DGIV Atmospheric Flight

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About this tutorial

This tutorial is made for people who need assistance on long-term atmospheric flight in the Delta Glider IV. We will go through all the basics and essentials to have a successful flight.

Before you actually engage in this tutorial, you must get familiar with the DGIV's controls. Such as…..

Negative trim: Insert

Positive trim: Delete

Hover: Numpad 0

Main engines: Numpad +

Retro engines: Numpad –

There is also many more buttons and functions to chose from and use while in the 2D cockpit. One important function for high-speed/high atmospheric flight is the re-entry display. You can access it by pressing DISP 3. It tells you all the temperatures throughout the ship. Each part has there unique structural limits though.

Green=Regular temperature

Yellow=Warning temperature

Red=Critical temperature
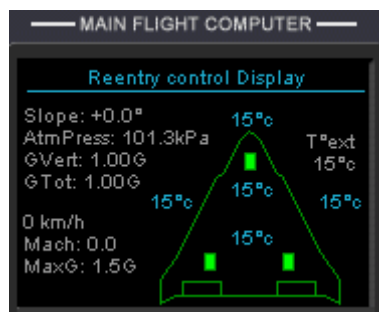
Preparations

Now we will continue on to the pre-flight checklist derived from the actually in-flight computer display.

Upper panel:
- epu on
- Batt on
- Apu start
- Gen 1 on
- Gen 2 on (80 volts)
- Gen bus 1 or 2
- All power on (hud, MFD,…..etc)
- Epu off
- Close the airlock and cargo doors
- Gear hyd press on
- Passenger seatbelt on
- Strobe arm on

Middle panel:
- Main engine gimbal comp auto

Lower panel:
- Check fuel
- Hover valve on
- Auto air intake on
- Main valve on rcs valve on
- Fuel dump & X-feed off

Life Support panel
- Check input press valve on
- Check input switch off
- O2/N2 A&B switch Auto
- Cabin recycling main/backup all buttons on.
- Ready for takeoff.

You are now ready for takeoff, just a few more things left though that will be discussed on the next page of this tutorial.

Take off

You are now ready for take off. At this moment you should set trim to about +0.2 or +0.3. This way it will give you more lift without losing energy when you are climbing. Before you forget, set the rcs mode to ATM Auto.

