



Full Review

Airfix

Supermarine Walrus Mk.1

1:48 scale

with

Dave Coward

(March 2018)

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(A note from Geoff... Be sure to watch out for a full build article from Dai W too! Depending on when you read these words it will soon be in [Aircraft-Build Now](#) or, when complete, in the extensive [Aircraft-Finished Now-Airfix pages](#))



Background

Supermarine Aviation Works - Walrus

The Supermarine Walrus was a British single-engine amphibious biplane reconnaissance aircraft designed by R. J. Mitchell and first flown in 1933. It was operated by the Fleet Air Arm (FAA) and also served with the Royal Air Force (RAF), Royal Australian Air Force (RAAF), Royal Canadian Air Force (RCAF), Royal New Zealand Navy (RNZN) and Royal New Zealand Air Force (RNZAF). It was the first British squadron-service aircraft to incorporate a fully retractable main undercarriage, completely enclosed crew accommodation, and an all-metal fuselage.

Designed for use as a fleet spotter to be catapult launched from cruisers or battleships, the Walrus was later employed in a variety of other roles, most notably as a rescue aircraft for downed aircrew. It continued in service throughout the Second World War.

Development

Supermarine Walrus I, serial number K5783, from the first production batch. Photo taken between 1937 and 1939.

The Walrus was initially developed as a private venture in response to a 1929 Royal Australian Air Force (RAAF) requirement for an aircraft to be catapult-launched from cruisers, and was originally called the Seagull V, although it only resembled

the earlier Supermarine Seagull III in general layout. Construction was started in 1930 but owing to Supermarine's other commitments it was not completed until 1933. The single-step hull was constructed from aluminium alloy, with stainless-steel forgings for the catapult spools and mountings. Metal construction was used because experience had shown that wooden structures deteriorated rapidly under tropical conditions.

The wings, which were slightly swept back, had stainless-steel spars and wooden ribs and were covered in fabric.



The lower wings were set in the shoulder position with a stabilising float mounted under each one. The horizontal tail-surfaces were positioned high on the tail-fin and braced on either side by N struts. The wings could be folded on ship, giving a stowage width of 17 feet 6 inches (5.33 m). The single 620 hp (460 kW) Pegasus II M2 radial engine was housed at the rear of a nacelle mounted on four struts above the lower wing and braced by four shorter struts to the centre-section of the upper wing. This powered a four-bladed wooden propeller in pusher configuration. The engine nacelle contained the oil tank, arranged around the air intake at the front of the nacelle to act as an oil cooler, and electrical equipment and had a number of access panels for maintenance. A supplementary oil cooler was mounted on the starboard side.

Fuel was carried in two tanks in the upper wings.



The pusher configuration had the advantages of keeping the engine and propeller further out of the way of spray when operating on water and reducing the noise level inside the aircraft. Also, the moving propeller was safely away from any crew standing on the front deck, which would be done when picking up a mooring line.

The engine was offset by three degrees to starboard to counter any tendency of the aircraft to yaw due to unequal forces on the rudder caused by the vortex from the propeller. A solid aluminium tailwheel was enclosed within a small water-rudder, which could be coupled to the main rudder for taxiing or disengaged for take-off and landing.

Although the aircraft typically flew with one pilot, there were positions for two. The left-hand position was the main one, with the instrument panel and a fixed seat, while the right-hand seat could be folded away to allow access to the nose gun-position via a crawl-way.



An unusual feature was that the control column was not a fixed fitting in the usual way, but could be unplugged from either of two sockets at floor level. It became a habit for only one column to be in use; and when control was passed from the pilot to co-pilot or vice-versa, the control column would simply be unplugged and handed over. Behind the cockpit, there was a small cabin with work stations for the navigator and radio operator.

Armament usually consisted of two .303 in (7.7 mm) Vickers K machine guns, one in each of the open positions in the nose and rear fuselage; with provision for carrying bombs or depth charges mounted beneath the lower wings. Like other flying boats, the Walrus carried marine equipment for use on the water, including an anchor, towing and mooring cables, drogues and a boat-hook.

The prototype was first flown by 'Mutt' Summers on 21 June 1933; five days later it made an appearance at the SBAC show at Hendon, where Summers startled the spectators (R. J. Mitchell among them) by looping the aircraft. Such aerobatics were possible because the aircraft had been stressed for catapult launching. On 29 July Supermarine handed the aircraft over to the Marine Aircraft Experimental Establishment at Felixstowe. Over the following months extensive trials were carried out, including shipborne trials aboard *Repulse* and *Valiant* carried out on behalf of the Royal Australian Navy and catapult trials carried out by the Royal Aircraft Establishment at Farnborough, becoming the first amphibious aircraft in the world to be launched by catapult with a full military load, piloted by Flight Lieutenant Sydney Richard Ubee.



The strength of the aircraft was demonstrated in 1935, when the prototype was attached to the battleship Nelson at Portland. With the commander-in-chief of the Home Fleet, Admiral Roger Backhouse, on board the pilot attempted a water touch-down, forgetting that the undercarriage was in the down position. The Walrus was immediately flipped over but the occupants only had minor injuries; the machine was later repaired and returned to service. Soon afterwards, the Walrus became one of the first aircraft to be fitted with an undercarriage position indicator on the instrument panel.

Test pilot Alex Henshaw later stated that the Walrus was strong enough to make a wheels-up landing on grass without much damage (he also commented that it was "the noisiest, coldest and most uncomfortable" aircraft he had ever flown). When flying from a warship, the Walrus would be recovered by touching-down alongside, then lifted from the sea by a ship's crane. The aircraft's lifting-gear was kept in a compartment in the section of wing directly above the engine - one of the Walrus' crew would climb onto the top wing and attach this to the crane hook. Landing and recovery was a straightforward procedure in calm waters, but could be very difficult if the conditions were rough. The usual procedure was for the parent ship to turn through around 20° just before the aircraft touched down, thus creating a 'slick' to the lee side of ship on which the Walrus could alight, this being followed by a fast taxi up to the ship before the 'slick' dissipated.

The RAAF ordered 24 examples of the Seagull V in 1933, these being delivered from 1935. These aircraft differed from the prototype and the aircraft flown by the RAF in having Handley-Page slots fitted to the upper wings. This was followed by the first order for 12 aircraft from the RAF, placed in May 1935 with the first production aircraft, serial number K5772, flying on 16 March 1936. In RAF service

the type was named the Walrus. Initial production aircraft were powered by the Pegasus II M2: from 1937, the 750 hp (560 kW) Pegasus VI was fitted.

Production aircraft differed in minor details from the prototype. The transition between the upper decking and the aircraft sides was rounded off, the three struts bracing the tailplane were reduced to two, and the trailing edges of the lower wing were hinged to fold 90° upwards rather than 180° downwards when the wings were folded, and the external oil cooler was omitted.

A total of 740 Walruses were built in three major variants: the Seagull V, Walrus I, and the Walrus II. The Mark IIs were all constructed by Saunders-Roe and the prototype first flew in May 1940. This aircraft had a wooden hull, which was heavier but had the advantage of using less of the precious wartime stockpiles of light metal alloys. Saunders-Roe would go on to build under license 270 metal Mark Is and 191 wooden-hulled Mark IIs.

The successor to the Walrus was the Supermarine Sea Otter - a similar but more powerful design. Sea Otters never completely replaced the Walruses, and served alongside them in the air-sea rescue role during the latter part of the war. A post-war replacement for both aircraft, the Supermarine Seagull, was cancelled in 1952, with only prototypes being constructed. By that time, helicopters were taking over from small flying-boats in the air-sea rescue role. The Walrus was affectionately known as the "Shagbat" or sometimes "Steam-pigeon"; the latter name coming from the steam produced by water striking the hot Pegasus engine.

Operational history

Walrus deliveries to the RAF started in 1936 when the first example to be deployed was assigned to the New Zealand division of the Royal Navy, on Achilles- one of the Leander-class light cruisers that carried one Walrus each. The Royal Navy Town-class cruisers carried two Walruses during the early part of the war and Walruses also equipped the York-class and County-class heavy cruisers. Some battleships, such as Warspite and Rodney carried Walruses, as did the monitor Terror and the seaplane tender Albatross.

By the start of World War II the Walrus was in widespread use. Although its principal intended use was gunnery spotting in naval actions, this only occurred twice: Walruses from Renown and Manchester were launched in the Battle of Cape Spartivento and a Walrus from Gloucester was used in the Battle of Cape Matapan.

The main task of ship-based aircraft was patrolling for Axis submarines and surface-raiders, and by March 1941, Walruses were being deployed with Air to Surface Vessel (ASV) radars to assist in this.

During the Norwegian Campaign and the East African Campaign, they also saw very limited use in bombing and strafing shore targets.

In August 1940, a Walrus operating from Hobart bombed and machine-gunned an Italian headquarters at Zeila in Somalia. By 1943, catapult-launched aircraft on cruisers and battleships were being phased out; their role at sea was taken over by much improved radar. Also, a hangar and catapult occupied a considerable amount of valuable space on a warship. However, Walruses continued to fly from Royal Navy carriers for air-sea rescue and general communications tasks. Their low

landing speed meant they could make a carrier landing despite having no flaps or tailhook.

Air-sea rescue

The specialist RAF air-sea rescue squadrons flew a variety of aircraft, using Spitfires and Boulton Paul Defiants to patrol for downed aircrew, Avro Ansons to drop supplies and dinghies, and Walruses to pick up aircrew from the water. RAF air-sea rescue squadrons were deployed to cover the waters around the United Kingdom, the Mediterranean Sea and the Bay of Bengal. Over a thousand aircrew were picked up during these operations, with 277 Squadron responsible for 598 of these.

Experimental use

In late 1939 two Walruses were used at Lee-on-Solent for trials of ASV (Air to Surface Vessel) radar, the dipole aerials being mounted on the forward interplane struts. In 1940 a Walrus was fitted with a forward-firing Oerlikon 20 mm cannon, intended as a counter-measure against German E-boats. Although the Walrus proved to be stable gun-platform, the muzzle flash rapidly blinded the pilot, and the idea was not taken up.

Other users

Three Walruses N.18 (N2301), N.19 (N2302) and N.20 (N2303) were to be delivered on 3 March 1939, and used by Irish Air Corps as maritime patrol aircraft during the Irish Emergency of World War II. They were scheduled to fly from Southampton to Baldonnel Aerodrome, Ireland. N.19 made the trip successfully, but N.20 had to be rerouted to Milford Haven and N.18 and its crew of two (LT Higgins and LT Quinlan) were left with no choice but to go down during high seas causing damage to the hull. N.18 ditched near Ballytrent, just south of the former United States Naval Air Station, Wexford. It was decided to tow the N.18, with help of the Rosslare Harbour lifeboat and a local fishing boat to the launch slip once used for the Curtiss H-16s during WW1. It was then loaded on a truck to complete its journey to the Baldonnel Aerodrome where it was repaired. The Supermarine Walrus N.18 (also identified as L2301) is currently on display at the Fleet Air Arm Museum in Yeovilton, England. N.18 (N2301) is the only one of the 3 aircraft to sustain the test of time.

A Walrus I was shipped to Arkhangelsk with other supplies brought on the British Convoy PQ 17. After sustaining damage, it was repaired and supplied to the 16th air transport detachment. This sole Walrus flew to the end of 1943.

After the war, some Walruses continued to see limited military use with the RAF and foreign navies. Eight were operated by Argentina, two flew from the cruiser ARA La Argentina as late as 1958. Other aircraft were used for training by the French Navy's Aviation navale.

Civil use

Walruses also found civil and commercial use. They were briefly used by a whaling company, United Whalers. Operating in the Antarctic, they were launched from the factory ship FF Balaena, which had been equipped with an ex-navy aircraft catapult. A Dutch whaling company embarked Walruses, but never flew them. Four

aircraft were bought from the RAAF by Amphibious Airways of Rabaul. Licensed to carry up to ten passengers, they were used for charter and air ambulance work, remaining in service until 1954.

Variants

Seagull V: Original Metal-hull version.

Walrus I: Metal-hull version.

Walrus II: Wooden-hull version.

If you want to know more... check out [Wikipedia](#) and it's impressive information bank.

References used:

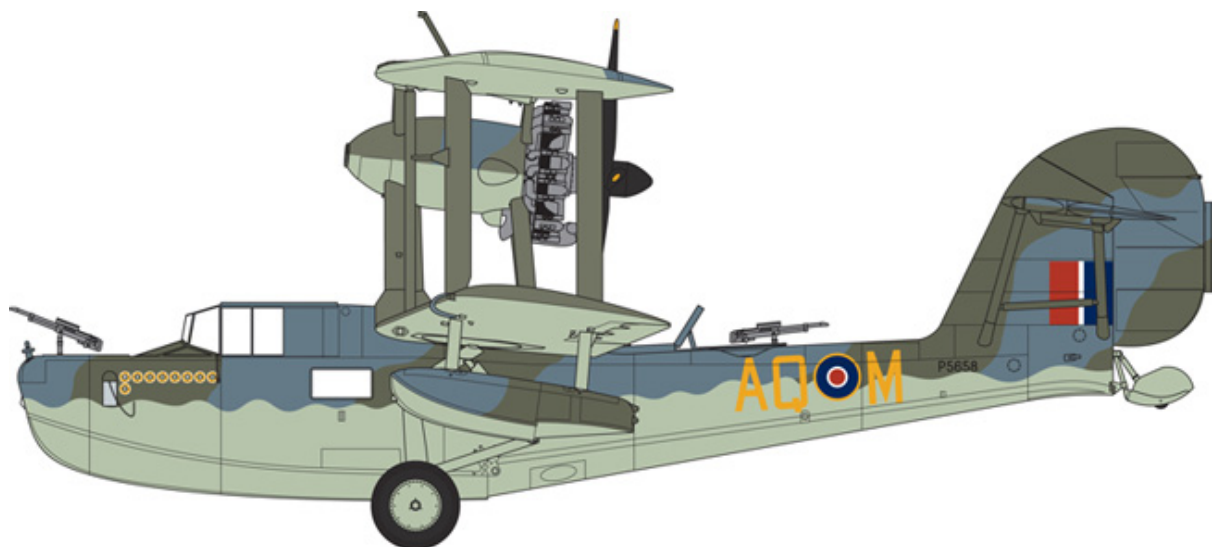
- Flypast Magazine
- The Internet

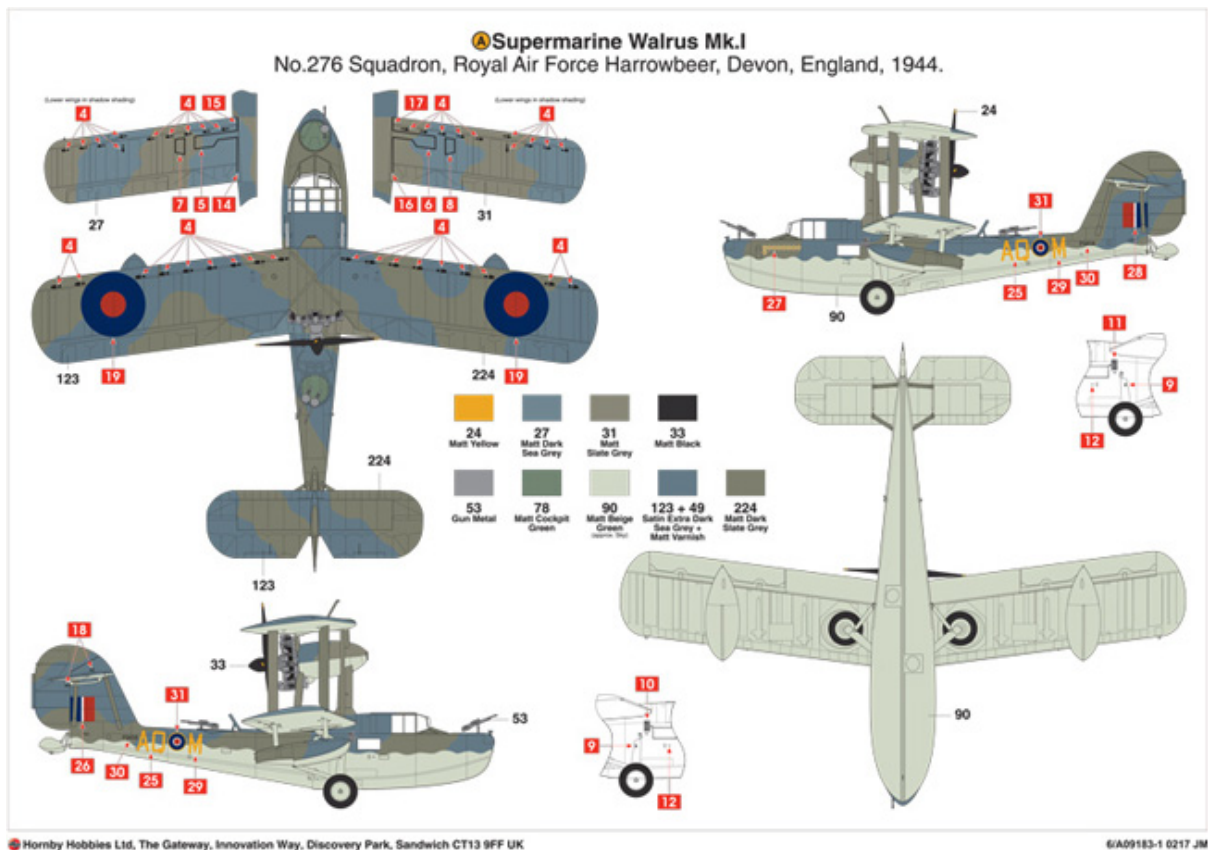
Aftermarket Extras:

- Eduard Interior Colour PE
- Eduard Exterior PE
- Eduard Brassin Wheel Set
- Montex Masks
- Rope from the Spares box

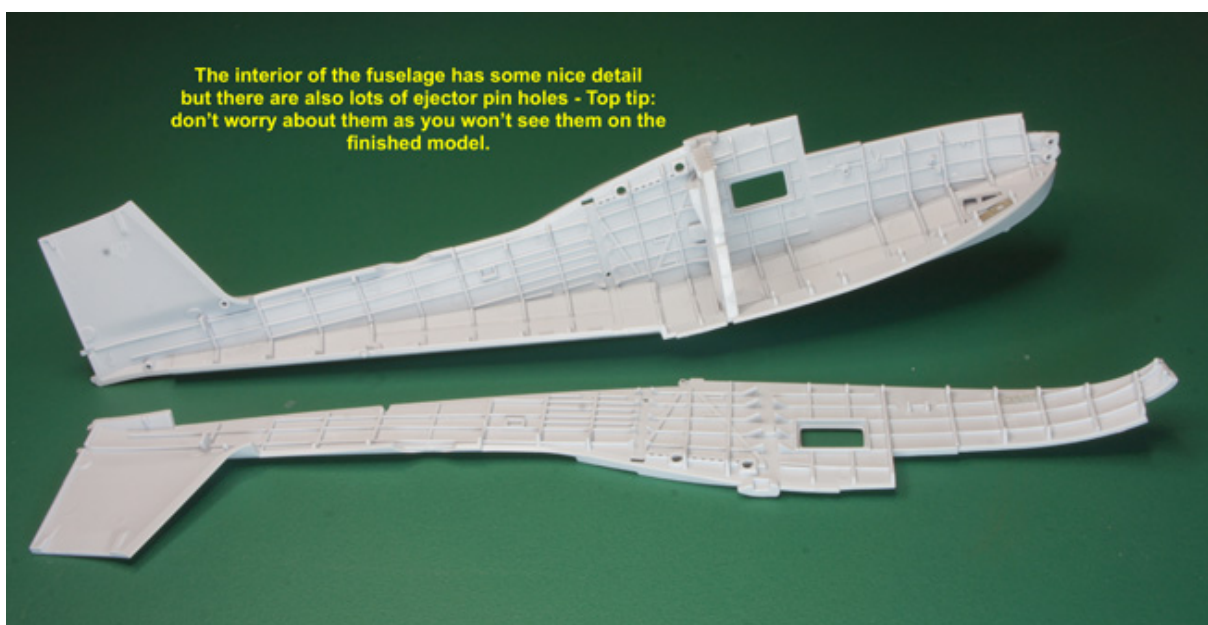
Construction...

