FSX TEXTURE FILE PRIMER

Download and install the following files:

Enables thumbnail views of DDS files in Windows Explorer etc. :
http://developer.nvidia.com/object/dds_thumbnail_viewer.html

Photoshop Plugins - Enables 'Save As' DDS and a filter for nvidia Normal (Bump) Map :
http://developer.nvidia.com/object/photoshop_dds_plugins.html

FSX DDS Diffuse map creation notes:.

Typical filename: F1_PC12_F1_T.dds, b737_800_1_T.dds

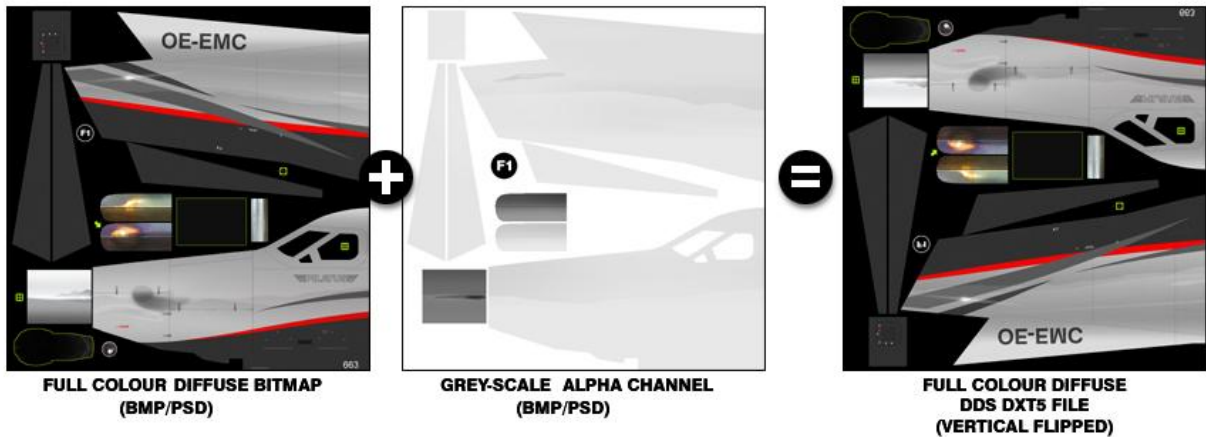Format : DXT5 although others can be used.

Purpose : Gives the aircraft it's colour scheme and texturing and provides different levels of reflectivity for added realism.

Method : In Photoshop create the regular diffuse colour texture file as before. Also create the alpha channel layer, in FSX the alpha channel will govern the amount of reflectivity of the surface that that particular part of the texture is applied to. So, in the area of a texture where a tyre is drawn the alpha channel will be white (no reflectivity) and where a polished metal or chromed surface is the alpha channel will be dark grey or black (high reflectivity) if you wish.

Your .psd file may be quite complex with many layers etc. and rectangular to accommodate the entire fuselage length for example. For you first DDS file you will need to cut out one square texture file of the diffuse/colour texture and one of the corresponding alpha channel layer, make sure both files are flattened. Now you will have two files open in Photoshop that we will work with. With the first diffuse/colour texture selected, from the main menu click **Window/Channels**, the Channels panel will open up, at the bottom of this click the 'new' icon and a new channel will be created, this is the 'fourth' layer or alpha channel. Select that new layer, select now the other image you created earlier, the grey-scale alpha channel image, hit **Ctrl-A** (Select all) and drag the image into the alpha channel layer of the diffuse/colour image. Make sure it lines up correctly. When the RGB layers are on you will be able to see a redish colour where the alpha channel is very dark. From the main menu select **Image/Rotate Canvas/Flip Canvas Vertical**. From the **File** menu you can now **Save As..** , from the format drop down box select D3D/DDD (*.DDS), type in a name and hit Save, you will get the following window....

Default settings are shown, you can use these. After clicking 'Save' you will now have an FSX ready DDS texture file. You must do this with all your texture images.
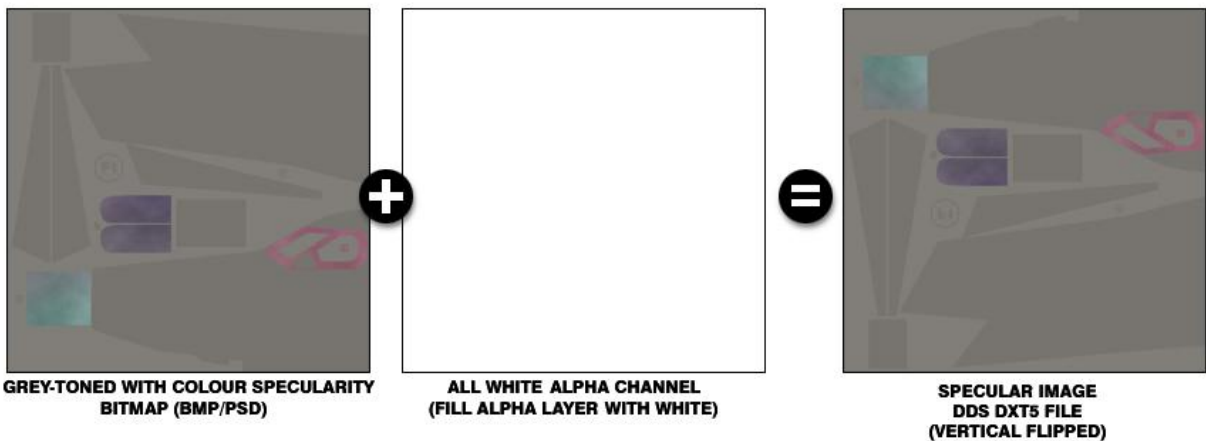
FULL COLOUR DIFFUSE BITMAP (BMP/PSD) + **GREY-SCALE ALPHA CHANNEL (BMP/PSD)** = **FULL COLOUR DIFFUSE DDS DXT5 FILE (VERTICAL FLIPPED)**

