



Volume 102

2019

p-ISSN: 0209-3324

e-ISSN: 2450-1549

DOI: <https://doi.org/10.20858/sjsutst.2019.102.9>



Journal homepage: <http://sjsutst.polsl.pl>

Article citation information:

Macioszek, E. Conditions of oversize cargo transport. *Scientific Journal of Silesian University of Technology. Series Transport*. 2019, **102**, 109-117. ISSN: 0209-3324.

DOI: <https://doi.org/10.20858/sjsutst.2019.102.9>.

Elżbieta MACIOSZEK¹

CONDITIONS OF OVERSIZE CARGO TRANSPORT

Summary. The transport of oversize cargo is distinguished by its specificity on the market of transport services. Specialised equipment is required for its implementation, and the number of people involved in the transport process itself is much higher than in the case of classic road transport. This paper presents the conditions related to the transport of oversize loads, characterised basic types of oversized cargo with the indication of the required documents related to the transport of this type of cargo. The method of preparation and organisation of oversize cargo transportation, as well as conditions of piloting vehicles with oversize cargoes, also are described.

Keywords: transport, oversize cargo, type of oversize cargo

1. INTRODUCTION

According to the common definition [27], transport is a separate set of activities related to the movement of persons and material goods using appropriate means of transport. Transport includes both the movement itself from place to place and all activities necessary to achieve this goal, that is, loading operations (loading, reloading, unloading) and handling activities (for example, fees). When talking about the transport of goods, the difference between the two concepts should be made: transport goods and cargo transport. The transport goods is called a load from the moment it is placed inside the means of transport. Loads can

¹ Faculty of Transport, The Silesian University of Technology, Krasińskiego 8 Street, 40-019 Katowice, Poland.
Email: elzbieta.macioszek@polsl.pl

be divided for example, into: bulk and groupage, dry and liquid, full load and collective, spatial and weighing, conventional and single, ordinary and courier. We can also distinguish special loads, which include: dangerous loads and oversized loads (also called non-standard, over-metric or oversized).

In Poland, we can distinguish the two most important groups of regulations governing the carriage of oversize cargo. These are the [26] regulations on structural safety of transport, documentation resulting from the vehicles used on land as well as in water transport and the laws and regulations of local law. Legal acts regarding the transport of oversized cargo regulate the carriage of loads in many branches of transport, that is, road, air, rail, sea and inland water transport. The largest number of legal acts concerns the transport of oversized cargo in road transport. This group of legal act includes:

- The Act of 21 March 1985, as amended, on public roads (Dz.U. 1985 No 14, poz. 605) [11].
- Act of 6 September 2001 on road transport (Dz.U. 2001 No 125, poz. 1371) [10].
- Regulation of the Minister of Infrastructure of 16 December 2004 on detailed conditions and procedure for issuing permits for passage of non-normative vehicles (Dz.U. 2004 No 267, poz. 2660) [17].
- Regulation of the Minister of Infrastructure of 26 April 2004 on vehicles performing pilotage (Dz.U. 2004 No 110, poz. 1165) [18].
- Regulation of 28 June 1986 on the principles of competent authorities and the procedure for determining costs associated with defining routes and adapting road sections for the transport of loads with weight and dimensions exceeding the permissible norms for the passage of non-normative vehicles (Dz.U. 1986 No 27, poz. 133) [21].
- Regulation of 31 December 2002 on the technical conditions of vehicles and the obligatory equipment (Dz.U. 2003 No 32, poz. 262 with later changes) [16].
- Regulation on 30 December 2002 on road traffic control (Dz.U. 2002 No 14, poz. 144) [19].
- Regulation of 15 January 2002 on road tolls (Dz.U. 2002 No 8, poz. 60) [25].

In turn, the conditions for the carriage of oversized cargo by rail are regulated by:

- Regulations on the transport of cargo shipments (RPT) PKP CARGO [24].
- Regulation of the Minister of Transport of 7 June 2006 on the type and conditions of transport of things that may cause transport difficulties on the railway (Dz.U. 2006 No 108, poz. 746) [20].

