Doc: FAD 11(27065)WC
December 2024

BUREAU OF INDIAN STANDARDS

DRAFT FOR COMMENTS ONLY

भारतीय मानक *मसौदा*

कृषि ट्रैक्टर के लिए ट्राली – विशिष्टि

(*आइ एस 8213 का चौथा पुनरीक्षण*)

Draft **Indian Standard**

AGRICULTURAL TRACTOR TRAILER — SPECIFICATION

(*Fourth Revision* of IS 8213)

ICS **65.060.10**

Agricultural Machinery and Equipment Sectional Committee, FAD 11

Last date for Comments: 6 February 2025

FOREWORD

(*Formal clause will be added later*)

Tractor operated trailers are used for transport of farm produce. This standard has been prepared for the guidance of manufacturers and purchasers in the production and selection of trailers of proper quality.

This standard was first published in 1976 and subsequently revised in 1983 and 1987. In its third revision in 2000, requirements of axle assembly for agricultural tractor trailer covered in IS 8463 : 1987 "Axle assembly for agricultural tractor-trailer (*first revision*)", lighting requirements as per Central Motor Vehicles Act, 1988 and as per Safety Standard (SS-15) of Automotive Research Association of India were incorporated.

The current revision of the standard has been undertaken to incorporate following modifications:

a) Minimum capacity of balanced-trailer has been increased from 2 tonnes to 5 tonnes and range of 2 to 10 tonnes has been provided to cover all the models falling in this range.
b) Parking and service brakes requirement has been changed to recommendatory from obligatory.
c) Requirement of slow moving vehicle has been incorporated in the standard which was covered in IS 12239 (Part 2) : 1999 "Tractors and machinery for agriculture and forestry – Technical means for ensuring safety: Part 2 Tractors (*first revision*)"
d) Dimensions of various components of axle assembly have been modified as per current manufacturing practices.
e) Necessary editorial changes have been made including updating of referred Indian Standards and schematic diagrams given in the standard.

The figures given in the standard are intended to serve only as illustrations and should not be considered as suggestive of any standard design.

In preparation of this standard due attention has been given to Central Motor Vehicles Acts, 1988. However, it subjects to the restrictions imposed thereunder as amended from time to time.

The dimensions of the trailer and its accessories shall not, in any way, infringe the rules and regulations of the Local Transport Authority in force from time to time.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (second revision)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Draft ***Indian Standard***

AGRICULTURAL TRACTOR TRAILER — SPECIFICATION

(*Fourth Revision of IS 8213*)

1 SCOPE

1.1 This standard specifies material, constructional and other requirements of agricultural trailer fitted with pneumatic tyres and operated by agricultural tractor.

1.1.1 This standard covers the requirements of balanced trailers of capacity up to 10 tonnes and semi-trailers of capacity up to 5 tonnes.

2 REFECENCES

The standards listed in Annex A contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of these standards.

3 TERMINOLOGY

For the purpose of this standard following definitions, in addition to those given in **3** of FAD 11(27062), shall apply:

3.1 Reflex Reflectors — An assembly ready for use and comprising one or more reflecting optical units. Reflectors shall be visible at night from all distances within 31 m to 183 m when directly in front of lawful lower beams of headlamps.

3.2 Head Light — Illuminating light of a vehicle intended to illuminate the road ahead.

3.3 Stop Light — A brake operated lighting device which emits red or amber light at the rear of the vehicle intended to give warning of the slowing down or the stopping of the vehicle.

3.4 Direction Indicator — A lighting device to show in which direction, the driver intends to turn by giving a flashing light on the side of the vehicle towards which the turn will be made.

3.5 Tail Light — A lighting device which emits red light indicating the presence of the vehicle when seen from the rear and intended to show the width.

3.6 Reversing Light — A device used to provide a warming signal to pedestrians and other drives, when the vehicle is reversing or is about to reverse. The light shall be white in colour.

4. TYPES

4.1 The agricultural trailers shall be of following two types:

a) Balanced trailer (double axle/two axle) (*see* Fig. 1). And

b) Semi-trailer (single axle) (*see* Fig. 2).

