Geoff Coughlin's
scale modelling now
magazine

# Full Review

Kinetic

Sukhoi Su-33 Flanker D

1:48 scale

by

Dave Coward

(June 2017)

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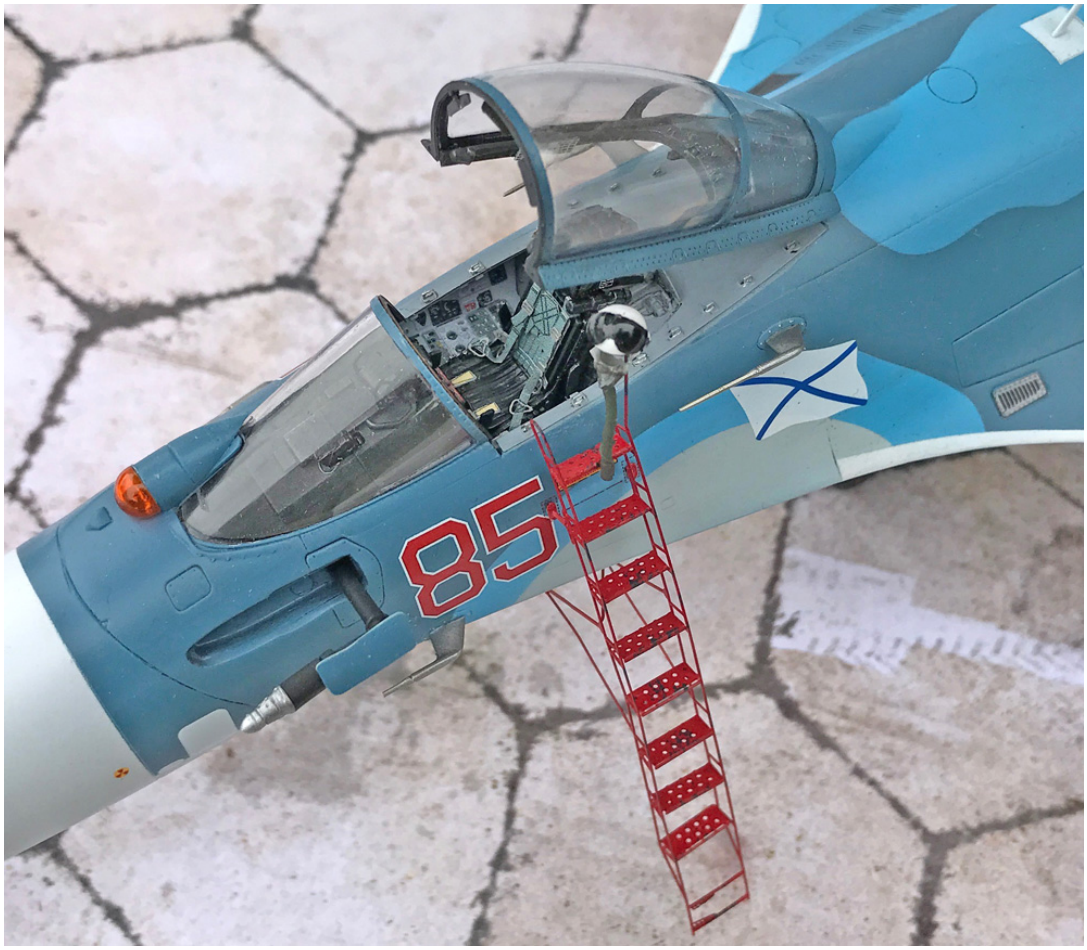



**A note from Geoff…**

This model has been eagerly awaited and I'm so pleased that Dave C has managed to complete his build and wow! What a model this makes up into!

Here are a couple of photos of Dave's completed Su33 Flanker D (above and below) before I had over to him to tell his story of his build…






**Over to you Dave…**

**Background**



**From Wikipedia**

The Sukhoi Su-33 (Russian: Сухой Су-33; NATO reporting name: Flanker-D) is an all-weather carrier-based twin-engine air superiority fighter designed by Sukhoi and manufactured by Komsomolsk-on-Amur Aircraft Production Association, derived from the Su-27 "Flanker" and initially known as the Su-27K. Compared with the Su-27, the Su-33 has a strengthened undercarriage and structure, folding wings and stabilisers, all for carrier operations. The Su-33 has canards and its wings are larger than the Su-27 for increased lift. The Su-33 has upgraded engines and a twin nose wheel, and is air refuelable.





First used in operations in 1995 aboard the carrier Admiral Kuznetsov, the fighter officially entered service in August 1998, by which time the designation "Su-33" was used. Following the break-up of the Soviet Union and the subsequent downsizing of the Russian Navy, only 24 aircraft were produced. Attempted sales to China and India fell through. With plans to retire the Su-33 once they reach the end of their service life, the Russian Navy ordered the MiG-29K as a replacement in 2009.

**Background and origins…**

During the 1970s, the Yakovlev Yak-38, then the Soviet Navy's only operational carrier-based fixed-wing combat aircraft, was found to be unable to undertake its role due to limited range and payload, which severely hampered the capability of the Soviet Navy's Project 1143 carriers. It was decided to develop a bigger and more potent carrier capable of operating STOL aircraft. During the assessment period, a number of carriers were studied; the Project 1160 carrier would have been able to operate the MiG-23s and Su-24s, but was abandoned due to budget constraints. Design efforts were then concentrated on the Project 1153 carrier, which would have accommodated the Su-25s and the proposed MiG-23Ks and Su-27Ks. Sufficient funding was not secured, and the Navy looked at the possibility of a fifth, and larger, Project 1143 carrier, modified to allow for Yak-141, MiG-29K and Su-27K operations.

**PIC 01d**

To prepare for the operations of the Su-27K and the rival MiG-29K on-board the new carrier, work proceeded on the development of the steam catapult, arresting gear, optical and radio landing systems. The pilots were trained at a new establishment in Crimea, named NITKA, for Aviation Research and Training Complex. In 1981, the Soviet government ordered the abandonment of the catapult system as part of an overall downsize of Project 1143.5 carriers, which also included cancelling the fifth Project 1143 carrier and the *Varyag*. A take-off ramp was installed at the complex, where take-offs would be executed to ensure that the Su-27Ks and MiG-29Ks would be able to operate from carriers. Both Sukhoi and Mikoyan modified their prototypes to validate the take-off ramp. Three Sukhoi T10s (−3, −24 and −25), along with a Su-27UB, were used for take-offs from the simulated ramp. The first of these tests were undertaken by Nikolai Sadovnikov on 28 August 1982. Flight tests indicated the need for a change in ramp design, and it was modified to a ski-jump profile.




Conceptual designs of the Su-27K commenced in 1978. On 18 April 1984, the Soviet government instructed Sukhoi to develop an air defence fighter; Mikoyan was ordered to build a lighter multirole

fighter. Full-scale design of the Su-27K soon started as the "T-10K" under the guidance of Konstantin Marbyshev. Nikolai Sadovnikov was appointed the design bureau's Chief Test Pilot for the programme. By November 1984, conceptual design had passed its critical design review, with the detailed design finalised in 1986. The two prototypes were constructed in conjunction with KnAAPO in 1986–1987.

**Testing…**

The first Su-27K prototype, piloted by Viktor Pugachyov, made its maiden flight on 17 August 1987 at the NITKA facility; the second followed on 22 December. Flight tests continued at NITKA, where Su-27Ks and MiG-29Ks demonstrated and validated the feasibility of ski-jump operations. The pilots also practised no-flare landings before making an actual landing on a carrier deck. It was another two years before the *Tbilisi*, subsequently renamed *Admiral Kuznetsov*, left the shipyard.

Viktor Pugachyov, piloting the second Su-27K, became the first Russian to conventionally land aboard an aircraft carrier on 1 November 1989. It was found that the carrier's jet blast deflectors were too close to the engine nozzles when raised at an angle of 60°; thus an improvised solution held the deflectors at 45°. However, when the aircraft was in front of it for longer than the maximum six seconds, the shield's water pipes exploded. The pilot, Pugachyov, reduced engine throttle, accidentally causing the detents (blocks used to restrain aircraft from accelerating) to retract and the fighter to move forwards. The aircraft was quickly stopped; Pugachyov later took off without the use of blast deflectors or detents. Since then, a Kamov Ka-27PS rescue helicopter was flown close to the carrier in the event of an accident.

During the following three-week period, 227 sorties were amassed, along with 35 deck landings. Flight testing continued afterwards, and on 26 September 1991, naval pilots began testing the Su-27K; by 1994, it had successfully passed the State Acceptance Trials. During 1990–1991, seven production aircraft were rolled out.

**Further developments…**

The first of two known versions of the Su-33, the twin-seat Su-33UB, made its first flight in April 1999. The aircraft, piloted by Viktor Pugachyov and Sergey Melnikov, flew for 40 minutes near Ramenskoye Airport. The Su-33UB (Initially named as Su-27KUB, *"Korabelny Uchebno-Boevo*", or "carrier combat trainer") was planned to be a trainer, but with the potential to fill other roles. Notable improvements over the Su-33 included a revised forward fuselage and leading edge slats, bigger wings and stabilisers.

In 2010, Sukhoi developed an updated version of the Su-33; flight trials began in October 2010. This modernised Su-33 was to compete with a potential Chinese indigenous version of the original Su-33, and to encourage orders from the Russian Navy. Major upgrades to the aircraft included more powerful (132 kN, 29,800 lbf) AL-31-F-M1 engines and a larger weapons carriage; upgrades to the radar and weapons were not possible at the time due to funding constraints. According to military author Richard Fisher, it has been speculated that further modifications to a new production batch would include a phased-array radar, thrust-vectoring nozzles, and long-range anti-ship missile.

**Design…**

To adapt the original Su-27 for naval operations, Sukhoi first incorporated a reinforced structure and undercarriage to withstand the great stress experienced upon landing, particularly quick descents and non-flare landings (landings where the aircraft does not 'float' and slow its decent rate just prior to touchdown). The leading edge slats, flaperons and other control surfaces are enlarged to provide increased lift and manoeuvrability at low speeds, although the wingspan remains unchanged. The wings feature double-slotted flaps and outboard drooping ailerons; in total, the refinements enlarge the wing area by 10–12%. The wings and stabilisers are modified for folding to maximise the number of aircraft the carrier can accommodate and to allow ease of movement on deck. The aircraft is outfitted with more powerful turbofan engines to increase thrust-to-weight ratio, as well as an in-flight refuelling probe. The Su-33 sports canards that shorten the take-off distance and improve manoeuvrability, but have required reshaping of the leading edge root extensions (LERX). The rear radome is shortened and reshaped to prevent its striking the deck during high-Alpha (angle of attack) landings.

Compared with the rival MiG-29K, the Su-33's maximum take-off weight (MTOW) is 50% higher; fuel capacity is more than double, allowing it to fly 80% further at altitude (or 33% at sea level). The MiG-29K can spend as much time as the Su-33 on station by using external fuel tanks, but this limits its ordnance capacity. The Su-33 can fly at speeds as low as 240 km/h (149 mph), in comparison the MiG-29K needs to maintain a minimum of 250 km/h (155 mph) for effective control. However, the MiG-29K carries more air-to-ground munitions than the Su-33. The Su-33 is more expensive and physically larger than the MiG-29K, limiting the numbers able to be deployed on an aircraft carrier.

The Su-33 carries guided missiles such as the R-73 (four) and R-27E (six) on twelve hard points, supplemented by the 150-round 30 mm GSh-30-1. It can carry an assortment of unguided rockets, bombs and cluster bombs for secondary air-to-ground missions. The aircraft can be used in both night and day operations at sea. The radar used, "Slot Back", has been speculated to have poor multi-target tracking, making the Su-33 reliant on other radar platforms and airborne warning and control system (AWACS) aircraft like the Kamov Ka-31 early-warning helicopter. The R-27EM missiles have the capability to intercept anti-ship missiles. The infra-red search and track (IRST) system is placed to provide better downward visibility.

**Operational history**

**Soviet Union and Russia…**

The Su-27K entered service in the mid-1990s. From December 1995 to March 1996, *Admiral Kuznetsov* set sail in the Mediterranean Sea, carrying two Su-25UTGs, nine Ka-27s, and 13 Su-27Ks. However, the aircraft officially entered service 31 August 1998 with the 279th Naval Fighter Regiment of the Northern Fleet based at Severomorsk-3, by which time it was officially designated the "Su-33".The Russian Navy currently operates 19 Su-33s, however in the long term these need to be replaced.

With the break-up of the Soviet Union, the Russian Navy was dramatically downsized, with many shipbuilding programmes stopped.

Had *Varyag*, *Oryol* and *Ulyanovsk*been commissioned, a total of 72 production airframes would have been built; the early-airborne warning and MiG-29K would also have proceed, instead of being abandoned. Only 24 examples were built at the time *Varyag* was sold to China. In 2009, the Russian Navy announced an order for 24 MiG-29Ks to replace the Su-33, to be delivered from 2011 to 2015. However, in 2015, Major-General Igor Kozhin, the Commander of the Navy's Air and Air Defence Forces, announced that a second fighter regiment would be formed to augment the current force, with the intention that the MiG-29s be used by this new unit, with the existing Su-33s refurbished for further use. A contract for the installation of the SVP-24 targeting system on the Su-33s was signed in the spring 2016. The first modernised aircraft was delivered as of September of the same year.

**Failed bids…**

Internationally, the People's Republic of China was identified as a possible export customer. Russia's state weapons exporter, Rosoboronexport, was previously negotiating an order of 50 aircraft totalling US$2.5 billion. China would have initially acquired two aircraft worth $100 million for testing and then have further options to acquire an additional 12–48 aircraft. The fighters were intended to be used with the fledgling Chinese aircraft carrier programme, with the former Soviet carrier *Varyag* as the centrepiece.

At the sixth Zhuhai Airshow in late 2006, Lieutenant General Aleksander Denisov publicly confirmed at a news conference that China had approached Russia for the possible purchase of Su-33s, and negotiations were to start in 2007. On 1 November 2006, the Xinhua News Agency published the information on its military website that China planned to introduce the Su-33. China had previously obtained a manufacturing license for Su-27 production.

Sukhoi is working on a more advanced version, the Su-33K, a development to integrate the advanced technologies of the Su-35 fighters into the older Su-33 airframe. However, worries over other Chinese intentions emerged when it was reported that China had acquired one of the T-10Ks, an Su-33 prototype, from Ukraine, potentially to study and reverse engineer a domestic version. Various aircraft are alleged to have originated partially from the Su-33, such as the Shenyang J-11B and the Shenyang J-15. Photos of Shenyang aircraft designers posing in front of a T-10K carrier based fighter prototype strongly suggest that the J-15 is directly related to T-10K. Negotiations stagnated as the Shenyang Aircraft company sought to reduce Russian content in the aircraft, while Sukhoi wanted to ensure a level of income from future upgrades and modifications made to the J-11.

India was also viewed as another potential operator of the Su-33. The Indian Navy planned to acquire the Su-33 for its aircraft carrier, the INS *Vikramaditya*, the refurbished Soviet *Admiral Gorshkov*, which was sold to India in 2004. In the end, the rival MiG-29K was opted for, because of the Su-33's outdated avionics. The size of the Su-33 reportedly led to concerns over potential difficulties in operating it off the Indian carriers, a constraint not shared by the smaller MiG-29K.







**Combat history…**

On 15 November 2016, Sukhoi Su-33 fighter jets began conducting combat flights over Syria from *Admiral Kuznetsov*'s flight deck in the ongoing Syrian civil war. On 5 December 2016, a Su-33 fighter jet crashed into the Mediterranean after failed to land on the carrier for a second time due to an arrestor cable problem.

**General characteristics:**

- Crew: 1
- Length: 21.19m (69.5 ft)
- Wingspan: 14.70 m (48.25 ft)
- Height: 5.93 m (19.5 ft)
- Wing area: 67.84 $m^2$ (730 $ft^2$)
- Empty weight: 18,400 kg (40,600 lb)
- Loaded weight: 29,940 kg (66,010 lb)
- Max. take-off weight: 33,000 kg (72,752 lb)
- Wingspan, wings folded: 7.40 m (24.25 ft)
- Powerplant: 2 × AL-31F3 afterburning turbofans
    - Dry thrust: 74.5 kN (16,750 lbf) each
    - Thrust with afterburner: 125.5 kN (28,214 lbf) each

**Performance:**

- Maximum speed: Mach 2.17 (2,300 km/h, 1,430 mph) at 10,000 m (33,000 ft) altitude
- Stall speed: 240 km/h (150 mph)
- Range: 3,000 km (1,864 mi)
- Service ceiling: 17,000 m (55,800 ft)
- Rate of climb: 246 m/s (48,500 ft/min)
- Wing loading: 483 kg/$m^2$; (98.9 lb/$ft^2$)
- Thrust/weight: 0.83
- Maximum *g*-load: +8 *g* (+78 $m/s^2$)
- Landing speed: 240 km/h (149 mph)

**Armament:**

- 1× 30 mm GSh-30-1 cannon with 150 rounds
- Up to 6,500 kg (14,300 lb) of munitions on twelve external hard points, including:
    - 6× R-27R/T/ET/EM and 4× R-73 air-to-air missile
    - Various bombs and rockets
    - Electronic countermeasure (ECM) pods

**The Kinetic kit…**

The kit comes as a nicely produced package within a solid box with a nice bit of artwork showing an Su-33 in flight. Upon opening the box you will find it filled to the top with individually wrapped light grey sprues and several smaller boxes that contain items such as the slide moulded missiles, nose cone and the intakes. There is a nice sheet of decals (printed by Cartograf), a small PE fret and an instruction booklet. In summary - first impressions are favourable so now let's see if the build lives up to my expectations.

**References used:**

http://scalemodels.ru/modules/photo/viewcat_cid_104.html

**Aftermarket Extras:**

• Eduard PE, interior and exterior

• Aero Masks Su-33 Camouflage masks

• PE Ladder

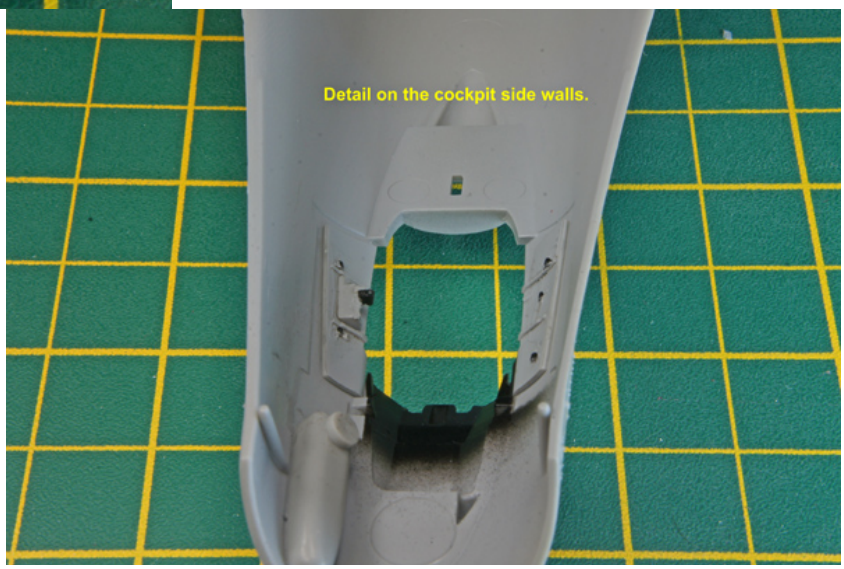
**Construction**

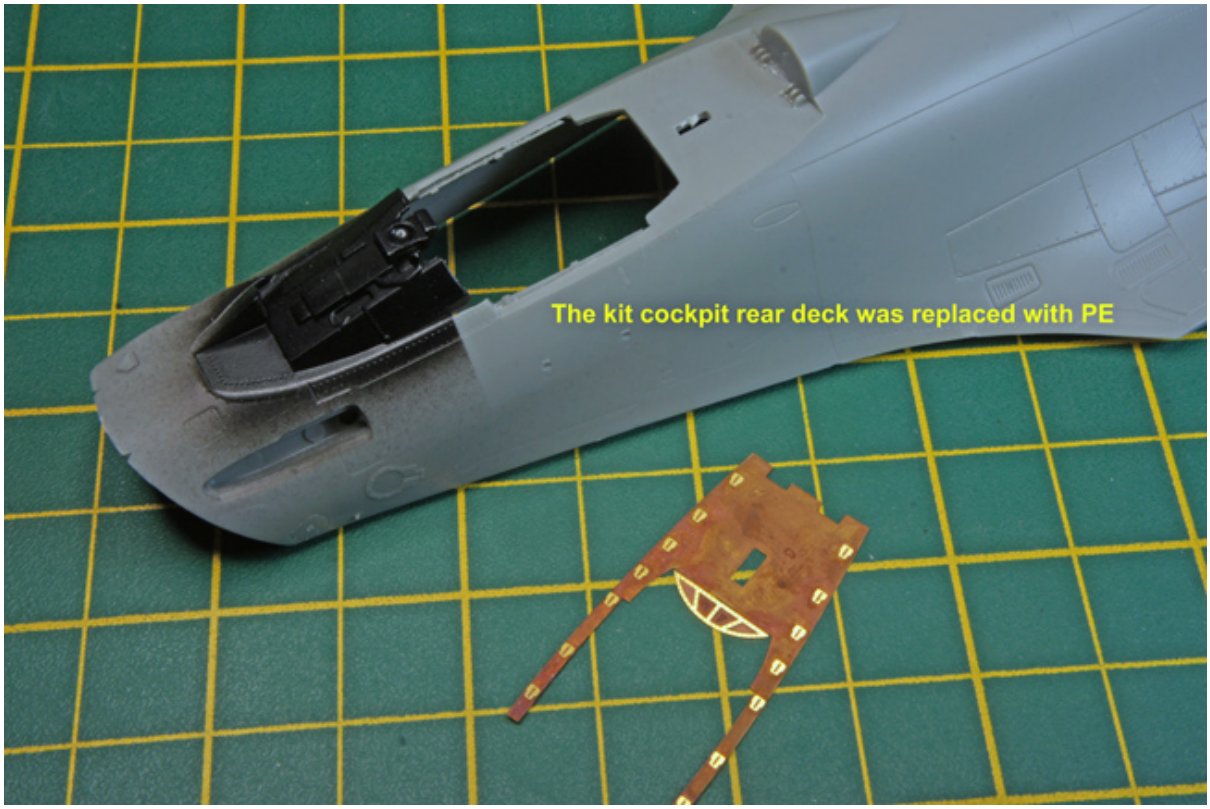
If you've ever built a model of a Flanker the kit break down and construction sequence of this kit will be quite familiar. The main fuselage is split into upper and lower halves and the idea is to insert the cockpit and wheel bays into interior of the halves and then join them together. The only slight variation I found with this kit (and I did like it) was the lower engine intakes were attached to the lower fuselage half before joining the upper and lower halves together but more about this later. One thing that I will mention now though are the instructions; they are very poor. The sequence of construction is logical but the clarity of the location of many of the parts leaves a lot to be desired and quite a bit of head scratching and trail fitting was required to get things to fit correctly. I have tried to get decent pictures of these areas in this review to help you along if you build this model.

With these points clarified it time to start the build and we start of with the cockpit. From the box this is ok and if you had the canopy closed it would do the job but with the canopy open I opted to use Eduard's excellent colour PE set. This covers the cockpit interior, ejection seat and parts of the exterior – in my opinion it's well worth the money as it will definitely improve the look of your finished model. The pictures below show the finished interior, I'll do the seat later on in the build.

