

STAT

Organization of Freight Work on Railroad Transport -
Freight Hauling

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Organizatsiya Gruzovoy Raboty na Zheleznodorozhnom Transporte -
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While the war was still going on, railroad transport bore the colossal burden of reconstruction work. After the end of war the country advanced toward the fulfillment of the Five Year Plan of reconstruction and further progress in the national economy, which envisages the tremendous growth of industrial production and the execution of works of construction and reconstruction on a scale never before seen.

The total volume of industrial production will have increased by 48 percent in 1950, as compared with 1940, and that of agriculture will have increased by 27 percent.

In connection with capital reconstruction and with the further expansion of the national economy, the freight turnover is increasing for all forms of transport.

The average daily car-loadings at the end of the new Stalin Five-Year Plan (in 1950) will amount to 115,000 i.e. will show an increase of 17.5 percent over 1940. At that time the freight turnover will have increased by 28 percent over the prewar level.

In the field of railroad freight operations the Five Year Plan, besides an increase in the volume of car-loadings and freight turnover, also envisages:

(a) cutting the length of rail shipments from 790 kilometers in 1945 to 690 kilometers in 1950, which will be one of the important measures for accelerating the turnover of cars;

(b) reduction of the average idle or waiting time of cars in freight operations by 34.4 percent in 1950 from the 1945 average, which will also act as a powerful reserve to accelerate car turnover;

(c) increase of the proportion of mechanized loading and unloading to 75 percent of the total volume of loading and unloading, which will require the complete mechanization of the loading of such bulk freight as coal, coke, petroleum and ores. The total power of the stock of freight-handling machinery at the disposition of the railroads will have increased by more than 10 times during the Five Year Plan;

(d) use of all possible means to cut the idle time of cars on the private tracks of industrial enterprises, and assurance of the reconstruction of private tracks in regions that were occupied by the Germans, reconstruction of existing private tracks and construction of new ones, especially at the Ural and Siberian enterprises.

In attaching especially great importance to freight and commercial work, the government has assigned considerable amounts in the 1946-1950 Five Year Plan to capital investment for the rehabilitation and technical re-equipment of the freight system. The total amount of these capital investments is double the investment in the freight system for the past ten years.

The principal work that will be done on the freight system during the current Five Year Plan is as follows.

1. Reconstruction and construction of up to 1,000 warehouses and freight handling platforms.

2. Establishment of freightyards at a considerable number of stations. Such yards will be of new and improved type, with ample trackage and storage space, rational location of the warehouses and mechanization of a considerable proportion of the freight operations.

3. Installation of new and improved machinery to handle freight: gantry and traveling gantry cranes, bridge cranes and movable cranes on railroad and truck approaches, mechanical loaders and unloaders, intra-plant platform trucks, etc.

4. Expansion of the weighing system, in which up to 60 million rubles will be invested; the number of 100-ton scales is to be doubled, over 1,500 notched and portable scales will be placed in service, and the use of automatic scales will be introduced.

5. Considerable expansion of the refrigerated transport system, rehabilitation and construction of ice plants, rehabilitation and technical equipment of up to 100 icing points, reconstruction of all destroyed car disinfection and washing stations and construction of 8 new ones, mechanical equipment of ice manufacture and of the supply of ice and salt to refrigerator cars.

6. Construction of a large number of containers and a considerable increase of LCL container traffic based on this.

7. Besides this, a considerable amount of work is envisaged on the construction, expansion and technical equipment of private

tracks, their extension, installation of new rails, introduction of more powerful locomotives, use of machinery for handling freight, etc.

All of these important technical measures for strengthening the productive bases of the freight system will make a fundamental improvement possible in the quality of railroad freight and commercial work. This improvement, however, depends primarily on how the work is organized and to what extent the introduction of advanced and improved methods is assured.

Since railroad freight traffic will increase more rapidly during the current Five Year Plan than the reinforcement of its technical equipment, one of the basic tasks in the mastery of the transport system is the quest for hitherto unutilized marginal possibilities of improving railroad exploitation.

Under these conditions the questions of rational organization of freight operations to assure fulfillment of the state transport plans with the given level of technical equipment and at minimum cost in material resources and working labor power will be of immense importance.

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1. The Laws, Rules and Directives that Fix the Conditions for Freight Hauls.

The freight and commercial operations of the railroads, which constitutes a component part of the whole work of railroad transportation, is at the same time distinguished from it by the fact that

it directly links transport with the clientele, i.e. with the whole national economy. For this reason the execution of freight and commercial operations is based on laws issued by the government, which are binding on both transport agencies and clientele, and fix:

(a) the order of fulfillment of the haulage plan by the railroads and the clientele;

(b) the rights, obligations and responsibilities of railroads, shippers and consignees in all matters involving the acceptance, transportation, storage and delivery of freight;

(c) the conditions of organizing haulage with the minimum expenditure of material resources and with assurance of safety for the goods hauled;

(d) the procedure for hauling the various types of freight, taking into account their specific peculiarities and properties of each;

(e) the conditions to assure the most rational coordination of the railroad freight operations with other forms of transport;

(f) the system and procedure for payment of freight charges and of the charges for the supplementary operations connected with haulage.

The USSR Railroad Regulations confirmed by the USSR Government, constitute the law fixing the above conditions.

In the clauses of the Railroad Regulations the procedure for executing the state haulage plan, the rights, obligations and responsibilities of the railroads carrying out haulage, and of the organizations and persons using railroad transport for travel and haulage, are all set forth.

The Railroad Regulations, however, contain only the basic provisions governing the haulage of freight, passengers and baggage, but do not contain detailed directives and rules for such haulage. Therefore the government has conferred on the Minister of Roads, Railways and Waterways the right to issue special rules based on, and developing in detail, the individual clauses of the Regulations, and these rules then constitute annexes to such clauses.

All amendments, additions and interpretations to the Railroad Regulations, in accordance with government decisions, are published in a special "Collection of Rules for Carriage and Tariffs of Railroad Transportation in the USSR".

The entry into force of new tariffs involving changes in the tariff system as a whole, as well as separate changes in freight tariffs, are published in this Collection.

The Collection is issued periodically by the MPS (Ministry of Roads, Railways and Waterways) and possesses juridical force, i.e. all the rules promulgated and published in it concerning haulage and tariffs of the USSR railroads, as well as all amendments, additions and interpretations to such rules so published becoming binding on, and must be carried out by, the railroad workers and clientele.

The conditions of freight haulage on mixed rail-water routes are regulated by special "Rules for carriage of freight in direct mixed rail-water routes", approved by the Minister of Roads, Railways and Waterways, of the Maritime Fleet and the Inland Fleet.

Besides these basic directives, current directives and dispositions to improve the freight and commercial service are issued in orders of MPS.

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The Railroad Regulations now in effect on the railroads of the USSR were approved by the Council of Peoples' Commissars USSR on 10 February 1945 and took effect on March 15, 1945.

The USSR Railroad Regulations are in essence sharply distinguished from the rules for haulage in effect on the railroads of the capitalist countries. Of these distinctive characteristics that result from the socialist character of our economy, the principal are the following.

1. The Regulations envisage that the haulage of all freight shall be performed on the bases of previously worked out and confirmed haulage plans, the fulfillment of which is the primary obligation of the railroads.

This demand is reinforced by the incorporation in the Regulations of provisions for monetary responsibility of both shippers and railroads for failure to fulfill the haulage plan (besides the disciplinary and penal responsibility to which persons guilty of

non-fulfillment of the plan may be subject in appropriate cases.)

2. Pursuant to the Regulations, all freight is divided into two categories, the first comprising goods of national importance (coal, ore, grain, etc.), and the second, goods of local importance. This classification, together with the directive contained in the Regulations that "the principal task of the MPS and of its local agencies is the unconditional and 100 percent fulfillment of the haulage plan for freight of the first category", liquidates the indifferent attitude to the kind and character of the freight to be hauled which is inherent on capitalist railroads, for which it is all the same what is to be hauled, so long as a larger profit is obtained. In our country goods that are more necessary for the national economy as a whole are hauled first.

3. Starting out from the general national interests, the Regulations provide for the rational utilization of transport by giving the MPS the right to reject shipments involving cross-hauling, unnecessarily long hauls, and excessively short hauls (up to 30 kilometers.)

4. The Regulations also contain a number of provisions designed to assure the best use of the means of transport. The main provisions of this nature include:

(a) Granting the railroads the right to concentrate freight loadings, within the limits of the plan, in order to organize through train service and larger groups of cars;

(b) Haulage of freight only by the shortest route, regardless of requests from the clientele to ship any specific item by a route other than the shortest;

(c) Establishment of fixed periods for holding goods in storage and for loading and unloading cars, for exceeding which the shipper or consignee is liable for storage charges or demurrage;

(d) Requirement that clients load cars fully, within the limits of the technical car-loading norms set up by the MPS, and imposition of a penalty for underloading.

5. The periods for delivery of freight are fixed by the government, are based on the general interests of the country's economy, and are regulated by the Regulations (length of the period, observance of it) with the object of accelerating the delivery of goods; and financial responsibility for failure to keep deliveries within the prescribed periods is imposed on the railroads.

6. The Regulations take into account the peculiarities of the interrelations of our socialist transportation systems and their clientele -- interrelations in complete contrast to the conditions that exist in capitalist countries. These interrelations are not directed, here, as they are in those countries, to the effort of each party to take more from the other party, but are directed towards mutual aid.

The Regulations provide for the obligatory advice to the transport clientele on the arrival of freight, timely notification of the delivery of cars for unloading and loading, and likewise give the railroads the right to help its clientele by supplying

labor and to organize the delivery of freight and baggage to the consignee's warehouse.

They likewise provide for the mutual financial responsibility of railroads, consignees and shippers, according to the party by whose fault loss of freight or additional transportation expense was occasioned.

Concurrently they make haulage obligatory, i.e. it is the obligation of the railroads to accept freight for shipment, and refusal to accept freight offered for shipment pursuant to the plan may only be motivated by the existence of special embargoes. Such embargoes are always exceptional measures.

The question of assuring the safety of freight is also resolved differently by the USSR Railroad Regulations than is the case in capitalist states. The interests of the national economy in preserving material values are paramount. Full responsibility is borne by the railroads for the safety of goods accepted for shipment or actually shipped. Concurrently, however, the Regulations also exclude the possibility of extortionate or excessive compensation to a shipper or consignee in an amount higher than the actual value of the goods lost. They likewise reflect the government's concern for the personal property of private citizens, for which there is no limit on storage time.

The Regulations for the USSR Railroads in force at the present time consist of 100 clauses, divided into the following 5 Sections: (1) General Regulations; (2) Freight Haulage;

(3) Carriage of Passengers and Baggage; (4) Responsibility of the railroads, shippers, consignees and passengers; (5) Instruments, claims and legal actions.

The first Section -- "General Regulations" (Clauses 1 - 8)
-- provides:

- (a) at what stations freight and baggage shall be accepted;
- (b) to what shipments of freight and baggage the Railroad Regulations apply;
- (c) the procedure under which pick-up and delivery service shall be furnished by the railroads;
- (d) the procedure under which the charges for freight and baggage transportation are established.

