A340 500/600

EVERYONE

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CONTENT RATED BY ESRB

CREW OPERATIONS MANUAL

A340-500/600

CREW OPERATIONS MANUAL

CONTENTS

Please note that Flight Simulator X or 2004 must be installed correctly on your PC prior to installation and use of A340-500/600

INTRODUCTION

Welcome to Just Flight's F-Lite range.

The F-Lite range has been designed to provide aircraft that are not only extremely high in detail and visually impressive but also less demanding to fly than complex procedural simulators.

If you just need to go Flying you just need to go F-Lite!

The Airbus A340-500 and -600 airliners are long range champions in many senses. The A340-600 is a staggering 246' 11" in length and can fly for up to 9,000 miles using its four efficient high by-pass ratio engines. Meanwhile, the A340-500 wins top trumps for its lifting ability when it tip[s the scales at a maximum of 822,000 lbs. Built in Europe by Airbus Industries, from a mixture of traditional and modern high-tech materials, the A340 utilises the latest in technology to ensure safety, performance and efficiency over very long range routes.

The A340-500/600 package for Flight Simulator X and 2004 has been designed by Commercial Level Simulations to provide aircraft great to look at and very straightforward to fly.

Detailed features

Highly realistic exterior model

Full virtual cockpit

Wing view included

Virtual cabin

3D pushback truck

Tyres stay flat on ground while takeoff or landing

Detailed undercarriage including brake lines.

Dynamic wing flexing (wing flexes during turbulence)

Individual special effects attached to the physical properties of the aircraft

Superb soundset recorded from actual A340 models

Animations include passenger doors, cargo doors, flaps, rudder, elevators, undercarriage, engine fans, thrust reversers, control surface droop when engines are not running, high and low speed ailerons and spoilers.

Unique switchable Easy or Normal flight characteristics

Unique viewpoint switching utility 'AeroView'

Included liveries

A340-600 – Eleven in total

Airbus Industries

Cathay Pacific

China Eastern

CLS house livery

Iberia

Lufthansa

Manufacturers primer (unpainted materials)

Paint kit (all-white livery)

South African Airways

Thai

Virgin Atlantic

A340-500 – Fourteen in total

Airbus Industries.

Air Canada – latest livery

Air Canada - Older livery

Air Canada – hybrid of new livery

CLS house livery

Emirates Airlines

Emirates Airlines – FIFA 2006 and belly logo

Emirates Airlines – FIFA 2006

Emirates Airlines – belly logo

Emirates Airlines – Dubai shopping fest 2006

Etihad Airways

Paint kit (all-white livery)

Singapore Airlines

Thai Airways

Layered paint kit included to help create your own liveries (suitable additional paint program such as Photoshop required).

Super realistic and detailed textures

Dynamic texture shine

Night textures

Instrument panel features

A340-600 and -500 panel with realistic gauges

Full virtual cockpit with mouse clickable operations.

Overhead panel comes complete with air conditioning packs, fuel pumps, fire,

fuel dump, Auxiliary Power Unit and lighting controls

Realistic ND (Navigation Display) with limited waypoint display based on MSFS flight plans.

Realistic EICAM displays, covering many systems such as hydraulic pressure, flight controls, electrical power and many more.

Individually adjustable brightness for EICAS, PFD and ND displays.

Limited function FMC (Flight Management Computer) that allows for SIDs and STARs that are in the MSFS database; radio and navigation frequency entry, v-speed calculation, 'direct to' waypoint features, progress display, estimated fuel on board and more.

Numerous pop-up sub-panels including large versions of the PFD and NFD.

EFIS (Electronic Flight Information System) displays complete with Constraints, VOR, NDB, waypoint and Airport overlays

Realistic PFD (Primary Flight Display) with limited Airbus Laws Logic and Alpha Protection.

Working TCAS (Terminal Collision Avoidance System)

Flight Model Features

Highly tuned A340-600 and 500 flight model

CLS 'True Feel' performance and feel

Unique switchable Easy or Normal flight characteristics

Additional features

Uses the default MSFS payload and fuel editor for ease of use and reliability.

Uses the default MSFS flight planner and Navigation Log for accurate flight/fuel planning for ease of use and reliability.

Use of true A340-600 landing gear footprint as default gear points.

More than 60 individual contact point definitions and damage profiles throughout the aircraft

Special effects

Tyre/wet runway water effects

Engine start smoke

Touchdown tyre smoke effects

Fire/sparks from the rear underbelly when you over-rotate

Burning rubber effects

Inspection lights

Dynamic wingflex

Unique viewpoint switching utility

INSTALLING A340-500/600

1. Close all open programs and applications prior to installation. Place the product DVD-ROM in your DVD drive.
2. If your computer has 'Autorun' enabled the installation program will start. If not, select 'Start' on the Windows taskbar, click on 'Run…' and type D:\start.exe in the 'Open' window: (where 'D' is the drive letter of your DVD-ROM drive), then press 'OK'.
3. The first screen to appear will ask you to either 'Install in FSX' or 'Install in FS2004' or 'Exit'. Press the appropriate option to continue and follow the on-screen instructions
4. If the is unable to find a valid entry for the selected simulator a warning dialogue will appear telling you to browse manually to the folder where you have installed Flight Simulator.
5. The default path for Flight Simulator X is C:\program files\Microsoft Games\Microsoft Flight Simulator X. The default path for FS2004 is C:\Program Files\Microsoft Games\Flight Simulator 9. This path will be correct unless you specified another location when you installed Flight Simulator.

