PRODUCT MANUAL

Bo105

28 articles · Complete website edition

Includes all article text, tables and available illustrations. Videos and interactive resources are linked. Printed page numbers restart with each article. Use the clickable contents or PDF bookmarks to navigate.

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Stratoware/Miltech Simulations Bo105

Welcome to the MBB Bo 105

Developed by Stratoware, in partnership with Miltech Simulations

> Caution
> **CONSUMER SIMULATION USE ONLY - DO NOT USE THIS DOCUMENTATION ON A REAL AIRCRAFT**

Thank you for purchasing the MBB Bo 105 for Microsoft Flight Simulator. This addon is a result of over 2 years of dedicated development by a small international team. We hope you enjoy flying it!

This documentation is designed to help flight simulator enthusiasts and gamers get the most out of our MBB Bo 105 addon. Whether you're new to rotorcraft or a seasoned virtual pilot, this guide will walk you through everything you need to operate this iconic helicopter confidently.



Getting Started

We've put together some guidance for getting started with our addon quickly and easily:

Minimum System Requirements

- Microsoft Flight Simulator 2024 (Latest Version) on PC or Xbox
- Joystick Controller (Recommended) or Xbox Controller
- CPU: AMD Ryzen 5 2600X or Intel Core i7-6800K
- GPU: AMD Radeon RX 5700 or NVIDIA GeForce GTX 970
- RAM: 16 GB
- VRAM: 4 GB

Where to Buy?

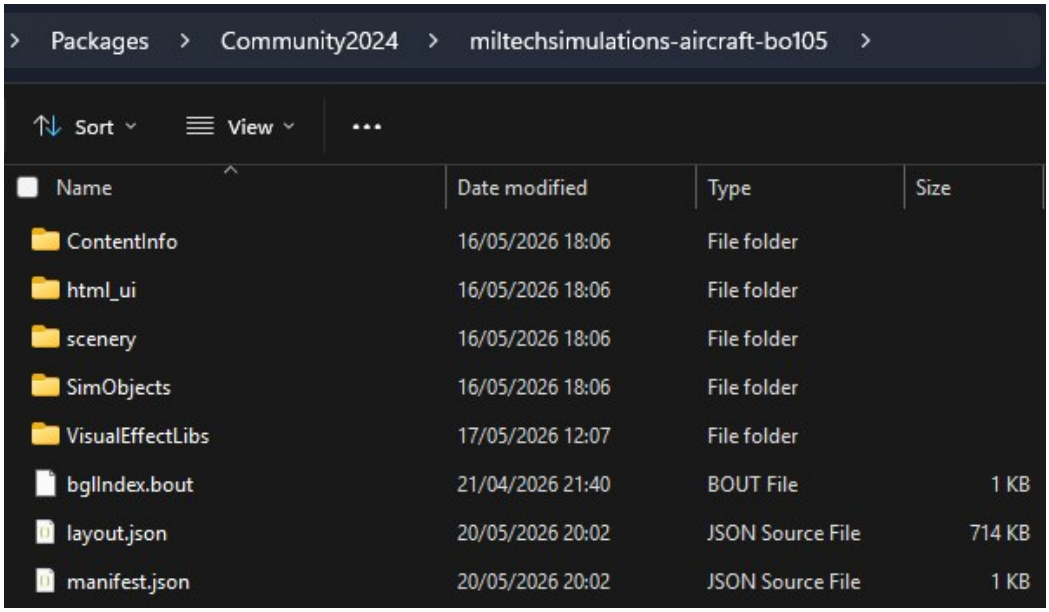
Please visit bo105.store for more information on this topic.

Installation - Stratoware Shop

Orders placed on shop.stratoware.in will generate an email with a download link for the addon (miltechsimulations-aircraft-bo105.zip). Follow these steps:

1. **Click on the download link**, and wait for the .zip to download onto your disk
2. **Locate your community** folder by following this guide (not affiliated)
3. Move your downloaded .zip file into this community folder, and **unzip its contents**
4. Ensure that the product files are not nested inside an **extra** folder, which may be produced during the extraction step. The correct structure is as follows:

```
Community2024\miltechsimulations-aircraft-bo105\(FILES)
```



Installation - Miltech Simulations Webstore

Products purchased via miltechsimulations.com are downloaded and updated via Contrail. Download the Contrail App here, then follow these steps:

1. Download and Launch Contrail
2. Click on **"Accounts"** on the bottom left corner and "Connect" Miltech Simulations Account (log-in with your Miltech Simulations credentials)
3. Click on **"Downloads"**. Your products will download and install automatically.

Installation - In-game Marketplace

1. **Launch** Microsoft Flight Simulator
2. Open the **Marketplace**
3. **Search** for the product
4. **Click** “**Install**” and wait for the product to install successfully.

Ready to Fly? ✈

Follow our Quick Start Guide for a quick lesson on flying this helicopter.

Uninstall

The product can be generally be uninstalled by clicking on the uninstall button in Contrail or iniBuilds stores, or alternatively by deleting its contents from the community folder. For more details, please contact the vendor.

Report Manual Errors

If you find errors in this manual, please report them to Adi:

- Email address: aditya@stratoware.in
- Discord: adi_s

Report Aircraft Bugs

If you find any bugs with the aircraft, please report them here:

https://bugs.miltechsimulations.com/

Stratoware/Miltech Simulations Bo105

Introduction

Aircraft History and Addon Development

Aircraft History

The MBB Bo 105 is a twin-engine, multi-role light utility helicopter developed by Messerschmitt-Bölkow-Blohm (MBB) in West Germany. Renowned for its exceptional versatility, manoeuvrability, and precision control, it has earned legendary status in the aviation industry. Designed to accommodate one or two pilots and up to four passengers, the helicopter is celebrated worldwide for its reliability and an outstanding performance across various demanding environments.



(@egewinters on Discord)

With its inaugural flight in 1967, the Bo 105 remained in continuous production until 2001, making it one of the longest-produced light helicopters in history. As the world’s first twin-engine light helicopter, it represented a major leap in rotorcraft technology, offering increased power, enhanced high-altitude performance, greater speed, and higher payload capacity than its single-engine counterparts. Its dual-engine configuration also provided an added layer of safety. What truly sets the Bo 105 apart is its hingeless, rigid rotor system - a ground-breaking innovation in helicopter design. Its four-blade rotor is mounted directly onto a single milled titanium block, eliminating the need for hinges and significantly improving control responsiveness. This system grants the helicopter unparalleled agility, enabling it to perform aerobatic manoeuvres such as loops and rolls - an incredibly rare capability in civilian helicopters. Thanks to this, the Bo 105 became a staple of airshows and aerobatic displays, further cementing its iconic status. Powered by

two Allison/Rolls Royce 250-C20B turboshaft engines, each producing 420 horsepower, the Bo 105 excels in high-altitude, high-temperature, and high-performance flight conditions. Its power-to-weight ratio gives it remarkable climb rates, precise hovering capabilities, and rapid directional changes, making it a preferred choice for operators who demand speed, agility, and reliability.

The Bo 105 set new standards in light helicopter design, influencing future generations of aircraft. Even decades after its introduction, it remains one of the most respected helicopters ever built. Whether performing life-saving rescue missions, thrilling airshow crowds, or supporting tactical military operations, the Bo 105 continues to be a symbol of engineering excellence, inspiring helicopter enthusiasts and professionals alike.

Addon Development

Our Bo 105 brings this iconic German rotorcraft to the simulator with an ultra-detailed 3D model, high-resolution textures, accurate flight dynamics, immersive soundpack, functional systems, and an extensive selection of configurations - with 13 distinct variants and over 50 liveries, the Bo 105 offers something for every type of mission!

This product started off as a solo project by Aditya S, and is now the result of a close collaboration between Stratoware and Miltech Simulations. We have collaborated to deliver an experience that does justice to one of the most important helicopters ever built. We are proud to share this product with the community, and we hope it becomes a core part of your sim experience.

Here's an old video of our flight model testing from December 2024:

Interactive resource: Video tutorial

Stratoware/Miltech Simulations Bo105

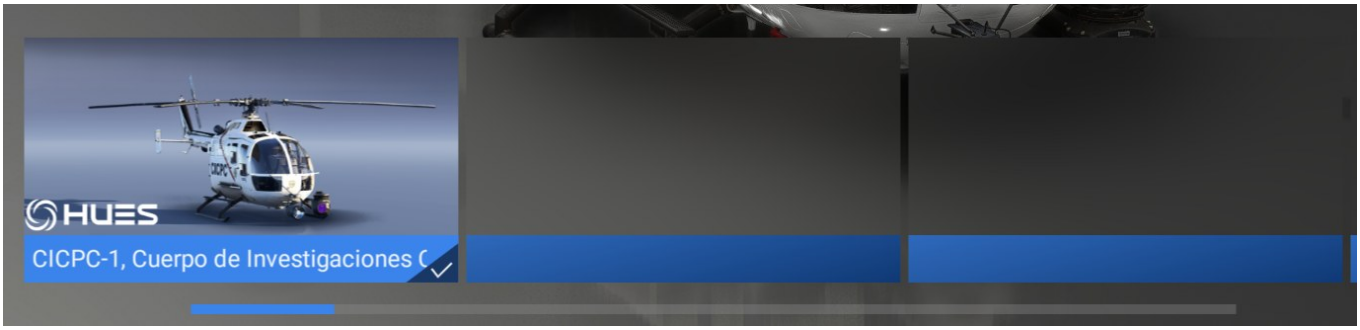
Reduce Install Size

This page is applicable to PC users ONLY

The breadth of configurations in this addon comes with an unintended consequence: the massive **14.7 GB installation size**. We realise that this may be an issue for some PC users.

Interestingly, nearly 9 GB is taken up by the liveries folder. Therefore, for users with storage restrictions, we reccommend downsizing the livery selection by following these steps:

1. Navigate to the community folder by following this guide (not affiliated).
2. Open folders in the following progression: miltechsimulations-aircraft-bo105 > SimObjects > Airplanes > Miltech_Bo105 > liveries > miltech
3. **Delete the livery folders of your choice.** You can view the livery by opening the associated folder, then the nested thumbnail folder, and viewing the thumbnail images.
4. The configuration menu will now show empty placeholders in place of these liveries, but the product continues to function as normal. If you face any issues, please contact support.
5. To remove these placeholders - *completely optional and only visual change* - please update the layout.json file by using this tool: MSFSLayoutGenerator (not affiliated, independent developer)



Note
To reverse these changes, simply re-download the product (.zip) file and move the relevant livery folders back into the same directory.

Stratoware/Miltech Simulations Bo105

Included Scenery

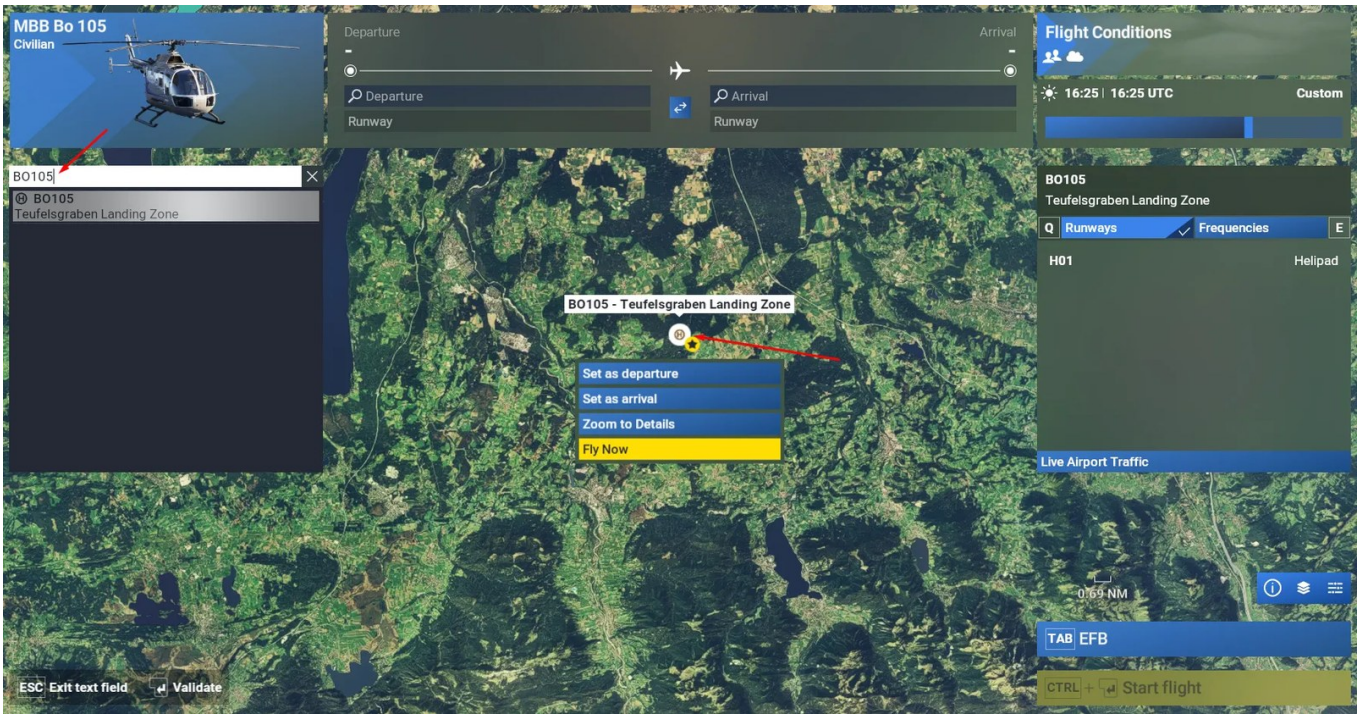
Developed by Birdstrike Sim (@birdstrikesim)

The addon package comes equipped with a scenery in Southern Germany known as **Teufelsgraben** ("Devil's Ravine"). This region is home to one of the most iconic marketing videos of the Bo 105:

Interactive resource: Video tutorial

(We are not affiliated with this video)

To find the scenery in-game, search for the code **BO105** in the freeflight menu as shown below:



Select the helipad, set up your flight parameters, and start the flight. We'll see you in the skies!



Stratoware/Miltech Simulations Bo105

Configurations

The variety of selections when loading into a flight.

The product includes **13 distinct variants** with **over 50 unique liveries**, each configured for a specific operational role:

Medical Tall Skids

Medical interior with extended landing gear for rough terrain.



- D-HAMB (DRF)
- D-HGSA (Luftrettung)
- D-HGSV (Luftrettung)
- D-HILF (ADAC Luftrettung)
- G-BATC (Midlands Air Ambulance)
- G-NDAA (Devon Air Ambulance)
- G-NOAA (Great Western Air Ambulance)
- HB-XGM (Schweizerische Rettungsflugwacht)
- N105LS (Calstar)
- N4573T ('Christoph 31 Berlin' ADAC Luftrettung)
- N917SH (AirHeart)
- PH-KHD (ANWB)
- XA-TUM (Helirescue)

Military ATGM



Armed military variant with visual anti-tank missile pods.

- 12 (Swedish Army)
- 86+08 (Heeresfliegerwaffenschule, Deutsches Heer)
- 86+49 ('Hornet One', Kampfhubschrauberregiment 26 'Franken', Deutsches Heer)
- 87+46 (Heeresfliegerwaffenschule, Deutsches Heer)

Medical



Air ambulance with medical cabin and equipment.

- D-HAMB (DRF)
- D-HGSA (Luftrettung)
- D-HGSV (Luftrettung)
- D-HILF (ADAC Luftrettung)
- G-BATC (Midlands Air Ambulance)
- G-NDAA (Devon Air Ambulance)

- G-NOAA (Great Western Air Ambulance)
- HB-XGM (Schweizerische Rettungsflugwacht)
- N105LS (Calstar)
- N917SH (AirHeart)
- PH-KHD (ANWB)

Aerobatic



Smoke system for airshow displays.

- D-HMBB (50th Aniversary Airbus)
- D-HMBB (House)
- ZK-HZL (Private)

Broadcast



News and media operations with functional camera controller.

- D-HNWE (Heli Aviation)
- G-BFYA (Veritair)

- LV-COM (Canal Cinco Noticias (C5N))
- VH-XRG (Heliwest)

Military



Military reconnaissance with visual flares dispensers.

- 12 (Swedish Army)
- B-37 (KFOR, 299 Sqn, RNLAF)
- B-39 (UN, RNLAF)

Sling



Fully-functional for missions.

- D-HDFU (Flying Training Organisation)
- D-HDRA (Rhein-Ruhr-Helicopter)
- D-HGSR (Private)
- ET-314 (FAMET)
- LV-COM (Heliushuaia)

- N131AE (Private)
- N8809W (Private, RomanAtWood)
- SP-NCM (Private)
- VH-NSL (NSCA)
- VH-NVH (Airborne Fire Solutions)

Tall Skids



Civilian interior with extended landing gear for rough terrain.

