

Action code: WHEN CONVENIENT

Cybersecurity
MAN EngineVault

SL2020-693/CHOU
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Concerns

Owners and operators of MAN B&W two-stroke marine diesel engines. Types: ME/ME-C, ME-B, ME-GI, ME-GIE and ME-LGI

Summary

Obtain the highest level of cybersecurity by upgrading engine hardware and software networks.

Dear Sir or Madam

Cybercrime is an increasing threat to shipping industry, and ransomware attacks are increasing rapidly year by year. These attacks are performed through online hacking or by malware brought onboard by USB flash drives or other physical media.

IMO has issued MSC-FAL.1/Circ.3 guidelines with recommendations on maritime cyber risk management. Resolution MSC.498(98) encourages administrations to ensure that cyber risks are appropriately addressed in existing safety management systems (as defined in the ISM Code) no later than by the first annual verification of the company’s Document of Compliance after 1 January 2021.

MAN EngineVault is the cyber security solution of MAN Energy Solutions (MAN ES). It includes a hardware and software update of the two-stroke engine control system that will provide the best possible protection against online and physical cyber attacks.

The cybersecurity solution combines software and hardware to provide firewall protection, comprehensive whitelisting, and application-layer security that permits only MAN ES certified application on the engine network and operating platform.

Write to: Retrofit2S@man-es.com or operation2S@man-es.com if you have further questions about the new cyber-secured engine network.

Yours faithfully



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Introduction

MAN ES is committed to protecting vessels against the cybersecurity risk arising from physical handling of digital storage devices and online connectivity. Upgrading the engine network will assure the highest level of cybersecurity provided for MAN B&W two-stroke engines.

These updated and cyber-secured components will become standard on all new design specifications from 1 April 2020. By updating all components simultaneously, the engine will be provided with the following security features:

- Network hardening via port separation protection, encryption of data received and transmitted, and advanced network segment segregation.
- Critical hardware protection via the main operating panels for the engine control and management systems.
- Application-layer protection and extensive whitelisting that only allows certified software on the engine network.

CEON is the MAN ES online platform for transmission of data and included functionality to enhance operational decision support, and to help improve MAN B&W engine designs in general.

Recommendation

MAN ES recommends all shipowners with electronically controlled ME-type MAN B&W engines to upgrade their cybersecurity. In particular, MAN ES firmly recommends the cybersecurity upgrade before connecting any engine network interface to third-party internet-enabled systems such as smart ship solutions.

Requirements

The list below includes the minimum requirements needed to obtain the cybersecurity state.

Hardware:

- mGuard rs4000 – MAN ES certified and updated
- FL Switch 2316/k1 – MAN ES certified and updated
- EC-MOP Version 3S / 4
- EMS-MOP Version 1S / 2

Software:

- EMS 1912-2.7 or later
- ME-ECS-SW-1903-5 or later
- ME-B-SW-1403-8 or later

Description of parts

Managed Switch Update

- Segregates network into multiple segments
- New hardened 16-port version



mGuard Update (Firewall)

- Firewalling all data sent/received from the closed engine network
- Controls data exchange securely between systems



EMS-MOP Update

- Processes raw engine data for diagnostics and control use.
- Automatic recovery function
- Hardened Windows 10 operating system
- Whitelisting of applications allowing only MAN ES certified application
- Data gateway for secured data transfer between CEON and engine network
- Newest software version of PMI and CoCoS



EC-MOP Update

- Newest applicable Engine Control System (ECS)
- Automatic recovery function
- Hardened Windows 10 operating system
- Whitelisting of applications allowing only MAN ES certified applications.

