



FLIGHTLINE GRAPHICS

Paint Masks - Dry Rub Decals - Waterslides - Printed media

Telephone: +44(0)7872 181119 (mobile)
Website: <http://www.flightlinegraphics.com>
email: sales@flightlinegraphics.com

Application guidance for Printed Vinyl decals

Forward

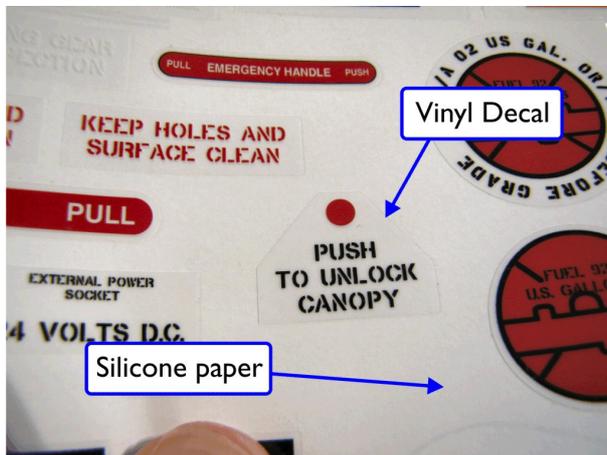
These instructions will give you some useful tips on how to store, prepare, apply and protect printed media on your models. Please read carefully and if you have any questions contact me before use!

In this document you will learn:

1. What does printed vinyl look like
2. How to look after your decals
3. Application methods
 - o Small decals
 - o Large decals
 - o **Decals with heat activated adhesives**
4. Fuel proofing
5. General comments
6. Glossary of terms

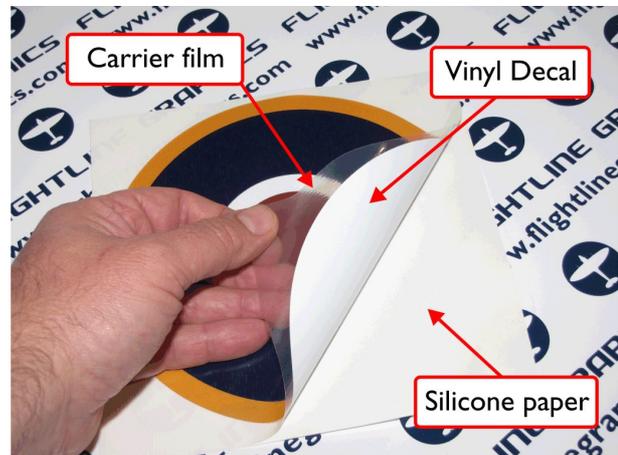
I. What is Printed Vinyl.

Digitally printed media is simply vinyl material that has been specially manufactured to receive digital print from a wide format printer. These printers are a little more advanced compared to home printers and give strong vivid results which are weather proof and much more light fast.



Smaller decals such as propeller decals and service marks will most likely not have any application film.

These decals are so small they can be applied directly from the silicone sheet to the model with some care.



Large decals are supplied on a silicone backing sheet on the adhesive side (bottom) of the printed media. On top a paper (application tape) or clear, application film is added to make application easier.

The application tape holds all elements of the mask in registration until it has been applied to the target surface. Some printed media needs this support even though it is a solid graphic such as a large roundel to make application easier.



2. Storing your decals.

Printed media is supplied in board backed envelopes or, for larger models, a pizza style box. Smaller decals may also be located in plastic zip bags. It is highly recommended you store the decals in the delivery package inside your home away from fluctuating temperatures. If a decal 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. Fluctuating temperatures can affect the adhesive and also have the potential to affect registration of multi part markings on one carrier film. You should never stack items on top of your decals as they are likely to deform or become damaged.

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

3. Application Methods

Your decals may be supplied in one of two ways. Smaller decals will be supplied without any application film because they do not need any extra support. These decals are relatively easy to work with as long as you take a few simple precautions.

