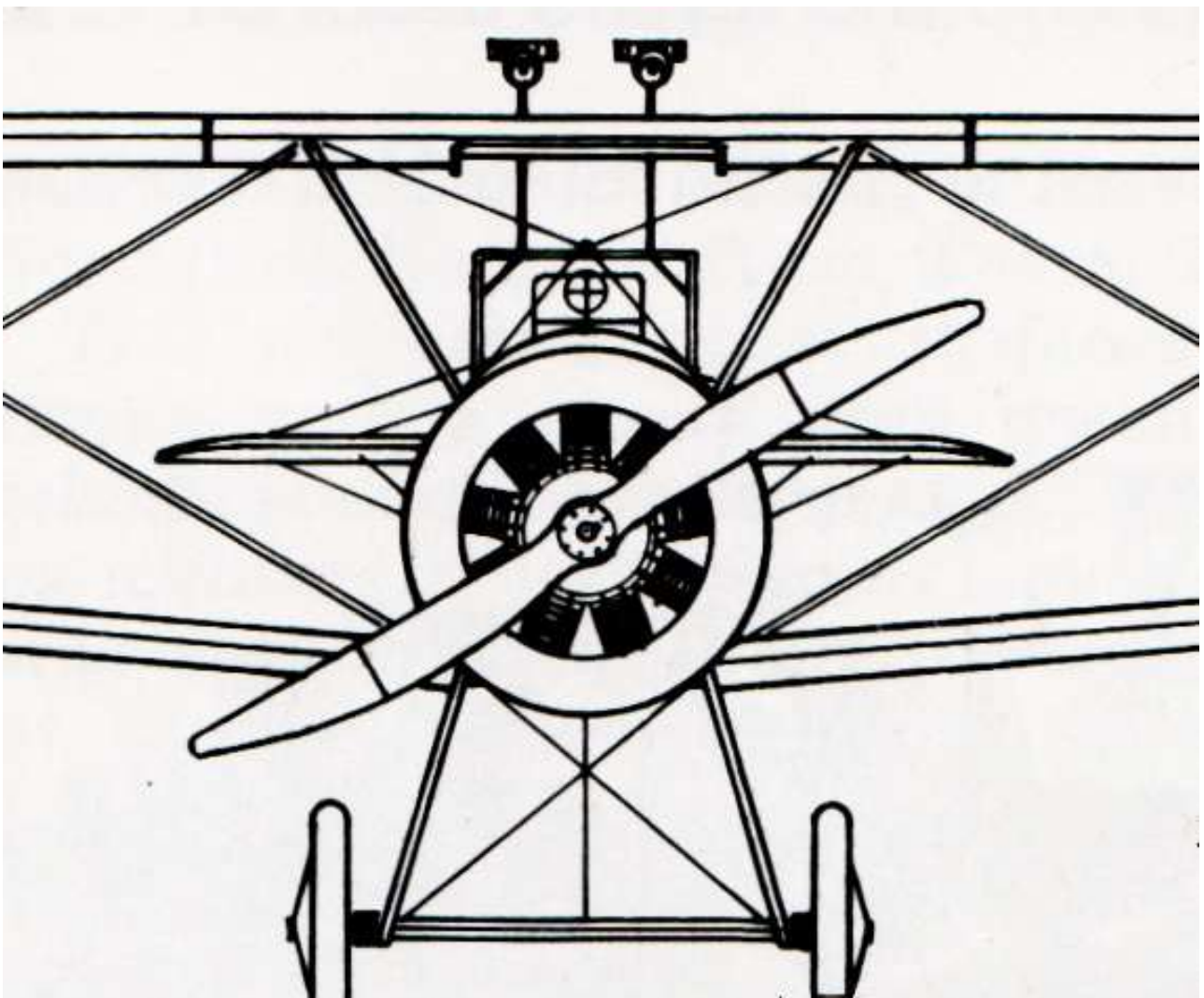
Sopwith 'Comic' night fighter



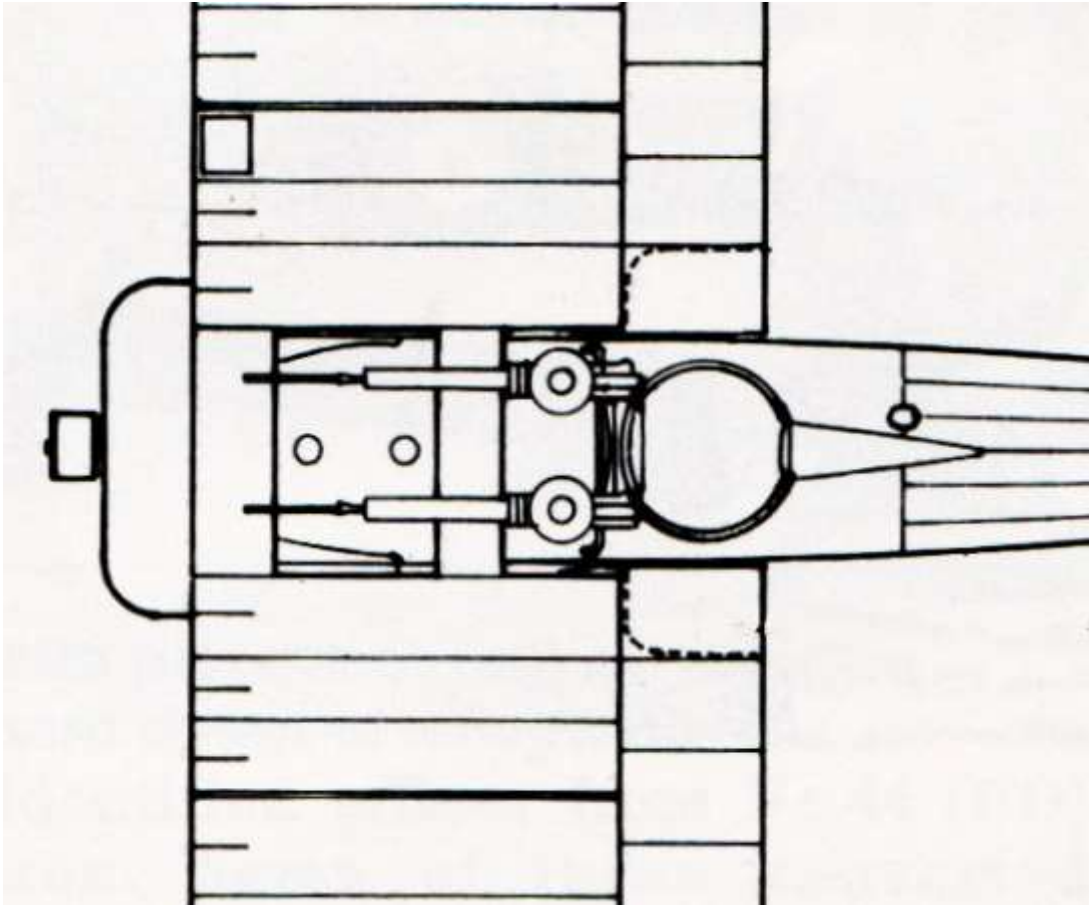
Sopwith 'Camel'



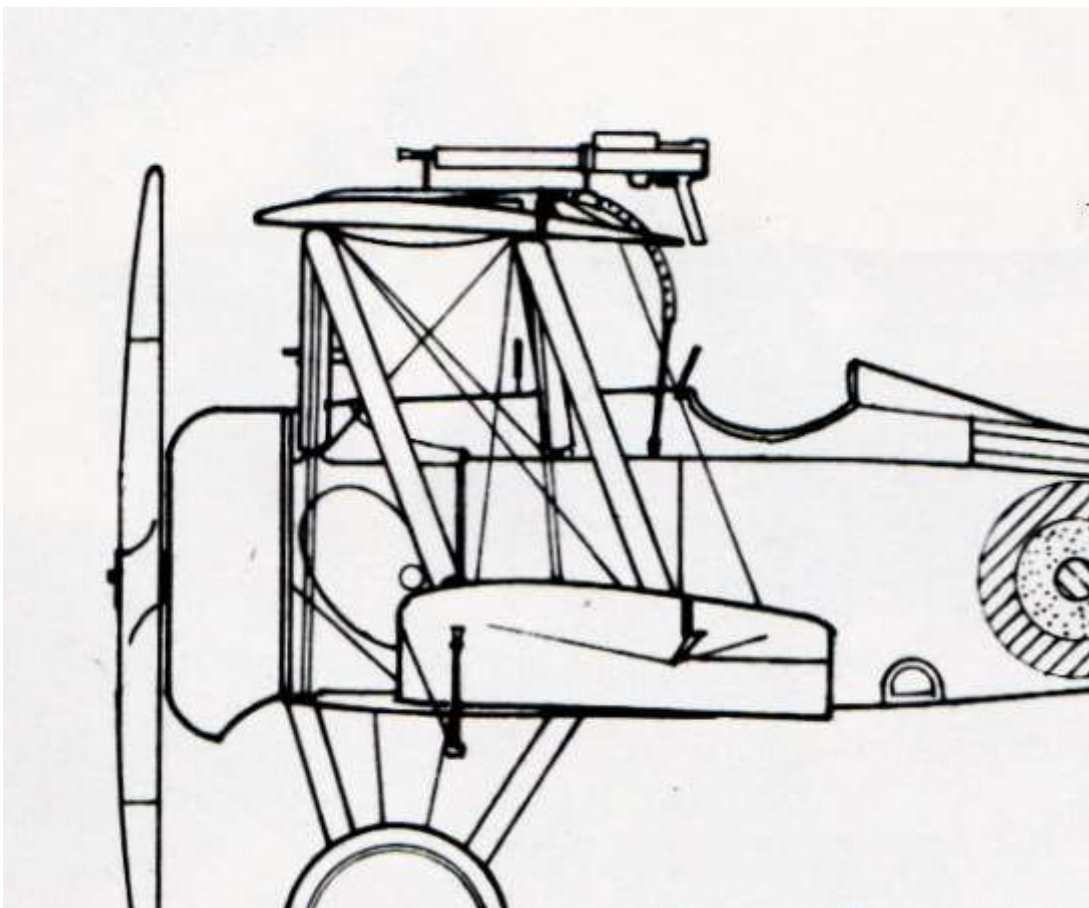
'Comic' front view



'Comic' top view



'Comic' side view



This model represents the Sopwith 'Comic' night fighter, Serial No.B2402 of No.44 Squadron (HD), operating from Hainault Farm, Essex in 1918.



Originally this aircraft was originally built as a Sopwith 'Camel' by 'Ruston, Proctor & Co. Ltd.' On its conversion to the 'Comic' design, the aircraft was painted with a dark green dope, which according to Sgt. E.J. Mills, an former member of the ground crew on No.44 Squadron (HD), was close to Methuen 27F8. This paint was prepared at the Squadron under the supervision of Lt. W.E. Nicholson, who family owned part of the 'Jensen & Nicholson Ltd' paint manufacturers. The undersides of the wings, fuselage, tailplane and elevator were Clear Doped Linen (CDL). The fuselage forward plywood panels were 'Copal' varnished. The fuselage forward metal panels, engine cowl were treated with the dark green dope, to reduce their night visibility.

NOTE:

Prior to the introduction of the Type B night roundel in 1918, aircraft used on night operations had the white overpainted with the prevailing camouflage colour. Due to the effect of orthochromatic film, the most widely available film during the first World War, rendering the blue very pale and the red very dark in photographs, historians in the 1950s and 1960s incorrectly believed a white ring roundel had been used on home defence aircraft.

The photograph of this particular aircraft appears to show white roundel rings and fuselage stripes and colour profiles, such as the following, reflected those colours.



However, given the above information, I believe it is more likely that the roundels had blue outer rings and fuselage stripes only, the red centre disc being enlarged as shown in both the previous photograph and colour profile. Also the fin was most likely the same colour as the fuselage. Therefore, it follows that the fuselage roundels had a red centre discs and blue borders, with no inner white rings. The previous colour profile shows a larger red centre disc, but I believe the disc was of standard size, but being red is hard to distinguish it from the camouflage colour. It also seems reasonable to assume that if it was felt necessary to remove the white ring on the fuselage roundels, the same would have applied to the wing roundels and not as shown in the following colour profile. The fin serial number was B2402 in white with dark grey shading. Two separated broad stripes were applied to the rear of the fuselage roundel, the colour of which was most likely blue. These stripes were not applied under the fuselage. A pennant steamer was attached to the trailing edge of the rudder, but its actual colouring in not known. I chose to have a red steamer with blue squares.



THE PILOT

THE PILOT

George Henry Hackwill

George Henry Hackwill was born in Langtree, North Devon, England on the 22 December 1892. At the outbreak of the war he was an employee of the National Provincial Bank. After service in the Somerset Light Infantry at the start of the war, he transferred to the Royal Flying Corps in mid-1915 and received Royal Aero Club Aviator's Certificate No. 2292 after flying a Maurice Farman biplane at Military Flying School at Shoreham, Sussex, on 17 December 1915. On 21 April 1916, he was appointed a flying officer as a temporary second lieutenant in the Somerset Light Infantry and transferred to the General List of the Royal Flying Corps, indicating he had completed training. Hackwill was initially assigned to No. 22 Squadron, flying the F.E.2b two-seater. He gained his first victory on 21 July. He was promoted to lieutenant on 31 August and gained another victory on 20 October. He then served as an instructor for a while in 1917, before he was assigned to No. 44 (Home Defence) Squadron, flying the Sopwith 'Camel' and 'Comic' fighters. On 1 October 1917 he was appointed a flight commander with the acting rank of Captain. His next aerial victory was a spectacular one.

On 28 January 1918, Hackwill was flying a Sopwith 'Comic' Camel, Serial No: B2402, which was a modified 'Camel' used for night fighting. He was accompanied by Lt. Charles Banks flying B3827. Together they shot down a Gotha G.V bomber, Serial No.938/16 over Wickford in Essex, the first victory over night intruders. The bodies of the three crewmen were recovered from the burnt out wreckage of the aircraft, but only Lt. Friedrich von Thomsen could be identified. All three were given a military funeral on 2 February.

On 9 February 1918, Hackwill and Banks were both awarded the Military Cross for this feat, the Cross being presented by King George V. Their citation, published in February 1918, read:

'London Gazette entry for Military Cross of George Henry Hackwill, 9th February 1918'

"For conspicuous gallantry displayed when they engaged and shot down a Gotha raiding London. During the engagement, which lasted a considerable time, they were continually under fire from the enemy machine".

In March 1918 Hackwill returned to France to serve as a Flight Commander in No.54 Squadron, and between 25 April and 15 September 1918 he scored six more victories. Not reflected in his victory list is the LVG he bombed and destroyed on 30 October 1918 while it sat on a German airfield he was raiding.

On 15 April 1919, Hackwill was moved to the unemployed list of the Royal Air Force. Eventually he moved to Southern Rhodesia. In a by-election on 27 August 1940 he was elected to the Legislative Assembly as Member for the Lomagundi district, representing the United Party. He was re-elected in both the 1946 and 1948 general elections.

George Henry Hackwill died on 4 July 1954

Table of confirmed victories

NOTE: The following table does not include an **LVG** two recon aircraft that Hackwill bombed and **destroyed** on the ground when attacking an enemy airfield on the **30 October 1918**.

No.	DATE/TIME	AIRCRAFT	ENEMY	RESULT	LOCATION	NOTES
1	21 July 16 0200hrs	FE2b Serial No: 5214	Roland C Two seat recon	Destroyed	West of Beaulencourt	Obs/Gunner 2nd Lt W.B. Parsons
2	20 Oct 16 0930hrs	FE2b Serial No: 4849	Albatros D.I fighter	Driven down out of control	Grevillers	Obs/Gunner Air Mechanic 1st class Edwards
3	25 Jan 18 2210hrs	Sopwith 'Comic' Serial No: B2402	Gotha G.V bomber	Destroyed	Wickford, Essex	Shared with Lt Charles C Banks
4	25 Apr 18 0730hrs	Sopwith Camel Serial No: D6517	LVG two seat recon	Driven down out of control	South East of Bailleul	
5	4 July 18 1430hrs	Sopwith Camel Serial No: D6479	Hannover two seat recon	Driven down out of control	Harbonnieres	
6	5 July 18 1045hrs	Sopwith Camel Serial No: D6479	Pfalz D.III Fighter	Driven down out of control	Chuignolles	
7	25 July 18 1915hrs	Sopwith Camel Serial No: D9573	Fokker D.VII fighter	Destroyed	South of Bazoches	
8	7 Sept 18 1910hrs	Sopwith Camel Serial No: F2144	Halberstadt two seat recon	Destroyed	North East of Marquion	Shared with Lt. M. Burger (E5175), Lt. J.C. Maclennan (F1962), Lt. Van- dyk (F2063), Lt. Berrington (F2129 and Lt. Fuller (F5932).
9	15 Sept 18 1840hrs	Sopwith Camel Serial No:	Fokker D.VII	Driven down out of control	Ferin	



PART 1
MODEL
DESCRIPTION

PART 1 - MODEL DESCRIPTION

(Conversion based on 'Wingnut Wings' - Kit No:32074)

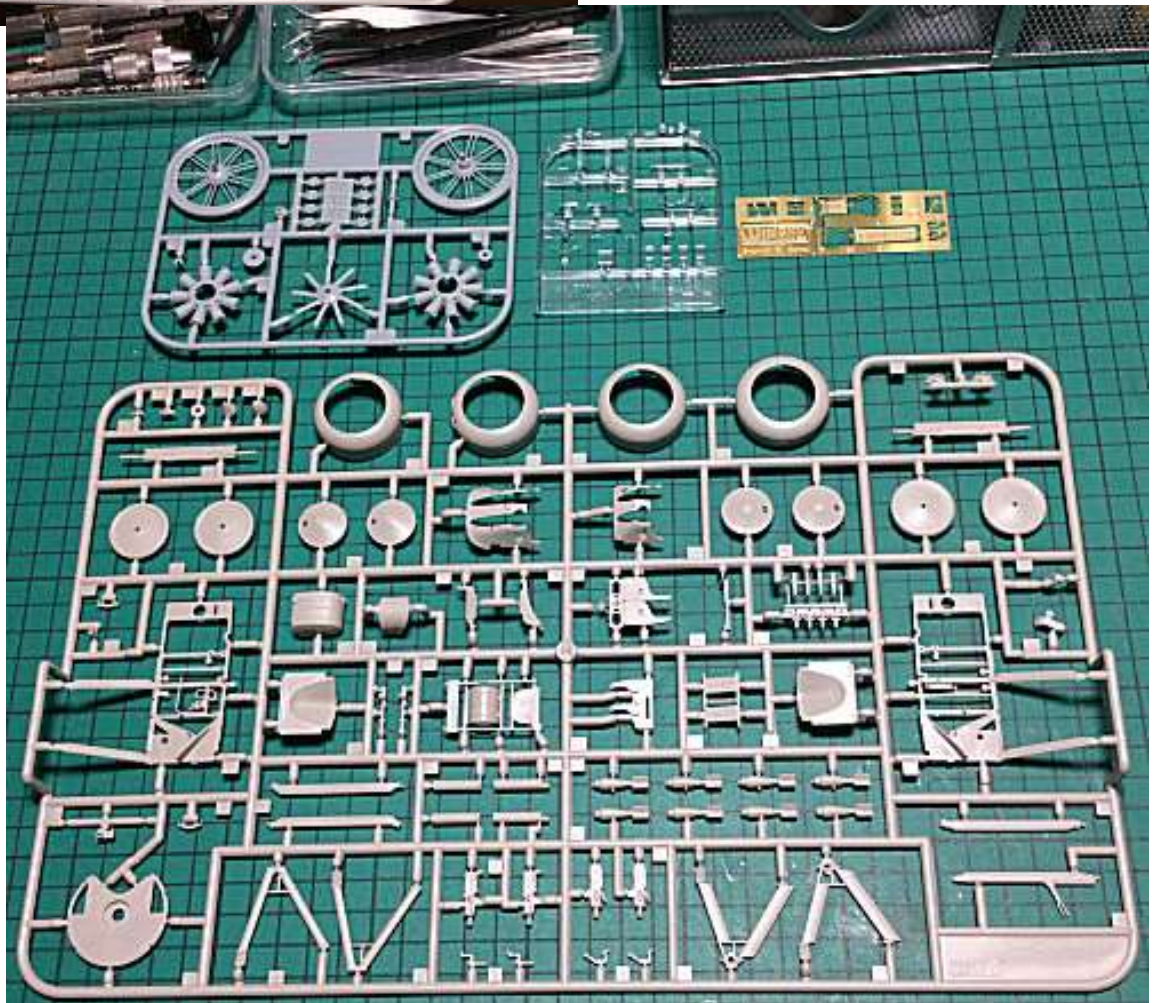
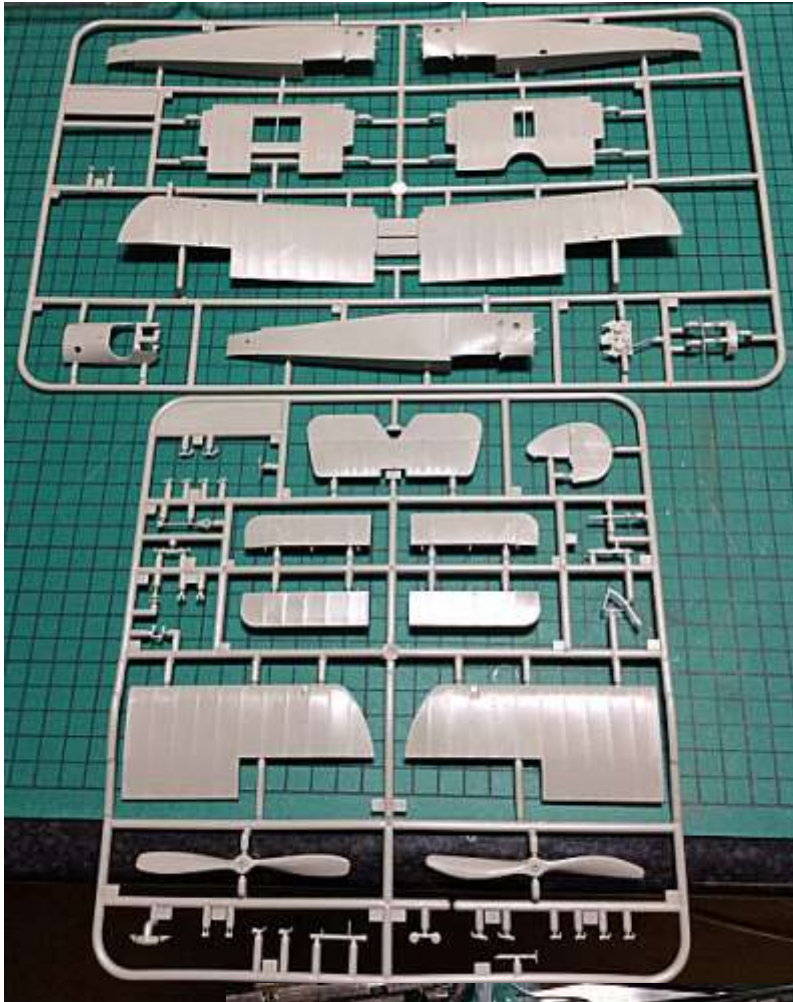
This particular aircraft has been released by 'Wingnut Wings' as four separate kits, three of which depict a different engine version and one of the Naval ship version. That said there are common parts included within each of the kits.

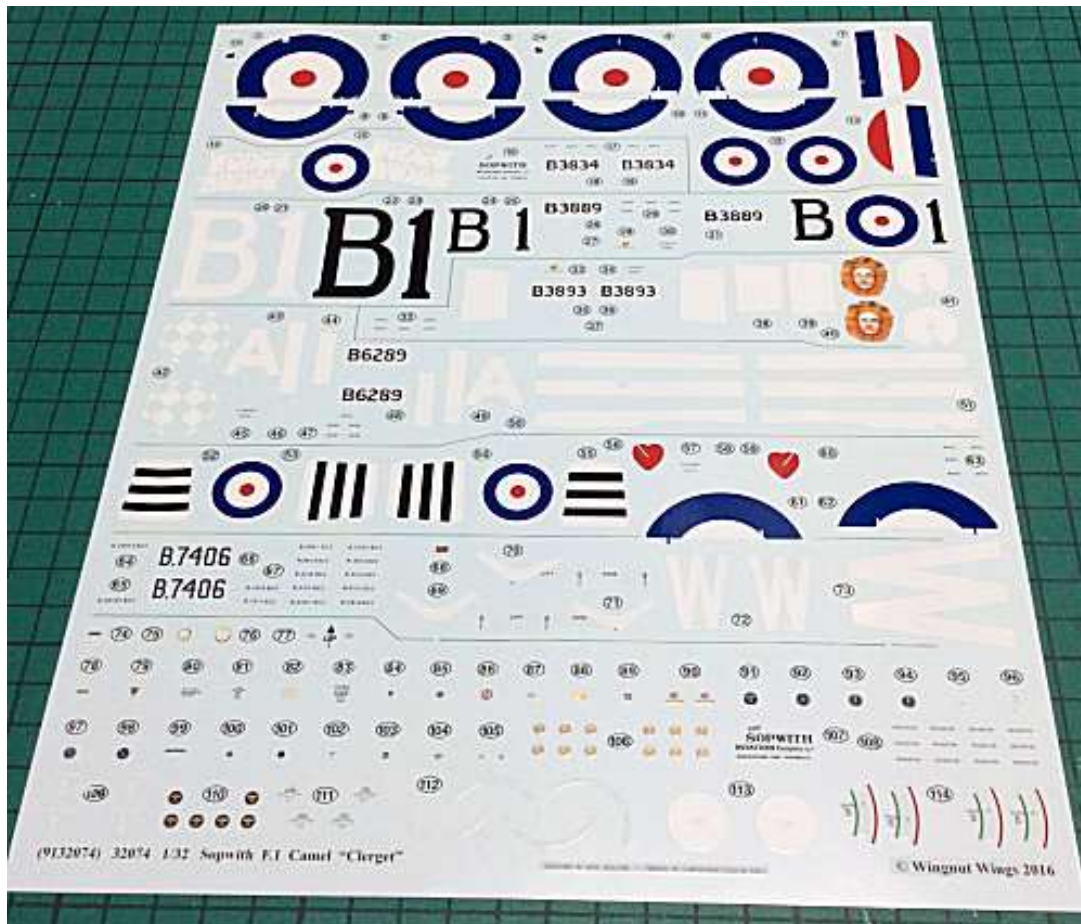
As expected, any model from 'Wingnut Wings' (WNW) is at the top of quality and accuracy. The kit components are not a numerous as many of their kits, which is good if you are building a WNW kit for the first time. The parts are manufactured from traditional 'plastic', not resin. There is minimal mould 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 four main sprues, one transparency and one photo-etch for this model, however some parts supplied are not required.

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 including a colour profile of 'Wingnut Wings' interpretation of the earlier of Barker's aircraft colour scheme.

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 recent Wingnut releases. For this model the supplied decals will be of little, if any, use as none are applicable for this aircrafts markings. Also some parts will need to be replaced with scratch built components.







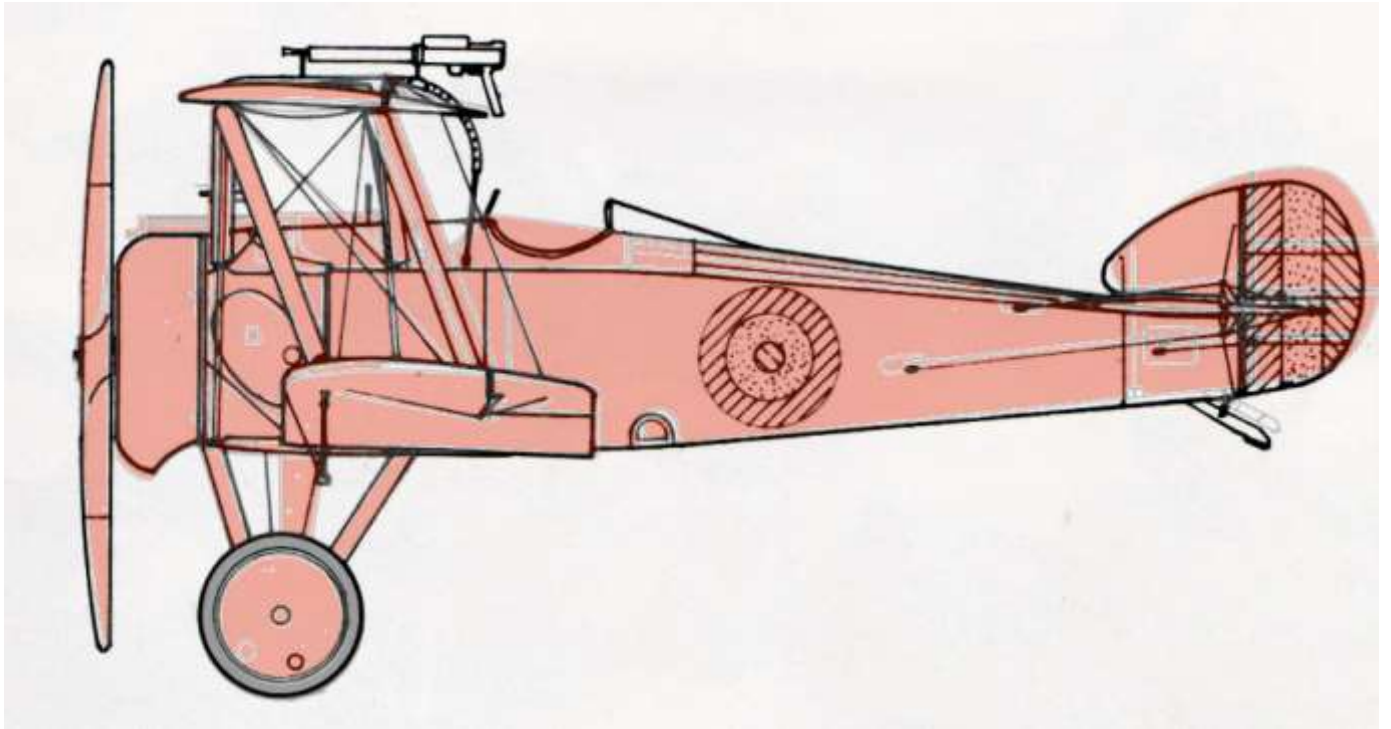
Observations:

As is usual, most models, when research is done, can be modified or enhanced to better represent the particular aircraft. The following are my initial observations of the kit before building it.

Some differences:

- 1 - The forward cockpit and decking will require replacing.
- 2 - The deleted Vickers machine guns will require replacing with wing mounted Lewis machine guns, including a scratch built 'Foster' type gun mount.
- 3 - The fuselage will require modification to move the cockpit rearwards and to add if possible the different fuel tanks etc.
- 4 - The aircraft markings will need to be created to represent those on the actual aircraft.
- 5 - The engine requires ignition leads and possibly replacement of the valve push rods from the two magnetos to the cylinder spark plugs.
- 6 - Addition of the pilot's headrest and fuselage fairing (not fitted to the 'Camel' base aircraft).
- 7 - Addition of navigation lights (not fitted to the 'Camel' base aircraft) - light fitted to the outer, forward top surface of the left lower wing (some aircraft had the light fitted behind the pilot's headrest and fuselage fairing).
- 8 - Addition of a 'Holt' flare to the outer, forward, underside of the lower wings.

The following illustration shows the profile of a Sopwith Camel (faded red) superimposed under the profile of a Sopwith 'Comic.'



PART 2
WOOD EFFECTS
(General)

PART 2 - WOOD EFFECTS (General)

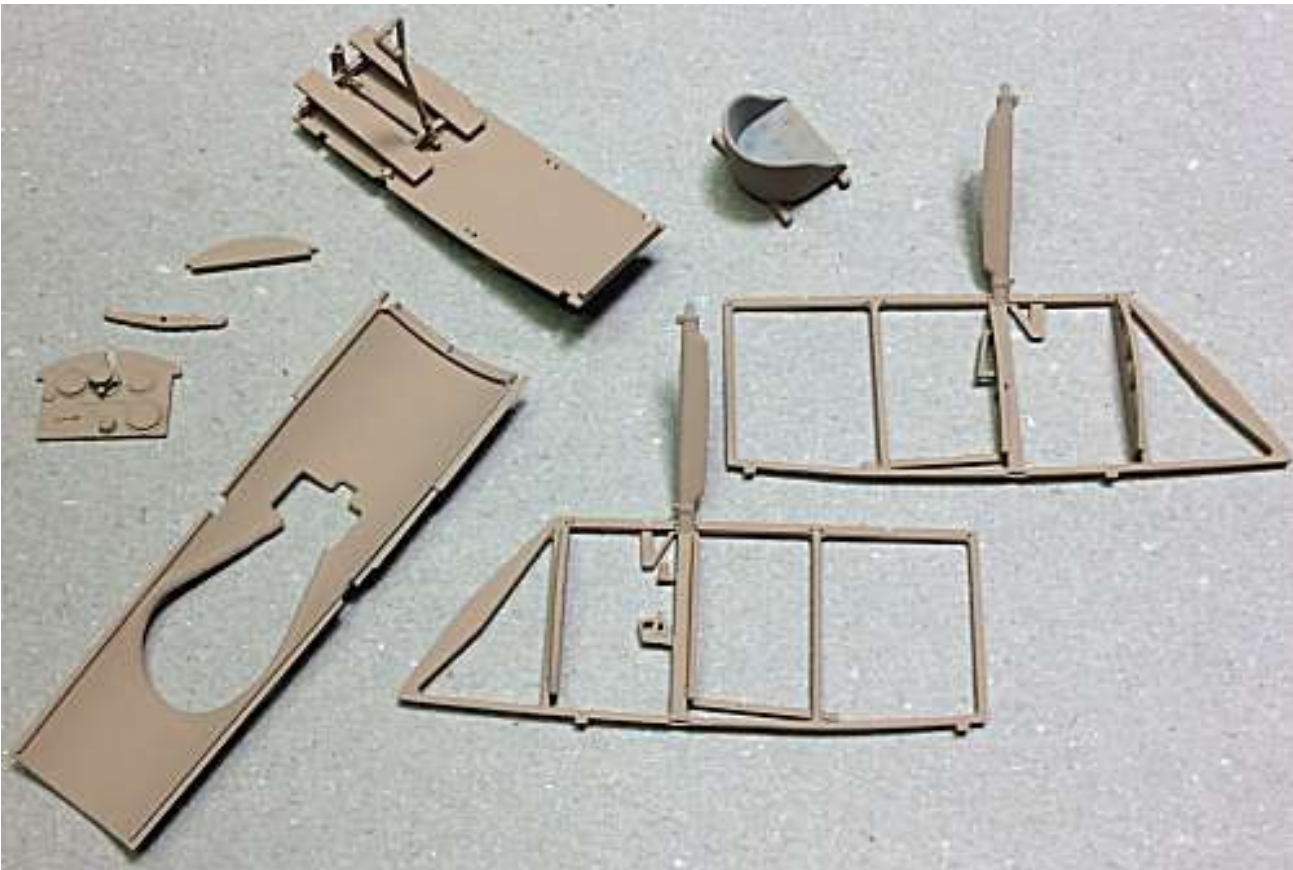
A basic technique:

Parts of the model that are supposed to be made of wood can prove to be a challenge to replicate a wood finish to the part. Some after market companies produce accurate wood decals, which can be used to cover larger areas, such as cockpit decking and fuselage panels. However, decals can't easily be used to create realistic wood finish to smaller items or parts that don't lend themselves to having decals applied. To do this requires brush painting, using such as acrylic or 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 'Tamiya' Aerosol Light Grey (Fine) or White (Fine) acrylic 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. Colour' 400 Self Levelling Thinner', which aids brush painting. For most wood effect, I use 'Tamiya' Wooden Deck Tan (XF78) or Dark Yellow (XF60), suitably thinned with 'Mr. Colour' 400 Self Levelling Thinner'. 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).



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

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

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

Once painting is complete, clean the brush in water.

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



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 add 'Mr. Colour' Levelling Thinners, which does improve airbrushing and avoids pooling. Otherwise I use 'Alclad' Light Sheen (ALC-311).

Although it's a lacquer, I've found that it will accept 'Tamiya' 'Clear' coloured Acrylics without any separation, which can happen with other paints. The 'Alclad' lacquers dry fast and provide a good sealing layer over the painted surfaces. When using 'Alclad' sealing coats, the golden rule is to allow the various painted surfaces to dry fully before applying 'Alclad' lacquers.

In this instance, I added a few drops of Clear Yellow (X24) into the 'Alclad' Light Sheen (ALC - 311) and thoroughly mixed it. Only add small amounts to the 'Alclad' in order to control the amount of tint you desire. I increased my airbrush air pressure to around 20 psi to airbrush the sealing coats over the various cockpit items. The first coat usually dries to a more matte finish, which I assume is due to being sprayed onto the oil paint, rather than onto straight acrylic paint. Once this first coat has dried, I airbrushed several coats of just 'Alclad' Light Sheen (ALC -311), which added not only more sealing coats, but more importantly gave the desired semi-gloss 'varnished' finish I was after.

Below is an **example** of the applied 'Alclad' lacquer/X24 mix on the propeller.



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

PART 3
WEATHERING
(General)

PART 3 - WEATHERING (General)

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. The kitchen roll can be used dry or very slightly dampened. If dampened, the dried clay is re-activated and the clay wash can be more easily be removed or worked as required.

First I seal the surface with an airbrushed semi-matte clear coat, such as 'Alclad' Light Sheen (ALC-311), which dries quickly. 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 more matte coat can cause the clay wash to 'grip' too much, making it difficult to remove or even to wash it off completely.

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

NOTE 2: Always decant the amount of clay wash you need, rather than dipping the brush directly into the wash bottle. Dipping into the wash bottle can transfer contaminants from the brush into the wash, will can 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.

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 mixed to create many colour shades for different weathering finishes.

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. Use a soft brush or absorbent kitchen roll, which are dry or **very slightly** dampened, to brush or wipe off the clay wash in the direction of airflow over the model. Even then, dab them onto a dry piece of the paper, until they are almost dry. Any wetter and you'll find that you are removing too much of the clay wash. If that happens you can re-apply the wash and start again. 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 within 30 minutes. Then very lightly brush and/or use a piece of damp absorbent paper to remove as much you want until you get the desired effect. Once finished, run the brush under a tap to rinse out any residual clay pigments. Finally, seal the surface with your chosen clear coat, which will seal in the applied clay wash.



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 'Alclad' Light Sheen (ALC-311).



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



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



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



Water colour pencils:

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



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

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

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

A good quality oil paint and thinners are essential to produce a good finish. Some quality oil paints can be too 'gritty' when leached of oil, so I use 'Abteilung 502' oil paints and 'Tamiya' Enamel thinners (X20).



PART 4
DECALS
(General)

PART 4 - DECALS (General)

Standard decals:

NOTE: *The following is **applicable only** for decals on a **painted surface**. If decals are to be placed on top of **previously applied decals**, the decal setting solutions, **if used**, may 'eat' into the previous decals. In this case a sealing coat of clear gloss, such as 'Alclad' Aqua Gloss (ALC-600), 'Tamiya' Clear (X22) or similar should be airbrushed over the first decals, to provide a barrier against the setting solutions.*

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

Airbrush a sealing coat of 'Alclad' Gloss (ALC-310) or 'Tamiya' Clear (X22) to provide a smooth surface.

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

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

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

Carefully move the decal into the correct position.

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

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.*

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

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

Once the decals have been applied and are dry I airbrush a final sealing coat of 'Alclad' Light Sheen (ALC-311) or 'Tamiya' Semi-Matt (XF35) over the decals.

'Aviatic' linen effect decals:

The 'Aviatic' 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. However, 'Aviatic' 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 'Aviatic' decals, due to the nature of the carrier film.

In addition, the decals need to be cut out from the sheet, so care is required to cut the decals accurately to avoid leaving gaps, especially at the edges, where the white base colour will show. That said, minor gaps may be able to be covered with weathering. For more information, refer to the 'Aviatic' instruction sheet supplied with the decals. Aviatic' decals are laser printed onto either 'clear' or 'white' backing, the 'clear' being dependent on the base coat you apply and the finished effect you desire. The decals are supplied with very clear instructions on their application, including when to add pre-shading to the base coat, where desired, before you apply the decals. For this model I chose to use the 'clear' decals, in order to show the linen effect more visibly.

Application:

As the decal is to be applied over a coloured base coat (green, brown etc), first airbrush a primer coat of 'AK Interactive' primer and micro-filler White (AK759) or Grey (AK758) or similar on all of the surfaces to have the decals applied.

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

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

Airbrush the required base colours to the model surfaces.

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

Airbrush at least two light sealing coats of either 'Alclad' Clear Coat Gloss (ALC-310) lacquer, 'Alclad' Aqua Gloss (ALC-600), 'Tamiya' Clear (X22) or 'Johnson' Pledge Floor Care finish (similar to 'Future'), all of which will 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 apply 'Tamiya' X20A thinners, which will soften and adhere the decal into the hole or opening. Using X20A can also conform decals around curves edges etc.

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

PART 5
RIGGING
(General)

PART 5 - RIGGING (General)

General:

The first thing to check is that you have already drilled out the rigging attachment points. Most models have these located on the model, but it's best to carry out research in reference books or research on line before drilling. Some modellers use micro drills manufactured for drilling printed circuit boards etc and these drill bits sometimes have identifying coloured collars fitted to the drill shanks. I have found that care needs to be taken when using these drills, as they are sharp and instead of easing their way into the plastic of the model, they tend to bite in and effectively 'cork screw' their way in, which causes jamming and lots of broken drills. This is not only expensive but can leave broken drill bits in the model, which are virtually impossible to extract. An alternative is to use High Speed Steel (HSS) drill bits, which are cheaper and have less 'bite' when in use, although again, they are very fragile and can very easily be broken.

Some modellers drill through the wings etc of the model and rig by pulling through the rigging line/EZ thread etc, gluing in position and then rubbing down the exposed line 'tag' and then re-painting that area. I prefer to drill only part way into the plastic and attach the applicable rigging fixture with CA adhesive.

With your research complete and all necessary holes pre-drilled, the rigging can start. For the Internal cross bracing rigging and flight control cables, I use mono-filament (fishing line) of 0.08 or 0.12 mm diameter. These are effectively transparent but do give a look of steel, without the need of painting or colouring with a gel pen. The turnbuckles used can be either sintered metal or resin and obtained from 'Gaspatch Models'. Although the newer resin turnbuckles are better detailed, they are resin and therefore can break if stressed in the wrong direction. If in doubt, use the metal versions, which are much stronger. The aircraft external rigging is shown in the following illustrations, adapted from the 'Wingnut Wings' instruction manual. The RFC/RAF type aerodynamic wire was used for structural rigging and standard round wire wound cable was used for control cables. Aerodynamic wires were of either 2BA or 1/4 BST gauge.

The external rigging points will be made using 'GasPatch' resin turnbuckles and 0.4 mm diameter blacked tube to represent the late type fittings.

The rigging materials to be used are:

'Steelon' 0.08 and 0.12 mm diameter mono-filament

'GasPatch' 1/48th resin turnbuckles.

NOTE: *Most metal tube can be chemically blackened by immersion in solutions, such as Blacken-It' or similar.*

'Albion Alloys' 0.4 mm (NST04) and 0.5 mm (MBT05) diameter 'blackened' tube.

The Sopwith 'Comic' structural rigging and control cables would presumably have been the same as for the Sopwith Camel. The external rigging for flying wires, landing wires and wing bracing were of the 'streamlined' type, not the standard round type used on earlier RFC aircraft and on aircraft of other Nations. The only external 'round' cables used were the control wires to the ailerons, rudder, elevator and the tail skid. They were also used for the cross bracing under the forward metal cockpit floor and axle fairing. The 'streamlined' wires can be modelled using the relevant sized flat, such as the photo-etched sets from 'RB Productions'. However, these can be difficult to fit and require either tiny photo-etch end fittings, tubes or special to type end fittings. It should be noted that these wires add no structural strength to a model and can be prone to 'sag' if the ambient temperature changes too much. Therefore I chose, for structural strength, to use mono-filament rather than photo-etch flat wires.