4.1.1 Both the types of trailers may be fitted with fixed or tipping platform.

5 MATERIALS

5.1 The material of important components and that for axle assembly shall be as given in col 3 of Table 1. The material should conform to the relevant Indian Standard and grade given in col 4 and 5 of Table 1.

Table 1 Material Requirements for Components of Trailer
(*Clause* 5.1)

Sl. No.	Components	Material	Reference IS ~~to~~ ~~IS No.~~	Grade
(1)	(2)	(3)	(4)	(5)
i)	Chassis	Mild steel	IS 2062	Fe 410-s
ii)	Drawbar	Mild steel	IS 2062	Fe 410-s
iii)	Tow eye or tow jaw	Carbon steel	IS 1875 or IS 1030	20 C Grade 23 to 45
iv)	Platform	Mild steel	IS 2062	Fe 410-s
v)	Side boards	Mild steel	IS 2062	Fe 410-s
vi)	Leaf spring	Spring steel	IS 3431	-
vii)	Axle	Mild Steel	IS 2062	Fe 410-s
viii)	Hub	Cast iron Mild Steel	IS 210 IS 2062	FG 200
ix)	Brake drum	Cast iron	Is 210	FG 200
x)	Cap	Cast iron Mild steel	IS 210 Is 1079	FG 200 -
xi)	Washer	Mild steel	IS 2062	-

6 CAPACITY

6.1 The capacity of a two axle trailer shall be its gross load and shall be 5 to 10 tonnes. The gross load along with the payload shall be declared by the manufacturer. The declared capacity shall not vary by ± 5 percent.

~~**6.1.1**~~ **6.2** The capacity of the single axle trailers shall not be more than 5 tonnes.