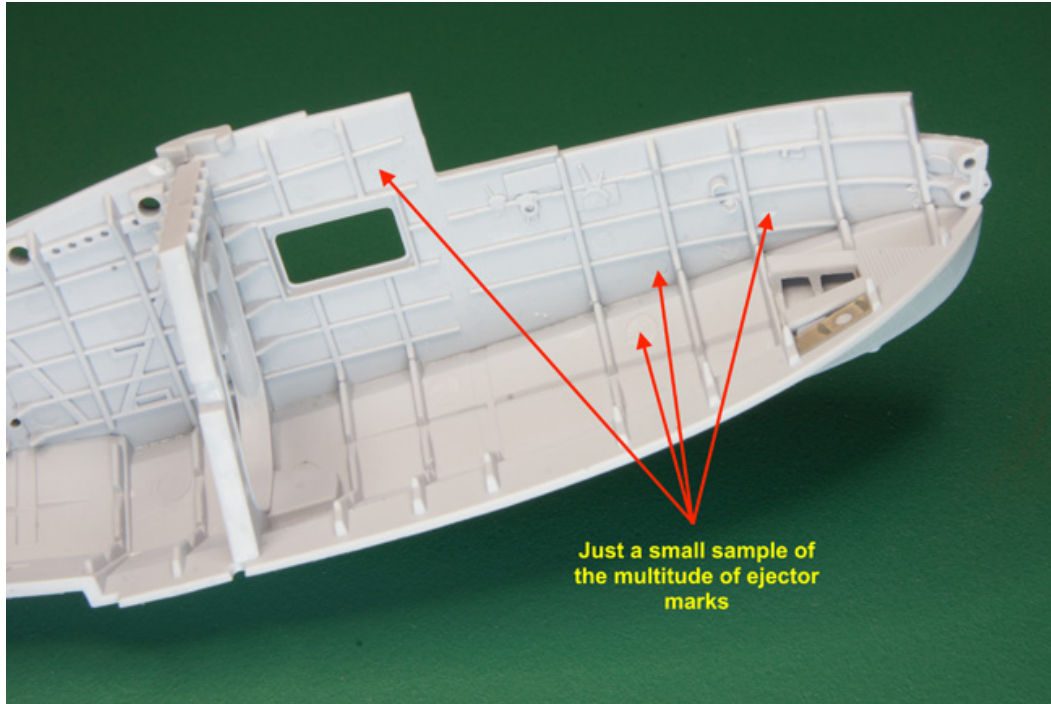
Before the build commenced I had to choose which decal option to make. All three options are very different and each will make an interesting subject but I had to choose the RAF Search and Rescue aircraft as these, and their crews, were very much unsung heroes of the Second World War and where responsible for saving hundreds of downed aircrew, on both sides, from a watery grave.



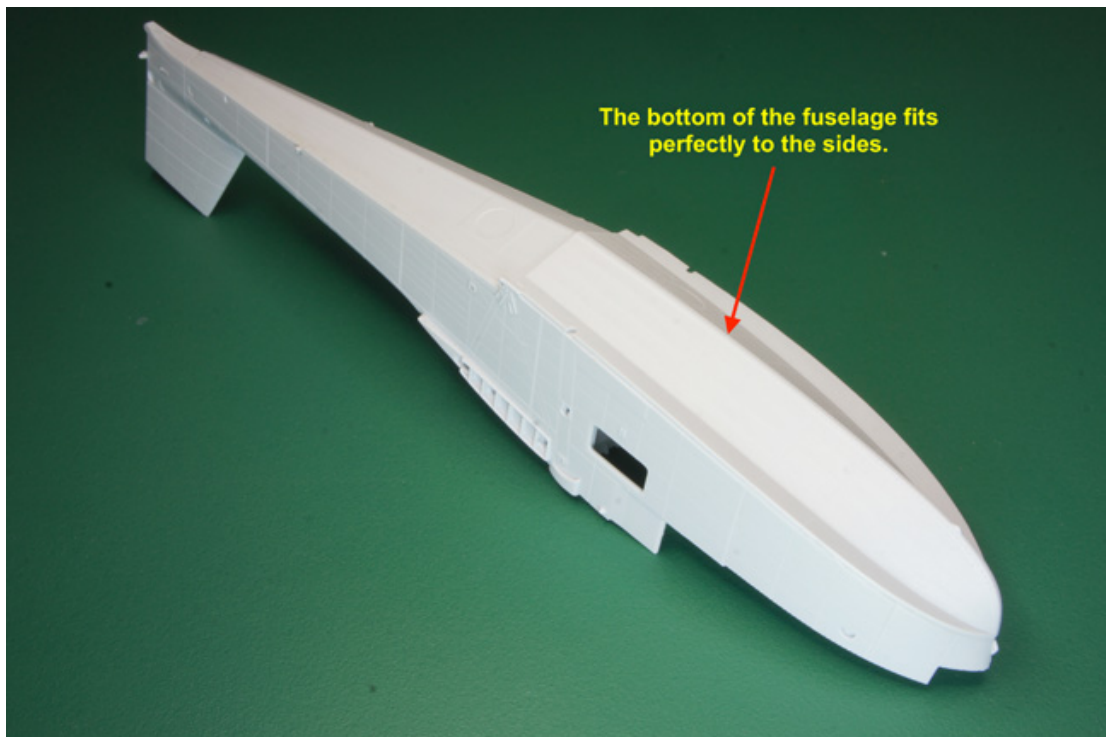


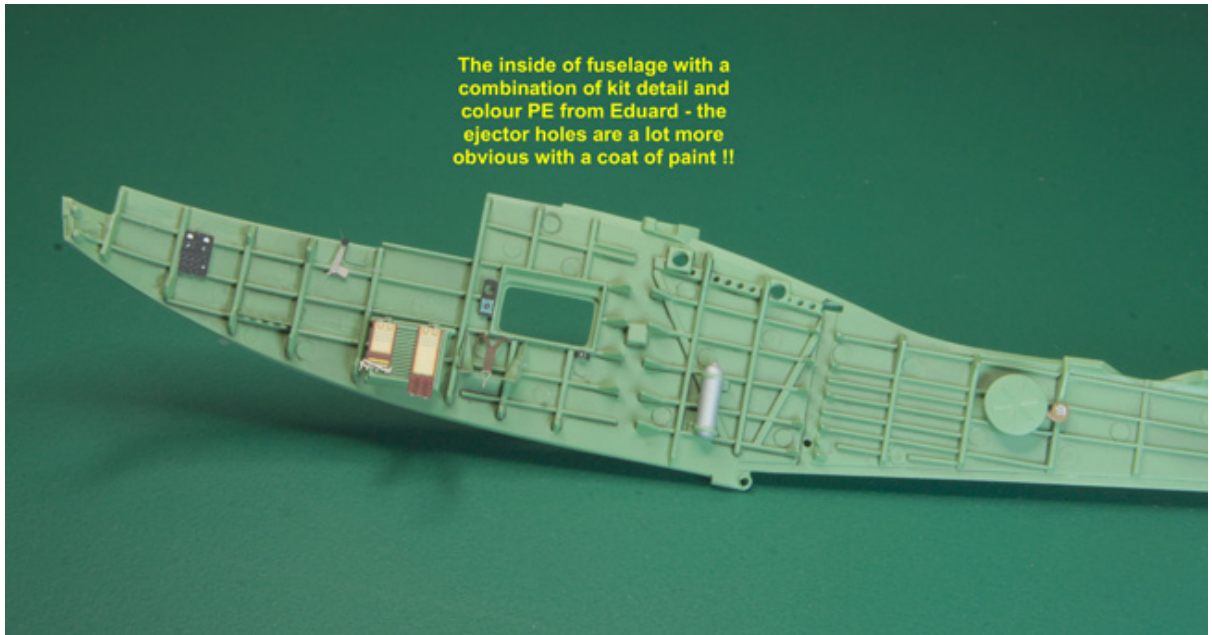
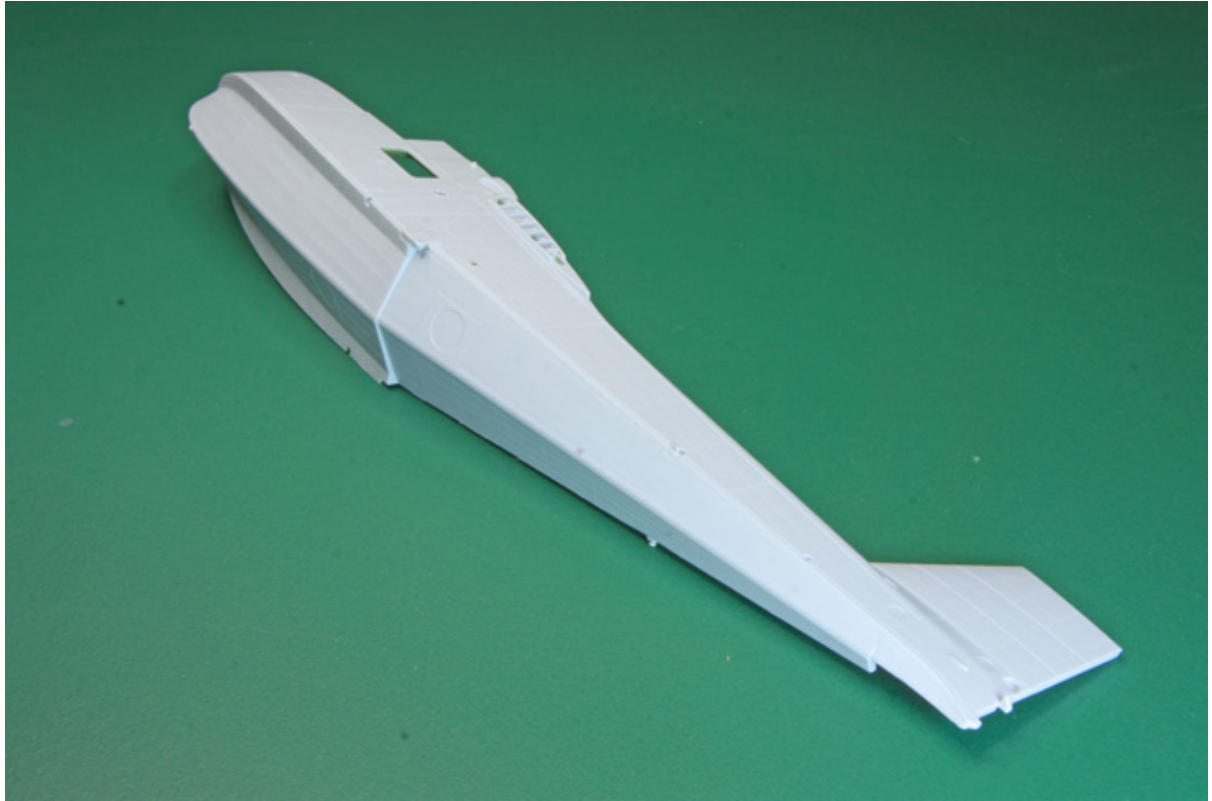
The first stage of this build is to deal with the fuselage. The one thing that is very obvious here are the large number of Ejector pin holes on the inside of the fuselage sides and on the base. Top tip, don't worry about them, you won't see them when everything is all closed up unless you get a torch and look very, very closely and even then, they will be hardly noticeable.



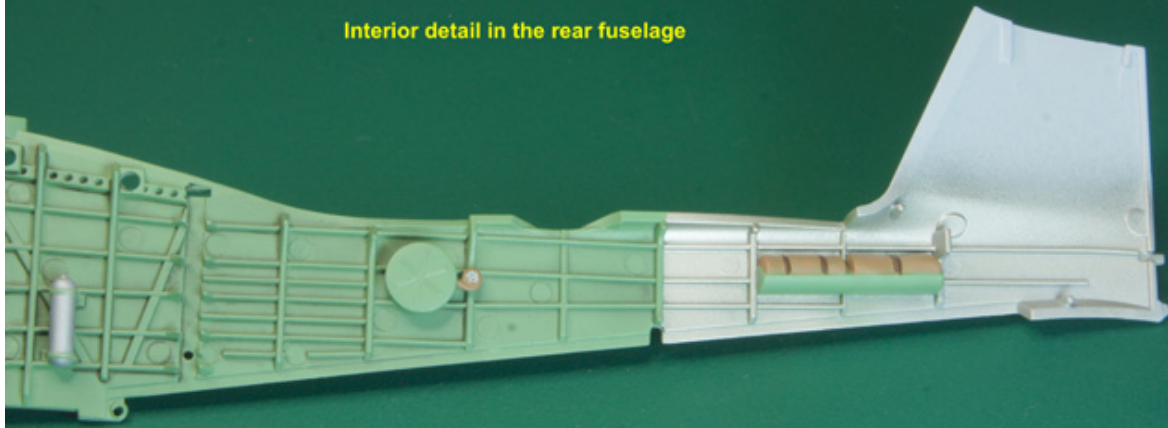


With this concern out of the way one side of the fuselage was attached to the base and I was relieved to find that the fit was very good which bodes well for the rest of the build. The inside was sprayed with Mr Paints RAF interior Grey/Green and give a wash with Tamiya brown accent. The colour PE from Eduard was then added to give a nice busy feel to the interior. I would also add at this point that in hindsight I wouldn't go overboard with the interior detailing as not a great deal is visible even with the hatches and cockpit open but I know it's all there!! There is not a lot more to say here as everything else went together really well.

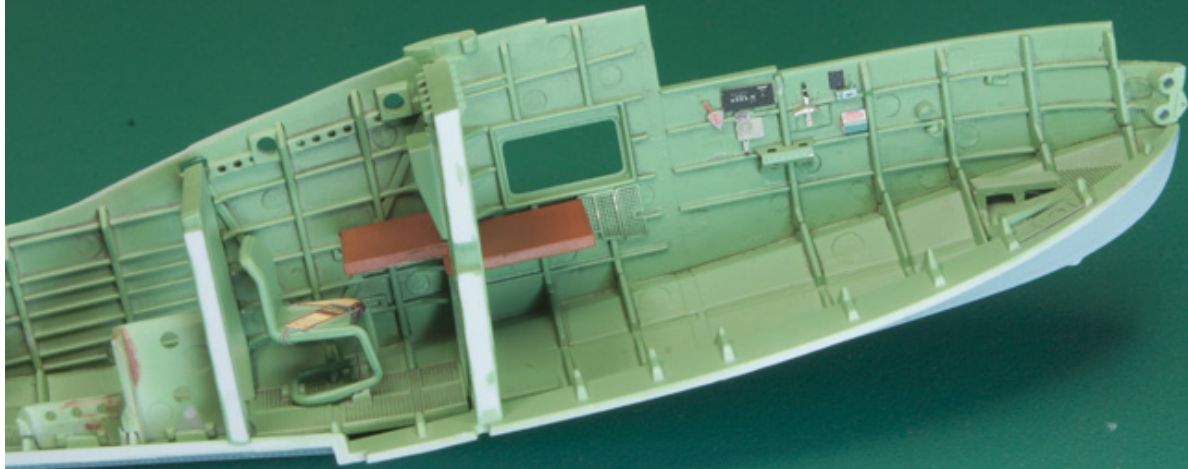


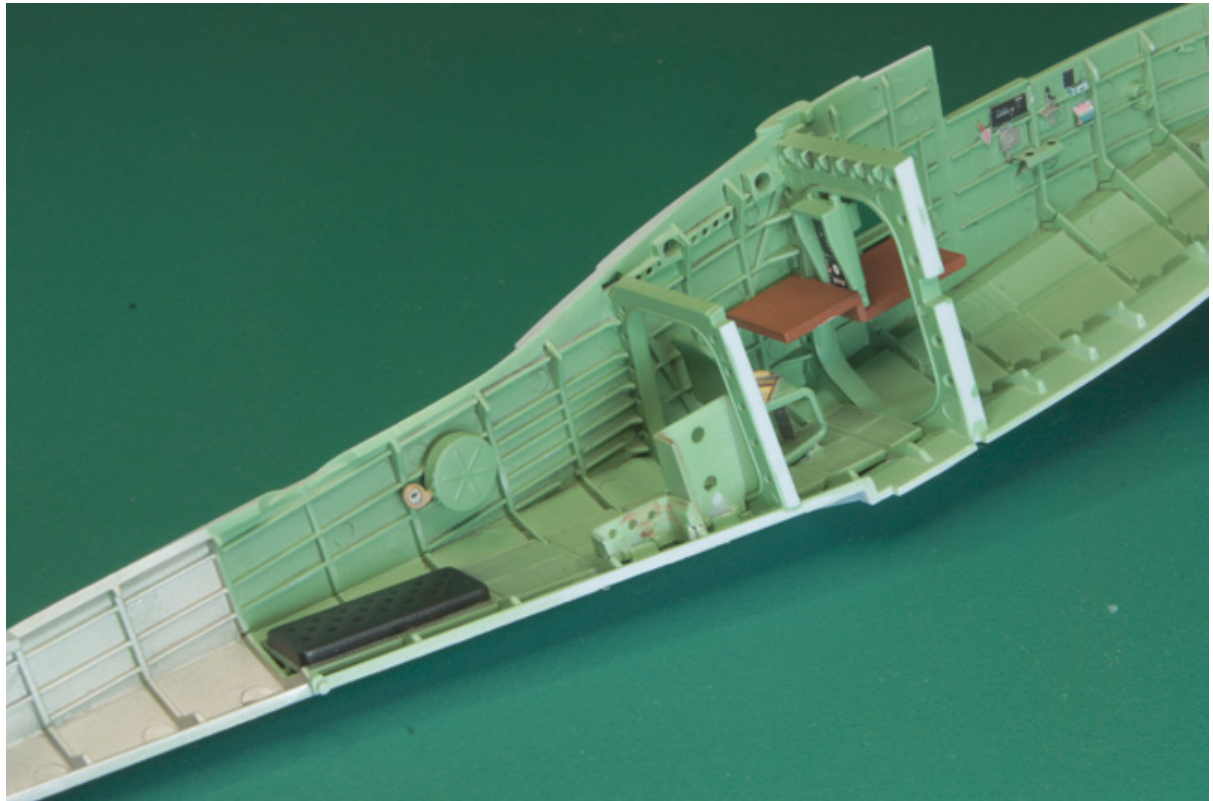


Interior detail in the rear fuselage



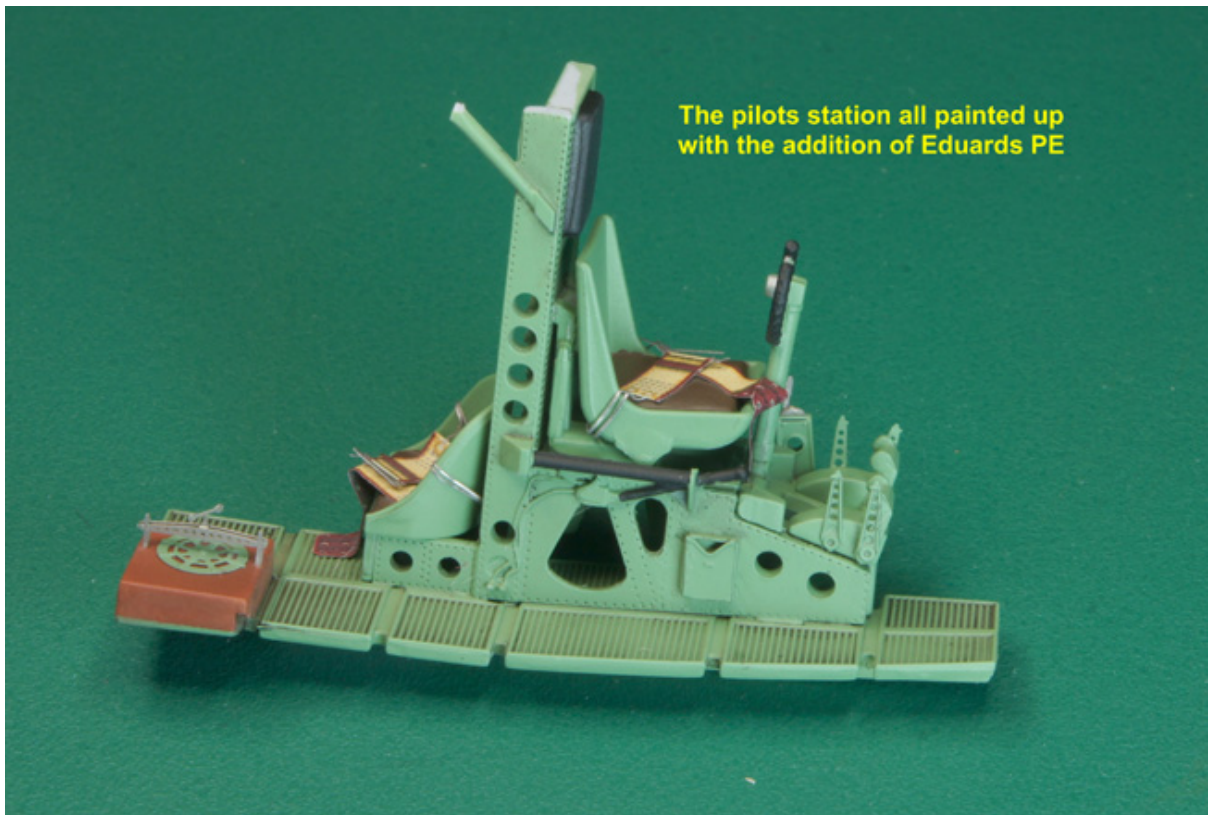
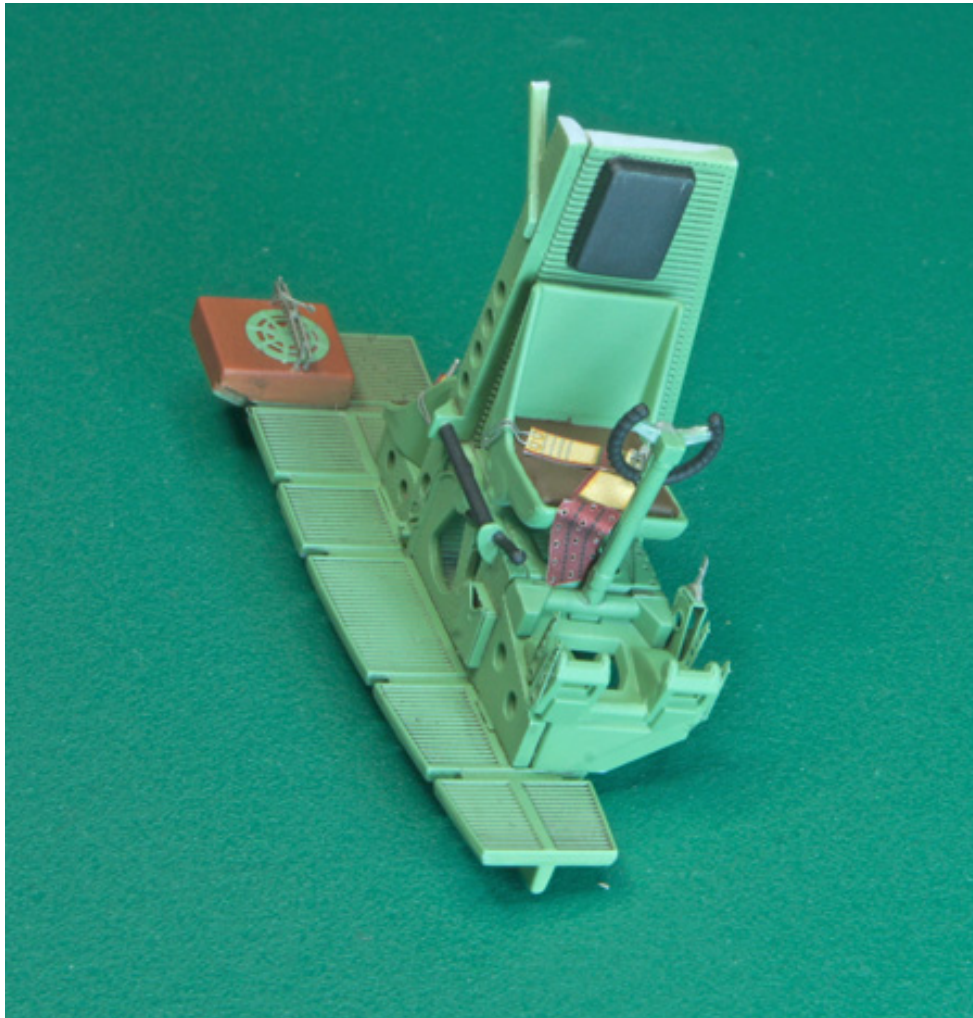
The navigator and radio operator stations

