

Alpi Aviation Pioneer 400 (PNR4)



Introduction

The **Alpi Aviation Pioneer 400** is an Italian four-seat, low-wing and retractable tricycle landing gear light aircraft. More info can be found at link https://en.wikipedia.org/wiki/Alpi_Pioneer_400

The **Alpi Aviation Pioneer 400** aircraft for MSFS has been developed by *erasam* using the information of the official Flight Manual (Doc. *POH_EN_P400-5_PLY_VP-X4_916iS_850_N_COTS_EXP_0*, 2025 May 19th)

The variant implemented is the one equipped for *IFR* operations with a **MTOW** of 850KG

The modeled engine is the turbo fuel injected **ROTAX 916iS** (160 HP) coupled with a three-blade constant speed / variable pitch propeller **MTV-34-1-4/175-200** or **H60A 1.75M R-CSS-19-3/NC/HYDR/A5**



System requirements

This model has been designed for Microsoft Flight Simulator 2020 (also known as MSFS2020), for both Microsoft Store or Steam versions, but it is also fully working in Microsoft Flight Simulator 2024 (through compatibility mode)

Xbox version is also available through the MSFS in-game marketplace

Installation

The aircraft package is automatically installed after been purchased on the MSFS marketplace therefore there is no need for a manual installation

Support

If you have any request for clarification, suggestion or you just want to be part of the community of users of this aircraft feel free to join **erasam** Discord server at link <https://discord.com/invite/rr7yrCaB9N>

Visit **OBY1** homepage at <https://www.oby1.eu/> to stay up-to-date with all its projects

Version history

- Release 1.0.0

This is the first official release of the **Alpi Aviation Pioneer 400** for MSFS made by *erasam* and published by **OBY1**

Features

- Cockpit

The **OBY1 Alpi Aviation Pioneer 400** model for MSFS has a fully animated and realistic 3D cockpit, with different internal views available for the Pilot, Copilot, Close and Landing as well as for any compatible joystick 8-way hat switch view selector (Front, Rear, Left, Right, Front Left, Front Right, Rear Left and Rear Right)



Figure 1 - Pilot View

PBR textures have been widely used for cockpit, seat and all internal materials to reflect real life aircrafts appearance but they can be easily customized with the provided Paint Kit



Figure 2- Copilot View

Note: Copilot view has been designed to hide the copilot 3D model, if present

Dedicated views have been also designed to easily zoom on the different cabin and cockpit areas (like for the **G3X PFD** and **G3X MFD** and the **Electronic Flight Book**), and for flying in VR (fully supported)

Note: instrument views have been designed to automatically hide the joke levers to allow better visibility of the cockpit instruments

Switching between the available Pilot, Instrument and Quick views can be done using the standard MSFS In-game Toolbar or with the provided keyboard shortcuts



Figure 3 – In-game toolbar view selector

- Instruments and Avionics

The aircraft boasts a modern glass cockpit with the following instruments (left to right, top to bottom):

- Magnetic compass
- Landing gear lever and control lights
- Autopilot Disengage and TO/GA switches
- Pitot Heat switch
- Alternate Static Air selector switch
- Installed Battery Backup System (IBBS) switch and corresponding breaker
- Starter button and start power Temp switch
- Garmin **G5** attitude display indicator (ADI) and/or horizontal situation indicator (HSI)
Note: in order to have the IBBS battery to power the Garmin **G5** the Avionic master switch must be also set to **ON**. The **G5** implementation is using the *sa1800* enhanced version
- Double Garmin **G3X Touch PFD** and **MFD**, configured with reference speeds, CAS messages and EIS screen as in the real aircraft
Note: the **G3X Touch** implementation is using the *Working Title* edition



Figure 4 – Instruments1 view

Placed in the center of the cockpit there are:

- Garmin **GMA245** audio panel
- Garmin **GTN650 GPS + COM1/NAV1**
The available options, selectable through the *Switch GPS* option of the EFB, are:
 - Default stock **Asobo GTN650**
 - PMS GTN650**
(<https://pms50.com/msfs/>), only available if properly installed
 - TDS GTN650Xi**
(<https://tdssim.com/tdsgtnxi>), only available if properly installed

Notes:

- flight plan integration with the **G3X Touch** is only available if the **PMS GTN650** or the **TDS GTN650Xi** has been selected as the stock **Asobo GTN650** is not supported
- Asobo GTN650** is available in all liveries and it is the default one
- PMS GTN650** can be selected only when using *Metal Silver and Blue*, *Metal Silver and Red*, *Silver and Red* and *PH-XGE* liveries (as shown in the livery name)