FSX DDS Specular map creation notes:

Typical filename : F1_PC12_F1_T_Spec.dds, b737_800_1_T_Specular.dds

Format : DXT5 although others can be used.

Purpose : To provide a colour reflectance or 'sheen' from a surface, e.g. metallic paint, glass, certain bare metals etc.

Method : The Specular bitmaps basically comprise of the aircraft area filled with a mid grey colour, see image below. A multi-coloured 'cloud' texture is overlaid in the areas where you want to show specularity on the aircraft in FSX. Typically a blueish sheen might be seen on a bare aluminium surface, a purple shade on a windscreen or a green sheen on gold metallic paint. Specular maps are quite straight forward an plenty of inspiration a guide to the colours used can be seen in the default aircraft specular maps.

GREY-TONED WITH COLOUR SPECULARITY BITMAP (BMP/PSD) + **ALL WHITE ALPHA CHANNEL (FILL ALPHA LAYER WITH WHITE)** = **SPECULAR IMAGE DDS DXT5 FILE (VERTICAL FLIPPED)**

**FSX DDS 'Bump' or 'Normal' map creation notes:**

Typical filename : F1_PC12_F1_T_Bump.dds, b737_800_1_T_Bump.dds

Format : DXT5 although others can be used.

Purpose : Provides the 'illusion' of a 3D physically textured surface in FSX, mainly for panel lines, rivets, minor dents and bumps etc. These 'bumps' react to the ambient light and can provide excellent realism if effected correctly.

NOTE: When creating a 'repaint' for an aircraft that has 'bump' maps already present, there is no need to create another set, the existing bump maps will work fine for your new repaint. This is the case for the Flight1 PC-12. This information is provided for further interest.

Method : In Photoshop, you will have already created the regular square 'diffuse' colour psd files for your FSX aircraft project. Open one of these and click 'Save As' but add "_T_Bump" at the end of the filename. Remove any shading, dirt, colour scheme or other additional layers from the image by turning off or deleting unnecessary layers. Remember, any darkness or lightness will appear as depth and height in FSX, you don't want a registration number appearing like letters cut out of thick metal plate ! Create a grey-scale version of the image by using Image/Adjustments/Desaturate from the main menu and then fine tune with the Brightness-Contrast tool if necessary. We are only interested in panel lines and rivets etc. anything else should be a light grey shade, or thereabouts. From the Filter menu, select NVIDIA Tools.../Normal Map Filter. Use the default settings, see image1.jpg. The resultant image will turn out a 'nice' purple colour but we are not finished yet. Currently this image will not work in FSX as it is. Re-save the image, it is still a psd file.
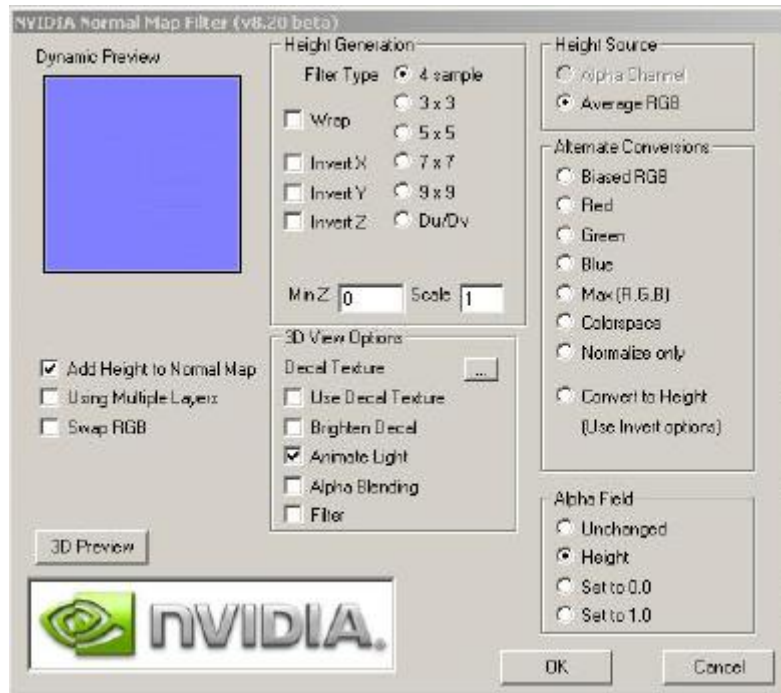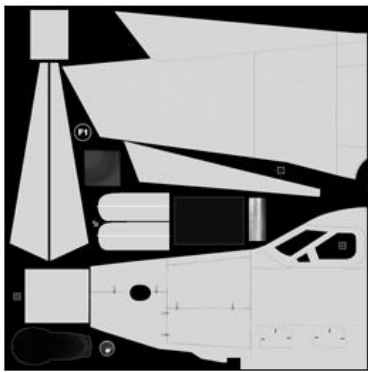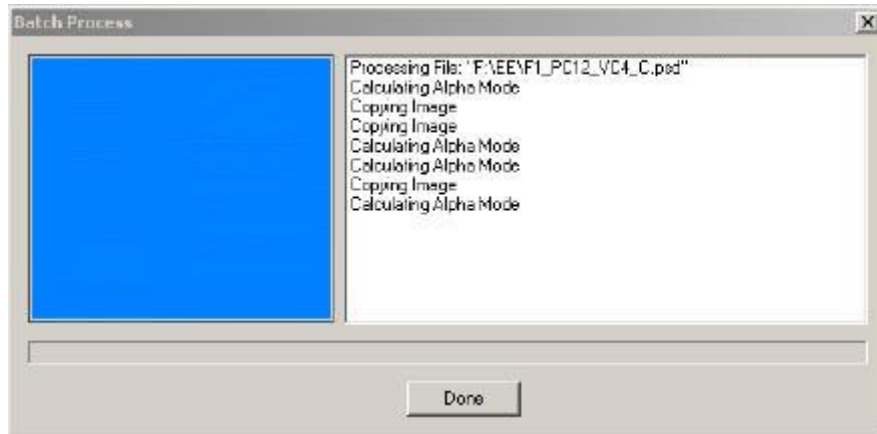

