Medium Speed Engine Room Simulator with Hardware Consoles (MED3DH)

The Medium Speed Engine Room Simulator MED3Dh is based on typical medium-sized engine rooms with one four-stroke type main engine with reduction gear and controllable pitch propeller.



A general view of the MED3Dh simulator rooms.

The simulator models the engine room in visual 3D and to create the impression of working in the real environment, it provides 3D sound which can be heard on 2, 4 or more speakers.

Medium Speed Engine Room Simulator with Hardware (MED3DH) PC Maritime <u>http://www.pcmaritime.co.uk</u>



MED3Dh has been developed to comply with:

- **§** STCW Code: Section A-1/12 and Section B-1/12.
- **§** ISM Code: Section 6 and Section 8.

MED3Dh is based on an engine room composed of one medium-speed diesel engine, three diesel engine generators and one shaft generator. The propulsion system includes Main Engine, controllable pitch propeller and reduction gear. Propeller revolutions and pitch are controlled simultaneously.

MED3Dh simulator model includes:

- **§** Fuel System
- **§** Cooling System
- **§** Lubricating System
- **§** Compressed Air System
- **§** Power Plant
- **§** Steam System
- **§** Sanitary Water System
- **§** Bilge System
- **§** Steering Gear
- **§** Sewage Treatment Plant



The 3D model includes very realistic, animated virtual controls like switches, gauges and lamps.

The hardware control panels imitate the most important parts of the control room equipment.





The mimic diagram allows zooming into any selected part of the engine room.

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Zoom technique allows navigation in 3D environment and easy access to details.





The Electric Power Plant hardware console is equipped with a modern Power Management System which enables automatic control of generators according to actual power demand.

Control room allows remote control of engine room equipment from computers.



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MED3Dh main features:

- **§** MED3Dh is a highly realistic simulator for ship's engine room training which can also be used as a low cost introductory simulator.
- **§** The mathematical model simulates a typical ship's engine room with one 4-stroke, medium speed engine, reduction gear and controllable pitch propeller.
- **§** All vital auxiliary systems have been implemented.
- **§** The user interface includes virtual controls and alarms and creates very realistic environment.
- **§** The 3D virtual reality with active valves, tank level indicators and selected digital gauges enable comfortable engine room operation and monitoring.
- **§** Multichannel digitised sound provides a very realistic ships' engine room feel. The sound effects include: engine sound correlated with engine speed, the sound of a diesel generator starting and running, open indicator valve sound, alarm and machine telegraph buzzers.



MED3Dh Water Mist System – Fire simulation of diesel generator No.2.

The main educational tasks which can be accomplished are:

- **§** Learning ship's engine room typical operating routines.
- **§** Ship's engine room operation training. The user will have the possibility to accomplish any operational task starting from different setups, both pre-prepared and saved by a user.
- **§** Corrective action learning when faults occur. Different faults can be simulated and mixed in the run-time or loaded from disk.