FLIGHTLINE GRAPHICS

Paint Masks - Stencils - Dry Rub Decals - Waterslides

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Paint Masks – The Basics.

Introduction

These instructions should give you a good grounding in the correct way to use your paint masks. Please read them carefully and if you have any questions please contact me before you start painting!

In this document you will learn:

1. What are Paint Masks?
2. How to look after your masks
3. Labelling conventions
4. Registration holes
5. Registration marks
   o   Registration Dots
   o   Registration Pins
6. Fixing the mask down before painting
7. General comments
8. Best practice when painting
9. Glossary of terms

1. What are Paint Masks.

Paint masks are produced from a type of adhesive backed vinyl which has been specially manufactured for use as a paint mask. The low deposit adhesive has a low to medium tack grip which is ideal for full size and model applications.

The mask is supplied on a silicone backing sheet on the adhesive side of the vinyl, and a paper or plastic "application sheet" on top of the mask.

The application sheet holds the mask in position until it has been applied to the surface of the model. When it has been located the application sheet is removed before painting.

A paper application sheet is used for normal masks, but occasionally can be supplied on clear application "film" where it usually indicates that alignment by eye is preferred over the use of a registration system (see later for explanations).

Paint Mask with pattern cut into vinyl

Application paper on top of mask

Silicone backing sheet
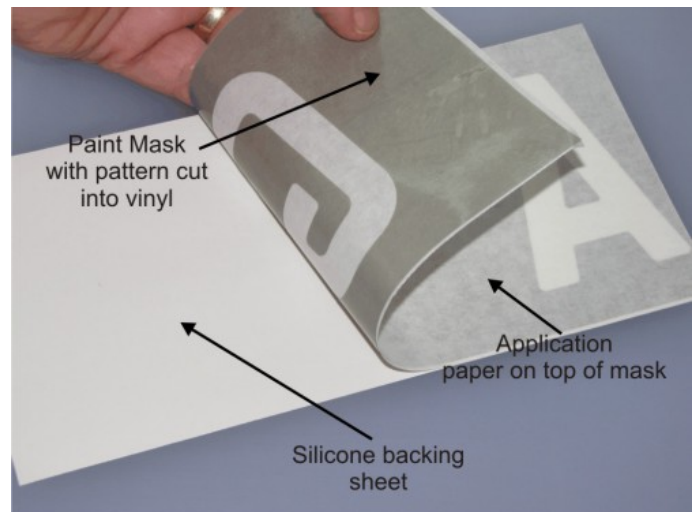
The masks can be used to apply any image to the surface of the model provided the detail is not too fine. Single coloured markings such as serial numbers and aircraft letters are the easiest masks to use and the most critical thing to worry about is applying the mask in the correct position.

Markings requiring more than one colour such as RAF roundels are produced by layering up the colours one on top of each other using a mask for each colour. The order of application is often important so the

sequence is usually indicated on the mask with a label A, B, C, and so on until all the colours have been applied. More one off or custom work may have application order / colours hand written on the mask.

When layers of colour are involved it is necessary to align masks in relation to each other so the painted image builds up correctly. This is achieved by using a simple registration system which will be explained later.

2. How to look after your Paint Masks

Paint Masks are supplied in board backed envelopes or, for larger models, a pizza style box. It is highly recommended you store the masks in the delivery package inside your home away from fluctuating temperatures. If a mask has been rolled over to fit in the box it is better to remove the mask and store it flat. Normal ambient temperatures are fine but you should avoid storage close to windows, heating, or air conditioning systems. Rapidly fluctuating temperatures can affect the adhesive and also the potential to affect registration of multi layered masks. You should never stack items on top of masks as they are likely to deform.

Store your masks in this way and you will easily get 2 years or more trouble free storage without any issues.

3. Labelling Conventions.

Markings made up of more than one colour layer will typically have identification letters cut into the mask to help you identify them. Typically the coding will look something like this:

Code	Meaning
FU	**Fu**selage Insignia
SQ	**Sq**uadron or rank marks on the fuselage
SN	**S**erial **N**umber
TW	**T**op **W**ing insignia
BW	**B**ottom **W**ing Insignia
FF	**F**in **F**lash markings

Following this code there will be a hyphen followed by a letter indicating the order of application.

