Number of Loaders Optimization Serving the Warehouse Complex of Logistic System Taking into Account Their Repair

G.I. Nechaev, I. A. Tararychkin, M. E. Slobodyanyuk
East-Ukrainian National University named after Volodymyr Dahl
Address for correspondence: Ukraine, 91057, Lugansk, kvartal Gagarina 14V\113, e-mail: slobod777@gmail.com
tel: +380 953 299992; fax: +380 642 412150

Summary: The article shows the structure of the autoloaders service cycles, describing the execution sequence of various repairs. It explains what allows realization of the optimal scheme of service management. The sequence of autoloaders output in repair is introduced bringing into service within one interrepair cycle and requirements to organizational management of autoloaders on different freight fronts.

Key words: logistic system, warehouse, optimization of transport, material flows.

JEL: R40.

One of the major logistics problems is optimization of loading and unloading mechanisms in different areas of a warehouse complex. Its solution is connected with costs minimization on processing material flows in the logistics system and should take into account not only mechanisms used in work, but also being in planned maintenance (PM).

The PM of transport machines promotes their no-failure operation and execution of their planned maintenance work. According to the existing transport standards, the number of autoloaders being under repair at one and the same time should not exceed 10% from the total number of those serving a warehouse complex (1, 1989, pp. 264, 2, 2007, pp. 400). However it is difficult to fulfill such requirement in practice, and the number of autoloaders being under repair at one and the same time can reach 25-30%. Such a peak in servicing loaders result not only in increase of operating costs, but also breaks the uninterrupted work of the warehouse as a whole. The structure of the autoloaders service cycles, describing the execution sequence of various repairs is shown in Figure 1 (2, 2007, pp. 400).