FlyInside B-206B-3 User Manual

By FlyInside Inc.

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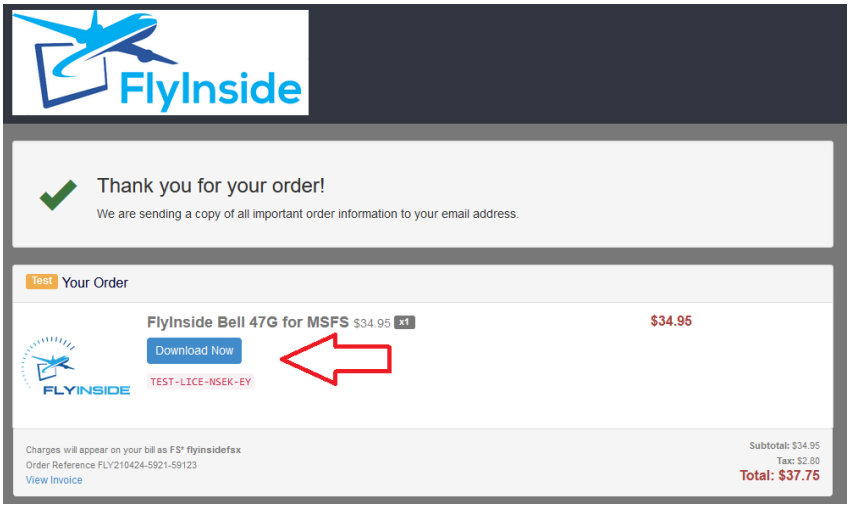
1. Introduction

Welcome to the FlyInside B-206. With this aircraft, we've authentically recreated a 1982 B-206B-3 JetRanger with 250-C20B turbine engine for Microsoft Flight Simulator. The 206 ships with highly realistic flight dynamics, accurate systems, and beautiful artwork. We hope that you enjoy this experience!

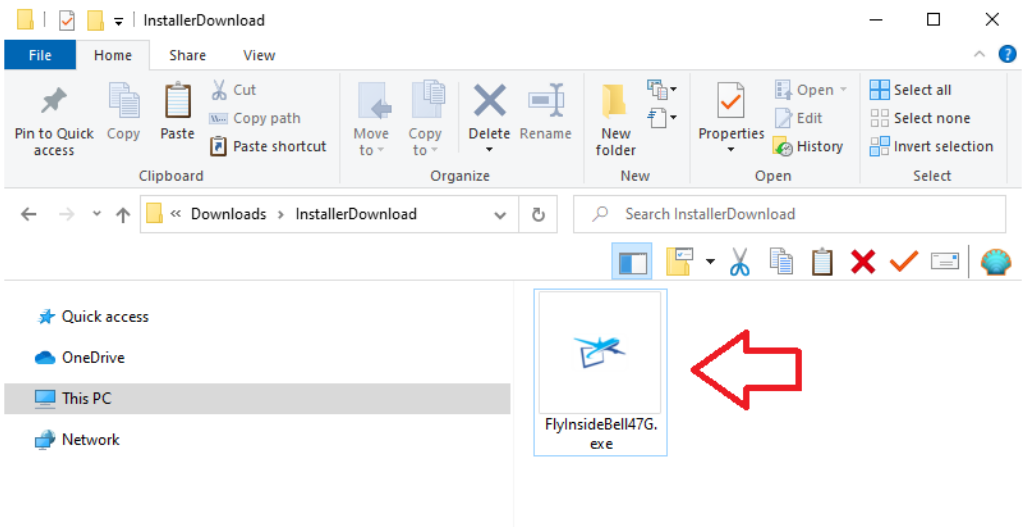
2. Installation and Activation

The FlyInside B-206 installs via an easy-to-use setup program. If you encounter any issues, cannot find your installer, or haven't received a license key, please contact support@flyinside-helis.com

1. Download the installer via the link on your purchase receipt page

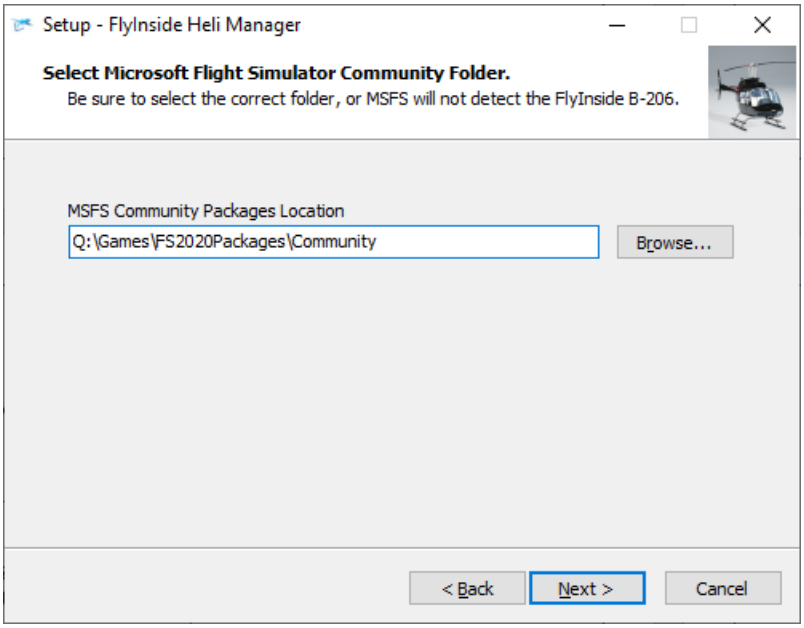


2. Double click the installer to run, and accept any prompts that appear.



3. Click through the installer

4. Double check that the installer correctly locates your MSFS Community packages folder. If this location is not correct, MSFS will not detect the aircraft.