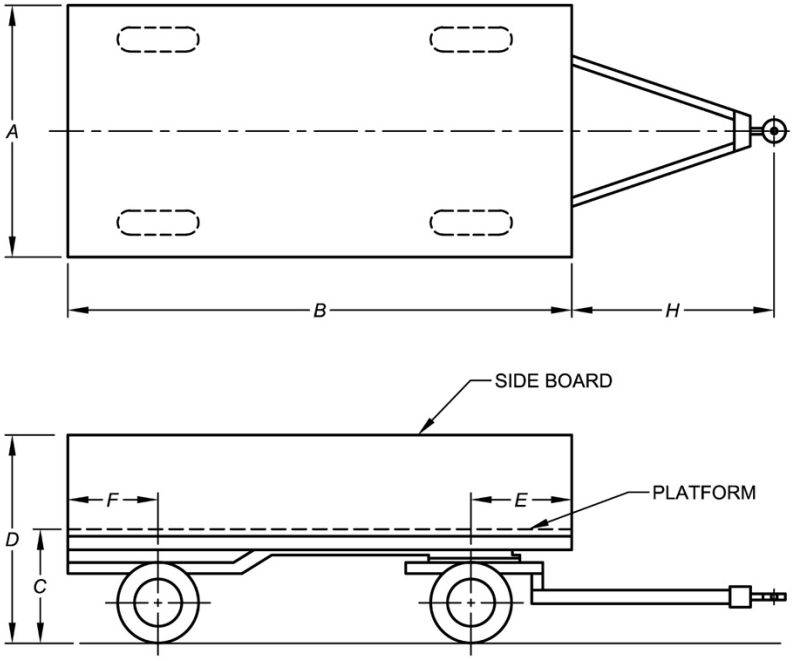

FIG. 1 BALANCED TRAILER

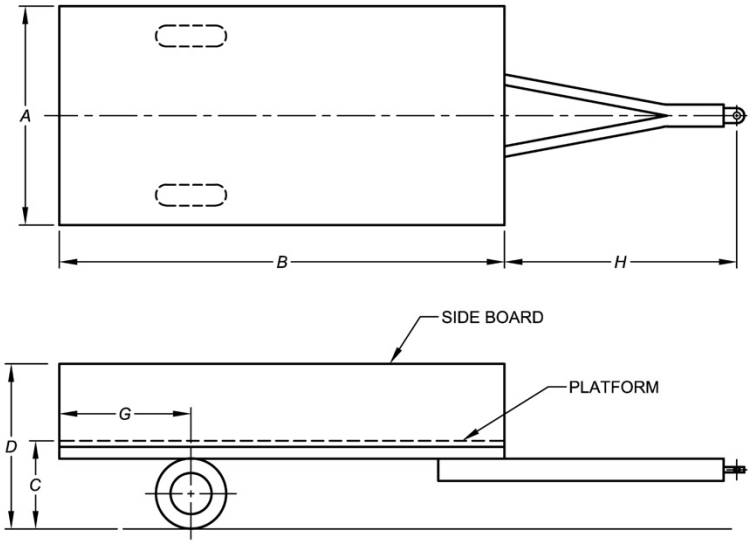

FIG. 2 SEMI-TRAILER

7 DIMENSIONS

7.1 The overall width of the trailer (*see A* in Fig. 1 and Fig. 2) measured between the extreme points shall not exceed 2.5 m.

7.2 The overall length of the platform (*see B* in Fig. 1 and Fig. 2) shall not exceed the following;

a) 5 m for trailers up to 5 tonnes capacity, and

b) 6.7 m for trailers above 5 tonnes capacity.

7.3 The height of the trailer, with tyres inflated at the recommended pressure, when measured from the level supporting surface to the top of the platform (*see C* I Fig. 1 and Fig. 2) shall be not more than 1.5 m.

7.4 The height of the trailer, with tyres inflated at the recommended pressure, when measured from the level supporting surface to the top of the sideboard (*see D* in Fig.1 and Fig.2) shall be not more than 2.2 m.

7.5 In case of the balanced trailer, the distance from the edge of the platform to the centre of front wheel (*see E* in Fig. 1) and from rear edge of the platform to the centre of rear wheel (*see F* in Fig. 1) shall be not more than 0.8 m.

7.6 In case of semi-trailer, the load transfer from the trailer to the tow eye of the trailer shall not be more than 20 percent of the trailer capacity. Assuming that the trailer is loaded uniformly to the entire length of platform and the centre of gravity lies in the lateral vertical plane at half the length of platform from rear edge, the value of *G* (*see* Fig. 2) can be derived from the following formula:

$$G = \frac{\frac{WB}{2} - R_t\,(H + B)}{(W - R_t)}$$

Where

W = gross load of the trailer; and
R_t = load transfer on tow eye, percent.

7.7.1 On the basis of 20 percent load transfer from the trailer to the tow eye, the above formula can be written as follows:

$$G = \frac{3B-2H}{8}$$

7.7 Ground clearance shall not be less than 300 mm.

8 CONSTRUCTIONAL REQUIREMENTS

8.1 The loading platform may be plain or provided with hinged or fixed sideboards. If trailer is provided with sideboards, some kind of locking provision shall be provided to keep it vertical. This can be met by giving a latching system at the top of the vertical posts fitted to the platform.

The hinges by which sideboards are fixed shall be provided with split pins to restrict its lateral motion.

8.2 The trailers shall be provided with latching hooks for tying down the load.

8.3 For single axle trailer, tow eye of the drawbar or hitch of the trailer, when fully loaded may be parallel to the level surface after hitching with towing tractor. For balanced trailer, drawbar or hitch of the trailer shall be of hinged type so that load from trailer is not transferred to the towing tractor. In the towing hitch, a suitable shock absorbing device shall be provided. The hitch height of trailer should always be below rear axle height of the tractor.

8.4 Tow eye of the trailer shall be capable of rotating at 360° angle to take both rigid and rotating trailer hook of the towing tractor. Ring type hitches shall conform to IS 11270.

8.5 For balanced trailers, the front axle shall have the capability to swivel to a maximum of 120^{o} (60^{o} on either side) about the vertical axis.

