

Improvement of Energy Efficiency of Metro Trains' Traffic Control

Baranov L. A., Maksimov V. M.

Pp 6 – 17

Methods to improve energy efficiency of metro trains' traffic control – choice of traction modes, distribution of running time on the line on running time on hauls, the use of regenerative braking are suggested. Examples of implementation of scientific and technical developments in the Moscow metro are given. The methods of control of electric rolling stock under the current restrictions of the current of the feeders of traction substations, feature of passage of non-overlapping insulating gaps in recovery mode are described, the analysis of the dynamics of energy efficiency changes is given.

Keywords: metro, train traffic, energy efficiency, energy optimal control mode, quasi-optimal mode, running time, regenerative braking, energy consumption for traction, specific energy consumption.

New Approaches to Development of Transport Schedules

Klevansky N. N., Antipov M. A.

Pp 18 – 27

The authors justify the choice of methods of developing schedules of long-distance trains on the basis of heuristic approaches and taking into account noncyclicity of passenger and freight flows in the Russian context. In the course of algorithmization and development of software for solutions of problems presented the concept of ideology of greedy algorithms, congestion and uniformity, target programming in the framework of requirements of traffic safety management system, ranking of decision-making theory are used. The two-stage process of procedures includes forming the initial schedule and its subsequent optimization. A mathematical model and algorithms of implementing actions are offered according to the objectives.

Keywords: transport, timetable, schedule development, methodological approaches, heuristics, mathematical model, algorithms.

Transport Service Management under the Action of Random Factors

Lisenkov A. N., Lievin S. B.

Pp 28 – 31

The article deals with possible approaches to improve the quality of transport service management using information technology in terms of random factors. Particular attention is given to further improvement of accuracy of transport efforts' estimation. The procedure provided by the authors, can be used for drawing up a typology and comparative analysis of the activities of various companies and comparison of different types of activities within the transport company.

Keywords: transport service management, information technology, random factors, transport efforts assessment.

Choosing the Design of an Intermediate Fastening by Vibrodiagnostics Methods

Zamuhovsky A. V., Zhangabylova A. M.

Pp 32 – 40

The article considers the main provisions of methods of vibration diagnostics of a railway track in the areas of conjugation of elastic intermediate rail fastenings Fossiloh W14 and ZHBR65-SH, Pandrol Fastclip and KPP-5, a comparison is made according to the most important evaluation criteria of the results of vibration diagnostics with the results of passage of a track measuring car on the railway sections in Kazakhstan. The prospects for the use of vibration diagnostics on lines with high dynamic parameters of the operational load are forecasted.

Keywords: railway track, vibration diagnostics, dynamic parameters, assessment criteria, intermediate rail fastening, spectral density, attenuation coefficient.

Track on Longitudinal Concrete Beams for Metro Tunnels

Kravchenko N. D., Kravchenko G. M.

Pp 42 – 51

The article describes the design features and technology of laying of a vibroprotective track, wherein longitudinally oriented reinforced concrete beams (or sills) without transversal connectors, are used as a rail base. The advantages of this design as compared by substantial indicators with other constructions, used in metro, are shown.

Keywords: metro, tunnel, vibration protection track, longitudinal concrete beams, sills, control, gauge width, rail fastening.

Technology of Container Transportation using Load-Lifting Pillars

Ryabov I. M., Gorina V. V.

Pp 52 – 61

The article is devoted to solving problems related to the slow pace of development of container transportation due to lack of specialized terminal complexes, construction of which requires large capital investments, as well as specialized delivery equipment. The article substantiates the need for greater attention to improvement of container transportation technology as the most promising way to deliver cargo in direct and mixed traffic. A description of a new design of a transportable container with load-lifting pillars is given, the use of which will improve the organization of container transportation.

Keywords: transportable container, container transportation, load-lifting pillars, terminal complexes, cargo delivery, direct and mixed traffic.

Vibro-Impact Technologies for Road Construction Machinery

Abramov A. D., Tyunyukova T. K., Izhbuldin E. A.

Pp 62 – 69

With development of technical means the application scope of vibro machines and technologies is expanding. Simultaneously, demand on reliability of devices and products, weight- size and cost indicators is increasing. The article presents a design scheme of universal impact machines, which through changing fixtures are adjustable to the specifics of overlapping operations. The synthesis of vibro-impact technologies for various industries is proposed, comprising technology for repairing of track and road construction machinery.

Keywords: hand-held electromagnetic impact machines, vibro-impact technologies, repair of transport and road construction machinery, processing of metallic and nonmetallic structures.