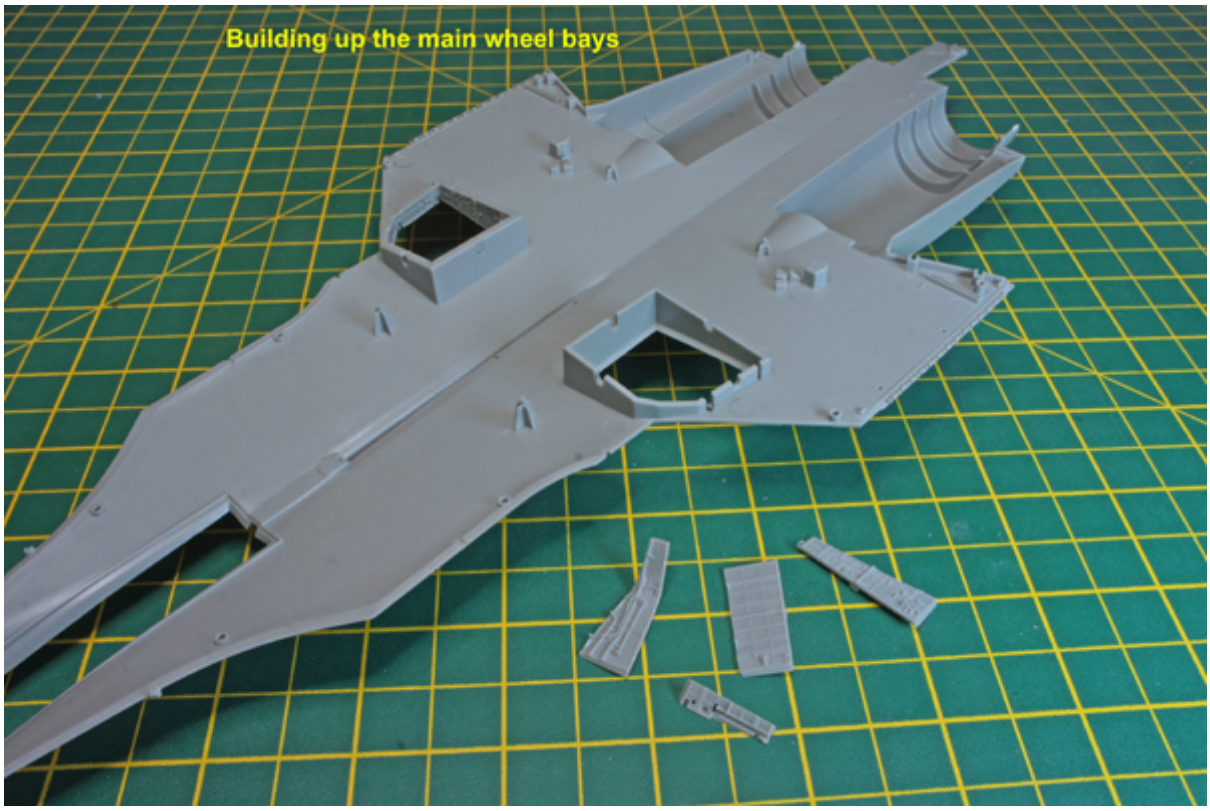


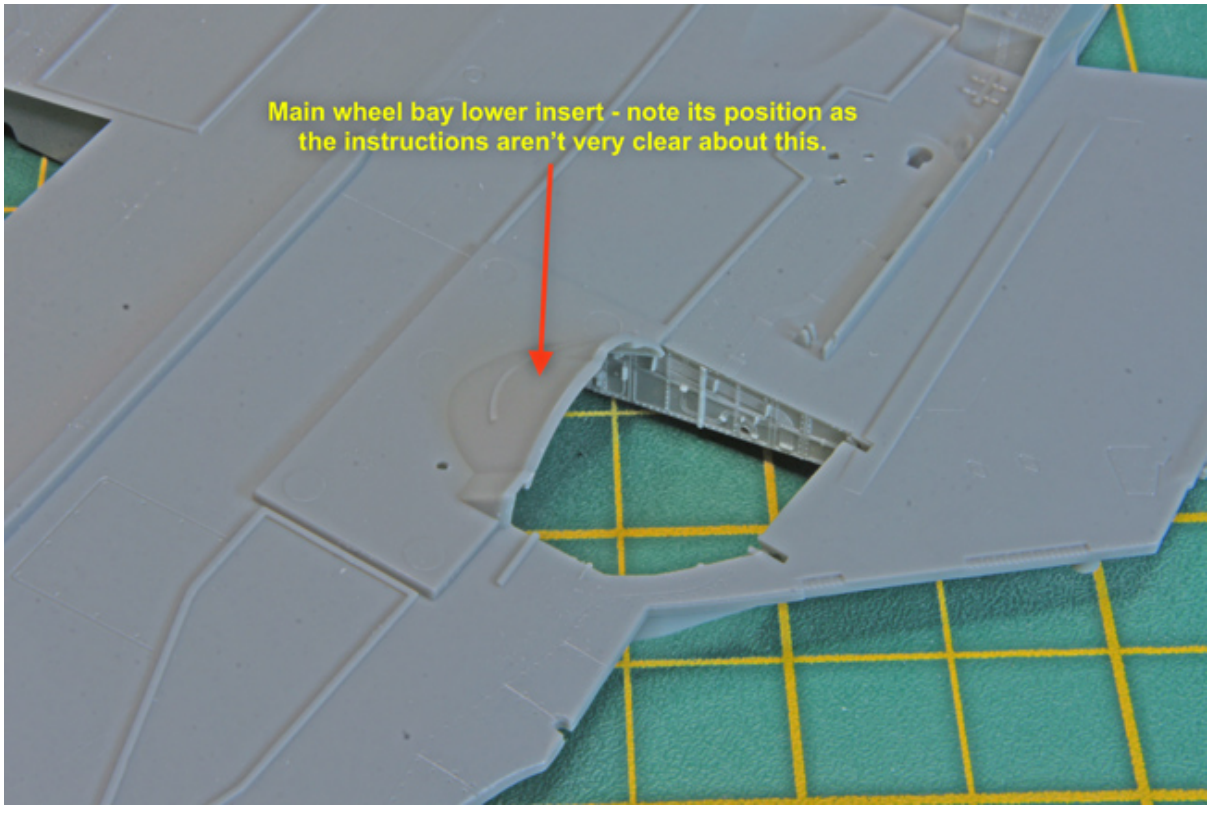

The PE instrument panel.
Sorry its a bit blurred but you get
an idea of the detail on it.


Detail on the cockpit side walls.


The kit cockpit rear deck was replaced with PE

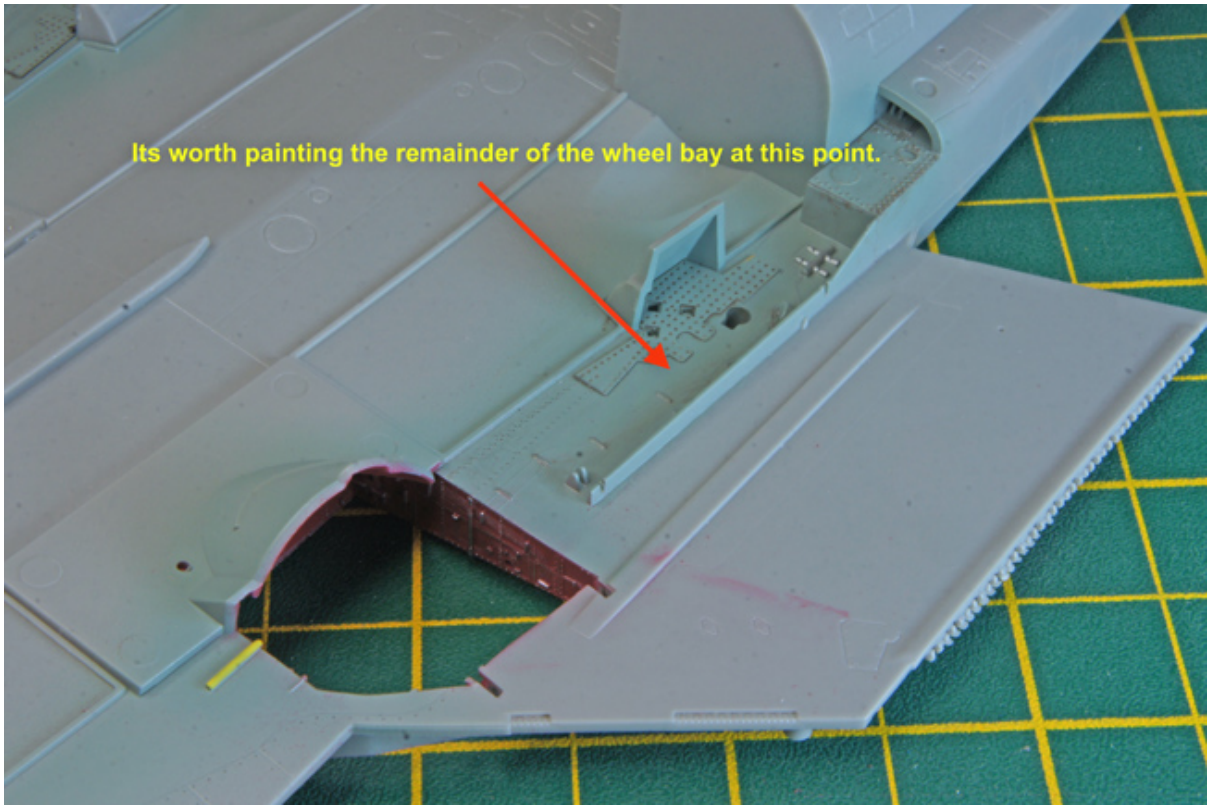
Next comes the wheel bays which are made up of several parts but all fit well into the lower fuselage. There are quite a few pipes and other bits to go into the bays, personally I left these off at this stage as they are quite delicate and liable to be damaged. The main wheel bays are red !!

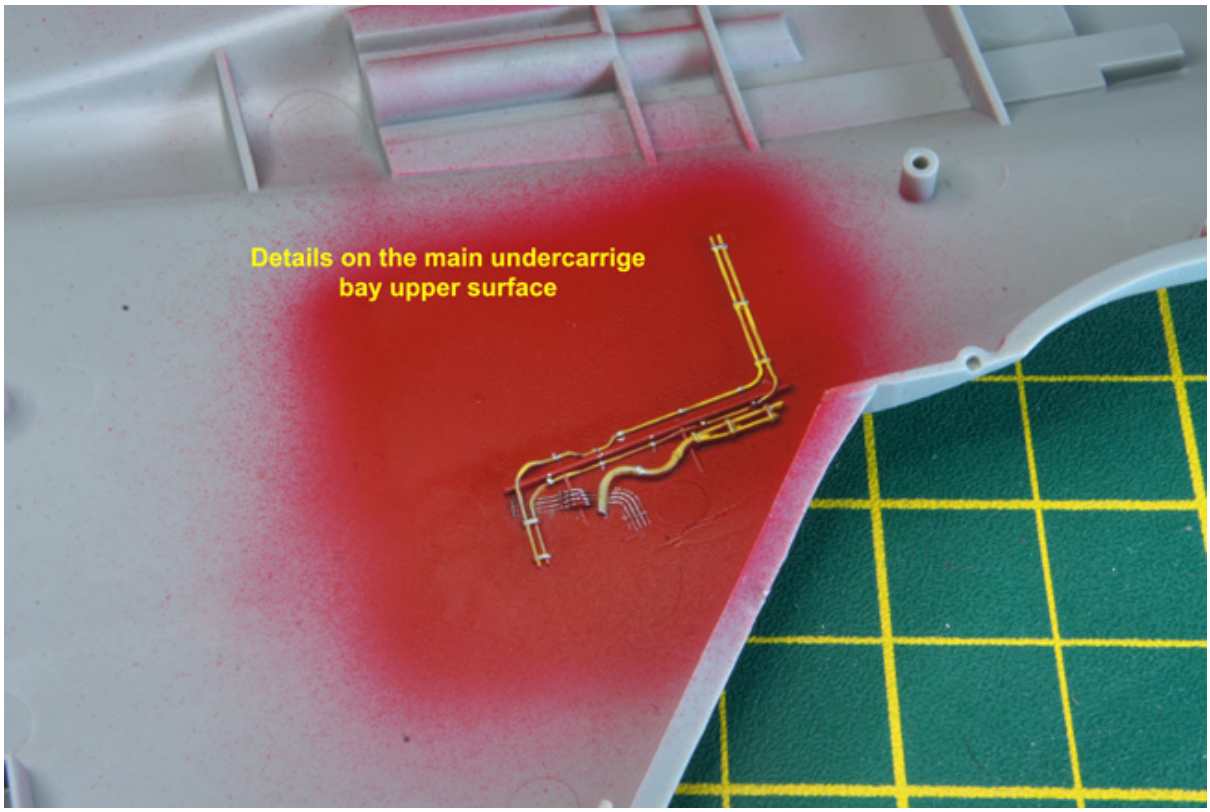


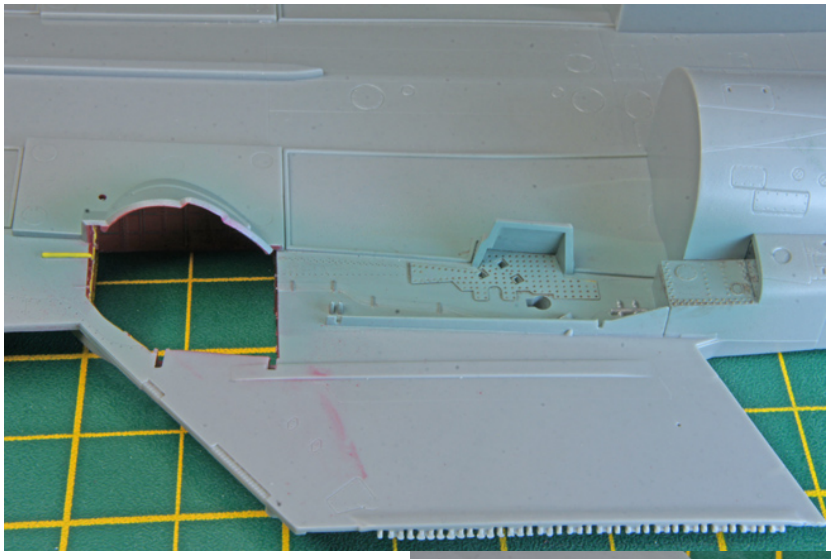



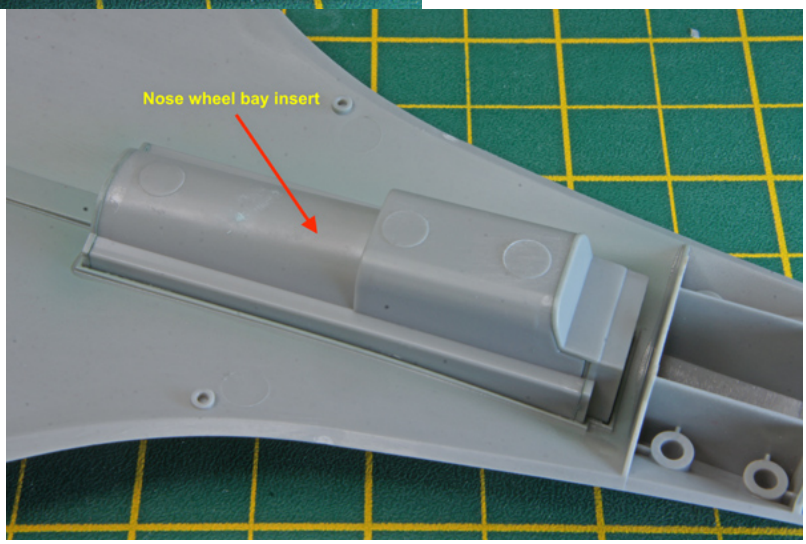

View of the insert from inside the fuselage

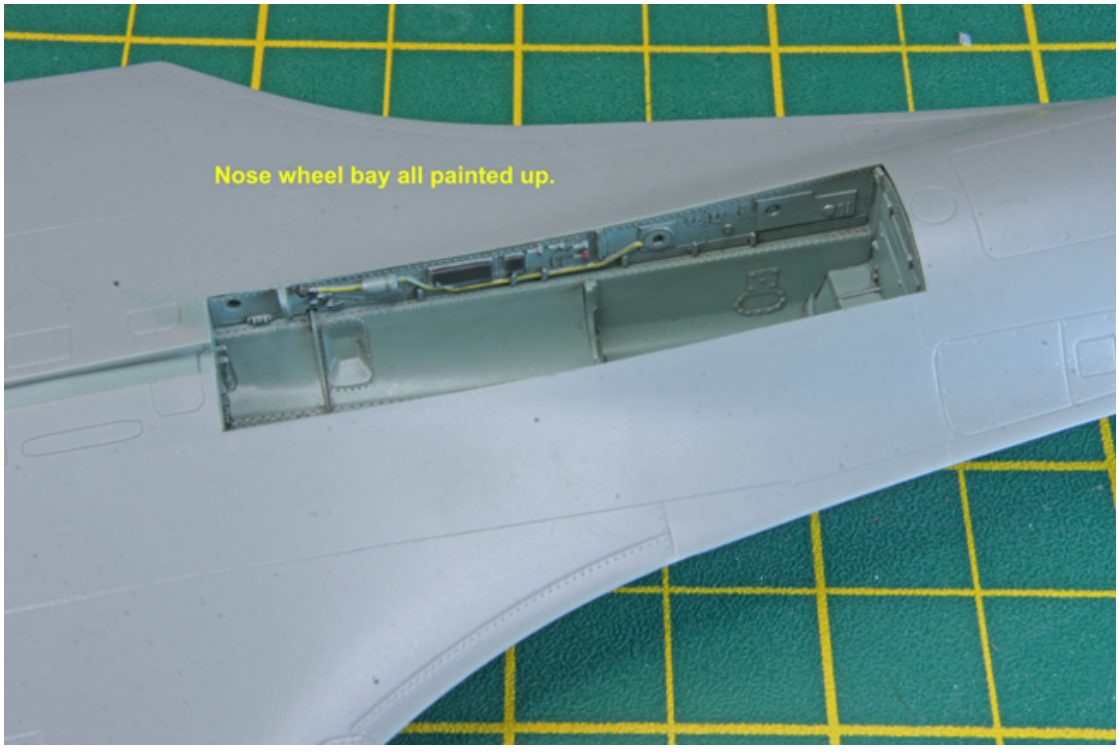

Yes it is supposed to be red !!


Its worth painting the remainder of the wheel bay at this point.

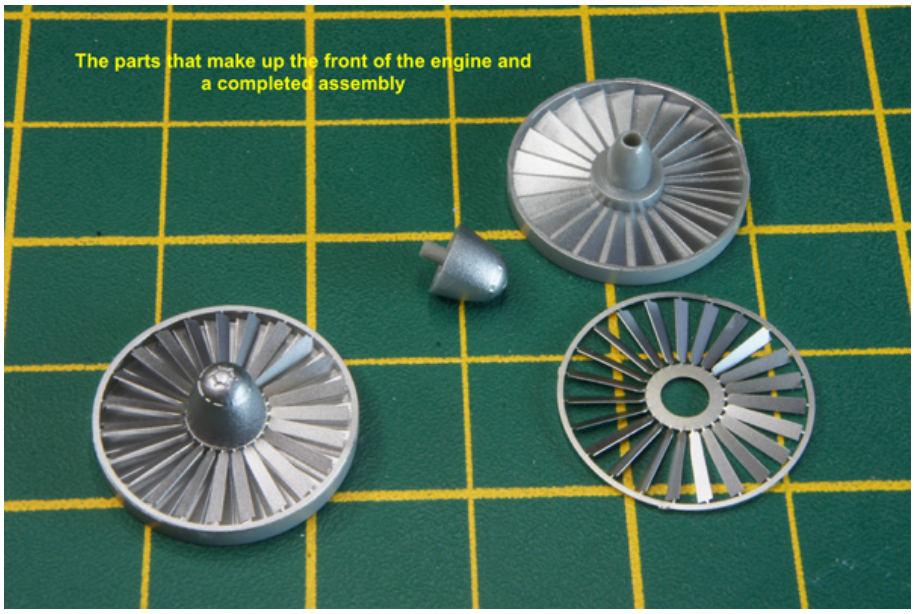

Details on the main undercarrige
bay upper surface

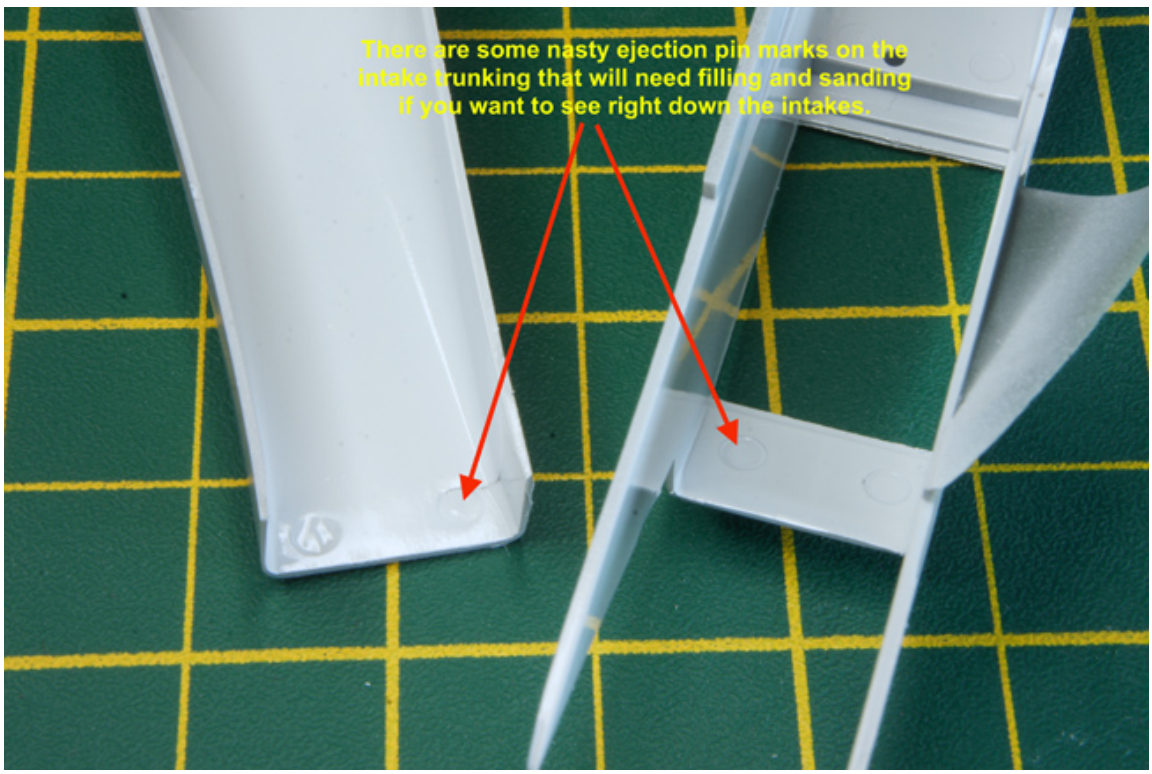


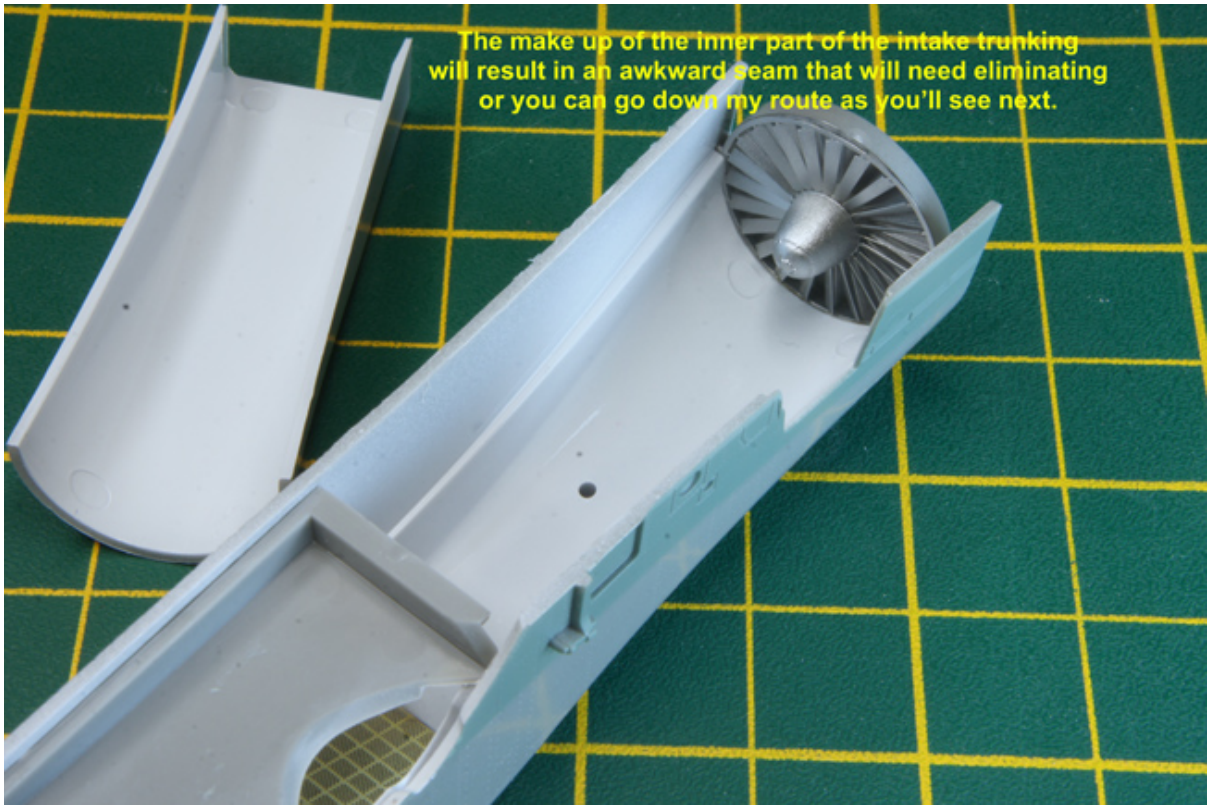

Nose wheel bay insert

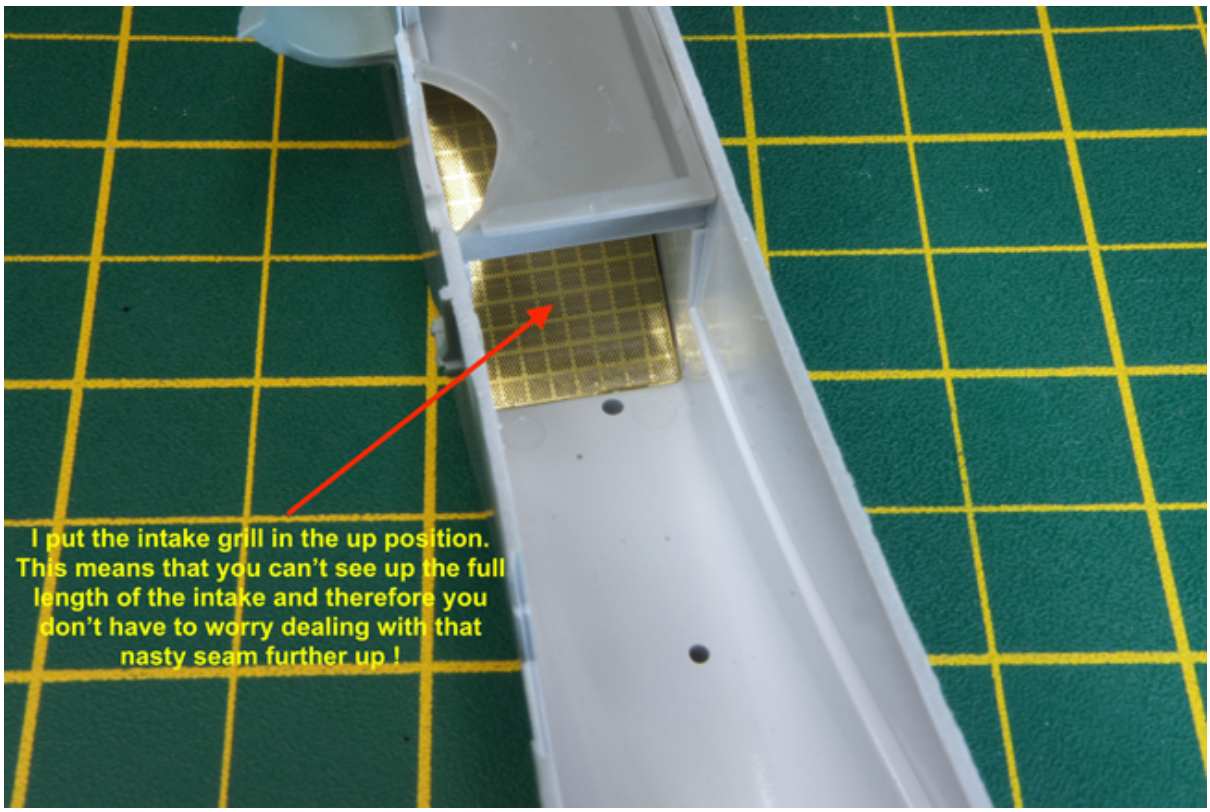

Nose wheel bay all painted up.