For example most WWII aircraft had a standard RAF type B roundel on the top wing which is made up of 2 colours — blue & red.

This will therefore have 2 masks, the first blue colour mask will be labelled **TW-A**, and the second mask for the inner red circle will be labelled **TW-B**.

In the example opposite the masks are labelled following this convention.

Some customers will have requested the colours to be built in a particular order to meet individual requirements and the coding convention will reflect that request where possible. I strongly recommend you become familiar with the codes on all your masks before use. In rare situations some masks may be further marked with a "**/R**" or "**/L**" to indicate left or right side of the model (as viewed from behind).

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4. Registration marks

As mentioned previously, multi-coloured insignia will need some way of ensuring consecutive overlays of paint masks to retain their registration so the image builds up correctly.

This is achieved by means of a 1.3mm diameter registration hole cut into the mask at manufacture.

These holes are repeated on all colour layers in exactly the same place. These holes are the registration marks!
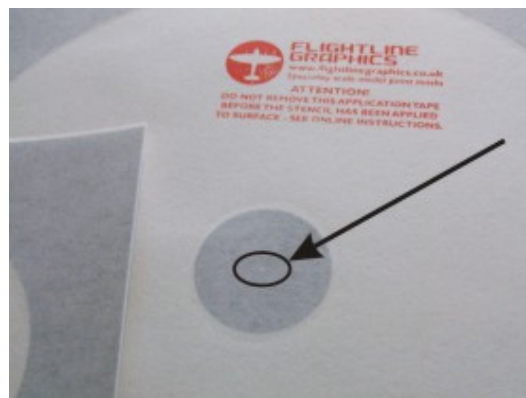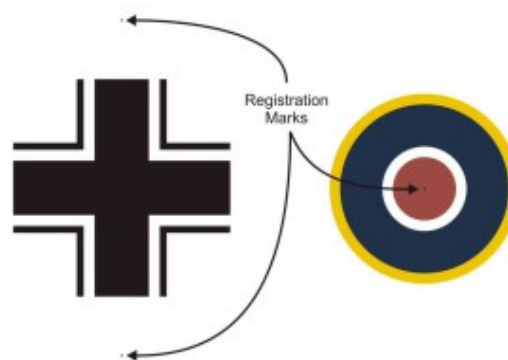
Single registration marks

The only insignia with one registration mark will be those that are made from ever decreasing circles. RAF roundels are probably the most common example where one registration hole is located in the centre of each roundel mask to fix the position of every circle in the sequence.

Multiple registration marks.

For all other insignia it is necessary to have a minimum of 2 registration marks to provide accurate registration of the colours. Insignia such as the American stars & bars or German Balkenkreuz are typical examples where you will see 2 registration marks.

5. Registration Points.

To position masks onto your model it is necessary to find a way to accurately locate the registration marks on the paint masks in the same location as the previous mask. To achieve this you can use registration "dots" or "pins" to mark these spots on the model. There are advantages and disadvantages for both systems but first let's see how they work!

5.1 Registration dots.

Registration dots can be used for all occasions and are preferred when dealing with small insignia and markings that are positioned over compound curves.

In this simulation we will set up the registration position for the mask opposite which is the first mask in a series to make a roundel. At the centre is the registration hole mounted on a disk of mask. Without that disk of mask in the centre there would be nowhere to put the registration hole so I refer to these pieces as "registration disks".

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The easiest way to make the registration dot on the model is to roughly work out the approximate position where the registration dot needs to be.

In the example opposite, assuming the mask is in the correct position, I put a finger over the registration disk at the centre and then slide out the mask while holding the same position with my finger.

I then introduce a small piece of masking tape under my finger where it will be required. You don't have to be too accurate about this provided the tape is big enough to cover the position where the dot will be required.

