



EPIC E1000

G1000 EDITION

For X-Plane 11.30+

Not for real flight! For simulation only!



TABLE OF CONTENT

The Aerobask E1000.....	3	Options.....	16
Preface.....	4	“Ground” Tab.....	16
Features.....	5	“Options” Tab.....	16
Special effects.....	5	“Sound” Tab.....	16
Other.....	5	“About” Tab.....	16
Aerobask quality 3D model.....	5	Virtual Tablet.....	17
High quality sounds.....	5	Showing & Hiding the Tablet.....	17
Enhanced Laminar G1000.....	5	Tablet Features.....	17
Deep system emulation.....	5	Tutorial.....	18
Installation & Updates.....	6	Introduction.....	19
Getting Updates.....	6	From EDOP to EDBM.....	19
Minimum Requirements.....	6	Our Flight Plan.....	20
Recommended System.....	6	Departure.....	20
Installation.....	6	En Route.....	20
By Your Command.....	7	Approach.....	20
Hardware Levers.....	7	X-Plane Setup.....	21
Joystick or Yoke.....	7	Aircraft Preparation.....	22
Rudder Pedals.....	7	1. Check Fuel.....	22
Airplane Description.....	9	2. Check Payload.....	22
Specifications.....	10	3. Remove Static Elements.....	22
Overview.....	10	4. Request Ground Power.....	22
Dimensions & Weight.....	10	5. Close Door.....	22
Performance.....	10	Flight Plan Setup.....	23
Performance Comparison.....	10	1. Preparations.....	23
Cockpit Orientation.....	11	2. Select your SID.....	24
Remote Control Key Pad.....	12	3. Enter your Waypoints.....	25
Throttle Quadrant.....	12	4. Load your Airways.....	26
Fuel Selector.....	12	5. Select your Approach.....	27
Pre-Start Switches.....	13	Radio Setup.....	28
Pre-Taxi Switches.....	13	Engine Startup.....	29
Systems Switches.....	13	Simplified Engine Start.....	29
Lights Switches.....	13	Taxi and Run-Up.....	30
Anti-Ice Switches.....	13	Taxi.....	30
Flaps Control.....	14	Before Take-off.....	30
Landing Gear Control.....	14	Takeoff and Departure.....	31
Interior Lighting.....	14	Final Check.....	31
Air Condition & Oxygen.....	14	Take-Off.....	31
Customized G1000.....	15	Climb and Departure.....	31
Custom Engine Gauge.....	15	Climb and Cruise.....	32
Touch Screen.....	15	Approach and Landing.....	33
Flight Plan Keyboard Entry.....	15		

THE AEROBASK E1000

FEATURES, INSTALLATION & CONFIGURATION





PREFACE

21ST CENTURY PLANE

The Aerobask Epic E1000, G1000 Edition is a completely new model of an aircraft with astonishing performance and iconic design.

Thank you for purchasing the Aerobask Epic E1000 – the fastest single-engine turboprop and soon to be certified.

With its sleek and elegant airframe made of carbon fiber, the E1000 is able to **climb out with 4,000 ft/min** – even fully loaded. Its **ceiling** is jet-like: **34,000 ft**. Its **range** is impressive: **1,650 nm**.

Similarly impressive is the interior design: Both the cabin and the cockpit offer wide spaces for pilots and passengers. The cockpit's layout is clean and easy to use. Even on the first sight you will notice that the interior exudes an aura of comfort, sportiness, and safety.

The real E1000 concluded structural testing as part of its ongoing

certification process in July 2018 and certification is expected soon.

As Aerobask customer you can fly this extraordinary aircraft today in your X-Plane 11 flight simulator. Our model offers you a faithful rendition of the aircraft. It allows you to feel the aircraft's power, to admire the beauty of its curves, and to feel right at home in its cabin and cockpit.

If you already flew any previous Aerobask version of the E1000, you will notice that the new version is really not just an update – everything has been re-created from scratch, be it the **super-detailed cockpit**, the **sleek exterior model**, the **hi-resolution textures**, the **near-perfect physically based rendering (PBR)**,

or the **beautifully crafted sound design**. We also **enhanced X-Plane's default G1000** avionics to be more user-friendly – you can use mouse and keyboard for easy data entry. Flying the E1000 is really a breeze.

This is the best E1000 you can find in any simulator, and we dare to say one of the best single-engine turboprops in the simulator market.

We have put lots of effort in this aircraft, and we wish you many hours of fun with it! :-)

February 2019,
the Aerobask team

FEATURES

THE BEST E1000 EVER

Already depicted by Aerobask with an experimental avionics set a while ago, the Epic E1000 is now back as a completely new version.

AEROBASK QUALITY 3D MODEL

- Completely reworked and re-scaled exterior and interior model
- New 4K PBR textures
- 11 stunning liveries out of the box
- Color-matching interior based on livery
- White (for painters) and Lo-res liveries available through Aerobask website.
- Smooth and VR-friendly manipulators
- Professional Flight model
- New flight model by X-Aerodynamics
- Tested by actual owner Gianfranco Somma
- Matches latest certification prototype performance

HIGH QUALITY SOUNDS

- full FMOD environment by Daniela Rodriguez Careri
- samples from real PT-6 engine
- in-game volume control without pausing the sim

ENHANCED LAMINAR G1000

- Integrates new XP11.30 GFC700 autopilot
- Custom MFD PT-6 engine parameters (on PFD in reversion mode)
- Optional mouse, scrollwheel and dialpad support for easy data input
- Optional keyboard support for dialpad and flight plan input
- Custom detachable popups with fixed ratio and all optional features above

Note: some of the optional features may need VR-mouse at the moment.

DEEP SYSTEM EMULATION

- Realistic engine startup procedure
- Implements new XP11.30 boots-based wings and stabilizer de-icing system
- Implements new XP11.30 oxygen system for emergencies
- Functional breakers, with configurable reliability
- Fully simulated MD302 Standby Attitude Module

SPECIAL EFFECTS

- Rain and windshield icing using librain plugin from Saso Kiselkov
- Dynamic reflections
- custom heat blur effect on both sides
- custom engine twin-contrails

OTHER

- Avitab tablet, with integrated options panel
- Detachable and VR-friendly 2D options panel
- Preferences, fuel and payload saved between flights

INSTALLATION & UPDATES

REQUIREMENTS & TIPS

The Aerobask E1000 is a high quality add on for X-Plane 11.30+. For the best experience, please take some time to read the following remarks.

MINIMUM REQUIREMENTS

The Aerobask Epic E1000 has been optimized for good performance. However, the plane uses high definition liveries (4096px), High Dynamic Range (HDR) Lighting, Physical Based Rendering (PBR) and advanced rain effects.

To fully enjoy these features, your computer should meet the following minimum requirements:

CPU: Intel i5-6600 @3.3 GHz

GPU: Nvidia GTX960

VRAM: 4 GB

RAM: 16 GB

Using such a system, you will be able to achieve stable 25 to 30 FPS in most situations, depending on installed scenery and other addons you might use.

25 FPS are sufficient for a real-time simulation. The plane will even load and run if you have a system weaker than shown, but you may want to switch off anti aliasing (AA), set reflections to "low", reduce texture size to "high" in your X-Plane settings. We also provide a low-resolution livery which needs less VRAM.

RECOMMENDED SYSTEM

For a better overall experience, we recommend the following system:

CPU: Intel i7 @4.4 GHz

GPU: Nvidia GTX1080i

VRAM: 11 GB

RAM: 32 GB

INSTALLATION

Purchase the plane and **download the zip archive** of the plane from the x-plane.org store. You should find it in your customer account.

Take note of the serial key you have received after your purchase. You may also want to **copy the key into your clipboard**, because you'll need it soon.

Extract the zip archive to your "Aircraft" folder. The resulting folder structure should, for example, look like "X-Plane 11/Aircraft/Aerobask Epic E1000 G1000 Edition", with all the aircraft files in this folder.

Start X-Plane and **create a new flight**. Your new E1000 will be shown in the "General Aviation" category. Select this plane.

After loading the flight, X-Plane will ask you to **enter your serial key**. If you have copied the key into your clipboard, simply hit the "paste" button. Otherwise, you can type the key manually into the text field. Finally, **press the "Activate" button**.

