Lecture 9. Organization of loading and unloading and transport and storage operations based on logistics principles.

Purpose of the lecture: to compare the main indicators characterizing the operation and development of transport systems: indicators of technical equipment, network development, transportation, technical and operational work;

Keywords: loading and unloading operations, technical documentation, choice of mode

Types of lectures: Lecture-explanation.

9.1. Organizational forms of loading and unloading operations

9.2. Problems of applying the principles of logistics in the organization of PRTS work

9.3. Performance indicators of the organization of the PRTS work

9.1. Organizational forms of loading and unloading operations

Various forms of organizing loading and unloading operations and warehouse operations are known: they are carried out by transport organizations or directly by consignors and recipients of goods. On the main railway transport, the places of loading, unloading and storage of goods (cargo areas, terminals) are managed by railway stations, and the work on them is carried out by mechanized loading and unloading operations of JSC Russian Railways, provided with PTM devices and material means. The production activities of distances include:

• loading, unloading, transshipment, sorting of goods, storage and other works carried out by means of roads in public places, as well as loading and unloading operations performed by them under agreements with consignors and consignees;

• introduction of comprehensive mechanization and automation of production processes, effective technology of loading and unloading operations, regular supervision of ensuring the proper technical operation of machines and plants; the fulfillment of the set standards for the downtime of wagons under loading and unloading, ensuring the safety of goods and rolling stock during work, the maximum use of the carrying capacity and capacity of cars, as well as the capacity of warehouses;

• compliance with safety and labor protection rules, timely submission of mechanization equipment for inspection and testing to Rostekhkontrol bodies, preparation and storage of technical documentation for mechanization equipment.

9.2. Problems of applying the principles of logistics in the organization of PRTS work

The set of tasks solved by a specific TGC depends on its place in the production and transportation system, but the common goal for any TGCs is the desire for maximum efficiency. Optimization of transport and cargo systems as logistic chains of cargo delivery requires a wide range of tasks, in particular:

• choice of mode of transport and vehicles;

• determination of the shortest transportation distances;

• securing consumers for suppliers;

• routing task (making up delivery or combined routes, in particular the traveling salesman problem);

• determination of the delivery time to each consumer (implementation of the principle "right on time", etc.);

• optimal or economical order lot;

• number of warehouses and their location;

• determination of the size of warehouses and the choice of their technical equipment;

• cargo consolidation task (multi-item shipments);

• Inventory Management;

• accounting of the movement of materials.

This is the classic set of transport and warehouse logistics tasks that are most often solved independently of each other. Promising, however, is a joint solution based on a generalized algorithm for choosing the optimal variant of the logistics network, according to which the search for the solution is carried out in the form of an iterative procedure taking into account the interconnection and mutual influence of the components of the transport and warehouse logistics. This means that the result obtained at each stage is not only the initial one for the next stage in the block under consideration, but should also be taken into account when solving problems in the neighboring block.

This ensures the implementation of the principle of logistics TKVMKS-C: the right product, in the right quantity, at the right time, of the right quality, in the right condition and at an affordable competitive price.

9.3. Performance indicators of the organization of the PRTS work

The process of moving goods from producer to consumer consists of the operations of preparing the goods for transportation, loading and unloading, storage and transportation (transportation) operations themselves. The volume of loading and unloading and storage operations depends on the choice of vehicles and the organization of the transportation process. The processes of loading and unloading operations and warehouse operations can be mechanized, complex-mechanized and automated. It should be noted here that operations associated with lifting and moving goods are commonly called basic, and operations that are not related to them, such as dowel, sling, burden during lifting and stacking, are auxiliary.

So, mechanized processes include processes in which the main operations are performed by machines, and some auxiliary ones are performed manually, since the mechanization of these operations is difficult or is currently ineffective. In these cases, manual labor in these operations is allowed temporarily until the creation of cost-effective devices or devices.

Complex mechanized processes include those in which all operations are performed by machines and equipment, and the person remains in control, regulation and control of the operation of machines. The automated process provides for the use of machines and devices that operate automatically without human intervention in the management, regulation and control of them.

If, during cargo operations, only certain basic actions of machines and devices or processes of control, regulation and control are automated, then automation is called partial. It is to be replaced in the future by a comprehensive one, in which all the operations and processes of control, management and regulation are automated so that the given productivity and quality of work are achieved without human intervention. The functions of a person remain monitoring the operation of the machine and the willingness to take control if necessary.

The main quantitative indicator of the state of loading

unloading and storage operations is the level of their mechanization.

Questions:

1. What are the forms of organization of loading and unloading.

2. What are the functions of mechanized loading and unloading distances?

3. What are some optimization problems to be solved in freight-transport systems.

4. What information is needed for effective operational planning of cargo operations?

Literature and resources

1. Zhuravlev N.P., Malikov O.B. Transport and cargo complexes: Textbook. allowance. - M .: Route, 2016 .-- 232 p.

2. Boyko N.I., Cherednichenko S.P. Transport and cargo systems and warehouses: textbook / N.I. Boyko, S.P. Cherednichenko. - Rostov n / a .: Phoenix, 2007 .-- 400 p.

3. Transport and cargo systems. Textbook / A.S. Balalaev, I.A. Baburova, A. Yu. Kostenko. - Khabarovsk: Publishing house of FVGUPS, 2015 .-- 101 p.

4. 4. Complex mechanization and automation of loading and unloading operations: Textbook / Ed. Timoshina A.A. and Machulsky I.I.-M .: Route, 2013.- 400 p.

Internet resources:

1. Abdikerimov, G.S. Logistic management of cargo transportation and terminal and warehouse activities [Text]: A textbook for specialists / G.S. Abdikerimov, S.Yu. Eliseev, V.M. Nikolashin, A.S. Sinitsyna, O.B. Malikov // M: FGBOU "Educational-methodical / center for education in railway transport". - 2013 .-- 428 p. https://e.lanbook.com/reader/book/59016/#1

2. Balalaev A.S., Leontiev R.G. Transport and logistics interaction in multimodal transportation: monograph. - M .: FGBOU "Educational-methodical center for education in railway transport", 2012. - 268 p. - http://e.lanbook.com/view/book/58896/page58/

3. Design of loading and unloading devices and warehouses: Method. instructions / compiled by V.A. Bolotin, E.K. Korovyakovsky, N.G. Yankovskaya.- SPb.: FSBEI HPE PGUPS, 2015.- 38 p.

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