

Eurocopter BO 105 CBS-5

''Reloaded''

Release: 18.12.2007
for FS 2004



Model: Günter Kraemer
Airfile: Jörg Hammes
Panel: Jörg Hammes
(Gauges by Jörg Hammes, Thomas Röhl, Günter Kraemer)



The BO 105 helicopter ranks a "classic" par excellence. This helicopter model is used as a small, agile and cost effective air rescue helicopter for decades now. The development of this model, which wrote air rescue history in Germany unlike any other, leads back to 1961. E.g. in the early days of Germany's air rescue, BO 105 were almost the only models used. The first flying ambulance helicopter in Germany (Christoph 1)

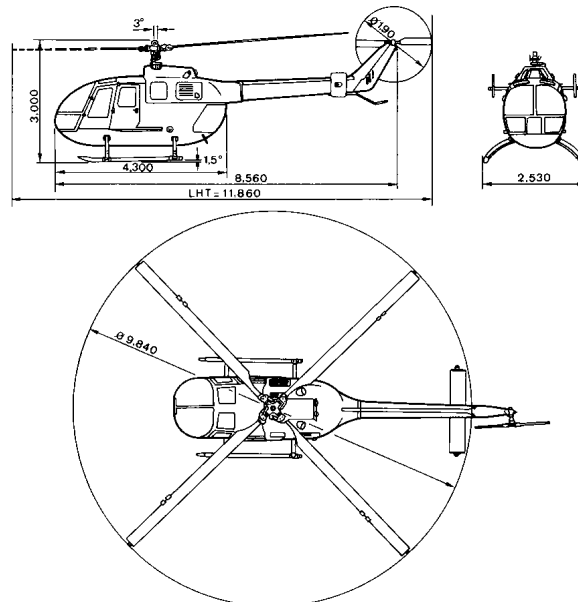
was in fact a BO 105 and started into service in 1970. Until today Bo 105's are still in service. The avionics got a lot of updates due of usage and special country requirements. So today nearly every BO 105 has got an individual cockpit - none resembles any other.

The same accounts for Flight Simulator panels. One tried to counterfeit the function and the look of a "modern" BO 105 original cockpit as close as possible, but in detail, you will find a mix out of several different BO 105 models. Actually the main panel, the middle console and the overhead panel, nearly the whole cockpit is included in Flight Simulator version. Several gauges have been programmed especially for this FS BO 105 project, others are "borrowed" with permission of Thomas Roehl's BK-117 and EC135roundi-Panels. This is possible because today Eurocopter uses the same gauges in several helicopter models. The GPS-Gauge has been developed by Günter Kraemer, who built this specially assembled version of his BO105 for this project. Almost all gauges have been written in XML. If you really want to fly the BO 105, reading this manual is a must - some functions have their peculiarities - but this has been done intentionally. Who ever wants to start this plane with shortcuts, won't have a lot of fun with this cockpit. (E.g. Strg+E doesn't work).



Technical Data:

engine	2 Turbine Rolls-Royce/Allison 250 C20 B with together 626 kW
max speed	270 km/h
cruise speed	243 km/h
max. range (without external tanks)	564 km or 3,5 h flight time
service ceiling (max)	5182 m
service ceiling (normal)	ca. 3000m
empty weight	1.913 kg
max takeoff weight	2.600 kg
fuel:	570 l (Jet A-1)
length over all	11,86 m
height over all	3,02 m
main rotor diameter	9,84 m
min needed stating area crew	ca. 20x20m Pilot, HEMS-Crew-Member (paramedic), Doctor



Equipment:

mobile equipment:	Emergency backpack, Baby Emergency backpack,
artificial respiration	Emergency and intensive care artificial respiration unit
circulation	heart defibrillator, cardiac pacemaker
trauma care:	Scoop stretcher, vacuum mattress, KED-system, , Burn-pack
diagnostic:	EKG, invasive blood pressure, pulse oximetry, temperature
gas reservoir:	Oxygen
optional:	Incubator, Search light, rescue island

Special features

You always have to start up the BO 105 out of a "cold & dark" situation (all systems off). A saved FS start situation with running engines does not work with this BO 105. Why? Some essential system functions, running in the background, are missing then. The reason for this particular 2-engine concept with the rotor which has to be engaged, as well as the fuel management. From the start up sequence of the engines to the accomplishment of full rotor speed, it takes approximately two minutes (this corresponds with the start-up-sequence of the real BO 105 with warm engines). With operating switch NO.2, engine 2 immediately set to idle. Reason is that the rotor is already engaged by idle of engine No1. The shutting down engine No2, you don't hear any "run-down-sound". That is one peculiarity of the Flight Simulator. After shutting off of both engines, you were able to reduce the rotor revolution speed by using the throttle (otherwise the RPM would decrease very slow) - same works with running engines, if you'll switch out of the "Fly-Modus" to "Idle-Modus" (for cool down engines). Some other functions, like e.g. the absolute exact start up procedure could not be implemented, since a lot of things are not supported bin neither the FS9 nor the FS X. The windscreen wipers are also not implemented and consequently don't work therefore. For a better overview, all gauges, no matter whether the FS-functions are implemented or not, will enlarge tooltips, if you'll move the cursor over them (and if you have engaged this function in FS).



