

**Finalized Draft**

**AUTOMOTIVE INDUSTRY STANDARD**

**Automotive Vehicles -  
Requirements of Footrests for  
Two-wheeled Motor Vehicles**

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**CHECK LIST FOR PREPARING AUTOMOTIVE INDUSTRY STANDARD**

**Finalised Draft AIS-148: Automotive Vehicles - Requirements of Footrests for  
Two-wheeled Motor Vehicles**

SR. NO.	PARTICULARS	REMARKS
1.	Indicate details of the base reference standard. (eg. UN Regulation / EC Directive/UN GTR etc.)	EU 44/2014
2.	Add an explanatory note indicating differences between the above standard and the draft, if any.	Aligned with EU 44/2014
3.	Specify details of technical specifications to be submitted at the time of type approval relevant to the requirements of this standard covered.	Yes,
4.	Are the details of Worst Case Criteria covered?	Yes, covered for CEA
5.	Are the performance requirements covered?	Yes
6.	Is there a need to specify dimensional requirements?	Yes
7.	If yes, are they covered?	Yes
8.	Is there a need to specify COP requirements? If yes, are they covered?	NA
9.	Is there a need to specify type approval, and routine test separately, as in the case of some of the Indian Standards? If yes, are they covered?	NA
10.	If the standard is for a part/component or sub-system; i) AIS-037 or ISI marking scheme be implemented for this part? ii) Are there any requirements to be covered for this part when fitted on the vehicle?  If yes, has a separate standard been prepared?	NA
11.	If the standard is intended for replacing or revising an already notified standard, are transitory provisions for re-certification of already certified parts/vehicles by comparing the previous test result, certain additional test, etc. required? If yes, are they included?	NA
12.	Include details of any other international or foreign national standards which could be considered as alternate standard.	NA
13.	Are the details of accuracy and least counts of test equipment/meters required to be specified? If yes, have they been included?	Yes
14.	What are the test equipments for establishing compliance?	Yes
15.	If possible, identify such facilities available in India.	Available at Testing Agencies

16.	Are there any points on which special comments or information is to be invited from members? If yes, are they identified?	NA
17.	Does the scope of standard clearly identify vehicle categories?	Yes
18.	Has the clarity of definitions been examined?	Yes

## **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 of preparation of 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 Standard 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 (CTSC). After approval, The Automotive Research Association of India, (ARAI), Pune, being the secretariat of the AIS Committee, has published this Standard. For better dissemination of this information, ARAI may publish this document on their website.

This Standard prescribes the safety requirements of foot rests for two wheeled motor vehicles.

The purpose of this standard is to regulate the strength requirement for footrest. In preparation of this Automotive Industry Standard, Considerable assistance has been taken from Annex XIII of EU 44/2014 as amended by (EU) 2016/1824, with regard to the Requirements applying to passenger handholds and footrests for the approval of two- or three- wheel vehicles and quadricycles issued by European commission. As decided in 54th AISC Meeting to formulate new AIS on footrests of L1 & L2 category of vehicles.

The AISC panel and the Automotive Industry Standards Committee (AISC) responsible for preparation of this standard are given in Annex C and D respectively.

## **Automotive Vehicles - Requirements of Foot Rests For Two-Wheeled Motor Vehicles**

### 1.1 SCOPE

This standard specifies the requirements for footrests or a floor or floor boards for L1 & L2 categories of vehicles as defined in AIS 053

### 1.2 REFERENCES

AIS-053 - Automotive Vehicles -Types - Terminology

### 1.3. GENERAL REQUIREMENTS

All seating positions of the vehicle shall be fitted either with designated footrests or a floor or floor boards on which both of the rider's or pillion's feet can rest.

#### 1.3.1. SPECIFIC REQUIREMENTS

1.3.1.1. The vehicle's floor, each designated floor board as illustrated in fig 3 of Annex B and each designated footrest as illustrated in fig 2 and 3 of Annex B shall be capable of withstanding, without resulting any permanent deformation which is harmful to its function, a vertical compression force of 1700 N (170 kg), applied statically to any point on the floor or floor board or 15 mm from the end of the footrest, at a maximum pressure of 2.0 MPa.

1.3.1.2. In cases where an additional side saddle footrest as illustrated in fig.1, 2 & 3 of Annex B is provided for Pillion rider, it shall be capable of withstanding, without resulting any permanent deformation which is harmful to its function, a vertical compression force of 1000 N (100 kg), applied static load on the total surface area of the footrest, at a maximum pressure of 2.0 MPa.