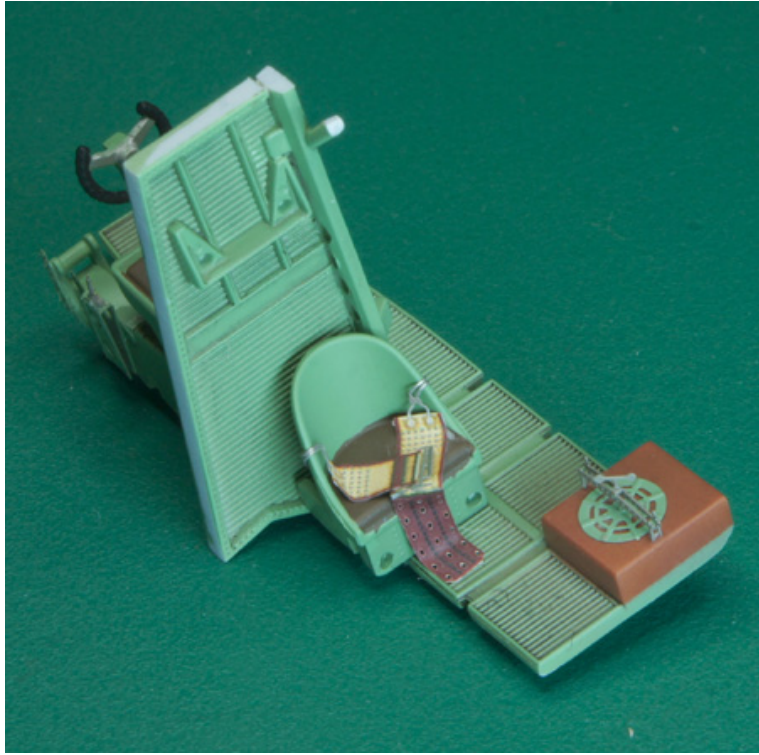




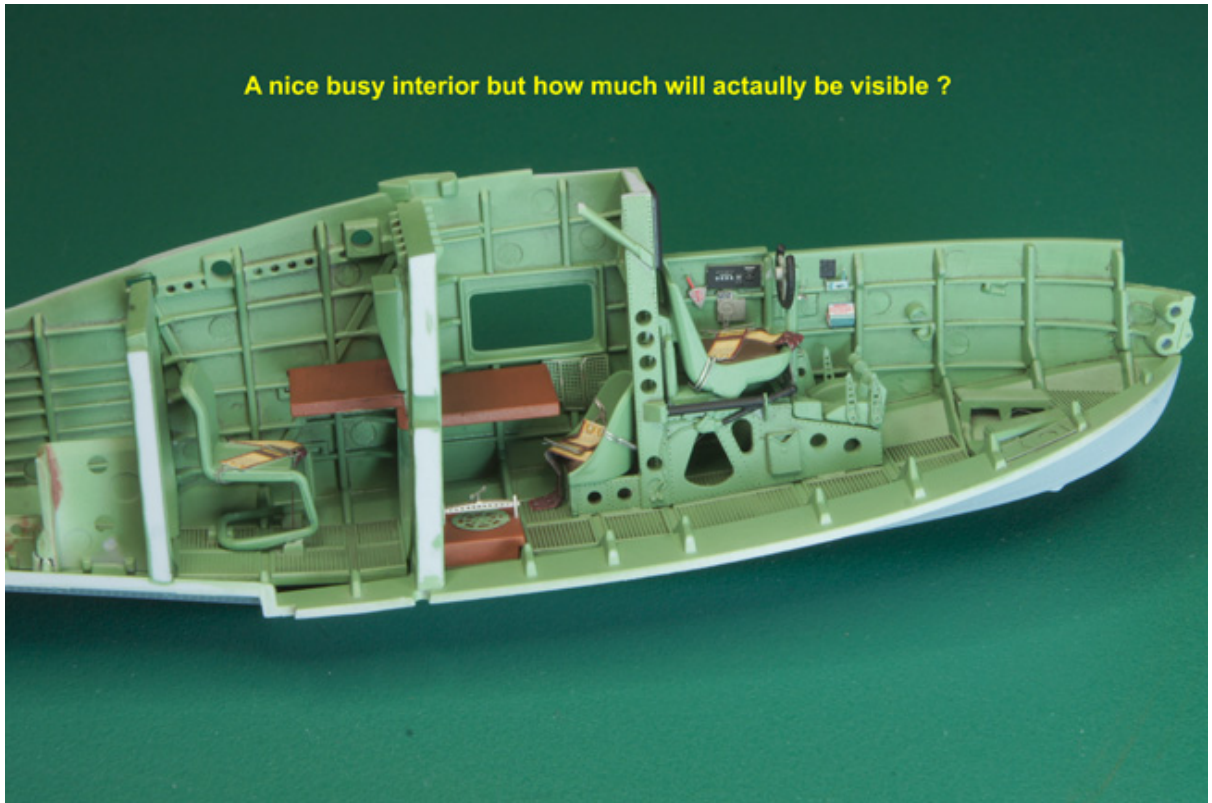
The pilots seat with added PE







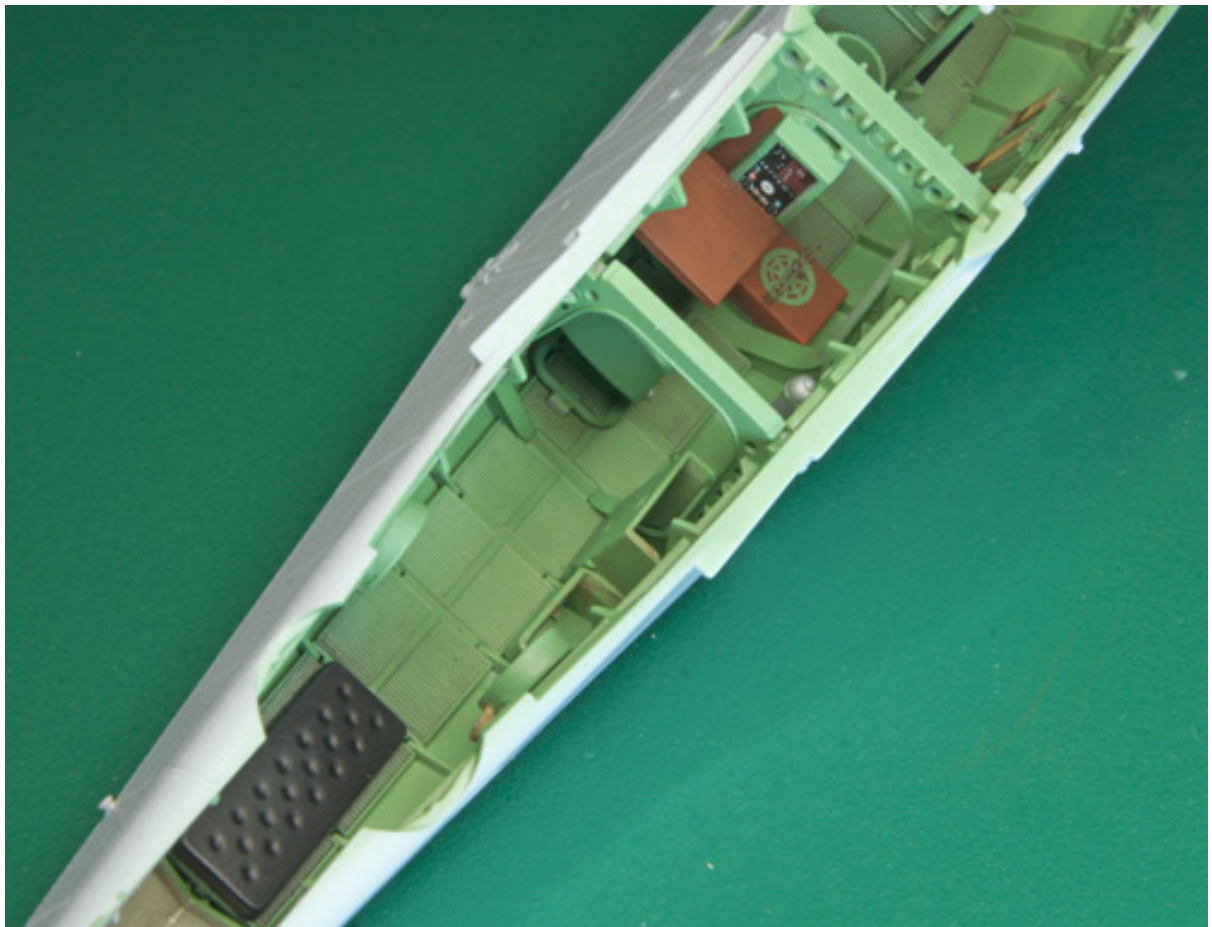
A nice busy interior but how much will actually be visible ?



Very nice subtle stressed metal effect...

With the interior all done I added the second fuselage side and the front and rear decking and again a nice filler-free fit was achieved. What you will notice at this point is the subtle stressed metal effect on the fuselage which is a very nice touch. Airfix have really thought about this kit given its complex make up and have tried to simplify the construction as much as possible without compromising the accuracy and detail.







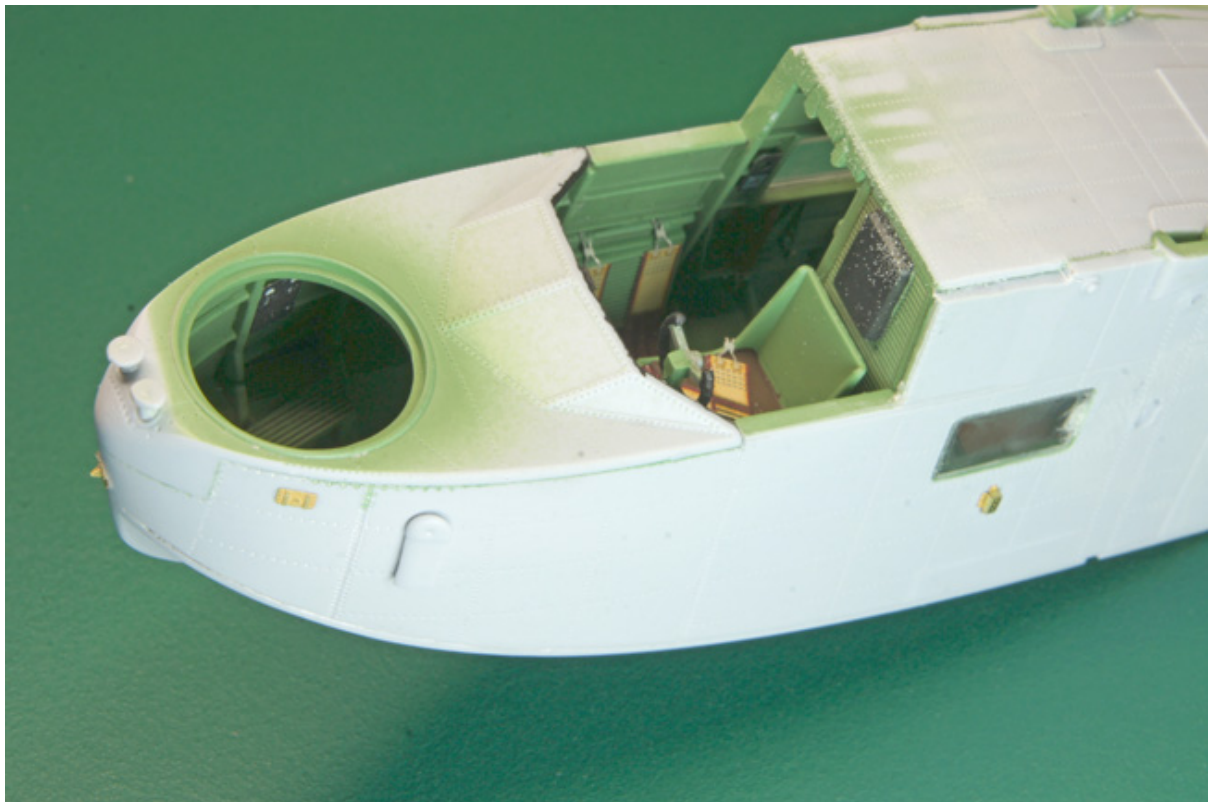
The front fuselage top deck with a winch and the pilots PE instrument panel



Eduards PE instrument panels are just great .
That said the kit does have decals for this
which are quite accpetable.



The front decking in place - not a bad fit at all.

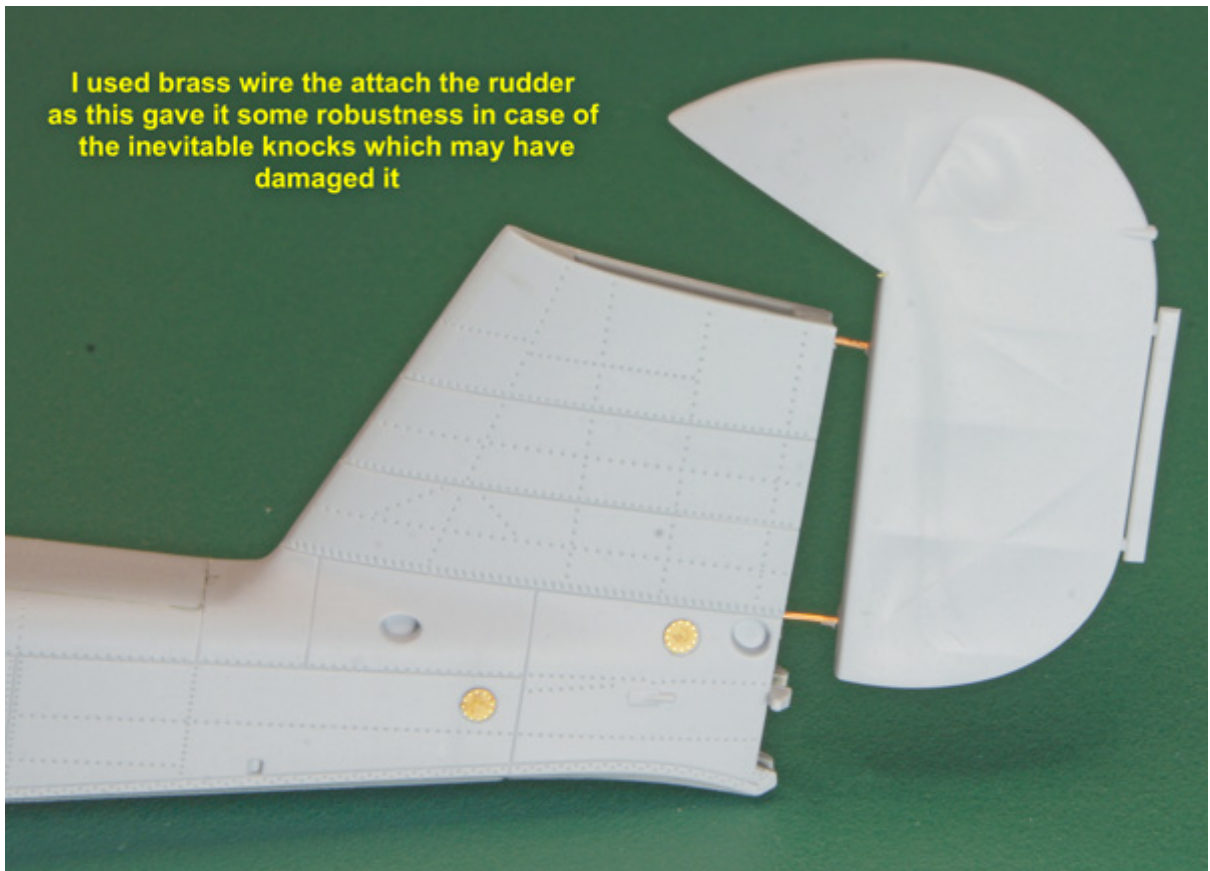


The completed fuselage with some additional PE detail

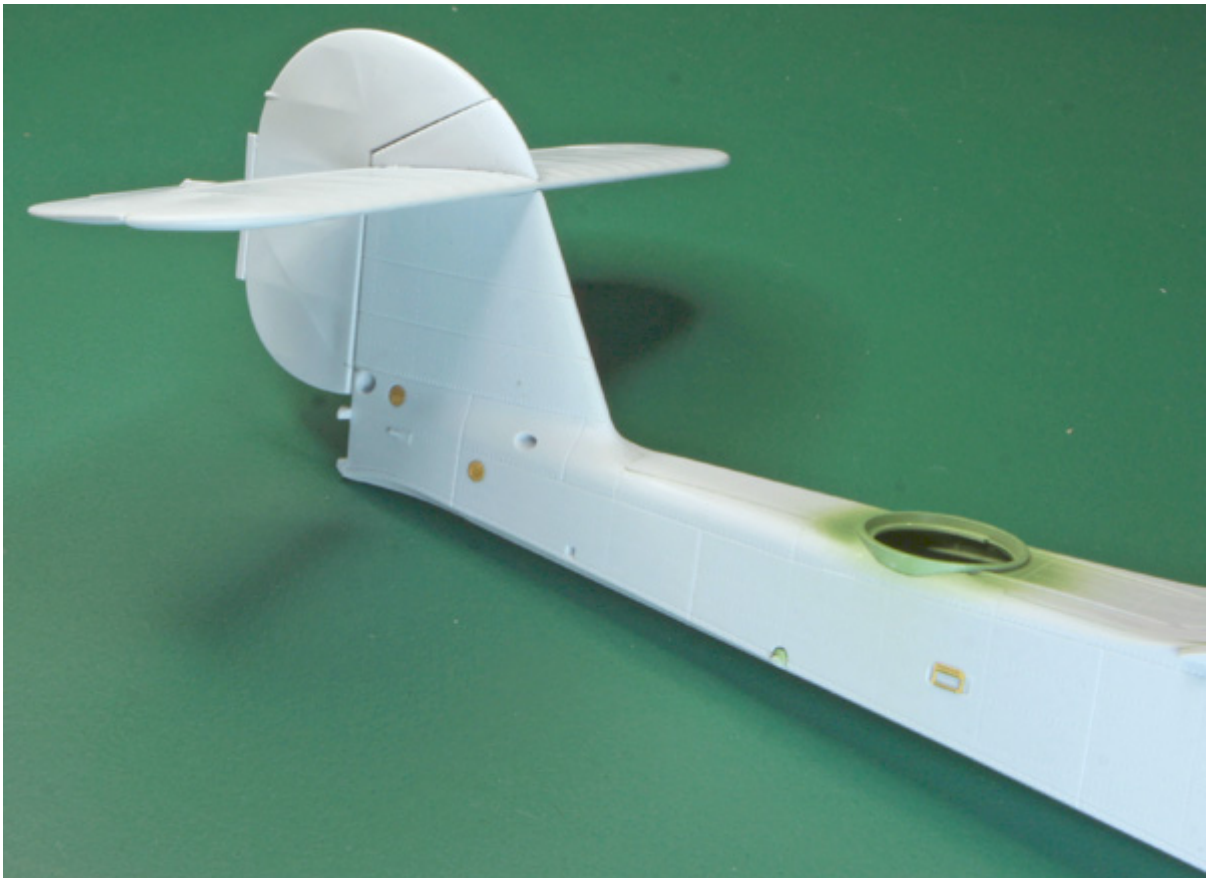
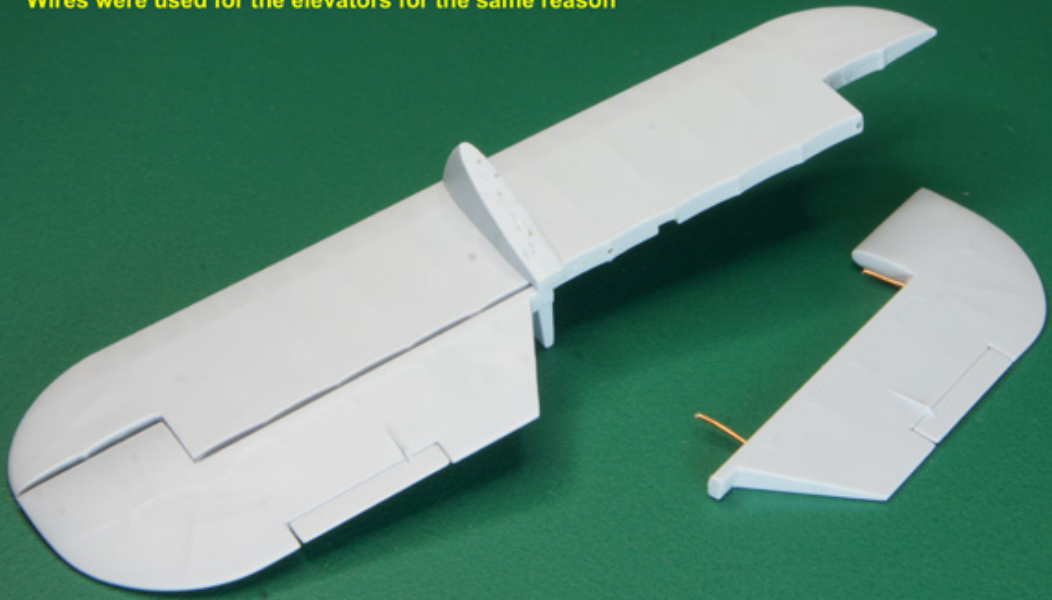


One area I wasn't so sure about was the strength of the rudder and elevator attachments to the tailplane. In order to strengthen this possible weak point I used brass wire to attach them which gives them a lot more robustness in case of being knocked, it also gives them the option to position off centre if desired.