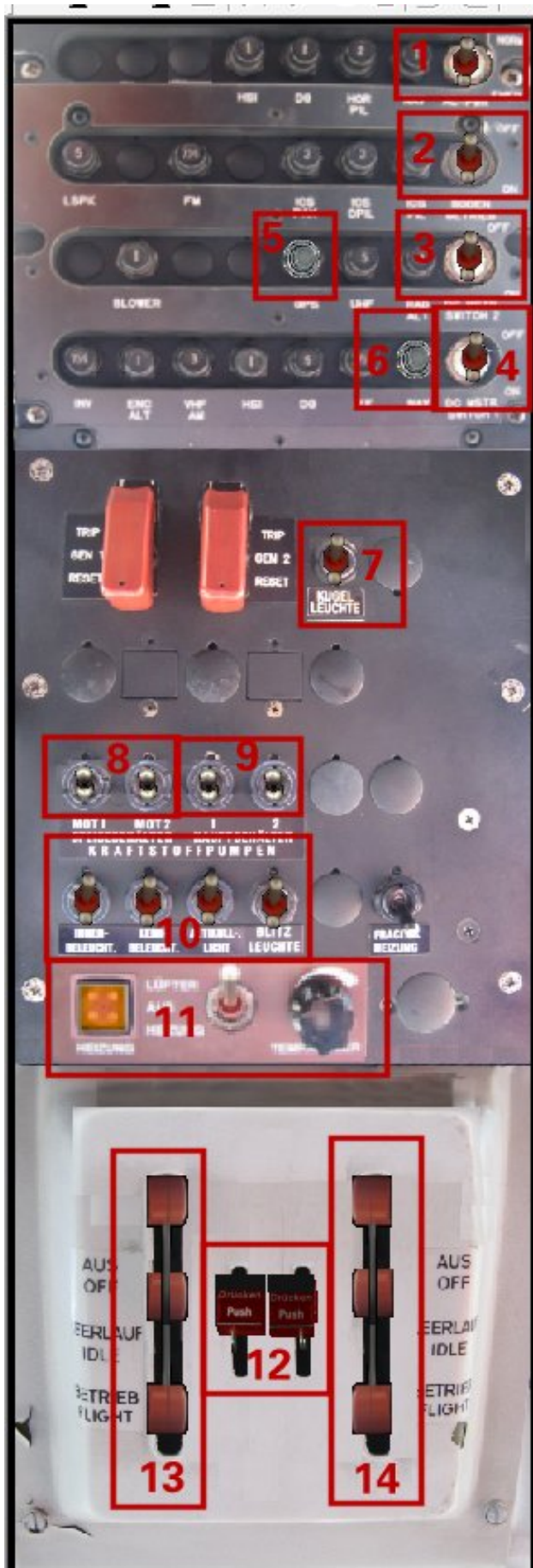
Main Panel



- | | | | |
|----|-----------------------------|----|-------------------------|
| 1 | Mag. Compass | 12 | Rotor RMP |
| 2 | ICARO-GPS * | 13 | Clock |
| 3 | Autopilot | 14 | Torque |
| 4 | Engine Fire (+ Test) | 15 | GPS (Flusi) |
| 5 | Altitude indicator | 16 | Main Rotor Mast Moment |
| 6 | Attitude Indicator | 17 | Oil Temperature |
| 7 | Horizon Situation Indicator | 18 | Oil Pressure |
| 8 | Variometer | 19 | Turbine Out Temperature |
| 9 | Radar Altimeter | 20 | Engine RMP |
| 10 | Airspeed Indicator | 21 | Fuel Indicator |
| 11 | VOR 2 | 22 | Fuel Pressure |

*this amazing GPS-gauges by Peter Wyss is not included in this pack, it is only available for members of the ICARO-Group.

Overhead Panel



- 1 Battery Master
- 2 Avionic Master
- 3 DC-Master 1 (Inverter 1)
- 4 DC Master 2 (Inverter 2)
- 5 Fuse GPS
- 6 Fuse NAV-COM
- 7 Beacon light
- 8 Fuel pump prime tanks 1+2
- 9 Fuel pump main tanks 1+2
- 10 lights
- 11 Carbine heater
- 12 Starter Eng. 1+2
- 13 Power Leveler Eng.1
- 14 Power Leveler Eng.2

Centerconsole (1)



- 1 Voltmeter
- 2 ampere meter
- 3 Generator Select
- 4 Fire cut off Eng1+2
- 5 Continues ignition
- 6 Generator 1+2
- 7 Fuse COM 1+2
- 8 Fuse electrical systems:
Hydraulic, Landing light
- 9 Fuse Fuel Pumps
- 10 Fuse engine deice
- 11 Engine deice 1+2
- 12 Engine deice signal
- 13 Pitot Heat
- 14 Panel Light
- 15 LDG-Light signal
- 16 EPU-Master
- 17 Anunicator Panel
- 18 Transponder
- 19 COM 1+2
- 20 Audio Select
- 21 NAV 1+2

Centerconsole (2)



- 1 FMS gauges*
(ICARO)
- 2 FMS – gauges*
(ICARO)
- 3 ADF

*this amazing gauge by Peter Wyss is not included in this pack, it is only available for members of the ICARO-Group.

