OPEN ACCESS JOURNALS
International Journal of Innovative Analyses and Emerging Technology
| e-ISSN: 2792-4025 | http://openaccessjournals.eu | Volume: 4 Issue: 01

For Performing Towing Calculations in Maneuver Works of Wagons Based on Train's Nature Sheet Comparison of Average Weight to Movement Automation of Resistance Calculation Method

Toshmatova Shokhsanamkhon Sharifjon qizi
Ma Student of Tashkent State Transport University
akbarovashohsanam33@gmail.com

Abstract: *The calibration of fuel allocated for shunting operations is based on traction calculations. By performing these calculations, the amount of fuel consumed by shunting locomotives and the time spent on half-flights are calculated. According to the methods used, one of the methods of calculating fuel and time consumption in shunting operations is based on the number of wagons processed per hour. However, the fuel consumption of a shunting locomotive servicing different wagons per hour differs from the consumption when servicing the same type of wagon. The regulation of the amount of fuel used for shunting operations at railway stations is carried out experimentally. However, the fuel norm determined by the results obtained from the experiment conducted at one station does not correspond to the other station, and this leads to the demand for additional fuel or the absorption of excess fuel. This article describes the results of automating the method of calculating the specific resistance of wagons of average weight to the movement of wagons on the basis of the consignor list of the train to perform traction calculations in shunting operations. Based on the consignor list of the train, software has been developed to calculate the specific weight of the average resistance to the movement of wagons, and the procedure for its use is described.*

Keywords: *shunting operations, grade computations, consignor list, estimated performance of vagon, specific resistance in average weight , technical characteristics of the wagon, shunting half-run, shooting weight.*

OPEN ACCESS JOURNALS
International Journal of Innovative Analyses and Emerging Technology
| e-ISSN: 2792-4025 | http://openaccessjournals.eu | Volume: 4 Issue: 01

INTRODUCTION

Today, in all developing countries, not only railways development of transport, but also other sectors, the economy as a whole is urgent one of the problems is the introduction of energy and resource efficient technologies and is to determine the ways of their effective use. The main cost of operating locomotives in railway transport is a part of in the joint-stock company "Uzbekistan temir yollari" ("O'TY"AJ) share of 35% of the total operating costs goes to locomotive depots, 12% corresponds to fuel and 30% to electricity [1]. "Russian Railways" In OJSC, this figure was 30% [2]. This indicator is positive in "O'TY" JSC based on the change in direction, introduce new resource-saving techniques and technologies

achieved through It is spent on maneuvering half-flights in accordance with the applicable procedures the amount of time was determined based on the approximate method [3-4]. This is in the content the type of wagons is considered to be the same. Depending on the type of wagons according to the calculation of the weighted average main specific resistance in the movement algorithms and software have not been developed. The purpose of this study on the basis of the nature sheet of the train (based on the correct determination of the calculation parameters of the wagons) to calculate the weighted average resistance to the movement of wagons development of software to automate the method.

LITERATURE ANALYSIS AND METHODS

Today, speeding up the work of railway stations and fuel consumption several studies on optimization have been carried out [5-18]. However, on the basis of the nature sheet of the train (the calculated parameters of the contained wagons based on the correct determination) weighted average comparison of the movement of wagons

There is enough scientific research on the automation of the resistance calculation method not done. It is known that the information about the half-flight carriages of the train taken from a natural sheet. However, this nature sheet contains the number of wagons and them the amount of loaded cargo (net) is given, that is, all the calculations of wagons parameters are not displayed. In the course of the research, a program for EHM was developed to determine the calculation parameters of the wagons based on the nature sheet of the train for performing shunting half-flights. As a result, the following calculation parameters of the wagons are determined based on the number of wagons included in the program and the amount of cargo loaded on them (net): m - the total number of wagons to be transported, wag.; □ - the total (net) weight of cargo in transported wagons, t; □ - the total number of axles of transported wagons, axle; □ - total (tare) weight of transported wagons, t; □ – total length of transported wagons, m; □ - total (gross) weight of transported wagons, t; □ is the average weight of the loaded wagons, t. Determining the calculation parameters of the wagons based on the nature sheet of the train to perform maneuvering half-flights allows to calculate the weighted average resistance to the movement of the wagons ( ). It is known from [19] that the value of at main railway stations for calculation, the calculation parameters of the wagons are divided into 3 groups:

1. 4-axle wagons weighing more than 6 tons.