In inland waterways transport of over-sized cargo is defined by a group of legal act:

- Local law regulations issued by territorially competent directors of inland waterways offices.
- Regulation of the Minister of Infrastructure of 28 April 2003 on shipping regulations on inland waterways (Dz.U. 2003 No 212, poz. 2072) [15].

In the case of air transport, the conditions of carriage of oversize cargo are regulated by the Act of 3 July 2002 - Aviation Law (Dz.U. 2002 No 130, poz. 1112), relating to legal relations in the field of civil aviation [13]. However, in maritime transport, the document regulating legal relations related to sea shipping is the Act of 18 September 2001, the Maritime Code (Dz.U. 2001 No. 138, poz. 1545) [12]. In sea transport, however, there are no dedicated legal acts concerning oversize cargo, so they can follow the usual guidelines for safe securing of cargo on a sea-going ship.

This paper presents the conditions related to the transport of oversize loads, characterised by basic types of oversized cargo with the indication of the required documents related to the transport of this type of cargo. The method of preparation and organisation of oversized cargo transportation, as well as conditions of piloting vehicles with oversize cargoes, are also described.

The subject of transport of oversize cargo due to its specificity has already been reflected in numerous scientific works, among others in [1,5-9,14].

2. TYPES OF OVERSIZED CARGO AND DOCUMENTS CONNECTED WITH THE TRANSPORT

Oversized cargo can be distinguished as non-standard weight, size and shape that deviates from the standard ones. Special means of transport and reloading machines are necessary to handle and withstand the weight of the load or unusual shape or size of this type of cargo. According to [22], oversize loads can be divided into different categories, taking into account their shape, weight and dimensions for the following types [2,3]:

- Ordinary: These are steel constructions, small machines, industrial equipment, and working machines. The weight of these loads does not exceed 25 tons. These loads are transported by road sets, which are equipped with appropriate marking and security devices. Their dimensions exceed slightly acceptable parameters for road transport (that is, length 15.0 - 16.0 m, width 3.5 - 4.0 m and height 3.0 - 3.5 m).
- Special: Dimensions of these loads exceed the dimensions of the vehicle. The transport of these loads requires the establishment of special road traffic conditions. Transport must be carried out on a specific route. The dimensions of special loads can even reach such values as 5.0 m in length, 7.0 m in width and 6.0 - 7.0 m in height.
- Heavy: Various types of devices, silos, tanks, machine parts, equipment housings, tram and railway carriages. The weight of this type of loads is between 70.0 - 100.0 tons.
- Heavy with concentrated mass: These have a heavy weight in relation to their volume. The weight of some of them can reach up to 200.0 - 300.0 tons. Heavy loads of concentrated mass include, among others, transformers or turbines. This type of heavy loads can be transported overland, but only with the use of special multi-axle trailers. This oversized load transport may also take place by rail.
- Heavy spatial: These can only be transported by sea or inland waterways. The weight of this type of load can be as high as 900.0 tons, while the height of 40.0 m. This group of loads includes among others, water pipes and port cranes.
- Long: The length of these often reaches 40.0 - 60.0 m, with the remaining dimensions of the load, usually falling within the norm, including among others, pillars, propeller blades, reactors, etc.

Depending on the type of oversize cargo being carried, different types of transport documents are required. Requirements regarding documentation are defined in art. 87 of the Act of 6 September 2001 on road transport [10]. The driver while performing this type of transport should show, at the request of an authorised inspection body, tachograph records, driver card and such documents as [10,28]:

- in the case of road transport, an extract from the authorisation to pursue the occupation of road transport operator or an excerpt from the license.

- in the case of road transport of goods, documents related to the transported cargo as well as: appropriate permit required in international road transport, certificate required in accordance with the agreement on international transport of perishable foodstuffs and on special means of transport intended for such transport (ATP), vehicle passage, with or without cargo, with weight, axle loads or dimensions exceeding the values specified in separate regulations, documents required for the carriage of animals, documents required for the carriage of waste, including for the transporting waste issued by the competent authority confirmation of the possession of the registration number referred to in the Act of 14 December 2012 on waste (Dz. U. from 2013 year poz. 21), if the entry in the register is required, a certificate confirming that the vehicle meets the relevant safety requirements or conditions for entry into service, if required, in international road transport - driver's certificate, if required, device referred to in art. 13 and par. 3 of the Act of 21 March 1985 on public roads.