- D-HDFU (Flying Training Organisation)
- D-HDRA (Rhein-Ruhr-Helicopter)
- D-HGSR (Private)
- ET-314 (FAMET)
- LV-COM (Heliushuaia)
- N131AE (Private)
- N8809W (Private, RomanAtWood)
- SP-NCM (Private)
- VH-NSL (NSCA)
- VH-NVH (Airborne Fire Solutions)

Civilian



Standard civilian utility configuration.

- D-HDFU (Flying Training Organisation)
- D-HDRA (Rhein-Ruhr-Helicopter)
- D-HGSR (Private)
- ET-314 (FAMET)
- LV-COM (Heliushuaia)
- N131AE (Private)
- N8809W (Private, RomanAtwood)
- SP-NCM (Private)
- VH-NSL (NSCA)
- VH-NVH (Airborne Fire Solutions)

Police



Law enforcement configuration with FLIR and searchlight.

- CICPC-1 (Cuerpo de Investigaciones Científicas Penales y Criminalísticas)
- D-HSAB (Polizei)
- G-BNPS (Chiltern Air Support Unit, UK Police)
- G-MHSL (Staffordshire Police)
- G-PASX (Police Air Services)
- LQ-WFO (Policia de la Ciudad)
- N38VA (Virginia State Police)
- N729RJ (New York City Police)
- PH-RPZ (Politie)
- SX-HPC (Hellenic Services)

Floats



Float-equipped for maritime SAR and overwater operations.

- 09-120 (Guardia Civil)
- 43, HU-1 (Armada de Chile)
- 93, F6 (SAR, Swedish Air Force)
- C-GCHW (Canadian Coast Guard)
- EI-LIT (Irish Lights)
- N624MB (PHi Petroleum Helicopters)
- PH-NZH (KLM Helikopters)

Mountain Rescue



Included hoist system for rescue operations.

- D-HGSA (Luftrettung)
- D-HGSS (Luftrettung)
- HB-XGM (Schweizerische Rettungsflugwacht)

Snow Shoes



Wide-frame landing gear for snow operations.

- D-HDFU (Flying Training Organisation)
- D-HDRA (Rhein-Ruhr-Helicopter)
- D-HGSR (Private)
- ET-314 (FAMET)
- LV-COM (Heliushuaia)
- N131AE (Private)

- N8809W (Private, RomanAtWood)
- SP-NCM (Private)
- VH-NSL (NSCA)
- VH-NVH (Airborne Fire Solutions)

Stratoware/Miltech Simulations Bo105

Paint Kit

Developed by Daniel D. (@d0mokun)



Introduction

The paint kit includes a Substance Painter (SP) scene and export preset, an example file structure, example XML files and an FBX file. **The recommended method** is to use the SP scene.

This aircraft is **not** designed to be repainted using traditional tools such as Photoshop.

Download

The paint kit can be located at flightsim.to:

https://flightsim.to/addon/109104/official-mbb-bo105-paint-kit

The FBX file

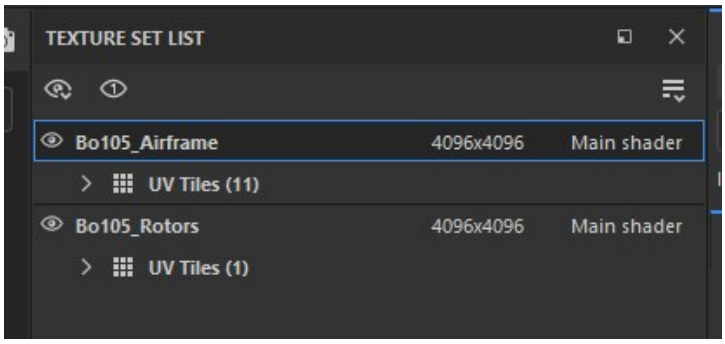
The FBX file is only required if you wish to repaint the Bo105 in software such as Blender. We cannot offer any support for this method, and it is included purely for those who do not have access to SP.

The Substance Painter Scene

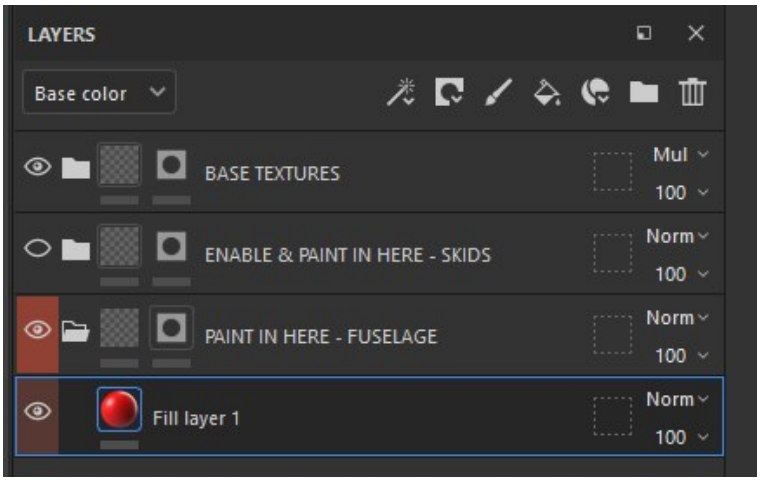
Painting the aircraft in Substance Painter is incredibly easy! You **must** use the included SP export preset in order to correctly generate the PNG textures.

Airframe

To paint the airframe, select it in the texture sets list:



Navigate to the 'PAINT IN HERE - FUSELAGE' folder in layers:

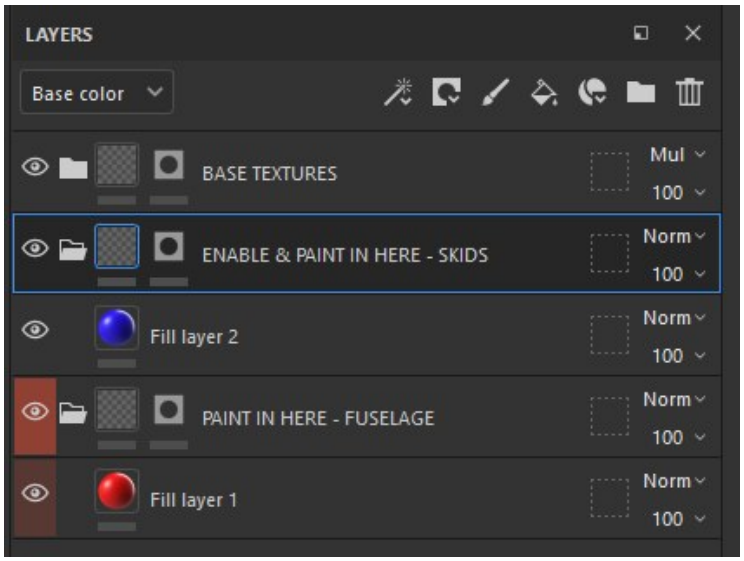


Paint! It is as simple as that. You do not need to navigate multiple texture sets or layers. Simply painting on the visual model of the aircraft and exporting will produce the same results in-sim.

Skids

Skids for both tall and short variant are included. The left side of the aircraft shows the short skids, and the right side shows the tall skids. Skids are not required to be painted with repaints and will utilise default black textures, as seen in the SP scene.

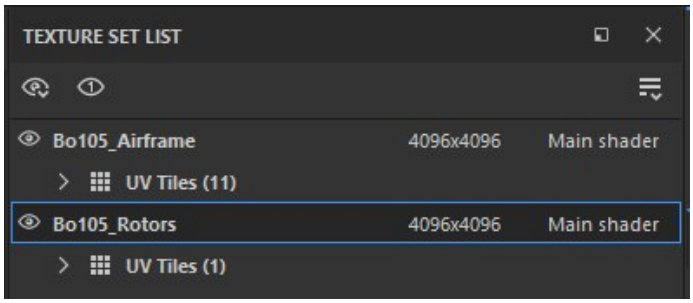
Navigate to the 'ENABLE & PAINT IN HERE - SKIDS' layer, enable it, and paint!



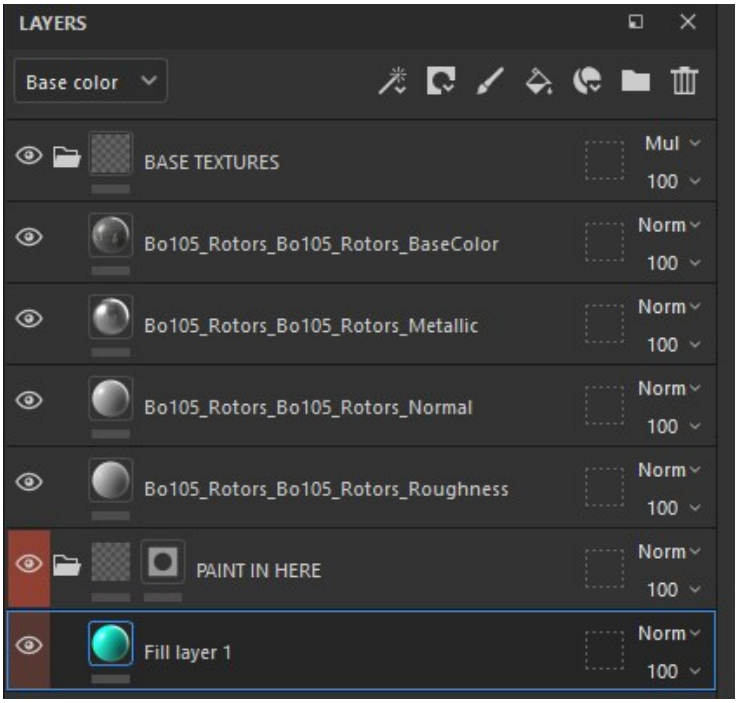
Rotors

Rotors are not required to be painted for a repaint. They are however included should you wish to do this.

Navigate to the Rotors in the texture set list:



Navigate to the 'PAINT IN HERE FOLDER':



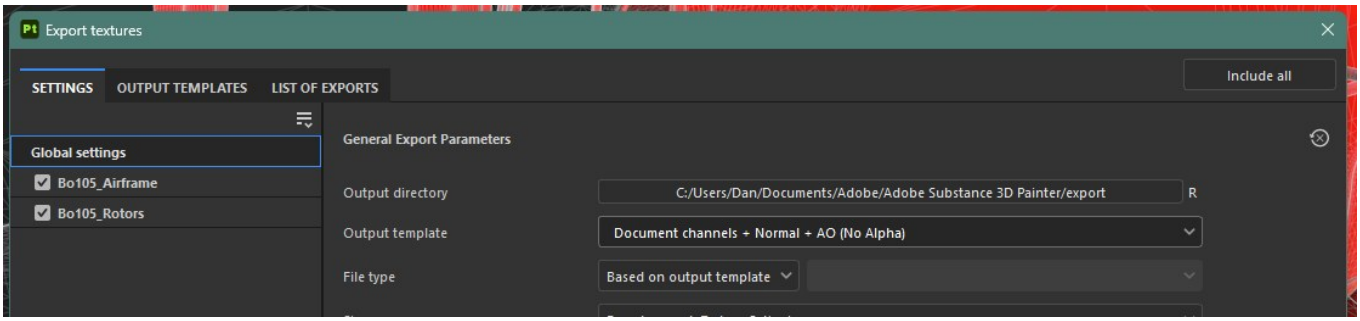
.. and paint!

The Export Profile & Exporting

Included in the paint kit is an SP export profile, Miltech Export Preset.spexp .

To install, move it to C:\Users---YOUR USERNAME---\Documents\Adobe\Adobe Substance 3D Painter\assets\export-presets .

To export correctly in SP, go to **File -> Export Textures** and select it from the **Output Template** drop down.



Files should be exported as **PNG** and **4096x4096** resolution. We do not recommend exporting 8K textures, though you are free to do as you wish!

Under **Global Settings** you may choose to select the rotors for export as required. Once exported, click the ▣ **Open Output Directory** button. You must then select the files you wish to include in your repaint.

Which files are required in my repaint?

The typical textures required for a repaint are:

- Bo105_Dorsal_xxxx
- Bo105_Fuselage_xxxx
- Bo105_Tail_xxxx
- Bo105_Landing_Gear2_xxxx
- Bo105_Voids_xxxx
- Bo105_Shrikes_xxxx
- For military repaints: Bo105_Military_1/2/3_xxxx
- For civil repaints: Bo105_Skids_Short_xxxx Bo105_Skids_Tall_xxxx
- For rotors: Bo105_Rotors_xxxx

You will typically never need the **_norm** files for any export.

You do not need to include any **_comp** files unless you have made changes to the metallic or roughness channels.

How do I compile textures?

There are various utilities available to create KTX2 sim-ready textures, or the MSFS SDK pages have explanations regarding building a livery project. We don't offer explicit help for these steps owing to the resources already available, though others on our Discord may be able to help!

The livery.cfg and how it defines variants

Your repaint name, as seen in the UI, is defined using an entry in the livery.cfg:\ Name="YOUR REPAINT TITLE"

You should not include the aircraft type or any unnecessary text. For example:

Name="MBB Bo105 German Airforce" - A bad title!

Name="87+69, German Airforce" - A great title!

Variants are controlled by the following line:

required_tags = ""

To utilise **all** variants, use the above example. For restriction to a particular variant, see below:

Variant	required_tags
Aerobatic	equip_smoke
Broadcast	equip_camera
Civilian Tall Skids	cabin_cargo
Civilian Short Skids	cabin_cargo, skids_tall
Floats	skids_floats
Medical	cabin_medical
Alpine Rescue	cabin_medical, skids_snowshoes
Military with HOT launchers	equip_military_ATGM
Military with defensive gear	equip_military, equip_military_defensives
Police	equip_police

Stratoware/Miltech Simulations Bo105

FAQs

Frequently Asked Questions & Common Issues

Tip
Manual Page to be expanded. Please check again in 7 days.

Stratoware/Miltech Simulations Bo105

Contact Us

Don't hesitate to reach out!

Please use any of the following channels for support enquiries, commercial enquiries, or suggestions:

Forum

Miltech Simulations Forum: https://miltechsimulations.talkyard.net/latest

Email Addresses

- Stratoware: help@stratoware.in
- Miltech Simulations: contact@miltechsimulations.com

Discord Servers

- Stratoware: https://discord.gg/7sXKaZ7uTJ
- Miltech Simulations: https://discord.gg/PaCu8xS5pm

Commercial Enquiries

- Stratoware: info@stratoware.in
- Vantech (Miltech Simulations): hello@vantech.dev

Stratoware/Miltech Simulations Bo105

Disclaimer & Legal

Warning
WARNING: This product may potentially trigger seizures for people with photosensitive epilepsy. If you suffer from this condition, **please do not flight this aircraft at night.**

Caution
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Caution
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Caution
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Caution
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This product has been developed using the available resources. The scope is limited to “As realistic as practical”, and though some systems have been accurately developed, others have been greatly simplified. For that reason, the systems, performance, operations, and procedures shall be considered purely fictional and not representative (nor intends to accurately represent) the real counterpart.

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Stratoware/Miltech Simulations Bo105

Credits

A list of people who made this product possible.

Stratoware:

- Avyay M: 3D Modelling
- Advait P: 3D Modelling
- Milos M: Flight Dynamics
- Nace420: Fuel and Electrical Systems
- Aditya S: Project Management, Lead Development, 3D Modeling, XML, Marketing, Community, Engagement, Quality Assurance, Documentation

Miltech Simulations:

- Max E: 3D/2D Asset Design
- Luis V: 3D Asset Design
- Daniel D: Lead Development, 3D Modeling, XML, Variant Development, Configurations, EFB Application, Lighting, Walkaround, FS24 Migration, Quality Assurance, Liveries
- Gabriel V: Project Management, XML, HTML/JS Avionics, Core Systems, FS24 Migration, Marketing, Community Engagement, Quality Assurance, Documentation

Echo 19 Audio:

- Tyler B & Team: Sound Recording, Outreach, Sound Design

Community Contributors

- niki_belucci: HSI Code

External Help:

- BirdStrike Sim: Teufelsgraben Scenery
- RomanAtwood: Real-world Helicopter Access
- IronWings_VP: Screenshots
- Volation: Reference Images
- Atarium: MSFS 2020 Liveries
- HUES: MSFS 2024 (Primary) Liveries
- @niki_belucci: HSI gauge fix
- Product Testers:
- Rebo
- Nace420
- Kilo Mike

- JinxxDCS
- Hawk8638
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- Distribution: Stratoware Private Limited, Vantech North America LLC, IniBuilds LTD, Microsoft, Contrail Services Limited, Sepehr Habashi, simFlight GmbH
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Stratoware/Miltech Simulations Bo105

Quick Start Guide

Let's get you flying.

Getting Started

The Bo 105 is a twin-engine, multi-role, light utility helicopter known for its manoeuvrability and precision control. Its rigid rotor head system grants the helicopter unparalleled agility, enabling it to perform aerobatic manoeuvres. As a result, the helicopter controls are extremely sensitive to small inputs and require deliberate and thoughtful control.