2. 8-axle wagons weighing more than 6 tons.
3. Wagons weighing less than or equal to 6 tons.

Calculation parameters of the following 4 wagons for each group above

defined: for group 1: 1.1. The total number of 4-axle wagons with a loading weight of more than 6 t Based on the above expressions and conditions, turn to the movement of wagons by correctly choosing the calculation parameters of the wagon(s) involved in the execution of maneuvering half-flights the weighted average core resistivity can be accurately calculated**.**

RESULTS AND THEIR DISCUSSION

During the study, the nature of the train to perform shunting half-flights on the basis of the sheet, the relative resistance to the movement of wagons with an average weight a program for computational exposure has been developed.

CONCLUSION

As a conclusion, it can be said that to perform maneuver half-flights in the correct calculation of the amount of time spent based on weighing calculations Determining the weight-averaged main specific resistance to the movement of wagons is considered a difficult issue. The main reason for this is the presence of different types of wagons in the shunting movement, and when calculating the main relative resistance to the movement of the wagons, they are divided into 3 groups (wagons with a weight of 6 t and less; 4-axle wagons weighing more than 6 tons; 8-axle wagons weighing more than 6 tons) Algorithm for dividing all wagons in shunting traffic into 3 groups based on the initial data in the train schedule using the above method and the developed software and calculating the main specific resistance to the movement of the wagons based on the average weight and allows for accurate calculation of the amount of time spent on the creation of software and the execution of maneuver half-flights based on weight calculations.

REFERENCES

1. Бабахалов Н.Э., Гуламов А.А. Экономика предприятий железнодорожного транспорта: учебое пособие. – Т.: Fan va texnologiy», 2016. – 140 с.
2. Валеев Н.А. Управление затратами в локомотивном комплексе железнодорожной компании: Дисс. к.э.н. 08.00.05. – М.: МГУПС. – 2016. – 132 с.
3. Нормы времени на маневровые работы, выполняемые на железнодорожных станциях ОАО «РЖД», нормативы численности бригад маневровых локомотивов. М. ОАО «РЖД», 2006. – 102 с.
4. Методические указания по расчету норм времени на маневровые работы, выполняемые на железнодорожном транспорте. МПС РФ. – М.: 1998. – 84 с.
5. Jaehn F., Otto A., and Seifried K. “Shunting operations at flat yards: retrieving freight railcars from storage tracks”. OR Spectr., vol. 40, pp. 367-393, 2018, doi: 10.1007/s00291-017-0495-x.

6. Суюнбаев Ш.М. Оперативное планирование эксплуатационной работы в условиях организации движения грузовых поездов по твердому графику / Известия Петербургского университета путей сообщения. – Санкт-Петербург: ФГБОУ ВО ПГУПС, 2010. – №3(24). – С. 15-24.
7. Khudayberganov S.K., Suyunbayev Sh.M., Jumayev Sh.B. Results of application of the methods “Sologub” and Combinator sorting in the process of forming multi-group trains at the sorting station // Journal of Tashkent Institute of Railway Engineers, 15 (4), 62-72.
8. Khudayberganov S.K., Suyunbayev Sh.M., Bashirova A.M., Jumayev Sh.B. Combinatorial sorting” duringthe multi-group trains formation // Journal of Tashkent Institute of Railway Engineers, 16 (1), 89-95.
9. Dilmurod Butunov Baxodirovich, Sokijon Khudayberganov Kobiljonovich, Shinpolat Suyunbaev Mansuralievich. Modeling of unproductive losses in the operation of a sorting station / European Journal of Molecular & Clinical Medicine, 2020, Volume 7, Issue 2, Pages 277-290, (https://ejmcm.com/article_2070.html).