The second section -- "Freight Haulage" (Clauses 9-52)
covers the following questions:

- (a) the planning of transport (kinds of plans, their content, the procedure for their formulation, confirmation and incorporation of individual amendments);
- (b) the rules for accepting LCL freight;
- (c) the special features of planning and acceptance of freight for haulage over mixed rail-water routes;
- (d) the procedure for placing embargoes on loading for shipment in specified directions, and for changing the points from which shipments will be made;

(e) the documentation of the acceptance of freight for shipment, and the requirements with respect to the freight and its packing;

(f) the procedure for weighing, loading and unloading of freight;

(g) the procedure for storage, delivery to consignee and liquidation of unclaimed goods;

(h) a list of goods for the haulage of which supplementary conditions must be met.

The third Section of the Regulations -- "Transportation of passengers and baggage (clauses 53-58) -- considers the rights and obligations of passengers, and the procedure for acceptance, storage and shipment of baggage.

The fourth Section -- "Responsibility of the railroad, shipper, consignees and passengers (clauses 59-90) -- fixes:

(a) the extent of the financial responsibility of the clientele and the railroads for breach of the basic provisions of the Regulations, (failure to provide cars, exceeding the limit on standing time, under-loading, loss or spoilage of freight, delayed delivery, etc.);

(b) the procedure for payment of fines and penalties, and the circumstances releasing the shipper, consignee, and railroad from financial responsibility for non-compliance with the requirements of the Regulation.

In the fifth Section -- "Instruments, claims and litigation"
(Clauses 91-100) -- the Regulations cover:

(a) an enumeration of the circumstances under which the clientele has the right to make claims on the railroad, or to sue it at law, and the procedure for certifying these circumstances;

(b) the procedure for commencing actions and filing claims, and the limitations of time therefor and for action thereon;

(c) the admissible extent of claims and the procedure for their consideration, as well as the procedure for deciding disputed damage claims. (The gist of the clauses of the present Railroad Regulations dealing with freight transportation will be set forth in detail in the following chapters of this text.)

3. Types Of Railroads And Services And the Speeds Of Freight Haulage

All railroad lines are divided into three main types, depending on the conditions of transportation and the laws and rules applicable to them, which determine the organization of traffic and the interrelations of railroads between themselves and with their clientele.

(a) Railroads open to public use include all railroads under the jurisdiction of the MPS and open for continuous operation in carriage of passengers, baggage and freight. The Railroad Regulations, the rules of haulage, and the tariffs, are all applicable without exception to such lines.

(b) Private tracks (which are not common carriers) include railroads belonging to large-scale industrial enterprises and connected with the general rail network.

The shipment of freight on such private tracks is based on special rules confirmed by the Council of Ministers USSR, for the exploitation of these tracks.

(c) Railroads under construction, on which shipments are made, pending definitive commencement of regular operation, pursuant to the special "Rules for the transportation of freight, passengers and baggage on railroads under construction, before delivery for regular operation."

Until such lines have been placed in regular operation, freight may be hauled on them only by authorization of the Chief of the Central Administration of Railroad Construction of the MPS.

Freight may be hauled for varying distances, either wholly on a single railroad line, or on a number of lines.

Freight hauls over several roads (two or more) are termed through service hauls. If the haul is entirely over a single railroad line, it is termed a local haul.

Freight hauls using not only railroads, but also other forms of transport, are termed mixed service hauls. Thus, for instance, if freight covers part of the distance by rail and part by water, it will be over a mixed rail-water service.

Hauls beyond the boundaries of the USSR are termed international service hauls. The latter may also be mixed.

Freight is hauled on railroads in trains that have varying speeds.

At the present time freight is hauled on USSR railroads

- (a) at low speed;
- (b) at high speed;
- (c) at passenger-train speed.

All freight in ordinary freight-trains is hauled at low speed.

Freight that is valuable, perishable and requires fast delivery is hauled at high speed. Hauling of freight at high speed is done in accelerated freight-trains, while what are termed "refrigerator trains" are used for perishable freight.

Small shipments that require very fast delivery are handled at passenger-train speed; such freight is hauled in the baggage cars of passenger trains, if there is room after full dispatch of all passenger baggage.

Mail is hauled pursuant to special rules confirmed by the Council of Ministers USSR (and not covered by the Railroad Regulations). Letter mail and parcel-post are handled in special railway mail cars, under the custody of employ^es of the Ministry of Posts and Telegraphs who accompany the cars.

The Railroad Regulations likewise do not apply to military shipments, which are made pursuant to special regulations confirmed by the Council of Ministers USSR. Military shipments include troop

movements, shifts of individual military units, and shipments of various military freight. These transports are made pursuant to the plan of the Ministry of Armed Forces, applications by the agencies of military communications (VOSO) and presentation of military transportation documents.

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THE ORGANIZATION OF THE MANAGEMENT OF FREIGHT AND COMMERCIAL SERVICE

1. The Management of Freight and Commercial Service at MPS Regional and Line Level

The direction and control of all freight and commercial service on the railroads is handled, at MPS level, by the Central Administration of Freight and Commercial Service, in the railroad Regions, by the Administration of Movement, Freight Service and Passenger Transportation, and on the individual railroad lines by the services of freight and commercial operations that form a part of the line management. In each Division of the line there are departments of freight and commercial service and commercial inspectors.

Figure 1 depicts the structure of the management of freight and commercial service.

The principal functions of the Central Administration of Freight and Commercial Service of the MPS, of the corresponding departments (in the Administration of Movement of Freight Service and Passenger Transportation) at Regional level, and of the corresponding services in the individual lines, are to assure the fulfillment of the state transportation plan for each type of freight

Central Administration of
Freight and Commercial
Operations of the MPS

O TEK

District Administration of
Freight and Passenger
Movement

Departments

Department of Haulage

Planning

Department of Freight By

Types

Commercial Department

Service of Freight and
Commercial Operations of
the Line Administration

DORTEK

Divisional Sector of
Freight and Commercial
Operations

Commercial

Inspectors

Freight Handling
Offices

Station

TEK

Figure 1. [DORTEK = Line Express Office; TEK =
Express Office. They handle Pick-up
and Delivery Service]

and to organize the railroad freight and commercial service with the maximum utilization of rolling stock, appliances and structures, with minimum standing time of cars in freight operations and maximum reduction of haulage costs.

In order to carry out these functions, the Central Administration of Freight and Commercial Service in the MPS, the corresponding Departments in the Regions and Services in the Lines:

(a) direct the freight and commercial service (of the entire system, the railroads of the Regions, and the Lines respectively);

(b) assure, jointly with the Central Administration and Services of Movement, the fulfillment by the railroads of the state haulage plan by types of freight, including also the plan by separate loading points (large-scale combines, plants and other enterprises) and by destination.

(c) draw up plans for through routing of traffic from its points of origin (shipment and transshipment) and work out measures to strengthen the through routing and assure the fulfillment of the routine plans;

(d) organize loading and unloading operations, direct the mechanization of loading and unloading, the rational utilization of the appliances available, and the introduction of new freight-handling appliances and structures;

(e) work out rules and instructions applicable to freight haulages (conditions of acceptance, loading, shipment and delivery

of freight, etc.), assure the good condition and safety of freight and control over its timely delivery; work out the technological processes involved in the operation of freight yards, freight stations, icing points and the other operative elements of the freight system, and supervise their practice;

(f) direct the working out of the technological processes of freight-handling operations on industrial tracks (loading and unloading MPS cars) and the typical time-norms thereof; direct the negotiation of contracts with industrial enterprises covering exploitation of such private tracks;

(g) make claims and demands in the name of the MPS based on the USSR Railroad Regulations, against shippers violating those Regulations or failing to fulfill the haulage plan, comply with the established norms on standing time of cars in freight service, and avoid underloading of cars, or who permit damage to railroad equipment, etc.;

(h) organize the processing and consideration of all customers' claims, loss statements, tracers, statements on condition of shipments, etc.;

(i) organize the tracing of shipments at the request of customers when the periods for delivery fixed by the Railroad Regulations have been exceeded;

(j) work out, and justify economically, the railroad freight tariffs and direct the application of such tariffs by the Lines;

(k) direct the exploitation of the freight system facilities (freight yards, storerooms, warehouses, appliances, weighing systems, refrigeration systems, etc.); assure the maintenance of the system in good operating condition, its timely repair, the introduction of the most modern achievements of technology in the field of freight operation; draw plans for capital investment in the freight system and supervise their fulfillment;

(l) plan the size of the labor force and the wage fund for freight workers in railroad transportation; work out the norms to be met by railroad freight workers and proposals for systems of wage payment;

(m) plan the consumption of resources, materials, fuel, etc., for freight operations and supervise the execution of such plans;

(n) direct the selection and distribution of the cadres for the management of the freight service; organize, through the services of freight and commercial work, the preparation and productive technical training of cadres of freight and commercial workers in the mass trades therein;

(o) direct the work of the transport and dispatch offices and develop their system, and also organize container shipments, order containers, and plan their use according to destination.

The Central Administration of Freight and Commercial Services consists of a number of Departments (technical; for shipment of specified types of freight; for through routing of freight; freight system and mechanization of freight handling; industrial

spurs and sidings; refrigerated shipments; tariffs; etc.) and Sectors.

There is an Administration of Movement, Freight and Passenger Operation for each Railroad Region. Its chief has an assistant for freight and commercial service. This Administration has the following three Departments for freight and commercial service:

- (a) commercial department;
- (b) department for shipment by freight categories;
- (c) department of haulage planning.

The structure of the service of freight and commercial operations provides for the following departments: loading and unloading by freight categories; conditions of transportation; claims; freight facilities and freight handling; tracing; industrial tracks and contracts with customers; refrigerated shipments; planning and promotion.

The staff of the employees that carry out freight and commercial operations is highly diversified and consists of the following categories:

- (a) The staff of the Central Administration of Freight and Commercial Operations of MPS, and of the Freight Departments of the Railroad Regions;
- (b) The staff of the Services of Freight and Commercial Operations, and the divisional staff: chiefs of the Services, their

assistants, the entire staffs of the Services, the senior inspectors and inspectors, the staffs of the sectors of freight and commercial operations in the Divisions of the Lines;

(c) The staffs of the Freight Handling Offices: the administrative and accounting organization, the engineers and workers serving the appliances, and the freight handlers;

(d) The station staffs: commercial employees, refrigerator service workers, weighmen, employees of the freight station offices, current maintenance men for the buildings of the freight system, car cleaners, etc.

2. Management of Freight and Commercial Work at the Divisions and Stations

The Divisional organization has a Sector of Freight and Commercial Work.

It also has a staff of inspectors for handling commercial work and tracing shipments.

The organization of freight handling at the stations and the exploitation of the appliances used in freight operations is handled, in railroad transportation, by District Freight-Handling Offices, which are independent economic units on a khozraschet basis.

These offices also supply the freight handlers with devices, productive inventory, instruments and special clothing, and conduct technical-economic research to determine the required types and

numbers of appliances and installations, work out the technical processes of freight handling, and assure the execution of the safety rules for operations.

The areas under the respective District Freight-Handling Offices are fixed by the Superintendent of the Rail Line.

Such offices are headed by an office chief, named by the Superintendent of the Line and directly subordinated administratively, economically, and financially to the Chief of the Service of Freight and Commercial Operations, while operatively subordinated to the Divisional Superintendent.

At the stations, according to the volume of freight work, the labor for freight handling is supplied, and the execution of such work superintended by either the manager of the freight point or by the Superintendent of Works.

The number of workers for freight-handling is fixed according to the amount of work in tons, as determined, and the performance norms for one worker. In planning, the total volume of work is divided according to the method of handling, taking into account the fact that part of the work will be handled manually and part with the aid of machinery.

