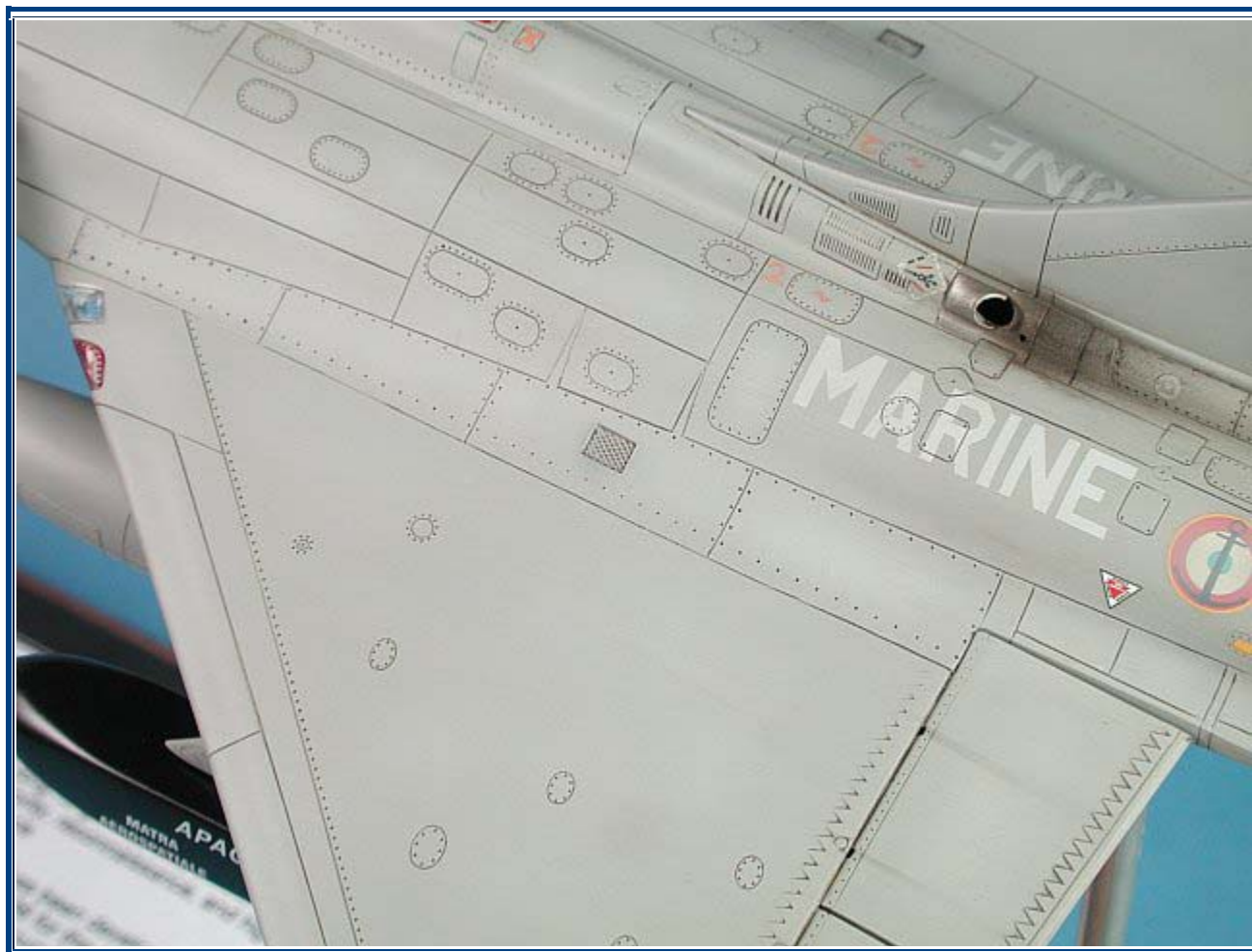


Aircraft Panel Lines A Step-By-Step Guide

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Introduction

One of the things that I believe really helps to accentuate the three dimensional nature of a model (aircraft in particular) is the highlighting of the panel lines that criss-cross its surface. Panel lines that have had subtle shading applied, help to give the model's surface some visual depth. Like most modelling techniques, it is easy to overdo, which then becomes distracting.

I have experimented considerably with what works best (to my eye anyway) on modern aircraft subjects.

What follows is a step-by-step guide to my technique. In no way do I advocate this as the only or even the best way to highlight panel lines. I simply hope that by sharing it, you might find something useful for yourself.

They say a picture is worth a thousand words, so rather than talk you to death (or sleep), I have a brief introduction to the challenges of panel lines, the paints and colours I find work best and then its straight into the pictures.

The Challenges

The method that I will describe involves washing a thinned paint into the panel lines. As can imagine this requires recessed panel lines to work. I have read of methods for highlighting raised panel lines, but I have never tried this (I prefer to re-scribe the panel lines for these older kits).