8.6 The trailer shall be fitted with pneumatic tyres and rims conforming to IS 13154 and 10694 (Part 6) respectively.

8.7 The axle (s) shall conform to requirements specified in Annex B.

8.8 The trailer may be provided with suitable spring suspension (*see* IS 1135) for recommended load carrying capacity.

8.9 Trailers should have service (overrun) and parking brake. It shall be ensured that during operation of service or parking brake, the brakes at both the wheels of trailer are activated simultaneously.

8.9.1 The service brakes shall be capable of a deceleration of 2.5 m/s^2 measured in accordance with the method described in Annex C with operating brakes pedal force not exceeding 600 N and 400 N in case of foot operated and hand operated brakes respectively.

8.9.2 The parking brake shall hold fully laden trailer on a 12 percent slope uphill or downhill. The maximum force to operate a hand lever shall not exceed 400 N. The parking brake shall operate on the same drum and shoe or disc and pad as the service brake.

8.10 Hydraulic ram of suitable capacity compatible with tractor hydraulic shall be provided in case of tipping type. The ram may be used in single or tandem as per need and the operating pressure shall not exceed 21 MPa.

8.11 Tipping angle of the body, in case of tipping type, shall be 42° to 50°.

9 LIGHTING REQUIREMENTS

9.1 The trailer shall be fitted with two red-coloured reflectors at rear sides and two white-coloured reflectors on front sides at a distance not more than 150 mm from extreme ends to the centre of

reflectors. The reflectors shall be round with reflecting area not less than 3 000 mm^2. Rear reflectors may be incorporated as part of lensing in tail lamps described in **9.2**.

9.2 Every trailer shall be provided with two tail lights of red colour at the rear and conforming to IS 3628. The point on the illuminating surface farthest from the median longitudinal plane of trailer shall be not more than 400 mm from the extreme outer edge of the vehicle. The distance between the inner edge of the vehicle. The distance between the inner edge of the two illuminating surfaces shall be not less than 600 mm. This distance may be reduced to 400 mm, where the overall width of the trailer is less than 1 300 mm. the height of tail lights above the ground shall be not less than 350 mm and not more than 1 60 mm.

9.3 At least two amber flashing reversing lamps (warning lamps) conforming to IS 4060 or IS 13135 as symmetrically mounted and as widely spaced laterally as practicable, visible from both front and rear, may be mounted at least 1 000 mm height but not more than 1 500 mm. Lamps shall flash in unison at a rate of 60 to 120 flashes per minute.

9.4 Every trailer shall be fitted with two turn indicators (direction indicators) lamps on the rear side. The direction indicator shall be of amber colour and shall flashing unison at a rate of 60 to 120 flashes per minute. The light emitted by lamps when in operation shall be clearly visible from both front and rear of the vehicle. The direction indicator shall be so designed and fitted that the tractor operator is aware that it is operating correctly. Illuminated area of each direction indicator shall not be less than 2 250 mm^2.

9.4.1 The rear amber flashing warning lamps (*see* **9.3**) may be used as the turn indicators.

9.5 Two brake operated stop light shall be provided at the rear of the trailer which emit red light intended to give warning of the slowing down or stopping of the vehicle. The stop lights may be provided as a part of tail lamps (*see* **9.2**).

9.6 One SMV (Slow Moving Vehicle) identification emblem as shown in Fig. 3 consisting of a fluorescent orange equilateral triangle with a red retro-reflector border positioned with a point of triangle up shall be provided on the rear side of the trailer. The red retro-reflector border defines the shape of the fluorescent colour in daylight and appears as a hollow red triangle with path of motor vehicle headlight in the night.

The emblem shall be mounted in a plane perpendicular to the direction of travel and shall be visible from the rear of SMV. It shall be located 0.6 m to 1.8 m above the ground measured from the lower side of the emblem. If the structure of the vehicle makes it impossible to maintain the dimensions of the SMV emblem as given in Fig. 3, it may be suitably modified provided that each side is not less than 200 mm.