Using your Internet connection, the key will now be checked and the **aircraft will be activated**. You will be notified of the success on your screen.

After activation, reload the plane by first loading the default C172 and then switching back to the E1000. (There is also a reload option in X-Plane's developer menu, but this does not initialize the plane correctly, so please use the steps outlined above.)

GETTING UPDATES

This plane can be used together with the SkunkCrafts Updater, to receive online updates (bug fixes, new features) from within X-Plane, without the need of re-downloading the whole package from the store.

The updater will check if new versions for supported installed aircraft (such as the E1000) are available and optionally download these updates for you.

To use the SkunkCrafts updater, download the free updater plugin from the following link:

<https://forums.x-plane.org/index.php?/forums/topic/144828-updater-download-page-v22-available/>

To install the updater, first close X-Plane.

Unzip the content of the downloaded zip to "X-Plane 11/Resources/plugins". Be careful to use this location; never install the updater to an aircraft or scenery folder.

You can configure the updater's behavior. This is explained in the updater's online documentation, which is available here:

<https://forums.x-plane.org/index.php?/forums/topic/166005-skunkcrafts-updater-v2x-documentation/>

BY YOUR COMMAND

NOTES ON HARDWARE

You can fly the E1000 with keyboard and mouse. Still, flight simulation is so much more enjoyable with some basic hardware.

JOYSTICK OR YOKE

The real Epic E1000 uses yokes for pilot and co-pilot. Real-world yokes give both a comfortable and precise feeling of being in control of the plane.

In contrast, as usage statistics show, many X-Plane pilots fly solely with mouse and keyboard. Although that's perfectly fine, with such a setup the feeling of flight can't be conveyed realistically by a desktop simulator. We therefore recommend to use any flight simulator with at least a joystick. Cheap, but good joysticks are available from various vendors (for example Thrustmaster).

Even more realistic with the E1000 is to use a yoke. You don't need high-precision gear that costs hundreds of bucks. Various manufacturers offer affordable yokes, for example CH Products, Logitech (formerly Saitek), or Honeycomb.



Honeycomb Yoke

RUDDER PEDALS

Fixed-wing aircraft are controlled in three axes: roll, pitch, and yaw. With your joystick or yoke (or your mouse), you control the plane's movement on the roll and pitch axes, by moving the ailerons and elevators.

You can climb, sink and turn just with these axes, but you will soon notice that turns feel somewhat "strange" – as if your plane was pushed or pulled out of the nice circle you want to fly. In aviation, this is called un-coordinated.

You want, in contrast, to fly a coordinated turn. Without going into aviation theory here, you can imagine a coordinated turn as one where pilot and passengers have the feeling of sitting in a comfortable way, without being pulled or pushed in unwanted directions.

To fly a coordinated turn, rudder pedals are used in conjunction with the ailerons. Rudder pedals are controlled with your feet. Affordable rudder pedals for flight simulation are available from various vendors, such as Thrustmaster, CH Products or Logitech.



Thrustmaster Pedals

HARDWARE LEVERS

The Epic E1000 is a high-performance turbo prop plane with a Pratt & Whitney PT6A-67A engine. This type of engine is usually controlled with a combination of three levers: The black lever controls the engine power. The blue lever controls the propeller. The red lever controls the condition.

In X-Plane, you can either use the mouse to move these levers in the 3D cockpit, or use your keyboard. Better, of course, is to use hardware for the levers. Although some joysticks are combined with a throttle, there also exist dedicated controls from companies like CH Products or Logitech. You can assign throttle, prop and condition to separate levers.



Logitech Throttle Quadrant

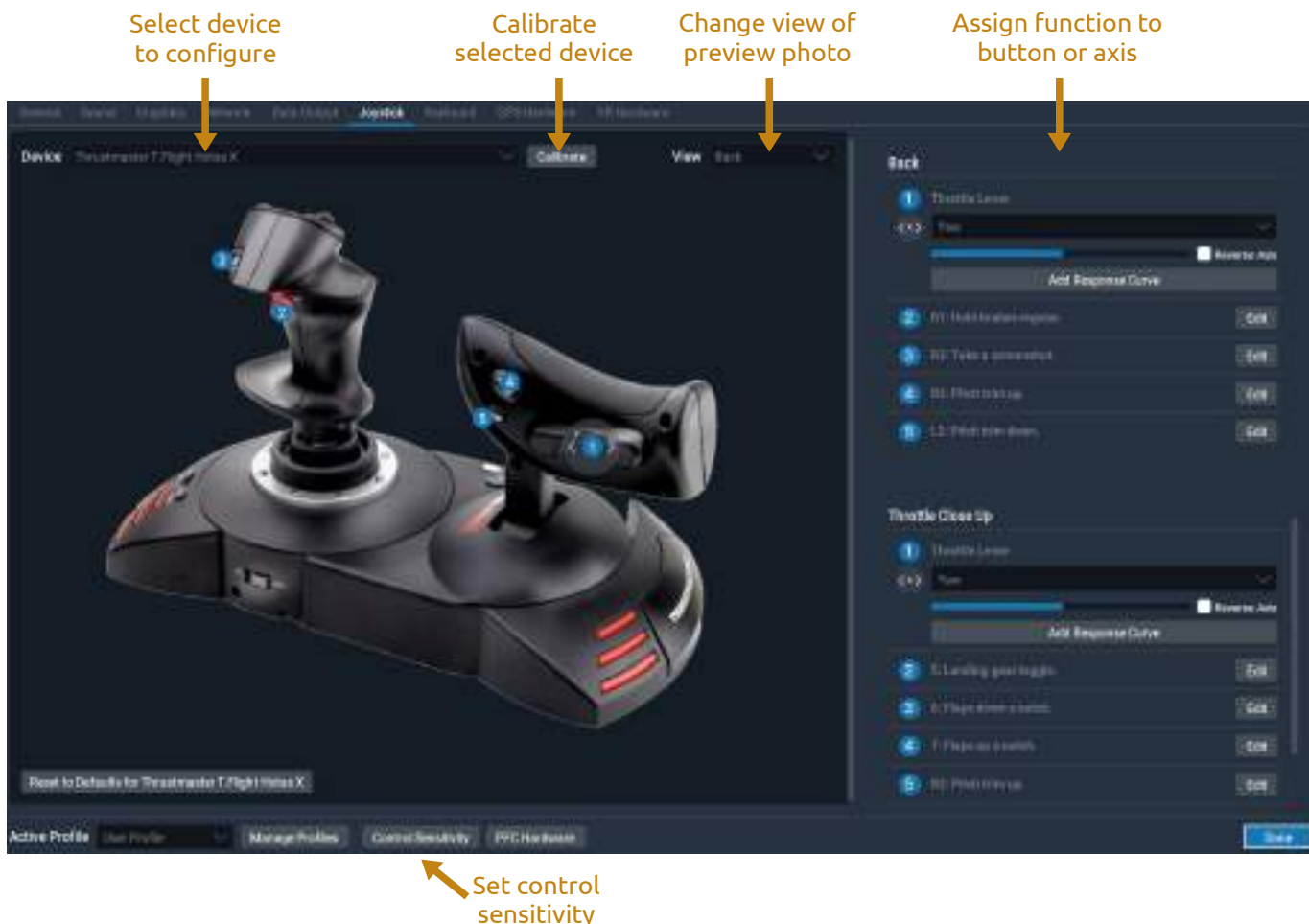
Whichever hardware you use, make sure to calibrate your joystick, yoke, pedals and levers in X-Plane.

Thankfully, calibration and setup in X-Plane is a breeze with X-Plane's included setup assistant. You can start it from the X-Plane input settings screen.

Please refer to the X-Plane user manual for details.

X-PLANE CONTROLLER SETTINGS

Check your hardware setup before flight. Calibrate each connected device, assign functions to buttons & levers, and check sensitivity.



You should also check the sensitivity of your flight controls:

Set **Control Response as needed**; different hardware may need a different setting here.

Set **Stability Augmentation to 0%**. Although stability augmentation helps to get a stable flight, it invokes false impressions on flight behavior and may interfere with the autopilot, leading to a wrong automated flight behavior.