5. After the installer completes, allow it to launch FlyInside Heli Manager.

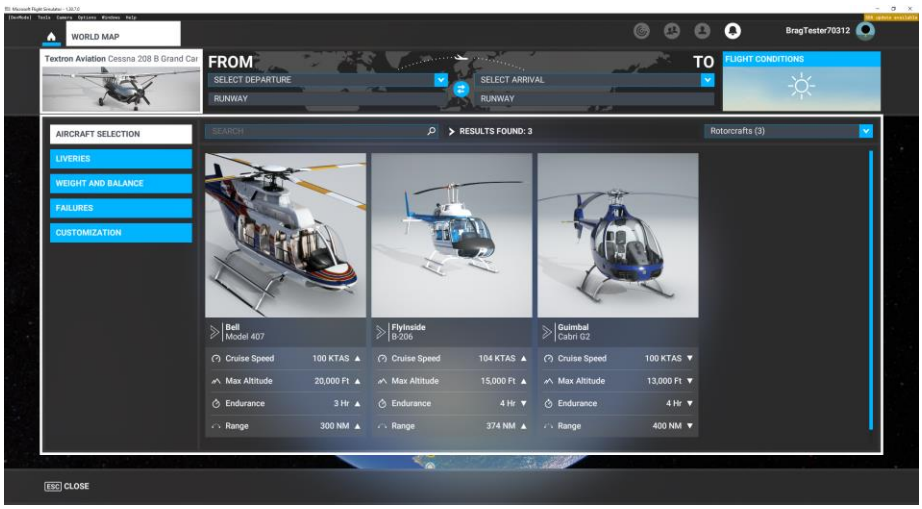
A Note on FlyInside Heli Manager

FlyInside Heli Manager handles copyright protection for the FlyInside B-206, and allows you to customize the flight model. By default, FlyInside Heli Manager will run in the background when you turn on your computer.

FlyInside Heli Manager doesn't log any data, or call home randomly. It will communicate with our servers when you activate a license key, and occasionally to check for new versions. It's also designed to use minimum system resources, it won't affect frame-rates or heat up your CPU while running in the background.

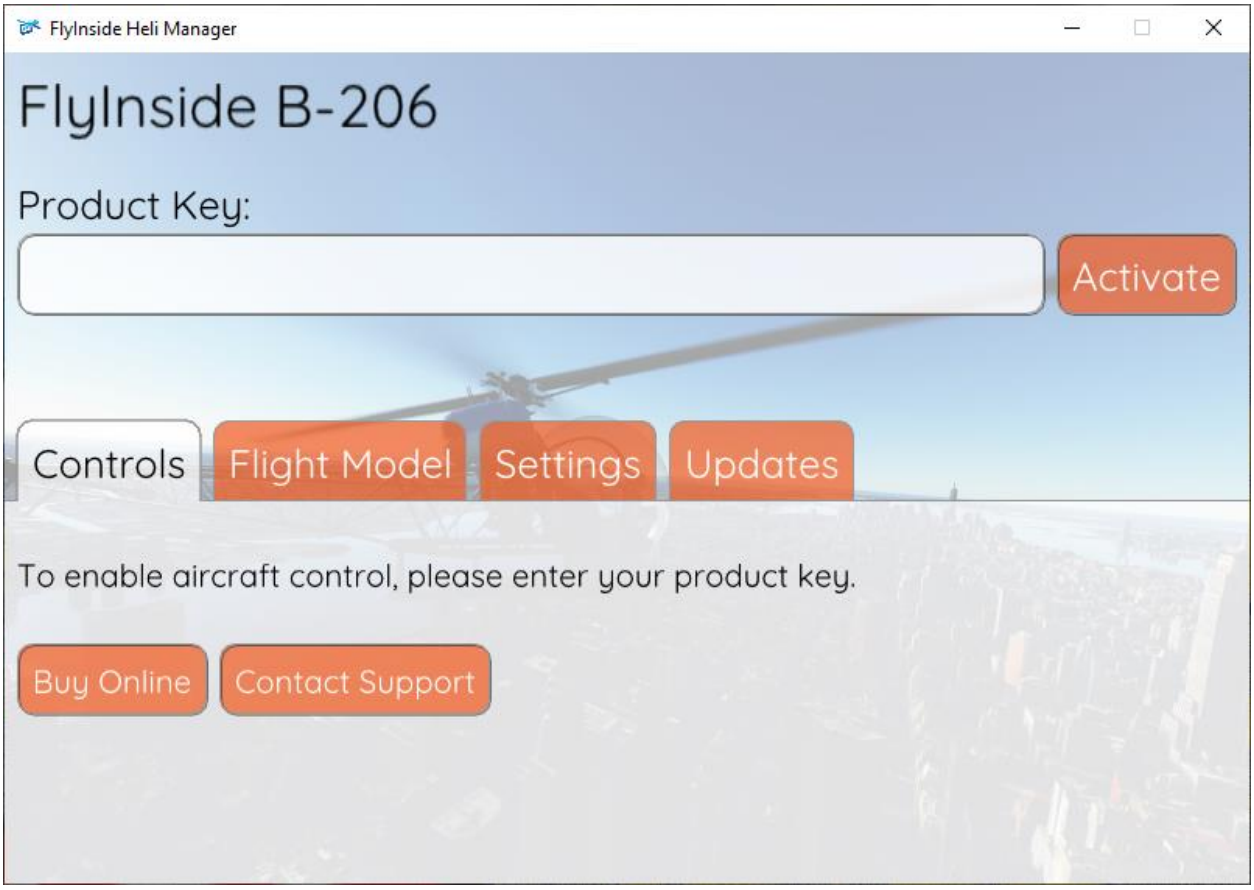
FlyInside Heli Manager runs in the background purely for convenience, so that you won't need to launch it manually when flying our helicopters. If you prefer though, you can turn off the System Start option in Heli Manager, and launch FlyInside Heli Manager manually as needed.