Figure 5 – Cockpit center view

- **TDS GTN650Xi** can be selected only when using *Blue and Silver*, *Yellow and Black* and *Metal Silver and Black* liveries (as shown in the livery name)
- Once a GPS is chosen using the **EFB Switch GPS** option that choice is automatically saved and restored at the beginning of a new flight
- As for a **G3X Touch** limitation when coupled to the external GPS **PMS GTN650** system the **PFD** map visualization has been disabled
- Garmin **GNC255 COM2/NAV2** equipment
Note: COM spacing mode for **GNC255** equipment can be changed between 8.33KH and 25kHz using the provided FUNC setting
- Garmin **GFC500** autopilot

In the lower left side of the cockpit are placed (left to right):

- Cabin defrost knob
- Panel light dimmer knob
- Backup Battery switch
- Lane A and Lane B switches
- Main electric fuel pump (P1) switch
- Auxiliary electric fuel pump (P2) switch
- Navigation light, Strobe light and Landing light switches
- Autopilot servos switch

Note: in order to have the autopilot working this switch must be set to ON

- Avionic master switch

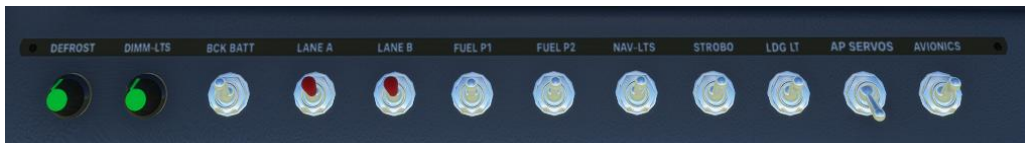


Figure 6 – Left side cockpit knobs and switches

An interactive fully working Breakers panel is available on the left side of the cockpit, with a tooltip shown to indicate current breaker state (**IN** or **OUT**), moreover a dedicated instrument view is provided

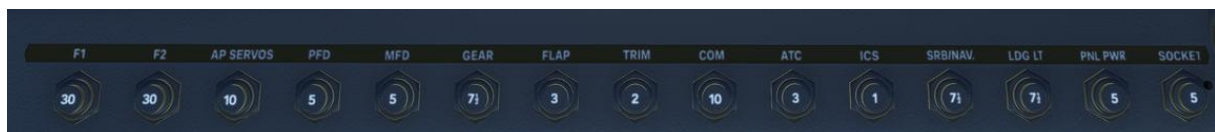


Figure 7 - Breakers panel

Note: some breakers could be inoperative (**INOP**) as the corresponding system has not been modeled yet

Finally in the central pedestal are placed:

- A three-states (ARM-TEST-ON) **RC200 ELT** equipment
- A two states (OFF-ON) battery Master switch
- Fuel Close knob, enabling when open fuel transfer from auxiliary fuel tank to the right fuel tank
- Flap mode (Auto vs. Manual) and setting selector (four different settings)
- Elevator Trim switch and led indicator

- Aileron Trim switch and led indicator
 - Rudder Trim switch and led indicator
 - Throttle lever
 - Prop lever
 - Cabin heating lever
 - Levers friction regulator
- Note:** there is no impact of the friction regulator on the levers animation
- A three-states (LEFT-RIGHT-OFF) Fuel Tank selector
 - Parking brake selector and manual parking brake lever

All the gauges, levers and knobs shown in the different views provide a tooltip (if enabled in the Assistance menu of MSFS) and are fully animated

Note: the detailed instructions how to use the provided equipment are not included in this handbook but can be easily found on the Web as well as inside the official **Alpi Aviation Pioneer 400 POH**

