SCALE MODEL GUIDE

Decaling and painting an 1/144 scale airliner

Tips on painting
Decaling tutorial
Cheat line decal aplication with color painting combinations
Clear coating and polishing techniques

ROCAST
SCALE MODEL DETAILS

Text and photos:

Guillem Roca

Introduction:

This guide will focus its content into painting, decaling and clear coating processes of an airliner model (which may also be applied for other subjects).
I am writing this guide in an attempt to explain my experiences on painting and finishing, steps that have always been difficult for me, but that after several trials and errors, I have been able to learn and correct (and still to improve) and I am hoping this will serve as a guide on where to be careful at during all these processes in order to avoid some frustrating situations.

A general process that this guide will follow is:

- Preparation of the plastic parts.
- Preparing prior applying the primmer.
- Painting.
- Clear coating using bi component glossy varnish.
- Decaling.
- Finishing.

Chapter 1 – Preparing the plastic parts

Although this step may seem not necessary, it is very important to clean thoroughly the plastic parts, since they can carry some grease from the molds or during the plastic injection process. Cleaning will help the primer to attach to the surface much better.

Materials required are:

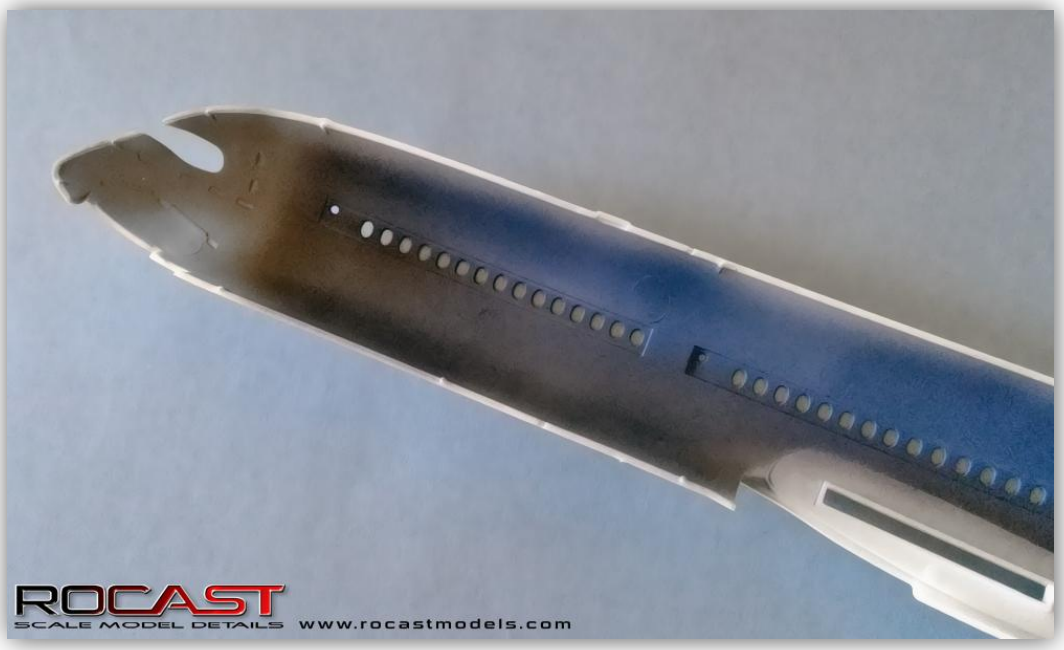
- Dishwashing soap.
- Kitchen paper.

Please note that, it is best to use dishwashing soap over regular soap, since the dishwashing soap has more power on removing grease.
Also, another important point to have in mind is to use kitchen paper and not tissues. Tissues generally may leave some bits of lint.

Apply a generous coat of dishwashing soap on the model and rub thoroughly with your finger tips, then rinse in water without leaving any trace of soap. Although the bigger parts for this tutorial (fuselage, stabilizers, wings, and engines) can be cleaned rubbing with the finger tips, for smaller parts such as the landing gear, you can also use a small brush to clean these parts thoroughly.
Use the kitchen paper to completely dry them. Be very careful if using a hair drier, if too close to the model, plastic may deform.

Chapter 2 – Preparing the fuselage

Since we are going to build this particular model with the clear parts for the windows, we need to paint the inside of the fuselage in a darker grey so that we can achieve a dark effect in proportion to the scale once seen from the exterior.
In case we use the clear plastic windshield, we will also need to paint the cockpit area grey, this time we can use a brighter color so that the area can retain more light.