Very Important: Where the smallest circle in the middle of a roundel has a small diameter it is necessary to ensure that the size of the tape used is smaller than the diameter of the last mask. Please adjust the size of the tape used to ensure this fit. Greater care will be needed to mark the centre of the roundel in these cases.
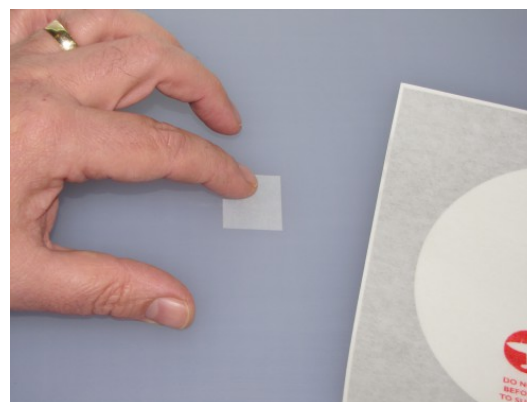
The first mask can be fixed and the application tape removed.

Take care when peeling back the application tape to ensure the registration disk in the centre is transferred to the surface over the masking tape.

Note: more instructions are available on the correct procedure to follow when applying paint masks. For the purposes of this demonstration we are streamlining the procedure. Full instructions are available from the instructions page online. Click here for details.
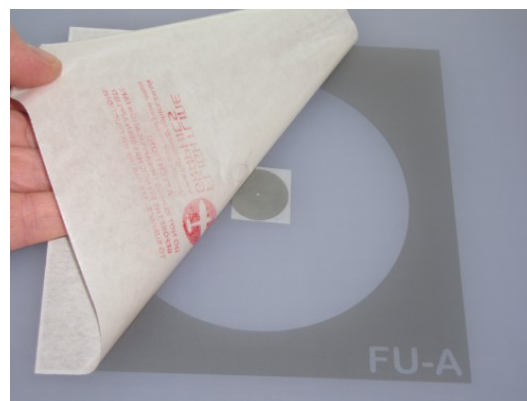
Using a permanent marker place a dot in the registration hole so that the ink transfers through the registration hole to the masking tape. You have now made the registration dot!

It is not strictly necessary to use a piece of masking tape to hold the registration dot. Some modellers dab a spot of ink directly onto their model. The dot can be removed before the last circle of a roundel.
This is only practical where the dots are eventually painted over as in a roundel.
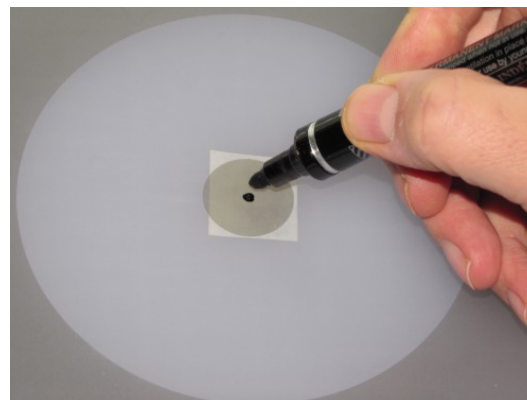
Do not remove the registration disk until after the paint has been applied as this ensures the registration dot retains it's integrity.

If this were not a simulation you would now paint the first colour, so please assume that the first colour has been applied at this stage.

After painting the centre disk section can be removed along with the rest of the mask. This will leave the registration dot on the masking tape ready for the next mask.

The next mask can be applied looking through the registration hole of the mask.

As in the example opposite, you may find it useful to cut back a little of the application tape so you can see the alignment easier.

You would carry on painting the individual colours of the insignia until the full set of colours were applied. Only on the last colour would you remove the registration disk and the masking tape with the registration dot!

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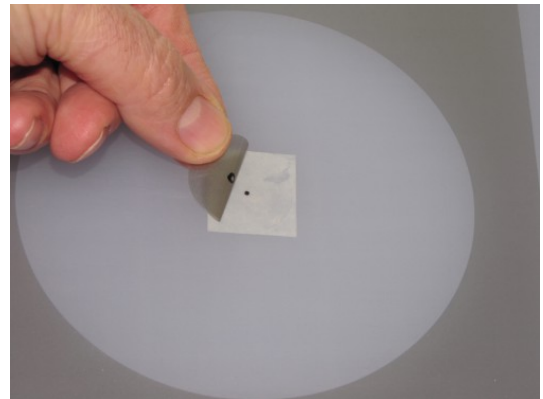
5.2 Registration pins.