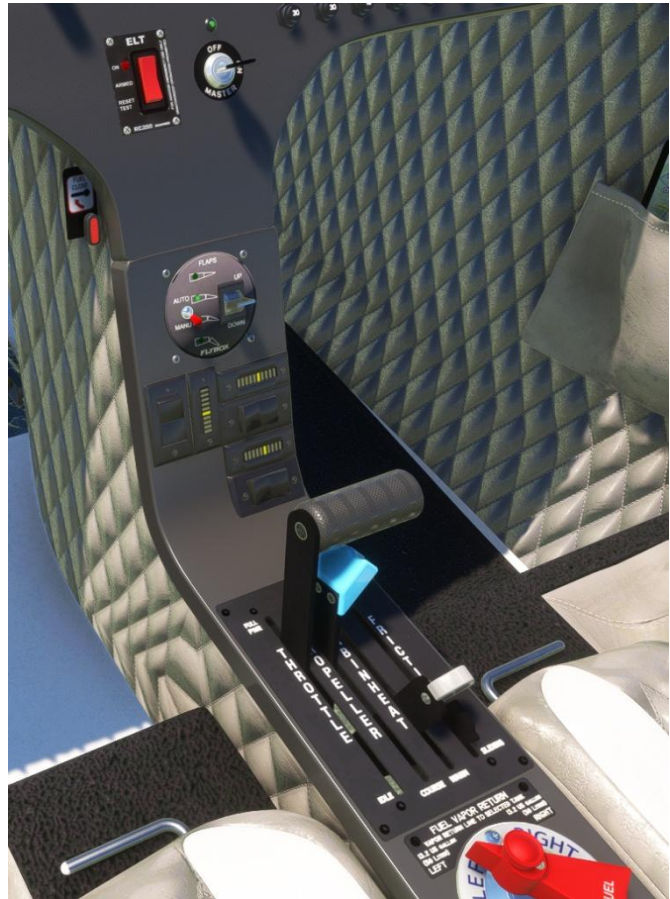


Figure 8 – Central pedestal view

- Engine Start

In order to successfully start the engine, it is recommended to follow the provided interactive checklist to have all the required steps correctly executed

Master switch must be set to **ON** in order to provide the needed energy to the systems involved in the engine starting procedure. Fuel Selector switch must be set to either **Left** or **Right** and the selected tank must be not empty as shown in the corresponding indicator gauge

Finally, P1 (and optionally P2) fuel pump switch must be set to **ON** to have the Fuel Pressure rising, as it can be checked in the corresponding indicator gauge placed on the Engine page of the **G3X MFD**

Note: as the **Alpi Aviation Pioneer 400** has no engine driven fuel pump the P1 (and optionally P2) fuel pump switch must be kept **ON** during the flight to maintain the required fuel pressure

After the start power Temp switch is set to **ON** the Lane A and Lane B lamps are **ON** for three seconds meanwhile the ECU performs systems checks, then the Starter button should be pushed to start the engine

Important: as the real **Alpi Aviation Pioneer 400** aircraft is using a peculiar engine start sequence, having the pilot to keep the start power Temp switch being pressed while pushing the Starter button, the MSFS implementation automatically keeps the



Figure 9 – Starter button

start power Temp switch pressed for 6 seconds; after this timeframe if the engine is not started, this procedure should be repeated again

Note: RPM gauge shown in the **G3X Touch** is configured to display **Prop RPM** in the *Metal Silver and Blue*, *Blue and Silver*, *Silver and Red* and *PH-XGE* liveries and **Engine RPM** in all the other liveries

- Handling

The **Alpi Aviation Pioneer 400** is equipped with constant speed / variable pitch propeller and the relevant Propeller lever is placed in the central pedestal near the main Throttle lever

Pilot and Copilot PTT buttons are also available on the corresponding yoke and they can be used to enable specific custom behavior (like opening a hangar door while being pressed) using the provided LVar

Steering on the ground is managed using the rudder pedals (controlling both the rudder deflection and central steering gear) also with the help of the independent pedal brakes. Parking Brake lever is placed in the central pedestal

Note: handling yokes for Pilot and are also automatically hidden or restored based on the selected view, moreover a hider hotspot is available for both yokes on a screw at the base of the lever



Figure 10 – Flight Controls view

- Cabin Doors

The aircraft doors can be closed and locked using the provided levers on the left and right sides

To open (only if unlocked) or close the aircraft doors the provided hotspot must be dragged

Notes:

- Doors can be opened only when the door release levers are open and door lockers are free



Figure 11 – Door release and locker levers

- Doors cannot be opened when the fuselage cover is on
- Doors are automatically closed if airspeed is greater than 10 knots
- Doors can be locked only if the corresponding release lever is set to Closed (as shown in the tooltip)
- When doors are open the engine (if running) sound can be heard louder
- Doors are not locked at beginning of a flight

