

AMENDMENT NO. 1
TO
AIS – 073 (Part 3)
Automotive Vehicles – Wheel Rims for Two and Three Wheeled Vehicles –
Spoke Wheel Rims –Method of Test and Requirements

- 1.0** Page No. III, Introduction:
Substitute “AIS - 037 : Procedure for Type Approval and Establishing Conformity of Production for Safety Critical Components”
For “IS: 10694 (Pt 5): 1987 General requirements for rims for Automotive Vehicles – Moped, motorcycle and motorcycle derivative rims”.
- 2.0** Page No. 1/7, cl. 2.2:
Substitute “ AIS - 037 : Procedure for Type Approval and Establishing Conformity of Production for Safety Critical Components”
for “ IS 10694 (Pt-5):1987 - General requirements for Rims for Automotive vehicles-Mopeds, Motorcycles and Motorcycle Derivative Rims”
- 3.0** Page No. 1/7, cl. 4.0 :
Substitute following text for existing text of entire clause 4.0
“ **4.0 MARKING**
4.1 Marking shall be as per AIS 037 as and when AIS 037 is mandated for this standard.”

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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 VEHICLE RULES - TECHNICAL STANDING COMMITTEE
SET-UP BY
MINISTRY OF SHIPPING, ROAD TRANSPORT & HIGHWAYS
(DEPARTMENT OF ROAD TRANSPORT & HIGHWAYS)
GOVERNMENT OF INDIA
April 2007

AUTOMOTIVE INDUSTRY STANDARD

**Automotive Vehicles – Wheel Rims for
Two and Three Wheeled Vehicles –
Spoke Wheel Rims –Method of
Test and Requirements**

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GOVERNMENT OF INDIA

December 2005

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

Sr. No.	Corr-igenda	Amend-ment	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, 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 web site.

Spoke wheel rims are being widely used for motorcycles. Considering the importance of the wheel as a critical part influencing the driving safety, this standard has been prepared.

Considerable assistance has been taken from following National and International standards.

IS: 10694 (Part 1): 1993	Automotive Vehicles - Rims - General requirements Part 1 - Nomenclature, designation, marking and measurement.
IS: 10694 (Part 5): 1987	General requirements for rims for Automotive Vehicles – Moped, motorcycle and motorcycle derivative rims.
JIS 4215: 1990	Rims for motorcycles.

The Automotive Industry Standards Committee responsible for preparation of this standard is given in Annex - B

Automotive Vehicles –Wheel Rims for Two and Three Wheeled Vehicles – Spoke Wheel Rims – Method of Test and Requirements

1.0 SCOPE

- 1.1 This Standard prescribes the general and performance requirements of spoke wheel rims intended for use on two and three wheeled motor vehicles with or without sidecar.

2.0 REFERENCE

- 2.1 IS 10694 (Pt-1):1993 - Automotive vehicles - Rims - General Requirements-Nomenclature, Designation, Marking and Measurement.
- 2.2 IS 10694 (Pt-5):1987 - General requirements for Rims for Automotive vehicles-Mopeds, Motorcycles and Motorcycle Derivative Rims.

3.0 DEFINITION AND NOMENCLATURE

- 3.1 Definition and nomenclature of wheel rim shall be in accordance with IS 10694 (Pt-1):1993.

4.0 MARKING

- 4.1 The rim shall be marked with the following
- a) Size designation shall be as per IS 10694 (Pt-5): 1987
 - b) Name or trade mark of the rim manufacturer
 - c) The letter “HD” for rims designed for three wheeled goods carriages
- 4.2 The marking shall be recessed and without sharp edges and letters shall not be smaller than 3mm and impressed/engraved to a depth/embossed in a legible manner.
- 4.3 The marking shall be marked on outside surface so that marking shall be visible after the tyre is mounted and inflated.

5.0 TYPE APPROVAL

- 5.1 The manufacturer shall submit the details as specified in Annex A
- 5.2 Number of rims to be provided shall be minimum one number or at the discretion of testing agency.