The monthly rates of pay for the Chiefs of the District Freight-Handling Offices, their assistants and the engineering and technical staff of the Offices, are fixed in accordance with the category of the economic organization involved.

The category of freight-handling points is fixed according to the volume of freight loaded and unloaded by them.

Points in the first category handle a total annual volume (manual and mechanized handling combined) of at least 500,000 tons a year, or a volume of mechanized handling not less than 150,000 tons, and a total volume of not less than 400,000 tons.

Points in the second category handle a total annual volume of at least 350,000 tons, or at least 100,000 tons of mechanized handling with a total volume of at least 250,000 tons.

All other loading and unloading points fall in the third category.

The organization of the administration of a freight station is shown schematically in Figure 2.

The stationmaster's assistant for freight and commercial operations is appointed by the Chief of the Service and confirmed by the Superintendent of the Line.

The structure of the technical shop at freight stations, as may be seen from the scheme, is no different from that at other stations (divisional and classification stations). The freight-handling at the stations is in charge of the superintendent of works, who is directly subordinated, administratively, to the chief of the divisional (Area) Freight-handling office, while with respect to operations he is under the orders of the stationmaster and his assistant. The stationmaster's assistant for freight operations has direct charge of the conduct of freight operations at the station, and his work is connected with that of the Freight-Handling Office through the supply of labor and appliances by him for the loading and unloading of freight at the station.

The stationmaster (DS) directs and organizes all the work of the station. [Apparently DEZHURNIY PO STANVSII. But this would appear to be inconsistent with the lower position of this official shown in Figure 2.] He bears full responsibility for all its work, for the selection of the station personnel, both with respect to political qualifications and competence for the work, for the fulfillment of the state freight-handling plan, for the fulfillment of the Rules of Technical Operation, for the dispatch of trains in accordance with the train movement chart, for the carrying out of the prescribed technical procedure, for the improvement of the indices of utilization of rolling stock, for the proper organization of labor among the station personnel, for financial discipline at the station, and for the good condition of all station equipment. He instructs the station employees in the Rules of Technical Operation, the Railroad Regulations, the Service Instructions, etc., and periodically checks their knowledge thereof.

At stations with a large volume of freight work, mainly performed on the territory of the station itself (freightyard) special freight dispatchers are appointed to direct the delivery of cars to the places of loading and unloading, and the assembly of cars, to perform the operative planning of freight work and supervise the fulfillment of such plans, and also to follow up the supply of labor (freight handlers) available at the several freight-handling points in relation to the volume of loading and unloading there. The foreman (Naryadchik) makes the direct assignment of men to the job. The basic function of the dispatchers at freight stations is to strive for the fulfillment of

the station's freight-handling plan with the minimum standing time for cars at the station, and for the rational utilization of labor and appliances.

The staff of the station personnel is paid both out of operational credits and from a special charge assessed per car handled.

The freight station staff consists mainly of weighmen, cashiers, commercial office clerks, freight-yardmasters and chiefs of the freight offices; these employees compose some 70 percent of the total staff of the station.

The staff schedule for the station is drawn up by the stationmaster, reviewed and approved by the chief of the Service of Freight and Commercial Operations and confirmed by the Central Administration of Freight and Commercial Operations.

A model nomenclature of the staff positions in the freight and commercial service at the stations is as follows: Stationmaster's assistant for freight and commercial service, freight-yard superintendents, chief of the freight office, chief of the station tracing bureau, station tracing agent, freight dispatchers, chief of the unclaimed freight room, senior freight cashier, senior weighmen of I and II categories, weighmen of I and II categories, freight cashiers, freight billing clerks, commercial office clerks, sealers, cleaners of production buildings, freight guards, chief of perishables shipment point, attendants of the chief of perishables shipment point.

The number of weighmen is fixed according to the volume of freight loaded and unloaded and the number of points. On the average throughout the system, there were 5-7 cars a day, before the war, loaded, unloaded and sorted to each weighman, while this number reached 9 cars at some stations.

The number of senior weighmen is usually fixed on the basis of one to 6 or 7 ordinary weighmen, or to every 30-50 cars of freight handled daily.

On the average there are 25-30 freight operations a day for each commercial office clerk, and in some stations this may go as high as 40 operations; one freight cashier is appointed for every 30-40 daily shipments, and one senior freight cashier for every 300-350 daily shipments.

The number of car washers for grain shipments is fixed according to the number of cars to be washed and on the average is 4-6 men to a station. The average number of refrigerator service workers at an icing station runs from 10 to 12.

Each portable scales repair shop has a complement of 3 to 5 master scales repairmen, fitter, and workmen. The remaining staff of freight service personnel at stations (workman for putting the freight yard in order, for current maintenance of the buildings, for repairing the grain-screens, tarpaulins, etc.) consists of 4-5 men at a non-class or 1st class station.

There are a number of wage categories, depending on the qualifications of the employee and the extent and nature of the

work at the station. Thus the weighmen, the chiefs of the disinfection stations and their assigned attendants, the chiefs of the service points for perishable and livestock shipments, etc., have three categories; while there are two for senior weighmen, chiefs of freight offices, freight cashiers, and freight billing clerks.

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All freight cars are divided into the following basic types, in accordance with their suitability for transporting various kinds of freight:

- (a) box cars;
- (b) open cars (gondolas, flat cars, transport cars);
- (c) special cars (tank cars, refrigerator and heater cars, stock cars, etc.).

According to freight capacity, cars are built with two axles, three axles, four axles and more than four axles.

In prerevolutionary Russia the rolling stock of freight cars was mostly composed of box cars, and only 20 percent were open cars.

The insufficient number of open cars in Tsarist Russia was mainly due to the following reasons:

- (a) almost complete absence of mechanized freight handling;
- (b) absence of a number of specialized branches of industry with products that in many cases imperatively require haulage to be exclusively on open rolling stock;

(c) the predominance in the freight traffic of agricultural products, which require box cars for haulage.

During the years of the Stalin Five Year Plans, the stock of cars of the USSR railroads has been considerably augmented by four-axle heavy-duty cars, and now has one of the largest tonnage capacities in the world.

The stock of cars has also been considerably improved by the intensified construction of self-clearing gondolas, which now make up over 20 percent of the total stock. Further increase in the relative proportion of gondolas, together with a significant increase in the absolute number of flat, box, tank and refrigerator and heater cars is envisaged. Over 50 percent of all freight cars on USSR railroads today are open-top.

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The use of 4-axle self-clearing "gondola" type cars is especially effective. Besides the above advantages, these cars also possess a great degree of versatility and are suitable for hauling a wide range of products, not only free-flowing and lump materials but long and heavy articles as well. Care of this type also reduce the length of the loading and unloading frontage, and cut the length of the assembly (trains) since the length of a gondola with a capacity of 60 tons is 13,890 millimeters, while the length of the number of box cars of corresponding capacity is 23,670 millimeters.

The unloading time for gondolas may be cut to 1/8 or 1/10 by special equipment of the unloading fronts (gantries, elevated tracks, etc.)

Table 2

Year	Average capacity, in tons, of one freight car in the USSR	Year	Average capacity, in tons, of one freight car in the USSR
1928	18.3	1937	23.4
1933	19.1	1938	25.2
1934	19.8	1939	26.1
1935	20.8	1946	27.2
1936	22.2		

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The bulk of the loading and unloadings on the railroads of the USSR is done at a small number of large-scale freight stations. Fifty percent of all loading is done at 360 stations, which is 4.5 percent of the total number of all loading stations, while 50 percent of all unloading is done at 340 stations, which is about 4 percent of the total number of all unloading stations.

Page 63

The proportion of total production of the various products which is not transported ranges from 7 percent (for coal) to 50 percent (for sugar-beets), as will be seen from Table 7.

[See next page for Table 7]

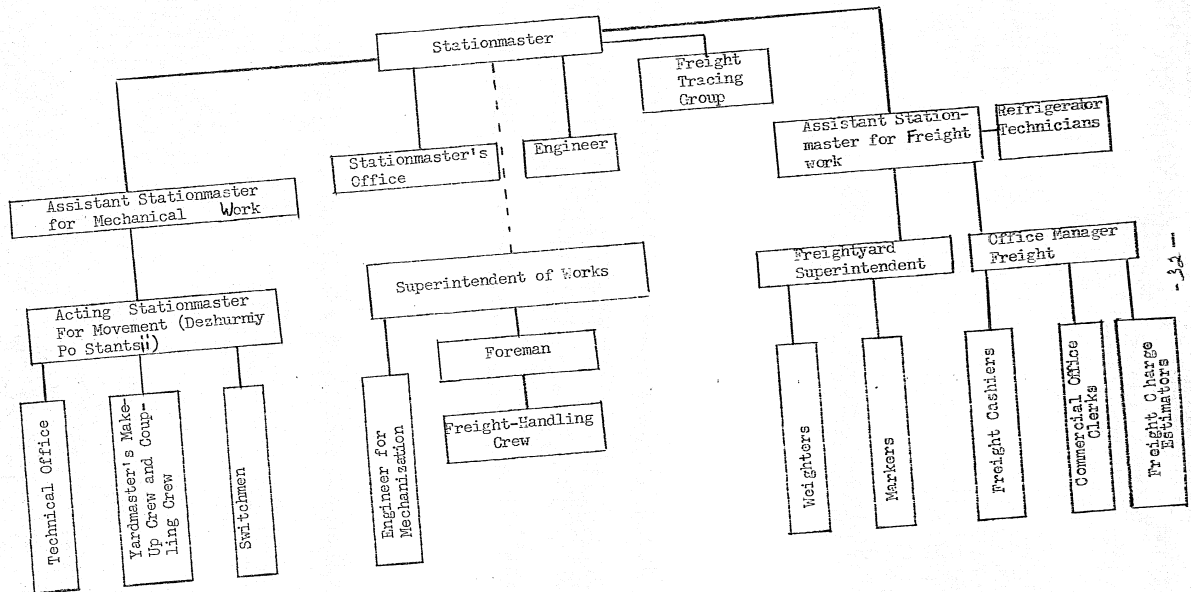


Figure 2

TABLE 7

Description of Freight	Production in Million Tons	Hauled by Rail	Hauled by River	Total Hauled in Million Tons	Haul in % of Produc- tion
Coal	165.5	152.2	2.1	154.3	93.4
Petroleum	31.0	29.5	9.7	39.2	126.4
Iron Ore	29.9	25.9	0.2	26.1	87.3
Grain	38.3	44.6	5.2	49.8	130.0
Raw Cotton	2.7	1.8	0.2	2.0	74.1
Sugar-Beet	15.5	7.9	0	7.9	51.0

As will be noted from this table, the haulage sometimes exceeds the production, in consequence of the double or repeated shipment of certain goods on reshipment for distributing bases and the double counting of loadings in mixed rail-water service.

The production plans of the several branches of the economy and the balances of the distribution of the stocks of material (coal, petroleum products, lumber, firewood, cement, etc., serve as the basic data for fixing the volume of haulage required. For the calculation of haulage it is necessary to have indices on the level of production corresponding, for each branch of the economy on a nation-wide scale (taking into consideration imports, exports and state reserves), to the extent of the consumption, but which, for separate regions, may be either higher or lower than the consumption, on which circumstance depends the necessity for imports into, and exports from [used here in the technical economic sense of regional movements of goods, in contrast to the use in the

ordinary sense (of international movements) in the parenthesis of this same sentence] the several regions involved.

The proportion of railroad transportation to the total volume of freight transportation in the USSR ranged during the past 10 years from 81 to 86 percent, as will be seen from the data in Table 8.

