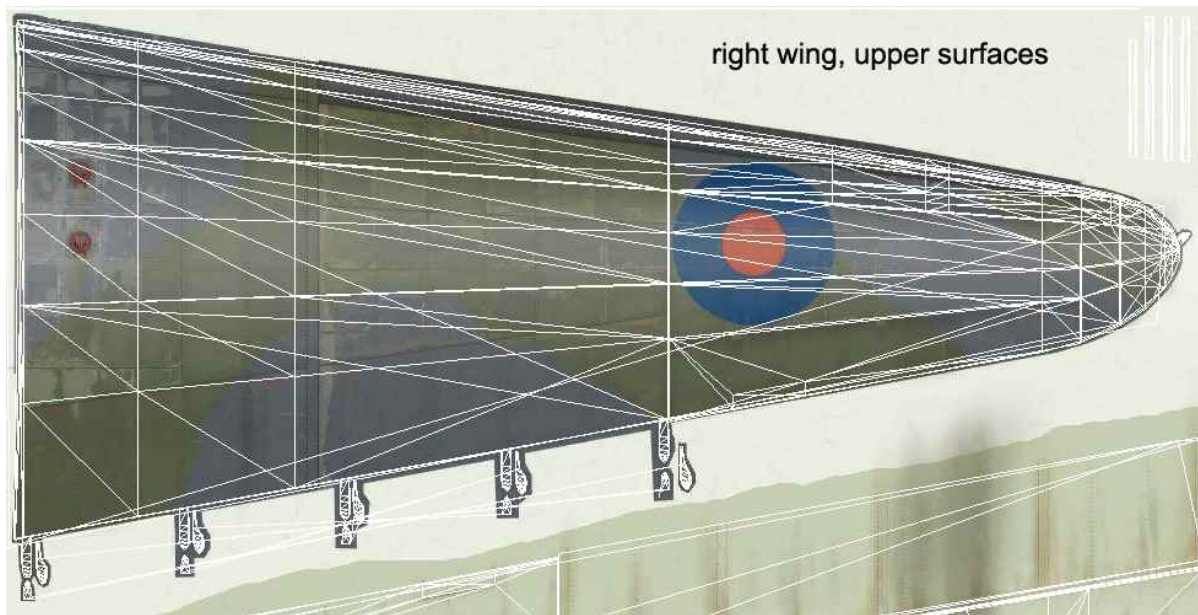
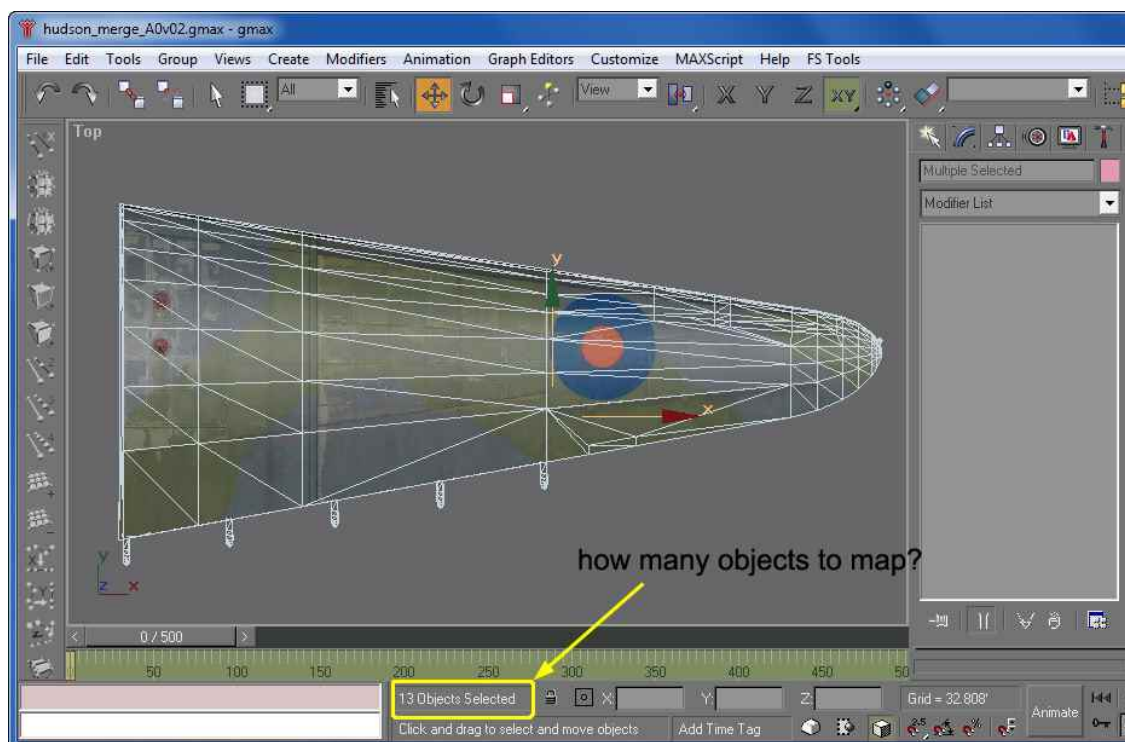


Part 4: Mapping more than one object at once

When we mapped the Macao control tower we mapped each object in turn and laid out the individual mappings to suit. However if we look back at the Hudson texture sheet and mappings shown at the start of Part 1 you'll see there are many objects mapped closely together. The wings and their ailerons, flaps, trimtabs etc are not shown as separate objects on the texture but fitted together as they are in real life: the upper surfaces all together and the lower surfaces likewise:-



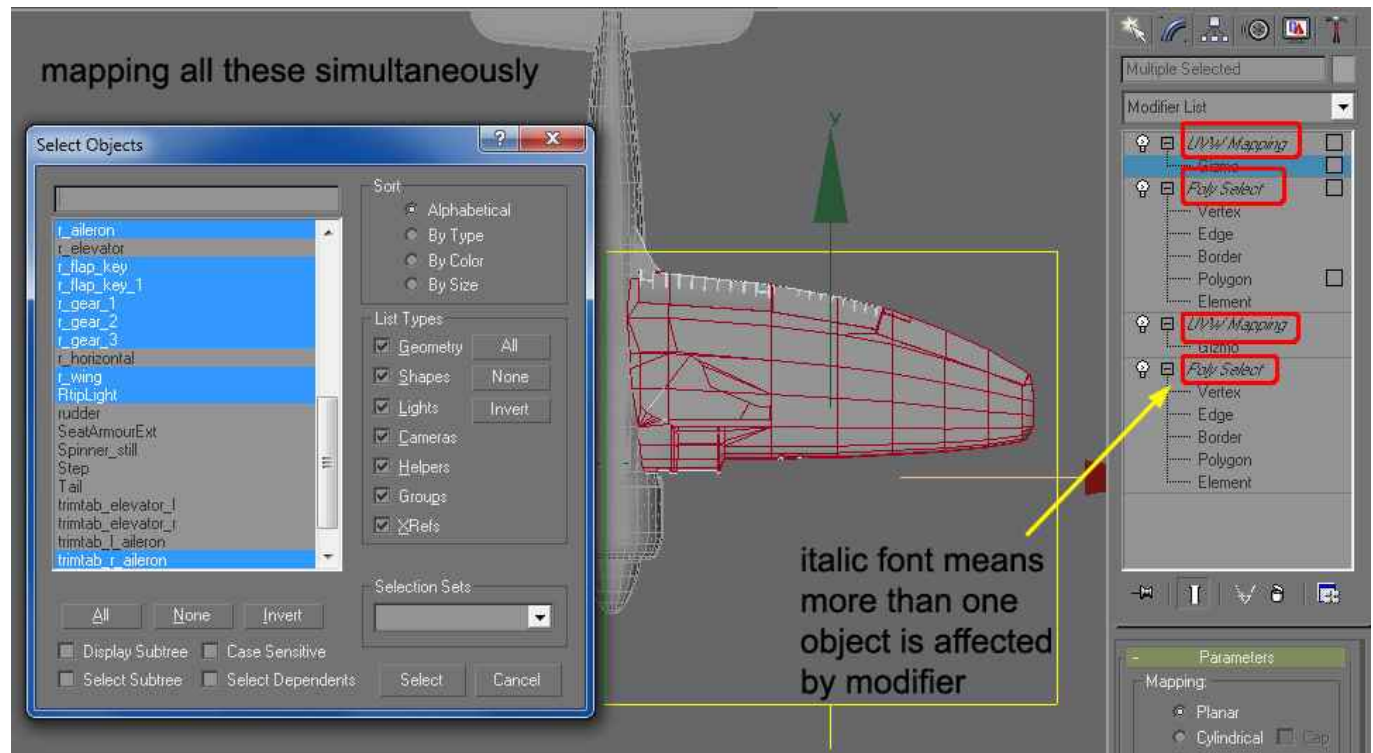
Depending on how you've built the model, there may be a lot of objects mapped to this area of the texture:-