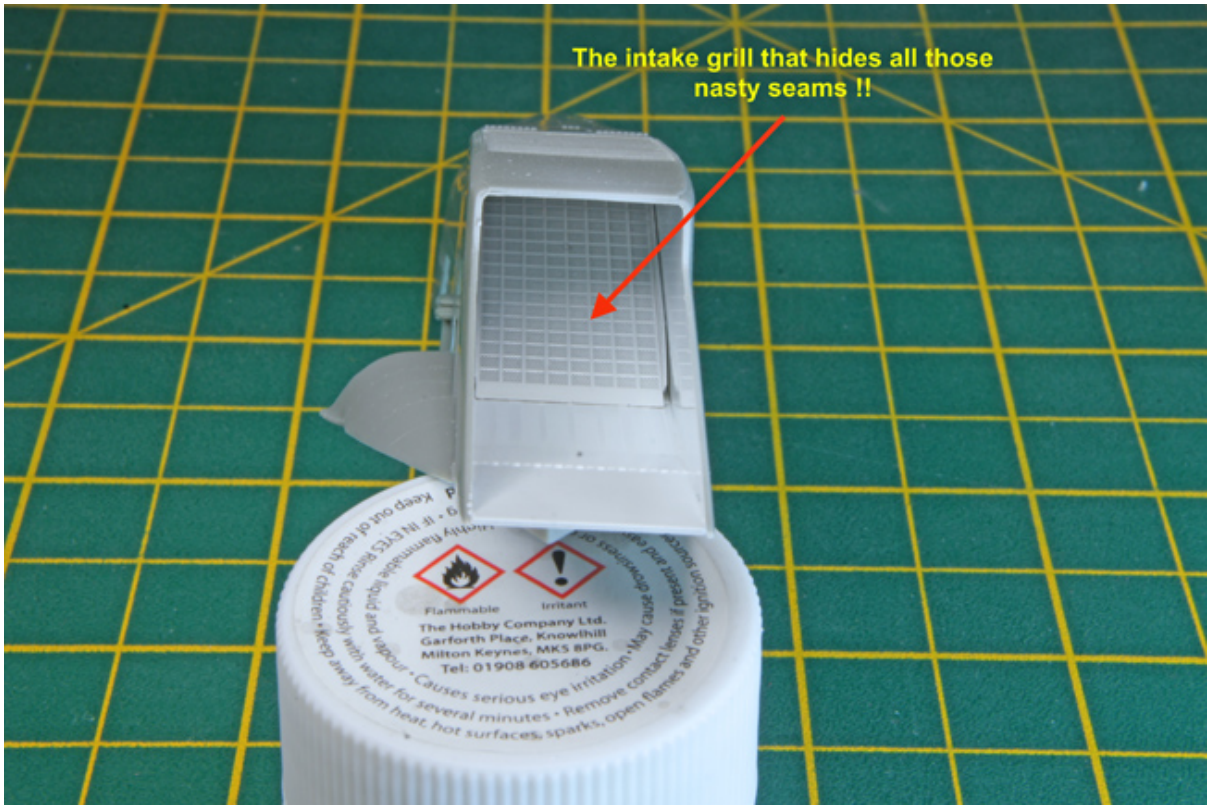
The engine intakes are next and these have some issues. Their break down means there is a nasty seam line down the inner half of the intake that will be a real pain to fix. There is an easy answer to this if you looking for one – have the PE intake screens in the up position so you can't see down the intakes. This solution is actually quite good and the grills do lead to a bit of interest in this area. I recommend that you build up the intakes as in my photos as the instructions are quite vague in how everything goes together. Attaching the intakes to the lower fuselage half before it joined to the upper half is definitely a good idea as it makes handling everything so much easier.

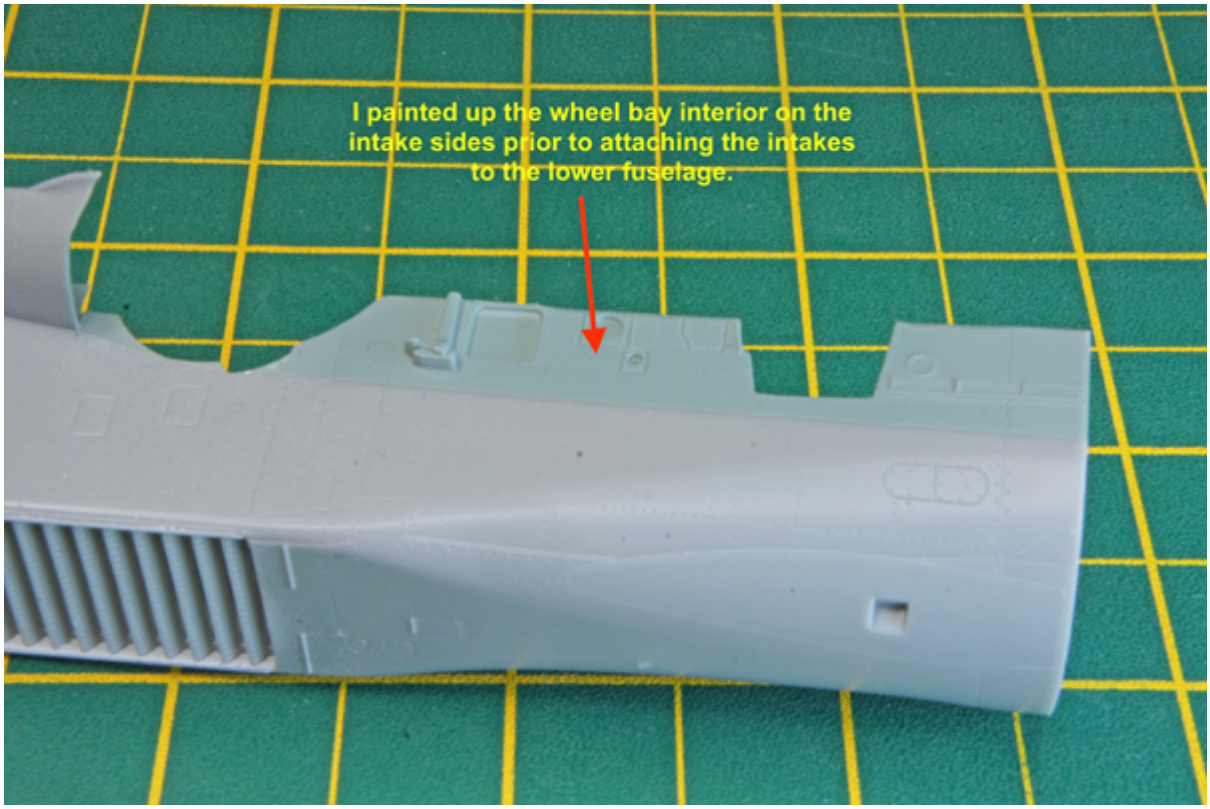


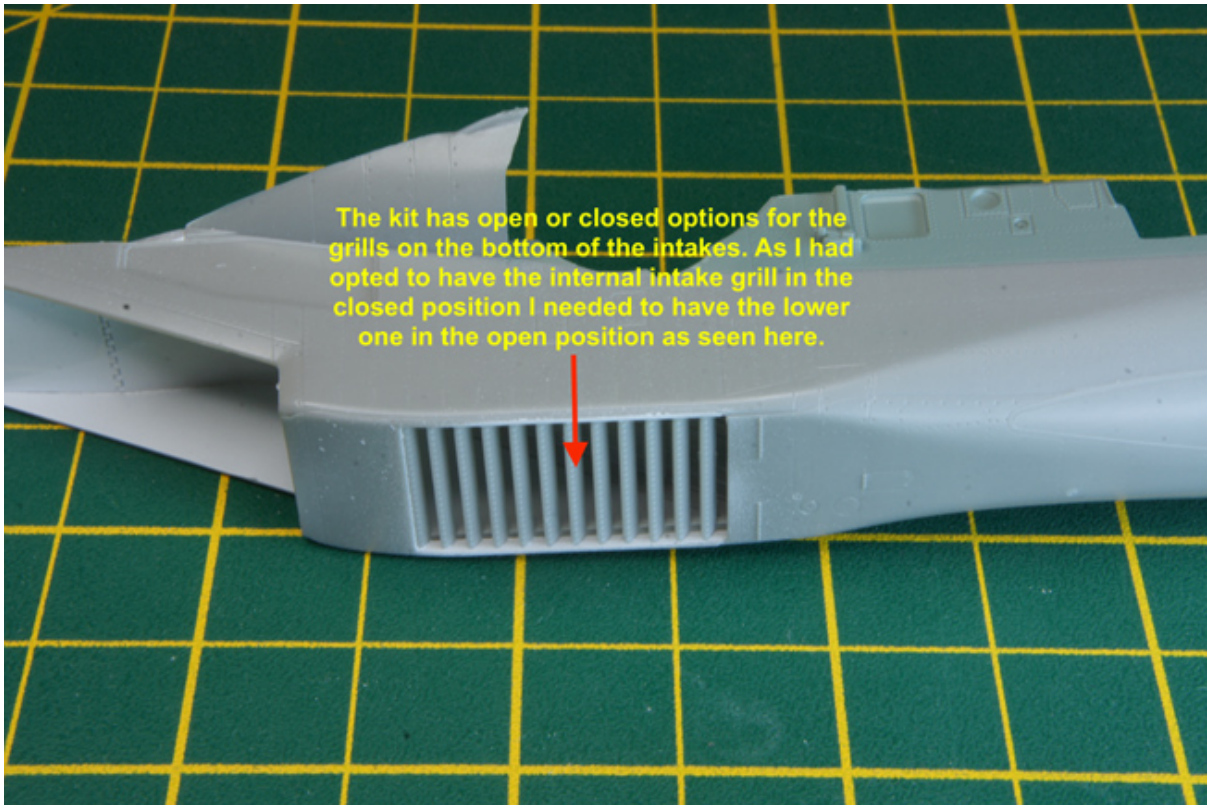




The make up of the inner part of the intake trunking
will result in an awkward seam that will need eliminating
or you can go down my route as you'll see next.

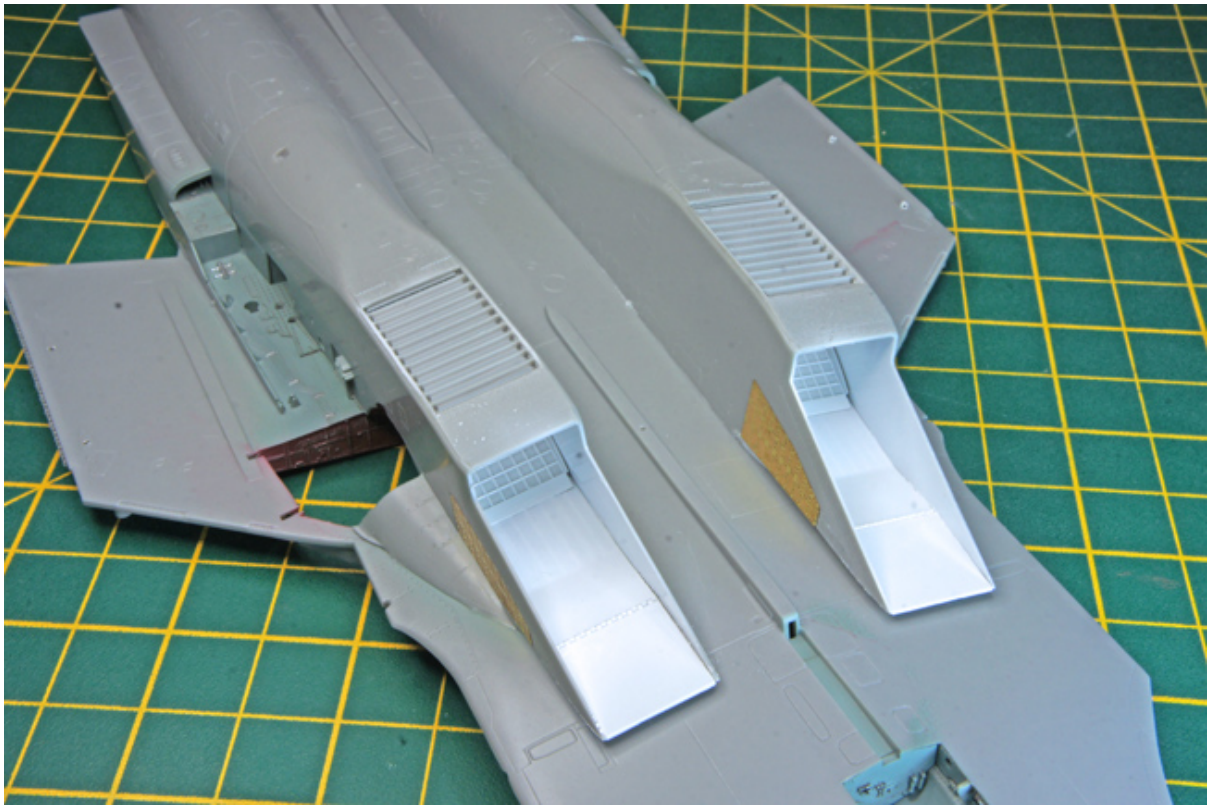

I put the intake grill in the up position.
This means that you can't see up the full
length of the intake and therefore you
don't have to worry dealing with that
nasty seam further up !


The intake grill that hides all those nasty seams !!
Flammable
Irritant
The Hobby Company Ltd.
Garforth Place, Knowlhill
Milton Keynes, MK5 8PG.
Tel: 01908 605686

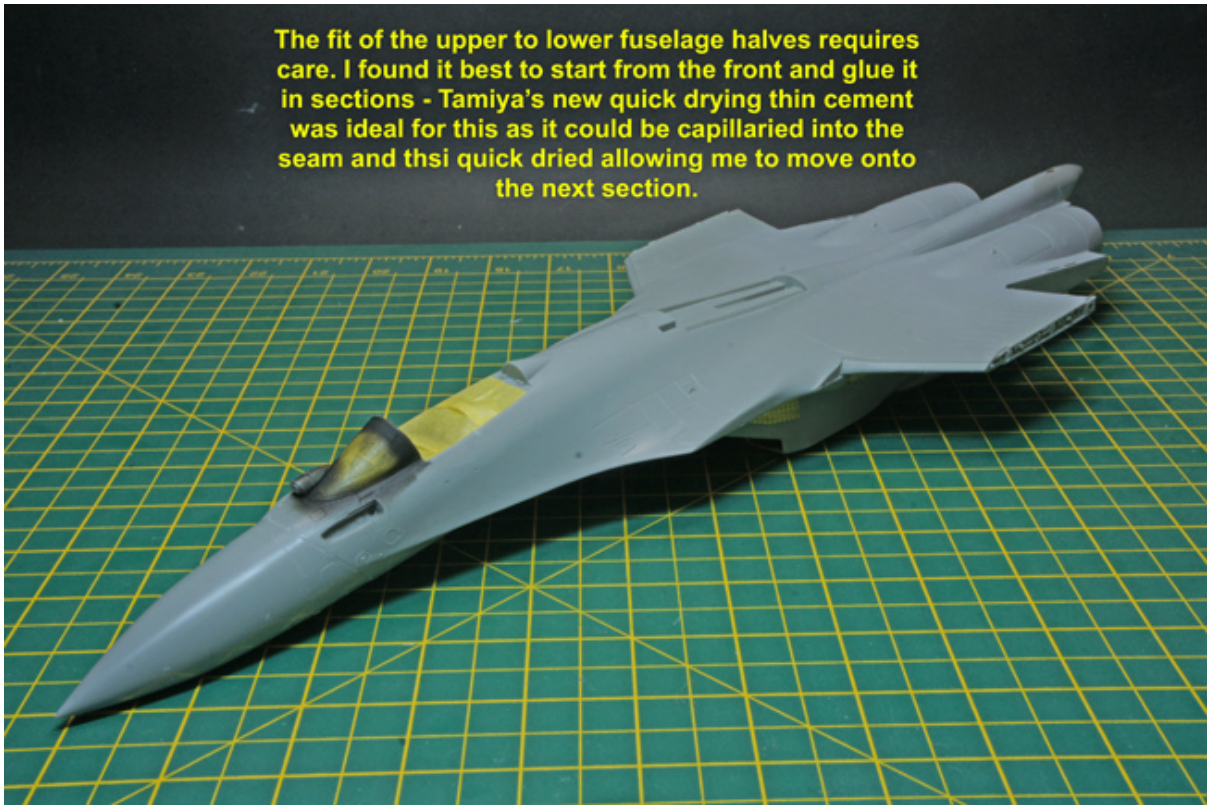

I painted up the wheel bay interior on the intake sides prior to attaching the intakes to the lower fuselage.


The kit has open or closed options for the grills on the bottom of the intakes. As I had opted to have the internal intake grill in the closed position I needed to have the lower one in the open position as seen here.

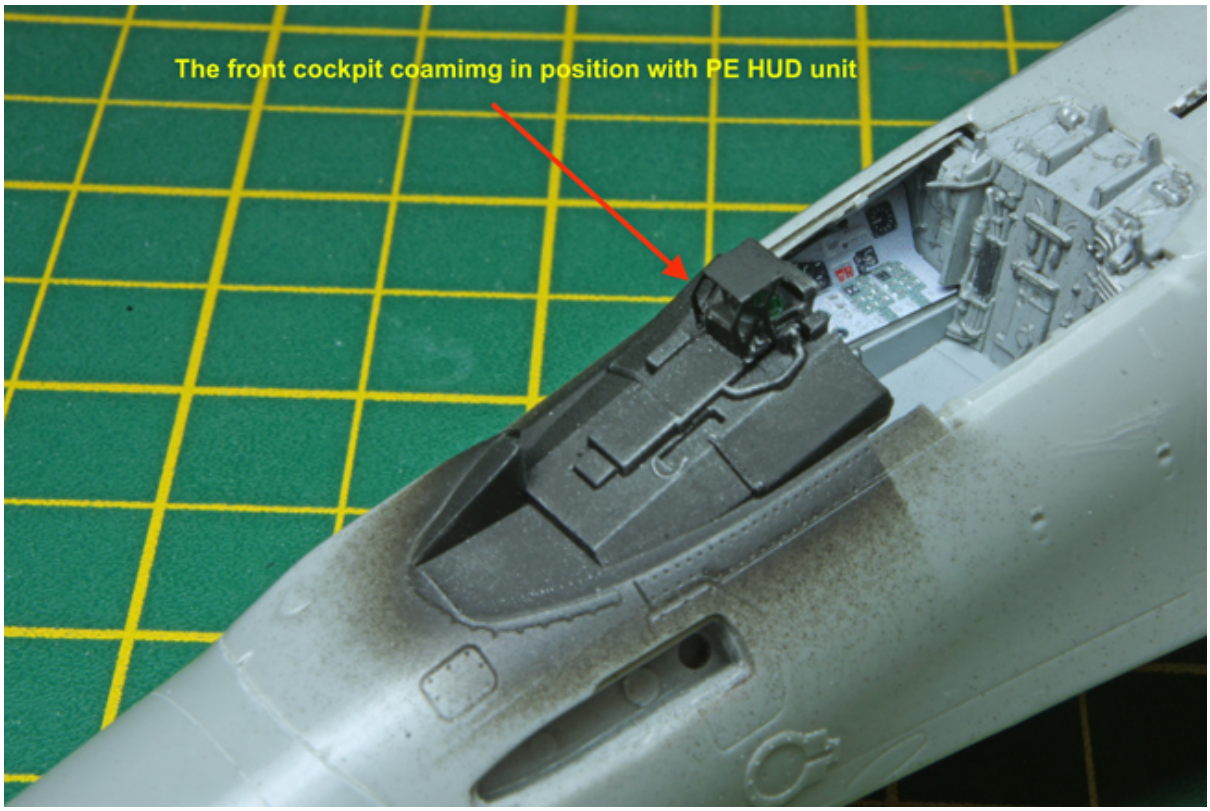

The fit of the intakes is quiet good with just a little filling and sanding required. Fitting the intakes to the lower fuselage before joining the two fuselage halves is definately a better option.



With the cockpit and wheel bays in place and the intakes attached the fuselage halves can be joined. I did this in stages using Tamiya's new quick setting thin cement and overall I was impressed with the fit of these two large parts. The nose can be attached next; a little sanding was required here but nothing serious. The front coaming and HUD unit need to be attached before the front canopy section is



added. Again, this all goes together well but take care when positioning the IRST housing as this sits particularly on the clear front canopy and it is easy to get glue where it shouldn't be!!