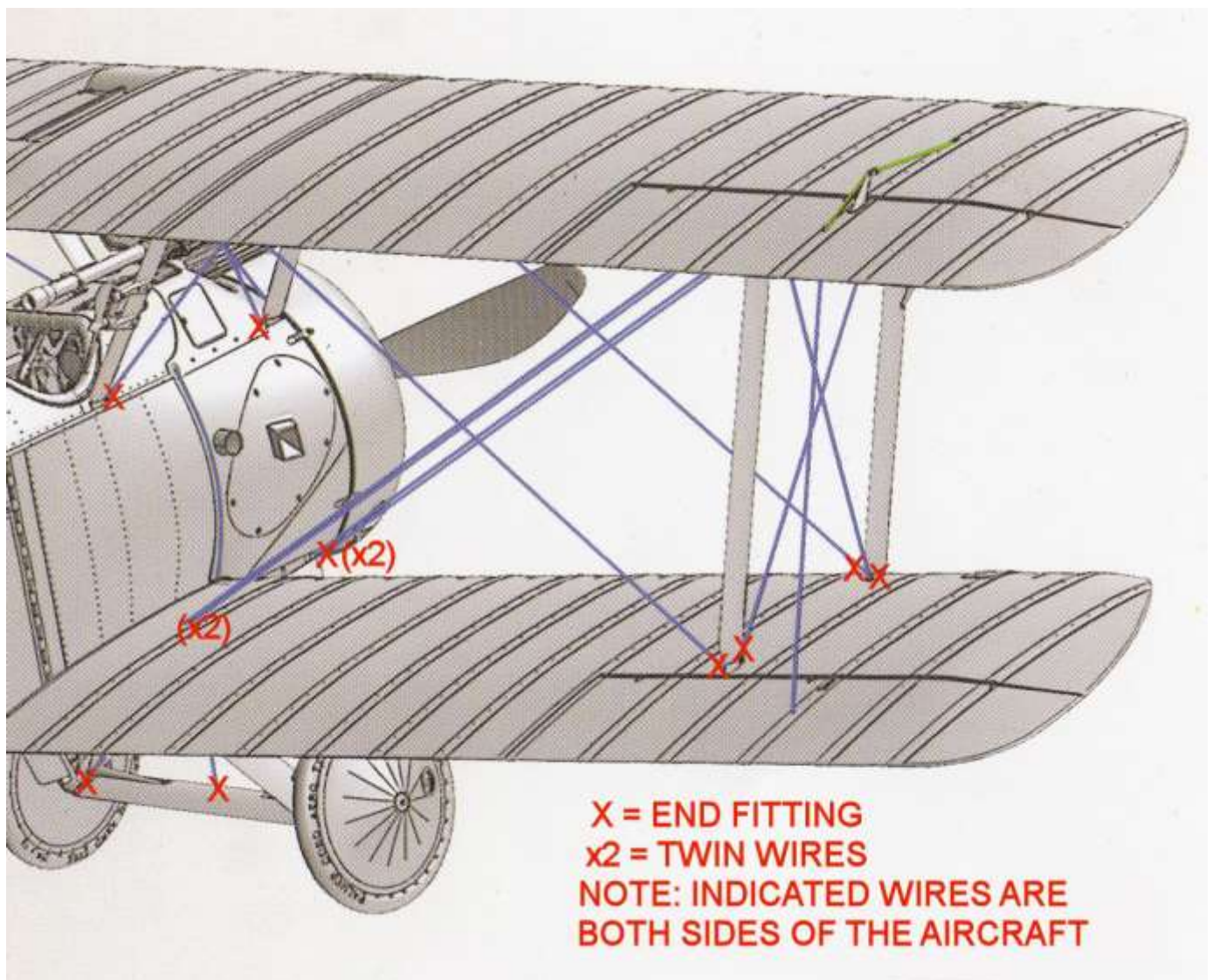
Holes need to be provided for anchoring the aerodynamic wires. Fortunately the supplied kit parts have pre-moulded locations for the rigging and controls access points.

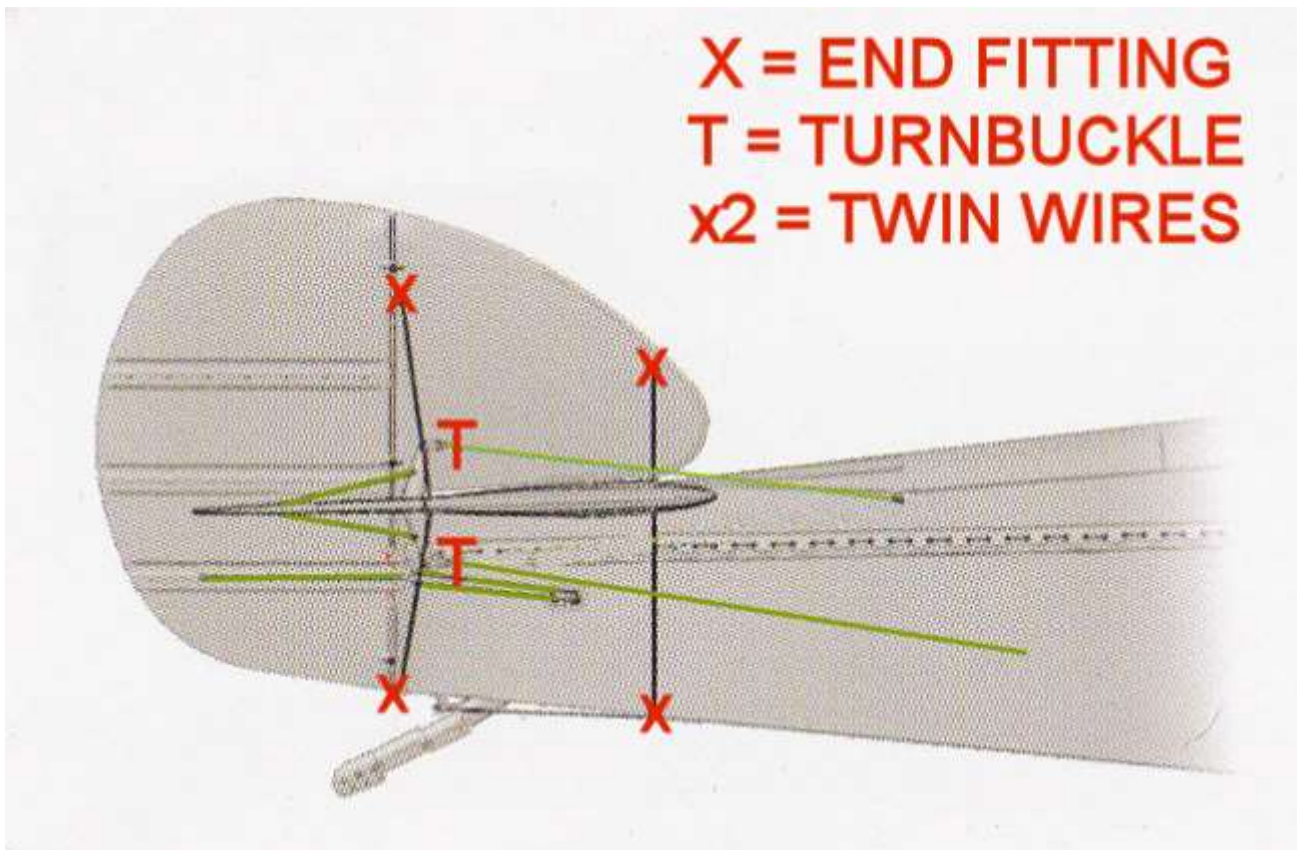
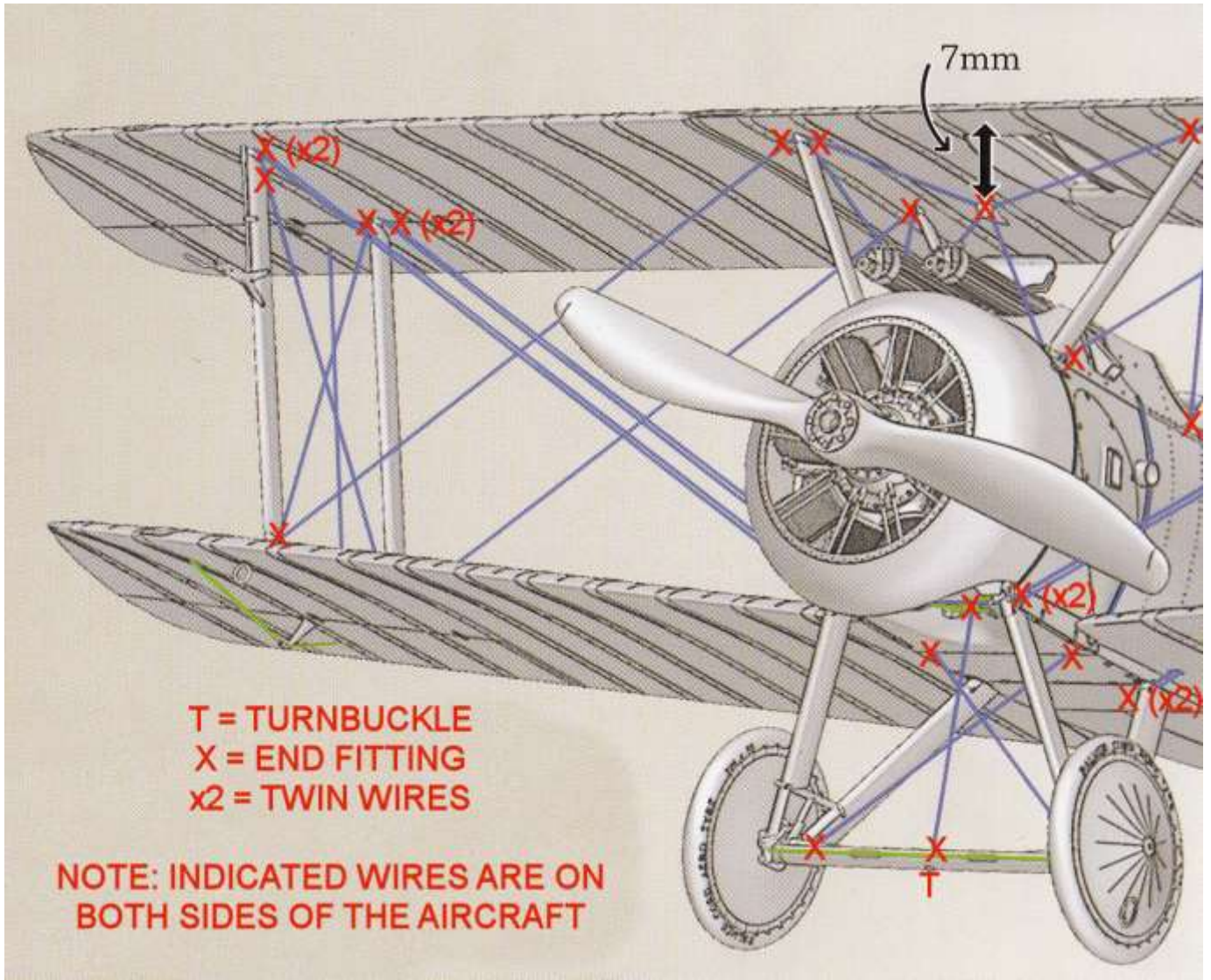
Study the rigging illustration and model parts thoroughly to find the various rigging points.

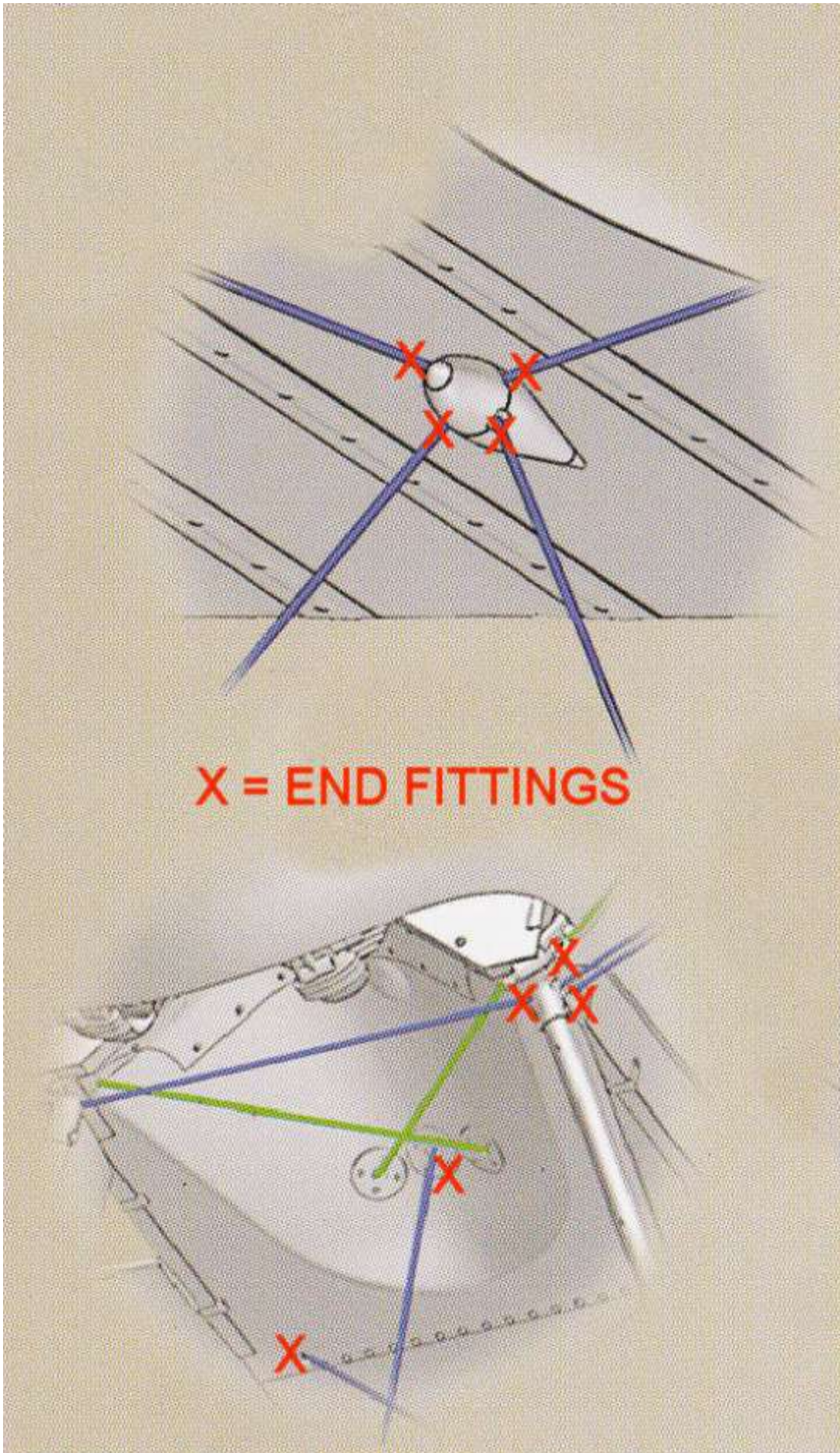
These rigging points need to be drilled at the appropriate angles for the particular rigging. The holes are either drilled through the model part, such as the fuselage points or at the correct angle into the model part, such as the aileron access points in the wings. Of particular note are the wing root points where the dual rigging wires are routed through the lower wings to at the top of the rear undercarriage struts.

The fitting of all rigging is covered in Part 10 (Construction) of this build log.

These illustrations are adapted from those in the Wingnut Wings instruction manual and are to assist in the location of the end fittings or turnbuckles that are required. Those wires with no indicated **X** or **T** are those with no externally visible end fittings or turnbuckles.







Rigging illustrations:

You may choose to rig the aircraft using flat aerodynamic rigging wires, such as those from 'RB Productions'. If so, the following illustrations show the types of flat (aerodynamic) and standard round (wire wound) rigging wires used for the Sopwith 'Camel', which is used for rigging the

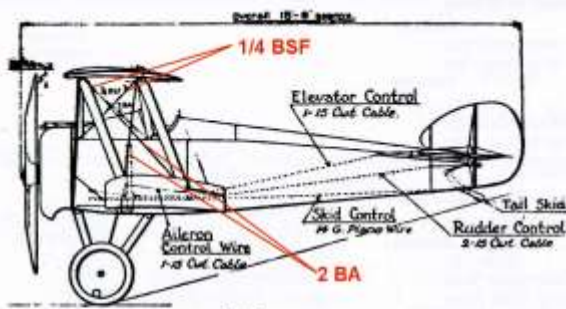


FIG. 1.
SIDE ELEVATION

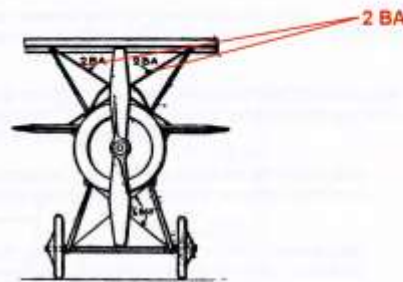


FIG. 2.
FRONT ELEVATION
(LESS MAIN PLANES)

Setting Position:

To get Machine in Flying Position, level transversely across the lower front Spar in Fuselage and longitudinally across the upper surface of the Top Longerons in the Pilot's Cockpit.

Truing up Levelage:

The fuselage is symmetrical in plan view and from Strut No. 6 to Rudder Post in Side Elevation. Mark points on Side Struts so that these points are on the Flight Line in Side Elevation (for distances below the lower face of the Top Longerons see Table A Sheet 4.) Make Internal Cross Bracing Wires equal at each section. Check by Trammel. Make Top Cross Bracing Wires equal in each Bay. Similarly make Bottom Cross Bracing Wires equal in each Bay. Check by Trammel. True up by Side Bracing Wires until all marked points on Side Struts are in line in Side Elevation. Levelling from marked point to marked point on adjacent Side Strut unhooking each Side Strut for being Vertical.

Truing up Undercarriage:

True up until Cross Bracing Wires are equal. Check by Trammel.

Truing up Centre Section:

The Centre Section is symmetrical about the Vertical centre line of Machine. Adjust by Centre Section Cross Bracing Wires until Upper Wires are equal and lower Wires are equal. Check by Trammel. The Stagger of the Centre Section is 16". Check after fitting Lower Main Planes and adjust by Centre Section Stagger Wires.

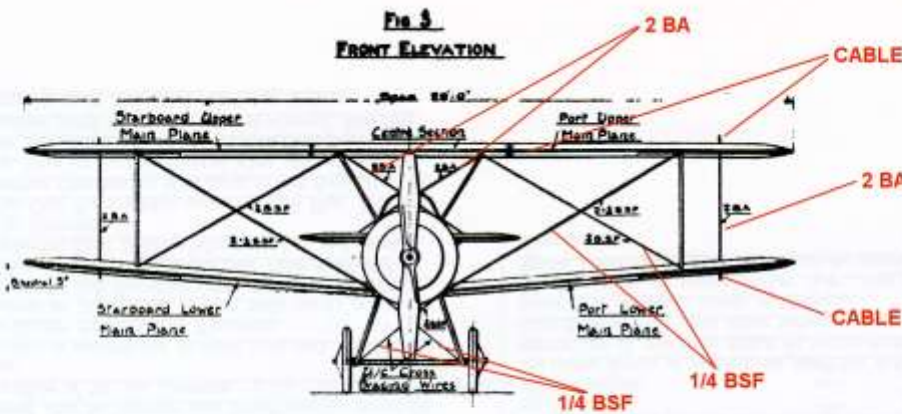


FIG. 3.
FRONT ELEVATION

MAIN PLANES

The leading Edge of Upper Main Planes is straight in plan view as viewed from front. The leading Edge of lower Main Planes is symmetrical about centre line of Machine Drop Plumb lines on each side from the leading Edge of the Upper Main Planes. These lines must be in line viewed from the side.

Dihedral

The Dihedral of the Lower Main Planes - 5°. Check by Abney level and Straightedge along the Spars. There is no Dihedral at the Stagger Main Planes.

Stagger

The Stagger is 16" at Centre Section and 18" at Outer Struts. Check by measuring the horizontal fore and aft distances between the Plumb lines and the leading Edge of lower Main Planes.

Incidence

The Incidence is 8° throughout Upper & Lower Main Planes. Check by Straightedge and Abney level from leading Edge to Trailing Edge of Ribs.

Ailerons

There is no Drop at the Ailerons with Bell's Control Stick Control.

POSITION OF UPPER MAIN PLANE IN RELATION TO LOWER MAIN PLANE

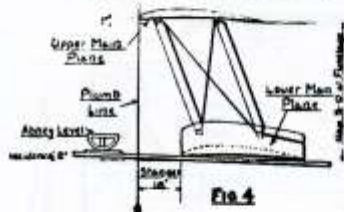


FIG. 4.

4 Sheets.
Sheet A.

SOPWITH BIPLANE. F.I.

130 H.P. CLERGÉT.

A. B. T. D., T. S. 1/18.

12

SOPWITH BIPLANE. F.I.

130 H.P. CLERGÉT.

A. B. T. D., T. S. 1/18.

13

PART 6

ENGINE

PART 6 - ENGINE

NOTE: *The 'Wingnut Wings' instruction manual is reference throughout this build. When removing any kit parts from their sprues, always remove any residual sprue tags and mould seams. Take care when removing the smaller or more fragile parts from their sprues. Too much cutting pressure can cause deformation, breakage or stress marks in the parts.*

The 'Clerget' 9Bf (140hp) rotary engine supplied in the kit is of good quality and detail, but there are other companies that produce highly detailed styrene and resin model engines, such as those from 'Roden', 'Taurus Models', 'Ultra Cast' and 'vector Resin'. However as with most model aircraft having a rotary engine, the engine cowl once installed covers 90% of the engine and much of it can't actually been seen.

The 'Clerget' engine supplied in the kit is of good quality and detail and given the lack of visibility once fitted to the model, I chose to it in preference to an after market engine. In addition using the kit engine saves any extra expense that is not really warranted.

All of the kit parts needed to build the engine are contained on a single sprue (E). Building the engine is straight forward following the 'Wingnut Wings' instruction manual.

This part of the build log covers the addition of ignition wires and the painting of the engine.

1. Assemble the engine cylinder block E6, E8 with the cylinder heads E3.
2. Assemble the induction pipe assembly E1, propeller shaft E4 and slip ring/retainer E5/E7.
3. Prime all parts using 'AK Interactive' Black Primer and micro-filler (AK757) or similar.
4. Airbrush the engine cylinder assembly using 'Alclad' Steel (ALC-112) or similar.
5. Airbrush the intake manifold using 'Alclad' Exhaust Manifold (ALC-123) or similar.
6. Airbrush the push rods and housing 'Alclad' Stainless Steel (ALC-115) or similar
7. Brush paint the slip ring using 'Tamiya' Hull Red (XF9) or similar.
8. Brush paint the base and top of each push rod using 'Mr. Colour' Brass (219) or similar.
9. Brush paint the 18 spark plugs using 'Tamiya' Flat White (XF2) mixed with a drop of Buff (XF57).

NOTE: *There are location stubs in the front and rear of the engine and on the induction pipes and push rod assembles. These are intended to align the assemblies when they are fitted. However when assembled there is a slight misalignment for both assemblies to the engine cylinder heads. To remedy this, cut away the location stubs from the inside of the engine, which then allows correct alignment of the parts.*

10. Assemble the complete engine.
11. Apply an engine wash of 'AK Interactive' Engine Wash (AK2033).
12. Airbrush the engine with a light coat of semi-matte clear coat, such as 'Alclad' Light Sheen (ALC-311) or similar.
13. Apply the decal data plate (kit decal 78) to the push rod housing.
14. Apply lightly by sponge 'Tamiya' Weathering Master (Set D - Burnt Blue) to the induction pipes at the cylinder heads and the tops area of the cylinders.
15. Apply lightly by sponge 'Tamiya' Weathering Master (Set B - Soot) to the cylinder heads at the opposite side to the induction pipes (the exhaust valve).

16. Apply an engine wash of 'AK Interactive' Engine Oil (AK2019) to each end of the engine push rods.

NOTE: *In the following steps, the nine pairs of ignition leads are attached between the spark plugs and slip ring on the propeller shaft at the rear of the engine.*

17. Cut eighteen lengths of 'EZ' Black stretch line (Fine).
18. Using thin CA adhesive, secure one end of one line to a spark plug.
19. Pull the line slightly and using thin CA adhesive, secure the opposite end of the line to the slip ring at the rear of the engine.
20. Cut away the excess line at the slip ring.
21. Repeat the procedure to add lines to the remaining seventeen spark plugs.
22. Apply kit decal 78 to the engine front casing.
23. Test fit the engine into its location recess/hole in the front of the fuselage. Make sure the rear shaft and slip ring locate fully and flush with the engine bulkhead.

NOTE: *During the following step, you may find that the tops of the engine push rods and valve gear will need to be either filed or sanded or even cut away, to allow the engine cowl to locate correctly.*

24. With the engine located in the fuselage, test fit the engine cowl. Make sure the cowl fits over the engine and locates fully against the front of the fuselage.



PART 7

PROPELLER

PART 7 - PROPELLER

NOTE: For this build I chose to replace the kit supplied propellers with a 'Proper Plane' wood laminated 'Lang' propeller (WP-005) from Alex at 'Proper Plane'. These propellers are supplied pre-varnished and supplied with resin propeller boss plates. The shade of wood used to make the propeller is the darker of the two wood types, as requested. The front of the propeller has a round recess for locating the front propeller boss.

Airbrush the front of the propeller blades with a gloss clear coat, such as 'Alclad' Aqua Gloss 600 or similar.

Apply the two kit supplied decals (80 and 81) to either side of the central propeller hub.

Apply the kit supplied 'Lang' manufacturers logo decal (79) centrally on one of the propeller blades only. The point of the decal should face the tip of the propeller.

Carefully saw off the two propeller boss plates from the resin mould block.

Drill out the centre hole in the rear (flat) propeller boss until it fits onto the engines propeller shaft.

Carefully sand the cut faces of the boss plates to reduce them to the thickness of the cast boss plates. Use a finger to 'drag' sand the each boss over a flat piece of suitable sand paper, checking regularly to ensure the sanded faces are flat and equal thickness around the boss plates.

Brush paint the two boss plates with a steel colour, such as 'Mr. Colour' Stainless Steel (213) or similar.

Secure the rear and front boss plates centrally onto the hub of the propeller, using thin CA adhesive.

Airbrush the propellor with a semi-matte clear coat, such as 'Alclad' Light Sheen (ALC311) or similar.

The propeller will be fitted later in this build.



PART 8

FUSELAGE

PART 8 - FUSELAGE

NOTE: The 'Wingnut Wings' instruction manual is reference throughout this build. When removing any kit parts from their sprues, always remove any residual sprue tags and mould seams. Take care when removing the smaller or more fragile parts from their sprues. Too much cutting pressure can cause deformation, breakage or stress marks in the parts.

Preparation:

General:

When removing parts from their kit sprues, take care as cutting too close to the parts can cause stress marks. This is especially the case when removing the clear parts from their kit sprue.

Always remove any residual sprue tags from the parts.

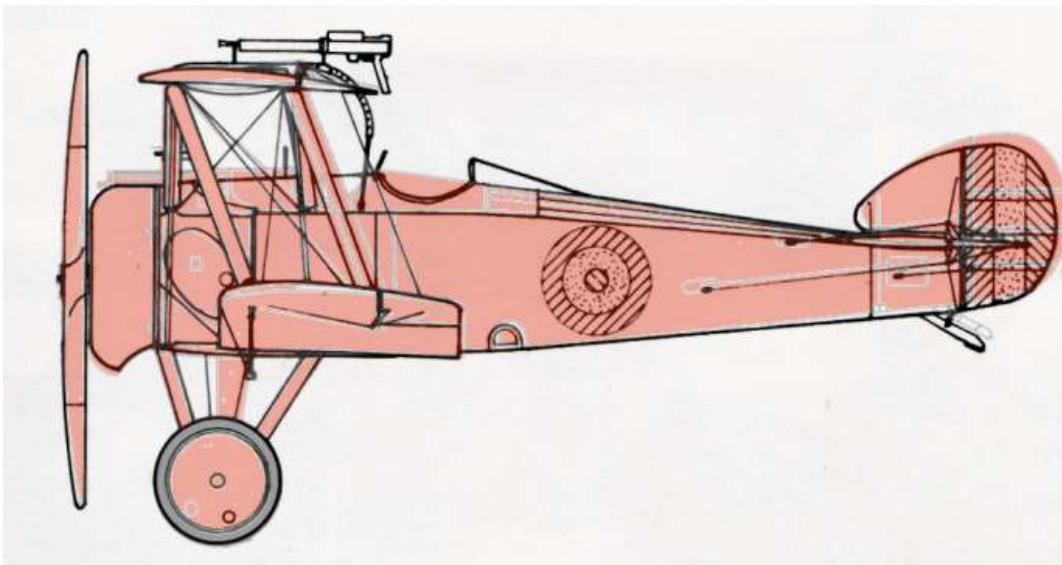
Always remove any mould seam lines or ejector pin marks from parts.

Always remove any residual photo-etch tags from parts removed from their sheet. I used a diamond photo-etch file.

Modifications:

NOTE: As can be seen from the superimposed profile of a Sopwith Camel (faded red) under a 'Comic' profile, modifications are necessary to the internal and external fuselage of the donor Sopwith Camel. The **internal changes do not necessarily reflect the actual aircraft**, as no actual data is available.

Comparison - Sopwith Camel' (faded red) and 'Comic' overlay



Cockpit right side frame:

NOTE: Take great care when handling the cockpit side frames. These have the cabane struts moulded as part of the frames and can be easily broken off.

Cut away the hand pump from the cockpit right side frame (A19).

Cut away the pipe from the side and bottom of the detached hand pump (A19).

Drill a hole of 0.6 mm diameter into the bottom of the hand pump. This will be used to attach a pipe later in this build.

Cement the hand pump onto the front of the forward upright member of the rear bay in the cockpit right side frame. Make sure the pump is located above the mounting hole in the frame and that the handle of the pump is at the top and facing forward.

Cut a length of 'Plastruct' 0.85 mm diameter styrene rod such that it can be laid up the forward edge of the rear upright member of the cockpit right side frame.

Cement the cut rod onto the upright member and 1.0 mm from the front edge.

Temporarily fit the cockpit right side frame into the right fuselage half.

Using a pencil, mark around the inside edges of the rear frame bay.

Remove the side frame from the fuselage half.

Cut a length of 'Plastruct' 0.85 mm diameter styrene rod such that it can be laid vertically up and between the top and bottom pencil lines of the frame bay. The bottom of the rod should centrally over the semi-circle frame locator.

Cement the cut rod in the correct position on the right fuselage half.

Cut six lengths of 'Plastruct' 0.5 mm wide styrene strip.

Trim the length of the strips such that they will fit between the added centre rod and the front and rear pencil lines of the frame bay. The strips should be aligned with the pre-moulded frame strips in the other frame bays on the fuselage half.

Cement the cut strips in their correct positions on the right fuselage half.

NOTE: *The following steps will provide support for the rear of the pilot seat frame. During these steps, take care not to cement the cockpit side frame onto the fuselage half.*

Cut a short length of 'Plastruct' 0.85 mm diameter styrene rod such that it can be laid on the inside of the right fuselage half. One end should be against the rear edge of the added centre upright member and the opposite end against the front edge of the rear bay upright member. The top edge of the rod needs to be horizontally aligned with the bottom of the mounting hole in the forward upright member of the rear bay.

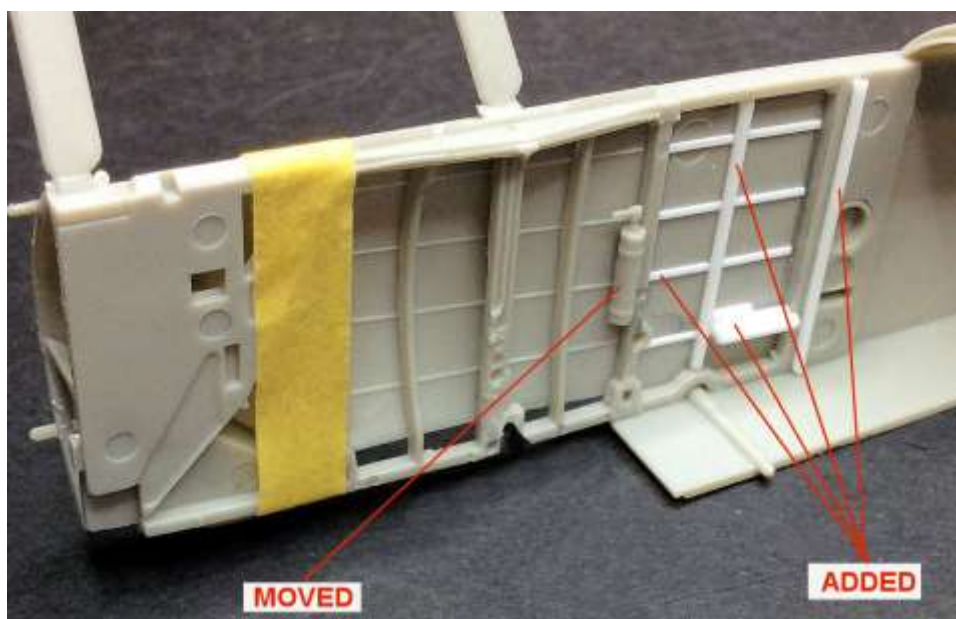
Cement the rod in position onto the inside of the right fuselage half.

Remove the cockpit side frame from the fuselage half.

Cement a second rod onto the inner face of the fitted rod.

Cement a third and shorter rod onto forward, top of the first fitted rod.

The following photograph shows the cockpit right side frame temporarily fitted with the modifications carried out.



Cockpit left side frame:

Cut a length of 'Plastruct' 0.85 mm diameter styrene rod such that it can be laid up the forward edge of the rear upright member of the cockpit left side frame.

Cement the cut rod onto the upright member and 1.0 mm from the front edge.

Temporarily fit the cockpit left side frame into the left fuselage half.

Using a pencil, mark around the inside edges of the rear frame bay.

Remove the side frame from the fuselage half.

Cut a length of 'Plastruct' 0.85 mm diameter styrene rod such that it can be laid vertically up and between the top and bottom pencil lines of the frame bay. The bottom of the rod should centrally over the semi-circle frame locator.

Cement the cut rod in the correct position on the left fuselage half.

Cut six lengths of 'Plastruct' 0.5 mm wide styrene strip.

Trim the length of the strips such that they will fit between the added centre rod and the front and rear pencil lines of the frame bay. The strips should be aligned with the pre-moulded frame strips in the other frame bays on the fuselage half.

Cement the cut strips in their correct positions on the left fuselage half.

Temporarily fit the cockpit left side frame into the left fuselage half.

NOTE: *The following steps will provide support for the rear of the pilot seat frame. During these steps, take care not to cement the cockpit side frame onto the fuselage half.*

Cut a short length of 'Plastruct' 0.85 mm diameter styrene rod such that it can be laid on the inside of the left fuselage half. One end should be against the rear edge of the added centre upright member and the opposite end against the front edge of the rear bay upright member. The top edge of the rod needs to be horizontally aligned with the bottom of the mounting hole in the forward upright member of the rear bay.

Cement the rod in position onto the inside of the left fuselage half.

Remove the cockpit side frame from the fuselage half.

Cement a second rod onto the inner face of the fitted rod.

Carefully cut out the cross bar and throttle and pipe assembly from the forward bay of the cockpit left side frame.

File or sand away any residual cut marks on the side frame and removed assembly and any pipe remains on the frame.

File or cut away the ends of the assembly cross member until it can be located one bay back, between the upright members of the central bay in the side frame.

Test fit the assembly into the central bay of the side frame, with the cross member aligned with the added styrene rod (see following photograph). To achieve a satisfactory fit the following will be required:

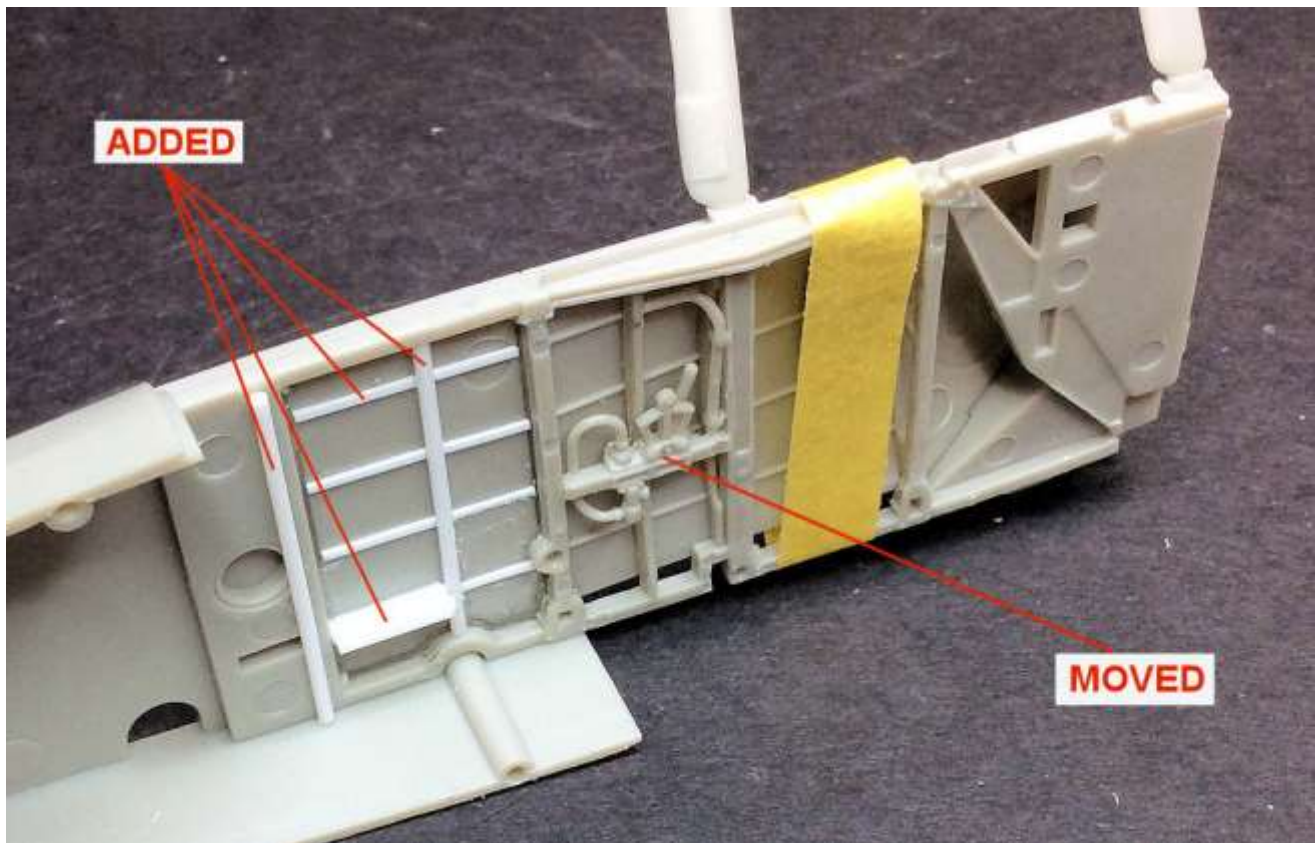
Cut away the top pipe such that it can locate against the front face of the central upright.

Cut or file away the material from the rear of the throttle quadrant. This will allow the assembly to fit closer to the fuselage side.

Remove material, as necessary, from the centre upright member in the central bay of the side frame.

Cement the assembly in position in the cockpit left side frame.

The following photograph shows the cockpit left side frame temporarily fitted with the modifications carried out.



Cockpit decking panel:

Temporarily join the two fuselage halves (B1, B8) together using wrapped around elastic bands.

Temporarily fit the cockpit frames (A19, A26) in position inside the fuselage halves. Hold them in position with a wrapped around elastic band or masking tape.

NOTE: *Take great care when handling the front of the fuselage halves. These have the four small cowl retaining straps cabane struts moulded as part of the fuselage halves and they can be easily broken off.*

Temporarily fit the engine bulkhead (A10) into the front of the fuselage assembly and hold it in position using a strip of masking tape.

Temporarily fit the under shield (A25) into the front of the fuselage assembly and hold it in position using a strip of masking tape.

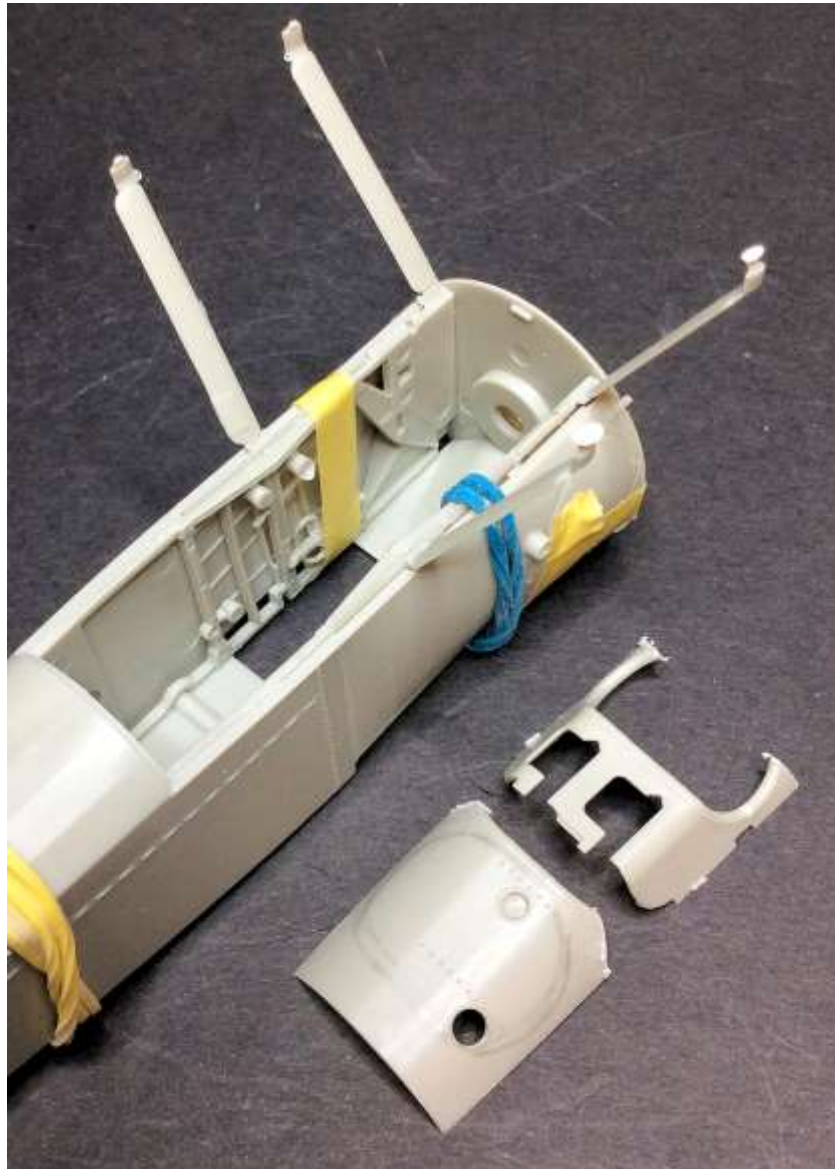
NOTE: *Refer to the previous 'comparison' overlay illustration for positional guidance.*

Using a pencil, mark the position of the 'Comic' cockpit onto the rear half of the decking panel (B7) encompassing the fuel cap opening and the pre-moulded filler cap. The forward edge of the line should be to the rear of the pre-moulded half bulkhead on the inside the panel.

Point mark around the inside of the pencil guide line. then using the marks as guides, chain drill around the line using a 0.6 mm diameter drill.

Carefully saw and cut through the drilled holes to release the cut out part of the panel.

NOTE: *Take care handling the modified decking panel as it is now weaker than before.*



File and sand the shape of the opening, making sure the shape is correct when viewed from the sides and top. The front edge of the opening should blend into the half bulkhead.

Using a saw, cut the front portion of the panel away, making sure half bulkhead is left intact.

File and sand flat the front of the half bulkhead. Stand it on the sanded face and check the panel is vertical and not tilted in any direction.

NOTE: *The half bulkhead was left in place to give rigidity to the panel from flexing. Now that the cockpit opening has been created, the half bulkhead needs to be removed, so from now on, care is required when handling the panel to prevent it being distorted.*

Carefully cut away the half bulkhead and scrape or sand the cut edges to blend them with the surrounding area.

Cut two small rectangles of 0.2 mm thick plastic card and lightly cement them to the forward ends of the cockpit opening.

Trim the edges of the plastic card to conform to the profile of the cockpit opening, leaving 2.0 mm of card protruding from the front edges. These will be used to attach the top decking panel later in this build.

Check fit the modified decking panel onto the fuselage.



Fuselage formers:

NOTE: *To be able to create the top, forward decking panels of the 'Comic', it's necessary to make curved formers in the fuselage so that the panels can be attached and form the correct curved shape.*

Leave the fuselage halves, cockpit side frames, engine bulkhead and under shield temporarily assembled.

Cut a rectangular strip of 1.0 mm thick plastic card 20 mm x 10 mm.

Using a kit supplied engine cowl as a guide, trace the curved outline of the cowl centrally onto a 20 mm end of the plastic card.

Cut then file or sand the curve in the plastic card, following the traced outline as a guide.

Cut then file or sand the sides of the 20 mm width of the strip from the bottom up, leaving an overhang under the edges of the curved top (for locating onto the top rails of the cockpit side frames). The width of the strip should be cut equally such that it can be slide down between the cockpit side frames and against the rear face of the engine bulk head.

Repeat the procedure to create a second former, making sure the curved top is 1.5 mm higher than the previous cut former (to allow a gradual rise towards the cockpit opening).

Cut two rectangular pieces of 1.0 mm thick plastic card 16 mm x 16 mm.

