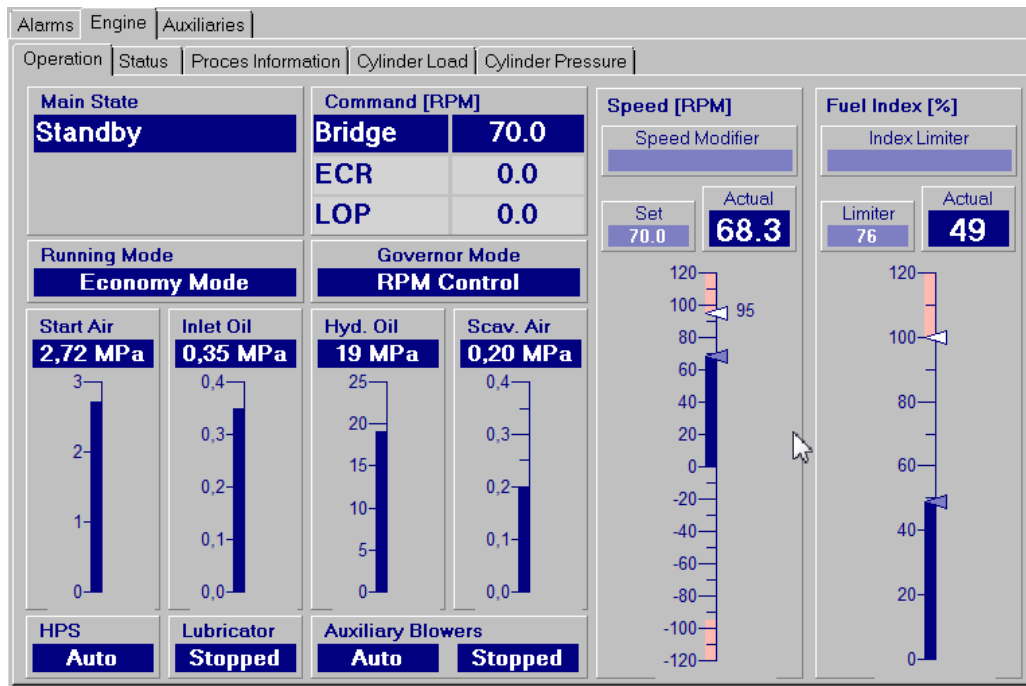




Virtual Engine Room 5

Electronic Control

Virtual Engine Room 5 Electronic Control (VER 5 EC) is a first engine room simulator of the electronically controlled low speed diesel engine.



VER 5 EC has been developed to comply with:

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

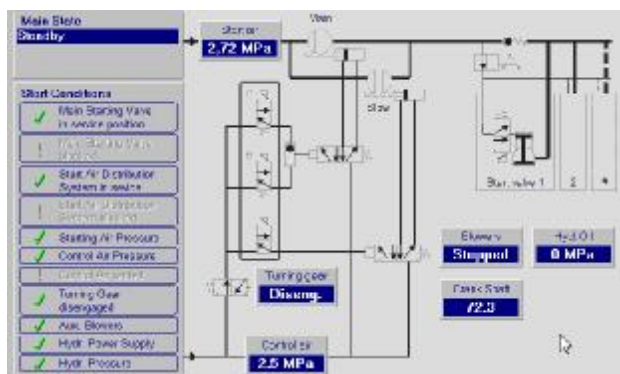
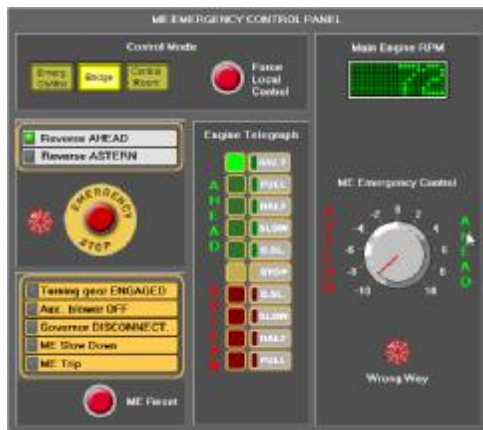
VER 5 EC is delivered together with VER 4.5 which simulates the same engine room but without an electronic control.

The main educational tasks, which can be accomplished with VER 5 EC are listed below:

- Learning typical ship's engine room **operating routines** with the support of the integrated **checklists**.
- Ship's engine room **operation training**. The user will be able to accomplish any operational task starting from pre-prepared or previously saved **exercises**.
- Training in corrective action when faults occur. **Different faults** can be mixed in the run-time or loaded from disk.
- **Standardised assessment** divided into several tests. These unique assessments have been positively approved by an international group of simulator experts. Competence is measured in penalty points and can be compared with other student results.