Now we could map these objects one at a time, fitting the mappings together in the UVW editor; but Gmax is more capable than that. We can in fact map all the objects together at the same time.

All that's needed is to select all the objects to be mapped, then apply Poly Select/UVW Mapping modifier pairs until all the polys on the selected objects have been mapped. Simples! (*squeak*)

Here there's 9 objects associated with this starboard wing:—

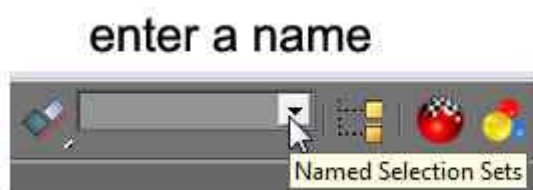


What could possibly go wrong? Well, you may remember a problem of keeping track of poly selections in Part 3 ... this is even more of a problem when there's a number of objects to deal with.

One answer to keeping track is the same as in Part 3: material IDs and the Harlequin method. Use colour-coding to mark the polys on the objects according to how they're to be mapped. Let's work through an example.

Colour coding

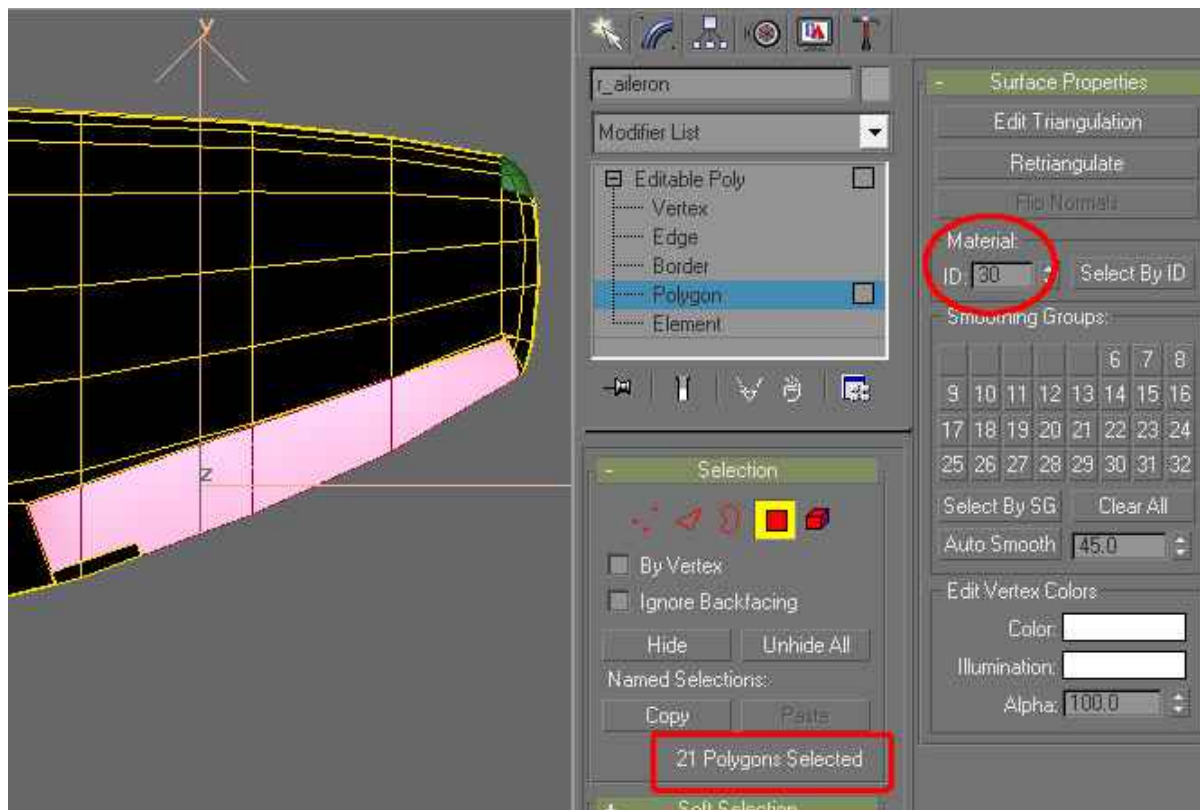
Select all nine objects and apply the Harlequin material as before. **Before going any further** make this a Named Selection Set: just type a suitable name in the toolbar box:—



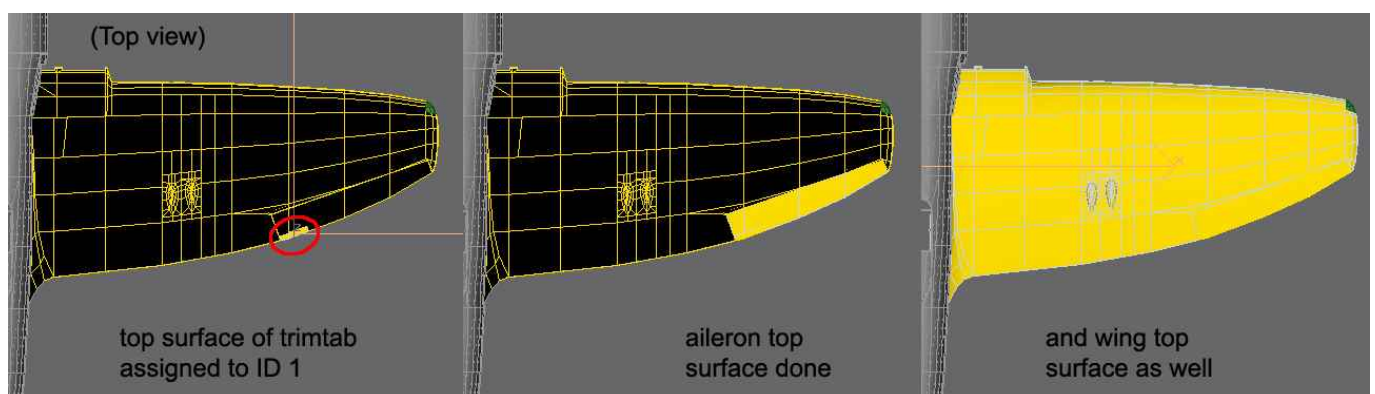
hit <Return>

Next time you need to select the same set of objects, just select the name from the drop-down box and it's done.

