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“Step Out From the Old to the New”

Indian Standard

TERMS AND DEFINITIONS OF WEIGHTS OF ROAD VEHICLES OTHER THAN 2 AND 3 WHEELERS

(Second Revision)

ICS 43.020:01.020

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

September 2003

Price Group 3
(Cover page, Title) — Delete the words 'AND 3'.

(Page 1, Title) — Delete the words 'AND 3'.

[Page 1, clause 1.2(b)] — Delete the words 'and three-wheelers'.

[Page 1, clause 1.2(b)] — Add the following new clauses after 1.2:

'1.3 While applying requirements mentioned in 3 to three wheelers, the parts or elements as applicable to three wheelers are only included while defining the weights.

1.4 The definition of weights for the purpose of classification shall not include weight of traction batteries used in battery operated three wheelers.'
FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Automotive Basic Standards Sectional Committee had been approved by the Transport Engineering Division Council.

For the preparation of this standard considerable assistance has been derived from:

a) ISO 1176 : 1990 Road vehicles — Masses — Vocabulary and codes


The composition of the Committee responsible for the formulation of this standard is given in Annex A.
Indian Standard

TERMS AND DEFINITIONS OF WEIGHTS OF ROAD VEHICLES OTHER THAN 2 AND 3 WHEELERS

(Second Revision)

1 SCOPE

1.1 This standard presents terms and definitions of vehicle weights, complete or not, considered under defined conditions and is applicable to commonly used road vehicles.

1.2 This standard does not apply to:
   a) special designed vehicles for use other than carrying of passenger and/or goods, and
   b) two-wheelers and three-wheelers.

2 GENERAL

2.1 Weight or load means the force transmitted by the vehicle, or by the part of the vehicle defined, to a horizontal plane of contact, under static conditions. Weights or loads are measured with the vehicle stationary and the engine not running; the vehicle and its road wheels being in the straight-head position.

2.2 The definitions apply to vehicles newly manufactured and with normal equipment. For terms defined in 3.7 to 3.16 inclusive, maximum weight (GVW) authorized, are defined for each case.

2.3 The definitions given do not necessarily apply to special vehicles, for which other definitions are sometimes necessary.

2.4 Under some definitions, certain elements are asterisked (*) marked, these need not be included in the weight. Conversely others, which are not listed, such as fifth wheel, auxiliary anti skid devices may be added in the weight.

2.5 The manufacturer when specifying the vehicle weight corresponding to a given term shall indicate the term such as; dry weight, kerb weight (unladen weight) and list afterwards any elements not delivered or added. If the weight of the driver is included, this fact shall be stated.

3 TERMS AND DEFINITIONS

3.1 Bare Chassis Dry Weight

Weight of the bare chassis which is mechanical whole including only the parts strictly necessary for the operation intended by the manufacturer.

3.1.1 As far as motor vehicles are concerned, the foregoing implies that, if fuel lubricants and coolant liquid (if needed) are supplied, the vehicle is capable of moving by its own means and fitted with strictly necessary parts such as:
   a) auxiliary equipment only as necessary for normal operation;
   b) complete electrical equipment including lighting and signalling devices supplied by the manufacturer;
   c) all instruments and fitment of parts, enforced from time-to-time by any legislation in respect of which a measurement of the bare chassis dry weight is being made;
   d) has full complement of liquids to ensure the correct functioning of every part of the vehicle;
   e) spare wheel(s);
   f) standard tool kit;
   g) driver's seat; and
   h) chocks.

NOTE — Fuel and oil are not included in the measurement but such items as wet battery acid, fluid for hydraulic circuits, coolant and engine oil are included

3.1.2 The following parts or elements may be optionally fitted, according to the manufacturer's specification:
   a) Engine bonnet;
   b) Engine cover;
   c) Wheel boxes;
   d) Trailer coupling device;
   e) Supplementary gear box;
   f) Power take-off;
   g) Retarding device not on the engine;
   h) Coolant fluid in the case of sealed coolant circuit;
   j) Mechanical and/or hydraulic lifting devices; and
   k) Additional auxiliary equipment supplied by the manufacturer such as; air conditioning/heating system, air bag, wheel capa, spoiler, power operated door windows, power steering, telltale, fog lamps, interior lighting, wind shield / head lamp washing system, rear wiping system, etc.

3.1.3 Optional parts or elements listed in 3.1.2 and fitted on the dry bare chassis shall be indicated.
3.2 Bare Chassis Kerb Weight (Unladen Weight)

Bare chassis dry weight as defined in 3.1 plus weight of the following elements:

a) Coolant (if needed);
b) Fuel tank filled to at least 90 percent of the legally permitted capacity and for gaseous fuels such as CNG/LPG, 90 percent by weight or volume, as applicable, of the legally permitted capacity;
c) Fire extinguisher(s)*;
d) Standard spare parts*; and

e) Washer fluid*.

3.3 Chassis and Cab Dry Weight

Bare chassis dry weight as defined in 3.1 including the weight of the complete cab equipped for normal operation plus the weight of the elements which the vehicle manufacturer provides as standard or optional equipment and which shall be specified in the list.