Virtual Engine Room 5 EC

VER 5 EC simulator model includes the following systems:



- The main engine (2 stroke, low speed, 7 cylinders, fixed pitch propeller)
- The **electronic control system simulation** including ECONOMY and EMISSION mode..
- The main engine remote control system (manual from CR, automated from the bridge and the emergency control at the engine side)
- The fuel system (MDO and HFO, including storage system and separators).
- The lubricating system (LO circulation and separator, LO storage and stern tube lubricating).
- The cooling system (sea water and fresh water central cooling).
- The compressed air system.
- The sewage treatment plant.
- The sludge and garbage incinerator.
- The steam system (auxiliary boiler, waste heat recovery, superheated steam, consumers).
- The power plant (2 diesel generators, 1 shaft generator, 1 turbo generator and 1 emergency diesel generator, multiple power consumers with separate circuits and bow thruster).
- The bilge system with oily water separator.
- The ballast system.
- The steering gear.
- The refrigerating system.
- The domestic water system
- The air conditioning system
- The simplified own ship model with ship speed modelling..

Here is a list of VER 5 EC main features:

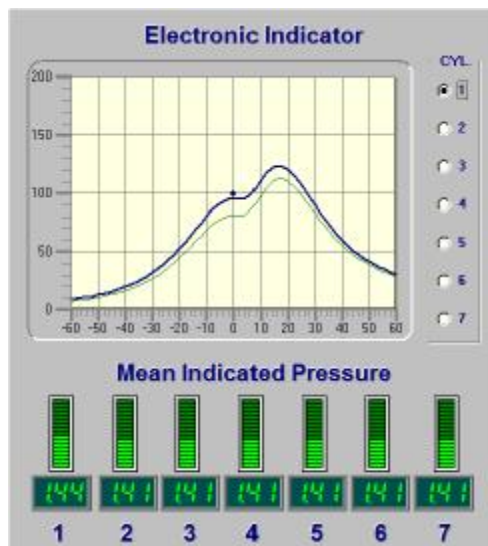
- VER 5 EC is a **highly realistic simulator** for ship's engine room training which can also be used as a low cost introductory simulator.
- The mathematical model simulates a typical ship's engine room with a **2-stroke, low speed engine**, its auxiliary systems, power plant and a steam system.
- The realistic simulation of the electronic control system has been implemented. It is possible to **change many combustion settings and see immediately the changes of the combustion pressure curve**.
- **Mimic diagrams** with active valves, pump status indicators, tank level indicators and selected digital gauges make the system easy to use.
- Multichannel **digitised sound** provides a very realistic ship's engine 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. The volume level for all sound channels can be freely selected according to personal preferences.
- **Synthesized speech** emulates the chief engineers advices, spoken checklist instruction and communication with a bridge integrated within the scenario.
- The **Computer Aided Assessment (CAA)** is fully integrated with the simulator and can be used for a quick check while operating the engine room or for assessment and competency verification.
- VER 5 EC can co-operate with another PC connected in a **local area network**. This second PC can be used as an instructor terminal enabling online monitoring of student activities, fault simulation and telegraph communication between a bridge and an engine room.

Virtual Engine Room 5 EC

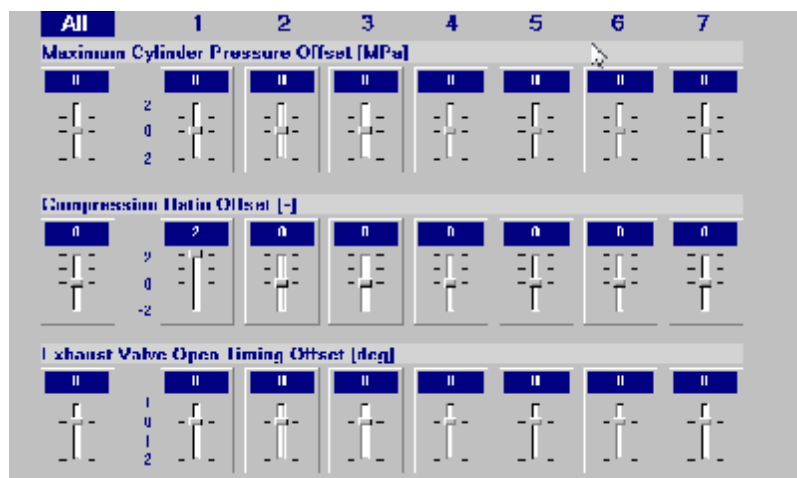
VER 5 EC offers different types of user interface:



The control panels include very realistic, animated virtual controls like switches, gauges and lamps. The control panels imitate the most important parts of the control room equipment.



It is possible to see the influence of the electronic control settings at the combustion curve.



The electronic control MOP panels have been simulated and can be used for the change of the engine operation mode.

