INTERNATIONAL STANDARD ISO 1726

Road vehicles — Mechanical coupling between tractors and semi-trailers — Interchangeability

First edition — 1973-05-01

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up 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.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, International Standard ISO 1726 replaces ISO Recommendation R 1726-1971 drawn up by Technical Committee ISO/TC 22, *Road vehicles.*

The Member Bodies of the following countries approved the Recommendation :

Australia	Hungary	South Africa, Rep. of
Belgium	Israel	Sweden
Canada	Italy	Switzerland
Egypt, Arab Rep. of	New Zealand	United Kingdom
France	Poland	U.S.A.
Germany	Portugal	U.S.S.R.
Greece	Romania	

The Member Bodies of the following countries expressed disapproval of the Recommendation on technical grounds :

Czechoslovakia
Japan

Road vehicles — Mechanical coupling between tractors and semi-trailers — Interchangeability

1 SCOPE

This International Standard defines the various elements and dimensions concerning a tractor vehicle and a coupled semi-trailer (articulated vehicle) which allow interchangeability.

It specifies certain interchangeability dimensions of the gooseneck contour, operating dimensions relating to some angle values and some additional dimensions.

2 FIELD OF APPLICATION

This International Standard concerns articulated vehicles for international commercial transport, in particular the semi-trailer for large ISO 12 m (type 1 A) containers, with or without a tunnel, with a mass of 30 t, complying with the specifications of ISO/R 668, *Dimensions and ratings of freight containers*[1].

The provisions of this International Standard permit interchangeability of the same semi-trailer with a two-axle tractor or a three-axle tractor.

To take account of the gooseneck semi-trailer used for the carriage of these large containers it is necessary to allow for a gross vehicle mass of up to 44 t and a total vehicle length of up to 16 m.

3 INTERCHANGEABILITY DIMENSIONS
(see Figures 1 and 2)

3.1 Height of fifth wheel of laden tractor

$$A = \begin{cases} 1\ 250 \text{ mm min.} \\ 1\ 350 \text{ mm max.} \end{cases}$$

3.2 Forward clearance zone radius of the semi-trailer

$D = 2\ 040$ mm max.

For a normal square-fronted semi-trailer,

$D' = 1\ 600$ mm max.

In the case of a tunnel-container semi-trailer, D' shall be 914 mm max., not including the front cross-member carrying the container-locking device or a similar device.

3.3 Gooseneck contour

The gooseneck shall be located on the outside of the surface of revolution generated about the vehicle coupling vertical axis, the generator of which is shown in Figure 2 and described below.

The generator is constituted as follows :

— a part AB of length S situated in the horizontal plane of the centre of the coupling and in the median longitudinal plane of the semi-trailer;

— a part BC situated in the same median plane making an angle γ with the horizontal plane;

— an arc of a circle of radius R, tangential on one hand to the portion BC previously defined and on the other hand to a vertical portion DE situated in the median at a distance equal to G from the coupling axis.

During the rotation of the generator, AB describes a horizontal plane, BC describes a conical surface of revolution, the arc of the circle describes a portion of a torus, and the vertical axis DE describes a portion of the surface of a cylinder of revolution.

The values adopted for the above-mentioned elements of the generator are as follows :

$$S = 750 \text{ mm}$$
$$\gamma = 4°$$
$$R = 450 \text{ mm}$$
$$G = 2\ 300 \text{ mm}$$

These dimensions allow the determination of the centre of the circle of radius R.

NOTE — This contour of the gooseneck is suitable for all semi-trailers, including semi-trailers for tunnel containers having a gooseneck length of 3 124 mm and a height of 2 590 mm.

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1) At present under revision.

4 OPERATING DIMENSIONS

4.1 Limit angles of inclination of fifth wheel coupling

— forward $\beta_1 = 8^\circ$ min.

— rearward $\beta_2 = 8^\circ$ min.

— lateral $\alpha = 3^\circ$ max.

4.2 Angles of inclination of the semi-trailer in relation to the tractor

The tractor shall be so constructed that the tractor and semi-trailer components, except for those concerned with articulation, do not make contact with each other when the articulated vehicle is running in a straight line, when the angle of inclination of the semi-trailer relative to the tractor does not exceed the following values :

$\omega_1 = 6^\circ$ towards the front;

$\omega_2 = 7^\circ$ towards the rear.

4.3 Lateral inclination

When the trailer is at a lateral inclination of a maximum of 3° relative to the tractor chassis, there shall be no contact between the tractor chassis and the semi-trailer.