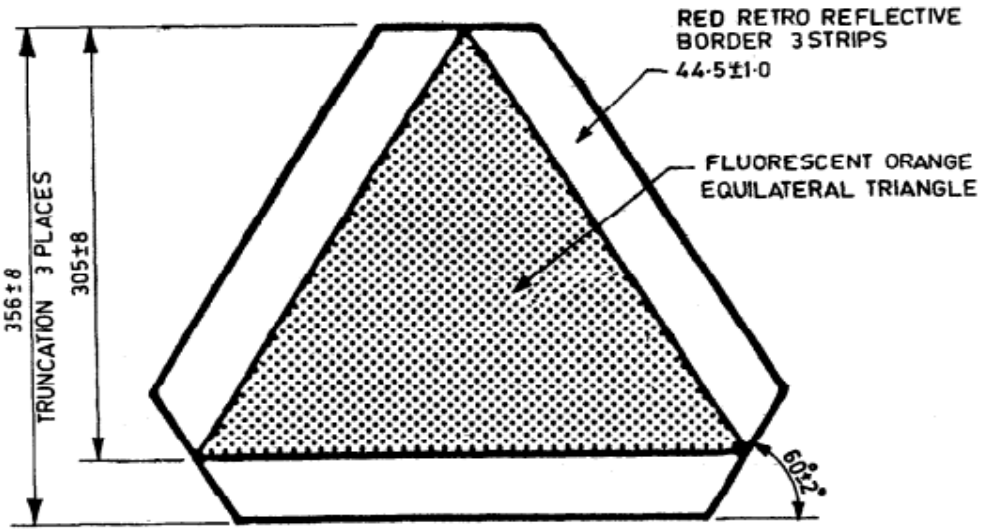

FIG. 3 SLOW MOVING VEHICLE EMBLEM

10 OTHER REQUIREMENTS

10.1 The semi-trailer shall be provided with suitable arrangement in the front for keeping the trailer in a levelled position when detached from the towing tractor.

10.2 All the parts requiring lubrication shall be provided with suitable arrangement which should be easily accessible and indicated with symbols as per IS 6283 (Part 1).

10.3 A suitable unobstructed location shall be made available on the trailer chassis for fixing a lift jack for carrying out necessary repairs to the trailers.

10.4 In case of tipping type trailer, provisions shall be made for tilting the platform without disturbing the trailer.

10.4.1 Single telescopic tipping cylinder shall meet the requirements specified IS 12371.

10.5 When the trailer is loaded uniformly with 25 percent additional pay load and operated at an average speed of 25 km/h to 30 km/h for 3 hours. It shall not show any sign of breakage of deformation in any part. This test shall be conducted on metalled road.

11 WORKMANSHIP AND FINISH

11.1 The sharpness of the edges and corners shall be removed.

11.2 Castings and forgings shall be free from blow holes, cracks and other visual defects.

11.3 Welding shall not be porous. As far as possible, it should be done in accordance with IS 816.

11.4 All wooden and metal surfaces shall be covered with a coat of suitable preservative. The metal parts should be de-rusted, treated with anti-corrosive material and an appropriate primer painting.

11.5 No trailer should be painted in olive green colour except those belonging to Defence Department.

12 MARKING

12.1 The trailer shall be marked with the following information on identification plate which shall be welded or riveted to the body:

a) Manufacture's name and registered trade-mark, if any;

b) Unladen mass;

c) Gross load; and

d) T-sign at the rear (*see* IS 9942)

12.2 BIS Certification Marking

The trailer may be marked with a Standard Mark.

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

ANNEX A

(Clause 2)