6. Open Microsoft Flight Simulator, and select the FlyInside B-206 as your aircraft. Note that the B-206 will appear in the Helicopters category, choose your livery by clicking on "Liveries" in the left-hand column.



7. Select a departure airport and load a flight. The first time you load the FlyInside B-206 may take several minutes as MSFS compiles our flight-model code for your PC. Once loaded, the B-206 will have an in-cockpit message prompting you to run FlyInside Heli Manager, or to enter an activation key.

8. FlyInside Heli Manager should appear on your desktop. If not, you can click on the system tray icon (if it is running), or run “FlyInside Heli Manager” from your Start Menu.



9. You should have received a product key in your FastSpring email receipt. Enter the product key (you may use Ctrl+V to paste it), and press “Activate.”

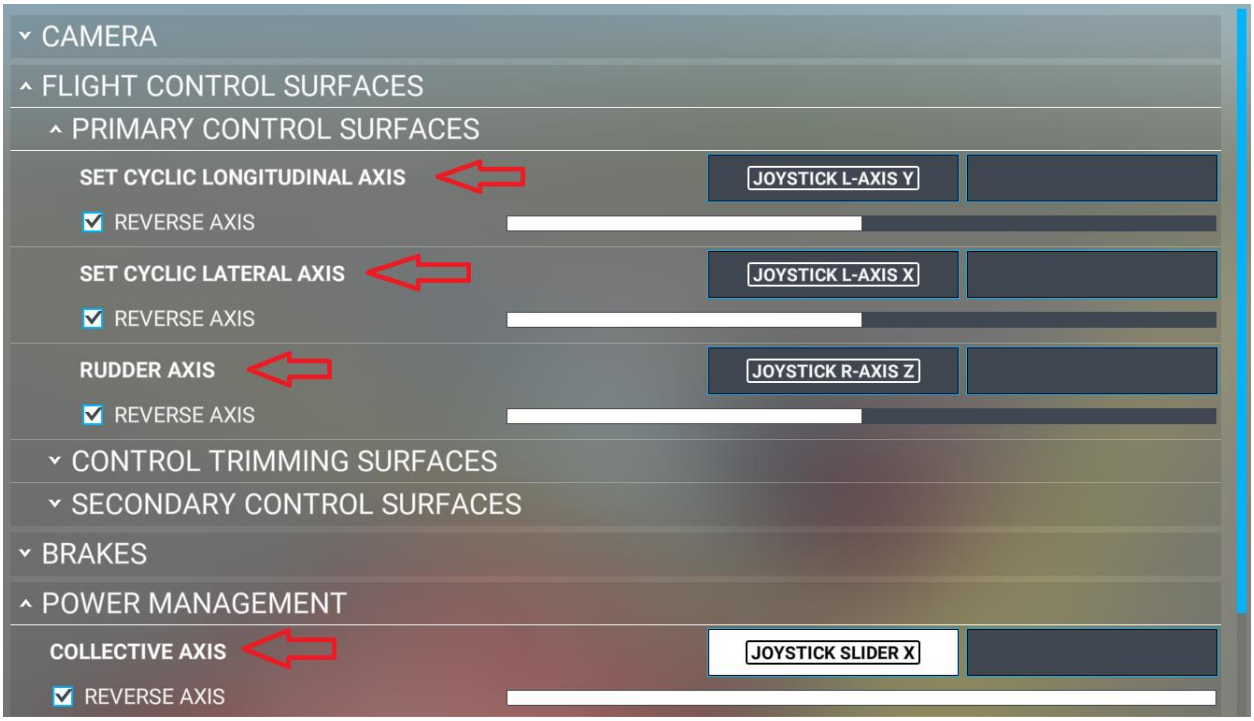
10. If you started on a runway, the rotors should start spinning up, you’re ready to fly! If you selected a parking spot or helipad, you’ll be cold and dark, and ready to start up and go fly!