3. PREPARATION AND ORGANISATION OF OVERSIZED CARGO TRANSPORT

In Poland, Directive 2002/7/WE of the European Parliament and of the Council of Europe of 18 February 2002 [23] is in force for vehicles using roads within the territory of the community, the maximum permitted dimensions of vehicles in domestic and international traffic and maximum permitted loads in international traffic. They are as follows: the maximum permitted length of vehicles is:

- motor vehicle - 12.0 m.
- articulated vehicle - 16.5 m.
- road train - 18.75 m.

The maximum allowed width of vehicles is:

- all vehicles - 2.55 m.
- superstructure of refrigerated vehicles - 2.6 m.

The maximum height allowed for vehicles is 4.0 m.

Maximum permissible vehicle weights:

- road trains or articulated vehicles - 40,0 tons.
- articulated vehicles transporting forty - foot containers - 44.0 tons.

The Directive [23] also allows carriers in EU countries to allow vehicles in their own territory, which are intended for the transport of goods whose parameters do not meet the above-mentioned conditions. This is enabled by a special permit, which is issued by the relevant state authorities. It is also possible to organise this kind of transport without having such permission. This second option in accordance with the Directive allows the execution of well-defined operations in the transport of oversize vehicles, which are necessary, as exemplified by the logging of trees in the forestry industry. In this case, the oversize vehicle can be replaced by an oversized road train consisting of vehicles, trailers or semi-trailers in accordance with the applicable parameters.

In Poland, in order to obtain a permit for an oversize vehicle transport preparing, an application must be submitted to the appropriate authority that is responsible for issuing this type of document. The application must contain the following data [23]:

- applicant's data, including the list of persons performing transport.
- date and exact address of the source and destination place.
- type of cargo and its mass and brand.

- type, registration number, date of first registration.
- own weight, permissible load capacity.
- number of vehicle axles and number of wheels on each axle (in the case of a combination of vehicles, these data are given separately for the motor vehicle and trailer, including semi-trailers).
- dimensions and the actual total weight of a single vehicle or combination of vehicles with and without load.
- wheelbase and pressures of each axle of the vehicle together with the load and without load.
- for non-standard vehicles with an actual total weight exceeding the permissible total weight or with exceeded axle load norms, the consignor's statement justifying that the carried cargo cannot be divided into smaller parts.
- information on whether the vehicle has pneumatic or equivalent suspension.

Issuing the permits is handled by the starosta, who may issue two types of permits:

- for an indefinite period of time for journeys of an over-sized low-speed vehicle, agricultural tractor or special vehicle, the width of which does not exceed 3.5 m, whereas the total weight, axle loads, length and height are normative.
- for a definite period of time for an oversize vehicle, the length of which is greater than the maximum permissible by 2.0 m, and the width does not exceed 3.2 m, while the total weight, axle loads and height are normative.

Permission for one-time travel at a specified time and after a well-established route of oversized vehicles other than those mentioned above is issued by GDDKiA (General Director of National Roads and Motorways). Such permits are issued for a period of 7 days, and the transit should not be longer than 72 hours. In addition, the customs office issues the permit for a single passage on national roads at a specific time of the vehicle that crosses the state border when entering the territory of the Republic of Poland. Permission for this type of travel is issued for an oversized vehicle that crosses the state borders and its parameters meet one of the following conditions:

- height, total weight and axle loads are normative.
- overall width does not exceed 3.0 m.
- the total length is greater than the permissible maximum by 2.0 m.
- the pressure of the single axle or the sum of the pressures of the component axes or both elements jointly exceed the permissible values by no more than 15%.