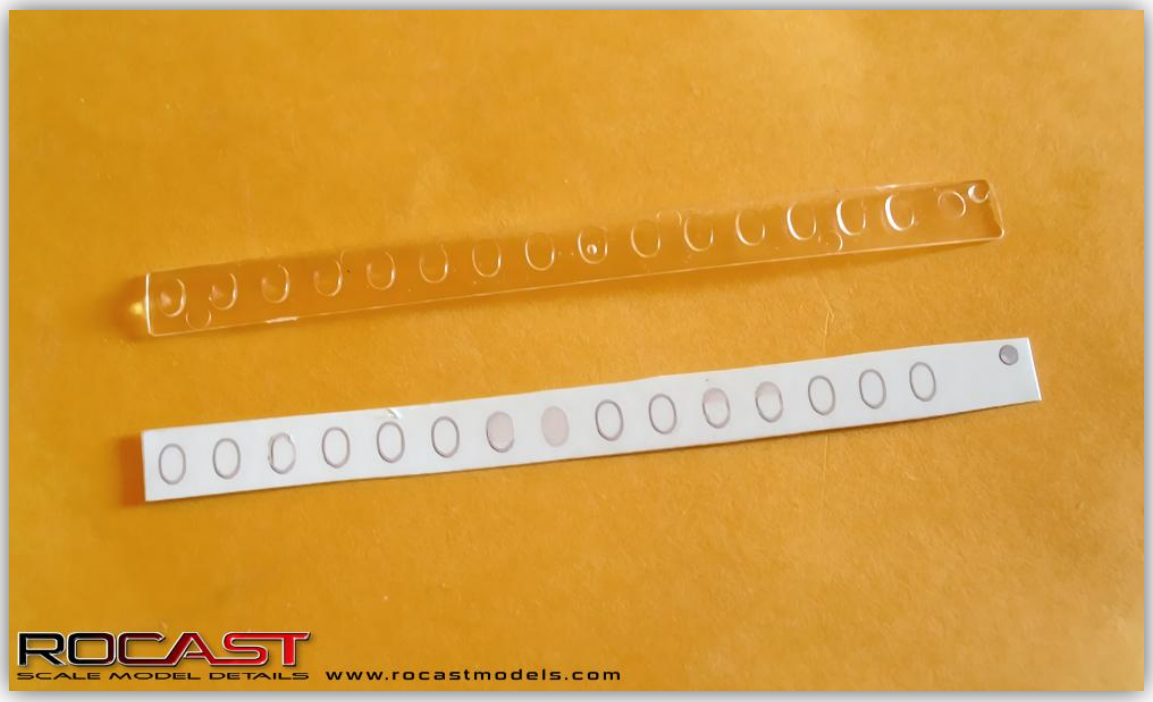
Another very important step is to make sure that all the windows fit perfectly in the fuselage frames, failing to this will result in sunken windows, so make sure to take the time needed to sand and trim some of the window holes since the molding may not be perfect.

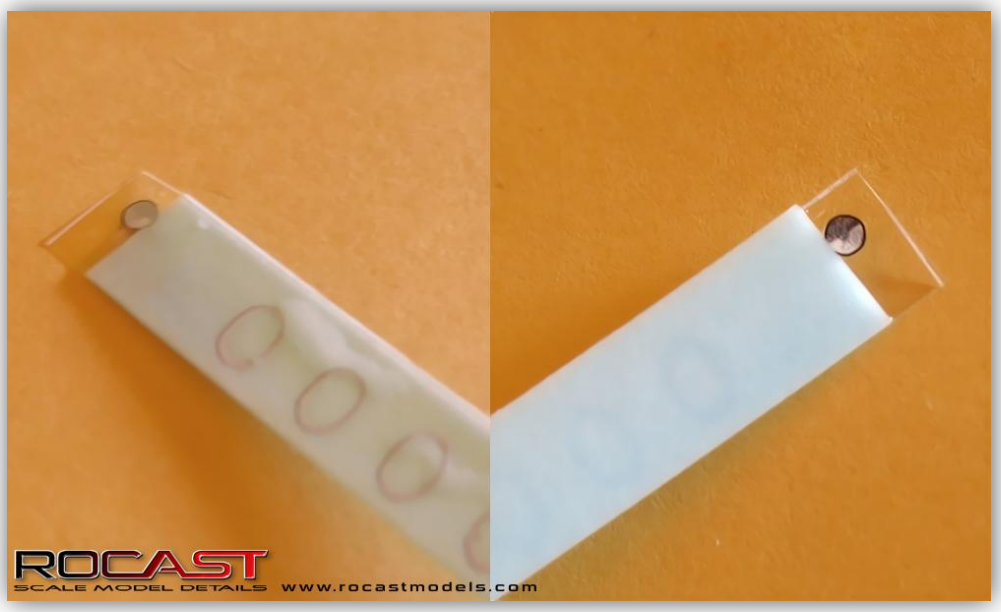
Once done, paint the area around the frame in beige color similar to that of the real aircraft panels, and then once you place the clear plastic windows, the frames will surround them perfectly.