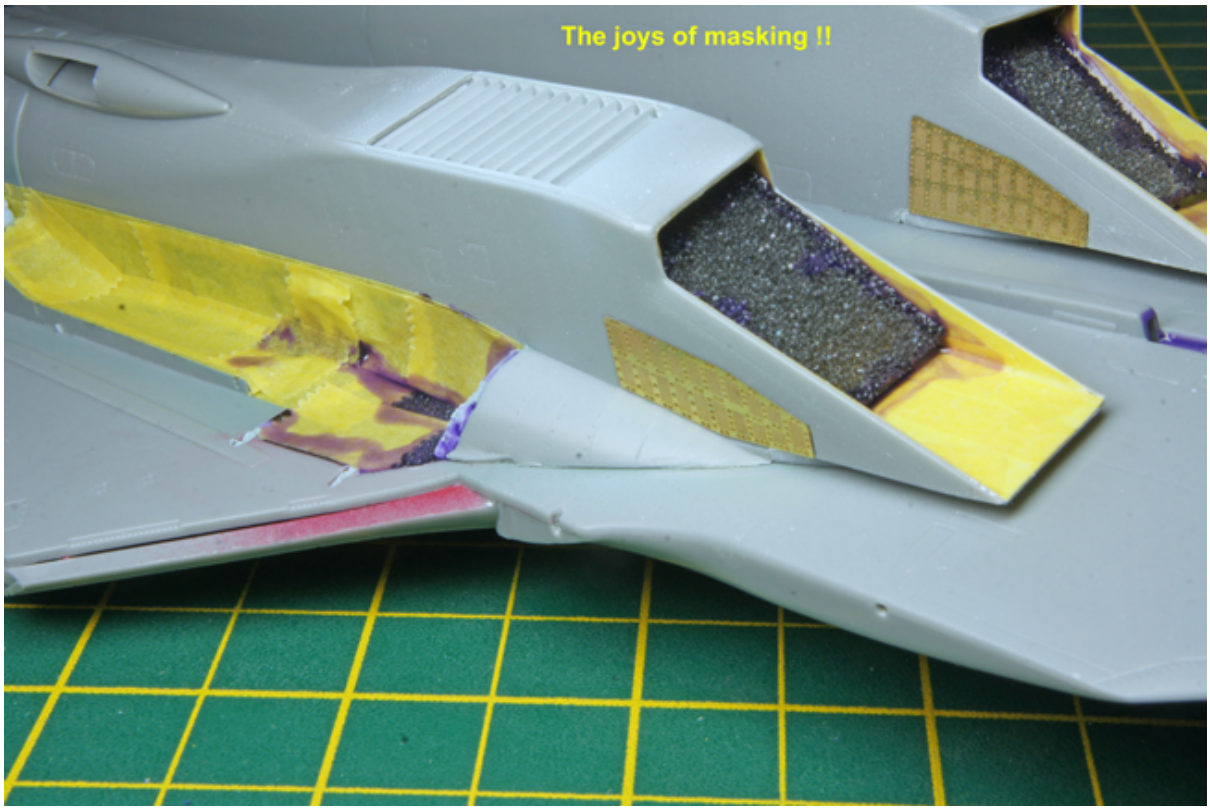


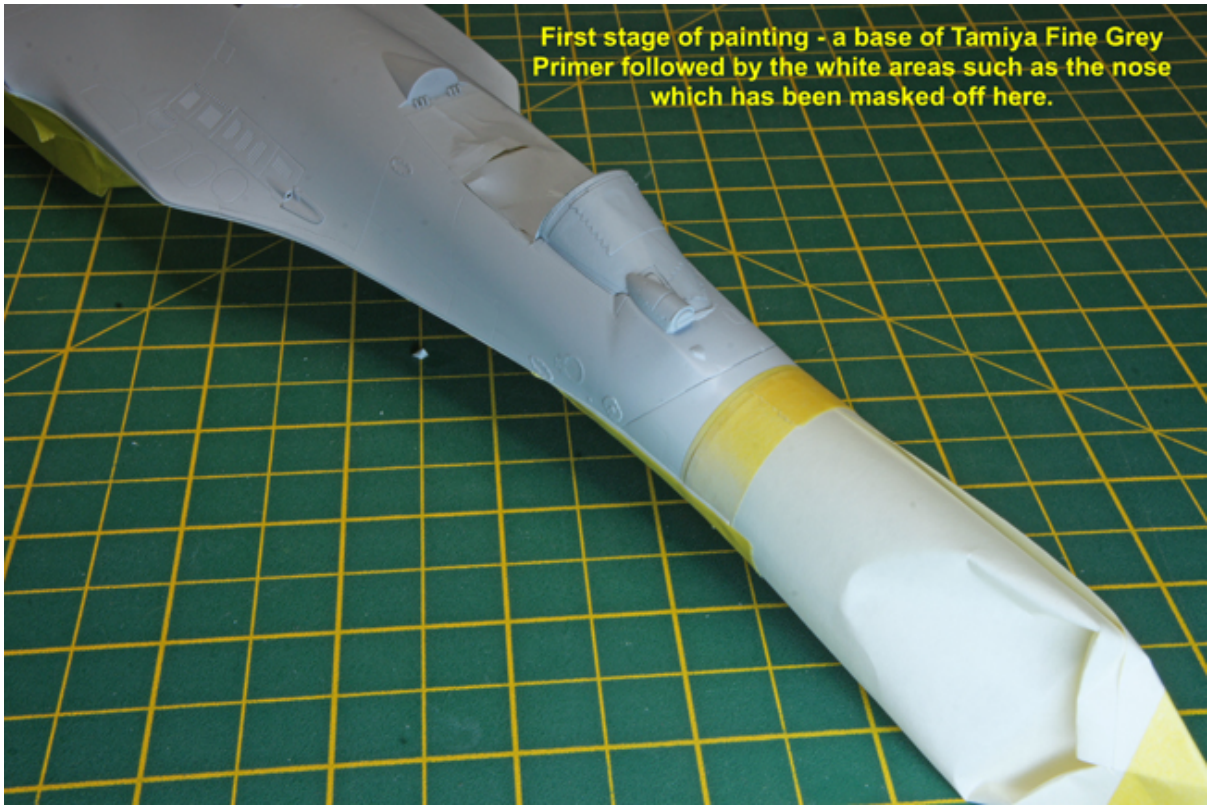


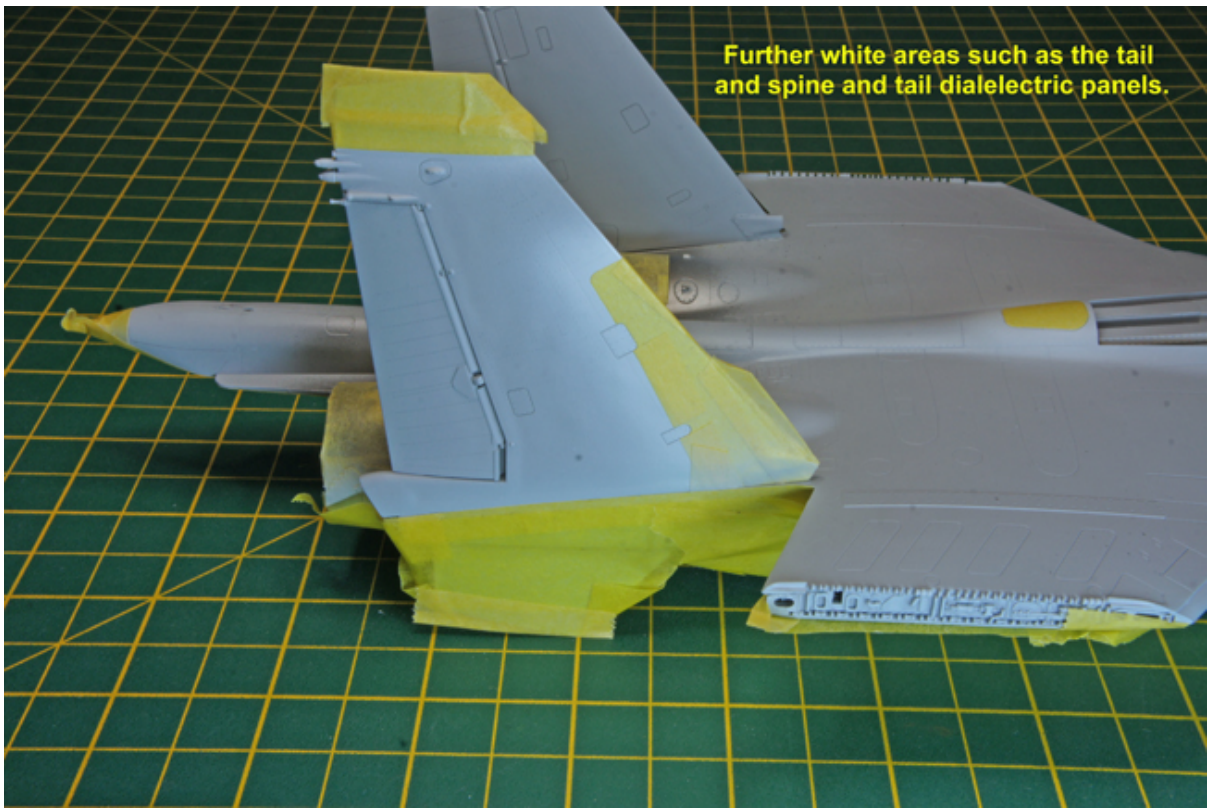


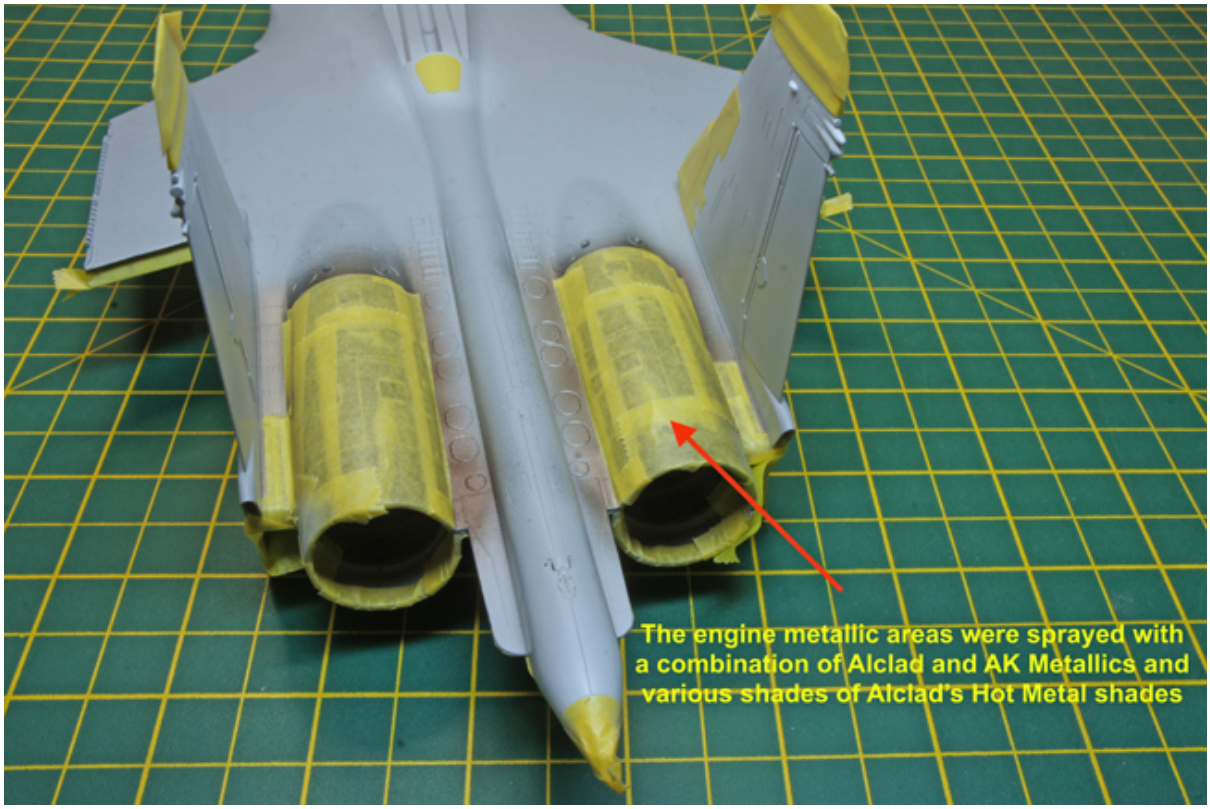
One thing I haven't mentioned up to now is the option to have the wings/ tailplanes/tail cone in the folded or extended position. The good news is I dry-fitted these parts in both positions and the fit is excellent so the choice is yours as to how you want display your model. I opted for the wings and tail planes folded and the tail cone closed.

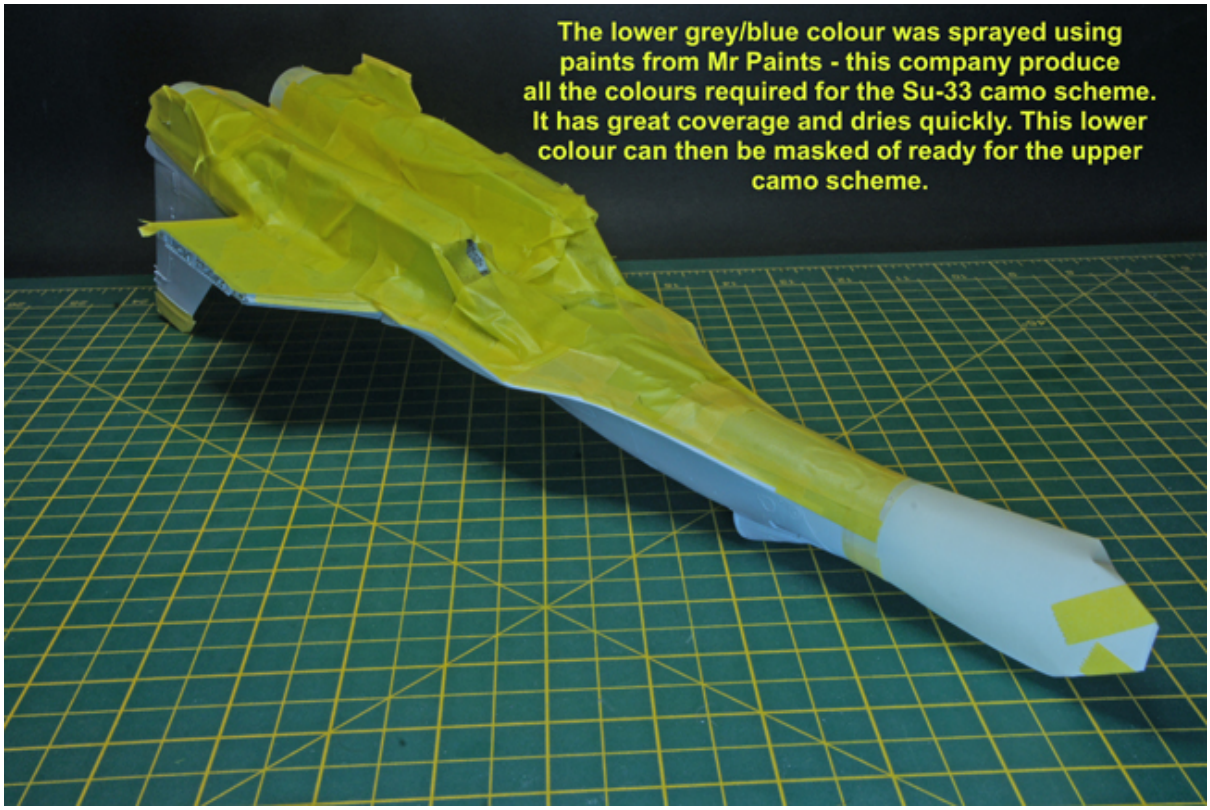
**Painting …**
The one great thing about modern Russian aircraft are the colour schemes available for them and the Su-33 is no exception. The aircraft has a 3-tone camouflage scheme of grey, light blue and dark blue.

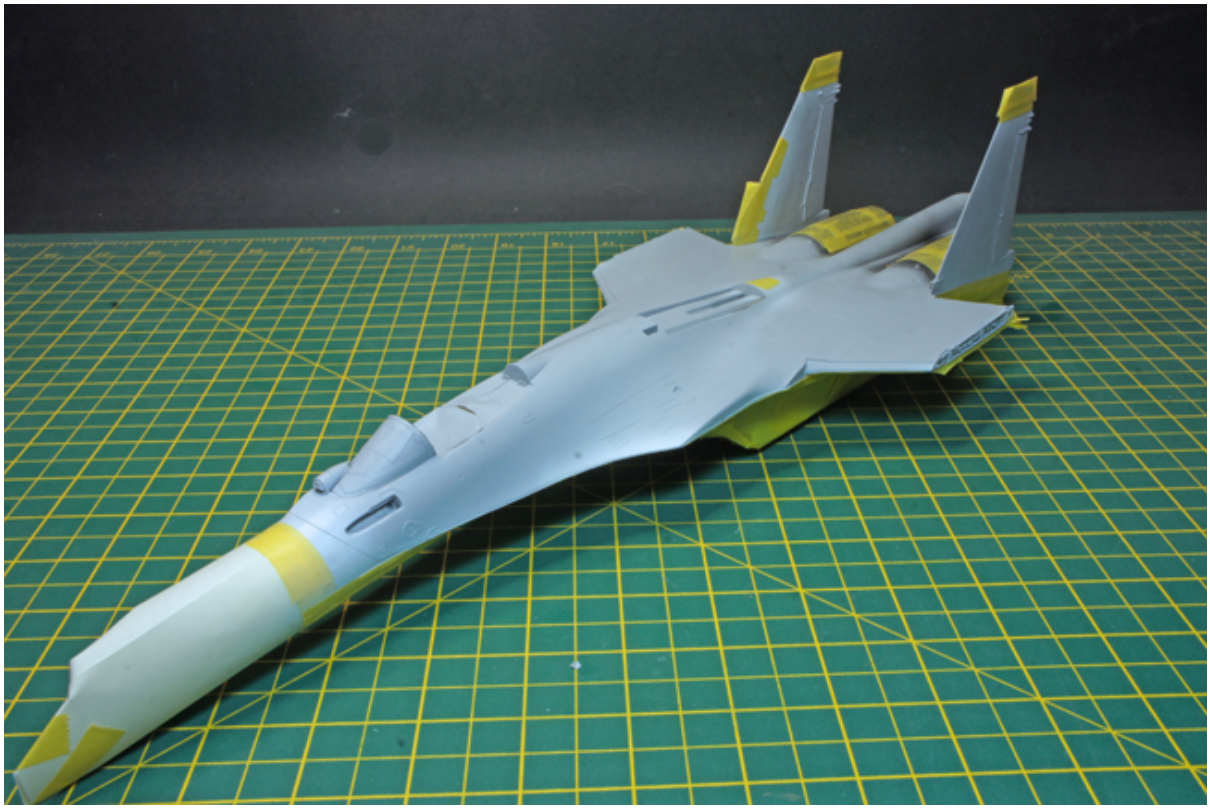



First stage of painting - a base of Tamiya Fine Grey Primer followed by the white areas such as the nose which has been masked off here.


Further white areas such as the tail and spine and tail dialelectric panels.


The engine metallic areas were sprayed with a combination of Alclad and AK Metallics and various shades of Alclad's Hot Metal shades


The lower grey/blue colour was sprayed using paints from Mr Paints - this company produce all the colours required for the Su-33 camo scheme. It has great coverage and dries quickly. This lower colour can then be masked of ready for the upper camo scheme.



In the past getting the correct colours for these more unusual schemes was an issue but Mr Paints produces are great range of pre-thinned air brush ready colours that pretty much cover all of the modern Russian colours. These combined with masks for the camouflage scheme by Aero Masks make the whole painting process a lot easier. Not a lot of words here as I'll just list the order I did things and let the pictures do the talking.

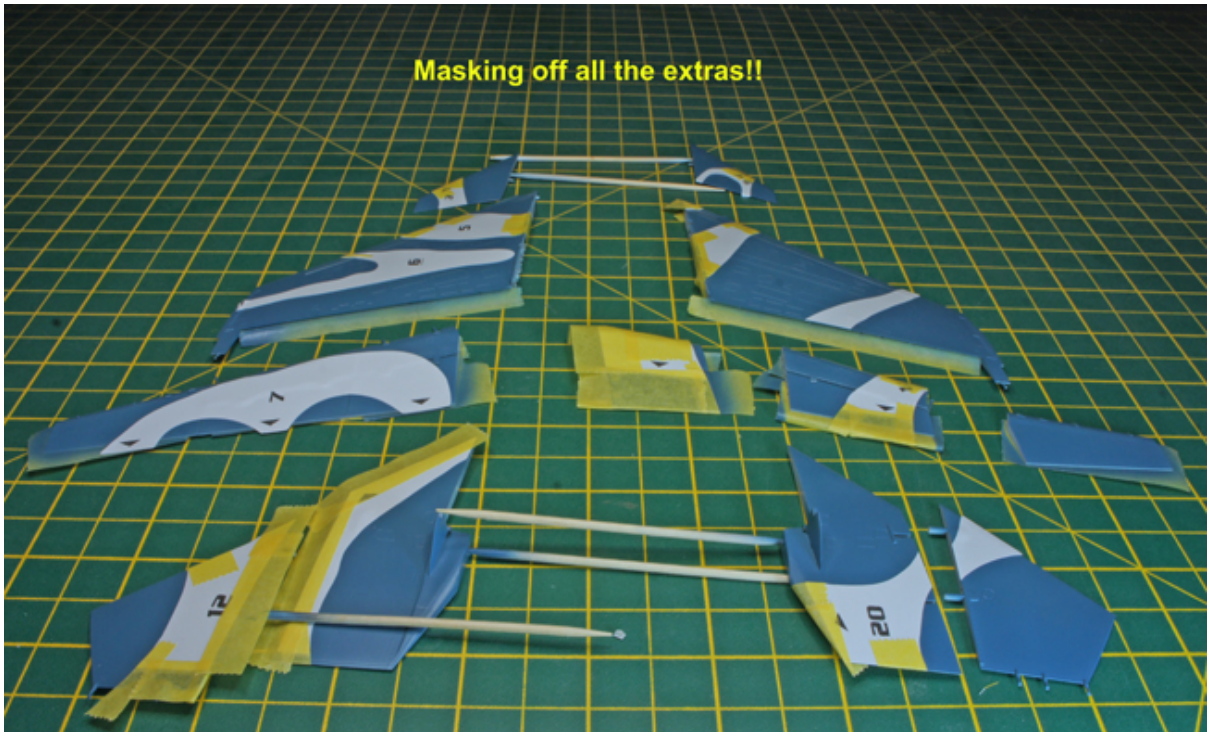
The painting / masking sequence that I used is as follows:

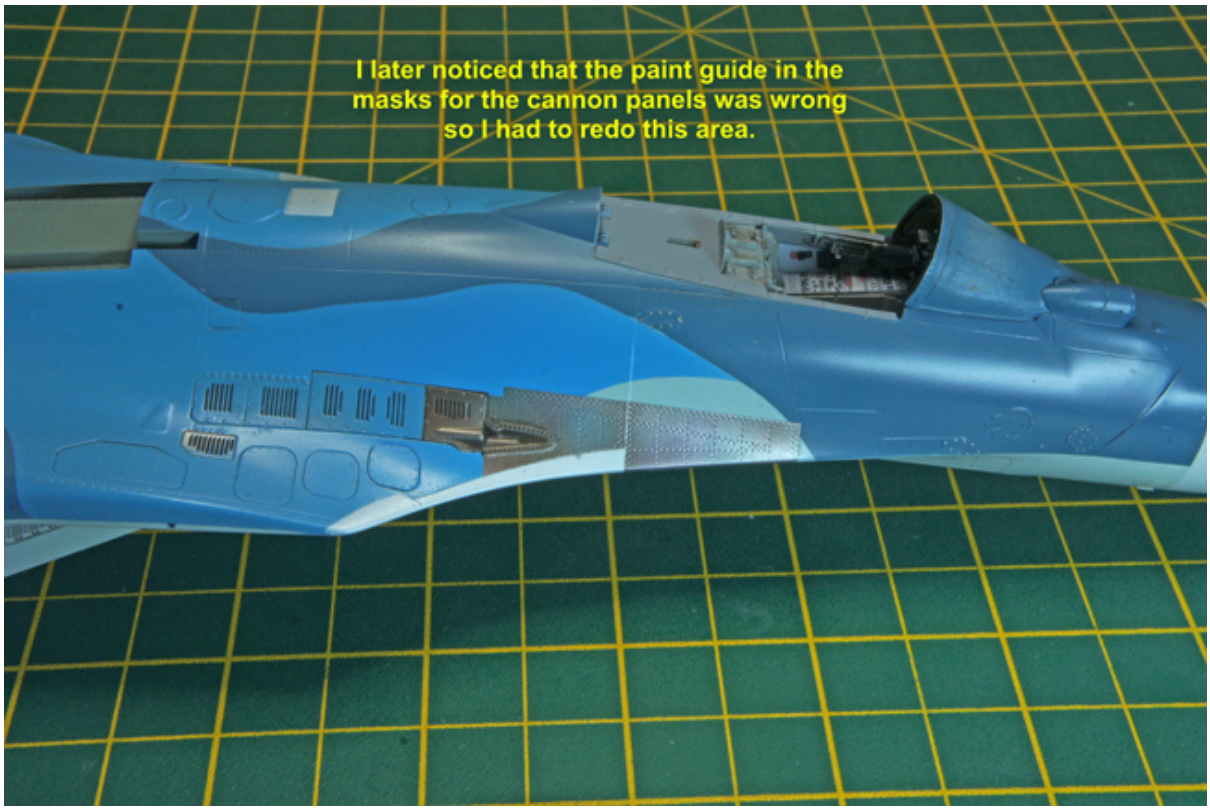
- Mask of the intakes, wheel bays and cockpit areas.
- Prime the model with Tamiya Fine Grey Primer.
- Spray the white areas (nose cone and tail dielectric areas) and mask off.
- Spray the bare metal areas around the engines with a combination of Alclad Metallic colours and their Hot Metal tones. Once dry mask them off.
- Spray the lower underside light grey base colour and mask off.
- Spray the upper dark blue base colour and mask of as directed in the Aero mask instructions.
- Add the second layer of masks and add the light grey – mask of when dry.
- Add the third layer of masks and add the light blue.
- Use the same sequence for the outer wings, tail, flaps and leading edge spoilers.
- Remove all the masking once fully dry (24 Hours) and then gently sand the model surface with Micromesh to remove any build-up of paint at the colour demarcation line.