For startup, follow your checklist (in the in-game tab menu).

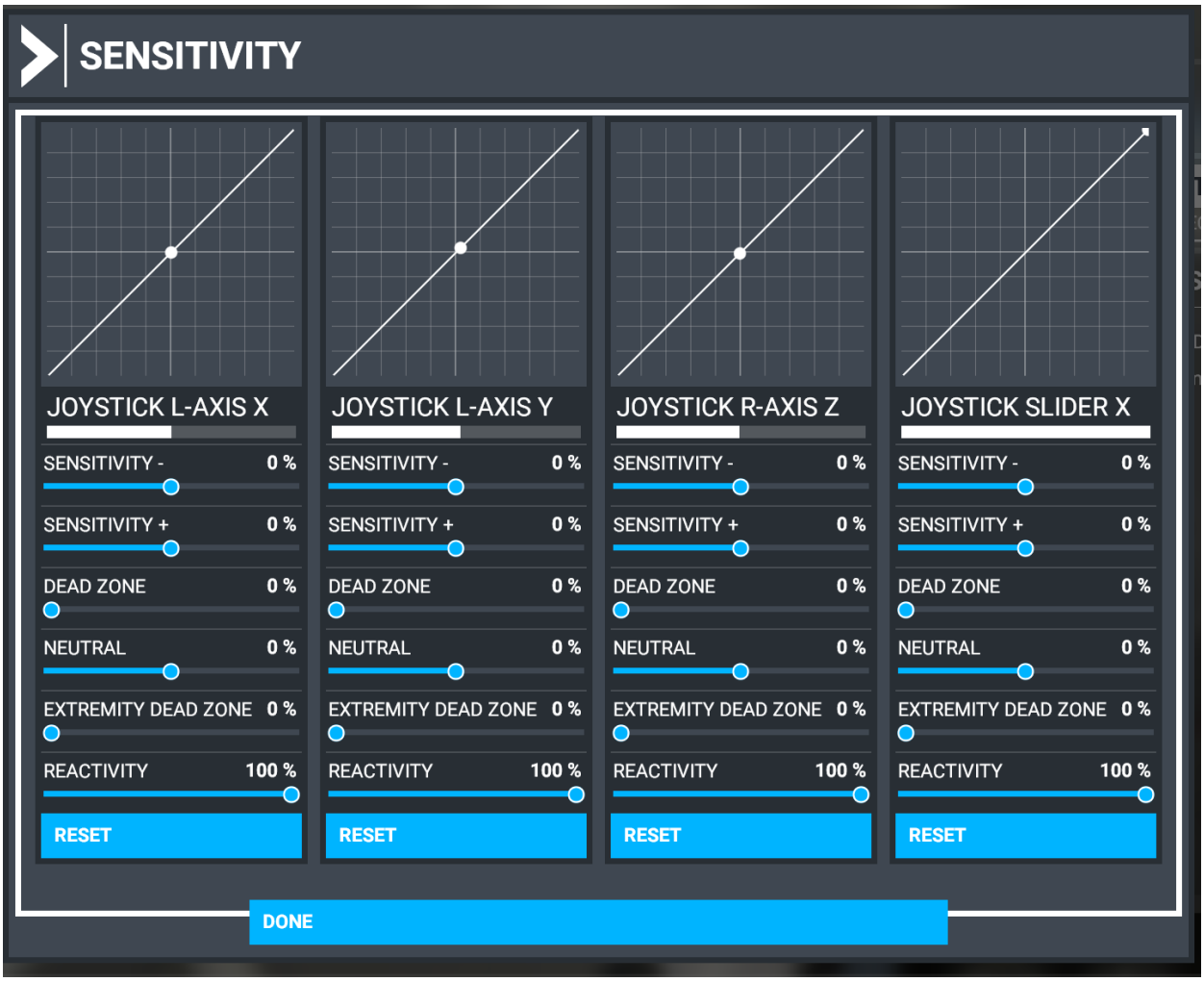
3. Flight Controls Setup

The FlyInside B-206 should work with your standard Microsoft Flight Simulator control bindings. At a minimum you'll need the following controls

1. Bind the joystick axis you'd like to use for cyclic roll (left/right) control to either the MSFS "Cyclic Lateral Axis" or the "Ailerons Axis"
2. Bind your cyclic pitch (fore/aft) control to the MSFS "Cyclic Longitudinal Axis" or "Elevator Axis"
3. Bind your pedals or yaw control to the MSFS "Rudder Axis"
4. Bind your collective control (or throttle paddle) to the MSFS "Collective Axis" or "Throttle 1 Axis"
5. You may have to reverse some axes depending upon your hardware.



For realistic control response, you'll want to ensure that MSFS "Sensitivity" is set to 0%, 'Dead Zone' 0%, 'Neutral' 0%, 'Extremity Dead Zone' 0%, and 'Reactivity'100%, for all axis.