Control inputs translate almost instantaneously into aircraft movement, leaving very little margin for overcorrection. In certain situations, such as during takeoff, constant rudder pedal input may be required to prevent the aircraft from entering an uncontrolled yaw. Without it, the helicopter will spin rapidly and recovery is difficult. Mastering the Bo 105 takes considerable practice, but once the necessary muscle memory is developed, it never goes away.

For information about the included configurations and liveries, please see Configurations.

Configuring your Controls

Out of the box, MSFS will map your controls as follows:

- **Throttle - Collective**
- **Elevator - Cyclic Longitudinal**
- **Aileron - Cyclic Lateral**

This is generally sufficient to get you flying. However, we strongly recommend reviewing the Hardware Configuration and Keybinds Guide pages for guidance on configuring your controls, as well as several mission and utility systems.

Caution
Please **DO NOT USE** HELICOPTER THROTTLE AXIS , and unassign this from your hardware.

Caution

Find ROTOR BRAKE in your controls options,

- Configure keybind for Press+Hold (input repetition must be enabled) activation.
- Alternatively, you may use TOGGLE ROTOR BRAKE to lock it into position (ON/OFF without requiring input repetition).

Cold-and-Dark *Quick* Start & Fly

This is a simplified start-up guide for all configurations of the Bo 105. For information on the location of specific switches, please view Cockpit Layout.

Pre Flight

1. **Walkaround Mode** - ACTIVE (CTRL + C or click Pilot Door Handle)
2. **Static Port Cover** - REMOVE
3. **Ground Handling Wheels** - REMOVE
4. **Blade Socks** - REMOVE
5. **Engine Covers** - REMOVE
6. **↔ Battery Switch** - ON
7. **Altimeter, Clock, Gyro** - SET
8. **Fuel Quantity** - CHECK
9. **Anti-collision Lights** - ON

Engine Start

1. **Fuel Pumps** - ALL ON
2. **Starter ENG 1** - ON
3. **Monitor N_1** - INCREASING
4. **Power Lever Guard ENG 1** - ON
5. **Power Lever ENG 1** - MOVE TO IDLE
6. **Monitor:**
7. **TOT ENG 1** - MAX 927 °C
8. **N_2/N_{Ro}** - INCREASING
9. **Engine 1 Oil Pressure** - POSITIVE
10. **Starter ENG 1** - OFF
11. **Generator ENG 1** - ON
12. **Repeat for ENG 2**

Before Takeoff

1. **Communication / Navigation Systems** - SET
2. **Anti-ice** - AS REQUIRED
3. **Doors** - LOCKED
4. **Warning Lights** - OFF
5. **Power Levers** - MOVE TO FLIGHT
6. **N_2** - 98-102%
7. **Instruments** - GREEN
8. **Ready for Takeoff!**

For detailed checklists, please refer to: Standard Procedures

Stratoware/Miltech Simulations Bo105

Glossary

List of full forms and definitions for your reference.

TOT: Turbine Outlet Temperature

EPU: External Power Unit

Tip
Manual Page to be expanded. Please check again in 7 days.

Stratoware/Miltech Simulations Bo105

Hardware Configuration

Configure your joystick or controller for optimal flying.

Primary Flight Controls Configuration

If you are not familiar with helicopters, this guide should help you understand the basic controls that make them fly, and help you configure the controls correctly.

The Cyclic

This stick sits between your legs. Moving it forward or back controls the helicopter's pitch (nose up or down). Moving it side-to-side controls the helicopter's roll (leaning left or right).

- **Pitch Binding:** ELEVATOR AXIS or CYCLIC LONGITUDINAL AXIS
- **Roll Binding:** AILERONS AXIS or CYCLIC LATERAL AXIS
- Both Pitch and Roll can be trimmed, making flight more comfortable for the user:
- **Cyclic Pitch Trim Binding:** INCREASE ROTOR LONGITUDINAL TRIM and DECREASE ROTOR LONGITUDINAL TRIM
- **Cyclic Roll Trim Binding:** INCREASE ROTOR LATERAL TRIM and DECREASE ROTOR LATERAL TRIM

The Collective & Throttle

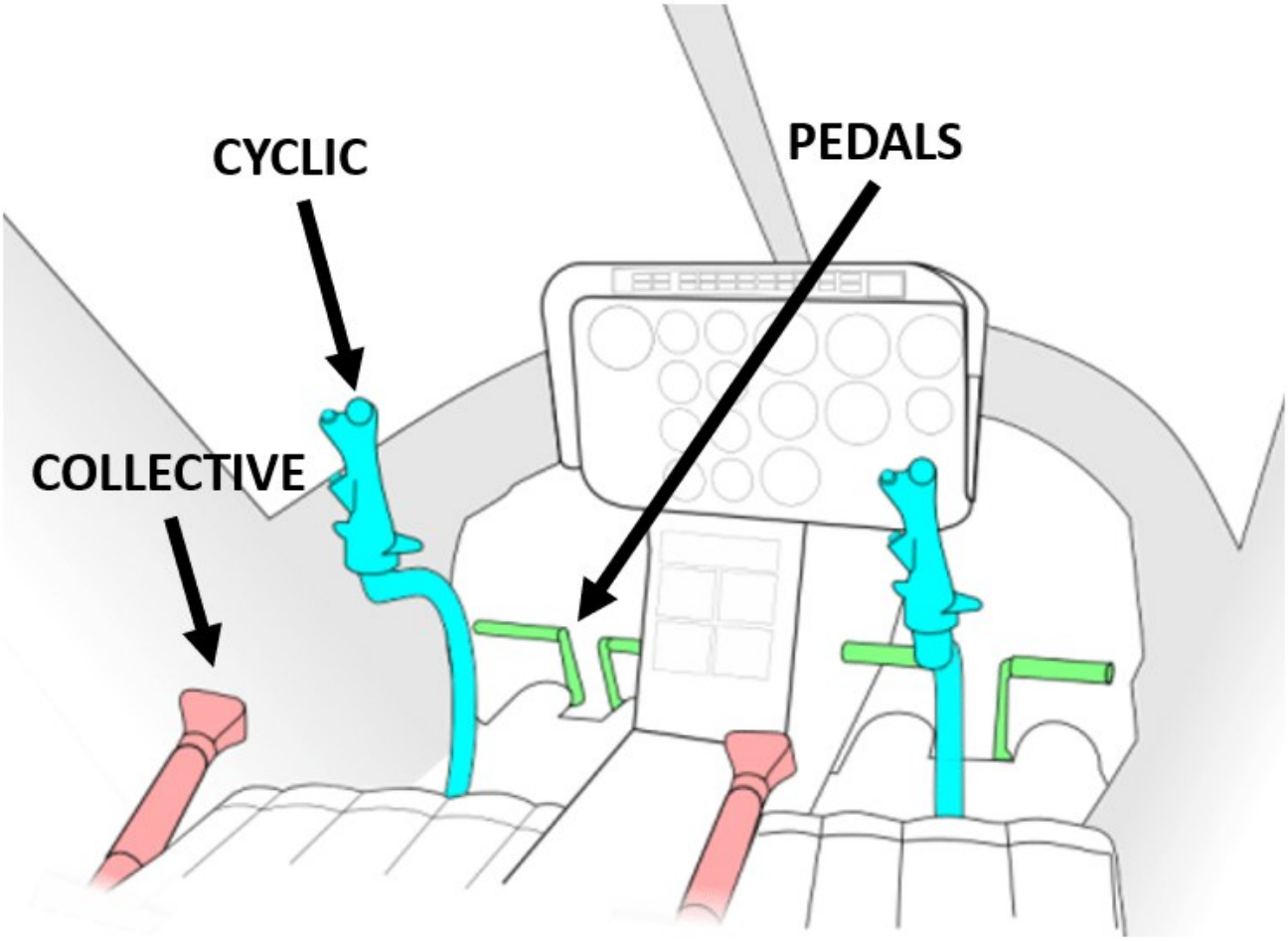
This lever is on your left side. Raising the collective increases the pitch of all rotor blades at once, generating more lift and making the helicopter rise. Lowering it causes the helicopter to descend.

- **Collective Binding:** THROTTLE AXIS or COLLECTIVE AXIS
- **Is there Throttle Control?:** While the Bo 105 does have manual throttle control, assigning this to your hardware will likely interfere with the governor (device that automatically maintains a constant rotor speed (RPM) in a helicopter). This is key for simulating dual engine functionality. \ \ **Therefore, please DO NOT USE HELICOPTER THROTTLE AXIS .**

Tail Rotor Pedals

These are on the floor at your feet. Pushing the pedals lets you turn the helicopter nose left or right.

- **Tail Rotor Pedals Binding:** RUDDER AXIS or TAIL ROTOR AXIS



Generalised Helicopter Controls

- **Rotor Brake:** this must be correctly configured, as it may interfere with background functions. Find ROTOR BRAKE in your controls options,
- Configure keybind for Press+Hold (input repetition must be enabled) activation.
- Alternatively, you may use TOGGLE ROTOR BRAKE to lock it into position (ON/OFF without requiring input repetition).

Control Sensitivity Configuration

The Bo 105 is designed to be extremely maneuverable, and as a result, the controls are extremely sensitive to small inputs and require deliberate and thoughtful control. In certain situations, constant rudder pedal input may be required to prevent the aircraft from entering a spin.

We reccommend adjusting the sensitivity of your yaw axis according to your personal preference. If you're struggling to find a balance that works for you, please drop us a message: Contact Us.

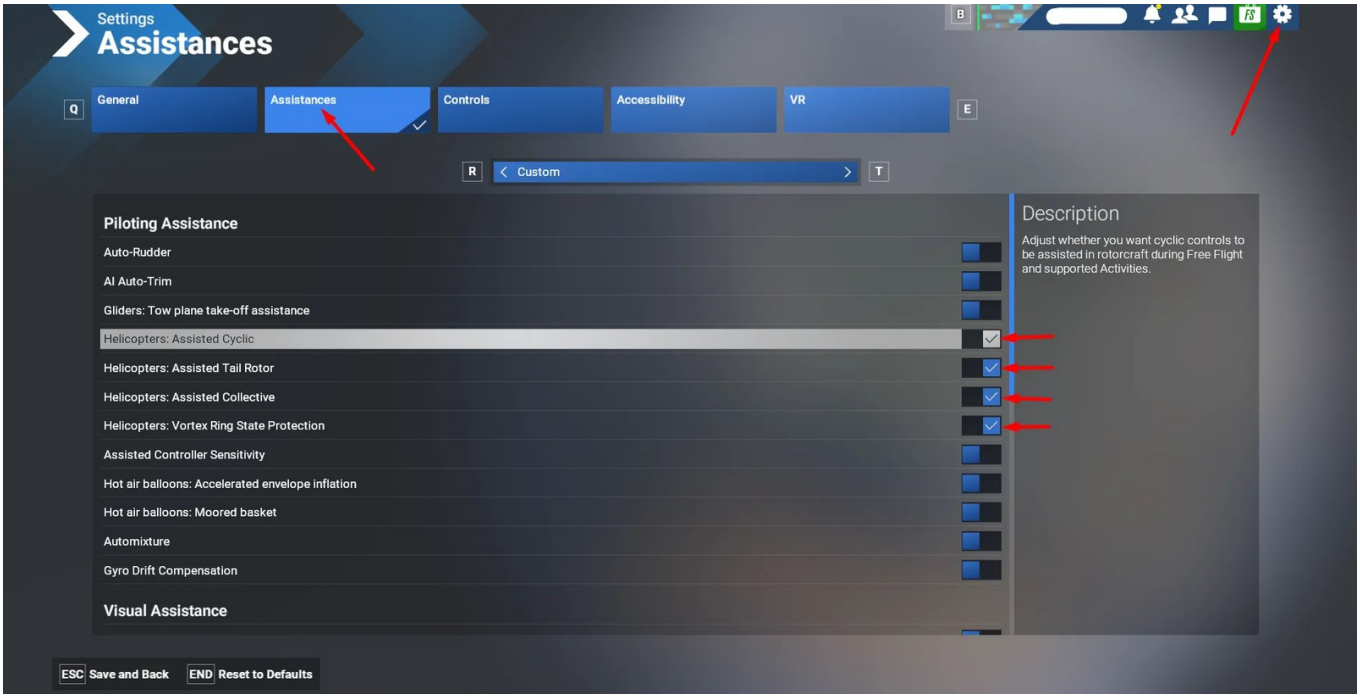
Additionally, Xbox controller users may benefit from dampened sensibility in the cyclic axis for more precise control in hover.

Control Assistances

If you're struggling to control the Bo 105, we reccommend turning on helicopter assistances. Follow these steps:

1. Open settings

2. Select the assistances menu
3. Turn on the four helicopter related assistances:
4. Helicopters: Assisted Cyclic
5. Helicopters: Assisted Tail Rotor
6. Helicopters: Assisted Collective
7. Helicopters: Vortex Ring State Protection



Keybinds, LVARs and HEvents

The Keybind Guide is frequently updated, please refer to: Keybinds Guide

Stratoware/Miltech Simulations Bo105

Keybinds Guide

Note
CLICKABLE IN COCKPIT COLUMN
:x:: There is no clickable switch in the cockpit, keybind/axis bind must be used
:white_check_mark:: There is a physical button in the cockpit, keybind is optional

Note
Also partly listed in the "Bo 105 Options" EFB app.

Primary Flight Controls

Function	MSFS Axis Bindings	Clickable in Cockpit
Collective	THROTTLE AXIS or COLLECTIVE AXIS	
Cyclic Pitch	ELEVATOR AXIS or CYCLIC LONGITUDINAL AXIS	
Cyclic Roll	AILERONS AXIS or CYCLIC LATERAL AXIS	
Tail Rotor Pedals	RUDDER AXIS or TAIL ROTOR AXIS - You may have to use the Split Rudder Axis depending on your hardware configuration (RUDDER AXIS LEFT and RUDDER AXIS RIGHT)	
Rotor Brake (Press+Hold)	ROTOR BRAKE Configure keybind for press+hold (Input repetition must be enabled in FS24).	
Rotor Brake (Toggle On/Off)	TOGGLE ROTOR BRAKE	

Caution
DO NOT USE HELICOPTER THROTTLE AXIS, the helicopter governor will control throttle automatically.

Trims

Function	MSFS Key Bindings	Clickable in Cockpit
Lateral Trim Decrease	DECREASE ROTOR LATERAL TRIM	
Lateral Trim Increase	INCREASE ROTOR LATERAL TRIM	
Longitudinal Trim Decrease	DECREASE ROTOR LONGITUDINAL TRIM	
Longitudinal Trim Increase	INCREASE ROTOR LONGITUDINAL TRIM	
Engine 1 Decrease	HELICOPTER ENGINE 1 BEEP TRIM DECREASE	
Engine 1 Increase	HELICOPTER ENGINE 1 BEEP TRIM INCREASE	

Function	MSFS Key Bindings	Clickable in Cockpit
Engine 2 Decrease	HELICOPTER ENGINE 2 BEEP TRIM DECREASE	
Engine 2 Increase	HELICOPTER ENGINE 2 BEEP TRIM INCREASE	
Force Trim Release	SET HELICOPTER FORCE TRIM RELEASE BUTTON	

Power Control Levers (PCLs)

Function	MSFS Key Bindings	Clickable in Cockpi
Increase Engine 1	THROTTLE 3 INCREASE	
Decrease Engine 1	THROTTLE 3 DECREASE	
Increase Engine 2	THROTTLE 4 INCREASE	
Decrease Engine 2	THROTTLE 4 DECREASE	

Electrical

Function	MSFS Key Bindings	Clickable in Cockpit
Battery	TOGGLE MASTER BATTERY OR MASTER BATTERY ON and MASTER BATTERY OFF	
Generator ENG 1	TOGGLE ALTERNATOR 1	
Generator ENG 2	TOGGLE ALTERNATOR 2	
External Power Unit (EPU)	TOGGLE EXTERNAL POWER	

Lights

Function	MSFS Key Bindings	Clickable in Cockpit
Landing Light	TOGGLE LANDING LIGHTS	
Position Lights	TOGGLE NAV LIGHTS	
Anti-Collision Light	TOGGLE BEACON LIGHTS	

Searchlight (Police Variant Only)

Function	MSFS Key Bindings	Clickable in Cockpit
Power On / Off	MAGNETO 4 DECREASE	
Beam Pan Left	COWL FLAPS 3 DECREASE	
Beam Pan Right	COWL FLAPS 3 INCREASE	
Beam Tilt Up	COWL FLAPS 4 INCREASE	
Beam Tilt Down	COWL FLAPS 4 DECREASE	

Smoke (Aerobatic Variant Only)

Function	MSFS Key Bindings	Clickable in Cockpit
Smoke Effect On/Off	SMOKE TOGGLE	

Forward Looking Infrared Camera (Broadcast & Police Variants)

Function	MSFS Key Bindings	Clickable in Cockpit
Camera Zoom In	INCREASE MAGNETO 3	
Camera Zoom Out	DECREASE MAGNETO 3	
Camera Pan Left	DECREASE MIXTURE 3	
Camera Pan Right	INCREASE MIXTURE 3	
Camera Tilt Up	INCREASE MIXTURE 4	
Camera Tilt Down	DECREASE MIXTURE 4	
Layer Mode Switch	INCREASE MAGNETO 4	

LVARs

> Note
> We highly recommend binding switches using their corresponding B:Events instead of LVARs, if you are familiar with the process.

