

# DC-6 TUTORIAL 1



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## Introduction

Welcome to Tutorial #1 for the PMDG DC-6! This tutorial is being provided to give people an understanding of how to operate the aircraft well enough to take it on various adventures around the globe. By the end of this tutorial, you should be able to fly one of the most advanced versions of a commercial propliner currently available for the Microsoft Flight Simulator platform with relative ease, while also gaining a sound appreciation for old radial engines.

In the past, we have provided multiple versions of Tutorials in order to slowly build up various skills that are helpful for operating the aircraft. This trend will continue here. The main purpose of Tutorial #1 is to familiarize the user with some of the features of the PMDG DC-6 while on a shorter flight, using the GPS.

Tutorial #2 will expand upon this concept by including cold and dark procedures, and VOR to VOR navigation.

In order to concentrate on flying the aircraft and the techniques discussed in the tutorial, the first two tutorials will be flown without weather.

## Overview

Our schedule today takes us from KPDX – Portland International Airport in Portland, Oregon, to KSEA – Seattle-Tacoma International Airport in Seattle, Washington. Portland is the largest city in the state of Oregon, and has undergone a rather extreme transition between the 20th and 21st centuries. In the early 1900s, it was considered one of the most dangerous port cities in the world, but in the mid-1900s it began to transform into one of the cleanest and most environmentally friendly cities in the world.

Seattle is the largest city in the state of Washington, and is probably most well known in the aviation industry for being the home of the Boeing Aircraft Corporation. Outside of aviation, Seattle was well known during the Gold Rush, and has been the birthplace of and launching point for many influential musicians from various genres.

## The Flight Plan

The flight plan is a modern approximation of what a DC-6 crew might have flown at the time. The flight time is approximately 40 minutes, plus the time spent on the ground. We will be cruising at 8000 feet, and the route is as follows:

KPDX/28L BTG ALDER CIDUG HIPRO JOSTA JALON KSEA/34L

We have provided the *flight plan* file for this flight:

DC-6\_KPDX-KSEA.PLN (*flight plan file*)

The file is located in:

### Steam distribution:

<MSFS root directory>\Packages\Community\pmdg-aircraft-dc6\Documentation

### MS Store distribution:

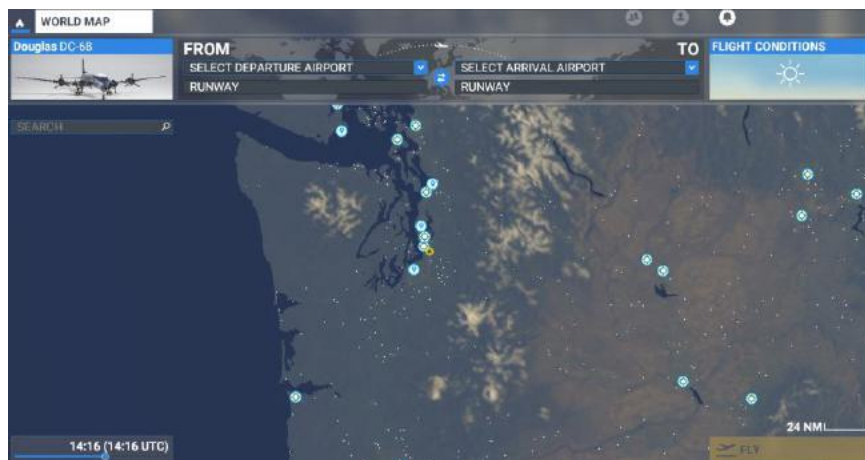
<MSFS root directory>\Community\pmdg-aircraft-dc6\Documentation

If the Introduction Manual has not been read, please review it prior to completing this tutorial. The sim needs to be properly configured and given that the DC-6 is much less automated than our other offerings, setting key commands is highly recommended, namely: elevator trim (up/down), aileron trim (left/right), flaps (up/down), as well as gyropilot and autopilot mechanical disconnect.