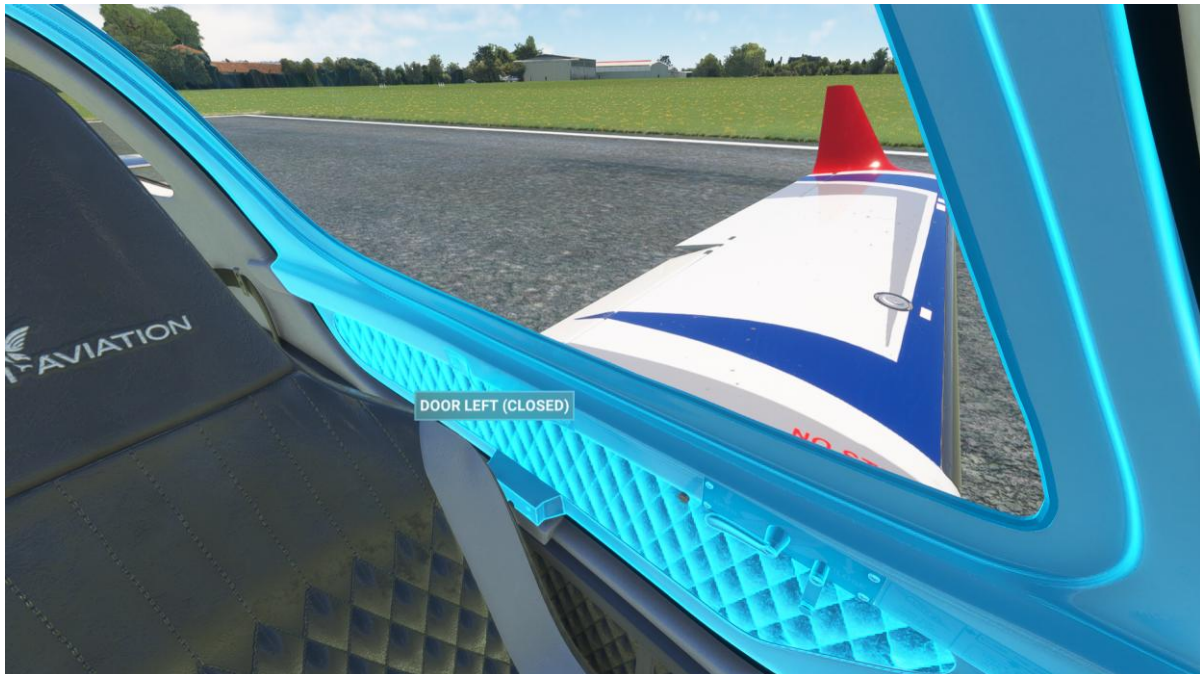


Figure 12 – Door handle hotspot

- *Electronic Flight Book (EFB)*

An **Electronic Flight Book**, placed in the pilot bag, is available to allow setting different interior and exterior options: to open the EFB you have to click on the cover spiral



Figure 13 – Click cover spiral to open the EFB

The following settings are currently provided:

- *Interior options*
 - Show / hide copilot (available only if the front passenger weight is set greater than 0 in the Weight and Balance screen)
 - Show / hide passengers (available only if the rear passengers weight are set greater than 0 in the Weight and Balance screen)
 - Show / hide baggage (available only if the cargo area weight is set greater than 0 in the Weight and Balance screen)
 - Switch between available **GTN650** GPS alternatives (if available), showing the currently selected one
- *Exterior options*
 - Show / hide external static elements (Wheel chocks and Tie downs wing ropes)
 - Show / hide Pitot tube cover
 - Show / hide GPU (with external power supply automatically enabled based on it)
 - Open / Close the Oil inspection door
 - Show / hide fuselage cover

All the provided settings are automatically saved and restored at beginning of the flight

Note: aircraft release number is shown on the right top border (to be communicated for any support need)