In the case of transporting oversize cargo, it is required to use the services of a specialised pilot company and police pilotage. This is precisely regulated by the Regulation of the Minister of Infrastructure of 26 April 2004 on vehicles that perform this type of pilotage. The tasks to start with are: identification of cargo, checking transport capacity and selection of appropriate vehicles. The next thing that needs to be done is the detailed development of the optimal route. Particular attention should be paid to the width of roads, the height and width of overpasses and bridges, signs and poles next to roads, roundabouts, specific vehicle pressure on the road, electric traction and the condition of roads where the vehicle is planned to travel with oversize cargo. The road on which the vehicle is planned to travel with oversize cargo must meet the following requirements:

- there are no breakthroughs and landslides on the way.

- the vertical gauge of the road is greater than the height of the vehicle together with the load by 0.1 m.
- horizontal road gauge is greater than the width of the vehicle together with the load by 1.0 m.
- the assessment of the technical condition of the platform is equal to or greater than 3 (on a scale from 0 to 5).

4. CONDITIONS FOR THE SUPERVISION OF OVERSIZE CARGO TRANSPORT

The duties of the pilot during the transport of oversize cargo is to ensure the proper organisation of the trip, as well as direct supervision of the passage of vehicles both during the journey and during the stoppage. The pilot is therefore obliged to ensure maximum safety and minimise road distress. According to road traffic regulations, the pilot may, to some extent, manage traffic at a certain stretch of road or at a given point of transport infrastructure. A pilot who issues signals and commands takes precedence over light signals and road signs. The rights of a pilot vehicle that is properly marked can be compared to that of a privileged vehicle. This vehicle, however, must be specially equipped and marked.

5. CONCLUSIONS

Transport is one of the most important sectors of the economy of any economically developed country. At present, it is difficult to imagine the global economy without a network of roads and vehicles. The development of transport companies operating in current markets is associated with a continuous increase in demand for transport services. Both in Poland and in the world, new transport companies are created to provide these services, this, in turn, results in increased competition and competition for the customer in the transport market.

Transportation of oversize cargo is a specific field in the service market. Specialised equipment is required, and the number of people involved in the transport process itself is much higher than in the case of classic road transport. The difficulty in carrying out this type of transport is indicated in the number of required permits for transit, with completely unadapted road infrastructure at many points of the transport network. In turn, the disadvantage of oversize transport is usually a long time of transport from the point of origin to the destination because of frequent restrictions and low speed.

References

1. Ambroziak Tomasz, Dariusz Pyza. 2011. „Problematyka wykorzystania różnych form transportu w aspekcie zrównoważonego rozwoju infrastruktury transportowej”. *Logistyka* 4: 33-42. ISSN 1231-5478. [In Polish: “Problems of using various forms of transport in the aspect of sustainable development of transport infrastructure”].
2. Brandt Jakub. 2015. „Przewozy ponadgabarytowe”. Available at: <http://logistyka.blox.pl/2015/02/Przewozy-ponadgabarytowe.html>.
3. Christowa - Dobrowolska Maria. 2011. „Logistyka i technika transportu ładunków nienormatywnych drogą wodną”. *Logistyka* 5: 468-473. ISSN 1231-5478. [In Polish: „Logistics and technique of transporting non-standard loads by water”].

