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Quality indicators of international passenger regular road transportation*Ulyanovsk State Technical University
(Russia, Ulyanovsk)**doi: 10.18411/lj-04-2019-237**idsp: ljournal-04-2019-237***Аннотация**

В настоящее время большое внимание уделяется проблеме оценки качества и ранжирования транспортных услуг в городах и территориях, в частности автотранспортных средств. Рассматриваются требования к качеству транспортных услуг и методы или интегральная оценка. Подчеркивается необходимость надлежащего подхода к показателям качества.

Ключевые слова: качество транспортных услуг, стандарты транспортного обслуживания, показатели качества, система управления.

Abstract

International passenger transportation has various features and characteristics associated with the types of transport involved in transportation. Currently, much attention is paid to the problem of assessing the quality and ranking of transport services as well as road vehicles in cities and regions. The requirements for the quality of transport services and methods or integral assessment are considered. The need for a proper approach to quality indicators is emphasized.

Keywords: quality of transport services, standards of transport service, quality indicators, control system.

International passenger transport has a variety of signs and features related to the specifics of the types of transport involved in transportation, the systematic of transportation, the types of transport documents drawn up at the conclusion of contracts of carriage, the order of passage of border points, the completion of transportation in the relevant state and some other points.

These features have found regulatory legal regulation in international conventions and agreements and allow us to classify the international transport of passengers on various grounds.

Thus, depending on the type of transport international transportation is divided into road, rail, air, sea and river ones. Characteristics of these types of vehicles indicate significant differences between them. This could not affect the nature and conditions of transport carried out by each type of transport.

In order to regulate the international transport of passengers carried by above-mentioned types of transport, corresponding conventions and agreements are adopted for each. For example, passenger service by road is regulated by the Convention for International Carriage of Passengers and Luggage by Road (1997). As for the rail transport of passengers, it is regulated by the International Convention concerning the Carriage of Passengers and Luggage by Rail 1970. Speaking about the air transport of passengers, the Montreal Convention 1999 and the Warsaw Convention 1929 regulate it. Carriage of Passengers and their Luggage by Sea is regulated by the International Convention for the Unification of Certain Rules of Law relating to the Carriage of Passengers by Sea (with Protocol), 1961.

Transport services can be provided on a regular and irregular basis.

The regular transportation of passengers refers to transportation between the territories of the contracting parties or transit through their territories, carried out with a certain frequency according to a predetermined route, bus schedule provided taking up and setting down of passengers at pre-determined points.

In accordance with bilateral agreements in the field of road transport regular passenger transport by bus is organized by agreement between the competent authorities of the

contracting parties on the basis of their travel permits for the part of the route that passes through their territory. When opening a regular line, the contracting parties, as a rule, follow the principle of parity participation of carriers of both countries. To operate regular line buses on the territory of a transit country, a permit from the competent authority of this transit country is also required.

When carrying out regular passenger transport, the bus driver must have a certified copy of the permission to open the specified regular line, which is issued for a strictly defined period of time.

Irregular passenger transport means all other types of passenger transport that do not fall under the term “regular transportation”, i.e. one-time transportation, in which the conditions for its implementation are determined in each individual case by agreement between the customer and the carrier. At the same time, taking up and setting down of passengers throughout the route is prohibited.

In accordance with the provisions of existing bilateral intergovernmental agreements in the field of international road transport, in most cases, to carry out such traffic between countries or transit through their territory, it is imperative to have permission to carry out such transportation through the territory of another country. Permission for the irregular transportation of passengers is usually of non-recurrent nature.

The quality of life of the population and the productivity of various sectors of the economy depend on the efficiency of the urban passenger public transport system. Improving the quality of transport services requires the adoption of urgent measures, the implementation of which will optimize route schemes and passenger traffic, and technology to use infrastructure, improve the control and efficiency of the transport network.

The new transport legislation is being formed; the interaction mechanisms are being improved. The transport strategy of the Russian Federation for the period up to 2030 approved by an order of the Government of the Russian Federation dated November 22, 2008 defines the main directions for the development of the road transport industry and the requirements for transport processes. One of the most important issues of the new legislation is regular passenger road transport. The Federal Law of July 13, 2015 “On the organization of regular transportation of passengers and baggage by road and urban land electric transport in the Russian Federation and on amendments to certain legislative acts of the Russian Federation” contains requirements for the organization of inter-regional regular passenger road transport including the problem of ensuring their quality.

In accordance with this law, interregional transportation is the route of regular transport within at least two regions of the Russian Federation.

The interregional regular transport route is established and modified by an authorized federal executive body on the proposal of a legal entity, an individual entrepreneur or an authorized participant in a simple partnership agreement who intends to carry out regular transportation or performing regular transportation on this route.

The quality of public service passenger transport is of social and economic importance. When organizing long-distance transportation, you can use an integrated system for quality control of passenger service in inter-urban transportation, which was developed by the research institute of road transport. The fact is that quality control is carried out not only by road transport enterprises, but also by integration of bus stations and passenger bus stations.