Throttle Control

For realistic startups, you'll want to bind a throttle control. The helicopter must be started with zero throttle, and then have fuel fed in when the Gas Producer reaches 15%. If you have a collective with twist grip, you can bind the twist grip to the "Set Helicopter Throttle Axis." Or "Propeller 1 Axis." Otherwise, you can use keyboard/button bindings on "Increase Helicopter Throttle" and "Decrease Helicopter Throttle."

Misc. Bindings

“INCREASE COWL FLAP 4” and “DECREASE COWL FLAP 4” – May be used to adjust the beep governor

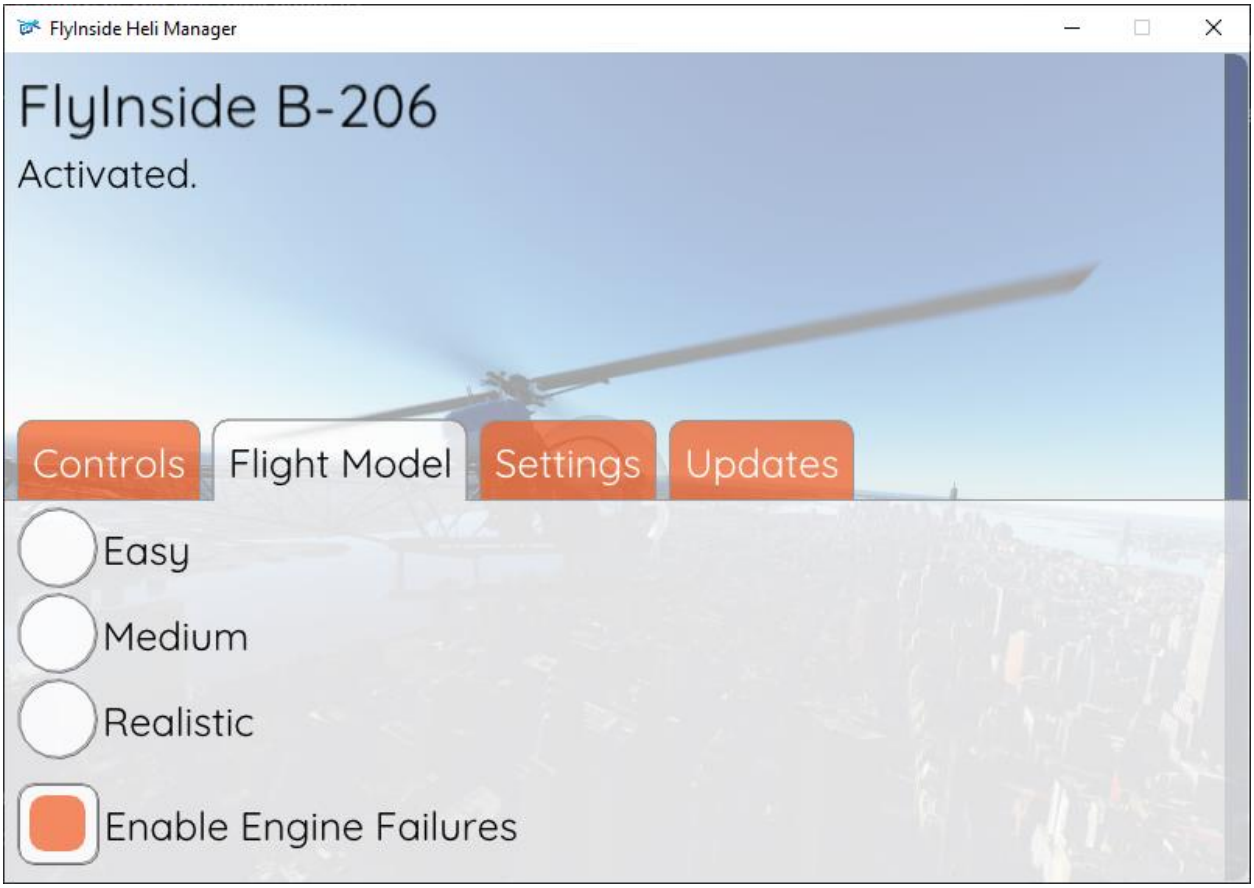
CYCLIC LATERAL/LONGITUDINAL Force Trim bindings are supported.

For startups, the “Set Starter 1” binding is recommended, or you may click on the virtual starter button within the cockpit.

Most stock MSFS bindings are supported for lights, avionics, etc.