Having said that, even newer kits that have recessed panel lines require some prep work if you are planning on washing them. In their attempt to make the panel lines on kits very subtle and appropriate to the scale of the model, manufacturers (Hasegawa is a good example) have inadvertently made it more difficult to get a wash to stay in the panel lines.

Why is this ? Well its because the panel lines are too shallow and after you apply perhaps several coats of paint, gloss clear (for decals) etc, the panel lines fill up !! This means our wash will not stay in the recess and can ruin the effect.

Preparation: Pre-Scribing

Preparing for a panel wash, actually begins long before you paint the model. In fact, in most cases it can begin even before you assemble the model. This is because the right time to pre-scribe our panel lines is when each part is easiest to work with (ie its not attached to other parts).

We do this by using a scribing tool and lightly tracing over the existing panel lines, while the kit is still in pieces. This deepens and sharpens the existing panel lines and makes our later task of panel washing easier. I find that during this process you do not need to press down with the scriber, just the weight of the tool alone (providing it is sharp) will remove enough plastic for our purposes.

I have found that not all kits require pre-scribing. For example, the picture at the top of this article is of the Revell 1/48 Rafale. The panel lines on this kit are deep and sharp enough to not require additional work from us. As you become more experienced with washes, you will get a feel for those panel lines that will and those that will not require pre-scribing.

To further illustrate, consider the two pictures below. Both are of the Hasegawa A-4 Skyhawk kit. The one of the left was painted and the panel wash applied with no pre-scribing. The one on the right (built after the lesson learned from the left one) was painted and washed after the kit panel lines had received a light pre-scribing. If you look closely,

you will see that the panel lines on the right Skyhawk are more evident and more consistent.



What Paint and Colour ?

The choice of paint type (enamel, acrylic, water, ink etc) and colour (black, brown, oil etc) that you use for panel washes is an important one. Why ? Well, to make our job of washing panel lines easier, we need a paint that flows well when thinned, is easily removed with thinner when dry and is capable of holding its colour when applied in a very thin mixture.

As you follow through the steps below, you will see that I always seal the final paint scheme on my models with an acrylic gloss clear finish. I do this for two reasons.

1. To provide a suitable surface to apply the decals on.
2. To seal and protect the paint scheme from the panel wash process.

The choice of acrylic gloss clear is worth explaining. I choose gloss clear as it encourages the thinned panel wash paint to flow into the recessed lines and allows me to cleanly remove any excess from the surface of model. I choose acrylic clear because the paint I use for the panel wash itself is enamel based. By using an acrylic clear, I am less likely to have problems with the enamel thinner I use to remove any excess wash from the model surface once dry.

So, exactly what paint do I use ? Based on trial and error, I have settled on Model Master Enamel - Burnt Umber (#2005). I like the dirty oil colour of Burnt Umber and I have found that it is easily removed once dry using fairly mild solvents such as White Spirit. I have tried to use Humbrol enamels for the wash, however once they dry you almost need sandpaper to remove the excess (not a good thing). To be honest, I have not tried to use acrylic paints for washing as I was very happy with the result of Model Master. As a general rule, I find acrylic paints have a coarser pigment and are not as suitable for subtle effects as enamels or oils.

Some modellers use artist oil paints for panel washes. I do use oil paints for final weathering (oil stains etc), but find that you need to apply too many coats of the oil wash to get a suitable depth of colour for panel lines.

Finally, remember that you don't have to use the same colour for all panel washes. I frequently lighten or darken the basic Burnt Umber colour depending on the paint scheme of the aircraft. For some models I would use an entirely different colour (say light grey for a black aircraft such as the F-1117A). No matter what colour you use, the basic techniques of preparing the model and application of the the wash still apply.

Step By Step

What follows is the process of washing the panel lines, accompanied by several photos of the results of each step:

Step 1: Paint the model as normal.

Using whatever paints you prefer, complete the basic painting of the model. At this point, the general painting of the model is complete. Note that is not important for panel washing the type of paint (acrylic, enamel) you choose to paint your model with, as we will be sealing it anyway under a coat of clear in the next step.

Click on image below to see larger image



Step 2: Apply a clear gloss coat over the entire model.

Coat the entire surface of the model using an acrylic gloss clear (such as Future, Tamiya, Gunze, Polly S etc). This provides a protective layer for the paint (especially needed if you paint using enamels) as well as providing the gloss surface for the application of decals

Click on image below to see larger image



Step 3: Apply the decals as normal.

You should always apply decals over a gloss surface. When the decals are dry (say overnight) wash off any excess decal glue using warm soapy water and apply a second coat of the clear gloss over the decals to seal them, This also provides a consistent gloss finish over the entire model / decals and helps to achieve that "painted on" look.

Click on image below to see larger image



Step 4: Apply the Panel Wash.