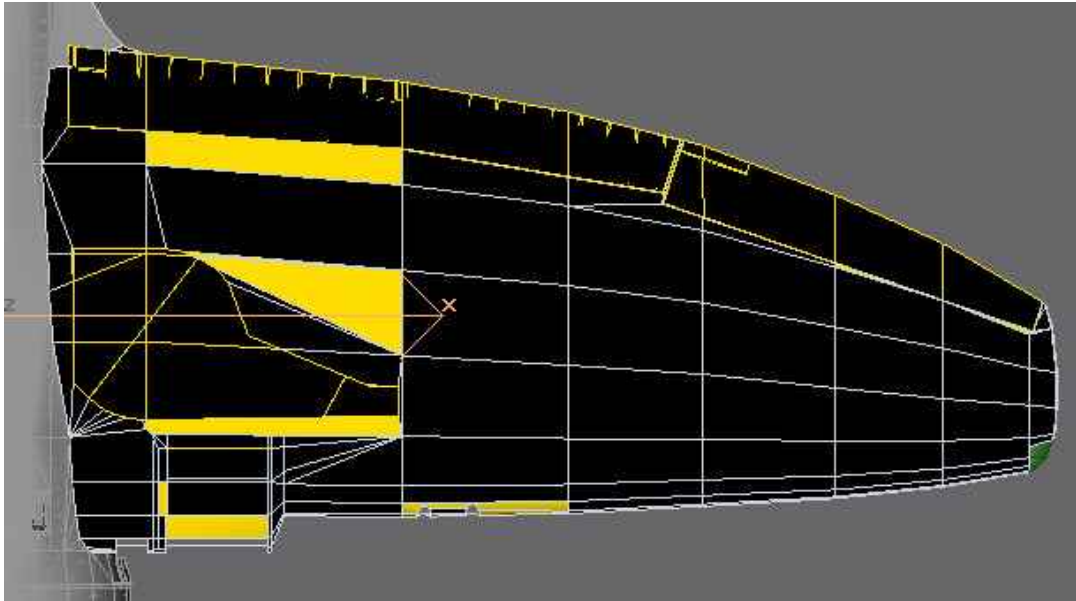
Now with each object in turn, select all polys and set the Material ID to 30



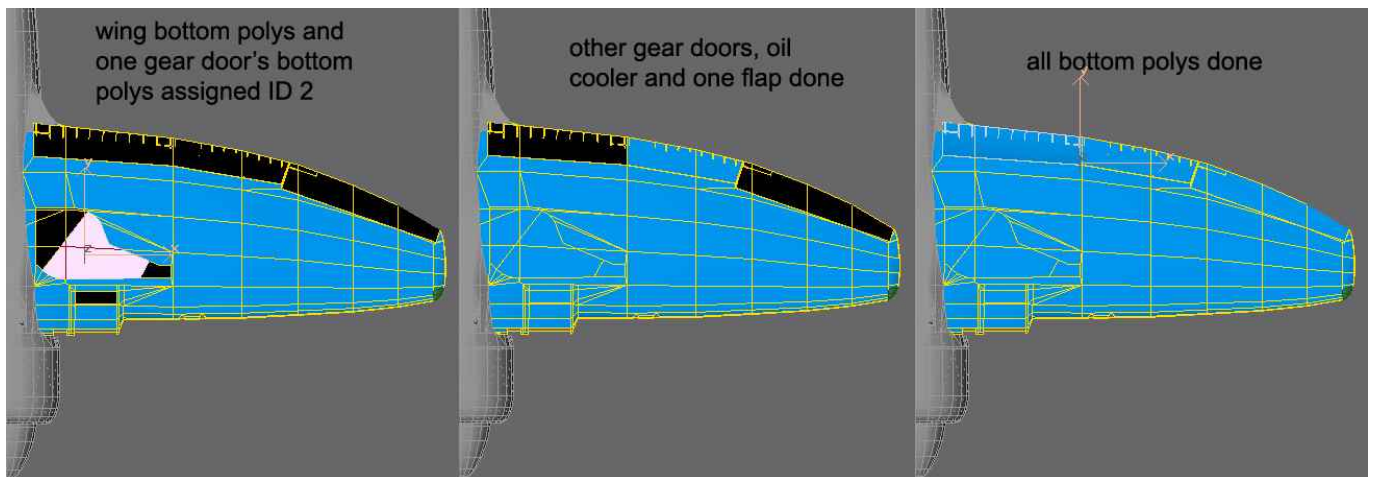
Next select the polys to be mapped together in each mapping and give them the same Material ID: here we'll assign all the upper surfaces of the wing, aileron and trimtab together so they'll have Material ID 1:-



Then switch to Bottom view, where a problem is immediately obvious:-

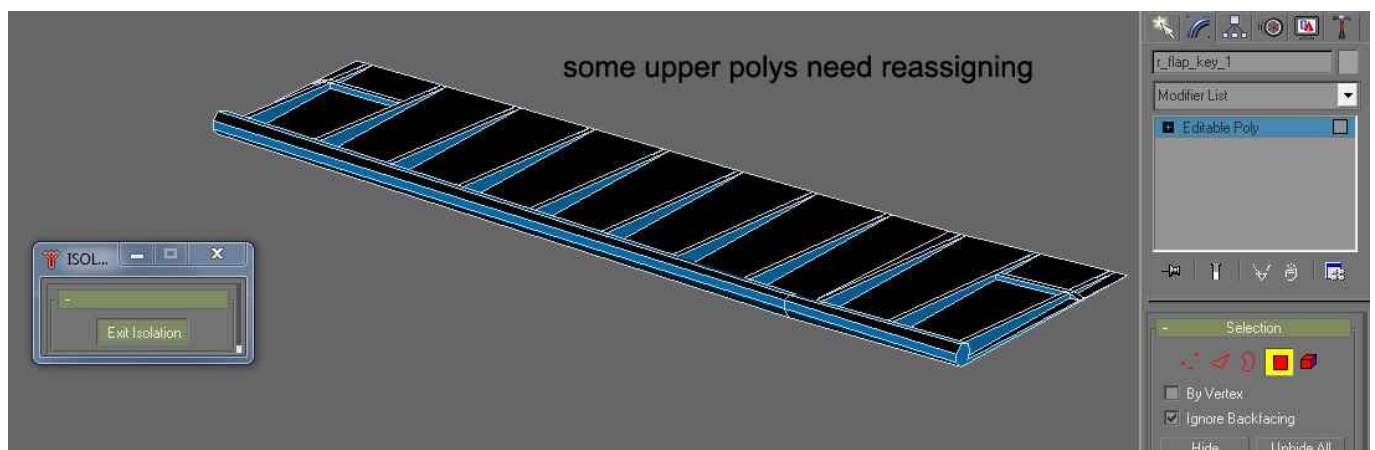


Someone wasn't making sure Ignore Backfacing was ticked! Carefully select the rogue polys and set Material ID back to 30. Then with each of the 9 objects seen in Bottom view, set the bottom-facing polys to Material ID 2:-

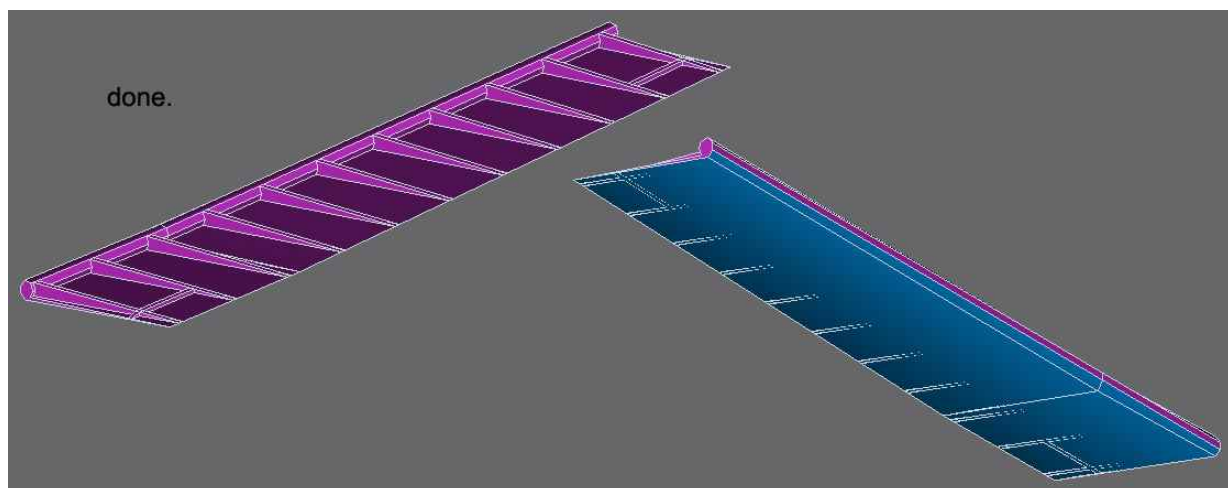
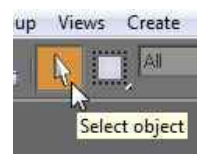


The upper surface of the flaps is also to be mapped, but this will need to be separate from the wing etc upper or lower surfaces, so the upper polys of the flaps will be assigned a different ID. In this case we'll use Material ID 3.