LIST OF REFERRED STANDARDS

IS No.	*Title*
IS 210 : 2009	Grey iron castings — Specification (*fifth revision*)
IS 549 : 2005	Split pins — Specification (*third revision*)
IS 816 : 1969	Code of practice for use of metal arc welding for general construction in mild steel (*first revision*)
IS 1030 : 1998	Carbon steel castings for general engineering purposes — Specification (*fifth revision*)
IS 1079 : 2017	Hot rolled carbon steel sheet, plate and strip — Specification (*seventh revision*)
IS 1135 : 2018	Springs — Leaf springs assembly for automobiles — Specification (*sixth revision*)
IS 1875 : 1992	Carbon steel billets, blooms, slabs and bars for forgings — Specification (*fifth revision*)
IS 2062 : 2011	Hot rolled medium and high tensile structural steel — Specification (*seventh revision*)
IS 2179 : 1979	Specification for converted timber for lorry bodies (*first revision*)
IS 2232 : 1967	Specification for slotted and castle nuts (*first revision*)
IS 3431 : 1982	Specification for steel for the manufacture of volute helical and laminated springs for automotive suspension (*second revision*)
IS 3628 : 1966	Sidelights, tail-lights, parking lights, stop lights and direction indicators for automobile use
IS 4060 : 1994	Automotive vehicles — Flashers for direction indicators — Specification (*second revision*)
IS/ISO 6194-1 : 2007	Rotary shaft lip - Type seals incorporating elastomeric sealing elements: Part 1 nominal dimensions and tolerances
IS 6283 (Part 1) : 2023/ISO 3767-1:2016	Tractors machinery for agriculture and forestry powered lawn and garden equipment — Symbols for operator controls and other displays: Part 1 Common symbols (*third revision*)
IS 7461 : 2024/ISO 355 : 2019	Rolling bearings — Tapered roller bearings — Boundary dimensions and series designations (*fourth revision*)
FAD 11(27062) WC	Farm transport equipment — Glossary (first revision of IS 9821)
IS 9942 : 1981	Specification for T-sign plate for trailers
10694 (Part 6): 2009	Automotive vehicles — Rims — General requirements: Part 6 Rims for agricultural tractors, tillers and implements (*second revision*)
IS 11270 : 1985	Technical requirements for ring type hitches for agricultural trailers
IS 12371 : 1988	Technical requirements for single acting tipping cylinders for agricultural trailers.
IS 13135 : 2016/ISO 4082 : 1981	Road vehicles — Motor vehicles — Flasher units (*first revision*)
IS 13154 : 2015	Automotive vehicles — Tyres for agricultural vehicles and their trailers — Specification (*first revision*)

ANNEX B

(*Clause* 8.7)

REQUIREMENT OF AXLE ASSEMBLY

B-1 NOMENCLATURE

B-1.1 For the axle assembly the nomenclature given in Fig. 4 shall apply.

B-2 CLASSIFICATION

B-2.1 For the purpose of this standard, the axle assembly shall be of the following two classes;

a) Class *A* – The axle assembly of load carrying capacity up to 3 tonnes.

b) Class *B* – The axle assembly of load carrying capacity up to 5 tonnes.

B-3 DIMENSIONAL REQUIREMENTS

B-3.1 The dimensions of various components of the axle assembly shall be as given in col 3 and 4 of Table 2. The applicable standards for the components are given in col 5 of Table 2 for guidance.

B-3.2 The axle assembly shall have wheel track of 1000 to 1700 mm.

B-4 OTHER REQUIREMENTS

B-4.1 The dust cover shall be fitted with the help of three round head screws and spring washers.

B-4.2 Oil seals or grease retainers shall be provided to make the axle assembly leak and dust proof. Oil seals should conform to IS 6194 (Part 1).