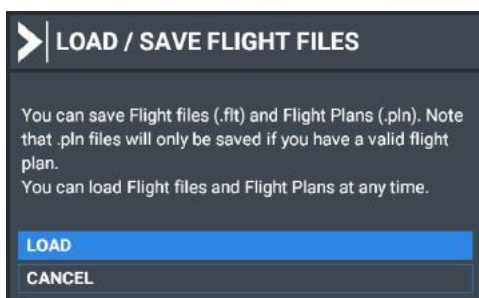
## Preparing the DC-6 for Flight

Start MSFS, and go to World Map. If you have not already selected the PMDG DC-6 from the Aircraft Selection screen, go ahead and do so now.

1) On the World Map screen, with the DC-6 selected, press the Space Bar or click on LOAD/SAVE:



2) You will be presented with the LOAD/SAVE FLIGHT FILES screen. Click LOAD:



3) An 'Open' dialogue box will appear.

If you are using the Steam distribution, navigate to:

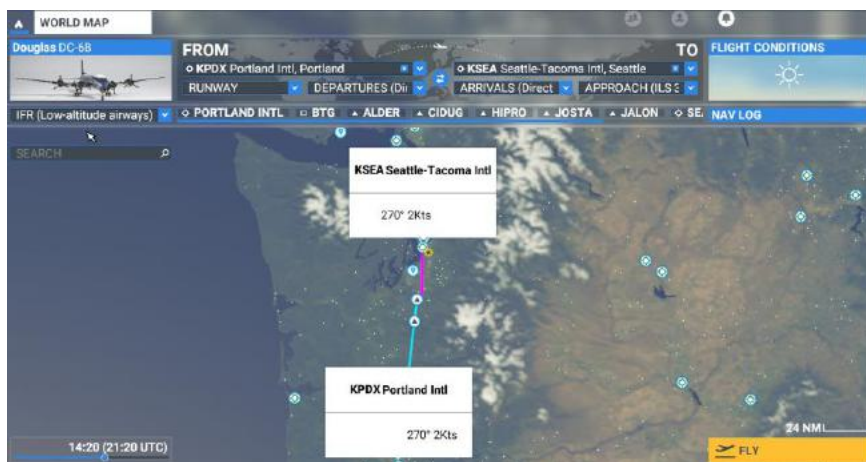
<MSFS root directory>\Packages\Community\pmdg-aircraft-dc6\Documentation

If you are using the MS Store distribution, navigate to:

<MSFS root directory>\Community\pmdg-aircraft-dc6\Documentation

... and select the DC-6\_KPDX-KSEA.PLN file, then click 'Open.'

4) After you click 'Open' the flight plan will load, and you will be ready to start the flight:



Click on 'Flight Conditions' at the top right of the screen, and select 'Clear Skies.'

Click the yellow 'FLY' button to start your flight. You will be positioned on Runway 28L with the engines running and your flight plan loaded.

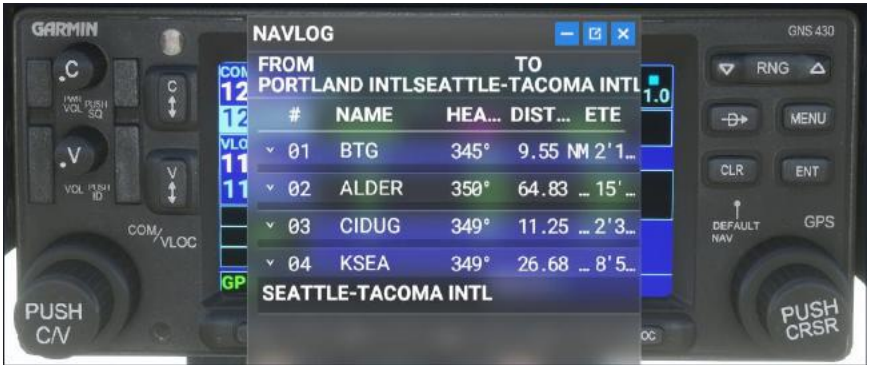
# Getting Started



Go ahead and set the parking brake to prevent us from creeping forward as we set up the airplane.

Let's check to confirm that the flight plan has been entered properly by reviewing the FPL page in the GPS.

Before we look at the GPS's FPL (flight plan) page, first pull up the NAV log by pressing [n] on your keyboard. This ensures that the flight plan is loaded into the GPS. Press [n] again to hide the NAV log.