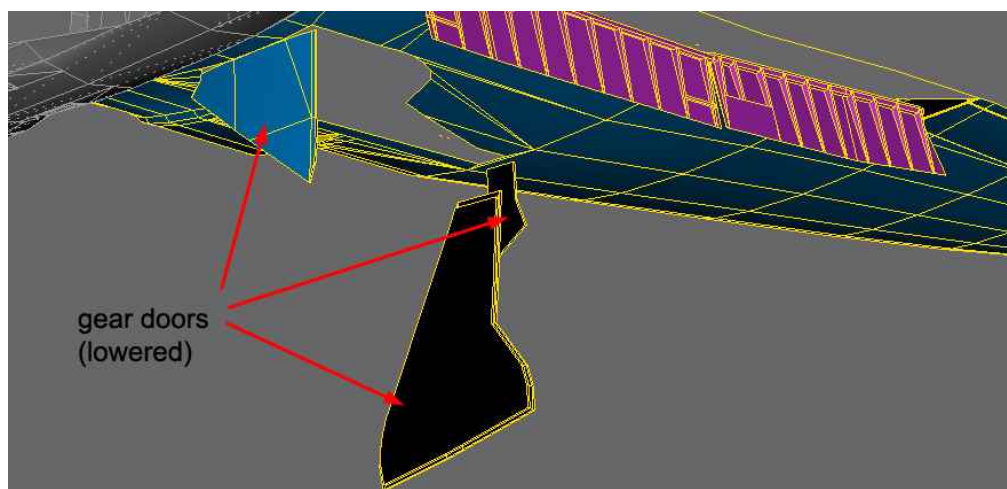
You'll probably find some wrinkles to fix:—

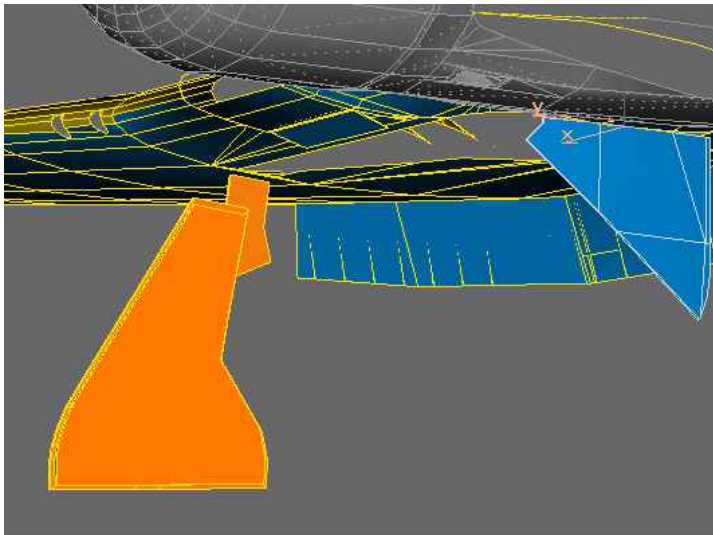


! *Handy tip:* use **Isolate** to quickly remove all the clutter around an object, but make sure you can't Move, Rotate or Scale the object while isolated: click on **Select object** on the toolbar to avoid this.

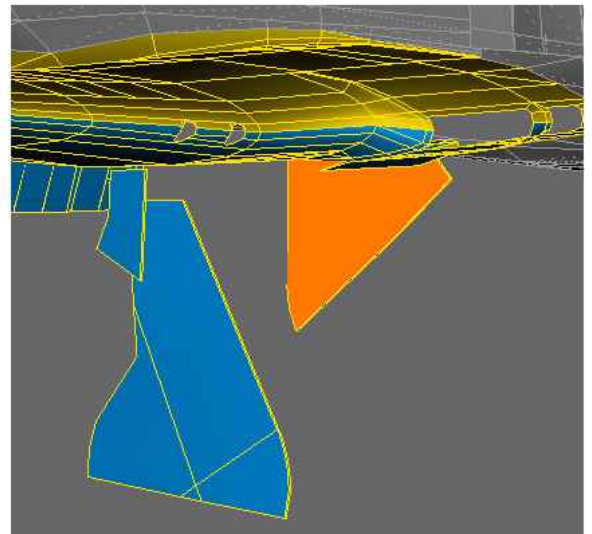


Do the same with the other flap, then apply Material ID 4 to the inner faces of the gear doors: they'll need mapped separately too:—

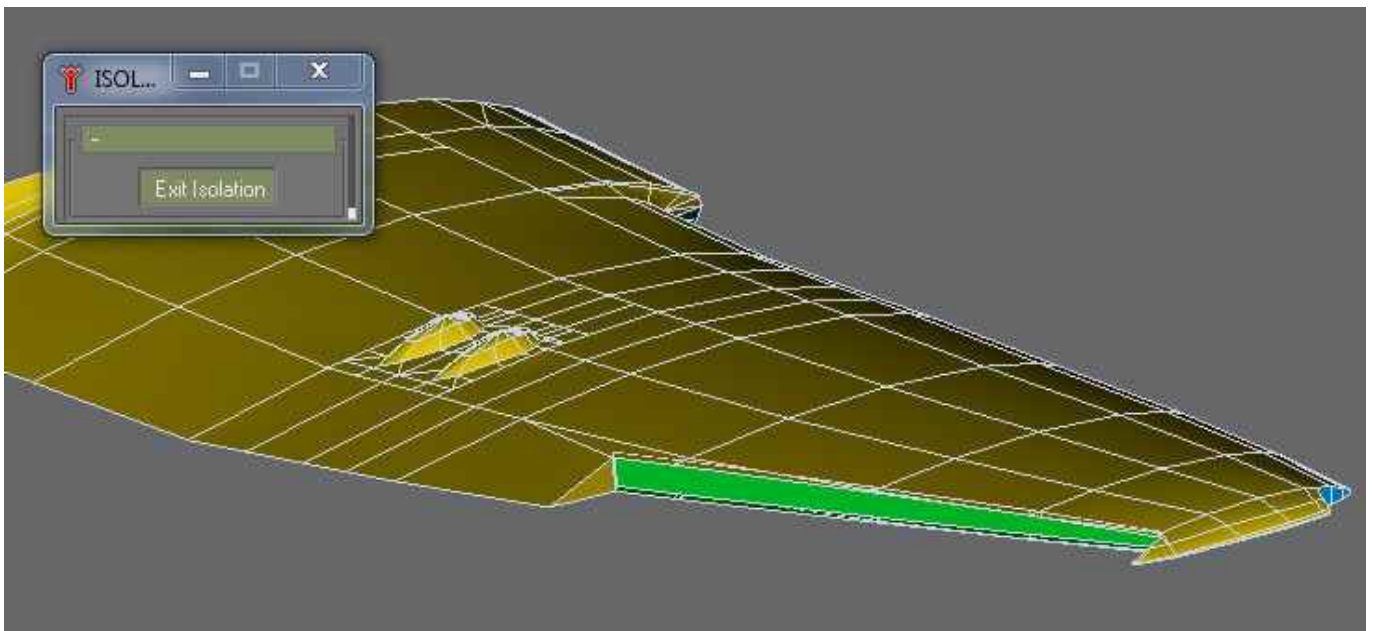




sorted.