Locate the first former between the cockpit side frames and against the rear face of the engine bulk head. Make sure the top of the curved edge is positioned just below the top curved edge of the engine bulk head.

Cement the former onto the rear face of the engine bulk head, making sure the outer edges of the curved top fully contact the top rails of the cockpit side frames.

Locate the second former between the cockpit side frames and into the pre-moulded cut outs in top of the side frames. Make sure the former is vertical in the side frames.

Slide the cut rectangles of plastic card down and between the two formers, keeping them as far apart as possible.

Cement the two rectangles in position between the formers.

Carefully lift the assembly out of the fuselage, tilting the rear end up slightly as you remove it.



Instrument panel and former:

Temporarily fit the modified cockpit decking panel and the two formers in position in the fuselage, using masking tape as necessary.

Using the same procedure as before, create a third fuselage former. This former should:

Be able to be located between the cockpit side frames and up against the pre-moulded shoulder in the side frames, just to the rear of the rear cabane struts.

Have the top curve edge aligning with the previous two formers and the top forward edges of the cockpit decking panel. To check this alignment, lay the edge of a steel rule or similar against the rear edge of the engine bulk head and along the top and sides of the three formers to the forward top edge of the cockpit decking panel.

If necessary, carefully sand the top of the formers to achieve the correct alignment.

Be 10 mm in height, from the top of the curved edge to the bottom straight edge.

Cut away the kit supplied instrument panel (B9) such that it matches the shape of the former.
Cement the instrument panel onto the former, making sure the edges are aligned.
Cement the compass (D12) in position on the instrument panel.



False bulk head:

Remove the temporarily fitted cockpit decking panel from the fuselage.

Cut a rectangle of 0.8 mm thick plastic card 25 mm x 17 mm.

Cut then file or sand one end of the 17 mm width to conform to the underside shape of the cockpit decking panel.

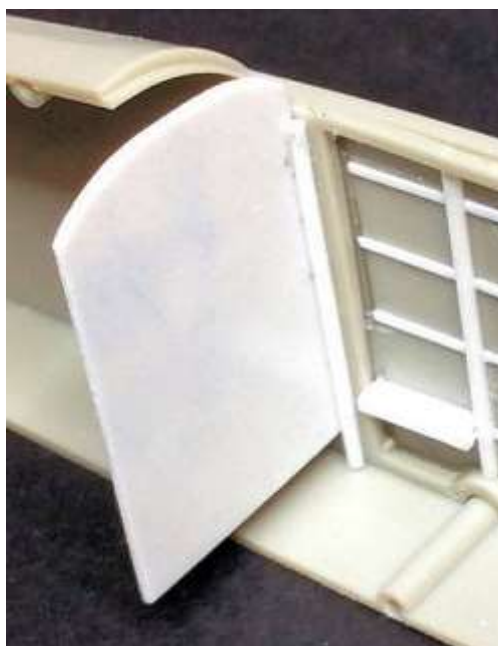
Slide the panel, straight edge down behind the two added vertical styrene rods on the rear of the cockpit side frames. Trim the width if necessary to achieve a good fit.

Temporarily refit the cockpit decking panel onto the fuselage.

Make sure the curved top of the false bulk head is against the underside of the decking panel.

Cement only the left side of the false bulk head in position behind the vertical rod and against the left cockpit side frame. The opposite side will be secured in position later in this build.

Remove the temporarily fitted cockpit decking panel from the fuselage.



Seat and frame:

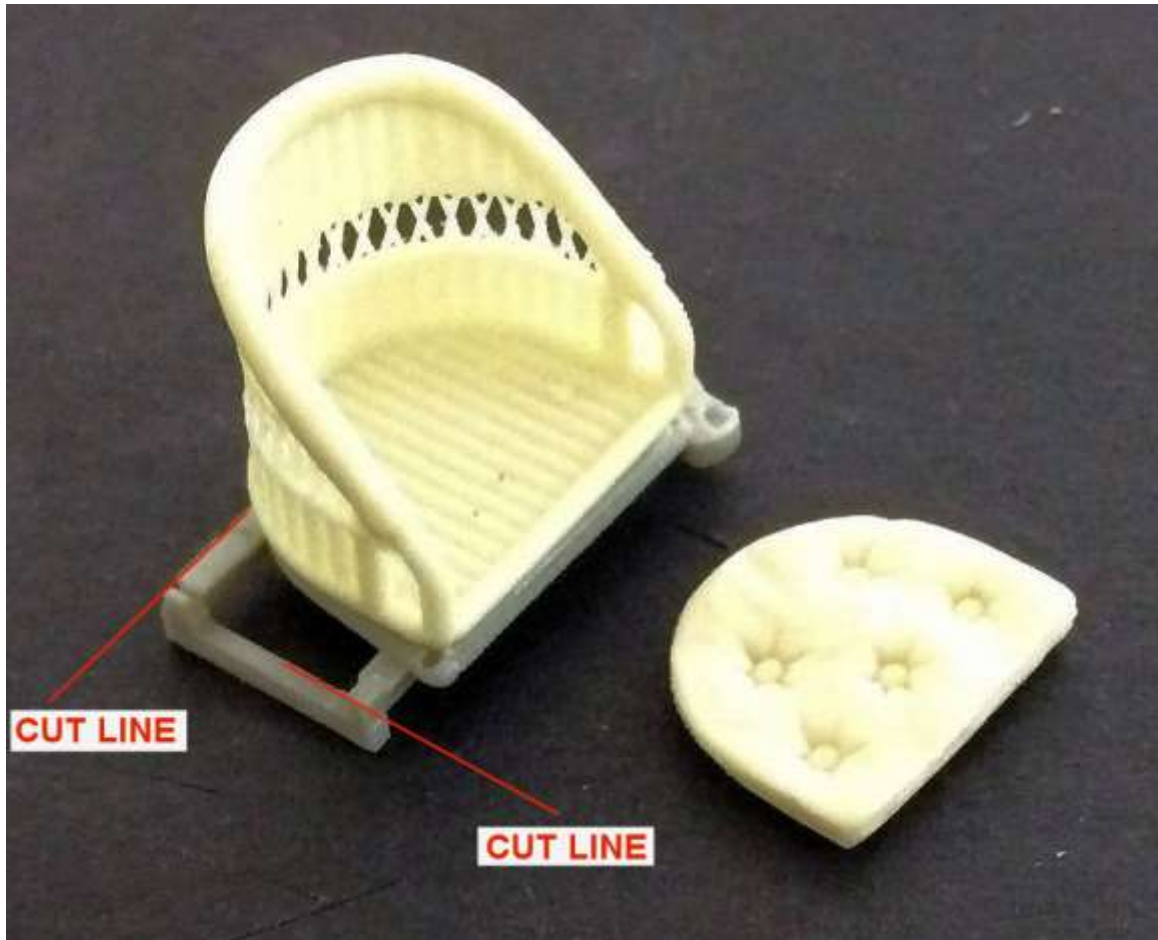
NOTE: *The kit supplied pilot seat A34 will be replaced with the 'Barracuda Cast' Camel seat and cushion (BR32332).*

Sand away the resin mould block from the underside of the 'Barracuda Cast' Camel seat and cushion (BR32332).

Cut through the seat frame (A23) to leave just the seat base and its support frame. Cut away any end locating stubs for the cockpit side frames.

Sand away the seat cushion from the cut away section of the seat frame.

Secure the resin seat onto the seat frame using CA adhesive. Make sure the seat is positioned correctly on the frame.



Foot boards:

Cut away the locating stubs on the rear crossmember of the foot boards (A21).

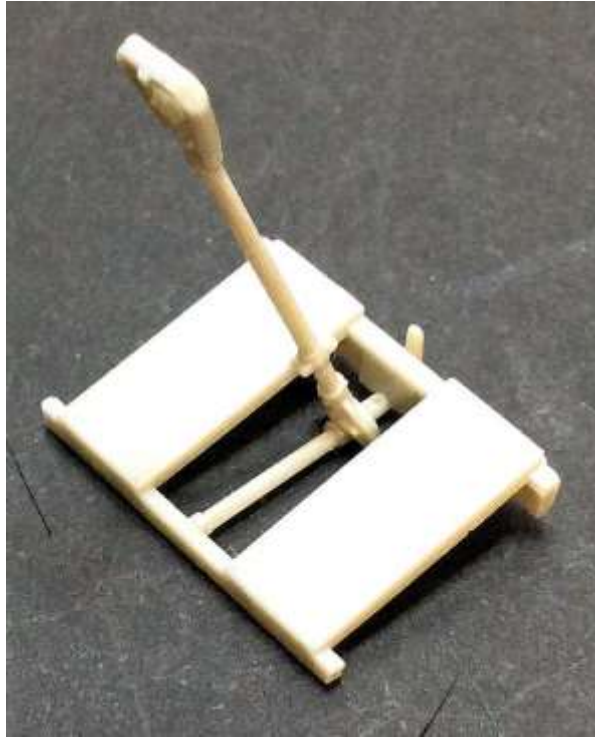
Control Column:

Cement the control column (D6) in position and at the desired angle, onto the shaft under the floor boards. The control column should be:

Central if the wings ailerons are to aligned to the wings.

Tilted left if the wings ailerons are angled up (left wings) and down (right wings).

Tilted right if the wings ailerons are angled down (left wings) and up (right wings).



Fuel tank:

To represent the fuel tank, cement the kit supplied tank (A35) centrally on the forward bay on the centre section of the lower wing (B6). The tank should be positioned with its curved surface facing rearwards and the bottom edge in contact with the wing cross member.

Rudder bar:

Cut a 5 mm length of 1.2 mm diameter tube, such as 'Albion Alloy's' MBT12 or similar.

Using CA adhesive, secure the locating stub on the centre, underside of the rudder bar (D7) into one end of the cut tube.

Using CA adhesive, secure the opposite end of the tube centrally on the centre section of the lower wing. The rudder bar should be straight across the wing and the tube should be positioned centrally and in contact with the wing cross member.



Test assembly:

Prime all of the fuselage internal parts and inside surfaces of the fuselage with a grey primer, such as 'AK Interactive' Grey (AK758) or similar.

Using masking tape, where necessary, assemble all of the parts together and check all parts fully locate and are aligned. **Do not permanently secure** any parts in position at this stage.



NOTE: The cockpit decking panel in this photograph has been re-shaped

NOTE: The cockpit decking panel in this photograph has been re-shaped



NOTE: The cockpit decking panel in this photograph has been re-shaped



NOTE: The cockpit decking panel in this photograph has been re-shaped



Forward decking panels:

NOTE: *The following will create a basic set of forward decking panels. Their final fitting can only be carried out once the fuselage parts have been painted and fitted and the fuselage halves have been joined together.*

Leave the fuselage test assembly together.

NOTE: *To allow the plastic card used to bend without creasing and too much resistance, a card thickness of 0.2 mm is used.*

Cut a piece of 0.2 mm thick plastic card such that:

It will fit between the rear edge of the engine bulk head and just past the second rearward fuselage former.

It has a notch cut out from the two forward corners to allow the card to fit around the two forward cabane struts on the cockpit side frames.

When held in position, it fully contacts the curves on the two forward fuselage formers.

The sides locate onto the top of the forward recesses in the cockpit side frames.

Temporarily secure the card in position using masking tape at the sides onto the fuselage sides.

Cut a second piece of 0.2 mm thick plastic card such that:

It should overlap the existing card with its forward edge midway between the engine bulk head and the rear edge of the recesses in the cockpit side frames.

It has a notch cut out from the sides to allow the card to fit around the two rear cabane struts on the cockpit side frames.

When held in position, it fully contacts the curves on the second and rear fuselage formers.

The sides locate onto the top of the rails of the cockpit side frames.

The rear edge lays over the added 0.2 mm plastic card pieces at the front ends of the cockpit decking panel.

Temporarily secure the card in position (front over the existing fitted card) using masking tape at the sides onto the fuselage sides.

Using a pencil:

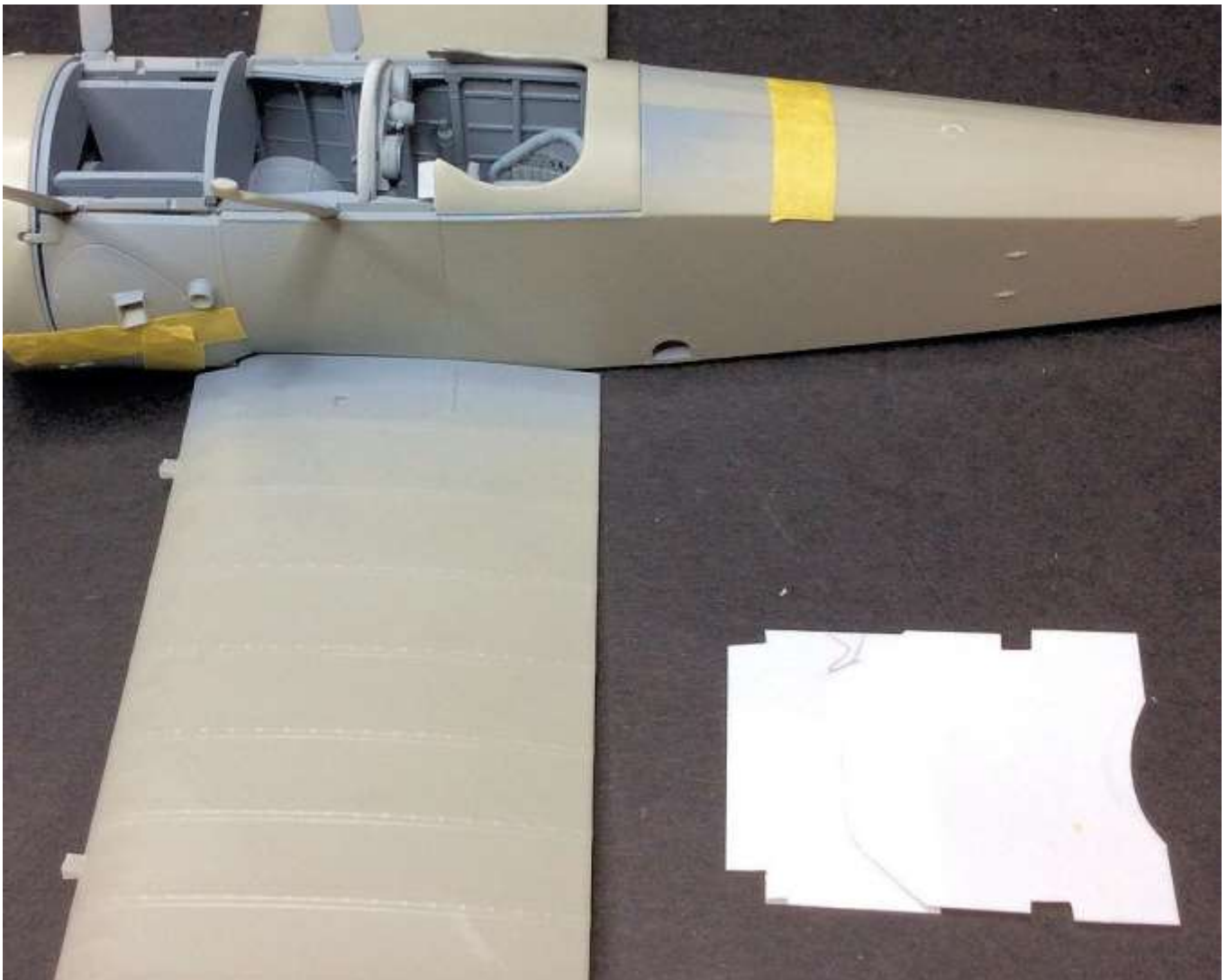
Mark a straight forward edge that curves slightly to straight sides, angled rearwards to the rear of the recesses in the cockpit sides frames.

Mark a curve in the rear edge to blend with the forward ends of the cockpit decking panel.

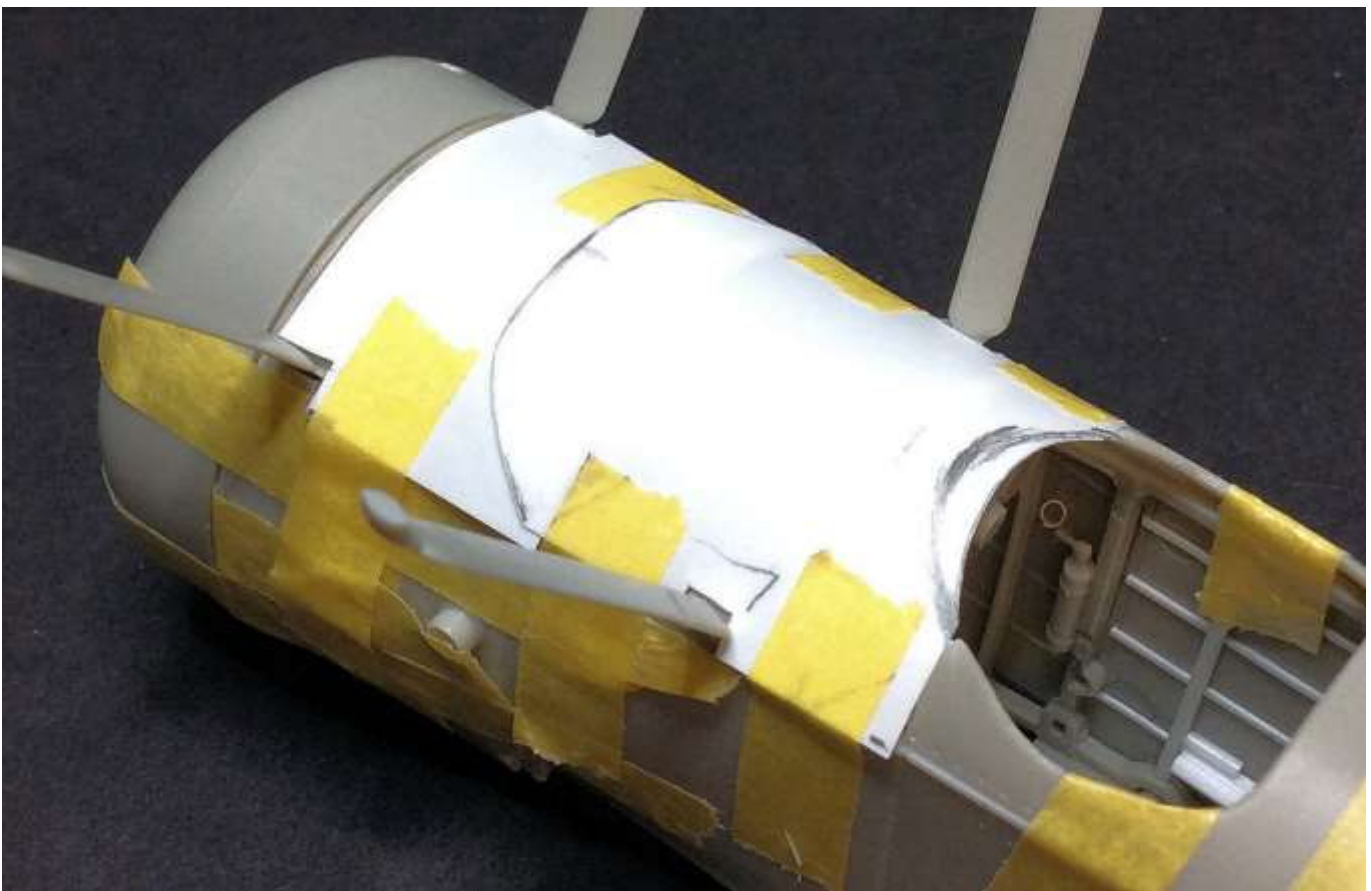
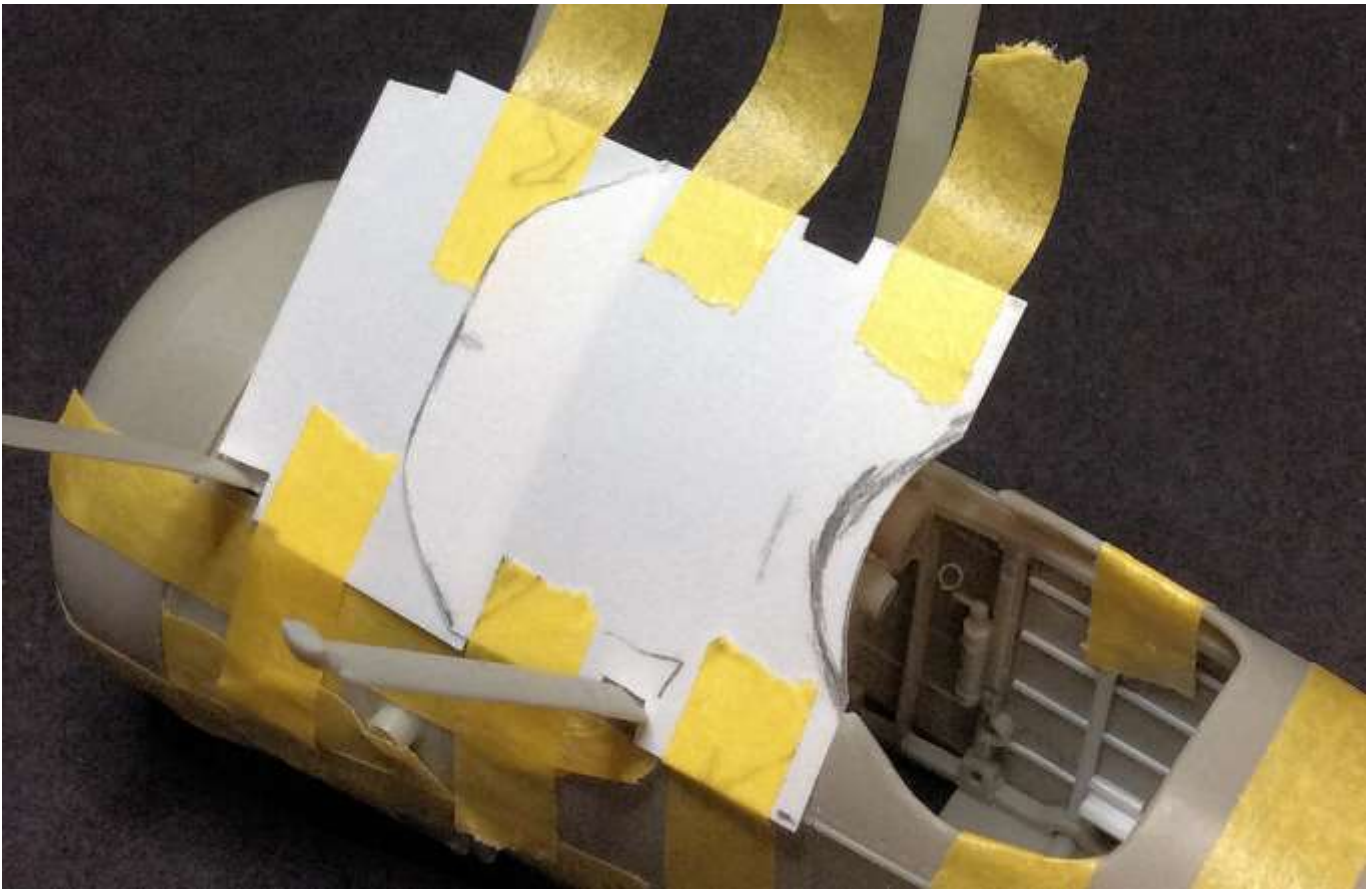
Remove the card and carefully cut out the shapes at the front and rear edges of the card.

Temporarily refit the card and check that the cut out shapes are central along the panel and correctly positioned.

Remove the two cards and dis-assembled the fuselage assembly.



NOTE: The cockpit decking panel in this photograph has been re-shaped



NOTE: The cockpit decking panel in this photograph has been re-shaped

Painting:

On the inside of the two fuselage halves, mask off the front bay (metal panels).

On the inside of the two fuselage halves, mask off rearwards from the rear edge of the lower wing opening.

NOTE: *The insides of the fuselage halves and internal parts should have previously been grey primed before test assembling the fuselage.*

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

- Left and right cockpit side frames
- Inside of the fuselage halves (unmasked area)
- Underside of the two cut out front decking panels
- Underside of the modified cockpit decking panel
- Foot boards
- Instrument panel/fuselage former
- Pilot seat support frame.

Remove the masking.

Mask off the inside of the two fuselage halves except the front bay (metal panels).

Airbrush the following with 'Alclad' Duraluminium (ALC102) or similar:

- Inside of the fuselage halves (unmasked area)
- Inside of the engine bulk head/former assembly
- Inside surface of the under shield
- Lower wing cockpit area with fuel tank.

Remove the masking.

Mask off the painted areas inside the two fuselage halves.

Airbrush the exposed areas on the inside of the fuselage halves with 'MRP' Clear Doped Linen (MRP256) or similar.

Remove the masking.



Brush paint the rudder bar with 'Tamiya' Dark Yellow (XF60) or similar.

Refer to Part 2 (wood Effects) of this build log - Apply the desired wood effect over the painted parts. For this model, I used 'DecoArt Crafters Acrylic' paints (Burnt Umber):

- Left and right cockpit side frames
- Inside of the fuselage halves (masked off centre bay)
- Underside of the two cut out front decking panels
- Underside of the modified cockpit decking panel
- Foot boards
- Instrument panel/fuselage former
- Pilot seat support frame
- Rudder bar.



Pilots seat and belts:

NOTE: *Before painting the pilots seat it's best to prepare and paint the seat belts.*

Cut the two seat belts (P3, P5) from the photo-etch sheet.

NOTE: *The restraint straps on the photo-etch seat belts will not be used as they appear to be too thin.*

Cut away the four retaining straps below the strap knots. These will be replaced with wire later in this build.

Anneal the two belts over a naked flame to soften the metal to make it easier to form. Take care not to overheat and melt the photo-etch.

Bend the longer belt, as desired, over the right side of the seat and the shorter belt over the left side of the seat.

Prime the two seat belts with a grey primer, such as 'AK Interactive' Grey (AK758) or similar.

Brush paint the two seat belts seat with 'Tamiya' Dark Yellow (XF60) or similar.

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

Brush paint the pilots seat with 'Tamiya' Deck Tan (XF55) or similar.

When dry, brush 'AK Interactive' Light Wood filter (AK261) over the seat.

Brush paint the padded rim around the pilots seat with 'AK Interactive' Leather (AK3031) or similar.

Paint the pilots seat cushion with 'AK Interactive' British Uniform (AK3081) and Leather (AK3031) highlights, or similar.

Airbrush 'Tamiya' Clear Yellow (X24) over the seat cushion.

Secure the cushion onto the pilots seat using CA adhesive.

Secure the two seat belts in position over the side padding rim of the pilots seat and onto the seat cushion, using thin CA adhesive.

Cut two lengths of 0.4 mm diameter lead wire, such as that from 'Plus Model' or similar.

Slightly flatten the two wires, using flat nosed pliers, to create a flat strap profile.

Using thin CA adhesive, secure the end of one wire to the rear face of the strap knot on one side of the pilots seat.

Loop the wire under the rear cross member of the seat support frame and back up to the strap knot.

Leaving a slight loop of wire under the seat cross member, cut the free end of the wire such that it will attach behind the strap knot.

Using thin CA adhesive, secure the free end of the wire to the rear face of the strap knot.

Repeat the procedure to add a retaining strap to the opposite side of the pilots seat.

Brush paint the two retaining straps with 'Tamiya' Dark Yellow (XF60) or similar.

Pilots seat (after weathering)



Brush paint the control column and throttle quadrant pipes with 'Mr. Colour' Iron (214) or similar.

Brush paint the hand grips of the control column 'Tamiya' Dark Yellow (XF60) or similar.

Brush paint the control column trigger pads, rudder bar cable attachments, throttle quadrant and fuel gauge pipe and instrument panel gauge pipes with 'Mr. Colour' Stainless Steel (213) or similar.

Brush paint the handles of the throttles and pressure pump with 'Tamiya' Hull Red (XF9) or similar.

Weathering:

Refer to part 3 (Weathering) of this build log. Apply the desired weathering over the insides of the fuselage halves and other cockpit parts (except the instrument panel). I applied 'Flory Models' Dark Dirt clay wash.

Seal the applied weathering, wood effects and painted parts by airbrushing a semi-matte clear coat, such as 'Alclad' Light Sheen (ALC311) or similar.



Instrument panel:

Brush paint the pressure pump with 'Mr. Colour' Brass (219) or similar.

Brush paint the instrument panel gauges with 'Tamiya' Rubber Black (XF85) or similar.

Brush paint the instrument panel switches with 'Mr. Colour' Brass (219) or similar.

NOTE: *As the instrument panel has been modified, it may be that not all of the placard decals can be applied. However, the instrument decals can be applied.*

Brush 'Tamiya; Clear Gloss (X22) over the instruments that require decals in the instruction manual.

Apply the instrument decals and those placards decals that can be applied.

Brush 'Tamiya' Clear Gloss (X22) over the applied instruments decals.



Tail skid:

Airbrush the tail skid (D17) and inside surfaces of the tail skid bay on both fuselage halves with a grey primer, such as 'AK Interactive' Grey (AK758) or similar.

Brush paint the skid with 'Tamiya' Desert Yellow (XF59) or similar.

Brush paint the suspension arms with 'Mr. Colour' Stainless Steel (213) or similar.

Brush paint the tail skid bay on both fuselage halves with 'Tamiya' Deck Tan (XF55) or similar.

Brush paint the vertical fuselage member the tail skid bay on both fuselage halves with 'Tamiya' NATO Brown (XF68) or similar.

If desired, cut four lengths of blackened 0.2 mm diameter Nickel-Silver rod, such as 'Albion Alloy's' NSR02 or similar. The rods should be cut to length such that they can be attached diagonally crossed in the tail skid bay on both fuselage halves (page 6 in the instruction manual).

Using thin CA adhesive, secure the rods in position in the fuselage halves.

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

Cut two long lengths of 'Stroft' 0.08 mm diameter mono-filament or similar.

Cut two short lengths of 'blackened' Nickel-Silver tube, such as 'Albion Alloy's' NST04 or similar.

Slide a cut tube onto a line.

Thread the line through one of the pre-drilled holes in the tail skid control horn.

Pass the line back through the tube then move the tube close up to, **but not touching**, the control horn.

Secure the tube to the lines using thin CA adhesive.

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

Repeat to add a line to the opposite end of the control horn.



Rigging preparation:

NOTE: Refer to page 6 of the instruction manual for more information.

Drill a hole of 0.5 mm diameter through the rear, underside of both fuselage halves (for tail skid controls).

Sand or scrape away the pre-moulded middle control fairlead on both fuselage halves as they are not required.

Drill a hole of 0.5 mm diameter through the upper and lower control fairleads on both fuselage halves (for elevator controls). Drill the holes at the approximate angle to align with the elevator control horns on the fitted elevator.

Carburettor air intakes:

Drill a hole of 1.5 mm diameter through the carburettor air intake on both fuselage halves.

Engine control rods:

NOTE: Brass or Nickel-Silver tube can be blackened by immersing the tube into a chemical Solution, such as 'Blacken-It' or similar modelling solutions.

Cut two lengths of 0.3 mm diameter Nickel-Silver tube, such as 'Albion Alloy's' NST03 or similar.

Using thin CA adhesive, secure the two tubes, separated, onto the vertical members of the cockpit left side frame. The tubes should contact the throttle quadrant and route horizontally forward across the vertical members.

Pipes:

Cut four long lengths of 0.4 mm diameter lead wire, such as that from 'Plus Model' or similar.

1. Bend one wire such that it can be located on the rear face of the centre vertical member behind the throttle assembly (**cockpit left side frame**). The wire should be bent at the top to align with the existing fuel gauge pipe then routed down the vertical member and bent in and around the bottom to be then routed horizontally forwards.

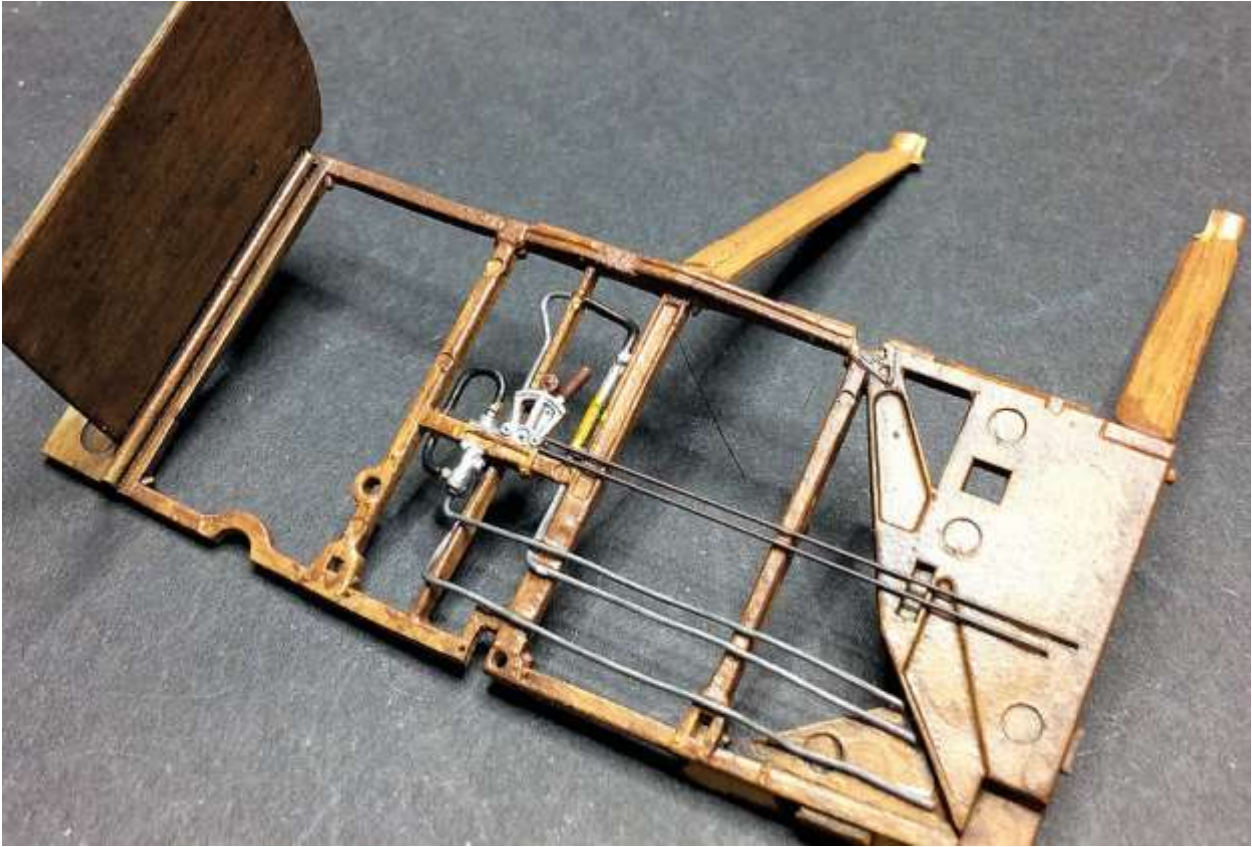
Secure the wire in position on the three vertical members of the side frame, using thin CA adhesive.

2. Bend a second wire such that it can be located on the rear face of the vertical member forward from the throttle assembly and under the fuel gauge tube (**cockpit left side frame**). The wire should be routed down the vertical member and bent in and around the member to be then routed horizontally forwards.

Secure the wire in position on the two vertical members of the side frame, using thin CA adhesive.

3. Bend a third wire such that it can be located under the fuel mix valve, located rearwards and lower to the throttle assembly (**cockpit left side frame**). The wire should be routed slightly down then routed horizontally forwards.

Secure the wire in position on the three vertical members of the side frame, using thin CA adhesive



4. Bend the fourth wire such that it can be located into the pre-drilled hole in the bottom of the pressure pump, located on the (**cockpit right side frame**). The wire should be routed slightly down and bent to be routed horizontally forwards.

Secure the wire in position on the three vertical members of the side frame, using thin CA adhesive.



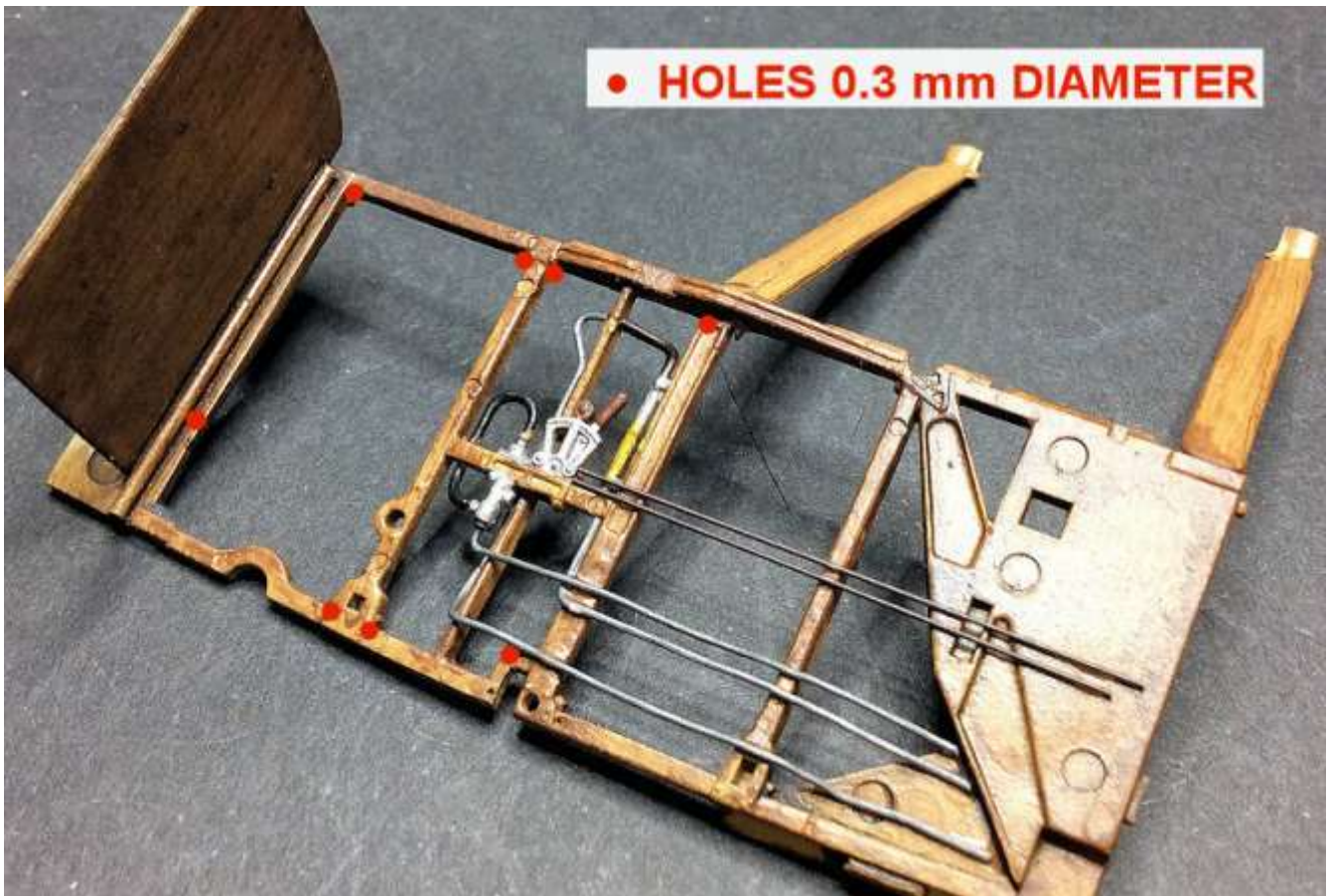
Bracing rigging:

NOTE: *The internal structure of this aircraft had various bays braced with crossed wires, which were of the standard, round wire wound type. The kit instruction manual on page 5, shows (in blue) the cross bracing wires for the Sopwith Camel. Although this model is based on that aircraft, the changes carried out in the cockpit of the model require less bracing wires, especially as most would not be seen once the fuselage is complete.*

Left side frame:

NOTE: *The only bays in the left side frame that will be visible are the rear two.*

Refer to the following photograph and drill holes of 0.3 mm diameter through the cockpit left side frame. The lower rear hole should be drilled above the seat support rods added earlier on the fuselage surface.



Cut two long lengths of 'Stroff' 0.08 mm diameter mono-filament or similar.

Cut eight short lengths of 'blackened' Nickel-Silver tube, such as 'Albion Alloy's' NST04 or similar.

Thread the line through one of the pre-drilled holes at the rear of the side frame.

Secure the line in the hole using thin CA adhesive.

Slide onto the free end of the line two 0.4 mm diameter blackened Nickel-Silver tubes, such as 'Albion Alloy's' NST04 or similar.

Pass the free end of the line diagonally across and through the opposite pre-drilled hole in the side frame.

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

Slide onto the line two 0.4 mm diameter blackened Nickel-Silver tubes, such as 'Albion Alloy's' NST04 or similar.

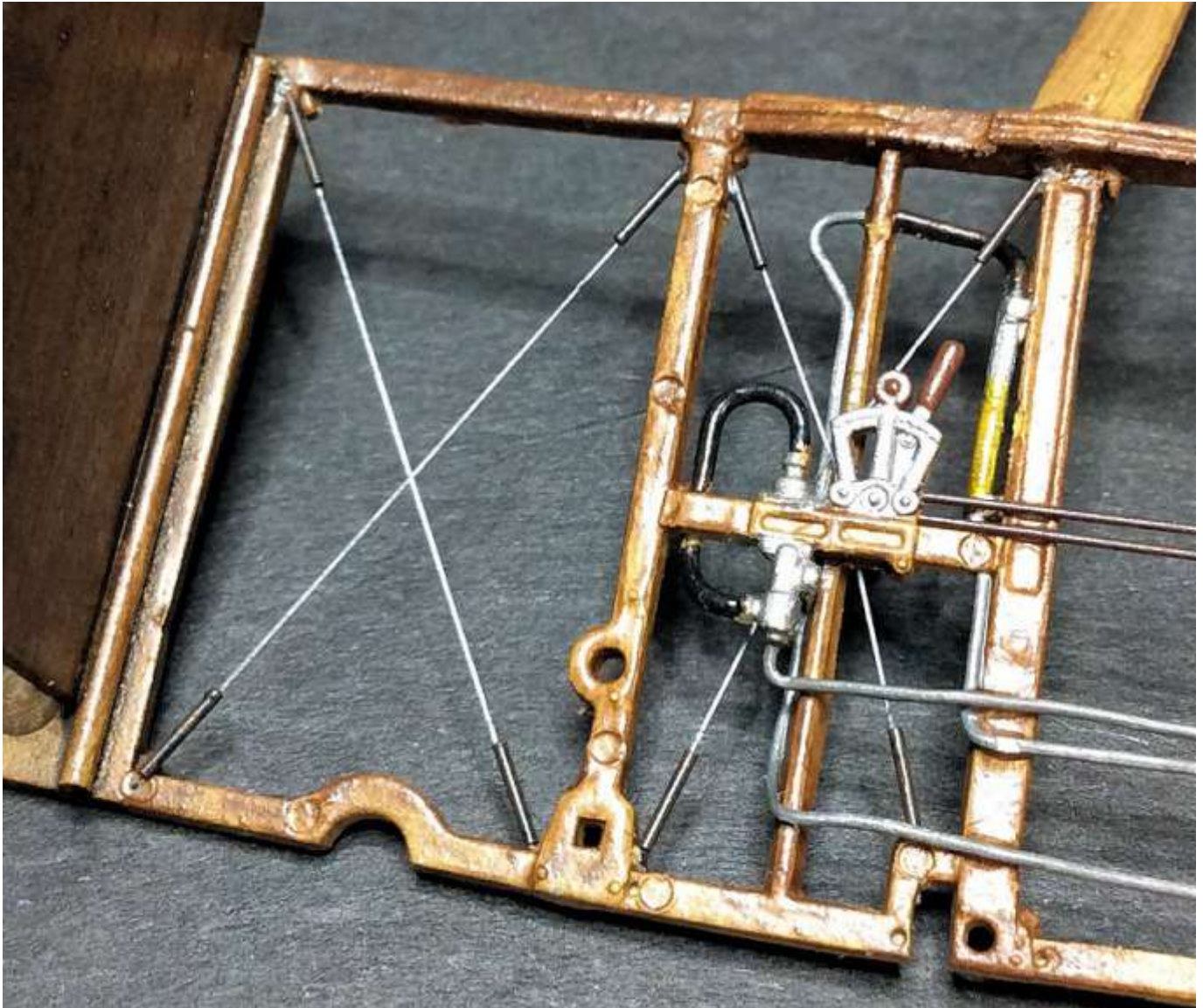
Pass the free end of the line diagonally across and through the opposite pre-drilled hole in the side frame.

Keeping the line taut, secure the free end of the line using thin CA adhesive.

Slide the eight tubes up to and in contact with the corners of the side frame bats.

Secure the tubes in position secure using thin CA adhesive.

Cut away any residual tag ends of line.

