

AMENDMENT NO. 1 13 April 2017

TO

AIS-134: 2016

Safety measures for Occupants of Three Wheeled Vehicles

1. Page III, INTRODUCTION:

In second paragraph, add following after v):

- vi) Seat base height
- vii) Free height over seating position (Head Room)
- viii) Seat back height
- ix) Provisions for entry of passengers from rear of the vehicle

2. Page 1/7, clause 2.0

Add following after 2)

- 3) AIS-046 - Automotive Vehicles - Hand-Holds for Three, Four and more than Four Wheeled Motor Vehicles – Specification

3. Page 1/7, clause 3.0

Add following definitions after clause 3.3:

- “3.4 **Seat Base Height:** The height of the uncompressed seat cushion i.e. the distance from the foot resting surface on vehicle floor or from foot rest, as appropriate, to the horizontal plane tangent to the front upper surface of the seat cushion.
- 3.5 **Head Room:** Free height over the seating position measured from the H-point in a plane parallel to the seat back, at the median longitudinal plane of that seating position.
- 3.6 **‘Seat-back’** means the part of the seat that is almost vertical or at the angle specified by manufacturer, designed to support the passenger’s back and shoulders.”

4. Page 2/7, clause 4.2

Add following sub clauses 4.2.3, 4.2.4 and 4.2.5 after clause 4.2.2.2:

4.2.3 Seat base height:

- 4.2.3.1 The seat base height shall be between 350 mm to 500 mm for driver seat and 300 mm to 450 mm in case passenger seats.

This height may however be reduced to not less than 250 mm in case of body design constraints such as wheel arches, engine compartment, battery compartment, etc.

4.2.4. **Seat back height:**

4.2.4.1. Minimum height of upper edge of seat back shall be 325 mm measured from H-point. The seat back height shall be 200 mm minimum.

4.2.5. **Free height over seating position (Head Room)**

Each seating position shall have free height over the seating position from the H-point measured in a plane parallel to the seat back, at the median longitudinal plane of that seating position, of not less than 700 mm.

5. Page 3/7

Add following clause 4.6 after clause 4.5:

“4.6. Provisions for entry of passengers from rear of the vehicle (if provided).

4.6.1 Climbing step

4.6.1.1 The maximum height of climbing step from the ground level shall be 400mm.

4.6.1.2 The minimum width of the step shall be 150 mm.

4.6.1.2 The minimum depth of the step shall be 150 mm.

4.6.2. Passenger handholds provided for rear entry seats shall be comply with the dimensional and strength requirements as per AIS-046.

4.6.3. A protective structure shall be provided for rear entry side facing seats from rear of the vehicle with a suitable structure with top edge not less than 200mm from adjacent seat base top surface.”

6. Page 4/7, ANNEX 1

Add following after point 7.2:

8	Seat base height, mm
8.1	Driver seat
8.2	Passenger seat
9	Seat back dimensions, mm
9.1	Seat back upper edge height from H point:
9.1.1	Driver seat
9.1.2	Passenger seat
9.2	Seat back height:
9.2.1	Driver seat
9.2.2	Passenger seat
10.	Free height over seating position (Head Room) from H point, mm
10.1	Driver seat

10.2	Passenger seat
11.	Provision for rear entry (Provided / Not provided) :
11.1	Climbing step dimensions, mm
11.1.1	Maximum height from ground
11.1.2	Width of step
11.1.3	Depth of step
11.2	Protective structure top edge height from adjacent seat base top surface, mm

7. Page 5/7, ANNEX 2

Add following after Sr. No. 4 in the Table:

5	Decrease in seat back height.	Verification as per 4.2.4
6	Decrease in head room dimension	Verification as per 4.2.5
7	Decrease in protective structure height.	Verification as per 4.6.3
8	Change in Seat base height within the range as per 4.2.3.1.	No verification required.

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 THE AUTOMOTIVE RESEARCH ASSOCIATION OF INDIA
 P. B. NO. 832, PUNE 411 004
 ON BEHALF OF
 AUTOMOTIVE INDUSTRY STANDARDS COMMITTEE
 UNDER
 CENTRAL MOTOR VEHICLES RULES - TECHNICAL STANDING COMMITTEE
 SET-UP BY
 MINISTRY OF ROAD TRANSPORT & HIGHWAYS
 (DEPARTMENT OF ROAD TRANSPORT & HIGHWAYS)
 GOVERNMENT OF INDIA
 13 April 2017

AUTOMOTIVE INDUSTRY STANDARD

**Safety measures for Occupants
of Three Wheeled Vehicles**

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UNDER
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COMMITTEE

SET-UP BY
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(DEPARTMENT OF ROAD TRANSPORT & HIGHWAYS)
GOVERNMENT OF INDIA

October 2016

Status chart of the Standard to be used by the purchaser for updating the record

Sr. No.	Corrigenda.	Amendment	Revision	Date	Remark	Misc.