Chapter 2B (optional) – Adding the interior window decals

One of the latest decals we have created consist in decals of frames and shades that are actually placed on the flat surface of the clear windows so that when viewing from the outside, the shades and frames will actually be on the inside like in the real aircraft.
With bigger windows such as those on the B777 or A350, these decals give more dimensions to the model, because unlike the photorealistic decals, the shadows are casted on the frames creating a realistic and dynamic effect that varies depending on the light source.

Applying the interior window decals is not different than others, so take the time needed to place the decals on each clear part and then (once decal is fixed and dry) place these parts inside the fuselage, which we will see on the next chapter.




ROCAST
SCALE MODEL DETAILS
www.rocastmodels.com

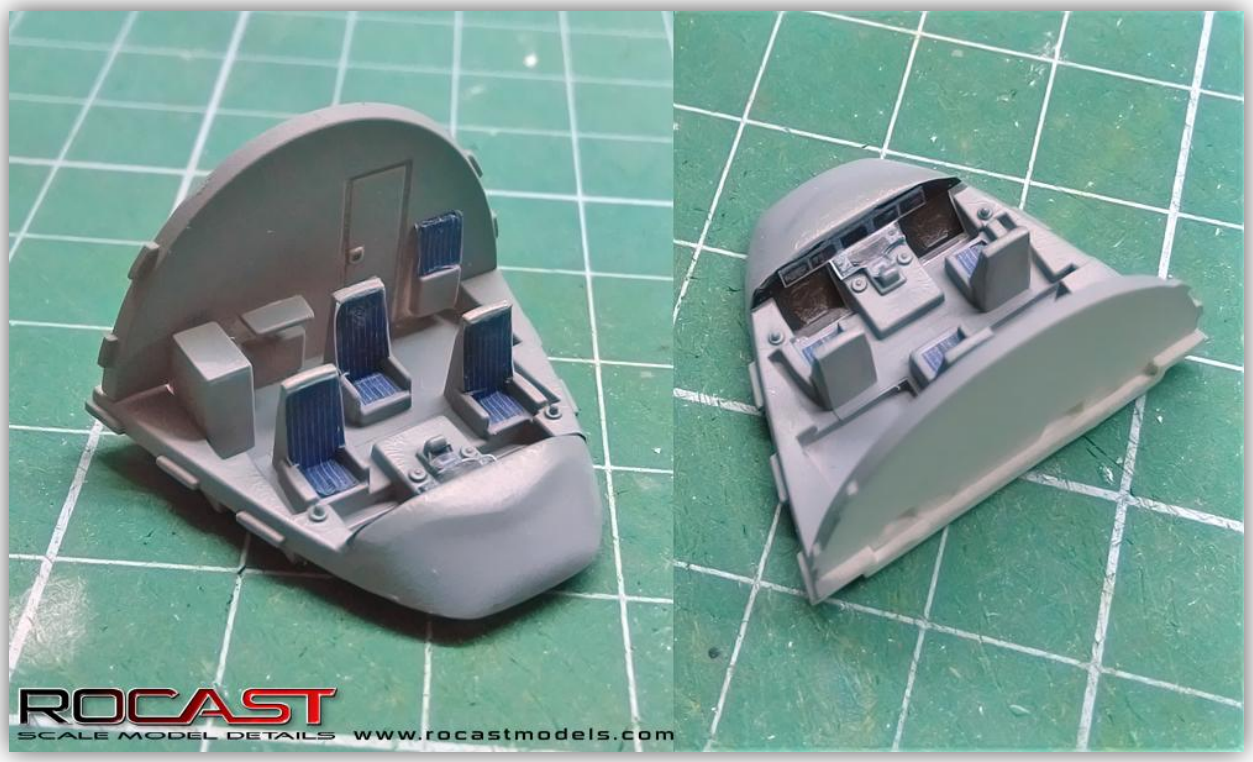

ROCAST
SCALE MODEL DETAILS
www.rocastmodels.com


ROCAST
SCALE MODEL DETAILS
www.rocastmodels.com

Chapter 3 – Preparing the fuselage prior joining.

Before joining both halves of the fuselage, there are some steps that need to be done (as per instructions) so since this guide is not focused on building the model specifically, I will give an advice on gluing the clear windows. Make sure to use a vapor less cyanoacrylate or simply use white glue, you can reinforce these clear windows by adding transparent tape to the surroundings.

Follow the instructions of the kit regarding adding the cockpit, the needed ballast, landing gear structure etc.



Chapter 4 – Working with the fuselage.

We have now both halves of the fuselage glued, and it is time to hide the union, so we are going to add masking tape around the union before we apply the putty. By doing this, none of it will go on top of any panel line, so we protect them with the masking tape.

I am using bicomponent putty (polyester putty) it is basically the same used to repair cars and it can be found in most hardware stores.
It is important for the putty to be fresh, if it is too old, it may become thicker and harder to work with which is what happened with mine, and therefore making this process a bit harder because we will need extra work to sand the putty down.