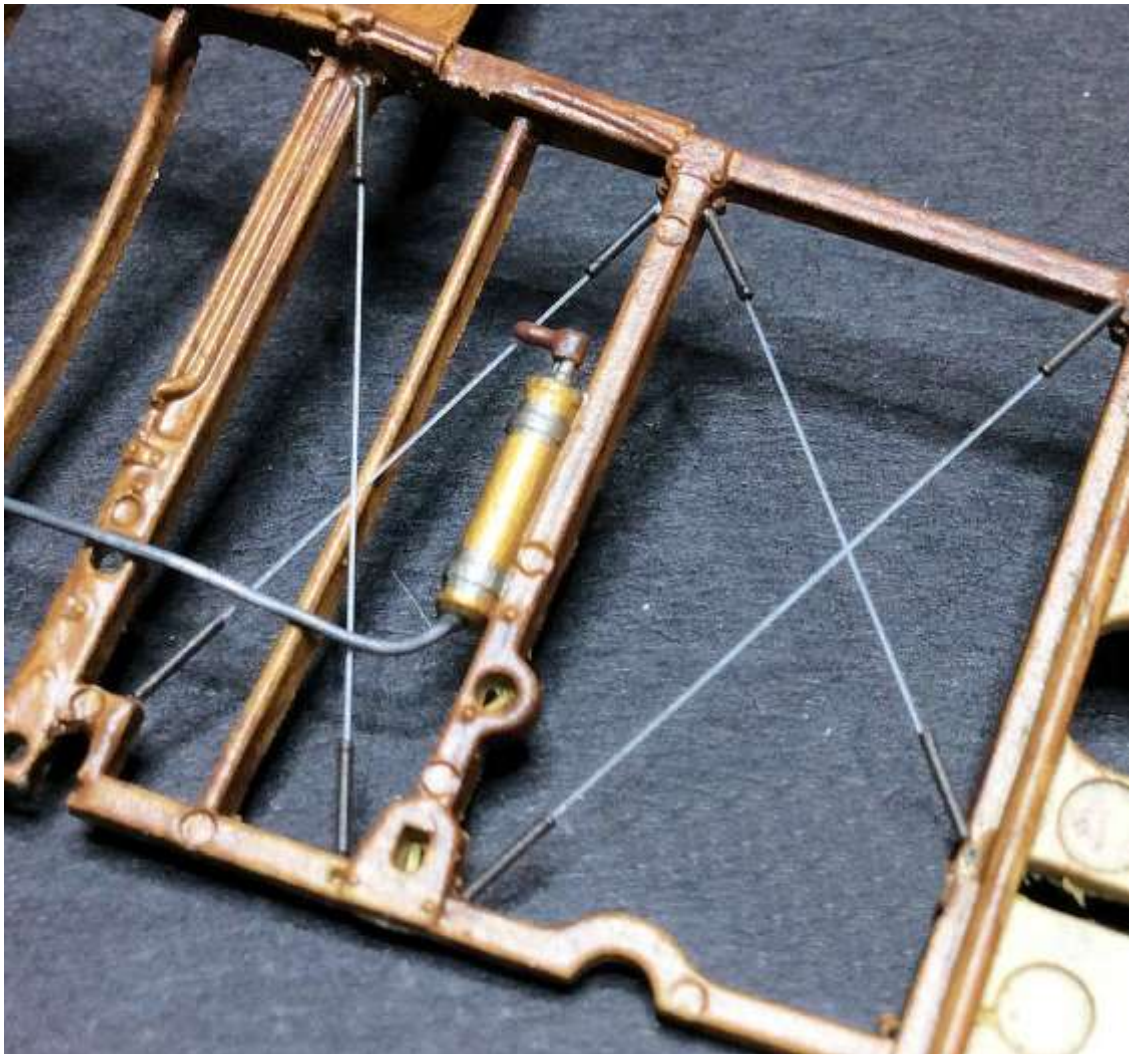


Right side frame:

NOTE: *The only bays in the left side frame that will be visible are the rear two.*

Refer to the following photograph and drill holes of 0.3 mm diameter through the cockpit right side frame.

Follow the same procedure as used to add bracing wires to the cockpit left side frame.



Flight controls:

NOTE: Only the rudder and top elevator control lines will be added, as the lower elevator and the ailerons control lines will not be seen.

Cut four long lengths of blackened 0.2 mm diameter Nickel-Silver rod, such as 'Albion Alloy's' NSR02 or similar.

Temporarily fit the fuselage left half in position on the lower wing.

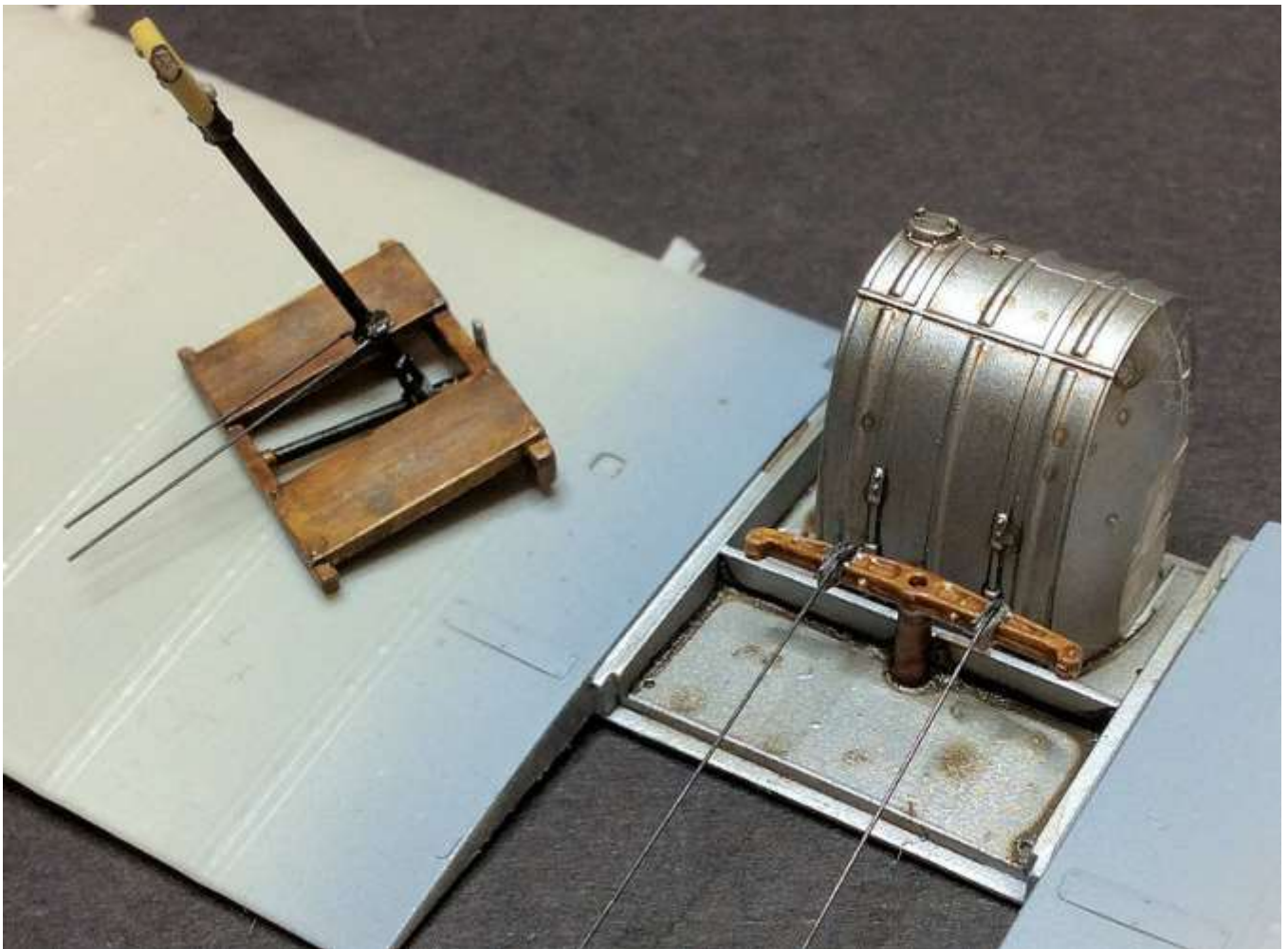
Place the foot boats in position on the fuselage floor, under the pilots seat and to the rear of the rudder bar.

Cut the length of two rods such that can be secured to the rudder bar attachment points with their opposite ends hidden under the pilots seat.

Cut the length of the two remaining rods such that can be secured to each side of the control column, upper elevator attachment points with their opposite ends hidden under the pilots seat.

Using thin CA adhesive, secure the two rods, parallel to each other, onto the rudder bar control line attachment points. The attaching ends may need to be bent slightly to allow the opposite ends of the rods to fit under the pilots seat.

Using thin CA adhesive, secure the two remaining rods, parallel to each other, onto the elevator upper attachment points on the control column. Make sure the opposite ends of the rods are able to fit under the pilots seat.



Fuselage assembly:

NOTE: *To align parts correctly and to allow access to fit the flight controls, some cockpit parts will need to be fitted into one fuselage half before the two fuselage halves are joined together.*

Make sure the mating surfaces of all fuselage and cockpit parts are free of paint and primer before assembly. If not some parts may not fully join when assembled.

Cement the cockpit left cockpit side frame into the left fuselage half.

Cement the cockpit right cockpit side frame into the right fuselage half.

Test fit the two fuselage halves together and locate onto the lower wing. When fitting the lower wing:

You may find that the sides of the fuel tank will need to have material removed so it will not contact the cockpit side frames.

You may find that the added lead wire pipes will need to be bent so they do not obstruct the rudder bar.

Separate the fuselage halves.



Cement the pilots seat frame onto its added support rods in the left fuselage half only.

Temporarily join the two fuselage halves together using masking tape, **but do not cement them**. Make sure the pilots seat is located fully and correctly onto the added support rods on both fuselage halves.

Allow the cemented pilots seat to fully set.

Separate the two fuselage halves, leaving the pilots seat fixed to the left fuselage half.

Apply cement around the mating edges of a fuselage half.

Join the fuselage halves together, making sure they locate fully together and that the pilots seat locates on its added fuselage support rods on the fuselage right side frame.

Apply cement between the right side of the pilots seat frame and its added support rods in the fuselage right side.

NOTE: *To prevent the tail skid being inadvertently damaged or broken during handling, use masking tape to hold a piece of sponge onto the rear underside of the fuselage.*

Locate the lower wing then pencil mark the outside of the fuselage to align with the cross member on the cockpit floor of the lower wing.

NOTE: *During the following steps, it may be necessary to ease apart the front of the fuselage halves in order to be able to fit the lower wing and foot board assembly.*

Locate, **but do not cement**, the foot boards assembly with its rear edge under the pilots seat.

Locate the lower wing into the underside of the fuselage, making sure it locates fully.

If necessary, move the foot boards assembly to align its front edge with the pencil mark on the fuselage sides.

Using masking tape, temporarily fit the engine bulkhead into the front of the fuselage, making sure it locates fully with no gaps around the bulkhead to fuselage joint.

Cement the lower wing into the fuselage, applying cement along the wing root to fuselage joints and across the rear edge of the underside panel to fuselage joint.

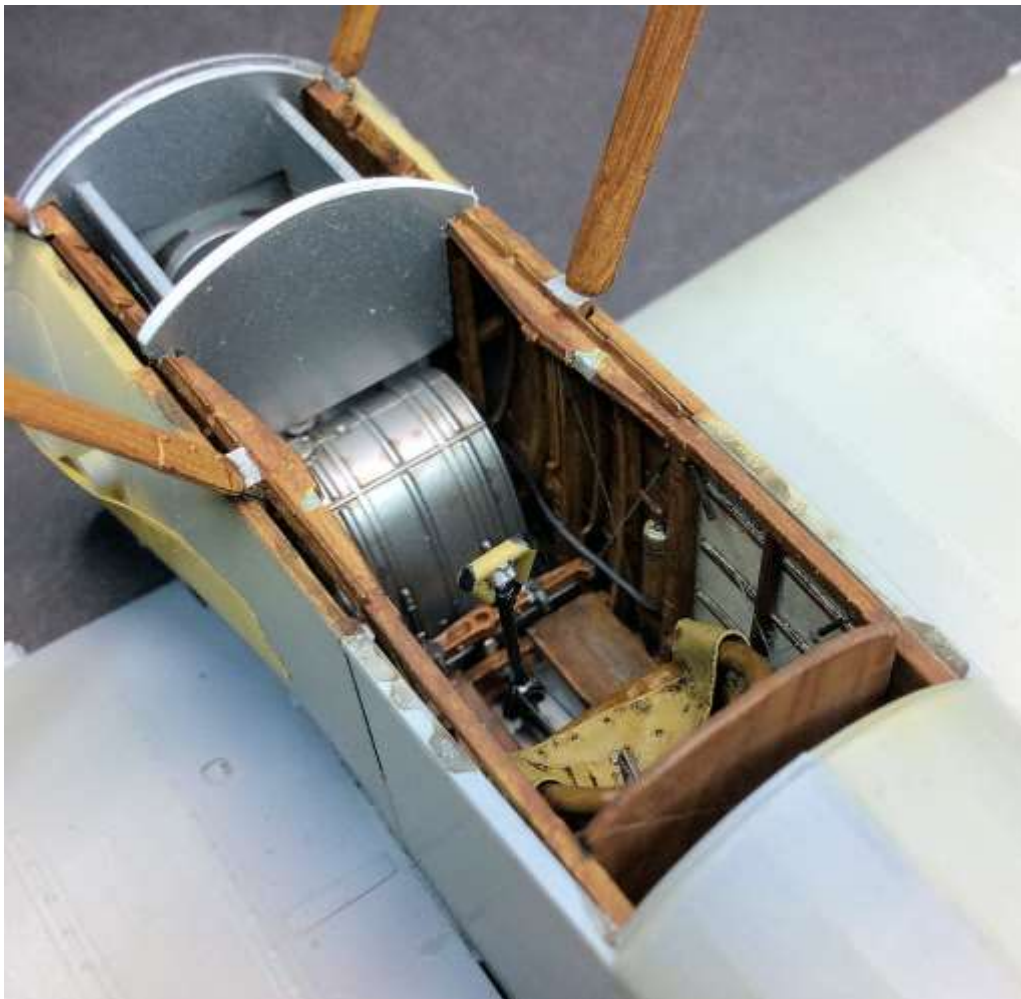
Check the position of the foot boards assembly then apply cement where possible to secure it in position inside the fuselage.

Cement the under shield panel into position, applying cement between it and the sides of the fuselage and between its rear edge and the fuselage underside.

Remove the engine bulkhead and apply cement to the two location recesses on its rear surface.

Refit the engine bulkhead to the fuselage, making sure it locates fully.

Apply cement between the edges of the engine bulkhead and front of the fuselage sides, the front edge of the under shield and the added fuselage former to cockpit side frames.

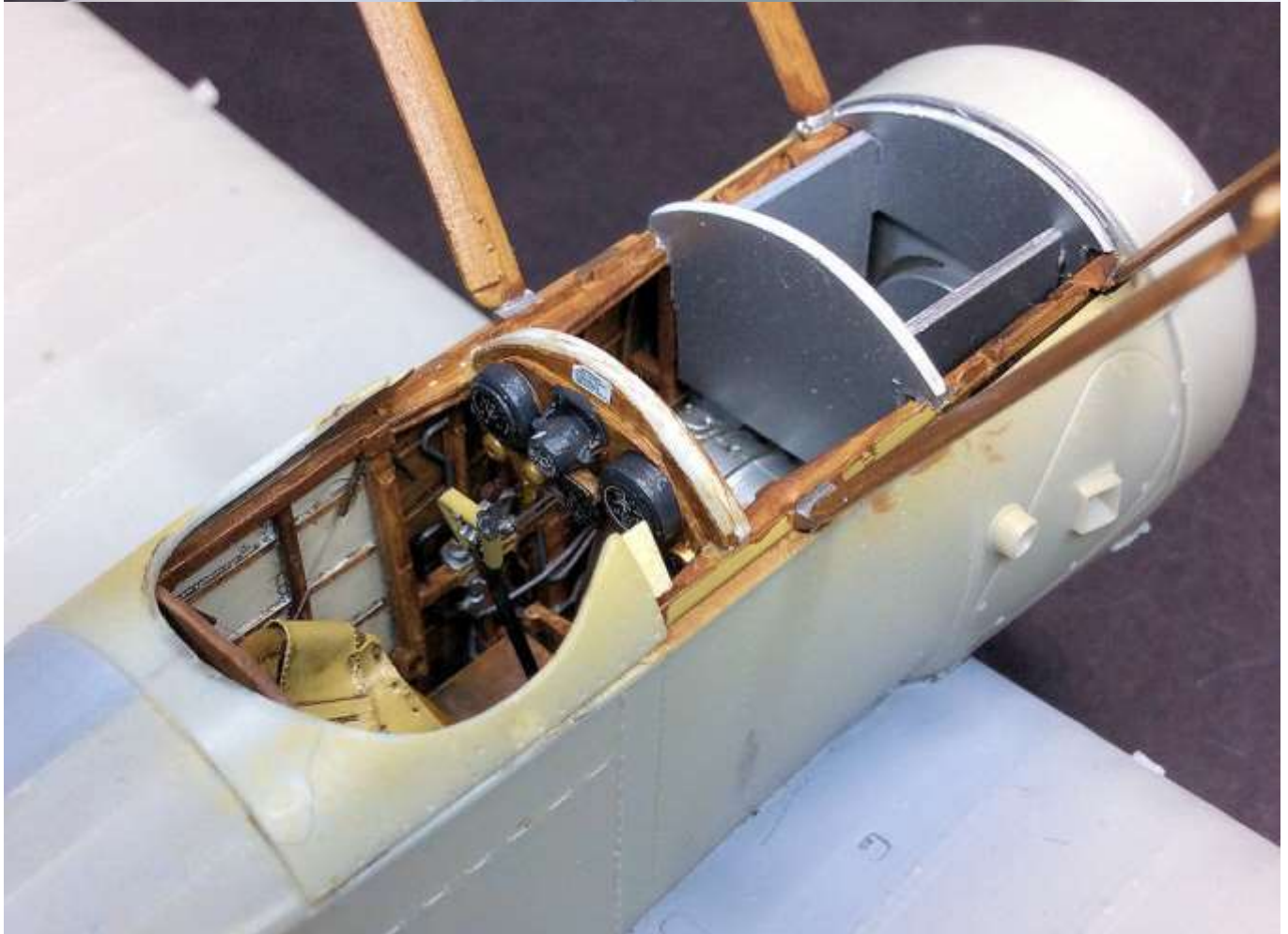
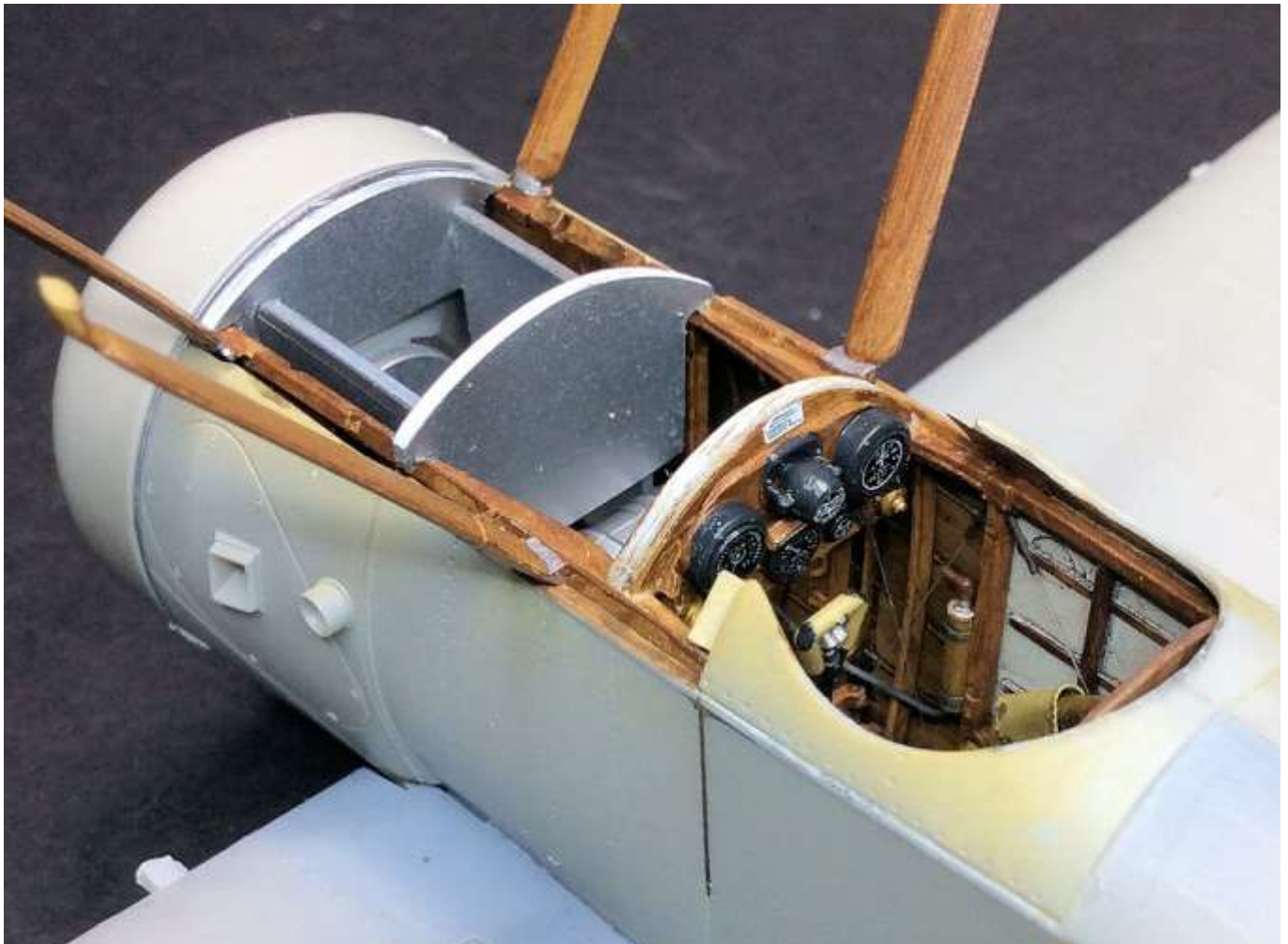




Cement the instrument panel in position between the cockpit side frame, making sure it locates fully onto the side frame and is vertical in the fuselage.

Locate the modified cockpit surround decking panel in position onto the fuselage and secure it in position by applying cement to the panel mating surfaces.

Sand the cemented joint seams, including the fuselage halves joint, to blend them with the surrounding surfaces.





Forward decking panels:

NOTE: *The two forward decking panels should have already been cut from 0.2 mm thick plastic card.*

Forward panel - fit:

Test fit the front decking panel between the forward cabane struts. Make sure:

The forward edge fully locates on the top of the added fuselage former on the rear of the engine bulkhead.

The panel fully locates onto the top of the added fuselage former rearward from the engine bulkhead.

The edges of the panel sides align with the top of the fuselage sides.

Attach a long strip of masking tape across the panel.

Apply cement onto the top edges of the added front and rear fuselage formers.

Holding the ends of the masking tape, locate the panel in position on the two fuselage formers. Pull down on the masking tape ends to ensure the panel fully contacts the formers.

Once the cement has set, remove the masking tape.

Secure the sides of the panel in position by applying cement between the side edges of the panel and top of the fuselage sides. Hold down with masking tape if necessary.

Rear panel - fit:

Test fit the rear decking panel between the rear cabane struts with its front edge over the fitted forward panel. Make sure:

The cut curve in the rear edge aligns with the front edges of the cockpit decking panel.

The panel fully locates onto the top of the fuselage former for the instrument panel and over the rear of the forward decking panel.

The edges of the panel sides align with the top of the fuselage sides.

Attach a long strip of masking tape across the panel.

Holding the ends of the masking tape, locate the panel in position between the rear cabane struts and on the fuselage former for the instrument panel and the rear of the forward decking panel.

Pull down on the masking tape ends to ensure the panel fully contacts the formers.

Pencil mark the shape of the front of the panel onto the forward decking panel.

Remove the panel.

Apply cement onto the top edge of the added fuselage former for the instrument panel, the rear of the pencil mark on the front decking panel and the two added plastic card extensions on the front edges of the cockpit decking panel.

Holding the ends of the masking tape, locate the panel in position between the rear cabane struts and on the fuselage former for the instrument panel, the rear of the forward decking panel and the two added plastic card extensions on the front edges of the cockpit decking panel.

Hold the panel in position using strips of masking tape.

Once the cement has set, remove the masking tape.

Secure the sides of the panel in position by applying cement between the side edges of the panel and top of the fuselage sides. Hold down with masking tape if necessary.

Sand the edges of the panels to blend them with the surrounding areas. If necessary, fill any gaps and once set, sand the filled areas.



Filler caps:

NOTE: To cut discs in plastic card, I used a 'Thinnerline' circle cutter, although other circle cutters are available.

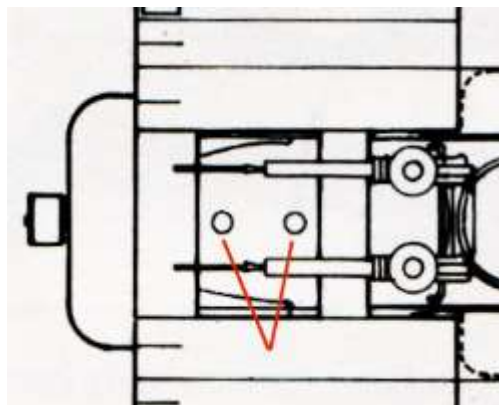


Cut two discs of 3 mm diameter from 0.5 mm thick plastic card.

Cement the two discs centrally onto the rear decking panel.

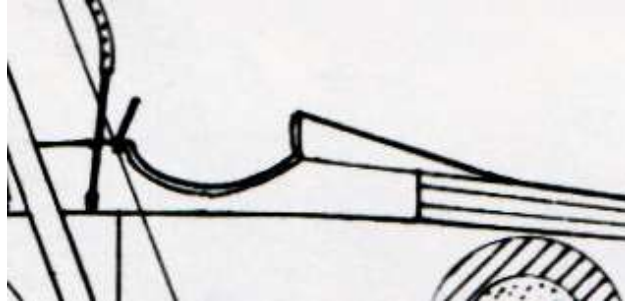
Cut two 3 mm lengths of 0.3 mm diameter rod, such as 'Albion Alloy's' MBR03 or similar.

Using thin CA adhesive, secure the rods centrally onto the discs, making sure the rods are aligned along the fuselage.



Cockpit surround panel:

NOTE: *The cockpit surround panel extended further rearwards than that on the standard Sopwith 'Camel'.*



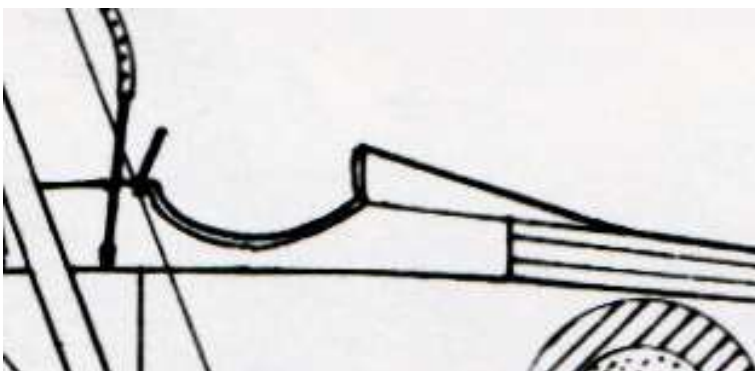
Using masking tape, mask across the top of the fuselage with the front edge of the tape aligned to the rear of the pilots foot step in the fuselage left side.

Remove the flat strips of pre-moulded fabric by carefully sanding over the top of the fuselage, between the masking tape and the cockpit surround panel. The surface should be curved to match the cockpit surround panel.



Head Restraint:

NOTE: *The Comic had a headrest fitted on the top of the fuselage, behind the cockpit, unlike the standard Sopwith 'Camel', which had no headrest.*



Using kitchen food wrap ('Clingfilm or similar) around the fuselage, from the cockpit rearwards. Hold the wrap tightly and wrinkle in position using masking tape.

Mix a small amount of a two part putty, such as 'Milliput' or 'Green Stuff' and roll it into a tapered shape.

Position the putty onto the top of the fuselage, from the rear edge of the cockpit opening.

Using wet fingers or suitable modelling tools, roughly shape the putty into the shape of the headrest.

Leave the putty to fully cure and harden.

Once set, remove the wrap with the headrest from the fuselage.

Remove the headrest from the wrap.

File or sand the headrest to its approximate shape.

Secure the headrest in position on the fuselage, using CA adhesive.

Carefully scrape, file or sand the headrest into its final shape.

Cut a piece of 0.8 mm thick plastic card to form the shape of padding for the front of the headrest.

Secure the padding to the front of the headrest, using thin CA adhesive.



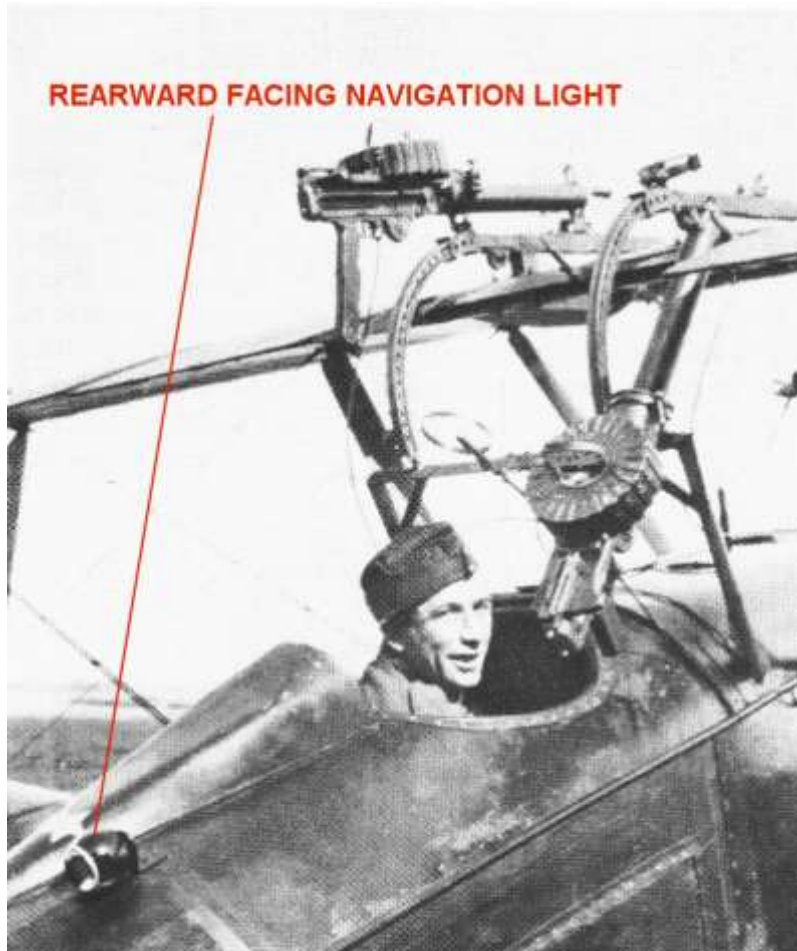
Windscreen:

As the wind screens supplied in the donor Sopwith Camel kit were not the correct type of windscreen, I used a more suitable SE5a model windscreen from my 'spares' box. I filed away the locating tab and profiled the bottom edge to align with the contour of the decking panel just forward from the cockpit opening. The base frame was brush painted with 'Tamiya' J.A. Green (XF13).

Fuselage navigation light:

NOTE: Most Sopwith 'Comics' had a rearward facing navigation light, fitted to the top of the fuselage, to the starboard side of the pilots head rest fairing.

Fuselage light:



The fuselage navigation light was made from a small, round sprue gate mould attached to a part on a sprue. This was cut away and one side filed flat. A hole of 0.6 mm diameter was drilled into one side and a 0.5 mm diameter tube secured in the hole with thin CA adhesive. A hole of 0.6 mm diameter was drilled through the fuselage at the right side of the pilots head rest fairing. This hole will be used to locate the rod of the navigation light later in this build.

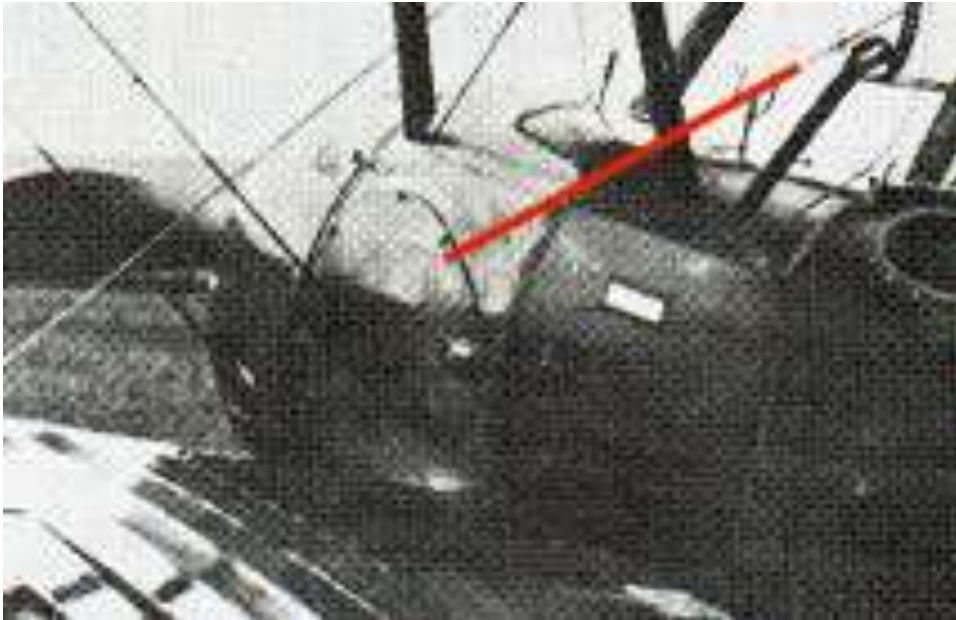


Carburettor air intakes:

Drill through the fuselage inside the two carburettor air intakes, using a 1.5 mm diameter drill.

Blank off ammunition chutes:

NOTE: *The 'Comic' had the standard ammunition ejection chutes, located on the forward sides of the fuselage, blanked off. These were used with the Sopwith 'Camel's' twin Vickers machine guns and not fitted to most of the 'Comic's', which had instead twin Lewis machine guns fitted on the upper wing.*



File or sand away the protruding ammunition ejection chute on each side of the forward fuselage panels. Make sure you follow the contour of the panels.

Cut two 3 mm square cover panels from 0.2 mm thick plastic card.

Cement the panels centrally over the previously removed chutes.



Cowl opening:

NOTE: *This particular 'Comic' had an additional opening cut through the lower, left side of the engine cowl.*

Use a pencil to mark an oval on the lower left side of the engine cowl. The top of the oval should be aligned to the bottom attachment strap on the fuselage.

NOTE: *During the following steps, don't apply too much pressure to the cowl, as it is flexible and liable to be damaged.*

Point mark around the inside of the oval then, using the marks as guides, drill around the oval using a 0.5 mm diameter drill or similar.

Carefully file the final shape of the oval.



Gun sights:

The 'Comic' gun sights for the twin Lewis machine guns consisted of a standard ring sight, located on the centre line of the fuselage and forward from the cockpit and a bead sight, located further forward and aligned with the ring site.



Ring gun sight:

I made the ring site by using a photo-etch sight from my 'spares' box, secured to a short length of 'Albion Alloy's' 0.2 mm diameter Nickel-Silver rod (NSR02), using thin CA adhesive.

Bead gun sight:

I made the bead site by securing a short length of 'Albion Alloy's' 0.3 mm diameter Brass tube (MBT03) to a short length of 'Albion Alloy's' 0.2 mm diameter Nickel-Silver rod (NSR02), using thin CA adhesive.

Locations:

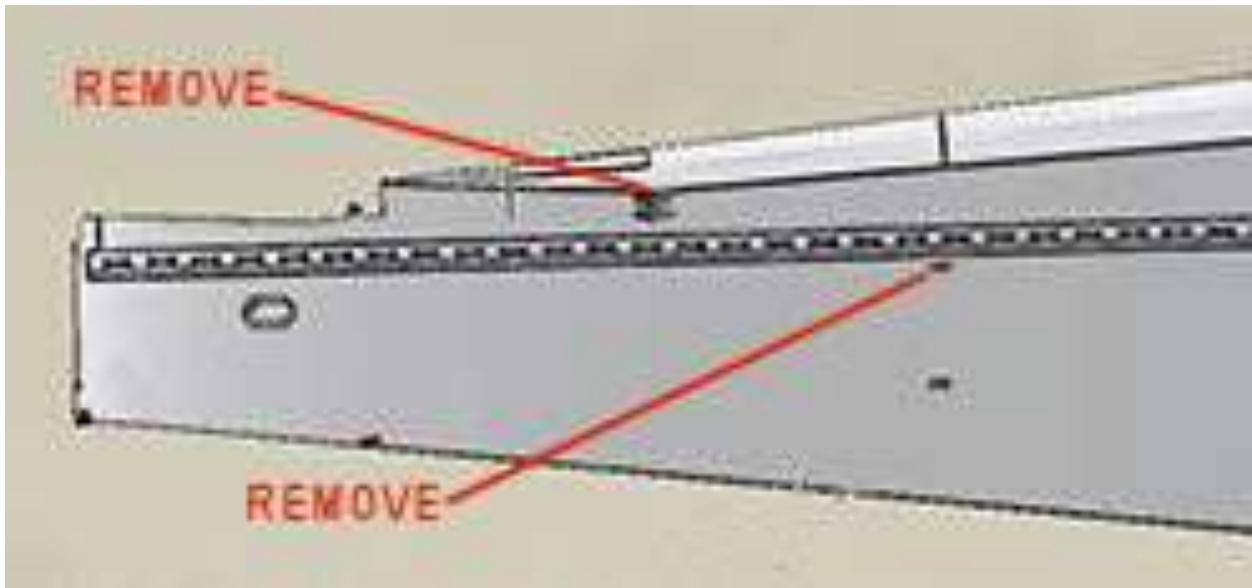
I drilled two holes of 0.2 mm diameter through the forward decking panels. The two sights will be secured in position later in the build.



Elevator cable ports:

NOTE: *The control cables to the elevator exited the fuselage in different locations from that of the Sopwith 'Camel. Therefore some of the pre-moulded fairleads on the fuselage rear sides need to be removed.*

Carefully file or sand away the cable exit port as shown in red in the following illustration.



Using the remaining fairleads as a guide, drill holes of 0.3 mm diameter through the fuselage and at the rear of the fairleads. The hole should be drilled at an angle to align with the control horns on the elevator, when fitted.

PART 9
CONSTRUCTION
(PHASE 1)

PART 9 - CONSTRUCTION (PHASE 1)

NOTE: *The 'Wingnut Wings' instruction manual is reference throughout this build. When removing any kit parts from their sprues, always remove any residual sprue tags and mould seams. Take care when removing the smaller or more fragile parts from their sprues. Too much cutting pressure can cause deformation, breakage or stress marks in the parts.*

When cementing large kit parts, I use 'Revell' Contacta Professional cement (39604). This cement is a thicker liquid cement, which takes longer to fully set, but does provide a stronger bond between larger kit parts.

Preparation:

Remove the following parts from their sprues and remove and mould flash and seam lines:

Wheels A38 (x 2), wheel covers A39 (x 2), landing gear struts A2 and A3, axle fairing A44 and interplane struts A1, A11 and A16 (x2).

Upper wing outer sections D18 and D19, centre section B4 and ailerons D15 and D16.

Lower wing ailerons D8 and D9, tailplane D4 and fin/rudder D5.

Interplane struts:

Cut away the pre-moulded rigging loops at the ends of the four interplane struts. These are not required as this model will have the correct RAF/RFC late style of rigging turnbuckles.

Upper wing:

Cement the two outer wing sections into their location slots in the centre section.

Scrape or sand a slight curved edge on the top leading edge of the upper and lower wing ailerons. This allows them to be positioned in the wings and an angle, if desired.

NOTE: *The following steps are only required if the elevator and ailerons are to be positioned at angles and not aligned to the tailplane and wings.*

Elevator:

Using a fine scraper, carefully scrape through the pre-moulded joint between the tailplane and the elevator. Do not scrape through the four hinge points.

Carefully bend the elevator down at a slight angle.



Ailerons:

Point mark the centre of the leading edges of each aileron, aligned with the two inboard pre-moulded hinge levers.

Drill a hole of 0.7 mm diameter into the aileron leading edges, using the point marks as guides.

Cut eight lengths of 0.6 mm diameter Nickel-Silver tube, such as 'Albion Alloy's' NST06 or similar.

Secure the tubes into the pre-drilled holes using thin CA adhesive.

Hold the ailerons in their positions against the wings and pencil mark the wings where the tubes are located.

Drill a hole of 0.7 mm diameter centrally into the wing trailing edges using the pencil marks as guides.

Test fit each aileron into its wing and if necessary, trim the length of the tubes such that the leading edges of the ailerons are just clear of the wing trailing edges.

NOTE: *The two ailerons on each side of the wings should be bent to the same angle. That is for example, the two left ailerons angled slightly up and the opposite ailerons slightly down or vice-versa.*

Fully locate each aileron into its wing and bend the aileron to the desired angle.

Remove the ailerons from the wings.



Pre-rigging:

NOTE: *At this stage of the build it's best to pre-rig the model as far as possible, whilst there is easy access to the various parts. For more rigging information, refer to Part 5 (Rigging).*

The materials used will be:

'GasPatch Elite Accessories' resin turnbuckles 1/48 (Type C) for elevator cables only.

'Albion Alloy's' Micro-tube (Brass or Nickel Silver - 0.4 mm diameter).

'Steelon' mono-filament 0.08 and 0.12 mm diameter.

Rigging examples:

Standard cable turnbuckles:

NOTE: *Only the elevator control cables and the bracing wire across the landing gear axle fairing have visible standard type turnbuckles.*

Cut a short length of blackened 0.4 mm diameter Nickel-Silver tube, such as that supplied from 'Albion Alloys' (MBT04 or NST05) or similar.

Deburr the tube by running a 0.2 mm or 0.3 mm diameter drill through the tube.

NOTE: *Always cut the length of line **much longer** than needed to span between its attachment points.*

Cut a long length of 0.08 mm diameter mono-filament.

Pass the line through the tube, then through the 'eye' of a 'GasPatch' resin turnbuckle (Type C).

Pass the line back and through the tube.

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

Secure the lines to the tube end away from the turnbuckle, using thin CA adhesive.

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



Pre-rigging:

Rudder control cables:

Fuselage cables:

NOTE: *As the rudder control horn (A17) is too thin to drill through to attach control lines, carry out the following steps. The rudder was controlled by twin wires from the fuselage outlet ports to the ends of the rudder control horn. The following control horns are partially pre-rigged as the remaining lines will be finally attached later in this build.*

File or sand away the end extensions on the rudder control horn.

Drill a hole of 0.2 mm diameter across and through the ends of the control horn.

Cut four long lengths of 0.08 m diameter mono-filament.

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

Pass the lines through the drilled holes.

Slide a tube onto each end of the lines.

Slide the tubes close up to, **but not touching**, the ends of the control horn.

Secure the tubes to the line using thin CA adhesive.

Repeat the procedure to add the line to the opposite end of the control horn.

Cut away the residual tags of line at the end of the tubes.

Rudder cable:

NOTE: *The ends of the rudder control horn were interconnected by a single cable, which was attached to the rear edge of the control horns and routed through the trailing edge of the rudder. The following steps are only necessary to one end of the rudder control horn, as the other end of the line will be attached to the opposite end of the control horn later in this build.*

Drill a hole of 0.2 mm diameter across and through the ends of the control horn, just below the already fitted cables.

Cut a long length of 0.08 m diameter mono-filament.

Pass the line through one of the drilled holes.

Cut a short length of blackened 0.4 mm diameter Nickel-Silver tube, such 'Albion Alloy's NST04 or similar.

