AIS-074

AUTOMOTIVE INDUSTRY STANDARD

Approval of Vehicles with regard to their Protection against Unauthorized use – Two and Three Wheeled 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

July 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, 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 Web site.

Protection of 2/3 wheeled vehicles is a safety aspect. Uniform provisions are required to be established for approval of such devices as fitted on the 2 and 3 wheeler vehicles. The Committee reviewed the requirements specific to India, especially because we are the largest user of such vehicles.

While preparing this standard AIS-074, guidance has been taken from ECE R 62, Issue 1, December 2000 – Uniform provisions concerning the approval of power driven vehicles with handle bars with regard to their protection against un-authorized use and EEC directive 93/33/EEC-Protective devices intended to prevent un-authorized use of two or three wheel motor vehicles. Discussions were also held till date with various organizations concerned in executing and implementing this standard to bring in the current trends and requirements. The committee has also taken into account the recent trends in WP. 29, which is the world body under UN-ECE, working on harmonization of automotive standards.

The Automotive Industry Standards Committee responsible for preparation of this standard is given in Annexure - C.

Approval of Vehicles with regard to their Protection against Unauthorized use – Two and Three Wheeled Vehicles

1 SCOPE

1.1. This standard applies to protective devices designed to prevent unauthorized use of two-wheeled power-driven vehicles with or without sidecars and power driven three wheeled vehicles.

2 REFERENCES

2.1 AIS-053 : Automotive Vehicles – Types - Terminology.

3 DEFINITIONS

For the purpose of this standard;

3.1 '**Approval of a vehicle'** means approval of a vehicle type with regard to its protection against unauthorized use.

3.2 **'Vehicle type'** means category of power driven vehicles which do not differ in such essential respects as:

3.2.1 The manufacturer's indication of the vehicle type.

3.2.2 Arrangement and design of the vehicle component or components on which the protective device acts.

3.2.3 The type of protective device.

3.3 **'Protective device'** means a system designed to prevent unauthorized use of the vehicle providing a positive locking action of the steering or of the transmission. This system may be:

3.3.1 Type 1 : Solely and positively operated on the steering alone;

3.3.2 Type 2 : Positively operated on the steering in conjunction with the device, which de-activates the engine of the vehicle;

3.3.3 Type 3 : Preloaded, operating on the steering in conjunction with the device, which de-activates the engine of the vehicle;

3.3.4 Type 4 : Positively operated on the transmission

3.4 **'Steering'** means the steering control (handlebar or steering wheel), the steering head and its accessory cladding, the steering shaft and all other components which directly affect the effectiveness of the protective device.

3.5 **'Combination'** means one of the specifically planned and constructed variations of a locking system which, when properly activated, permits operation of the locking system.

3.6 **'Key'** means any device designed and constructed to provide a method of operating a locking system which is designed and constructed to be operated only by that device.

4 GENERAL REQUIREMENTS

4.1 All two or three wheel power driven vehicles, shall be fitted with a protective device which meets the requirements contained in this standard.

4.2 The protective device shall be so designed that:

4.2.1 It is necessary to put it out of action in order to enable the vehicle to be steered, or to be driven or move forward in a straight line.

4.2.2 In the case of protective devices of type 4, the device shall be so designed that it is necessary to put it out of action in order to release the transmission. If this device is activated by the control of the parking device, it shall act in conjunction with the device, which deactivates the engine of the vehicle.

4.2.3 It shall only be possible to extract the key with the bolt in fully engaged or in the fully disengaged position. Any intermediate position of the key, which risks subsequent engagement of the bolt, even if the key of the protective device is inserted, shall be excluded.

4.3 The requirements set out in clause **4.2** shall be met by single application of one key.

4.4 The protective device referred to in clause **4.2** above, and the vehicle components on which it operates, shall be so designed, that it cannot rapidly and without attracting attention, be opened, rendered ineffective, or destroyed by , for example, the use of low-cost, easily concealed tools, equipment or fabrications readily available to the public at large.

4.5 The protective device shall be mounted on the vehicle as an item of original equipment (i.e. equipment installed by vehicle manufacturer, prior to first retail sale). The lock shall be securely assembled to the protective device. (If the lock can be extracted by using the key and after the cover or any other retention device has been removed, this is not in contradiction with the requirement).

