

**AMENDMENT NO. 1 (09/2019)**  
**TO**  
**AIS-103: 2009**  
**Spray-Suppression Systems for Two Wheeled Motor Vehicles**

**1. Page No. III, paragraph No. 3 of Introduction, Following words shall be deleted:**

“Battery Operated Vehicles (BOVs) and”

**2. Page No. 1/6, Clause No. 1.1, substitute following text for existing text:**

“This standard applies to two wheeled motor vehicles except;

- i. those fitted with thermic engine of capacity exceeding 200 cm<sup>3</sup>
- ii. battery operated vehicles having maximum continuous rated Power exceeding 11 kW.
- iii. L1 category vehicles not exceeding maximum speed of 45 km/h.”

**3. Page No. 5/6, Sr. No. 1 in Annex B in the table the following text shall be substituted for existing text:**

1.	a-i. Reduction of engine capacity from beyond 200 cm <sup>3</sup> to less than 200 cm <sup>3</sup> . a-ii. in case of battery operated vehicles reduction of maximum continuous rated power from beyond 11 kW to less than 11 kW. a-iii. in case of L1 category vehicles, increase in maximum speed above 45 km/h.	Yes
	b-i Increase of engine capacity from less than 200 cm <sup>3</sup> to more than 200 cm <sup>3</sup> b-ii. in case of battery operated vehicles increase of maximum continuous rated power from less than 11 kW to more than 11kW. b-iii. in case of L1 category vehicles, decrease in maximum speed below 45 km/h.	No.

PRINTED BY  
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

18<sup>th</sup> September 2019

**AUTOMOTIVE INDUSTRY STANDARD**

**Automotive Vehicles -  
Spray-Suppression Systems for  
Two Wheeled Motor Vehicles**

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

August 2009



## 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 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 has published this document on their website.

The issue of apparent discomfort caused by spray emerging from rear tyre of two wheeled motor vehicle on following vehicle or pedestrian was deliberated in 17<sup>th</sup> CMVR TSC referring to the concern raised by an individual. CMVR TSC directed this subject for formulation of Automotive Industry Standard (AIS).

The reference was drawn from the requirements specified in ADR 42/04 “General Safety Requirements”. The requirements of this ADR were studied during the deliberations, which were found to be inadequate to address the difficulty. Therefore, considering the requirements to cope up with the field reality, standard has been evolved. It is, however, clarified that the exclusion (if any) in case of Battery Operated Vehicles (BOVs) and Hybrid Electrical Vehicles (HEVs) can not be on the basis of engine capacity but based on overall body construction.

The Automotive Industry Standards Committee responsible for preparation of this standard is given in Annex: C

## Automotive Vehicles – Spray- Suppression Systems for Two Wheeled Motor Vehicles

Clause/ Annex No.	Contents	Page No.
1	Scope	1/6
2	References	1/6
3	Definitions	1/6
4	Application for Type Approval	1/6
5	General Requirements	2/6
6	Specific Requirements	2/6
7	Conformity of Production	3/6
8	Criteria for Extension of Approval	3/6
<b>Annexes</b>		
Annex A	Technical Specification of the Two Wheeled Motor Vehicle / Variants	4/6
Annex B	Criteria for Extension of Approval	5/6
Annex C	Committee Composition	6/6

## Automotive Vehicles – Spray- Suppression Systems for Two Wheeled Motor Vehicles

### 1 SCOPE

- 1.1 This standard applies to two wheeled motor vehicles of L2 category except those fitted with thermic engine of capacity more than 200 cm<sup>3</sup>.
- 1.2 This standard specifies the dimensional requirements of rear spray-suppression systems. These vehicles shall be constructed and / or fitted with spray-suppression system in such a way as to comply with the requirements of this standard.

### 2 REFERENCES

- 2.1 AIS-053 : Automotive Vehicles – Types – Terminology
- 2.2 IS 11422:2001 - Terms and Definitions of Weights of Two Wheeled Motor Vehicles.

### 3 DEFINITIONS

For the purposes of this standard, the following definitions shall apply:

- 3.1 **“Spray-Suppression System”** means a system intended to reduce the water spray and / or mud thrown upward and rearward by rear tyre of a vehicle in motion. The spray-suppression system shall typically comprise of a mudguard, if required, with a mud flap or any other vehicle part(s).
- 3.2 **“Mudguard”** means a rigid or semi-rigid component intended to suppress the water, mud etc. thrown upwards and rearwards by rear tyres of vehicle in motion which causes discomfort to pillion rider, pedestrians or rider of following vehicles. Mudguard shall be rigidly fixed to frame or other parts of the vehicle.
- 3.3 **“Mud flap”** means rigid or semi rigid part, which may additionally be fitted as an extension of the mudguard.
- 3.4 **“Type of Spray-Suppression System”** means a system, which does not differ in respect of angle  $\theta$  (see 6.1.1).

### 4 APPLICATION FOR TYPE APPROVAL

- 4.1 The application for type approval of a vehicle type with regard to spray-suppression system 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.

- 4.2 Every functional modification in technical specifications declared in accordance with 4.1, shall be intimated to the testing agency.
- 4.3 Testing agency may then consider, whether;
  - 4.3.1 The spray-suppression system with modifications complies with specified requirements, or,

- 4.3.2 Any further document verification is required.
- 4.4 In case of 4.3.2, checks for those parameters, which are affected by the modifications only needs to be carried out.
- 4.5 In the event of 4.3.1 or in the case of 4.3.2 after successful compliance to requirements, the certificate of compliance shall be validated for the modified version.

