

Mil Mi-17/Mi-171Sh Helicopter Simulator (PTT)

The Mi-17/171Sh Avionics System Simulator (SAS) of the "Part Task Trainer (PTT)" category is designed for individual training of Mi-17/171Sh helicopter pilots.

It is a flight simulator equipped with generic mathematic model, that enables to train operating, handling and using of on-board systems of the helicopter.

The simulator is ready to operate in a tactics training mode using DIS protocol or HLA.

Because of used architecture the simulator can be effectively used also for testing of various configurations in a process of Mi-17/Mi-171 modernization.

Training focus:

Training is focused on training and practicing of both standard and emergency procedures on the ground and in flight, including the practice of using the navigation and radio communication systems. Due to training on the simulator, pilots become familiar with all substantial new features and systems of a modernized helicopter, especially with the FMS CMA-9000 system, the RN6 digital map generator RN6 and with a self-defence system.

Training options:

Individual training

- basic and advanced training of a helicopter captain and a pilot- navigator

Tactics training

- mode of training in cooperation with other units (wing, flight, squadron) or a battle group

Developed skills:

- practising of flight procedures
- managing of the on-board systems
- FMS (Flight Management System) operation
- using of map displays to prepare, plan and execute flight tasks
- practising of the navigation flights
- using of a self-defence system

Key benefits

- Cost-effective solution comparing to full mission simulators for individual training
- Realism - integration of helicopter real equipment (hardware in a loop) - FMS CMA-9000 and a map generator EuroNav RN6
- Detailness - specific simulation of all helicopter systems
- Advanced tools for pre-flight briefing and after action review
- High resolution geo-specific terrain databases



Technical description

The Mi-171Sh simulator is designed as a modular system and uses as much as possible off-the shelf hardware.

Contents

Captain and pilot-navigator workplaces (simulator cabin)

- The simulator cabin is designed to reflect dimensions of a real helicopter.
All controls and instruments are simulated by means of touch screens with the same ergonomics as in the actual helicopter.

In addition, the cabin is equipped with fully functional replicas of cyclic and collective levers.

Instructor Operating Station (IOS)

- IOS manages the Mi-171Sh simulator control, i.e. switch-on, switch-off, diagnostics and setting of the exercise parameters.
IOS enables to pause and restart simulation during a simulation task

Computing system

- The computing system of the SAS Mi-171Sh simulator consist of standard PCs and other off-the shelf hardware.
Another parts of the computing system create the CMA-9000 and RN6 real systems (for their integration into the simulation hardware are used the PCI cards with the ARINC 429 interface and corresponding cabling)

Visual system

- The visual system of the Mi-171Sh simulator consists of two-channel visual system ensuring realistic visualization of surrounding environment during all phases of the training tasks execution.
The visual system consist of two LCD displays, located in a front part of a cabin, and a software image generator.
The software image generator ensures visualization of surrounding terrain, atmospheric effects and simulation entities.

Software

- synthetic environment
- mathematical model (aerodynamic model)
- mathematical model of engine
- model of board systems
- model of navigation system
- models of Computer Generated Forces (CGF)
- DIS/HLA interface



Workplaces equipment

Captain and pilot-navigator workplaces:

- welded steel construction of cabin deck
- eleven touch screens
- replicas of collective and cyclic control levers and pedals with an electro-mechanical control loading system
- FMS CMA-9000 and EuroNav RN-6 systems

- captain and pilot seats

Instructor Operating Station (IOS):

- configuration notebook for preparation, monitoring and evaluation of a training task

Technical parameters

Dimensions (mm)

- length 2360 x depth 2930x height 1610

Weight

- 470 kg

Hardware

- power supply: 3 x 400V, protection 3 x 16A class B

Standards support

- HLA (IEEE 1516) protocol
- DIS (IEEE 1278) protocol