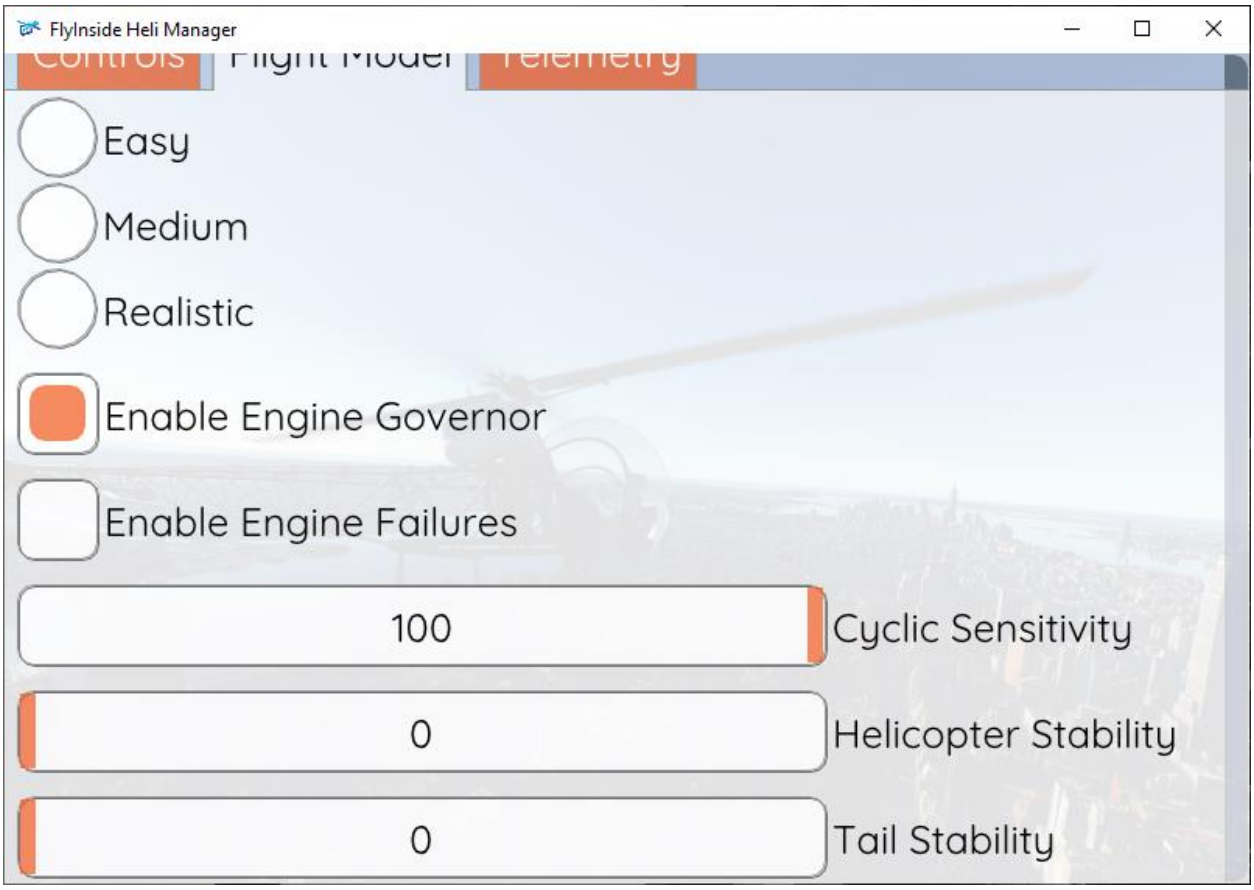
4. Flight Model Options

The FlyInside B-206 supports multiple realism levels and options to suit your control setup and skill level. To configure these, run FlyInside Heli Manager, and go to the Flight Model tab.



Easy, Medium, and Realistic allow you to change the flight difficulty. Realistic flies just like the real thing, requiring minute control inputs and a gentle touch. Easy is self-stabilizing, has little torque effect, and offers a gentle introduction to helicopter flight. Medium of course falls in-between.

In addition, you can scroll down to customize the difficulty level.