Once the Installation is complete you will see a confirmation window. Click the 'Finish' button to exit the install program and return to Windows. The install is complete.

DVD-ROM INSTALLATION FAQs

Q. After inserting the disc I get told to insert the correct disc, but I've already inserted it, or an error appears warning that CD/DVD emulation software has been detected

A. This problem occurs because the Safedisc protection software on the disc is failing to validate. The most common reasons for this are:

You have anti-virus software or a firewall active on your PC that is interfering with the installation. Please disable all programs running in the background of Windows and try installing again.

Important – If you have a nVidia nForce 2 motherboard please ensure that you visit www.nvidia.com and install the latest driver as older versions are known to have compatibility problems with Safedisc

The disc may have been damaged and become unreadable. Please check for any damage to the disc and give the readable surface a clean.

The drive that you are using to load the software may be incompatible with Safedisc. Please visit the manufacturer's website to download any updated drivers/firmware that may be available or alternatively try installing using an alternative drive (if you've got one).

If you have any Virtual Drive or Emulation software on your PC then this can prevent the Safedisc protection software from validating. In order to install the software you must disable the emulator from trying to circumvent Safedisc. Typical emulation software includes Daemon Tools, Clone CD and Alcohol 120.

If Alcohol 120% is on the machine:

Start Alcohol and go to the Emulation Options.

Select 'Emulation' from the options tree. Uncheck the 'Ignore Media Types' box to turn off the media type emulation.

Select 'Extra Emulation' from the options tree. Uncheck the 'BAD Sectors Emulation' to turn off this type of emulation, exit Alcohol 120% and restart the game.

If CloneCD is on the machine:

Look on your task bar at the bottom right of your screen (next to the clock). Locate the CloneCD tray icon, which can be a picture of two CD-ROMs or of a sheep's head. Right Click on the icon and make sure 'Hide CD-R media' is un-ticked. Restart the game application.

If Daemon Tools is on the machine:

Right Click on the Damon Tools icon in the Task Bar.

Select the Emulation tab.

Deselect Safedisc.

If you continue to have problems after trying the above solutions please contact the support department at www.justflight.com

Q: When trying to install this title I receive an error message that mentions either -6001 or -5001. How do I fix this?

A: This error is caused by the InstallShield system leaving some files behind during a previous installation of some other software. Please download and run the ISClear tool (obtainable from the Support page at www.justflight.com). This should solve the problem and you will then be able to install correctly.

PAYABLE DOWNLOAD – INSTALLATION FAQs

How do I install and unlock the software once I have paid for it?

Full instructions will appear on screen once you have bought a download add-on. These will also be sent to you in an email for future reference.

How will I know the product has unlocked correctly?

A message will appear on screen telling you that the unlocking process has been completed (and how to contact us in the unlikely event that you experience any problems). Please read all instructions and e-mails carefully.

What happens if I change my PC or need to reinstall the software?

If you change your computer system or your licence files are 'broken' (perhaps due to a re-installation of Windows or a hard drive malfunction) you will need to unlock the software again.

Once you have unlocked the product you can install it as often as you like on the same computer system.

Please note: You can only unlock a product three times. If you need to exceed this number of unlocks an administrative fee may be required. In this case please contact our download shop support line at enquiries@justflight.com

Website updates?

Please check our website at www.justflight.com for any news or updates on this and other products.

Technical Support?

To obtain technical support (in English) please visit the support section at www.justflight.com. As a Just Flight Customer you can obtain free technical support for any Just Flight or Just Trains product. If you don't have Internet access, please write to us at Just Flight Technical Support, 2 Stonehill, Stukeley Meadows, Huntingdon, PE29 6ED, UK.

UNINSTALLING

To uninstall the product from your system:

- Go to the Windows Start menu.
- Select 'Settings' and then 'Control Panel'.
- In the Control panel window double-click on 'Add/Remove Programs'.
- Select and click on the appropriate entry from the list. A dialogue box will appear offering to Modify, Repair or Remove the program. Click on the 'Remove' option and then click 'Next'. A confirmation box will appear asking if you really wish to remove the product. Clicking 'OK' will remove the product from your system.
- Click 'Finish' to end this operation.

Uninstalling or deleting the product in any other way may cause problems when using this program in the future or with your Windows set-up.

OTHER ITEMS ON DISC

The product disc contains a large amount of additional free, demonstration and purchasable software. These can be accessed from the main disc startup window by clicking on the options you will see at the bottom of the window.

'Free and Demo software, Information, videos and previews' will take you to a screen where you can easily browse through all the additional content available. In addition to free software such as aircraft, scenery and screensavers there is a large collection of videos and screenshots that can be easily viewed. There are also demo versions of some of the popular Just Flight products for you to try before buying.

'Additional products on this DVD' will take you to a screen where you can browse through the other products that are available on the disc. These products can be purchased and installed straight off the disc provided you are connected to the internet in order to purchase and obtain the necessary unlock codes.

ACCESSING THE AIRCRAFT

To access the aircraft in Flight Simulator 2004

1. Start Flight Simulator
2. Click on 'Create a Flight'
3. From the menus, select 'Aircraft Manufacturer'
4. Choose Just Flight - Commercial Level Simulations
5. Select the aircraft model of your choice. You will be able to choose between the A340-500 and the A340-600. Each type is offered in three different configurations which affect the layout of the Virtual Cockpit. The standard model provides a normal 3D cockpit that you can use to fly the aircraft just like the 2D panel. The 'Cabin and wingview' version models the passenger cabin when you are in 3D mode. The 'wingview' version has no virtual cockpit. When in 3D mode you will see your wings but no panel or controls in front of you. This version is supplied so that users with less powerful computers can obtain better performance.