TABLE 8

FORM OF TRANSPORTATION FREIGHT MOVEMENT IN BILLIONS OF TON-KILOMETERS,
IN PERCENT

	1937	1940	1945	1950 (plan)
Railroad	82.0	86.0	86.4	81.0
River	7.6	7.4	4.5	7.5
Ocean	8.5	4.8	7.9	7.8
Automobiles	1.9	1.8	1.2	3.7
Total	100	100	100	100

THE SYSTEM OF PLANNING HAULAGE

1. Forms of Plans and the Major Stages in the Development of the Planning According to the Periods Planned, prospective, Current and Operational plans are Distinguished.

The prospective plans for the entire national economy, including railroad transportation, are worked out at the present time to a five-year period. The five-year plans for freight transportation are component parts of the prospective plan for the development of the national economy.

Parallel to the Five Year Plans, prospective plan proposals

are worked out from time to time, looking towards the longer-range development of specific branches of the national economy (covering 10-15 years), and on the basis of such proposals the prospective dimensions of freight transportation are likewise worked out.

Current plans for the national economy are constituted by the annual plans that fix the extent of production and supply the separate branches of that economy. The annual haulage plans determine all the other parts of the transportation plan.

The funds to be allocated for supplies by the Ministry are established annually.

Operational planning covers considerably shorter periods. Specifically, freight haulage is planned for quarterly and monthly periods.

The Five-Year Plans confirmed by the government serve as the basis for the annual transportation plans; the annual transportation plans and the quarterly production and distribution plans constitute the basis for the quarterly plans; while the monthly plans start from the indices in the quarterly plans and constitute component parts thereof.

p. 71

...the streams of freight traffic, i. e., the haulage plans by destination, are worked out. Branch of industry schemes (according to type of freight) and total volume schemes for the streams of freight traffic are distinguished.

Annual plans (schemes) for the streams of freight traffic are

elaborated for the following major freight types: coal, coke, petroleum, ore, non-ferrous metals, lumber, firewood, building materials and grain. The remaining categories of freight are as a rule classified together in the annual plans under the group "Other Freight".

Pages 74-76

4. The Annual Haulage Plans

The annual haulage plans worked out by the Ministry of Roads, Railroads and Waterways (MPS) and confirmed by the government, serve as the basis for the subsequent planning of the financial-economic and operational activities of the ministry, the Railroad Regions and the Lines.

The haulage plan establishes:

- (a) the volume of haulage for all freight, in million of tons, and the average daily car loadings in thousands of cars, broken down by types of freight (the structure or composition of freight traffic);
- (b) the streams of freight (the geography of freight traffic);
- (c) the average haul for all freight, of 1 ton of freight, in kilometers, and the average haul for 1 ton of the major types of freight;
- (d) the total haulage for all freight in billions of ton-kilometers, broken down into tariff and operating ton-kilometers; [Tariff ton-kilometers are determined according to the shortest distances, from which freight charges are figured and collected, operating ton-kilometers characterize the actual haul, computed on the basis

of the train documents].

(e) the distribution of haulage in time (by quarters).

Besides the total haulage the plan also segregates the haulage effected for the needs of railroads themselves. [i. e. to move what we call "company freight"].

In its final form the annual haulage plan is drawn by Districts and Lines, with a breakdown for all major types of freight. The plan is drawn carloads, except for some types of freight, for which it is drawn both in carloads and in tons.

For each Railroad Region and each Line the carloadings, destination in tons, and traffic in ton-kilometers (tariff and operating) are fixed, separately showing service haulage.

The table for the annual haulage plan contains the following indices:

TABLE 11

Indices	1946 Report Data	1940 Report Data	Annual Plan	Full- fil- ment in First Half Year	1947	State- ment of min- istry pected for 1947	Ac- cord- ing to Draft Plan	1948	1948
					Full- fil- ment Ex- pected for 1947			Plan	

Average Daily Car-
loading (in Cars)

Including:

- Coal
- Coke
- Etc.

The table containing the indices by destination for the above enumerated major freight types is similarly drawn up.

Then from these data the haulage plan for the system is drawn up with the following indices:

TABLE 12

Indices	Average Daily Car-loading in Cars	Static Load in Tons	Freight Shipments in million tons	Average Haul in Km.	Tariff ton-km.	% Discrepancy Between Operating and tariff ton-km.	Operating Tons kilometers
---------	-----------------------------------	---------------------	-----------------------------------	---------------------	----------------	--	---------------------------

All Freight
Including:
Coal
Etc.

In formulating the annual haulage plans, reliance is placed for guidance on the schemes of normal flow of the mass freight types, which are drawn with due consideration for the rational linkage of the consuming regions with the producing regions, and the effectuation of haulage over the shortest possible distances. In a good many cases the shortest distances are corrected when there are parallel railroad lines which assure a higher speed of train movement and a lower haulage cost, even though the haul itself may be longer.

page 78

Military transportation plans are likewise separately presented.

PLAN OF FREIGHT LOADING FOR....., 194....., (IN CARS PER DAY)

TYPE OF FREIGHT	Loaded in	Statements for Second Q U A R T E R				D R A F T P L A N			
		Total for March	Second Quarter	I N C L U D E S April May June	Total for Second Quarter	I N C L U D E S April May June			

All Loading

Including:

(A) Military

(B) National

Economy

of Which:

Coal

Coke

Petroleum in

Tank-Cars,

Etc.

Other

M V S Reserve

VNESHTORG Freight

11 Category Freight

Transhipped from

Water to Rail

(A) River

(B) Ocean

The summary plan for the entire system is then drawn, for the quarter, with a breakdown by months.

The general loadings plan shows separately Vneshtorg freight, MVS reserve, freight of 11 categories (total amount), and water to rail transshipments (river and ocean).

The summary quarterly plan with breakdown by months is submitted for review to the Minister of Ways and Communications, and then submitted for confirmation to the Council of Ministers USSR.

The form of the summary haulage plan is shown on page 78 .

The haulage plan is submitted to the Council of Ministers USSR only for 16 types of freight (out of the 70 for which plans are drawn). It is in the following form:

No.	Rail Line Loading	Total Loading for Quarter	I N C L U D I N G			Rail Lines of Destination	
			1st month	2nd month	3rd month	Kirov	Oktyabr'skaya
1	Kirov						
2	Oktyabr'skaya						
3	Leningrad						
4	Kalinin						
5	Estonian, etc.						
52	Amur						
53	Far Eastern						
54	Maritime						

On receipt of the haulage plan, confirmed by the government, the MPS advises each rail line of the haulage plan by types of freight and rail lines of destination. The rail lines receive their plan assignments in carloads and tons for daily loadings of the principal types of bulk freight (coal, coke, ores, metallurgical fluxes, non-ferrous metals, cement, grain).

On the basis of this confirmed haulage plan the ministry distributes the loading norms among its local organizations and advises them of such assignments, as well as the rail line Superintendents, indicating the rail lines of destination.

By the beginning of the planning quarter, the following documents have reached the Line administrations: the quarterly haulage plan broken down by months, assigned by the Ministry of Ways and Communications; the statements of the ministries forming the line's clientele; and the detailed plans of the enterprises that will originate the shipments, formulated by them on the basis of directives received from their own ministries on the volume of authorized loadings for the respective destinations.

The rail line administrations compare these documents of the shippers (detailed plans) with their plan assigned by the MPS.

All the planning material, after supplementary analysis, is broken down by Divisions of the line, and two copies of the detailed breakdown plans in the following form are transmitted to the Divisions:

BREAKDOWN OF PLAN FOR FREIGHT HAULAGE FOR....., 194.....

For the.....Station

Name, Address And Clearing Account No of Shipper	Destination of Freight	Destination Line Station	Number of Cars, Reduced to a Four-Wheel Car Basis	Type of Car	Consignee
---	---------------------------	-----------------------------	--	-------------------	-----------

One copy of the Divisional breakdown plans is forwarded to the stations concerned.

A calendar loadings plan (by days of the month) is worked out by the Division Headquarters for each station and by separate destinations. These plans are based on the haulage plans, and facilitate the organization of the routing of shipments from their points of origin.

Page 81

After the confirmed haulage plans by stations have been sent out, the execution of the loadings plan by each station is directly supervised by the Division Superintendent and the Movement Department, who direct the work for fulfillment and over-fulfillment of the state haulage plans.

To fulfill the state haulage plans, the Division formulates operative daily and shift plans for the operations of the Division. These divisional operative plans include the plan of loading, and

unloading, the plan of routing, the plan for supplying empty cars to the several stations and the plan for the divisional train operations.

Page 82

The persons guilty of non-fulfillment of the haulage plans are held responsible. In addition, the railroad line and the shipper bear material (financial) liability for non-fulfillment of the haulage plan. A fine is paid according to the established rates for failure to deliver a sufficient number of cars for complete loading of freight according to plan, as well as for a shipper's failure to load cars or its refusal to accept cars assigned by plan.

Page 99

Twice a year (for the summer and winter periods) the MPS formulates together with the plan of train make-up a plan of routing from the loading points (points of origin or of transshipment) for each railroad and for stations and areas with a large volume of loadings.

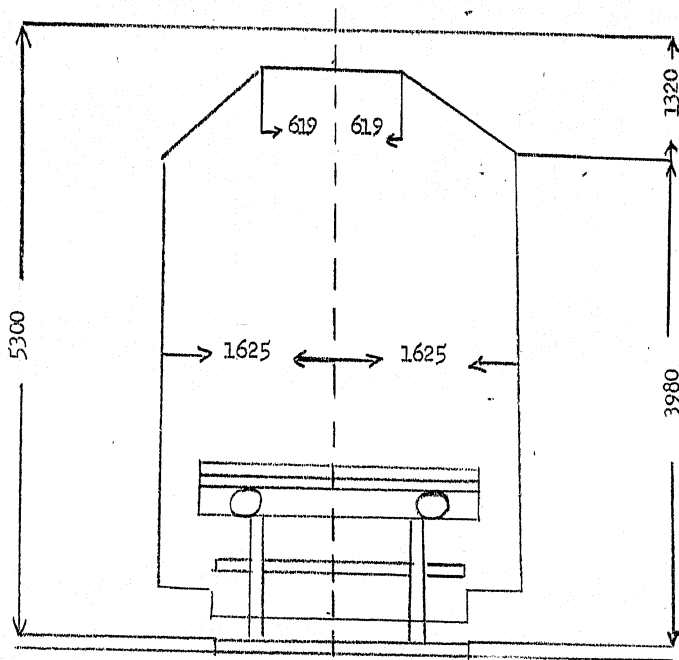


Figure 36

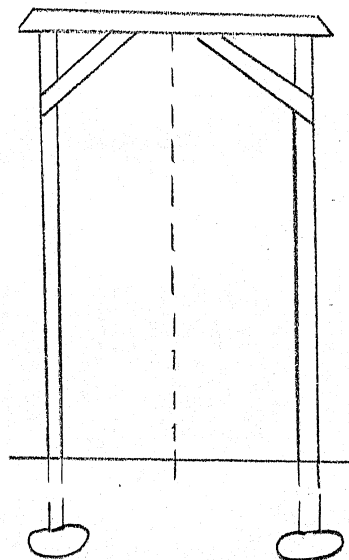


Figure 37

Page 119

Definite standards for the dimensions and types of tares, and for the materials of which they are composed, have been introduced, with the object of assuring maximum utilization of the available space and carrying capacity of cars, simplifying the acceptance and loading of freight, and assuring its safety during transit. The standards for tares prescribe that their dimensions shall be smaller than the length, width and height of the body of the car to be loaded.