Nearly all switches (unless those with default MSFS Keybinds) can be keybinded to hardware using software such as SPAD.next and LVARs. The full LVAR list is attached below:

↓ Download attachment

If you are inexperienced with finding LVARs, please read the following article by our friends at JustFlight.
https://community.justflight.com/topic/5324/lvar-list/2

Community-Made Scripts

CDI Decrease

(O:_KnobAnimVar,·bool)·10·-·dnor·(>O:_KnobAnimVar,·bool)·(L:Bo105_CDI_bug,·enum)·359·+·360·%·(>L:Bo105_CDI_bug,·enum)·(L:Bo105_CDI_bug,·enum)·(>K:VOR1_SET)

CDI Increase

(O:_KnobAnimVar,·bool)·10·+·dnor·(>O:_KnobAnimVar,·bool)·(L:Bo105_CDI_bug,·enum)·1·+·360·%·(>L:Bo105_CDI_bug,·enum)·(L:Bo105_CDI_bug,·enum)·(>K:VOR1_SET)

HDG Bug Decrease

(O:_KnobAnimVar,·bool)·10·-·dnor·(>O:_KnobAnimVar,·bool)·(L:Bo105_HSI_bug,·enum)·359·+·360·%·(>L:Bo105_HSI_bug,·enum)·(L:Bo105_HSI_bug,·enum)·(>K:HEADING_BUG_SET)

HDG Bug Increase

(O:_KnobAnimVar,·bool)·10·+·dnor·(>O:_KnobAnimVar,·bool)·(L:Bo105_HSI_bug,·enum)·1·+·360·%·(>L:Bo105_HSI_bug,·enum)·(L:Bo105_HSI_bug,·enum)·(>K:HEADING_BUG_SET)

ADV Decrease

(O:_KnobAnimVar,·bool)·10·-·dnor·(>O:_KnobAnimVar,·bool)·(A:ADF·CARD,·degrees)·359·+·360·%·(>K:ADF_CARD_SET)

ADV Increase

(O:_KnobAnimVar,·bool)·10·+·dnor·(>O:_KnobAnimVar,·bool)·(A:ADF·CARD,·degrees)·1·+·360·%·(>K:ADF_CARD_SET)

Engine 1 - Main and Supply Tank ON

3·(>K:FUELSYSTEM_PUMP_ON) \ 1·(>K:FUELSYSTEM_PUMP_ON)

Engine 1 - Main and Supply Tank OFF

3·(>K:FUELSYSTEM_PUMP_OFF) \ 1·(>K:FUELSYSTEM_PUMP_OFF)

Engine 2 - Main and Supply Tank ON

4·(>K:FUELSYSTEM_PUMP_ON) \ 2·(>K:FUELSYSTEM_PUMP_ON)

Engine 2 - Main and Supply Tank OFF

4·(>K:FUELSYSTEM_PUMP_OFF) \ 2·(>K:FUELSYSTEM_PUMP_OFF)

Stratoware/Miltech Simulations Bo105

Standard Procedures

In-depth and generalised operating procedures, inspired by the real-world manual.

Caution
SIMULATION USE ONLY - DO NOT USE THIS DOCUMENTATION ON A REAL AIRCRAFT

Sim Operation Remarks

1. Make sure your controls are correctly configured for flight. Please check the Hardware Configuration page for more information.
2. Make sure your hardware has all the necessary keybinds configured. Please check the Keybinds Guide page for more information.
3. The **Rotor Brake** keybind must be correctly configured, as it may interfere with background functions. Find ROTOR BRAKE in your controls options, * Configure keybind for Press+Hold (input repetition must be enabled) activation. * Alternatively, you may use TOGGLE ROTOR BRAKE to lock it into position (ON/OFF without requiring input repetition).
4. Please **DO NOT USE** HELICOPTER THROTTLE AXIS , and unassign this from your hardware.

General

This section contains instructions and recommended procedures that are peculiar to the operation of this helicopter.

Flight Restrictions

The minimum, normal, maximum and cautionary operation ranges for the helicopter and its subsystems are indicated by instrument markings, placards and decals.

Flight Planning

Refer to Performance Data (FOR EDUCATIONAL PURPOSES ONLY) to determine required fuel, airspeeds and power settings for takeoff, climb, cruise, and hovering and landing data necessary to accomplish the mission.

Note
Please note that failures are not simulated in this addon, and the flight model is limited by the capabilities of the simulator itself. Therefore, performance charts may not translate accurately into the simulated environment.

Mass and Balance

The takeoff and anticipated landing gross mass and balance should be obtained before takeoff and checked against mass and load limits, and center of gravity limitations.

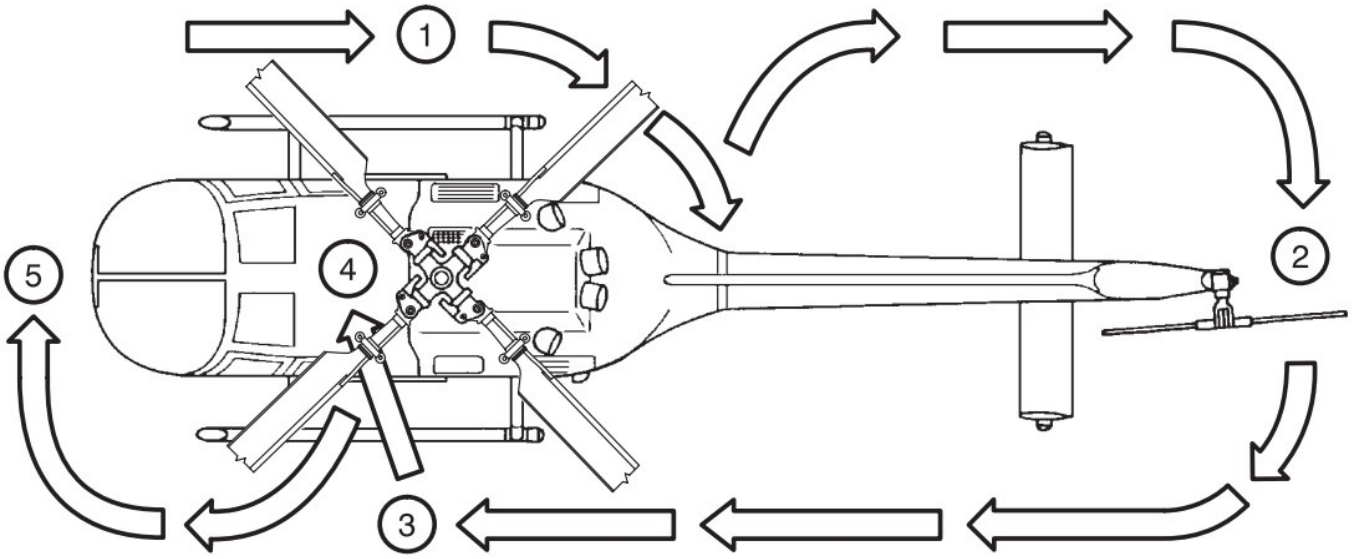
Note
See EFB > Aircraft > Flight Performance > Mass and balance

Preflight Check

The preflight check is not a detailed mechanical inspection, but essentially a visual check \ of the helicopter for correct condition. When unusual local conditions dictate, the extent and/or frequency of this check shall be increased as necessary to promote safe operation.

Exterior Check

The exterior check is laid out as a walk-around check, starting forward right at the pilot’s door, proceeding clockwise to the tail boom, to the left hand side (including the upper and lower areas of the helicopter) and being completed at the helicopter nose area.



(1. FUSELAGE - RIGHT SIDE, 2. TAIL BOOM, 3. FUSELAGE - LEFT SIDE, 4. CABIN TOP, 5. NOSE)

Note:

- The helicopter should be headed into the wind before starting engines.
- The area around the helicopter should be clear of all foreign objects.
- To avoid excessive drain on the helicopter battery, particularly during cold weather, all ground operations should be conducted using an external power unit (EPU).
- When the battery is used, the operation of electrical equipment should be kept \ to a minimum.

Checklist:

1. Helicopter Documents - CHECK
2. Fuselage underside - NO FUEL LEAKS
3. Covers and Tie-downs:
4. Static Port Cover - REMOVE
5. Ground Handling Wheels - REMOVE
6. Blade Socks - REMOVE
7. Engine Covers - REMOVE
8. Ground Handling Wheels - REMOVE
9. Cockpit Switches - ALL OFF

10. Power Levers - OFF
11. Rotor Brake Lever - FULL DOWN
12. Circuit Breakers - AS REQUIRED
13. Battery Switch - ON
14. Voltmeter Indication - 24V
15. If EPU used instead: Battery Switch - OFF
16. Pitot Heating - FUNCTION
17. Lighting:

1. Position Lights - FUNCTION
2. Anti-collision Lights - FUNCTION
3. Landing Lights - FUNCTION

18. For Night Flights:

1. Dome and Instrument Lights - FUNCTION
2. Flashlight - ON BOARD, FUNCTION

19. Battery Switch - OFF
20. Hand Fire Extinguisher - ON BOARD, CHECK PRESSURE
21. Cockpit Overhead Window - CONDITION
22. OAT Indicator Probe - CONDITION
23. Cockpit Door - CONDITION, FUNCTION
24. Pilot Seat, Safety Belts - CONDITION
25. Static Port - CLEAN, UNOBSTRUCTED
26. Pitot Tube - CONDITION, CLEAN, UNOBSTRUCTED
27. Landing Gear and Step - CONDITION
28. Cabin Door - CONDITION, FUNCTION
29. Baggage, Cargo, Loose Items - STOWED, SECURED
30. Passenger Seats, Belts - CONDITION
31. Engine Air Intake - CONDITION, NO DIRT, NO FOREIGN OBJECTS, FREE OF ICE/SNOW
32. Transmission Access Door - CLOSED, SECURED
33. Engine Ventilation Air Intake - CLEAR
34. Engine Access Door - CLOSED, SECURED
35. Drain and Vent Ports - CLEAR
36. Battery - CONDITION, NO ELECTROLYTE SPILLAGE

1. Battery Connectors - CONNECTED
2. Battery Vents - CLEAR
3. Battery Compartment Door - CLOSED, SECURED

37. Engine Cowling - SECURED
38. Engine Exhaust Pipe - CONDITION
39. Fuselage Exterior - CONDITION
40. Clam Shell Doors and Latches - CONDITION, CLOSED, SECURED
41. Tail Boom (RHS) - CONDITION
42. Horizontal and Vertical Stabiliser (RHS) - CONDITION
43. Position Light (Green) - CONDITION
44. Vertical Fin - CONDITION
45. Position Light (White) - CONDITION
46. Anti-collision Light - CONDITION
47. Tail Rotor - CONDITION
48. Tail Skid - CONDITION
49. Horizontal and Vertical Stabiliser (LHS) - CONDITION
50. Tail Boom (LHS) - CONDITION
51. Fuel Filler Cap - CLOSED, SECURED
52. Drain and Vent Ports - CLEAR
53. Fuselage Exterior - CONDITION
54. Enging Exhaust Pipe - CONDITION
55. Engine Cowling - SECURED
56. Engine Compartment - NO FOREIGN OBJECTS, NO FUEL/OIL LEAKAGE
57. Engine Ventilation Air Intake - CLEAR
58. Engine Access Door - CLOSED, SECURED
59. Engine Air Intake - CONDITION, NO DIRT, NO FOREIGN OBJECTS, FREE OF ICE/SNOW
60. Main Rotor - CHECK FOR SMOOTH ROTATION
61. Rotor Blades - CONDITION
62. Rotor Blade Attachment Bolts - SECURED
63. Rotating Control Rods - CONDITION
64. Swashplate - CONDITION
65. Pendulum Absorbers - CONDITION
66. Air Intake - CONDITION, NO FOREIGN OBJECTS, FREE OF ICE/SNOW
67. Engine Inlet Deflector Shield (Military Variants) - CONDITION, NO FOREIGN OBJECTS
68. Cockpit Overhead Window - CONDITION
69. Cabin Door - CONDITION, FUNCTION
70. Landing Gear and Step - CONDITION
71. Static Port - CLEAN, UNOBSTRUCTED

72. Cockpit Door - CONDITION, FUNCTION
73. Windshields - CONDITION
74. Lower Cockpit Windows - CONDITION
75. Fuselage Bottom - CONDITION
76. Landing Light - CONDITION
77. Anti-collision Light - CONDITION

Interior Check

1. Seat and Pedals - ADJUST
2. Safety Belts - FASTEN, ADJUST
3. Instrument Panel
4. All Instruments - CHECK AND SET
5. Switch Panel:

1. EMERG FUEL VALVE Switches - GUARDED
2. Circuit Breakers - AS REQURIED
3. All Switches - OFF
4. COMM/NAV Equipment - OFF

6. Overhead Panel:

1. Power Levers - OFF
2. All Switches - OFF
3. Circuit Breakers - AS REQUIRED

7. Collective Lever Panel

1. All Switches - OFF

Pre-start Check

1. Battery Switch - ON
2. For EPU Starts:
3. Battery Switch - OFF
4. EPU - Connected
5. EPU ON Light - ON
6. Voltmeter:
7. Battery - MINIMUM 24V
8. EPU - BETWEEN 24-28V
9. Warning Lights - TEST
10. Both Engine Fire Warning Lights - TEST
11. Mast Moment Indicator - TEST

12. Low Fuel Test Push Button - PRESS, LOW FUEL WARNING LIGHT COMES ON
13. Fuel Quantity Indicator - CHECK READINGS
14. Fuel Pumps (4) - CHECK FUNCTION
15. Flight Controls - FREEDOM OF MOVEMENT
16. Cyclic Trim System - CHECK FUNCTION
17. Cyclic Stick - TRIM NEUTRAL

Starting Engines

Note

- Either engine may be started first.
- If, for any reason, a starting attempt is discontinued the entire starting sequence \ must be repeated from the beginning.
- When a starting attempt is aborted but TOT limits were not exceeded, wait 15 \ seconds after N_1 has returned to zero before attempting restart to permit excess \ fuel to drain from combustion chamber.
- Before starting engines, the operational hydraulic system shall always be preselected to system 2 (collective lever lock engaged).

Starting First Engine

Note
Operate only the controls of the corresponding engine.

Caution

IMMEDIATELY ABORT START FOR ANY OF THE FOLLOWING:

- MAIN ROTOR IS NOT ROTATING AT 25% N_1. (A SECOND AND THIRD START ATTEMPT MAY BE MADE. IF POWER TURBINE STILL F AILS TO ROTATE, DISCONTINUE ATTEMPT)
- STAGNATED START (FUEL STARVATION).
- TOT RISES ABNORMALLY AND RAPIDLY APPROACHES START LIMIT (927 °C).
- TOT EXCEEDS 10-SECOND LIMIT WITHIN TEMPERATURE RANGE (811-927 °C).
- NO POSITIVE ENGINE OR TRANSMISSION OIL PRESSURE INDICATIONS UPON REACHING IDLE SPEED (N_1 59-65%).
- IDLE SPEED IS NOT REACHED WITHIN 60 SECONDS UNLESS N_1 AND N_2 ARE ACCELERATING AND TOT IS WITHIN LIMITS.
- HYD 2 WARNING LIGHT REMAINS ON UPON REACHING GROUND IDLE SPEED (60% NRo).

\ **ABORT START PROCEDURE:**

1. Power Lever - OFF
2. Fuel Pumps - OFF
3. Starter Switch - ON, AS NECESSARY TO LOWER TOT
4. Starter Switch - OFF

Engine Start:

1. TOT - LESS THAN 150 °C, OTHERWISE VENT
2. Fuel Pumps (4) - ON
3. Starter Switch - ON, START STOPWATCH
4. N_1 - CHECK INCREASING THROUGH 12-15%

> Caution
> POWER LEVER MUST NOT BE MOVED FROM OFF POSITION UNTIL REQUIRED N_1 HAS BEEN REACHED. STARTING AT N_1 SPEEDS LESS THAN 12% INCREASES THE POSSIBILITY OF EXCEEDING ENGINE TOT LIMITS.

