INTERNATIONAL STANDARD

ISO 13052

First edition
2013-11-01

Road vehicles — Trailers up to 3,5 t — Requirements for jockey wheels and drawbar supports

Véhicules routiers — Remorques jusqu'à 3,5 t — Exigences pour roues jockey et supports de barres d'attelage

Reference number
ISO 13052:2013(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 22, *Road vehicles*, Subcommittee SC 4, *Exterior fittings of car/trailer-caravan combinations*.

Road vehicles — Trailers up to 3,5 t — Requirements for jockey wheels and drawbar supports

1 Scope

This International Standard is intended to define safety requirements which apply to jockey wheels and drawbar supports provided to support the single axle (centre axle) rigid drawbar trailers nose weight with a technically permissible maximum laden mass not more than 3,5 tons.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1
jockey wheel
device usually mounted on the front of the trailer to support the nose weight of the trailer and to adjust the height of the drawbar if not connected

Note 1 to entry: This device permits the movement of the trailer in any direction at steady-state without the use of a towing road vehicle.

2.2
drawbar support device
device fastened to the drawbar with height-adjustable mechanism, retaining the trailer in horizontal position when being disconnected to the towing vehicle

Note 1 to entry: Built up with a vertical tubular strut and adjustable height provided with a blocking system and/or clamping system activated by handle operation.

Note 2 to entry: When this device is equipped with a lift system, uncoupling the axle of the coupling ball to the coupling ball shall be permitted.

2.3
nose mass
mass on the coupling point which is needed to hold the trailer in horizontal position

Note 1 to entry: The S value is the vertical mass, in kilograms, imposed on the coupling, under static conditions, by the centre axle trailer, as defined in ECE R55–01 paragraph 2.13, of technically permissible maximum mass.

2.4
vertical static load
vertical load applied to the coupling device of the towing vehicle expressed in Newton

2.5
nose weight
load holding up the drawbar support device when the trailer is uncoupled, with value depending on ratio of the trailer coupling point distance on its axle expressed in Newton

2.6
lifting force
reacting force on the ground from the nose weight expressed in Newton

2.7
strut
adjustable tubular equipment holding up the nose weight, telescopic or not, fitted with a wheel or not

2.8
clamping system
device used to block the strut by a clamping ring and an operation handle or by a clamping set screw

Note 1 to entry: In these two cases, device shall insure blocking of the strut which supports the nose weight in order to stabilize the uncoupled trailer in horizontal position.

2.9
coupling head
mechanical part fitted to the drawbar of trailers for connecting to the 50 mm diameter coupling ball on the towing vehicle defined in ECE R55 article 2.6.2

2.10
drawbar eyes
mechanical part having a parallel hole suitable for a 50 mm diameter pin and fitted to the drawbar of trailers for connecting to automatic drawbar couplings defined in ECE R55 article 2.6.4

2.11
load lifting capacity
maximum vertical mass, in kg, given by the manufacturer of the jockey wheel or the drawbar support device which can be lifted

3 Jockey wheels – requirements

3.1 Markings

Each jockey wheel and drawbar support shall be permanently and clearly legibly marked with the following information on a component that cannot be lost unintentionally and that cannot be removed without tool:

— manufacturer's identification;

— load lifting capacity.

3.2 Testing

The drawbar support device strength shall be tested by applying a load equal to two times the permissible static vertical load value at the coupling head of the trailer as described in Formula (1):

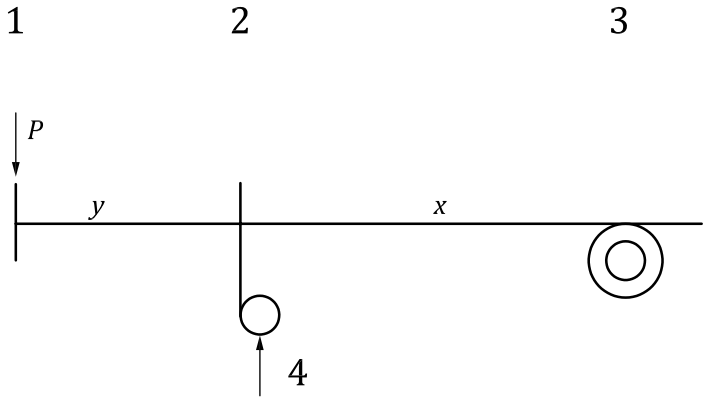
$$\text{Test load} = 2 \times \text{permitted load lifting capacity} \tag{1}$$

3.2.1 Calculation of the lifting force

The drawbar support device strength shall be tested by applying a load equal to two times the permissible static vertical load value at the coupling head of the trailer or drawbar eyes.