Finally we revisit the wing object itself. The recess the aileron sits into is to be mapped separately from the rest of the wing so it doesn't look illuminated from within when textured: its polys are given Material ID 5:—



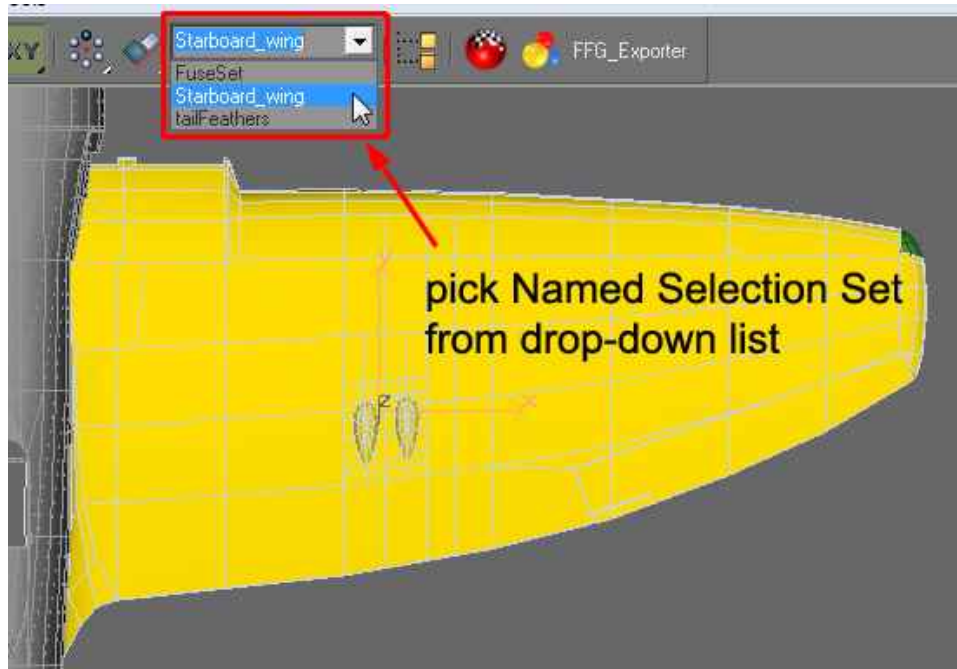
Check all the objects for remaining ID 30 polys and re-examine them closely again in case there's a poly or three with the wrong ID. It's much better to be thorough at this stage to save extra work and hair pulling later on.

Please note these poly selections are my own decision: you may want to map your work in much greater detail or to simplify the job. The decision is yours, it's your model!

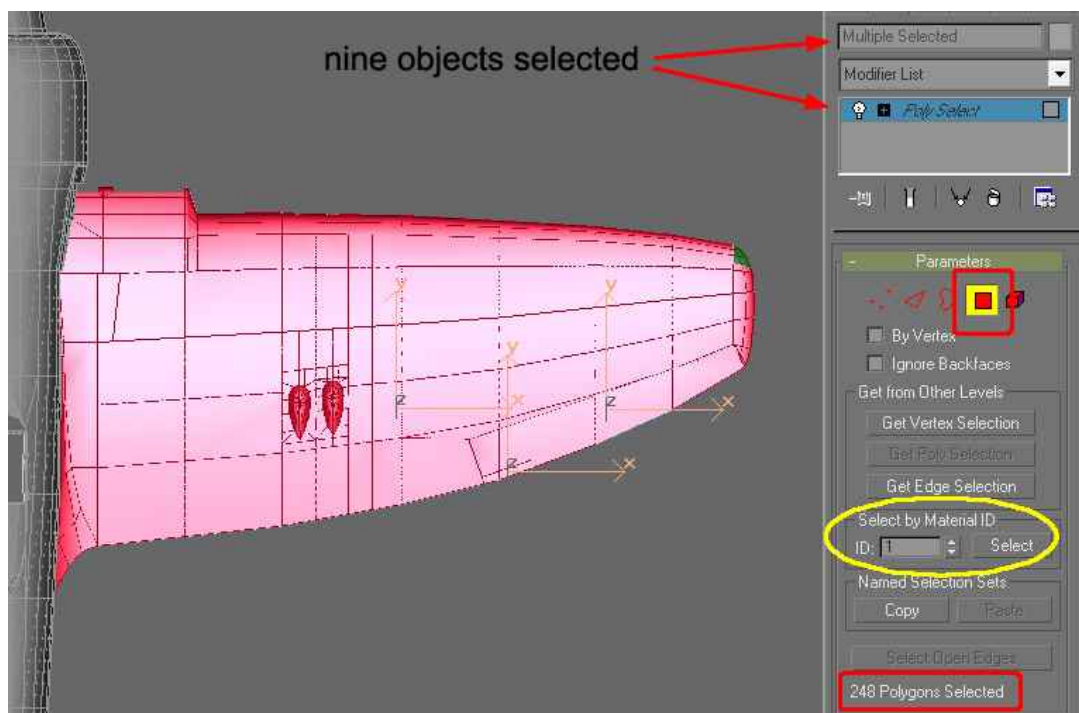
Now we're ready to map them all together.

Laying out the multiple mappings

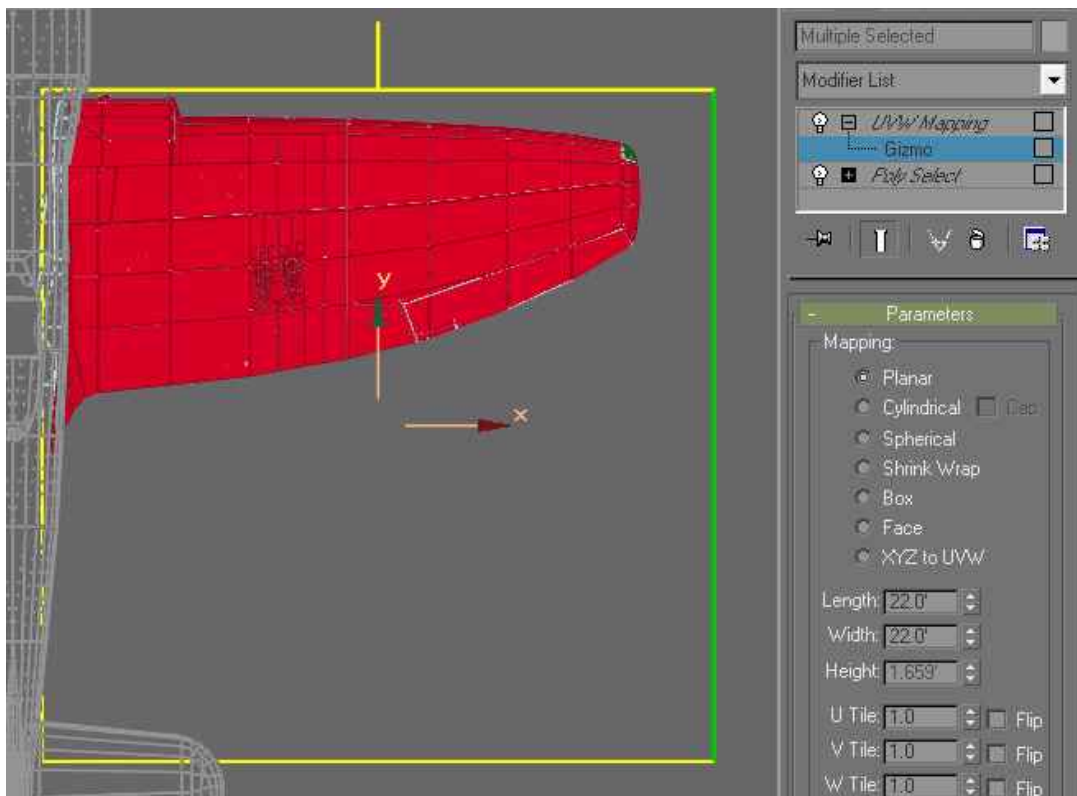
First use the Named Selection Set to select our objects:-