5. TOT and N_1 - MONITOR CLOSELY, OBSERVE TOT PEAK
6. Power Levers - MOVE AND LOCK IN IDLE IMMEDIATELY UPON REACHING DESIRED N_1
7. N_2/N_{Ro} - CHECK INCREASING
8. Engine Oil Pressure Indicators - CHECK POSITIVE
9. At 58% N_1, Starter Switch - OFF
10. When N_2/N_{Ro} are above 40%, Generator Switch - ON; MONITOR N_1
11. If N_1 decreases below 59%:

1. Generator - OFF
2. Power Lever - ADVANCE, N_1 max 70%
3. Generator - ON

Starting Second Engine

1. CURRENT IND Switch - SELECT OPERATING GENERATOR
2. Ammeter - CHECK BELOW 100 AMPERES
3. Second Engine - FOLLOW PROCEDURE FOR FIRST ENGINE
4. After EPU Starts:
5. Battery Switch - ON
6. EPU - CHECK DISCONNECTED

System Checks

Hydraulic Checks

> Caution
> BOTH HYDR SYSTEMS SHALL BE OPERATIONAL. TAKEOFF WITH A KNOWN OR SUSPECTED HYDR SYSTEM FAILURE IS PROHIBITED.
>
> TAKEOFF WITH SYSTEM 2 SELECTED AS THE OPERATING SYSTEM IS PROHIBITED (THERE IS NO AUTOMATIC CROSS-OVER FROM SYSTEM 2 TO SYSTEM 1).
>
> DO NOT OPERATE THE HYDRAULIC TEST SWITCH DURING FLIGHT.

- HYD 2 Warning Light - OFF

Electrical and Avionic Checks

1. CURRENT IND Switch - SELECT EACH GEN POSITION AND CHECK THAT THE LOADS ARE APPROXIMATELY EQUAL, THEN LEAVE SWITCH IN BUS BAR POSITION
2. COMM/NAV Equipment - ON AND CHECK
3. All Other Instruments and Equipment - CHECK AND SET

Miscellaneous Checks

1. ENG Anti-Icing System - CHECK AS REQUIRED
2. ENG 1/ENG 2 Switches - ON
3. Anti-icing 1/Anti-icing 2 Caution Lights - ON
4. ENG 1/ENG 2 Switches - OFF
5. Anti-icing 1/Anti-icing 2 Caution Lights - OFF

Pre-takeoff Check

On Ground

1. Crew and Passengers - BRIEFED
2. Passenger Safety Belts - FASTENED
3. Doors - CLOSED, LOCKED
4. Warning Lights - OFF

> Note
> OIL COOL warning light may remain on until after placing power levers full forward.

5. Power Levers - FLIGHT
6. OIL COOL Warning Light - CHECK OFF
7. N_2 - TRIM TO 98%
8. Torque - SYNCHRONIZE
9. Engine and Transmission Instruments - CHECK IN GREEN RANGE
10. Fuel Quantity Indicator - CHECK READINGS

At Hover

1. Torque - SYNCHRONIZE
2. Hover Power - CHECK
3. N_2/N_{Ro} - ADJUST TO 98-102%

> Note
> 100% rotor RPM recommended for steady flight condition.

4. Engine and Transmission Instruments - CHECK IN GREEN RANGE
5. All Warning Lights - OFF

Cruise Check

> Note
> Recommended maximum values for use under normal cruise conditions are 82% Torque and 738 °C TOT

Pre-landing Check

Normal

1. N_2/N_{Ro} - ADJUST TO 98-102%

> Note
> 100% rotor RPM recommended during landing.

2. All Instruments - CHECK
3. All Warning Lights - CHECK

Engine Shutdown

Normal

1. Power Levers - IDLE; STOP STOPWATCH
2. Cyclic Stick - TRIM NEUTRAL
3. All Electrical Consumers - OFF EXCEPT ANTI-COLLISION LIGHTS AND FUEL PUMPS
4. After 2-min IDLE,
5. Power Levers - OFF
6. TOT and N_1 - MONITOR DECREASING
7. Fuel Pumps (4) - OFF
8. Generator Switches - OFF
9. OIL COOL Warning Light - CHECK ON BELOW 20% N_{Ro}
10. Circuit Breakers - AS REQUIRED
11. All Switches - OFF

Flight Characteristics

Flight Controls

> Caution
> AVOID EXTREME CYCLIC STICK DISPLACEMENTS WHEN ON THE GROUND WITH ROTOR TURNING.

During ground operations with rotor turning, the cyclic stick must remain in the neutral position and the c ollective pitch lever in the full down position; however, for functional test purposes, minimum control movements are allowed.

Avoid extreme pedal movements during ground operations.

Stratoware/Miltech Simulations Bo105

Exterior Features

Interactive Exterior Elements

This section covers interactive and cosmetic elements of the aircraft exterior. For information about the various operational variants and liveries, please refer to Configurations.

Covers

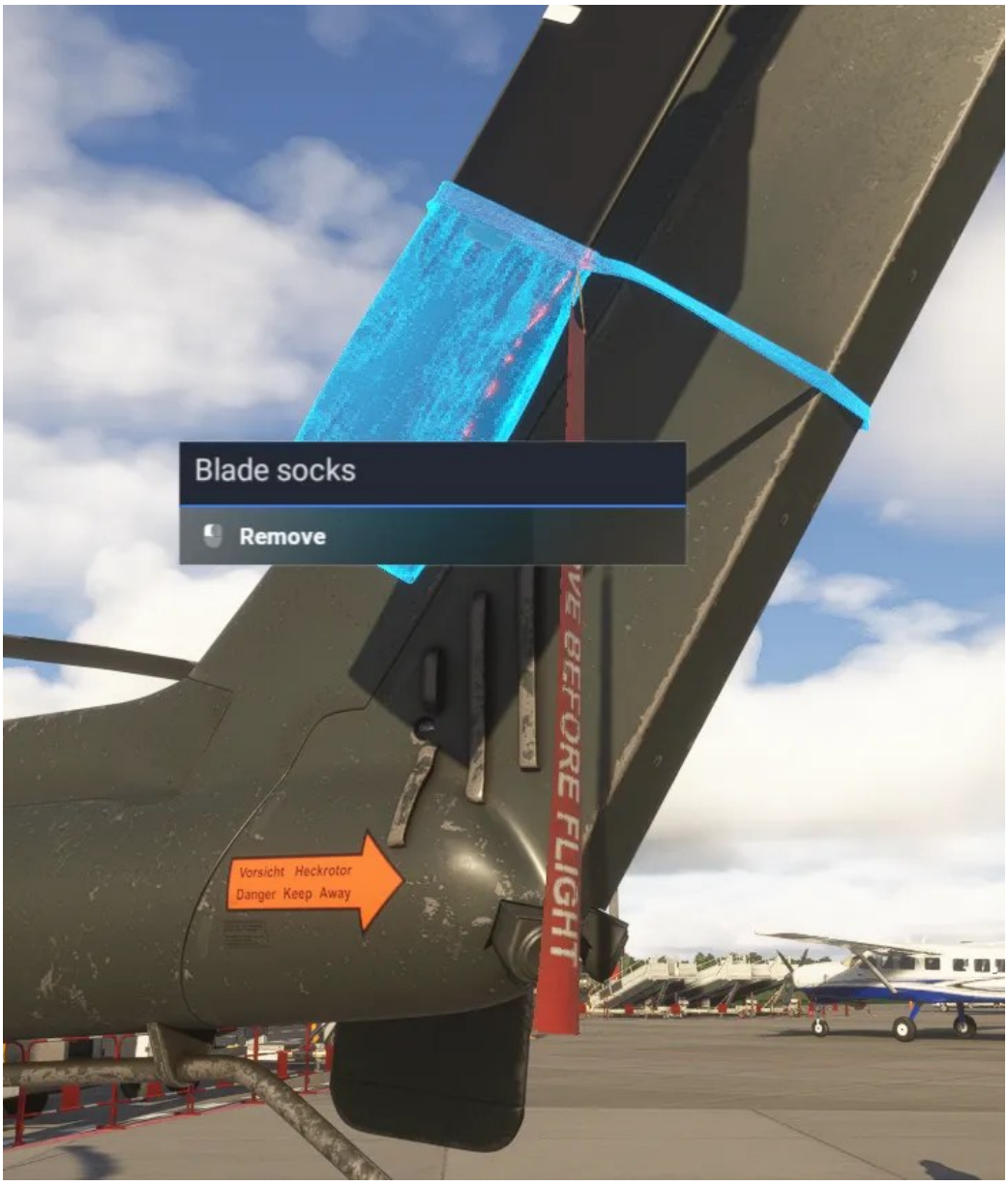
All covers must be removed before flight in walkaround mode, in accordance to procedures described in Quick Start Guide and Standard Procedures.

1. **Pitot Cover**: located below the cockpit door on LHS:



2. **Blade socks**: located on all four main blades and tail rotor blade. Clicking on one hides all others:


Blade socks
Remove



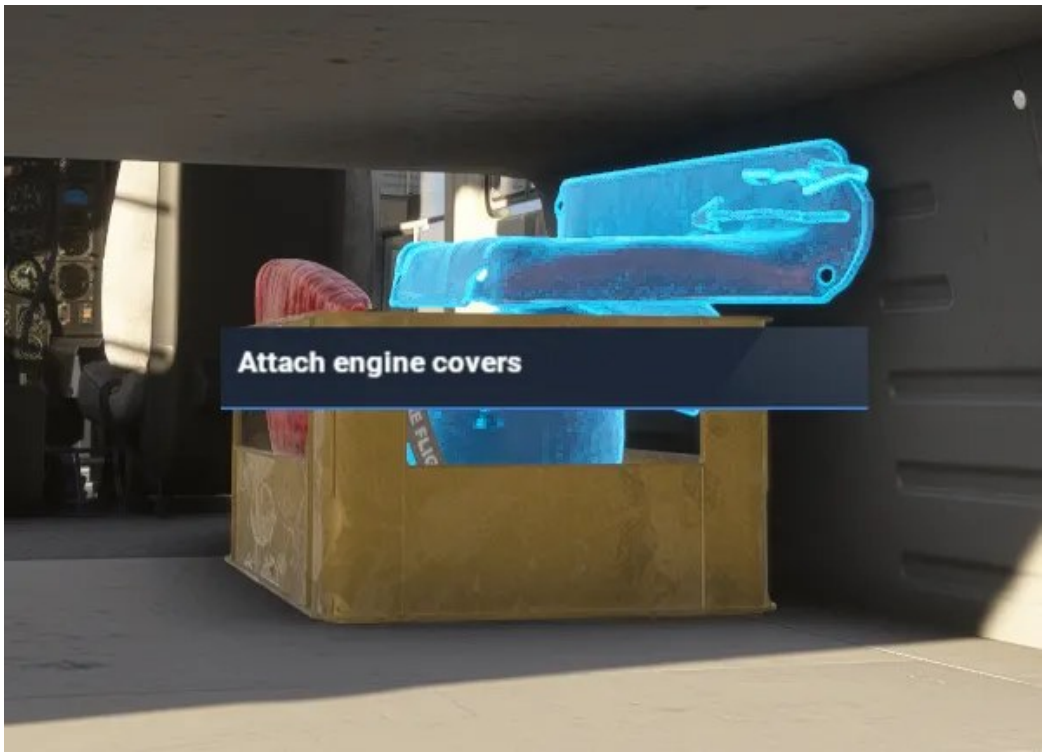
3. **Engine covers**: covering exhausts and inlet (except on military variant, as shown). Clicking on either hides both:



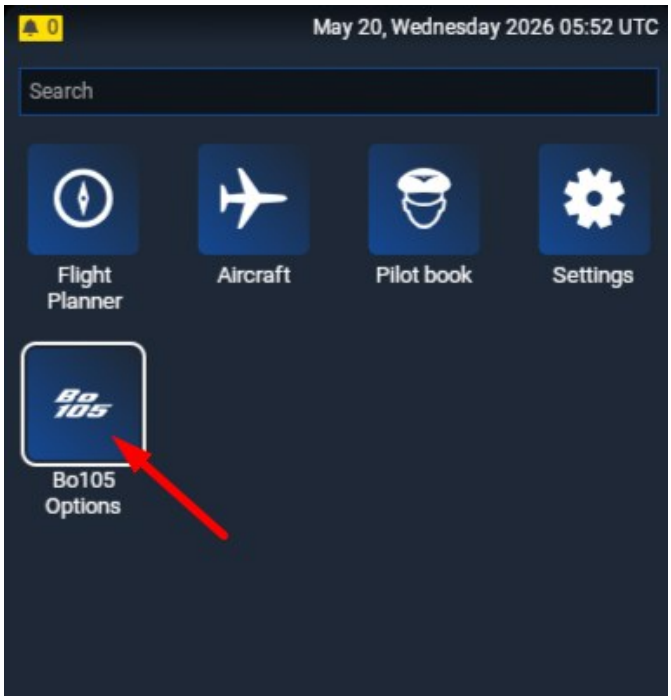
The pitot cover and engine covers can be **REATTACHED** by first accessing the cargo bay via the rear clamshell doors:

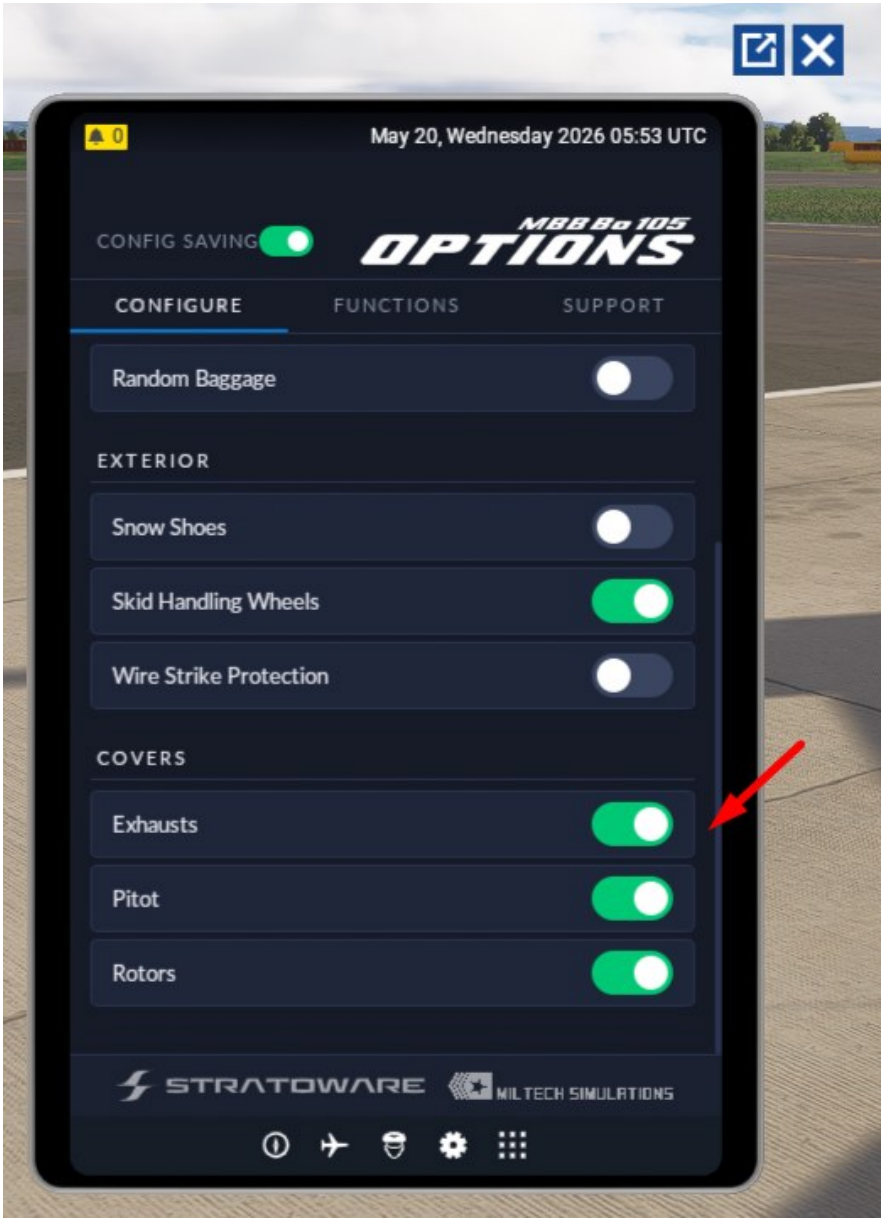


And then clicking on the stowed covers:



Note
Alternatively, all covers and attachments can be toggled via the EFB "Bo 105 Options" app (below).