Start the engines. When your speed reaches to about 160 m/s start bringing the nose up. At 200 m/s retract your gear to keep from being destroyed. Climb to an altitude of about 25-30 km. You can go higher if you please.
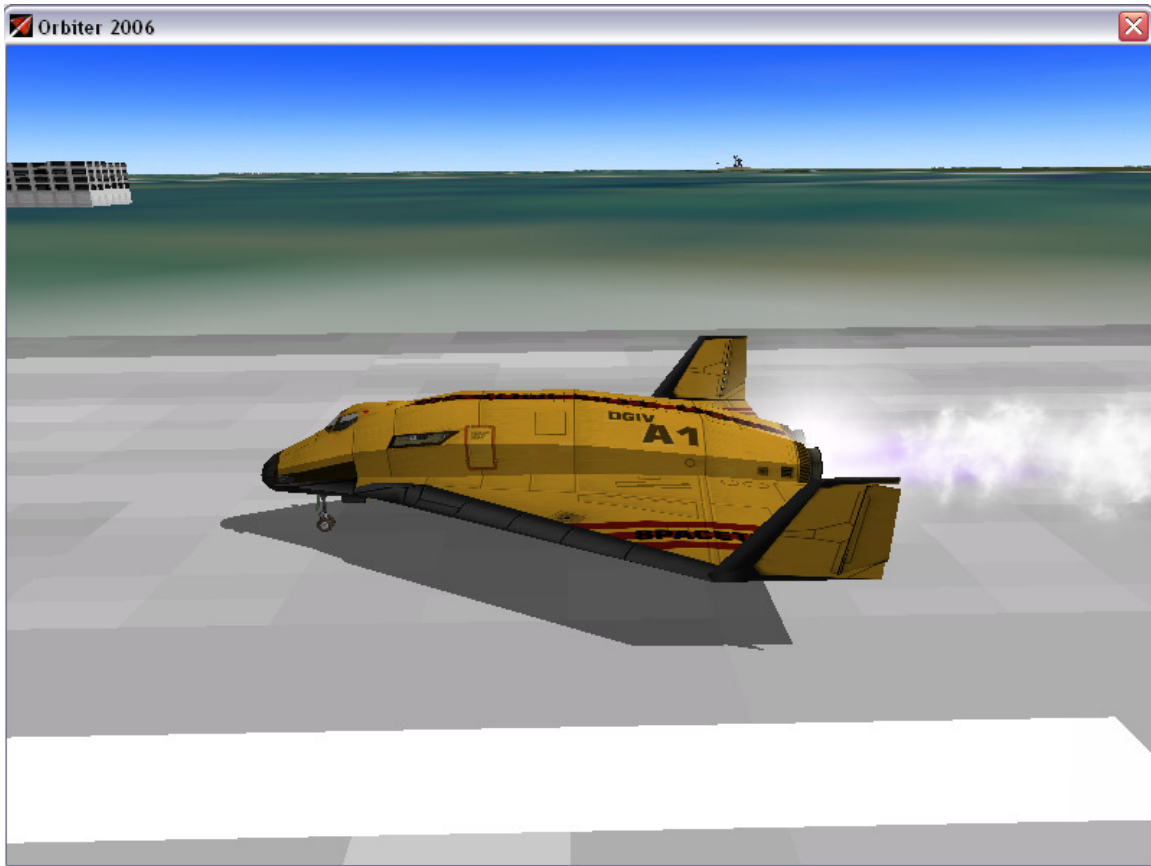
When you reach your desired altitude power down your engines a bit to keep from building up temperature on the wings, hull, and nose. Adjust your trim so that your spacecraft can fly pretty much leveled by itself.
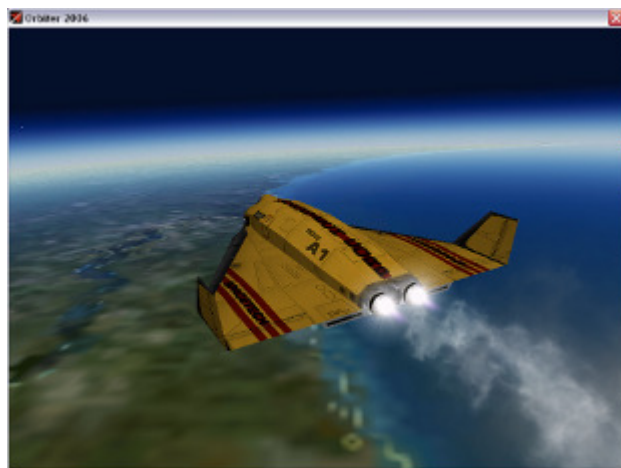
As you can see in this picture, I have power downed the engines to prevent overheating. At this altitude make sure you go no faster than Mach 3.

Now we to edit the trim so that at this altitude it can fly pretty much alone without commands. Use the Delete button and find out how much trim you need to keep it leveled. Once you have finished that, enjoy the ride.


Whenever you are ready for descent, continue the tutorial to the next page. The important part is watching DISP 3 during descent. Remember, if it is green it is good, yellow is a warning that it is getting too high, and red is critical.

