AIS-116

AUTOMOTIVE INDUSTRY STANDARD

Maximum Design Speed of Agricultural Tractors

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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 2009

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 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, has published this standard. For better dissemination of this information, ARAI may publish this document on their website.

The standard is framed to verify the manufacturer's claim on maximum design speed of agricultural tractors. This standard specifies the measurement procedure and also norms for qualifying maximum design speed.

The Automotive Industry Standards Committee responsible for preparation of this standard is given in Annex : 1

Maximum Design Speed of Agricultural Tractors

1.0 SCOPE

1.1 This standard specifies the measurement procedure for maximum design speed of agricultural tractors and corresponding tolerance on declared maximum design speed.

2.0 DEFINITIONS

2.1 Agricultural Tractor: As defined in AIS-053.

3.0 GENERAL REQUIREMENTS

3.1. The average speed shall be measured on a straight track, which the tractor shall traverse in both directions from a flying start (in top gear full throttle condition). The soil of the track shall be stabilized. The track shall be flat and at least 100 meters long; however it may include slopes of not more than 1.5 %. The test shall be made in calm weather with a wind velocity not exceeding 5 m/s.

3.2. During the test, the tractor shall be unladen and in running order without ballast weights or special equipment and the tyre pressures shall be those specified for road use.

3.3. During the test the tractor shall be fitted with new pneumatic tyres having the greatest rolling radius intended by the manufacturer for the tractor.

3.4 The gear ratio used during the test shall be that producing the maximum vehicle speed and the throttle shall be fully open.

3.5 The settings for the carburetor and ignition and /or the fuel injection pump, the engine power and the no-load engine rotational frequency shall be as specified by the manufacturer.

4.0 TEST PROCEDURE

4.1 Immediately prior to test, the tractor shall be run for a period sufficient to ensure that the engine, transmission oils and coolant are at normal working temperatures. These temperatures shall be maintained during the test.

4.2 Drive the tractor over the test roadway with the throttle fully open in the forward gear producing maximum tractor speed.

4.3 Measure the maximum design speed over a distance of at least 100 m first in one direction on the test roadway and then in the opposite direction. The time interval for a point on the machine to traverse 100 m shall be recorded.

4.4 Determine the maximum design speed as the mean of results of the two successive test-drives in opposite directions.

4.5 Testing agencies may calculate the maximum theoretical speed of tractor using the following inputs:

(i) Manufacturer's specified gear ratio of the forward gear producing maximum tractor speed.
or

Actual forward movement of the powered wheels corresponding to one complete revolution of engine in the forward gear producing maximum tractor speed.

(ii) Specified maximum high idle speed of engine, and the speed governor (if fitted).

(iii) Measured rolling radius of the tyre fitted on tractor.

5. Measuring Tolerances

5.1 Measuring tolerances in order to take account of various unavoidable errors due, in particular, to the measuring technique and to the increase in running speed of the engine with a partial load, the variation of $\pm$3 kmph in declared maximum design speed and measured speed shall be acceptable.

ANNEX : 1
(See Introduction)

COMMITTEE COMPOSITION *
Automotive Industry Standards Committee

Chairman	
Shri Shrikant R. Marathe	Director The Automotive Research Association of India, Pune
Members	**Representing**
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, Small Scale Industries, Ministry of Small Scale Industries, New Delhi
Shri Rakesh Kumar	Bureau of Indian Standards, New Delhi
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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)