0
May 20, Wednesday 2026 05:52 UTC
Search
Flight Planner
Aircraft
Pilot book
Settings
Bo 105
Bo105 Options


0
May 20, Wednesday 2026 05:53 UTC
CONFIG SAVING
MBB Bo 105 OPTIONS
CONFIGURE
FUNCTIONS
SUPPORT
Random Baggage
EXTERIOR
Snow Shoes
Skid Handling Wheels
Wire Strike Protection
COVERS
Exhausts
Pitot
Rotors
STRATOWARE
MILTECH SIMULATIONS

Ground-Handling Wheels

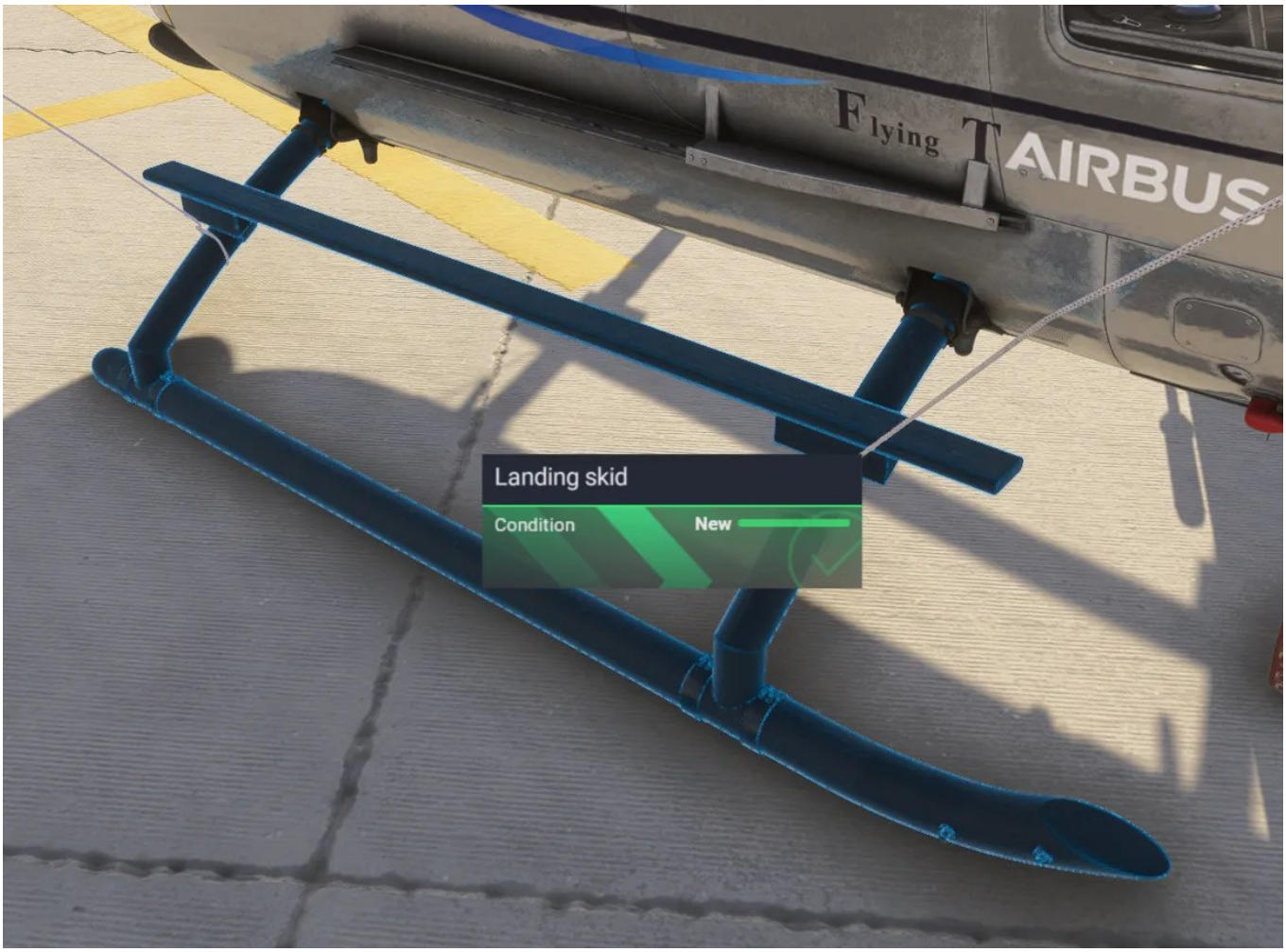
Located on both sides of the landing gear. Clicking on either hides both. They can also be toggled via the EFB "Bo 105 Options" app, similar to the covers:



Note
These wheels are purely cosmetic and are not functional.

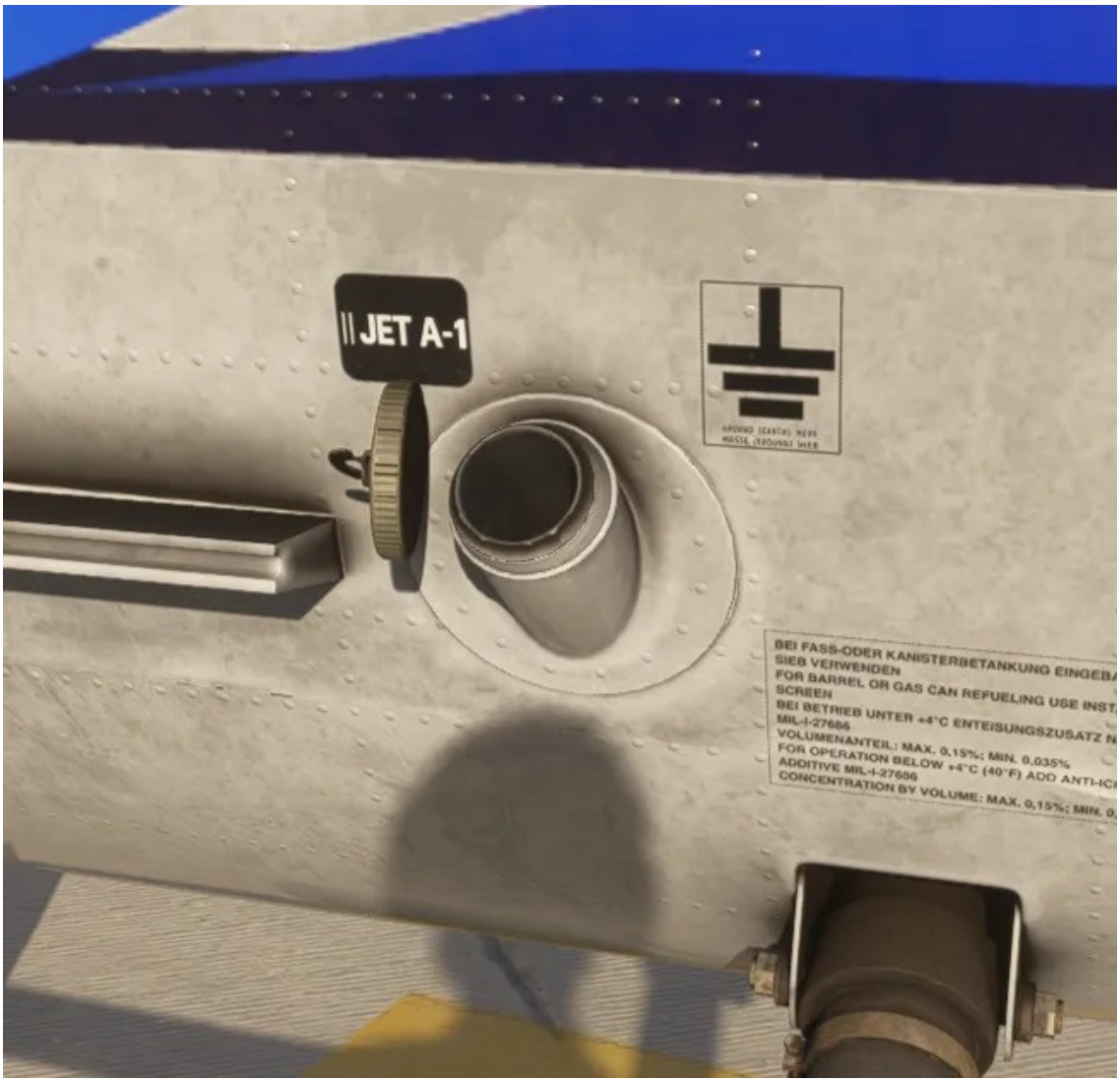
Landing Gear Condition

You may confirm the condition of the landing gear in certain variants (optional):



Fuel Cap

You may open/close the fuel tank cap, purely for cosmetic purposes:



Battery Compartment

You may open the battery compartment and toggle the battery connection:



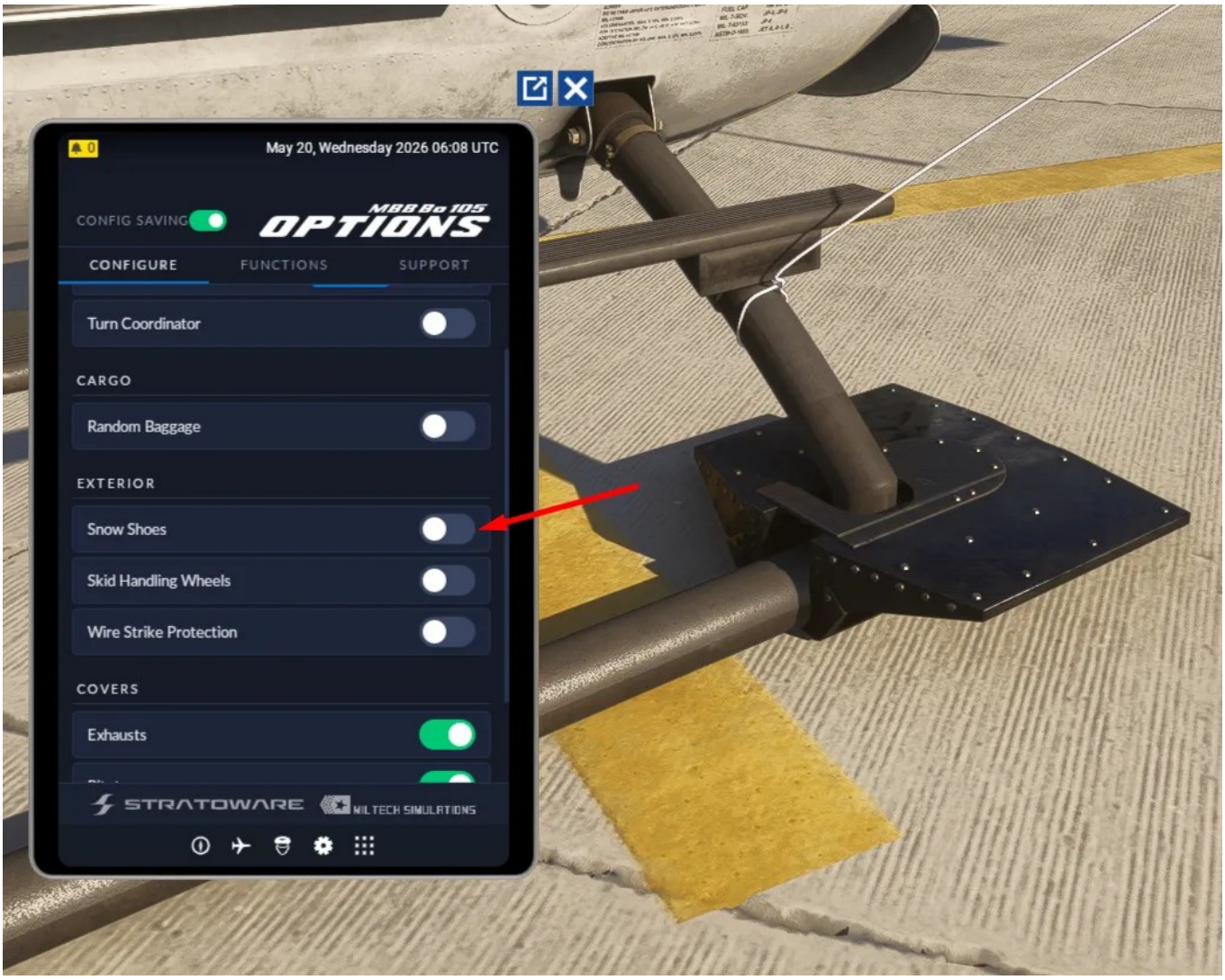
Cargo Bay

You may load or unload cosmetic items in the cargo bay by clicking Left Mouse Button and Right Mouse Button respectively. This can also be controlled via the EFB app.



Snow Shoes / Bear Claws

Toggled via the EFB app:



Wire Strike Protection

Toggled via the EFB app:



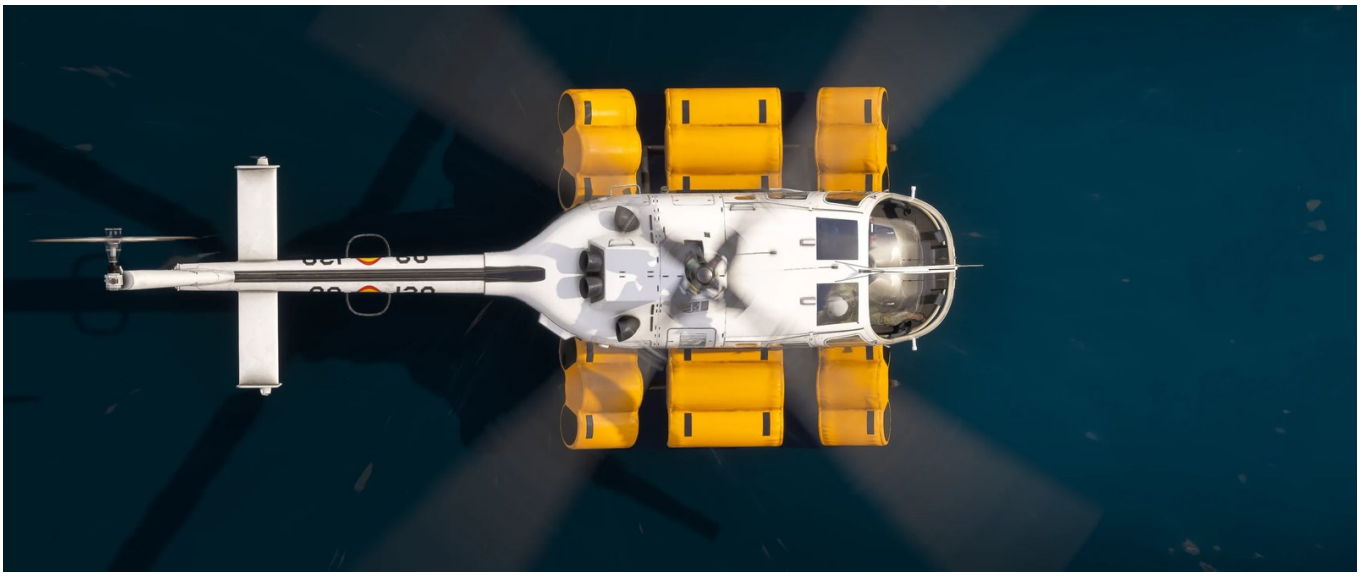
Aerobatic Smoke Canisters

For an operational smoke effect during flight, the smoke canisters MUST BE LOADED during WALKAROUND. This is achieved by clicking on the canister holders and cycling through colours using Left Mouse Button and Right Mouse Button. Each side acts independently and you must load both sides for two smoke effects to spawn successfully.



Floats

Using the floats variant, yellow floats are triggered when the helicopter makes contact with water:



These floats are functional and cannot be reset.

ATGM Pods

The Military ATGM (anti-tank guided missile) variant comes equipped with 3 pod options. These options can be cycled through by using the Left and Right Mouse Buttons. Pods on the left and right hand side are synced and cannot be set separately.

State 1: Empty



State 2: Missiles



State 3: German Flag Colours



Note
Missile pods are purely cosmetic and are not functional.

Stratoware/Miltech Simulations Bo105

Cockpit Layout

Description and location of all cockpit switches, gauges, instruments, and controls.



1. **Overhead Console**: refer to Overhead Panel.
2. **OAT Indicator**: Features one pointer, which indicates on two scales with centigrade (°C) and Fahrenheit graduations (°F).
3. **Power Control Levers**: Responsible for independent engine power control. 3 state levers: OFF, IDLE, and FLY. Refer to Overhead Panel for more information.
4. **Standby Magnetic Compass**: Displays heading in degrees.
5. **Instrument Panel**: refer to Instrument Panel.
6. **Switch Panel**: refer to Switch Panel.
7. **Center Console**: refer to Center Console.
8. **Pilot Collective Lever**: Shared control used to adjust the pitch of all main rotor blades simultaneously, controlling vertical lift.
9. **Pilot Seat**
10. **Copilot Seat**



11. **Pilot's Cyclic Stick**: Primary flight control used to command pitch and roll by tilting the rotor disc. Controls forward, aft, and lateral movement of the aircraft.
12. **Pilot's Tail Rotor/Directional Pedals**: Control the pitch of the tail rotor blades to manage yaw (nose direction) and counteract main rotor torque.
13. **Direct Vision Window**
14. **Map Pocket**



15. **Rotorbrake**: Used to decelerate and stop the main rotor following engine shutdown, reducing blade rotation time.