It is important to remove the masking tape once the putty is still fresh, if we remove the masking tape when the putty is dry, it is possible we may tear it off.

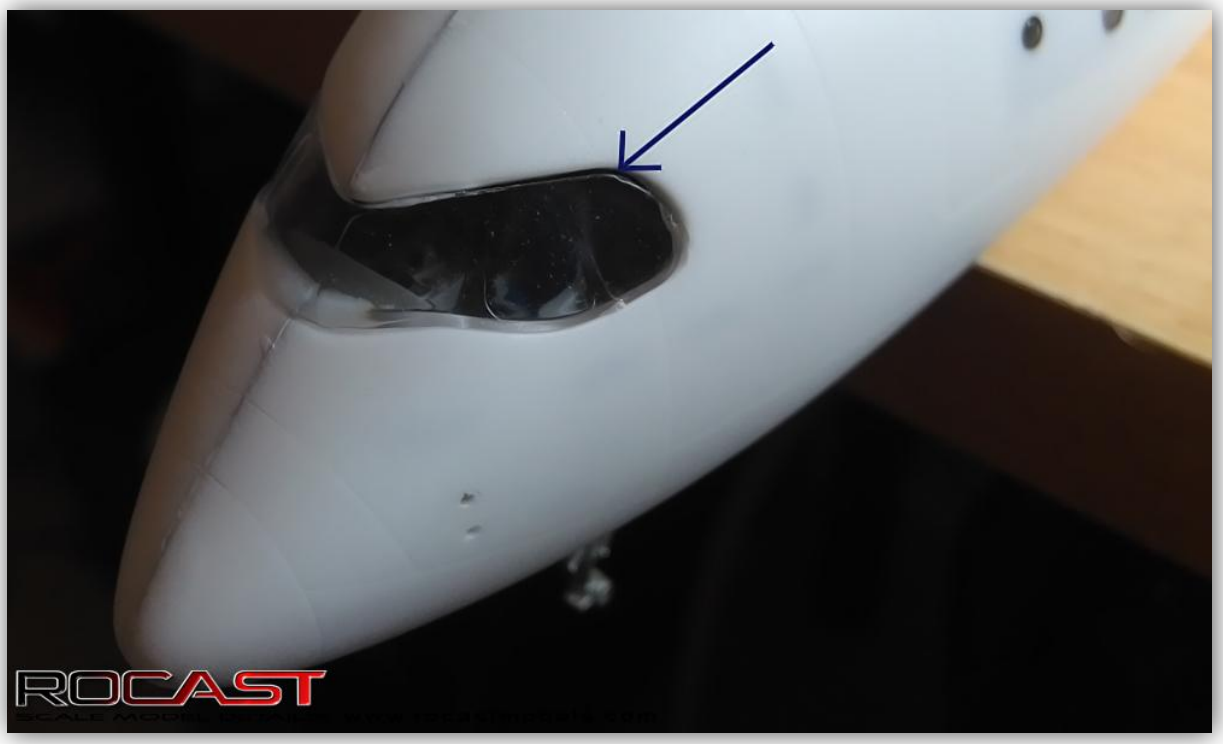
Sanding the union requires of sand paper, I like using a more abrasive one at first and later a finer one, this will depend on how the putty is and if you were able to apply it smoothly, the smoother it is applied, the easier it is for sanding.