I used brass wire to attach the rudder as this gave it some robustness in case of the inevitable knocks which may have damaged it



Wires were used for the elevators for the same reason



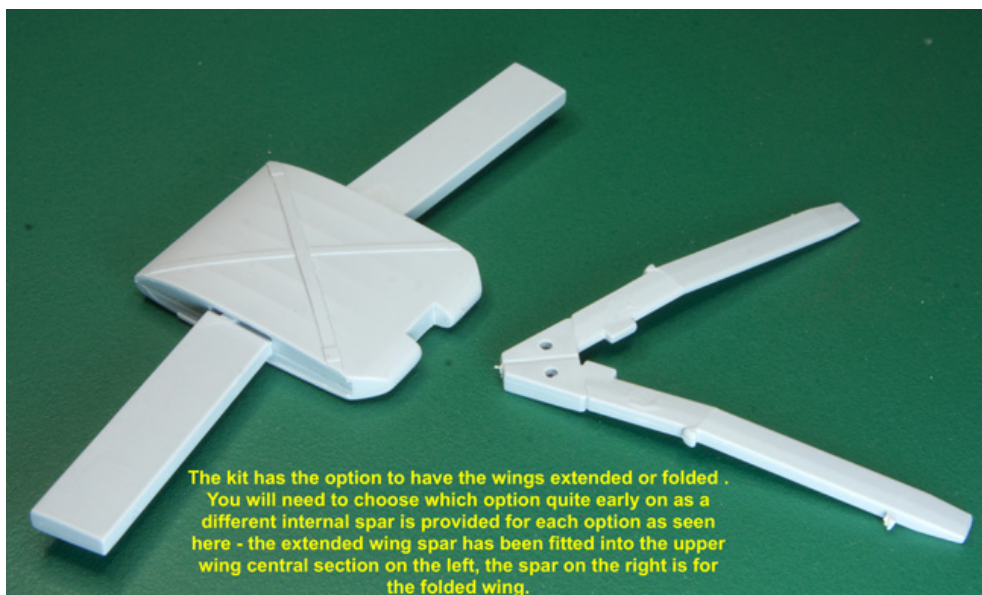


The wire attachment also allows for the movement of the control surfaces if desired

Wing options...

The fuselage was now left to fully dry and I turned my attention to the wings. The kit has the option to have these extended or folded back but the decision as to which option to choose has to be made quite early on in the build due to requirement to use different parts such as the upper wing spar in the central upper wing section. I chose the extended wing as all the period photos I could find of SAR Walrus's showed them extended.

The wings themselves have some nice surface detail representing their fabric and metal construction but one area that needed some work were the inserts for the weapon recesses if you fill them as I did. Filler was required along with the usual sanding but fortunately no re-scribing due to the fabric nature of the wing.

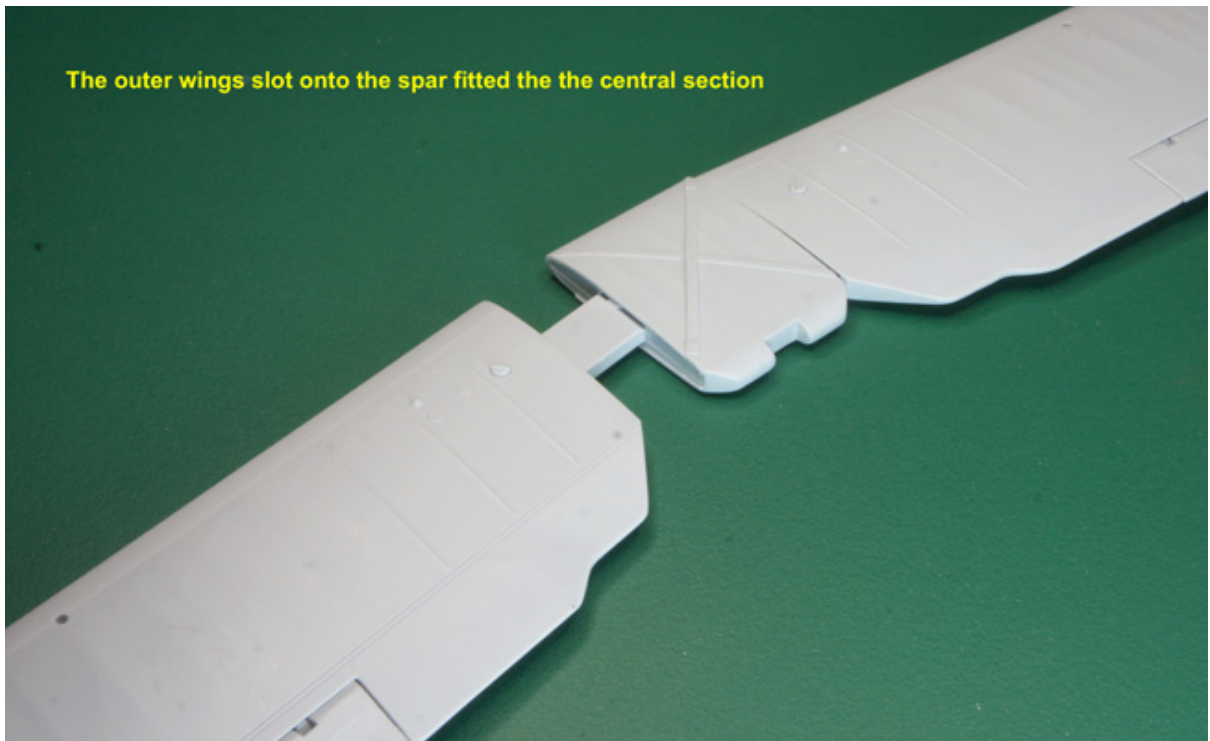


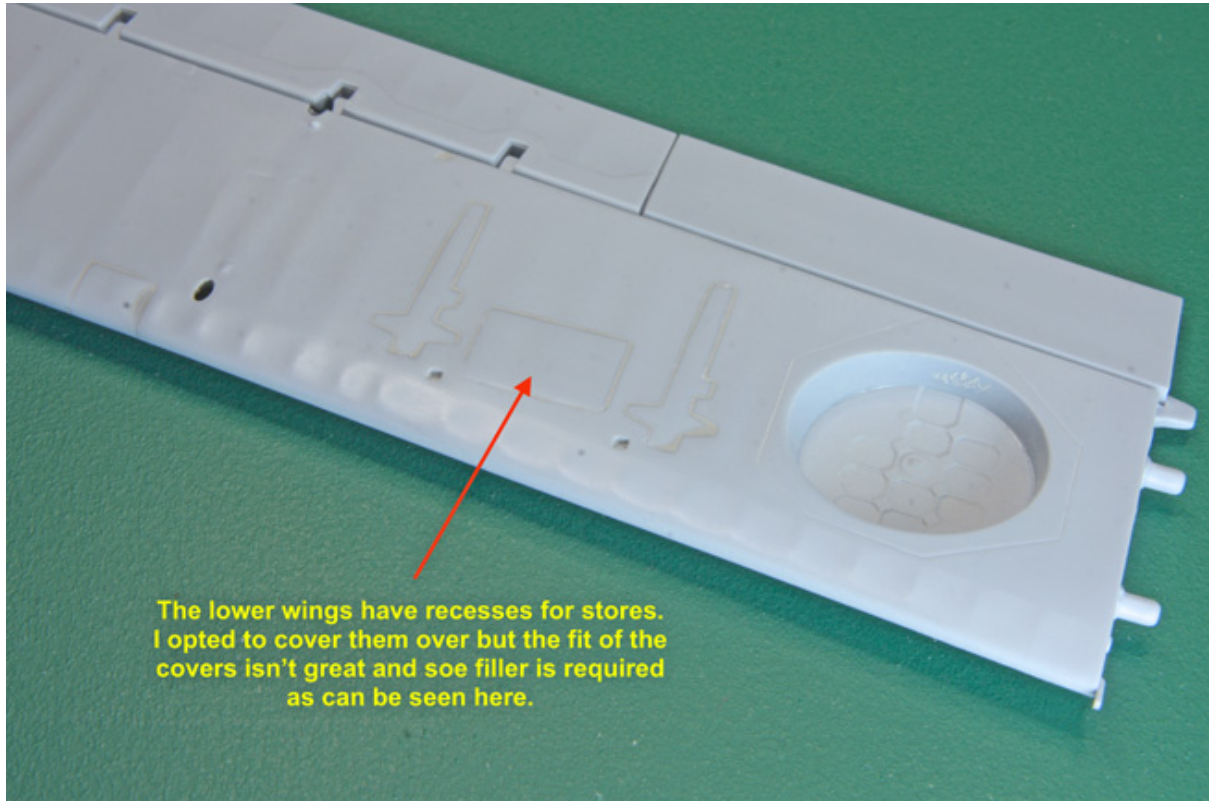
The kit has the option to have the wings extended or folded . You will need to choose which option quite early on as a different internal spar is provided for each option as seen here - the extended wing spar has been fitted into the upper wing central section on the left, the spar on the right is for the folded wing.

The upper wing outer sections. These have great a great surface texture replicating the fabric and metal construction

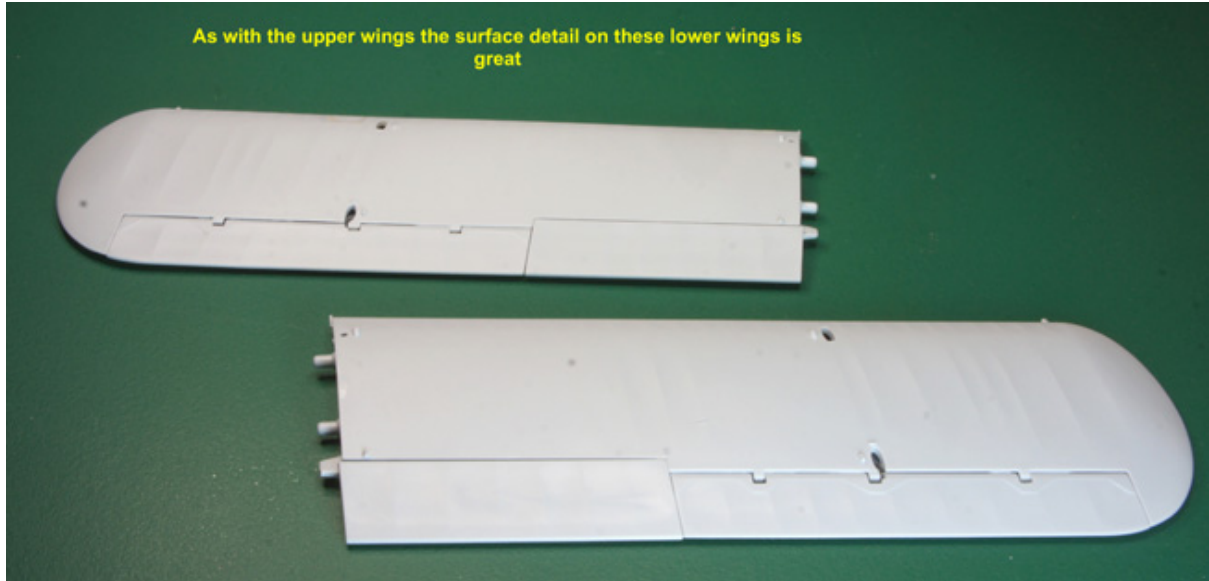


The outer wings slot onto the spar fitted the the central section





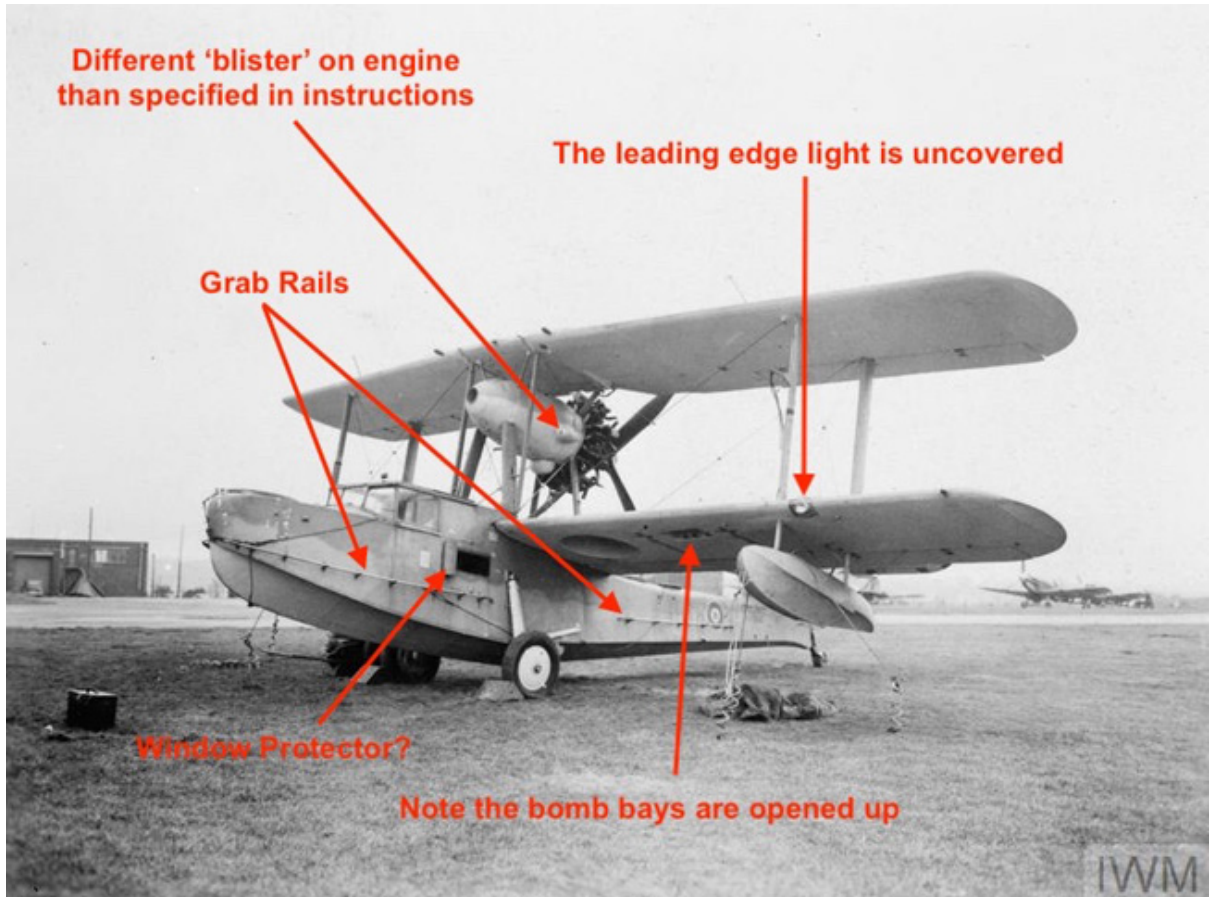
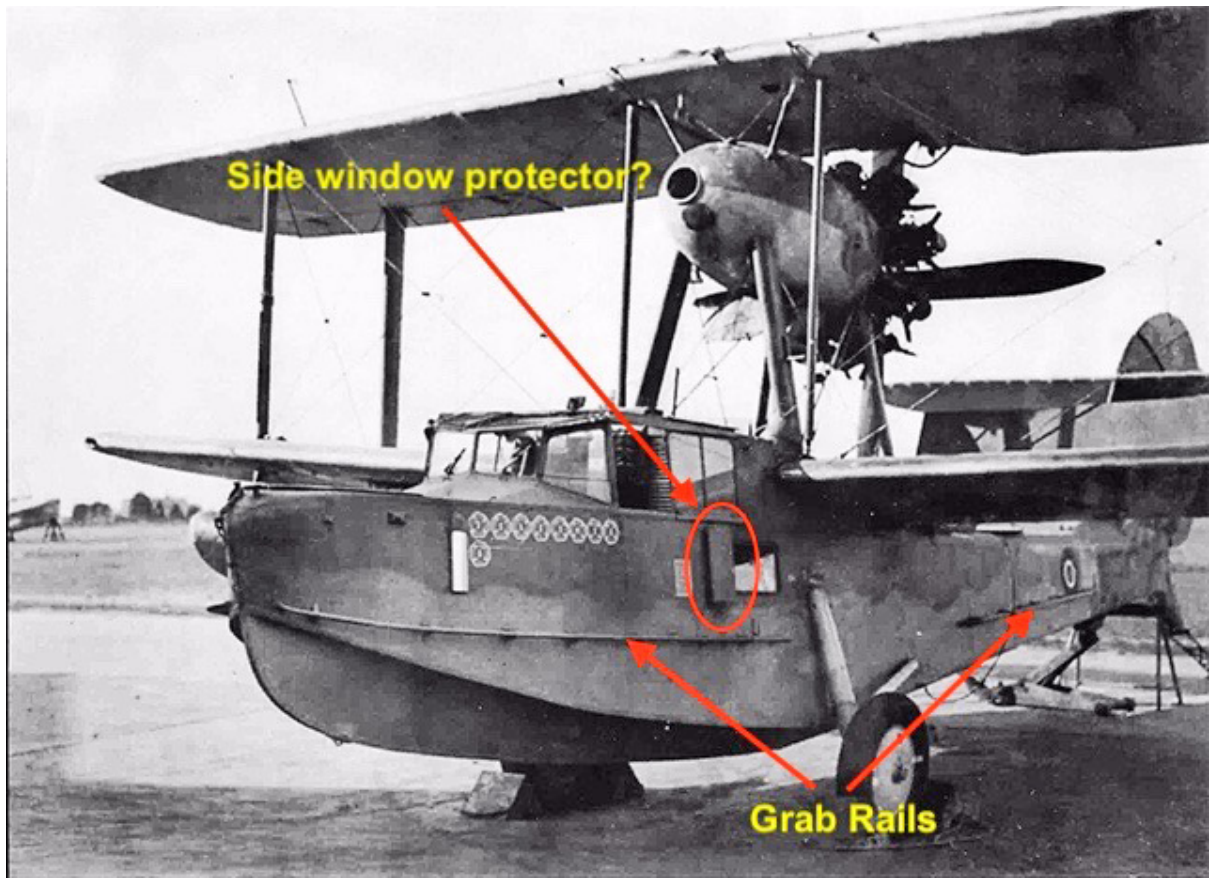
The lower wings have recesses for stores. I opted to cover them over but the fit of the covers isn't great and soe filler is required as can be seen here.