The use of tares without taking into account the rational loading of cars inevitably leads to a considerable under-utilization of the space and carrying capacity of the cars. A sample check made by the TsOCh of the MPS showed the utilization of the carrying capacity of cars to be as follows: 68.6 percent for confectionery, 57.3 percent for groceries and delicatessen, 29.7 percent for knitwear, 38.6 percent for shoes, 26.9 percent for clothing and linen, 22.2 percent for haberdashery, and 43.3 percent for tobacco products.

Page 132

One of the principal means of promoting the safety of freight during rail transit is the sealing of loaded cars. The responsibility of the loading station, that has affixed its seals, for the proper loading and intactness of the freight, is established on the basis of the seals.

Page 133

Seals on loaded and empty tank-cars are placed on the caps. Both doors and the hatch on the top of tank-cars with alcohol are also sealed.

Cars and tank-cars loaded at places to which the public has no access are sealed by the shipper.

Page 135

The railroad pays a penalty to the shipper for delivery of cars [presumably empties] later than schedule or for delay beyond the prescribed period of advance notice. Such penalty is also payable for delivery of cars without advance notice where that has been demanded, or for delayed notice.

The shipper is obligated to load the cars within a specified time after delivery, varying with the type of freight.

In addition to the penalty, the persons guilty of detention of cars during loading or unloading are also held accountable.

Page 136

Moreover, shippers and consignees who release cars before the deadline are allowed a premium in an established sum for each car, according to the number of hours saved in comparison with the norm.

The shipper must load each car to capacity or up to the technical loading norms. For light-weight freight the full cubic capacity of the car must be used.

The stationmaster is forbidden to accept cars for haulage if they are not loaded up to the technical norms, where such norms exist, or up to the tonnage capacity or full cubic capacity of the cars, where such norms have not been set, except in cases where full loading cannot be permitted because of special conditions in the haulage of such freight.

A penalty is collected from the shipper for underloading cars with respect to the established norms, and an instrument in prescribed form is drawn up in each such case.

The railroads must establish the strictest control over the full utilization of the carrying and cubic capacities of cars, and must turn over data to the prosecuting authorities concerning shippers who systematically permit underloading, so that the guilty persons may be held criminally liable.

The total weight of freight loaded into a car must not as a rule exceed the carrying capacity marked on the car. Excess weight discovered on weighing may, however, be permitted to remain on board, without being unloaded, if it does not exceed 500 kilograms for cars of 16.5, 18 and 20 tons capacity, 3 tons for box cars of 50 ton capacity, or 1 ton for all other types of eight-wheel cars. Overloading of cars above the norms is not permitted for grain shipments in two-axle box cars.

A penalty is collected for overloading in excess of carrying capacity if it exceeds the allowable overload, and also for overloading discovered during verification of the weight declared by the shipper.

A commercial instrument is drawn up in all cases where overloading is discovered.

Page 142

Goods that can be hauled in open-top rolling stock make up 50 to 60 percent of the total freight traffic on USSR railroads.

Pages 144-145

The limiting transverse profile of rolling stock, with its loaded freight, is called the clearance gauge of the rolling stock. No part of the rolling stock or of the freight it carries must ever project beyond this limit. The limiting height clearance gauge of rolling stock depends mainly on the height of road overpasses and bridges, while for width the clearance gauge depends on the conditions for the safe passage by the rolling stock past station buildings, trains in the opposite direction, and the permanent way structures. In exceptional cases the hauling of freight with dimensions over the clearance gauge of the rolling stock may be authorized on open-top cars. Such freight is termed non-clearance freight (see section 6 [should be section 5] of the present chapter).

The railroads of the USSR use the following three rolling stock clearance gauges:

(a) Clearance gauge 0 for rolling stock admitted to circulation through international service with adjustable pairs of wheels; the height clearance is set at 4650 millimeters (measured from the rail-head) and the maximum width clearance is 3150 millimeters;

(b) Clearance gauge 1-V (Figure 36) for cars circulating over the whole rail system of the USSR. Height clearance is 5300 millimeters, maximum width clearance is 3250 millimeters.

(c) Clearance gauge 2-B for cars circulating only to a limited number of destinations and areas to be reconstructed (suburban areas of electric railroads). Height clearance is 5300 millimeters and maximum width clearance 3600 millimeters.

The maximum cargo width of 3250 millimeters for clearance gauge 1-V is possible only where the cargo is not placed between the closed sides of the platform. Loading to the full clearance width of 3250 millimeters is permissible for a height of 3980 millimeters from railroad level. For loads to full clearance height of 5300 millimeters, the maximum width of the upper layer of the cargo must not exceed 1237 millimeters.

Page 162

A standing commission, appointed by the Rail Line Superintendent, carries out surveillance over the correct loading and securing of freight.

Page 163

Special rolling stock for hauling heavy freight consists of: transporters; twelve-wheel, three-carriage platform cars of 90 ton capacity; twelve-wheel, two-carriage platform cars of 80 ton capacity; and coupled frame-tenders of the Series FD locomotives, designed for hauling heavy loads, with a capacity of up to 95 tons per frame [possibly ram tenders].

Page 167

The average number of tons of freight loaded onto a car is called the static load of the car. In reports and for separate calculations the average axle-load is often used instead of the average car-load.

Page 173

To secure better utilization of car capacity the MPS prescribes technical norms of car loading for the various types of freight (and for each type of car).

The established norms of car loading are binding on railroad employees and shippers, and penalties are imposed on shippers for failure to load up to the technical norms of loading.

The utilization of car capacity is considerably higher in the USSR than in foreign countries. There are still large margins available here, however, for further improvement of the utilization of car capacity.

Before the war, the average utilization of car carrying capacity on the USSR system was 77.5 percent, i.e., 22.5 percent of car capacity still remained, on the average, unutilized.

The transition to the building of cars with higher relative volume (UDEI'NIY OB'YEM) will unquestionably assure improved utilization of car capacity.

Special rules for loading various goods on open-top rolling stock have been issued by the MPS to secure more complete utilization of the capacity of such cars and assure the safety of such traffic.

The technical norms are not average norms but average-progressive norms that reflect the advanced stakhanovite methods of intensifying loading.

The technical norms based on the technical conditions of loading a given type of freight which are worked out by a process of experimental loading and confirmed simultaneously with the technical norms.

Page 179

The observation of state secrecy with respect to the freight transported by rail must be assured in the safekeeping of the shipping documents at the stations.

Page 186

The time-limits for the delivery of freight by the railroads are fixed by the Council of Ministers USSR, and the railroads are financially liable for any violations thereof.

Page 190

One of the most important conditions for the proper organization of freight work is the availability of information, at the stations, on the approach of freight to be discharged there.

The availability of such information makes it possible for the station to make timely preparations of its handling facilities, trackage for freight handling, and labor force for the impending job of unloading.

For this purpose, the information must:

- (a) contain detailed data on the freight, its type and consignee;
- (b) arrive at the station before the train with the cars to be unloaded.

Practice has shown that the preliminary information is most effective when it contains the following data:

- (a) car number and type (number of axles, whether box car or flat car, etc);
- (b) designation of the freight;
- (c) exact designation of consignee;
- (d) location in the train of the cars to be unloaded;
- (e) probable time of arrival of the train.

The timeliness of the arrival at the station of the information on the cars to be unloaded depends on its method of transmission.

Pages 190-191

An improved method for furnishing the preliminary information is the transmission of the train manifests [Train manifest, drawn at make-up station and accompanying the train to its destination. It shows train number, make-up time, stations of origin and destination, car-numbers, positions in train, etc] (NATURNY LISTOK) by telegraph, telephone or teletype. The descriptive telegram indicates the weight and make-up of the train, giving the cars by type and destination. Car-types are conventionally designated by single letters.

Page 202

LCL shipments take about 10 percent of the total number of cars.

Such shipments originate mainly in the great industrial centers (Moscow, Leningrad, Kiev, Odessa, Kharkov, Sverdlovsk, etc).

Page 205

To assure best utilization of car capacity, the load of the LCL pick-up car must not be less than 4.5 tons per car axle at its dispatch from the loading or freight sorting station.

As a rule, two-axle box cars are used for hauling LCL freight. The use of four-axle cars for this purpose is authorized when through cars are made up with LCL shipments for a single destination, or when transshipment cars for a single classification section are made up.

Page 207

The actual width of the existing sorting platforms on USSR railroads varies from 4 to 20 meters.

Pages 207-209

The length of platforms on USSR railroads varies from 4 to 20 meters. Their most expedient length, taking the above requirements into account, would appear to be 150 to 200 meters.

Page 215

One of the principal measures for speeding up the movement of LCL shipments is the use of special fast [literally, "accelerated freight trains"] freight trains, run to various main-line destinations on schedules fixed by the MPS.

Such trains are intended for the hauling of especially valuable and perishable freight.

They consist of a train proper and of cars coupled on to it, and haul both LCL and carload shipments accepted at the railroad warehouses.

The fast train proper usually consists of 10 four-axle cars for LCL freight, one mail car, and one heated car for the train crew. In addition a fast freight train also includes a coupled part. The total weight of the whole train -- train proper and coupled part -- should not exceed 1000 tons. The destination of the coupled cars should not be nearer than the end-station to which the train is run.

Pages 215-216

Each fast freight train is accompanied by a crew headed by the conductor, which includes senior weigher-distributors and loaders. At stations where the volume of loading and unloading is considerable, the stations assign their own loaders to help.

Page 217

At points where there are express offices they handle the freight operations with the fast freight trains. At other points the stations handle it.

Page 221

The organization of store to store delivery, from shipper to consignee, through the facilities of the express offices, has still not attained widespread use on our railroads.

Page 232

Figure 55 is a graph showing the sequence of the individual operations and total time spent by a car at the station for a single freight operation, while Figure 56 shows the same for two freight operations. The norms on these graphs are arbitrarily taken and must be established separately for each station, depending on the specific local conditions; at many stations there may be no waiting time at all for car delivery or collection [uborka].

Page 234

The standing time of cars at loading and unloading stations exerts a substantial influence on the car turnover time, which is increased by almost 10 percent by a 50 percent increase in the average standing time of a car for a single freight operation.

FIGURE 55
TIME IN HOURS

<u>Serial No.</u>	<u>Operation</u>	<u>Time Consumed</u>
1	Operations on arrival	25
2	Break-up of train	45
3	Awaiting delivery	30
4	Delivery to loading or unloading point	60
5	Freight handling	100
6	Awaiting (uborka) [This presumably means*]	20
7	Uborka of cars	60
8	Assembly	90
9	Make-up of train	45
10	Operations for dispatch	30
	Total time car remains at station	8 hours, 25 minutes

*"collection" though it does not appear
to be standard Russian Railroad terminology
and cannot be found in Tekhn. Zh.D.]

FIGURE 56

TIME IN HOURS

<u>Serial No.</u>	<u>Operation</u>	<u>Time Consumed</u>
1	Operations on arrival	30
2	Break-up of train	45
3	Awaiting delivery of cars	30
4	Delivery of cars	65
5	Unloading	100
6	Switching cars to loading point	90
7	Loading	120
8	Uborka* of cars	60
9	Assembly	60
10	Make-up of train	30
11	Operations for dispatch	30
	Total time car remains at station	11.0 hours

*[This presumably means "collection" though it does not appear to be standard Russian Railroad terminology and does not appear in Tekhn. Zh. D.]