4.6 The key locking system shall provide at least 1000 different key combinations or a number equal to the total number of vehicles manufactured annually if less than 1000. In vehicles of one type (i.e. models and variants), using the same device, the frequency of occurrence of each combination shall be roughly one per 1000.

4.7 Key and lock shall not be visibly coded in the installed condition on the vehicles.

4.8 The lock shall be so designed, constructed and fitted that the turning of the lock cylinder when it is in the locked position with a torque of less than 2.45 Nm is not possible with anything other than the mating key, and;

4.8.1 For lock cylinder with pin tumblers, no more than two identical tumblers operating in the same direction, shall be positioned adjacent to each other, and in a lock there shall not be more than 60 per cent identical tumblers.

4.8.2 For lock cylinders with disc tumblers, no more than two identical tumblers operating in the same direction shall be positioned adjacent to each other, and in a lock there shall not be more than 50 per cent identical tumblers.

4.9 The protective devices shall be such as, to exclude any risk, while the vehicle is in motion with engine running, of accidental blockage likely to compromise safety in particular.

4.10 The protective device, if it is of type 1, type 2 or type 3, shall, in its activated position, be strong enough to withstand, without damage to the steering mechanism likely to compromise safety, the application of torque 200 Nm about the axis of the steering shaft in both directions under static conditions.

4.11 The protective device, if it is of type 1, type 2 or type 3, shall be so designed that, the steering can only be locked at an angle of at least 20° to the left and/or to the right of the straight ahead position. This provision is not mandatory for devices to be fitted to three wheelers.

4.12 The protective device, if it is of type 4, shall prevent the rotation of the vehicle driving wheels in a locked position.

5 SPECIFIC REQUIREMENTS:

5.1 In addition to the general requirements prescribed in clause **4**, the protective device shall comply with the specific requirements prescribed below:

5.1.1 In the case of protective devices of type-1 or type-2, it shall only be possible to engage the lock by means of movement of the key, the steering as defined in clause **3.4** being in the position appropriate for the engagement of the bolt in the corresponding slot.

5.1.2 In the case of type-3 protective devices, it shall only be possible to pre-load the bolt by a separate action on the part of user of vehicle combined with or in addition to rotation of the key. It shall not be possible to remove the key once the bolt has been preloaded, except in accordance with the provisions of clause **4.2.3** above.

5.2 In the case of the protective devices of type 2 and type 3, It shall not be possible for a bolt to engage so long as the device is set in a position which permits the activation of the engine of the vehicle.

5.3 In the case of the protective devices of type 3, when device is set to act, it shall not be possible to prevent the device from functioning.

5.4 In the case of the protective devices of type 3, protective devices shall remain in a good operating working order and shall in particular, continue to meet the requirements set out in clauses **4.8. 4.9, 4.10** and **5.3** above after it has undergone 2500 locking cycles in each direction in the test specified in clause **6.**

6 WEAR TEST (APPLICABLE FOR TYPE 3 PROTECTIVE DEVICES ONLY)

6.1 TEST EQUIPMENT

The test equipment consists of a fixture suitable for mounting the sample steering unit fitted with a protective device attached, as defined in clause **3.3**;

A means for activating and de-activating the protective device which shall include the use of the key.

A means for rotating the steering shaft relative to the protective device.

6.2 TEST METHOD

6.2.1 A sample of the steering unit fitted with the protective device is attached to the fixture referred to in clause **6.1**.

6.2.2 One cycle of the test procedure shall consists of the following operations:

6.2.2.1 **Start position**: the protective device shall be de-activated and the steering shaft be rotated to a position which prevents engagement of the protective device;

6.2.2.2 **Set to activate**: the protective device shall be moved from the de-activated to the activated position using the key;

6.2.2.3 **Activated**: the steering shaft shall be rotated such that the torque on it, at the instant of engagement of the protective device shall be 5.88 ± 0.25 Nm

6.2.2.4 **De-activated**: the protective device shall be de-activated by the normal means, the torque being reduced to 0 to facilitate disengagement.

6.2.2.5 **Return**: the steering shaft shall be rotated to a position which prevents engagement of the protective device;

6.2.2.6 **Opposite Rotation**: repeat procedures described in clauses **6.2.2.2, 6.2.2.3, 6.2.2.4** and **6.2.2.5**, but in the opposite direction of rotation of the steering shaft.