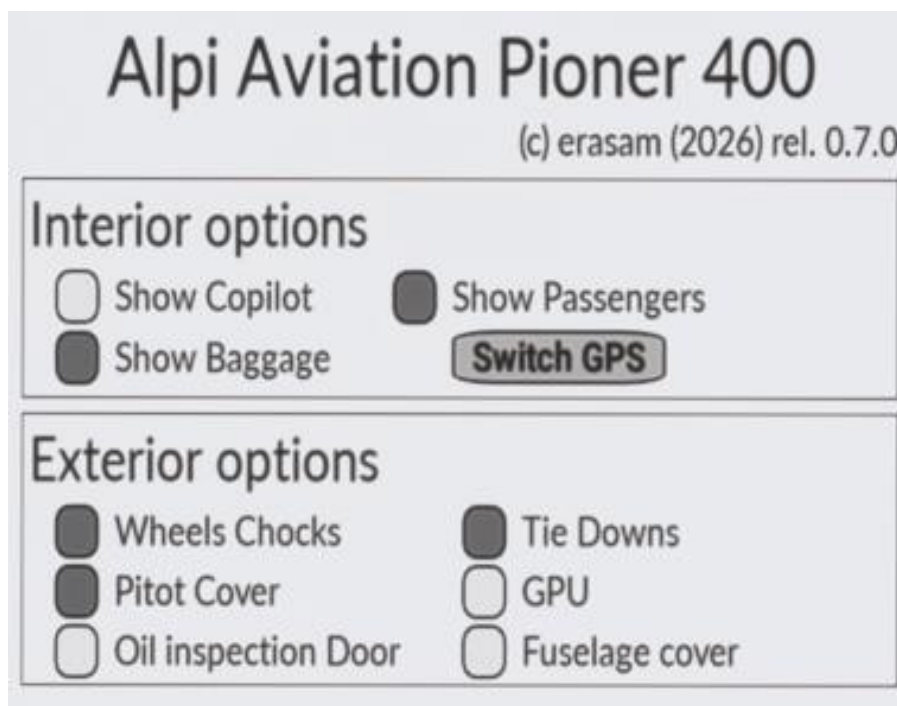


Figure 14 – EFB interior / exterior available options

External Inspection Walk Around picture shown in the **EFB** can be clicked in the hotspot zones to automatically switch to the correspondent dedicated external view

- Checklist

A fully interactive checklist, developed in different stages following the same structure of the official **Alpi Aviation Pioneer 400** POH, is provided to help the pilot in all the different flight stages

CHECKLIST	
STARTING ENGINE 0/16	
< BEFORE STARTING ENGINE	WARMUP >
RESET PAGE	
Fuel Pump 1	On
Lane A	On
Lane B	On
Propeller area	Clear
Start Power	On
Lane A Warning lamp	Off
Lane B Warning lamp	Off
Power lever	Idle
Starter	Press
Start Power	Off
Throttle	As required
Oil pressure	Check
Lane A Warning lamp	Off
Lane B Warning lamp	Off
AUTO COMPLETE PAGE	
EVALUATION	AUTO COMPLETE ITEM

Figure 15 - Interactive checklist

Checklist can be activated using the standard MSFS In-game Toolbar or with the provided keyboard shortcuts

External inspection, following the path represented in the following figure, can be executed following the interactive checklist using the provided external views

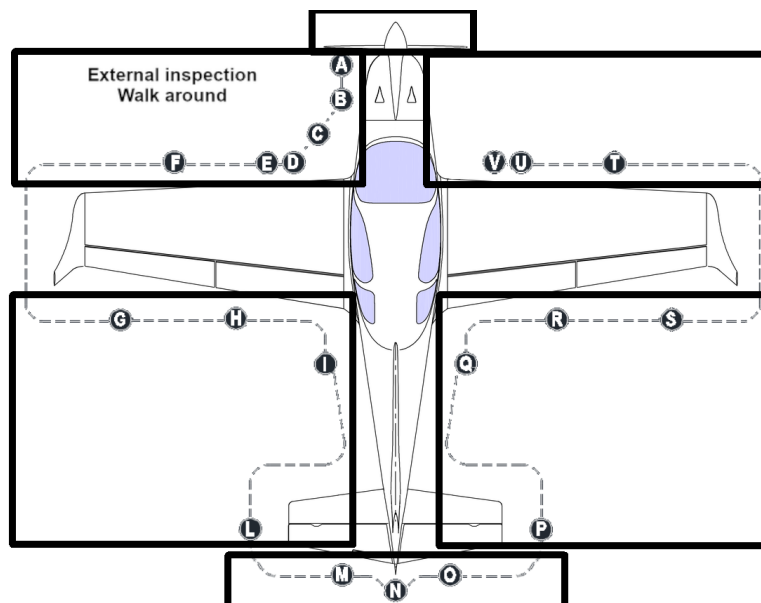


Figure 16 - External inspection walk-around (hotspots areas)

- Externals

All moveable surfaces (ailerons and right aileron trim, flaps, elevator and elevator trim, rudder and rudder trim) and the landing gear (retractable nose and main) are animated following the pilot inputs



Figure 17 - Animated moveable surfaces

Landing light, wings Navigation green and red lights, wings Strobe lights, rudder tail Navigation and Strobe lights are fully working and can be controlled by the provided cockpit switches

