

VOLODYMYR DAHL
EAST UKRAINIAN NATIONAL UNIVERSITY
Department "Logistics management
and traffic safety in transport»

PJSC «UKRZALIZNYTSIA»
Regional branch «Donetsk railway»

MANAGEMENT UKRTRANSBEZPEKA
IN LUHANSKAYA REGION

**GLOBALIZATION OF SCIENTIFIC
AND EDUCATIONAL SPACE.
INNOVATIONS OF TRANSPORT.
PROBLEMS, EXPERIENCE, PROSPECTS**

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and implementation of bilateral agreements between Ukraine and the European Union cooperation, including in transport, which are prepared to take into account the conditions of constant transformation of the European transport policy under the influence of intensive development of world trade and international tourism.

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**NONCONFORMANCE RATING FOR LOCOMOTIVE
REPAIR FACILITIES**

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Inspection and observation of the technical level of rail locomotive repair facilities are conducted by the management team of the Department and the Locomotive division, audit sectors, expert groups within the production certification procedure. The faults revealed are fixed as linguistic expert reports which cannot assess their significance and identify priorities in terms of elimination. Therefore, development of methods for the locomotive facility nonconformance rating and determination of the nonconformance index is required.

Formalization of linguistic reports on the locomotive facility nonconformance takes into account the influence of a whole number of factors, their significance being determined by the expert assessment, formalized models of events when designing and analyzing the fault tree.

The analysis of results of inspection and observation of the technical level of locomotive repair facilities demonstrated a similar structure of expert reports on faults, which made it possible to present them as a vector [1]. While transforming a multi-criterion problem into a single-criterion one the most objective method, the weighted sum method, was applied [2]. The

nonconformance indices were calculated according to the results of observations on several locomotive repair facilities.

In order to calculate the nonconformance index the triple additive convolution with the weight coefficient is proposed.

$$K_d = \sum_{j=1}^n \alpha_j \sum_{k=1}^m \gamma_k \sum_{i=1}^p \lambda_i x_i, \quad (1)$$

where α_j – weight ratio significance of the locomotive units, γ_k – weight ratio component of the locomotive repair facilities, λ_i – indicator of the degree of influence of nonconformance on the technological process, x_i – weight ratio of the repair processes.

Investigation into interrelation between the integral index and the locomotive maintenance costs was conducted by methods of the correlation and regression analysis.

The analysis of results of inspection and observation of the technical level of locomotive repair facilities demonstrated a similar structure of expert reports on faults, which made it possible to present them as a vector. While transforming a multi-criterion problem into a single-criterion one the most objective method, the weighted sum method, was applied. The nonconformance indices were calculated according to the results of observations on several locomotive repair facilities. The correlation and regression analysis proved the influence of the nonconformance index of locomotive repair facilities K_d on locomotive maintenance overconsumption S_{oc} (Fig. 1).

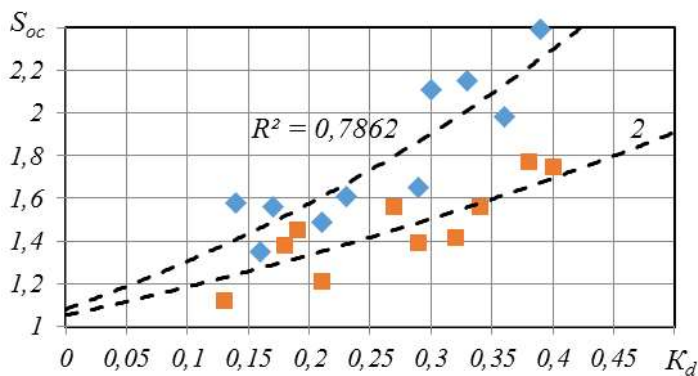


Fig. 1. Determination of the relationship between the coefficients of repair facilities (1 - heat locomotives, 2 - electric locomotives)

As a result of rating methods for a technical level of locomotive repair facilities based on linguistic expert reports which consider type of the fault detected, type of the technological process, type of the locomotive unit and type of the technical level of production have been designed. Implementation of the methods designed will help undertake assessment of the faults detected, eliminate them according to the priority and invest more effectively in locomotive repair facilities. The regressive equations obtained allow standardizing the nonconformance index and forecasting possible locomotive maintenance overconsumption by the results of inspection at repair facilities.

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INFORMATION SYSTEMS IN TRANSPORT LOGISTICS

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Information logistics solves the problem of organizing and integrating information flows for making managerial decisions in logistics systems. Effective use of information logistics is the management of the flow of information throughout the logistics network at all hierarchical levels of the hierarchy.

However, the adoption of management decisions in the transport industry requires not only the availability of the usual technology for generating, collecting and processing data, but also creating an information infrastructure. The data collection and processing system concentrates information at certain points in the process, ensuring the network's work on information exchange between all links of the hierarchical chain.

The information infrastructure is created for rational servicing of information flows or message flows in paper, electronic or other forms gener-