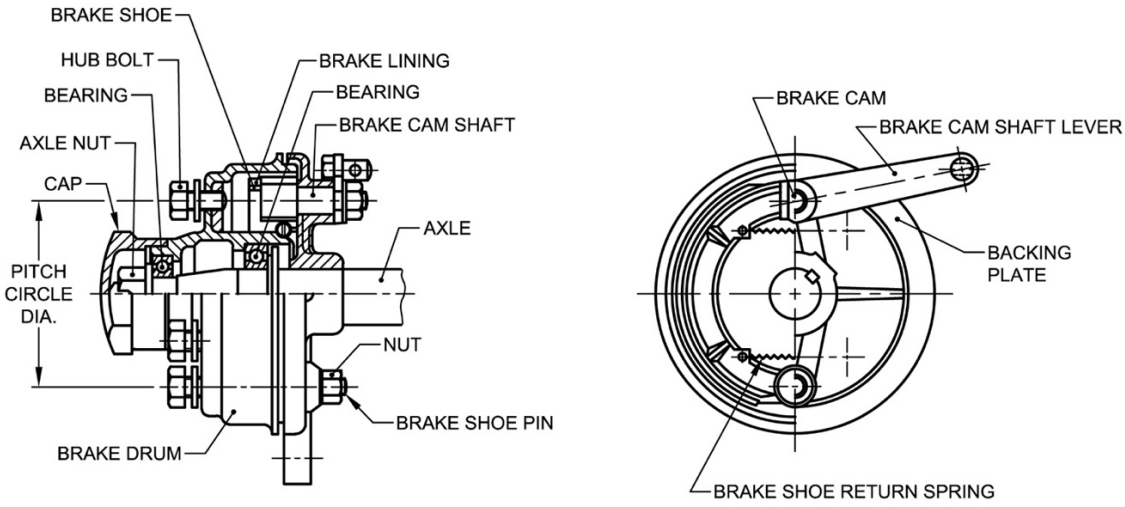

FIG. 4 NOMENCLATURE OF AXLE ASSEMBLY

TABLE 2 DIMENSIONS OF VARIOUS COMPONENTS OF AXLE ASSEMBLY
(*Clause* B-3.1)

Sl.No.	Component	Dimensions		Applicable Standard
		Class A	Class B	
(1)	(2)	(3)	(4)	(5)
i)	Axle shaft size, mm	50 to 65 square or 65 to 80 round	75 to 85 square or 80 to 90 round	IS 2062
ii)	Outer bearing, bore size diameter, mm	40 to 50	45 to 75	Size designation DB of IS 7461 (Part 2)
iii)	Inner bearing, bore size diameter, mm	55 to 75	55 to 75	-do-
iv)	Castle nut, nominal size	As per requirement	As per requirement	IS 2232
v)	Split pin for nut, nominal diameter, mm	8	8	IS 549
vi)	Washer for nut, nominal size, mm	As per requirement	As per requirement	IS 2016
vii)	Roundhead screw: a) Nominal size b) Length,mm	 M 6× 1 12	 M 6× 1 12	

	c) Number	3 to 4	3 to 4	
viii)	Wheel stud: a) Nominal size b) Number	 M 14, *Min* 5, *Min*	 M 14, *Min* 6 to 8	
ix)	Hub flange: a) Thickness, mm	 15, *Min*	 25, *Min*	-
x)	Brake drum (if provided) a) Diameter, mm b) Nominal width, mm	 254 50	 254 50	-

B-4.3 The hub shall be fully packed with multi-purpose grease between the bearings.

B-5 DESIGNATION

B-5.1 An axle assembly shall be designated by its class and wheel track.

B-5.1.1 *Example* 1

An axle assembly of Class A having wheel track of 1 500 mm shall be designated as:

Axle A 1 500

B-5.1.2 *Example* 2

An axle assembly of Class B having wheel of 1 700 mm shall be designated as:

Axle B 1 700

B-6 WORKMANSHIP AND FINISH

B-6.1 The castings shall be free from blow holes, pits, burrs and other visual defects.

B-6.2 The sharp edges shall be removed.

B-6.3 A protective coating shall be provided.

ANNEX C

(*Clause* 8.9.1)

COLD BRAKE PERFORMANCE TEST

C-1 GENERAL

C-1.1 During all the tests of service brake, the trailed vehicle shall be coupled to a towing vehicle with which it is recommended for use by the manufacturer.

C-2 TEST CONDITIONS

C-2.1 The test surface shall not exceed one percent longitudinal slope and 3 percent side slope.

C-2.2 The trailer should be loaded to the maximum specified gross capacity.

C-2.3 In case of a multiple-axle trailer having any unbraked axles, the unbraked axles shall be loaded to its maximum axle load. For trailed vehicles having more than one axle and brakes on all wheels, the front axle shall be loaded to its maximum axle load.

C-2.4 The test track shall have a dry, clean, concrete, bituminous or an equivalent surface having good adhesion.

C-2.5 The test shall be performed when the wind velocity is below 10 m/s.