AIRPLANE DESCRIPTION

GETTING TO KNOW YOUR PLANE



SPECIFICATIONS

THE BEST IN ITS CLASS

The Epic E1000 has the best overall performance in its class. Its combination of speed, range, payload, at a great price, make it the premier choice.

OVERVIEW

Seats	6 Adults
Construction	Carbon fiber
Pressurization	6.6 psi
Engine	P&W PT6A-67A
Horse Power	1200-HP
Propeller	Hartzell Four-Blade Full Reversing
Avionics	Garmin G1000 Nxi 3-Screen Avionics Suite

DIMENSIONS & WEIGHT

Length	35 ft 10 in
Wingspan	43 ft
Height	12 ft 6 in
Wing area	203 sq ft
Cabin length	15 ft
Cabin width	4 ft 7 in
Cabin height	4 ft 11 in
Empty weight	4,600 lbs
MTOW	8,000 lbs
Max payload	1,100 lbs (incl. fuel)

PERFORMANCE

Max cruise	325 KTAS
Eco cruise	265 KTAS
Max ceiling	34,000 ft
Time to climb	15 min. to 34,000 ft
Best climb rate	4,000 ft/minute
Range (max)	1,385 NM
Range (eco)	1,650 NM
Fuel capacity	288 gallons

PERFORMANCE COMPARISON

» Performance like that is the stuff of dreams.

– Mark Huber, *Business Jet Traveler Magazine*, March 2018

Takeoff Over 50 ft

Epic E1000	1,600 ft
Daher TBM-900	2,380 ft
Pilatus PC-12 NG	2,450 ft

Max Cruise Speed

Epic E1000	325 KTAS
Daher TBM-900	330 KTAS
Pilatus PC-12 NG	280 KTAS

Max Range

Epic E1000	1,650 nm
Daher TBM-900	1,585 nm
Pilatus PC-12 NG	1,309 nm

Full Fuel Payload

Epic E1000	1,110 lbs
Daher TBM-900	720 lbs
Pilatus PC-12 NG	1,209 lbs

Price

Epic E1000	\$2,950,000
Daher TBM-900	\$3,700,000
Pilatus PC-12 NG	\$3,850,000

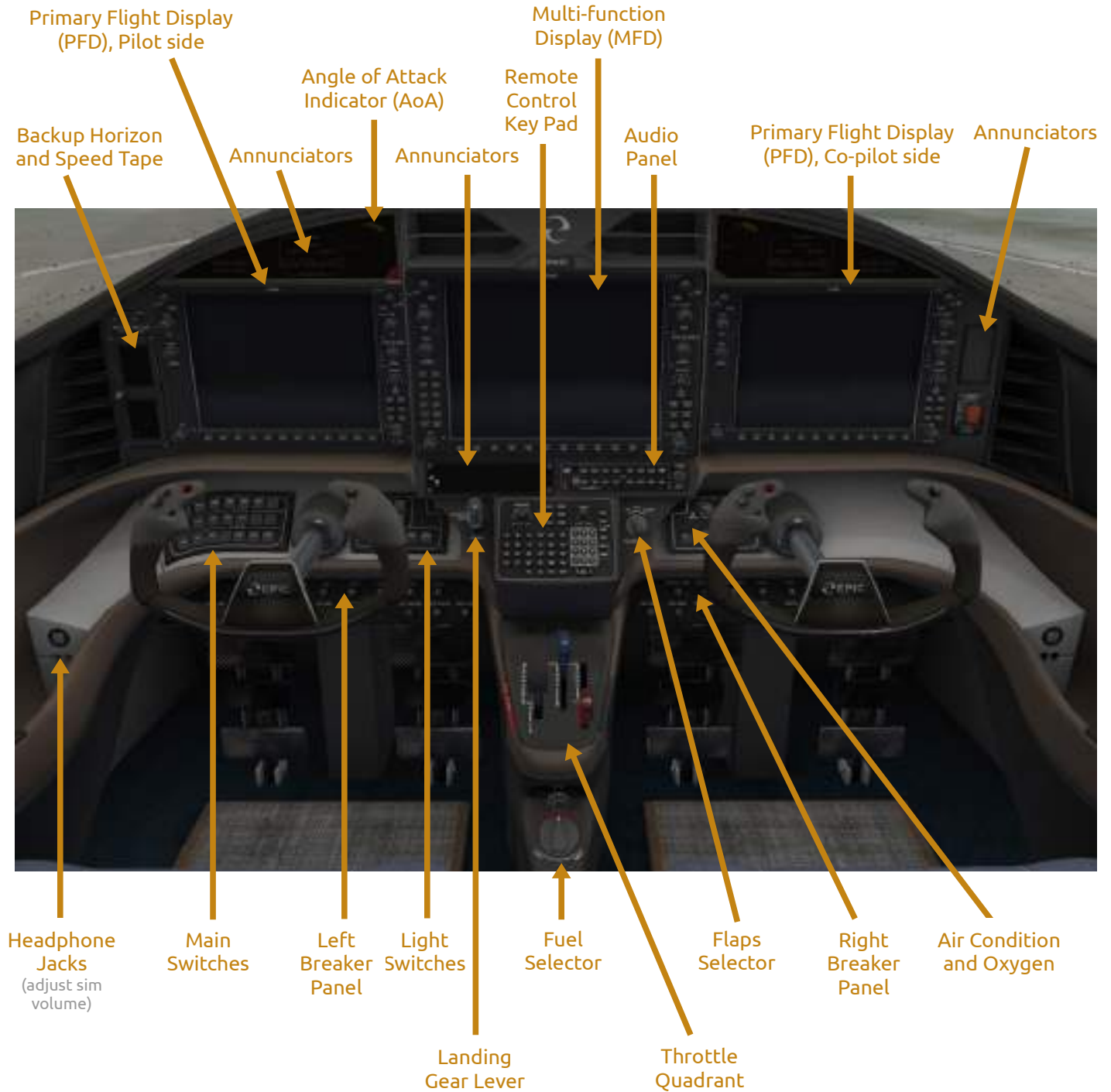
Source: Pre-certification performance data, according to Epic Aircraft documents.

Source: Flying Magazine, October 2014

COCKPIT ORIENTATION

OVERVIEW

The cockpit of the E1000 has not just a sleek design, but also a clear layout – all controls are easy to find, so you can focus on flying itself.



PEDESTAL

The pedestal between pilot and co-pilot seats holds the throttle quadrant, the fuel selector, and the remote control key pad for easy G1000 use.

THROTTLE QUADRANT

The throttle quadrant consists of three levers to control the aircraft's engine. The levers have distinct colors:

- White: **Throttle**
- Blue: **Propeller**
- Red: **Condition**

To **increase power**, push the throttle lever forward; pull it back to decrease power.

To **increase RPM**, push the propeller lever forward; pull it back to decrease RPM.

For **idle and flight conditions**, push the condition lever forward.

To **cut off fuel**, pull the condition lever all the way back.

For **manual throttle override**, click on the small gray button within the red "MAN OVRD" lever. The lever will fold out to a usable position.

For using **beta (reverse)** mode, e.g. to slow down after landing, pull the throttle lever back to "BETA".

FUEL SELECTOR

Below the throttle quadrant, there is the fuel tank selector switch. It has three positions:

- Red: **Off**
- White: **Left tank**
- White: **Right tank**

Use this switch to manually select the fuel tank. Usually, you should activate automatic tank selection with the FUEL AUTO SEL switch on the switch panel.

REMOTE CONTROL KEY PAD

The Garmin GCU 477 Remote RMS Control Key Pad allows for an easy use of the Garmin G1000 Multi Function Display (MFD).

Due to its central position on the pedestal and its clear layout, it is much easier to use the MFD than in G1000 installations without the GCU unit.

You can set moving map range here, open the most important MFD pages, enter waypoint IDs in your flight plan, and much more.

One last remark:

Below the GCU 477 and above the throttle quadrant, you may notice four inconspicuous buttons.

We recommend to avoid pressing any of these buttons.

Really.



For details on operating the PT6A engine, please refer to the document "Know Your PT6A Turboprop". This real-world brochure provides many interesting and important details on how the engine works and is operated. It is included as PDF file in the "Real Documents" folder.

SWITCHES

Most of your aircraft's systems are controlled via two switch panels, situated in front of the pilot seat, below the PFD and behind the yoke.