4. Dedík Milan, Jozef Gašparík, Zdenka Záhumenská, Vladimír Ľupták, Zdeněk Hřebíček. 2018. "Proposal of the measures to increase the competitiveness of rail freight transport in the EU". *Nase More* 65(4): 202-207.
5. Dyczkowska Jolanta. 2011. „Śródlądowy transport wodny a zintegrowany system logistyczny”. *Logistyka* 2: 119-128. ISSN 1231-5478. [In Polish: „Inland water transport an integrated logistics system”].
6. Jacyna Marianna, Piotr Golebiowski, Emilian Szczepanski. 2015. „City transport service model taking into account different means of transport”. *9th International Scientific Conference on Transport Means*. Kaunas University of Technology, Kaunas, Lithuania, October 22-23, 2015. *Transport Means - Proceedings of the International Conference*. 2015. P. 160-168.
7. Jacyna Marianna, Mariusz Izdebski, Emilian Szczepanski, Pawel Golda. 2018. “The task assignment of vehicles for a production company”. *Symmetry* 10(11). Article Number: 551.
8. Jacyna Marianna, Mariusz Wasiak. 2015. „Multicriteria decision support in designing transport systems”. 15th International Conference on Transport Systems Telematics (TST). Wrocław University of Technology, Wrocław, Poland. April 15-17, 2015. *Tools of Transport Telematics. Communications in Computer and Information Science* 531: 11-23.
9. Jacyna-Golda Ilona, Mariusz Izdebski, Emilian Szczepanski. 2016. “Assessment of the method effectiveness for choosing the location of warehouses in the supply network”. 16th International Conference on Transport Systems Telematics (TST). Katowice Ustron, Poland. March 16-19, 2016. *Challenge of Transport Telematics, TST 2016. Communications in Computer and Information Science* 640: 84-97.
10. Kancelaria Sejmu RP: Ustawa z dnia 6 września 2001 roku o transporcie drogowym. Dz.U. 2001 nr. 125, poz. 1371. [In Polish: The office of the Polish Parliament: The act of 6 of September 2001 on road transport. Dz.U. 2001 No. 125, item 1371].
11. Kancelaria Sejmu RP: Ustawa z dnia 21 marca 1985 roku z późniejszymi zmianami o drogach publicznych. Dz.U. 1985 nr. 14, poz. 60. [In Polish: The office of the Polish Parliament: The act of 21 of March 1985 with later changes on public roads. Dz.U. 1985, No. 14, item 60].
12. Kancelaria Sejmu RP: Ustawa z dnia 18 września 2001 roku: Kodeks Morski. Dz.U. 2001 nr. 138, poz. 1545. [In Polish: The chancellery of the Sejm of the Republic of Poland: The Act of 18 of September 2001: The Maritime Code. Dz.U. 2001 No 138, issue 1545].
13. Kancelaria Sejmu RP: Ustawa z dnia 3 lipca 2002 roku Prawo Lotnicze. Dz.U. 2002 nr 130, poz. 1112. [In Polish: The chancellery of the Sejm of the Republic of Poland: The Act of 3 of July 2002: The Aviation Law. Dz.U. 2002 No 130, issue 1112].
14. Krile Srećko, Darijo Mišković. 2018. “Optimal use of container ships for servicing among small ports”. *Nase More* 65(1): 18-23.
15. Minister Infrastruktury RP: Rozporządzenie Ministra Infrastruktury z dnia 28 kwietnia 2003 roku w sprawie przepisów żeglugowych na śródlądowych drogach wodnych. Dz.U. 2003 nr. 212, poz. 2072. [In Polish: Minister of Infrastructure of the Republic of Poland: Regulation of the Minister of Infrastructure of 28 April 2003 on shipping regulations on inland waterways. Dz.U. 2003 No 212, issue 2072].