C-2.6 The braked axle(s) shall be equipped with the largest diameter tyres specified by the vehicle manufacturer. The tyres shall be inflated to pressure(s) specified by the vehicle manufacturer.

C-2.7 At the start of each test, the brakes shall be cold. A brake is deemed to be cold if one of the following conditions is met:

a) The temperature measured over the disc or on the outside of the drum is below 100 °C;

b) In the case of totally enclosed brakes, including oil immersed brakes, the temperature measured on the outside of the housing is below 50 °C, or within manufacturer's specifications; and

c) The brakes have not been actuated for one hour.

C-3 PROCEDURE

C-3.1 Prior to the start of the test, the brakes shall have been fully bedded-in (burnished) and adjusted I accordance with the manufacturer's instructions. Thereafter, the brakes shall not be further manually adjusted during the complete test.

C-3.2 With the towing vehicle and trailed vehicle travelling at the maximum design speed of the trailed vehicle but not exceeding 30 km/h, measure deceleration for a series of different forces applied to the control of the braking device. Calculate the corresponding values of mean declaration from the following formula:

$$a = \frac{v^2}{2s}$$

where

a = average deceleration in m.

v = initial speed in m/s; and

s = stopping distance in m.

C-3.3 If the trailed vehicle service braking device control is independent of the towing vehicle braking device control, apply the trailed vehicle brakes only. When the brake of the trailed vehicle is operated, the engine in the towing vehicle shall be disengaged by the clutch so that the force to stop entire system shall come from brakes of trialed vehicle.

C-3.4 If the braking device transmission is not mechanical, measure an appropriate transmission parameter, such as fluid pressure, during each stop in such a way that the measurement does not interfere with the dynamic characteristics of the braking system.

C-3.5 Repeat the procedure for a series of different forces applied to the control of the braking device up to maximum force which can be applied without locking of the wheels, or up to a maximum input force of 600 N for foot-operated controls or 400 N for hand operated controls if the braked wheels are not locked.

C-3.6 For each value of force applied to the braking device control, calculate the trailed vehicle braking force from whichever of the following formula is appropriate:

C-3.6.1 If the trailed vehicle brakes only are applied, use the following formula:

$$F_2 = (m_1 + m_2)a_3$$

Where

F_2 = the trailed vehicle braking force in N;

m_1 = the towing vehicle mass in kg;

m_2 = the trailed vehicle mass in kg; and

a_3 = the mean deceleration of the towing and trailed vehicle combination in m/s^2.

C-3.6.2 If the towing and trailed vehicle brakes are applied, use the following formula:

$$F_2 = (m_1 + m_2)a_3 - m_1 a_1$$

Where

a_1 = mean deceleration measured with the towing vehicle alone at the same value of force applied to the towing vehicle braking device control which produced deceleration a_3 of the vehicle combination in m/s.

C-3.7 For each value of braking force F_2, calculate the equivalent mean deceleration (a_2) of the trailed vehicle from the following formula:

$$a_2 = \frac{F_2}{m_2} \text{ m/s}^2$$

C-3.8 For each value of the equivalent mean deceleration a_2, calculate the equivalent stopping distance s_2 of the trailed vehicle from the following formula:

$$s_2 = \frac{v_2^2}{2a_2}$$

Where

s_2 = equivalent stopping distance of the trailed vehicle in m; and

v_2 = measured initial velocity of the trailed vehicle in m/s.

C-3.9 Repeat the test with the trailed vehicle unladen.

C-4 REPORT

C-4.1 Report for both, laden and unladen trailed vehicle, the relationship between input force, stopping distance mean deceleration either in form of a graph or table values.

C-4.2 If the braking device transmission is not mechanical, report the relationship between stopping distance, mean deceleration and an appropriate transmission parameter, such as fluid pressure, in the form of a graph or table of corresponding values.

C-5 TOLERANCE

The following measuring tolerance shall be adhered to when conducting the test:

Measurement	*Tolerance, percent*
Travel speed	± 3
Vehicle mass	± 3
Deceleration	± 3
Stopping distance	± 1
Brake control input force	± 5
Tyre inflation pressure	± 5
Brake system fluid (gas)	± 5