PRE-START SWITCHES

The 1st row in the left switch panel holds buttons for the two batteries, avionics, the two fuel pumps, and the generator.

PRE-TAXI SWITCHES

The 2nd row in the left switch panel holds button for engine ignition & start, the standby altimeter, automatic fuel selection, and the stick pusher.

SYSTEMS SWITCHES

The 3rd row in the left switch panel holds the autopilot master button, the electric trim button, and buttons for air pressurization.



LIGHTS SWITCHES

The 1st and 2nd row in the right switch panel hold switches for controlling the exterior lights (landing lights, taxi lights, strobes, navigation lights, beacon, and ice inspection lights).

ANTI-ICE SWITCHES

The 3rd row in the right switch panel holds switches for anti-ice measures (De-icing boots, propeller heat, windshield heat, inert separation, and pitot heat).



Please note that the "Autopilot" switch does not activate or deactivate the autopilot servos! This switch is a master switch; actual autopilot operation is conducted using the autopilot buttons on the MFD bezel.

OTHER CONTROLS

FLAPS CONTROL

To extend or retract flaps, use the flaps knob, right of the simulation options panel and below the radios.

Flaps have 3 positions:

Retracted



Take-off Position



Landing Position



The status of the flaps is shown with a white LED, showing "NONE", "T/O" (takeoff), and "LANDING", in front of the pilot, above the pilot's PFD and below the gear LEDs.

LANDING GEAR CONTROL

To extend or retract the landing gear, use the gear lever, left of remote control key pad.

The status of the gear is shown with three green LEDs showing "LEFT", "RIGHT", and "NOSE", in front of the pilot, above the pilot's PFD.



INTERIOR LIGHTING

To control panel and instrument lighting, as well as lighting in the front part of the cabin, use the knobs above the backup horizon, on the pilot side of the panel.

Lighting in the center and rear parts of the cabin is controlled via the knobs on the cabin ceiling.



AIR CONDITION & OXYGEN

Controls for cabin heating and oxygen are on the co-pilot side. Oxygen works, but heating is cosmetic only (you can hear the air condition fans, though).



CUSTOMIZED G1000

GLASS, EASY TO USE

The E1000 has a glass cockpit with a Garmin G1000. The Aerobask E1000 comes with a custom version of the X-Plane G1000, for better usability.

The X-Plane flight simulator includes a good simulation of the Garmin G1000. However, in contrast to real-world installations of the G1000, X-Plane's G1000 is generic. To better match the G1000 used in the Epic E1000, we included some customizations.

CUSTOM ENGINE GAUGE

The default G1000 has not a correct engine gauge for the E1000. We therefore created our own, which is shown in place of the default gauge.



TOUCH SCREEN

For easier usage, you can manipulate many important values directly by touching the screen (i.e. clicking the values or using the mouse scroll wheel to adjust them). For example, for changing a radio frequency, you can use the mouse scroll wheel, which is much easier than turning the knobs in the 3D cockpit (of course, this is still possible).

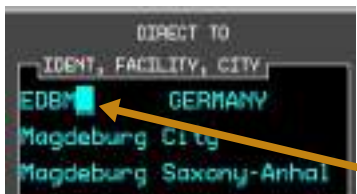


1. Click a value, for example ALTITUDE
2. Use on-screen keypad to change value
3. Click the green input field to confirm

Alternatively, you can also use your mouse's scroll wheel for adjusting values.

FLIGHT PLAN KEYBOARD ENTRY

Entering a flight plan with the FMS knob is a bit tedious. Using the remote control unit in the 3D cockpit is easier. But the easiest way is our keyboard support – use your real keyboard to enter waypoint IDs like airport ICAO codes and the names of VOR/DMEs, NDBs and FIXes.



1. Click to move cursor to desired position.
2. Type the desired letter on your keyboard or use the mouse wheel.

Everything Is Optional

Although we recommend using our custom features, you can switch the customizations off in the aircraft options (see next manual page for details).

OPTIONS

PREPARE YOUR FLIGHT

Use the options menu to easily set payload, order ground power, remove static elements, and change important simulation options.

To open the options menu, either:

- Click the big “e” (Epic company icon) on the upper panel center, or
- Move the mouse to the lower left of the screen, to make the Aerobask icon appear, then click it, or
- Open the handrest on the pilot’s left side, take the tablet and use the tablet (recommended for Virtual Reality).



“GROUND” TAB

In the Ground tab, you set weight and balance, add or remove static elements (e.g. wheel chocks), request ground power and close or open the door. Please refer to our tutorial for details.



“OPTIONS” TAB

In the Options tab, you control certain simulation behaviors. You can set how reliable the circuit breakers are in your plane and reset broken breakers. You can switch on or off our custom G1000 features (see previous manual page), reflections on cockpit instruments and the windshield. Finally, you can control if our 2D popup can be moved only inside or also outside the screen.



“SOUND” TAB

The Sound tab enables you to control the volume of various aircraft and simulation sounds.



“ABOUT” TAB

The About tab is a list of all people who were involved in creating and testing the Aerobask E1000.

VIRTUAL TABLET

PERFECT FOR VR

For a more immersive experience, you can avoid using the 2D option panels, but instead use our AviTab-enabled virtual tablet.

SHOWING & HIDING THE TABLET

To use the tablet, open the handrest left of the pilot seat by clicking the handrest. This will reveal the tablet.

Click the tablet. It will be shown floating near the co-pilot seat. The tablet is by decision no 2D popup, but a 3D object, therefore it is usable easily in virtual reality, too. If you are a VR user, you surely like this convenience.

To dismiss the tablet, click the lower right of its bezel. It will be stored in the handrest again.



TABLET FEATURES

The tablet pages are organized in a similar manner as our options popup. You can see all options pages in the tablet and use it just as the standard option popup (as described on the previous page).

The other big feature is the AviTab support. AviTab is a free 3rd party plugin similar to an electronic flight bag. Using AviTab, you can:

- view PDF files
- show airport information
- view a moving map
- link your Navigraph account and see Navigraph charts



You can download AviTab here:

<https://forums.x-plane.org/index.php?/files/file/44825-avitab-vr-compatible-tablet-with-pdf-viewer-moving-maps-and-more/>

Please refer to AviTab's own documentation on how to set up the plugin correctly.

TUTORIAL

HANDS ON PRACTICE



INTRODUCTION

TUTORIAL GOALS

Although starting and flying the E1000 is quite easy, we recommend you read this tutorial at least once, to learn about the specialities of the plane.

In this tutorial, you'll perform a complete flight from A to B with the Aerobask simulation of the Epic E1000, G1000 edition. Before doing this tutorial, make sure that you

- know how to set up a flight in X-Plane, and use mouse and keyboard in X-Plane
- have a basic idea about basic flight maneuvers like taxiing, takeoff and landing
- have the X-Plane G1000 documentation handy (it's included in X-Plane's "Instructions" folder)

FROM EDOP TO EDBM

Imagine you are an important politician who puts the tax payer's money to good use by flying even short distances comfortably by plane ;-). You want to fly from one state's capital to another one.

We start at Schwerin, which is the beautiful capital of the German federal state Mecklenburg - West Pomerania, a nice rural country near the Baltic Sea. Our destination is Magdeburg, the capital of Saxony-Anhalt, a more industrialized state in the center of Germany.

Our departure airport is EDOP (Schwerin-Parchim), owned by a Chinese company which planned to make a freight hub out of it. However, not much happened since 2007, and in December 2018 most of the airport's staff was let go. The airport is still open, though, used for training by aviation companies.

From EDOP, we'll fly to Magdeburg City airport (EDBM), near the southern border of the city area. The airport is primarily used by propeller and turbo prop planes, for training and leaseure.

SCENERY RECOMMENDATIONS

Our destination Magdeburg City Airport (EDBM) is already included in X-Plane's global airports. It's a rather plausible scenery, there's not much more to the real airport either.

For Schwerin-Parchim Airport (EDOP), there exists a very good freeware scenery, created by Rainer Kunst and converted to X-Plane by FlyAgi. This airport, as well as several other German airports by the team, are available after registration via Rainer's own website:

<https://simmershome.de/edop-schwerin-xp>

In addition, have a look at the great VFR objects by Günther Kremp, esp. his packages for Schwerin and Magdeburg:

<https://forums.x-plane.org/index.php?/files/file/45327-schwerin-vfr>

<https://forums.x-plane.org/index.php?/files/file/37741-magdeburg-vfr/>

These packages add a lot of landmarks to the two cities.