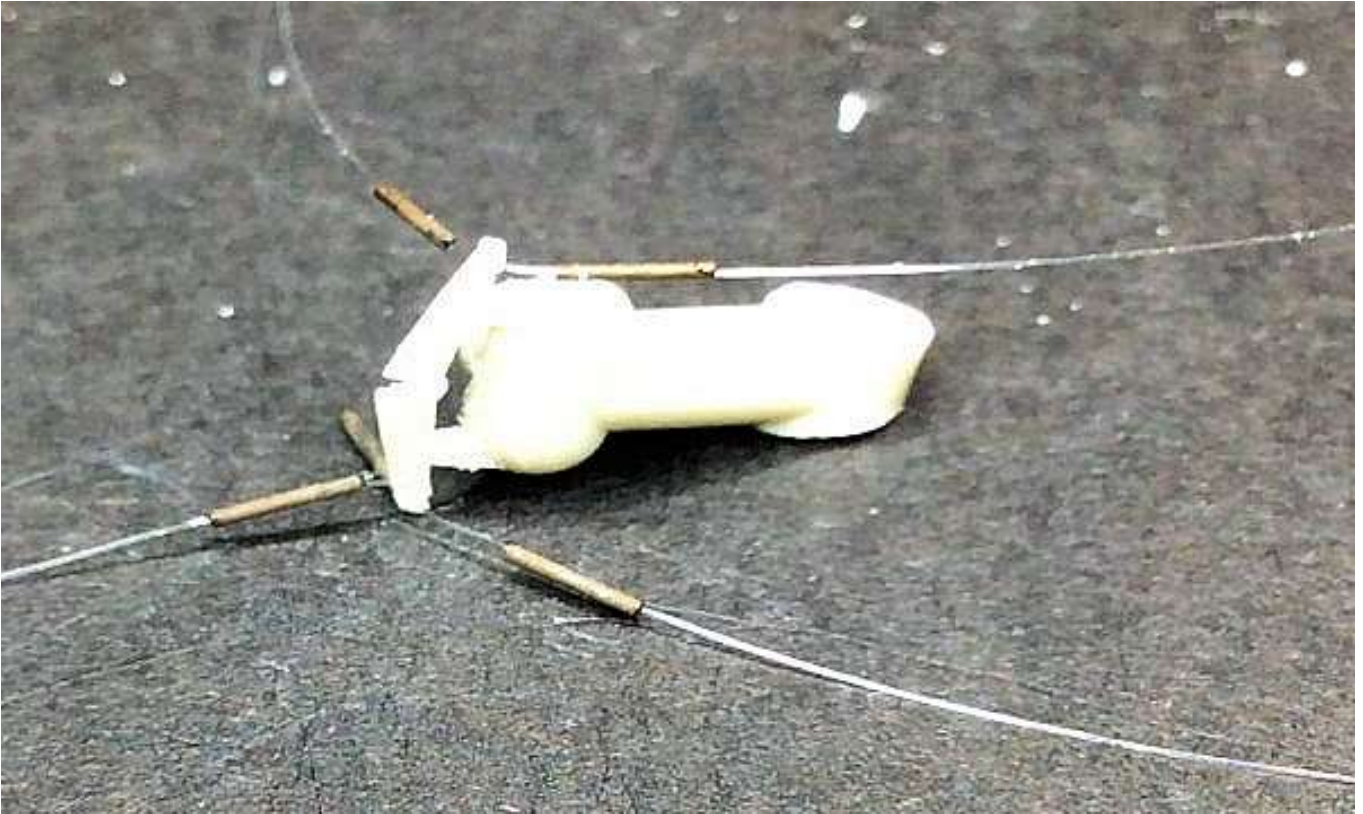
Slide the tube onto the line.

Loop the line back and through the tube.

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

Secure the tube to the line using thin CA adhesive.

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



Tail skid control cables:

The two control lines should already have been pre-rigged during the fuselage chapter (Part 8) of this build log.

Elevator control cables:

NOTE: *The control wires for the elevator were attached from the fuselage outlet ports to the tops of the four control horns. The control horns were interconnected by wires attached to their rear edges and routed through the rear of the elevator. The following control horns (D2) are partially pre-rigged as the remaining lines will be finally attached later in this build.*

Drill a hole of 0.2 mm diameter across and through the ends of the four control horns.

Drill a hole of 0.2 mm diameter across and through the ends of the four control horns, just below the previously drilled holes.

Top control horns:

Cut ten long lengths of 0.08 m diameter mono-filament.

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

Pass lines through the drilled end holes in the control horns.

Pass one end of the lines through the 'eye' of 'Gaspach' 1:48th scale Type C turnbuckles.

Pass that end of the lines back through the holes in the control horns.

Pass the other ends of the lines from the turnbuckles around the control horns and through the tubes.

Pull the two ends of each line to draw the turnbuckles close to, **but not touching**, the control horns.

Pass lines through the free 'eye' ends of the turnbuckles.

Secure the lines into the control horns, using thin CA adhesive. Make sure the adhesive does not come into contact with the turnbuckles.

Slide a 0.4 mm diameter tube onto the lines.

Loop the line back and through the tube.

Slide the tubes close up to, **but not touching**, the turnbuckle.

Secure the tubes to the lines using thin CA adhesive.

Cut away the residual end tags of lines at the end of the tubes.

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

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

Pass the lines through the second drilled holes in **only two** of the control horns.

Slide a 0.4 mm diameter tube onto the lines.

Loop the line back and through the tube.

Slide the tubes close up to, **but not touching**, the control horns.

Secure the tubes to the lines using thin CA adhesive.

Cut away the residual end tags of lines at the end of the tubes.

Lower control horns:

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

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

Pass the lines through the drilled end holes in a control horns.

Pass one end of the lines through the 'eye' of 'Gaspatch' 1:48th scale Type C turnbuckle.

Pass the end of the lines back through the holes in the control horns.

Pull the two ends of each line to draw the turnbuckles close to, **but not touching**, the control horns.

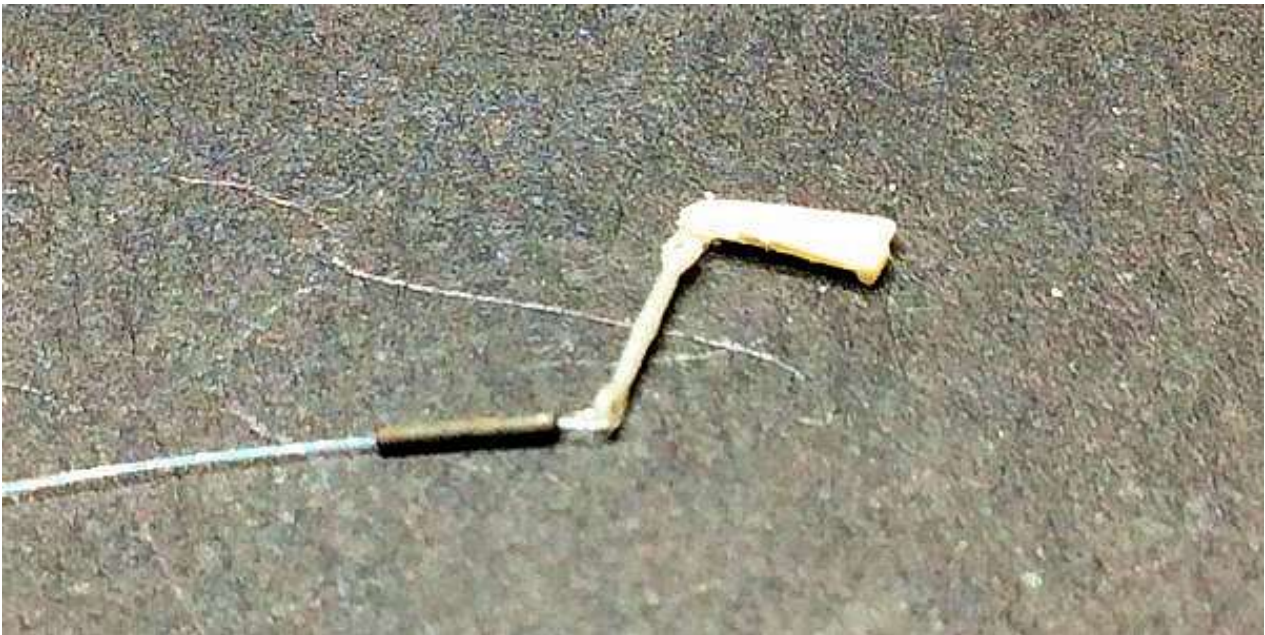
Secure the lines into the control horns, using thin CA adhesive. Make sure the adhesive does not come into contact with the turnbuckles.

Carefully cut away the residual end tags of line.

Upper control horns



Lower control horns



Aileron control cables:

NOTE: The control wires for the ailerons were routed from the top surface of the upper wing to the top of the upper aileron control horns. A cable was attached to the rear edge of the control horns and routed rearwards onto the top surface of the ailerons, where it was attached to an aerodynamic (flat) wire routed to the lower ailerons. The control cable to the lower ailerons was routed from the underside of the lower wings to the top of the lower aileron control horns. A cable was attached to the rear edge of the control horns and routed rearwards onto the underside of the ailerons, where it was attached to the aerodynamic (flat) wire routed to the upper ailerons. The following control horns are partially pre-rigged as the remaining lines will be finally attached later in this build.

Upper control horns (D27):

Drill a hole of 0.2 mm diameter down through the ends of the two control horns.

Drill a hole of 0.2 mm diameter down through the ends of the two control horns, just below the previously drilled holes.

Cut four long lengths of 0.08 m diameter mono-filament.

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

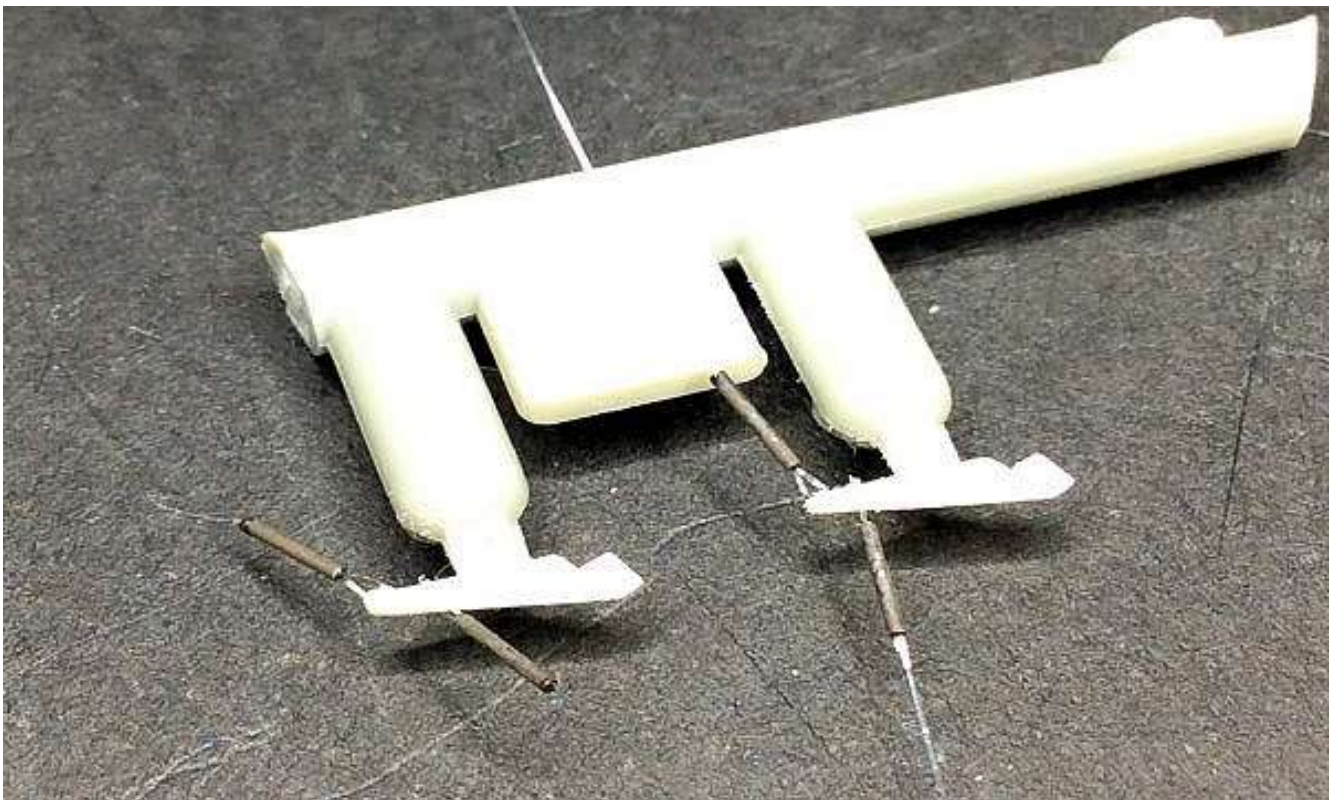
Pass the lines through the drilled holes in the control horns.

Slide a tube onto the lines.

Slide the tubes close up to, **but not touching**, the end of the control horns.

Secure the tubes to the lines using thin CA adhesive.

Cut away the residual tag of lines at the end of the tubes.



Lower control horns (D24):

Drill a hole of 0.2 mm diameter across and through the ends of the two control horns.

Drill a hole of 0.2 mm diameter across and through the ends of the two control horns, just below the previously drilled holes.

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

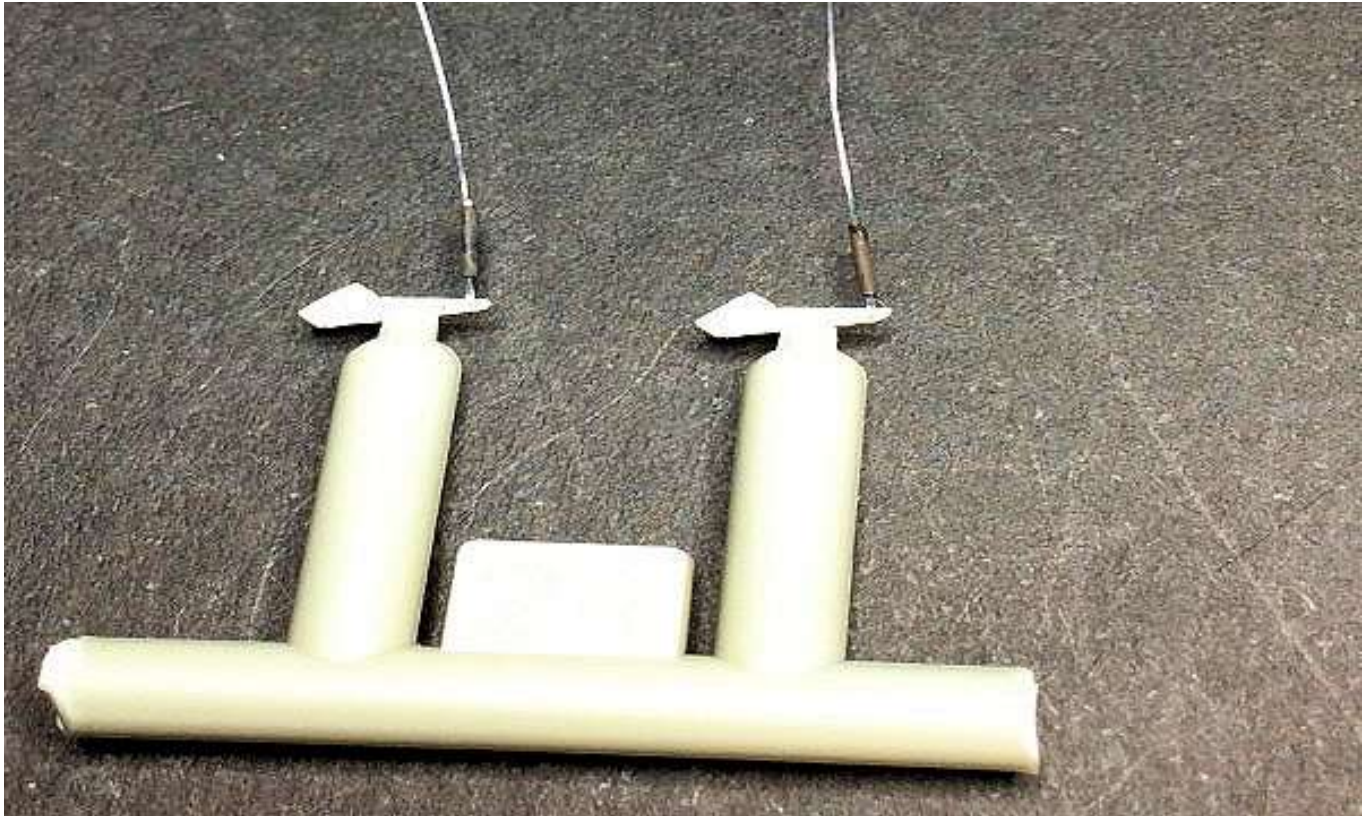
Cut two short lengths of blackened 0.4 mm diameter Nickel-Silver tube, such 'Albion Alloy's NST04 or similar.

Pass the lines through the drilled holes in the ends of the control horns.

Slide a tube onto the lines.

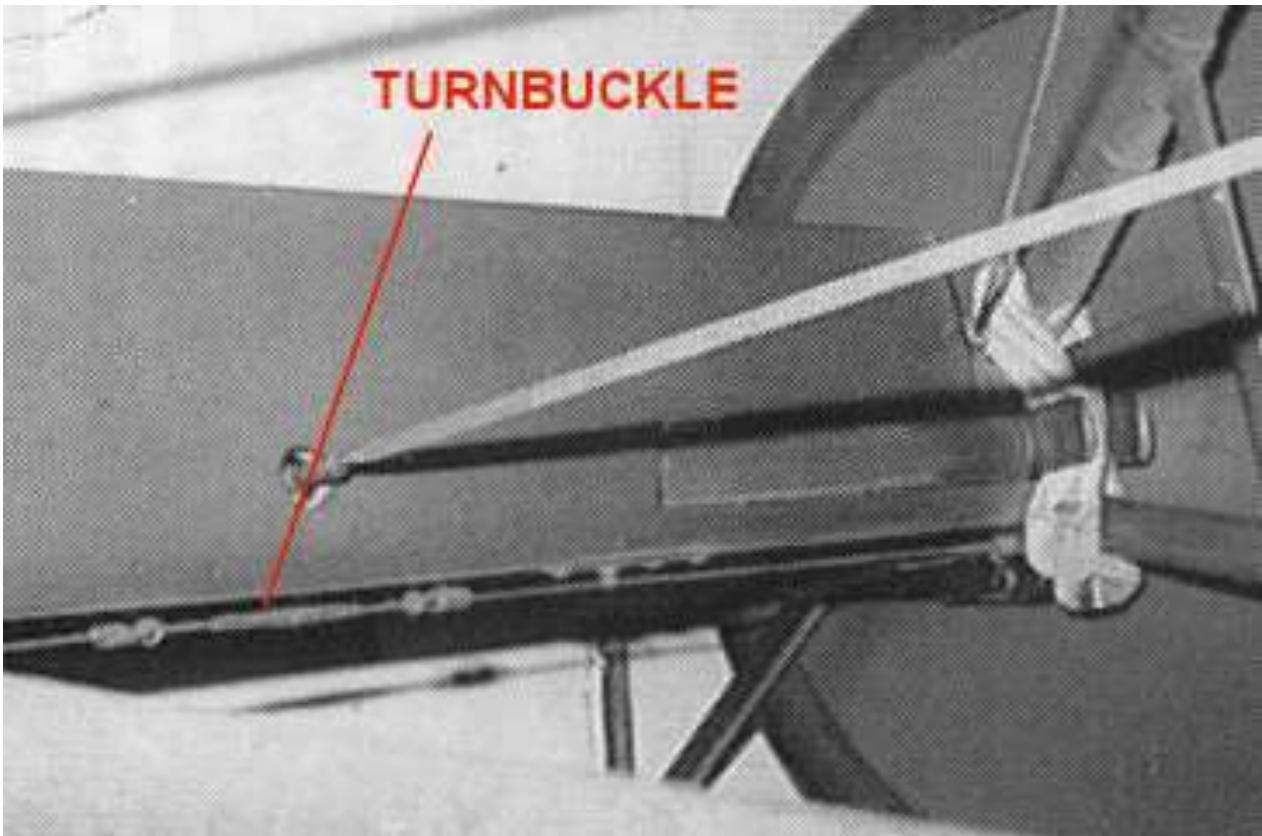
Slide the tubes close up to, **but not touching**, the end of the control horns.

Secure the tubes to the lines using thin CA adhesive.
Cut away the residual tag of lines at the end of the tubes.



Landing gear bracing wire:

NOTE: The axle fairing for the landing gear had a single bracing cable fitted across the front edge of the fairing and between the landing gear struts. A turnbuckle was fitted midway across the cable. The following pre-rigged line will be finally attached later in this build.



Cut two short lengths of blackened 0.5 mm diameter Nickel-Silver tube, such as that supplied from 'Albion Alloys' (NST05) or similar.

Deburr the tube by running a 0.3 mm diameter drill through the tube.

NOTE: Always cut the length of line ***much longer*** than needed to span between its attachment points.

Cut a long length of 0.12 mm diameter mono-filament.

Pass the line through the tube, then trough the 'eye' of a 'GasPatch' resin turnbuckle (Type C).

Pass the line back and through the tube.

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

Secure the lines to the tube end away from the turnbuckle, using thin CA adhesive.

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

Repeat the procedure to add a line to the opposite 'eye' of the turnbuckle.



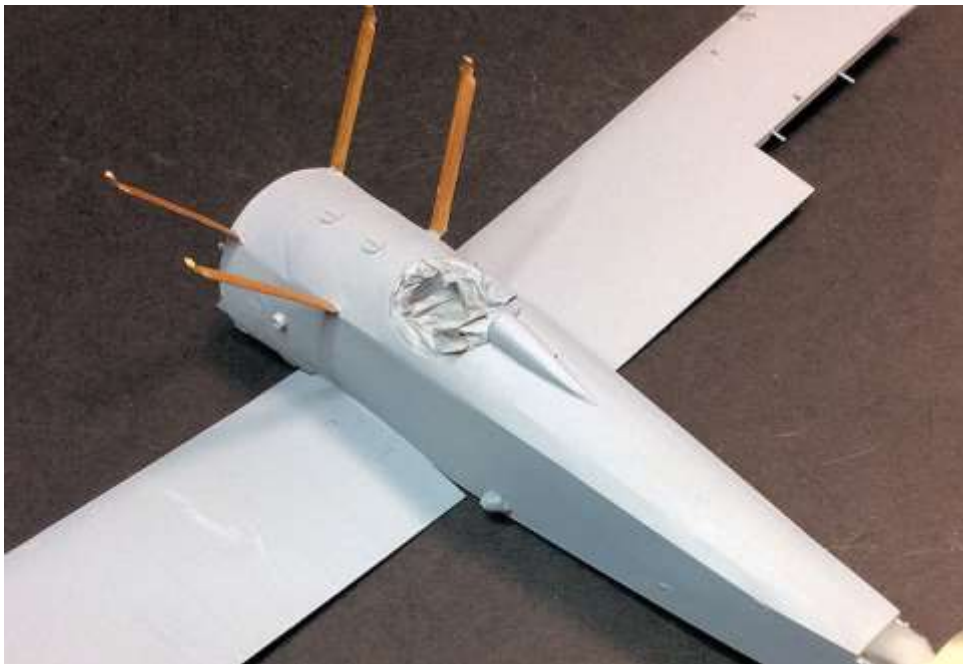
Priming:

Mask off the following on the fuselage/lower wing assembly:

Cockpit opening, openings in the engine bulkhead, carburettor air intakes, rear fuselage and tail skid openings, cabane struts and pilots foot step.

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

Check all of the parts for surface imperfections or gaps and if necessary, fill/sand them away and re-prime.



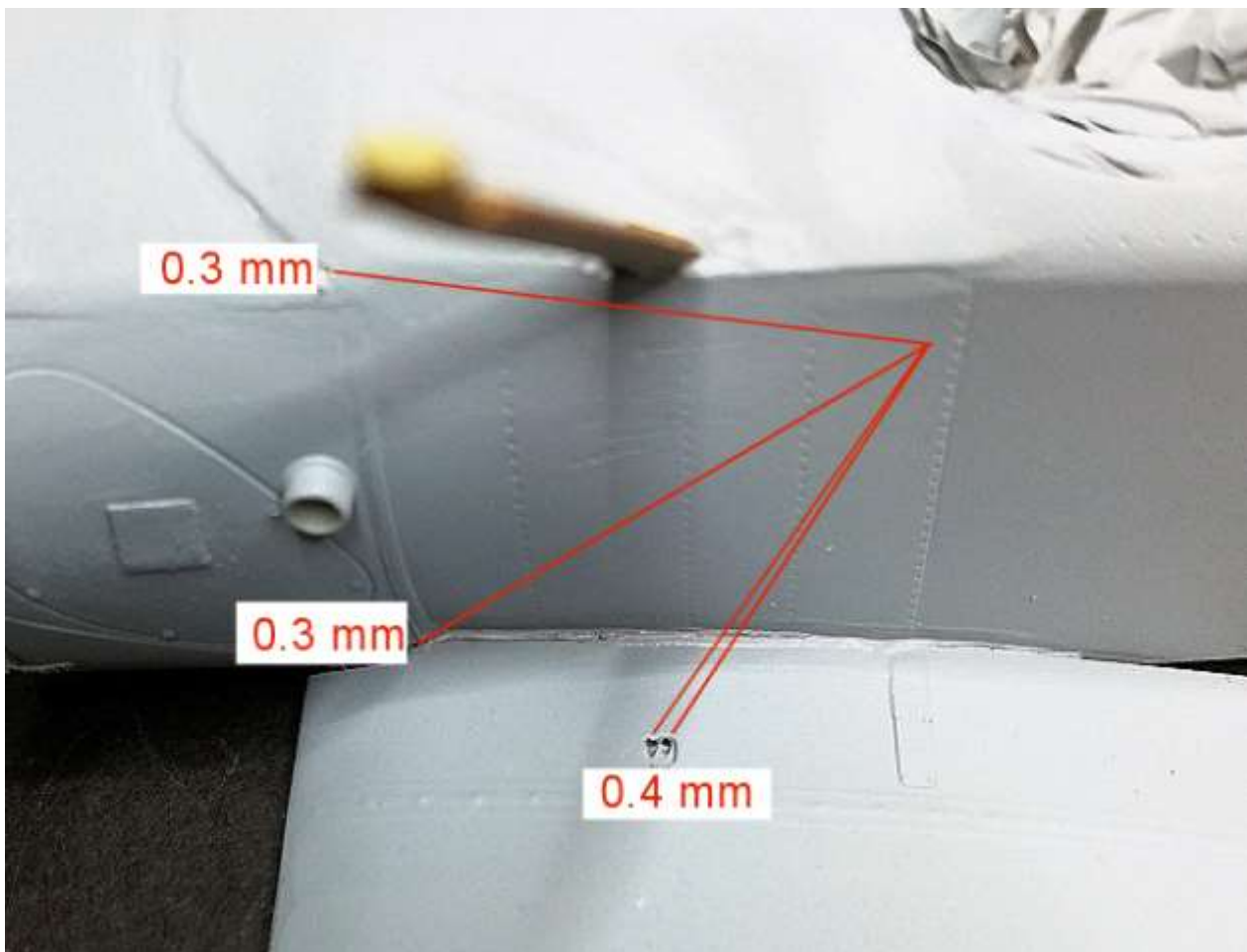
Pre-rigging (continued):

NOTE: When drilling the rigging attachment holes, make sure the holes are drilled at the approximate angle required for the rigging line when fitted (straight line between struts etc).

Fuselage - lower wings:

Drill holes of 0.3 mm through the fuselage at the locations shown in the following photograph. These holes are for the rear retaining cable of the forward decking panel.

Drill holes of 0.4 mm through the lower wings at the pre-moulded locations. The holes should be drilled at a shallow angle from both sides of the wings, such that the holes meet in the wing to allow 0.3 mm diameter rigging line to pass through. These holes are for the rear pair of flying wires.

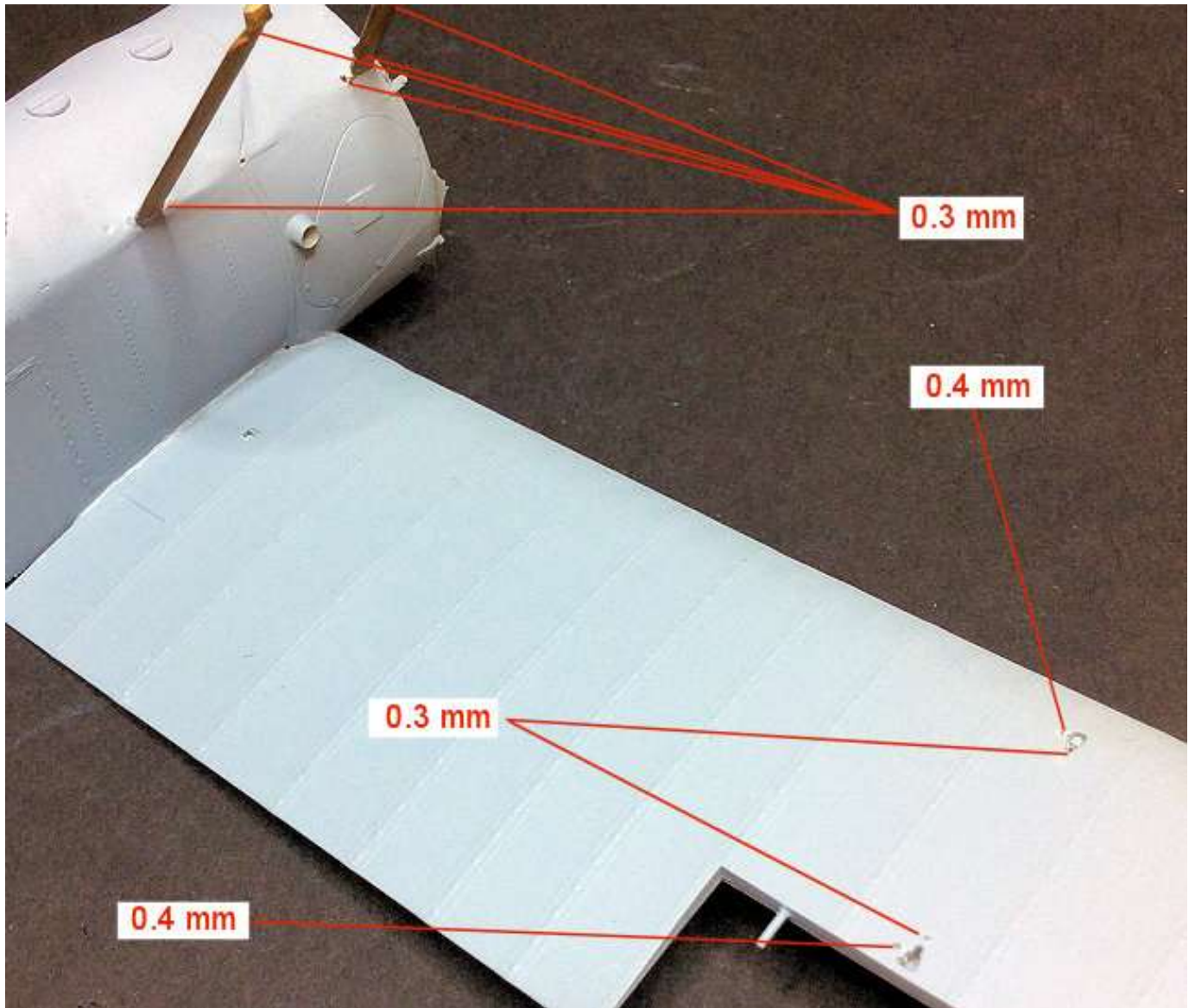


NOTE: The pre-moulded rigging loops on the various struts are too weak to withstand the final tension of the rigging line used. Therefore, they will be removed. **Take care** when handling the cabane struts as they can easily be snapped off the cockpit side frames.

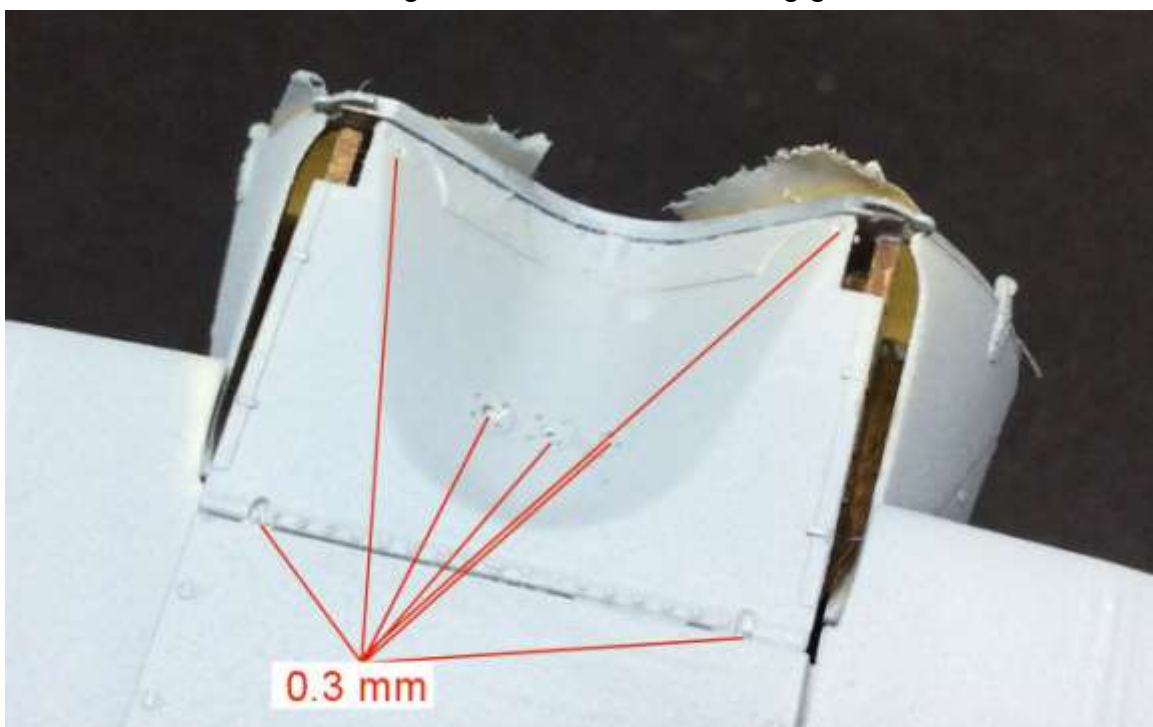
Remove the pre-moulded rigging loops at the tops of the four fuselage cabane struts.

Drill holes of 0.3 mm through the fuselage and cabane struts at the locations shown in the following photograph. Drill holes through the bottom of the front cabane struts and through the tops of the four cabane struts on the sides of the struts facing each other. These holes are for the cross bracing wires between the cabane struts.

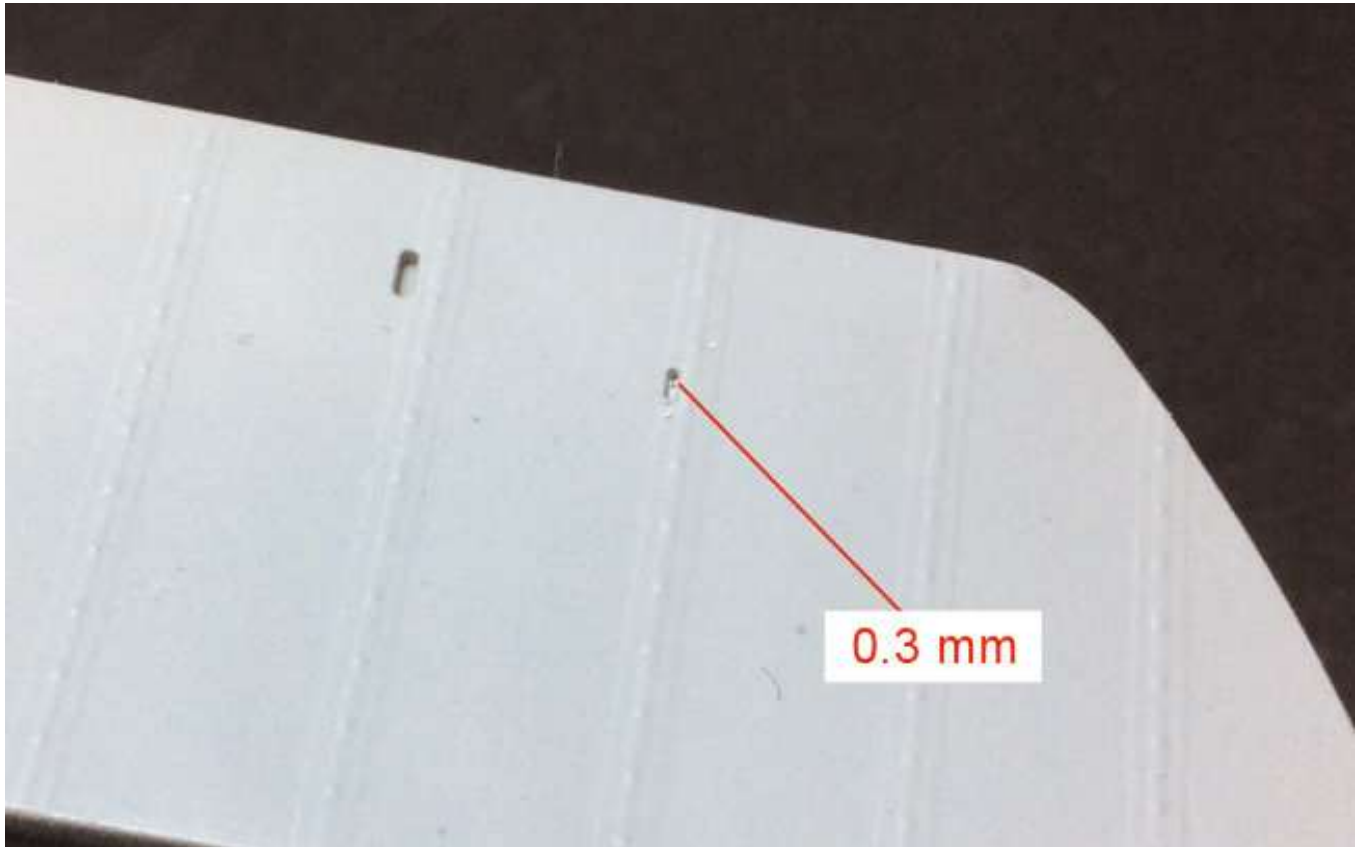
Drill holes of 0.3 and 0.4 mm into, **but not through**, the top surface of the lower wings at the locations shown in the following photograph. These holes are for the cross bracing wires between the interplane struts and the landing wires.



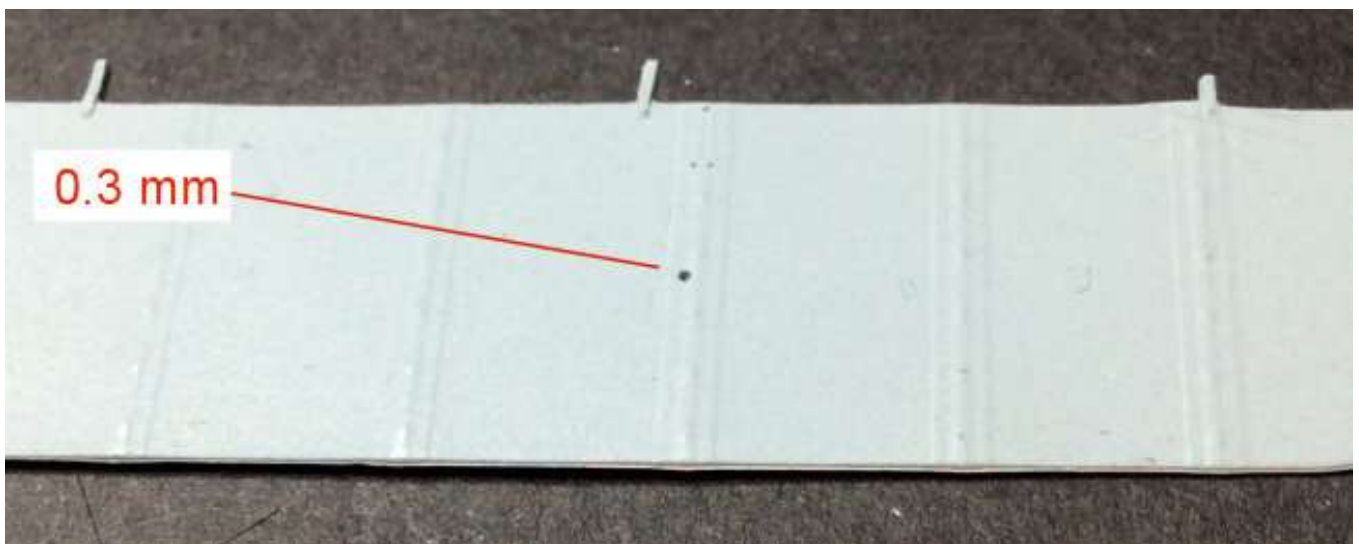
Drill holes of 0.3 mm through the fuselage at the locations shown in the following photograph. These holes are for the cross bracing wires between the landing gear.



Drill holes of 0.3 mm into, but not through, the underside of the lower wings. These holes are for the aileron control cables.



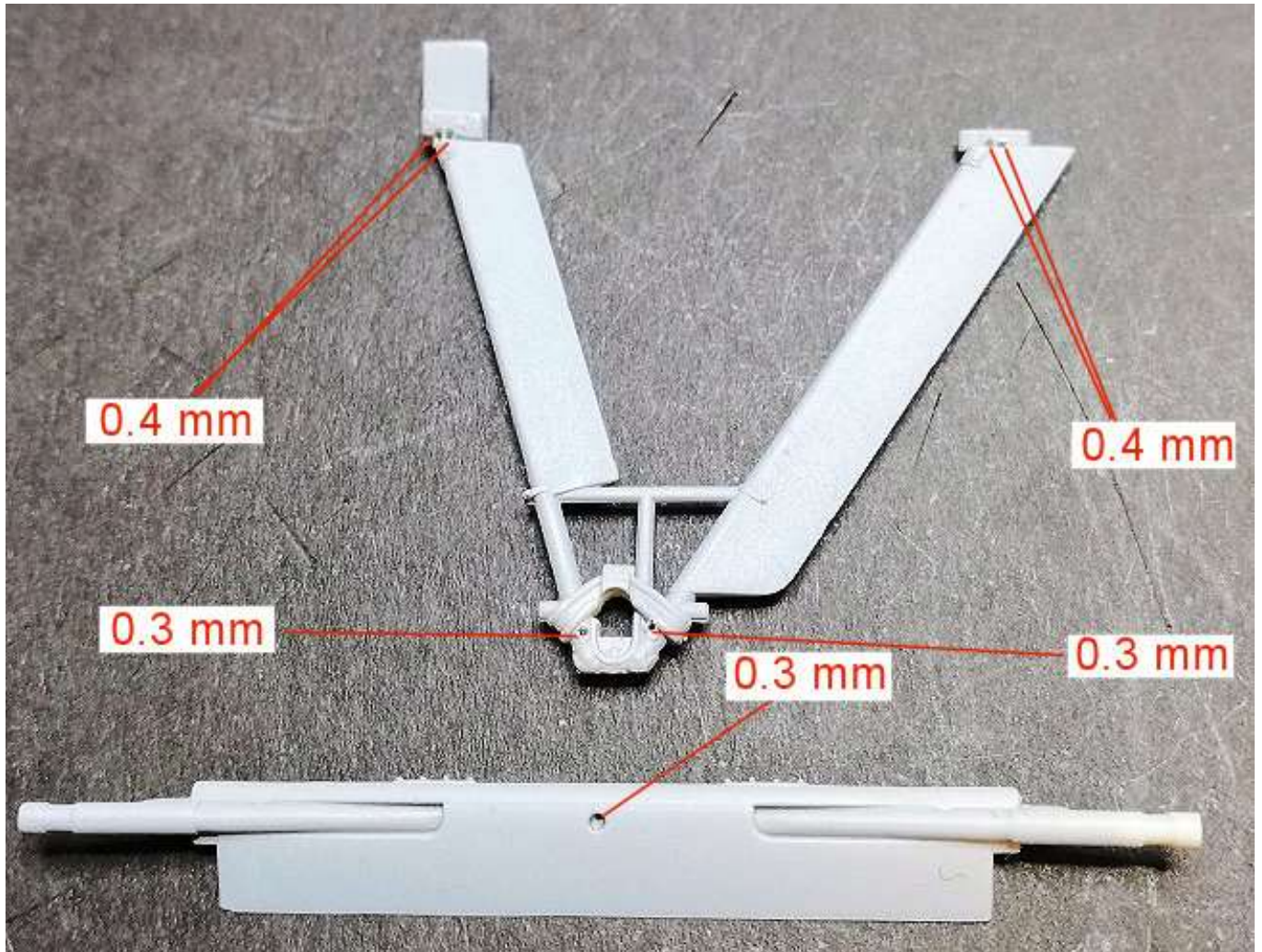
Drill holes of 0.3 mm through the four ailerons. These holes are for the aileron control cables.



Landing gear:

Drill holes of 0.3 mm through the landing gear struts and axle fairing at the locations shown in the following photograph. These holes are for the landing gear bracing cables.