General remarks:

INTRODUCTION

The Government of India felt the need for a permanent agency to expedite the publication of standards and development of test facilities in parallel when the work on the preparation of the standards is going on, as the development of improved safety critical parts can be undertaken only after the publication of the standard and commissioning of test facilities. To this end, the erstwhile Ministry of Surface Transport (MOST) has constituted a permanent Automotive Industry Standards Committee (AISC) vide order No. RT-11028/11/97-MVL dated September 15, 1997. The standards prepared by AISC will be approved by the permanent CMVR Technical Standing Committee (CMVR-TSC). After approval, the Automotive Research Association of India, (ARAI), Pune, being the Secretariat of the AIS Committee, will publish this standard. For better dissemination of this information ARAI may publish this document on their Website.

The purpose of the standard is to cover safety measures of occupants for three wheeled vehicles with respect to:

- i) Overall dimensions.
- ii) Seat dimensions for driver and passenger.
- iii) Provision of side doors for passenger compartment of L5M category vehicles.
- iv) Leg space for passengers.
- v) Headlamp illumination

The AISC panel responsible for formulation of this standard is given in Annex 3.

The Automotive Industry Standards Committee (AISC) responsible for approval of this standard is given in Annex 4.

Safety measures for Occupants of Three Wheeled Vehicles

1.0 SCOPE

This standard prescribes the safety measures for occupants of three wheeled vehicles of category L5M and L5N as defined in AIS-053.

2.0 REFERENCES

The following standards contain provisions, which, through reference in this text, constitute provisions of this standard.

- 1) AIS-053 Automotive vehicles - Types- Terminology.
- 2) AIS-034 Automobile Lamps.

3.0 DEFINITIONS

- 3.1 **“Driver seat”** means the right out board front seat or centre seat intended for the seating of the driver.
- 3.2 **“Passenger seat”** means the seats intended for seating passengers.
- 3.3 **“Seat cushion”** means the part of the seat which is arranged almost horizontally and designed to support a seated passenger.

4 REQUIREMENTS

4.1 Overall dimensions:

- 4.1.1 The overall width of a three wheeler shall not exceed 1.6 meters.
- 4.1.2 The overall length of three wheeler shall not exceed 4.0 meters.
- 4.1.3 The overall height of three wheeler shall not exceed 2.2 meters.

4.2 Requirements for seat dimensions:

4.2.1 Driver seat

- 4.2.1.1 Minimum width of the seat cushion: 400mm

Maximum width of the seat cushion: 600mm at the front end of the seat and 500mm at the rear end of the seat.

- 4.2.1.1.1 Seat width at the rear shall be measured about 80mm from rear edge of the cushion.

- 4.2.1.2 Minimum depth of the seat cushion measured along the longitudinal plane passing through the centre of that seating position: 380 mm.

- 4.2.2 **Passenger seat for L5M category three wheelers:**
 - 4.2.2.1 Minimum width of the seat cushion: 350 mm per passenger.
Maximum width of the seat cushion: 450 mm per passenger.
 - 4.2.2.2 Minimum depth of the seat cushion measured along the longitudinal plane passing through the centre of that seating position: 350mm.
- 4.3 **Requirements of doors for passenger compartment for L5M category three wheelers:**
 - 4.3.1 Doors shall be provided for the passenger compartment of L5M category vehicle, on left and right exit. As an option to the door on right side, a fixed panel / structure may be provided.
 - 4.3.2 The door structure shall extend to a height of at least 100mm from the surface of the adjacent passenger seat cushion.
 - 4.3.3 The top edge of the door structure shall be designed such that it is not possible for any occupant to sit on it. The top edge of the door shall be narrowed down to a thickness of about 10mm.
 - 4.3.4 Every door shall be hinged such that, if an open door comes into contact with any object while the vehicle is moving forward, it tends to close.
 - 4.3.5 The doors shall be provided with manual or automatic positive locking mechanism to avoid accidental opening. The doors shall be operable from inside as well as outside.
- 4.4 **Requirements for leg space for passengers for L5M category three wheelers:**
 - 4.4.1 **In case vehicles with single row seat:**
 - 4.4.1.1 A minimum clear leg space of 280 mm measured from front edge of the passenger seat cushion to any part of the vehicle towards front shall be provided for each passenger.
 - 4.4.1.2 A minimum foot / floor space of 280 mm shall be provided for each passenger.
 - 4.4.2 **In case of vehicles with seats facing each other:**
 - 4.4.2.1 A minimum clear leg space of 500 mm measured between the seat cushions of passenger seats shall be provided.
 - 4.4.2.2 A minimum common foot / floor space of 500 mm shall be provided.

4.5. **Filament lamps (bulbs) for headlamps of three wheelers.**

4.5.1. Three wheeler with single headlamp: HS1 or filament lamp (bulb) as per AIS-034 having more luminous flux (lumen) output shall be used. S1 and S2 category filament lamp (bulb) as per AIS-034 shall not be used for these vehicles.

