

Draft AIS-166/D3

Jan /2020

DRAFT

AUTOMOTIVE INDUSTRY STANDARD

**Automotive Vehicles – Protective
Devices for Two Wheeled Motor
Vehicles – Requirements**

Date of hosting on website: 15th January 2020

Last date for comments: 15th February 2020

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 (CTSC). After approval, the Automotive Research Association of India (ARAI), Pune, being the secretariat of the AIS Committee, will publish this standard.

That the subject of fitment of protective devices on the left side of the rear wheel of two wheeled motor vehicles for the protection of the pillion rider from the entanglement of clothes in the rear wheel of the vehicle was discussed in the Hon'ble High Court of Madhya Pradesh, Jabalpur and the court found consonance with the current practices being followed by the Test Agencies and the automotive industry.

Based on the discussions in the 60th AISC held on 1st August, 2018 it was agreed to form a new panel to work on the new AIS of Protective Devices for Two Wheeled Motor Vehicles – Requirements.

This AIS would add more clarity to the protective device coverage measurement procedure.

Subsequently the matter was discussed in the 54th meeting of the CMVR-TSC held on 8th September, 2018 and the 55th meeting of the CMVR-TSC held on the 6th February, 2019. Considering the judgement of the Hon'ble High Court of Madhya Pradesh, Jabalpur this standard is formulated with focus on the areas such as coverage requirements, measurement methods and administrative provisions for certification of protective devices under CMV Rule 123.

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

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

CHECK LIST FOR PREPARING AUTOMOTIVE INDUSTRY STANDARD




**Draft AIS-XXX - Automotive Vehicles – Protective Devices for Two-
Wheeled Motor Vehicles – Requirements**

SR. NO.	PARTICULARS	REMARKS
1.	Indicate details of the base reference standard. (e.g. ECE / EEC Directive/GTR etc.)	NA
2.	Add an explanatory note indicating differences between the above standard and the draft, if any.	NA
3.	Specify details of technical specifications to be submitted at the time of type approval relevant to the requirements of this standard covered.	As per Annexure to this standard
4.	Are the details of Worst Case Criteria covered?	Yes
5.	Are the performance requirements covered?	-
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?	-
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?	-
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?	Yes
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?	No

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?	-
14.	What are the test equipment for establishing compliance?	-
15.	If possible, identify such facilities available in India.	
16.	Are there any points on which special comments or information is to be invited from members? If yes, are they identified?	
17.	Does the scope of standard clearly identify vehicle categories?	Yes
18.	Has the clarity of definitions been examined?	

Automotive Vehicles – Protective Devices for Two-Wheeled Motor Vehicles – Requirements

1.	SCOPE
1.1	This standard specifies requirements of protective device to be fitted on a motorcycle which has provision for pillion rider, as defined in IS 14272: 2011.
1.2	The vehicle is a “special purpose vehicles (SPV)” as defined in CMV Rule 2(zd), as amended from time to time.
2.	REFERENCES
2.1	IS 14272: 2011 – Automotive Vehicles – Types – Terminology
2.2	AIS-017: 2000 – Procedure for Type Approval and Certification of Vehicles for Compliance to Central Motor Vehicles Rules
3.	DEFINITIONS
	For the purpose of this standard, the following definitions shall apply:
3.1	“Protective device” means a structure or a part or combination of parts or a design element fitted on/ covering the left side of the rear wheel
3.2	“Rider” is a person who is riding and controls the vehicle.
3.3	“Pillion rider” means a person seated behind the rider on the pillion seat provided on the Motorcycle.
3.4	“Left side” means the side of the motorcycle, when facing the direction of forward movement, lies on the left side of the longitudinal median plane of the motorcycle.
4.	VEHICLE PREPARATION
4.1	The test/ verification shall be conducted in GVW / laden condition.
4.2	The tyres shall be inflated to the appropriate pressures for the load condition, as specified by the vehicle manufacturer.
5.	REQUIREMENTS
5.1	Vehicle which has provision for pillion rider shall be fitted with a protective device on the left side of the rear wheel.