1.3.1.3. The space provided by each designated footrest including the space on the floor or floor board, shall be sufficient for a foot at least 300 mm long and at least 110 mm wide to be placed safely without hampering the vehicle operator's feet. Footrests shall be located so that no direct contact between the foot/leg and rotating parts (e.g. tyres) of the vehicle is possible when in use.

Note: The each designated space (not necessarily a rectangle) requirement for the floor/floorboards shall be specified as per manufacturer's design and details of the same to be submitted to test agency.

1.3.1.4. Pedals enabling the vehicle to be propelled by the rider's muscular leg power are deemed to meet the requirements of points **1.3.1.1.** and **1.3.1.3.**

1.3.1.5. The maximum pressures mentioned in points **1.3.1.1.** & **1.3.1.2.** may be exceeded during testing upon agreement with the vehicle manufacturer.

1.3.1.6. Virtual testing using an appropriate software is permitted for verification of compliance of the above requirements. A virtual testing method should provide for the same level of confidence in the results as a physical test. Therefore, the testing agency shall properly validate the mathematical models used.

#### 1.4. APPLICATION FOR TYPE APPROVAL

1.4.1. The application for type approval of a vehicle type with regard to designated footrest, Floor/Floorboard shall be submitted by the vehicle manufacturer along with at least the details given in Annex A.

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

1.4.2. Every modification in technical specifications affecting type approval declared in accordance with **1.4.1**, shall be intimated to the testing agency.

1.4.3. Testing agency may then consider, whether;

1.4.3.1. The footrest, Floor/Floorboard with modifications complies with specified requirements, or,

1.4.3.2. Any further document verification is required.

a) In case of **1.4.3.2**, checks for those parameters, which are affected by the modifications only needs to be carried out.

b) In the event of **1.4.3.1** or in the case of **1.4.3.2** after successful compliance to requirements, the certificate of compliance shall be validated for the modified version.

1.4.4. For deciding whether any further verification is required, guidelines of clause no. **1.4.4.1** & **1.4.4.2** shall be followed :

1.4.4.1. In the cases further testing is required

a) Sectional dimensions of the footrests / floor / floorboard used on other models/variants are reduced

b) Size and number of fasteners used in attachments is reduced.

c) Change of Material of the footrests / floor / floorboard

1.4.4.2. In all other cases the testing need not to be carried out

## **ANNEX A**

(Clause 1.4.1)

Information to be submitted by the manufacturer

A-1	General
A-1.1	Make
A-1.2	Type (state any possible variants and versions: each variant and each version shall be identified by a code consisting of numbers or a combination of letters and numbers):
A-1.3	Vehicle category as per AIS 053
A-1.4	Name and address of manufacturer
A-1.5	Name and address of manufacturer's authorized representative, if any:
A-2.0	Type of Footrest (Footrest / Floor / Floorboards)
A-2.1	Number of Footrest / Floor / Floorboards
A-2.2	Length of the Footrest / Resting area (Length and Width) of the foot on Floor / Floorboards
A-2.1.1	Method of attachment of Footrest / Floor / Floorboards (Bolted / Welded)
A-3.0	Photographs or drawings showing the location and the construction

## **ANNEX B**

(Clause 1.3.1. – Illustrative picture showing example of designated footrest, Side saddle footrest, floor/floorboard)