Note that to get the best effect when you are using the 'wingview and cabin' and 'wingview' models you should use the Viewpoint setting tools to select the appropriate starting viewpoint for the chosen model.

6. When you have selected your aircraft model you can select the individual livery you wish to fly from the 'Variations' list.

In Flight Simulator X

1. Start Flight Simulator
2. Click on "Free Flight" and press the "Change" tab for Current Aircraft
3. From the "Publisher" drop-down menu, select Just Flight – Commercial Level Simulations.

   Then, follow steps 5 and 6 above as for FS2004.

AIRCRAFT CONTROLS

To activate the aircraft pushback from the gate and see the 3D pushback truck moving the aircraft use the pushback start/stop key on the keyboard. By default this is set to SHIFT+P in Flight Simulator unless you have changed your key assignments

The main doors can be opened from the overhead panel. Some of them can also be opened using the keyboard.

To open the main door press SHIFT+E

To open the secondary passenger door press the key combination assigned to 'Tailhook up/down'. This is not assigned by default in Flight Simulator so you may need to set up a key assignment for it.

To open the rear cargo door press the key combination assigned to 'Wing fold/unfold'. This is not assigned by default in Flight Simulator so you may need to set up a key assignment for it.

For improved ability to move around the Virtual Cockpit in Flight Simulator 2004, you may wish to install the Flight 1 View Module from: www.flight1.com which has been included on the DVD-ROM with their kind permission. This gives improved control of movement around the VC. Areas and viewpoints can be accessed that are impossible with the default Flight Simulator software. Instructions for installing and using it can be found in the Extra\F1View folder on the A340 DVD-ROM.

FLIGHT MODEL SETTINGS

The A340 500-600 models each come supplied with realistic flight models representing as closely as possible the characteristics of the real aircraft. However you may wish to utilise a simpler and easier to fly version while you get familiar with the aircraft.

If you wish to switch to the simplified flight models for any of the aircraft go to Start\Programs\Just Flight\A340 500-600 and select the 'Flight Model Settings' option. This will start a program that shows the three different A340 variations and which flight model is currently selected. Click the options to change the model or models you require and click the 'Set values' button to activate your new settings in Flight Simulator. Use this program whenever you wish to change an A340 aircraft to either the realistic or simplified flight characteristics.

VIEWPOINT SETTINGS

Each A340 variation comes in three different versions which you can select to give a different in-flight experience or to improve performance. Each version requires a different location to place you the pilot if the best view is to be obtained.

For best effect you should set the appropriate viewpoint for the model and version you intend to fly before starting Flight Simulator.

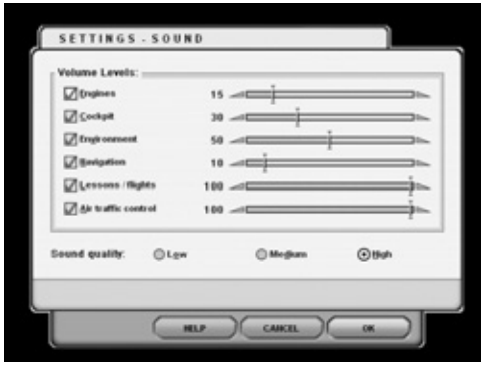
To set the viewpoint go to Start\Programs\Just Flight\A340 500-600 and click on the 'View adjustment' option for the main A340 model you are going to fly. This will start a program that will let you select the most suitable option from a drop-down list. It will also display a preview image of the selected option. Once you have selected the option you require click the 'Set values' button to activate the option in Flight Simulator.

The three viewpoint options are:

- Normal VC viewpoint. Select this if you are going to be flying the standard version of the model. This model will let you fully control the aircraft from the 3D virtual cockpit as well as from the 2D panel.
- Cabin viewpoint. Select this if you are going to be flying the 'Cabin and Wingview' version of the model. You will be able to control this model from the 2D panel but when you switch to 3D virtual cockpit you will be placed in the passenger cabin.
- Wing/No VC viewpoint. Select this if you are going to be flying the 'Wingview' version of the model. In this model you will be able to control the aircraft from the 2D panel. If you switch to 3D virtual cockpit you will see the wings on either side of you but no 3D panel. This version is provided so that users with less powerful computers can fly the A340 without the performance impact of a highly detailed 3D cockpit.

RECOMMENDED SOUND SETTINGS

We recommend that for best results you set your sounds as follows:



THE PANELS

The CLS A340-500/600 panel has custom gauges, and is designed as an efficient, highly functional panel. Users can complete an entire flight from either the 2D panel, or the 3D Virtual Cockpit.

PANEL SWITCHES

1 - EFIS controls

2 - FCU controls

3 - Show/Hide Icons for Kneeboard, Map, GPS, Overhead display, Lower EICAM display and Pedestal

4 - ECAM select

5 - Autobrake controls

6 - Gear handle

LOWER EICAM

1 - Main ECAM display

2 - Chronograph

3 - Display brightness controls

4 - Selection buttons

5 - Display units selection (pounds/kg, Gallons/Litres)

To display the fuel buttons on the overhead panel you must first select the fuel menu.