Once opened (using the provided levers or **EFB** options) the oil inspection door can be observed from one of the provided external views

Note: Fuselage cover, GPU, Pitot tube cover, Towbar, Wheel chocks and Tie downs wing ropes will be automatically hidden when the engine is running or the parking brake has been disengaged



Figure 18 - External view with canopy and doors opened

Liveries

The **OBY1 Alpi Aviation Pioneer 400** comes with several liveries, as shown in the aircraft livery selection, some of them using MSFS registration ID on the fuselage and below right wing

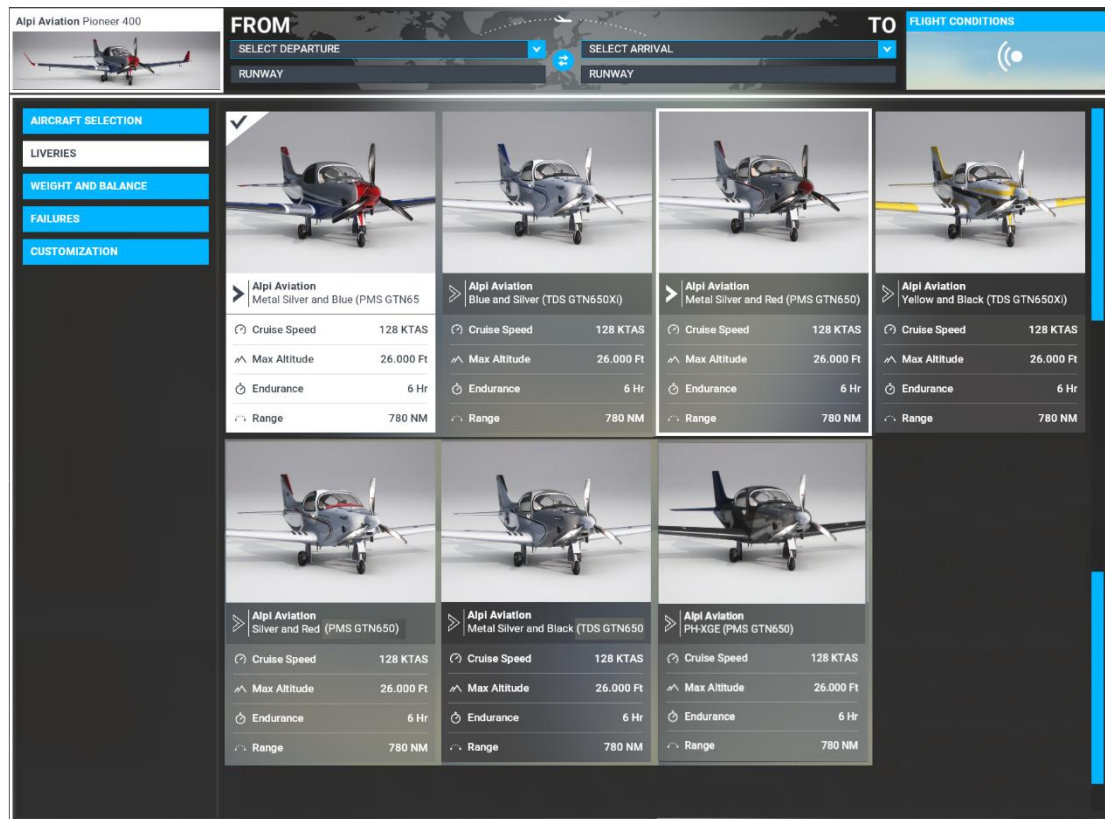


Figure 19 – Aircraft livery selection

Some of the provided liveries have internal **PBR** textures variants too

Note: please check the Release Notes to see whether new liveries have been added to the standard package. Additional liveries can also be downloaded from web sites dedicated to MSFS addons (like <https://www.flightsim.to>)

- Paintkit

In order to help the community to design new liveries for the **OBY1 Alpi Aviation Pioneer 400** a complete **Paint Kit** will be published on <https://www.flightsim.to>, with the UV mapping for all the internal and external components of the 3D model and examples of the PBR textures used to develop the package liveries

There will be no constraints to use the provided **Paint Kit** therefore additional liveries created using it belong to their authors

Aircraft geometry and weights

An accurate representation of the aircraft geometry, weights and dimensions has been modeled in the configuration files in order to provide the most accurate experience while flying it in Microsoft Flight Simulator