Checklist – Not for real Aviation

OHP = Overhead

MC1 = centerconsole 1

MC2 = centerconsole 2

MAIN = Main Panel



BEFORE ENGINES START

1. check all switches and levers status OFF
2. Throttle complete back
3. PWR SELECT Batterie ON (OHP)
4. PWR Avionic ON (OHP)
5. CHECK FIRE DCT WARNING LIGHTS ENG 1 + ENG 2 (MAIN)
6. CHECK FUEL
7. CHECK FUEL VALVES 1 + 2 OP closed (OHP)
8. FUEL PUMPS prime tanks 1 + 2 ON (OHP)
9. FUEL PUMPS main tanks 1 + 2 ON (OHP)
10. ANTI-COL lights ON (EMP)

in bad weather conditions (rain / snow)

11. Continues ignition ON (MC1)
12. Engine deice ON (MC1)

ENGINE START 1

1. Starter 1 (OHP) pushed until RPM indicator 1 reaches 20% then stop pushing starter 1 and quickly move
2. Power Leveler ENG 1 (OHP) to IDLE Main rotor gets engaged (when Rotor RPM indicator R comes up to 60 % everything is fine otherwise give a little bit throttle. Rotor RPM indicator 1 moves up to 90 % and after some seconds up to 100%)
3. INVERTER 1 (OHP) ON
4. GENERATOR 1 (MC1) ON
5. GEN Selct Switch auf GEN1

ENGINE START 2

1. Starter 2 (OHP) pushed until RPM indicator 1 reaches 20% , then stop pushing starter 2 and quickly move
2. Power Leveler ENG 2 auf IDLE (OHP). Rotor RMP indicator 2 moves up to 90 % and after some seconds up to 100% TORQUE indicator comes up to 25%
3. INVERTER 2 (OHP) ON n
4. GENERATOR 2 (MC1) ON en

ENGINE RUN-UP 1. SROBE Lights ON (OHP)

2. POS Position Lights ON (OHP)
3. PITOT HTR ON (MC1)
4. STATIC HTR ON (OHP)
5. Radios (ANN) AUDIO, GPSNAV 1+2 ON
6. TRANSPONDER (ANN) ON + 7000 + MODE STBY (in Europe 7000 / USA 1200)

BEFORE TAKE-OFF

1. Check MASTER Light (MAIN) (must be off)
2. Check DOORS
3. Power Leveler ENG 1 + 2 move to FLY (OVR). Rotor-RPM indicator (MAIN) comes up to 100%. TORQUE indicators went to 80%
4. TRANSPONDER MODE IDENT (Mode Charlie)

IN RANGE

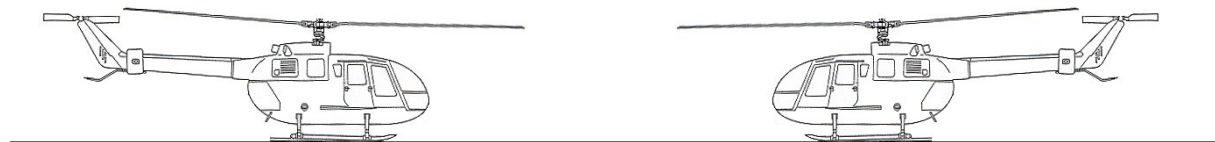
1. AUTOPILOT OFF
2. LDG Light ON (OHP)

AFTER LANDING 1. TRANPONDER (ANN) MODE STBY

2. Power Leveler ENG 2 + 1 move to IDLE (OVR) Rotor-RPM indicators (Main) went down to 65 %. (use little throttle for faster rotor decrease) minimum 30 seconds engine cool down run

ENGINES SHUTDOWN

1. FUEL PUMPS OFF (OHP)
2. GENERATOR 1 + 2 OFF (MC1)
3. INVERTER 1 + 2 OFF (OHP)
4. all electrical loads OFF (OHP + MC1)
5. Power Leveler ENG 2 + 1 move to OFF (OHP) Rotor-RPM indicator (Main) Decrease to 0% . (use little throttle for faster rotor decrease)
6. AVIONICS Master OFF (OHP)
7. PWR SELECT Batterie OFF (OHP)



Have fun flying the **BO-105 "Reloaded"**

Jörg Hammes

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Thanks to all team members of this project

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