Kostyantin Paplik
E.A. Novikova, research supervisor
O.V. Khazova, language adviser
National TU «Dnipro Polytechnic», Dnipro, Ukraine

Factors influencing the cargo delivery method

Cargo delivery by trucks can be carried out in two different ways: straight and terminal. The straight method implies the delivery of goods by one transport unit without the change of drivers. In contrast, the terminal technology allows the replacement of both drivers and vehicles during the transportation process.

As terminal method of transportation can significantly increase the speed of goods delivery, it is widely spread nowadays. This is achieved due to breaking the "vehicle-cargo-driver" connection. Breaking the "cargo-vehicle" connection is carried out by replacing cargo modules at terminals and binding certain trucks with particular delivery lines. Sharing several cargo modules by some vehicles entails the problem of module storage in the process of transportation. Breaking the "vehicle-driver" connection implies the replacement of drivers at terminals and binding the drivers to the particular areas. Sharing one truck by multiple drivers raises the problem of maitaining a vehicle proper technical condition. However, all these measures are aimed at reducing the time of cargo delivery with the simultaneous increase of a vehicle available time.

Taking into account a driver mode of operation and rest in a trunk line service, the following methods of cargo delivery can be used: a «relay» method with the replacement of drivers after 4 or 8 hours; a straight method with two drivers and availability of sleeping facilities in a car cabin; a straight method with two drivers without any facilities for sleeping; a straight method with one driver; a traction method with a tractor change after 8 hours.

According to the international agreement on the driver mode of operation and work on vehicles with more than one trailer (semi-trailer) or an automobile train with a weight of more than 20 tons, two drivers are required to replace each other after 450 km. Each crew member daily rest period must be at least 11 hours, with an exception of going down to 9 hours maximum at the place of permanent residence two times a week. If a crew consists of two drivers and a vehicle is not equipped with the sleeping facilities, each crew member must have a daily rest of 10 consecutive hours within the 27 hour period before the beginning of the operation. If a car contains equipment for sleeping, the drivers should have at least 8 hour daily rest within the 30 hour period. Drivers should have rest outside the vehicle or if there is a place for sleeping, the rest in the vehicle is allowed when it is stationary.

In order to compare different methods of transportation such characteristics as the time of a vehicle operation period during the day, the speed of connection, the maximum possible mileage are considered. However, the calculations do not take into account possible delays at the borders or replacing a driver or a vehicle at any point of the route, as well as constant traffic along the highway and the possibility of a rest at any time.