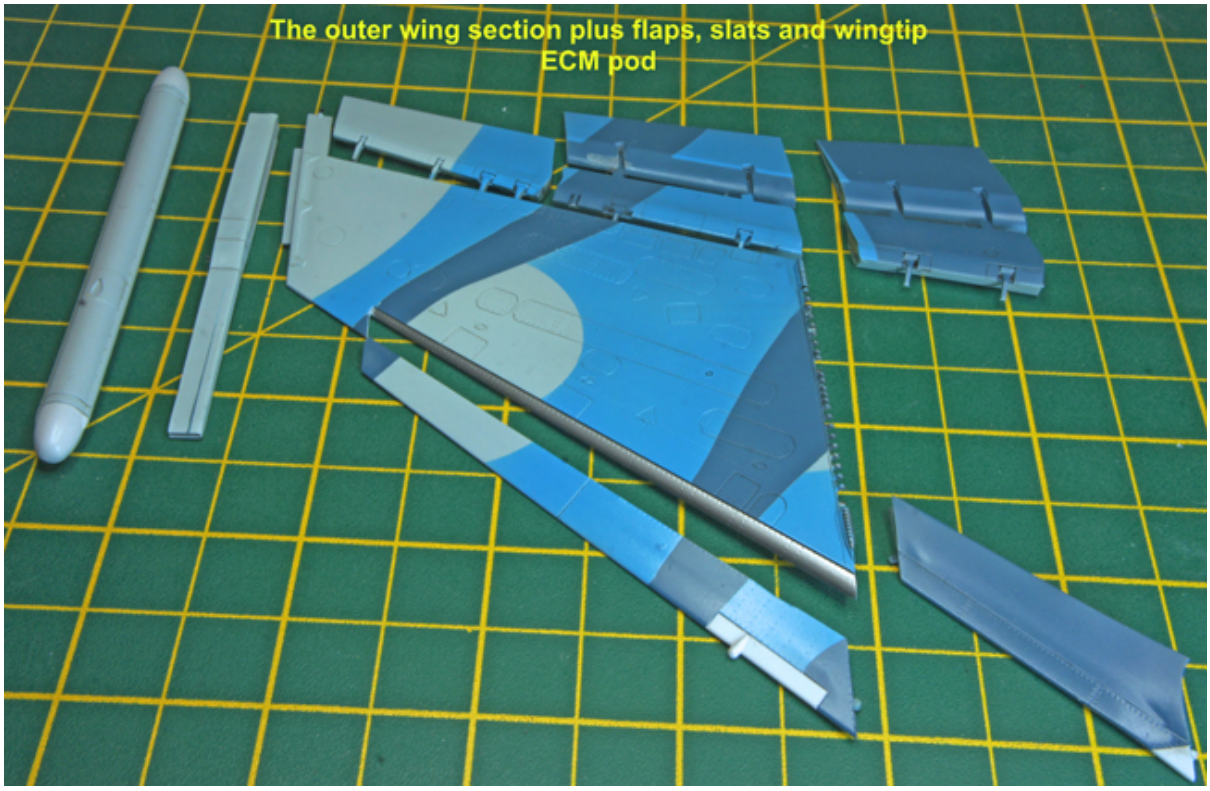
- Mask of the metallic areas around the cannon (I had to do this twice as my initial reference was wrong) and spray with Alclad metallics.
- I added the white areas along the LERXs as it was easy to mask them at this point.
- Gloss the whole model with a 50/50 mix of Tamiya X-22 and Mr Color Self Levelling Thinner.
- Add a wash to the panels. I used a lighter panel wash colour for the lighter colours and a darker one for the darker upper colours.
- I masked and painted the chaff/flare dispensers on the upper surfaces between the engines. I later discovered that there are decals for these!!
- Everything was then sealed in with a coat of gloss varnish (Tamiya x-22 and Mr Color Self Levelling thinner mixed 50/50)
- When dry the decals were applied- these are printed by Cartograf and work really well. My only real criticism here is there are a lack of airframe stencils – I'm pretty sure that there should be more.
- Once dry these were sealed in with a gloss coat and then a finishing coat of Mr Paints Matt varnish was added.

That is the main painting process done. I still need to assemble and paint up the ancillary parts such as the undercarriage, jet pipes, weapons, ejection seats and canopy but this will all come in the final part.

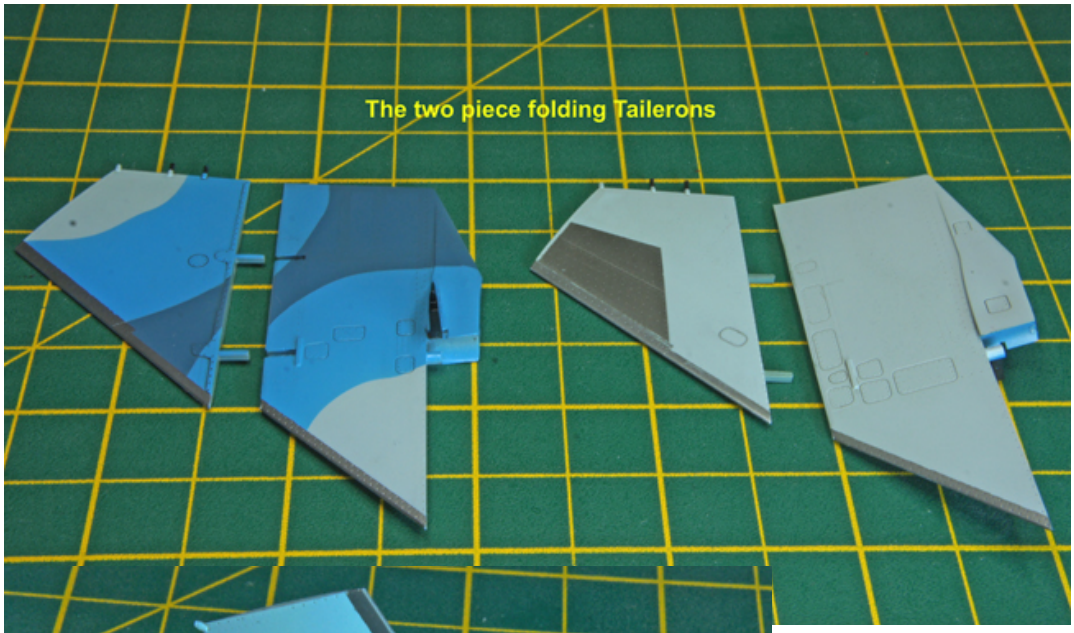


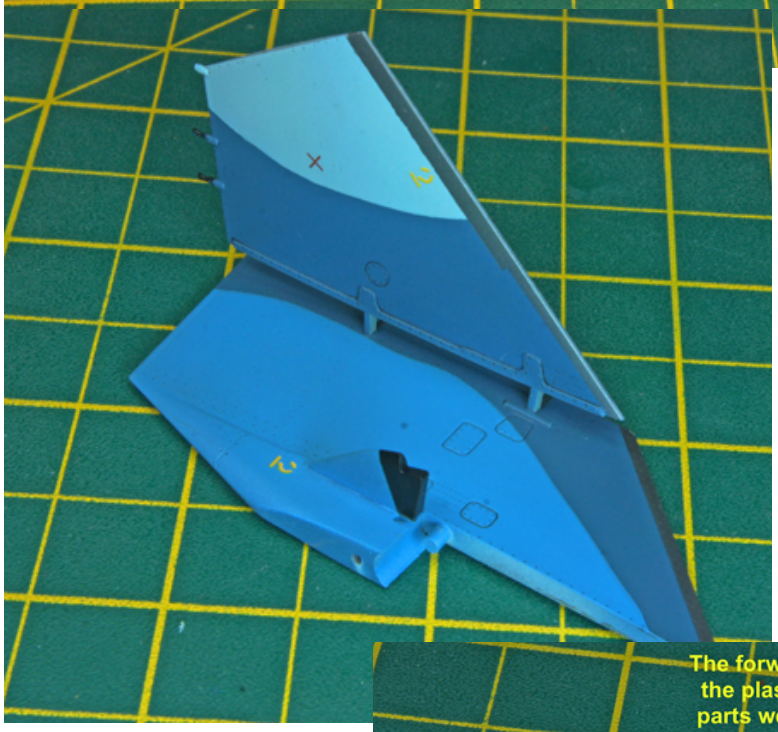

Masking off all the extras!!

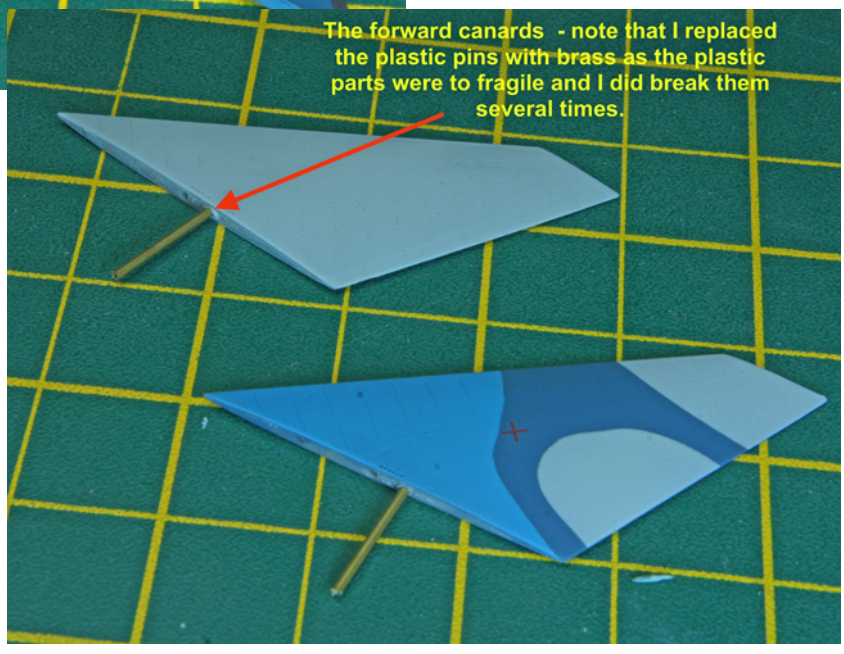

I later noticed that the paint guide in the
masks for the cannon panels was wrong
so I had to redo this area.

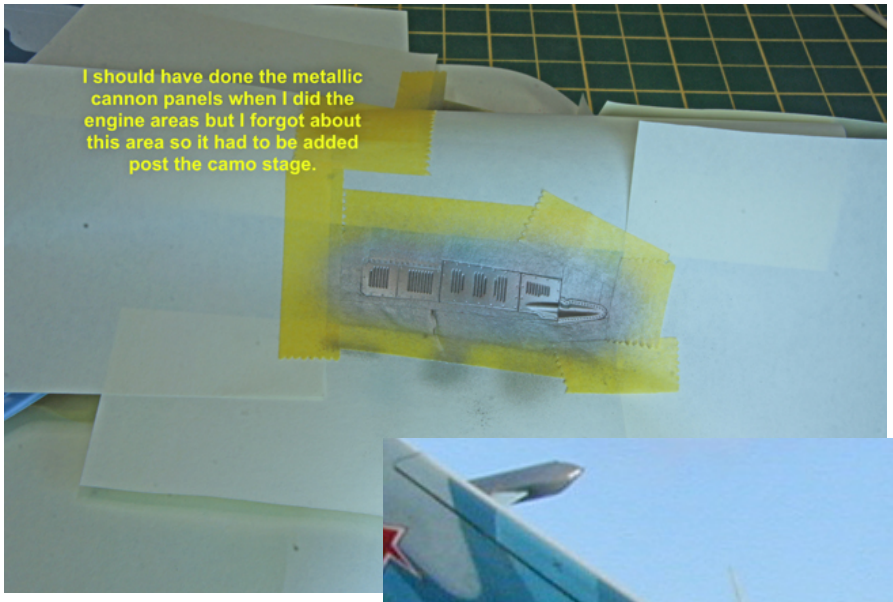

The outer wing section plus flaps, slats and wingtip ECM pod


If you are going to have the wings in the folded position you will have to drop the flaps otherwise they will not fully fold up - you will see what I mean when I attach them later on.

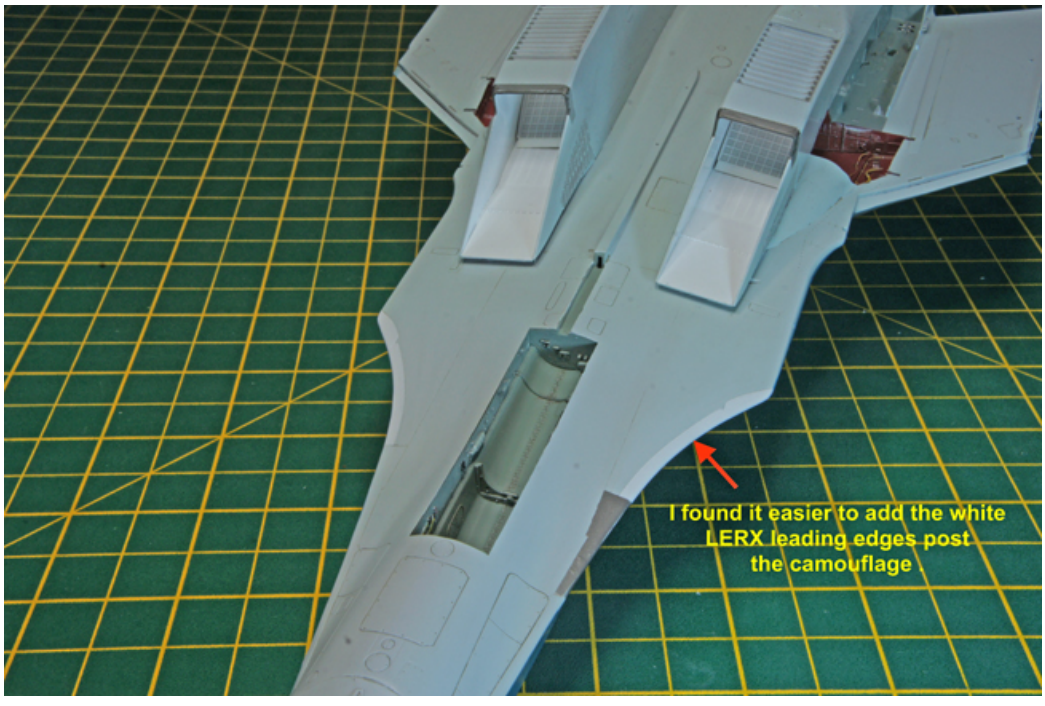

The two piece folding Tailerons

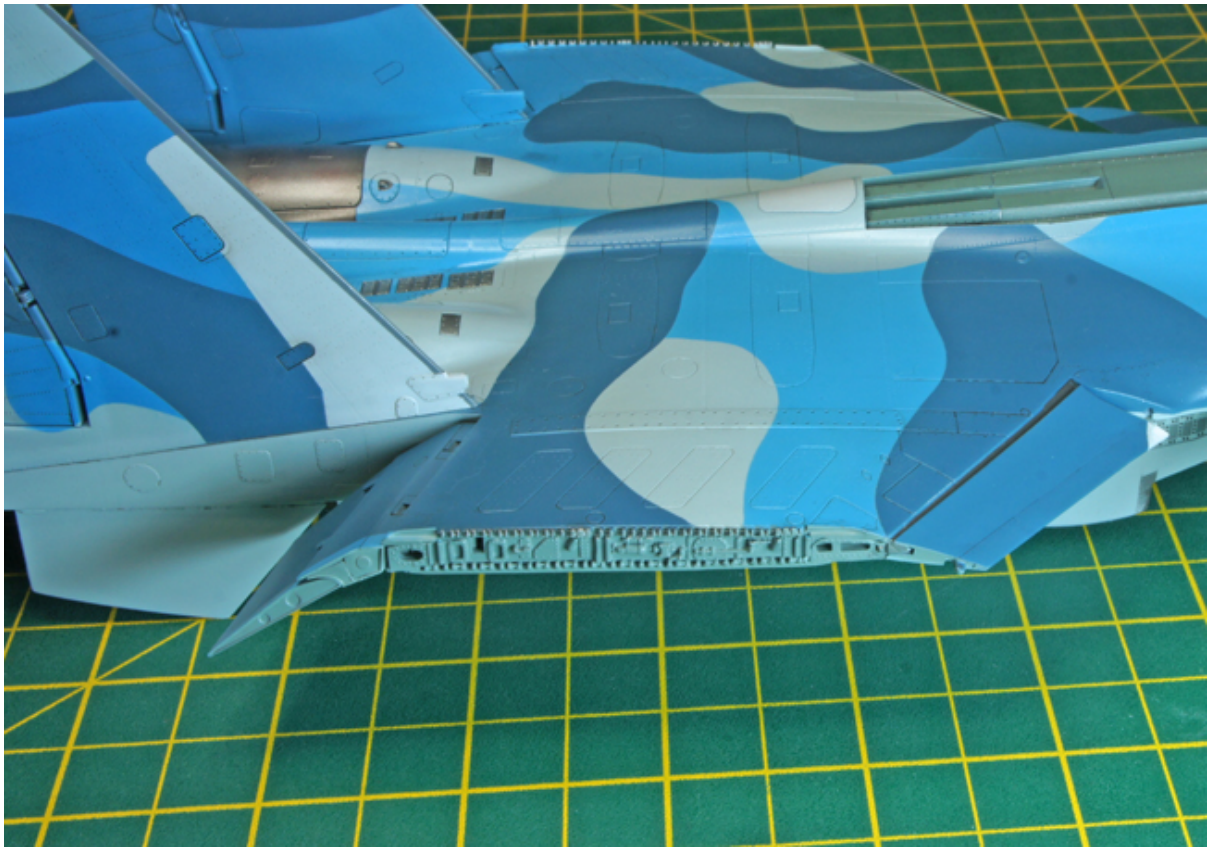


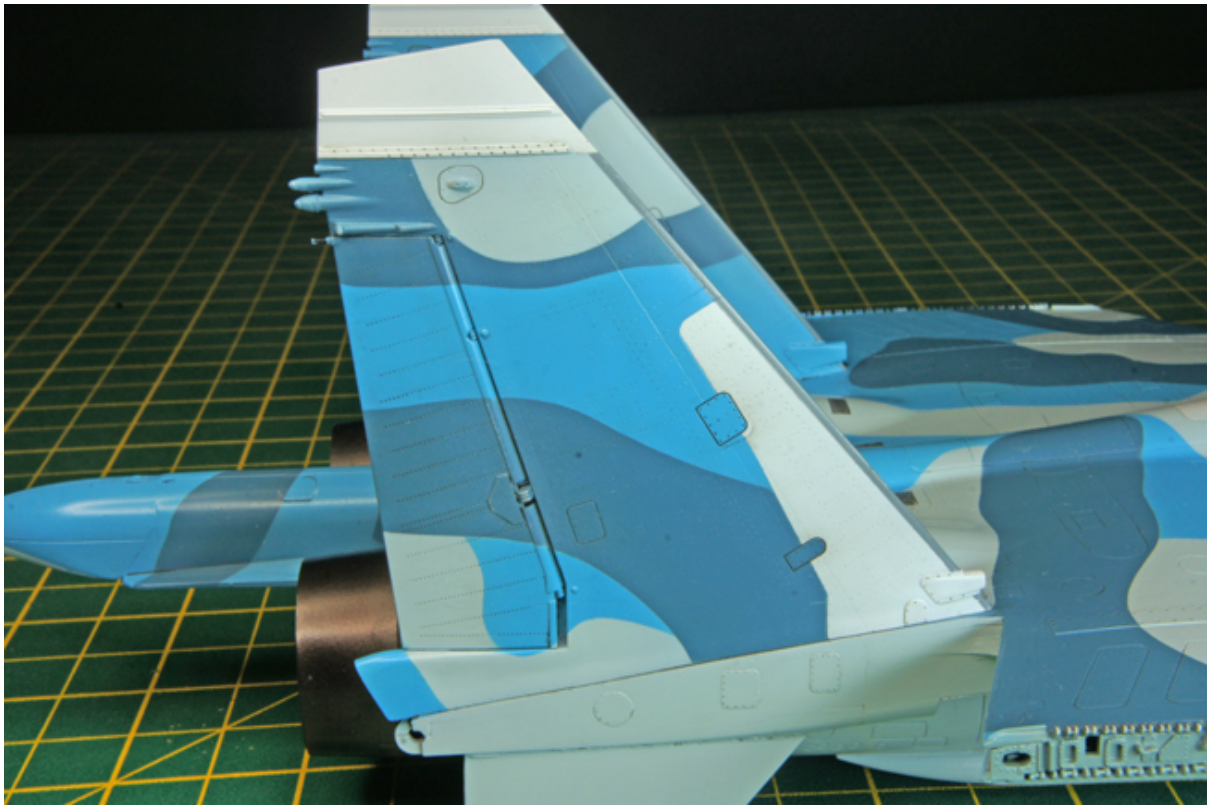

The forward canards - note that I replaced the plastic pins with brass as the plastic parts were to fragile and I did break them several times.

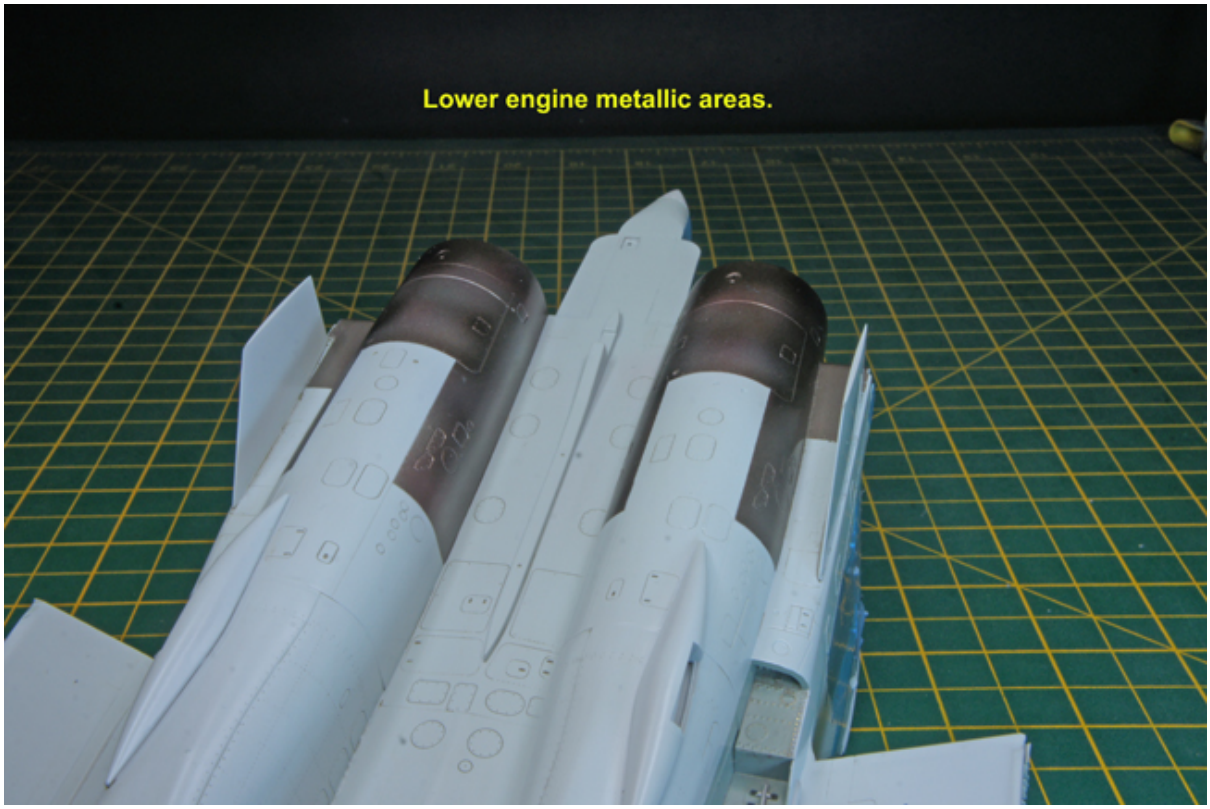

I should have done the metallic cannon panels when I did the engine areas but I forgot about this area so it had to be added post the camo stage.