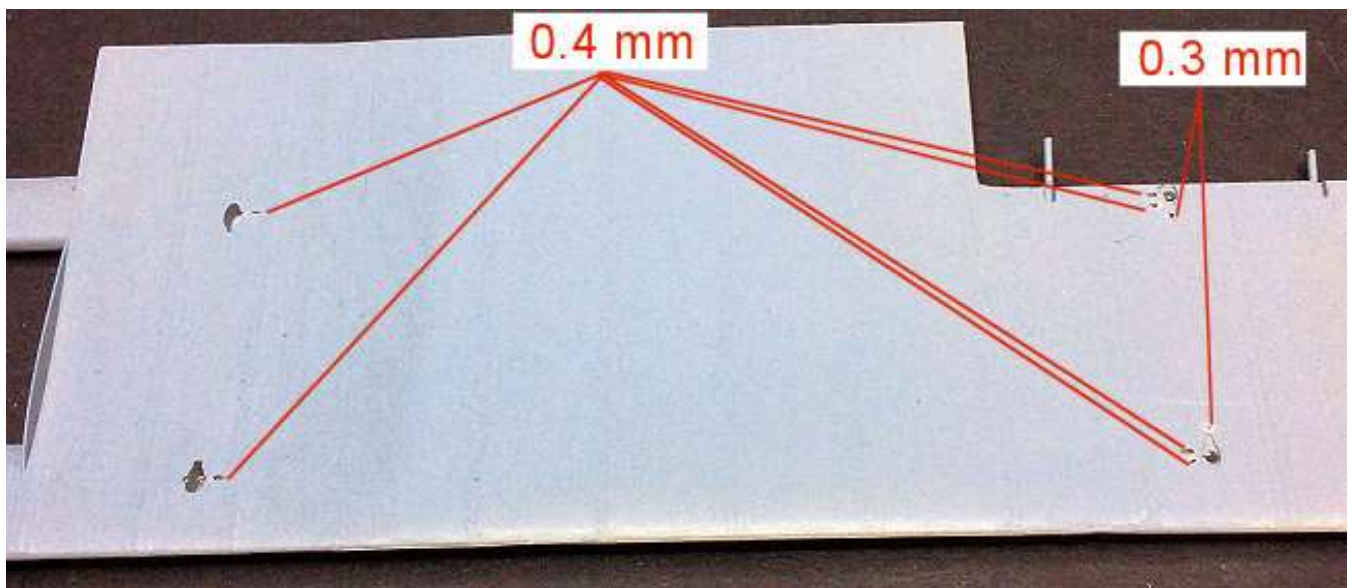
Drill holes of 0.4 mm through the top of the landing gear struts through the pre-moulded locations. These holes are for the front and rear pairs of flying wires.



Upper wing:

Drill holes of 0.3 mm into, **but not through**, the underside of the upper wing at the locations shown in the following photograph. These holes are for the incidence wires between the interplane struts.

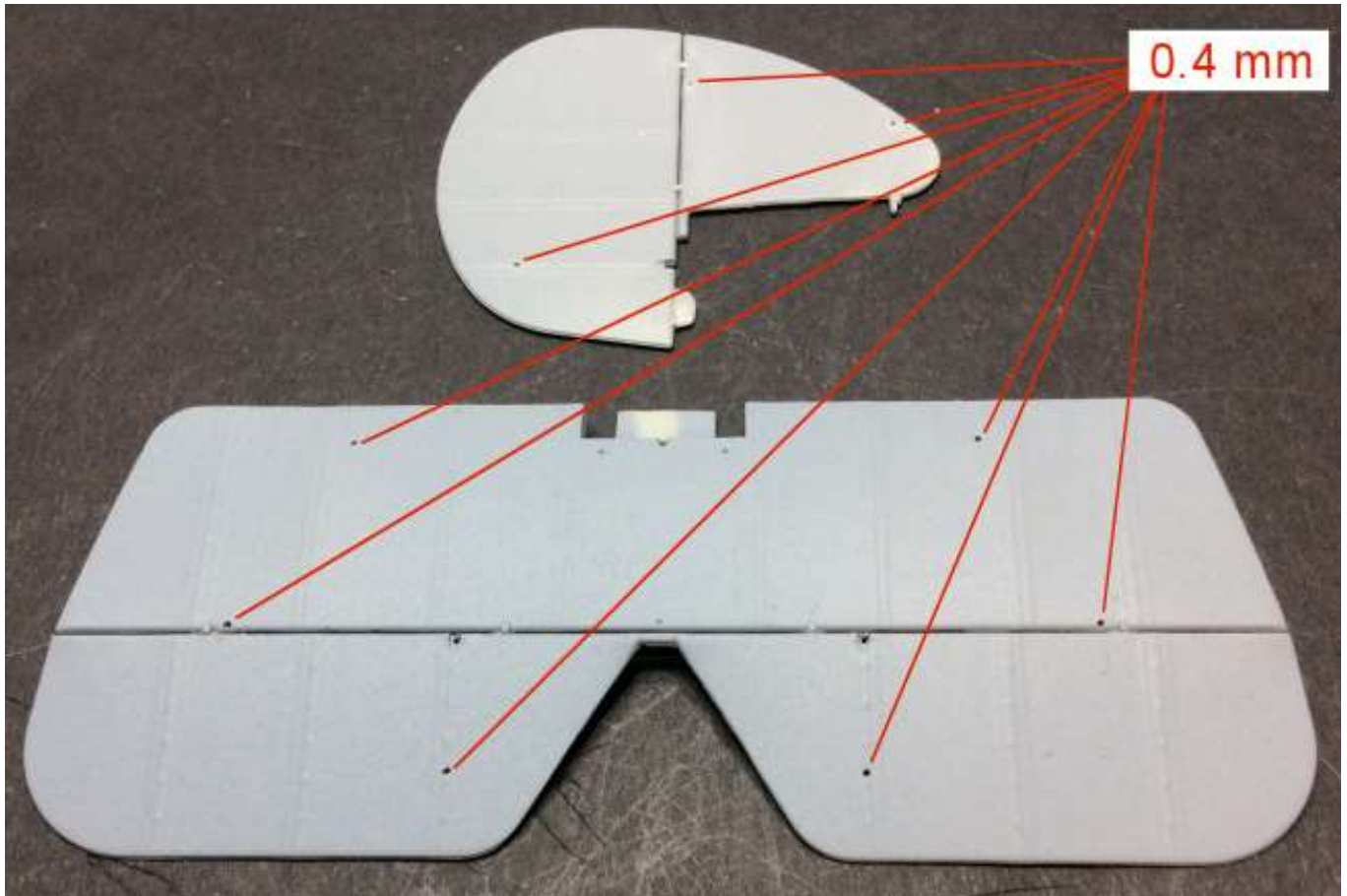
Drill holes of 0.4 mm into, **but not through**, the underside of the upper wing at the locations shown in the following photograph. These holes are for the landing wires and the pairs of flying wires.



Tail unit:

File or sand away the small protrusions under the two rigging points on the top of the fin, as these will obstruct the rigging end fittings.

Drill holes of 0.4 mm through the fin, rudder, tailplane and elevator as shown at the locations shown in the following photograph. These holes are for the tail unit bracing wires and the rudder and elevator control cables.

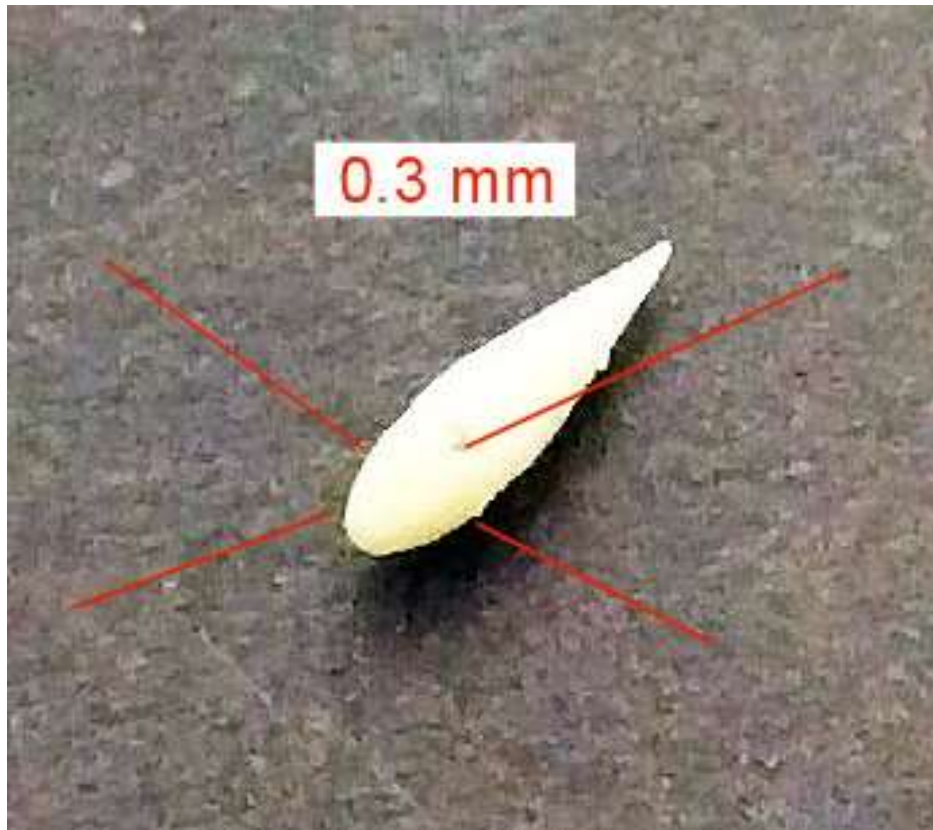


Cabane wire retainer:

NOTE: *The crossed bracing wires between the front cabane struts passed through a retainer that was aerodynamic shaped. This held the crossed cables together and prevented them from vibrating. The kit part is A56.*

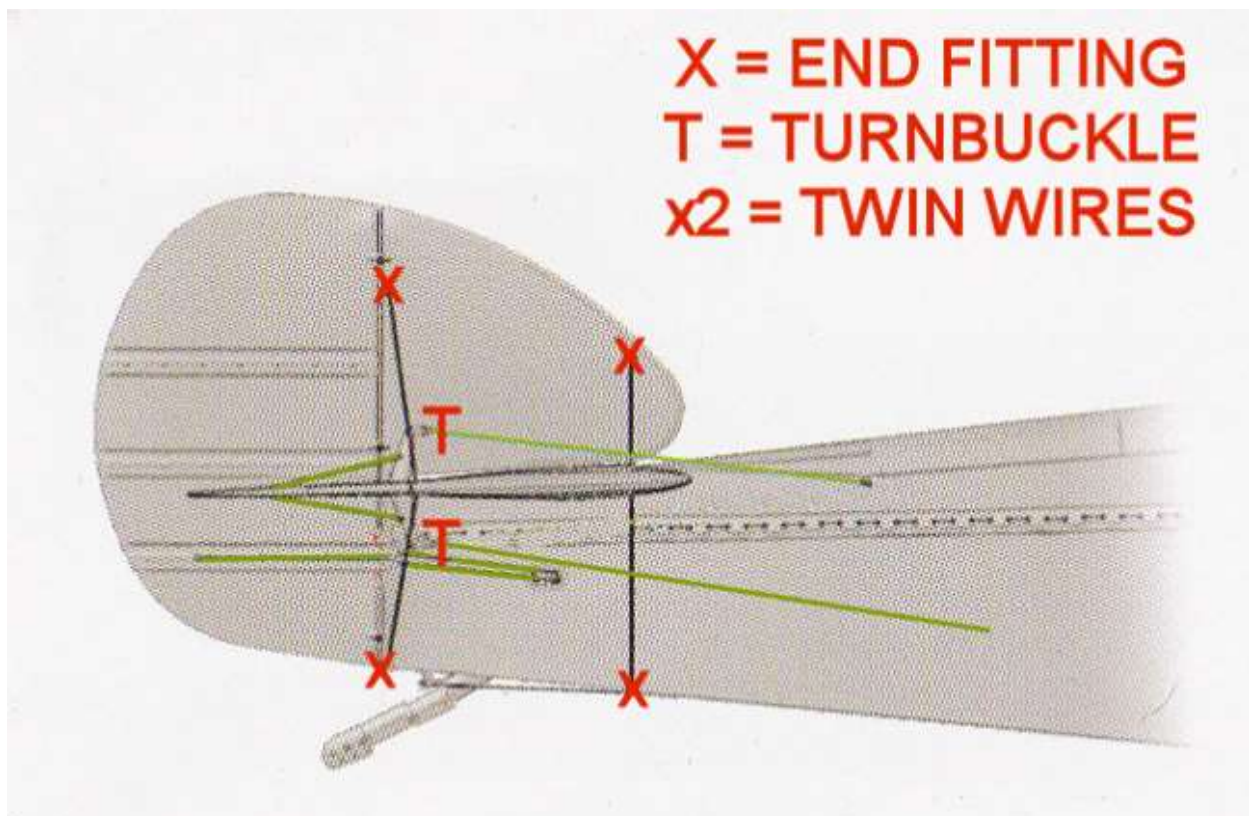
Leave the kit part A56 on its sprue.

Using the pre-moulded indents as guides, drill two 0.3 mm diameter holes diagonally through the part.



Fin bracing wires:

Drill holes of 0.2 mm diameter down through the two pre-moulded lugs on each side of the fuselage, at the bottom edge of the fuselage below the fin and tailplane (red X in the following illustration).



Painting:

NOTE: For information on the colours of the aircraft markings, refer to the 'Aircraft and Pilot' section of this build log. All of the required parts should have been prepared and primed by airbrushing with a grey primer, such as 'AK Interactive' Grey (AK758) or similar.

Make sure the following are masked off:

Cockpit opening, openings in the engine bulkhead, carburettor air intakes, rear fuselage and tail skid openings, cabane struts and pilots foot step.

Upper surfaces:

Airbrush the engine cowl and the fuselage forward top and side metal panels with 'Tamiya' Gloss Black (X1) or similar.

Airbrush the engine cowl and the fuselage forward top and side metal panels with 'Alclad' Duraluminium (ALC102) or similar.

Brush paint the under shield panel (forward underside of the fuselage) with 'Mr. Colour' Stainless Steel (213) or similar.

To prepare for applying wood effects, refer to the above illustration and mask off the previously painted forward metal panels of the fuselage, the top surfaces of the lower wings and the green painted areas of the fuselage.

Airbrush the masked off wood panel areas with 'Tamiya' Dark Yellow (XF60) or similar.

Refer to Part 2 (wood Effects) of this build log - Apply the desired wood effect over the masked off wood panel areas. For this model, I used 'DecoArt Crafters Acrylic' paints (Burnt Umber).

Remove all of the masking.

Seal the applied metal paint and wood effect areas using a semi-matte clear coat, such as 'Alclad' Light Sheen (ALC311) or similar.

Mask off the previously painted forward metal panels of the fuselage and the wood effect areas.

Airbrush the following with 'Tamiya' J.A. Green (XF13) or similar:

- Fuselage top and sides
- Top surfaces of the upper and lower wings
- Top surfaces of the tailplane/elevator
- Top surfaces of the four ailerons
- The four interplane struts
- The two landing gear struts
- The axle fairing
- The rudder/fin.

Brush paint the four fuselage cabane struts with 'Tamiya' J.A. Green (XF13) or similar.

Remove all of the masking.

Brush paint the three aileron control pulley bays with 'Tamiya' NATO Brown (XF68) or similar.

Brush paint the three aileron control pulleys with 'Mr. Colour' Stainless Steel (213) or similar.



Underside surfaces:

To protect from overspray, mask off or cover all of the previously painted surfaces on the fuselage, wings, tailplane/elevator and ailerons, leaving just their undersides exposed.

Airbrush the exposed undersides with 'Tamiya' Buff (XF57) or similar.

Mask of the individual rib tapes on all of the underside surfaces.

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

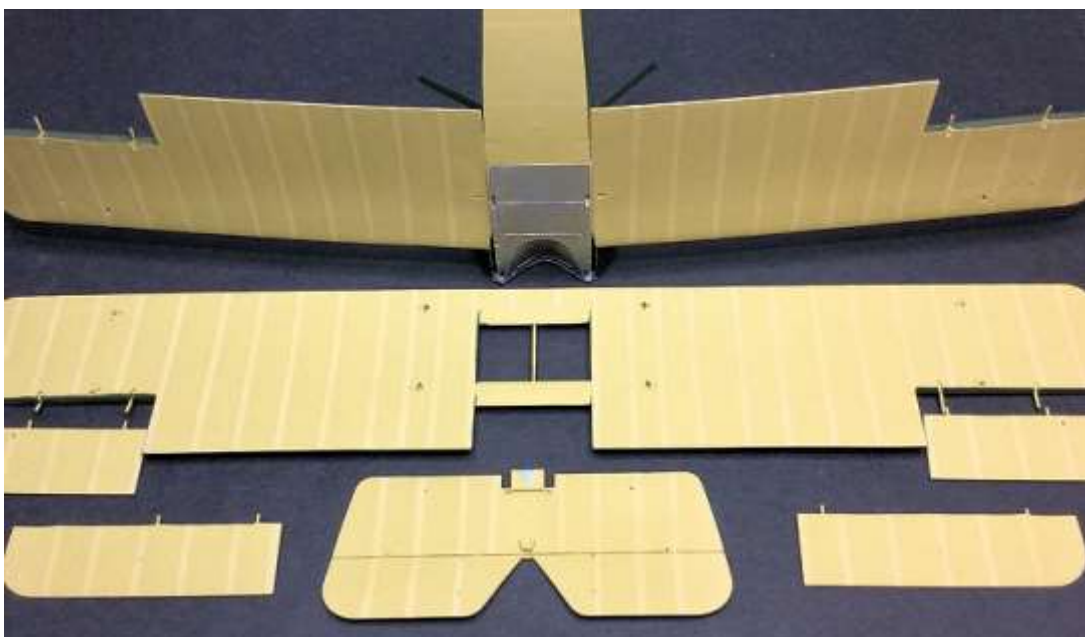
Remove the masking from the rib tapes.

Airbrush the exposed undersides with a **very light coat** of 'Tamiya' Dark Yellow (XF60) or similar, to slightly blend the rib tapes with the underside colour.

Remove all of the applied masking.

Brush paint the two aileron control pulley bays with 'Tamiya' NATO Brown (XF68) or similar.

Brush paint the two aileron control pulleys with 'Mr. Colour' Stainless Steel (213) or similar.



Pilots head rest:

Brush paint the braided line with 'AK Interactive' Brown Leather (AK3031) or similar.

Filler caps:

Brush paint the two filler caps on the forward decking panel with 'Tamiya' Rubber Black (XF85) or similar.

Tail skid controls:

Apply CA adhesive (through the tailplane opening) onto the inner edge of the fuselage bottom at the tailskid opening.

Secure the two tailskid control lines (previously pre-rigged) onto the applied CA adhesive. Keep the lines as taut as possible whilst the adhesive sets.

Cockpit surround padding:

Cut a length of 'ANYZ' 0.8 mm Black braided line (AN015) long enough to be fitted around the edge of the cockpit opening.

Secure the braided line around the cockpit opening, using CA adhesive. The ends of the line should be at the bottom outer edge of the padding on the pilots head rest.

Once set in position, apply thin CA adhesive over the braided line to both secure it in position and to solidify it for painting.

Brush paint the braided line with 'AK Interactive' Brown Leather (AK3031) or similar.

Navigation light:

Brush paint the prepared fuselage navigation light with 'Tamiya' Rubber Black (XF85) or similar.

Brush paint the rear face of the navigation light with 'Mr. Colour' Stainless Steel (213) or similar, to represent the lens of the light. Brush 'Tamiya' Clear coat gloss (x22) onto the lens.

Secure the navigation light in its pre-drilled hole at the right of the pilots head rest, using thin CA adhesive on the rod of the light. The painted lens should face rearwards.

Landing gear:

Brush paint the metal fittings of the gear struts and the axle with 'Tamiya' Rubber Black (XF85) and the 'bungee' suspension cords with Neutral Grey (XF53).

Engine and cowl:

Before fitting the engine and cowl, test fit the engine into the fuselage then locate the cowl over the engine and onto the fuselage. Make sure both fully locate and the engine propeller shaft is central in the cowl opening.

Cement the engine into its fuselage location recess.

Cement the engine cowl over the engine onto the front of the fuselage.



Aileron pulleys:

Brush paint the five aileron pulley apertures using 'Tamiya' Wooden Deck Tan (XF78).

Apply the desired wood effect (refer to Part 2 of this build log) to the five apertures.

Brush paint the four aileron pulleys and support using 'Mr. Colour' Iron (212).

Brush paint the exposed aileron control wires (pre-moulded in the five apertures) using 'Mr. Colour' Stainless Steel (213).

Rudder and fin:

Airbrush the rudder/fin with 'Tamiya' J.A. Green (XF13) or similar.

To prepare for the decals, airbrush the fin only with a gloss clear coat, such as 'Alclad' Aqua Gloss (ALC-600) or similar.

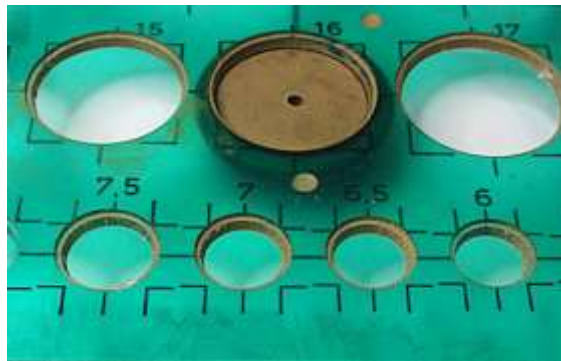
Wheels:

Airbrush the two wheels and covers with a grey primer, such as 'AK Interactive' Grey (AK758) or similar.

Airbrush the tyres of the two wheels with 'Tamiya' Neutral Grey (XF53) or similar.

NOTE: *To airbrush the faces of the wheels without over spraying the surrounding tyres, I use a circle drawing tool (Linex 1217 T). I selected the correct size of hole and position the wheel faces under the hole.*

Example of using the 'Linex 1217 T



Airbrush the two wheels covers and two outer covers with 'Tamiya' J.A. Green (XF13) or similar.

Brush paint the spokes and tyre valve with 'Mr. Colour' Stainless Steel (213) and the inside face of the wheels with 'Tamiya' Buff (XF55) or similar.

To prepare for the decals, airbrush the wheels and covers with a gloss clear coat, such as 'Alclad' Aqua Gloss (ALC-600) or similar.

NOTE: *The linen effect and kit decals will be applied later in this build.*



'Aviatic' decal application:

NOTE: *The 'Aviatic' linen weave effect decals (ATT32236) are not 'cookie cut' (pre-shaped), but are supplied as A4 sheets. Therefore care is required to ensure the decals are cut out accurately to fit the various areas of the model.*

*Make sure you trace the decal outlines onto the **rear surface** of the decal sheet. Also, cut away the white border around the decal sheet before cutting out the decals. Otherwise the cut decals may include parts of the white borders.*

Airbrush all painted surfaces using a gloss clear coat, such as 'Alclad' Aqua Gloss (ALC-600) or similar.

Flight surfaces:

NOTE: *Due to the width of the upper wing, it is advisable to cut three separate decals, one for the centre section and one each for the outer wing sections.*

Using the wings, four ailerons, tailplane and elevator as guides, 'lightly' trace the outlines of **each side** of the parts onto the **rear** of the 'Aviatic' decal sheets. Make sure you don't apply too much pressure when marking out the decals, otherwise the outline will show through on the printed decal surface.

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

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

Make sure the model surface for each decal to be applied is clean and smooth, otherwise particles on the surface will cause 'silvering' (trapped air) under the decals when dry.

Add a small amount of PVA adhesive (white glue) to the warm decal water, as this will aid in the adhesion of the decals to the model surface.

Wet the model surface with clean water.

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

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

Lift the decal on its backing sheet from the water.

NOTE: *Make sure the decal does not fold over on itself, as it will be difficult to separate a fold once out of the water.*

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

Position the decal correctly on the model surface.

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

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

Use a needle to carefully prick through the decal on any areas where air is trapped and can't easily be removed, such as wing strut location holes, aileron pulley apertures etc.

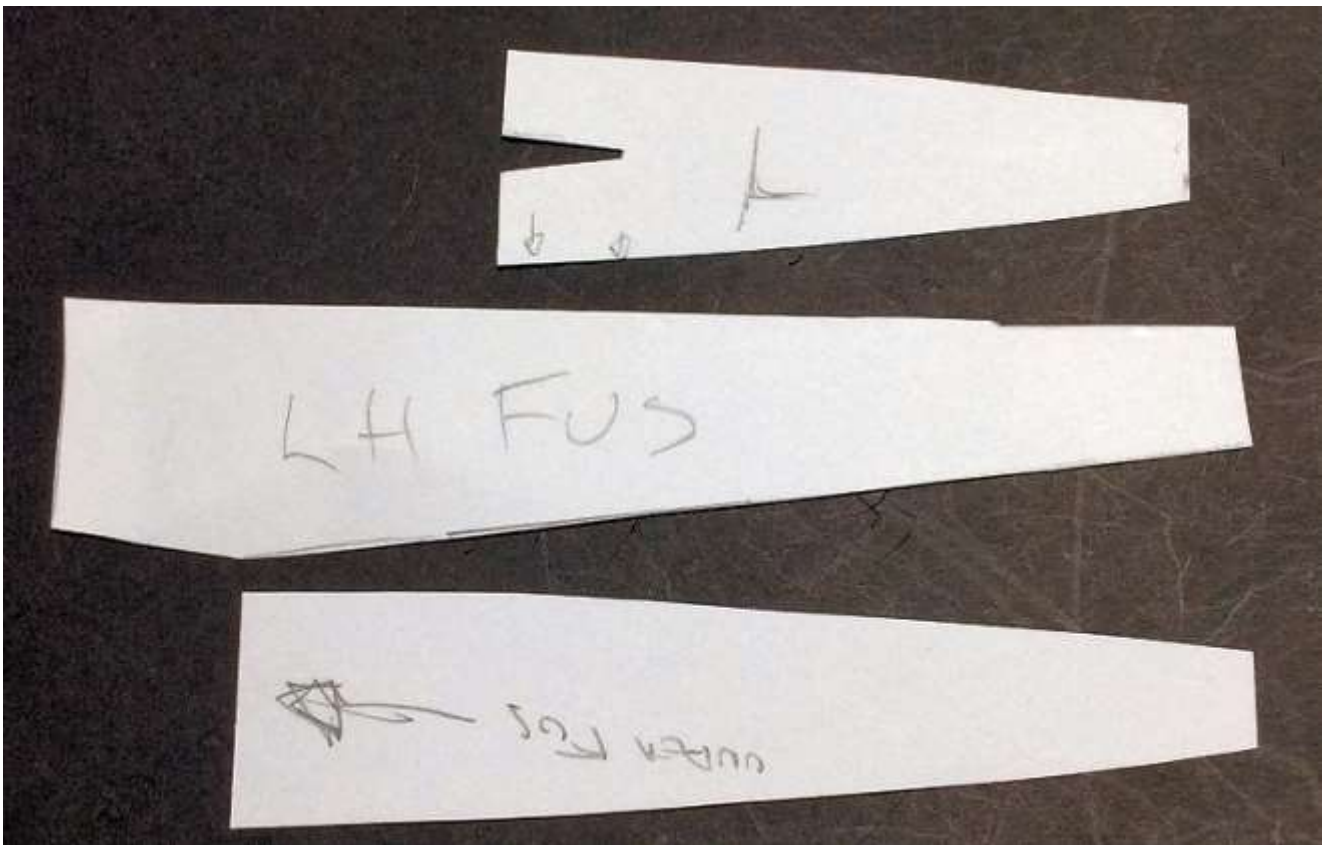
Once the decals have set and if necessary, apply 'MicroSol' or similar decal solution around any lifted edges of the decals.

Allow these decals to fully set.

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

Fuselage surfaces:

NOTE: *Due to the shape of the fuselage with the pilots head rest, it is best to create paper templates for the two sides, top and underside surfaces and use the templates as cutting guides for the decals.*



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

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

Apply the fuselage decals as previously described.

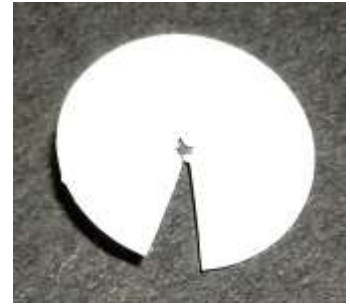
Wheels:

NOTE: The decals used for the wheel covers are cut from the linen effect sheet - 'Aviatic' Linen Weave effect (ATT32236). To cut these circular decals I used a 'Thinnerline' circle cutter.

Using the cutter I cut out two decals for the rear wheel covers and two decals for the front covers.



NOTE: The front wheel covers are slightly conical in shape. The decals need to be cut slightly larger in diameter than required then a section cut out. This will allow the decal to be applied to the conical surface with the cut sides butting against each other.



NOTE: The 'Aviatic' decals are quite strong and flexible enough to be able to push and position the decals prior to final fitting.

Apply the four decal discs to the wheels and covers.



NOTE: The front wheel covers have an access hole for the valve inside the wheel. To force the decal to conform to the access hole, first carefully puncture through the decal into the access hole, then carefully apply 'Micro-Sol' to aid in conforming the decal in the hole. The same can be done to the axle hole in the wheel rear covers.

Airbrush across the pre-moulded manufacturers text on the tyres of the wheels, using a gloss clear coat, such as 'Alclad' Aqua Gloss (ALC-600) or similar.

NOTE: Ensure the tyre decals (112) are applied over the pre-moulded wording on the tyres.

Apply the kit supplied decals for the tyre manufacturer (decals 112) over the raised wording moulded in the tyre itself.

Aircraft decal markings:

NOTE: For information on the colours of the aircraft markings, refer to the 'Aircraft and Pilot' section of this build log. The decals supplied with the donor 'Wingnut Wings' kit do not reflect the roundels or rudder markings for this particular aircraft. Therefore these will be created by inkjet printing the required decals. The decal paper used is 'Mr Decal Paper' White Inkjet paper (MDPWHTIWDP/Waterslide) and Clear Inkjet paper (MDPCLRIWDP/Waterslide).



Roundels:

I created the fuselage and wing roundels in my graphic software (Paint Shop Pro) on my PC. The roundels were test printed on standard paper to check their out diameter size against the same decals supplied in the donor 'Wingnut Wings' kit.. Once resized to the correct size, the masks for the roundels were cut from 'Artool' Ultra Mask sheets using my 'Cricut' Air 2 crafters cutters. The masks were positioned and the blue and red colours airbrushed onto the model. The blue colour was a mix of 'Tamiya' Flat Blue (XF8 mixed with Light Blue (XF23) and White (XF2). The red colour was a mix of 'Tamiya' Flat Red (XF7) with a few drops of Hull Red (XF9) to darken it.

Stripes:

I created the coloured fuselage and rudder stripes using the same process as used to create the roundels.

Application:

Lower wing roundels:

The masks were positioned on the surfaces and extra masking tape applied outside of the masks, where necessary to prevent overspray. The outer blue ring was airbrushed first, followed by the inner red disc. All masking was then removed.

Upper wing roundels:

The roundels for the upper wings were cut and applied using the same procedure as used for the lower wings.

Fuselage roundels:

The roundels for the upper wings were cut and applied using the same procedure as used for the lower wings.

Stripes:

The fuselage stripes created by using masking tape then airbrushed with the blue colour.

The rudder stripes were created in the same manner.

Serial number:

The fin serial number B2402 was created then cut and applied using the same procedure as used for the lower wings. However, the decal were from the 'Xtradecal' White letter/numerals (72158) set.

NOTE: The following decals are from the donor 'Wingnut Wings' model kit.

Strut 'Sopwith' logo:

Apply a decal 106 logo to the four interplane struts and the four fuselage cabane struts. The decals should be positioned mid-way up the struts.

Fuselage plate:

Apply decal 88 onto the fuselage left, forward 'wood' panel, shown in the following photograph.



Wing data:

NOTE: *In the following steps, the decals should be positioned opposite each other as pairs.*

Apply decals 108 to:

Weathering:

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

Airbrush a semi-matte clear coat over the following parts:

- Upper wing
- Lower wings and fuselage/cabane struts
- All for ailerons
- Fin/rudder
- Tailplane
- The two wheels and covers
- The two landing gear struts
- Axle/fairing
- The four interplane struts.

Brush 'Flory Models' Dark Dirt clay wash over the same parts as above.

Remove the clay wash to achieve the desired weathered effect.

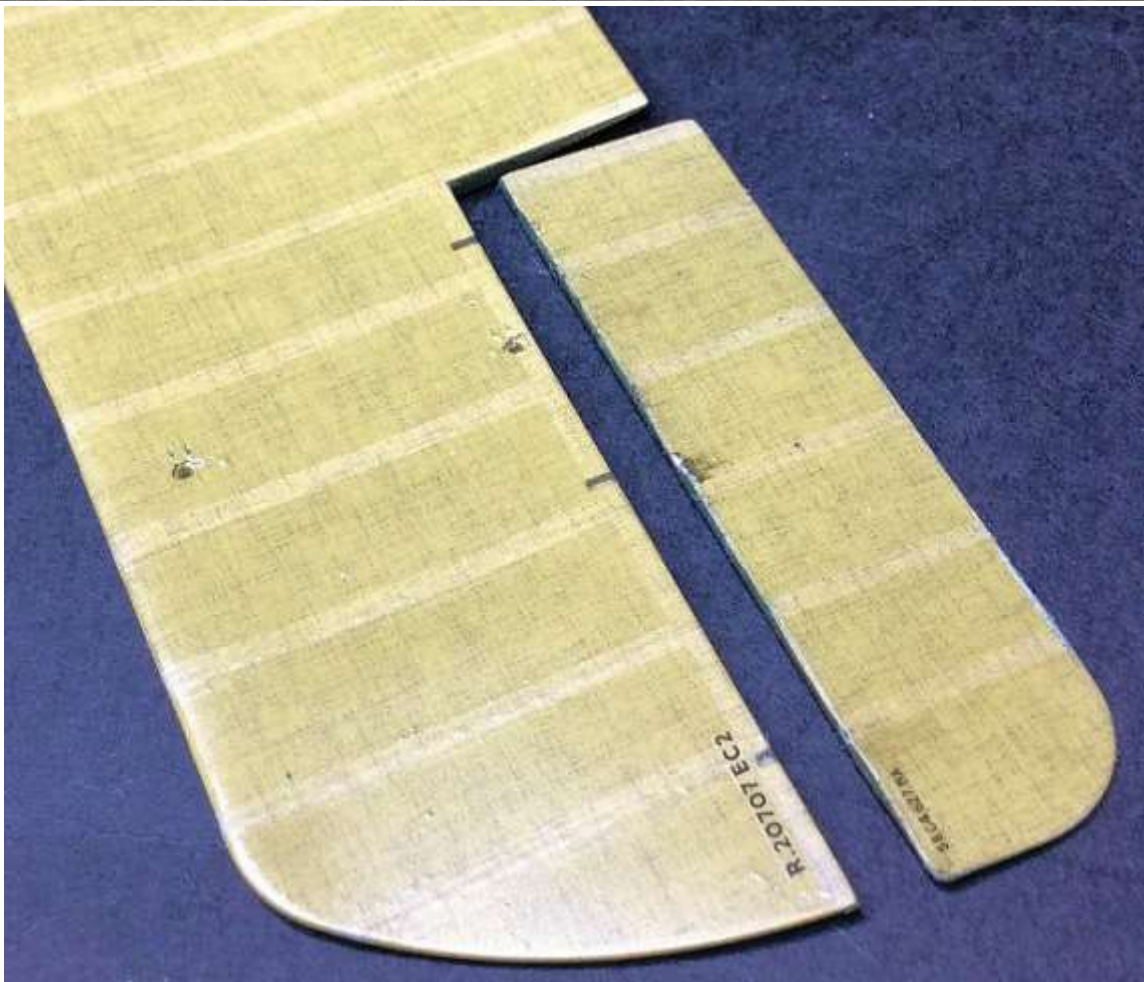
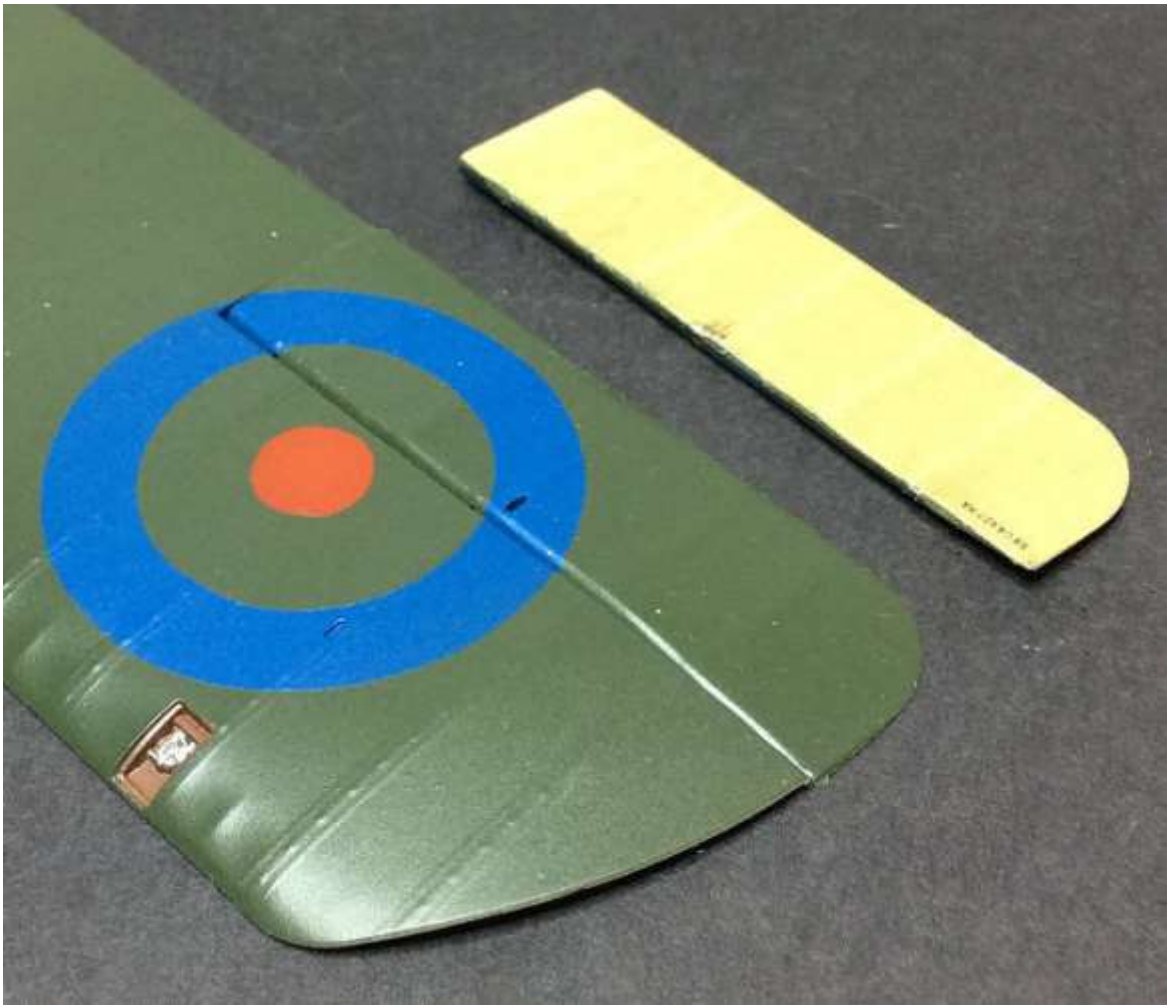
Seal all weathered surfaces with a light coat of clear semi-matte, such as 'Alclad' Light Sheen (ALC311) or similar.

Weather the wheels and covers with, using a small piece of sponge, with the 'Tamiya' Weathering Maser Set A (Mud) and Set B (Soot).

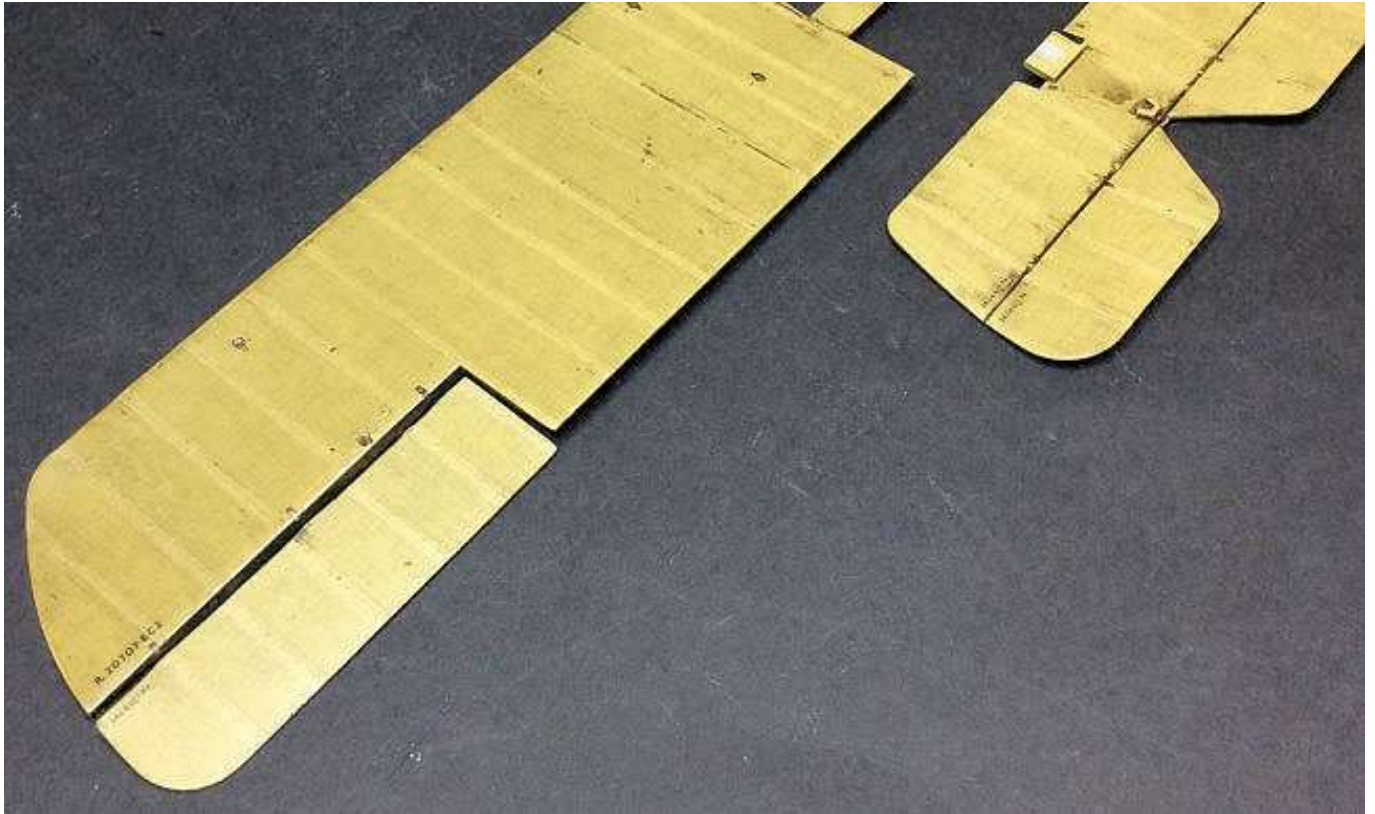
Weather the along the fuselage bottom edges, the left lower wing and fuselage side, using a small piece of sponge, with the 'Tamiya' Weathering Maser Set A (Mud).

Weather around the engine cowl and fuselage metal panels with the 'Tamiya' Weathering Maser Set E (Green).









'Holt' flare:

NOTE: This aircraft had a 'Holt' flare assembly fitted on the underside of the both lower wings, outboard from the forward interplane struts. A bracing wire was fitted between the base of the 'Holt' flare assemblies and the leading edge of the wings. The donor kit has two 'Holt' flares, which are parts A24.

Point mark the underside of the lower wings. The marks should be in the centre of the fourth rib in from the wing tip and 5 mm back from the leading edges.

Right wing:

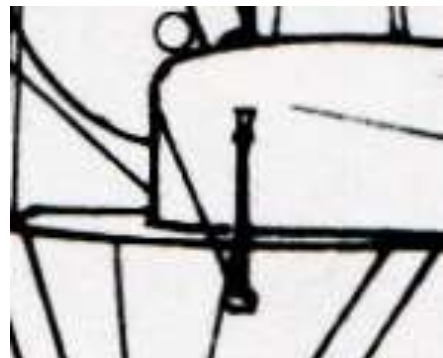
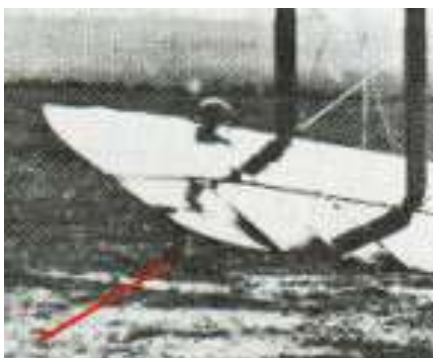
Using the point mar as a guide, drill a hole of 1.0 mm diameter into, **but not through**, the underside of the lower wing. Drill the hole deep enough to fully locate the 'Holt' flare (part A24).