	<p>A protective device shall be fitted on the left side of the rear wheel that shall cover the area not less than half (50%) of the rear wheel considering its outer diameter.</p> <p>For calculation of 50% area, all the parts specified in clause 5.6 shall be considered.</p>
5.2	<p>The perpendicular gap measured between the bars/ elements of protective device shall not exceed 70mm.</p> <p>Examples of measurement:</p> <ul style="list-style-type: none">a) In case of non-parallel bars/ elements: the maximum gap between the bar/ elements (see dimension A in figure 5.1)b) In case of parallel bars/ elements: the perpendicular distance (d) between the two bars/ elements (see figure dimension A in figure 5.2 and figure 5.3)
	 <p>Figure 5.1</p>
	 <p>Figure 5.2</p>
	 <p>Figure 5.3</p>
5.3	<p>The coverage area specified in 5.1 shall include the upper portion of the rear wheel at least up to the line passing through the centre line of the wheel, which may be 15 degrees above the horizontal line passing through the centre of rear wheel axle towards rear of the vehicle. (see figure 5.4)</p>

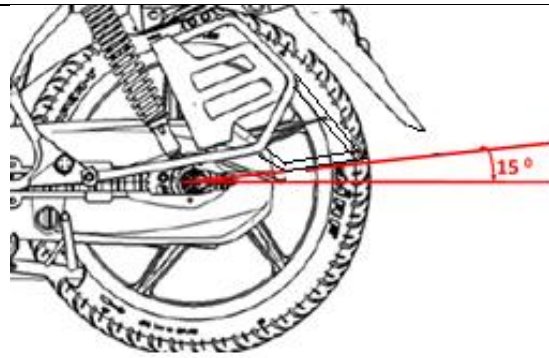
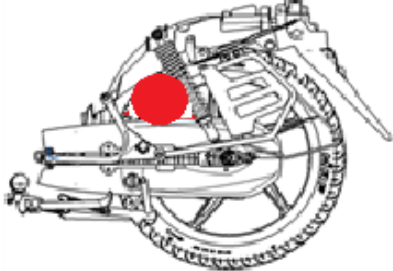



Figure 5.4

5.4	For the purpose of calculation of coverage area specified in 5.1, any component(s) / structure(s) / frame, (e.g. suspension parts, chain case, swing arm, hugger, sprockets, side panel, exhaust muffler, etc) that falls by design in the said area shall be considered as a part of protective device.
5.5	The spaces in coverage area up to rear wheel (tyre) outer diameter, other than those included in 5.2, which are practically not possible to be covered due to movement of vehicle parts, shall be deemed to comply to the requirements of this standard, if a ball with a diameter of 120 mm does not pass in such spaces. (see figure 5.5)
	 <p>Figure 5.5; Example of open spaces near vehicle moving parts.</p>
5.6	Coverage area measurement/demonstration method:
5.6.1	<p>The vehicle manufacturer shall demonstrate the coverage area and other requirements of this standard through CAD.</p> <p>Alternatively, physical verification may be done.</p>
5.7	If the vehicle fulfills any or a combination of any of the following conditions, it shall be deemed to satisfy the requirements of clause 5.1 to 5.6 of this standard
5.7.1	<p>Two wheeled motor vehicle with Scooter type frame as described in clause D7.1.2 of AIS-017 in which:</p> <ul style="list-style-type: none"> • The rider can step through to mount the vehicle having platform/ footboard • foot rests for the rider are integral with platform/ footboard

	<ul style="list-style-type: none"> the rear wheel is protected by the vehicle parts due to their inherent shape and design <div style="text-align: center;">  <p><Figure for illustration purpose></p> </div>
5.8.2	A vehicle fitted with disc type rear wheel rim i.e. rim without wire spoke or otherwise.
5.8.3	A vehicle fitted with rear wheel rim where the wheel rim is completely covered hub cap.
6.	APPROVAL OF VEHICLE
	<p>If the protective device for a two wheeled motor vehicle model submitted for approval meets the requirements of para 5 of this standard, approval of that protective device shall be granted.</p> <p>The application for type approval of a vehicle with regard to Protective Device shall be submitted by the vehicle manufacturer along with the details given in ANNEXURE A.</p>
	Note: If the above details are covered in the table submitted as per AIS-007 for complete vehicle type approval, it is not necessary to submit them separately.
7.	Modification and Extension of the Approval of the Protective Device for Two Wheeled Motor Vehicle
7.1	Every modification in technical specification affecting type approval declared in accordance with ANNEXURE A , shall be intimated to the testing agency. Testing agency may then consider, whether;
7.1.1	The Protective Device with modifications complies with specified requirements, or,
7.1.2	any further document verification is required to establish compliance.
7.2	For considering whether testing is required or not, guidelines given in ANNEXURE B shall be followed
7.3	In case of 7.1.2, tests for only those parameters which are affected by the modifications shall be carried out.
7.4	In case of fulfilment of criterion of clause 7.1.1 or after results of further verification as per clause 7.1.2 are satisfactory, the approval of compliance shall be extended for the changes carried out.