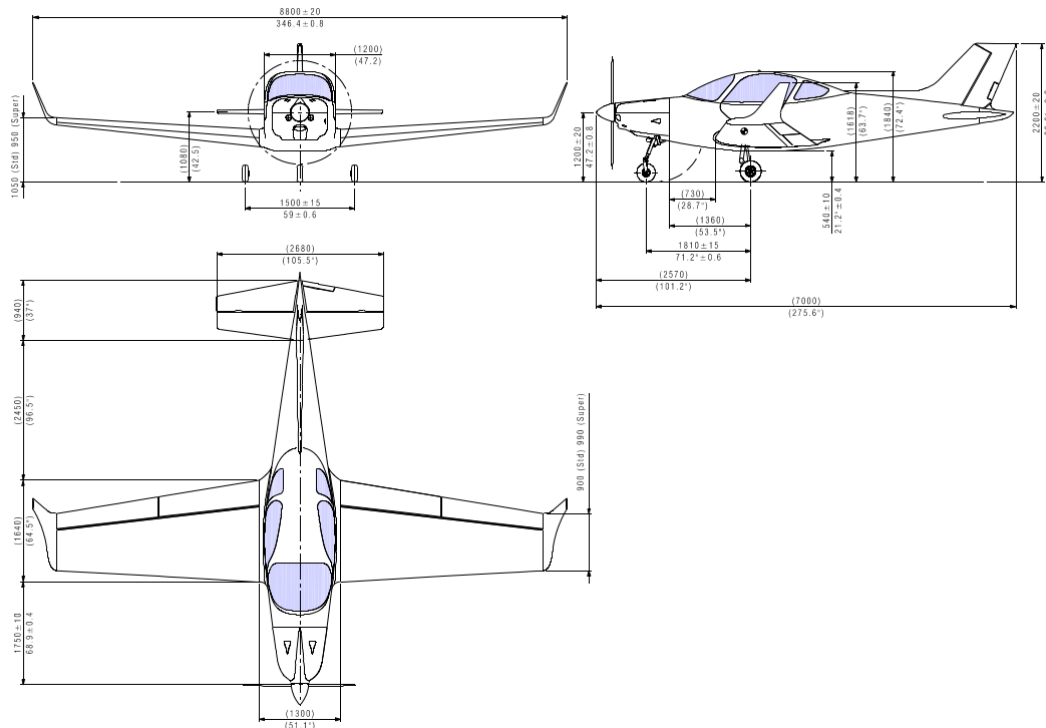


Figure 20 - Alpi Aviation Pioneer 400 aircraft dimensions

Before starting a flight, it is recommended to adjust and check the weight and balance settings in order to ensure the correct flight behavior is achieved