Stratoware/Miltech Simulations Bo105

Instrument Panel



1. **GTN750**: Modern glass avionics unit developed by PMS50. For more information, please visit https://pms50.com/msfs/
2. **Airspeed Indicator**: Displays airspeed from 0 to 150 knots in 5-knot increments above 10 knots. The yellow arc covers the 10-45 kt caution range; the green arc covers 45-145 kt normal operating range.
3. **↔ Engine 1 Fire Warning Test Switch**: Tests the Engine 1 fire detection system; the adjacent warning light flashes on activation to confirm circuit integrity.
4. **Engine 1 Fire Warning Light**: Illuminates bright red with the letter "F" when heat-sensitive detectors in the No. 1 engine compartment register a fire condition.
5. **Engine 2 Fire Warning Light**: Illuminates bright red with the letter "F" when heat-sensitive detectors in the No. 2 engine compartment register a fire condition.
6. **↔ Engine 2 Fire Warning Test Switch**: Tests the Engine 2 fire detection system; the adjacent warning light flashes on activation to confirm circuit integrity.
7. **Pitot Heating Indicator**: White circular sectors are visible only when pitot heating is turned off, indicating the heating element is inactive. As per flight manual limitations, pitot heating must be on when ambient temperature is below +4 °C and visible moisture is present.
8. **Warning Lights Panel**: Monitors helicopter system parameters that do not require constant pilot attention. Warning lights illuminate when preset limits are exceeded or a malfunction is detected.
9. BAT 60: Battery temperature exceeds 60 °C. Switch battery off; land as soon as practicable.
10. BAT 70: Battery temperature exceeds 70 °C. Switch battery off; land as soon as possible.
11. FILT 1 (INOP): Engine 1 fuel filter is clogged and bypass has begun.

12. FILT 2 (INOP): Engine 2 fuel filter is clogged and bypass has begun.
13. GEN 1: Generator 1 is offline or has failed. One generator alone can sustain normal electrical services.
14. GEN 2: Generator 2 is offline or has failed. One generator alone can sustain normal electrical services.
15. HY BLOCK (INOP): A servo valve has jammed in hydraulic System 1 and automatic crossover to System 2 has occurred.
16. HYD 1: System 1 hydraulic pressure is low; automatic crossover to System 2 has occurred.
17. HYD 2: System 2 hydraulic pressure is low. System 1 remains active. Avoid abrupt manoeuvres.
18. LOW FUEL: Supply tank usable quantity is below 60 kg, or both main tank pumps have failed.
19. MAG PLUG 1 (INOP): Metal particles detected in Engine 1 oil.
20. MAG PLUG 2 (INOP): Metal particles detected in Engine 2 oil.
21. OIL COOL: Oil cooler fan has failed. Monitor oil temperatures closely; land as soon as possible if temperatures approach limits.
22. RPM: N_{Ro} is below 95% or above 103%, or N_1 differential between engines is 12% or greater. Audible alarm paired with illuminated light.
23. T OIL: Transmission oil pressure is below 0.5 kp/cm² (land immediately) or oil temperature exceeds 105 °C (land as soon as possible).
24. ▣ **Warning Lights Test Button**: When pressed, tests all warning and caution lamp segments simultaneously, except the two Engine Fire warning lights and the Mast Moment LIMIT light, which are tested separately.
25. ◉ **Instrument Light Brightness Knob**: Potentiometer (rheostat) controlling the brightness of all panel instrument lighting.
26. **Altimeter**: Measures barometric pressure changes to determine altitude. The long pointer indicates hundreds of feet; the short pointer indicates thousands of feet. Barometric pressure is set via the knob on the lower left of the instrument case.
27. **Attitude Indicator**: Displays pitch attitude and bank angle relative to the horizon. An optional slip indicator is toggleable via the EFB "Bo 105 Options" app.
28. ↔ **Cage Switch**: Cages and locks the attitude indicator gyroscope for erection during startup.
29. **Horizontal Situation Indicator (HSI)**: Displays the helicopter's magnetic heading combined with lateral navigation deviation, providing a plan-view reference for orientation and course guidance.
30. **Vertical Speed Indicator**: Displays rate of climb or descent from 0 to 6,000 feet per minute.
31. **Clock**: Mechanical timepiece displaying current time.
32. **Mast Moment Indicator**: Measures and displays the lateral bending moment acting on the main rotor mast via a strain gauge bridge. The pointer must remain within the green arc during all operations; the yellow arc is a caution range; the red radial must never be exceeded in flight or on the ground.
33. ↔ **Mast Moment Indicator Test Switch**: Pressing the test button causes the needle to deflect to the extreme limit of the scale and then return to the white calibration line, and activates the LIMIT warning light. Releasing the button cancels the test.
34. **Mast Moment LIMIT Light**: Illuminates red when the mast moment pointer reaches the upper end of the yellow arc or exceeds the white calibration radial.

35. **Torque Indicator**: Dual-needle gauge displaying torque output of both engines simultaneously as a percentage of maximum. Normal operating range is 0-86%; the red radial at 86% marks the maximum continuous and takeoff power limit for AEO operation.
36. **N_2 and N_{Ro} Indicator**: Combined triple tachometer displaying both engines' power turbine speed (N_2) on the outer scale and main rotor speed (N_{Ro}) on the inner scale, all as a percentage of rated RPM. Normal power-on operating range is 98-102% for both N_2 and N_{Ro}.
37. **Automatic Direction Finder (ADF)**: Receives signals from Non-Directional Beacons (NDBs) and displays the relative bearing to the selected ground station.
38. **Emergency Location Transmitter (ELT)**: Transmits a distress signal on emergency frequencies to assist search and rescue operations (cosmetic-only).
39. **Compass Master Controller**: Controls the operating mode of the heading reference system, allowing selection between slaved and free gyro modes for the HSI (14).
40. **Engine 2 TOT Indicator (Turbine Outlet Temperature)**: Displays exhaust gas temperature downstream of the Engine 2 power turbine, measured by four thermocouple probes.
41. **Engine 1 TOT Indicator**: Displays exhaust gas temperature downstream of the Engine 1 power turbine. Markings and limits are identical to the Engine 2 TOT indicator.
42. **Triple Oil Temperature Indicator**: Simultaneously displays oil temperature for three systems on a single gauge: Engine 1 (left scale), Engine 2 (right scale), and main transmission (upper scale marked "R"). Normal engine range is 30-107 °C; normal transmission range is 30-105 °C.
43. **Triple Oil Pressure Indicator**: Simultaneously displays oil pressure for three systems: Engine 1 (left scale), Engine 2 (right scale), and main transmission (upper scale marked "R"). Normal engine range is 6.3-9.1 kp/cm²; normal transmission range is 0.8-2.0 kp/cm².
44. **Engine 1 N_1 Indicator**: Displays gas generator (compressor turbine) speed for Engine 1 as a percentage of rated RPM. Normal operating range is 59-105%; the red radial at 105% marks the maximum limit.
45. **Engine 2 N_1 Indicator**: Displays gas generator (compressor turbine) speed for Engine 2 as a percentage of rated RPM. Markings and limits are identical to the Engine 1 N_1 indicator.
46. **Fuel Pressure Indicator**: Dual gauge simultaneously displaying fuel supply pressure for both engines. Normal operating range is 0.6-1.7 kp/cm²; the yellow arc covers 0-0.6 kp/cm² and the red radial marks the 1.7 kp/cm² maximum.
47. **Fuel Quantity Indicator**: Dual gauge simultaneously displaying usable fuel quantity in both the supply tank (S) and the main tank (M). Usable fuel is exhausted when a pointer reads zero. The LOW FUEL warning activates when supply tank usable quantity drops below 60 kg.
48. **EFB Stand:** Click to hide EFB.
49. **Electronic Flight Bag (EFB)**: Tablet-style device providing access to aircraft configuration options, checklists, and operational tools

Stratoware/Miltech Simulations Bo105

Overhead Panel



1. **Power Control Lever ENG 1 (Left):** Controls the gas generator (N_1) speed of Engine 1. Three positions: OFF, IDLE, and FLY. A positive lock holds the lever at IDLE, moving it to any other position requires depressing the lock button. At FLY, the N_2 governor takes over to automatically maintain the selected power turbine speed.
2. **Power Control Lever ENG 1 Guard**: Hinged guard protecting the Engine 1 power lever against inadvertent displacement.
3. **Power Control Lever ENG 2 Guard**: Hinged guard protecting the Engine 2 power lever against inadvertent displacement
4. **Power Control Lever ENG 2 (Right)**: Controls the gas generator (N_1) speed of Engine 2. Positions, locking mechanism, and operation are identical to the Engine 1 lever. Each lever is independent, allowing individual engine management.
5. **↔ Light Switches**: Controls for exterior and interior lighting systems, including position lights, anti-collision lights, and cabin interior lights. Position lights (red/green/white) and anti-collision lights (high-intensity flashing red) are powered from the Main Bus.
6. **↔ Fuel Pump Switches**: Four switches controlling the helicopter's fuel pumps: two main tank xfer pumps (MAIN TANK 1 and 2) and two supply tank pumps (SUPPLY TANK ENG 1 and ENG 2).
7. **↔ Generator Reset Switches (INOP)**: In the real aircraft, these are the generator field switches (GEN RES / GEN TRIP) used to energise or de-energise each generator field and to reset a tripped generator back online. Not functional in this addon.

Stratoware/Miltech Simulations Bo105

Switch Panel



1. **Voltmeter**: Displays the DC voltage output of the Main Bus during generator, battery, or external power operation. Normal indication is 27-29 V with generators online; below 24 V indicates a low battery condition.
2. **Ammeter**: Displays current flow in the electrical system. With the CURRENT IND switch in the BUS BAR position, shows total current consumption from the Starter Bus to the Main Bus. With either GEN 1 or GEN 2 selected, shows the output of that generator. Used to monitor generator load balance and detect abnormal current draws.
3. **Circuit Breakers**: Protect individual electrical circuits from overload. Most low-amperage circuits are fuse-protected on the instrument panel fuse panel; circuit breakers here cover the primary systems including fuel pumps, hydraulic controls (INOP), trim actuators (INOP), and emergency fuel valves
4. **↔ Instrument Lighting Switch**: Activates panel instrument lighting, powered from the Main Bus. Brightness is controlled separately by the Instrument Light Brightness Knob.
5. **↔ Low Fuel Test Switch**: Pressing this button tests the LOW FUEL warning circuit. The LOW FUEL warning light must illuminate on activation. The warning activates in normal operation when usable supply tank quantity drops below 60 kg.
6. **↔ Pitot Heating Switch**: Activates the electrically heated pitot tube to prevent ice formation. Must be on when ambient temperature is below +4 °C and visible moisture is present. System status is confirmed by the Pitot Heating Indicator on the instrument panel.
7. **↔ Engine Anti-Icing Switches**: Two switches (ENG 1 and ENG 2) controlling the hot compressor bleed air anti-icing valves for each engine inlet. Must be on when ambient temperature is below +4 °C and visible moisture is present, except during takeoff and landing.

8. ↔ **Wiper Switch**: Controls the windshield wiper system on variants with the wiper option installed. Three positions: PARK, OFF, and ON. PARK returns the wiper blade to its stowed position at the bottom of the windshield before switching off.
9. ↔ **CURRENT IND Switch**: Selects the ammeter display source. BUS BAR position shows total Main Bus consumption; GEN 1 and GEN 2 positions show individual generator output. Used during electrical checks and when monitoring generator load following a generator failure.
10. ↔ **Emergency Fuel Valve Switches**: Two guarded switches (EMERG FUEL VALVE 1 and 2) controlling the electrical fuel shutoff valves for each engine. Guards prevent accidental actuation. Closing a valve cuts fuel supply to that engine and is a mandatory step during engine emergency shutdown and fire procedures.
11. ↔ **Enging Anti-Icing Warning Switches**: Display the ANTI ICING 1 and ANTI ICING 2 caution lights, which illuminate when each engine's anti-icing valve is in the open position.
12. **EPU Warning Light**: Caution light that illuminates when an external power unit is connected and supplying power to the electrical system.
13. ↔ **Starter Switches:** Two switches (ENG 1 and ENG 2) each with VENT, OFF, and ON positions. ON energises both the starter and ignition to initiate a normal start sequence.
14. **Cabin Air Levers**: Control the flow of ventilation and heating air to the cabin.
15. ↔ **Generator Switches**: Two switches controlling the alternators for Engine 1 and Engine 2. When placed in the GEN ON position, allows the respective generator to come online and supply power to the electrical buses once engine speed is sufficient. Used during the post-start sequence to bring each generator online and restore normal electrical power generation.
16. ↔ **Battery Switch**: Controls the connection of the onboard 24 V nickel-cadmium battery to the Starter and Main Buses. In the BAT ON/EPU OFF position, connects the battery and enables generator charging. In the BAT OFF/EPU ON position, disconnects the battery and allows an external power unit to supply the system (toggleable via the EPU Warning Light).
17. ↔ **HYDR TEST Switch (INOP)**: In the real aircraft, this three-position guarded switch used to perform the hydraulic crossover functional check on the ground. Not functional in this simulation.
18. **Fire Extinguisher Panel (INOP)**: In the real aircraft, this panel controls the engine fire extinguishing system, allowing the crew to discharge extinguishing agent into either engine compartment. Not functional in this simulation.

Stratoware/Miltech Simulations Bo105

Center Console

The centre console may be equipped with either modern radios or legacy (stock) radios, depending on the configuration selected.

Modern Equipment



1. **KX155**: NAV/COMM transceiver providing both voice communications and VOR/ILS navigation. Displays active and standby frequencies simultaneously; frequencies are swapped with a single button press.
2. **KR87**: ADF receiver tuning Non-Directional Beacons (NDBs). Works in conjunction with the ADF indicator on the instrument panel to display relative bearing to the selected station.
3. **KFS564**: Transponder (XPDR) transmitting a four-digit squawk code in response to ATC radar interrogations, allowing ground controllers to identify and track the aircraft on radar.
4. **JA95 Audio Controller**: Audio panel and intercom controller managing the routing of radio transmissions and intercom audio. Allows selection of which radios are monitored and which are active for transmission. Activation requires selection by primary dial (centre), then movement of relevant switch forward, and is signaled by illumination of a green LED. For more information, please see real-world manual (not simulated to full-fidelity).

Legacy Equipment



1. **KFS564 (ADF)**: Frequency control unit configured for ADF operation, used to tune Non-Directional Beacons (NDBs). Works in conjunction with the ADF indicator on the instrument panel to display relative bearing to the selected station. Large dial controls last two digits, small dial controls first two digits. Values are swapped with a single button press (white rectangle).
2. **KFS564 (NAV)**: Bendix/King frequency control unit configured for VOR/ILS navigation, used to tune and manage navigation radio frequencies for en-route and approach navigation. Frequencies are swapped with a single button press (white rectangle).
3. **KFS564 (COMM)**: Bendix/King frequency control unit configured for VHF voice communications, used to tune and manage active and standby communication frequencies. Frequencies are swapped with a single button press (white rectangle).
4. **Becker B3401 Transponder**: Becker ATC transponder transmitting a four-digit squawk code in response to ATC radar interrogations, allowing ground controllers to identify and track the aircraft on radar. Large dial controls last two digits, small dial controls first two digits. Four modes: OFF, STDBY, ON, ALT.
5. **Becker Audio Controller**: Audio panel and intercom controller managing the routing of radio transmissions. Allows selection of which radios are monitored and which are active by rotating main mode dial (left). Volume is controlled by smaller dial (right).

Stratoware/Miltech Simulations Bo105

Aircraft Systems

- Electrical System: Power generation, distribution, and monitoring across the Bo 105's two buses.
- Fuel System: Tank layout, pump operation, and fuel monitoring for both engines.
- Lighting System
- Navigation & Communication Systems: Modern and legacy avionics fits, plus the GTN750.
- Camera & Searchlight: Operation of the externally mounted camera and searchlight.
- Smoke System: Operation of the smoke generation system.

Stratoware/Miltech Simulations Bo105

Electrical System

Power generation, distribution, and monitoring across the Bo 105's two buses.

The electrical system of the Bo 105 provides 28V DC power to all aircraft systems. It consists of two engine-driven generators rated at 150 amperes each, a 24V nickel-cadmium battery, and an external power unit (EPU) for ground operations.

Each generator feeds into the main power bus, which then supplies power to all downstream systems through power distribution relays and circuit breakers. The battery provides power to essential systems during engine start and serves as a backup power source in the event of a double generator failure. An EPU can be connected on the ground for engine start and pre-flight system checks.

The electrical system is managed primarily from the switch panel, please refer to Switch Panel.

Power Distribution

Electrical power in the Bo 105 is distributed through two buses:

Main Bus

The primary distribution point for the helicopter. It receives power from the alternators, battery, or external power unit, and supplies all primary aircraft systems including fuel pumps, fuel valves, lighting, flight instruments, pitot heat, and engine anti-icing.

Avionics Bus

Fed directly from the Main Bus and supplies the entire avionics stack: NAV1/NAV2, COM1/COM2, the transponder, the ADF/DME, marker beacon, audio controller, and the GTN750. Because the Avionics Bus is downstream of the Main Bus, all avionics depend on Main Bus power; if the Main Bus loses power, the avionics will also drop offline.