Modernization of a Scraper-Chain Device of Ballast Cleaners

Kovalsky V. F., Fedasov D. S., Chalova M. Yu.

Pp 70 – 77

Increase in productivity of modern track machines leads to power growth of actuators' drives. The article offers a way towards modernization of a chain scraper

working body of the new generation of ballast cleaners. The developed techniques and the comparative results of the calculations before and after modernization, leading to power gain, show the advantages of the proposed engineering solutions.

Keywords: track ballast cleaner, modernization, scraper-chain actuator, specific energy, resistance force.

Calculation of Time of Movement and Speed of a Car on the Intermediate Section of the Hump Yard under Tail Wind

Turanov Kh. T., Gordienko A. A.

Pp 78 – 91

The dynamics of the car rolling from a hump yard at a railway station is studied in its various aspects. The authors have also touched upon this topic repeatedly (see, in particular, World of Transport and Transportation, 2015, Iss. 6). However, earlier reports lacked estimates of time of movement and speed of a car on the intermediate section of the hump yard under the influence of tail wind of low speed. The published article fills this gap, introduces the results of calculations, mathematical and graphical dependencies enabling to make certain generalizations and conclusions.

Keywords: principle of D'Alembert, classical formulas of path and velocity of bodies, railway station, hump yard, intermediate section, tail wind, time and speed of car's rolling.

Optimization of Locomotives' Turnover with a «Labyrinth» System

Vakulenko S. P., Kozlov P. A.

Pp 92 – 104

The problem of rational use of locomotives is quite acute. Here it is necessary to find the best compromise. In case of excess of locomotives there are less delays of trains, but locomotive costs are higher. In case of insufficient number of locomotives the situation is reversed. A model for calculating the optimal modes of turnover of train locomotives serving train flow is offered. The model promotes the further development of the dynamic transport task. The parameters of trains movement and the use of locomotives are provided, work schedules for each of them are built. The impact of the number of locomotives on the train's mobility is estimated.

Keywords: railway, locomotive, train flow, model, optimization, transport task.

Economic Aspects of Transport Complex Strategic Management

Gorbachik T. V.

Pp 106 – 115

The methodological approaches to development of a target model of strategic management, offered in the article, are aimed at creating of an interconnected system of forecasting and analysis, planning and program documents of transport complex development and their implementation mechanisms.

Keywords: strategic management, strategic planning, transport complex.

Formation of Railway Tariffs for Commuter Passenger Transportation

Leonova O. G.

Pp 116 – 123

The author considers current problems of suburban passenger transportation by rail. The establishment of tariffs for such transportation is a sensitive issue of the industry, since it leaves several unsolved outstanding issues at the legislative level, which the article is devoted mainly to. It contains analysis of Russian statistics for the years 2014–2015, the regulations governing commuter passenger transportation, and the evidences of existing problems of tariff formation.

Keywords: tariffs, commuter passenger transportation, railway transport, commuter companies, legislation, social demand, state regulation.

Promotion of Small Business through Internet Marketing

Mukhtasarov A. F.

Pp 124 – 133

The possibilities of Internet marketing in implementation of a promotion strategy of goods and services of domestic small business enterprises are considered. The comparative characteristic of methods of entrepreneurship promotion in the global network, their advantages and disadvantages is made, the volume of costs of Internet advertising in Russia are analyzed. The more effective means of media promotion for small businesses of transport sector are offered in the context of their commercial activities, including marketing communications and social networking.

Keywords: transport services, small business, commercial activity, online advertising, regional popularity, potential customers, blogosphere, context, e-mail, website.

Methodology to Measure the Effectiveness of Interaction of Mesologistics Systems

Freidman O. A.

Pp 134 – 144

The development of mesologistics systems in the market of transport and logistics business (TLB) is related to improvement of the activity of their territorial subdivisions. Subsidiaries and affiliates of JSC Russian Railways, presented as a single business unit in this market face regularly problems of acquiring competitive advantages that are seen in the growth of contract logistics segment. Interaction of the companies in this power balance is one of the conditions to enhance their viability and sustainability. However, administrative decisions making in the field of interaction and integration of companies should be based on the methods of assessing the effectiveness of mesologistics systems, which this article is devoted to.

Keywords: logistics, economy, market of transport and logistics business, transport and logistics infrastructure, logistics cluster, transport and logistical services, mesologistics system.

Making Decisions on Substitution of Imported Equipment based on the Analysis of Patent and Financial Information

Andreichikova O. N., Andreichikov A. V.