Apply a Poly Select modifier to the selected objects and in poly sub-object select all polys with Material ID 1:-

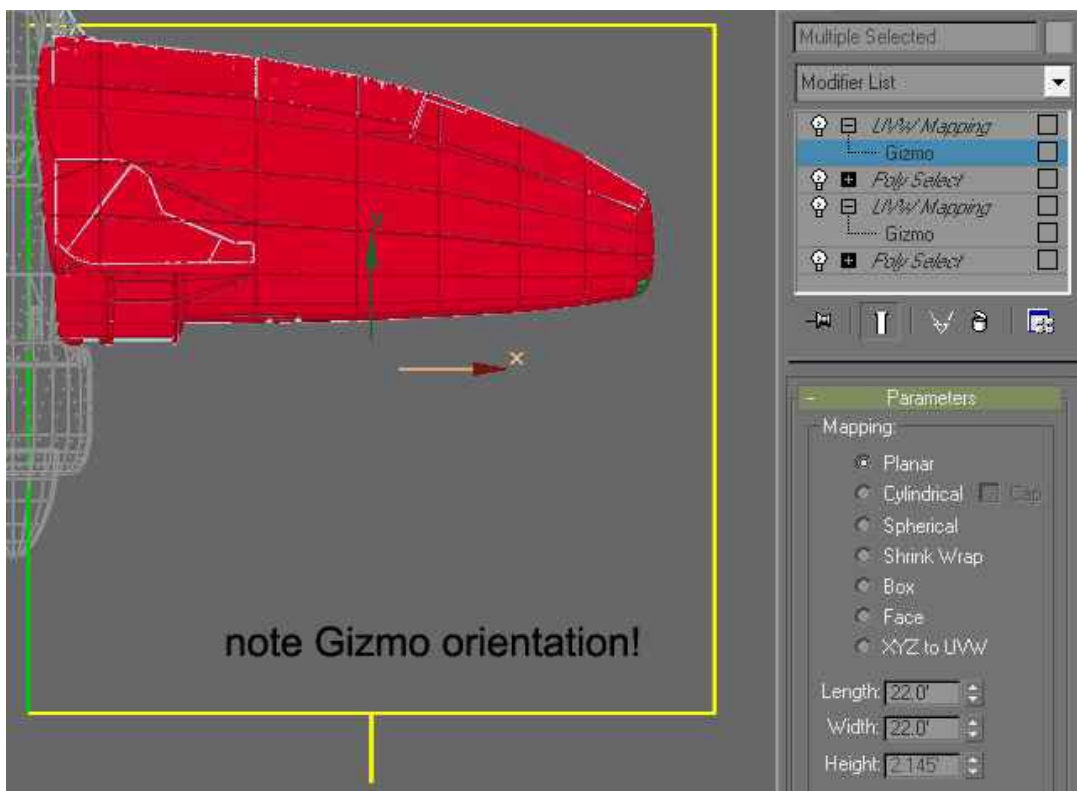


Map these polys with the size previously worked out (in this example it's 22ft x 22ft) and move the mapping Gizmo as shown:—

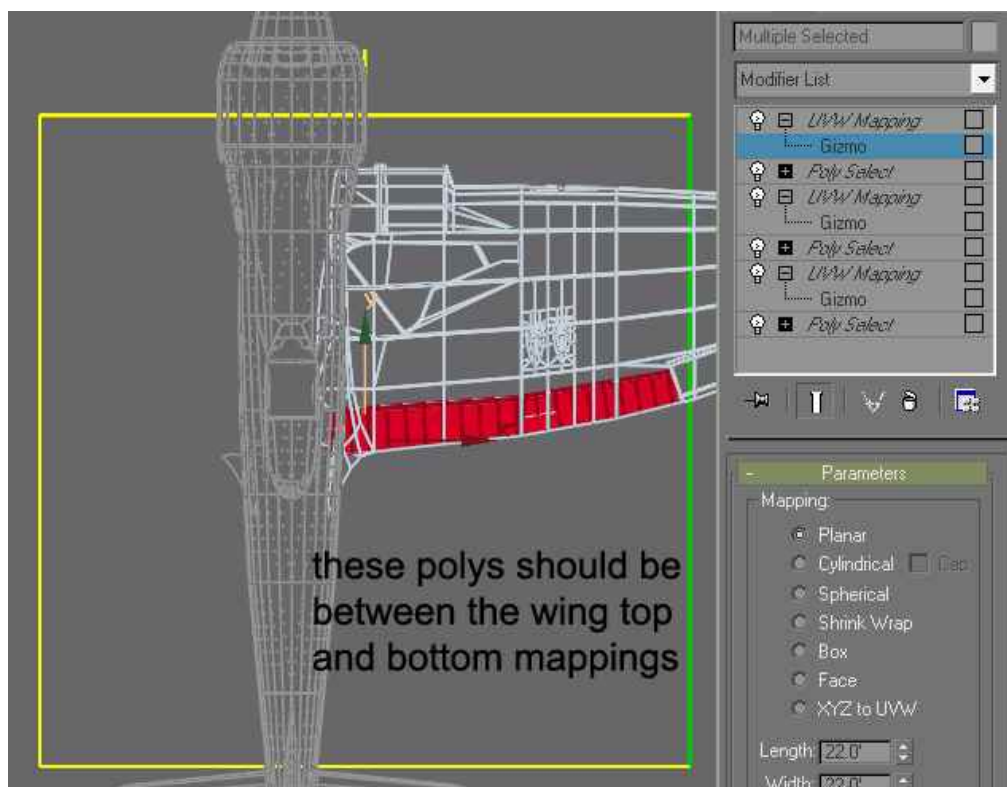


! *Handy tip:* as shown above, the mapping Gizmo is much clearer in wireframe view: this makes it easier to accurately place.

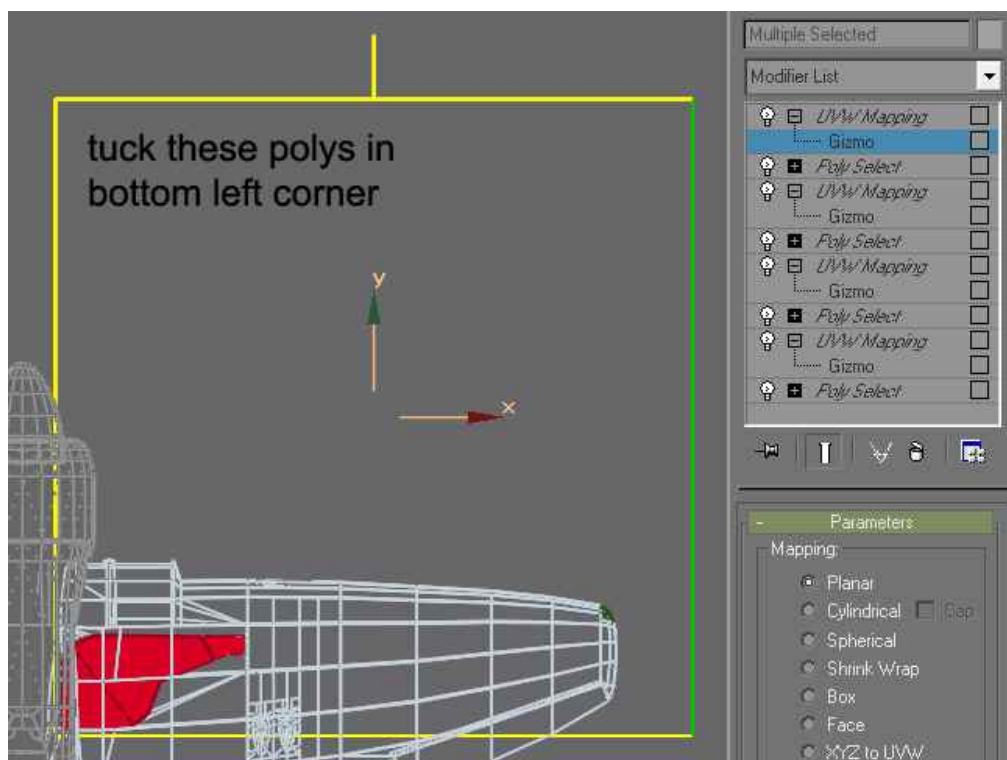
Repeat the process with Material ID 2 in Bottom view, placing them on the empty area of the mapping and checking orientation :-