Registration pins can be used in most cases except the following:

1. On roundels with very small centres as the amount of tape needed to hold the pin steady will most likely exceed the diameter of the smallest circle diameter.

2. Where very fine alignment is needed, and it is better to use a combination of registration dots and good hand-eye coordination.

For registration pins I recommend the use standard domestic drawing pins which will be secured to the surface of the model using a good quality tape. These pins remain in position while all the colours are spray applied (except the last colour in some cases).

Tip: Drawing pins normally have a domed shape head which needs to be flattened before you use them so that they will have a lower profile when fitted to your model.

The best way to do this is to get a scrap piece of hardwood, drill a hole big enough to accommodate the pin.   Put the pin in the hole and then hit the dome of the pin head with a hammer a few times. As you can see in the picture opposite the head can be made perfectly flat.

It is necessary to do some preparation work!

Using a small sharp pin pierce through the entire mask in the centre of the each registration hole.

If you are having difficulty locating them, hold the mask to a well lit window or a bright light and you should then be able to see the small holes in the mask.
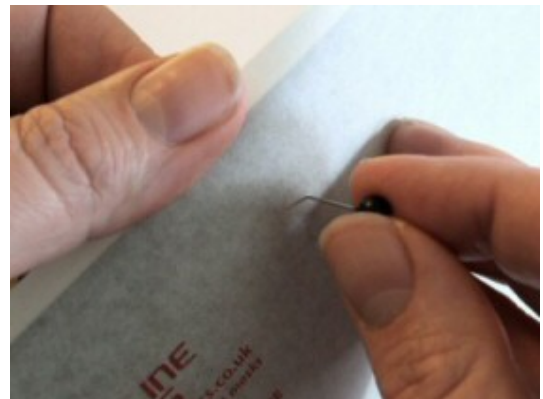
Prepare strips of silicone paper cut a little wider than the masking tape you are using, I usually drop a small strip in the box to get you started.
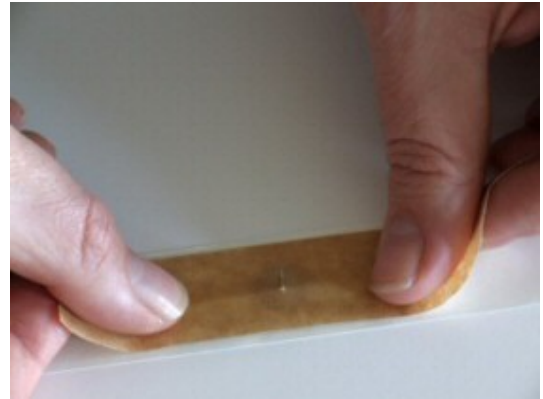
Lay the your drawing pin on a strip of silicone paper and apply centrally over the top of the pin a small strip of tape so that the pin punctures the tape in the middle.

Push the tape all the way down until it tape makes contact with the silicone paper.

Repeat this process until you have enough registration pins prepared for your spraying session.

At the relevant point in your application process install the registration pin into the registration hole from the back of the mask.

The holes you punctured through with the pins in preparation work as guides making this possible.


Each registration hole on a mask will require one of the above prepared registration pins installing.