PEDESTAL

1 - MCDU controls

2 - Radio select

3 - Radio/Nav select

4 - Engine throttles

5 - Fuel cutoff switches

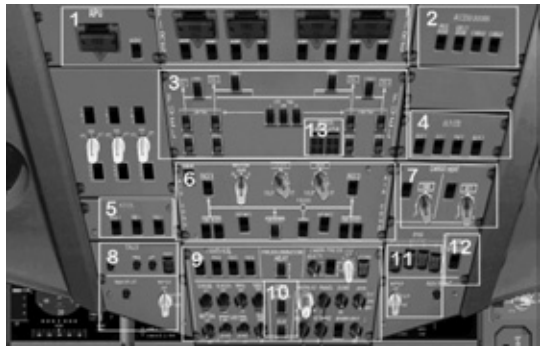
6 - Engine start

7 - Speed brakes

8 - Parking brake

9 - Flaps control

OVERHEAD PANEL



1 - Fire Handles

2 - Door switches

3 - Fuel panel (this will only display if you have first selected FUEL display on the LOWER EICAM display)

4 - Flight Controls 2

5 - Flight Controls 1

6 - Airconditioning controls

7 - Cargo heat switches

8 - Call buttons

9 - Anti-ice and lights switches

10 - APU switches

11 - Engine start switches

12 - Spoiler arming switch

13 - Fuel jettison switches

VIRTUAL COCKPIT

Items are located in the correct position as on the flight deck on the Airbus A340-500 and -600.

FREQUENTLY ASKED QUESTIONS

Q) How do I push / pull the Airbus knobs?

A) Left mouse click = push. Right mouse click = pull.

Q) Will my auto brakes work on landing?

A) Yes.

Q) Will my pop up spoilers work on landing?

A) Yes.

Q) Can I perform an auto-landing with the panel?

A) Yes.

Q) How do I flight plan with the panel?

A) Use the default FS2004 flight planner and navigation log. When you load the trip into the Microsoft Flight Simulator, it will automatically load into the aircraft.

Q) How do I control the doors from the panel?

A) Click the door location on the door display gauge.

Q) How do I change from FPM to Angle on my climb/descent?

A) Select the HDG/TRK // VS/FPA button.

Q) How do I get the autopilot to track green dot speed, and selected altitude?

A) Right click and pull the knob for speed, or altitude. The plane will match the speed and altitude.

Q) Can I make a complete flight from the 2D panel?

A) Yes.

Q) Can I make a complete flight from the virtual cockpit?

A) Yes.

Q) Does the panel have an FMC?

A) Yes.

Q) Can I program in waypoints, SIDs and STARs?

A) Yes, simply manually enter it into the default Microsoft flight planner. The waypoints will appear in the MCDU.

Q) How do I fly the plane, or learn the aircraft speeds?

A) Please see the MCDU TO/APPR menu to calculate speeds, and the PDF called Flying The A340 which is included in the program.

Q) How do I know my maximum speeds, restrictions, aircraft checklist, and how do I enter a flight?

A) For the CLS A340-600, you will be able to utilise:

- The default MSFS electronic kneeboard for procedures
- The default MSFS electronic kneeboard for reference materials
- The default MSFS payload editor for editing PAX and cargo
- The default MSFS fuel editor for editing fuel loading
- The default MSFS flight planner to enter routes into the MCDU/FCU, as well as perfect working integration with the MSFS ATC engine.
- The default MSFS ATC with the ability to fly SIDs and STARs, even RNAV approaches with transitions.

FLYING THE A340

The following tutorial flight from London to Dublin has been written by Jane Rachel Whittaker to help you get to grips with flying this marvellous airliner.

Tutorial Flight to Dublin

Welcome to the Airbus A340-600. Until the new 'double decker' A380 enters service this aircraft is currently the flagship of the Airbus fleet. The A340 is utilised for long-haul, high density passenger routes as a direct competitor to the Boeing 747 series. The A340-600 can fly for up to 7500nm non-stop with sectors such as Paris–Los Angeles and London-Singapore being achieved with ease.

For this tutorial our flight of choice will be a more modest hop from London Heathrow to Dublin taking just over an hour. A number of operators, with the aim of filling seats, now operate multi-leg flights and a stop-over in Ireland en route to the USA is not uncommon. Our flight can be considered such a leg on a longer flight to the United States or Canada. If, at the end of this tutorial flight, you are motivated to continue westwards, or return to London Heathrow, the techniques discussed in this tutorial should stand you in good stead while you earn your stripes as an Airbus Captain!

Feel free to pick an A340-600 with the livery of your choice for this tutorial and load the aircraft into Flight Simulator at a gate of your choosing at London Heathrow. We recommend a gate at Terminal 3 that is equipped to deal with very large aircraft such as our A340. For this tutorial disable the weather and all other traffic in the simulation as they will simply be an unwanted distraction when concentrating your efforts on becoming familiar with the A340. You can use either flight model realism option for this tutorial according to your preference.

Your first duty for this flight is to order sufficient fuel for the journey. Such a short hop across the Irish Sea will utilise only a fraction of the available fuel load of the aircraft. Go right ahead and open the Flight Simulator fuel menu and put 15% fuel in each of the fuel tanks. Such is the size of the fuel tanks this will provide enough fuel for the journey and sufficient reserve fuel should you need to 'go-around' at Dublin. In the real A340 the process of filling tanks with fuel is a complex process of balancing and tank priorities. In our simulated A340 the emphasis is on flying the aircraft rather than having to take on the role of filling station attendant! It is just fine to place 15% fuel in all the tanks and the simulation will take care of keeping the aircraft balanced for our flight.