It is usually a good idea to set the engines to idle on a slow descent. I would turn it back on between fifteen and twenty kilometers. If your speed it running too low, just use Ctrl and + to slower build up engine power so you do not stall out.
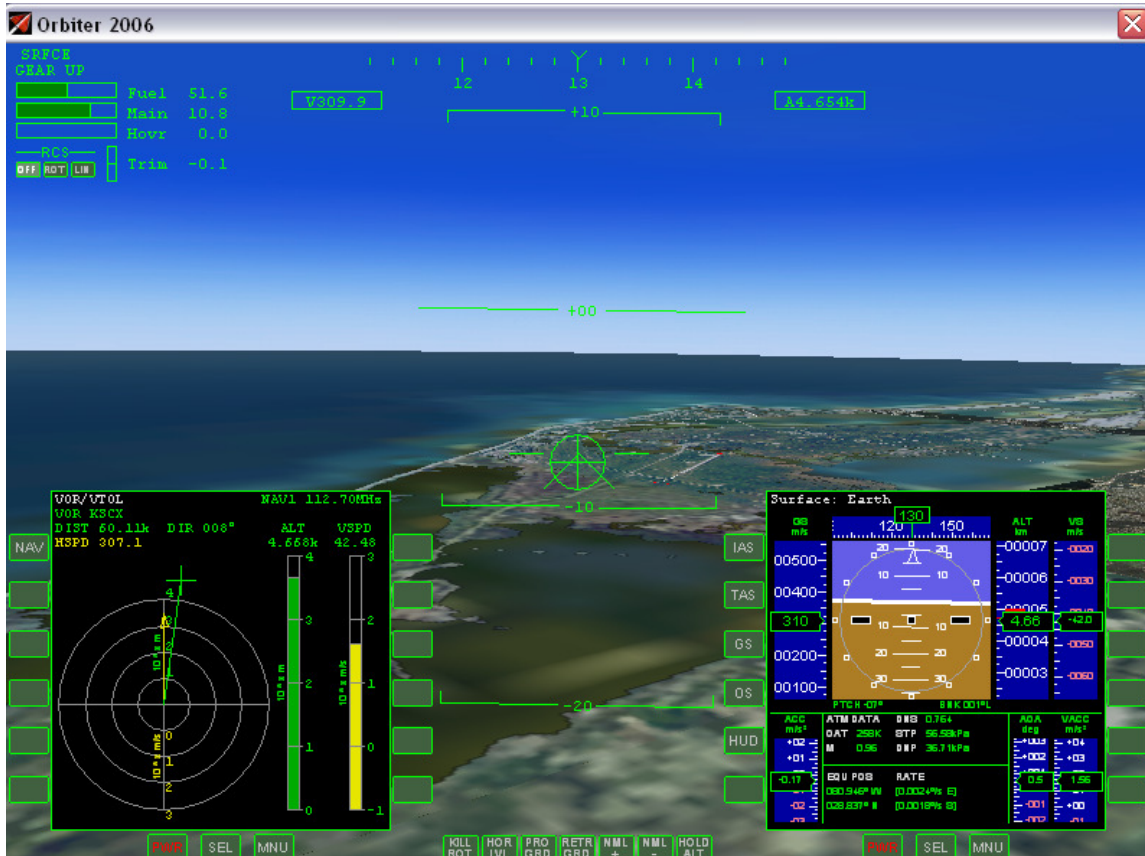
Pick you desired base to land at and start heading towards it. I would recommend using the Horizontal Situating Indicator for lining up with the runway. Tune your radio to whatever frequency the runway is and it should have the localizer established when you are close enough.

Here is the VOR indicator.
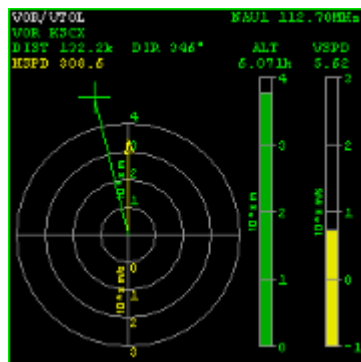
Approach

This is how your approach should look somewhat similar to. Not too high or low and with average speed. On the next page we will get more into the details for the landing phase though.

My most useful tips for landing is watch the vertical speed and make sure it is somewhere between -6 m/s to -1 m/s. Next, keep your eyes on your speed and altitude at all times.

Landing

Watch the PAPI indicators to see if you are on the proper glide scope. Once you have that situated continue on towards the runway. Decrease you velocity to 200 m/s. Extend you gear at this moment. You will notice a bit of a difference in flight because the gear adds more drag to your spacecraft.

Open up the Surface MFD and look at your V/S. This is highly important when landing. A low vertical speed can result in crash or crushed gear. When you are approaching the runway and are about to touchdown, flare up to increase you V/S, but not too much or else you will overshoot the runway.

When you have touch downed on the runway apply the left and right wheel brakes by pressing , and . Keep pressing it until you have stopped completely.

Touchdown

Deploy the speed brake by pressing B and use the period and comma key to use the wheel brakes. When you come to wheel stop, it is time to shut down the DG-IV.