The requisite lifting force shall be calculated as follows:

$$\text{Lifting Force} = \frac{(x+y)\times P\times g}{x} \tag{2}$$



Key

1 drawbar ball coupling
2 jockey wheel
3 axle
4 lifting force
x distance between jockey wheel and axle, mm
y distance between drawbar ball coupling and jockey wheel, mm
P maximum permissible static vertical mass at coupling point, kg

NOTE *P* (as maximum nose weight with *S*) is declared on the manufacturer plate of the trailer.

Figure 1 — Diagram for the calculation of the lifting force

3.2.2 Test parameters

— Secure the screw-mounting plate or clamping retainer to the test rig.

— In the case of a clamping attachment, securely clamp the jockey wheel. Ensure a vertical direction of the jockey wheel tube.

— Crank up the jockey wheel to the maximum lifting height specified by the manufacturer. Ensure a vertical direction of the jockey wheel tube.

— Select an unfavourable position for the wheel, i.e. at the forward end of the clamping attachment/fastening plate turned away.

3.2.3 Test result

When the test load is applied, no actuation (no slipping) of the jockey wheel or drawbar support can take place after 5 min.

When the testing force is discontinued, no visible damage or distortion shall be present. Further trouble-free functioning shall be ensured. Jockey wheels shall safely absorb the test load without lowering unintentionally.

3.2.4 Test process

a) Install the trailer on a flat and horizontal ground.

b) Check the adjustability of the drawbar support device 550 mm height of the coupling point from the towing vehicle (drawbar support device used with a lift system).

c) Check the adjustability of the drawbar support device height of the coupling point from the towing vehicle (drawbar support device without lift system).

d) Apply double static load value of the lifting force at the jockey wheel point of the trailer.

e) By a maximal force of 250 N on the operating handle impacted the clamping system or blocking system, block the drawbar support device strut. The test should be done with a new undamaged product.

f) When the test load is applied, no actuation (no slipping) of the jockey wheel or drawbar support can take place after 1 min. [The height of the coupling point of the towing vehicle has been adjusted according b) or c)].

g) Repeat the test from d) to f), the strut shall be on an intermediate position.

h) When the trailer town and is in motion, the ground clearance shall be of 150 mm from the ground to any lower part of the drawbar support device.

3.2.5 Result of test

When the testing force is discontinued, any strut or parts shall not have any visible damage or distortion.

3.3 Activated condition (trailer uncoupled) - actuating force of the jockey wheel operating handle and the T-Screw

The required actuating force to operate the operating handle of the clamping system shall not exceed 250 N and shall block the strut under nose weight.

3.4 Deactivated condition (trailer in towed mode)

3.4.1 In retracted condition, the lifting mechanism shall exhibit safety devices which prevent the unintentional release and loss of any parts.

3.4.2 Hand cranks and other components which can be removed when the rig is in operational condition shall be secured against being lost.

3.4.3 It shall not be possible to unintentionally separate any part in extended condition. The safety device shall be designed in such a way that it cannot be overcome even under the application on the crank of a manual force of 250 N.

3.4.4 The design of the jockey wheel and/or the clamping device shall allow a minimum clearance to the ground of 150 mm, when the trailer is coupled horizontally.

3.4.5 When driving, the adjustment mechanism shall not start moving by vibrations.

4 Design

a) Drawbar support devices shall be designed and equipped by a guard to prevent any contact with the ground in case of strut blocking means loosening due to vibrations when the towing vehicle is in motion.

b) For drawbar support device installed with lifting system, it shall be impossible to unintentionally separate exterior from interior tubes of struts with an adaptive system.

c) The drawbar support device shall be installed to ensure a trailer ground clearance of 150 mm when the trailer uncoupled is in horizontal position.

d) The operating handle and other movable parts shall be secured from any loss when unused.

5 Mounting, operating, and maintenance instructions

5.1 Mounting instructions

5.1.1 Jockey wheels shall be secured in such a way that at least the finger-tip clearances (with a minimum of 25 mm) are maintained around the operating elements of the fastening devices.

5.1.2 Jockey wheels should be selected and mounted in such a way that the related drawbar ball coupling can be raised to a height of at least 550 mm from the ground.

5.1.3 The jockey wheel has to be installed in a way that in driving position there is a ground clearance of at least 150 mm.

5.1.4 Jockey wheel has to be installed at the appropriate place designed by the trailer manufacturer.

a) All devices of the drawbar support (operating handle, strut, etc.) shall be located at a distance of 25 mm from any fixed elements.

b) Jockey wheels built up with screw jack shall permit to raise the axle of the coupling point of the trailer at a height of 550 mm from the ground.

c) Struts of single jockey wheels and drawbar support shall have a sufficient height to stabilize the trailer when uncoupled.

5.2 Operating and maintenance instructions

The operating and maintenance instruction manual shall contain information as to specified use, handling, maintenance, troubleshooting, wear criteria, and a minimum of clearance to ground during driving.

When driving the jockey wheel should be raised to a highest position and safely secured.