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ИСТОРИЯ



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/SHIPBUILDING/

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CONTENTS

AT SHIPBUILDING YARDS

CIVIL SHIPBUILDING

V. N. Polovinkin, I. V. Karyshev. Method for polar definition of objectives used to assign goals and tasks for shipbuilding industry development.

Application of method for polar definition of objectives enables scientifically justified approach to assign goals and task for development of shipbuilding industry as a complex system with advanced interaction level of its constituents. Large number of parties impacts the system and therefore determines assignment of goals which are different for each party and may even be contrary.

The author hereby describes a math model to make up the list of such goals and analyze their influence when planning the development of shipbuilding industry.

Keywords: shipbuilding, planning, goal assignment, cross-impact of goals.

Yu. N. Myasnikov, V. N. Polovinkin. Restoration of advanced test lab for ships and vessels.

This article reviews feasibility of restoration of advanced test labs for ships and vessels for subsequent competitive exploitation of transport fleet, technically justified determination of combat configuration of the Russian Navy, advancement of technical and regulatory documents to ensure technological advantages in frames of ship design.

Keywords: ships, vessels, diagnostics, technical conditions, regulatory documents.

G. V. Yegorov, V. I. Tonyuk. Multi-purpose bulkers of «Navis» type, Pr.RSD32M

The authors narrate about development of conceptual design of bulker with 5000 ton carrying capacity at sea (primarily grain) at 4,2 m draught (oriented for seaports of sea of Azov and Caspian sea) with a guaranteed cargo capacity of 3000 ton in rivers (3,2 m draught).

Keywords: mixed sea-river going ships, bulker, CFD-modeling, cargo capacity, overall strength, economic and power advantages.

NAVAL SHIPBUILDING

A. V. Krasilnikov. Design, technological features and circuit solutions of forced stationing system utilized for installation of small-sized launchers on submarines.

This article provides description of design and technological features and circuit solutions of forced stationing system utilized for installation of small-sized launchers on submarines.

Keywords: small-sized underwater weapons, launchers, installation technology, forced stationing.

SHIP POWER PLANTS

***F. A. Gelver.* Perspective rotary electric drive based on a reactive electric machine with anisotropic magnetic conductivity of the rotor.**

Various types of electrical converters are considered for controlling a reactive electrical machine with anisotropic magnetic conductivity of the rotor and structures of construction, rowing electromotive complexes based on them. The article presents a mathematical description of the type of electromechanical converter under consideration and compares it with various types of electric machines for various indicators, presents quantitative estimates. A review of various designs of a reactive electric machine with anisotropic magnetic conductivity of the rotor, new designs of the rotor of a reactive electric machine with anisotropic magnetic conductivity of the rotor and the combined design of the motor-propeller. The results of an experimental study of a prototype of a rowing motor with an anisotropic magnetic conductivity of a rotor with a installed power of 500 kW are presented and the promise of an electric drive based on a reactive electric machine with an anisotropic magnetic conductivity of a rotor is proved.

Keywords: reactive machine with anisotropic magnetic conductivity of the rotor, longitudinal and transverse charge of the rotor, mass and dimensional characteristics, energy efficiency indicator, energy efficiency ratio, combined design of the motor-propeller.

***A. V. Kashenkov, M. S. Svirdov, L. N. Tokarev.* Control of turbo-generators power flow onboard icebreakers of ЛK-60 type in parallel connection to power network.**

Power icebreakers of type LK-60 contains two turbine generating units with a capacity of 36 MW. Due to the specifics of the icebreaker's operation, it is not excluded that there is a need to transfer electricity to the shore system. In the mode of parallel operation of the ship's power plant with the network, it is advisable to be able to change the share of the nominal power of the turbine generator given to the network. The article presents the structure of the control system of active and reactive power transmitted to the shore. The influence of the transmission line resistance from the icebreaker power plant to the onshore network on the operation mode of the turbine generator is shown.

Keywords: synchronous generator, primary engine, parallel operation with the network, active and reactive power. power stabilization, transients, modeling.

SHIPBUILDING ORGANIZATION AND TECHNOLOGY

***A. V. Krasilnikov, N. I. Gerasimov.* Determination of permissible installation tolerances for small-sized outboard launchers of submarines.**

This article is devoted to estimation of impact of installation tolerances on utilization of small-sized underwater launchers. The authors hereby analyze maximum permissible tolerances for installation of the above articles onboard submarines. The article contains recommendations on checking and measuring procedures during assembly and installation of launchers onboard the submarine.