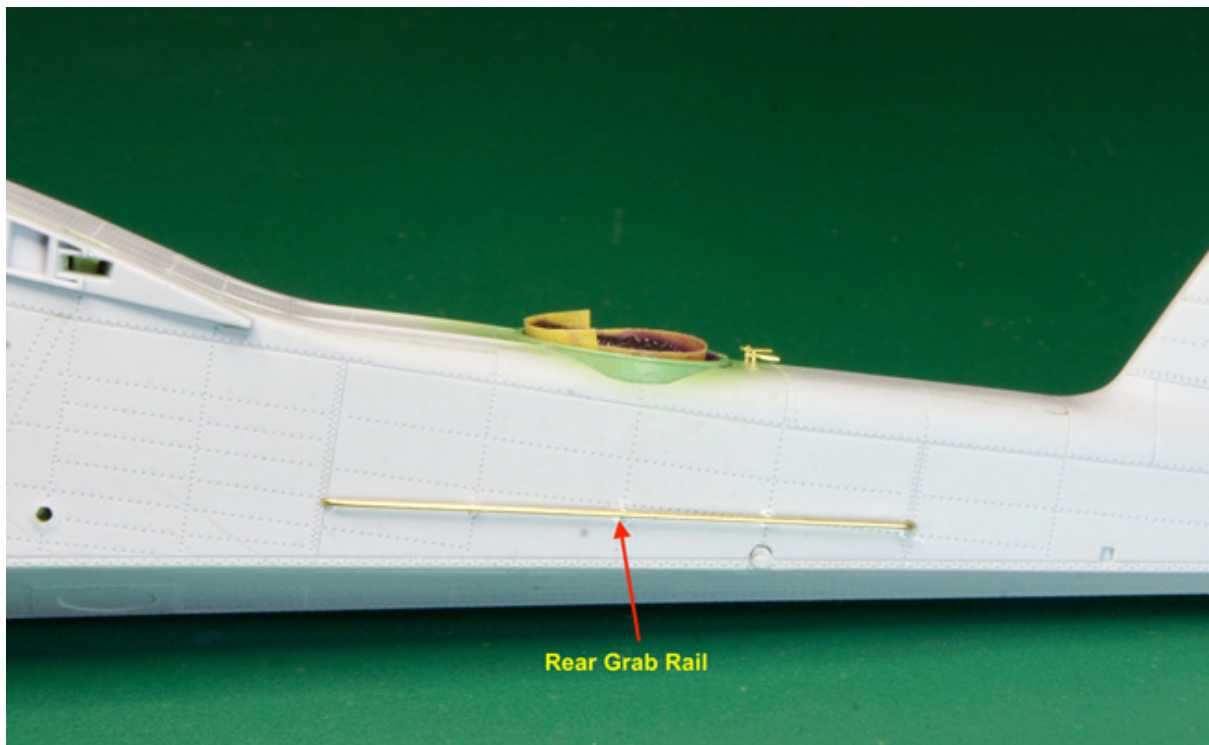
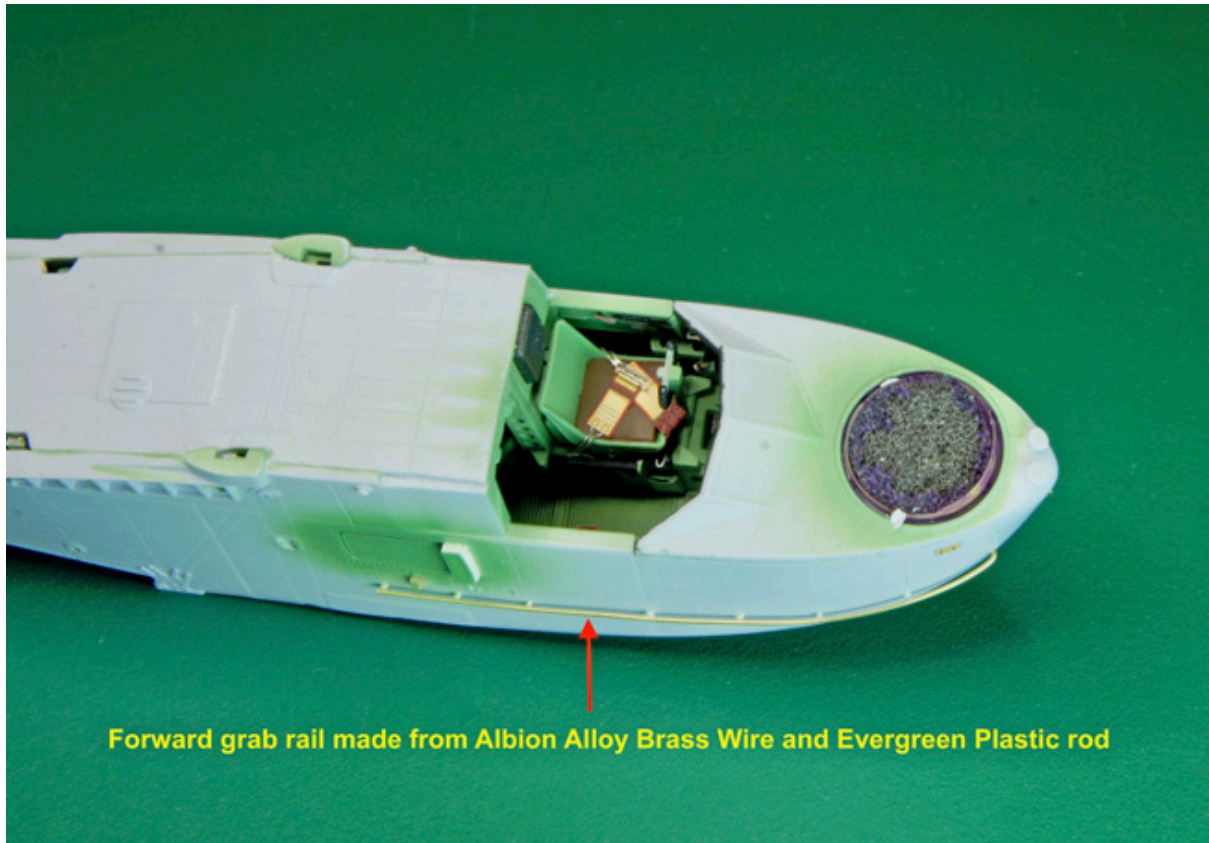
As with the upper wings the surface detail on these lower wings is great

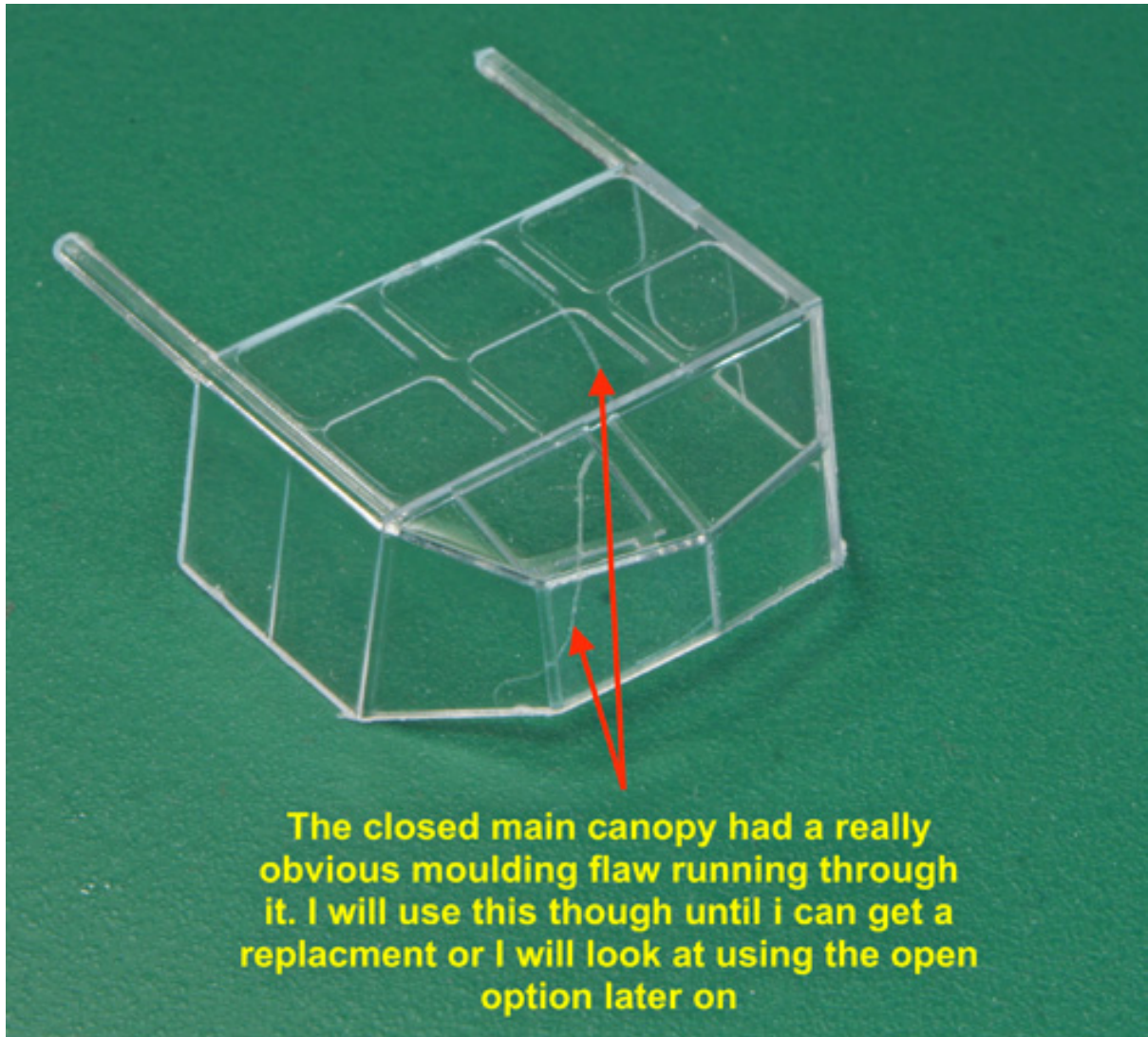
Front grab-handles and window protectors...

It was at this point that I found some really nice pictures of SAR Walrus's including one of my subject. On the flip side, they did show some rather obvious missing details on the kit for this particular aircraft and SAR aircraft in general. The most obvious are the front and rear grab rails (I presume they are on both sides) and the protector on the front of the side windows.



I could have just ignored these but my modelling OCD wouldn't have let me especially given all the extra PE detail I was adding, so I decided to go the full hog and get it as accurate as I could. For the grab rails I used Albion Alloy tubing for the rails and Evergreen plastic for their supports and for the window protectors I made these from scrap plastic sheet.

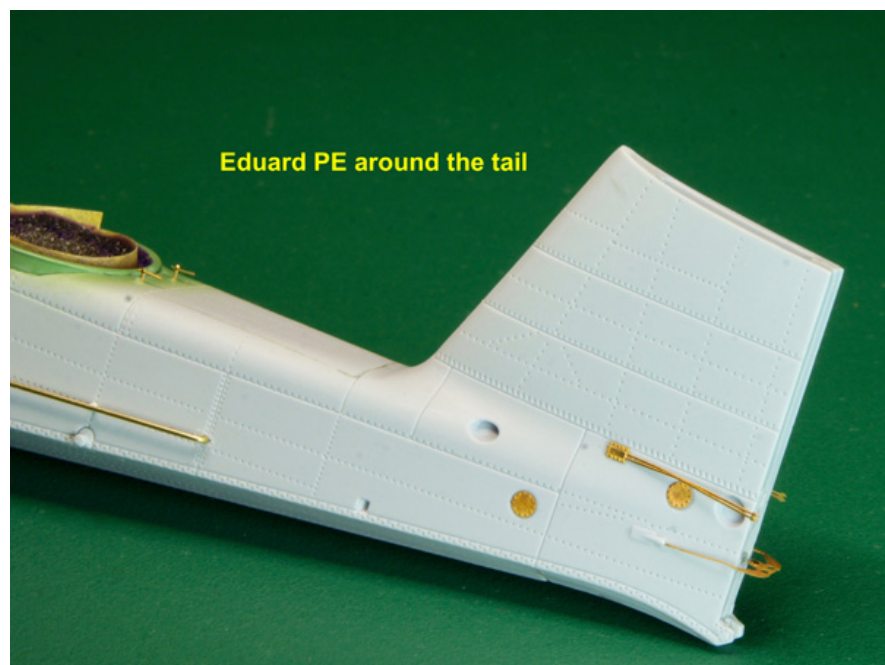
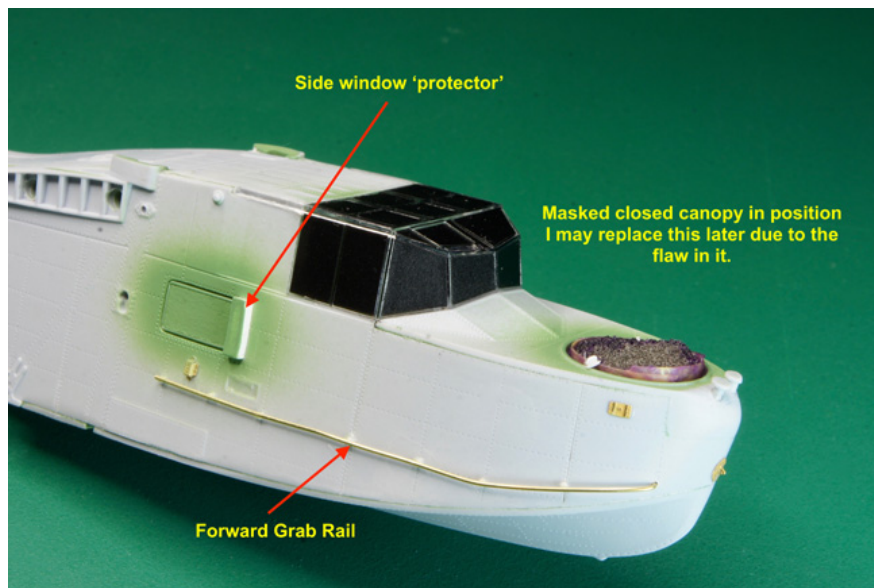




Next came the real disappointment of this kit, the clear plastic parts. On the plus side the main canopy has options for it either being open or closed and different parts are included for either. On the down side, I wanted to use the closed canopy option but the supplied part had a really obvious moulding flaw running right through it as you can see in the picture. I did contact Airfix and asked them for I replacement but was told the following:

“Thank you for your email, I have spoken with our spares team on your behalf, I’m really sorry unfortunately they have informed me that all of the canopies have been produced with the flaws present, alas we have no more clear parts available for this aircraft. Please accept our apologies.”

I must be honest a say I found this response quite disappointing but given the lack of a replacement I opted to use the closed part as a temporary mask for the painting process and would add the open option at the end of the build.



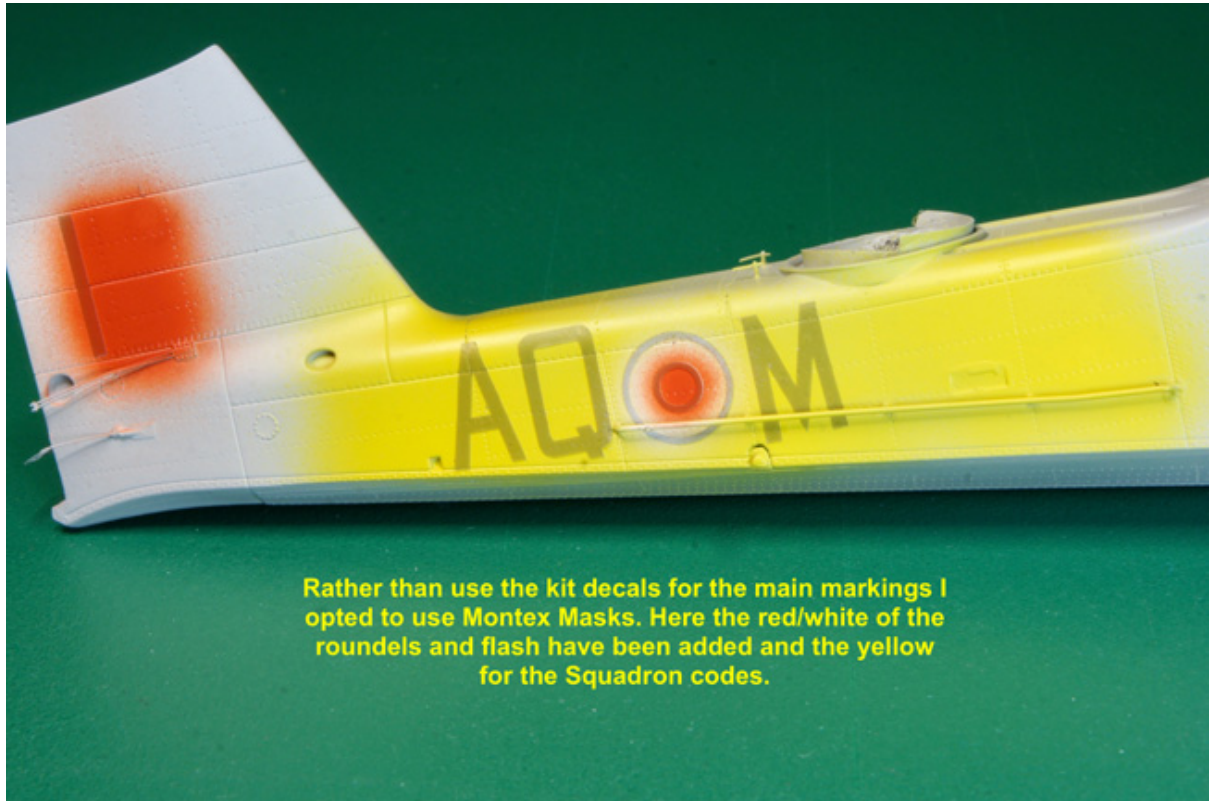


Unlike typical monoplane kits I needed to approach this build like one of my WWI builds and that meant than I now needed to paint, decal (or mask the markings) and weather the individual subassemblies prior to putting them all together. This stage will happen in the next part which will be coming soon.

Painting process...

With the main assemblies together it was now time to start the painting process. I had bought a set of Montex masks which included masks for the roundels and major lettering so rather than use the kit decals I opted to use these (in hindsight, after using the decals for the minor markings and seeing how well they performed, I would have stuck with the decals for all the markings as they are very good and settle down very well).

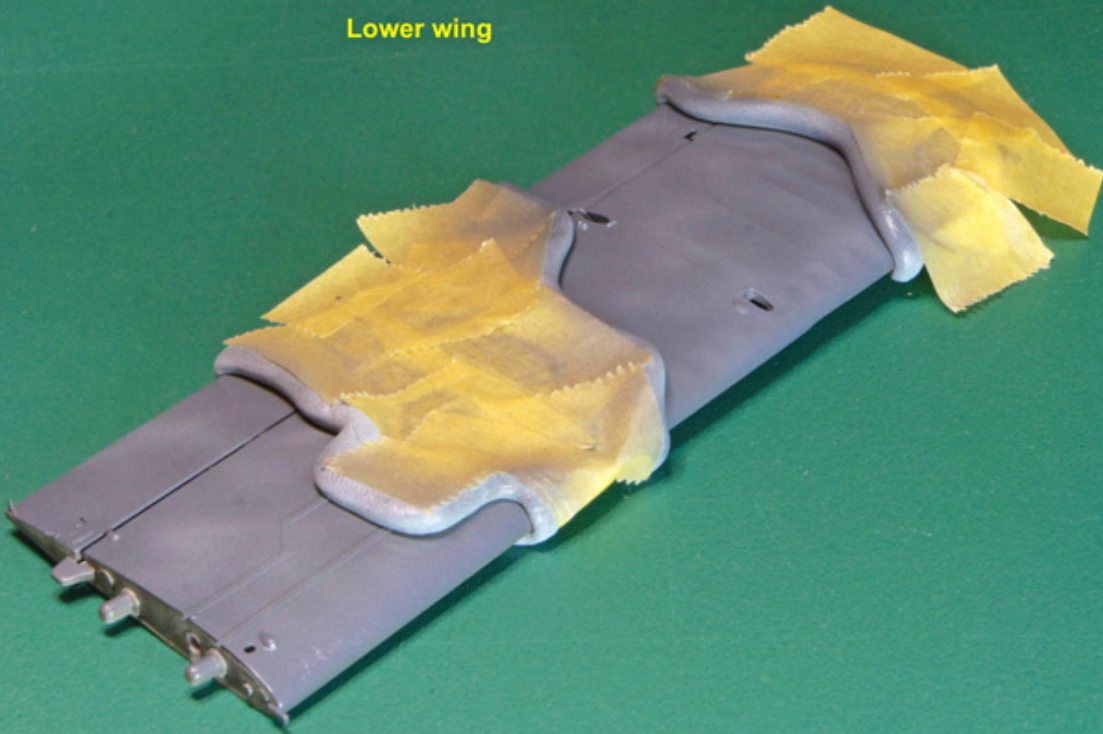
First stage, as shown in the last part is to prime everything with Tamiya Fine Grey Primer. I then masked and sprayed the lettering and roundels before adding the upper camouflage and finally the Sky on the under surfaces. I used a Mr Paints for all the colours: Upper Camouflage - Light/Dark Slate Grey and Extra Dark / Dark Sea Grey, Underside and lettering - Sky, roundels RAF roundel Red / Blue. A great tool for masking the upper/lower camouflage demarcation line is a Gyro cutter which can be seen in the pictures, this is [fully reviewed and demonstrated here](#) where you can learn all about it.



The main camouflague was Extra Dark Sea Grey and Dark Slate Grey from Mr Paints . Masking was done using Blue Tak and masking tape as seen here.