In these demonstrations I am applying the decals to a spare model wing I have. It's not the best surface having a matt finish and waterslide decals all over, but it will serve for the purpose of this demonstration!

Small decal application procedure:

Make sure the surface the decal is to be applied to is clean, dry and free from grease.

Thoroughly wash your hands to make sure there is no contamination that can be accidentally transferred.

If the required decal is part of a large collection of markings on a single sheet it is better to cut the required decal out being careful not to cut the edge of the decal or any neighbouring decals, particularly if the vinyl is a clear film.

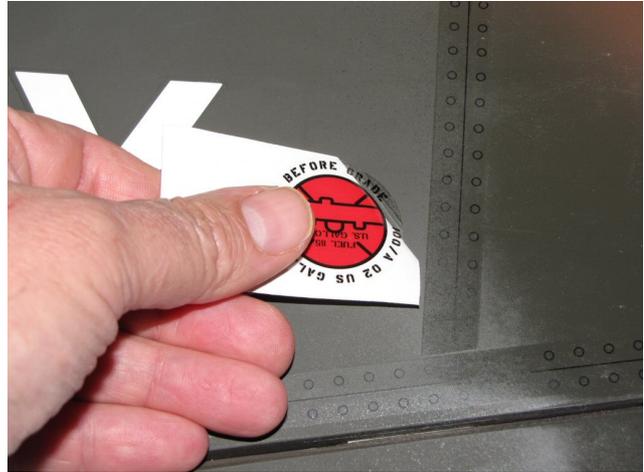
Carefully fold back an edge of the white silicone backing paper until the decal lifts away. It may be necessary to use a clean scalpel blade to help encourage the edge of the decal to lift. Use as little force as possible to do so if needed.

Note: Using fingers and blunt instruments can damage the edge of the decal and also mark the adhesive layer.





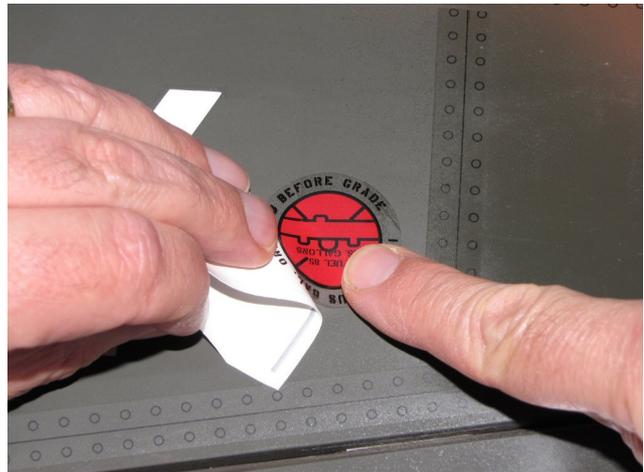
Position the exposed film on the model at the appropriate place. Be sure the position is correct because once the decal is located it will not be possible to relocate.



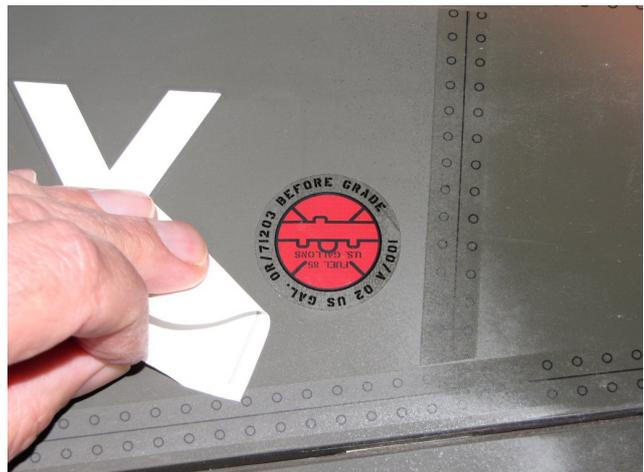
Slowly and carefully pull the silicone sheet away while initially holding the small tab of decal film that has been applied to the surface.

