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NATIONAL STANDARD OF THE
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ICS 43.080.01
T 70

GB/T 37245-2018

**General Technical Requirements
for Center-axle Trailer**

中置轴挂车通用技术条件

Issued on: December 28, 2018

Implemented on: July 1, 2019

Issued by: State Administration for Market Regulation;

**Standardization Administration of the People's Republic of
China.**

Table of Contents

Foreword.....3

1 Scope.....4

2 Normative References4

3 Terms and Definitions6

4 Technical Requirements.....7

5 Test Methods.....13

6 Inspection Rules14

7 Marking, Accessory Documents, Transportation, Storage and Exit-factory Requirement15

General Technical Requirements for Center-axle Trailer

1 Scope

This Standard specifies the terms, definitions, technical requirements, test methods, inspection rules, marking, accessory documents, transportation, storage and exit-factory requirement of center-axle trailer.

This Standard is applicable to center-axle trailers that are operated on roads. Other center-axle trailers can take this as a reference in implementation.

2 Normative References

The following documents are indispensable to the application of this Standard. In terms of references with a specified date, only versions with a specified date are applicable to this Standard. The latest version (including all the modifications) of references without a specified date is applicable to this Standard.

GB/T 1589 Limits of Dimensions, Axle Load and Masses for Motor Vehicles, Trailers and Combination Vehicles

GB/T 3730.1-2001 Motor Vehicles and Trailers - Types - Terms and Definitions

GB/T 3730.2 Road Vehicle - Masses - Vocabulary and Codes

GB/T 3730.3 Motor Vehicles and Towed Vehicles - Dimensions of Vehicles - Terms and Definitions

GB/T 4781 Commercial Road Vehicles - 50 mm Drawbar Eye - Interchangeability

GB 4785 Prescription for Installation of the External Lighting and Light-signaling Devices for Motor Vehicles and Their Trailers

GB/T 5053.1 Road Vehicles - Connectors for the Electrical Connection of Towing and Towed Vehicles - 7-pole Connector Type 24 N (normal) for Vehicles with 24 V Nominal Supply Voltage

GB 7258 Technical Specifications for Safety of Power-driven Vehicles Operating on Roads

GB 11567 Motor Vehicles and Trailers - Lateral and Rear Underrun Protection

between Towing Vehicles and Trailers

GB/T 35782 Specification for Swap Trailer Transport of Road Vehicles

GB/T 36121 Technical Requirements for Caravans

JB/T 5943 Engineering Machinery - General Technical Specifications for Weldments

JT/T 389 Specification for Van Trailers

QC/T 484 Automobile Paint Coating

ISO 11407 Commercial Road Vehicles - Mechanical Coupling between Towing Vehicles with Coupling Mounted Forward and Below, and Center-axle Trailers - Interchangeability

ISO 12357 Road Vehicles - Drawbar Couplings and Eyes for Rigid Drawbars - Strength Tests

3 Terms and Definitions

The following terms and definitions, and what is defined in GB 1589, GB/T 3730.1 ~ 3730.3 and GB/T 17350 are applicable to this document.

In order to make it convenient for usage, some terms and definitions in GB/T 3730.1 are repeatedly listed out below.

3.1 Center-axle Trailer

Center-axle trailer refers to a kind of trailer, whose traction device cannot vertically move (relative to trailer) and whose axle is close to the center of gravity (when evenly loaded). In terms of this kind of trailer, only a little vertical static load is acting on the tractor, and not more than 10% of the maximum total mass of trailer or 10,000 N of load (the smaller one shall prevail). One axle or multiple axles can be driven by the tractor.

[GB/T 3730.1-2001, definition 2.2.3]

3.2 Center-axle Trailer Combination

Center-axle trailer combination refers to the combination of truck and center-axle trailer.

3.3 Van Center-axle Trailer

Van center-axle trailer refers to center-axle trailer, which has an independent closed compartment structure, including fixed compartment and interchangeable compartment, and can endure the stipulated load.

4.1.8 After van center-axle trailer is connected with truck, when center-axle trailer's supporting device is withdrawn, the minimum ground clearance shall be not less than 320 mm.

4.1.9 The dimension parameters of connecting device of center-axle trailer (excluding caravan) and position parameter of adapted truck connector shall be marked in a conspicuous position of the front-end beam of the frame and clarified in technical documents.

4.1.10 Center-axle trailer for vehicle transportation shall comply with relevant requirements of finished trailers in GB/T 26774; center-axle caravan shall comply with relevant requirements of finished trailers in GB/T 36121.

4.1.11 Refrigeration and insulation performance of refrigerating van center-axle trailer shall comply with the stipulation in GB 29753.

4.2 Frame

4.2.1 When the total length of frame is not more than 8,000 mm, the dimensional deviation of its length shall be ± 5 mm. Every 1,000 mm of increase in length (when the increase is less than 1,000 mm, count by 1,000 mm), the dimensional deviation of length is allowed to increase 1 mm. The dimensional deviation of the measured width at random measurement point shall be ± 4 mm.

4.2.2 The longitudinal straightness tolerance of longitudinal web shall be 2 mm in random 1,000 mm of length; it shall be 1‰ length in the full length.