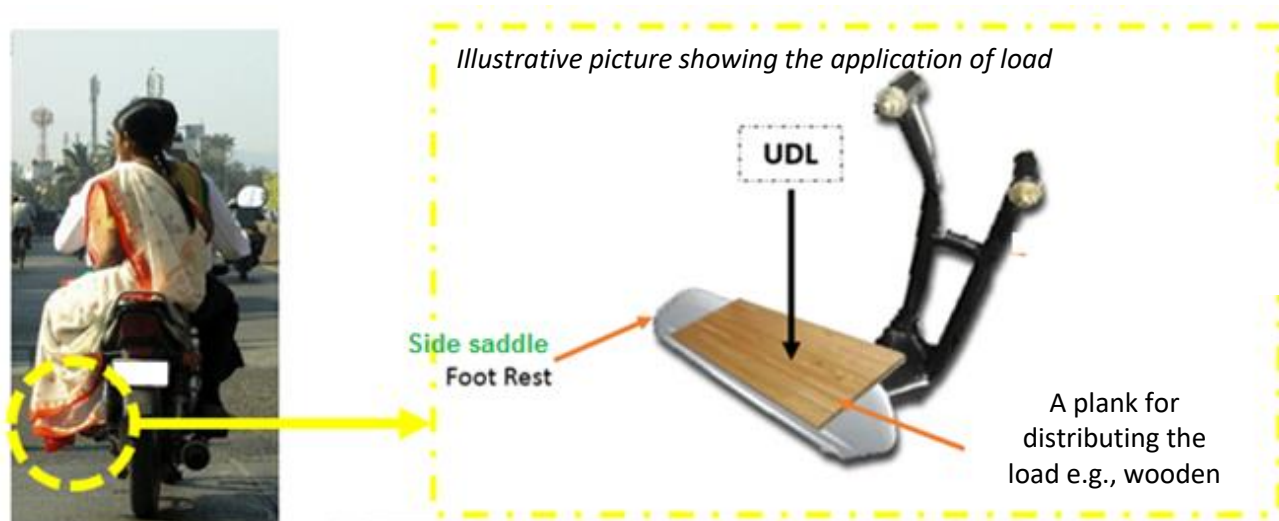


Fig.1 (Side Saddle Footrest)

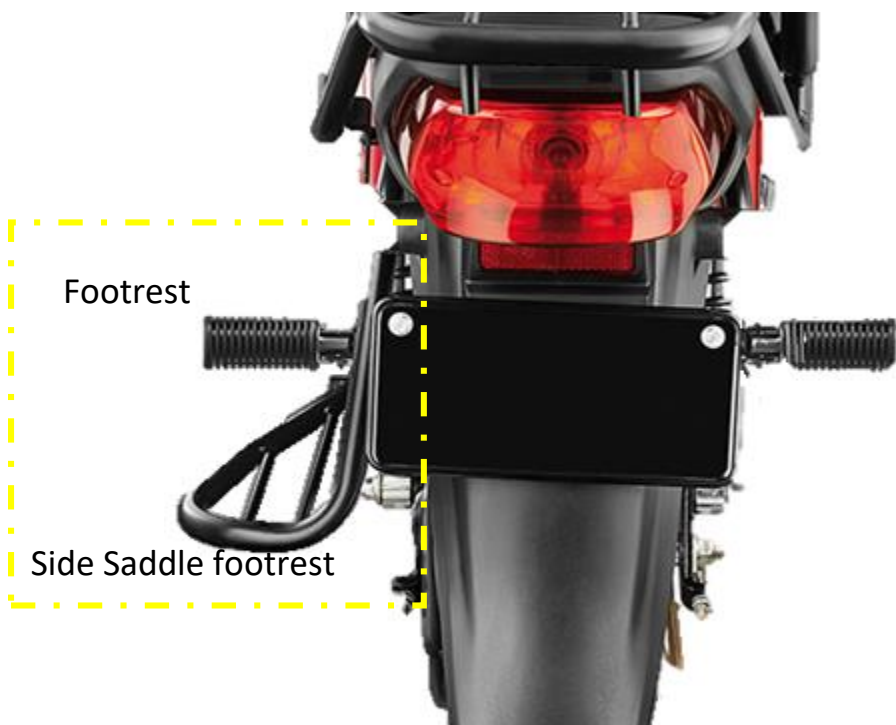
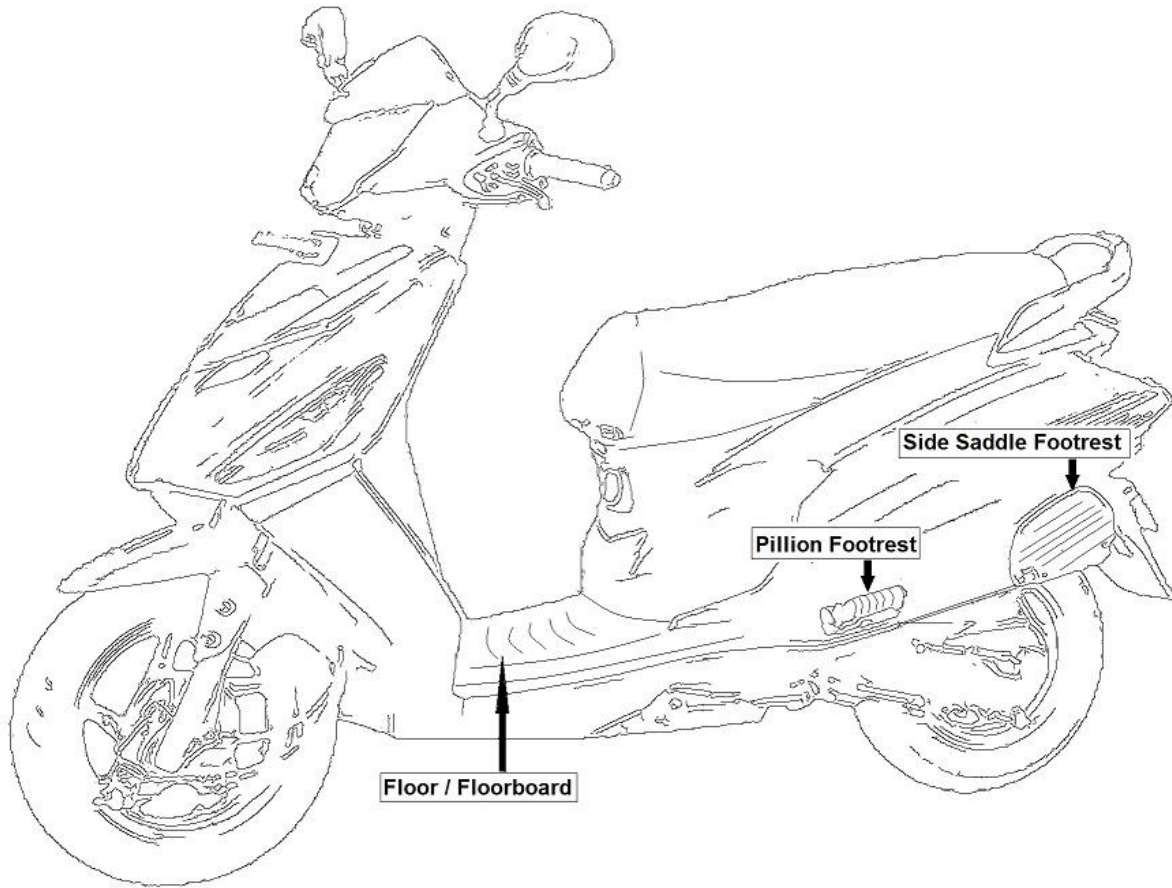


