

ТРАНСПОРТ

UDK 625.1.03

IRSTI 73.29.11

**S. T. Samyratov, DES, A. K. Kainarbekov, DES,
B. K. Moldazhanova**

Establishment of Multidisciplinary educational
and scientific production complex,
University of Humanities, Law and Transport of A. D. Kunaev,
Institute of Communications Lines

ARRANGEMENTS RELATED TO OPERATION AND REPAIR OF RAILWAY ROADS WITH SPEED LIMITATION FOR FRIGHT TRAINS

Рассматриваются мероприятия, связанные с эксплуатацией и ремонтами пути при ограничении скорости движения на грузовые поезда. Предлагается в график движения закладывать несколько групп предупреждений, связанных с эксплуатацией и ремонтами пути. Кроме того, в график необходимо закладывать до 80-85 % прогнозируемого на следующий год и следующие периоды количества предупреждений.

Ключевые слова: грузовой поезд, ремонт дороги, ограничение скорости, предупреждение.



In this article the question of rationing of speed of the dropping of a cargo rolling stock is considered by manufacture of an engineering work. Depending on a way condition by manufacture of an engineering work on the basis of the data about a legitimate value of the forces acting on a way at various easing of a ballast prism, speeds of traffic for various of works, are defined a legitimate value of frame forces at various designs of a way and axial load levels

Key words: Cargo train, track repairs, limit of speed, warning.



Бұл мақалаға жүк поездарындағы жол жөндеу барысында жылдамдықты шектеу және пайдалануға байланысты қолданылатын жағдайлар қаралды.

Жолды жөндеу және оны пайдалану үшін қозғалыс кестесіне алдын ала 80-85% (пойыз) ескертпелер қабылдауға болатындығы туралы мәліметтер келтірілген.

Кілт сөздер: Жүк поезы, жол жөндеу, жылдамдықты шектеу, ескертпелер

For production of necessary works the special "windows" should be provided according to track requests or changes should be introduced into the schedule for critical freight trains.

If it is impossible to provide "windows" and if it is necessary to issue 1st and 2nd category warnings sections the critical freight trains should follow along these sections.

As a rule, outside technological "windows" the works may be performed which require only the 3rd category warnings issuance.

In order to regularize the warnings issuance, to reduce its negative influence upon operating indices and to improve arrangement of route works it is necessary to include into the Railroad Director's Order as the appendix a list of sections where the warnings on the limitation of speed that is below the specified one, refers to the 1st and the 2nd category with specification of the maximum permissible speed [1].

It is required to ensure the development of the special regimen for maintenance of the track facilities for the purposes to provide the required route conditions on sections where warnings may come under the 1st and 2nd category. Therefore, the following should be worked out and approved by the Railroad Director's Order:

- A special schedule of the technological "window" provision for maintenance works on these sections;

- Priority schedule of the repair works for the year;

The Division Superintendent shall approve the schedule for operation of VPR-1200, P-2000, VPRS-500 track machines and, if required, the heavy-duty machines, according to the Director's order.

For the scheduled works, which require the issuance of the 1st and 2nd categories warnings, the roadmaster shall at least a day in advance to furnish the request to the road division on the basis of which the dispatch office will arrange the travel work ensuring the trains pass with the specified weight and established traffic range.

In case of unintended obstacles arose threatening the traffic safety, the 1st and the 2nd category warnings should be issued without delay.

The road department shall immediately take actions to eliminate obstacles and abolish warnings, and the dispatch office should take

actions to ensure the advance stoppage in preliminary determined places or to provide additional measures including the strengthening the motive power for passing the critical freight trains.

Application of warnings classification within the framework of market relations will allow focusing activities of road and traffic services on the high-priority elimination of reasons for speed limitations that more adversely influence on the rail traffic.

Occurrence of non-scheduled warnings involves not only train delay due to increase of travel time over estimated but also a growth of energy consumption for carriage with its increased cost as well as the mechanical wear and derangements on the way and on the rolling stock [2,3]. For this reason, the improvement of warning determination methods inserted into the traffic and its spread is needed.

The available data show that four warning groups should be inserted into the schedule related to maintenance and repair.

1. Permanent warnings - according to defect places of road and artificial structures (bad places of the roadbed, defective bridges, points and crossings in curved tracks and etc.). Train passing speed on such places should be established based on results of its special examinations subject to construction rating.

2. Lasting warnings set up in accordance with the efficient regulatory documents in case of derangements and deterioration exceeding permissible limits and given the lack of resources for immediate replacement. In order to correctly forecast such warnings occurrence it is necessary to establish a regularity of origin of those or that derangements in corresponding operating conditions and make out annual balances of prospective derangements as well as scheduled work-oriented receipt of materials to specified places.

3. Warnings connected with repair works production. The available procedure for train pass speed adjustment in places of repair works production is unified for all networks. From the point of view of traffic safety and speed designation subject to actual road conditions this approach do not raise doubts, but from the point of view of possible duration of finishing works and running tests, the consideration should me made for local peculiarities (technology intensiveness, material and maintenance supply with machines sets including those for

correction and finishing works, capabilities for deliver and accumulation of ballast materials, state of inventory rails fleet and etc.).

The first two groups of warnings have precise address, place of occurrence and the speed correctly agreed in documentation. The warnings of the third group have the approximate occurrence spots usually within the railway haul. If knowing the real abilities of repair enterprises we may forecast the real speed and duration of running tests after the repair works subject to the current experience.

It is quiet evident that the payment for the works performed should be made considering the running terms and established train speeds.

4. The fourth group comprises the warnings caused by road designations, functional loss of elements of superstructures, current road maintenance. As a matter of principle, each of these factors is governed by specific regularities of origin and development, for example, single rail yield - based on defects, but in total, it may be described only according to the statistical regularity. Places of occurrence of these warnings are mainly random.

It appears that up to 80-85% of warnings need to be inserted into the schedule for the following year and the subsequent period.

Литература

1 Железнодорожный транспорт в СССР и за рубежом. - 1984. - Вып.15. - 155 с.

2 *Певзнер В.О.* и др. Влияние неровностей в кривых участках пути на динамику и воздействие на путь грузовых вагонов при различном состоянии тележек // ВНИИЖТ. Вып. 549. - М.: Транспорт, 1976. - С. 26-46.

3 *Самыратов С.Т.* Скорости пропуска подвижного состава во время ремонтных работ по критерию поперечной устойчивости рельсошпальной решетки // Промышленный транспорт Казахстана, КУПС, 2010. - С. 46-49.

4 *Поршин В.Л., Омаров А.Д., Колотушин С.А., Кизатов Е.А.* Резервы повышения надежности работы рельсов в пути. - Алматы: KazNIINTI, 1990. - 71 p.