80

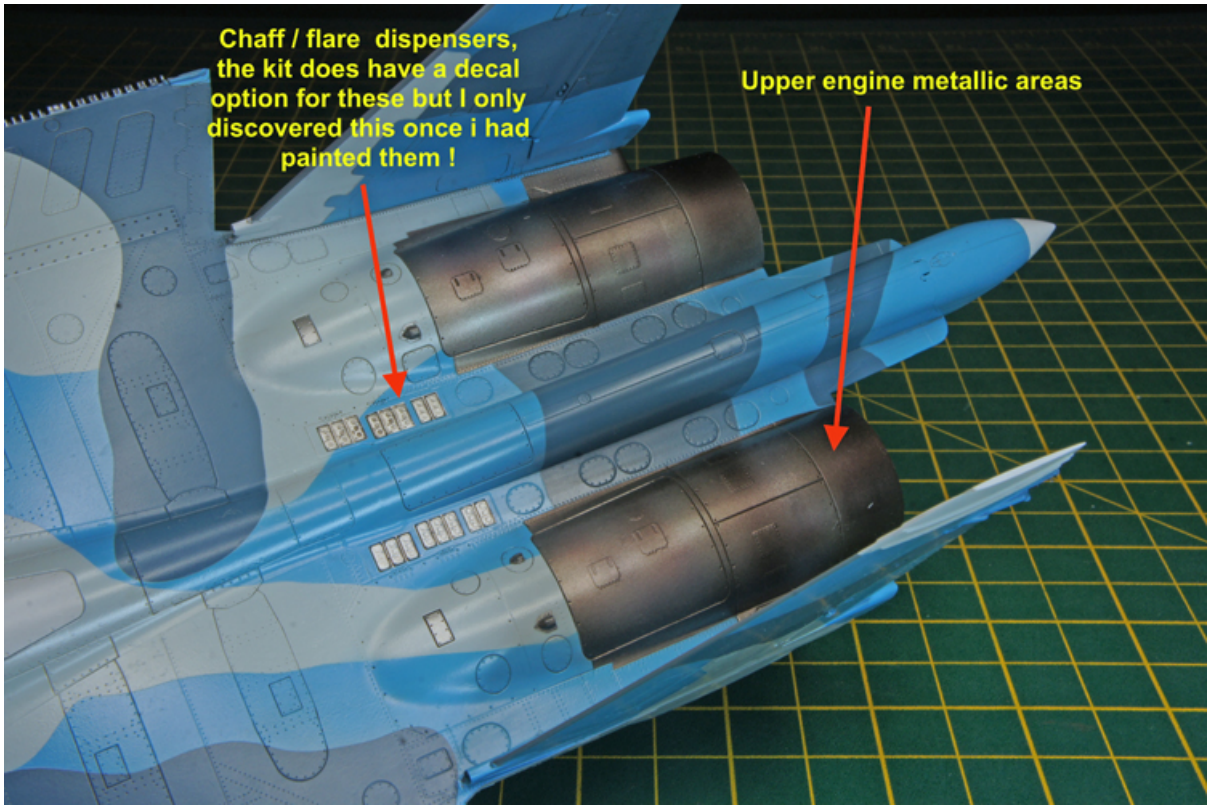

I found it easier to add the white LERX leading edges post the camouflage

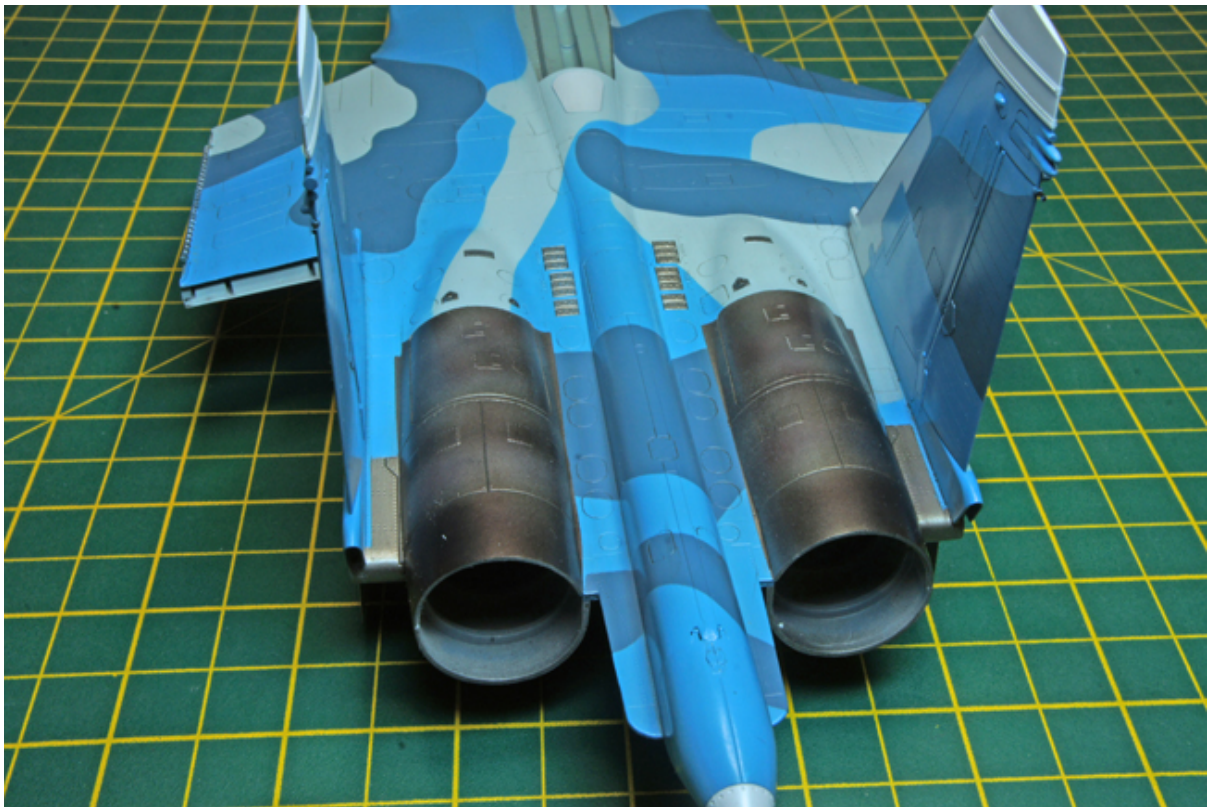


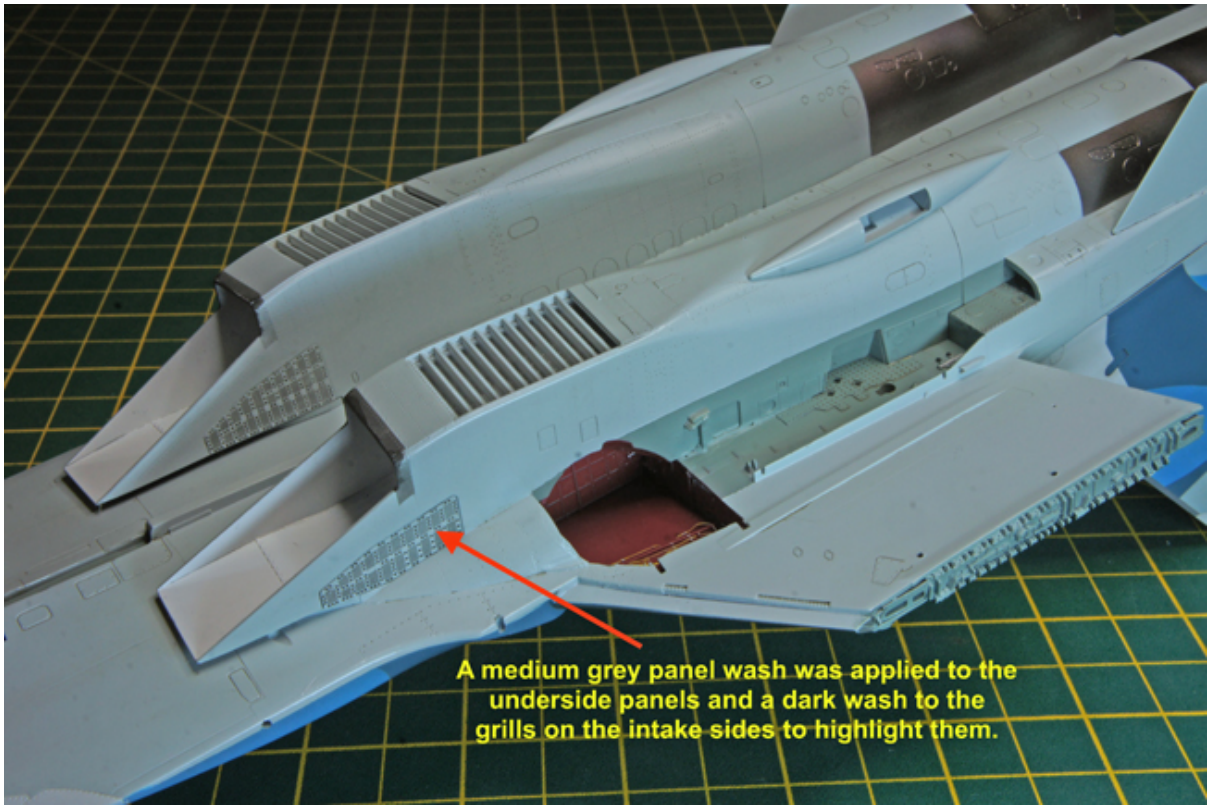


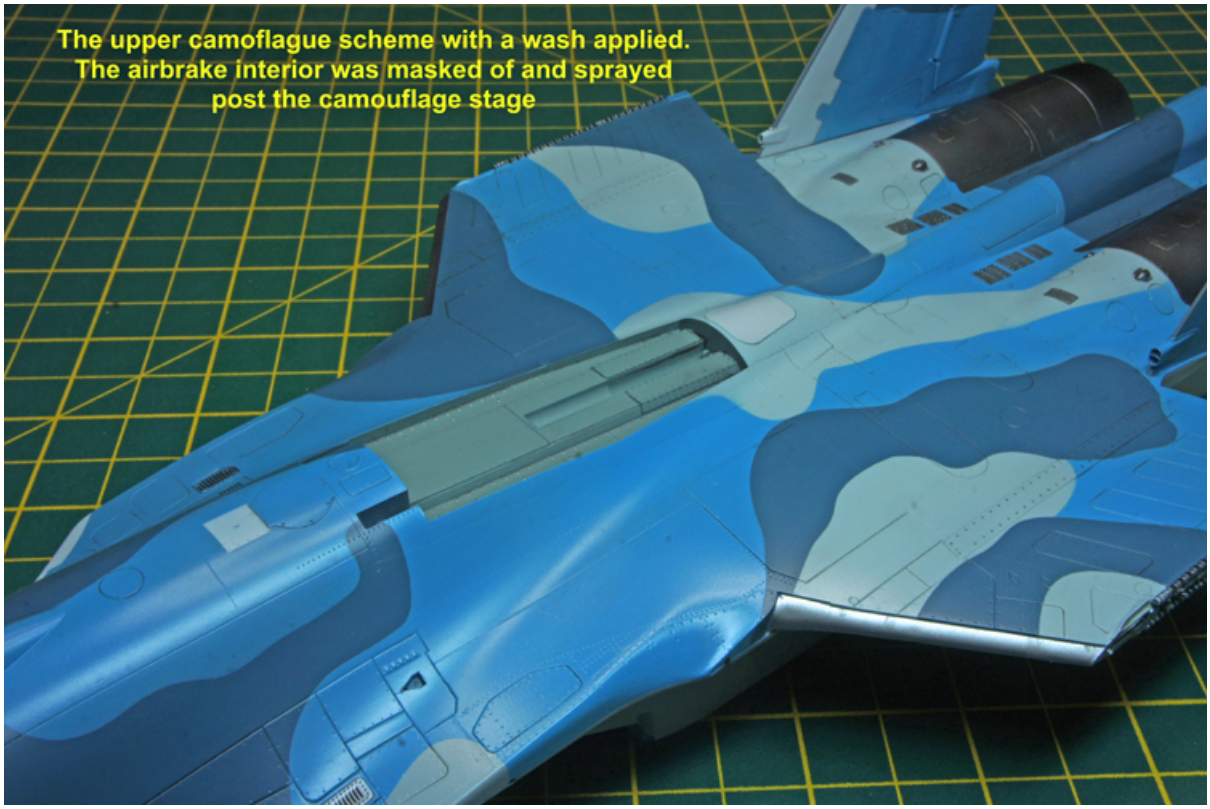

Lower engine metallic areas.

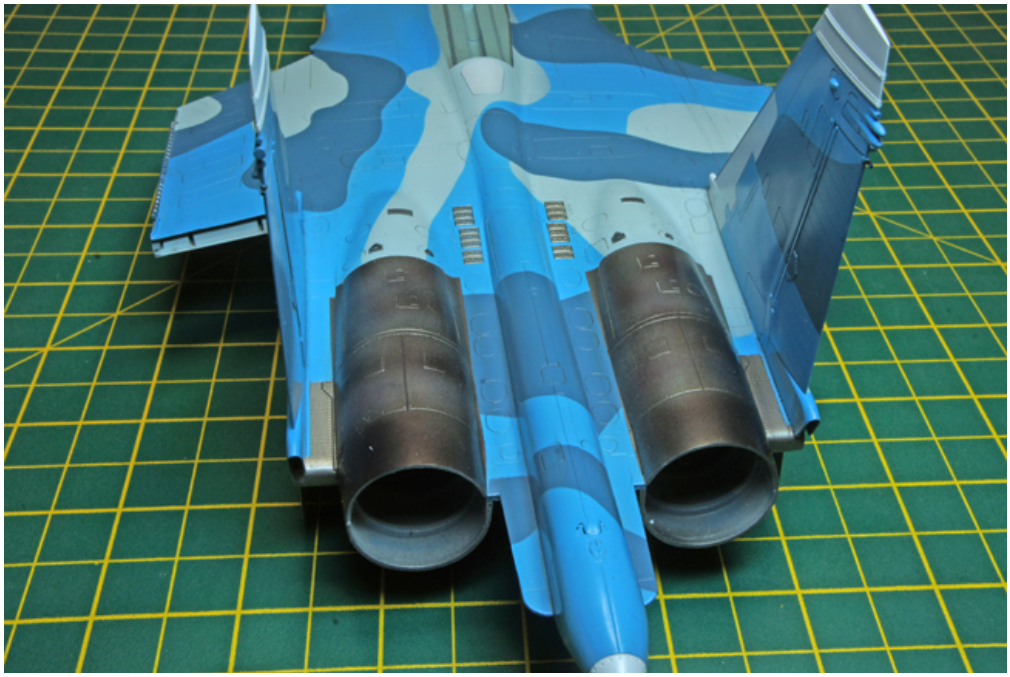

You can see the tonal variations for the Alclad Hot Metal
paints here - the redish and blueish tones .


Chaff / flare dispensers, the kit does have a decal option for these but I only discovered this once i had painted them !
Upper engine metallic areas

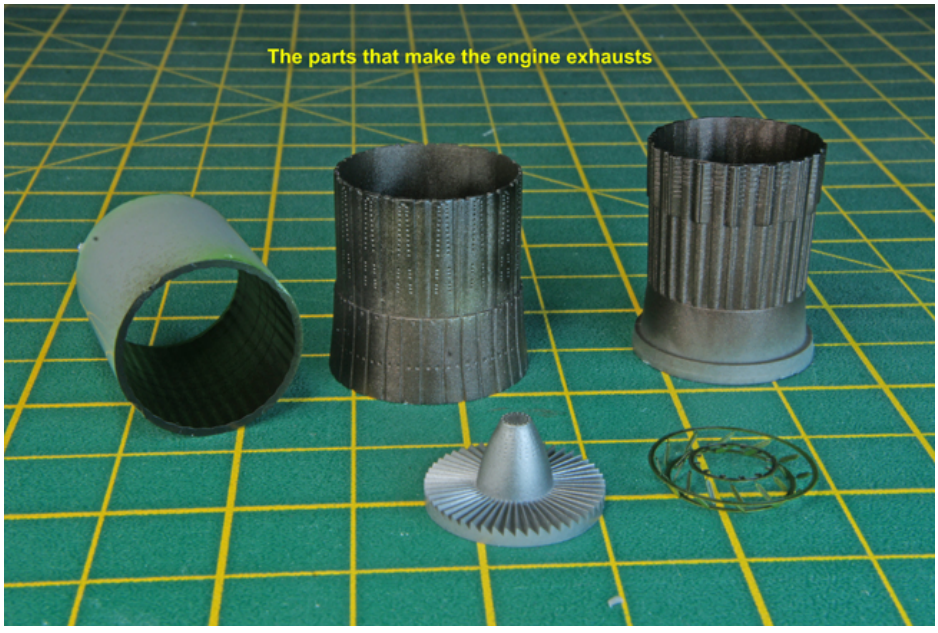


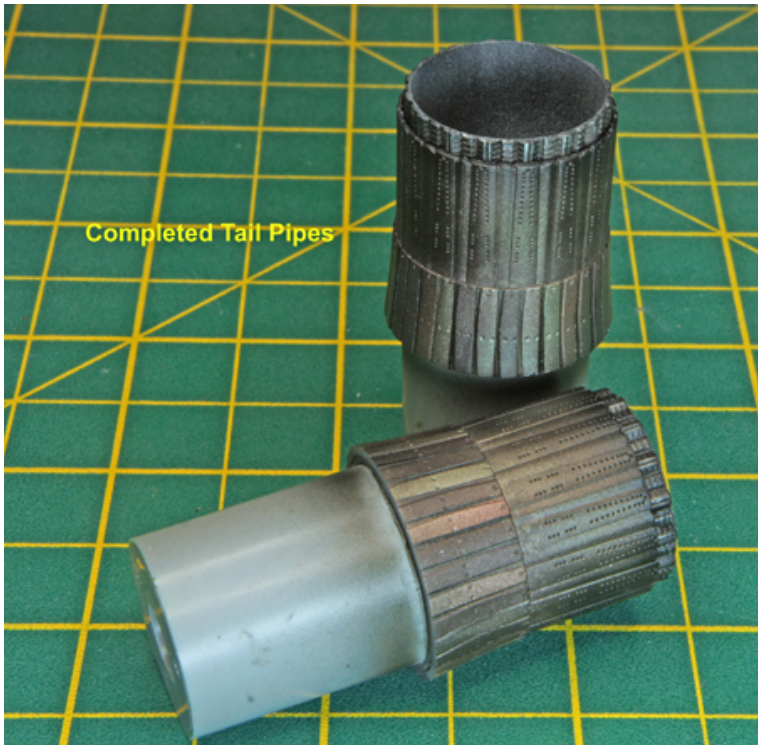

A medium grey panel wash was applied to the
underside panels and a dark wash to the
grills on the intake sides to highlight them.

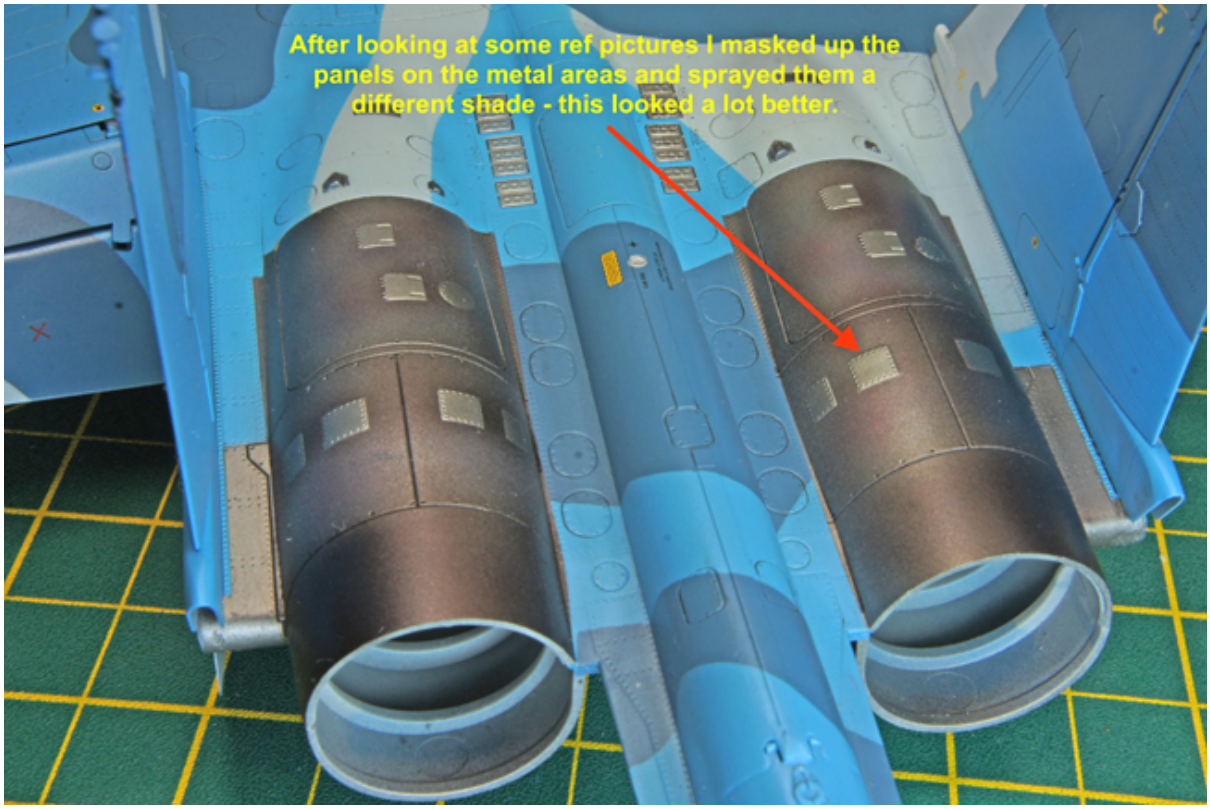

The upper camoflague scheme with a wash applied.
The airbrake interior was masked of and sprayed
post the camouflage stage



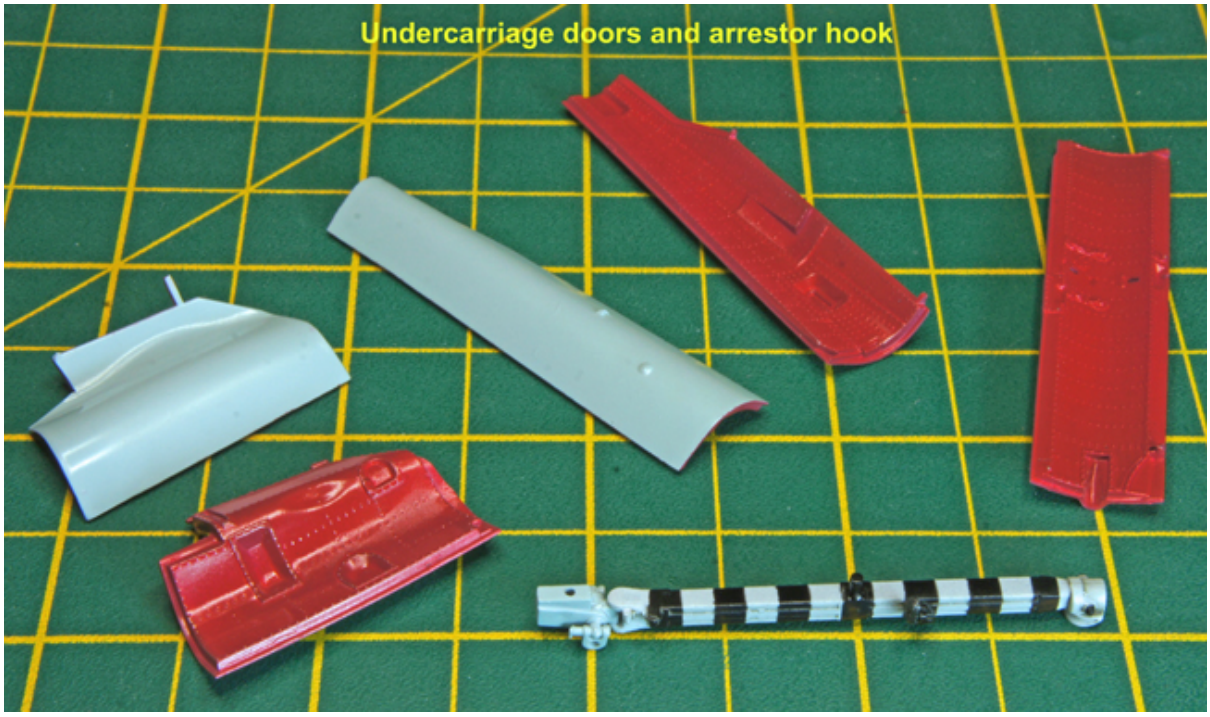
**Engines…**
With the main airframe painting complete I now turned my attention to all those ancillary parts that needed constructing and painting. First stop were the jet exhausts. The bare metal engine areas and their associated jet pipes are very prominent on Sukhoi's Flankers so it worth taking some time to get a good finish on them as they can make or break these models. The tail pipes break down into 5 parts and these were painted up separately using various Alclad metallics and their hot metal shades.