Finally, if you have access to Ortho4XP, you may want to create some orthoimagery for the route. An alternative to creating your own Ortho4XP tiles are the tiles available from ZonesPhoto, but these are a several years old:

<http://zonephoto.x-plane.fr/Cartes.php>

In any case, you need the tiles +53+011 (Schwerin) and +53+012 (Magdeburg) for photo coverage.

Charts by Navigraph. Not for real navigation! Only for simulation use!

Schwerin-Parchim
(EDOP)

82 nm

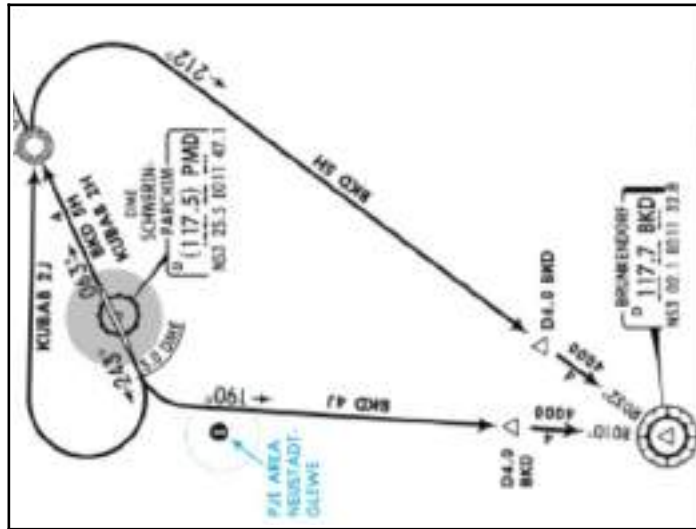
Magdeburg City
(EDBM)

OUR FLIGHT PLAN

DEPARTURE

Our departure airport Schwerin-Parchim (EDOP) has a few Standard Instrument Departures (SID) which we can use after takeoff. As our destination is south of EDOP, it makes sense to use either BKD 5H or BKD 4J departure, depending on takeoff direction (06/24).

In this tutorial, I use BKD 5H, because I take off to the east, but both BKD 5H and BKD 4J will take us to the BKD (Brunkenendorf) VOR, where we will enter airway Z998.

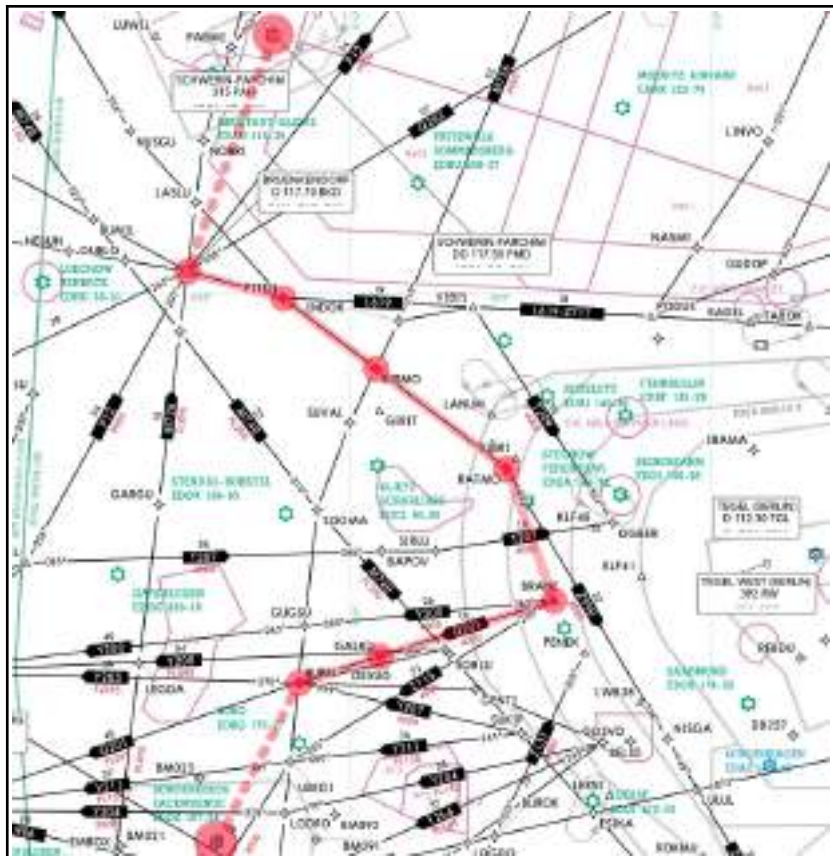


EN ROUTE

From BKD, we'll fly two small legs on the airways Z998 and Q201. The single waypoints are:

- (BKD)
- Z998 PITEN
- Z998 BIRMO
- Z998 RATMO
- Q201 BRANE
- Q201 GALKU

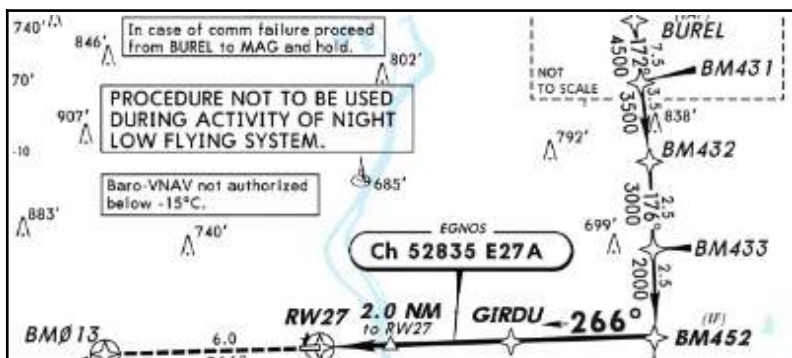
The next waypoint after GALKU is already the initial approach fix (IAF) of the EDBM approach, BUREL. When we reach BUREL, we should fly at 4,500 feet.



APPROACH

Magdeburg City airport (EDBM) has just a RNAV approach to runway 27. The IAF for the approach is BUREL, which is also part of the Q201 airway.

When we reach BM452 at 2,000 feet, the approach mode of the autopilot should be able to fly a smooth descent to the runway.



X-PLANE SETUP

Launch X-Plane and **start a new flight**. As aircraft, **select the Aerobask Epic E1000**, G1000 edition, in your favorite livery.

For this tutorial, please **do not load the aircraft with engines running**, as the correct startup sequence is part of the tutorial.

Set fair weather, i.e. not more than scattered clouds. For my flights, I chose a January afternoon, but of course you can set a different time of year and day.

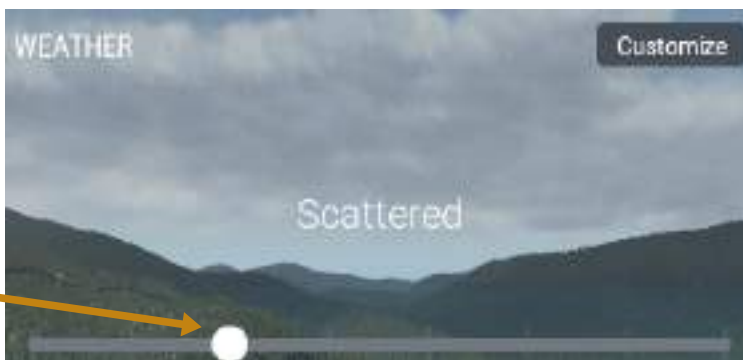
Set EDOP (Schwerin-Parchim) as starting position. Please do not start at the runway, but somewhere at the apron, because we want to practice taxiing to the runway later.

When the plane is loaded and you switch to outside view, you should see the aircraft cold and dark, with some static elements attached for protection.

