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ИСТОРИЯ



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/SHIPBUILDING/

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AT SHIPBUILDING YARDS

CIVIL SHIPBUILDING

Lyubimov V. I., Khlutchin I. V. Phenomenon of Volga ships design.

This article analyzes development trends of river passenger ships depending on technological background.

Keywords: ship design, river shipbuilding industry, design, liner.

NAVAL SHIPBUILDING

Karpov A. V., Katanovich A. A. Control system of automated communication system of the Russian Navy.

Automated communication system (ACS) of the Russian Navy was augmented by granting full access protocol to control system of the same via external controller, implementing modification procedure of basic control protocol and ACS external control algorithm. This allows to save sufficient resources in case of non-linear flow of the technical processes and eliminate the necessity for numerous tuning of main controllers and code of the algorithm being executed.

Keywords: control method, control system, basic control protocol, backup channel, main device, algorithm, full access, automated communication system.

Baskakov I. Ya. Ice-class patrol vessel «Purga» (P.22120).

Construction of patrol vessels of «Purga» class by JSC PC «Almaz» proved that the company is not only capable to build ships and vessels as per existing projects but also capable to render large scope of design works upon deep modernization of ship's initial design.

Keywords: shipbuilding, coast guards, ice-class patrol vessel.

SHIPBUILDING ORGANIZATION AND TECHNOLOGY

Zelenin M. N. Automation of calculation of expected welding deformations when welding non-radial cylindrical pieces into spherical structure.

To maintain required accuracy when welding non-radial cylindrical pieces into spherical structure one should install articles with predicted deviations. Deviation values can be obtained via calculation or testing. This article offers to use software package ANSYS based on macro developed by the author of the same. User should only enter the initial data and execute the macro. All subsequent builds, calculations and display of results will be done automatically.

Keywords: welding deformations, predicted deviations, software package, ANSYS, macro.

ECONOMY AND FINANCE

Pasternak V. S., Potryakhaev V. V. Defining labor intensity of ships and vessels construction.

This article reviews the situation in shipbuilding industry in area of definition, planning and consideration of labor intensity for ships and vessels built under state defense order or for state needs and funded from state budget.

Keywords: state defense order, ships, vessels, construction, labor intensity, planning, standardization.

SHIPBOARD EQUIPMENT

Kozlov V. A., Shelokov Yu. A., Myagkov M. O. Some features of insulation production for acoustic camera used for high-precise assessment of ship valves performance.

This article justifies measures related to insulation of acoustic camera from external/internal noises in order to enhance quality of acoustic tests of ship valves at acoustic stands. The authors hereby describe methodology to check main specifications of acoustic chamber and offer methods to increase sound insulation and absorption rate of the same.

Keywords: acoustic chamber, ship valves, vibration and noise specifications, acoustic tests, sound insulation, sound absorption.

Tsitsikyan G. N., Grenchuk A. M. Checking capacity of electric system by means of resistor between neutral wire and grounding wire.

The authors hereby propose the methodology to check capacity of high-voltage shipboard mains with enabled/disabled resistance of the neutral wire.

Keywords: shipboard electric system, mains capacity, one-phase short-circuit, neutral wire, resistance.

SHIP POWER PLANTS

Romanovsky V. V., Nikiforov B. V., Makarov A. M. Electric propulsion system on nuclear-powered ice-breakers.

This article analyzes electric propulsion systems used on various nuclear-powered ice-breakers and describes their main advantages and disadvantages. Electric propulsion systems of «Arktika» and «Taimyr» ice-breakers have been reviewed. Advanced electric propulsion system using switched reluctance motors has been proposed. Trials of reluctance motor of above 500 kW capacity proved previous assumptions that motor of higher capacity could be designed. Tug «Viktor Konetsky» has been equipped with 2 mW reluctance motor, which still operates smoothly and has no issues as per the opinion of the crew. The above proves that high-power electric motor for ice-breaking fleet can be created.

Keywords: ice-breaker, electric propulsion motor, frequency converter, damper winding, switched reluctance motor.

Bayov A. S. Operation of shipboard propulsion system as single controlled object.

This article reviews feasible math and algorithms for AI-based automated remote control of ship propulsion system.

Keywords: modes, specifications of ship propulsion system, main engine starting parameters, ship acceleration algorithms.

TECHNICAL RETOOLING

Goncharov S. M. Technical solutions for beds foundations used in permafrost conditions by the example of modernization of Zhataiski shipbuilding and shiprepair yard.

Keywords: permafrost soil, foundation bed, dockyard, modernization.

SHIP REPAIR AND DISPOSAL

Lyamin P. L., Petukhov V. V., Andreyeva L. A. Treatment of spent sorbents of nuclear-powered ships and vessels.

This article offers simple and least expensive disposal technology for spent sorbents (ion exchange resins), which envisages thermal-vacuum drying of sorbents with subsequent direct polymerization in entrainment filters.

Keywords: nuclear waste disposal, ion-exchange resins, thermal-vacuum drying, polymerization.

INFORMATION SECTION

Afonin N. N. Established by the will of Peter the Great. First Russian nuclear submarine celebrates 60th anniversary. Foreign information. Shipbuilder N. P. Lukianov. Congratulations! DB «Vostok» signed the work completion report. New books.

HISTORY OF SHIPBUILDING AND FLEET

Rassol I. R. Submersible vehicles No.3, 4 and torpedo designed by O. B. Gern.

The author traces the story behind the submersible vehicles and torpedoes designed by O.B. Gern. These articles were the solid contribution of the inventor which precipitated the solution of submarine navigation problem.

Keywords: shipbuilding history, submersible vehicle, submarine, torpedo weapons, torpedo.

Klimovsky S. D. Russian marine specialists in USA in 1862—1865.

Russian marine specialists used the foreign shipbuilding experience to build first full-scale squadron of armor-plated turret ships to be used in Baltic sea for the purpose of defense.

Keywords: history of shipbuilding, armor-plated turret ship, gunboat, monitor, armor-plated ship, gun turret.

Pridannikov M. I. Patrol boats built by Petrograd shipyards.

This article reviews construction issues of patrol boats at Petrograd shipyard during World War I (1914—1918). Photos and specifications are given.

Keywords: naval shipbuilding, design, boat building, patrol boat, motor boat.

Prasnikov V. B., Dobryakova M. A., Kulikov S. V. Design of aircraft carrier for Navy Pacific Fleet in 1938.

Design of aircraft carrier conducted in 1938 by Naval Academy in the name of K. E. Voroshilov is definitely important milestone of domestic naval shipbuilding and proves high level of attention paid by Naval command towards development of aircraft carriers and marine air force in general.

Keywords: naval shipbuilding, design, aircraft carrier, marine aviation.