## 5 GENERAL REQUIREMENTS

- 5.1 The rear wheel of the vehicle and the wheel of a side car, if fitted, shall be fitted with spray-suppression system of width not less than the “tyre overall width” of the rear tyre as declared in Annex A. This requirement applies up to 45° of wheel coverage angle (angle “ $\theta$ ” in figure 1). The width of spray-suppression system shall not be less than half of tyre overall width at 60° of wheel coverage angle. (angle “ $\theta$ ” in figure 1).

## 6 SPECIFIC REQUIREMENTS

- 6.1 The spray-suppression system provided for the rear wheel and wheel of any side-car if fitted, shall extend not less than wheel coverage angle  $\theta$  subtended between transverse planes (planes perpendicular to the longitudinal median plane of the vehicle) one vertical plane passing through axis of rear wheel and the other passing through that axis and lowermost point of the spray-suppression system when the vehicle is stationary on a horizontal surface without stand (See Figure 1). The vehicle shall be in kerb weight condition as specified in IS 11422 : 2001, added with a weight of 68 kg uniformly placed on riders’ seat area. The tyres shall be inflated as recommended by the vehicle manufacturer for the specified load condition.

- 6.1.1 The rear wheel coverage angle  $\theta$  shall be at least 60° (See Figure 1 below).

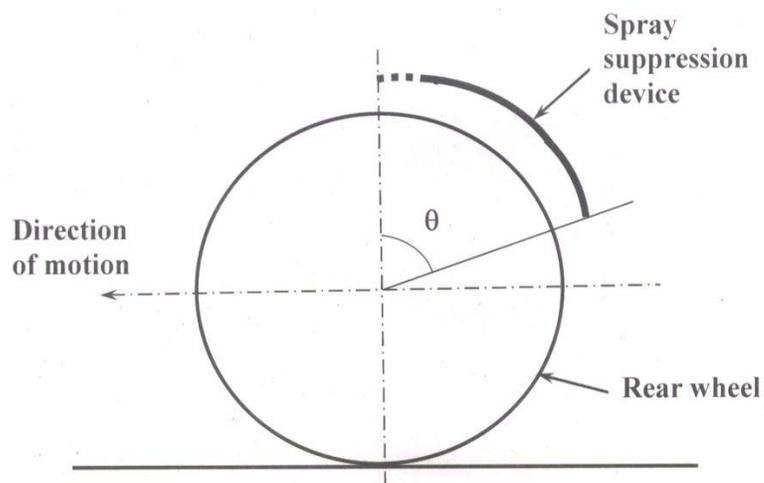


Figure 1

### Schematic Diagram of Typical Angle “ $\theta$ ” of Spray-Suppression System

- 6.2 During the type approval, the test agency shall carry out verification / check of the documents submitted to establish the compliance.

**7 CONFORMITY OF PRODUCTION**

Conformity of Production procedure as and when mandated by the Ministry of Road Transport and Highways (MoRTH) shall be applicable.

**8 CRITERIA FOR EXTENSION OF APPROVAL**

- 8.1 Please refer to Annex B for Criteria for extension of approval.

## ANNEX A

(See 4.1)

**TECHNICAL SPECIFICATION OF  
TWO WHEELED MOTOR VEHICLE / VARIANTS**

<b>Sr. No.</b>	<b>Parameter</b>	
1	Name and address of the vehicle manufacturer	
2	Vehicle model and its variant(s)	
3	Engine capacity (cm <sup>3</sup> )	
4	Vehicle category (as per AIS-053)	
5	Tyre Overall Width (maximum of variants and tyre makes)	
6	Diagram showing general arrangement of spray-suppression system, Angle $\theta$ (see 6.1.1) and relevant dimensions.	

**ANNEX B**

(See 8.1)

**CRITERIA FOR EXTENSION OF APPROVAL**

<b>Sr. No.</b>	<b>Parameter / Criteria</b>	<b>Whether verification required</b>
1	Reduction of engine capacity from beyond 200 cm <sup>3</sup> to less than 200 cm <sup>3</sup> .	Yes
	Increase of engine capacity from less than 200 cm <sup>3</sup> to more than 200 cm <sup>3</sup>	No
2	Increase in angle $\theta$ beyond the values specified in 6.1.1	No
3	Increase in Tyre Overall Width	Yes
4	Decrease in Tyre Overall Width	No

**ANNEX C**  
**(See Introduction)**

**COMMITTEE COMPOSITION \***

**Automotive Industry Standards Committee**

<b>Chairman</b>	
Shri Shrikant R. Marathe	Director The Automotive Research Association of India, Pune
<b>Members</b>	<b>Representing</b>
Representative from	Ministry of Shipping, Road Transport & Highways (Dept. of Road Transport & Highways), New Delhi
Representative from	Ministry of Heavy Industries & Public Enterprises (Department of Heavy Industry), New Delhi
Shri S. M. Ahuja	Office of the Development Commissioner, MSME, Ministry of Micro, Small & Medium Enterprises, New Delhi
Shri Rakesh Kumar	Bureau of Indian Standards, New Delhi
Director Shri D. P. Saste (Alternate)	Central Institute of Road Transport, Pune
Dr. M. O. Garg	Indian Institute of Petroleum, Dehra Dun
Dr. C. L. Dhamejani	Vehicles Research & Development Establishment, Ahmednagar
Representatives from	Society of Indian Automobile Manufacturers
Shri T.C. Gopalan	Tractor Manufacturers Association, New Delhi
Shri K.N.D. Nambudiripad	Automotive Components Manufacturers Association of India, New Delhi
Shri Arvind Gupta	Automotive Components Manufacturers Association of India, New Delhi

Member Secretary  
Mrs. Rashmi Urdhwareshe  
Deputy Director  
The Automotive Research Association of India, Pune

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