Select livery

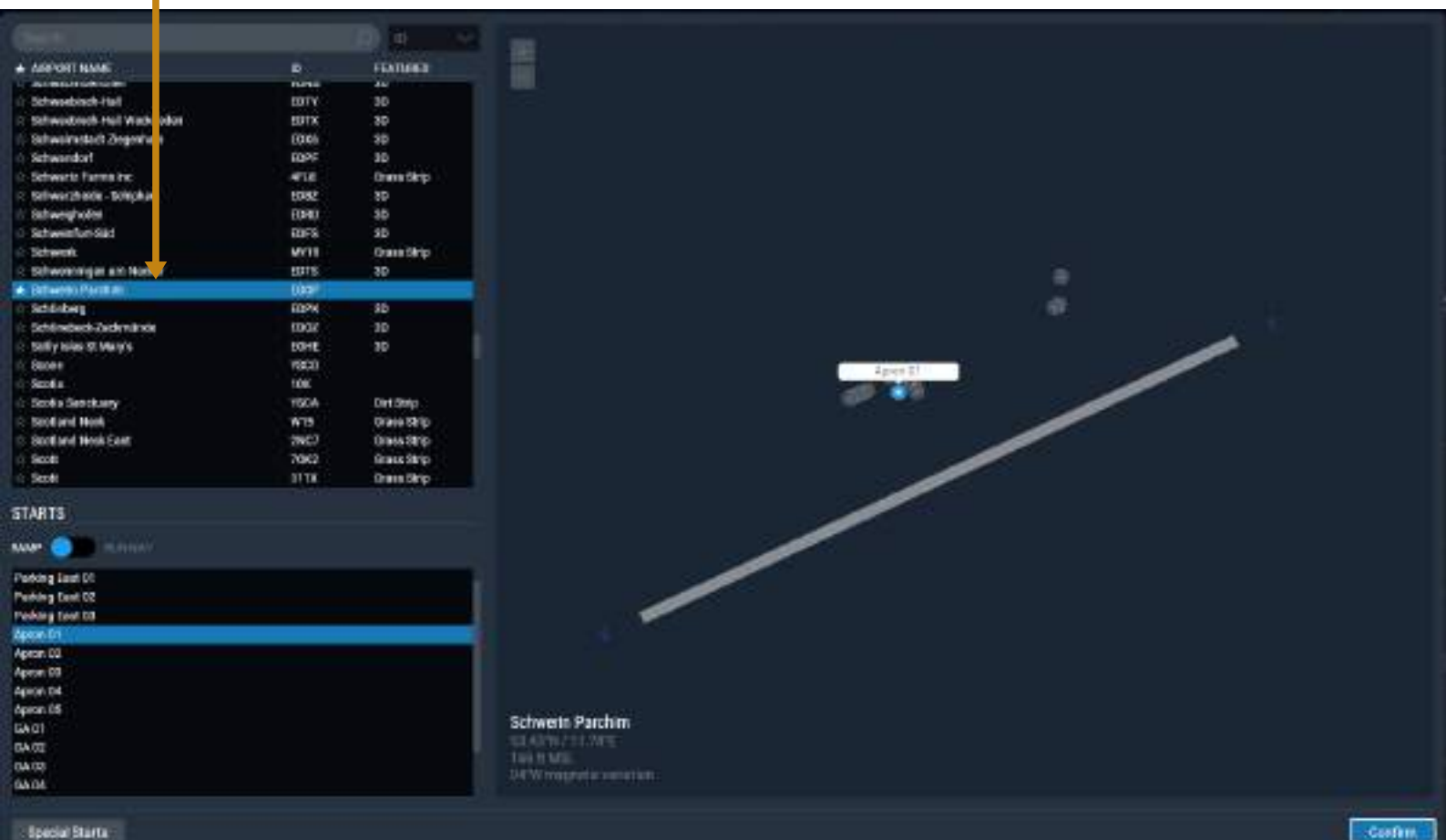


Uncheck!




Set fair weather (Cirrus or Scattered)

Set EDOP



AIRCRAFT PREPARATION

For the following steps, please **open the Aerobask options menu**. You can do so either by clicking the “Epic” icon on the panel, or the Aerobask icon on the lower left of the screen, or with the tablet.

Hint: Aircraft Preparation Flow
I find it helpful to always follow the same flow when preparing the plane. I start at the top, go to the bottom and then to the right. This way I make sure that I don't forget a step. 

Select the “Ground” tab in the options menu. Before we let our passengers board, close the door and start the engine, we should remove the covers from the engine inlets and the pitot probe, as well as the wheel chocks.

1. CHECK FUEL

Our trip is short and we won't need much fuel. Still, please **set a total fuel amount of about 100 GAL**.

2. CHECK PAYLOAD

As you remember, in our tutorial you'll be flying an important regional politician from one state capital to another. Your passenger prefers to fly alone, so please **only check either the “left pax” or “right pax” option**.

Also check the “no bags” option, because our passenger travels with just some hand luggage.

3. REMOVE STATIC ELEMENTS

Please **un-check the “Static Elements” option** now.

4. REQUEST GROUND POWER

We want to save battery power, so we use a Ground Power Unit (GPU) for startup. **Please check “Ground Power Unit”** to request the GPU. In a second, you'll hear the GPU sound and your cockpit comes to life.

5. CLOSE DOOR

Close the door by clicking “Close Door”. This takes a few seconds.



FLIGHT PLAN SETUP

Your aircraft should be powered by the GPU right now; the PFD screen in front of your pilot seat should be alive. If the options menu is still visible, please close it for now.

Before we start the engine, we want to enter our flight plan. We need to switch on the avionics for this, so please **press the Avionics button** now. Don't worry about power, as we are using the GPU right now.

In this tutorial, we will make use of the customizations we have done to the G1000 for easier usage in the X-Plane simulator, esp. mouse and keyboard usage.



1. PREPARATIONS

1. In the 3D cockpit, **click the upper part of the Multi Function Display (MFD)** to get a popup view of the screen. With the popup, it is easier to use this screen.
2. On the MFD, **press the FPL softkey**. The flight plan shows up.
3. **The flight plan should be empty at the moment, except your starting location at the beginning.** If it is not empty, or your starting airport is not correct, press the MENU button on the MFD, then use the mouse wheel with the lower-right outer FMS knob to select "DELETE FLIGHT PLAN". Press the ENT button to confirm.



We are now set to start entering our flight plan.

On the next page, you will learn how to select a Standard Instrument Departure (SID).

2. SELECT YOUR SID

We want to use the BKD 5H standard instrument departure (SID) from EDOP to the BKD VOR.

To select the SID, please perform the following steps on your MFD:

1. **Press the FMS knob** once to show the cursor.
2. Press the **PROC button**. A menu with possible procedure actions appears on top of the flight plan.
3. Use the mouse wheel with the **lower-right outer FMS knob** to highlight "SELECT DEPARTURE".
4. Press the **ENT button** to confirm your selection. Another window appears, with all possible departure procedures for the departure airport (EDOP, in our case).
5. **With the FMS knob, select the procedure** you want to use, which is BKD 5H in our example.
6. Press the **ENT button** to confirm. A preview of the departure is shown on the map and the departure's waypoints are listed. Also, the question "LOAD?" is highlighted on the bottom of the window.
7. Press **ENT again** to confirm loading the procedure into your flight plan. The procedure waypoints are now appended to the plan after your starting airport.

After step 7, your flight plan should consist of five waypoints: EDOP, RW06, PI, D032D and BKD, where the last four have all been inserted automatically as part of the selected departure.

The flight plan cursor should be on the last line of the flight plan, awaiting your next input.

On the next page, you will learn how to enter en-route waypoints and afterwards how to select airways.



outer FMS knob

inner FMS knob



3. ENTER YOUR WAYPOINTS

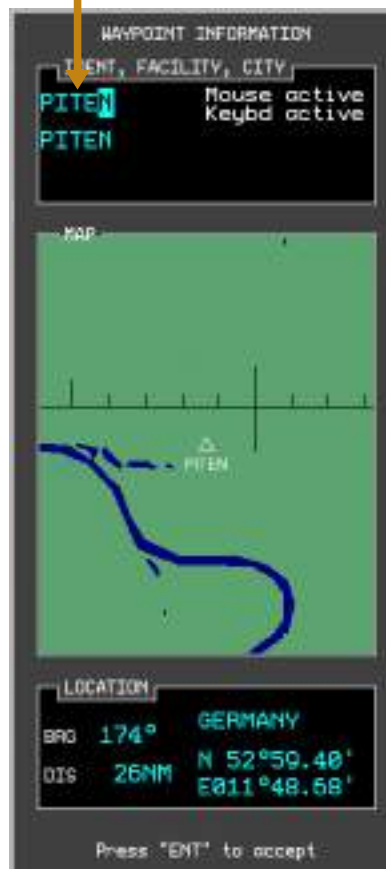
At this point, your flight plan consists of your departure airport and the instrument departure BKD 5H.