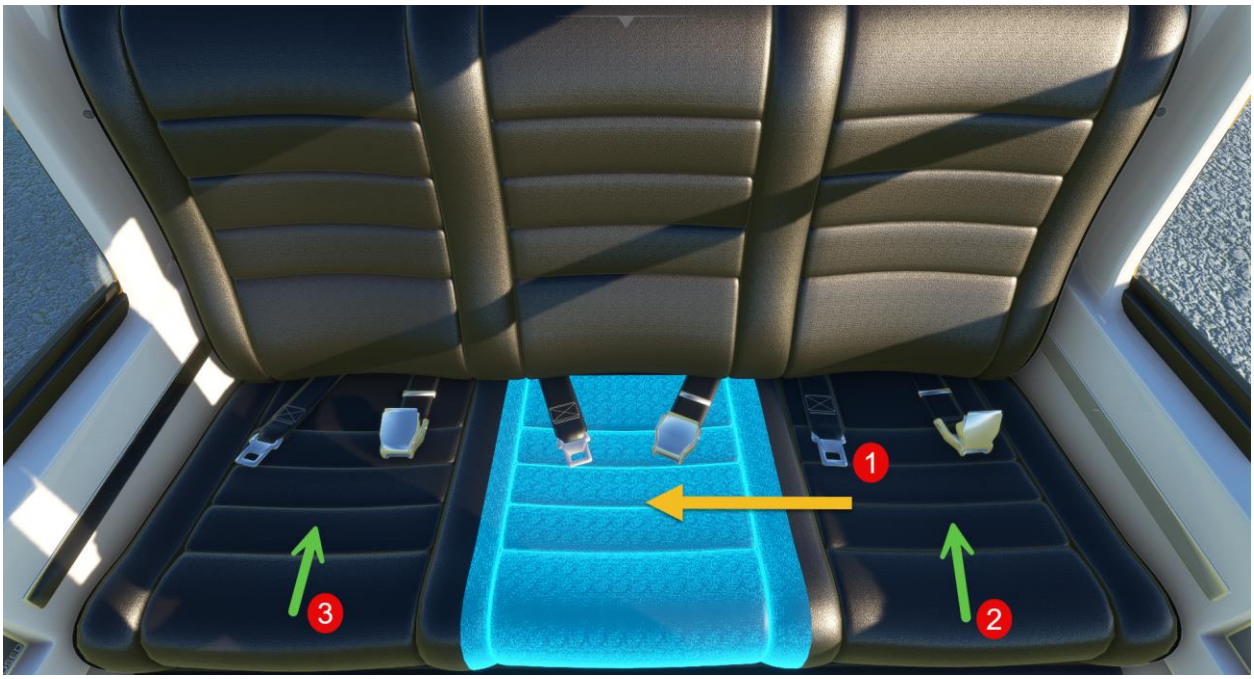


If you start the helicopter incorrectly (hot-start), try to pull too much torque, or over-temp the engine, it can fail. Turning off "Enable Engine Failures" will allow you to climb using your full control range without risking engine failure.

Cyclic Sensitivity adjusts how reactive your cyclic controls are. If you find yourself constantly overcorrecting, you may want to turn this down a little. For most realistic control feel, use the Cyclic Sensitivity slider so that the virtual aircraft cyclic travel matches your physical joystick's travel. You can then tweak it up or down to your liking.

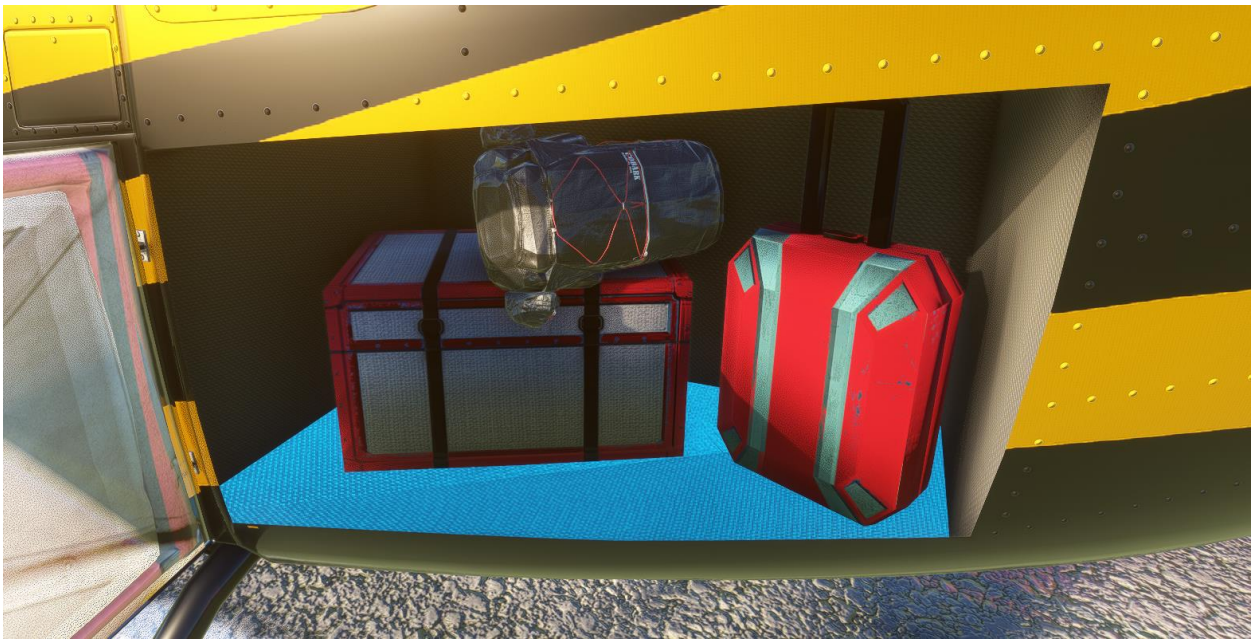
Helicopter Stability causes the helicopter to return to an upright hover on its own. In real life, (and on Realistic mode), a helicopter is not self-stable. If you don't constantly correct, it can eventually tip over one direction or the other. Stability prevents this, meaning you'll need to hold the joystick forward to keep the heli tilted forwards.

PASSENGER/BAGGAGE CLICKSPOTS



Click on any of the three seat cushions to toggle that passenger on/off.

Seat cushion is clickable through the model.



The floor of the baggage hold is the clickspot to toggle the luggage on/off.

Toggling any of the clickspots will add weight to the helicopter and affect the flight model accordingly. The passengers/luggage can also be toggled by adding/subtracting the weight in sim.

The copilot can also be toggled by clicking on the seat cushion or adding/subtracting weight in sim.

Tail Stability determines whether the helicopter is at the mercy of torque effects. In Realistic, if you pull in more collective, your heli will spin opposite the direction of rotation, and you'll need to compensate for this with the anti-torque pedals. As you turn up tail stability, this becomes less and less prominent.