Before boarding the aircraft we need to confirm our route of flight. Open the Flight Simulator flight planner. From the menu choose London Heathrow (EGLL) as our departure point and Dublin (EIDW) as our arrival. Select the option for an IFR (instrument) flight plan and enter 32000ft as our cruise altitude. Go ahead and let Flight Simulator create the flight plan. Alternatively, if you are a flight plan purist you can go right ahead and create your own flight plan with full arrival and departure procedures to supplement the automatically generated flight plan. For our purposes for this tutorial, however, the automatically generated flight plan is acceptable. You will be given a westerly departure over the CPT (Compton) waypoint near Reading, one of the busiest departures from Heathrow. Shortly after we will turn north west, over Wales and the Brecon Beacons, before leaving the Welsh coast and making landfall over Ireland as we make our final approach into Dublin. We can expect to start our descent just a few minutes after leaving Wales behind as we traverse the Irish Sea. If you have a phobia for complex flight management computers that require a degree in electronic engineering and cryptography to operate, you will be delighted to learn that our flight plan has automatically been transferred into the flight management systems of our A340. The currently active Flight Simulator flight plan is always pre-loaded into the navigation equipment of the aircraft. This is not so far from reality in that the actual unit of the A340 can be pre-loaded with a route of flight by a radio link to the operations department at the airline.

Now we have completed our pre-flight configuration we can board our aircraft and start our cockpit preparation. Feel free to use the 2D panel views or virtual cockpit according to your own preference. The flight deck of the A340 is breathtakingly impressive with an array of electronic screens and state of the art equipment. This is a fly-by-wire aircraft that eschews the normal mechanical control methods of other aircraft and is flown under the control of an array of computers. The pilot controls the aircraft by use of an Airbus sidestick, which in reality is a small joystick that feeds the pilots directional commands into the array of onboard computers. A joystick connected to your PC will work just fine for this sidestick in Flight Simulator and allows you virtually identical control to the real Airbus stick.

Now that you have settled yourself into the pilot's seat we can start to prepare the aircraft for flight. Our first task is to start the Auxiliary Power Unit (APU). This is a small jet engine in the tail of the aircraft that acts as a source of electrical power and compressed air. The electrical output of the APU provides power to all the aircraft systems until the primary aircraft engines are running and also supplies the necessary power for engine start. The compressed air from the APU drives the air conditioning system and is also used during the engine start sequence. Throughout this tutorial we will highlight checklist items to follow in bold. These items signal a step that needs to be taken to correctly operate the aircraft and should be followed in sequence. These checklists are the basic requirements to operate the aircraft. A more detailed and expanded checklist is available from the kneeboard within the simulation.

APU MASTER SWITCH – ON

(This switch can be found at the lower centre of the overhead panel, opened using the panel switcher icon or the shift-2 key combination)

It will take approximately 60 seconds for the aircraft to configure the APU for use at which point the APU starter becomes available.

APU – START

(This switch is directly below the APU master switch)

Again there will be a delay whilst the APU engine spools up. We can monitor progress by opening the lower display panel and pressing the APU button. This will show the status of the APU on the lower display screen. The APU should finally settle at around 92% N1 (this is the rotation speed of the fan blades). Once the APU has settled we can take advantage of the electrical supply and compressed air on offer.

APU BLEED – ON

This allows the APU to provide compressed air to the aircraft systems

APU GEN – ON

This allows the APU to provide electricity to the aircraft systems

On the upper centre portion of the overhead panel you may notice that the APU BAT light is showing 'off' dependant on the aircraft configuration loaded when you opened the simulator. If this is the case then:-

APU BAT – ON

(The light should extinguish showing an unlit black button. This signifies that the switch is active. There is no 'on' light, only an 'off' display)

We can also take this opportunity to turn on the probe heat system on the overhead.

PROBE/WINDOW HEAT – ON

With the APU safely powering the aircraft we can now take the opportunity to examine some of the aircraft systems. Opening the lower display panel feel free to flick through the diagnostic screens on offer. Here you will find a range of displays including fuel, electrical, air-conditioning and general aircraft status.
This display screen is of critical importance to the Airbus pilot as it is the primary means of confirming that the aircraft is operating within normal parameters. Any malfunction of aircraft systems will be highlighted here in diagrammatic form. Having a brand new Airbus A340 at our disposal you will be pleased to hear that all is well with this particular aircraft!

Opening up the pedestal with the panel switcher icon the keyboard and screen of the flight management and guidance system (FMGS) becomes available to us. The FMGS is 'Airbus speak' for the onboard navigation and performance computers. Click on the display area of the unit above the keyboard and a zoomed pop-up version will open. Press the button marked INIT and in the lower right hand corner of the display a message tells us to 'align IRS'. This cryptic pearl of wisdom actually refers to the Inertial Reference System, a series of laser gyroscopes within the body of the aircraft that monitor the position of the aircraft as a backup to the global positioning system satellite receivers. Press the button marked 6R immediately to the right of this message and the alignment system is automatically managed for us. If you are starting to have palpitations and a sense of great dread of the further complexities of the FMGS, you have already successfully configured it for flight! All other functions have been completely automated for you by the simulation. Pressing the F-PLAN button will show our flight plan to Dublin that has been imported from the flight planner tool. You can scroll through the flight plan using the up and down arrow buttons on the keypad.