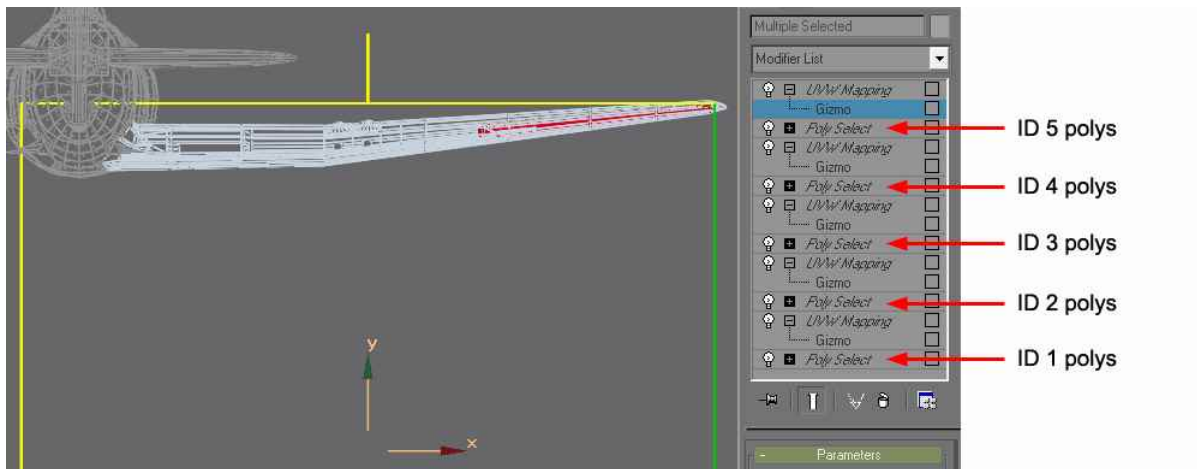
The flaps' top surfaces (ID 3) are mapped in Top view:—



as are the gear doors' inner surfaces (ID 4):—



That only leaves the polys with ID 5, the aileron recess. Map this in Front view (the back of the model, remember?) and put the mapping at extreme top right:-

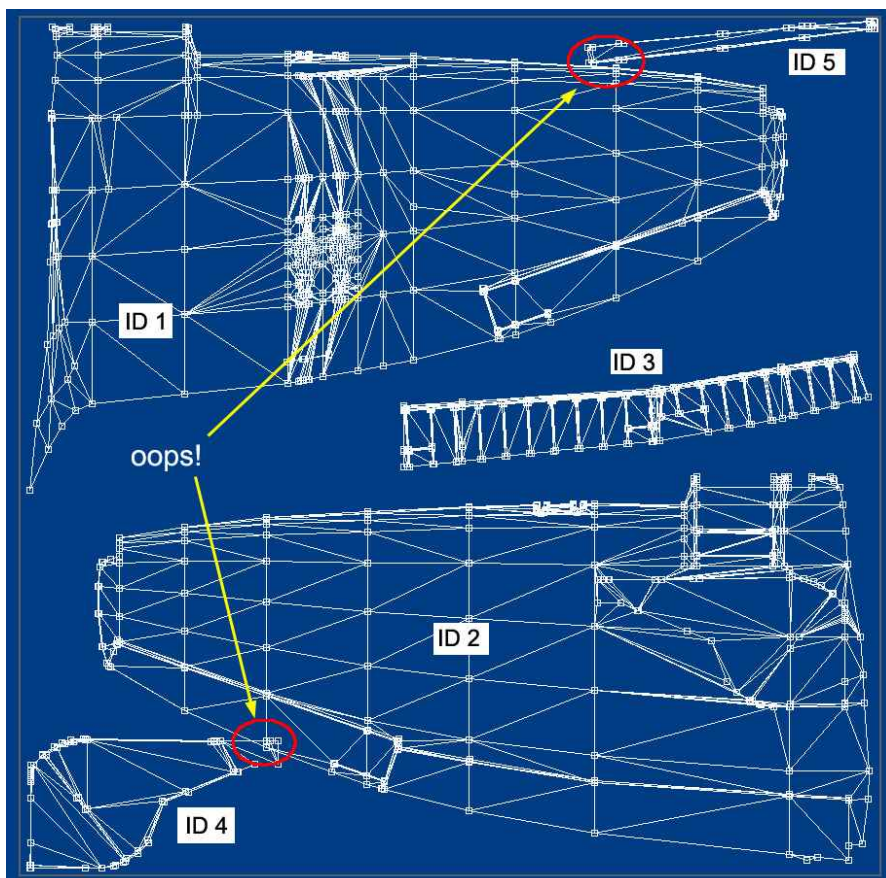


You can see the five Poly Select/UVW Mapping modifier sets corresponding to the five Material IDs we assigned before mapping. Keeping these in ID sequence makes keeping track of the work easier.

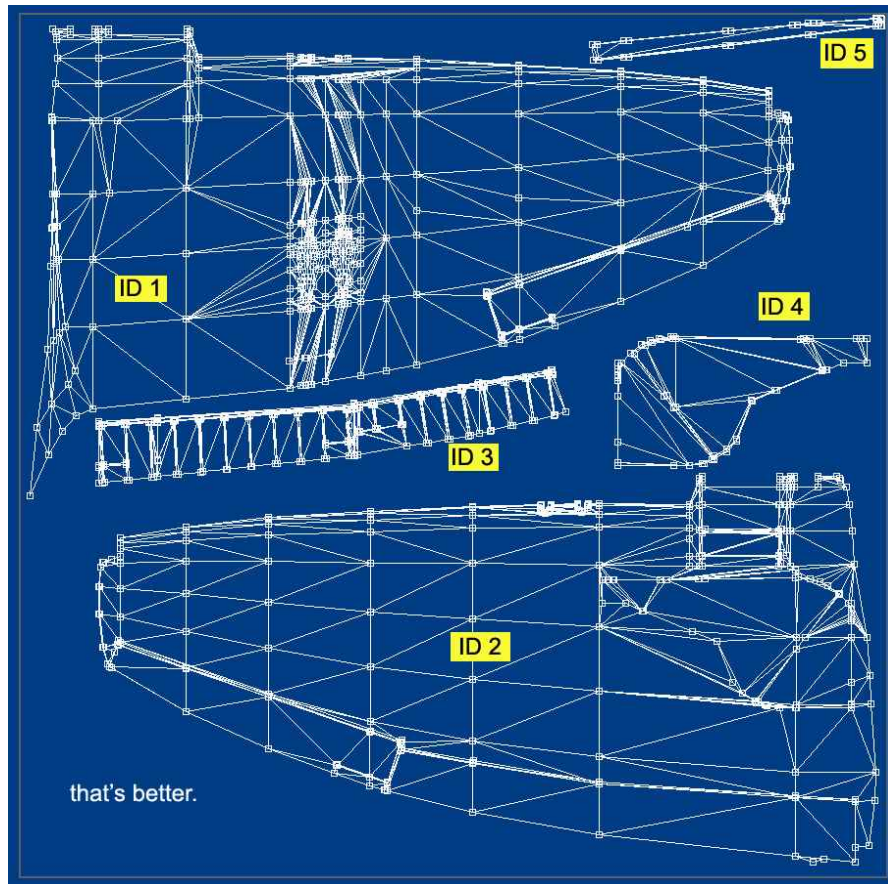
All that remains is to apply an Edit Mesh modifier and UVW Unwrap and we can check the result in the UVW editor – **NOT!**