If you'd like to enter a value outside of the 0-100 range (for a more sensitive cyclic, for example), you can hold the CTRL key and click on any of the sliders. The slider will then let you type any value you'd like into it. Note that crazy values will cause poor flight behavior.

5. Helicopter Flight

If you've only flown helicopters in video games before, you'll find the FlyInside B-206 a real challenge. You may want to start on Easy or Medium, and work your way up as you become more comfortable.

Although the 206 has a powerful turbine engine, pulling too much collective/torque can still damage it. Although helicopters can hover, they don't normally climb vertically, except close to the ground during take-off and landing. You'll almost never see them climb straight up.

When pulling up into a hover, pay close attention to the attitude of the helicopter. Correct for any tilt or yaw with cyclic and pedals before lift-off.

As such, be gentle on the collective, and once in a hover, gain a little speed. As you gain speed the efficiency of the rotor disk increases, and you'll be able to climb more quickly.

Keep an eye on the torque gauge and the TOT gauge. There's a redline, the maximum engine power you can safely operate at. If you're pulling more power than this, you can cook the engine and experience in-flight engine failure! At lower altitudes you'll find yourself torque limited (even if the engine can make the power, you could break parts or bend the rotor shaft). At higher altitudes you'll instead be temperature limited.

The 250-C20B turbine in the 206 is limited to 85% maximum continuous torque.

At high power settings, the torque may start to override pedal authority. If you want to turn left, and the helicopter won't let you, just lower the collective to reduce the power needed.

The last thing to keep in mind, is that helicopters aren't stable. If you tip the nose forward, it won't come back on its own. You'll need to pull back on the stick to pull the nose back up. In fact, different flight forces will tilt the helicopter in different directions as you speed up and slow down. You'll need to constantly correct for this. Unlike an airplane, a helicopter doesn't want to stay in there on its own. You need to keep it there.

6. Startup Procedure

To start the helicopter, you need fuel, air, and a spark. From cold and dark you'll want to do the following:

1. Turn on the BATT switch on the overhead panel
2. Ensure the Generator switch is in the START position. The alternator doubles as a starter motor, so it can either be used to spin up the engine, or generate electricity, but not do both at once.
3. Ensure that the throttle is fully closed.
4. Push both fuel pump circuit breakers in.
5. Press and **hold** the Starter button on your collective.
6. As the Gas Producer (N1) turbine reaches 15%, introduce fuel. Turn your throttle until the idle release button on your virtual collective pops up (approximately 30%), then stop. You'll hear light-off occur, and see temperatures (TOT) climb. Note that introducing fuel too early can lead to a hot-start and cook the engine.
7. Allow the gas producer to increase to 58% N1, at which point it will be self-sustaining. Wait 1 minute to stabilize temperatures.
8. Increase throttle until gas producer (N1) reaches 70%.
9. Set the Generator switch to the GEN position.
10. On the overhead panel, be sure that breakers are in, switches for gyros, lights, etc are turned on.
11. Align DG to compass heading.
12. Keeping torque below 40%, slowly advance the throttle to 100%.
13. Go fly!

Note* that this 206 does not have a dedicated avionics switch, but all avionics are wired to the GPS circuit breaker.

1. Clock
2. Outside Air Temperature
3. Engine Oil Press/Temp
4. Transmission Oil Press/Temp
5. Fuel Quantity
6. Electrical Load/Fuel Pressure
7. Torque
8. Turbine Outlet Temperature (TOT)
9. Gas Producer/N1
10. Radar Altimeter
11. Airspeed Indicator
12. Rotor RPM/N2
13. Secondary Nav CDI
14. Low-Rotor Alarm Silence Button
15. Attitude Indicator
16. Directional Gyro
17. Primary Nav HSI
18. Altimeter
19. Vertical Speed Indicator
20. Turn Coordinator
21. Fuel Valve Switch

1. COM1
2. NAV1
3. GPS
4. COM2
5. NAV2
6. Transponder
7. Caution Lights Dimmer Switch
8. Engine Anti-Ice Switch
9. Hydraulic System Switch

8. Common Issues

1. My engine quit in flight

The engine will unexpectedly quit in flight for two main reasons. First, if you are pulling too much power and exceeding torque/temp limits. Secondly, if you run out of fuel (check your fuel gauge), the engine will quit.

2. I was descending and suddenly fell out of the sky

You most likely encountered vortex ring state, also known as settling with power. VRS occurs when you descend quickly into the turbulence created by your own downwash. To avoid this, either keep some forward airspeed in descents, or vertically descend at less than 300 fpm. You can recover from VRS if you have enough altitude by lowering the collective and going either forwards or sideways to gain airspeed.

3. I got a “Hot Start” pop-up

Be sure that you have the throttle rolled to cut-off (0%) when engaging the starter. Smoothly roll in fuel when N1 reaches 15%. If you add fuel at the wrong time a hot start will occur. At 15%, turn your throttle until the idle release button on your virtual collective pops up. Releasing the starter too early with fuel added will also melt the engine.

Thank You

Thank you for reading, we hope you enjoy the FlyInside B-206!

For questions you can contact us directly at support@flyinside-helis.com

Be sure to check out our forums at https://forum.flyinside-helis.com/