Page 235

The general direction of the conduct of freight operations at a station is vested in the stationmaster, his assistant for freight work, and the yardmaster. The operative direction of the delivery of cars for freight operations and of the collection [uborka] of cars is vested in the station dispatcher during his shift or the stationmaster on duty [dezhurniy po stantsii], while the yardmaster or freight dispatchers only at a limited number of freight stations, but a good many stations have assistant station dispatchers for freight work.

Page 241

By decision of the Council of Ministers dated 14 February 1947, the freight stations in the Moscow junction area were specialized, with unloading of fuel for dwelling use (coal and firewood) concentrated at one station, while four stations were specialized to receive shipments of coal for all enterprises, not having their own private tracks, as well as for those having multracks but only taking inconsiderable coal shipments (not over 10 cars a month).

Four stations were specialized for unloading lumber and firewood, one for cement, 12 for fruit, vegetables and potatoes (instead of 40), and 3 for unloading heavy freight and containers.

Page 242

At the present time the freight stations at a number of other major junctions are being specialized along the lines of the Moscow junction area.

Page 247

The organization of timely tracing of freight is very important to assure the safety of freight shipments.

Entire responsibility for failure to take all measures to locate freight or documents, i.e., for failure to trace and keep on tracing until a final result is reached, is borne by the station of destination.

The method of tracing freight shipments by telegraph is used in USSR railroad practice.

Page 248

To improve the operational tracing of shipments of freight, a system of recording the numbers of cars of cars passing from its line to adjoining lines is in use at the Service of Freight and Commercial Operations of each railroad line.

Pages 254-255

The total length of broad-gauge spurs and sidings is over 20 percent that of the entire railroad system. A few thousand locomotives and steam, electric and Diesel (MOTORVOZY) and a large number of cars of various types (about 10 percent of the total stock owned by the MPS), operate on the railroad tracks of industrial enterprises. These locomotives and cars are owned by the enterprises that work such tracks, which are connected to MPS railroad stations termed connecting stations.

About 75 percent of all freight loading into railroad cars and all freight unloading from railroad cars takes place on industrial tracks, and it is here that the loading and unloading of the principal bulk commodities is handled.

Naturally the work of the industrial tracks exerts great influence on the fulfillment of the haulage plan for rail transportation, especially in connection with the accelerated turn-around of cars and routing of shipments.

Page 256

According to the character and extent of the work done on them, private tracks are classified as follows:

(1) Loading and unloading dead-end sidings, with a small volume of freight work, cars for which are delivered by the railroad facilities;

(2) Branches of small and medium enterprises, which have a small amount of trackage, and, in some cases, own their own shunting locomotives;

(3) Railroad tracks of plants and industrial enterprises with a large amount of trackage, running in some cases as high as 200 to 300 kilometers, with their own technical stations, shunting facilities, rolling stock for intra-plant haulage, separate transportation shops and a dispatcher system of control.

Private tracks may also connect with freight, district and classification stations, as well as with small intermediate stations located on the district.

Page 281

The MPS exercises a control over the work and technical condition of private tracks. Control is also exercised to assure the safety of train movement and the proper utilization of the MPS cars turned over to private tracks for loading or unloading of freight. Control over the fulfillment by the enterprises of the government decrees on the exploitation of private tracks and over the safety of movement is exercised through the MPS Inspectorate of Private Tracks, which is directly subordinated to the MPS Chief Inspector for Safety of Train Movement. The railroad lines have MPS Line and Divisional Inspectors for Private Tracks, who are subordinated to the MPS Line Inspectors for Safety of Train Movement.

Page 282

The narrow-gauge railroads in prerevolutionary Russia did not have a uniform gauge width, and only in recent times has the standard gauge of 750 millimeters been established for new narrow-gauge construction. Most of the narrow-gauge lines in the USSR have this gauge.

Page 283

The haulage of liquid commodities between normal-gauge and narrow-gauge stations is accomplished by means of refilling into narrow-gauge tank cars or into special barrels, in which liquids are also transported on narrow-gauge lines.

The refilling must be completed within 2 hours from the time the operation of refilling from the tank-car is commenced. Retention of the tank-car beyond this period involves liability to pay the road demurrage in the amount prescribed for the whole USSR railroad system for detention of cars beyond the established time for loading and unloading.

Page 286

The principal destinations of the streams of coal shipments are: Donbass-Moscow, Donbass-Leningrad, Donbass-Krivorozh'ye, Kuzbass-Urals, Karaganda-Urals-Privolzh'ye, Moscow Area - Central part of USSR, Pechora-Leningrad.

Coal is loaded on railroad cars exclusively on the private tracks of the coal industry. Usually one such line serves several coal mines, varying in number from 1 to 6, though there are some that serve as many as 10 or 12 (in the Donbass).

Page 290

The use of high-capacity self-clearing open cars with sides (gondolas and hoppers) is the most expedient way of hauling coal and coke, since they assure full utilization of car capacity and protect the coal or coke from being shaken off the car in transit.

The least complete utilization of carrying capacity for coal and coke is when four-axle flat cars are used.

Pages 290-291

In addition, depending on the kind of coal, gondolas and hoppers may be loaded above the side and a so-called cap spread out on top; so as fully to utilize car capacity. (Figure 66). Under the existing conditions the cap may be loaded as high as 600 millimeters above the sides, using two layers: the first with a height as great as 200 millimeters above the sides (with a width somewhat less than that of the car), and the second layer with a narrower width, to the full height of the cap. The cap has a definite form, and the angle at which it slopes depends on the cohesion of the separate lumps of coal and on the degree to which they flow freely during transit.

When flat cars are loaded with coal, the requirements as to the height of the cap and its form are determined in the same way as for the low-side cars. The cap can be higher in winter, while in summer the piling of a cap higher than 460 millimeters is not recommended for some types of coal, in view of their increased flowing qualities.

The technical norms for loading coal onto hopper and gondola cars of Western European type are fixed at 0.5 ton higher than the carrying capacity shown on the car.

In connection with the fact that the new technical norms for loading coal on four-axle box cars and gondolas are 2.0 tons higher for box cars and 0.5 tons higher for gondolas than the established car capacity. 1.0 ton overloading above the technical norms is permitted for 20-ton four-axle box-cars and flat cars, and 0.5 ton for four-axle gondolas. It is forbidden to load hoppers higher than the tie-beams of the body (OBYAZOCHNAYA BRUS' KUZOVA).

TABLE 32

Serial No.	Kind of Coal	Carrying Capacity of Cars		
		40 42.0	50 52.0	60 60.5
1	Coal of all brands in box cars	---	50.5	60.5
2	In half-cars (gondolas)	---	50.0	---
3	In hoppers			
4	<u>For Flat Cars</u>			
	Donbass coal (various marks)		24 - 33.0	24 - 33.0
4	Kuzbass coal		25 - 29.0	25 - 29.0
5	Moscow area coal		26 - 27.0	26 - 27.0
6	Pechora coal		29.0	29.0
7	Karanganda coal		26 - 28	26 - 28
8				

Note: For all two-axle cars the technical norm for coal haulage is equal to rated carrying capacity (except for coal of marks AS and AM).

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Pages 292-293

The capacity of two-axle box cars of all types is fully utilized in hauling coke and coke fines. The technical norms for coke loading are set at 33 tons for 40-ton four-axle box cars and 34 tons for those of 50-ton capacity; for coke fines they prescribe full utilization of the capacity of such cars.

The technical norms for coke and coke fines are set at 16.0 tons for 16.5 and 18 ton two-axle high-side flat cars, and at 17.0 tons for 20.0 ton flat cars; for the latter they are met at 13.0 and 13.5 tons for coke.

High-capacity four-axle flat cars should not as a rule be used for hauling coke and coke fines, in view of the very low utilization of car capacity.

Page 302

The average haul of Donets coal for railroad use before the war was over 800 kilometers.

Page 303

The principal deposits of iron ore, at which the main stresses of railroad ore traffic originate, are the Krivoy Rog, Kerch and Ural deposits.

Page 305

The movement of ore is 5 percent of total freight tonnage, and is principally on the railroad lines connecting Krivoy Rog with

the Don Basin and the Urals with the Kuzbass.

Car capacity is fully utilized in hauling ore, i.e., the technical norms for loading ore are equivalent to the carrying capacity of the respective types of cars.

Page 307

The industrial spurs of the metallurgical industry are considerably more developed than those of other enterprises. Before the war the average length of broad-gauge industrial spurs of ferrous metallurgy enterprises was 22 kilometers against less than 3 kilometers for enterprises of the coal and petroleum industries and less than 1 kilometer for enterprises of the Ministry of State Collections.

Pages 307-308

It is a characteristic peculiarity of ferrous metallurgy enterprises that it unloads a considerably larger tonnage of freight than it ships; moreover, fuel and raw material arrive in mass order, using large numbers of cars or even whole trainloads or groupings (through routings).

The incoming freight arriving on the industrial spurs is often discharged not at its place of immediate use but at separate specialized stores: for coal, ore, fluxes, pig iron, equipment, etc. Metallurgical plants with a full cycle of production, i.e., those in which the pig iron produced by the plant goes to the steel mills of the same plant, and the steel produced is then rolled, receive on the average 4.0 times as much freight tonnage as they ship. Such plants require receipt, on the average, for 1 ton of production, of:

Coal and coke	1.0 - 1.7 tons
Fluxes	0.4 - 1.0 tons
Ore	1.6 - 1.9 tons
Other freight	<u>0.2 - 0.5 tons</u> 3.2 to 5.1 tons

(P.F. Dubinskiy and I.I. Kostin, The Transport of Industrial Enterprises. Page 160. Stroyizdat, 1946.)

The amount of incoming freight varies mainly according to the types of ore and coal.

Incoming tonnage exceeds outgoing tonnage by 3.5 to 4 times for plants shipping or receiving metal to or from other plants. Incoming and outgoing tonnage are almost the same at the Magnitogorsk plant, which ships not only metal and rolled steel but also ore. 200 to 250 carloads a day (on a two-axle car basis) of raw materials and fuel alone are required by each blast furnace.

Page 311

Most of the incoming tonnage at machine-building plants consists of:

- (a) ferrous metals (pig iron, steel) which go mainly to the foundries (1.0 - 1.4 tons per ton of production);
- (b) fuel for the power plant (1.4 - 1.5 tons per ton of production);
- (c) wood for the carpenter shop;
- (d) auxiliary materials, separate details, semi-fabricated materials and other freight for the main warehouse or the material store (0.6 - 0.8 ton per ton of production);

The total consumption of freight per ton of production amounts to 3.0 to 3.5 tons, where metal is shipped in.

The output of finished production comes out of the mechanical or assembly shop.

Page 312

Rails are classified according to purpose into railroad, narrow-gauge, tramway and rails for industrial transport. The weight of railroad rails varies from 35 to 60 kilograms per linear meter, that of narrow-gauge rails from 7 to 24 kilograms and that of tramway rails from 46.5 to 60.6 kilograms.

The usual length of railroad rails is 12.5 meters (though there are some in 25 meter lengths), and tramway rails are 15 millimeters long.

Page 314

The normal unmechanized loading time for shaped metal on two-axle flat cars is set at up to 2.0 hours. For four-axle flat cars it is up to 3.0 hours. For iron in bars and pigs, etc, it is set at up to 1.5 hours for two-axle cars (box and open) and 2.5 hours for four-axle cars.