Drill a hole of 0.3 mm diameter into, **but not through**, close to the wing leading edge and aligned to the pre-drilled hole for the 'Holt' flare. This will be used for the bracing wire.

Left wing:

Repeat the above procedure on the left wing.

Drill a hole of 0.5 mm diameter into the pre-drilled hole and through the wing. This will be used to locate the wing navigation light.





Port wing navigation light:

NOTE: *This aircraft had a navigation light, fitted on the left lower wing, above the 'Holt' flare mounting. A spare kit part A56 was used as the light.*

Drill a hole of 0.5 mm hole into, **but not through**, the part A56 and between two of the pre-moulded indents.

Cut a short length of 0.4 mm diameter rod, such as that from 'Albion Alloy's' MBR04 or similar.

Secure the rod into the pre-drilled hole in part A56, using CA adhesive.

Cut the rod such that it can be fully located, from the top surface of the wing, into the pre-drilled hole with the 'Holt' flare also fully located.



Airbrush the navigation light and support rod with a grey primer, such as 'AK Interactive' Grey (AK758) or similar.

Airbrush the navigation light and support rod with 'Tamiya' Rubber Black (XF85) or similar.

Brush paint the front of the light with 'Mt. Colour' Stainless Steel (213) or similar, followed with 'Tamiya' clear coat gloss (x22).

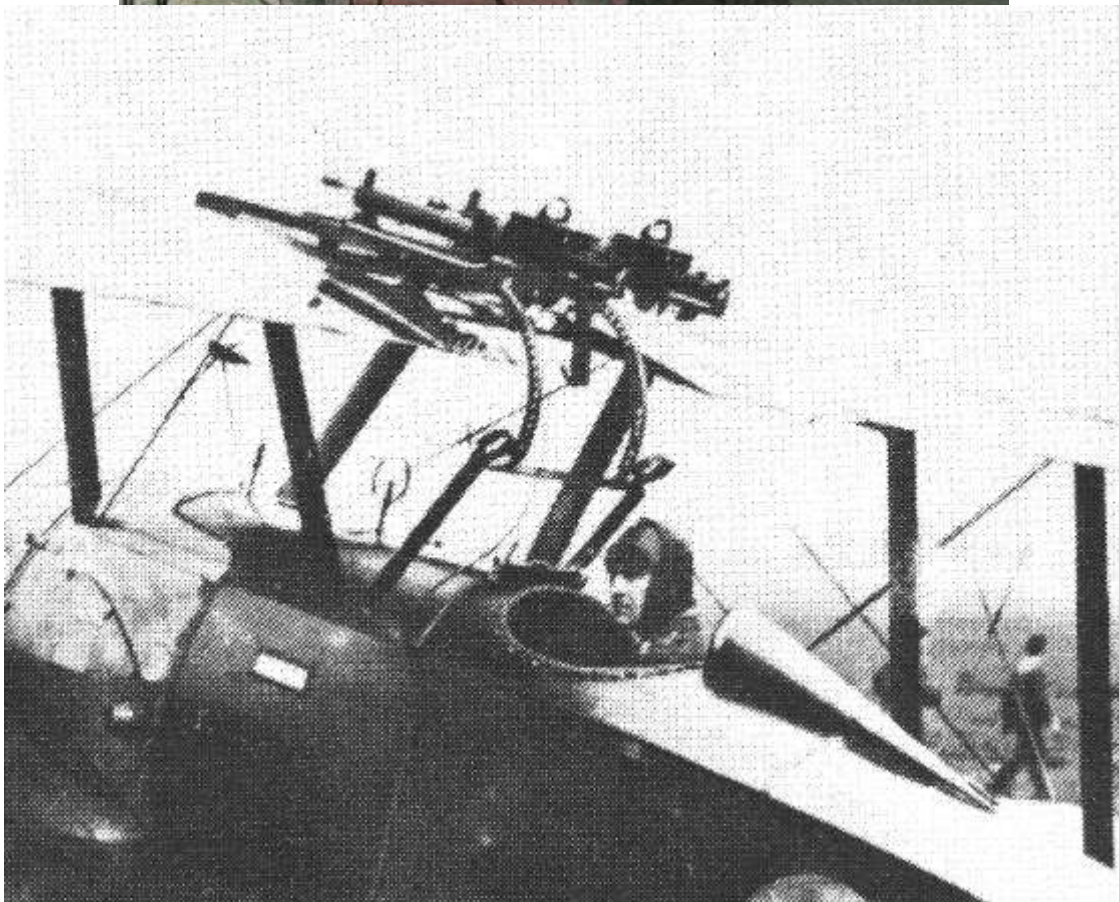
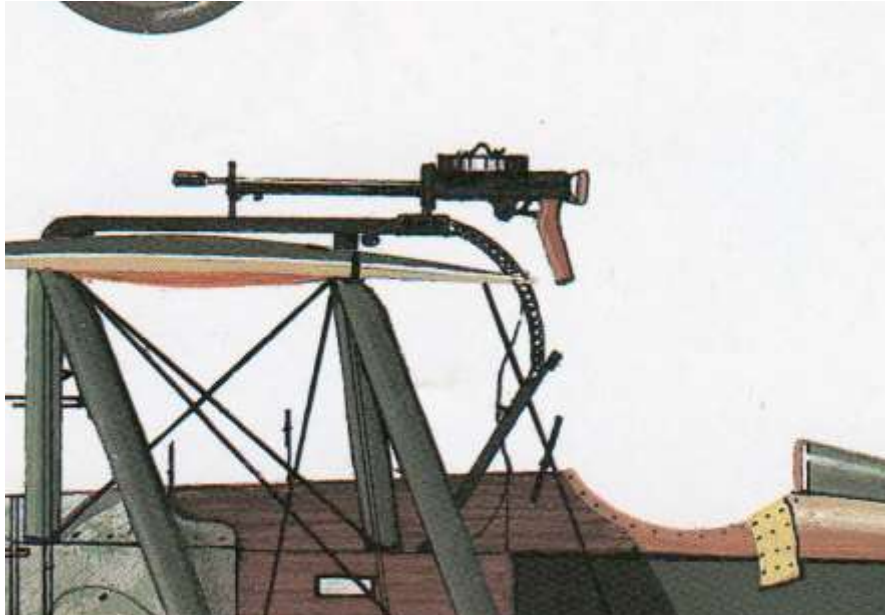
PART 10

WEAPONS

PART 10 - WEAPONS

The donor Wingnut Wings Sopwith 'Camel' kit has Vickers machine guns, which were not used on the 'Comic'. Therefore, I chose to use 'GasPatch' 1/32nd scale Lewis M.II (13-32056) machine guns.

NOTE: *The two Lewis machine guns were mounted on 'Foster' guns rails, located on the centre section of the upper wing. The 'Foster mounts allowed the weapons to be pulled back and down to the cockpit, where the pilot could replaced the empty ammunition drums. The bottom of the curved rails were attached to fuselage rectangular frame, forward from the cockpit. Some frames had circular clamp rings on the top, outer ends of the upper rail. These rings were used to clamp a weapon to fire up at a forty-five degree angle. Other frames had no clamp rings, the weapons fitted to fire forward only.*



The aircraft in the following photograph has the machine guns rigged to fire up at an angle, and is used for detail references of the mountings only.

NOTE: *The machine gun mounts were made by 'trial and error' and therefore I have not included any measurements for the various parts. Reference to the following photographs should be made for sizes and positioning.*



NOTE: *The two weapons had no rear grab handles on the breech blocks.*

Cut away the grab handle on the rear of the breech block of a 'GasPatch' Lewis machine gun (not required).

Secure an ammunition drum onto the machine gun, using thin CA adhesive.

NOTE: *The two weapons had flash suppressors fitted onto the front of the barrels.*

Cut a short length of 1.0 mm and 1.2 mm diameter tube, such as that from 'Albion Alloy's (MBT10 and 1.2 MBT) or similar.

Secure the 1.0 mm tube onto the barrel end, using thin CA adhesive.

Secure the 1.2 mm tube over the 1.0 mm tube, using thin CA adhesive.

NOTE: *The left machine gun **only** had an extended grab handle under the rear of the breech block.*

Cut a length of 1.2 mm diameter tube, such as that from 'Albion Alloy's (MBT12) or similar.

Using flat nosed pliers, flatten the tube over a 0.4mm diameter rod, such as 'Albion Alloy's (MBR04) or similar, with the rod protruding at one end

Cut the tube in half and secure the two halves together using thin CA adhesive.

Drill a hole of 0.4 mm diameter up into the bottom of the grab handle of **only one** of the machine guns.

Insert the protruding rod into the pre-drilled hole and secure the extension in position using thin CA adhesive.

Sand the edges of the joined tube and grab handle to blend them together.

Cut a length of 0.85 mm plastic rod, such as that from 'Plastruct'.

Bend both ends of the rod such that the forward end rests on the top surface of the upper wing centre section with the rear curved end bending over the rear of the centre section down towards the fuselage decking forward from the cockpit.

Cut each end of the rod to achieve the correct height from the upper wing and the drop of the rear curve to the fuselage.

Drill holes of 0.4 mm diameter through the rear curve to create the locking holes in the rail.

Cut lengths of 0.2 mm diameter lead wire, such as that from 'PlusModel' or similar.

Using thin CA adhesive, secure the wires around the edges of the rear 'rail' to create the lips of the rail.

Drill holes of 0.4 mm diameter into, but not through, the underside of the machine gun at the forward bead gun sight and the front of the cooling jacket.

Cut two short lengths of 0.4mm diameter rod, such as 'Albion Alloy's (MBR04) or similar.

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

Temporarily position the mounting onto the top surface of the upper wing with the front resting forward of the centre section cut out and the rear curve over the rear cross member of the centre section.

Hold the machine gun over the mounting and mark the position of the two added rods in the machine gun.

Using the marks as guides, drill holes of 0.4 mm diameter vertically through mounting.

Cut a short length of 1.2 mm diameter tube, such as that from 'Albion Alloy's (MBT12) or similar.

Using flat nosed pliers, flatten the tube over the rear rod of the machine gun.

Locate the rods of the machine gun through the pre-drilled holes in the mounting, leaving a gap between the machine gun and the mounting.

Secure the rod of the machine gun into the mounting, using thin CA adhesive.

Cut away any protruding rod under the mounting from the forward rod.

Cut the rear rod under the mounting to leave approximately 1.5 mm of rod protruding.

To represent the side plates for the rear mounting of the machine gun, I secured in position, on both sides, a spare photo-etch buckle from a seat belt set.

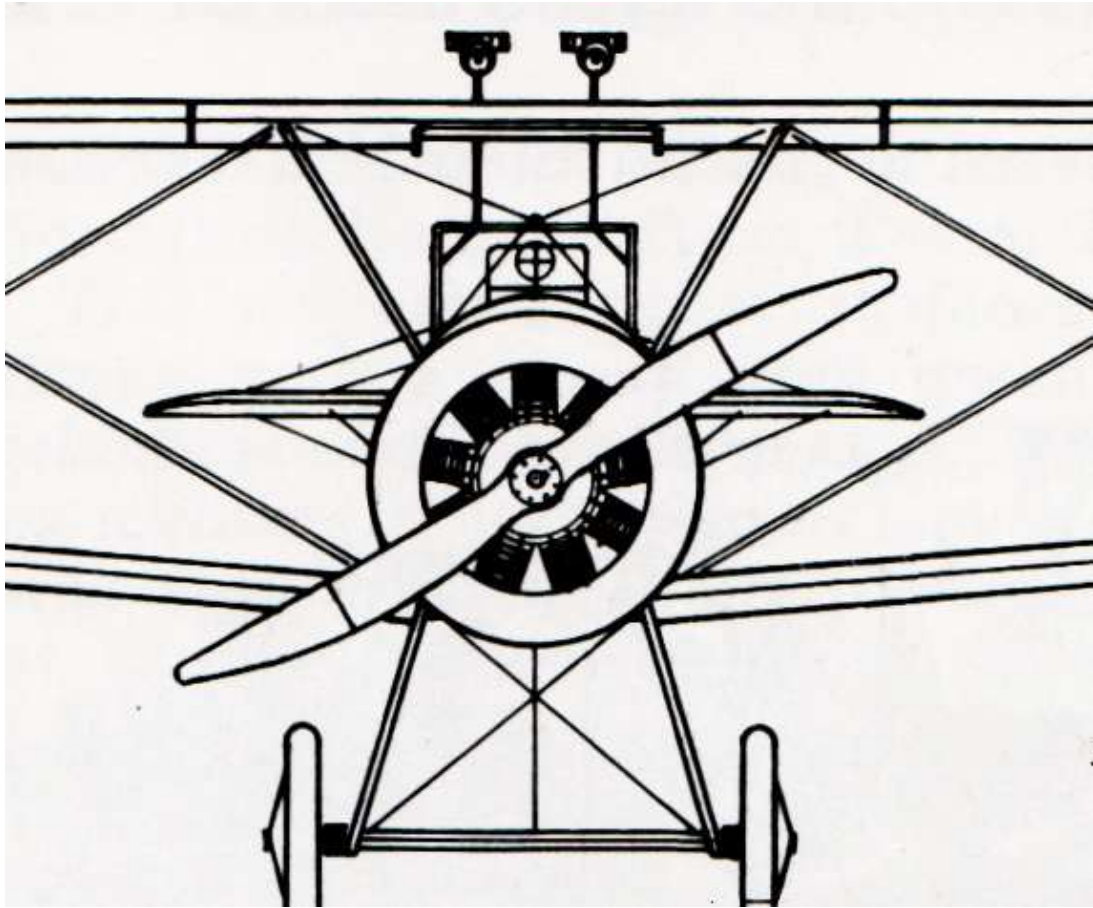
Repeat the procedures to complete the other machine gun and its mounting.

NOTE: *For the positioning of the two machine guns on the upper wing, refer to the following three illustrations.*

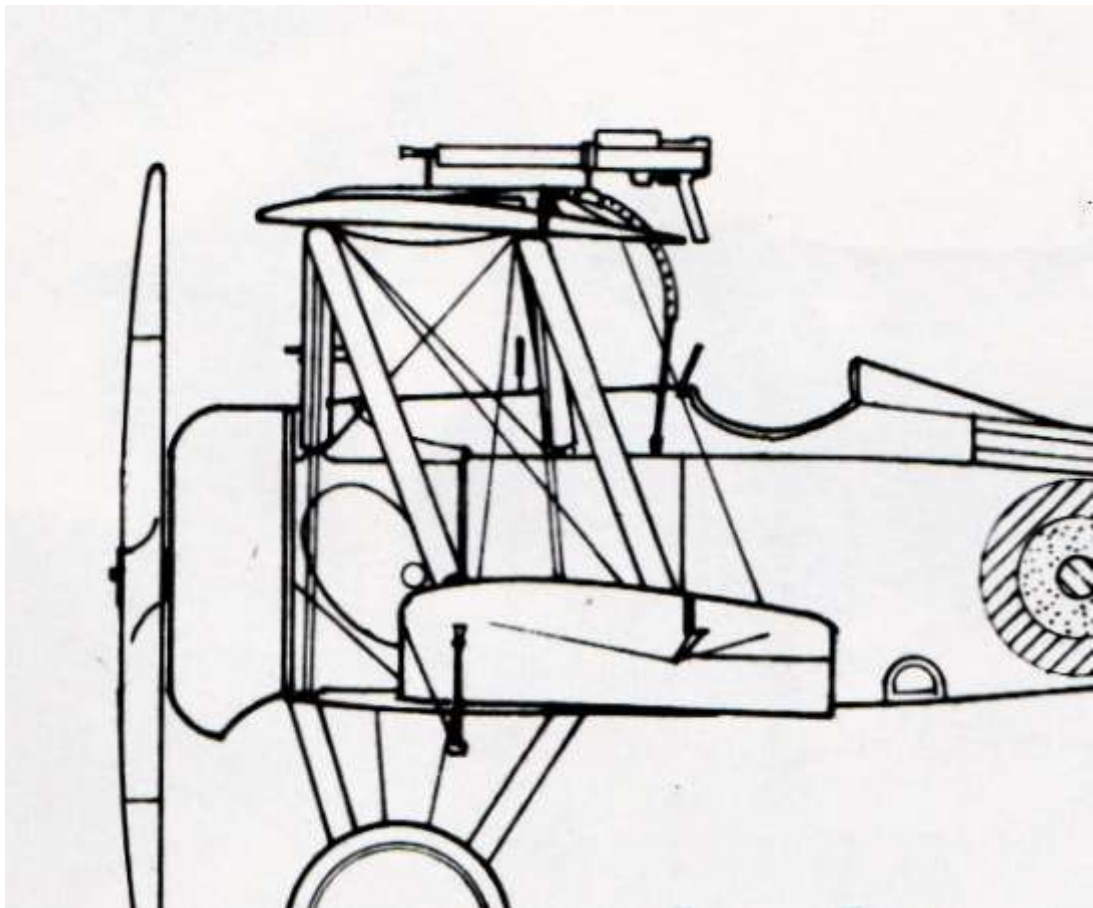
Hold each machine gun assembly over the upper wing in the correct location and mark the rear cross member of the upper wing centre section for the rear gun mounting rod.

Drill holes of 0.4 mm diameter into, but not through, the rear cross member at the marks.

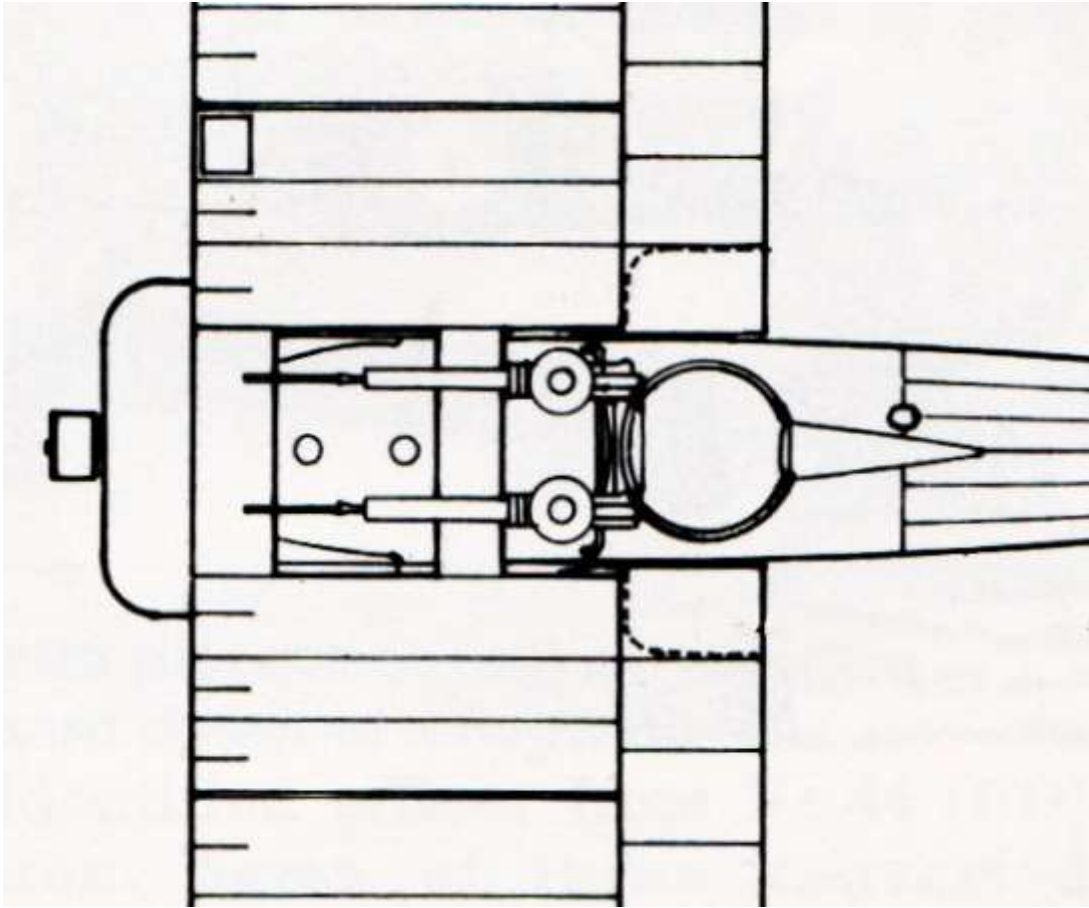
'Comic' side view



'Comic' front view



'Comic' top view



NOTE: *The rear gun support frame on the fuselage and associated parts will be added after the upper wing has been fitted.*





Painting:

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

Airbrush prime the weapons with a gloss black primer, such as 'Tamiya' Gloss Black (X18) or similar.

Lightly airbrush the weapons with 'Alclad' Gunmetal (ALC-120) or similar.

Lightly dry brush a worn metal effect over the weapons, with such as 'Mr. Colour' Super Metallic - Super Iron (203) or similar.

Using 'Tamiya' weathering master Set B (Soot), lightly sponge around the gun muzzle.

Brush paint the two grip handles and barrel support on both weapons with 'Tamiya' Hull Red (XF9) or similar.

Brush paint the leather handles on the two ammunition drum with 'AK Interactive' Brown Leather (AK3031) or similar.

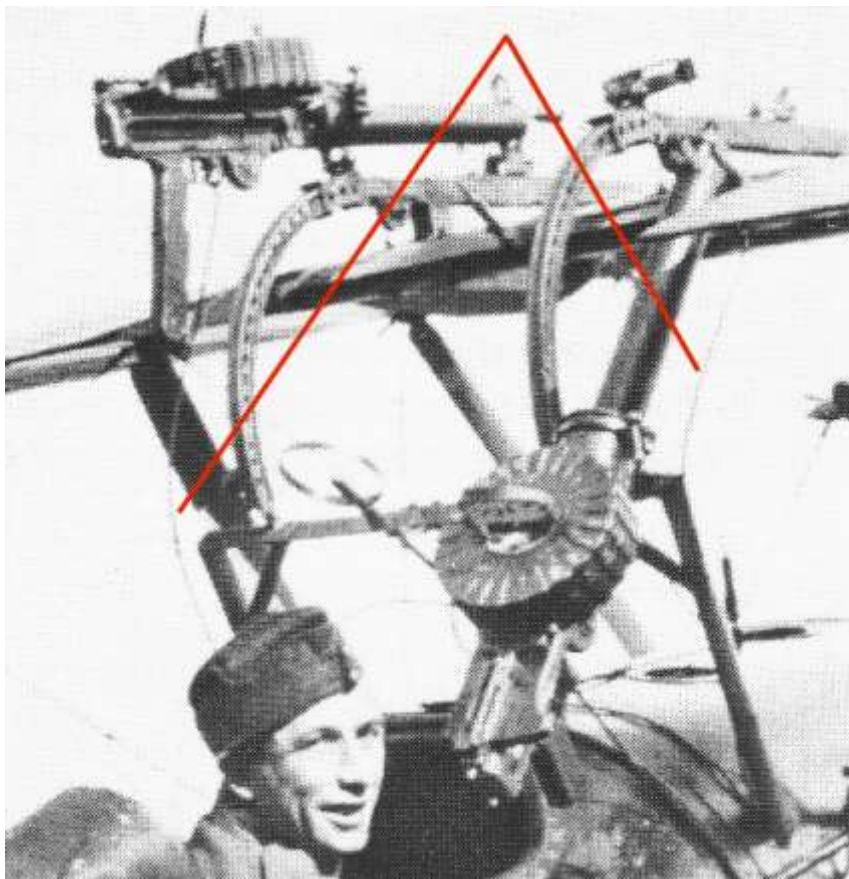
NOTE: *Final assembly of the weapons to the model will be carried out later in this build.*



Trigger cables:

NOTE: *The Lewis machine guns were fired by the pilot pulling on a cable that was attached to the machine guns, forward from the trigger guard. The cables were routed down and through the fuselage decking panel at each side of the cockpit.*

To represent the trigger cables, a length of 'EZ' stretch line (fine black) was secured to the front of the trigger guards, using thin CA adhesive.



PART 11
CONSTRUCTION
(PHASE 2)

PART 11 - CONSTRUCTION (PHASE 2)

Pre-rigging (continued):

NOTE: At this stage of the build it's best to pre-rig the model as far as possible, whilst there is easy access to the various parts. For more rigging information, refer to Part 5 (Rigging).

Make sure all of the pre-drilled rigging holes are clear of paint and decal. If necessary, run the appropriate sized drill through the holes to clear them.

NOTE: Always cut lengths of mono-filament longer than then length required between the rigging points.

Upper wing:

Cut lengths of 0.12 mm diameter mono-filament, longer than required, for the following rigging wires **for both sides of the aircraft (22 in total)**:

Two interplane strut cross bracing wires.

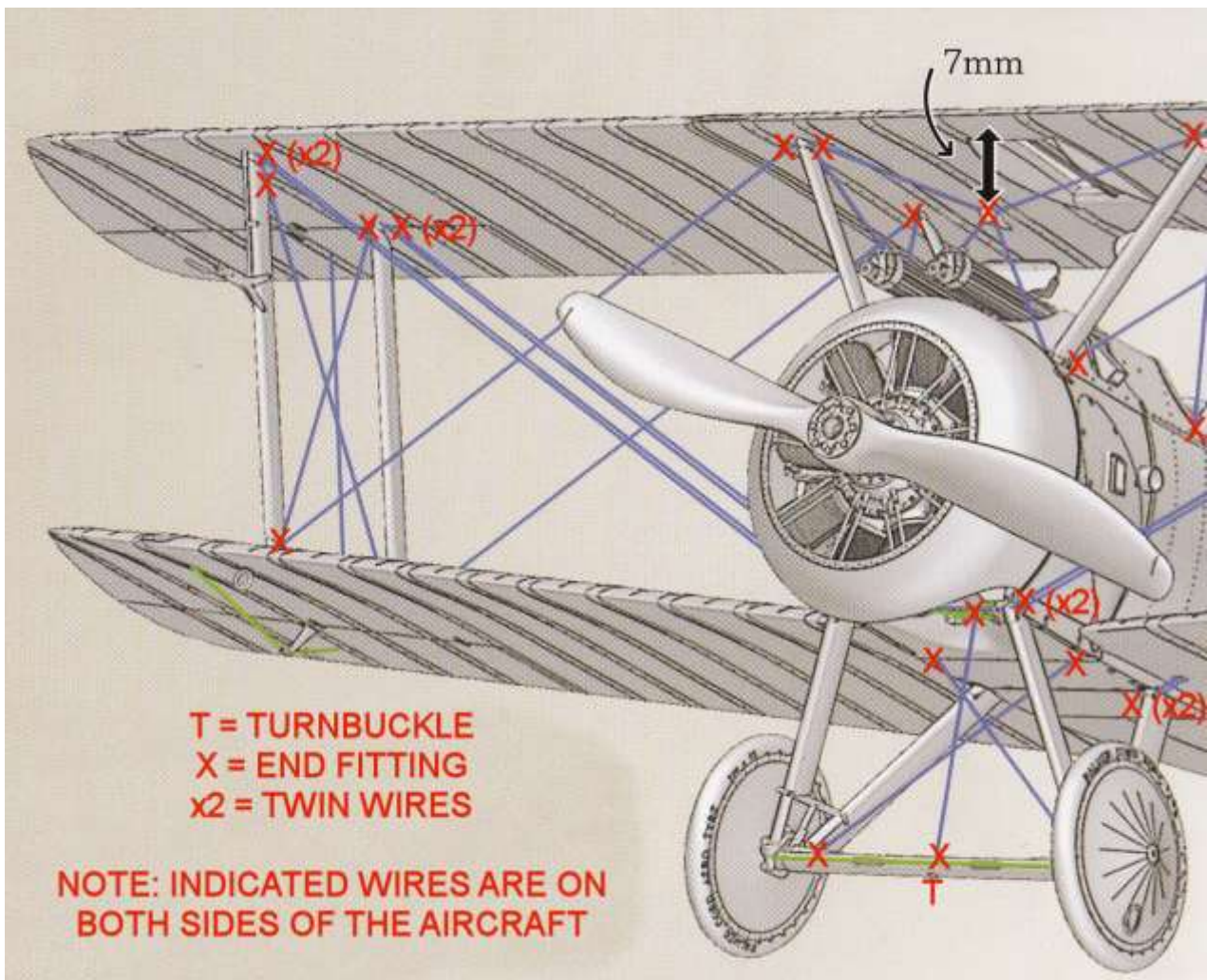
Three flying wires (underside of upper wing to tops of landing gear struts).

Front flying wire (underside of upper wing, across front landing gear struts to opposite underside of upper wing).

Two landing wires.

One cabane strut front cross bracing wires.

Use the following illustration as a guide and insert each line into its pre-drilled locating hole in the underside of the upper wing, securing each in position with CA adhesive.



Fuselage:

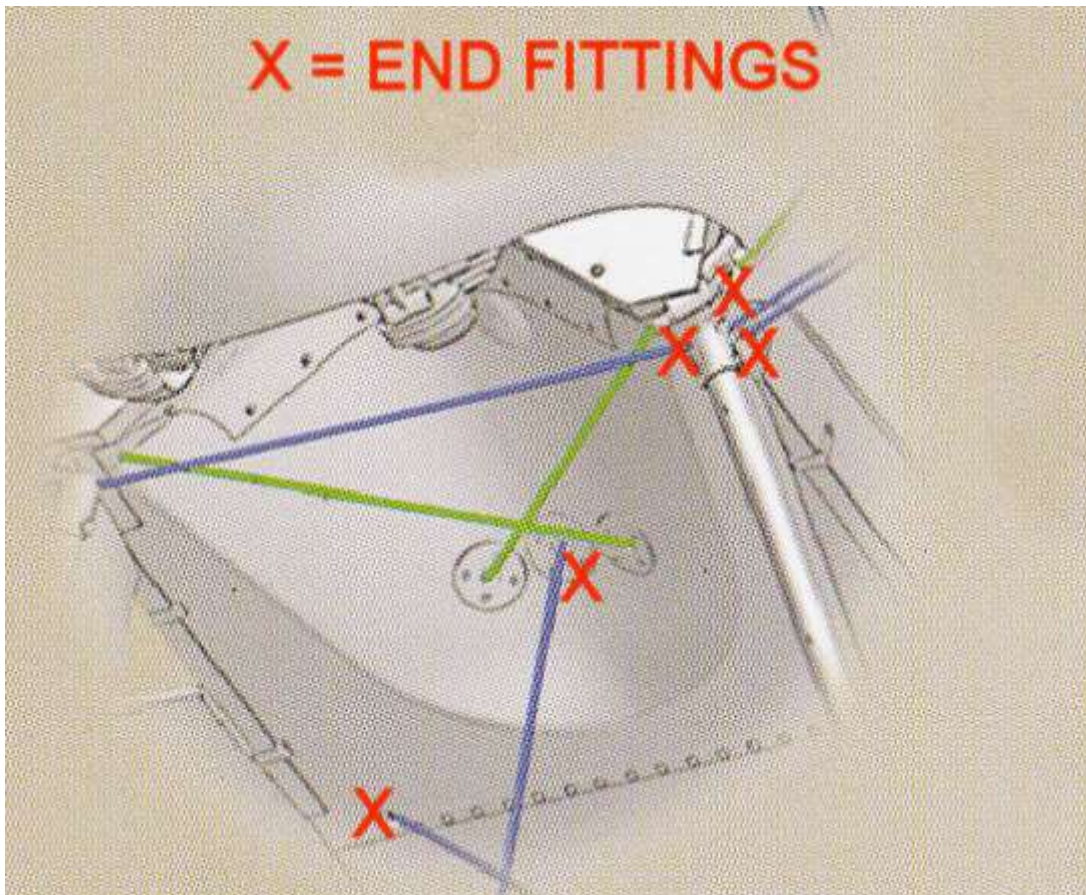
Cut lengths of 0.12 mm diameter mono-filament, longer than required, for the following rigging wires under the forward fuselage:

Two landing gear strut cross bracing wires.

One axle fairing to fuselage bracing wire.

Two under shield cross bracing wires.

Use the following illustration as a guide and insert each line into its pre-drilled locating hole in the forward fuselage under shield, securing each in position with CA adhesive.



Cabane struts:

Cut lengths of 0.08 mm diameter mono-filament, longer than required, for the four fuselage cabane struts.

Cut four short lengths of blackened 0.4 mm diameter Nickel-Silver tube, such as that supplied from 'Albion Alloys' (NST04) or similar.

Deburr the tube by running a 0.2 mm through the tube.

Pass the line through the tube, then trough the pre-drilled hole in the top of a fuselage cabane strut.

Pass the line back and through the tube.

Slide the tube up to, **but not touching**, the cabane strut.

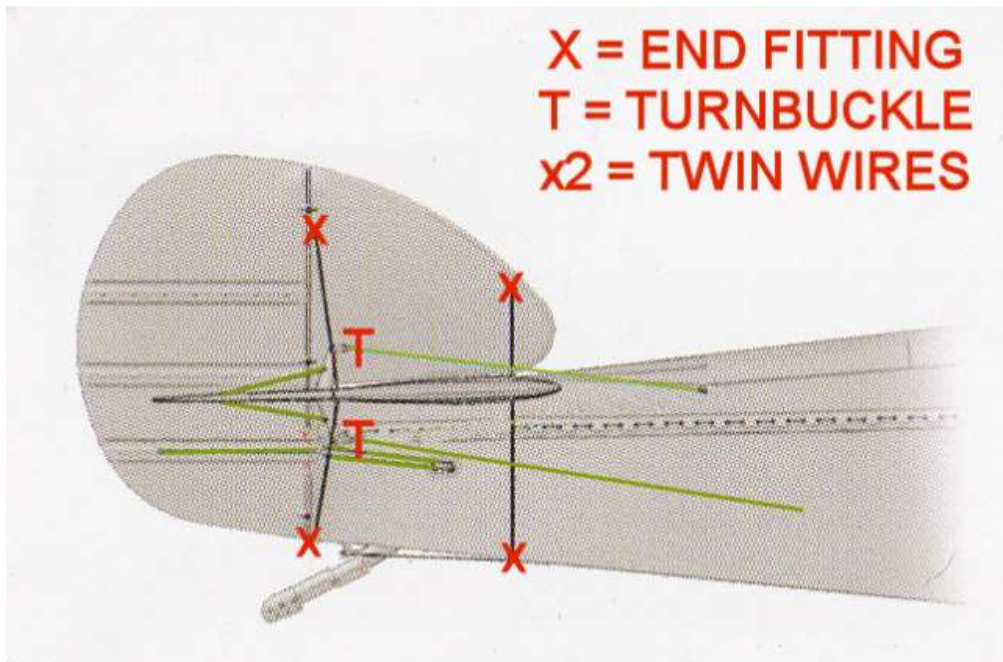
Secure the lines to the tube end away from the cabane strut, using thin CA adhesive.

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

Fin bracing wires:

Cut two long lengths of 0.12 mm diameter mono-filament, longer than required, for the two fin bracing wires.

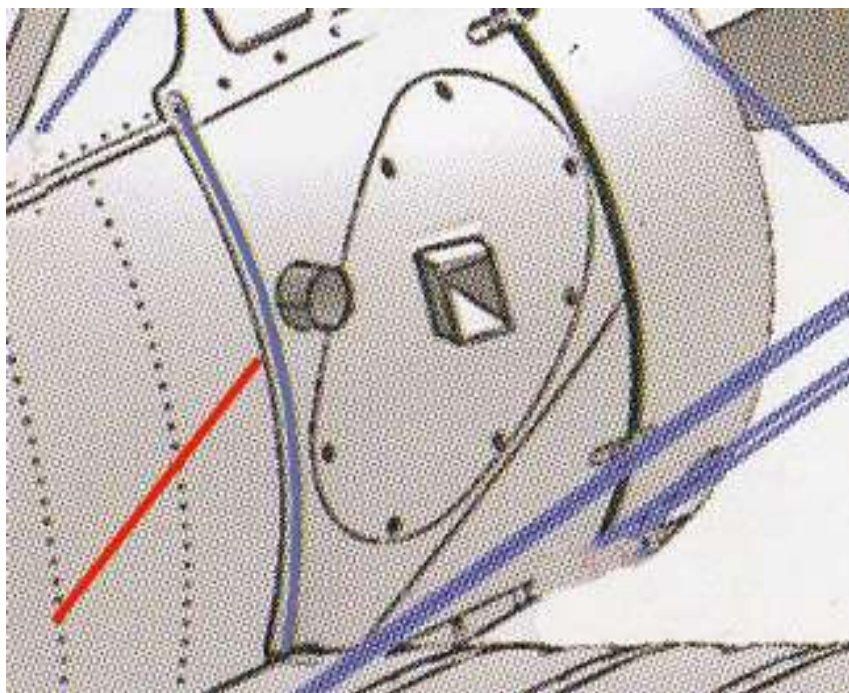
Using thin CA adhesive, secure one end of the wires into the pre-drilled holes through the lugs on the bottom, edge of the rear of the fuselage on **one side only**.



Side bracing wires:

Cut two long lengths of 0.12 mm diameter mono-filament, longer than required, for the fuselage side bracing wires.

Using thin CA adhesive, secure one end of the wires into the pre-drilled holes at both wing roots of the lower wings.



Gunsights:

Airbrush the previously made ring and bead gunsights with 'Tamiya' Rubber Black (XF85) or similar.

Using CA adhesive, secure the two gunsights into their pre-drilled holes in the fuselage forward decking panel.

Upper wing - fit:

Use small strips of masking tape on the underside of the upper wing to hold the various rigging lines away from the interplane and fuselage cabane strut locations.

Test fit the four interplane and fuselage cabane struts into their locations in the upper and lower wing. Make sure the struts fully locate without undue force.

Carefully locate fully the upper wing onto the four fuselage cabane struts.

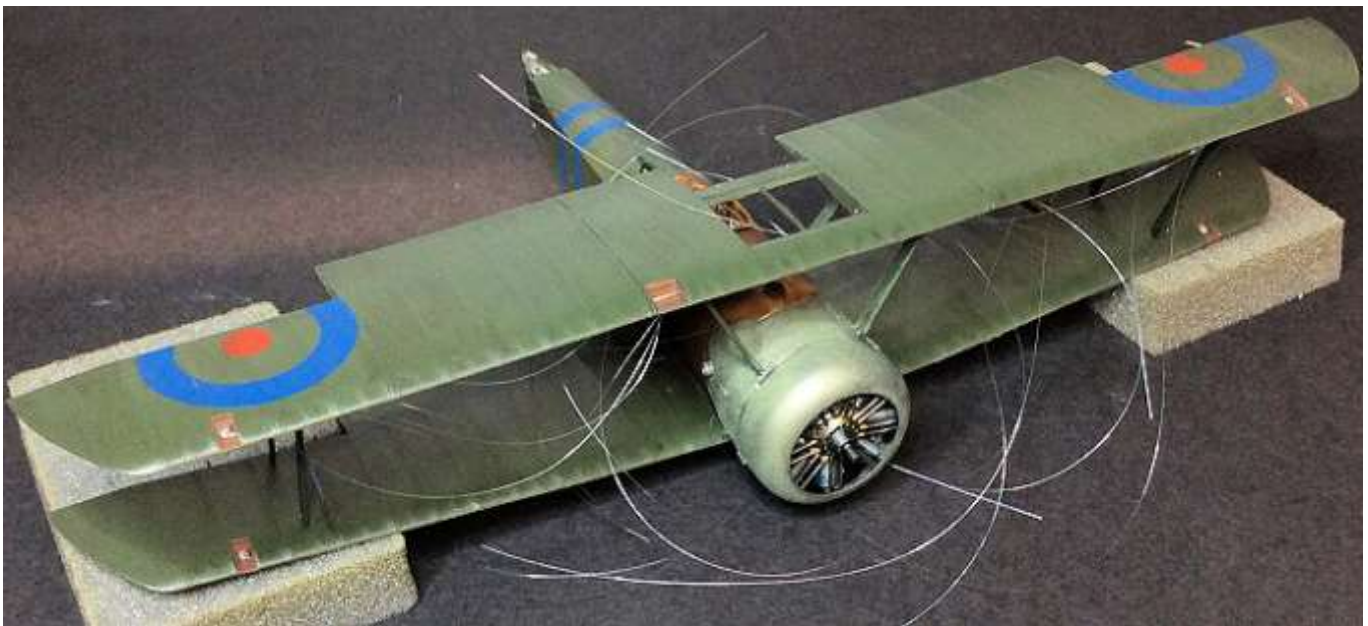
Apply cement to the cabane strut joints to secure the upper wing to the struts.

Once the joints are set, carefully locate and fully the four interplane struts into their locations in the upper and lower wings.

Apply cement to the interplane strut joints to secure the upper wing to the lower wings.

Check the alignment of the upper wing to the lower wing when viewed from above and from the sides.

Remove the masking from the rigging lines.



Final rigging:

Rigging - final tensioning:

Invariably after rigging has been completed, some lines may be slack. This can be remedied by careful application of heat along the line, but should only be carried out once all rigging has been completed. Only then will you be able to see which lines require additional tensioning.

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.*

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

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.

Cabane strut side bracing:

At each of the pre-rigged cross bracing lines for the fuselage cabane struts:

Cut the length of the line such that under tension, it can be inserted fully into its diagonally opposite pre-drilled locating hole in the fuselage (base of the opposite strut).

Slide two blackened 0.4 mm diameter tubes onto the line.

NOTE: During the following step, make sure the two tubes are kept away from the locating hole.

Insert the free end of the line into its pre-drilled location hole and whilst holding it in tension, secure the line in the hole using thin CA adhesive.

If necessary, tighten the line using a heat source.

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

Cabane strut front bracing:

Cut the length of the line such that under tension, it can be inserted fully into its diagonally opposite pre-drilled locating hole in the fuselage (base of the opposite strut).

Slide a blackened 0.4 mm diameter tube onto the two pre-rigged front bracing lines .

Pass the free ends of the two lines through two adjacent holes pre-drilled through the restraint (kit part A56).

Slide a blackened 0.4 mm diameter tubes onto the lines.

Position the restraint centrally above the fuselage and approximately 7 mm from the upper wing.

NOTE: During the following step, make sure the tubes are kept away from the restraint.

Insert the free end of the line into its pre-drilled location hole and whilst holding it in tension, secure the line in the hole using thin CA adhesive.

If necessary, tighten the line using a heat source.

Slide the four tubes up to the restraint and secure in position using thin CA adhesive.

Brush paint the restraint with 'Tamiya' NATO Brown (XF68) or similar.



Landing wires:

At each of the pre-rigged single landing lines:

Using thin CA adhesive, secure a 'GasPatch' 1/48th scale Anchor Point into each of the four pre-drilled landing wire holes in the top surface of the lower wings (inboard from the interplane struts).

Slide a blackened 0.4 mm diameter tube onto the pre-rigged landing line.

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

Pass the free end of the line through the 'eye' end of the fitted Anchor Point at the associated interplane strut.

Pass the line back and through the 0.5 mm diameter tube.

Keeping the line taut, slide the 0.5 mm diameter tube up to, **but not touching**, the 'eye' of the Anchor Point.

Using thin CA adhesive, secure the 0.4 mm diameter tube up against the fuselage cabane strut.

Make sure the line is taut and using thin CA adhesive, secure the 0.5 m diameter tube to the line.

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

If necessary, tighten the line using a heat source.



Interplane strut cross bracing:

At each of the pre-rigged interplane cross bracing lines:

Using thin CA adhesive, secure a 'GasPatch' 1/48th scale Anchor Point into each of the four pre-drilled bracing wire holes in the top surface of the lower wings (between the two interplane struts).

Slide a blackened 0.4 mm diameter tube onto the pre-rigged bracing line.

Slide a blackened 0.5 mm diameter tube onto the pre-rigged bracing line.

Pass the free end of the line through the 'eye' end of the fitted Anchor Point at the base of the diagonally opposite interplane strut.

Pass the line back and through the 0.5 mm diameter tube.

Keeping the line taut, slide the 0.5 mm diameter tube up to, **but not touching**, the 'eye' of the Anchor Point.

Using thin CA adhesive, secure the 0.4 mm diameter tube up against the fuselage cabane strut.

Make sure the line is taut and using thin CA adhesive, secure the 0.5 m diameter tube to the line.

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

If necessary, tighten the line using a heat source.

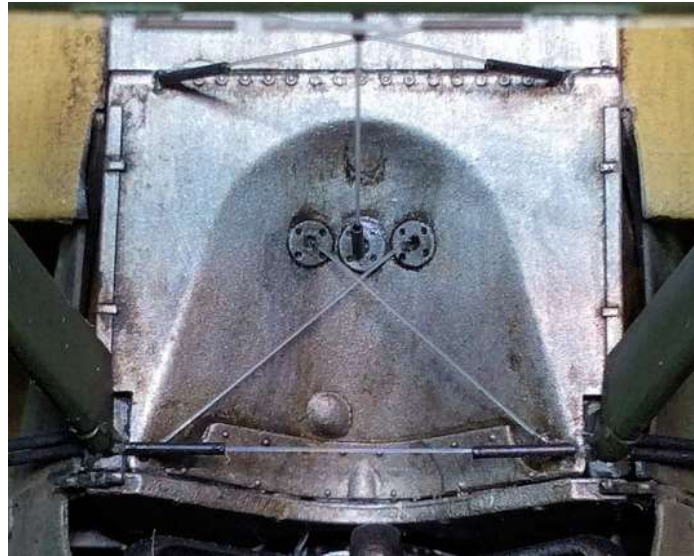


Undershield cross bracing wires:

Pass the free end of the two cross bracing wires (pre-rigged on the under shield) diagonally across and through the pre-drilled holes at the outer, forward edge of the under shield.