3.4 Chassis and Cab Kerb Weight (Unladen Weight)

Chassis and cab dry weight as defined in 3.3 plus the weight of the following elements:

a) Coolant (if needed);
b) Fuel tank filled to at least 90 percent of the legally permitted capacity and for gaseous fuels such as CNG/LPG, 90 percent by weight or volume, as applicable, of the legally permitted capacity;
c) Fire extinguisher(s)*;
d) Standard spare parts*; and

e) Washer fluid*.

3.5 Complete Vehicle Dry Weight

Weight of vehicles as defined in 3.1 including weight of the complete cab, passenger compartment/load body, as applicable with all electrical equipment and auxiliary equipment necessary for normal operation of the vehicle, plus the weight of the elements which the vehicle manufacturer provides as standard or optional equipment and which shall be specified in the list.

3.6 Complete Vehicle Kerb Weight (Unladen Weight)

Complete vehicle dry weight as defined in 3.5 plus the weight of the following elements:

a) Coolant (if needed);
b) Fuel tank filled to at least 90 percent of the legally permitted capacity and for gaseous fuels such as CNG/LPG, 90 percent by weight or volume, as applicable, of the legally permitted capacity;
c) Fire extinguisher(s)*;
d) Standard spare parts*; and

e) Washer fluid*.

3.7 Maximum Gross Weight

3.7.1 Maximum Authorized Gross Vehicle Weight (GVW)

Weight determined as maximum by the approved test agency given under Central Motor Vehicle Rules (CMVR) for operating conditions laid down by them.

NOTES

1 For tractor vehicles coupled with a trailer or a semi-trailer which exerts a significant vertical force onto the fifth wheel or the coupling device, this force shall be included in the maximum authorized gross vehicle weight of the tractor.
2 For semi-trailers, the maximum authorized gross trailer weight including the vertical load on the fifth wheel is determined by the approved test agency given under Central Motor Vehicle Rules (CMVR) taking into account the characteristics of the towing vehicle.

3.8 Maximum Payload (GVW-ULW)

3.8.1 Maximum Authorized Payload

Load obtained by subtracting the weight defined in 3.6 (Unladen Weight) from the weight defined in 3.7.1 (GVW).

3.9 Maximum Axle Weight(s)

3.9.1 Maximum Authorized Axle Weight(s)

Weight determined as maximum by the approved test agency given under Central Motor Vehicle Rules (CMVR).

3.10 Maximum Tyre Load

3.10.1 Maximum Authorized Tyre Load

Corresponds to the maximum weight to be carried by the tyre as determined by the approved test agency given under Central Motor Vehicle Rules (CMVR).

3.11 Towed Weight

3.11.1 Maximum Authorized Towed Weight

Towed weight determined as maximum by the approved test agency given under Central Motor Vehicle Rules (CMVR), taking into account the characteristics of the tractor vehicle and the traffic conditions.

3.12 Maximum Weight of a Road Train (Vehicle Combination)³

3.12.1 Maximum Authorized Weight of a Road Train (Vehicle Combination) (GCW)

Sum of the maximum total weights of towing and towed vehicles as determined by the approved test agency given under Central Motor Vehicle Rules (CMVR).

3.13 Maximum Weight of an Articulated Vehicle²

² Tractor vehicles coupled with trailers which exert only a negligible vertical force on the coupling hook.
³ Tractor with semi-trailer exerting an appreciable vertical force on the coupling device.
3.13.1 **Maximum Authorized Weight of an Articulated Vehicle (GCW)**

Maximum authorized articulated vehicle weight as determined by the approved test agency given under Central Motor Vehicle Rules (CMVR).

3.14 **Maximum Authorized Static Load on Coupling Device**

Maximum vertical static load on the coupling device of the towing vehicle determined as a maximum by the approved test agency given under Central Motor Vehicle Rules (CMVR).

3.15 **Vertical Load or Weight Borne by a Tractor for the Semi-Trailer**

Maximum vertical static load imposed upon the fifth wheel of a towing vehicle (tractor) as defined by the vehicle manufacturer (see Fig. 1).

3.16 **Vertical Load or Weight Exerted by the Semi-Trailer on the Tractor**

Maximum vertical static load imposed by semi-trailer on to the towing vehicle (tractor) as defined by the semi-trailer manufacturer (see Fig. 2).

3.17 **Power/Weight Ratio**

The ratio of net power to the maximum weight (GVW or GCW) specified by manufacturer and approved by the approved test agency given under Central Motor Vehicle Rules (CMVR).

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**Fig. 1 Vertical Load Borne by a Tractor**

**Fig. 2 Vertical Load Exerted by Semi-Trailer on Tractor**
**ANNEX A**

*(Foreword)*

**COMMITTEE COMPOSITION**

Automotive Basic Standards Sectional Committee, TED 01

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<td>Shri K. Senthil Kumar <em>(Alternate)</em></td>
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SHRI B. SARKAR (Alternate)
SHRI K. K. VASHISHTHA, Director & Head (TED)
[Representing Director General (Ex-officio)]

Member Secretary
SHRI V. ARUMUGAM
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