Unmechanized normal unloading time for shaped metal is set as follows: up to 1.5 hours for two axle flat cars, up to 2.0 hours for four-axle flat cars; for iron in pigs and bars it is up to 1.0 hour for two-axle cars, up to 2.5 hours for four-axle box cars, up to 2.0 hours for flat cars.

Page 316

Petroleum products constitute most of the liquid hauled in tank cars, and are more than 5 percent of total railroad freight traffic.

Page 317

(d) shipments in tares (drums) which at the present time make up only an entirely insignificant part of the shipments of petroleum products, and are used in individual cases for handling special liquid commodities.

The principal form of transportation for petroleum products is at present, however, rail shipment.

The volume of rail shipments of petroleum is not strictly uniform throughout the year. During the navigation season it declines, since river transport is operating then. During the non-navigation season, however, it increases sharply, since the waterways are hardly used between the navigation seasons.

Page 318

The main streams of petroleum freight traffic on the railroads originate in the regions of extraction (Baku, Groznyi, Tuymaza, Ishimbayevo), at the water to rail transshipment points for petroleum, (Odessa, Krasnovodsk, Makhach-Kala, Syzran', Stalingrad, Saratov, etc) and also at the refineries.

The share of the several regions of the country in outbound rail shipments of petroleum is shown by Table 34.

TABLE 34

Regions	Share in Outbound Shipments of Petroleum, in Percent			
	1913	1937	1940	1946
Central regions	31.1	4.0	6.2	6.9
Regions of the North Caucasus	20.8	25.5	24.1	18.5
Lower Volga and Volga-Vyatka regions	25.8	13.8	15.3	31.5
Ural regions	1.7	6.0	3.4	1.3
Far East	--	1.6	1.2	2.7
Ukrainian SSR	1.7	15.3	28.6	17.7
Republics of Transcaucasia	17.2	15.3	13.0	8.1
Republics of Central Asia	1.7	8.5	8.2	3.3
Total	100.0	100.0	100.0	100.0

The configuration of the streams of petroleum shipments over the railroads has changed considerably during recent years in the direction of increasing volume from the regions of the Second Baku. The average rail haul of 1 ton of petroleum products is over 1200 kilometers.

The transportation conditions for various liquids possess their own specific peculiarities, both with respect to rolling stock at the filling and discharge stations and to the making up of shipments and the mutual relations between railroad, shipper and consignee.

When they enter the tracks of a railroad for the haulage of liquids, tank cars not owned by the MPS are assimilated to the rolling stock of the originating or destination road on the basis of a special contract. Haulage in these tank cars requires authorization of the Line Superintendent, pursuant to the requirements of the Railroad Regulations, and is only done after their technical inspection by a representative of the Car Service of the Railroad Line and execution of the appropriate instrument prescribed by the instructions of the MPS.

Tank cars for the transportation of food products -- molasses, vegetable oils, etc. -- must be inspected with special care, cleaned and scrubbed, and, if necessary, steamed and flushed out as well.

In cases of shortage of tank cars assigned for carrying food products, petroleum-kerosene and gasoline tank cars may be assigned for the purpose. These are mostly two-axle, light capacity tank cars.

The fitness of tank cars for carrying products other than petroleum products and alcohol, is determined by a representative

of the shipper's Department of Technical Control. The fitness of tank cars for carrying petroleum products is determined by a representative of Glavneftesbyt, and for alcohol, by a representative of Spirtotrest.

Together with the waybill, the shipper must submit a grading certificate of the Glavneftesbyt Inspectorate for each tank-car of petroleum products to be hauled.

The acceptance of petroleum products for shipment, without a grading certificate, is forbidden.

Bitumen to be filled into tank cars is heated to at least 170 degrees in summer and at least 190 degrees in winter.

Page 320

The norms of natural loss by leakage and evaporation of petroleum products and other liquids transported by rail and water are fixed by the government according to the commodity involved and the time of the year. In mixed rail-water shipments, the norms of natural loss are increased by 80 percent for each rail to water transshipment.

Page 321

The haulage of liquids in tank cars between stations on broad-gauge lines and those on narrow-gauge lines is done by pumping them from broad-gauge to narrow-gauge tank cars, or from the tank cars into drums, or the reverse.

After measurement and listing under the appropriate calibra-

tion type, all tank cars must bear the uniform designation of their type number. The calibration type number serves as a guide in determining the weight of the liquid freight contained in a car. These numbers are placed on the end of the barrels or body of the tank-car at a height of 0.75 times the diameter, in the form of a number composed of special metallic attached digits.

Page 323

After confirmation of their plan, the local offices of Glavneftesbyt submit to the Line Superintendant their haulage plans, broken down in detail, showing stations of filling, stations of destination, number of tank-cars required, and type of petroleum products, divided into heavy oil, kerosene, gasoline, light oil and lubricants.

The subsequent planning procedure for oil product shipment is in no way different from that for the shipment of all other first category freight.

In planning the shipment of oil products, plans are drawn for the navigation season and inter-navigation season, in addition to the annual and quarterly plans.

The character of the flow of petroleum traffic changes sharply from one such season to the other, since during the navigation season some regions can be supplied from the transshipment bases of the Volga and Dnepr, while in winter these regions must be entirely supplied by rail.

The method of drawing up the plans for the inter-navigation and navigation seasons is analogous to the general methods of pre-

paring the annual and quarterly plans.

The plan for shipment of petroleum products during the navigation season must be agreed on with the Ministry [should be "Ministries"] of the Maritime and River Fleets.

Every effort must be made to build up appropriate reserves of petroleum products at the transshipment bases by the time that navigation ends, which products are then shipped from these bases to the regions supplied, during the inter-navigation season. The creation of such reserves at the transshipment bases improves the operation of the railroads during the winter by eliminating long hauls by rail.

In order to improve the country's supply of petroleum products, assure the better utilization of the consumers' oil storage facilities, improve the operational flexibility of the Glavneftsybt organization, and strengthen the routing of petroleum products, a government decree has given Glavneftesybt the right to address tank cars (indicate the consignee [i.e., of the empties for filling]) not to filling points at great distances from the consignee but to distributing stations specially established for that purpose in the immediate vicinity of the consuming regions.

Page 324

In practice, if the region under consideration receives 500 to 600 tank cars a month, or one routing every six days through tank-car train, it is considered that it can be served by a separate distribution point.

Page 325

Pursuant to order of the MPS, a discharge station receiving not less than 100 tank cars every six days should receive its petroleum products by through tank-car trains.

To keep track of the passage of through oil trains, control stations have been set up by disposition of the MPS and report daily to the Chief of the Department of Liquid Haulage in the MPS, and also to Glavneftesbyt, on the through oil trains passing through the station during the reporting day, on the basis of data in special record books kept at such control stations in the form prescribed by MPS.

Page 352

During the period of mass grain shipments, not less than 60 percent of all grain is shipped in through trains from the place of loading.

In consequence of the considerable dispersion of grain loadings over small intermediate stations, the system of through trains by stages, which assures the minimum detention of cars during loading, has had the most widespread adoption. Through trains direct to destination are made up only at a small number of points with major elevator facilities.

Page 352

To assure the maximum possible utilization of car capacity in hauling the various grains, the technical car loading norms prescribed by the MPS, which depend on the rated car capacity, (Table 38), must be observed.

TABLE 38

No.	Commodities	Rated Car Capacity in Tons		
		16.5	20	50
1	Rye, wheat, barley, proso millet, rice, corn, lentils	16.5	20	50.0
2	Oats, banked in car	15.5	17.5	37.0
3	Bran	12.5	12.5	27.0
4	Sunflower seeds, banked in car	12.5	14.0	31.0

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When grain is loaded by hand into two-axle cars, loading must not take more than 2 hours, and for four-axle cars not over 4 hours.

Mechanized loading takes considerably less time. When portable appliances are used, loading a two-axle car takes 15 to 20 minutes; loading it from a grain elevator takes 5 to 8 minutes.

Page 355

The time for unloading grain by hand is fixed, as for all free-flowing commodities, at 2 hours for a two-axle car and 3.5 hours for a four-axle car.

Unloading grain with a power shovel takes 10 to 12 minutes for a 16 to 20 ton car and 20 to 25 minutes for a 50 ton car.

Unloading grain by hand, using bags, takes 1.5 to 2 hours for two-axle cars and 3 to 4 hours for four-axle cars.

Pages 359 - 360

Rail shipments of timber constitute over 1.0 percent of the total volume of railroad freight traffic.

Under the Five Year Plan of reconstruction and expansion of the national economy of the USSR, the export of 280.0 million cubic meters of wood and the production of 39.0 million cubic meters of lumber is contemplated for 1950.

The origin of the streams of timber shipments in the forthcoming five years is determined by the assignments of the plan for the expansion of the productive bases of logging and floating of logs into the river-basins of the Northern Dvina and its tributaries, the Pechora, Kama, Vyatka, Kil'meza, Unzha, Vetluga and Belaya rivers, and also by the increased production of timber in Western Siberia and the Far East.

The shipment of timber between a number of rail destinations is forbidden, so as to prevent cross-hauling and liquidate the needlessly long haul. For instance, except for wood from certain species of trees, the shipment of all types of timber products from the Far East to the European part of the USSR, or from the European part of the USSR to Central Asia, is not allowed. The shipment of lumber from Siberia to the West is likewise forbidden, except for high-grade timber for use in manufacturing agricultural machinery, automobiles, airplanes and railroad cars. A list of the authorized shipping directions and destinations for the principal types of logs and lumber is issued by the Ministry of Roads, Railways and Waterways in agreement with Glavsnables, attached to the Council of Ministers USSR.

Pages 360-361

Timber shipments are characterized by a considerable degree of dispersion of loadings and unloadings throughout the entire territory of USSR, and also by the large number of varieties of timber and the products of its processing. The massive streams of timber movement are directed toward the regions of the coal basins (mine timbers) and the regions of large-scale construction, as well as to the ports that handle timber exports.

In most regions of the USSR there is logging that satisfies, to one degree or another, the requirements of their own and neighboring regions for timber and its products.

The dispersion of timber loadings is characterized by the fact that the number of warehouses shipping less than five cars of timber a day is over 70 percent of the total number of warehouses shipping timber products by rail. This makes it difficult to organize the shipment of timber products by through freight trains to destination, but does not prevent the wide use of through routing by stages.

In 1946, through trains to destination and intermediate through train carried an average of 27.8 percent of all timber shipments, which indicates the still far from complete utilization of the existing possibilities.

With correct planning of lumber shipments, not less than 50 percent of all timber loadings could be handled by through trains routed from the place of loading.

The shipment of timber by other than through trains over distances of more than 500 kilometers from stations with monthly timber loadings exceeding 150 cars (irrespective of assortment) is forbidden.

The shipment of mine timbers must be taken care of by through trains to destination and intermediate through trains, based on the assignment of definite loading mine timbers to definite railroad lines of destination.

When the quantity of mine timbers in the given area is insufficient, the through train is filled up with other varieties of timber for the same destination line.

In organizing and planning through freight train service from the loading places of timber products, the stations, Divisions, Railroad Lines, and oblast administrations of Glavsnables are guided by the special instructions on the through routing of timber shipments, confirmed by the Minister of Ways and Communications and by the Chief of Glavsnables.

Page 361

Timber is mostly hauled on open rolling stock (flat cars and gondolas) and only an insignificant amount (10 to 11 percent) of short logs and wood for business use [delovaya drevesina] is hauled in box cars.

The organization of timber shipments depends on the type of material. About 40 percent of all timber loadings is made up of various kinds of logs.