To convert the image to a proper FSX DDS Bump/Normal map we must run it through the Microsoft/ACES Imagetool program. The Imagetool program seems to be of little use for anything else or indeed is more cumbersome than any of the other tools such as the WTV DDS Viewer etc. It is however the only tool to use to create proper Bump/Normal DDS maps for FSX. The best way to do this is to 'automate' the process as Imagetool requires long DOS type command lines. So, create a shortcut on your desktop, right click on it and select Properties, in the Shortcut tab, insert the following code in the 'Target:' box....
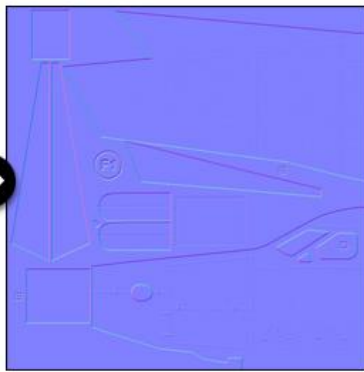
E:\Graphic\Tools\ImageTool.exe -nobeep -nomip -dxt5 -RedInAlpha -dds –nodither
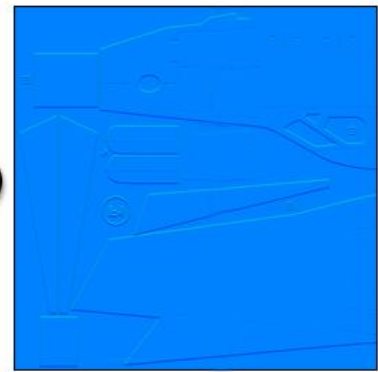In the General Tab, in the type in box on top, insert something like '**ImageTool Bump Map**'.

Of course, you can change the path (E:\Graphic\Tools\) I have above to suit your own. The shortcut we made above will have been saved by default in your C:\Documents and Settings\User Name\Desktop folder, go there and copy it to your C:\Documents and Settings\UserName\Sendto folder ...now, in Explorer right-click on the psd file you created earlier, in the popup menu, from the **SentTo** item select **ImageTool Bump Map** ... Imagetool will now convert and vertically flip the psd file into a proper FSX Bump/Normal map DDS DXT5 image file (all FSX DDS files need to be vertically flipped for use in FSX) . If you view this new DDS file you will see that it has changed colour from the 'nice' purple colour to a 'lovely' blue, just like the default aircraft bump/normal maps. See image below.

Batch Process

Processing File: 'F:\EE\F1_PC12_VC4_C.psd"
Calculating Alpha Mode
Copying Image
Copying Image
Calculating Alpha Mode
Calculating Alpha Mode
Copying Image
Calculating Alpha Mode

Done

GREY-SCALE BUMP/NORMAL BITMAP (PSD)

AFTER APPLICATION OF PHOTOSHOP
NVIDIA NORMAL MAP FILTER

AFTER CONVERSION BY IMAGETOOL.EXE
BUMP/NORMAL MAP DDS DXT5 FILE
(VERTICAL FLIPPED)

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