

SIMHELP

Solvers Outside. Engineers Inside.



MBB BO105

Technical description and specification
of helicopter MBB BO105
FNPTII MCC Certification

TECHNICAL SPECIFICATION/PERFORMANCE STANDARD OF THE PRODUCT

The simulator meets all requirements determined for EASA CS-FSTD(H) FNPTII MCC certification level.

The fixed base simulator of twin-engine, multi-purpose rotorcraft replicates accurately the BO105 cockpit and flight behavior.

The Simulator System allows its further development in terms of wider information structure, allowing modification of the infrastructure of airports and other field objects, creating new and modifying existing rotorcraft in terms of aerodynamics and on-board instruments.

By the date of delivery, the simulator is newly produced. All documents about the simulator which are issued until the delivery date meet the requirements of the EASA CS-FSTD(H) FNPTII MCC (current edition at the day for Initial certification).

FSTD Cabin

Cabin developed of robust composite material, resistant to mechanical and environmental influence. The size of the cabin resemble the size of the cockpit of actual rotorcraft.

Cabin is enclosed and designed ergonomically and it's width allows the Instructor and student to move easily. It has two pilots' seats and interconnected double controls of the Pilot and Co-Pilot. Knobs, buttons, instruments are identical to those and located in accordance with position in actual rotorcraft.



Cabin's functional devices:

General Description

- Analog instruments or Glass Cockpit Configuration
- Dual Pilot IFR Configuration
- Flight Control Loading System in cyclic and pedals with digitally controlled engines
- Dual Interlinked Cyclic and Collective
- 3- Axis Autopilot with upper modes
- CAD, VEMD, FLI simulated
- Representation of AHRS, Adelt, FMS offshore operation systems
- P2+, T2+ specification available
- COM simulation
- VATSIM compatible

Visual System

- 3 Channel Cylindrical Visual
- Total HD immersion during the exercise on the simulator
- Full HD digital Projectors
- Warping and edge blending



Terrain, navigation & airports database

- Lockheed Martin Prepar3D Worldwide terrain database
- Geographical features are easily recognizable (mountains, coastlines, urban areas, etc)
- Up to 10 airports at the customer's choice are kept updated
- The navigation database include all route nav aids and the approach nav aids for the airports selected by the customer
- SID/STAR airport approaches available for selected airports

Instrumentation, hardware

- Virtual GPS WAAS navigation
- Fuel control governor
- Advisory and caution panel lights
- Clutch engage switch
- DG ADF VOR DANE / Transponder / Turn & Slip Active audio panel and marker beacon lights Durable
- industrial-grade flight controls
- Helicopter system switches according to provided helicopter model
- Helicopter throttle, fuel control unit and carb heat, according to helicopter model
- Anti-torque pedals
- Adjustable cushioned pilots' seats

Instructor Station capabilities

- Two 24" touchscreen monitors with an intuitive and easy interface for Instructor Station
- IS allows Instructor to activate simulation of failures and also manage necessary circuit breakers
- IS provide the ability to configure Weight and balance, fuel quantity
- IS provide the ability to set up the Atmospheric and visual conditions can be changed in real time
- Lateral and vertical approach view on IS
- Automatic QTG's on the Instructor Station that can be printed and saved
- Approach Plates of the defined airports with the position of the aircraft over the page
- Dynamic weather available in Weather configuration section of IS

Installation of the simulator

- Simulator size is 4m x 5m x 3m, can be delivered disassembled to enter the doorway
- Modular

Emergency Procedures Training capabilities

- Simulation of Systems failures and manageable circuit breakers may be engaged via IS
- Instruments failure can be simulated

- receivers failure can be simulated
- power plant systems failure can be simulated
- Vortex ring state (settling with power) Loss of tail rotor thrust failure can be simulated
- Loss of tail rotor failure can be simulated
- Brown out landing & take off conditions Autorotations (standard, minimum 180 deg, hovering) failure can be simulated
- IS control of master and advisory cautions IFR partial panel

Mapping and Evaluation

- IS Plan, profile, and extended profile views
- Flight data recorder with Transponder, heading & altitude map read-out, aircraft repositioning available from the IS
- IS has separate section with flight instrument representation
- IS has the Map with Route and waypoint plotter
- GPS flight plan tracking included into IS

Training available on FSTD

FSTD is compliant with Certification requirements for Modular & Integrated courses

- PPL / CPL / ATPL
 - MCC
 - IR-ME
 - FI / IRI / MCCI / STI
-
- Normal & Emergency Procedures Refreshment
 - Systems Training
 - Human Factors and Pilots Decision-Making Courses:
 - CRM (Crew Resource Management)
 - TEM (Threat and Error Management)
 - LOFT (Line Oriented Flight Training)
 - Initial Pilot Evaluation

The control buttons and controls are placed in the right places and resemble ones inside of the real aircraft.