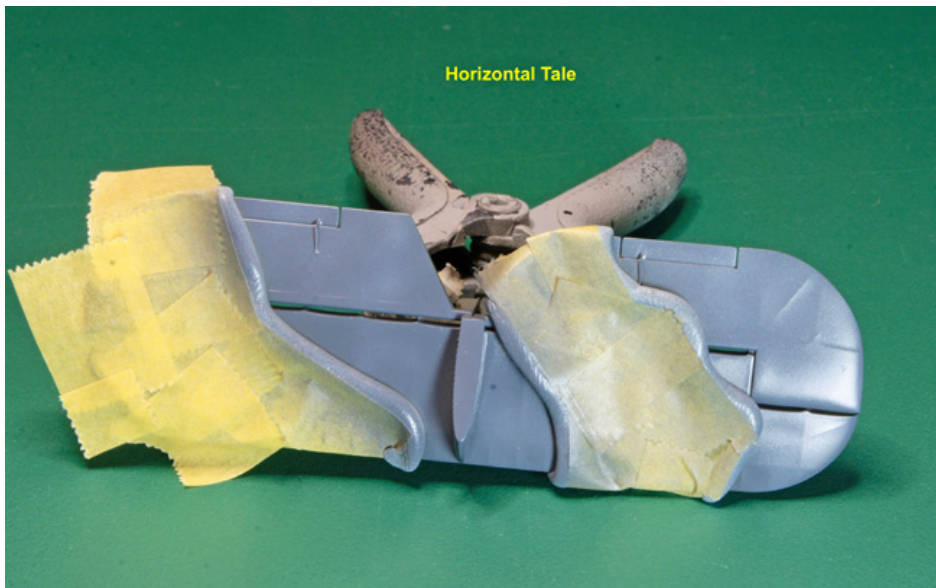


Lower wing

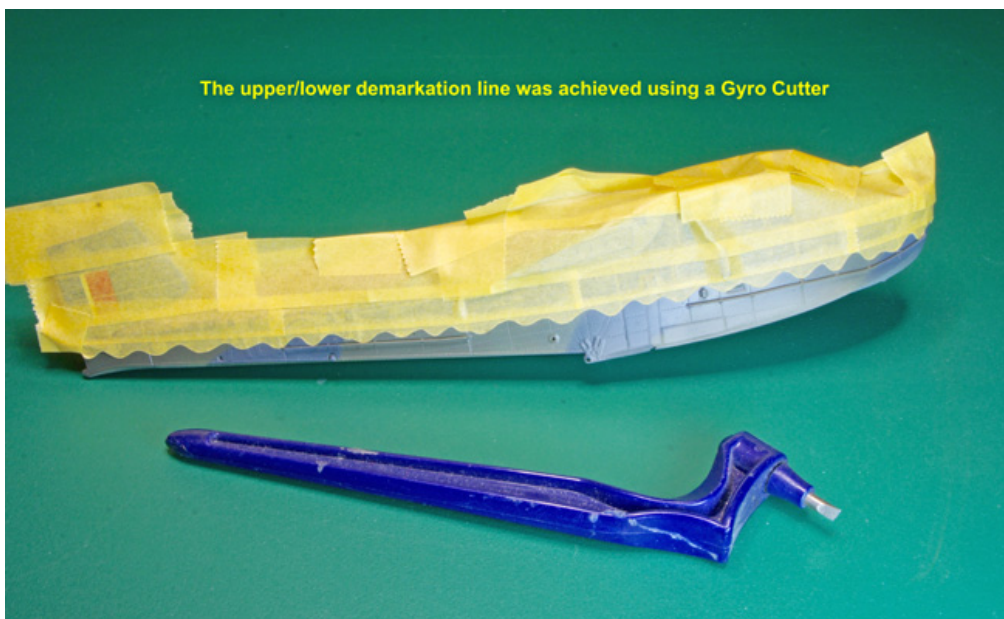




Upper wing

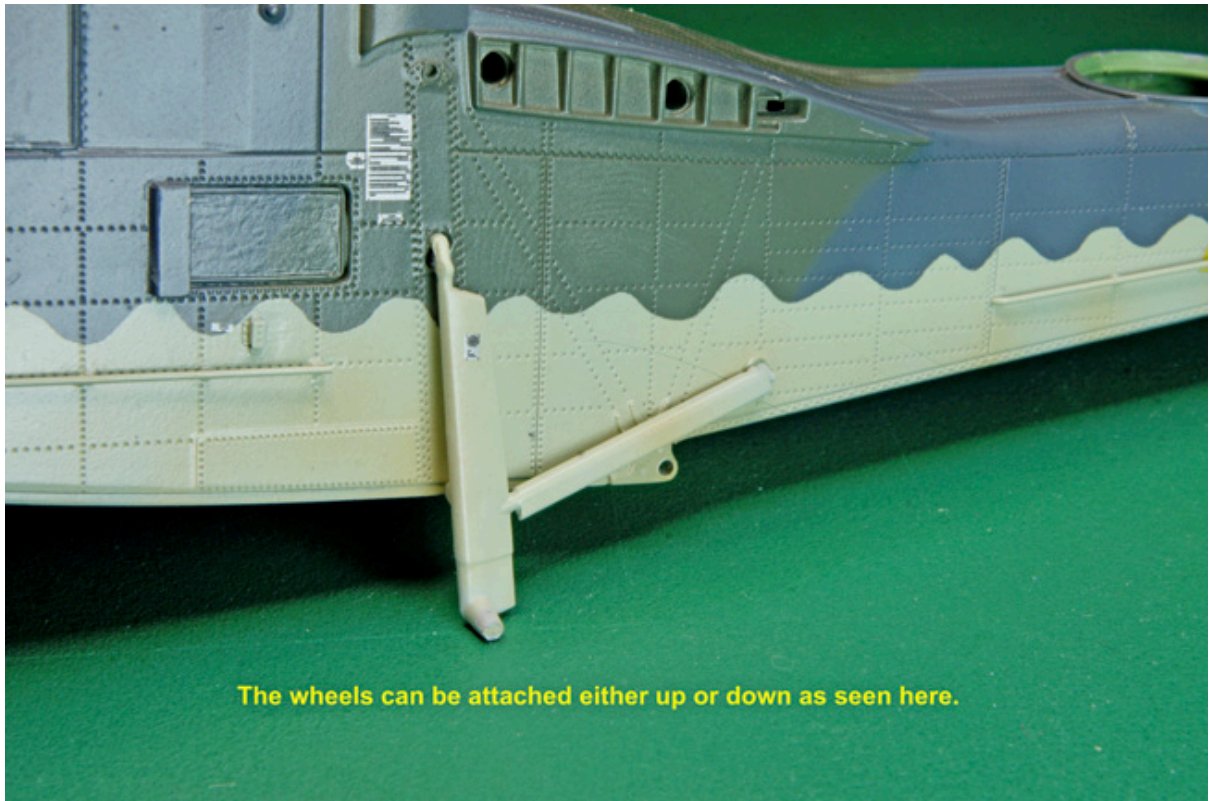


Horizontal Tale



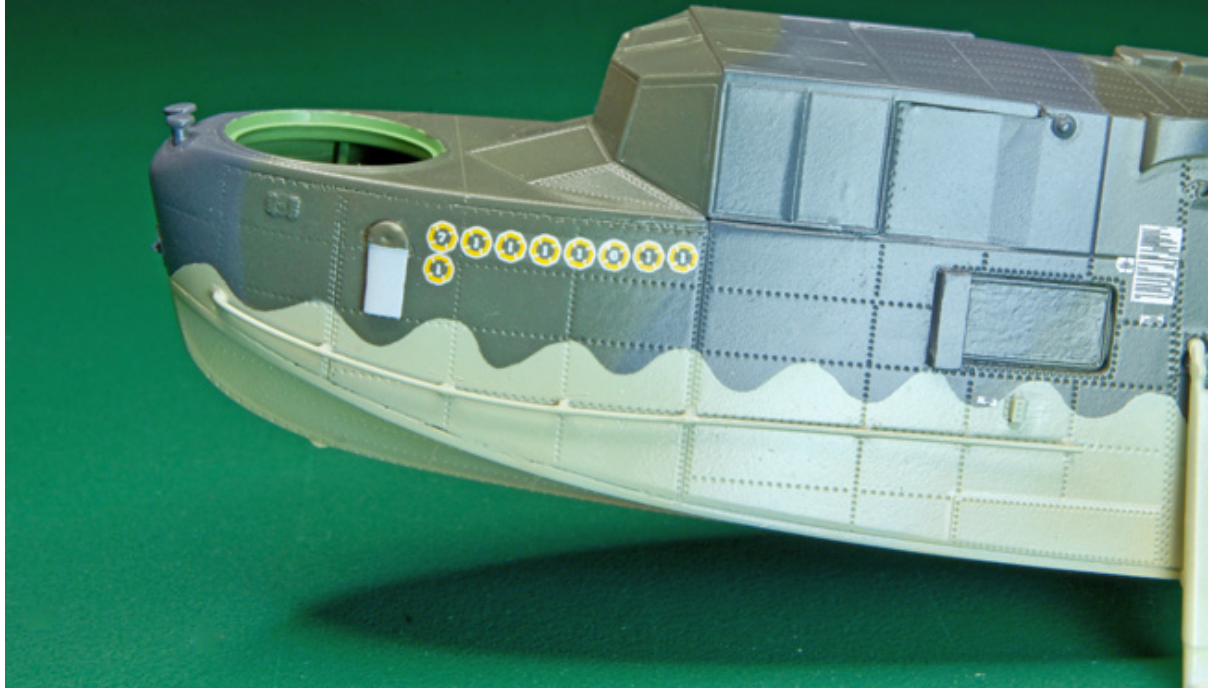
The upper/lower demarkation line was achieved using a Gyro Cutter

The masking all removed - some minor touching up was required but in general I was happy with the result

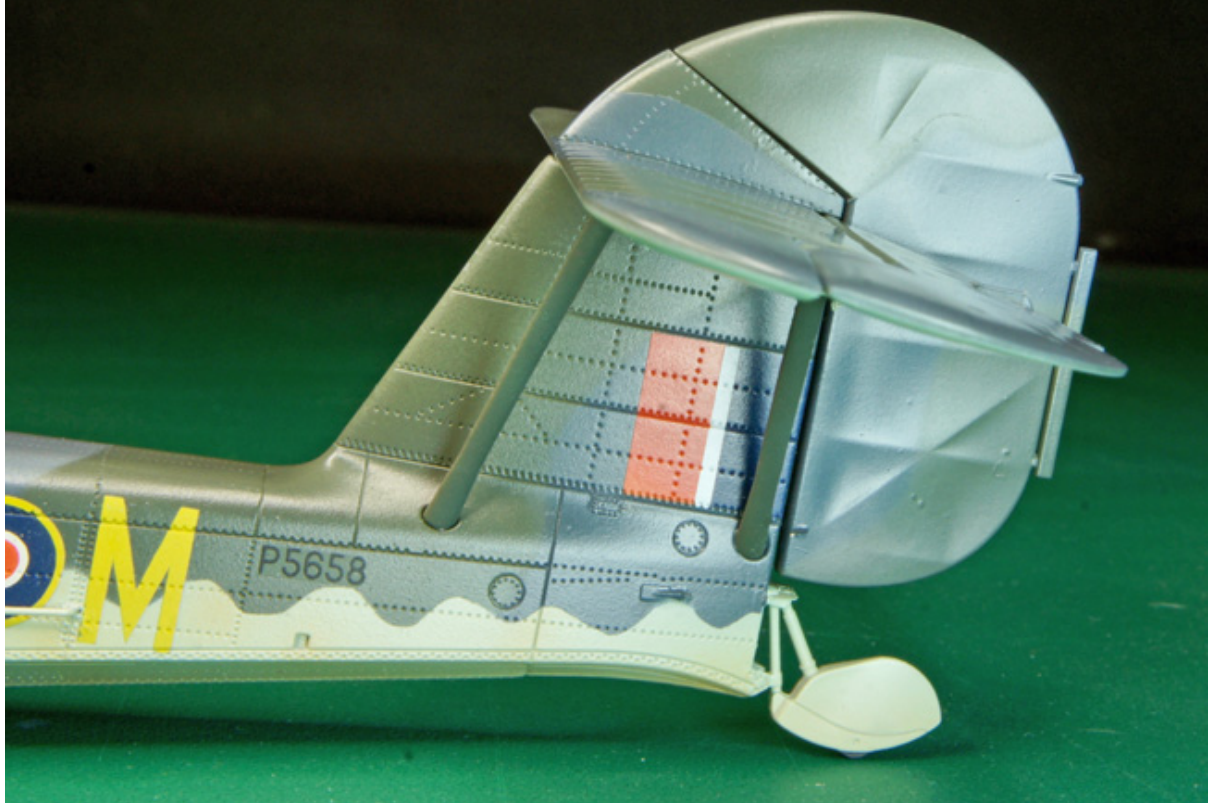


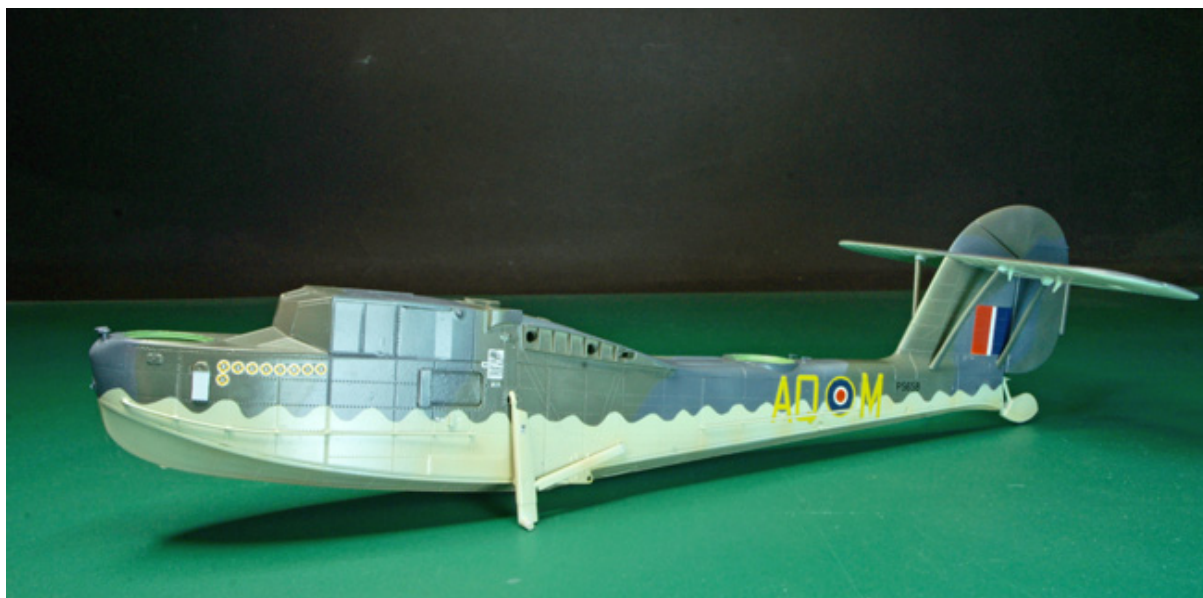
The wheels can be attached either up or down as seen here.

Some of the kit decals were used for the smaller markings such as the rescue 'tally' here - they settled down very well if you opt to use them .

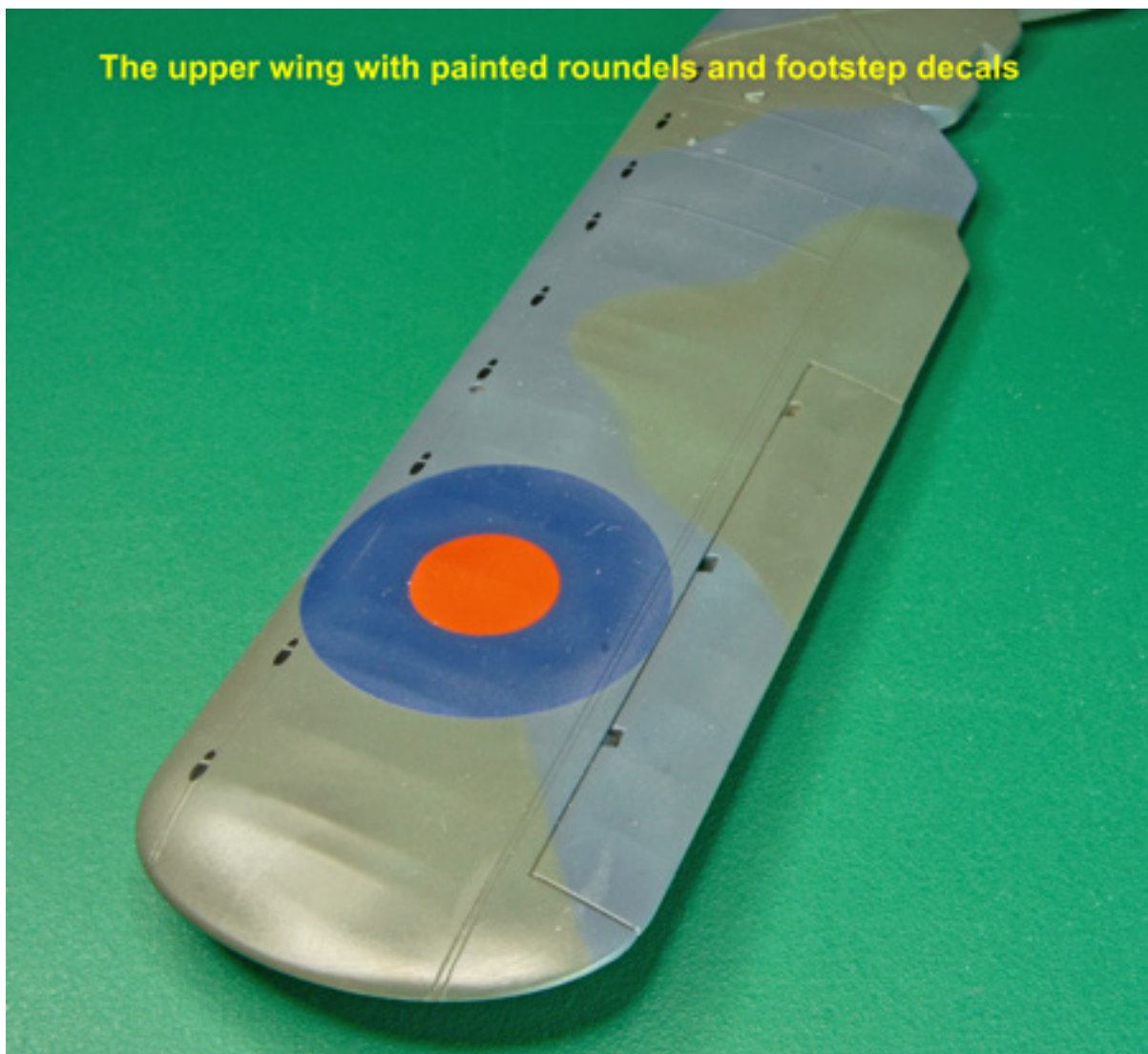


The tail in position along with its supporting struts





The upper wing with painted roundels and footstep decals



Outer starboard wing with decals and painted walkways

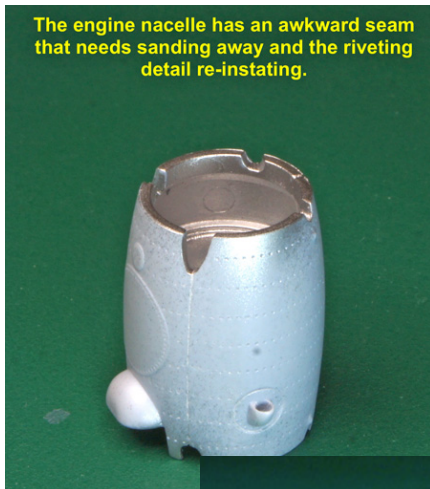


Engine nacelle...