4.2.3 At random cross section of the longitudinal and horizontal beam, the perpendicularity tolerance of the upper and lower air foil against the web shall be not more than 1% of the width of the flange.

4.2.4 The symmetric upper plane of the left and right longitudinal beam of the frame assembly shall be within the same plane. The flatness tolerance shall be 1‰ of the length of the plane being measured.

4.2.5 The perpendicularity tolerance of the primary beam of the frame against the longitudinal web shall be not more than 3‰ of the length of the horizontal beam.

4.2.6 When the length of the frame is not more than 4,000 mm, the diagonal difference of the frame shall be not more than 6 mm. Every 1,000 mm of increase in length (when the increase is less than 1,000 mm, count by 1,000 mm), the diagonal difference of the frame is allowed to increase 1 mm.

4.2.7 Frames that transport interchangeable compartment shall be equipped with locking mechanism that complies with relevant requirements in GB/T 17382.

4.3 Compartment

4.4.8 Center-axle trailer shall be equipped with gas-electric connection device that complies with the requirement in GB/T 5053.1, GB/T 13881 and GB/T 20716.1.

4.4.9 The installation and pasting of reflective logo on the body of center-axle trailer shall comply with the stipulation in GB 23254 and GB 7258. The installation of identification plate on the tail of trailer shall comply with the stipulation in GB 25990 and GB 7258.

4.4.10 The side and rear-end guard device of center-axle trailer shall comply with the stipulation in GB 11567.

4.4.11 The setting of number plate (frame) shall comply with the stipulation in GB 15741 and GB 7258.

4.4.12 In a conspicuous position of the rear of center-axle trailer, 1 ~ 2 rectangular marking plates with the words "long vehicle" shall be installed. The length of the marking plates shall be 500 mm $\pm$ 10 mm; width shall be 200^{+10}_0 mm; background color shall be yellow; the words shall be red. The colorimetric performance and photometric performance of the marking plates shall comply with the stipulation in GB 25990. The typeface of the words shall be normalized Chinese characters, which shall be put in an order from the left to the right, or from top to bottom. Character height shall be 180 mm $\pm$ 5 mm; character width and character height shall be equivalent.

4.4.13 Center-axle trailer shall be equipped with a spare tire, which shall be firmly fixated; conveniently assembled and disassembled.

4.4.14 Center-axle trailer shall be equipped with at least 2 parking wedges (for example, triangular sole timber).

4.5 Mechanical Connection Requirements

4.5.1 The longitudinal distance A (Figure 1) from the projection point of van center-axle trailer's traction loop center on a horizontal plane to the projection of truck's rearmost end on a horizontal plane shall comply with the stipulation in Table 1.

4.5.2 The up and down swinging angle α (Figure 1) of center-axle trailer's tow bar around the traction connector shall be not less than 6°. In addition, the minimum gap between the upper plane of the tow bar and the lower end of truck shall be not less than 125 mm (Figure 1).

4.5.3 Under the fully-loaded state, the vertical distance from center-axle trailer's traction loop center to the vehicle's supporting horizontal plane shall be 380 $\pm$ 25 mm (Figure 1).

and incompleteness phenomena are not allowed on rivet head. The gap between rivet head and metal fitting surface shall be not more than 0.1 mm.

4.6.3 Paint coating shall comply with the stipulation in QC/T 484 and product design.

4.6.4 All the adapting pieces and fasteners shall receive surface anti-rust treatment. Various joint parts shall be firm and reliable; satisfy the stipulated requirement of torque.

4.6.5 Oil cup and oil nozzle shall be fully assembled; filled with lubricating grease. Paint lubricating grease to other friction surfaces in accordance with the stipulation.

4.6.6 All the pipelines and circuits shall be reasonably distributed, firmly fixated and reliably clamped. During the vehicle operation process, friction interference phenomena are not allowed. Oil, gas and water pipelines shall not manifest any phenomena of leakage.

4.7 Performance Requirements

4.7.1 The braking performance of center-axle trailer and center-axle trailer combination shall comply with the stipulation in GB 7258 and GB 12676.

4.7.2 The lateral acceleration amplification factor of van center-axle trailer combination (test speed: 80 km/h) shall be not more than 2.0.

4.7.3 Under the empty-load and static state, center-axle trailer combination's left and right tilting stability angle shall be not less than 35°.

4.7.4 When center-axle trailer combination is in straight driving on a flat and dry ground at the speed of 30 km/h, the maximum offset of center-axle trailer's rear axle track centerline relative to tractor's front axle track centerline shall be not more than 110 mm.

4.7.5 The trafficability and external pendulum of center-axle trailer combination shall comply with the stipulation in GB 1589.

5 Test Methods

5.1 Determination of main quality parameters of center-axle trailer shall comply with relevant stipulation in GB/T 13873.

5.2 Center-axle trailer, and its combination's dimension and driving stability shall comply with the stipulation in GB/T 26778.

5.3 Determination of trafficability and external pendulum of center-axle trailer combination shall comply with the stipulation in GB 1589.

5.4 Lateral stability test of center-axle trailer combination shall comply with the test method of single-lane exchange stipulated in GB/T 25979 and the test speed of 80

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