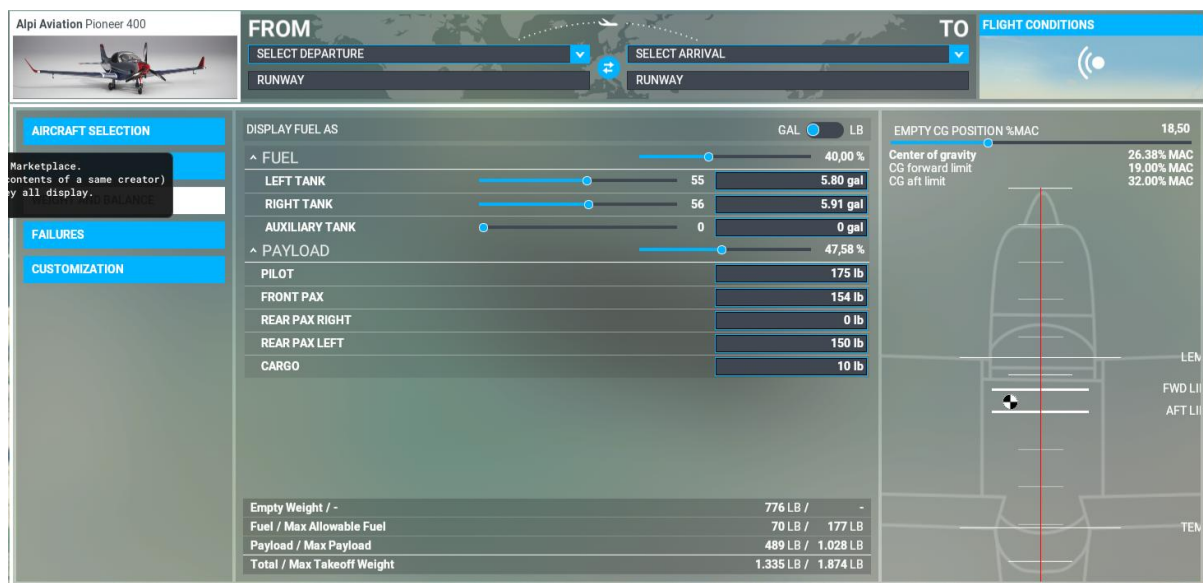


Figure 21 - Weight and Balance check

The **Alpi Aviation Pioneer 400** has two main tanks (left and right) for a total fuel capacity of 80 Liters (21.1 gallons) plus an auxiliary fuel tank with a capacity of 32 liters (8.45 gallons) that can be used to refill the right tank when the Fuel Close switch is **ON**

CG and weight limits are as defined as indicated by **Alpi Aviation** manufacturer in the official POH

Note: Pilot, Copilot and baggage 3D models are shown inside the aircraft only if the corresponding weight has been set in the Weight and Balance screen

Aircraft performance

Aircraft performance is simulated to match as much as possible the real behavior of the aircraft and it has been tested by real pilots to give a “real as it gets” feeling in any flight condition

Please refer to the official **Alpi Aviation Pioneer 400** Pilot Operating Handbook in order to retrieve all the needed info and details

LVARs

The following LVARs are used to control the aircraft behaviors

LVAR	Usage	Unit	Saved
BAGGAGEHIDDEN	Hide/show baggage	Bool	No
COPILOTHIDDEN	Hide/show Copilot	Bool	Yes
DEICE_WINDSHIELD_KNOB	Windshield defrost knob position	Number	No
DOOR_LEFT_HANDLE	Left door handle position (0-16384)	Position 16k	No
DOOR_LEFT_LOCKED	Left door locker set	Bool	No
DOOR_LEFT_OPENED	Increase engine sound when left door is open	Bool	No
DOOR_RELEASE_LEVER_LEFT_KNOB	Left door release lever position	Number	No
DOOR_RELEASE_LEVER_RIGHT_KNOB	Right door release lever position	Number	No
DOOR_RIGHT_HANDLE	Right door handle position (0-16384)	Position 16k	No
DOOR_RIGHT_LOCKED	Right door locker set	Bool	No
DOOR_RIGHT_OPENED	Increase engine sound when right door is open	Bool	No
EFB_BOOK	Open/close the Electronic Flight Book	Bool	No
FLYBOX_EFCP_SWITCH_AUTO	Set FLYBOX Flap mode to Auto	Bool	No
FUEL_CLOSE_SWITCH	Fuel close switch	Bool	No
FUEL_SELECTOR_POS	Fuel selector position (L/R/Off)	Enum	No
FUSELAGECOVER_VIS	Hide/show fuselage cover	Bool	Yes
GPS_SWITCH	Toggle between available GPS systems	Number	Yes
GPU_VIS	Hide/show GPU	Bool	Yes
LEVERS_FRICTION	Control levers friction lever (0-16384)	Position 16k	No
OIL_INSPECTION	Open/close oil inspection door	Bool	Yes
PAPER_MAP	View/store the static VFR Map	Bool	No
PASSENGERHIDDEN	Hide/show passengers	Bool	Yes
PITOTCOVER_VIS	Hide/show Pitot and Stall warning covers	Bool	Yes
SEAT_CENTRAL_POCKET	Open/close seat central pocket	Bool	No
SWITCH_START_POWER	Start power switch state	Bool	No
TIEDOWNS_VIS	Hide/show tie downs ropes	Bool	Yes
WHEELSCHOCKS_VIS	Hide/show wheel chocks	Bool	Yes
XMLVAR_COPILOTPTT	Copilot PTT being pressed	Bool	No
XMLVAR_PILOTPTT	Pilot PTT being pressed	Bool	No

Table 1 - LVARs

Credits and Thanks

Credits to **bagolu** (flightsim.to profile <https://it.flightsim.to/profile/bagolu>) allowing to use its EFB, Wheel chocks and Tie downs wing ropes 3D models

Thanks to **sal1800** (flightsim.to profile <https://flightsim.to/profile/sal1800>) allowing me to use his enhanced version of the Garmin **G5** equipment

My personal thanks to **Gabriel3DArtist** who developed the 3D base model for the **OBY1 Alpi Aviation Pioneer 400** for MSFS project

Finally, many thanks to **all beta testers** that helped to tweak the flight model and to ensure the best quality of this MSFS aircraft

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