Once done you are ready to affix the first masks to your model

The picture opposite shows the mask ready for use on a 2 pin installation for the white colour of German Balkenkreuz insignia.
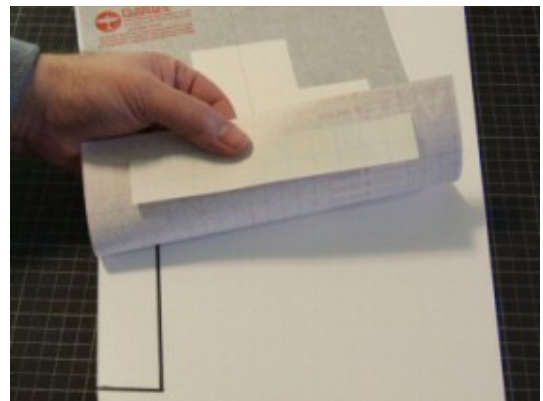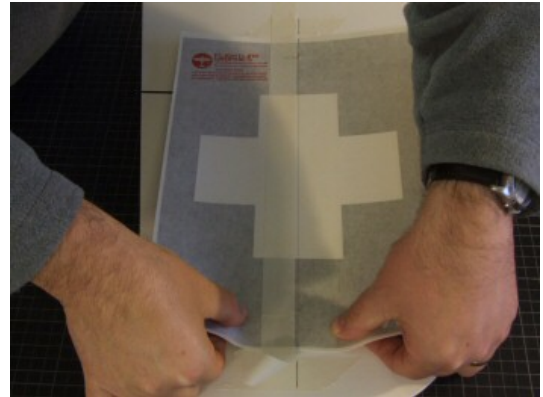

Once you have positioned your mask in the correct position, remove the silicone backing paper from the registration pin as shown opposite.
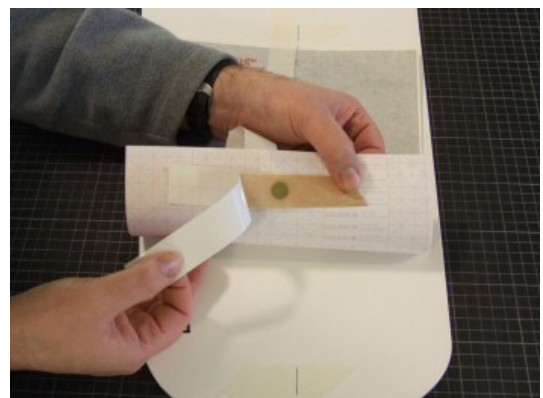
Apply the mask to the surface ensuring the tape grips the model surface thus securing the pin in position.

Lift the mask off and rub down the tape around the Registration pin to ensure it is securely located.

More demonstration material is available from the web site with a few worked examples on models to give you a better idea of the full process. Click here for details.
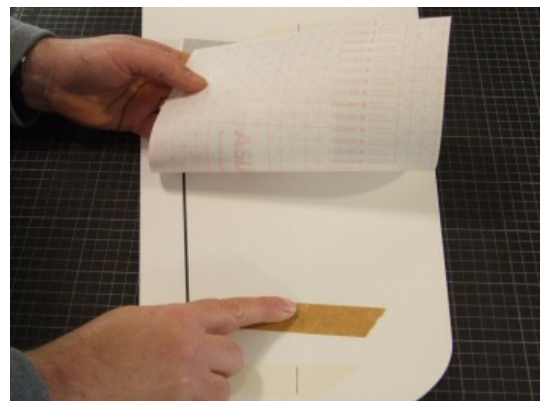
6.0 Fixing masks down before painting.

Once you have your masks in position it is time to seal the paint edges on the mask to ensure a good fix to prevent paint creeping under the mask. Working in low temperatures (below 15°C reduces dramatically the adhesive strength and will offer a less reliable seal.

You only need to work around the edge of the mask. I use a domestic spoon handle that has a smooth round on the surface, I know some people use an old propeller that has been sanded with a rounded edge.

You can see opposite the edge goes a little more glossy as the adhesive is encouraged to take a stronger grip. If your model is traditional balsa construction take care not to crush your balsa if you have used a thin glass cloth coating. You don't need to press hard to get the mask to key down.

It is advised to paint immediately after applying your masks for best results.

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7 General comments.

For ROUNDELS ONLY! Mentioned earlier but worthy of note here, when using centre registration dots I know some people prefer not to bother with the masking tape to carry the dot at the centre. Instead they simply put the dot directly on the model using marker pens or contrasting colours! In reality it doesn't matter as you are going to over paint the area anyway.