- 5.3 The type of the wheel rim submitted for approval in pursuance of this standard, if meets the requirements of this standard, approval for that type of wheel rim shall be granted.

6.0 REQUIREMENTS RELATING TO WHEEL RIMS

6.1 General Requirements

- 6.1.1 The wheel rims shall have smooth contour, free from sharp edges on the tyre side.
- 6.1.2 The holes for wire spokes shall be free from burrs and sharp edges. These holes shall have uniform pitch. The spoke holes shall be equally spaced and shall be alternately on either side of the center of the rim.
- 6.1.3 The valve hole shall be accurately punched or drilled centrally on the nose of the rim approximately opposite to joint of the rim and shall be at the center of the two diverging spoke holes. This hole shall be clean and free from burrs.
- 6.1.4 The finished surface of the rim shall be free from flaws, crack, crazing and other similar structural defects.
- 6.1.5 The surface to be fitted with tyre of the rim and the perimeter of valve hole shall not be of a form nor a surface condition which is likely to injure the performance of the tyre, tube and valve.

6.2 Strength Requirements:

When the deflection of wheel rims (without spokes) has attained a value given in Table 1 by applying a load by the method given in Figure1 to the rim, the load shall not be smaller than the value given in Table 2 and in addition, the rim shall be free from cracks.

Furthermore, the applying method of load shall be as follows. Place the rim vertically on the base having a plane of not smaller than a horizontal rim width and add the load gradually toward the direction of vertical centre of rim from the most outside circumference part of rim.

Table 1. Amount of Deflection

Nominal rim width code	Nominal rim diameter code		
	15 max.	16,17, 18	19 min.
1. 10 to 2.75 and MT 1.85 to MT 5.50	10 mm	15 mm	20 mm

Table 2. Load

Nominal rim width		Load kN (kgf)
1.10	-	0.98 (100)
1.20	-	1.47 (150)
1.40	-	1.96 (200)
1.50	-	2.45 (250)
1.60	-	3.43 (350)
1.85	MT 1.85	4.41 (450)
2.15	MT 2.15	4.90 (500)
2.50	MT 2.50	6.37 (650)
2.75	MT 2.75	6.37 (650)
-	MT 3.00	6.37 (650)
-	MT 3.50	6.37 (650)
-	MT 4.00	6.37 (650)
-	MT 4.50	6.37 (650)
-	MT 5.00	6.37 (650)
-	MT 5.50	6.37 (650)

7.0 MODIFICATION AND EXTENTION OF APPROVAL OF WHEEL RIM TYPE.

7.1 Every modification of the type of wheel rim shall be notified to testing agency, which has approved the type of wheel rim. The test agency may then either

7.1.1 Consider that the modification made are unlikely to have an appreciable adverse effect and that in any case, the wheel rim still complies with the requirement; or

7.1.2 Require a further test report from the testing agency responsible for conducting the test.

For considering whether any further verification is required or not, guidelines given in 7.3 (criteria for extension of type approval) may be followed.

7.1.3 In case of 7.1.2, check for those parameters which are affected by modifications, only need to be carried out.

7.2 In the event of 7.1.1 or in case of 7.1.2 after successful compliance to the requirements, a certificate of compliance shall be validated for the modified version.

7.3 Criteria for extension of type approval

7.3.1 In case of following changes, testing shall be carried out for establishing compliance of the changed parameters to the requirements specified in this standard:

