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TECHNICAL OPERATION OF ELECTRICAL APPARATUS AND MACHINERY OF THE SHIP'S ELECTRIC POWER SYSTEM

Shipboard integrated power systems ensure continuous and efficient power supply to all onboard electrical consumers. They include generators, distribution devices, automation and control systems, as well as emergency power sources. Proper operation of these systems is critically important for the safety and efficiency of the vessel.

Main Components of a Shipboard Power System:

Generator units – provide primary and backup power supply.

Distribution devices – include main and auxiliary switchboards responsible for power distribution.

Automation and monitoring systems – control the operation of generators and distribution equipment.

Emergency power supply – consists of emergency generators and battery backups for critical systems.

Regular maintenance and diagnostics help prevent emergencies and extend the service life of the equipment. The main maintenance measures include:

Inspection of insulation for cable systems and electrical equipment.

Monitoring of voltage and frequency parameters.

Checking the condition of generator brushes and contacts.

Testing automatic protection and stabilization systems.

Protection of Shipboard Power Systems Includes:

Use of automatic circuit breakers to prevent short circuits.

Implementation of an emergency shutdown system.

Integration of temperature and overload monitoring systems.

Shipboard power systems must operate under high humidity, vibrations, and fluctuating loads. To ensure reliability, the following measures are applied:

Special anti-corrosion coatings for electrical equipment.

Voltage stabilizers to compensate for load surges.

Vibration-isolated mounts for generators.

The technical operation of shipboard integrated power systems requires a comprehensive approach to diagnostics, maintenance, and safety assurance. Adhering to regulatory procedures and implementing modern automation technologies enhances the reliability of shipboard power systems, reduces repair costs, and ensures uninterrupted power supply onboard.