6.2.2.7 The time interval between two successive engagements of the device shall be at least 10 seconds.

6.3 The wear-producing cycle shall be repeated for the number of times specified in clause **5.4** of this standard.

7 APPLICATION FOR TYPE APPROVAL

7.1 The application for the type approval shall contain at least the technical information as specified in **Annexure A.**

7.2 Every functional modification in technical specifications declared in accordance with **7.1** shall be intimated to the testing agency.

7.3 Testing agency may then consider, whether;

7.3.1 Anti-theft device with modifications complies with specified requirements, or,

7.3.2 any further verification is required.

7.4 In case of **7.3.2**, checks for those parameters, which are affected by the modifications, only needs to be carried out.

7.5 In the event of **7.3.1** or in the case of **7.3.2** after successful compliance to requirements, the certificate of compliance shall be validated for the modified version.

8 CONFORMITY OF PRODUCTION REQUIREMENTS

Whole Vehicle COP and component COP procedures laid down by the Ministry of Shipping, Road Transport and Highways shall be applicable. For the purpose of COP, verification of all the tests shall be carried out.

9 CRITERIA FOR EXTENSION OF APPROVAL

9.1 Please refer to **Annexure B** for criteria for extension of approval.

ANNEXURE A (Refer clause 7.1)

Information to be submitted for Type Approval

Srl No	Parameter	
1.	Name of the Model(s)	:
2.	Variant(s)	:
3.	Vehicle category(s)	:
4.	Name and address of vehicle manufacturer	:
5.	Type of protective device(s) used (refer clause 3.3)	:
6.	Type of Steering (in case of type 1, 2 or 3 device only)	:
7.	Whether the protective device provides ignition cut-off (Y/N)	:
8.	Name and address of manufacturer of the protective device	:
9.	No of combinations used in the protective device	:
10.	Description of the device or sketch showing location, relevant dimensions of protective device, material and physical properties of the catch of the device which engages with the steering device.	:
11.	Diagram of transmission system (in case of type 4 device only)	:
11.1.	Type of gear box (Automatic/manual)	:
11.2.	Method of selection (hand/foot operated)	:
11.3.	Type of clutch (centrifugal/multi-disc)	:
12.	Explanation of the arrangement provided in design to satisfy requirements of clauses **4.4**. and **4.9**.	:

ANNEXURE B (Refer clause 9.1)

CRITERIA FOR EXTENSION OF TYPE APPROVAL

B 1 This Annexure gives the factors to be considered while selecting a vehicle to represent a range of variants for testing a vehicle for type approval as per requirements of this standard and for extension of type approval certificate for changes affecting the performance related to these requirements.

B 2 If the changes affect some of the requirements, checks/ tests need to be done only for those requirements.

B 3 The changes in parameters that affect the performance are listed in **Table 1.**

Table 1

Srl No.	Parameter	Change	Tests/checks to be carried out
1.	Vehicle models and variants fitted with same device	Any change	No test required provided there is no change in system.
1.	Type of Protective device used (refer clause 3.3)	Any change	If device is approved on any other model, only test as per clause 4.10 and requirements of clause **5.4** (for type 3 devices only) need to be done. No tests need to be done if the vehicle manufacturer establishes that there is no change in the performance as per clause 4.10 .
2.	Type of steering	Any change	Test as per clause **4.10** (for type 1, 2 and 3 devices) and requirements of clause **5.4** (for type 3 devices only) to be carried out.
3.	Material of the bolt.	Any change e.g. steel to brass etc.	
4.	Physical properties of the material of the catch	Any change decreasing the shear strength	
5.	Location of the Protective device in vehicle.	Any change	
6.	Type of transmission (in case of Type 4 devices)	Any change	All related tests to be carried out.

ANNEXURE -C
(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 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. Balwant Rai Shri K.K. Vashistha (Alternate)	Bureau of Indian Standards, New Delhi
Shri A. S. Lakra Shri D. G. Shirke (Alternate)	Central Institute of Road Transport, Pune
Director	Indian Institute of Petroleum, Dehra 'Dun
Shri R.C. Sethi Shri 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
Shri G. P. Banerji	Automotive Components Manufacturers Association

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