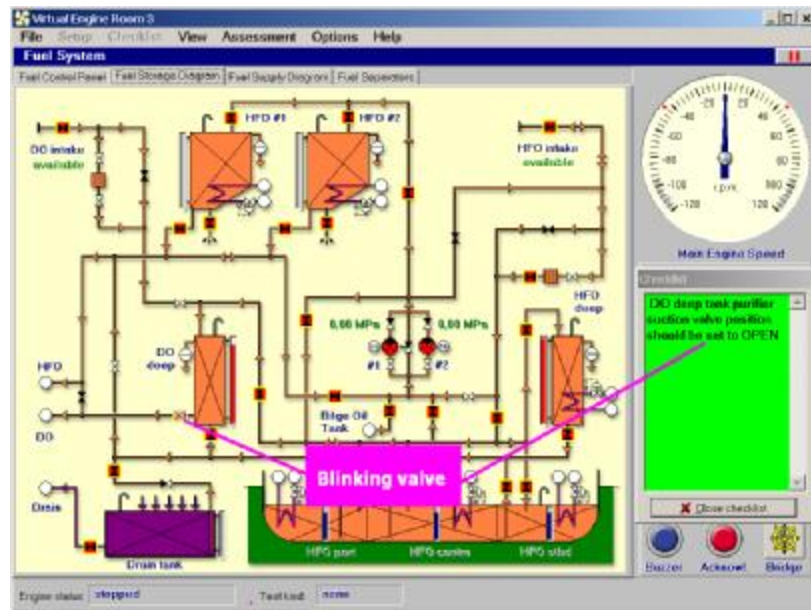
Virtual Engine Room 5 EC

Other examples of **VER 5 EC** features are shown below:

The green **Checklist window** shows instructions relevant to the selected checklist.

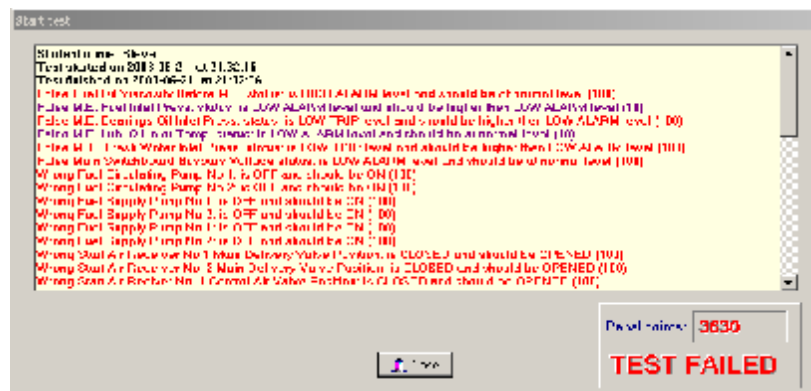
The appropriate system window will always open when a new checklist step is shown in the checklist window.

The control lamp, switch or gauge specified in the checklist step "blinks" in order to make it easier to identify.



The **Assessment window** includes:

- A full list of errors with related penalty points.
- The total number of penalty points.
- The final results (Passed or failed).

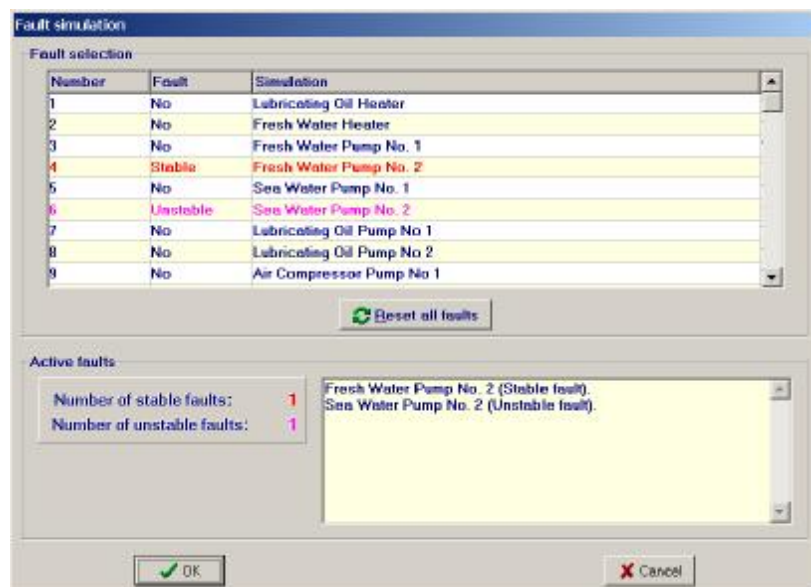


The **Fault Simulation window** contains a list of all available simulations and their status, which can be monitored and changed.

There are 3 possible states for each fault simulation:

- No fault.
- Stable fault.
- Unstable fault.

More than 50 different faults are available.



For further information please contact: