

Australian Standard™

**Internal combustion engines—
Performance**

**Part 10: Engines for agricultural tractor
and machine use—Test code, net power**

[ISO title: Agricultural tractors and machines—Engine test code—Net power]

This Australian Standard was prepared by Committee ME/20, Internal Combustion Engines. It was approved on behalf of the Council of Standards Australia on 30 June 1999 and published on 5 August 1999.

The following interests are represented on Committee ME/20:

Australian Automobile Association
Australian Automotive Aftermarket Association
Australian Industry Group
Australian Institute of Petroleum
Construction & Mining Equipment Association of Australia
Electricity Supply Association of Australia
Environment Australia
Environment Protection Authority, N.S.W.
Federation of Automotive Products Manufacturers
Institution of Engineers Australia
University of Melbourne
Victoria Automobile Chamber of Commerce

Review of Australian Standards. To keep abreast of progress in industry, Australian Standards are subject to periodic review and are kept up to date by the issue of amendments or new editions as necessary. It is important, therefore, that Standards users ensure that they are in possession of the latest edition, and any amendments thereto.

Full details of all Australian Standards and related publications will be found in the Standards Australia Catalogue of Publications; this information is supplemented each month by the magazine 'The Australian Standard' which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.

Suggestions for improvements to Australian Standards, addressed to the head office of Standards Australia, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

This Standard was issued in draft form for comment as DR 99067.

Australian Standard™

**Internal combustion engines—
Performance**

**Part 10: Engines for agricultural tractor
and machine use — Test code, net power**

Originated as part of AS B215—1966.
Final edition AS 2789.9—1986.
Revised and redesignated as AS 4594.10—1999.

Published by Standards Australia
(Standards Association of Australia)
1 The Crescent, Homebush, NSW 2140

ISBN 0 7337 2852 9

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee ME/20, Internal Combustion Engines to supersede AS 2789.9—1986. It is identical with and has been reproduced from ISO 2288:1997, *Agricultural tractors and machines—Engine test code—Net power*.

This Standard is the result of a consensus among the representatives on the Joint Committee to produce it as an Australian Standard.

The Standards in the series are as follows:

AS

- 4594 Internal combustion engines—Performance
- 4594.0 Part 0: Application
- 4594.1 Part 1: Standard reference conditions, declarations of power, fuel and lubricating oil consumptions, and test methods
- 4594.3 Part 3: Engines for land, rail-traction and marine use—Test measurements
- 4594.4 Part 4: Engines for land, rail-traction and marine use—Speed governing
- 4594.5 Part 5: Engines for land, rail-traction and marine use—Torsional vibrations
- 4594.6 Part 6: Engines for land, rail-traction and marine use—Over speed protection
- 4594.7 Part 7: Engines for land, rail-traction and marine use—Codes for engine power
- 4594.8 Part 8: Engines for road vehicle use—Test code, net power
- 4594.9 Part 9: Engines for road vehicle use—Test code, gross power
- 4594.10 Part 10: Engines for agricultural tractor and machine use—Test code, net power (this Standard).
- 4594.11 Part 11: Engines for motorcycle use—Test code, net power

An application Standard, AS 4594.0, has been produced to be read in conjunction with these Standards to indicate inconsistencies within the adopted ISO Standards.

As this Standard is reproduced from an International Standard the following applies:

- (a) *Terminology* The words ‘this Australian Standard’ should replace the words ‘this International Standard’ whenever they appear.
- (b) *Decimal comma* The decimal point should replace the decimal comma wherever it appears.
- (c) *Cross-references* The reference to International Standards should be replaced by references to Australian Standards as follows:

<i>Reference to International Standard and other publications</i>	<i>Australia Standard</i>
ISO	AS
789 Agricultural tractors—Test procedures	—
789-1 Part 1: Power tests for power take off	—
1567 Road vehicles—Engine test code—Net power	—
710 Reciprocating internal combustion engines—Vocabulary	—
3104 Petroleum products—Transparent and opaque liquids—Determination of kinematic viscosity and calculation of dynamic viscosity	—