The following indicators are currently used in the intercity bus service:

- bus filling;
- high frequency of buses;
- matching the type of bus to long-distance transportation conditions, depending on the length of the route;
- time spent by passenger buses for every 10 km of the route;
- passenger service standards at bus stations (tickets purchase time and a list of services provided).

The development and implementation of an integrated quality management system for passenger traffic in intercity communication includes three stages: preparation for development, project development and system implementation.

The main causes of weaknesses in public service organizations are:

1. Poor organization of maintenance and repair of rolling stock;
2. Low frequency of buses of the route network;
3. Limited use of advanced methods of organizing the transport process on the line as well as at bus stations.

The main tasks of passenger transportation quality control are:

1. Quality standards development;
2. Definition and clarification of requirements for the quality of transport used in intercity traffic, based on the increase in quality requirements and achievements in the field of quality control;
3. Planning to improve the quality of passenger transportation;
4. Organizational and technical development of measures to improve transport production in all its sections in order to achieve the establishment of quality standards;
5. Development and continuous improvement of the production and technical base to ensure high operational reliability of rolling stock;
6. Moral and material incentives to improve the quality of work of individual employees and the staff of the enterprise as a whole;
7. Monitoring the implementation of the developed activities.

The quality of passenger bus transportation is determined by a set of indicators characterizing the level of satisfaction of passenger needs in transport services.

The main indicators of the quality of passenger transportation are:

1. The comfort of the trip (the direction of the bus and high frequency of buses on the routes);
2. Time spent by passengers (density of the transport network, speed of communication, the required number of buses on the route, etc.);
3. Transportation safety;
4. Staff courtesy;
5. Road accidents.

Conditions determining these indicators are:

1. The density of the bus network;
2. Frequency and interval of buses;
3. High frequency of buses;
4. The state of information and advertising.

Thus, in modern conditions, the active formation of the quality control system of passenger transportation becomes urgent. Passengers pay increasing attention to the quality of services provided, thereby forcing carriers to compete with each other and, ultimately, to strive to provide better services.

A necessary factor in assessing the quality level of regular transportation is the consideration of modern quality assessment system. The system of international ISO 9000 product quality standards was developed. However, compliance of ISO 9000 does not guarantee high quality passenger transportation system. Compliance with the requirements and recommendations of these standards implies the ability of the company to maintain quality stability to improve the performance of their work. Also compliant ISO 9000 indicates some level of supplier reliability. From the point of many Western and Japanese companies, requirements of ISO 9000 are the minimum level that allows entry into market. The ISO 9000 certificate is external independent confirmation of the achievement of the requirements of the standard.

It should be noted that at present the number of long-distance passenger road transportation enterprises of various ownership forms with a certified quality control system is negligible compared to other industrial sectors. In addition, within the framework of the quality control system standards it is necessary to develop transport quality indicators,

guidelines for assessing satisfaction and improving the quality of services provided. In our opinion, special attention should be paid to sections of the standard. ISO 9000 is related to customer requirements because passengers are direct consumers of the service. Therefore, in the system of long-distance transportation, mechanisms for assessing customer satisfaction should be developed and applied.

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Analysis of designs of modern stretch-forming dies for lineforming aircraft skin

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Abstract

This article presents an analysis of the designs of modern stretch-forming dies both used in Russian enterprises and the experimental developments of scientists from China. The main purpose of the work is to determine the most promising and cost-effective designs of stretch-forming die for shaping the skin of the aircraft.

Keywords: stretch-forming process, aircraft, aircraft skins, the theoretical contour

The manufacture of stretch-forming parts has found a great use in aircraft construction due to the higher productivity, the rational use of the material, and a sufficiently high reproduction accuracy of the required dimensions and shape of parts.

Meeting the accuracy requirements of external contours of the aircraft with a significant increase in the size of the lineforming sheet airframe parts requires solving the problem of the choice of materials and the design of the bulk equipment – stretch-forming dies.

For decades, concrete and wood were used for the manufacture of equipment. However, most of these materials did not provide the necessary efficiency of tooling [1].

Stretch forming refers to the shaping processes of sheet metal forming associated with an increase of the surface area of sheet part due to the application of tensile loads to the sheet in two directions from the side of the clamping devices of the stretch-forming machine. The limiting factors are uneven stretching due to the influence of friction forces and shear deformations due to the complex shape of the shell of double curvature. If uneven stretching is the cause of unacceptable localization of the deformation of the sheet part, then the complex shape of the double curvature shell leads to shear deformations, leading to the formation of folds and an uncontrollable stretch formation.

At this stage of development of science and technology such constructions of stretch-forming dies are distinguished as:

- multi-sectional design of a stretch-forming die;
- topologically optimized design of the stretch-forming die, manufactured using additive technologies [2];