The flight plan is also on display in graphic form on the main navigation display screen (ND). The ND is the central display screen from the viewpoint of the Captain's seat. This wonderful tool allows us to see the whole route of flight diagrammatically and is constantly updated as our flight progresses. The range of display can be zoomed or reduced using the rotary switch on the glareshield that sits to the top right of the ND display.
A second rotary switch allows the display to be focused on the current VOR and ILS radio station that has been tuned for greater tracking precision. Also available on this rotary selector is a plan view with shows the route of flight oriented to true north, a compass rose view and the arc view. The arc view which shows the route of flight directly ahead of the aircraft is the most commonly used display and often proves to be the most useful. If this wealth of information were not enough a series of selection buttons above the rotary switches will allow for flight plan display on or off, (labelled CSTR), airports, VOR stations, NDB stations and navigational waypoints within the range of the current display radius to be overlaid onto the display. This ensures that the ND of the Airbus ranks with the finest navigation equipment available for any airliner currently in service. Make sure the CSTR button is on and illuminated to display our flight plan to Dublin.

At this point before departure we can call for our ATC clearance. For this flight we will be using the Flight Simulator default ATC. For our particular flight today use of ATC will actually assist us in the learning process and will guide us to our arrival runway and line us up for final approach, simplifying the whole navigation of the aircraft. The default ATC system will also monitor our altitude and advise us as to when to start our descent. It will also offer us the appropriate approach altitude to commence our arrival into Dublin. Open the ATC window and request clearance

ATC CLEARANCE – RECEIVED

You will be given a transponder 'squawk' code by ATC that will be used for radar identification. You can either acknowledge the message immediately within the ATC menu in which case the squawk code will be automatically entered for you or you can open the transponder (using the panel switcher icon) and enter the code manually by entering the 4 digits in sequence on the number pad.

We will now devote our attention to setting up the autopilot. Shortly after takeoff we shall be using the autopilot modes almost exclusively for the duration of the flight. Open the FMGS again and press the 'TO APPR' (takeoff and approach) button. Press button 1L and our takeoff speeds will be automatically calculated for us (actual A340 pilots are not so lucky and have to calculate this data manually from performance charts). Here you will see a reference to V1, Vr, and V2.

V1 = takeoff decision speed. Beyond this speed we are committed to the takeoff roll having insufficient runway ahead for a safe stop. Only in the direst of circumstances would the takeoff be aborted at this point with most issues, including a single engine failure being dealt with in the air.

Vr = rotation speed. The speed at which we pull back on the sidestick to lift the nose into the air and become airborne.

V2 = takeoff safety speed. At this speed we have achieved a safe climb speed. In the event of an engine failure occurring at V2 or later the aircraft should be able to safely continue the climb.

Moving to the autopilot deck on the main panel glareshield go right ahead and enter V2 into the speed window. The knob for rotating the digits is directly beneath the window. Moving the mouse to the right of the knob will display a + symbol signifying that mouse clicks will now increase the speed. For the initial phase of the flight it is desirable to have V2 in this window as a reference.

The next window to the right is the heading window. With no weather being simulated we can expect ATC to give us a departure from runway 9L or 9R at London Heathrow so go ahead and dial in the runway heading of 094 (which serves both easterly runways).

Moving to the altitude window enter the initial altitude given to you by ATC with your clearance. In the adjacent window set a climb rate of 2200 feet per minute.

We should now have the autopilot deck configured for our initial phase of flight with V2, our runway heading, expected initial altitude and our preferred rate of climb

AUTOPILOT INSTRUMENTS – SET AND CROSSCHECKED

After this flurry of activity feel free to grab a coffee and pat yourself on the back for a job well done. The time has now come to pushback the aircraft and ignite the four enormous Rolls Royce Trent engines that are pivotal in carrying this aircraft such long distances at high altitude.

Ensure that the parking brakes are set and that the thrust levers (your joystick throttle control) is set to idle. Open the overhead panel and switch on the rotating beacon to signal to ground staff that we are on the move.

PARKING BRAKES – SET

THRUST LEVERS – IDLE

BEACON - ON

Request taxi clearance from the Flight Simulator ATC. We can expect to be given a departure from runway 09L or 09R. If that is not the case and we have a cantankerous controller do not worry, it will not affect the tutorial in any way. The ATC system will always see us safely onto our route of flight.

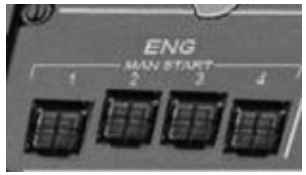
With taxi clearance received, press the SHIFT-P key combination and release the parking brakes and this behemoth that is the Airbus A340 will slowly start to be pushed away from the gate. A quick peek in spot view will show the pushback tug attached to the nose of the aircraft.

PARKING BRAKES – RELEASE

Once you are well clear of the terminal with appropriate manoeuvring room, discontinue the pushback with a further press of SHIFT-P and re-engage the parking brakes ahead of engine start.

PARKING BRAKES – SET

The time has finally come to start the engines. If you prefer you can automate the engine start process by simply pressing CTRL-E and our virtual First Officer will start all four engines for us. However, for this tutorial we will demonstrate a full engine start sequence. Open the pedestal with the panel switcher icon and turn the rotary engine start switch to the rightmost 'ignition start position'. Above the rotary knob is the fuel cut-off switch for each of the four engines. We will start the engines in pairs, so engage the fuel flow to engines 3 and 4 (the rightmost two switches pushed upwards with the mouse to the on position). Quickly switch to the overhead panel and on the right of the panel are the four overhead engine start switches. Press the third and the fourth switch to initiate the engine start sequence.



At this point engines 3 and 4 on the right wing should light and burst into life with a satisfying roar. You can monitor the engine start data on the lower display screen by opening the lower panel and pressing the ENG button to display engine diagnostics. Once these two engines have stabilised simply repeat the process with engines 1 and 2 on the left (or port if you are in a nautical frame of mind) wing.