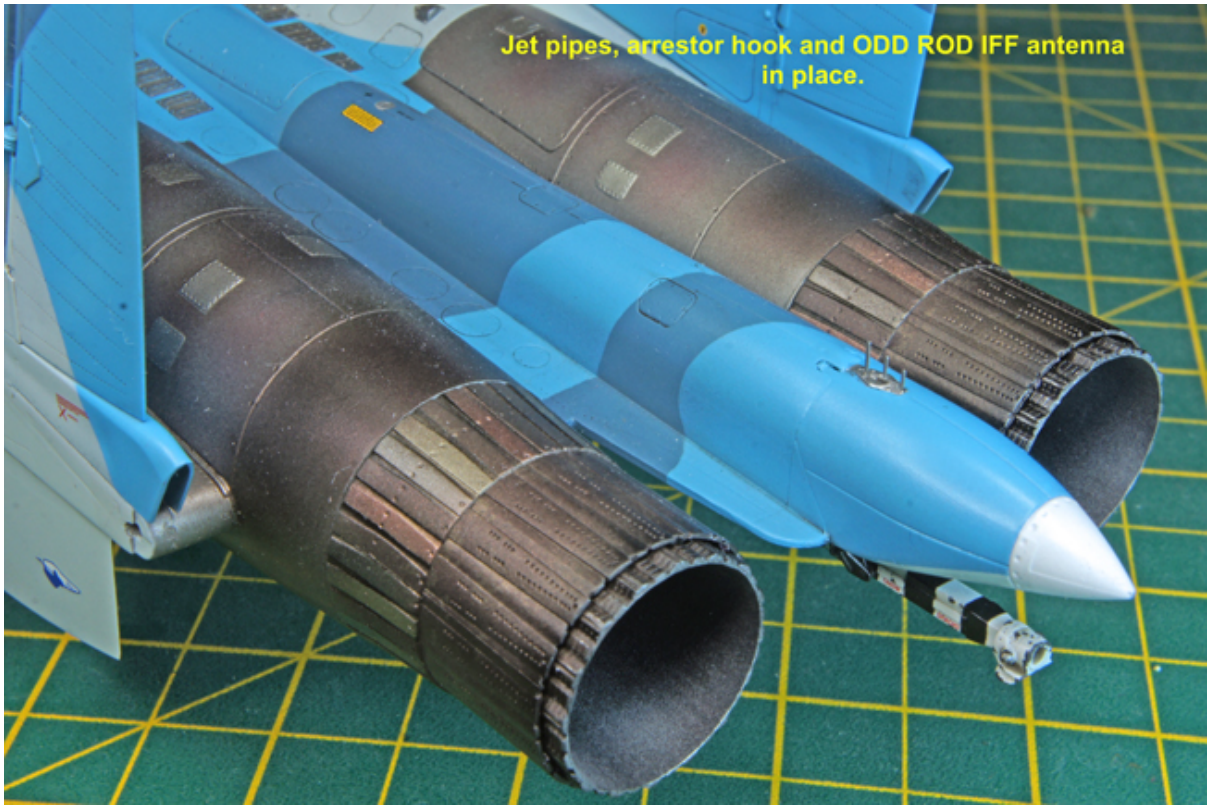


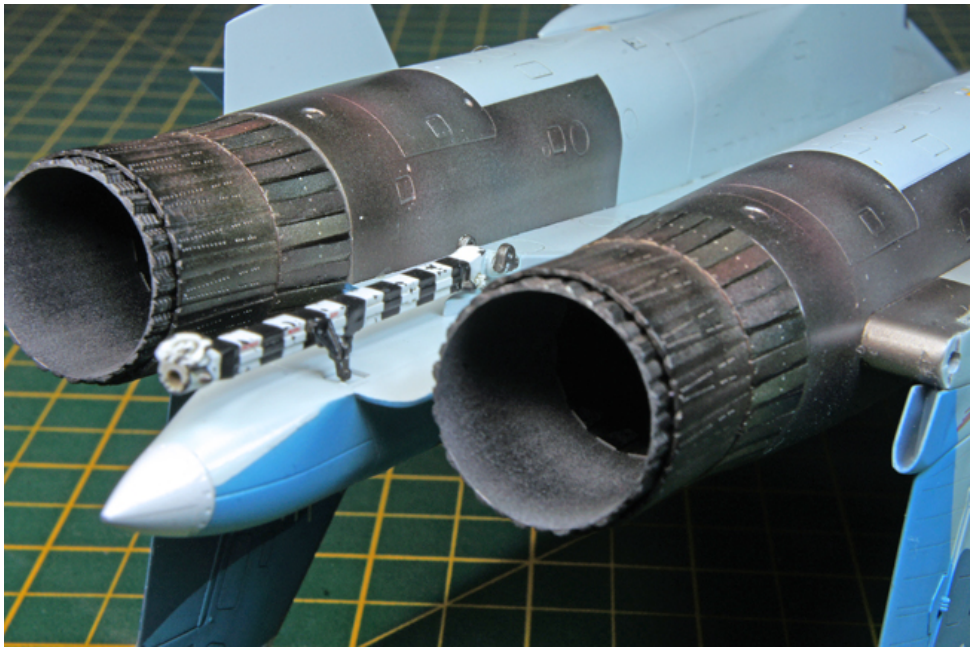

Completed Tail Pipes


After looking at some ref pictures I masked up the
panels on the metal areas and sprayed them a
different shade - this looked a lot better.

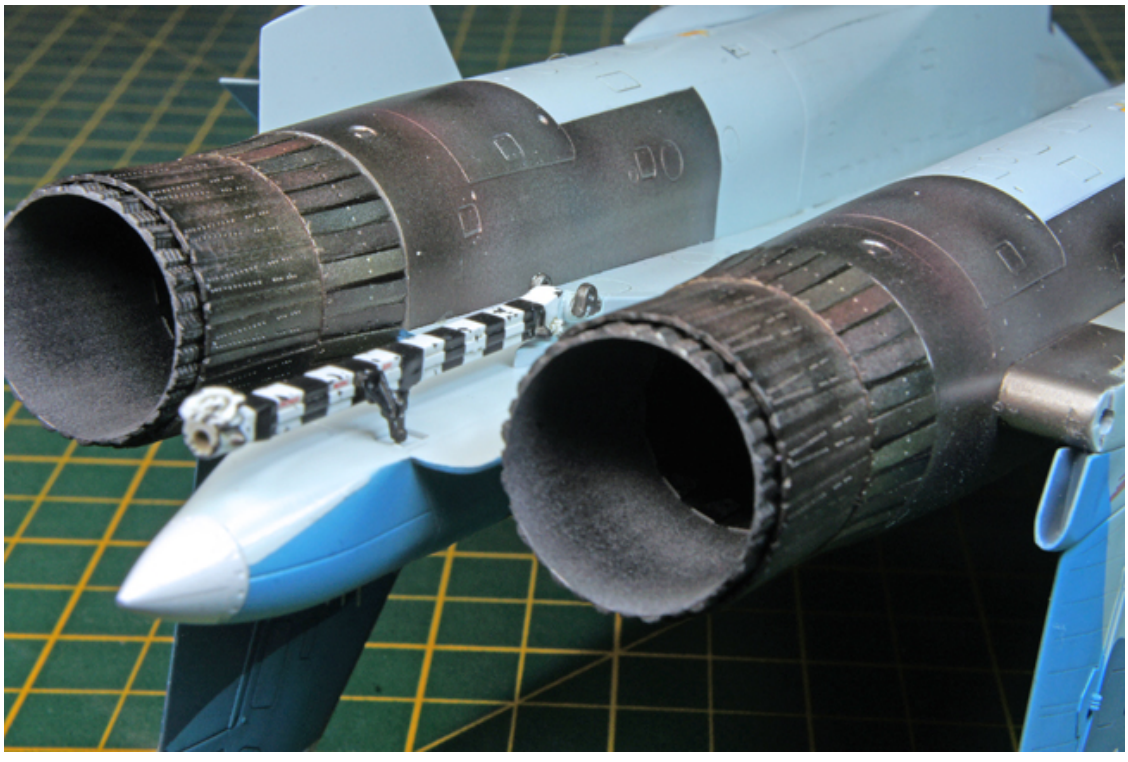
**Tail hook…**
The tail hook construction sequence is quite vague in the instructions so have a look at my pictures and there are some good reference photos in the links I have given at the start.

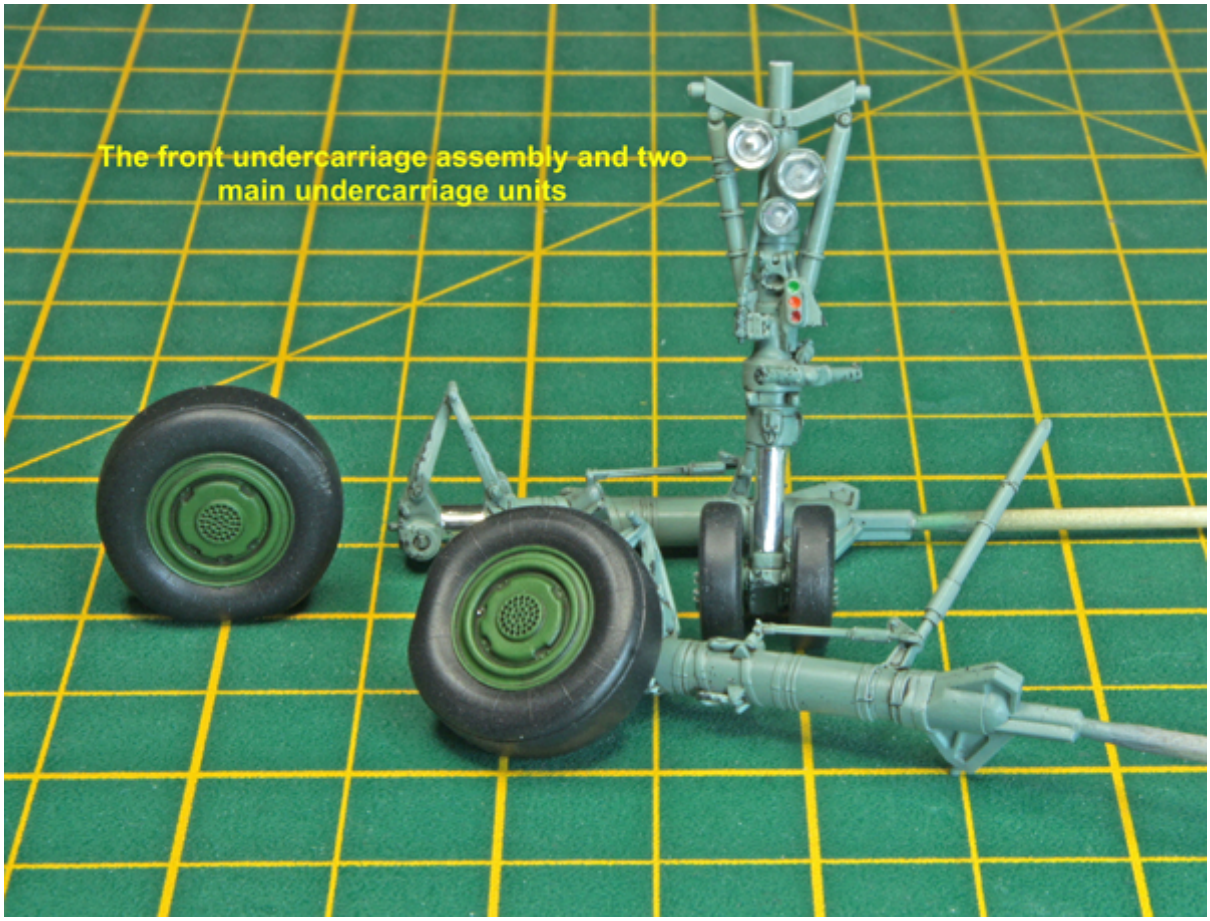


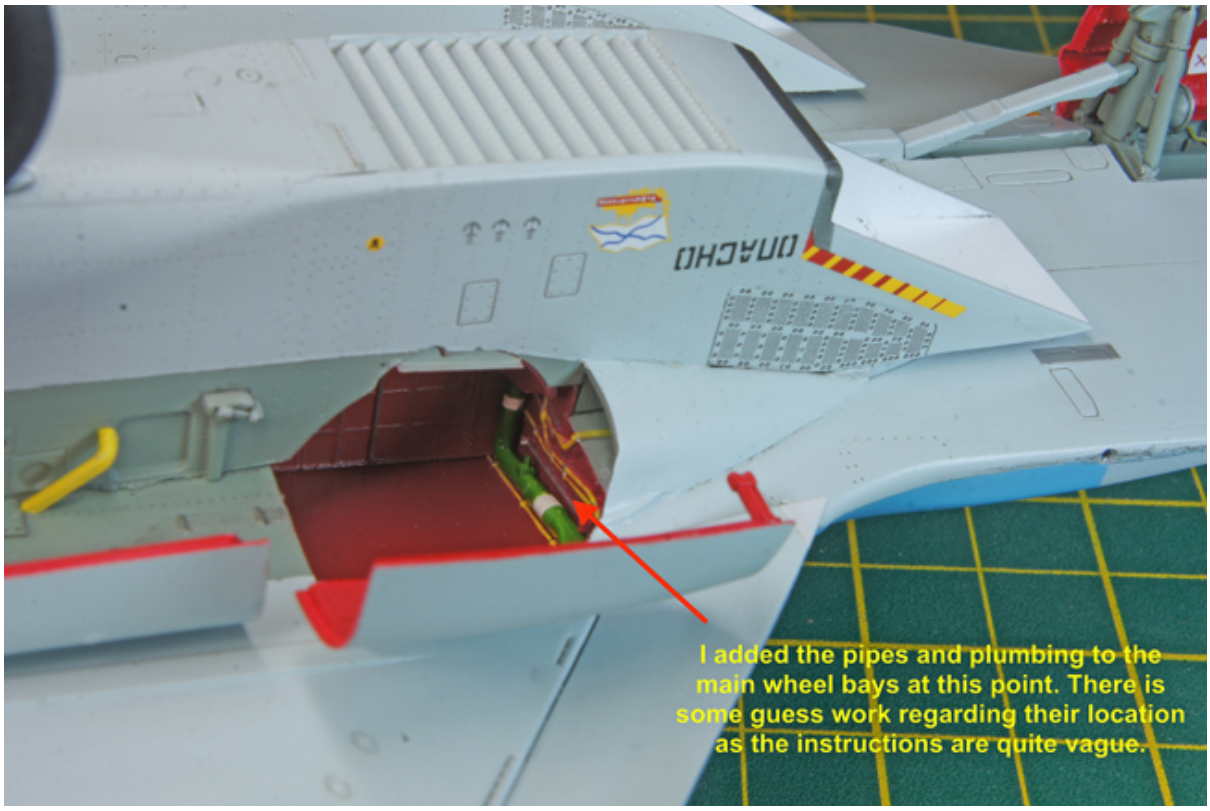


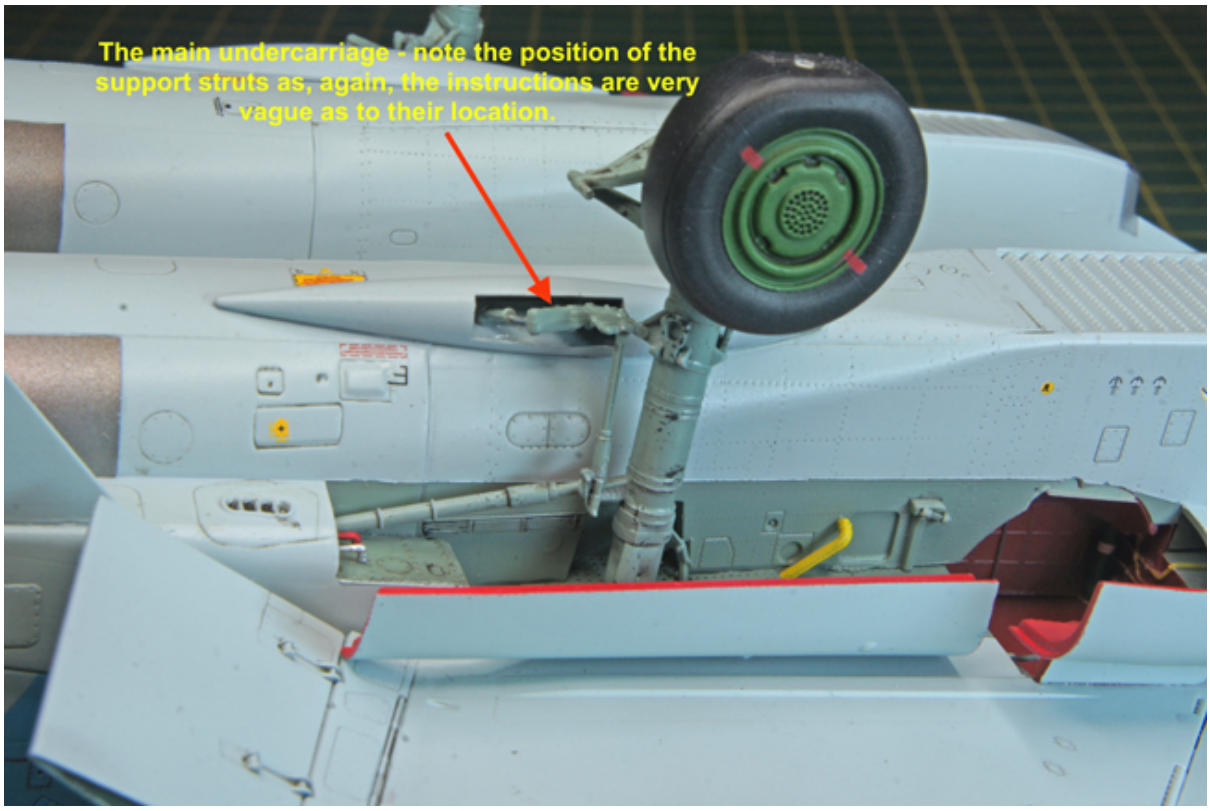
**Undercarriage…**
The undercarriage construction is quite straight forward and the detail is OK. The tyres are weighted which is always good in my book but I would have liked to see a metal core for the struts to give them that bit extra robustness. Fitting the undercarriage is again a bit of guess work due to the vague instructions but things pretty much fit only one way and reference to photos of the real thing definitely helps.




The front undercarriage assembly and two main undercarriage units

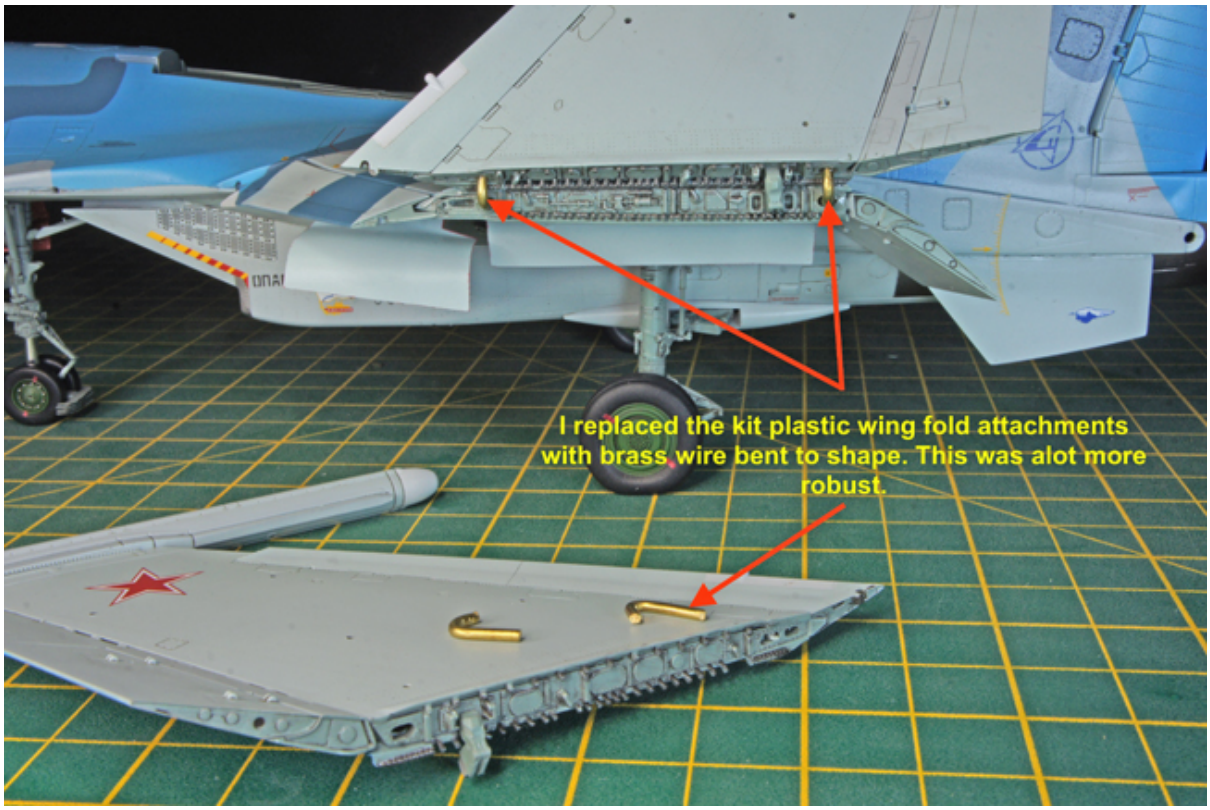

Front leg and door in position. The strut locates into position without any issues but the door took a little more manipulation !!




**Flaps, folded wing option and other moveables!**

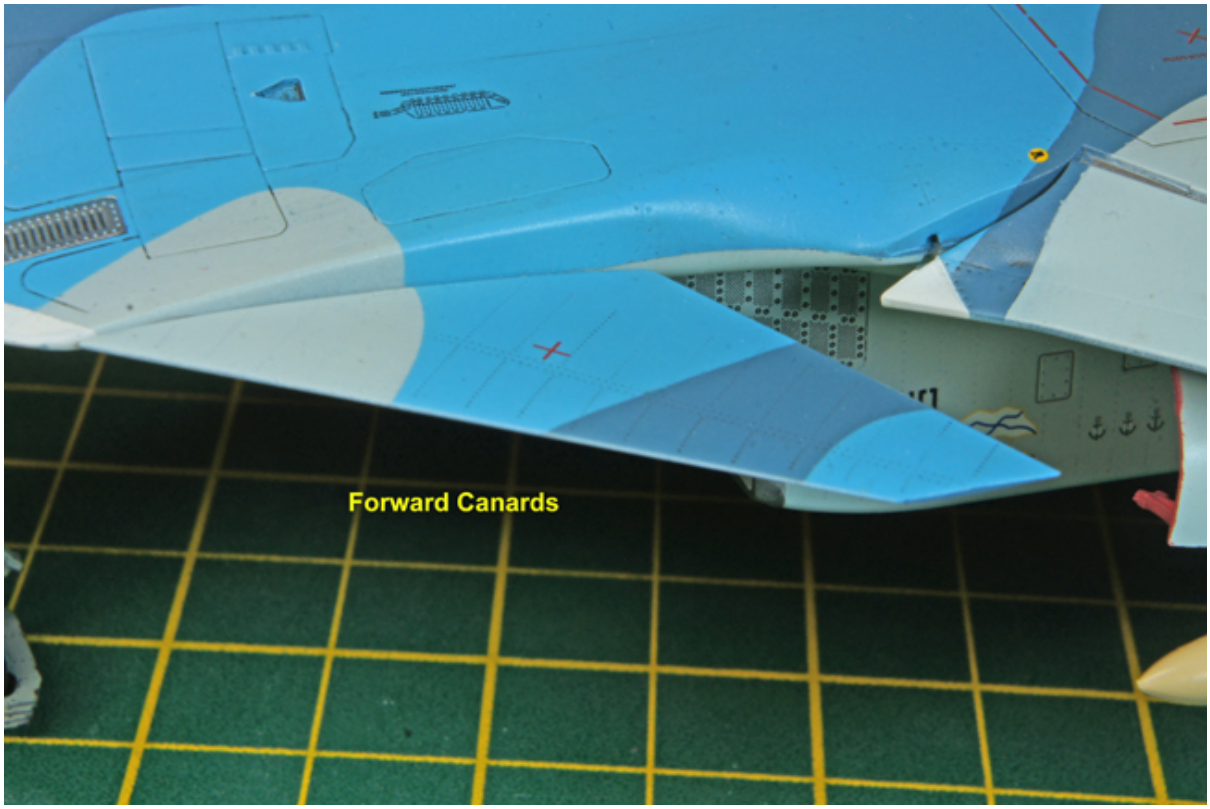
I mentioned earlier about preparing the outer wings if you are to fold them; you need to drop the flaps for this option. The hinges on the upper surfaces of each outer wing slot nicely into the hinges on the inner upper wing. The kit also has plastic ‘elbows’ that connect the sections to one another. I opted to replace these with copper wire bent to shape to give the folded wings more strength and therefore make them a lot less susceptible to accidental damage.