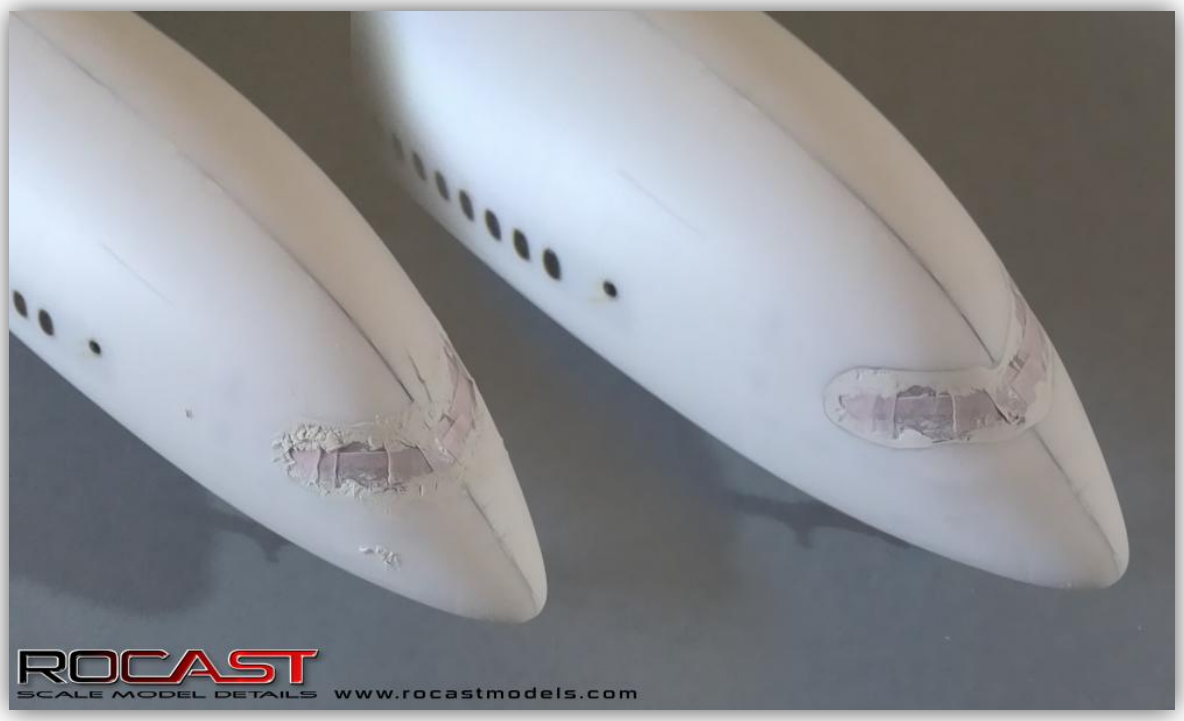
Once we have the fuselage prepared, it is time to add the clear windshield. I am using a little bit of white glue; white glue will be transparent once dry, so here we have a good point in case some of it shows around the cockpit area. Prior adding the clear windshield, I painted the surrounding area of the fuselage with the same color as the cockpit.


ROCAST
SCALE MODEL DETAILS
www.rocastmodels.com


ROCAST
SCALE MODEL DETAILS
www.rocastmodels.com

Since the windshield did not fit too well on my model, I had to repeat above steps to first mask the windshield and apply putty around it.
In this case, I did not remove the masking tape as it also served as protection during the sanding process; you may however; remove the masking tape when the putty is still fresh, wait for it to dry, apply masking tape again and sand down the areas around the cockpit.




ROCAST
SCALE MODEL DETAILS
www.rocastmodels.com


ROCAST
SCALE MODEL DETAILS
www.rocastmodels.com

Chapter 5 – Preparing for painting.

At this stage, I always like to build myself an aircraft support so that I can hold the airplane while painting and while drying. I will not extend myself much as a photo is worth a thousand words, but one thing I would like to mention is that some prefer painting with the wings attached, I prefer to leave that area free of space so that I can hold and paint/clear coat easier the aircraft.


ROCAST
SCALE MODEL DETAILS
www.rocastmodels.com


ROCAST
SCALE MODEL DETAILS
www.rocastmodels.com

Therefore, since the wing unions are a delicate place because the wings need to fit perfectly, I cover those areas with masking tape.

One of the big steps prior applying primmer to the model is to cover and protect the windshield and the windows. There may be some ways to do it, I used liquid mask from Vallejo, but I highly recommend using one of those aftermarket manufacturers pre cut templates made of vinyl, so that this process can be easier, cleaner and faster. Again, it is important that the windows (the clear plastic) were well placed, otherwise if they are sunken, it will be much harder to remove the liquid masking later.


NATURAL RESIN
LIQUID MASK
70.523
MASCARA LIQUIDA
MASKIERMITTEL
ROCAST
SCALE MODEL DETAILS
www.rocastmodels.com


ROCAST
SCALE MODEL DETAILS
www.rocastmodels.com

Once ready to paint, I always like to dust off any possible particulates with this Tamiya's antistatic brush but you can also dust off by using the airbrush just pressing without pulling back the trigger.

It is important to dispose of a space dedicated to cover the model after painting to avoid any possible dust settling on it. Painting cabins are a great choice and having a clean space will help having better results.
A tip; use a water spray to spray water around the cabin, in this case if there is any particulate flying around, it will get trapped by the moist of the water and stick onto the cabin walls.

This is the first primer coat, for the primer I always like using Tamiya's surface primer (white), there are other brands, but make sure that the primer is exceptionally fine, we do not want a thick layer of primer, but just a thin coat that will ensure a proper adhesion of the color paint.

Priming also helps to visualize problems, here a section of the fuselage wasn't properly finished, and so I applied putty, sanded it down and proceeded with another light coat of primer for that particular area.

Tamiya's primer dries relatively quick, however, it is always best to let it dry for about an hour.

Next it is time to apply the paint; I am using a spray can from the brand Macota. I am not trying to make publicity nor I get anything from Macota, but I do have some experience with this paint, and after four years having painted another model, it is still keeping its white color, while the model I painted with pure white spray can from Tamiya has lost its pure white to certain degree.

Again, apply a thin layer and let it dry (Macota paint dries very fast) and apply a second coat till the color covered the fuselage evenly. If there is some bit of orange peel effect, do not worry as this will be fixed later when applying the glossy varnish.