Fig.2 (Example of footrest and Side Saddle Footrest - Motorcycle)





**Fig.3 (Example of floor / floor board, footrest and Side Saddle Footrest - Scooter)**

**ANNEX C**

**PANEL COMPOSITION\***  
(See Introduction)

<b>Chairman</b>	
Mr. S. Arun	SIAM (Hero Moto. Corp. Ltd.)
<b>Members</b>	<b>Representing</b>
Mr. P. D. Betgeri	ARAI
Mr. V. P. Rawal	ARAI
Mr. Ramu Konanki	ARAI
Mr. Tagad Nilesh	CIRT
Ms. Vijayanta Ahuja	ICAT
Mr. Gurukaran	ICAT
Mr. Arvind Kumbhar	SIAM (Bajaj Auto Ltd.)
Mr. T. M. Balaraman	SIAM (Hero Moto. Corp. Ltd.)
Mr. Danish Gazali	SIAM (Hero Moto. Corp. Ltd.)
Mr. Suraj Agarwal	SIAM (Honda Motorcycle & Scooter India)
Mr. Vipin Sharma	SIAM (Honda Motorcycle & Scooter India)
Mr. Sandeep Miskeen	SIAM (Honda Motorcycle & Scooter India)
Mr. Piyush Chowdhry	SIAM (Hero Moto. Corp. Ltd.)
Mr. Vivek	SIAM (Piaggio Vehicles Pvt. Ltd.)
Mr. Anantkumar	SIAM (TVS Motor Company Ltd.)
Mr. Venusuresh	SIAM (Yamaha Motor)
Mr. Gaurav	SIAM (Suzuki Motorcycle Ind. Pvt. Ltd.)
Mr. Rakesh Sharma	H. D. Motor
Mr. Uday Harite	ACMA

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

**ANNEX D**  
(See Introduction)  
**COMMITTEE COMPOSITION \***

**Automotive Industry Standards Committee**

<b>Chairperson</b>	
Mrs. Rashmi Urdhwareshe	Director The Automotive Research Association of India, Pune
<b>Members</b>	<b>Representing</b>
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	Global Automotive Research Centre
Director	International Centre for Automotive Technology, Manesar
Director	Indian Institute of Petroleum, Dehra Dun
Director	Indian Rubber Manufacturers Research Association
Director	Vehicles Research and Development Establishment, Ahmednagar
Representatives from	Society of Indian Automobile Manufacturers
Shri R. P. Vasudevan/ Shri T. R. Kesavan	Tractor Manufacturers Association, New Delhi
Shri Uday Harite	Automotive Components Manufacturers Association of India, New Delhi

Member Secretary  
Shri Vikram Tandon  
Dy. General Manager  
The Automotive Research Association of India, Pune

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