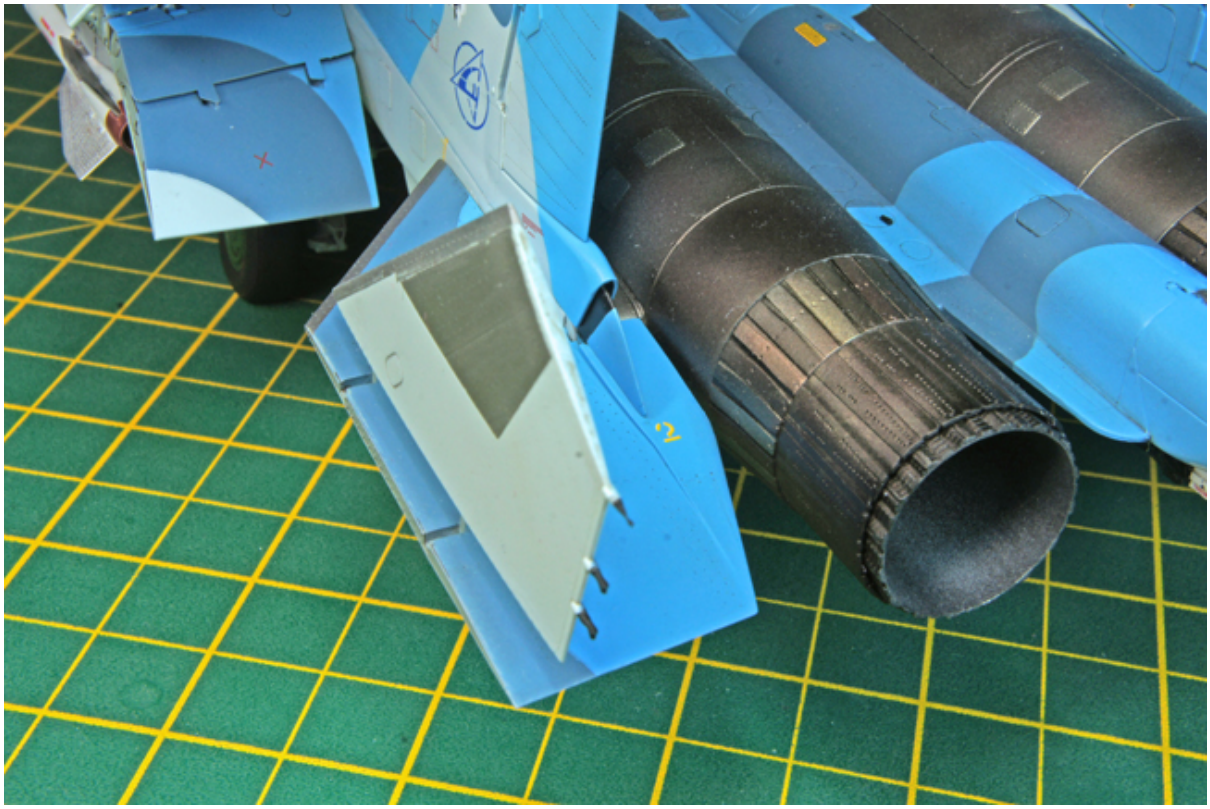


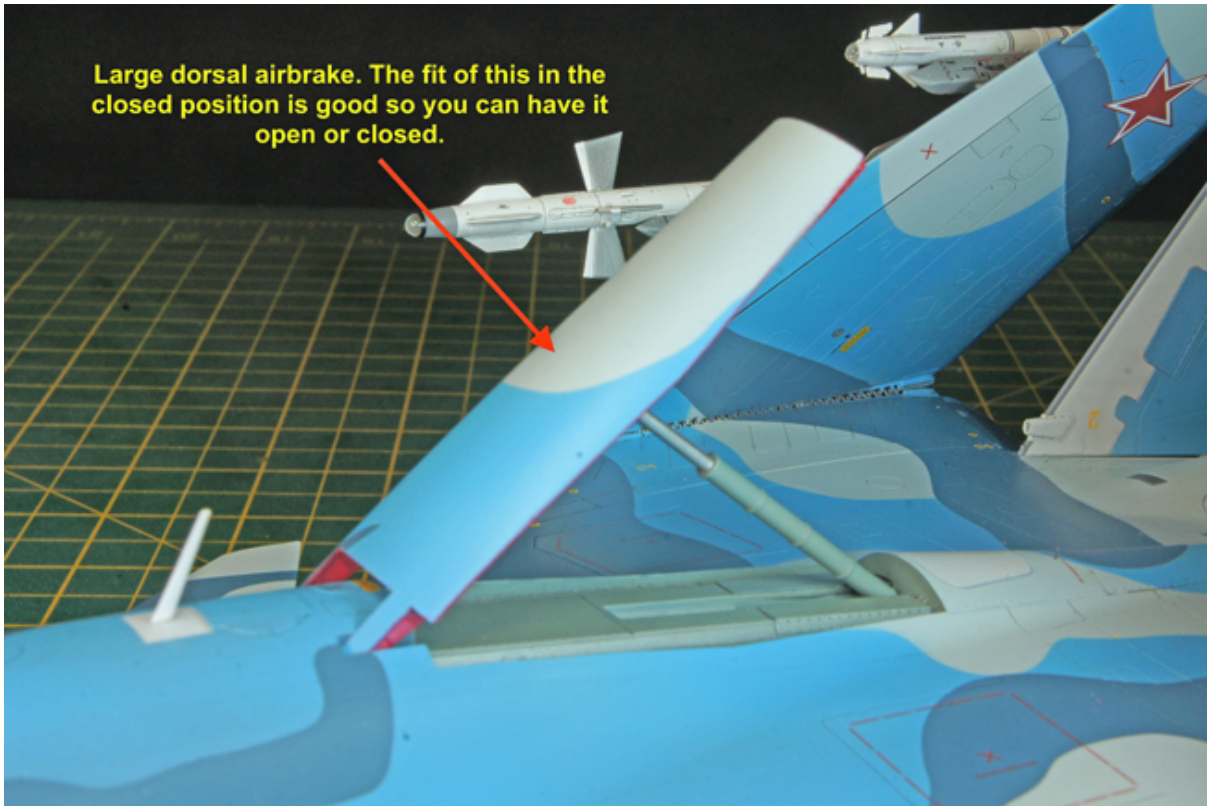



Fitting the tailerons and canards is again straightforward but I did replace the plastic pins on the canards with brass rod again to improve their robustness. The large dorsal airbrake can be fitted either open or closed. The good news is the closed fit is good so either option is easy.





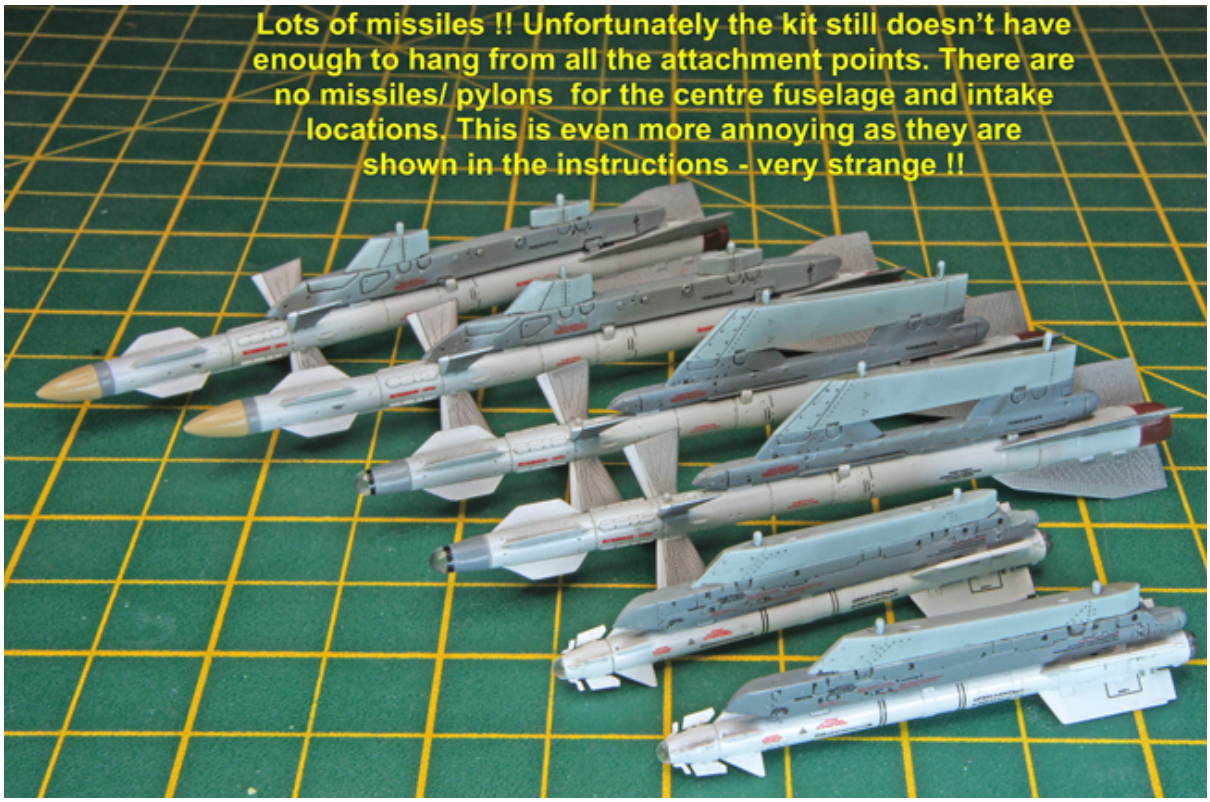



**Weapons…**
The kit contains some nicely slide moulded weapons in the form of:

• 6 AAMs (2 x R73(AA-11) Archer short Range IR AAM
• 2 x R-27T (AA-10) Alamo-B Middle range IR AAMs and
• 2 x R-73R (AA-10) Alamo-A Middle range SARAH AAMs).

Whilst the inclusion of these are good the instructions show weapons on the intake and centreline stations but the kit only has enough missiles for the wing stations. This is quite frustrating as I really fancied having this model fully ‘tooled up’. Your only real option here is the spares box or Skunkwork Models do a Russian AAM set which would be ideal for this model as it also contains the missing pylons. Painting the AA-11s is easy, all white, but the AA-10s take quite a bit of careful masking to get the correct look.

There are no air to surface weapons options as the Su-33 can only carry ‘dumb’ air to ground weapons and these are rarely if ever fitted.





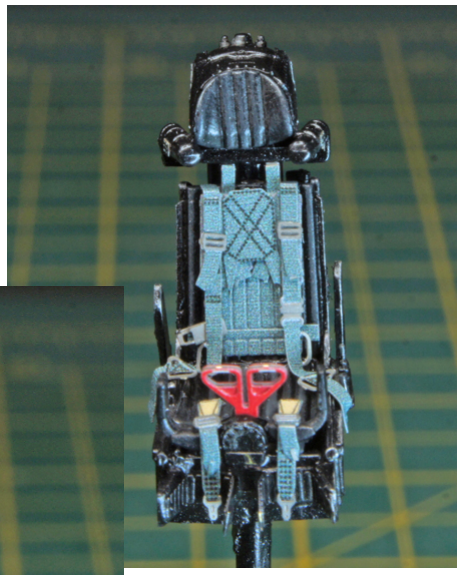


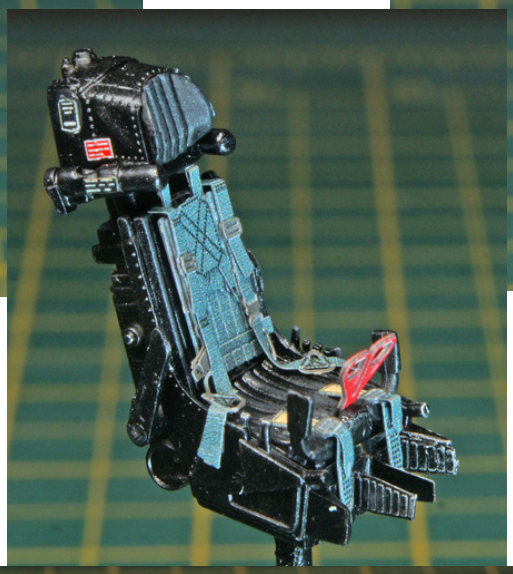


**Finishing off the cockpit and canopy…**

The Eduard Interior Colour PE contains all the missing detail for the ejector seat and this PE really brings it to life and if you have the cockpit open I really recommend it.

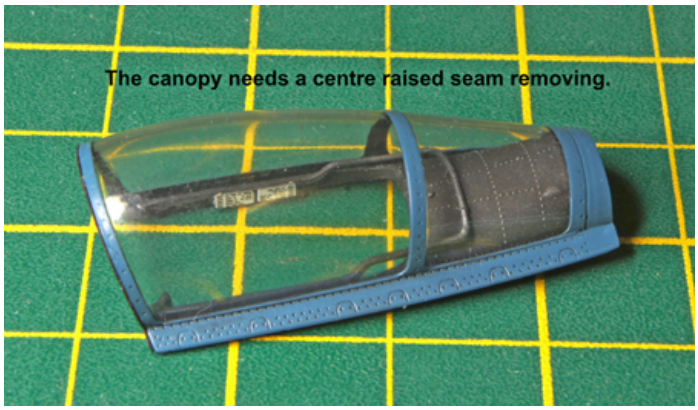


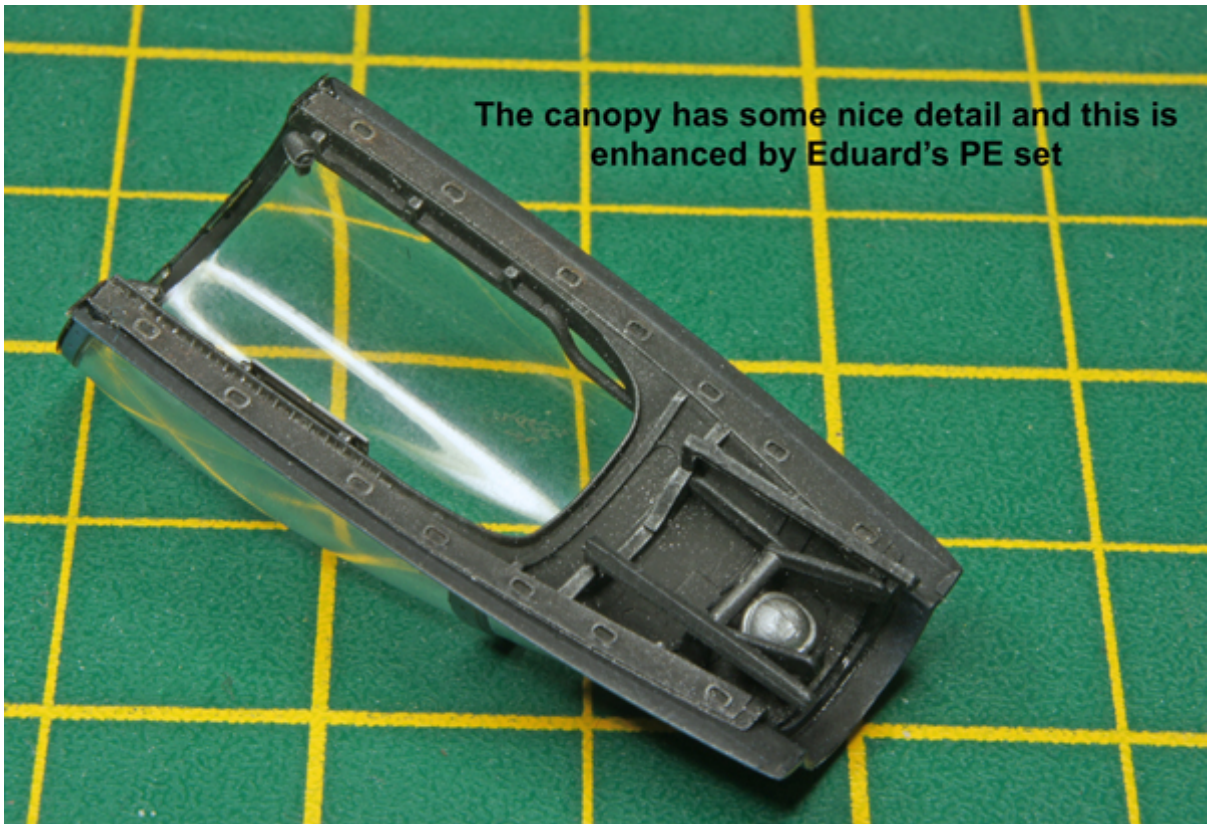







The rear canopy section needs the centre seam removing. Have a look in the Techniques Bank for how to do this. The detail out of the box for this part is good but is definitely enhanced by the PE from Eduard.



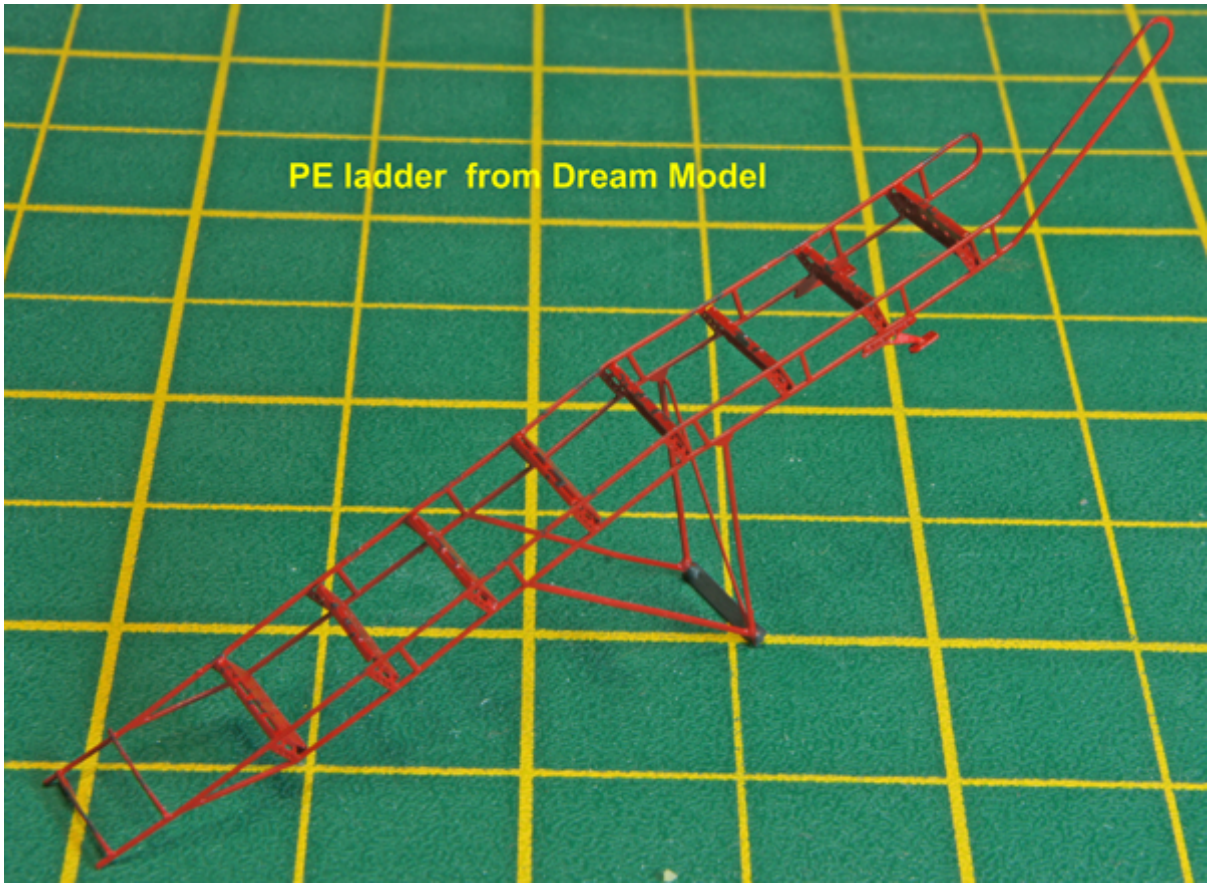



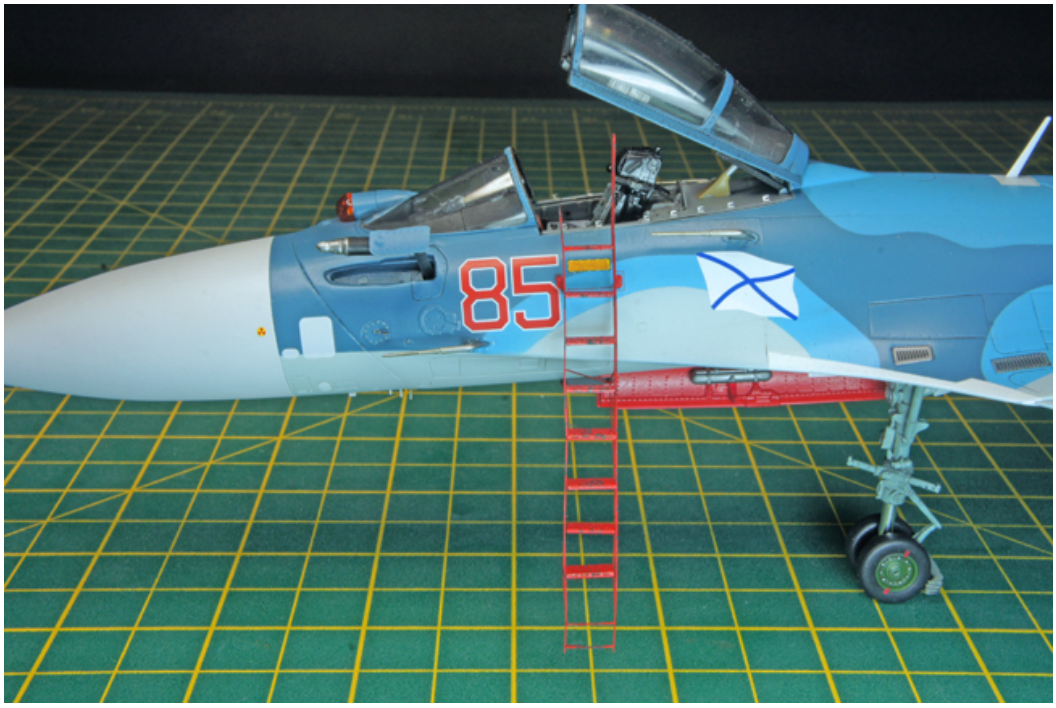

The final parts to add are those that are the most susceptible to being damaged in handling; the fuselage and nose pitot tubes, the AAR probe and the canopy. The final addition I added was a boarding ladder from Dream Models just to give a little more interest.


Canopy in the open position along with the
extended AAR probe and pitot masts
85


85


85


PE ladder from Dream Model




**Summary…**

Overall I quite enjoyed this build and the model itself is well produced with good options for how you want it configured (wing folded or extended) and excellent decals by Cartograf.

The areas that let it down are poor instructions, an incomplete weapon load (even though they are shown in the instructions) and even though I was impressed with the decal quality a lot of stencilling appears to be missing.  This all said the finished model looks great and with the wings folded will not take up that much room in your display cabinet.



A little bit of thought, and looking at my build photos and ref photos will get you around the vague instructions. Additional weapons can be sourced even though this is frustrating and the lack of airframe stencilling is liveable with (I think you could utilise Begemot's Su-27 stencil decals for a lot of the missing ones if you think this is necessary). So, none of the highlighted issues are that much of a problem and can be sorted if you so desire.

I would recommend it, it's not a kit for the absolute beginner but for those with a little experience it should hold no problems and the finished product does look very impressive.

Dave C.

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




85

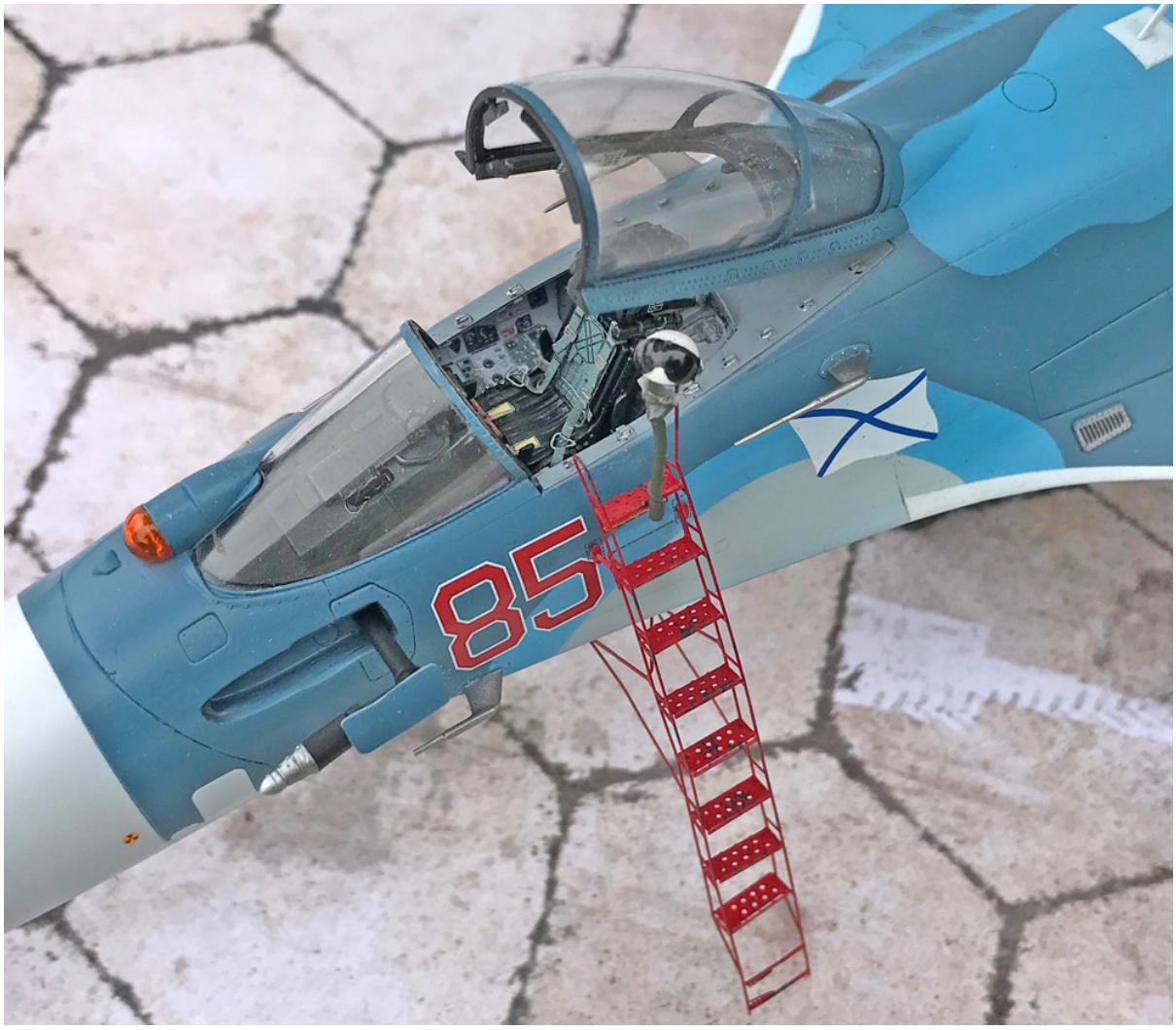

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