This is where we meet another limitation in Gmax: the UVW Unwrap modifier **cannot** be applied to multiple objects for editing mappings together (this is not even an option for 3ds Max users with old versions of that amazing modelling tool: it wasn't possible until 3ds Max 2008).

However we can use LithUnwrap to display the mappings for our nine objects and check the result:-



There's overlapping on the template, so some rearrangement is needed. The mapping for ID 2 polys could be moved up a little and ID 1's mapping could be moved down slightly. However, the most obvious change would be to move ID 4 (gear doors) to between IDs 1 and 2 and move the flap upper surfaces (ID 3) to the left and slightly down. You do have to do this 'blind' though, moving the mapping gizmos and checking in LithUnwrap as you go along. This was a lucky guess, especially for IDs 3 and 4:–



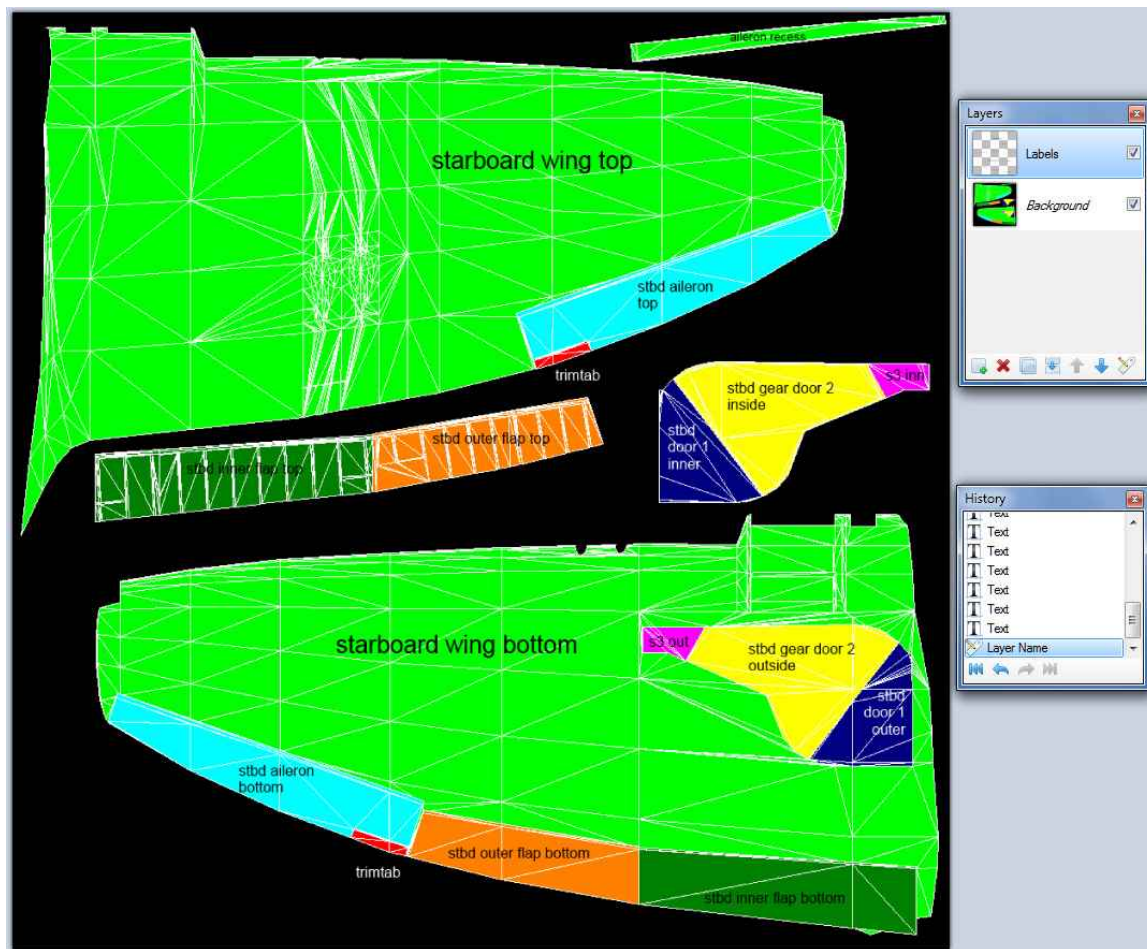
I hope this shows the power of mapping multiple objects together, as well as the shortcomings. On the plus side, mapping objects that fit closely together and which you would paint together is easily done. The minus is that there is no quick check in Gmax to pack many mappings closely together on a texture and it's easy to overlap or even lose track of some of these mappings.

As a general guide, I recommend mapping objects simultaneously when the objects fit closely together, but mapping individual objects and using UVW Unwrap/UVW editor when adding other objects to a closely-packed mapping texture. In the next section we'll do that again.

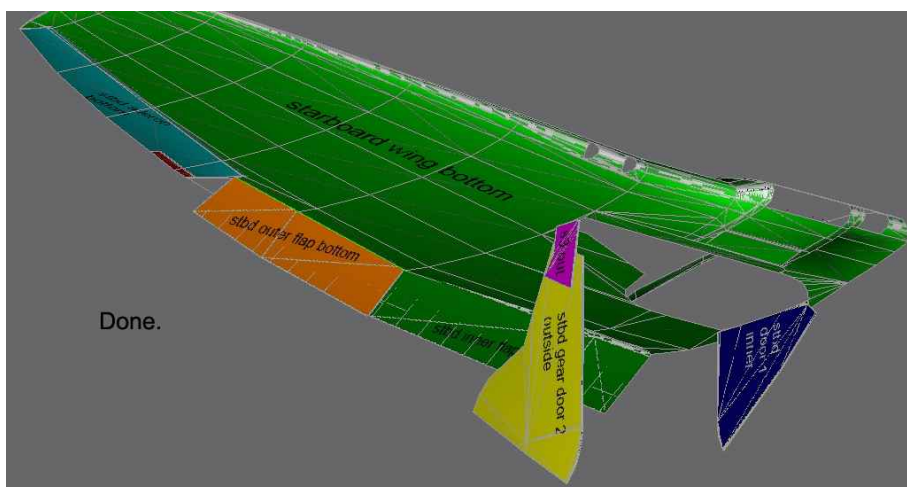
! Handy tip: If you want to view the mapping in the UVW editor for any object mapped this way, you must first collapse the object's stack and then apply a UVW Unwrap modifier. Best leave this until you're happy with the mapping texture.

Meantime we need to make the mapping texture for these objects.

With an acceptable result in LithUnwrap, we can create the mapping texture for all nine objects at once. Save the bitmap from LithUnwrap and then label it in Paint.NET:-



Note how LithUnwrap automatically applies different colours to the different objects. We saw this before in Part 1 but it's quite obvious here. Make a new material for these objects with the bitmap, apply it to them all and we're finished and can collapse the stack for each object.



(End of Part 4)