Power Sources

Generators

Two engine-driven units, one per engine, each rated at 150 amperes. They operate in parallel to share electrical load. Each generator is controlled by a corresponding switch on the switch panel. The GEN 1 and GEN 2 warning lights on the warning light panel indicate when the respective generator is offline. In this addon, generator failures themselves are not simulated due to SDK limitations.

Battery

A 24V nickel-cadmium battery supplying power to the Main Bus when the Battery Switch is in the BAT ON / EPU OFF position. The battery provides power for engine starts and serves as an emergency power source.

External Power Unit (EPU)

This is a 28V DC ground power source that can be connected to the aircraft via a socket in the nose compartment. The EPU allows the helicopter's electrical system to be powered without using the battery, which is recommended for cold-and-dark starts to preserve battery charge for engine starts.

To request an external power unit, click the EPU ON warning light on the warning light panel. A red GPU cart will spawn outside the aircraft and connect to the battery compartment, after which the EPU ON light will illuminate to confirm power is being supplied.



To use external power, place the Battery Switch in the BAT OFF / EPU ON position. The EPU then powers the Main Bus, which in turn supplies the Avionics Bus. Clicking the EPU ON light again disconnects the cart and removes it from the scene.

Monitoring

Voltmeter

Displays the DC voltage output of the Main Bus during generator, battery, or external power operation. Normal indication is 27-29V with generators online.

Ammeter

Displays current flow in the electrical system. The CURRENT IND selector switch on the switch panel determines the source: BUS BAR shows total current consumption on the Main Bus, while GEN 1 and GEN 2 show the individual output of each generator. The ammeter responds to changes in electrical load and generator selection, making it useful for monitoring system health and balancing generator loads during normal operations.

Circuit Protection

Higher-amperage circuits and primary systems (fuel pumps, fuel valves, lighting, pitot heat, engine anti-icing, and the avionics feeds) are protected by circuit breakers on the switch panel.

In this addon, most circuit breakers are modelled and functionally pull/reset to interrupt their respective circuits. A small number of circuits are not simulated (for example, N_2 trim and a few others are INOP).

Stratoware/Miltech Simulations Bo105

Fuel System

Tank layout, pump operation, and fuel monitoring for both engines.

The fuel system of the Bo 105 comprises three subsystems: storage, supply, and indication.

Fuel is stored in three underfloor bladder cells forming two tanks (main tank and supply tank) and is transferred between them by electric pumps under pilot control. The supply tank then feeds the two engines through dedicated supply lines, each with its own emergency shutoff valve. Quantity and pressure are monitored from cockpit indicators on the main instrument panel, with a low-fuel warning on the warning light panel.

Tanks

Supply Tank

The supply tank is located immediately aft of the forward landing gear cross tube and provides fuel directly to the engines. The supply tank holds approximately 24 US gallons of usable fuel and serves as the immediate feed to both engines.

Main Tank

Two additional bladder cells, located forward and aft of the rear landing gear cross tube, are interconnected by a large-diameter tube to form the main tank. The main tank has a usable capacity of approximately 124 US gallons and feeds the supply tank via two electric transfer pumps.

Refuelling

Refuelling is performed through the standard MSFS fuel and payload menu. There are no special procedures. The main and supply tanks fill according to the values set in the menu.

Fuel Supply

Fuel flow from tank to engine is driven by four electric pumps, all controlled from the centre console switch panel:

Main Tank Pumps

Two transfer pumps (MAIN TANK 1 and MAIN TANK 2) that move fuel from the main tank into the supply tank. Both pumps run in parallel and feed a common supply tank input.

Supply Tank Pumps

Two supply pumps (SUPPLY TANK ENG 1 and SUPPLY TANK ENG 2) that pressurise the fuel lines from the supply tank to each engine. Each pump feeds its respective engine independently.

Valves

Between each supply tank pump and its engine sits an electrically operated emergency fuel shutoff valve, controlled by the EMERG FUEL VALVE 1 and EMERG FUEL VALVE 2 switches on the switch panel. Both switches are guarded to prevent accidental actuation. Closing a valve cuts fuel supply to that engine and is a mandatory step during engine emergency shutdown and fire procedures.

Caution
Important: the two main tank transfer pumps (MAIN TANK 1 and MAIN TANK 2) must be on whenever the engines are running. The supply tank holds only around 24 US gallons of usable fuel and is continuously drawn down by the engines in flight. If both transfer pumps are off, the supply tank will not be replenished from the main tank and will eventually run dry, causing fuel starvation and dual engine failure, regardless of how much fuel remains in the main tank. The LOW FUEL warning will provide some advance notice, but it is not a substitute for correct pump operation.

Indicators

Fuel Quantity Indicator

Dual gauge simultaneously displaying usable fuel in both the supply tank (S) and the main tank (M). The scale is graduated in kp × 10, so an indication of 6 on the scale corresponds to 60 kp (approximately 60 kg) of fuel. Usable fuel is exhausted when a pointer reads zero.

Fuel Pressure Indicator

Dual gauge simultaneously displaying fuel supply pressure for each engine, marked 1 and 2. Normal operating range is 0.6-1.7 kp/cm², the yellow arc covers 0-0.6 kp/cm², and the red radial marks the 1.7 kp/cm² maximum.

Annunciators

LOW FUEL

Illuminates red when the supply tank usable quantity drops below 60 kg. The warning is triggered purely on supply tank quantity in this addon, regardless of main tank state or pump status. Its function can be tested at any time using the LOW FUEL TEST pushbutton on the centre console switch panel, which will illuminate the warning light and drop the quantity gauge needle for as long as the button is held.

FILT 1 and FILT 2 (INOP)

In the real aircraft, these warnings illuminate when the respective engine-mounted fuel filter becomes clogged and bypass has begun. Fuel filter clogging is not simulated in this addon.

Stratoware/Miltech Simulations Bo105

Lighting System

The Bo 105 comes equipped with the following lights:

Position Lights

The position lights help to identify position and flight direction of the helicopter. The system consists of a red light on the port side and a green light on the starboard side, both on the vertical stabilizers. In addition, a white light is mounted on the rear top of the vertical fin fairing.

They are controlled by a switch in the overhead panel labelled POSITION LIGHT with ON and OFF positions.

Anti-collision Lights

During missions, two red flashing anti-collision lights shall attract the attention of pilots of other aircraft to the helicopter operating nearby. On ground, the anti-collision light is used as warning light to protect ground personnel from turning rotors. For this reason the anti-collision light is manually switched on before starting the engines and the rotors begin to turn, and it is not switched off before the rotors have stopped. The system consists of two anti-collision lights, one mounted on top of the tail rotor transmission and the other under the nose. They are controlled by a switch in the overhead panel labelled ANTICOLL LIGHT with ON and OFF positions.

Cabin Light

The cabin light provides general illumination for the cockpit during ground operations and low-light flying. They are intended for working tasks (pre-flight checks, passenger boarding, cargo loading) rather than for inflight use, as their output is not optimised to preserve the pilot's night vision. Operation is controlled by a toggle switch in the overhead panel labelled INTERNAL LIGHT with ON and OFF positions.

Instrument Lights



The instrument lights illuminate the cockpit panels. The system covers the main instrument panel, the warning light panel, the operator panel, and the magnetic compass, using a combination of internal panel lights, post lights and eyebrow lights as appropriate to each instrument. Operation is controlled by the INSTR LIGHT toggle switch on the operator panel, with ON and OFF positions. Light intensity is regulated by the INSTR LIGHT rheostat located on the instrument panel itself, allowing the pilot to dim the panels.

Landing Lights

The landing light improves forward visibility for night landings, approaches, and bad-weather operations. The assembly is installed in the nose shell and houses a 250 W quartz iodine lamp on an electrically driven hinge, which can extend out to approximately 75 degrees from the fully stowed position. This allows the beam to be aimed down and ahead during approach and hover, then retracted flush with the airframe for cruise to reduce drag and protect the lamp from impact damage. The landing light is controlled by two switches on the collective switchboard.



- The left switch controls the extension/retraction of the landing light.
- The right switch toggles the light itself.

Searchlight

Please refer to Camera & Searchlight for more information.

Stratoware/Miltech Simulations Bo105

Navigation & Communication Systems

Modern and legacy avionics fits, plus the GTN750.

The Bo 105 is equipped with a full suite of avionics supporting both VFR and IFR operations. Two equipment configurations are available, based on the variant selected: a modern fit centred on Bendix/King and Jupiter Avionics units, and a legacy fit using older Becker controls. Please see Center Console for more information. A GTN750 glass avionics instrument is installed in both configurations and serves as the primary glass navigation unit. All radios operate on standard MSFS VHF COM and VHF NAV bands. HF, military UHF and encrypted channels are not supported, due to SDK limitations.

The avionics stack is located in the centre console, between the pilot and copilot seats. The HSI on the main instrument panel is driven by the NAV side of the installed equipment (either the KX155 in the modern fit or the dedicated KFS564 NAV head in the legacy fit).

Tuning and Operation

All radios in the Bo 105 use the standard MSFS active/standby model. Frequencies are entered into the standby field and then swapped to the active field with a dedicated swap button on each unit. Active frequencies are immediately live for transmission and reception, while standby frequencies are held ready until swapped.

Frequencies can be tuned in three ways. The first is directly on the radio stack itself, by clicking the relevant unit and using its knobs and swap button. The second is through the standard MSFS ATC and radio panel popups, which write to the active radio automatically. The third is through flight plans loaded from the MSFS World Map or the FS24 EFB, which will populate NAV frequencies along the route when the flight is started.

GTN750

The GTN750 is a modern touchscreen glass avionics unit developed by PMS50 and present in both equipment configurations. It provides flight planning, moving map, GPS navigation, radio tuning, traffic and weather pages, and procedure loading. Because the GTN750 is a third-party product, operating instructions are maintained by PMS50 at https://pms50.com/msfs/

In the Bo 105, the GTN750 functions as the primary flight planning and situational awareness display. Flight plans can be entered manually on the unit, imported from the MSFS World Map, or synced from the FS24 EFB.

Modern Equipment

The modern fit comprises a Bendix/King KX155 NAV/COMM unit, a KR87 ADF receiver, a KFS564 acting as the transponder, and a JA95 audio controller. This configuration is recommended for users familiar with general aviation Bendix/King stacks or who want a more conventional cockpit layout.



KX155 NAV/COMM Transceiver

Combined COMM and NAV unit providing VHF voice communications and VOR/ILS navigation. Displays active and standby frequencies simultaneously. The COMM and NAV sides are tuned independently using their respective knobs, and the swap button switches active and standby within each side with a single press. The NAV side of the KX155 drives the HSI for lateral course guidance.

KR87 ADF Receiver

Tunes Non-Directional Beacons (NDBs) for bearing information. Works in conjunction with the ADF indicator on the main instrument panel, which displays the relative bearing to the selected station. Active and standby frequencies are shown on the display and can be swapped with the ↔ button.

KFS564 (Transponder Role)

Bendix/King frequency control head configured as the transponder in this fit. Transmits a four-digit squawk code in response to ATC radar interrogations. The large dial controls the last two digits, and the small dial controls the first two digits. Mode is selected by the dedicated mode rotary dial.

JA95 Audio Controller

Manages the routing of radio transmissions and intercom audio. Selects which radios are monitored on the headset and which is selected for transmission. To activate a radio, first rotate the primary dial in the centre to the desired source, then move the relevant switch forward; a green LED illuminates to confirm the selection. The JA95 is NOT fully simulated to real-world fidelity; for additional context, refer to the real-world manual.

Legacy Equipment

The legacy fit uses three KFS564 frequency control heads, each configured for a different radio role, alongside a Becker B3401 transponder and a Becker audio controller. This configuration is recommended for users wanting a more period-accurate cockpit, or who prefer the consistent KFS564 control layout across all radios.



KFS564 (COMM)

Frequency control unit configured for VHF voice communications. Used to tune active and standby COMM frequencies. The large dial controls the last two digits, the small dial controls the first two digits, and the swap button (↔) exchanges active and standby with a single press.

KFS564 (NAV)

Frequency control unit configured for VOR/ILS navigation. Operation is identical to the COMM unit. The NAV side drives the HSI on the instrument panel.

KFS564 (ADF)

Frequency control unit configured for ADF operation, used to tune Non-Directional Beacons. Operation is identical to the COMM and NAV units. Works in conjunction with the ADF indicator on the main instrument panel.

Becker B3401 Transponder

Transponder unit transmitting a four-digit squawk code in response to ATC interrogations. The large dial controls the last two digits; the small dial controls the first two digits. Four mode positions are available: OFF, STDBY, ON, and ALT.

Becker Audio Controller

Manages routing of radio audio to the headset. The main mode dial on the left selects which radio is monitored and active. The smaller dial on the right controls audio volume. The Becker controller handles audio routing only and does not affect transmission keying outside of source selection.

Navigation Aids

The Bo 105 supports standard radio navigation aids as modelled by MSFS. DME information, where available, is displayed on the GTN750 and on the relevant radio heads. For full GPS, RNAV and procedure-based navigation, the GTN750 is the primary unit.

Stratoware/Miltech Simulations Bo105

Camera & Searchlight

Operation of the externally mounted camera and searchlight.



The Forward-Looking Infrared (FLIR) camera (Police) and broadcast camera (above) systems are simulated as a cosmetic-only feature. Both systems share the same camera controller and display, and only differ in external 3D models. While this model is fully articulated and integrated into the cockpit controls, users should be aware of the following functional limitations:



- **Articulated Turret:** The FLIR ball on the nose of the aircraft is fully animated. It will respond to control inputs (Pan/Tilt) via the assigned keybinds (please refer to Keybinds Guide).

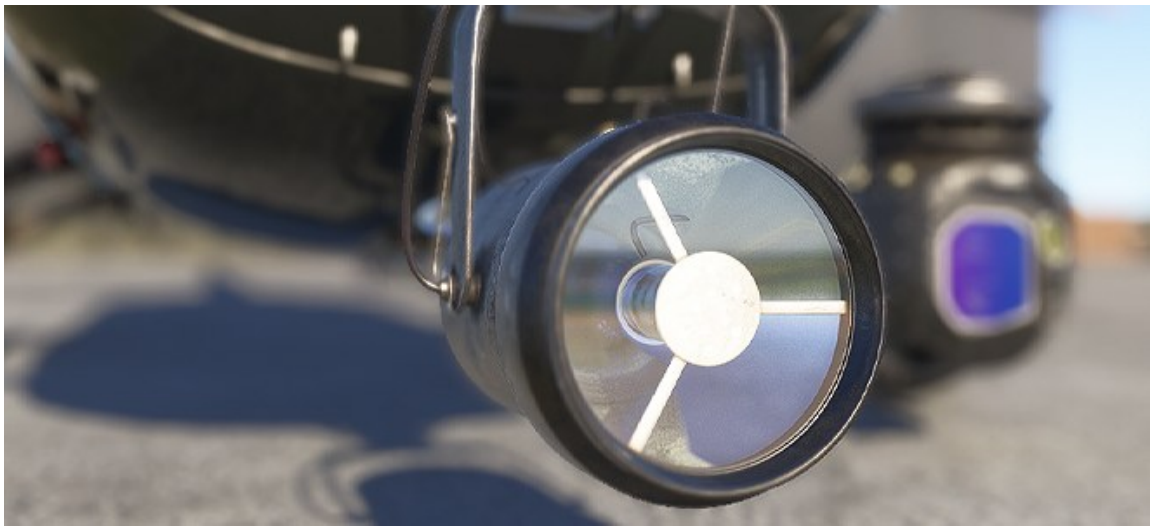
- No Thermal Overlay: The system does not generate a true "thermal" (infrared) image. While you may see a camera feed on the Multi-Function Displays (MFDs), it functions as a standard daylight or low-light digital camera with filters, rather than a heat-signature sensor.
- Target Tracking: The "Cosmetic Only" designation means the FLIR cannot autonomously slave to, lock onto, or track AI entities (vehicles, ships, or people) based on heat signatures.
- Objects rendering limitations: The FLIR implementation will not render SimObjects (Buildings, Ships, vehicles, aircraft or people). It is limited to render terrain, satellite imagery, and airport grounds, as fed by the Synthetic Vision engine in MSFS.

Note
The primary reason the FLIR system is restricted to a cosmetic or "synthetic" view is the absence of Camera-in-Gauge support within the MSFS SDK.

For mouse users, the FLIR can be controlled using the modelled joystick on the right-side of the camera controller shown above.

Searchlight

The **searchlight** (Police variant only) can be controlled using the left joystick of the same controller. Please refer to Keybinds Guide for more information on controlling the searchlight movements.



Stratoware/Miltech Simulations Bo105

Smoke System

Operation of the smoke generation system.



Please refer to Exterior Features for instructions on setting up smoke canisters during the walkaround. While flying, the smoke effect can be activated by toggling the switch shown above, located between the airspeed indicator and mast moment indicator.

Caution
Note: It is not advisable to keep the smoke effect active while stationary, as smoke particles may accumulate in one location, leading to performance instability and lag.