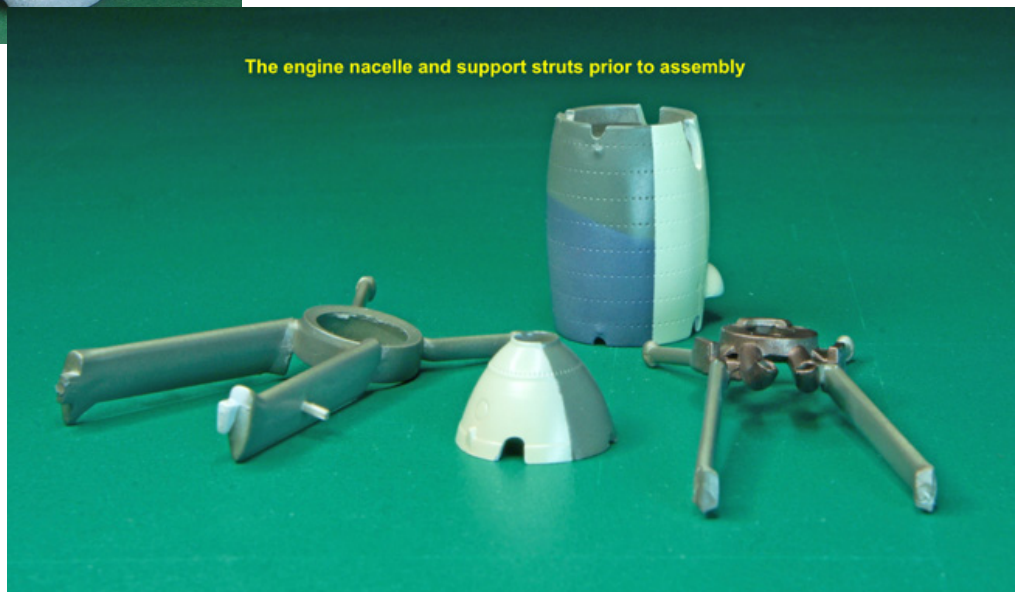
The engine nacelle is reasonably straightforward but you will need to carry out some minor re-scribing to get the detail back once you have joined the

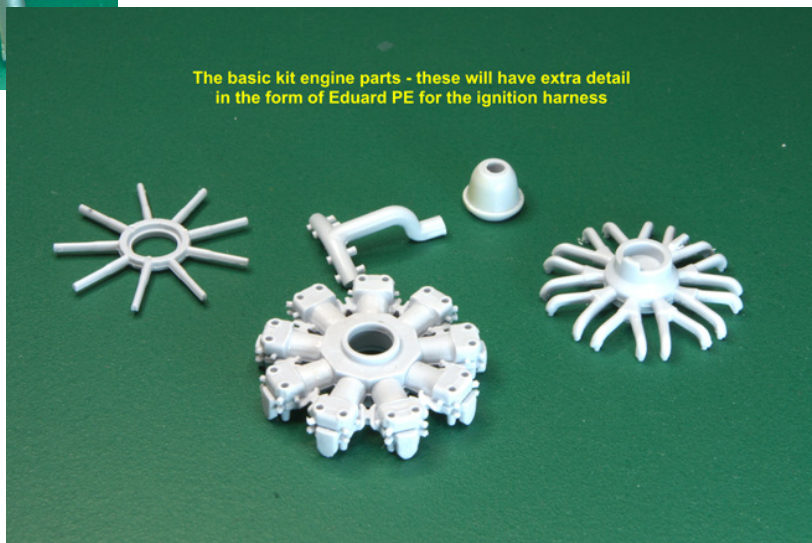
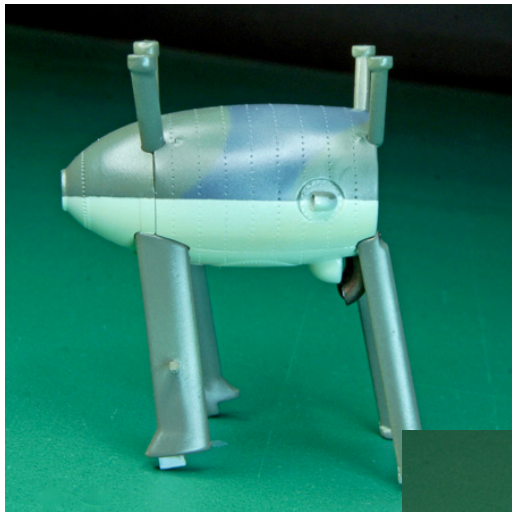
parts. Like the rest of the model it can be made up as sub-assemblies and painted before finally putting it all together. The engine did benefit from the extra detail the PE provided in the form of the ignition harness. I didn't glue the engine to the nacelle at this point as it was easier to add it at the end of the build.

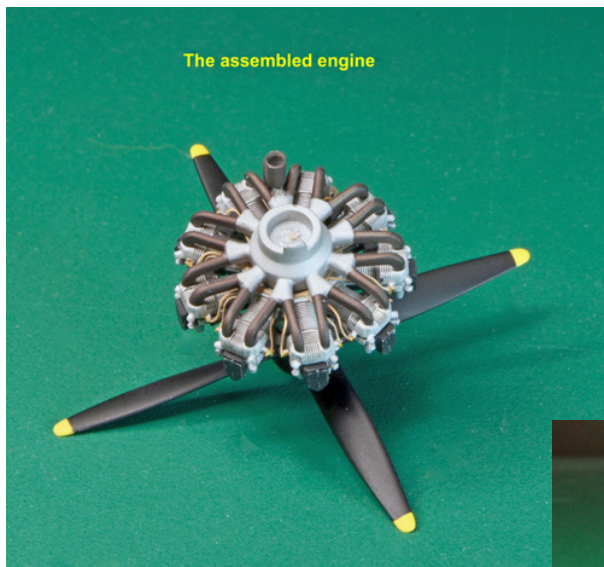
The engine nacelle has an awkward seam that needs sanding away and the riveting detail re-instating.



The engine nacelle and support struts prior to assembly



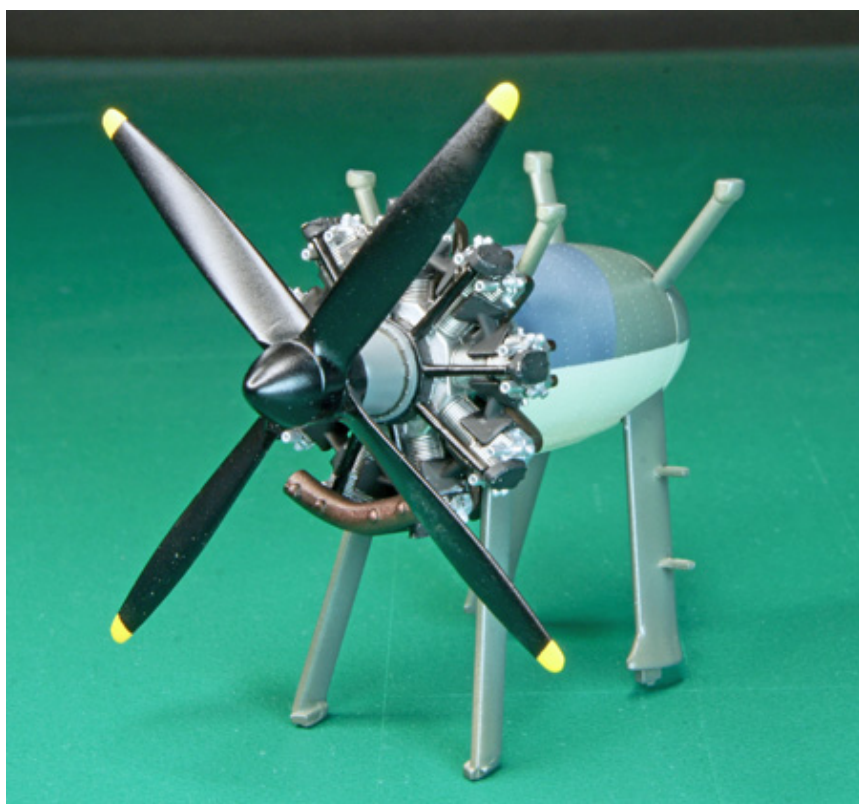




The assembled engine



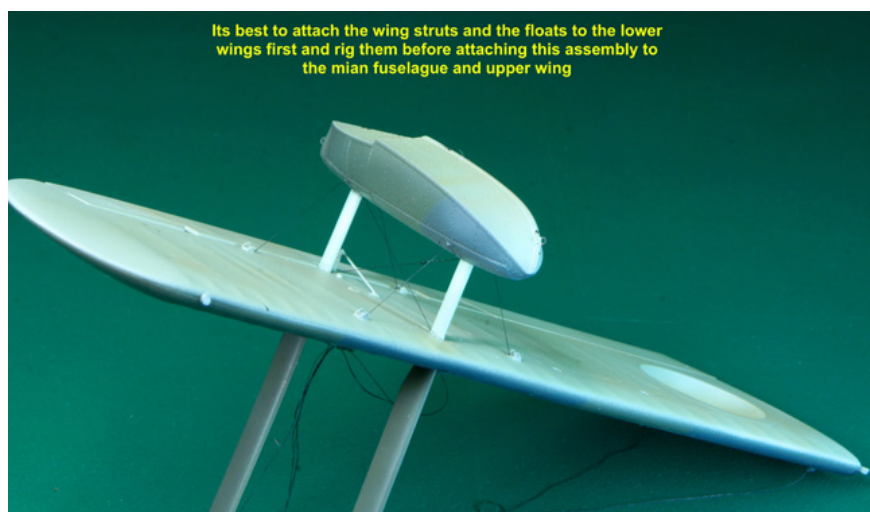
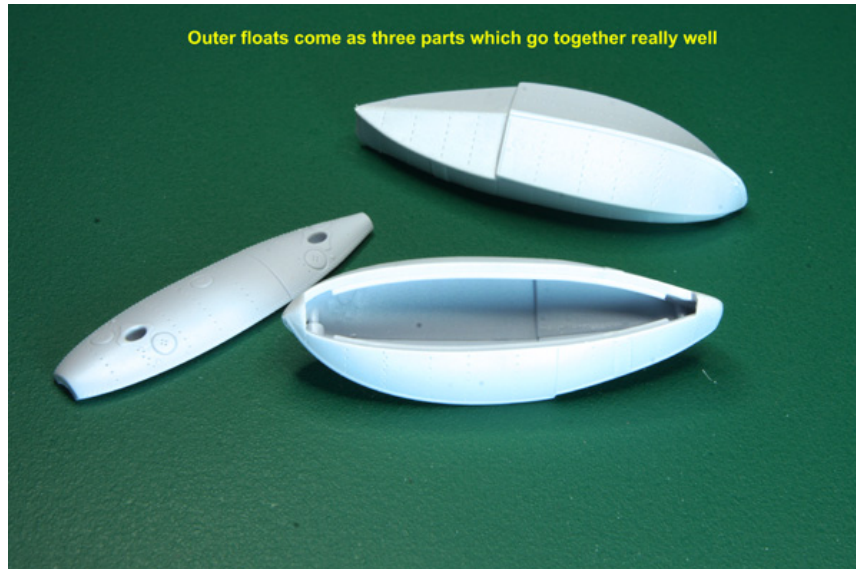
The complete engine/nacelle/support struts

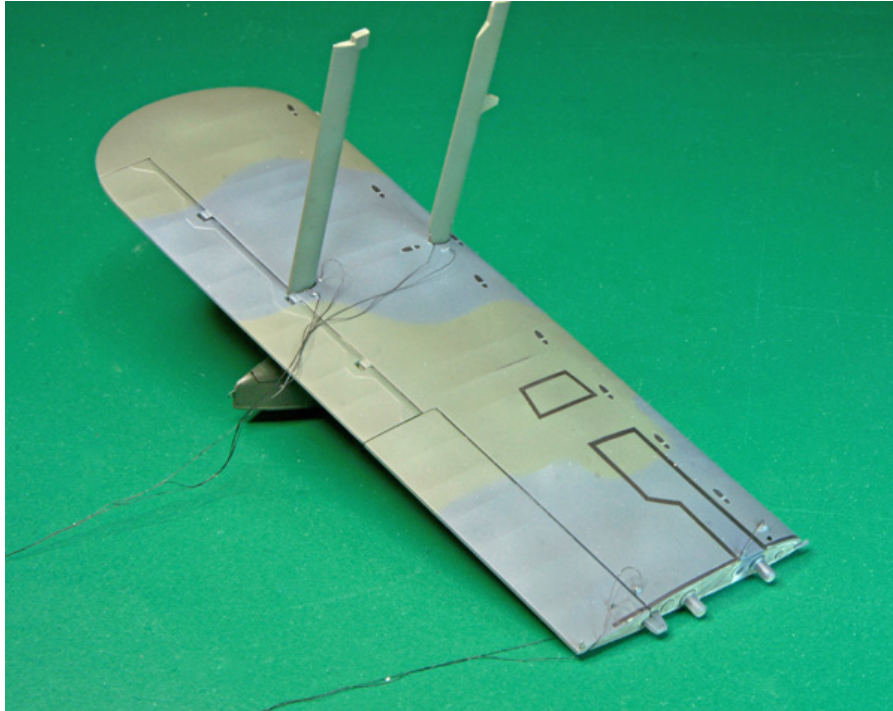


Wing floats...

The wing floats are made up from 3 parts and fit together really well. I did remove some of the moulded-on detail and replace it with PE. To fit the floats to the lower wing you need to fit the outer wing struts which go through the wings and then into

the floats. It's worth rigging the floats at this time whilst the wing isn't attached to the fuselage. I also attached the wing rigging wire to the upper surfaces of the lower wings as this will make the rigging process easier later on.

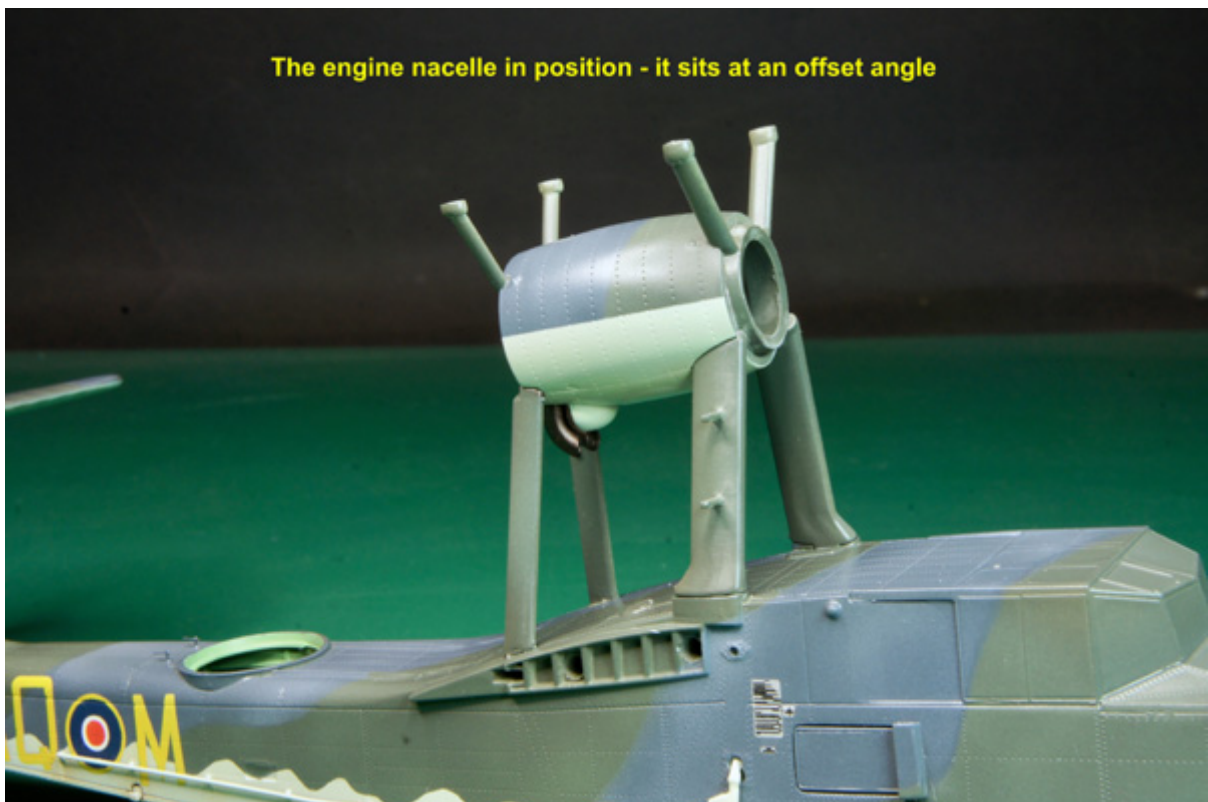


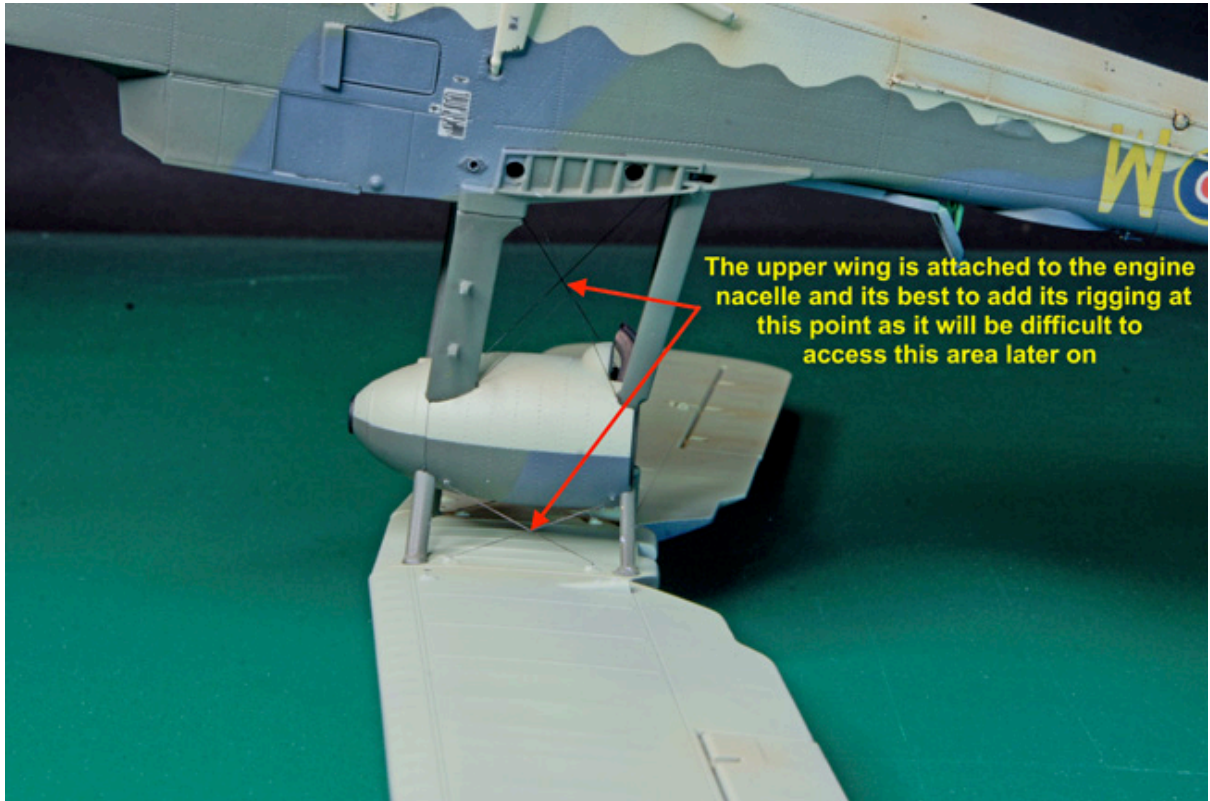
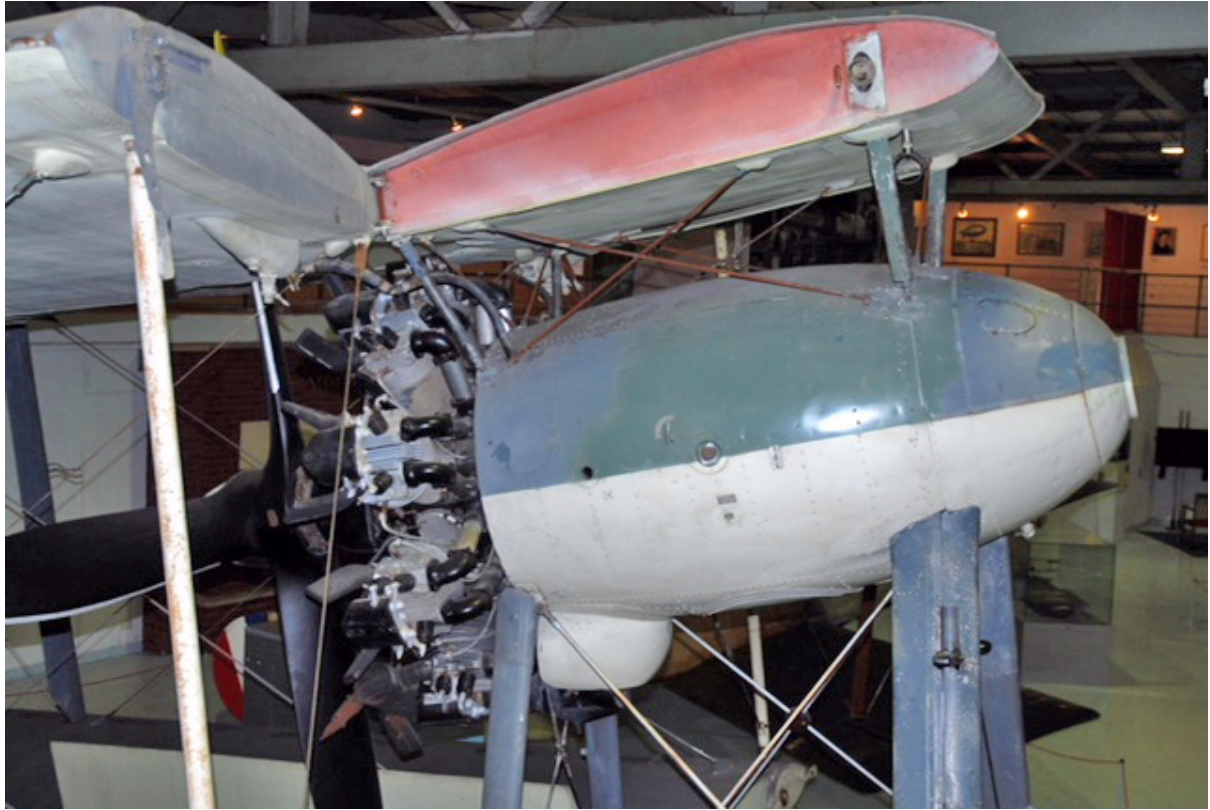


Bringing it all together...

Now it's time to start putting everything together. First stage was fitting the engine nacelle to the fuselage - *this is meant to be off-centre*. The upper wing was then attached using epoxy glue for a really solid fix and left to dry overnight. Once

fully dry it's now best to do the rigging around the nacelle whilst its easily accessible. I used Uschi Van Der Rosten Lycra Thread for this held in place with Super glue (cyano).