ENGINE IGNITION SWITCH – IGN START

FUEL CUTOFF VALVES ENGINES 3 AND 4 – ON

OVERHEAD ENGINE STARTERS 3 AND 4 – ON

FUEL CUTOFF VALVES ENGINES 1 AND 2 – ON

OVERHEAD ENGINE STARTERS 1 AND 2 – ON

Once all four engines are safely stabilised we can turn off the igniters and shutdown the APU

APU MASTER SWITCH – OFF

ENGINE IGNITION SWITCH – NORM

We can also set the autobrake system to RTO (rejected takeoff). This rotary switch can be found on the main panel to the right of the engines display. The RTO mode will automatically apply the aircraft brakes if we cut power during the takeoff roll to signal an emergency abort of the takeoff. Also press the RTO arm button adjacent to the rotary control.

AUTOBRAKES – RTO

We can now also take the opportunity to engage the flight director display. Press the FD button on the far left of the glareshield. This will display the flight director bars which we can use for steering guidance on the Primary Flight Display (PFD)

The PFD is a multifunctional instrument that, as the name suggests, provides all the primary flight information that is crucial to the pilot. The centrepiece of the PFD is the artificial horizon with the blue zone representing the sky and the brown zone representing the ground. The pitch of the aircraft is displayed using graduated increments that are shown in degrees. The roll of the aircraft is also highlighted by the angle of the artificial horizon centre line which rolls in concert with the path of the aircraft. The artificial horizon allows the pilot to see at a glance the current pitch and roll attitude of the aircraft, and whether the aircraft is in a climb or descent, something that is not always immediately obvious especially if the aircraft is in thick cloud and the window view is obscured. To the left of the artificial horizon on the PFD is the speed tape showing the current speed of the aircraft in knots. A yellow line 'trend vector' denotes the speed trend as to whether the aircraft is accelerating or decelerating. An accelerating aircraft will have the green trend line showing upwards towards the higher speed numbers and vice versa for a decelerating aircraft. To the far right of the PFD unit is the altitude display of the current aircraft altitude with a needle denoting the current rate of climb or descent. The altitude display would normally be calibrated on the ground to match the external air pressure. In our case, with no weather being simulated, the default pressure setting of 29.92 inches/Hg is appropriate to this flight and requires no adjustment.

Open the pedestal panel and set the elevator trim of the aircraft, using the two hidden clickspots to the right of the panel below the trimwheel. Set the elevator trim to 5 units of trim.

We can release the parking brakes and commence our taxi following the taxi route given to us by ATC. Also open the overhead panel and switch on the aircraft position lights.

TRIM – 5 UNITS SET

PARKING BRAKES – OFF

POSITION LIGHTS - ON

If you are unsure of the route to follow by all means switch on the progressive taxi function. This is a particularly handy feature, as some of the taxi instructions at Heathrow can be quite complex! With the current low weight of the aircraft we need very little thrust to start moving and can taxi quite happily on idle thrust. Simply tap the brakes occasionally to keep the speed at around 15kts which is a manageable speed for this size of aircraft. On a straight segment of taxiway deploy the flaps to the second position. The flaps diagram on the electronic display will extend and the number 2 will highlight.

FLAPS – POSITION 2 FOR TAKEOFF

Upon approaching the active runway it is time to tune to the tower frequency using the ATC menu and ask for takeoff clearance. With no traffic for this tutorial your clearance should be immediate. Enter the active runway and maintain pressure on the brakes. Gently advance the power and at about 2/3 of maximum release the brakes and the aircraft will roll forward. Continue applying power to the maximum takeoff position. Remembering our V speeds that we mentioned above, confirm the passage of V1 and await our takeoff speed Vr. As the aircraft speed passes through Vr pull back gently on the joystick and the aircraft should take to the air. Once a positive rate of climb has been achieved retract the landing gear and reset the RTO arm button.

GEAR – UP

RTO - DISARM

Once airborn,e try and maintain a speed of V2+15 until passing through 1500ft. This is usually somewhere around 15 degrees of pitch. Adding 15kts to our V2 speed gives us an ideal rate of climb for our initial segment. This idea of V2+15, to 1500ft with 15 degrees of pitch with its emphasis on '15' makes this process particularly easy to remember. If the aircraft was particularly heavy we may have had to reduce the pitch appropriately, but at light weights this is about perfect for us. After passing through 1500ft lower the nose gently and the aircraft will start to accelerate. At this point start the flap retraction process.

We will also be called by ATC handing us off to another controller. This controller will give us vectors to our final route of flight. This necessitates a 180 degree turn (taking off from Heathrow to the East) to point us towards Compton. We will do this under autopilot assistance.

Engage the autopilot master switch on the glareshield. Wind the speed window forward to 250kts, our climb speed until we reach 10,000ft, and engage the autothrottle switch. Pressing the ALT button will have the aircraft climb under autopilot control to our chosen altitude. Right clicking the speed and heading knobs will put the speed and heading under autopilot control (it is important to right click the knobs and not left click which offers a different function).

AUTOPILOT AP1 SWITCH – ON

AUTOTHROTTLE - ON

ALT MODE – ON

SPD AND HDG MODE – ENGAGE

Once established under autopilot control simply reset the heading window to the heading given by ATC and the aircraft will make the turn for us. Shortly thereafter we can expect ATC to give us a further altitude clearance. Again, simply enter this in the speed window and confirm the rate of climb as 2200ft per minute and the A340 will happily comply with our request.

