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IDENTIFYING THE CAUSES OF INCREASING DURATION OF LOCAL CARS PROCESSING AT PORT STATIONS

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The analysis of modern transportation processes of international cargoes through the territory of Ukraine by sea and railway transport modes has shown that the share of cargo export through port railway stations in the total volumes of international car traffic is growing every year. At the same time, the policy of attracting customers to the railways takes into account the quality and convenience of their service, but does not correspond to the convenience of port stations. Significant wear and tear of the station's technical facilities and their low capacity are the reasons for the stations' inability to process the volumes of cars coming from the railway to the address of ports and access railway tracks. As a result, there are situations of non-acceptance of trains at the stations, increasing unproductive downtime of cars waiting for technological operations, increasing the number of enemy routes on tracks and in station parks, which reduces efficiency, capacity and processing capacity of stations.

Among the possible negative consequences of this the consideration of the efficient processing issue of car flows at port stations requires the special attention, taking into account current export orientation. In the absence of slide sorting devices at many port stations of Ukraine, local wagons are sorted on exhaust tracks by deposition with subsequent sorting on separate station tracks or parks. Limited length of exhaust tracks, non-compliance of their longitudinal profile with the requirements for current volumes of sorting work leads to additional operations for division of trains into parts, runs of shunting locomotives and trains on stations, which increases the duration of technological operations and occupation of station devices.

The cost of time in the total duration of processing of local cars at port stations, which can cause additional downtime, occurs when:

- sorting of cars on tracks;
- delays in crossing enemy routes;
- changes in the mileage of cars;
- increasing the load of shunting locomotives by multiple sorting;
- maintenance of common and non-common service places in anticipation of supply and removal from cargo fronts, especially in dead-end schemes of cargo areas.

The need to re-sort cars for the selection of car groups for the freight fronts increases the volume of sorting work, is complicated by the limited number of tracks and the significant fragmentation of the number of local cars destinations. Unproductive downtime is associated with delays at the intersection of shunting routes, as a number of shunting locomotives are required to dismantle trains and relocate to cargo areas and ports, and shunting work at common service places and dismantling takes place in one rail station bottleneck.

The number of shunting half-flights in the rail station bottlenecks, in turn, depends on the relative location of the main devices at the stations, on the operation technology of different production lines and on the share of total local traffic, which is moved to the freight areas of stations.

With the lack of shunting locomotives at port stations, observed in recent years, there are additional downtimes due to uneven transmission, significant amounts of work on the selection of car groups on a limited number of sorting tracks or their absence at the station.

The identified causes of increasing the duration of technological processing of local cars at port stations require the development and implementation of measures to eliminate them in organizational, technical and technological sides.

Given the significant limited resources and territory of port stations, the lack of needful funding for the development of railway infrastructure, an approach aimed at effective redistribution of the amount of sorting work with local cars to nearby technical stations in port railway junctions is needed. This will help reduce the load on port stations, make more efficient usage of their technical devices and reduce the processing time of local cars.

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ПЕРСПЕКТИВИ РОЗВИТКУ ЦИФРОВИХ СИСТЕМ ЦЕНТАЛІЗАЦІЇ ІЗ КОВЗНИМ РЕЗЕРВУВАННЯМ КОМПОНЕНТІВ

PROSPECTS FOR THE DEVELOPMENT OF DIGITAL INTERLOCKING SYSTEMS WITH SLIDING RESERVATION OF COMPONENTS

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Системи електричної централізації стрілок та сигналів (ЕЦ) є найбільш вживаними засобами залізничної автоматики, внесок яких у загальну технічну оснащеність залізниць України системами керування рухом поїздів (СКРП) складає близько 46%.

Модернізація СКРП в останнє десятиріччя на залізницях України була спрямована, перш за все, на вдосконалення систем ЕЦ – переважно шляхом їх реконструкції із застосуванням релейно-процесорної (РПЦ) та мікропроцесорної (МПЦ) централізації. Використання РПЦ і МПЦ замість класичних систем ЕЦ, побудованих на релейно-контактній елементній базі з жорсткою логікою, дозволило суттєво підвищити ефектиінсть їх функціонування, експлуатаційну надійність та функційну безпечність, що позитивно вплинуло на експлуатаційні показники роботи залізничних станцій