Click on the FPL button on the GPS to go to the flight plan page:



You'll see the waypoints in the flight plan page match those in the NAV log. This confirms that the flight plan has been loaded into the GPS, and we can now proceed with setting up the rest of the airplane.

*Note: if you do not see the flight plan in the FPL page, press the FPL button to go back to the NAV page, toggle the NAV log on and off using the [n] key on your keyboard, and press the FPL button on the GPS again. The flight plan should now be loaded and visible in the FPL page.*

While we are here, set the ILS frequency to 110.75. To set the VLOC frequency, press in the center of the knob marked PUSH C/V. This will highlight the VLOC standby frequency. Use the inner and outer knobs to set the frequency.



Now let's set the course on your VOR to 343. This is the approach course for runway 34L at KSEA. The course will have to be manually set using the OBS knob at the bottom left of the VOR1 gauge, directly under the artificial horizon.



When you have confirmed that the flight plan has been loaded into the GPS's FPL page, click on the FPL button to return to the Course Deviation Indicator (CDI) screen.



To switch to the moving map display, turn the PUSH CRSR (inner) knob one click to the right:



Pull up the tablet (to your left on the sidewall), go to the AFE page, and run the After Start checks (click the slider so that it turns green). After the AFE concludes the After Start checks, activate the Before Takeoff checks.



*Note: when the AFE is done with a sequence, the slider remains green to indicate which sequence was active last.*

## Preparing for the Departure

Before we depart, we should go over a few things, since you will have your hands full of about 70,000 pounds of airplane and will not have time to be flipping through this document.

To prevent your hardware throttle interfering with the AFE, leave it at idle stop. Hold the brakes to remain in position while the AFE sets the takeoff power (we will be using Takeoff (Dry)). Begin rolling only after you hear the AFE confirm that full power has been set. Our  $V_R$  (rotation speed) will be 100 knots. When we reach  $V_R$ , smoothly increase backpressure on the yoke to raise the nose. Climb out at 130 knots and then pitch over slightly at about 500' above the ground (about 531' MSL here) to reach 140 knots. The AFE will retract the flaps and then set Maximum Except Take Off (METO) power during this time. When the flaps are retracted, you will need to apply a little back pressure on the yoke and trim accordingly. The AFE will then set CLIMB power and run the after-takeoff checks. Continue the climb at 165 knots.

You should still have more than enough fuel after reading this section, but just to be sure, let's add some fuel:

Go to the Fuel and Load Manager page in the tablet and press the *Set Fuel 50%* button. This will set the airplane up with 50% of fuel properly loaded and distributed.

***Note:** For detailed instructions on how to use the Fuel and Load Manager, click the Help button to the lower right of the page.*

Leave the cargo and passenger loads empty for now.

When you are ready to begin your takeoff roll, go to the AFE page in the tablet and click Takeoff (Dry).

Hold the brakes until you hear the AFE say "full power set."

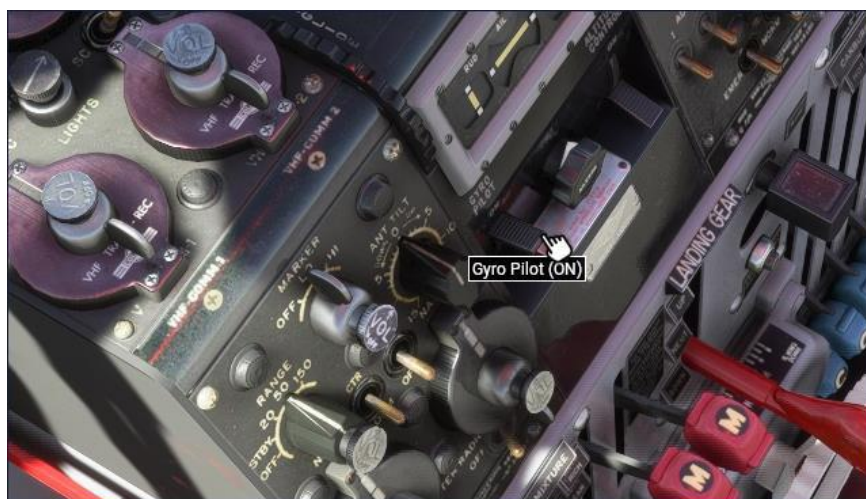
Follow the takeoff procedure discussed above.