Pages 363-364

The technical norms for loading various types of cars with timber is shown in Table 37.

Timber may be loaded onto flat cars:

(a) by hand, in 2 hours, with an average crew of 10 workers per car;

(b) with chain conveyors (elevators) in 0.5 to 0.6 hour, with an average crew of 2 workers per car;

(c) by cranes, in 0.2 to 0.7 hour, with an average crew of 2 to 3 workers per car;

(d) using piles (pile loading) and the loading devices of the Petukhov system, in 0.4 hour, with 2 to 3 men required to make up the piles;

(e) by the Molgachev two-roller hoist and boom, in 0.9 hour and an average working force of 4 to 5 per car.

The most efficient method is pile loading, using cranes and elevators to prepare the piles.

Unloading of timber hauled on flat cars is handled by cranes; in some cases (for beams) hoists are used to unload and stack them. Small shipments are often unloaded by hand.

The following norms in hours are established for loading and unloading timber by non-mechanized methods at a place of public use (Table 38).

For loading timber with chains or into stacks onto two flat cars, and also for timber export work, the times shown are increased by 0.5 hour.

TABLE 37

No.	Commodity	Technical Norms for Loading Cars with Carrying Capacity, in Tons				
		16.5	18.0	20.0	40.0	50.0
1.	Hardwood logs and lumber, all sizes					
	(A) In box cars	16.5	18.0	20.0	38.0	38.0
	(B) On flat cars	16.5	18.0	20.0	--	40.0
2.	Logs and lumber of other species					
	(A) In box cars	14.0	14.0	14.0	28.0	28.0
	(B) On flat cars	16.5	18.0	20.0	--	38.0
3.	Small planks and boards					
	(A) In box cars	14.0	14.0	14.0	28.0	28.0
	(B) On flat cars	16.5	17.0	17.0	--	--
4.	Railroad ties, all species	16.5	18.0	20.0	38.0	38.0

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The norms for the non-mechanized loading of firewood have been fixed as follows:

- | | |
|--|-----------|
| (a) loading onto two-axle box or open cars | 2.0 hours |
| unloading from two-axle box or open cars | 1.5 hours |
| (b) loading into four-axle box cars | 3.0 hours |
| unloading from four-axle box cars | 2.5 hours |
| (c) loading onto four-axle open cars | 3.0 hours |
| unloading from four-axle open cars | 2.0 hours |

The longest haul for firewood shipment is fixed at 500 kilometers, and only for certain destinations are such shipments allowed, as exceptions, to exceed that limit.

Page 372

The time for unmechanized loading of cement is fixed as follows at the present time: 3.0 hours for two-axle cars and 5.0 hours for four-axle cars. For unloading it is respectively 2.5 and 4.5 hours.

Pages 374-375

The time for loading and unloading bricks is fixed as follows:

- | | |
|---|----------------------------------|
| (a) loading onto two-axle box or open cars, | 2.5 hours; |
| (b) loading onto four-axle cars: box cars, | 4.0 hours; open cars, 2.5 hours; |
| (c) unloading from two-axle box or open cars, | 2.0 hours; |
| (d) unloading from four-axle cars, box cars, | 2.5 hours; |
| open cars, | 3.0 hours. |

Page 375

The time for unmechanized loading of sand and gravel is 1 to 1.5 hours for two-axle cars and 2.0 to 2.5 hours for four-axle cars; for unloading two-axle cars it is 1.0 hour and for four-axle 1.5 to 2.0 hours.

Page 384

The principal regions of past extraction are Moscow, Leningrad, Kalinin, Ryazan, ████████, Tula, Ivanovo, Yaroslavl, Smolensk and Gor'kiy oblasts, and also the Belorussian, Lithuanian, Latvian, Ukrainian and Estonian SSR.

The output of peat according to the Five Year Plan of reconstruction and expansion of the national economy must increase in 1950 by 39 percent over the prewar level, and amount to 44.3 million tons in that year.

The following principal forms of peat are distinguished, according to the method of mining and subsequent processing: lump peat, milled peat (fine crumbs), and briquettes.

In 1950 the production of peat briquettes will be considerably increased and will be brought up to 1.2 million tons.

Peat is hauled over relatively short distances. The average haul for peat is about 80 to 85 kilometers. About a third of all peat hauls are under 30 kilometers.

Page 387

The unmechanized loading of peat takes 2.0 hours for two-axle cars and 4.0 hours for four-axle cars.

The time fixed for unloading peat from two-axle box cars is 2 hours, and 1 hour from flat cars and gondolas. From four-axle cars it is 3.0 and 1.5 hours respectively.

The data on the possible utilization of car capacity when hauling peat (with a specific gravity ranging from 0.250 to 0.400 ton per cubic meter) are presented in Table 43.

Pages 405-407

To supply the productive activities of the railroads and their enterprises, the Ministry of Roads, Railways and Waterways hauls a considerable volume of freight addressed to the several railroad organizations for their own needs. All of this freight may be divided into two groups:

(a) freight necessary for railroad operation (fuel, lubricants and abrasives, spare parts, equipment, etc);

(b) freight necessary for capital repairs and construction of the railroads (rails, ties, ballast, bolts, lumber, metal, building materials, etc).

Dispatch of rolling stock to the shops for repair, its return from those shops, and the running of special trains (for construction and installation, or for repair service) also belong to the freight hauls for the needs of the MPS itself.

Most of the freight for the needs of the railroad service is

TABLE 43

Type of Car	Car Load of Milled Feat, in Tons, at Specific Gravities of:				
	0.250	0.300	0.350	0.400	0.450 and higher
1. Hoppers with latticework platform of 15 ton capacity	13.7	15.0	15.0	15.0	15.0
2. Same, 16.5 ton capacity	13.7	16.2	16.5	16.5	16.5
3. Same, 18.0 ton capacity	13.7	16.2	18.0	18.0	18.0
4. Same, 20.0 ton capacity	13.7	16.2	18.7	20.0	20.0
5. Gondolas with built-up sides, 15.0 ton capacity	12.4	14.6	15.0	15.0	15.0
6. Same, 16.5 ton capacity	12.4	14.6	16.5	16.5	16.5
7. Box cars, 15.0 ton capacity	9.5	11.5	13.0	15.0	15.0
8. Same, 16.5 ton capacity	9.5	11.5	13.0	15.0	16.5
9. Same, 18.0 ton capacity	9.5	11.5	13.0	15.0	16.5

shipped by industrial enterprises and is planned and hauled on the general principles obtaining.

Hauls of freight for the requirements of the railroads, planned and dispatched by rail transport organizations under special conditions, in cars of the so-called non-revenue rolling stock, are termed service shipments (khozyaystvennyye perevozki).

Service shipments today form about 3 to 4 percent of the total volume of car-loadings and about 2 percent of the total number of ten-kilometers (the haul of service freight being considerably shorter than the usual haul).

MPS freight shipments are classified into mass shipments, car shipments (single) and LCL.

Mass shipments of MPS freight that are shipped by industrial enterprises are carried in the usual through freight trains, while service freight (ballast, stone, building material) are handled by specially assigned shuttle trains.

Shipments of road ballast make up the largest part by volume of all service shipments.

Shipments of carload (single) freight for the needs of the railroads and MPS enterprises are made, as a rule, in ordinary freight trains. Large lots of similar materials consigned to railroad Line warehouses and single consumers are shipped in carload lots from the main and base warehouses.

LCL service freight is shipped:

(a) in special cars accompanied by distributing clerks assigned by the Department of Material and Technical Supply; these

cars belong to the freight-car stock and are specially equipped to distribute materials along the line. They circulate on definite schedules on the separate sectors.

- (b) in pick-up cars together with the ordinary freight;
- (c) in containers.

As a rule, all service freight is hauled at low speed, and only in exceptional cases is the hauling (or dispatch) of specified cars at high speed permitted.

Very considerable shipments for railroad needs are connected with the reconstruction and repair of the ways (replenishment of ballast, sand, gravel, replacement of rails and ties).

The 1946-1950 Five Year Plan provides for putting in 26 million cubic meters of ballast, changing 185 million ties, and laying 50,000 kilometers of new rails.

It must be borne in mind that the reconstruction of the ways is usually done only during 6 to 7 months in a year, and that therefore the shipments of these railroad materials are concentrated into this period.

Over 40,000 cars, figured on a two-axle basis, were required in 1946 to ballast the tracks alone.

Fuel also plays a considerable role in service shipments.

The non-revenue stock of cars for service shipments is assigned on the basis of strictly prescribed norms, and comes mostly from the two-axle cars of obsolescent type which are still/suitable for local service. As a rule cars of the non-revenue stock circulate only over the tracks of their home line, but depending on the

location of the nearest carriers they may also circulate over two railroad lines.

The roads use rolling stock for service shipments only subject to the norms prescribed by the government.

All goods for the railroads, except mineral fuel and firewood, is consigned direct to the station of destination without subsequent reconsignment. Fuel is usually consigned to the distributing stations established for each railroad line, and is subsequently re-consigned to the several depot stores.

Claims for partial or complete loss of service shipments belonging to the MPS, for spoilage thereof, or for failure to deliver within the established time limit, are made under the usual procedure against the railroad line of destination.

The loading and unloading of MPS shipments hauled under the usual freight documentation is recorded and is not included in the fulfillment of the state loadings plan.

Pages 408-409

The planning of shipments consigned to railroad organizations and control over the fulfillment of the plans for loading such shipments, is handled by the Department of Planning and Assuring Shipments for the railroads and organizations of the MPS, which is a part of the Central Administration of Freight and Commercial shipments.

This Department has sectors for planning shipments and assuring shipments.

The administrations of the MPS issue timely notices to the planning sector covering shipments and showing the number of cars required for each type of freight and each originating road. The notices are totalled and transmitted to the Central Department for Planning Shipments, in the MPS, which plans the shipment of such freight alongside of the freight for the national economy.

This Department segregates [from the total shipments] a limit for MPS shipments, which limit is then distributed among the several administrations of the MPS, which draw up tables of car-flow (checker-boards), in accordance with which the MPS freight is included in the general plan of freight haulage.

The Sector for Assuring Shipments exercises the control over the fulfillment of the plan for MPS shipments, according to types of freight involved, and over the existence and utilization of the non-revenue stock of cars kept by the several railroad lines and enterprises.

This sector works on shifts, so that there is always a 24-hour check on MPS freight.

The Department for Planning and Assuring Shipments of Railroad Freight exercises a control over the loadings and unloadings of all freight consigned to the railroads and MPS organizations.

There are special employees in the Services of Freight and Commercial Work of the Railroad Line Administrations for the planning and control of MPS freight shipments within the limits of the Lines themselves.

Pages 440-441

A self-clearing car for hauling ballast (Figure 115), designed by the Construction Bureau of TsNII, makes it possible to discharge the desired amount of ballast.

The carrying capacity of this car is 60 tons, and its cubic capacity is 35 cubic meters. 15 of such cars replace 50 flat cars. Only 8 workmen are needed to unload it, (as against 100 men for hand unloading), and unloading takes about 25 minutes.

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The hauling of military freight is performed on the basis of plans of the Ministry of Armed Forces and of the Ministry of Ways and Communications, pursuant to declarations of the organs of military communications and on presentation of military shipping documents.

Groups of cars with military freight, dispatched from a single loading station to a single destination, are termed military transports. Transports are assigned definite numbers by the organs of VOSO. Military freight is also transported by echelons as well as by transports.