Let the model dry for 24 hours, from this moment onwards, always wear gloves, I am using cotton gloves but you may also use vinyl gloves, more about this on chapter 8 - Clearcoating.

Next will be time to peel off the liquid mask or the vinyl mask from the windows.
This process is quite time consuming if you are using liquid mask, so take the time needed to fully remove the mask from the windshield and the windows.

Chapter 6 – Cheat line technique

Some airplanes have a cheat line along the fuselage that divides two or more colors. In this case, the model I am making has a blue mountain and right below it there is purple color on the belly.
The blue mountain is represented by a decal, and it is placed in a certain position according to the real aircraft. Therefore, it is impossible to guess where to mask tape before adding the decal to paint the purple belly; the solution is place the decal first. This step is also done for the decals of the front section of the fuselage.

Once we applied the decals (check the next chapter how to apply the decals) it is time to apply a light coat of varnish over these decals to protect them from the masking tape, otherwise if we do not protect these decals, we may pull them out with the masking tape.

I am using the Diamond clear coat solution from ZeroPaints as it has given me good results before.
These systems consist of 3 components, the glossy varnish, the hardener and the thinner. The mix ratio according to ZeroPaints is of 100 parts varnish, 50 parts hardener and 10% thinner.

So for example we can use; 20ml of varnish, 10ml of hardener and 3ml of thinner.

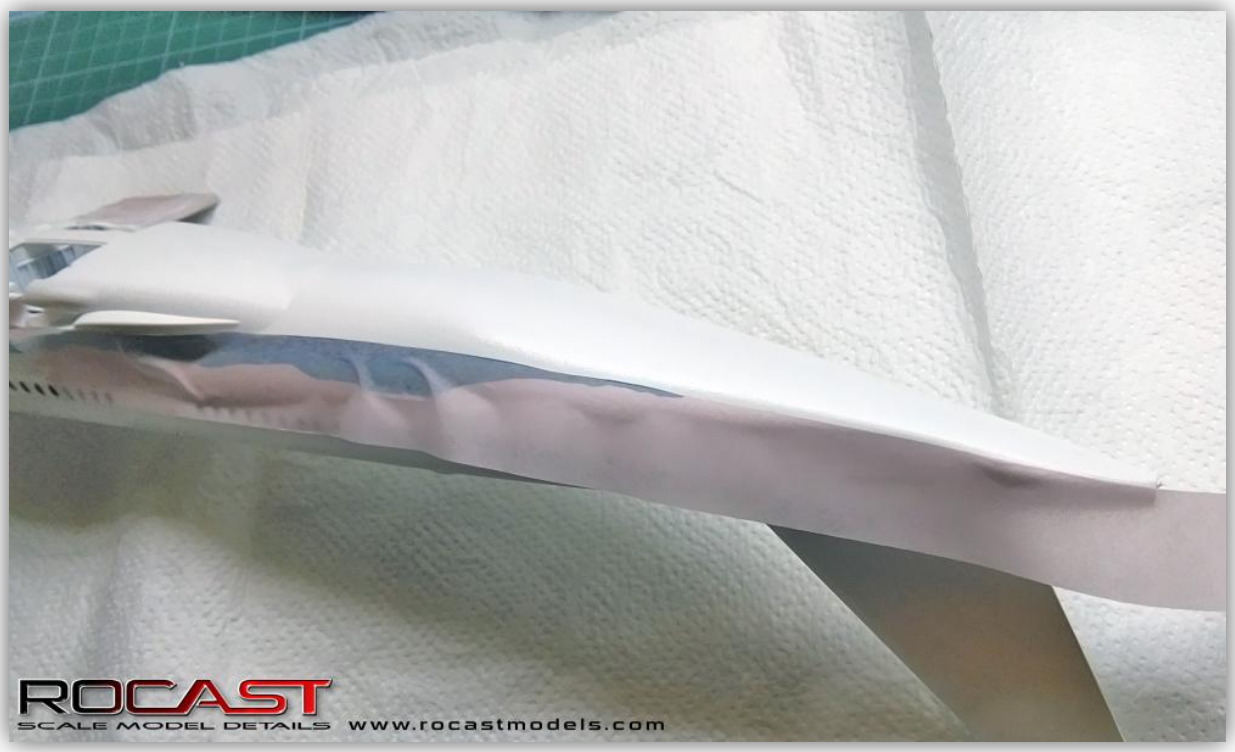
Make sure to have in hand measuring pipettes so that you can take these products out of their bottles in exact measurements.
Important tip: be careful if using a syringe to extract the materials from their bottles, I am not 100% sure this was the cause of the problem, but every time I used syringe to extract the clear coat, hardener and thinner, I've got what is called "fish eye" or "silicone".
This defect is similar to a micro volcano, and it won't be covered no matter how much clear coat you apply on top of it. This happens when the surface is greasy, oily or just simply contaminated due handling the model with the bear hands, hence why I recommended using either cotton or vinyl globes to reduce as much as possible this contamination of the surface.
Also note that these defects may appear if the air supply is contaminated. I suspected that the inner part of the syringe has silicone in some degree, or wax for it to slide through the inside of the syringe, so in my opinion a contamination for the clear varnish may come from that.