## Climb

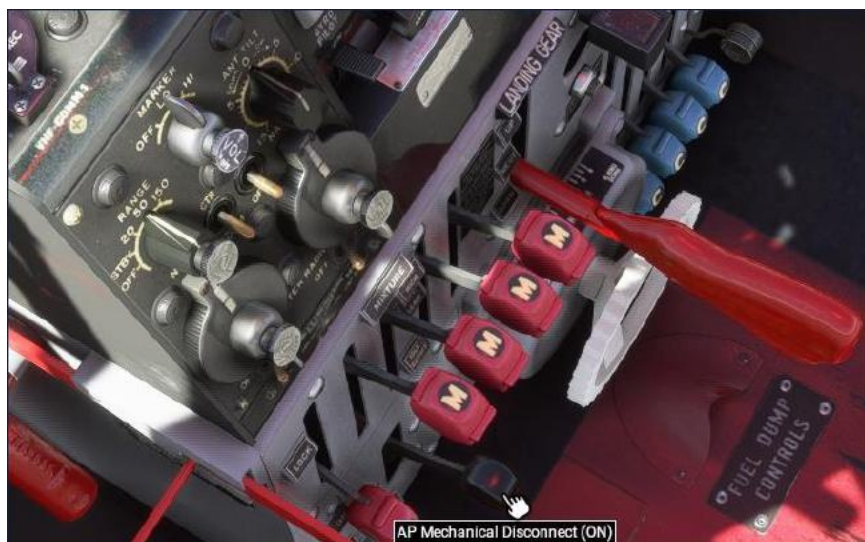


After the AFE sets climb power, pitch for 165 knots in the climb. Use trim as required. The AFE will continue to maintain climb power so that you do not need to increase throttle as you climb. When trim is set and the airplane is climbing at approximately 165 knots, let go of the yoke briefly, and continue reading below.

Look down at the back of the pedestal to find the Gyro Pilot switch on the autopilot. Turn it ON:



Look below the (red) mixture levers to find the AP Mechanical Disconnect. Turn it ON:



This will enable the autopilot, and cause it to hold wings level and maintain the current pitch.

If the airspeed is too low/decreasing, roll the AP Climb Glide Wheel forward to pitch the nose down. If the airspeed is too high/increasing, roll the AP Climb Glide Wheel wheel aft to pitch the nose up:



You now need to turn the aircraft to the right, toward the course line, using the AP Turn Knob:



Turn the knob to the right to increase the bank angle, or back to the left to decrease the bank angle. Stop the turn and level the wings at a heading of 020 degrees.

*Note: To center the AP Turn Knob, press the silver button located above the AP Turn Knob and between the Electric Release (red) and Approach Ready (blue) annunciator lights.*

Once we are on our heading of 020, we will prepare to intercept our GPS course (KPDX->BTG) using GPS steering.



To put the aircraft in GPS steering mode, make sure that the CDI on the GPS reads GPS and not VLOC. Press the CDI button to toggle between VLOC and GPS if you are, for some reason, not yet in GPS mode.

After ensuring the CDI is set to GPS, turn the Autopilot Mode selector to LOCALIZER:



Despite the name, this is simply an autopilot mode that tracks a signal with lateral guidance, in this case the GPS steering signal. This can also be a VOR or a Localizer.

Continue climbing until you reach 8000 ft. You may want to use the AP Climb Glide Wheel to slowly decrease the climb rate before engaging Altitude Control:



# Cruise



After leveling off, allow the aircraft to accelerate to cruise speed before letting the AFE run the Cruise checklist. This will allow the aircraft to settle onto the cruise speed faster, thus improving efficiency, particularly on longer flights.

After leveling off at 8000 ft, pull up the tablet, go to the AFE page, and run the Cruise checklist (click the slider so that it turns green):



## Descent

Descent planning is very important with radial engines as you always want to make sure you are using positive thrust. This will increase your speed for the descent. One way to plan for a descent is to pick a vertical speed, and then divide the altitude change by the vertical speed, convert for hours, and then multiply by your ground speed.