Pp 146 – 167

The technique of analysis of critical situations arising at many enterprises in connection with the imports of foreign products and materials is offered. The possible approaches to the problems of substitution of imported equipment, the method of development of administrative decisions on the basis of financial and patent information, their causal aspects are shown.

Keywords: transport, administrative decisions, system approach, import substitution, high technologies, patents, economic database.

Influence of Air Traffic on Flight Delays

Eliseev B. P., Vorobyev V. V., Kharlamov A. S.

Pp 168 – 175

One of conditions for securing flight safety is a restriction on intensity of an air traffic flow within the sector of air traffic services, as well as of the flows in the section of the route, in the route crossing points, at the aerodrome. To assess the capacity and to identify periods of peak load during the study, statistical traffic

intensity data values within 14 days were analyzed. Data collection was carried out at Vnukovo airport in August 2015. The information on the number of departing, arriving and delayed flights with hourly intervals was organized by a number of criteria, a summary table on intensity and regularity of air traffic was drawn up. Measures to «smooth the peaks», based on the total cumulative practice, were offered.

Keywords: civil aviation, airport, air space, capacity, air traffic intensity, regularity of flights, flight delay, ATC, ATS, ATM.

Innovative Approach to Marshalling Yard Control Automation

Obukhov A. D.

Pp 176 – 187

A block diagram of an automated control system of a marshalling yard operation with elements of artificial intelligence is offered. The intelligent units, which are «Neural network forecasting» and «Formation of control decisions», are considered. Their connection with processing of traffic volumes in an operationally controlled technological process is studied.

Keywords: railway, automated control system, transportation process, marshalling yard, neural network technology, intelligent transport systems.

Interaction of Railway Stations with Cargo Terminals at the Places of Non-Public Use

Eliseev S. Yu., Volkova S. G.

Pp 188 – 200

The authors set a task, using clearly organized service information, to achieve optimization of the process of formation of multi-group assorted trains and freight deliveries at railway stations with a detailed selection of groups of cars by the specified criteria. The suggested model of control of local operations will remove inter alia the problems of spasmodic, uncoordinated delivery of cargo to transshipment points, will optimize the interaction of marshalling yards and freight terminals at the places of non-public use.

Keywords: railway station, cargo terminal, management, places of non-public use, interaction, optimization, multi-group trains, assorted trains, local work.

Incidents on the Railway: Assessment of Consequences Elimination

Kovalenko N. I., Kovalenko A. N.

Pp 202 – 209

A method for determining the calculated time of traffic opening and minimization of time costs, which is based on determination of the duration of time intervals «windows» to perform railway track repairs (rebuilding infrastructure after an incident) under the terms of the lowest costs of track works, taking into account overheads and costs of delays and trains' downtime was developed.

Keywords: railway, accident, disaster, elimination of consequences, emergency recovery work, reduced costs, interval in the traffic schedule, safety, risk level.

Internal Control and Risk Management in Water Transport

Schepetova V. N., Zamotaeva O. A., Shamonina K. S.

Pp 210 – 217

The article describes the types of risks associated primarily with fraud in organizations of inland water transport, methods for their detection and security management tools. In particular, it analyzes the characteristics and features of the most common threats, violations or crimes in the sphere of sea and river transportation, signs of abnormal practices, which might be harmful to the transport process and financial and economic condition of the company-carrier

Keywords: water transport, security, risk, fraud, theft item, signs of fraud, risk assessment.

On Some Aspects of China's policies in the Field of «Green» Energy

Kharchenko M. P.

Pp 218 – 223

The article is devoted to the study of the evolutionary development experience of alternative energy in China. The author analyzes the country's methods for producing «green» energy and options for its use in various sectors of the Chinese economy and the transport sector. The cars and trams with hybrid and electric motors are of particular interest.

Keywords: China, safety strategy, alternative energy, «green» energy, alternative transport, electric car, hybrid tram.

Electromagnetic Fields of Compact Energy- Saving Fluorescent Lamps

Ozerova E. S., Evdokimova M. P., Farafonova E. A.

Pp 224 – 229

The questions related to potential environmental and hygienic hazard, which may be caused by electromagnetic field of compact energy saving lamps, are considered. The results of measurements of electromagnetic fields in low frequency domain: spectral composition, intensity depending on distance for lamps of various types and power consumption are presented. It is shown that maximum value of electromagnetic field frequency of 50 Hz from the measured energy saving lamps does not exceed the maximum permissible levels.

Keywords: ecological safety, occupational health, compact energy saving lamps, electromagnetic field, spectrum of electromagnetic fields, maximum permissible levels.

Heat Pumps as a Resource for Energy Efficiency on Railway Facilities

Medvedeva V. M., Pirogov E. N., Semenovikh V. A.