7.5	Extension may be granted based on guidelines given below for the changes to the technical specifications of an already type approved vehicle.
7.5.1	The spacing/ cross-sectional area as defined in 5.2 is not more than the type approved device.
7.5.2	The positioning of the protective device remains the same.
7.5.3	The area of the wheel does not exceed the area of the wheel which was considered while granting the type approval.
7.5.4	There is no change in design pattern and does not reduce the coverage area.

ANNEXURE A

Information to be submitted by the manufacturer

1.	Make	
2.	Name and address of the manufacturer	
3.	Designed for vehicle category	
4.	GVW of the vehicle (kg)	
5.	Type of design implied (for e.g. bars (vertical/ horizontal), mesh, louver etc.)	
6.	Diameter of the tyre	
7.	Tyre pressure	
8.	Schematic (CAD) diagram of the protective device illustrating the fitment and also specifying the coverage area after fitment on the rear wheel	

ANNEXURE B

(Clause 7.1.3)

B-1	This annexure gives the factors to be considered while selecting a Protective Device to represent a range of variants for type Approval as per this standard and the extension of Type Approval Certificate on one model to its variants.
B-1.1	In general, when changes in the technical specification of the Protective Device do not affect the requirements given in this standard adversely and is still within the stipulated limits, the type approval certificate shall be extended.
B-1.2	The type approval testing and/or document verification shall be performed on a model/ variants only in the case of the following changes:
	a) An increase in lateral spacing between the bars/ elements of the protective device (See Clause 5.2)
	b) Decrease in an outer dimension of protective device causing a reducing in the covered area.
	c) Deletion of vehicle parts included in the covered area
	d) Reduction in coverage area due to change in tyre size: Increasing the wheel diameter leading to an increase in the covering area requirement. <i>(Verification to be carried out only if the covering area approved for the base version is less than the new requirement.)</i>
	e) Changes in other vehicle parts reducing the coverage area.
B-1.3	Changes other than those listed above, are considered to be having no adverse effect requirements of protective device.

ANNEXURE Y
PANEL COMPOSITION*

Name	
Ms. Vijayanta Ahuja	Convener International Centre for Automotive Technology (ICAT), Manesar
Members	Representing
Mr. Mayank Sharma	International Centre for Automotive Technology (ICAT), Manesar
Mr. Gurkaran Singh	International Centre for Automotive Technology (ICAT), Manesar
Mr. Shakti N. Khanna	International Centre for Automotive Technology (ICAT), Manesar
Mr. Vikram Tandon	The Automotive Research Association of India (ARAI), Pune
Mr. K. B. Patil	The Automotive Research Association of India (ARAI), Pune
Mr. V. P. Rawal	The Automotive Research Association of India (ARAI), Pune
Mr. Arvind Kumbhar	Bajaj Auto Ltd.
Mr. Prashant B. Jadhav	Bajaj Auto Ltd.
Mr. Danish Gazali	Hero Motocorp Ltd.
Mr. Ashish Mathur	India Yamaha Motor Pvt. Ltd.
Mr. Vipin Sharma	Honda Motorcycle & Scooter India Pvt. Ltd.

Additional panel members to be included subsequently.

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

ANNEXURE Z

COMMITTEE COMPOSITION*
Automotive Industry Standards Committee

Chairperson	
Mrs. Rashmi Urdhwareshe	Director The Automotive Research Association of India, Pune
Members	Representing
Representative from	Ministry of Road Transport and Highways (Dept. of Road Transport and Highways), New Delhi
Representative from	Ministry of Road Transport and Highways (Dept. of Road Transport and Highways), 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	Global Automotive Research Centre
Director	Indian Institute of Petroleum, Dehra Dun
Director	Vehicles Research and Development Establishment, Ahmednagar
Director	Indian Rubber Manufacturers Research Association
Representatives from	Society of Indian Automobile Manufacturers
Shri R. P. Vasudevan	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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