

***FlightManual***  
***FlightGear***  
***EC130 B4***

**Approved by Date:**

**THIS MANUAL MUST BE CARRIED IN THE HELICOPTER AT ALL TIMES**

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# **Manual Content**

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## **About**

The EC130 B4 is a model of Eurocopter's EC 130 B4, a single engine light helicopter based and developed from their AS350's.

Indeed "EC130 B4" is just a marketing name by Eurocopter, the real name is still AS350 B4. It is a widebody variant of the AS350 B3 with a completely new designed passenger cabin and fuselage, and equipped with a fan tail instead of the conventional two-blade tailrotor. With this the EC130 B4 is much less noisier than other helicopters of this class. The helicopter was designed especially for tours, so it features a great visibility, a left-seated pilot and plenty of space inside. The EC130 B4 is also used by the police in Long Beach/CA and by several medical services.

This Model is a try and a WIP to get a realistic and complete simulation of a helicopter. With using Nasal-scripting nearly all main systems has been simulated to a degree which wasn't available at this time on FGFS's helicopters. The FlightDynamicModel is custom made and though a lot of values could only be guesstimate, it should give an good impression on how the real one flies.

Systems and Procedures are based on the real Flight Manual and as there is no Autostart available the helicopter has to be started and shutdown by using the checklist.

## **Credits and Thanks**

Without the help of the FlightGear Community I would never been able to create this model.

Especially I say thanks to:

**Maik Justus** who improved the rotor model in YASim to a degree, which can be hardly beaten by other programs. Not only that he gave me a lot of advice on how to use and configure the FlightDynamicModel to get it realistic as it can be.

**Melchior Franz** who created the Bo105 and so gave us the base for nearly all helimodels in FGFS. He wrote the most important nasal-scripts using for helicopters, without a lot of things couldn't be simulated accurate enough. He also improved the material animation and livery over mp, and a lot of other important features used here.

**Aiolia** which gave me a lot of helpful hints about the real one, especially rotor control travel way and blades twist.

**Torsten Dreyer, Thorsten Renk, i4dnf, AndersG** and many more who helped me with issues I had with Nasal scripting.

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**Vivian Meazza, i4dnf and Frederic Bouvier** for the lovely Bump-Spec-Reflection-Shader

**jag007** as real -life experienced pilot on the UH-1 for the detailed feedback

**Groucho, ot-666** and all others for feedback and support!

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This model is made for FlightGear Open Source FlightSimulator and is not related to any ripped of versions of like Flight Pro Simulator etc.

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## **Installation**

This model is made for the FlightGear 2.2.0 and later. So please check if you use the official Release 2.2.0 or later, the latest development Versions via GIT or the SnapShot Releases provided for the different OS-platforms.  
Support for older FlightGear-Versions or any ripped-off versions can't be given.

As the model is a WIP, the latest Model can be get by Downloading from:  
<http://gitorious.org/flightgear-ec130/flightgear-ec130/archive-tarball/master>

File has to be extracted into *fgdata/Aircraft* and after that renamed to **ec130**.

## **Configuration and liveries**

With the available paintkit for InkScape and the upcoming one for Gimp it is possible to recreate nearly every possible variant of the Ec130 B4 in real Life.  
Via the .xml file you can add external stores like the skibox, add Emergency Floats or FLIR's to the helicopter. This will also affect weight, CoG and drag of the aircraft.

For a new livery use the paintkit, and copy a existant livery.xml in *ec130/Models/liveries*, change the paths and name of the livery inside, change the tags by setting it "*true/false*" to configure the helicopter, and adjust the *refl\_correction* to your own liking. Then save the .xml under a new name.

For selecting liveries open FlightGear's menubar via F10-key, go to "*Ec130*", → "*Livery*" and click the favourite livery.

## **Limitations**

### **Type of Operation:**

Helicopter is approved to operate Day and Night VFR only.

### **The following is not allowed:**

-Aerobatics maneuvers

-in flight engine power reduction except for engine failure trainings and other emergency procedure trainings

### **Occupants**

Minimum flight crew:.....1 pilot (left seated)

Maximum number of occupants:.....7- 8 passengers

### **Weight and Balance Limitations**

Minimum weight:.....3307lbs (1500kg)

Maximum weight:.....5350lbs (2427kg)

### **Airspeed limitations**

VNE Power on:.....155 ktn

VNE Power off:.....125 ktn

### **Altitude Limitations**

Maximum operating flight altitude:.....2300ft (7000m)

### **Main rotor Limits**

<170 rpm:..... rotor brake operation

320 rpm.....minimum rotor rpm power off

320- 375 rpm.....Caution Range

375-405 rpm.....normal Operating Range

405-430 rpm.....Caution Range

430 rpm .....maximum rotor rpm power off

**Low Rotor rpm aural warning <360 rpm (not yet implemented)**

**High Rotor rpm aural warning >410 rpm (not yet implemented)**

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