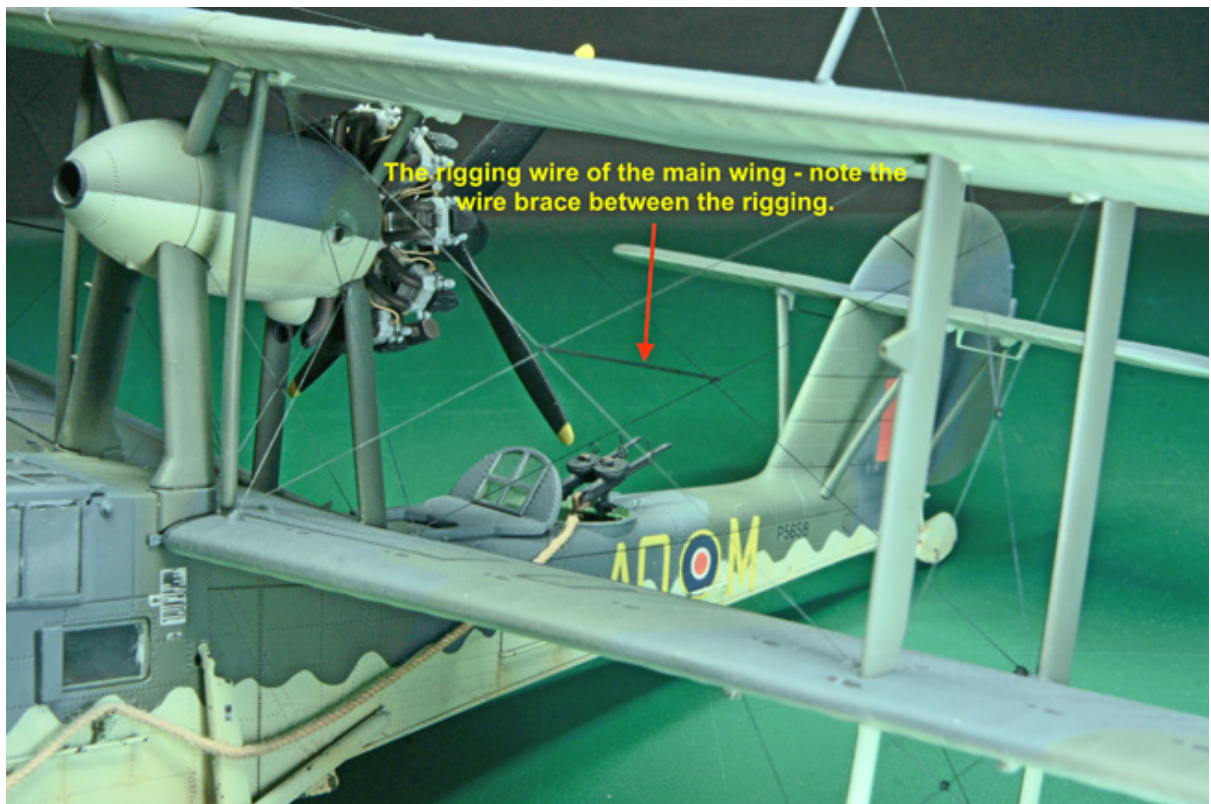






Next the lower wing can be fitted and again epoxy was used to allow for adjustment whilst it set and to get a really solid joint. Once dry it was just a case of carefully attaching the pre-attached lower wing Lycra thread to the appropriate point on the underside of the upper wing.





Now for all the final bits and pieces. The kit wheels were replaced with more detailed ones from Eduard and the machine guns had PE sights fitted to them before attaching them to the front and rear mounting rings. I glued the front hatch

cover onto the fuselage just to add some more interest and to ensure I didn't lose it!!

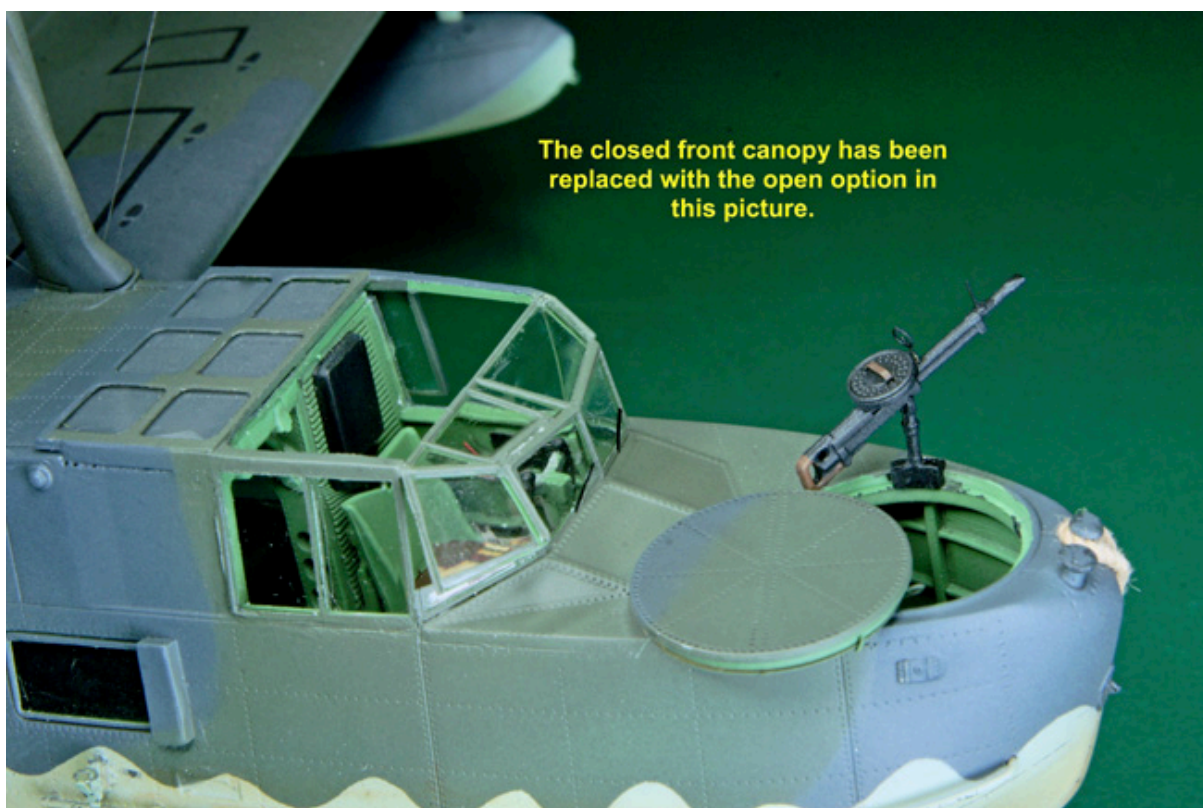
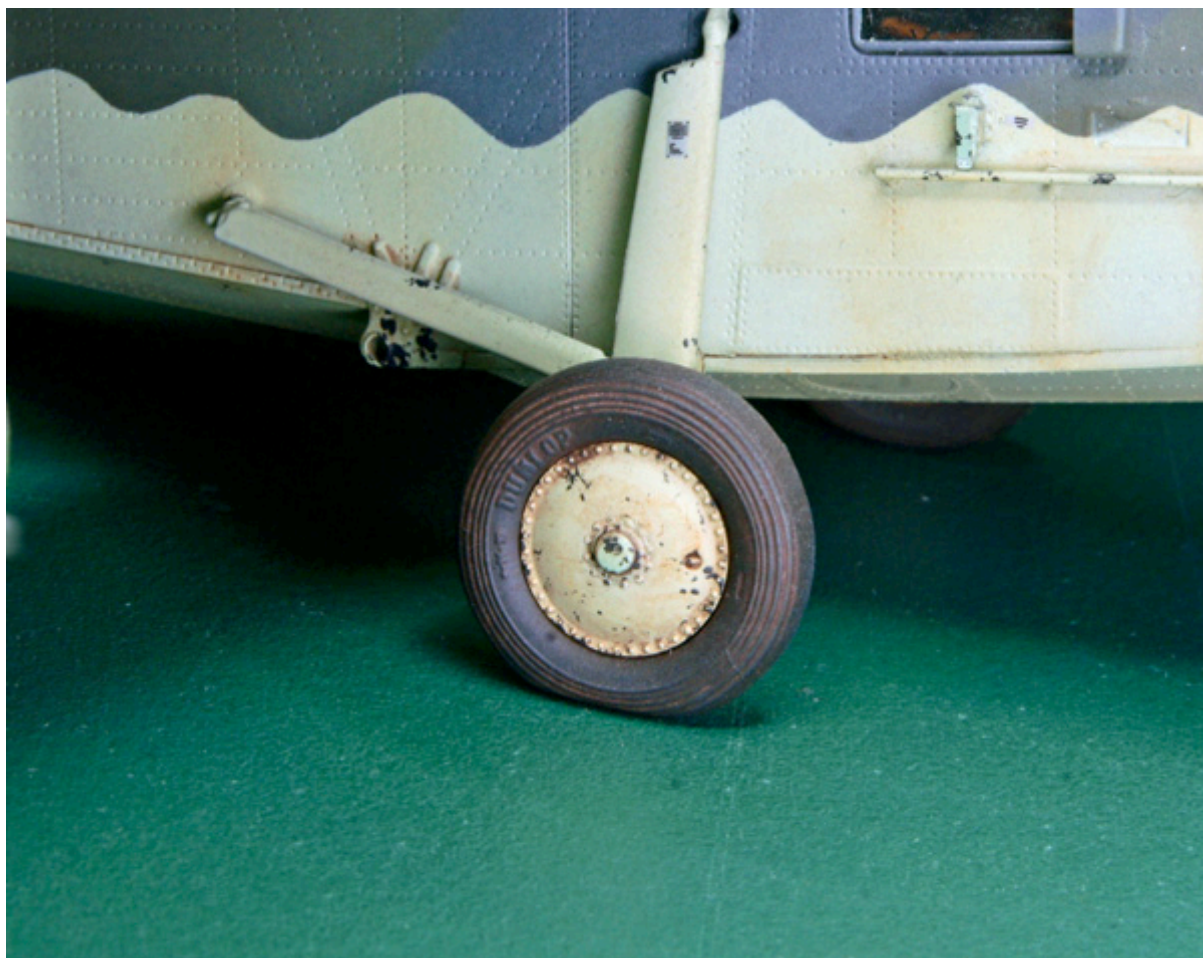
The rope came from the spares box and again was just there to add interest. The two final parts were the engine which slotted into place without any issues but the fitment of the open canopy didn't prove to be as easy. I needed to cut away some of the plastic around its rear attachment point to get a good fit and I also needed to replace the framing on the left hand side that stretched between the front and rear sections as the kit part didn't fit. This was a bit awkward to do due to having to carefully handle the almost complete model - top tip - fit the required canopy prior to adding the wings!!



The rear guns with PE sites

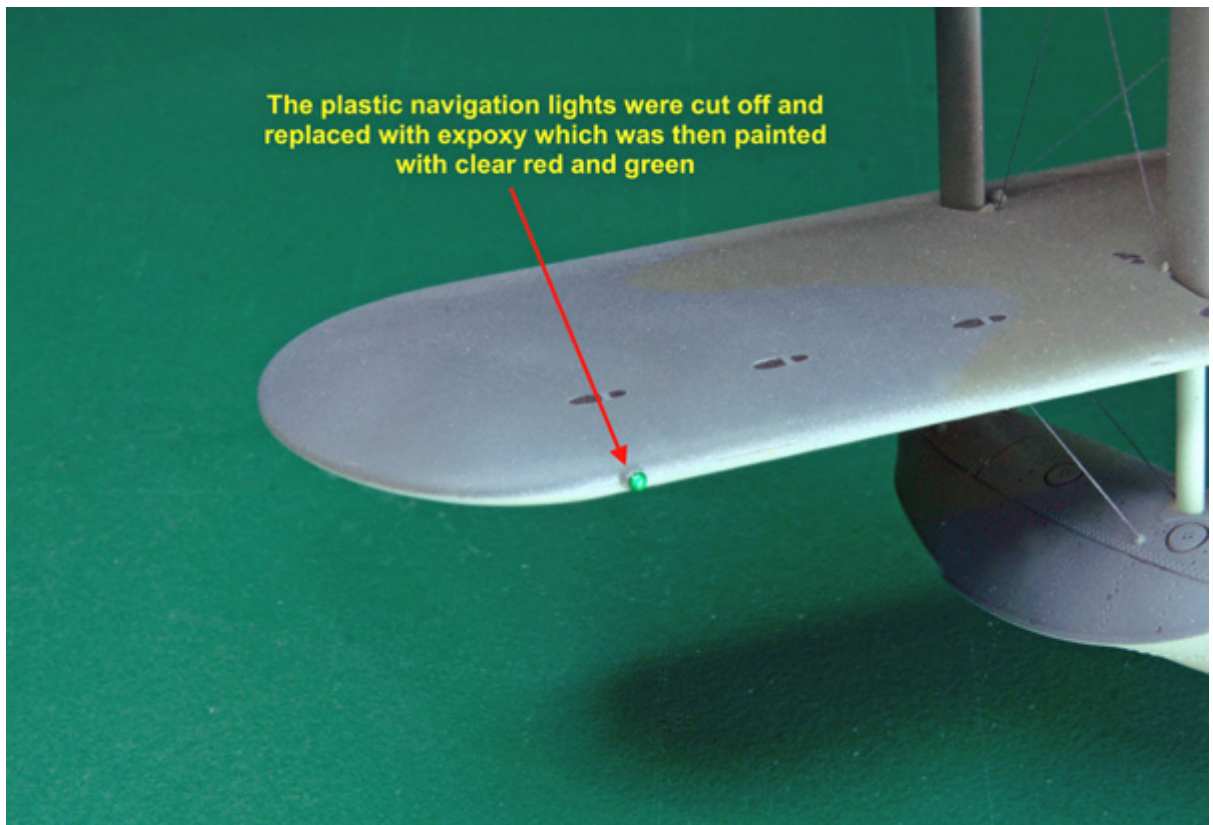


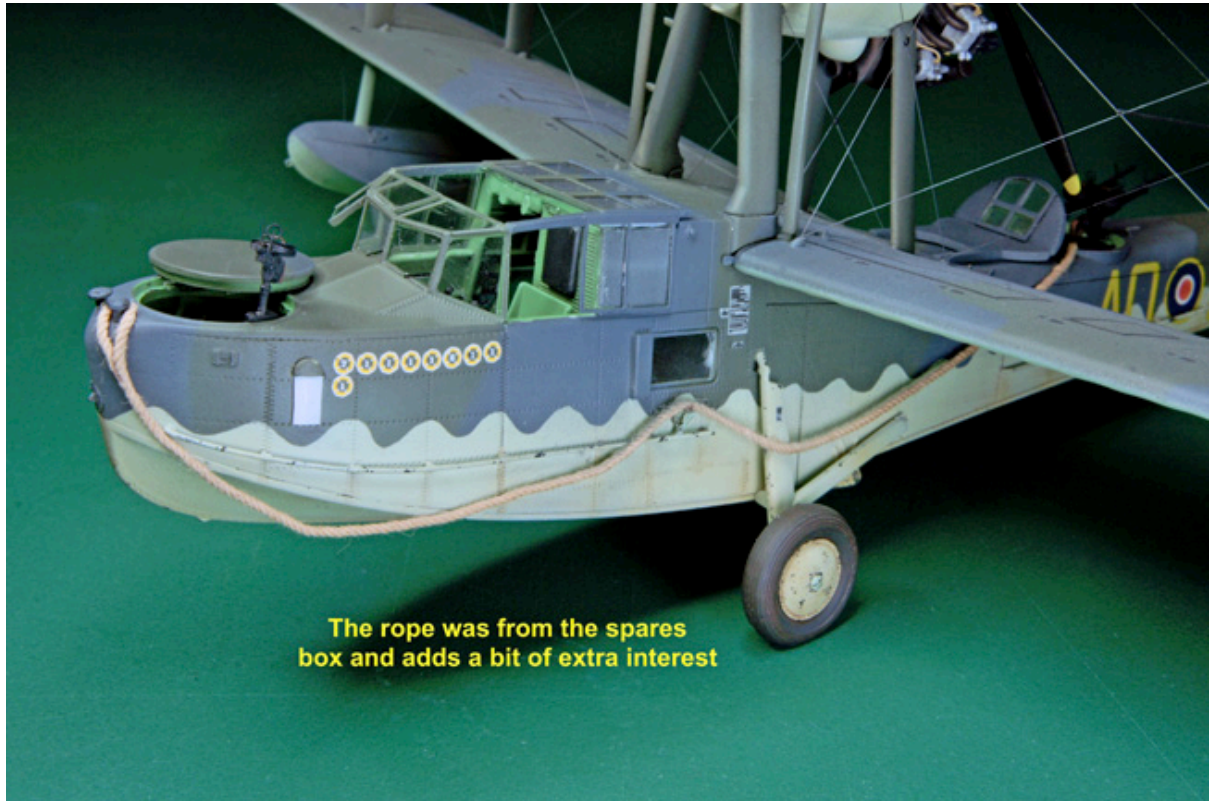
The kit comes with weighted or un-weighted wheels and are ok but I replaced them with more detailed resin ones



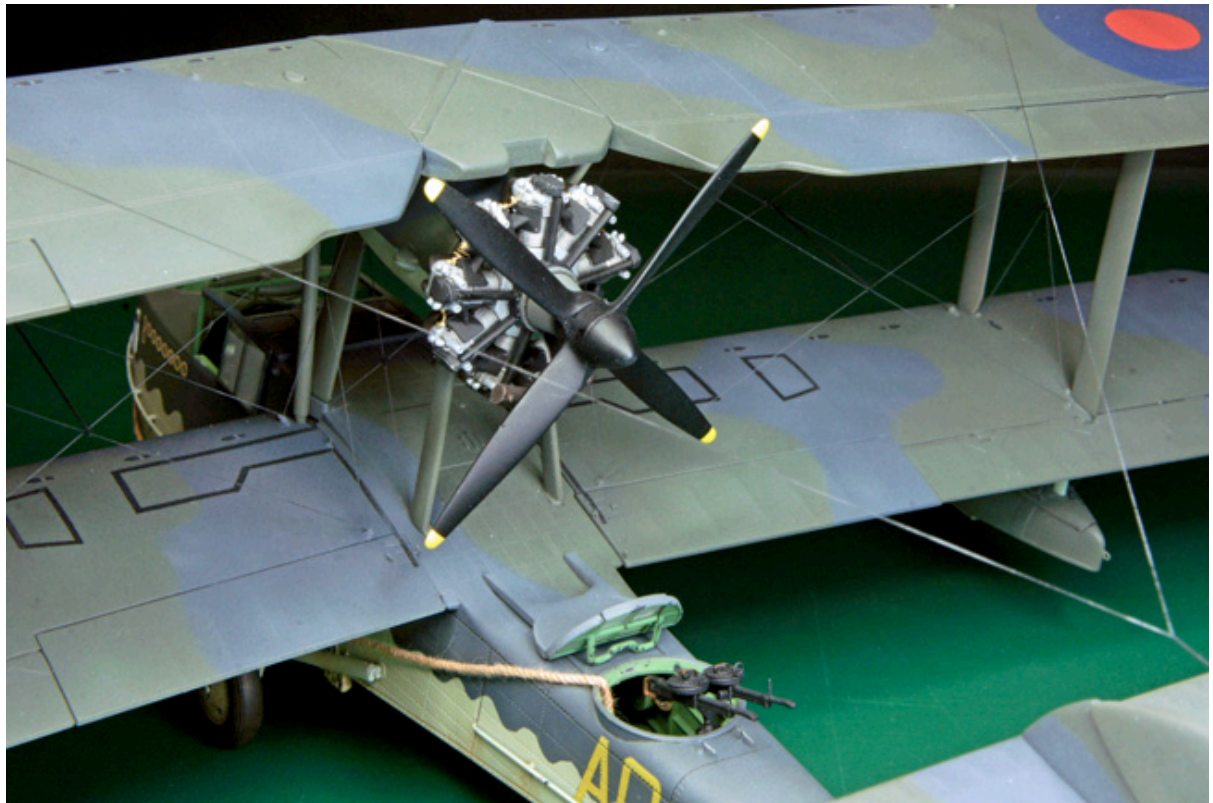


The plastic navigation lights were cut off and replaced with epoxy which was then painted with clear red and green





The rope was from the spares box and adds a bit of extra interest





Summary...

This is a great subject but not the easiest of models to make. This isn't a criticism against Airfix as they have made the kit breakdown as logical and simple as it can be, it's just a complicated aircraft to model. That said with care and patience any modeller with some experience should be able to cope with the kit. I was disappointed with Airfix's customer care about the flawed canopy; if you're going to produce a kit make sure it leaves the factory as advertised and if there is a problem be prepared to fix it (like they have done with their new Hawker Sea Fury FB.II release). This did mean I only had one canopy option which wasn't the one I really wanted but in the end it looks ok.

Overall a well-produced kit but not for the beginner.

Dave C.

SMN Quick summary	Star rating out of 5
Quality of moulding	***
Accuracy	****
Instructions	***
Decals	****
Subject choice	*****
Build enjoyment	***
Overall	****