4.4 Angle of articulation φ (projection of the angle between the longitudinal axes of the tractor and semi-trailer in the horizontal plane)

4.4.1 Articulation of the vehicle shall be such that no contact is made between the semi-trailer and the tyres of the tractor, taking into account the maximum values already given ($\alpha = 3^\circ$, $\omega_2 = 7^\circ$), for all angles φ up to 25°, for both two-axle and three-axle tractors.

4.4.2 Under manœuvring conditions the angle of articulation φ shall be able to reach 90°, the angle of lateral inclination α remaining at 3° and the angle of inclination ω_2 varying from 7° to 3° as the angle φ varies from 25° to 90°.

4.5 Free space between tractor and semi-trailer

4.5.1 J_1 is the distance between two cylinders of revolution, both having the kingpin axis as their axis. One of these cylinders has radius G (lower part of the gooseneck) and the other is the cylinder of smallest radius within which all points of the rear part of the tractor are located :

$J_1 = 100$ mm min.

4.5.2 J_2 is the clearance between the surface of the cylinder of revolution having as its axis the axis of the fifth wheel coupling, and of radius D, and a conical surface of revolution having the same axis. This conical surface is generated by a line making an angle of 6° from the vertical towards the front of the tractor. A point X of this surface is positioned on the plane of symmetry of the semi-trailer at a height of 250 mm above the fifth wheel coupling face.

At this point $J_2 = 80$ mm.

5. ADDITIONAL DIMENSIONS

5.1 Distance between the fifth wheel kingpin axis and the front of the tractor

$L = 4\,675$ mm max.