Mix up the panel wash using a mild enamel thinner (I like White Spirit). A rough guide to the correct ratio is about 3-4 drops of paint to a thimble full of thinner.

Using a small brush (I normally use a size 0), apply the wash of MM Burnt Umber into the panel lines. If properly thinned, all you need to do is touch the brush tip to the panel line (corners are good starting places) and the wash should flow into the lines by itself. A good wash will flow about 0.5cm before stopping. If it does not flow, no problem, just work your way along the panel line, working the wash into the recess as you go.

Some of the wash will end up outside the lines. Its at this point that the resolve of many a good modeller has been tested. Seeing their latest masterpiece covered in a mess. Do not worry ! The clear acrylic coat we applied earlier will protect the model and allow us to clean up the mess in step 5.

Remember it takes practise to get the amount of wash right. Try not to be heavy handed. Refer to the pictures below as a guide on how much you need.

Click on images below to see larger images



Step 5: Remove the Excess Wash

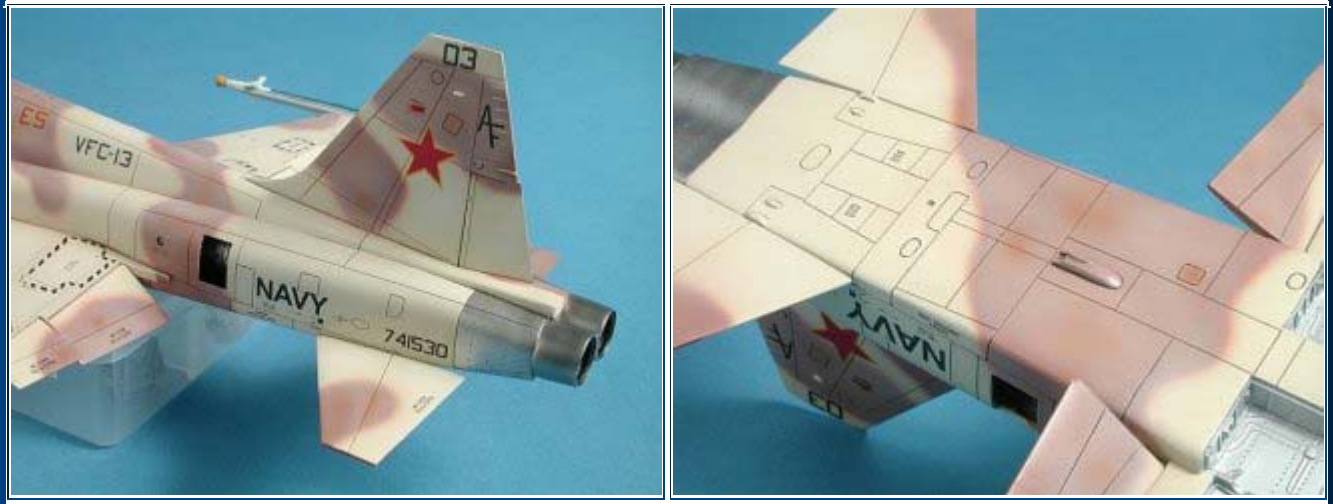
Once the wash has dried (overnight is plenty), apply enamel thinners (I use artists white spirit as it is solvent based but not too strong) to a clean, white, lint free cloth (I use old cotton T-Shirts) and begin to wipe off the excess paint from around the panel lines. I like to stroke the cloth from front to back of the aircraft (ie with the airflow).

I normally start in one spot (say a wingtip) and do a single swipe with the cloth. For the next swipe, move inboard and again do a single swipe. Even though you will not have removed all the excess wash, do not go over the same section immediately, rather keep working across the wing, fuselage and other wing doing single swipes. By the time you get to the opposite wingtip, it will be safe to go back to the start and begin your second run to remove the remaining wash. Above all else, resist the urge to rub in one spot until it is clean. Doing so can result in rubbing thru the clear coat that is protecting the decals and paint below. This is not what you want (trust me).

Keep wiping and rotating the cloth to keep it clean. This is a slow process and needs patience. Keep wiping until all the paint outside the panel lines is removed and only the paint in the panel lines remains. Sometimes if the panel lines are not deep enough the paint may come out as well. If so, then re-apply the wash a second time and repeat the process.

Sometimes, you will find panel lines that are not easy to get at with your finger or a cloth. In those cases, I use simple cotton buds. Dip them in thinner and carefully wipe the model surface as with the cloth above.

Click on images below to see larger images



Step 6: Finishing Up

When you are happy with the panel lines, you can continue to complete the model as you normally would. For me, this typically involves applying a flat clear coat to dull down the gloss finish and seal the wash into the panel lines. I then commence final weathering using oils, pastels and whatever else looks appropriate.

With a little practice (and a lot of patience) the end result should look something like this.

Click on images below to see larger images



So there you have it. I hope you have found this article useful and hope to see more models out there with panel lines proudly displayed :)

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