Keywords: small-sized underwater weapons, launchers, submarine, installation, permissible tolerance.

***V. A. Sinitsky, A. A. Shebarshin, D. L. Desnyov.* Method for checking shape of submarine pressure hull covered by outer hull.**

This article describes new method developed by JSC SSTC for checking shape of submarine pressure hull covered by outer hull, which is an obstacle for laser beam emitted by optoelectronic instruments. To avoid drilling of outer hull it has been proposed to measure coordinates of reference points shifted from pressure hull to outer hull, thus becoming visually accessible for the laser beam.

These reference points are marked in the direction of radius-vectors of pressure hull. The coordinates will be subsequently corrected as per space between pressure and outer hull and thickness of metal plates which are to be defined by means of laser ranger and ultrasonic defect detector.

Keywords: hull, reference point, tachometer, laser ranger, defect detector.

V. S. Mikhailov, Ya. V. Ryabis, M. M. Tsvetkova, V. E. Medvedeva. Application of high-precision multifunctional measuring system during pipe production and installation at JSC PA «Sevmash».

The authors narrate about practical utilization of high-precision computerized measuring system AICON TUBEINSPECT and portable coordinate inspection machine used to automate heavy-duty production of bottom-hole pipes in shop conditions.

Keywords: bottom-hole pipe, template pipe, digital measuring system, modeling.

SHIPBOARD EQUIPMENT

V. N. Ilyukhin. Conceptual development issues of shipboard deep-sea diving systems

This article reviews features, trends and development issues of shipboard deep-sea diving systems (SDDS) in frames of their search and rescue purpose at sea. The authors conclude that it is feasible to create portable shipboard SDDS both for short-term diving down to 120-200 meters, and for saturated diving down to 200—300 meters. Place and role of stationary SDDS purposed for long-term stay under overpressure at a depth of 300 meters and below has been specified.

Keywords: deep-sea diving system, rescue vessels, search and rescue means, diving works, short-term diving, long-term diving under overpressure, containerized modular diving system, remotely-controlled unmanned submersible vehicles.

ECONOMY AND FINANCE

V. S. Pasternak. Ten years anniversary of «Rumb» R&D center. Operating results and future tasks

This article is devoted to 10-years anniversary of Rumb» R&D center activities as part of JSC SSTC in field of price formation, labor intensity and norming in shipbuilding industry. The author estimates center's achievements, current tasks and methods to solve them. The article reviews plan on update (development) of normative and regulatory documents utilized to calculate economic factors, define prices and expenses at stages of ship design, repair and disposal in the Russian Navy till 2027.

Keywords: shipbuilding industry, industry R&D center, normative and regulator documents, price formation, labor intensity, labor norming, technical and economic examinations.

INFORMATION SECTION

Saint Petersburg State Marine Technical University — 90 years anniversary! A. G. Amosov. Ship constructor I. A. Gerbikh and his projects. Foreign information. Marine Engineering Bureau-25 years old! Expanded the list of scientific specialties of the magazine «Shipbuilding». First wiring of vessels in Saint Petersburg

HISTORY OF SHIPBUILDING AND FLEET

M. V. Nikolaeva. Onboard name: «Knyaginya Lovich»

On May 26, 1828, Admiralty Shipyard in Saint Petersburg launched frigate «Knyaginya Lovich» which subsequently participated in war against Turkey in 1828—1829 and in civilian war in Greece in 1831—1832.

Keywords: history of fleet, history of shipbuilding, frigate, Russian-Turkish war, civilian war in Greece.

S. D. Klimovsky. History of construction of rig-free turret armor-plated ship «Petr Velikiy»

«Peter the» was the first in the Russian Navy seaworthy ironclad designed for action in the oceans. Its origin is from the monitors, built for coastal defense in the 60s of the XIX century.

Keywords: history of shipbuilding, history of the Navy, the monitor, an armored ship.

V. V. Gorelov. Russian shipbuilding industry in the beginning of XX century

This article gives general estimation of Russian shipbuilding industry in the beginning of XX century. The author provides comparative analysis on utilization of new technologies and production procedures both in Russia and various European countries. Activities of Marine Engineers Society and its influence on domestic R&D sector have been analyzed. Changes in shipbuilding industry due to construction of new warships of «Dreadnought» type have been traced.

Keywords: shipbuilding, shipbuilding industry, navy, shipyards, marine engineers.