The flight plan cursor should be below the last departure waypoint, BKD, awaiting your next input. (If the cursor is not at the end of the plan, use the mouse wheel to turn the lower-right *outer* FMS knob until it is.)

We will now build the en-route plan up. Please perform the following steps to enter the first waypoint:

1. Turn the mouse wheel with the **lower-right inner FMS knob** once to bring up the waypoint window. This window is used for entering the identifiers (IDs) of waypoints manually.
 2. In the waypoint window, enter the first en-route waypoint of our flight plan, which is PITEN. This is the ID of your waypoint. You have several possibilities to enter waypoint IDs:
 - **type PITEN with your keyboard, or**
 - **type PITEN with the keypad** on the pedestal in the 3D cockpit, *or*
 - **use the inner FMS knob to select a letter and the outer FMS knob to move the cursor** to the next position, *or*
 - **use your mouse wheel** to select a letter and the **left & right mouse buttons** to move the cursor forward and backward.
3. Press the **ENT button** to confirm your input.

Input
waypoint ID



The newly entered waypoint (PITEN) is added to your flight plan. The cursor should be below PITEN, awaiting your next input (if not, move the cursor there).

On the next page, we will use PITEN as starting point for selecting our first airway.



4. LOAD YOUR AIRWAYS

At this point, your flight plan consists of your departure airport, the instrument departure BKD 5H, and the waypoint PITEN. The flight plan cursor is below the last waypoint, awaiting your next input.

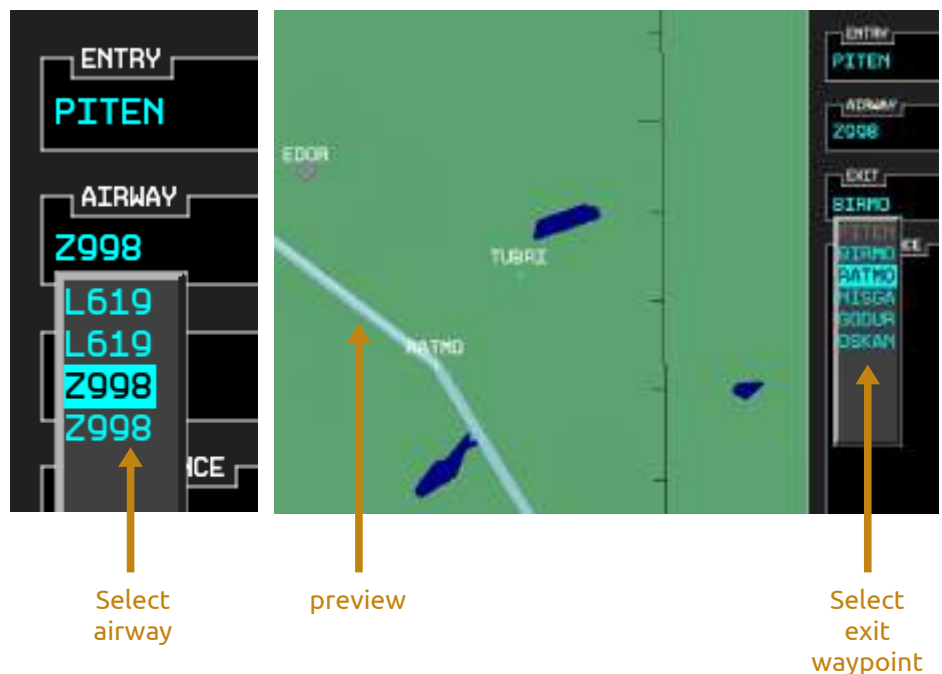
Although we could continue with entering waypoints one by one, just like we did with PITEN, this is a tedious task and prone to errors. Therefore, airways can be selected as a whole in the G1000.

Beginning with PITEN, we will now load an airway to further enhance our flight plan. Please perform the following steps:

1. Press the MENU button.
2. Use the mouse wheel with the **lower-right outer FMS knob** to highlight "LOAD AIRWAY".
3. Press the **ENT button** to confirm. A new menu will appear, showing airways related to the waypoint above your cursor (i.e. PITEN, in our case).
4. According to our plan, we want to enter the Z998 airway. So with the **FMS knob**, select Z998. If there are two occurrences of Z998, use the first one.
5. Press **ENT** to confirm. A new menu will appear, in which you have to select the waypoint where we want to exit the airway.
6. In our case, we use RATMO, because from there we'll head to another airway. So with the **FMS knob**, select **RATMO**.
7. Press **ENT** to confirm. The waypoints of the selected airway Z998 have now been appended to your flight plan, up to the selected exit waypoint RATMO.

Please **enter the single waypoint BRANE** now, as we did with PITEN.

After that, load the **airway Q201**, leading from BRANE to the **exit waypoint BUREL**, in the same way as we just did with Z998 and RATMO.



5. SELECT YOUR APPROACH

At this point, your flight plan consists of your departure airport, the instrument departure BKD 5H, the waypoint PITEN, the airway Z998, the waypoint BRANE and the airway Q201, up to the waypoint BUREL. The flight plan cursor is below the last waypoint.

We are nearly done with our flight plan. We now only have to add our destination airport to the plan and select an approach procedure. Please perform the following steps:

1. Enter the single waypoint **EDBM** (Magdeburg City airport) at the end of your flight plan. This is done in the same way as shown on page 24.
2. Press the **PROC** button.
3. With the **FMS** knob, highlight "**SELECT APPROACH**".
4. Press the **ENT** button to confirm. A new menu appears, showing the available approaches for your destination airport.
5. In our case, at EDGM, there exists only one approach (RNV27 GPS LPV), so you don't need to use the **FMS knob** here to select one.
6. Press **ENT** to confirm. The message "LOAD? Or ACTIVATE?" will be shown on the bottom of the window. With the **FMS knob**, highlight "**LOAD?**", as we only want to load the approach into our flight plan, but not yet start flying the approach.
7. Press **ENT** to confirm. A new menu appears, in which you have to select the transition from en-route flight to the approach.
8. As our flight plan currently ends at BUREL, we choose **BUREL**, of course. (Use the **FMS knob** and confirm with **ENT**. By now you should know how it works.)



Select approach



Select transition



This completes our flight plan (see picture to the right). We will now set radio frequencies.

RADIO SETUP

Before we start our engines, we should dial the correct frequencies of the departure airport in our radios.

Both COM and NAV radios are controlled in the G1000; there are no separate radio controls in the Epic E1000.

Schwerin-Parchim airport (EDOP) has a tower frequency and an approach frequency; **we only need the tower frequency which is 128.900**. There are several ways how to enter the frequency in the radios. You can do one of the following:

- Move your mouse cursor over the COM areas on the PFD or MFD, then **turn the mouse wheel**. The mouse cursor will tell you which digit you are currently changing (kHz or MHz). With this method, you can change directly active and standby frequencies of both COM1 and COM2.
- Turn the **inner and outer COM knob** on the MFD bezel. The inner knob kHz, the outer knob MHz. With this method, you can only change standby frequencies, and you need to push the knob to switch between COM1 and COM2.
- Using the FMS knob, open the **"nearest airports"** page on your MFD, as shown on the right. Then press the **"FREQ"** softkey. With the FMS knob, **highlight the desired frequency** and **press ENT** to change the currently selected standby frequency to the selected one.

Using one of the methods mentioned above, please set the active frequency of COM1 to 128.900.

Now set the standby frequency of COM1 to 119.300, which is the INFO frequency of our destination Magdeburg City (EDBM, uncontrolled airport).

Active COM1
Active COM2 Standby COM1
Standby COM2 Turn to change standby
Push to toggle COM1/2



ENGINE STARTUP

Your aircraft should still be powered by the GPU. You have entered the flight plan and are ready to start the engine.