As the silicone paper is pulled away wipe down the decal with soft part of your finger across the whole width of the decal.

Please avoid catching it with your finger nails!



When the decal is fully fitted





Large decal application procedure:

When decals reach a certain size they will need some additional support until they have been applied.

Such decals will be supplied with an application film on top of the decal to make the application process less cumbersome.



Make sure the surface the decal is to be applied to is clean, dry and free from grease.

Thoroughly wash your hands to make sure there is no contamination that can be accidentally transferred.

To start lay the decal face down on a CLEAN work surface. Holding the application film down peel off the backing silicone paper completely. Slide the decal to one side.



With a pair of clean and sharp scissors cut the silicone paper in half.

The cut does not have to be straight, but it must be a clean cut, otherwise fragments of paper will transfer to the back of the decal in the next step.





return the 2 pieces of silicone paper to the back of the decal. Be sure to apply the silicone face to the decal!

The paper should be applied with a 10mm approx gap between the 2 sheets so that there remains a continuous channel of the decal exposed.

It is not necessary to rub the silicone paper down firmly as this will make removal in the final stages harder than necessary.



Apply the decal to the model. Be careful to position it centrally as once rubbed down it will be very difficult to reposition.

If adding decals to a curved area like a wing, apply the decal at 90° to the chord of the wing so that it runs down an even and level section of the wing (as shown here).

Rub down gently over the exposed area to fix the middle section down along all of it's length once you are happy with the location.



lift up one side of the application film with the decal and pull out the silicone paper from the middle as shown.

While holding the application film to prevent the decal falling onto the surface fully remove and discard the silicone paper.





While holding up the application film proceed to wipe the decal down with the soft part of your finger in a wiping pattern to smoothly transfer the decal to the surface.

Allow the film to come down as you progress to the outer edge. Do not use unnecessary pressure or tension during this process.



Repeat the same process for the other side until the whole decal has been applied.

Continue to rub over the decal 2 - 3 times until you are satisfied the decal has fixed down.



Take a firm grip of the application film and pull it back at 180° to the surface as shown opposite. Pull firmly, but without excessive force to remove the film.

The application film will not come off in 2 seconds. Just maintain a constant pressure that makes the film peel away.

Large air bubbles can be removed by puncturing a small hole in the decal with a new scalpel blade to permit air to escape. Small bubbles will dissipate eventually over 3 -5 days depending on ambient temperatures.



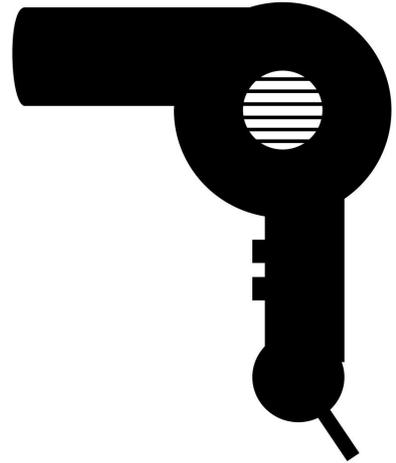
Once the decal has been applied the adhesive will not be at it's maximum for several days, so be careful not to damage or scratch the decals during that time.



Decals with heat activated adhesives:

Some decals will be supplied on special print media that required heat to activate the adhesive. These decals can be large or small so be sure to check the plastic sleeve containing the decals.

If you have decals requiring heat to activate the adhesive there will be a cover sheet in the sleeve directing you to these additional instructions.



The procedure is practically the same as for standard digital print both large and small above, however, there is an additional process after the decal has been applied to the surface, but before the application film is removed!

IMPORTANT

This process requires a domestic hair drier, DO NOT USE A DECORATORS HEAT GUN AS THESE TEMPERATIRES WILL BE TOO HIGH!