5.2 Forward distance of the fifth wheel coupling

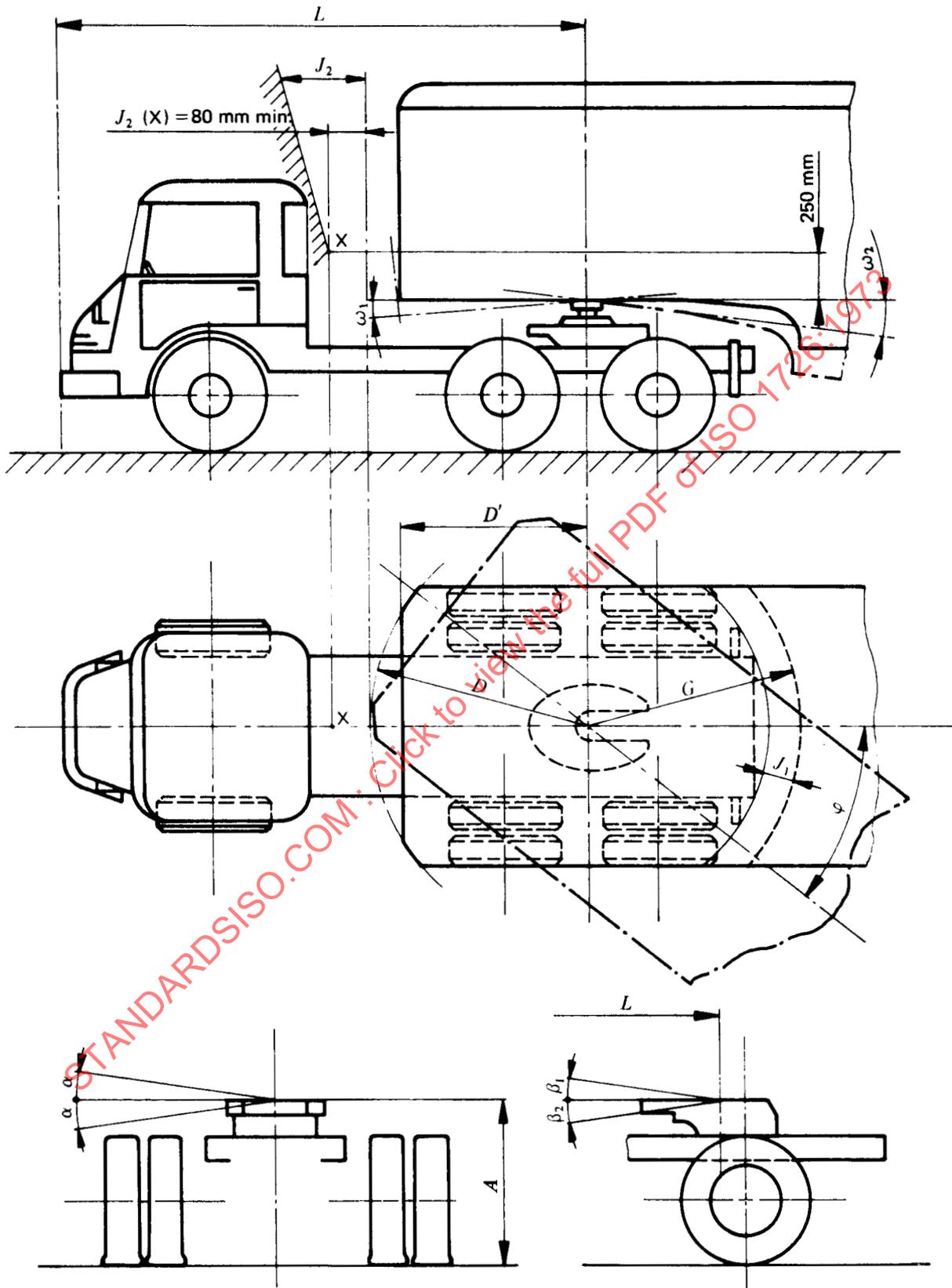This distance depends directly on the interchangeability and operating dimensions defined above.
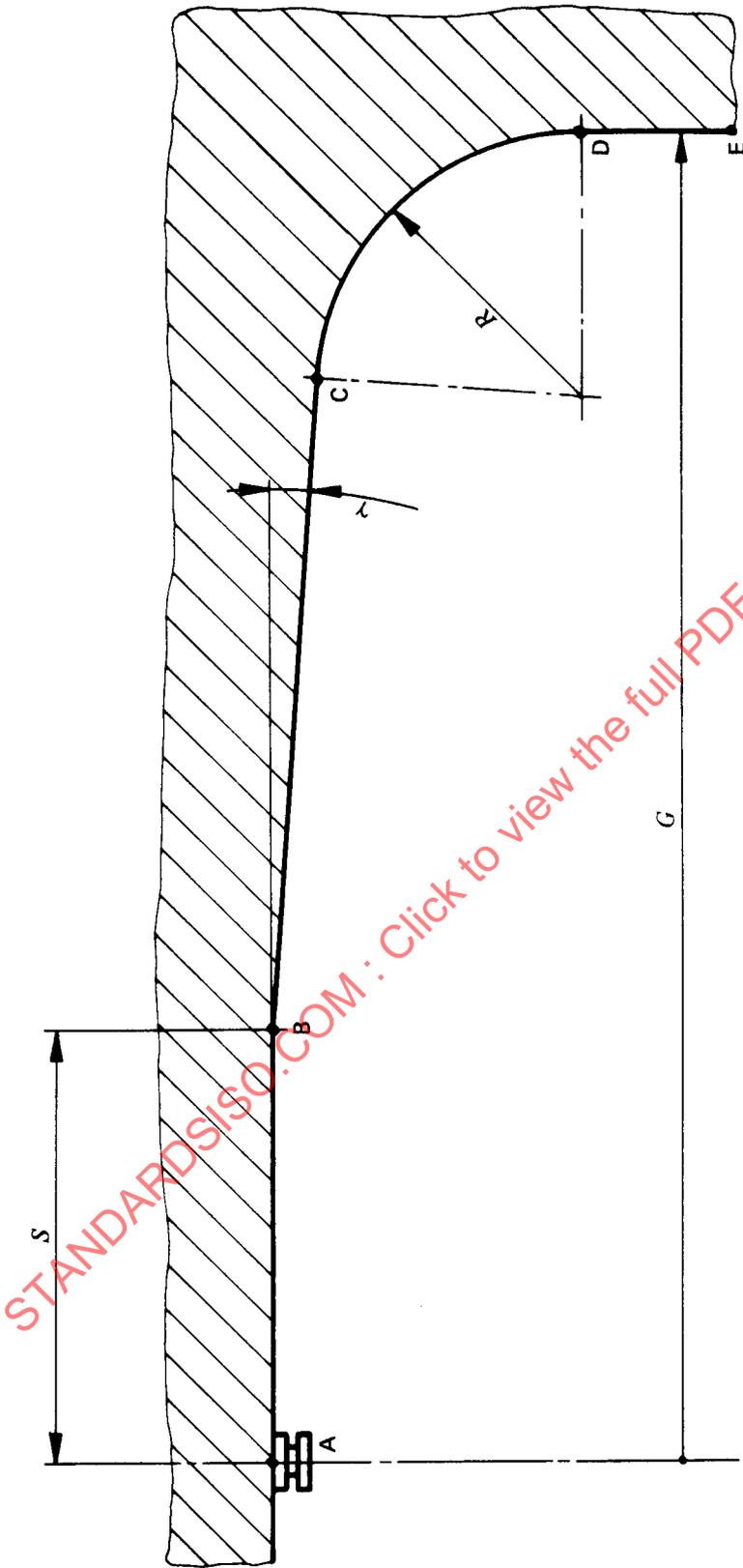
FIGURE 1 — Interchangeability, operating and miscellaneous dimensions

FIGURE 2 — Generator contour