For getting you and your important passenger in the air quickly, **we use a simplified startup procedure in this tutorial.** It won't do any harm, but please refer to the separate checklist document for the full startup sequence with all necessary security checks.

To locate buttons and levers mentioned in the following steps, please also refer to pages 11 to 15 in this manual.

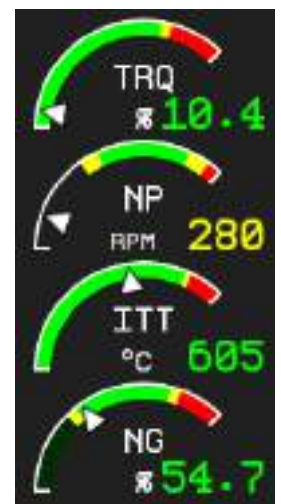


NG is 9% –
press Igniter
button now

NG stays at 54% –
switch off Igniter
button now

SIMPLIFIED ENGINE START

4. Set the **Fuel Selector** to the **Left** tank.
5. Set the **Power Lever** (black) to **idle** (fully back, but be sure it is not in beta range).
6. Set the **Propeller Lever** (blue) to **feathered** (fully back).
7. Set the **Condition Lever** (red) to **Fuel Cut Off** (fully back).
8. Switch on both **Batteries**.
9. Switch on the **Beacon Light**.
10. Switch on the **Strobes**.
11. Switch on the **Left Fuel Pump**.
12. Press the **Starter Button**.
13. Once the engine display shows 9% Ng, press the **Igniter Button**.
14. Once Ng is >15%, move the **Condition Lever** (red) to **Ground Idle**.
15. Once Ng is constantly at 54%, **switch off** the **Igniter Button**.
16. Verify that the **Start Gen Button** has been switched on automatically.
17. Open the **Options Menu** and **un-check** the “**Ground Power Unit**” option to remove the GPU.



Condition Lever
is fully back until
NG is > 15%



NG is > 15% –
move Condition
lever to Ground
Idle now

TAXI AND RUN-UP

Despite the cool beverages we served our passenger after boarding, he's getting impatient – so we should really depart now.

TAXI

Perform the following steps:

1. Make sure your parking brake is set before the following steps.
2. Push the **Propeller** lever (blue) **fully forward**.
3. Push the **Condition** lever (red) to **flight idle**.
4. Move the **Throttle** lever (black) **back to Beta range**. (In X-Plane's settings, you can define a key for "thrust reverse" to easily switch Beta on/off).
5. Release the parking brake.
6. **Control speed with the throttle lever** – move it forward to slow down.
7. When you've come to a stop, set parking brake and move throttle out of beta.



BEFORE TAKE-OFF

At the holding point, perform the "Before Take-off" checklist. If you don't have time, at least confirm:

1. Autopilot master switch ON
2. Trim switch ON & trim SET
3. Flaps in TAKE OFF position
4. Stick Pusher ON
5. Press Air switch ON
6. Baro Pressure SET (hint: check X-Plane's map for the current pressure at EDOP)



TAKEOFF AND DEPARTURE

FINAL CHECK

Please align with the runway center line and stop.

Set the **Heading bug** on your PFD's compass **to runway direction** by pushing the HDG knob on MFD or keypad. **Pre-select an altitude of 4,000 feet** by turning the ALT knob (see page 15 in this manual for other possibilities).

TAKE-OFF

Now perform the following steps:

1. Hold brakes while you push the **throttle lever forward**.
2. **Hold brakes until Ng is > 80%**. Continue to push the throttle until 80% torque.
3. **Hold runway direction** with the rudder.
4. **Rotate at 80 KIAS** by gently pulling the yoke.
5. At confirmed positive climb, **retract the landing gear**.
6. **Retract flaps at 120 KIAS**.
7. Continue to climb in runway direction. Do not go faster than 250 KIAS below FL100.



CLIMB AND DEPARTURE

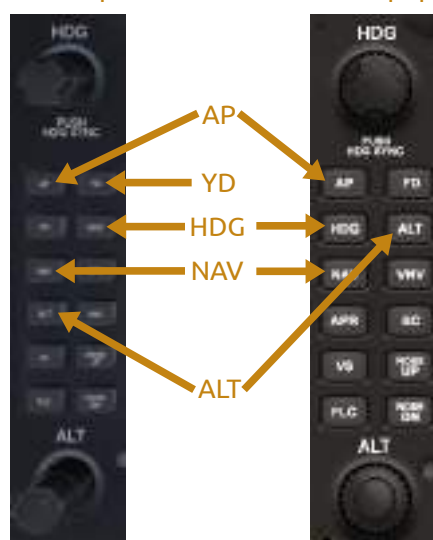
Now we'll use the autopilot and switch on the yaw damper:

1. Press the **HDG** button to hold current heading.
2. Press the **ALT** button to hold current altitude.
3. Press the **AP** button to switch on autopilot servos.
4. Press the **NOSE UP** button until 2,000 feet climb rate.
5. Press the **VS** button to activate vertical speed mode.
6. Press the **NAV** button to let the autopilot follow the flight plan.
7. Press the **YD** button to switch on the Yaw damper.

3D Cockpit



2D Popup



2D vs. 3D: Note the Difference

Due to X-Plane limitations, only the 3D cockpit's MFD does have the Yaw Damper (YD) button. Please also note the slightly different button order on the 2D popup. Be careful to not accidentally press the wrong button.

CLIMB AND CRUISE

After reaching BKD, the autopilot will turn southeast for our first en-route waypoint, PITEN.

We assume that ATC allows all of our altitude requests and **pre-select FL150** (15,000 feet) as altitude.

We choose FL150, because our flight is very short and we won't be too high when descending later. Also, one uses uneven flight levels when going east and even flight levels when going west.

Activate Vertical Speed mode again with the **VS** button; set a speed of 3,000 feet / minute.

Continue to climb.

At FL50 (5,000 feet), which is transition altitude, set **standard baro pressure**. You can either dial the value with the BARO knob on the PFD, use the scroll wheel of your mouse while hovering the baro value with the mouse cursor, or by pressing the "PFD" softkey, then the "STD BARO" softkey.

At FL100 (10,000 feet), **switch off the landing light**.

Continue to climb.

On FL150, continue to **follow the flight plan**. When reaching BRANE, our direction changes to southwest, so we should fly at an even altitude, such as **FL140**. We won't stay there for long, though, because we will need to descent very soon anyway.

Below 5,000 feet, **set local baro pressure**.

Switch **COM1 to the standby frequency** (which is Magdeburg INFO).

Continue **descent to 4,000 feet** until reaching BUREL. This waypoint is the first waypoint of our approach to EDBM, the initial approach fix (IAF).



APPROACH AND LANDING

When you have reached the initial approach fix BUREL, you can activate the autopilot's approach mode.

On your MFD, press the **MENU button**, select "**Activate Approach**" and confirm with the **ENT button**. The autopilot will now fly the approach to EDBM. For the moment, it will simply follow the flight plan to the next waypoints.

According to our plan, you should **descent to 2,000 feet**. The autopilot won't do this automatically; the vertical navigation mode (VNV or VNAV) on the G1000 is just for assistance. So **use the VS and NOSE DN buttons** again for descend.

Reduce speed to set landing configuration: **Flaps 1** at less than **180 KIAS**; **Gear down** at less than **140 KIAS**; **Flaps 2** at less than **130 KIAS**.

When reaching **BM452 waypoint**, the autopilot will turn the aircraft to runway 27 of EDBM. You will notice that the autopilot will start to descent further, performing a **GPS approach to the runway**. This is very similar to an ILS approach, but without the need of dialing ILS frequencies to the radios. Also, the glide path icon is colored magenta.

Switch off the autopilot at 1,000 feet. Use **throttle to control descent** and **ailerons to stay on the center line**.

Shortly before touching the runway, **gently pull the yoke**. Don't pull too strongly; give the plane time to react. With a calm hand, it will sit down on the runway smoothly. If the plane's nose is not centered, correct with rudder.

After touchdown of the main gear, keep the yoke pulled. Slowly pull more to reduce speed. Let the nose come down by itself. **Activate beta (reverse)** to further slow down. Leave the runway and taxi to the apron. Shut down the plane according the "**After Landing**" and "**Shutdown**" checklists.



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