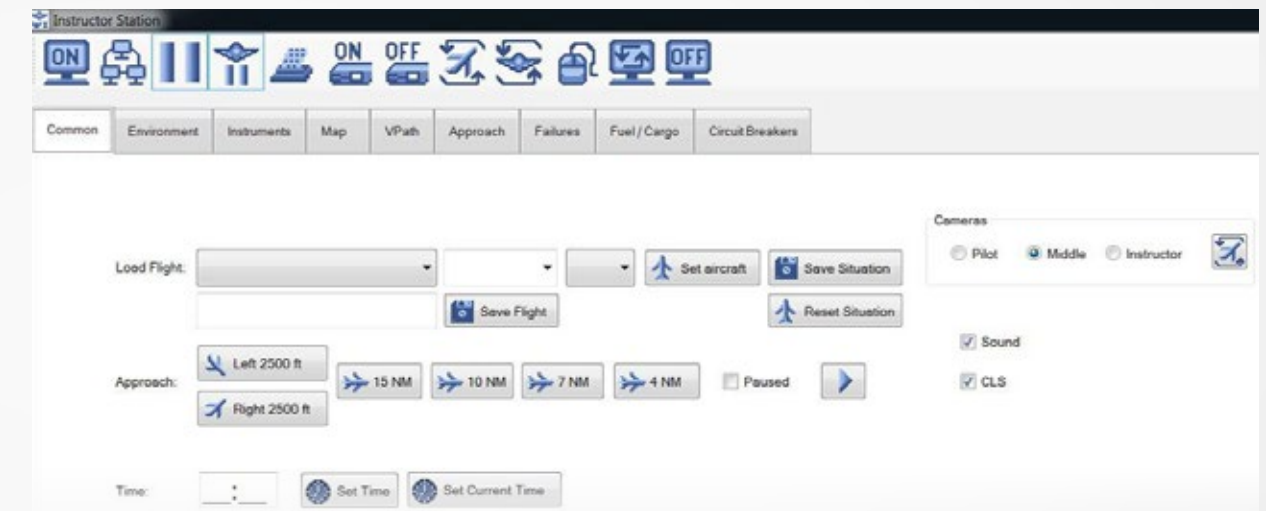
The flight cockpit has the following control features (default configuration):

- Emergency stop button
- Sound system units control

The Instructor will be able to make the following changes quickly:

- Initial position setting
- Access to meteorology pages (visibility, wind, air pressure, temperature, speed and direction settings)
- Access to control pages
- Visual control
- Access to mapping (routing) pages (position, direction, altitude, wind speed, transponder code, flight following etc.)
- Configuration settings (instrument indicators according to the aircraft types)
- Navigation settings

INSTRUCTOR STATION



Instructor Station (IS) consist of standalone computer with a Simulator Operational Software, which allows to operate the functionality of Simulator and also to configure and change the Flight / Rotorcraft parameters. IS has two touchscreen monitors for Instructor to supervise and to manage the simulator with convenience. HD video camera allows for instructor to supervise the student's performance and Instrument panel.

Main capabilities of IS:

- operation of Simulator – start/stop/restart/flight freeze of Simulator/ projectors, print, etc
- Common – loading flights, choosing the airport, setting the helicopter on the glide path, main flight parameters;
- Environment – managing weather conditions;
- Instruments – displaying the information of Primary Flight Display

- Map – map with navigation and flight trajectory;
- V Path – vertical flight profile;
- Approach – trajectory of the approach to landing with ILS turned on;
- Failures – initiation of failures of various helicopter systems;
- Fuel / Cargo – configuration of loading and fuel filling.
- Circuit Breakers – allows to manage (Switch Off) Circuit Breakers of different System.

SIMULATOR CONFIGURATION AND PERFORMANCE

Control Loading System

Control Loading System (CLS) provide dynamic loads on the simulator's controls in accordance with the type of the rotorcraft, flight plan and weather conditions. The CLS gives the pilot a sense of reality with a reaction in the use of the elevators, ailerons and rudders.

Visual Display and Navigation Database

All the active aerodromes in Customer's area is included in the navigation database.

Worldwide terrain database. Geographical features are easily recognizable such as mountains, coastlines and urban areas.

At least 5 airports in the navigation database shall be with all the navigation information specified in the AIP of Customer Aviation Authority and/or in the European International Airports. These airports navigation

information is updated in accordance with effective changes of navigation information in AIP of given airports.

The navigation database includes all route nav aids and the approach nav aids for the airports selected by the customer.

SID/STAR airport approaches of the airports selected by the customer.

Aerodynamics and Performance features

Shall be in accordance with EASA CS-FSTD(H) FNPTII MCC requirements.

VATSIM

Simulator comply with and is able to work with VATSIM – Virtual Air Traffic

Simulation Network which allows students to practice radio communication skills.

The avionics / radio system simulation

The avionics of Simulation System can have two configurations – classic/ analogue avionics, or Glass Cockpit. Classic avionics or Glass Cockpit avionics include all standard configuration instruments of Helicopter instrument panel..

Simulator system spatial requirements

Page Simulator minimum space required (W x L x H) 4m x 5m x 3m.

A full profile for the installation and commissioning of the equipment

Price includes delivery of Simulator to Customer, installation and final testing when all equipment is assembled. All installation works provided by SoftekSim engineers. Final testing include tests on compliance of

Simulator to CS-FSTD(H) FNPTII MCC requirements. Final tests performed by SoftekSim pilot-instructor. As a result of Final testing the Master QTG (initial Quality Test Guide) produced. Staff training (Operational & Maintenance training) on site upon final assembling of the Simulator. Assistance at certification.

Full warranty details

The Simulator bears 24 months full warranty. Warranty period extension is available.

The complete documentation for maintenance operations comes with Simulator. Customer staff will be trained to do required periodic maintenance works. A Hot Line for problems and maintenance support is available. Manufacturer Support team is able to connect to Simulator via Internet for problem diagnostic and repair, and also for updates of Simulator Software.

User training

Simulator provided with Operational Manual, which have instructions for Operation along with description of operational features of Simulator.

SoftekSim engineers will provide a training for Customer's personnel to operate Simulator. Training will be provided at Customer's site after commissioning the Simulator.

After training completion Customer's personnel will receive the SoftekSim Simulator Operator Certificate.

Simulator documents

Simulator equipped with the following documents:

- Operational Manual
- User Manual
- Maintenance Manual
- Master QTG
- Simulator Logbook
- QTG Test Execution Guide
- Backup and Restore Manual