4.5.1.2 Three wheeler with two headlamps: S2 or HS1 or filament lamp (bulb) as per AIS-034 having more luminous flux (lumen) output shall be used. S1 category filament lamp (bulb) as per AIS-034 shall not be used for these vehicles.

5. APPLICATION FOR TYPE APPROVAL

5.1 The application for type approval of a vehicle type shall be submitted by the vehicle manufacturer along with at least the details given in Annex 1.

Note: If the details are covered in application for complete vehicle type approval, it is not necessary to submit them separately.

6.0 EXTENSION OF TYPE APPROVAL

6.1 Every modification pertaining to the information, even if the changes are not technical in nature declared in accordance with 5 shall be intimated by the manufacturer to the testing agency.

If the changes are in parameters not related to the provisions, no further action need be taken.

If the changes are in parameters related to the provisions, the Testing Agency, which has issued the certificate of compliance, shall then consider, whether,

6.1.1 The vehicle/device with the changed specifications still complies with provisions, or

6.1.2 Any further verification is required to establish compliance.

6.2 For considering whether testing is required or not, guidelines given in 7 (Criteria for Extension of Approval) shall be used.

6.3 In case of fulfillment of criterion of 6.1.1 or after results of further verification as per 6.1.2 are satisfactory, the approval of compliance shall be extended for the changes carried out.

7. CRITERIA FOR EXTENSION OF APPROVAL

7.1 Refer to Annex 2 for Criteria for Extension of approval.

ANNEX 1

(See 5.1)

**TECHNICAL INFORMATION TO BE SUBMITTED BY
VEHICLE MANUFACTURER FOR TYPE APPROVAL**

1.	Name and address of vehicle manufacturer	
2	Vehicle model and its variant(s)	
3	Vehicle overall dimensions, (length, width and height), mm	
4	Seat dimensions	
4.1	Driver seat	
4.1.1	Width, mm	
4.1.2	Depth, mm	
4.2	Passenger seat	
4.2.1	Seat type (separate / bench)	
4.2.2	Width, mm	
4.2.3	Depth, mm	
5	General layout of the door structure for passenger compartment with a dimension of door top edge from adjacent passenger seat cushion top surface.	
6	Passengers Leg space dimension, mm	
7.	Headlamp	
7.1	Number(s)	
7.2.	Filament lamp category for headlamp	

ANNEX 2

(See 7.1)

CRITERIA FOR EXTENSION OF APPROVAL

Sr. No.	Criteria	Whether verification required
1	Seat dimension variation above ± 15 mm from the approved dimension.	Verification as per 4.2.
2	Change in passenger compartment door design /layout	Verification as per 4.3.
3	Reduction in passenger leg space dimension	Verification as per 4.4
4	Change in headlamp bulb category	Verification as per 4.5

ANNEX 3
(See Introduction)

**COMPOSITION OF AISC PANEL ON
SAFETY MEASURES FOR OCCUPANTS
OF THREE WHEELED VEHICLES**

Convener	
Mr. S.S. Sane	Piaggio India Ltd.
Members	Representing
Mr. A.V. Mannikar	The Automotive Research Association of India (ARAI)
Mr. A. A. Badusha	The Automotive Research Association of India (ARAI)
Representative from	Central Institute of Road Transport (CIRT)
Mr. Sam Shaikh	Vehicle Research & Dev. Estt. (VRDE)
Mr. K. K. Gandhi	SIAM
Mr. R. Narasimhan/ Mr. A. V. Kumbhar	Bajaj Auto Limited
Mr. Sanjay Tank	Mahindra and Mahindra Limited
Mr. R. S. Mulay	Piaggio India Ltd.
Mr. S. Ramiah / Mr. Srikanth K. M.	TVS Motor Company Limited

* At the time of approval of this Automotive Industry Standard (AIS)

ANNEX 4

(See Introduction)

COMMITTEE COMPOSITION*

Automotive Industry Standards Committee

Chairperson	
Mrs. Rashmi Urdhwareshe	Director The Automotive Research Association of India, Pune
Members	Representing
Shri Priyank Bharti	Ministry of Road Transport and Highways (Dept. of Road Transport and Highways), New Delhi
Representative from	Ministry of Heavy Industries and Public Enterprises (Department of Heavy Industry), New Delhi
Shri S. M. Ahuja	Office of the Development Commissioner, MSME, Ministry of Micro, Small and Medium Enterprises, New Delhi
Shri Shrikant R. Marathe	Former Chairman, AISC
Shri R.R. Singh	Bureau of Indian Standards, New Delhi
Director	Central Institute of Road Transport, Pune
Director	International Centre for Automotive Technology, Manesar
Director	Indian Institute of Petroleum, Dehra Dun
Director	Vehicles Research and Development Establishment, Ahmednagar
Representatives from	Society of Indian Automobile Manufacturers
Shri T. R. Kesavan	Tractor Manufacturers Association, New Delhi
Shri Uday Harite	Automotive Components Manufacturers Association of India, New Delhi

Member Secretary
Shri A. S. Bhale
General Manager
The Automotive Research Association of India, Pune

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