Pp 230 – 237

Since the microclimate in the workplace cannot be considered separately from a number of assessment factors (criteria), the authors justify the choice of heat pumps as a possible alternative to heating from environmental , energy and exergoeconomic viewpoints. This reasoning system is directly related to the specificity of objects of railways and to a set of technological safety factors, justifying reliability of the proposed options.

Keywords: heat power industry, heat pump, railways, exergonomics, ecology.

On influence of Education on Economic Growth

Macheret D. A.

Pp 240 – 245

The article considers the influence of education on human capital development, as well as the effects of creative capacity for development of entrepreneurship and economic activity. Some modern trends in education are also considered in relationship with their impact on development of creativeness of future employees. Thus, while showing a tendency to replace the text presentation of training course and of research results with slide presentation of teaching materials, the author notes a risk that such a disaccustoming from the perception of textual information can have negative consequences for intellectual development of individuals as well as for

economic growth. At the same time the high value of contests of creative works of students and Ph.D. students, held in the field of railway transport, is underlined.

Keywords: human capital, economic growth, rail transport, entrepreneurship, education.

Social Dialogue on European Railways: Search for a Balance

Zubkov S. A., Krainov G. N.

Pp 246 – 255

The reform of the railways in the EU was followed by strengthening of the position of the industry in the transport market, and at the same time by the necessary support rendered to rail companies that perform important social functions. In this context, the authors distinguish the activities of the committee for social dialogue in the railway transport, which, in cooperation with the European Commission carries out projects and prepares decisions designed to protect the interests of staff, labor rights of wage earners, and simultaneously preserves the opportunity for mutually beneficial cooperation between trade unions, businesses and governments.

Keywords: railways, personnel, human resources, labor market, social dialogue, trade union, business, state.

Development of a Competence Model for a Graduate Manager

Bolshedvorskaya L. G.

Pp 256 – 269

The paper analyzes the factors that influence competitive advantages of graduates. The need for a new approach to formation of professional competence of a manager in the field of information and analytical activities is emphasized. A competence model that ensures compliance of a future manager with market requirements in today's information society can be represented as a set of models of general scientific, special, universal, professional and informative nature. To determine the degree of development of information-analytical competencies three basic levels are considered: low, medium, high, and finally a numerical measure of graduate's preparedness is offered.

Keywords: education, labor market, competence, competence model, graduate-manager.

On Contribution of Rail Sectorial Universities to Scientific and Technical Development of JSC Russian Railways

Shantarenko S. G., Ponomarev E. V.

Pp 270 – 279

The article presents an analysis of participation of rail specific (sectorial) universities in the scientific and technological development of the holding company JSC Russian Railways. Examples of promising innovative projects implemented by the commission and with the assistance of the railway transport business are given. The ways of further improving the effectiveness of research activities of university teams and their creative collaboration and partnership with railway specialists are offered.

Keywords: railway university, railway transport, development, cooperation, research and technical development, priorities.

«Deer Do Not Fly, Do Not Neigh, and Do Not Moan»

Borzunov V. F.

Pp 282 – 297

This date is special for Russians. More than 75 years ago, in June of 1941 the Great Patriotic War began, which remains in the memory of many generations of Russian citizens. The author introduces the heroic pages of the war years in the polar region and Karelia, where in harsh Arctic conditions and environment of fighting for every inch of front-line ground railmen, water transport workers, dockers helped to survive our soldiers and sailors, population in the fight against the enemy.

Keywords: transport communications, history, World War II, polar region, Karelia, belt road, front, railway, port, water transport.

Legal logics and spirit of the law

Bogolyubov S. A.

Pp 306 – 308

Dukhno, N.A., Koryakin, V.M. Theory of transport law: a monograph. Moscow, Yurlitinform publ., 2016, 288 p.

ABSTRACT OF THE BOOK

The book reflects the main topics of the transport law, its features, problems of genesis and institutionalization, educational tasks regarding university training of future employees. This work can equally draw attention of practical and theoretical experts in the legal field.

ABSTRACT OF THE REVIEW

As any development of transport systems is impossible without the development of an appropriate package of normative legal acts, study of the theory and practice of transport law application is undoubtedly of importance. The reviewer appreciates the attempt of the authors to develop a theoretical aspect of the transport law, while the text remains well understandable even for the students in legal studies. While the reviewer does not share some authors' views, e.g. the suggestion to consider transport law as an independent branch of law, he supports the idea of the development of advanced research in transport law.

Keywords: transport law, legislation, legal acts, legal education, legal studies, legal science.