16. Minister Infrastruktury RP: Rozporządzenie ministra infrastruktury z dnia 31 grudnia 2002 roku w sprawie warunków technicznych pojazdów oraz zakresu ich niezbędnego wyposażenia. Dz.U. 2003 nr. 32, poz. 262 z późn. zm. [In Polish: Minister of Infrastructure of the Republic of Poland: Regulation of the Minister of Infrastructure of 31 of December 2002 regarding the technical conditions of vehicles and the scope of their necessary equipment. Dz.U. 2003 No. 32, item 262 with later changes].
17. Minister Infrastruktury RP: Rozporządzenie Ministra Infrastruktury z dnia 16 grudnia 2004 roku w sprawie szczegółowych warunków i trybu wydawania zezwoleń na przejazd pojazdów nienormatywnych. Dz.U. 2004 nr. 267, poz. 2660. [In Polish: Minister of Infrastructure of the Republic of Poland: Regulation of the Minister of Infrastructure of 16 December 2004 on detailed conditions and procedure for issuing permits for passage of non-normative vehicles. Dz.U. 2004 No. 267, issue 2660].
18. Minister Infrastruktury RP: Rozporządzenie Ministra Infrastruktury z dnia 26 kwietnia 2004 roku w sprawie pojazdów wykonujących pilotaż. Dz.U. 2004 nr. 110, poz. 1165. [In Polish: Minister of Infrastructure of the Republic of Poland: Regulation of the Minister of Infrastructure of 26 April 2004 on vehicles performing pilotage. Dz.U. 2004 No. 110, issue 1165].
19. Minister Spraw Wewnętrznych i Administracji: Rozporządzenie z dnia 30 grudnia 2002 w sprawie kontroli ruchu drogowego. Dz.U. 2002 nr 14, poz. 144. [In Polish: Minister of the Interior and Administration: Regulation of 30 December 2002 on road traffic control. Dz.U. 2002 No 14, issue 144].
20. Minister Transportu: Rozporządzenie Ministra Transportu z dnia 7 czerwca 2006 roku w sprawie rodzaju i warunków przewozu rzeczy mogących powodować trudności transportowe przy przewozie kolejną. Dz.U. 2006 nr 108, poz. 746. [In Polish: Minister of Transport: Regulation of the Minister of Transport of 7 of June 2006 on the type and conditions of transport of things that may cause transport difficulties on the railway transport. Dz.U. 2006 No 108, issue 746].
21. Minister Infrastruktury RP: Rozporządzenie z dnia 28 czerwca 1986 roku w sprawie zasad organów właściwych oraz trybu ustalania kosztów związanych z określeniem tras przejazdu i przystosowaniem odcinków dróg do przewozu ładunków o masie i gabarytach przekraczających dopuszczalne normy dla przejazdu pojazdów nienormatywnych. Dz.U. 1986 nr. 27, poz. 133. [In Polish: Minister of Infrastructure of the Republic of Poland: Regulation of the Minister of Infrastructure of 28 June 1986 on the principles of the competent authorities and the procedure for determining the costs associated with defining the route and adopting road sections for the transport of goods with a weight and dimensions exceeding the permissible norms for the passage of non-normative vehicles. Dz.U. 1986 No. 27, issue 133].
22. Neider Janusz. 2012 *Transport Międzynarodowy*. Warsaw: Polish Economic Publisher. ISBN: 978-83-208-2191-8. [In Polish: *International Transport*].
23. Directive 2002/7/EC of the European Parliament and of the Council of 18 February 2002 amending Council Directive 96/53/EC laying down for certain road vehicles circulating within the Community the maximum authorised dimensions in national and international traffic and the maximum authorised weights in international traffic. Official Journal of the European Communities 9.3.2002.

24. PKP LHS Spółka z.o.o. Regulamin przewozu przesyłek towarowych (RPT). Załącznik do Uchwały nr 634/2011 Zarządu PKP LHS sp. z o.o. z dnia 30 grudnia 2011. [In Polish: PKP LHS Spółka z o.o. Regulations for the carriage of cargo shipments (RPT). Annex to Resolution No 634/2011 of the Management Board of PKP LHS sp. z o.o. from 30 of December 2011].
25. Rada Ministrów RP: Rozporządzenie Rady Ministrów z dnia 15 stycznia 2002 roku w sprawie opłat drogowych. Dz.U. 2002 nr 8, poz. 60. [In Polish: The Council of Ministers of the Republic of Poland: Regulation of the Council of Ministers of 15 January 2002 on road tolls. Dz.U. 2002 No 8, issue 60].
26. Waniek Anna. 2012. *Transport wielkogabarytowy*. Poznań: Higher School of Logistics. [In Polish: *Transportation of large size*].
27. Wielka Encyklopedia PWN. Warsaw 2005. ISBN:830-1-1436-22. [In Polish: The great Encyclopedia of PWN].
28. Wojewódzki Inspektorat Transportu Drogowego. „Jakie powinienem posiadać dokumenty do kontroli wykonując przewóz drogowy”. [In Polish: Provincial Inspectorate of Road Transport. „Which documents should I have to check when carrying out road transport?”. Available at: <https://www.witdpoznan.pl/jakie-powinienem-posiadac-dokumenty-do-kontroli-wykonujac-przewoz-drogowy,301.html>].

Received 05.12.2018; accepted in revised form 19.02.2019



Scientific Journal of Silesian University of Technology. Series Transport is licensed under a Creative Commons Attribution 4.0 International License