For insignia where the registration dots are located outside the painted area you still need to remember the area will be visible after the insignia is finished. Use a non permanent marker that you know can be removed without affecting your finish and will be durable enough to last the painting process. (experiment off the model!) **Cover the hole on the mask before spraying to prevent paint making a dot on your model!**

Top Tip: If you are worried about the adhesion of the paint masks even with it's low tack adhesive try warming the mask slightly with a domestic hair drier before and as you peel the mask off.

8. Best practice when painting

Best results are going to be achieved by spraying your paint rather than using a brush. Be sure you know how to spray the paint you have purchased as the finish for insignia needs to be sprayed as thinly as possible to achieve the colour with the minimum of paint build. Use the same brand of paint you used to spray the main colour scheme on your model. Swapping brands of paint can have disastrous results that are not initially visible!

The single biggest mistake modellers make is purchasing a brand of primer that is different to the main colour.   Unless the manufacturer has told you these paints are compatible it is essential to check the paints for compatibility. Just because a top coat covers the base colour does not mean they are compatible!

Always use a test panel prepared as your model will be and apply the paints in the way they are planned for the model. If you have ABS and glass cloth on your model you should check test pieces of both. Apply the primer, wait for it to fully dry and check it has keyed to the base material(s). Do this by applying masking tapes with different strength adhesive. You should get no primer lifting until the very highest tack masking tapes are used, and ideally nothing should lift.

Apply the next coat of paint which will typically be the main colours of the model. Again after it has dried check the paint has correctly adhered by testing with progressively tackier masking tape. Poor adhesion will show itself very quickly. You should conduct these tests for all paint layers planned.

In the picture opposite a silver paint (from shaker cans) had been used over the primer before the colour was applied. The idea was to weather the paint back to the silver to give the impression of flaking paint. While taking the first mask off the top colour peeled away from the model.

This is an extreme situation, but it demonstrates what can happen if experiments are conducted on the model with paints that don't work together!

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Please, please follow your paint manufacturers instructions when spraying and observe the recommended drying and re-application times. Some paints need a fine abrasion before application of subsequent coats and will be critical, particularly if the previous colour has been applied for some time.

Flightline Graphics recommends the following paints:

Klass-Kote is a solvent based 2 pack epoxy paint

Warbird Colours are water based used with cross linking catalyst

Because you are using paint masks you do not need to modify the paint in any way, simply spray it as you would normally with a small modelling airbrush or a automotive touch up gun.

If you work in a cold, dusty, or windy environment then you are unlikely to achieve good results so ensure good housekeeping is maintained during the entire process and apply the masks at room temperature, ideally 18° - 28°C.

Best results are obtained when the masks are applied and followed by spraying as soon as possible. Masks should be removes as soon as it is practical to do so. As mentioned previously, if you are concerned about the adhesion of your paint to the undercoat, remove the mask while warming the paint mask with a domestic hair drier.

Any questions. Please contact me before you start! Click to contact.

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9. Glossary of terms.

Application film	A clear plastic film applied to the top of the Paint Mask material to hold the artwork together during application.

Application tape	A white semi-opaque paper film applied to the top of the Paint Mask material to hold the artwork together during application.

Centre disk	A small circle of Paint Mask at the centre of a roundel used to hold the registration hole to enable accurate registration of the mask.

Paint Mask	A special opaque green-brown vinyl material specially designed to be used as a paint mask. It has a medium to low tack low residue adhesive.

Registration	The process of ensuring individual colours of a multi coloured image can be correctly aligned to build the image up correctly.

Registration dot	A small mark applied on a surface to hold two or more paint masks in registration so that images are built up correctly.

Registration hole	A 1.3mm hole cut into Paint Mask at an exact position over several layers to ensure correct registration (alignment) of masks.

Registration mark	Is a general term used to indication the position where registration holes / pins / dots will be found on a particular design.

Registration pin	A drawing pin retained by masking tape applied on a surface to hold two or more paint masks in registration so that images are built up correctly.

Registration point	See registration mark