ISO		AS
3173	Road vehicles—Apparatus for measurement of the opacity of exhaust gas from diesel engines operating under steady state conditions	—
3675	Crude petroleum and liquid petroleum products—Laboratory determination of density or relative density—Hydrometer method	—
5163	Motor and aviation-type fuels—Determination of knock characteristics—Motor method	—
5164	Motor fuels—Determination of knock characteristics—Research method	—
5165	Diesel fuels—Determination of ignition quality—Cetane method	—
7876	Fuel injection equipment—Vocabulary	—
7876-1	Part 1: Fuel injection pumps	—
7967	Reciprocating internal combustion engines—Vocabulary of components and systems	—
7967-1	Part 1: Structure and external covers	—
7967-2	Part 2: Main running gear	—
7967-3	Part 3: Valves, camshaft drive and actuating mechanisms	—
7967-4	Part 4: Pressure charging and air/exhaust gas ducting systems	—
7967-5	Part 5: Cooling systems	—
7967-8	Part 8: Starting systems	—
ASTM		
D 240-87	Standard test method for heat of combustion of liquid hydrocarbon fuels by bomb calorimeter	—
D 3338-88	Standard test method for estimation of heat of combustion of aviation fuels	—

NOTES

© Copyright – STANDARDS AUSTRALIA

Users of Standards are reminded that copyright subsists in all Standards Australia publications and software. Except where the Copyright Act allows and except where provided for below no publications or software produced by Standards Australia may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing from Standards Australia. Permission may be conditional on an appropriate royalty payment. Requests for permission and information on commercial software royalties should be directed to the head office of Standards Australia.

Standards Australia will permit up to 10 percent of the technical content pages of a Standard to be copied for use exclusively in-house by purchasers of the Standard without payment of a royalty or advice to Standards Australia.

Standards Australia will also permit the inclusion of its copyright material in computer software programs for no royalty payment provided such programs are used exclusively in-house by the creators of the programs.

Care should be taken to ensure that material used is from the current edition of the Standard and that it is updated whenever the Standard is amended or revised. The number and date of the Standard should therefore be clearly identified.

The use of material in print form or in computer software programs to be used commercially, with or without payment, or in commercial contracts is subject to the payment of a royalty. This policy may be varied by Standards Australia at any time.

AUSTRALIAN STANDARD

Internal combustion engines—Performance

Part 10:

Engines for agricultural tractor and machine use—Test code, net power

1 Scope

This International Standard specifies a method for testing internal combustion engines intended for propulsion of agricultural tractors and machines. It applies to evaluation of performance with a view, in particular, to presenting curves of power and specific fuel consumption at full load as a function of engine speed. The engines may be naturally aspirated or pressure-charged.

It applies to net power assessment.

This International Standard concerns internal combustion engines used in agricultural tractors and machines and included in one of the following categories:

- reciprocating internal combustion engines (spark-ignition or compression-ignition) but excluding free piston engines;
- rotary piston engines.

These engines may be naturally aspirated or pressure-charged, either using a mechanical pressurecharger or turbocharger.

NOTE - This International Standard provides engine power correction factors in conformity with ISO 1585:1992.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 789-1:1990, *Agricultural tractors - Test Procedures - Part 1: Power tests for power take off.*

ISO 1585:1992, *Road vehicle - Engine test code - Net power.*

ISO 2710:1978, *Reciprocating internal combustion engines - Vocabulary.*

ISO 3104:1994, *Petroleum products - Transparent and opaque liquids - Determination of kinematic viscosity and calculation of dynamic viscosity.*

ISO 3170:1974, *Road vehicles - Apparatus for measurement of the opacity of exhaust gas from diesel engines operating under steady state conditions.*

ISO 3675:1993, *Crude petroleum and liquid petroleum products - Laboratory determination of density or relative density - Hydrometer method.*

ISO 5163:1990, *Motor and aviation-type fuels - Determination of knock characteristics - Motor method.*

ISO 5164:1990, *Motor fuels - Determination of knock characteristics - Research method.*

ISO 5165:1992, *Diesel fuels - Determination of ignition quality - Cetane method.*

ISO 7876-1:1990, *Fuel injection equipment - Vocabulary - Part 1: Fuel injection pumps*

ISO 7967-1:1987, *Reciprocating internal combustion engines - Vocabulary of components and systems - Part 1: Structure and external covers.*