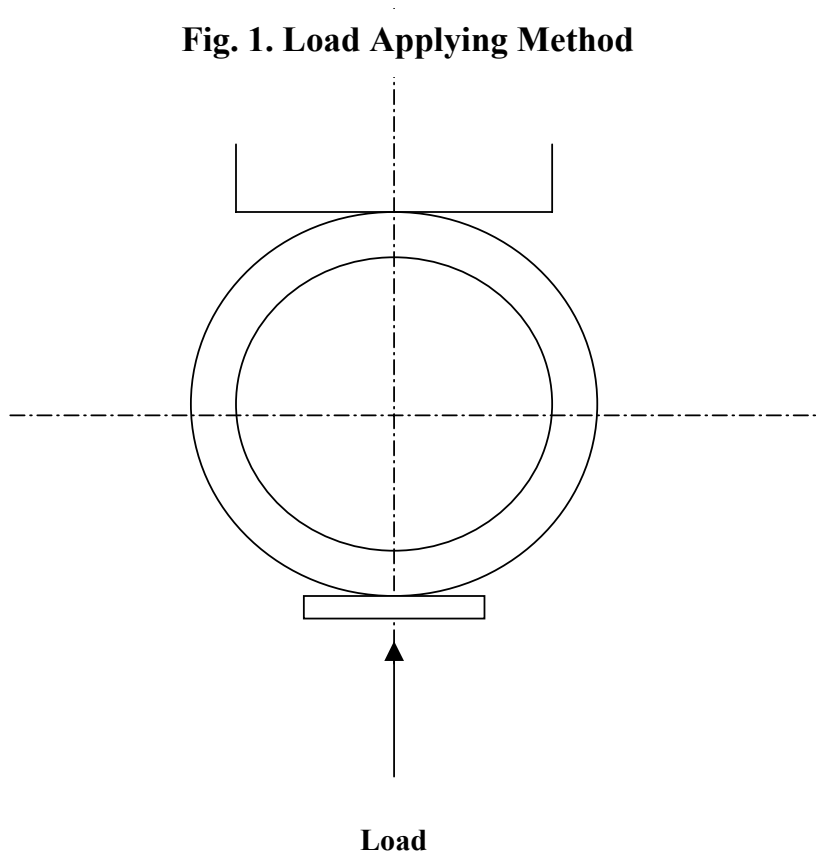
7.3.1.1 Increase in the load carrying capacity

7.3.1.2 Any change in the design of the wheel rim

7.3.1.3 Any change in the material of the wheel rim

7.3.1.4 Any change in the thickness of the wheel rim

Fig. 1. Load Applying Method



ANNEX A
(See 5.0)

Technical Information to be submitted by Supplier

1.	Name of Supplier:	
2.	Address of Supplier	
3.	Telephone No.	
4.	FAX. No.	
5.	E mail address	
6.	Contact person	
7.	Wheel rim manufacturer name (In case different for supplier)	
8.	Address of wheel rim manufacturer (In case different for supplier)	
9.	The trade/brand name or mark	
10.	Wheel Rim size designation	
11.	Type of wheel rim (To be specified)	
12.	Location Rear/front/both	
13.	Maximum Design Load of wheel Rim	
14.	Engineering Drawing of Wheel rims giving details of profile, relevant dimensions, Inset/outset, markings etc., in triplicate	

ANNEX B
(See Introduction)
COMMITTEE COMPOSITION *
Automotive Industry Standards Committee

Chairman	
Shri B. Bhanot	Director The Automotive Research Association of India, Pune
Members	Representing
Shri Alok Rawat	Ministry of Shipping, Road Transport & Highways, New Delhi
Shri Sushil Kumar	Department of Heavy Industry, Ministry of Heavy Industries & Public Enterprises, New Delhi
Shri Chandan Saha	Office of the Development Commissioner, Small Scale Industries, Ministry of Small Scale Industries, New Delhi
Shri S. Dasgupta Shri S. K. Bhatia (Alternate)	Bureau of Indian Standards, New Delhi
Shri A. S. Lakra Shri D. P. Saste (Alternate)	Central Institute of Road Transport, Pune
Director	Indian Institute of Petroleum, Dehra Dun
Dr. C. L. Dhamejani Dr. N. Karuppaiah (Alternate)	Vehicles Research & Development Establishment, Ahmednagar
Shri Dilip Chenoy	Society of Indian Automobile Manufacturers
Shri T.C. Gopalan Shri Ramakant Garg (Alternate)	Tractor Manufacturers Association, New Delhi
Shri K.N.D. Nambudiripad	Automotive Components Manufacturers Association New Delhi
Shri G. P. Banerji	Automotive Components Manufacturers Association 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)