After we have made the turn to our departure course we can expect ATC to ask us to continue under our own navigation. This is our cue to have the aircraft follow the route of flight in the FMGS. Simply left click the heading knob. The heading window will close and the aircraft will now be tracking our predetermined route of flight to Dublin. This works in exactly the same way as GPS tracking in one of the default aircraft within Flight Simulator.

As you pass through 10,000ft we are no longer constrained by the 250kts speed limit so go ahead and left click the speed knob on the glareshield. The window will close and the FMGS will fly the aircraft at a pre-calculated best climb speed. A few minutes into the flight as we track westwards we will receive another couple of handoffs to controllers and be given our final cruise altitude of 32000ft which we can enter in the altitude window. As we pass through 22000ft reduce the rate of climb to 1600ft per minute. Due to the thinner air at high altitude climb performance is reduced so we reduce the rate of climb to maintain our safe climbing speed.

Once levelled at 32000ft you have a few minutes to relax and admire the scenery of Wales below. The aircraft will be managing its own speed, altitude and heading until we start our descent. It is just a shame Airbus have not yet taught their A340 aircraft to make the coffee too but we can live in hope!

Within about 15 minutes we can expect to be given our descent by ATC. Enter the altitude given in the altitude window and set our descent to -2200ft per minute. Ensure that the ALT mode on the autopilot is still engaged and the aircraft will descend. As we get within about 70 miles of Dublin we will be given an approach route by ATC. Right click the heading knob again to take control of the heading and simply dial in the headings as given to you by ATC for the aircraft to follow.

As you approach 10,000ft take control of the aircraft speed by right clicking the speed knob. Enter 240kts as our initial approach speed. Reduce the rate of climb to -1100ft per minute. This allows the aircraft to decelerate. Feel free to assist the deceleration to 240kts by using the speedbrake should you wish, although remember to retract the speedbrakes once you have achieved the target speed!

We can expect to be offered our landing runway at Dublin any time now. This should be given to us as an ILS approach to runway 28 at Dublin. If another runway is offered to you by ATC simply use the ATC menu to request the ILS approach to runway 28. At this point in the descent we can go right ahead and enter the ILS frequency in the navigation radio. Open the pedestal panel and press the NAV1 button directly below the current radio frequencies and enter the ILS freq of 108.90 into the radio Click the transfer button (marked with sideward arrows) to transfer this frequency to the active frequency.

Press the LS button on the glareshield as this will display the ILS information on the PFD once it is within reception range.

Passing through 8000ft choose flaps 1

FLAPS – SET TO 1 FOR INITIAL APPROACH

As we reach 3000ft slow the aircraft to 200kts using the speed window and set flaps to the second position

FLAPS – SET TO 2 FOR APPROACH

We can expect air traffic control to give us an intercept course to the ILS beam for our arrival and a capture altitude. Press the APPR button to arm the ILS capture of the autopilot.

APPR – ARMED FOR APPROACH

When given this final approach vector slow to 170kts and deploy the flaps into position 3

FLAPS – SET TO 3

With APPR armed the aircraft will capture the localiser beam and automatically turn to track it. We will be asked to tune the tower to confirm our landing clearance. As the glideslope meets us the aircraft will start a descent tracking it automatically. Slow the aircraft to 149kts for our landing speed and deploy our landing gear. Once the landing gear is down engage the final stage of flaps. Set the autobrake position to 4

GEAR – DOWN

FLAPS – SET TO FULL LANDING POSITION

AUTOBRAKES – 4

Our shiny new A340 is equipped with a fully automatic landing system. By maintaining the autopilot in APPR mode our aircraft will fly itself right down to the runway and apply the brakes for us after touchdown!

At touchdown the autopilot system will shout at us to 'RETARD RETARD'. This is our cue to engage reverse thrust. Disengage the autopilot and autothrottle buttons and apply reverse thrust. Use some gentle forward pressure on the joystick to bring the nose down. At 60kts disengage the reverse thrust and return the autobrakes to off, and continue to decelerate to 15kts with manual braking.

Take the next available exit to the right and follow the ATC instructions to request taxi clearance to the gate. Retract the flaps and start the APU using the sequence discussed earlier

FLAPS - UP

APU MASTER SWITCH – ON

APU – ON

The APU should be running by the time you have the aircraft parked at the gate. Engage the APU GEN and BLEED switches. Apply the parking brake as we secure our aircraft.

APU GEN – ON

APU BLEED – ON

PARKING BRAKE - ON

We can now turn off the engines by flicking the 4 fuel control switches on the pedestal to OFF

FUEL CONTROL SWITCHES – OFF

Congratulations! You have just brought the Airbus A340-600, one of the world's largest and most advanced aircraft, safely to the Emerald Isle and the fair city of Dublin.

THE A340 PAINT KITS

A340 500-600 comes supplied with paint kits to help if you wish to create your own liveries to add to the included ones.

To locate the A340 paint kits go to your main Flight Simulator folder and look for the JustFlight folder. Inside this you will find a PaintKits folder and inside that a folder each for the A340 500 and A340 600.

Special note – Paint kits are intended for experienced users who have the necessary knowledge of Flight Simulator to be able to add new variations to existing aircraft and of the special file formats required. Also they assume the possession of graphics editing software that can work with layered image files and experience of working with such files. The layered files supplied are in PhotoShop (PSD) format.

CREDITS

COMMERCIAL LEVEL SIMULATIONS

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JUST FLIGHT

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Artwork	Fink
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