We will be using the ILS Runway 34L approach. The approach calls for 5000 at HIPRO, and we will want to have slowed down and configured at least Flaps 20 by that point, so we should be at 5000 about 10nm prior. The change from 8000 to 5000 is 3000, so with a vertical speed of 500 feet per minute, it will take 6 minutes, which is 0.1 hours. Assuming approximately 220 knots in the descent, the result is 22nm.

Adding the 10 prior to HIPRO, we should begin to run the descent flow and begin descending 32nm prior to HIPRO. Since ALDER is approximately 22nm from HIPRO, normally you would want to begin this descent 10nm prior to ALDER.

However, we suggest that you give yourself some additional time to run the checklist, and get yourself comfortably situated in the descent. Therefore, we suggest that you run the descent flow 20nm prior to ALDER. This will make it easier to stay ahead of the airplane as opposed to the airplane getting ahead of you/away from you.



When you are 20nm from ALDER, go ahead and pull up the tablet. On the AFE page, press the Descent slider.

As part of the descent flow, the AFE will set the manifold pressure to 26 inches. This helps to ensure that the engine is still delivering positive thrust, while also reducing thrust enough to descend. With this in mind, be aware that you may end up picking up speed during the descent. While this is not normal by the standards of today, given the high cruise speeds of jets, this was not abnormal at the time.

Descending 20nm prior to ALDER will give you more than enough time to decelerate to Flaps 20 speed (175 knots) prior to HIPRO.

Disengage Altitude Control and roll the AP Climb Glide Wheel forward to begin a descent of -500 ft/min.

As your speed increases, check your vertical speed indicator (VSI) and use the AP Climb Glide Wheel to adjust the vertical speed to maint -500 ft/min.

Depart CIDUG with a heading of 020 by turning the Autopilot Mode knob from LOCALIZER back to GYROPILOT, and be sure to change the CDI indicator on the GPS back to VLOC. Change the autopilot mode back to LOCALIZER when the CDI needle begins to move, indicating that the localizer is being intercepted.

Reduce vertical speed when nearing 5000 ft, and engage ALTITUDE CONTROL. Leveling off will help decelerate below 175 knots in order to be able to set Flaps 20.

Once at 5000, request the AFE to run the In Range checks by clicking on the slider on the AFE page in the tablet.

Set the Autopilot Mode to APPROACH.

After the speed decreases below 175 knots, set Flaps 20, pausing at each flap setting to give the autopilot time to adjust trim. If you find that your speed is not bleeding off quickly enough, you can manually adjust the throttle back to the 60 mark of the BMEP gauge.

## Approach



The approach will be a visual approach to Runway 34L, assisted by the ILS, which will help stabilize the aircraft on the proper lateral (LOC or localizer) and vertical (GS or glide slope) path. Do keep in mind, however, that since this is your first flight, you will want to turn the autopilot off as soon as possible to get a better feel for the controls. When you are ready to do so, turn the Gyro Pilot switch OFF, and then set the AP Mechanical Disconnect to OFF.

As you get ready to intercept the glideslope, run the landing checks by clicking on the slider on the AFE page in the tablet.

Set Flaps 30 when established on final and let the speed reduce to 120 knots. If you find that your speed is not bleeding off quickly enough, you can manually adjust the throttle back to the 60 mark of the BMEP gauge. Just be mindful to reset it back to 26" manifold pressure when full flaps (flap 50) are set.

Allow your speed to bleed off while on final and set Flaps 50 to maintain 110 knots.

Aim to be over the threshold at 105 knots, flare, and touch down.

Let the speed naturally reduce with the assistance of light braking. Provided you land near the touchdown zone, the runway is long enough that there is no need to jump on the brakes.



Exit onto the first taxiway to the right.

## Taxi



After exiting the runway, run the After Landing checklist by clicking on the slider on the ALE page in the tablet.

Taxi south on Taxiway T to the General Aviation ramp.

## Shut Down



The ramp is rather small for General Aviation aircraft, but maneuver as best as you can to fit the aircraft on the ramp, away from the taxiway.

After arriving at the parking spot, set the parking brake.

Run the shutdown checklist by clicking on the slider on the AFE page in the tablet.

## Next Up

The next segment is another short hop - about an hour in the air - between KSEA and CYVR. You may continue right into it from here if you'd like. Otherwise, save this flight for Tutorial #2.