There are however, additives to avoid this defect, so a safe way is to simply add a drop of this additive into the mix.

Apply these clear coats in a very well ventilated area and wear a mask regulated for painting to protect yourself from the toxic vapors.

Apply a light coat of varnish over the decals and let the model dry for 24 hours.

After the model is completely dry, apply the masking tape and then proceed to paint the belly color.
Once the paint is applied, remove the masking tape very gently and let the model dry. Depending on the paint used you will need to let the model dry for longer.




ROCAST
SCALE MODEL DETAILS
www.rocastmodels.com


ROCAST
SCALE MODEL DETAILS
www.rocastmodels.com

I am using Vallejo paints, (the formula I used for this build was 1 drop Violet 70811, 30 drops white). These have a matt finish, but for the decals we need a glossy base, so I applied another coat of glossy varnish on the entire model to leave it ready for decaling. Allow the model to dry for 24 hours prior starting to add the decals.

As an important note I learned from my past builds; I discovered that the results are much, much better when decaling on top of glossy varnish surface and later using the same glossy varnish to seal the decals.

A white spray can paint may present some shine, but is always best to have a glossy coat surface to apply the decals on, this will ensure the edges of the decals are invisible as in later steps, we will seal them with the same glossy varnish.

Chapter 7 – Applying the decals

To apply the decals we will need the following items:

- Scissors.
- A dish with tempered water.
- Kitchen paper.
- A clean soft bristled paint brush.
- Tweezers.
- Decal softener (I am using Mr.Mark softer).

Make sure the model is glossy, it is ideal to have a glossy varnish base applied of the same varnish we will use later to seal the decals.

The first steps consist into cutting the decal around the edge, and then place it inside the dish of tempered water.

Keep an eye on the decal, do not let it leave the blue paper base, then after about 30 seconds, use the tweezers to grab the decal still on the blue paper and place it on the model in a nearby area where its final position will be.

Start pushing the decal very gently with the brush, if the decal does not move from the base paper, put it back again in the dish with water for a few more seconds.

Once the decal is placed on its correct place, remove any excess of water with kitchen paper and use a hair dryer to let the decal set on the model.

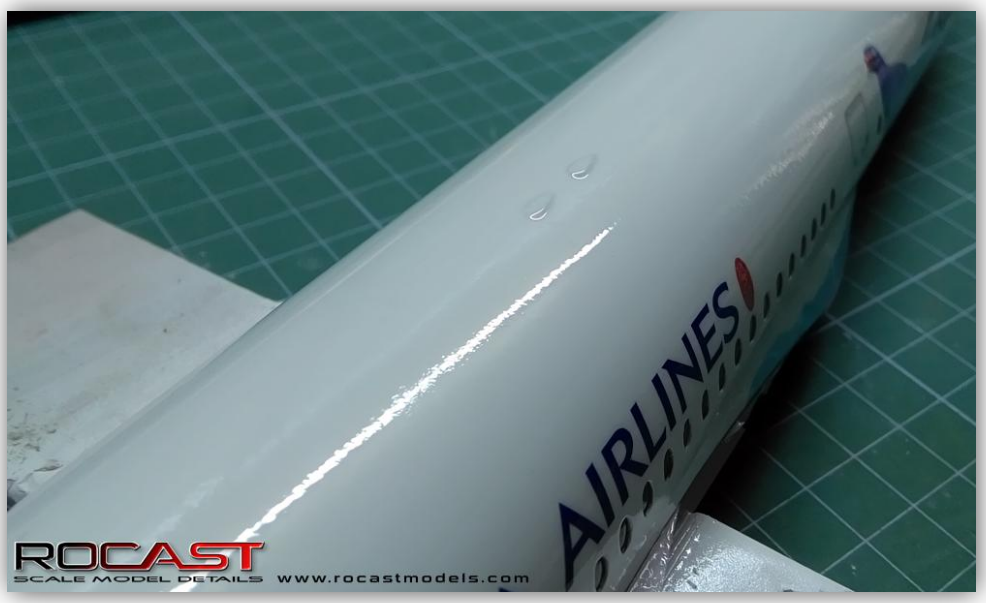
Attention, make sure to set the hair dryer at a proper distance of about 30-35cm, otherwise the model may melt due the hot temperatures.

Apply the softener around the decal to soften the edges so that the carrier is no longer visible, the later step of clear coating will also aid into hiding the edges. You can use a kitchen paper to gently press on the decal to hide the edge, then use a hair dryer again to settle the decal.