With the decal applied to the surface and rubbed down as best you can with your finger or applicator take a domestic hair drier on its warmest setting and direct it evenly over the surface of the decal for approx 3 - 5 seconds, just long enough for the heat to transfer to the decal.

As you warm the surface the application film will most likely wrinkle somewhat. This is perfectly normal.

Let the decal cool down fully before removing the application film. Do not force the cooling process.

If there is evidence the decal has not stuck down fully heat again for a second or two longer than previous.

These decals are particularly flexible and will show through rivet detail and panel lines from below.

Note if your decals are near canopy windows add some protection to deflect the heat away from the plastic. Very thin canopy extrusions will be vulnerable to heat.

If it is a warm sunny day (+25°C) with no cloud the process can be achieved by putting the model in direct sunlight to warm the surface up for 30 minutes. Before removing the application film take the model indoors out of direct sunlight and allow it plenty of time to cool down before you remove the carrier film.



4. Fuel Proofing

Digitally printed media is vulnerable to damage and should be handled with care. The ink is very well adhered to the vinyl but is only a micron or so thick! For this reason regardless of how the model is powered it is recommended to use a clear coat to protect the surface.

With every order you will also receive test strips of digitally printed media to check the compatibility of your chosen clear coat. Simply apply to a test surface and apply the clear. As with all decals it is advised to spray apply in build up layers in several pepper coats rather than flooding the material on in one pass.

It is absolutely essential to allow the test pieces to fully dry so you can assess for adhesion and compatibility before progressing to your model. Also examine the printed area to ensure the ink has not been dissolved and washed away.

Always check compatibility every time you purchase a new container of your preferred product. Manufacturers are constantly modifying their products to reduce costs, improve the product, or comply with new legislation so never assume that the replacement product is as compatible as the last. You have been warned!!

5. General comments

Here are a few general tips when using printed vinyl decals in no particular order.

- During application, try not to crease the vinyl, or stretch the film in any way. This can cause damage to the inks.
- Minimise handling with your fingers, as sharp finger nails can scratch the thin ink film.
- Finger prints can appear invisible on the surface, but after fuel proofing can develop into a permanent mark on the decal. Disposable gloves are a good option to protect the decal during application. Rub down with a fine lint free cloth.
- We only recommend spraying as brushing will cause mechanical damage to the decal as you apply your chosen fuel proofer/seal coat. It is good practice to build up the paint in several thin passes rather than one heavy pass (known as flood application). There is no need to get carried away and over apply your proofer. just a normal application will prove very effective.

And just to remind you

- Most fuel proof products should work with the decals without causing adverse effects with the exception of some 2 pack or catalytic products. You will always be supplied with spare material so you can test your chosen fuel proofing product / clear coat on the printed material. **NEVER EXPERIMENT ON YOUR MODEL!**
- Even if you have previously tested a product with our printed vinyl on an older model you are strongly recommended to test again as you re-stock the paints as the chemistry of the paint may have changed likewise that of the inks used!



6. Glossary of terms.

Vinyl	Vinyl is a plastic film backed with a permanent adhesive. Typically between 50µ and 80µ thick.
Printed Vinyl	A vinyl material that has been produced to accept ink from a wide format printer so artwork can be added. The vinyl can be a range of colours including clear.
Digital Print	Digital print is simply the process by which artwork produced on a computer is transferred to another surface using special printers.
Silicone Paper	A paper that has been embossed on one side with a silicone release material and is usually found on the back of vinyl material when supplied to protect the adhesive layer of the decal.
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.
Digitally Printed Vinyl	A special synthetic material designed to receive print from a solvent based printer. At Flightline Graphics we use our own Roland BN20 VersaPrint for this process.

If there is a term used in the document that you do not fully understand please let me know and I will advise you accordingly while also updating this glossary!

Any questions. Please contact me before you start! [Click to contact.](#)

Thank you.

Nigel Wagstaff
<http://www.flightlinegraphics.com/>