Keeping the lines taut, secure each into its locating hole, using thin CA adhesive.

Cut away any residual line at the locating holes.



Landing gear - fit:

Test fit the landing gear struts into their locations on the forward, underside of the fuselage. If necessary scrape away any residual primer and paint from the locating tabs on the tops of the struts.

Cement the two landing gear struts into their locations.

Cement the axle/fairing between and into the two landing gear struts.

Check that the struts and axle/fairing are fully located and if necessary, retain the bottom of the struts to prevent them from spreading away from the axle/fairing until the cement sets.

Final rigging (continued):

Landing gear cross bracing:

Slide a blackened 0.4 mm diameter tube onto the pre-rigged cross bracing lines.

Slide the tubes up to the under shield and secure them in position using thin CA adhesive.

Slide another blackened 0.4 mm diameter tube onto the bracing lines.

Pass the free end of the lines diagonally across each other and through the pre-drilled holes in the bottom, rear of the landing gear struts.

Keeping the lines taut, secure them into the landing gear struts, using thin CA Adhesive.

Slide the second tubes up to the landing gear struts and secure them in position using thin CA adhesive.

Cut away any residual line away at the outside of the landing gear struts.

If necessary, tighten the line using a heat source.

Axle/fairing bracing:

Slide a blackened 0.4 mm diameter tube onto the pre-rigged centre bracing line.

Slide another blackened 0.4 mm diameter tube onto the bracing line.

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

Keeping the line taut, secure it into the axle/fairing, using thin CA Adhesive.

Slide the second tube onto the axle/fairing and secure it in position using thin CA adhesive.

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

If necessary, tighten the line using a heat source.

Axle/fairing cross bracing:

Pass the free ends of the pre-rigged cross bracing line through the pre-drilled holes in the bottom, front of the landing gear struts.

Make sure the turnbuckle on the line is positioned centrally against the leading edge of the axle/fairing.

Keeping the line taut, secure each end into the holes in the bottom, front of the landing gear struts.

Cut away any residual line away at the outside of the struts.

Brush paint any fitted turnbuckles with 'Mr. Colour' Stainless Steel (213) or similar.

Brush paint the centre barrel of the turnbuckles with mix of 'Mr. Colour' Brass (219) and Copper (215) or similar.

Rear twin flying wires:

At each of the two pre-rigged rear flying wires (both sides of the model):

Slide a blackened 0.4 mm diameter tube onto the pre-rigged line.

Pass the free end of the line diagonally down and through its respective pre-drilled hole through the lower wing.

Slide a blackened 0.4 mm diameter tube onto the pre-rigged line.

Pass the free end of the line through its respective pre-drilled hole at the top of the landing gear rear strut.

Keeping the line taut, secure it in position in the landing gear rear strut, using thin CA adhesive.

Cut away any residual line away at the inner edge of the landing gear rear strut.

If necessary, tighten the line using a heat source.

Front twin flying wires:

Rear wires:

At each of the two pre-rigged rear flying wires (both sides of the model):

Slide two blackened 0.4 mm diameter tubes onto the pre-rigged line.

Pass the free end of the line diagonally down and through its respective pre-drilled hole through the landing gear front strut.

Keeping the line taut, secure it in position in the front landing gear front strut, using thin CA adhesive.

Cut away any residual line away at the inner edge of the landing gear rear strut.

If necessary, tighten the line using a heat source.

Front wire:

At the single pre-rigged front flying wire (one side of the model):

Slide two blackened 0.4 mm diameter tubes onto the pre-rigged line.

Pass the free end of the line diagonally down and through its respective pre-drilled hole in the landing gear front strut.

Slide two blackened 0.4 mm diameter tubes onto the line.

Pass the free end of the line across the under shield and through its respective pre-drilled hole at the top of the opposite landing gear front strut.

Using thin CA adhesive, secure a 'Gaspach' 1/48th scale Anchor Point into the pre-drilled flying wire rigging hole, at the opposite front interplane strut on the underside of the upper wing.

Slide a blackened 0.4 mm diameter tube onto the line.

Slide a blackened 0.5 mm diameter tube onto the line.

Pass the free end of the line through the 'eye' end of the fitted Anchor Point.

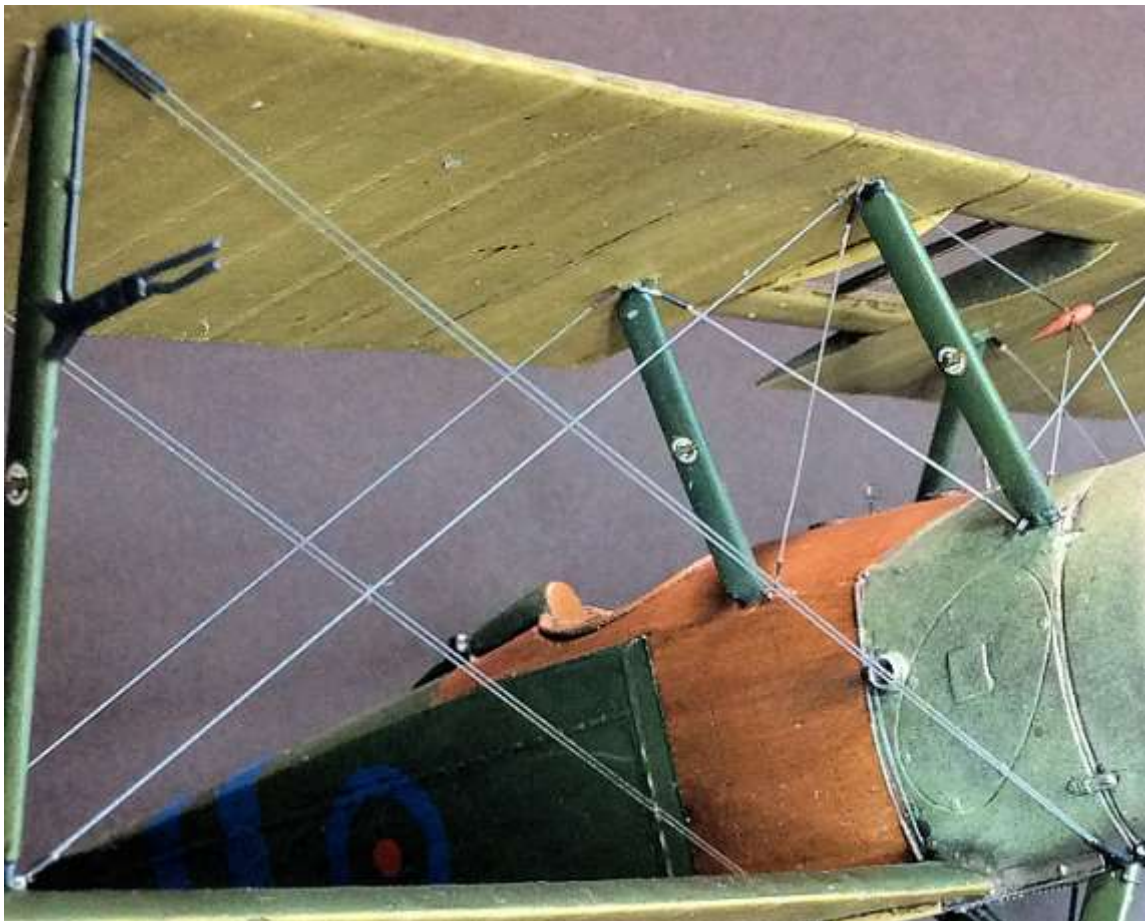
Pass the line back and through the 0.5 mm diameter tube.

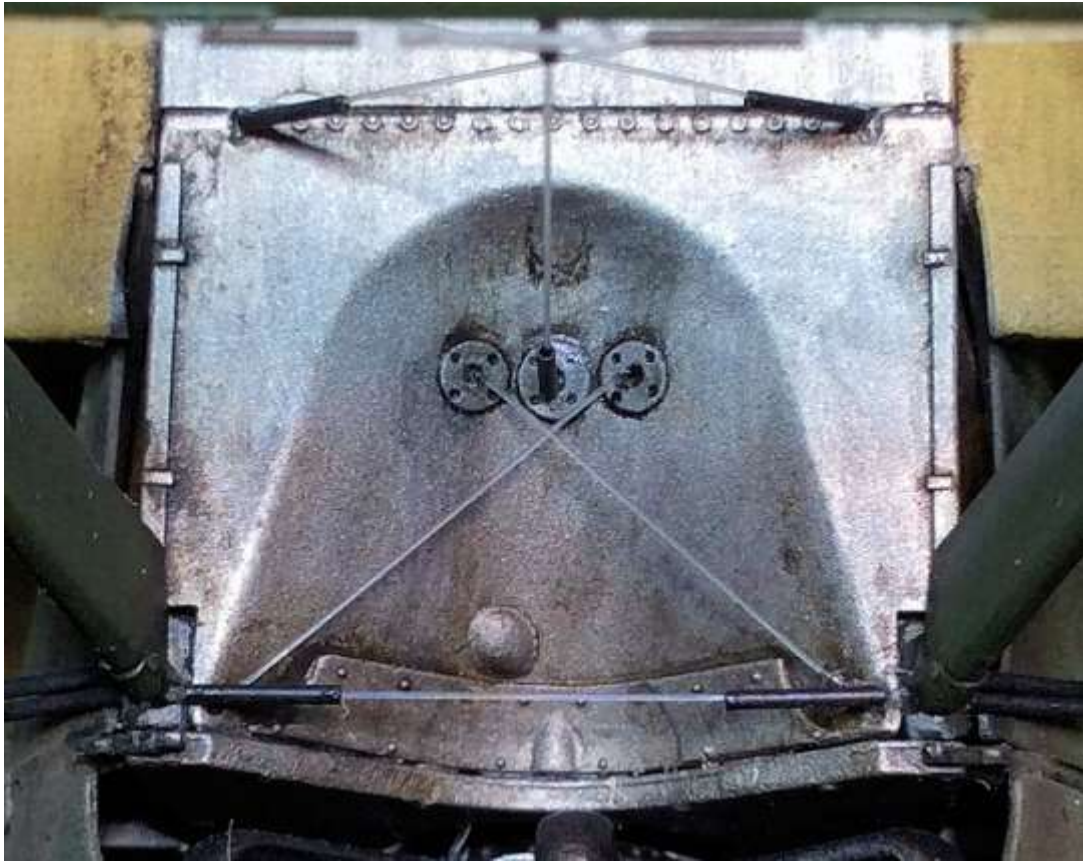
Keeping the line taut, slide the 0.5 mm diameter tube up to, **but not touching**, the 'eye' of the Anchor Point.

Secure all of the added tubes in position against the underside of the upper wing and the landing gear front struts.

Cut away any residual line away at the 0.5 mm diameter tube at the final interplane strut.

If necessary, tighten the lines using a heat source.





Wheels - fit:

Locate the two wheels onto the ends of the axle.

Fully locate the wheel retainers (kit parts D13) over the recess in the ends of the axle.

Cement the retaining rings to the wheels, making sure the wheels are angled slightly in at their tops (as normal for the Sopwith aircraft).

Fully locate and cement the wheel outer covers into the wheels.



Control horns - fit:

Cement the four pre-rigged control horns (D2) for the elevator, into their locating recesses in the elevator.

Cement the two pre-rigged control horns (D27) for the lower wing ailerons, into their locating recesses in the ailerons.

Cement the two pre-rigged control horns (D24) for the upper wing ailerons, into their locating recesses in the ailerons.

Cement the pre-rigged control horn (A17) for the rudder, into its locating recess in the rudder.

Brush paint all of the control horns with 'Tamiya' Rubber Black (XF85) or similar.

Brush paint any fitted turnbuckles with 'Mr. Colour' Stainless Steel (213) or similar.

Brush paint the centre barrel of the turnbuckles with thinned 'Tamiya' Hull Red (XF9) or similar.

Gun Mounting frame:

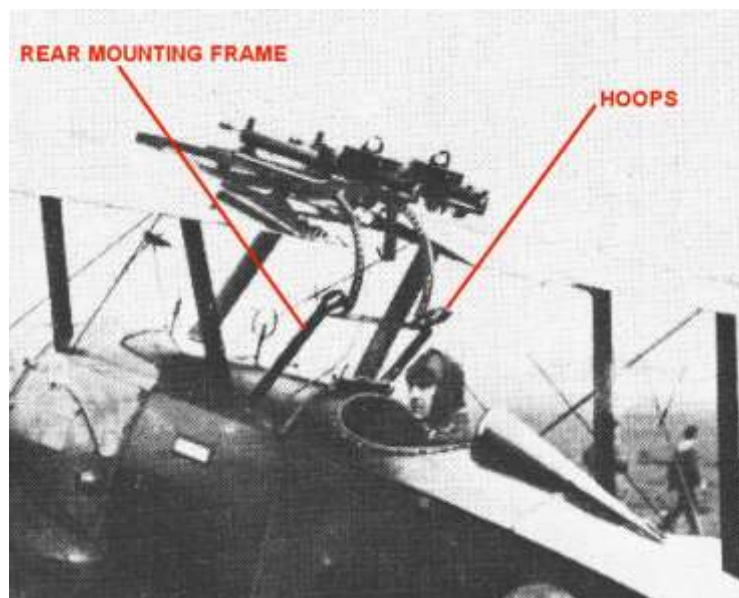
NOTE: *To avoid damage during handling the model, the ailerons and tail unit will be fitted after the gun mounting.*

Test fit the two Lewis machine guns into their pre-drilled holes in the top, centre section of the upper wing. The guns should be fully in contact with the wing at the forward end on the mounting rails and parallel to each other at the centre line of the wing.

Using CA adhesive, secure the two Lewis machine guns onto the upper wing. The long handled weapon should be located on the left side and the standard weapon on the right side.

NOTE: *I chose to make the gun mount from brass tube.*

However, it can be made from appropriate sized plastic rod, such as that from 'Plastruct'.



I measured the distance between the bottom of the two curved rails at the rear of the machine guns and added 6 mm (to mount the rings on the ends or the cross bar) for the frame top cross bar.

I then cut three lengths of 0.8 mm diameter brass tube from 'Albion alloy's' (MBT08). One was the length measured above and the other two long enough to span between the bottom of the two curved rails at the rear of the machine guns and down into the fuselage (through holes in the decking panel).

I flattened in a vice a short length of 0.3 mm diameter brass tube from 'Albion alloy's' (MBT03) and inserted it into one end of the cross bar and one of the longer tubes.

The rods were bent to a 90 degree angle and the soft soldered together using a heat source and soldering paste.

This was repeated to add the remaining longer tube to the opposite end of the cross bar.

The two soldered joints were then sanded to remove residual solder.

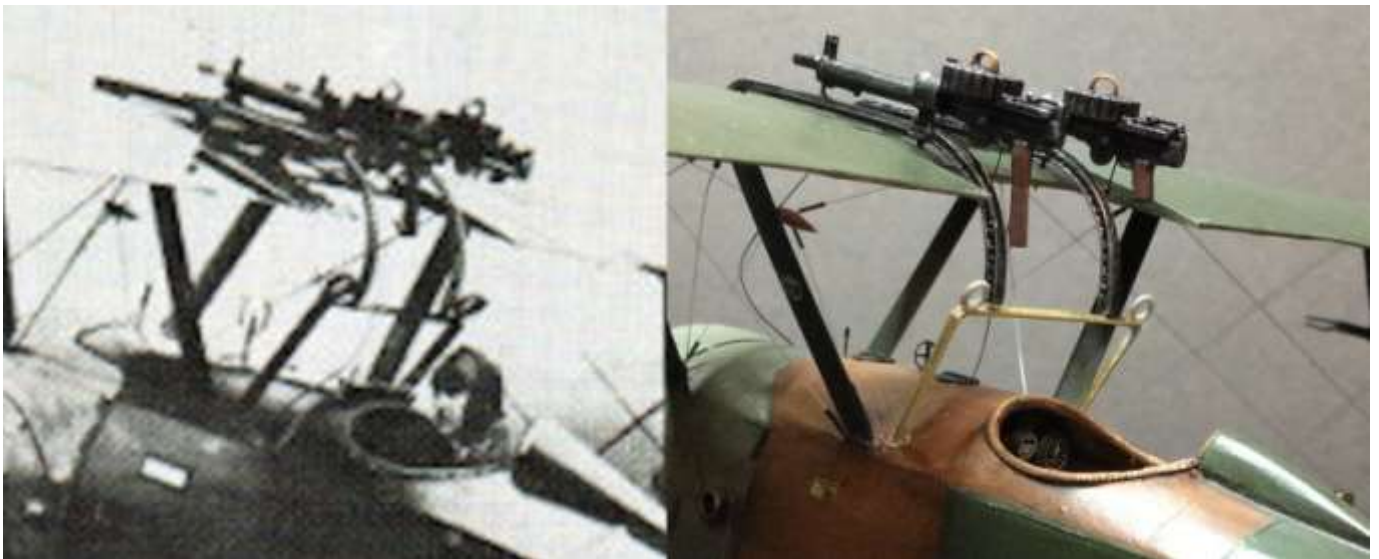
The frame was held in position over the fuselage decking panel with the two 'legs' to the rear of the rear cabane struts. The top cross bar was angled rearwards so that the top cross bar was positioned under the bottom of the curved rails of the machine guns.

The location of the two 'legs' on the decking panel was marked.

Using drills of 0.5 mm diameter upwards, two holes were drilled through the decking panel and at the rearward angle. The final diameter of the holes were enough to allow the 'legs' of the frame to pass through.

The length of the legs were then trimmed until the frame could be inserted into the pre-drilled holes and the top cross member resting against the bottom of the curved rails of the machine guns.

Using CA adhesive, two ground tethering hoops (kit parts B3) from my spares box were then secured to the outer ends of the top rail.



Painting:

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

The gun mounting rear frame.

The two 'Holt' Flares (A24).

The two ground tethering hoops (B3).

'Rotherham' petrol pump propeller (D3)

'Rotherham' petrol pump (D14).

Airbrush the primed parts (except propeller D3) with 'Tamiya' Rubber Black (XF85) or similar.

Airbrush the propeller (D3) with 'Tamiya' NATO Brown (XF68) or similar.

Brush paint the lens of the 'Holt' flare with 'Mr. Colour' Stainless Steel' (213) or similar.

Locate the frame into its locating holes and align it across the fuselage with the top cross member in contact with the bottom of the two curved rails at the rear of the machine guns.

Secure the top cross member to the bottom of the curved rails, using CA adhesive.

Once the adhesive has fully set, apply CA adhesive around the 'legs' of the frame at their location holes.

Drill holes of 0.5 mm diameter through the decking panel and below the pre-fitted 'EZ' line trigger cables on the two Lewis machine guns.

Cut the two lines such that they can just be inserted into the pre-drilled holes.

Pass the free ends of the lines into the holes.

Secure the lines to the front edge of the top cross bar of the frame, using thin CA adhesive.

Cut a long length of 0.12 mm diameter mono-filament, such as that from 'Steelon' or similar.

Slide a blackened 0.4 mm diameter tube onto the end of the line and secure it on the line using thin CA adhesive.

Using thin CA adhesive, secure the tube on the decking panel and against the inner edge of the rear cabane strut.

Cut the line such that its end will rest against the inner edge of the opposite cabane strut.

Slide a blackened 0.4 mm diameter tube onto the end of the line.

Apply thin CA adhesive on the centre of the line then hold it across the decking panel.

Apply thin CA adhesive to secure the end tube onto the decking panel and against the inner edge of the opposite cabane strut.

To reduce the shine of the adhesive, airbrush a semi-matte clear coat, such as 'Alclad' Light Sheen (ALC311) or similar, over the gun mount parts.



Tail unit - fit:

Make sure all of the pre-drilled rigging holes in the tailplane, elevator, rudder and fin are clear of paint and decal.

Cement the tailplane into the rear of the fuselage.

Cement the fin/rudder into its location slot in the end of the fuselage and its locating pin into the tailplane leading edge.

Final rigging (continued):

Fin bracing wires:

Slide two blackened 0.4 mm diameter tubes onto the one of the pre-rigged fin bracing wires.

Pass the free end of the line up and through its pre-drilled hole in the tailplane.

Slide two blackened 0.4 mm diameter tubes onto the line.

Pass the free end of the line up and through its pre-drilled hole in the fin.

Slide two blackened 0.4 mm diameter tubes onto the line.

Pass the free end of the line down and through its pre-drilled hole in the tailplane.

Slide two blackened 0.4 mm diameter tubes onto the line.

Pass the free end of the line down and through the pre-drilled hole in the stub on the bottom edge of the fuselage.

Make sure the complete run of line is taut and secure the line in the stub, using thin CA adhesive.

Slide all of the tubes up or down the lines and secure them against the relevant model surface, using thin CA adhesive.

Repeat the procedure to fit the other bracing line.

Cut away any residual line away at the underside of the fuselage locating stubs.

If necessary, tighten the line using a heat source.

Rudder control cables:

Cut the two pairs of pre-rigged rudder control cables such that they can be inserted into the cable outlet ports in the rear of the fuselage sides.

Apply CA adhesive in the outlet ports and insert the lines, keeping the lines taut.

Slide a short length of blackened 0.4 mm tube onto the pre-rigged rudder bracing wire.

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

Slide a short length of blackened 0.4 mm tube onto the line.

Pass the free end of the line through the pre-drilled hole in the rear of the opposite rudder control horn.

Pass the line back through the tube then with the line taut, slide the tube up to the rear of the control horn.

Secure the tube to the line using thin CA adhesive.

Cut away any residual line away at the tube.

If necessary, tighten the lines using a heat source.

Elevator control cables:

Cut the two pairs of pre-rigged elevator control cables such that they can be inserted into their respective upper and lower cable outlet ports in the rear of the fuselage sides.

Insert each line into its outlet port and keeping the lines taut, apply thin CA adhesive to the outlet ports to secure the lines in place.

Slide a short length of blackened 0.4 mm tube onto the pre-rigged elevator bracing wires.

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

Slide a short length of blackened 0.4 mm tube onto the lines.

Pass the free end of the lines through the pre-drilled holes in the rear of the opposite elevator control horns.

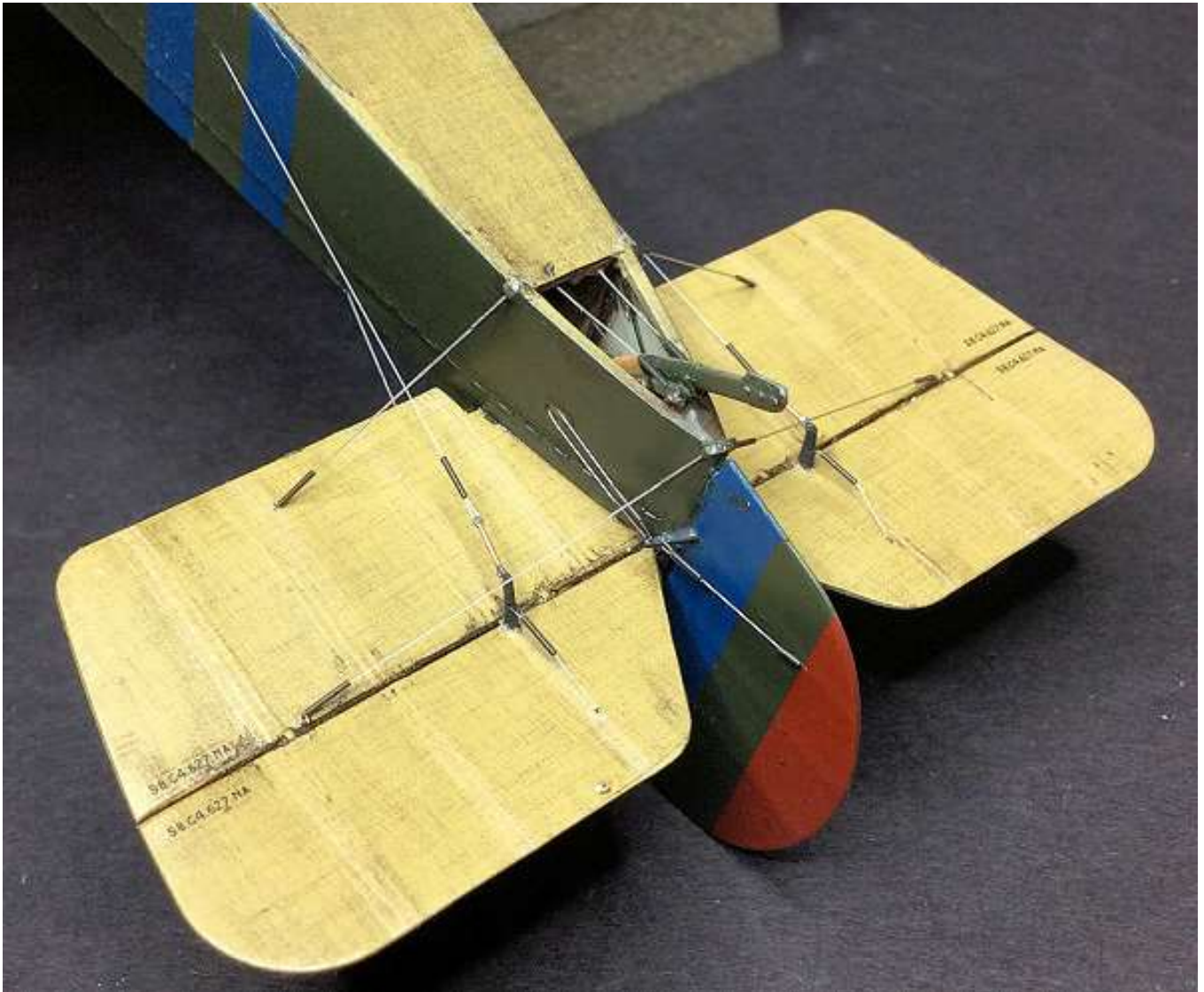
Pass the lines back through the tubes then with the lines taut, slide the tubes up to the rear of the control horns.

Secure the tubes to the lines using thin CA adhesive.

Cut away any residual lines away at the tubes.

If necessary, tighten the lines using a heat source.





Ailerons - fit:

Check fit the four ailerons into their locations on the upper and lower wings. Make sure any paint is removed from their locating rods and they can be fully located and at the desired angles (if animated).

Using CA adhesive, secure the four ailerons into their locations on the upper and lower wings.

Aileron control cables:

NOTE: *The following procedure applies the both sides of the aircraft.*

Pass the free end of the long pre-rigged interconnecting line (from the rear of a control horn) back and through the pre-drilled hole in that aileron.

Slide two blackened 0.4 mm diameter tubes onto the line.

Pass the free end of the line through the pre-drilled hole in the aileron on the opposite wing.

Slide a blackened 0.4 mm diameter tube onto the line.

Pass the free end of the line through the pre-drilled hole in the rear of that control horn.

Pass the line back and through the 0.4 mm diameter tube.

Keeping the line taut, slide the 0.4 mm diameter tube up to, **but not touching**, the control horn.

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

Cut away any residual line away at the 0.4 mm diameter tube.

If necessary, tighten the lines using a heat source.

Slide the two 0.4 mm diameter tubes against their ailerons and secure them in position using thin CA adhesive.

Cut the four line from the front of the control horns such that held taut, they can be inserted into the pre-drilled locating holes in the top surface of the upper wing and underside of the lower wings.

Holding the lines taut, secure their ends into the pre-drilled holes, using thin CA adhesive.



'Rotherham' petrol pump:

NOTE: *The 'wind driven 'Rotherham' petrol pump is fitted to the right, front landing gear strut with its propeller at the rear. The lower 'leg' of the pump should be positioned approximately 8 mm up the strut from the strut bottom cross bar.*

Make sure all paint and primer is removed from the two mating surfaces on the 'legs' of the pump.

Cement the pump to the outer face of the strut.

Cut the two photo-etch mounting plates from the kit supplied sheet and remove any residual tags.

Using thin CA adhesive, secure the two plates onto the pump at the inner face of the strut.

Brush paint the two plates with 'Tamiya' Rubber Black (XF85) or similar.

Cement the propeller for the pump onto its locating stub on the rear of the pump.

Cut a length of 0.4 mm diameter lead wire, such as that from 'PlusModel' or similar.

Using thin CA adhesive, secure the wire from the pump and up the strut to the fuselage.

If necessary, tighten the lines using a heat source.



Wing navigation light:

Using thin CA adhesive, secure the created wing navigation light into its pre-drilled locating hole in leading edge of the lower, left wing, outboard from the front interplane strut.



'Holt' flares:

Drill a hole of 0.3 mm diameter through the protruding stub at the forward, bottom of each 'Holt' flare (for the bracing wire).

Cement the 'Holt' flares into their pre-drilled holes in the underside of the lower wings, with the pre-moulded ring facing rearwards.

Cut two lengths of 0.08 mm diameter mono-filament.

Insert one end of the line into the pre-drilled holes in the underside of the lower wing, forward from the locating holes pre-drilled for the 'Holt' flares.

Secure the lines in the holes using thin CA adhesive.

Slide a blackened 0.4 mm diameter tube onto each of the lines.

Pass the free end of the lines down and through the pre-drilled hole in the 'Holt' flares.

Pass the lines back and through the 0.4 mm diameter tubes.

Keeping the lines taut, slide the 0.4 mm diameter tube up to, **but not touching**, the 'Holt' flares.

Make sure the lines are taut and using thin CA adhesive, secure the tubes to the lines.

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

If necessary, tighten the line using a heat source.

Ground tethering hoops:

Cement the two tethering hoops onto the underside of the lower wings, back from the leading edge and aligned with the front interplane struts.



Pulley covers:

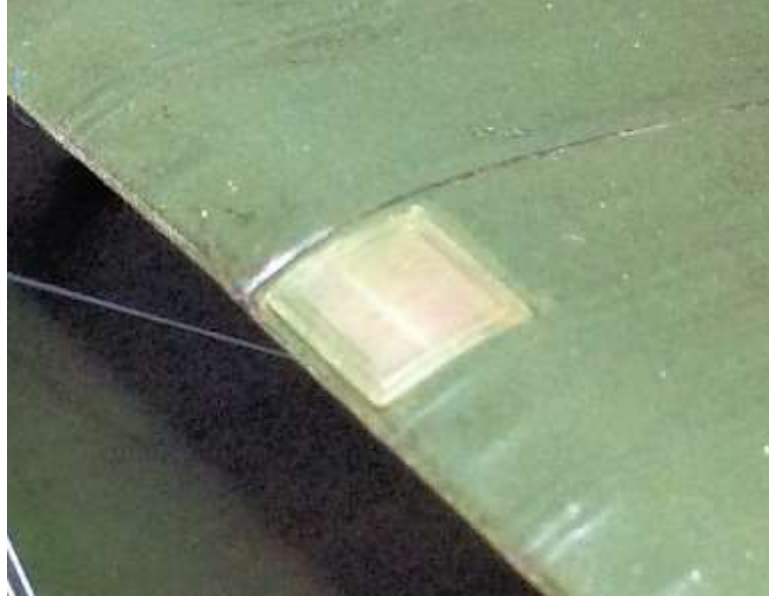
Remove the five clear acrylic pulley covers from their sprue.

Test fit each cover into its location on the upper and lower wings. If necessary, carefully file or sand the outer edges to achieve a fully located fit.

Using a PVA adhesive, such as 'Micro Kristal Clear', secure each cover in position on the upper and lower wings.

NOTE: *The see through covers over the five aileron pulley ad cable were usually not left clear (as supplied in the kit), but instead had coloured dope painted over them to match the surrounding surfaces of the aircraft.*

Carefully brush paint the covers with thinned 'Tamiya' J.A. Green (XF132) or similar, to create an opaque finish.



Windscreen:

Carefully brush paint the support frame for the windscreen with 'Tamiya' J.A. Green (XF132) or similar.

Using PVA adhesive, secure the prepared windscreen in position just forward from the cockpit opening.



Propeller:

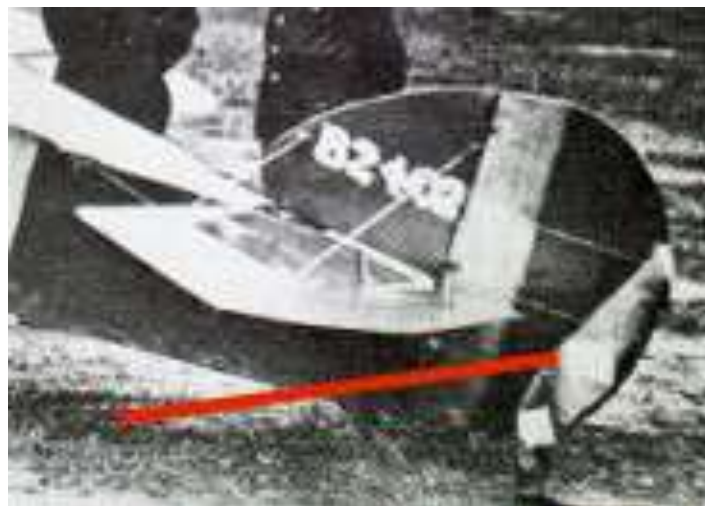
Apply slower setting CA adhesive or PVA adhesive onto the engine propeller shaft.

Fully locate the prepared propeller on to the engine propeller shaft and in the desired position.



Rudder streamer:

NOTE: *This particular aircraft had a streamer attached to the rear of the rudder. The actual colours on the streamer are open to conjecture, as can be seen in the following illustrations. Looking at the following photograph, it can be seen that the blue and red stripes on the rudder are very similar in tone to the streamer colours (blue diamonds on red streamer). Therefore those are the colours I chose to use for the streamer.*



I created the streamer as follows:

Created the design on 'Corel' Paint Shop Pro software on my PC.

Printed the design on 'MDP' white decal paper (MDPWHTIWDP).

Sealed the printed design with 'Krylon' acrylic clear sealer aerosol.

Cut a strip of kitchen cooking foil.

Prime the foil by airbrushing it with 'AK Interactive' Grey (AK758) or similar.

Carefully cut out two of the streamer decals.

Dip a streamer decal in warm water then slide the decal off the backing paper.

Lay the decal onto the primed foil.

Carefully roll out residual water using a cotton bud.

Turn the foil over and apply the second decal on that side.

Seal the applied decals using a semi-matte clear coat, such as 'Alclad' Light Sheen (ALC311) or similar.

Pierce a small hole through one end of the streamer using a sharp needle.

Pass a length of 0.125 mm diameter wire through the pierced hole then carefully twist the wire to hold it on the streamer.

Separate the two tails of the twisted wire (to attach to the rudder).

Drill a hole of 0.3 mm diameter through the upper trailing edge of the rudder.

Pass the two tails of the wire through the pre-drilled hole in the rudder and secure using thin CA adhesive.

Cut away excess tail wire.

Carefully form the streamer such that it 'hangs' correctly from the rudder.



PART 12

FIGURES

PART 12 - FIGURE

The figures are made from resin, as opposed to the normal plastic used. Working with resin does present different challenges to the modeller, especially if it's the first time of building a resin kit. The properties of resin differ radically to those of plastic kits. Below I have listed pertinent points when working with resin:

1. When resin kits are cast in their moulds, a release agent is applied to enable the cast resin parts to be more easily removed. This release agent can leave a film on the surface of the kit parts, which, if not removed, can prevent paint or adhesives from adhering to the surfaces. The easiest way to remove this film is to carefully and fully wash all of the model parts in warm soapy water, using an old, soft tooth brush, then rinse all of the parts thoroughly and leave to dry. Alternatively wipe the parts with isopropyl alcohol (e.g. 'Tamiya' X20A thinners).
2. Resin, by its nature, is very brittle and can be damaged or broken easily, especially when handling small parts. This is particularly evident when separating the individual items from the resin cast. The best way to remove item is to cut them away with a razor saw, then clean them up afterwards.
3. Once removed from the resin cast, parts will normally have 'resin flash' around or amongst parts, especially small items. This is easily removed with a sharp scalpel blade. Heavier residue can be scraped, filed or sanded away.
4. Plastic kits are assembled using solvent adhesives, which melt the surface where it is applied and 'weld' the joint together. Resin however will not react to this type of adhesive and can really only be glued using CA adhesive. This adhesive reacts to moisture in the air and on the surface to be joined. As most people know, it will also bond skin to whatever it touches, if the skin has CA adhesive on it. Obviously extreme care needs to be exercised when assembling resin kits using CA adhesive.
5. Cutting, sanding and drilling resin will create swarf and more importantly, resin dust. The dust in particular is dangerous, especially if inhaled. Therefore always vacuum the working area, and yourself, regularly. If you have a face mask or filtered respirator and find you can wear it whilst working, then do so. Resin can easily be drilled or scraped, but remember how brittle resin is when it is being handled.
6. It is not unusual to find imperfections in resin cast parts, such as surface blemishes, small 'blow' holes or ragged edges. This can be common on some resin kits. These imperfections can be rectified by sanding/polishing and/or filling with modelling putty, then sanding/polishing.
7. Generally CA adhesive is supplied as 'instant bond' adhesive, but there are some manufacturers, such as 'VMS Fleky', that supply CA adhesive as standard, thin, slow and specific resin adhesive. Whichever adhesive is used you must ensure parts are correctly positioned and aligned before applying the adhesive. Trying to separate mis-aligned parts once the adhesive sets will prove very difficult and may result in irreparable damage to the parts.

The figures I chose to use are the
'Black Dog' Fighter Pilot 1914-18 No.1 (32001) and **'Black Dog' RFC mechanic No.2 (32020)**.

The Pilot:

This figure is supplied in five parts - The body, head, left and right arms and a map board (not used for this model).

NOTE: *Resin is more brittle than styrene. Take care not to apply too much pressure on the weak areas or the parts may break.*

Preparation:

Cut the body, head and the two arms away from their casting blocks.

Scrape or sand away any resin artifacts or mould seam lines.

Drill a hole of 0.8 mm diameter up into one of the legs, the neck of the head and down into the body at the mating face for the head.

Cut two lengths of 0.8 mm diameter rod, such as 'Albion Alloy's' MBR08 or similar.

Secure the rods into the pre-drilled holes, using CA adhesive. These rods will be used to hold the parts for painting and for assembly and mounting in the display base.

Assembly:

Using CA adhesive, secure the two arms to the figure body.

Painting:

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

Brush paint the parts as follows:

Helmet and coat :

Base colour - 'AK Interactive' Brown Leather (AK3031)

Highlights - 'AK Interactive' British Uniform (AK3081)

Shadows - 'AK Interactive' Brown Leather (AK3031) mixed with Dark Sea Blue (AK3103)

Airbrush the helmet and coat with a semi-matte clear coat, such as 'Alclad' Light Sheen (ALC311) or similar.

'Fug' boots:

Base colour - 'AK Interactive' Brown Leather (AK3031)

Highlights - 'AK Interactive' British Uniform (AK3081) and British Uniform Light (AK3082)

Straps - 'AK Interactive' Brown Leather (AK3031)

Over shoes - 'AK Interactive' Brown Leather (AK3031) mixed with British Uniform Light (AK3082).

Coat collar/Helmet lining - 'Tamiya' White (XF2) with Buff (XF57) highlights.

Scarf - 'AK Interactive' French Uniform (AK3101).

Goggles - British Uniform Light (AK3082), lenses 'Mr. Colour' Stainless Steel (213) with 'Tamiya Clear Yellow (X24) tint.

Flesh:

NOTE: *The following paints for flesh 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.*

The paints used for the flesh of the figures are from the 'Citadel' colour range:

Base coat - 'Bugmans Glow'.

Shading - 'Reikland Flesh Shade'.

Flesh tone - 'Cadian Flesh Tone'.

Flesh highlights - 'Kislev Flesh'.

Brush 'Bugmans Glow' over the exposed head and hands of the figure and allow to dry.

Brush thinned 'Reikland Flesh Shade' over the painted head and hands of the figure and allow to dry.

Brush thinned 'Cadian Flesh Tone' over the painted head and hands of the figure and allow to dry. Do not apply the paint such that it completely covers the previous coat, as subtle shadows are necessary around such as the ears, eyes, nose and chin etc.

Brush thinned 'Kislev Flesh' over the painted head and hands of the figure and allow to dry. This application is very light and intended to highlight areas such as the eye brows, ears, bridge of the nose and jaw line etc.

Using a needle point, apply 'Tamiya' Rubber Black (XF85) or similar to create the eye pupils.

Assembly:

Using CA adhesive, secure the head into the body.



The mechanic:

This figure is supplied in five parts - The body, head, left arm and right hand.

NOTE: *Resin is more brittle than styrene. Take care not to apply too much pressure on the weak areas or the parts may break.*

Preparation:

Cut the body, head and arm away from their casting blocks.

Scrape or sand away any resin artifacts or mould seam lines.

Drill a hole of 0.8 mm diameter up into one of the legs, the neck of the head and down into the body at the mating face for the head.

Cut two lengths of 0.8 mm diameter rod, such as 'Albion Alloy's' MBR08 or similar.

Secure the rods into the pre-drilled holes, using CA adhesive. These rods will be used to hold the parts for painting and for assembly and mounting in the display base.

The 'forage cap' on the head seems to large, so I chose to remove it to create a bare head.

Assembly:

Using CA adhesive, secure the arm to the figure body.

Painting:

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

Brush paint the parts as follows:

Overalls - 'AK Interactive' British Uniform (AK3081) with shadows Brown Leather(AK3031) and slight highlights British Uniform Light (AK3082).

Shoes - 'Tamiya' Red Brown (AK64).

Flesh - Brush paint the flesh using the same method for the pilot.

Hair - 'AK Interactive' British Uniform (AK3081) with slight highlights British Uniform Light (AK3082).

Weathering - 'Tamiya' Weather Master Set D (Oil Stain) and Set A (Mud).

Assembly continued):

Using CA adhesive, secure the head into the body and the hand to the right arm.



PART 13

DISPLAY BASE

PART 13 - DISPLAY BASE

The display case is made from two sheets of 3mm thick Piano Black Acrylic sheet cemented together with a transparent top fabricated from 3mm thick Clear Acrylic sheet. This was custom made for me by Paul Moss at 'Inperspective' (Ebay). The name plaque was also made by an on-line retailer 'The Engraving Shop'.

The grass mat was cut to shape from a sheet of 'Polak' grass mat (Wild Meadow variation C 4703). The cut mat was then positioned on the base and the model and figure test placed to achieve the best effect and to make sure the transparent cover of the case would be able to be located without touching the model. The model and figure were then removed with the grass mat left in position on the display base. The edges of the grass mat were then carefully lifted and a soft marker pen was used to mark the outline of the grass mat, but approximately 5 mm inside the mat edge. The grass mat was then removed and the area of the display base inside the marks was scuffed using a coarse grit sand paper, in order to give a key for the adhesive.

NOTE: *When applying the adhesive, make sure it is not applied too thickly and close to the edges of the finally positioned grass mat. Otherwise the adhesive may be squeezed out from under the grass mat once weight is applied to hold down the mat during setting of the adhesive.*

A coat of PVA adhesive (white glue) was applied to the scuffed area on the display base and to the back of the grass mat. The grass mat was then laid onto the PVA adhesive and positioned correctly. Light pressure was applied to ensure the mat was in contact with the adhesive.

Finally an acrylic plaque stand was positioned to the left, front corner of the display base (just in from the edges of the shoulder for locating the transparent acrylic cover. The area on the underside of the stand and its contact are on the display base were scuffed using a coarse grit sand paper, in order to give a key for the adhesive. A thin coat of contact adhesive was then applied to both scuffed areas and once the adhesive started to set, the stand was carefully position onto the display base and pressed down to make full contact. The self-adhesive backed information plaque was the positioned onto the stand and pressed to make full contact.

The model and figure were then positioned on the base in their final positions and the support pin in the figure leg marked into the grass mat. A hole of 1.0 mm diameter was then drilled through the grass mat and into, but not through, the base. The hole was cleared of residual acrylic to ensure the pin in the figure would fully locate. The figure was then test fitted and where necessary, the support pin was snipped to the required length to fully locate into the display base.

NOTE: *The aircraft model is not secured to the display base as this can cause shock damage to the model if the display is transported to shows etc. For that the aircraft model would be packed separately for transporting.*

Thin CA adhesive or PVA adhesive was then applied to the support pin of the figure, which was then located, in the desired position, into its pre-drilled location hole. The aircraft itself, being light in weight, will tend to sit on top of the grass on the mat, rather than seat fully down, as would a real aircraft. Therefore the location of the aircraft wheels and tail skid were marked onto the grass mat and those areas scrapped through the mat to create slight and unobstructed troughs, into which the aircraft could be located.

PART 14
COMPLETED
MODEL
PHOTOGRAPHS













END