Shut down

Lower panel:
- All engine cutoff
- Hover valve off
- Auto air intake off
- Main valve off
- Rcs valve off
- Fuel dump and x-feed off
- Fuel selector off
- Both input valve off
- Fuel hatch closed

Life support panel:
- Input valve press off
- Input selector off
- Cabin recycling main/backup system off
- O2/N2 a &b system off

Middle panel:
- Main engine gimbal mode cnt
- Main engine gimbal comp lock

Upper panel:
- If on ground or docked: Open nose cone, open both airlock doors
- Gear hyd press off
- Passenger seatbelts off
- Strobe arm off
- All power off (hud, mfd,……etc)
- Gen bus off
- Gen1 off
- Gen2 off (wait 0 volt)
- Apu off
- Batt off
- Epu on (battery charge)\

Regards

I hope you have enjoyed this tutorial and found it useful. If you have any more questions feel free to ask me on the forum under the username MJR. If you have a request for a tutorial please tell. Happy flying!
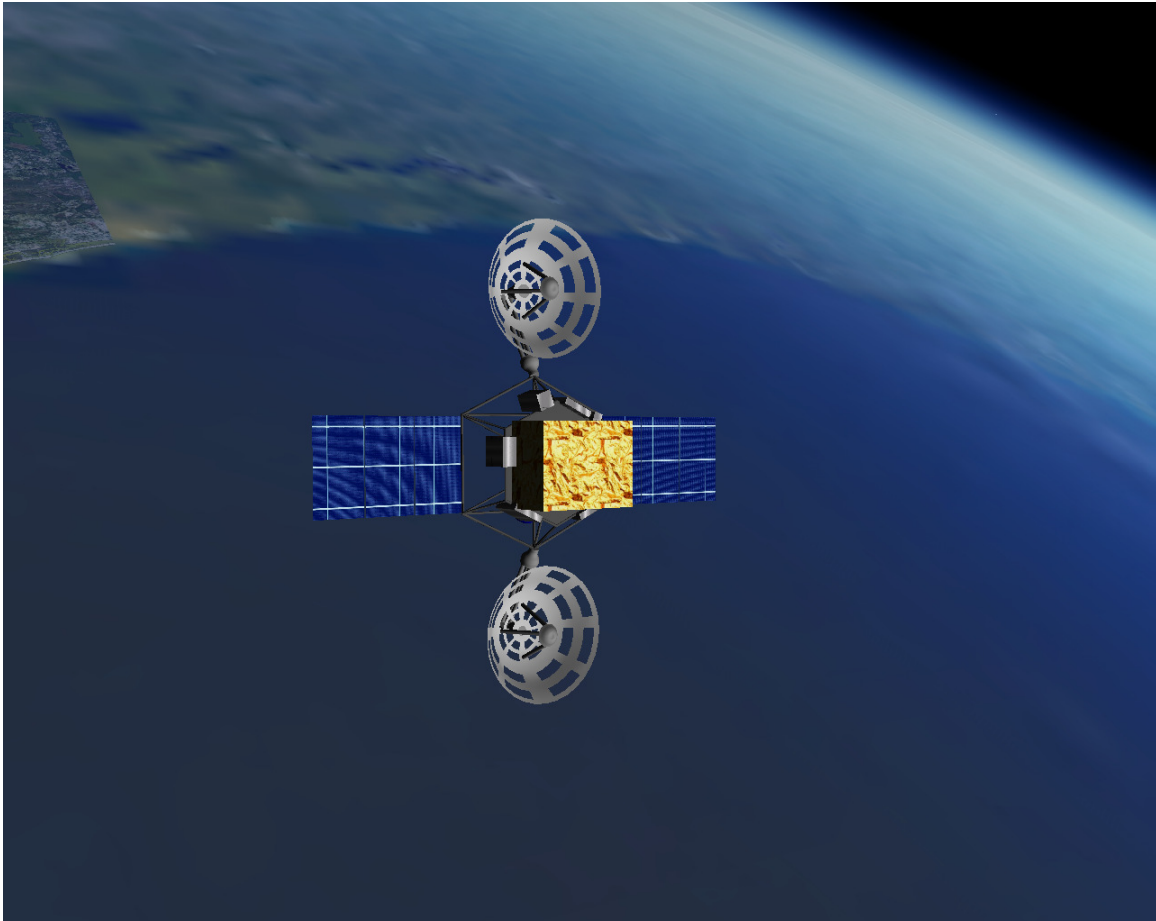
(Payload from Atlas C Able)

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