Flight Tutorial

Not for real world use

Welcome to the RWDesigns tutorial flight of the DHC-6 300 Twin Otter.

Today we will be flying from El Hierro Airport (GCHI) to Tenerife North Airport (GCXO). For this flight, we recommend the time of day be set to midday with clear weather and no wind.

Start by selecting New Flight from the X-Plane main menu, and select the Twin Otter DHC-6-300 ‘Customize’ button making sure ‘Start each flight with engines running’ is UNCHECKED’. Go to the location and enter GCHI, making sure that the air craft is starting from the ramp. Click Start Flight.

You should be greeted by a cold and dark cockpit. First disable the control lock by clicking at its base. Next, turn the battery switch to BATTERY. Then the DC Master switch to its on position. Turn the POS (Navigation) and Beacon lights to ON.

We can add fuel to the aircraft via the new Weight and Balance Pop-up. Click the black book in the side of the door to load up the menu, then click Weight and Balance, and switch from FUEL to PAYLOAD. The flight will take around 40 minutes. We will need 30 minutes of fuel for holding, and another 25 minutes fuel to our alternative airport, La Gomera Airport. This means the Twin Otter will need 160 kg of fuel in each tank.

It's now time to go through our flight plan.

We will be taking off towards the south east on runway 16. At altitude we will turn towards La Gomera VOR-DME (LGM), then across to Tenerife Sur VOR-DME (TFS) and finally tracking up the east coast of Tenerife towards Los Rodeos VOR-DME (LRO) landing by hand at Los Rodeos International.

Flightplan:

El Hierro Airport (GCHI)
La Gomera VOR-DME (LGM) 116.00 MHz
Tenerife Sur VOR-DME (TFS) 116.40 MHz
Los Rodeos VOR-DME 116.20 MHz
Tenerife North Airport (GCXO)

You can rely on the GPS to do navigation work but during this tutorial will only cover VOR navigation.

We may now start turning on avionics by:

- Clicking the volume knobs on both COMM/NAV units
- Turning the transponder to 'GND' mode
- Clicking the ADF volume knob

Next up, tune the Tenerife Sur VOR-DME frequency in to the NAV standby. Then click the frequency swap button to select it as the active frequency.

Last thing to do before engine start is to dial our cruise altitude (10,000ft) into the altitude selector window.

We are now ready to commence engine start.

Start by turning the Fuel Booster pumps on, the advance the fuel levers on the overhead all the way forward. Make sure the power levers are 1/4 inch open. Turn both igniters to ON.

Now start the right engine via the 3-way switch on the overhead. Monitor the engine gauges, making sure readings do not go into the red zones for longer than 10 seconds.

Once the right engine is started, turn the left engine on via the same 3-way switch. As with the right engine, monitor engine readings and make sure they are within the same acceptable parameters.

Once both engines are running, turn each generator switch to RESET and then switch to ON. Turn both bleed air switches to ON.

Switch your taxi lights on.

We are now ready for taxi. Taxi down runway 34 making sure your landing lights are on before entering the runway. Lower flaps to 10 degrees.

Adjust the OBS until the needle in the middle of the HSI is lined up. Adjust your heading to the same course.

When you are ready to depart, advance the throttles slowly all the way forward. Start to pull back on the yoke when you reach 65-70 knots.

As your speed gets to around 90 knots, click the IAS button on the autopilot panel and switch the autopilot switch to ENG. A green triangle should illuminate next to the ENG. Then click the HDG button.

As you click the IAS button, the autopilot will take a reading of the aircraft speed and then fly either a climb or decent to maintain that airspeed (depending on your throttle position).

When the aircraft has made the turn, you may hit the NAV button. It is important that the course deviation bar (CDI) lined up with the course selection pointer. If it is not lined up, the aircraft will not track correctly. Use the mouse wheel to make smaller adjustments. This will likely need doing every 2-3 minutes as you get closer.

You now have the choice to monitor your climb and manually level off at 10,000ft by hitting the ALT button, or (as this aircraft is equipped with the United Instruments Altitude Alerter) you may simply push the ALT ALERT button on the main panel. This will automatically capture the altitude selected in the altitude selector window. You can also turn off your taxi lights via the switch on the overhead.

If you are electing to manually capture the altitude, keep watching your altitude and hit the ALT button when you reach 10,000ft. Once 10,000ft is reached, turn off the landing lights.

Once at cruise, pull the propeller levers back about 1/5th of their allowed travel and slightly reduce power. This should allow the engines to run more economically, while decreasing propeller noise for passenger comfort.

We can now set the next VOR in the standby window of your NAV unit. Change the frequency to 116.40 (Do not hit the frequency swap button).

As we pass La Gomera VOR-DME, click the frequency change button. As the VOR is relatively close, adjusting the heading isn't necessary. Rotate the OBS towards the new way VOR. The aircraft should track directly to the VOR if the CDI is centered.

It should take about 10 minutes to reach Tenerife Sur VOR-DME. Make sure to keep the CDI centered. We can now set the next VOR in the standby window of your NAV unit. Change the frequency to 116.20 (Do not hit the frequency swap button).

When passing Tenerife Sur VOR-DME, adjust the heading to match the course indicated by the RMI. Click the HDG button. If we hit NAV, the aircraft will likely take a while to track the Los Rodeos VOR requiring slower turning as the VOR is some distance away.

While cruising down the coast of Tenerife, be sure to keep the CDI in the centered every 2-3 minutes.

When around 10 NM out of Los Rodeos, it'll be time to begin out descent. We will be flying into the Tenerife North Airport using runway 30. Unfeather your props by pushing each lever forward. Click the IAS button on the autopilot panel and bring your throttles back.

Deciding how much to lower the power is a judgement call. We want to be flying over the beach at 4000 ft to turn onto final.

Select 4,000 ft on the altitude selector window, under the autopilot panel and click the MDA (minimum descent altitude) button on the main panel. This will let the plane descend and level out when it reaches the altitude selected (4,000 ft). When the airport is in sight, turn the heading bug towards towards the right to fly over the beach and hit the HDG button

Just before the base turn, turn off the autopilot. While making base turn lower flaps to 20 degrees. The flaperons in this aircraft are infinitely adjustable and require you to hold down your flaps down key.

Adjust power until the aircraft is at 100 kts, then trim the aircraft. When at 2500 ft, lower the flaps to 30 degrees and trim the aircraft. Turn on landing lights and taxi lights. We want to be landing at around 75 knots, so adjust power accordingly.

20ft off the ground, begin flare out. Immediately after touch down, deploy reverse thrust (Shift '/' by default).
At 40kts, return the power levers to flight idle. As you exit the runway, turn off your landing lights and turn on the taxi lights and raise the flaps up.

Taxi to the ramp via a route of your choosing. Park at the ramp and shut down your engines by dragging both fuel levers on the overhead, to their OFF position.

You can now turn off:

- Taxi Light
- Beacon Lights
- POS (Navigation) Lights
- Strobe Lights

Switch both generators to OFF and bleed air to OFF. Finally, turn the DC Master switch to OFF and the battery switch to OFF.

Thank you for flying the RWDesign Twin Otter V2!