Chapter 8 – Clearcoating

We have covered the clear coating preparations on chapter 6 where I wrote about the cheat line technique.
Recently I have learned that it is always best to give a mist coat first, this will ensure the decals receive a first light coat that will protect them.
You can wait for about 5 to 10 minutes to let this first coat to settle, do not worry if it presents a little bit of orange peel, after all, it may be almost impossible to give a completely smooth coat first.

After 5 minutes, you can now apply a thicker coat. In general, 2k clear coats have a great power of adhesion, so you can apply a thicker coat safely but with care to not to make it too thick.
Once you are happy with the result, with the thickness, let the model dry for 24h hours.



It is important to notice two things:

- Do not be very worried if the result after the thicker coat shows some orange peel, we will fix that in the next step.
- Make sure that the clear coat is thick enough to cover and protect the decals, in the next step we are going to do some operations that require the decals to be well sealed.

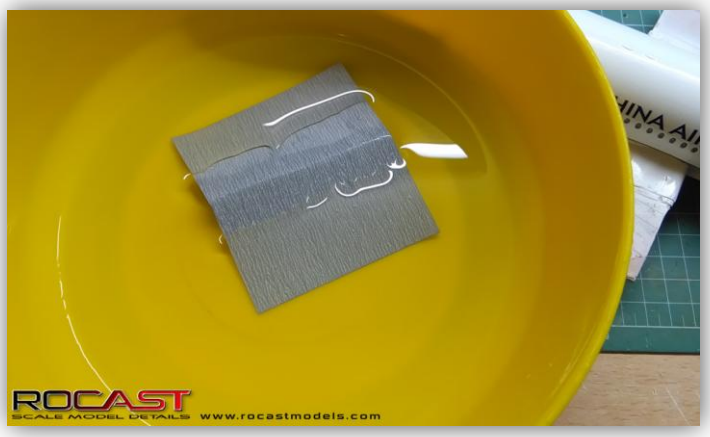
Chapter 9 – Polishing and finishing

The final process after applying the gloss varnish consists of sanding/polishing the model. This will remove any orange peel, will make the decal edges invisible (if they weren't already on the clear coat process) and will help the model to obtain a uniform shine.

For this purpose we will need:

- Polishing compounds; I am using Tamiya's compounds, the fine and finish compounds. You can also use coarse compound first.
- Polishing cloth, I use the microfiber cleaning clothes for the glasses.
- Finishing (water) sand papers of 1500- 2000 -2500 grit or even finner.
- Wax and again, a microfiber cloth. Since I use Tamiya's wax, it already includes the wax applicator.
- Plastic bowl.

The first step will be to sand the model with the help of the sand paper, I am starting to sand the model with 1500 grit, and to do that; we will be doing a wet sanding.
Submerge the portion of the waterproof sand paper into the bowl with water and start sanding down the model making sure to keep the surface wet.



A successful polishing will start to show the model becoming matt and very smooth.
Very important: Be very careful when sanding around edges as the paint may be thinner there and thus you can sand past the clear coat or even past the paint damaging the decals. That is the reason why a final thicker glossy clear coat as the finish coat is best. Delicate areas that can be affected from this are the door gutters and wing exterior area.

Do not panic for the shine going away, it is still there but we just opened the clear coat pores and from now on we can continue sanding the model with finer grid, next we can sand the model with 2000 grid water based sand paper.

Little by little the orange peel will start to disappear and the model will become smoother and smoother.

Once the model is sanded down and no peel orange is visible, it is time to apply the polishes.

I am starting with Tamiya's fine compound, but you can start with the coarse compound for a better surface preparation.

Apply the polishing compound on the surface and start polishing by doing circular movements with the help of the microfiber cloth, it is very important to keep the surface with the compound on it while polishing.
If the compound has disappeared, apply more prior continuing polishing.

At this stage you may start seeing some shine from the model's surface.

The next step is similar to the previous one, but this time we will use the finish compound.

In the photo above you can see a comparison between the surface before sanding/polishing and afterwards. I think that there is no such way to achieve that smooth finish with the glossy varnish just applying it directly. As it happens when clear coating real cars or bikes, a posterior polishing is needed.
The latest step may be optional in some cases, if you are already happy with the result.

You can lastly apply wax on the model in the same manner as we applied the different polishing compounds. Make sure to follow the wax manufacturer instructions. According to Tamiya's wax, it is applied in the same manner as the polishing compounds, however, you need to polish with a clear area of the cloth to properly apply their wax.
Other manufacturers may instruct slightly different steps, so that is why I mentioned to refer to the manufacturer instructions, the same applies for drying times on paint / clear coat.

I hope you have a happy modeling time and that this guide can give you some tips or advices while painting and decaling your model.

Thank you very much for reading,
Guillem – Rocast Models