

Australian Standard[®]

Agricultural tractor power take-offs

**Part 4: Guards for power take-off (PTO)
drive-shafts—Strength and wear tests
and acceptance criteria**



This Australian Standard® was prepared by Committee ME-065, Agricultural Tractors and Machinery. It was approved on behalf of the Council of Standards Australia on 24 May 2007. This Standard was published on 10 August 2007.

The following are represented on Committee ME-065:

- Department of Consumer & Employment Protection, WorkSafe Division (WA)
 - Department of Labour New Zealand
 - Department of Primary Industries and Fisheries Queensland
 - Federated Farmers of New Zealand
 - NSW Department of Primary Industries
 - National Farmers Federation
 - National Injury Prevention Advisory Council Standards Working Group
 - Safety Institute of Australia (Incorporated)
 - The University of Melbourne
 - The University of Queensland
 - Tractor & Machinery Association of Australia
 - Victorian WorkCover Authority
 - WorkCover New South Wales
-

This Standard was issued in draft form for comment as DR 07025.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

Keeping Standards up-to-date

Australian Standards® are living documents that reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued.

Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments that may have been published since the Standard was published.

Detailed information about Australian Standards, drafts, amendments and new projects can be found by visiting www.standards.org.au

Standards Australia welcomes suggestions for improvements, and encourages readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at mail@standards.org.au, or write to Standards Australia, GPO Box 476, Sydney, NSW 2001.

Australian Standard[®]

Agricultural tractor power take-offs

Part 4: Guards for power take-off (PTO) drive-shafts—Strength and wear tests and acceptance criteria

Originated as part of AS 1121—1971.
Previous edition part of AS 1121—1983.
Revised in part and redesignated as AS 1121.4—2007.

COPYRIGHT

© Standards Australia

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Published by Standards Australia GPO Box 476, Sydney, NSW 2001, Australia
ISBN 0 7337 8317 1

PREFACE

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee ME-065, Agricultural Tractors and Machinery, as a revision, in part, of AS 1121—1983, *Guards for agricultural tractor PTO drives*. After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this Standard is to provide designers, manufacturers and suppliers of power take-off shafts with means for reducing the risks to the health and safety of those who must work with or near power take-offs by providing requirements for the strength and wear characteristics.

This Standard is identical with and has been reproduced from ISO 5674:2004, *Tractors and machinery for agriculture and forestry—Guards for power take-off (PTO) drive-shafts—Strength and wear tests and acceptance criteria*.

As this Standard is reproduced from an international standard, the following applies:

- (a) Its number appears on the cover and title page while the international standard number appears only on the cover.
- (b) In the source text ‘International Standard’ should read ‘this Australian Standard’.
- (c) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

| <i>Reference to International Standard</i> | | <i>Australian Standard</i> | |
|--|---|----------------------------|---|
| ISO | | AS | |
| 500 | Agricultural tractors—Rear-mounted power take-off types 1, 2 and 3 (series) | 1121 | Agricultural tractors—Rear-mounted power take-off types 1, 2 and 3 (series) |
| 105 | Textiles—Tests for colourfastness | 2001 | Methods of test for textiles—Tests for colour fastness |
| 105-A02 | Part A02: Grey scale for assessing change in colour | 2001.4.A02 | Part 4.A02: Grey scale for assessing change in colour |

Other International references not listed have not been adopted as Australian or Australian/New Zealand Standards.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the annex to which they apply. A ‘normative’ annex is an integral part of a Standard, whereas an ‘informative’ annex is only for information and guidance.

CONTENTS

| | <i>Page</i> |
|----------------|---|
| 1 | Scope1 |
| 2 | Normative references1 |
| 3 | Terms and definitions1 |
| 4 | General test conditions2 |
| 4.1 | Guard2 |
| 4.2 | Other2 |
| 5 | Test equipment2 |
| 5.1 | General2 |
| 5.2 | Test parameters2 |
| 6 | Tests4 |
| 6.1 | General4 |
| 6.2 | Wear test4 |
| 6.3 | Bearing corrosion test (Perform only if the guard has bearings running in contact with the PTO-shaft)4 |
| 6.4 | Strength tests5 |
| 6.5 | Tests at sub-zero temperature8 |
| 6.6 | Restraining means test at ambient temperature10 |
| 7 | Final acceptance criteria11 |
| 8 | Test report12 |
| Annex A | (normative) Test schedule13 |
| Annex B | (normative) UV test for plastic guards16 |
| Annex C | (informative) Typical test report17 |
| Annex D | (informative) Novel design guard and restraining systems tests20 |

INTRODUCTION

This document is a type C standard as stated in ISO 12100.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this standard.

When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence over the provisions of the other standards, for machines that have been designed and built according to the provisions of this type C standard.

AUSTRALIAN STANDARD

Agricultural tractor power take-offs

Part 4:

Guards for power take-off (PTO) drive-shafts—Strength and wear tests and acceptance criteria**1 Scope**

This International Standard specifies laboratory tests for determining the strength and wear resistance of guards for power take-off (PTO) drive-shafts on tractors and machinery used in agriculture and forestry, and their acceptance criteria. It is intended to be used in combination with ISO 5673.

It is applicable to the testing of PTO drive-shaft guards and their restraining means. It is not applicable to the testing of guards designed and constructed to be used as steps.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 105-A02, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour*

ISO 500 (all parts), *Agricultural tractors — Rear-mounted power take-off types 1, 2 and 3*

ISO 4892-1, *Plastics — Methods of exposure to laboratory light sources — Part 1: General guidance*

ISO 4892-2, *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc sources*

ISO 5673-1, *Agricultural tractors and machinery — Power take-off drive shafts and power-input connection — Part 1: General, manufacturing and safety requirements*

ISO 5673-2, *Agricultural tractors and machinery — Power take-off drive shafts and power-input connection — Part 2: Specification for use of PTO drive shafts, and position and clearance of PTO drive line and PIC for various attachments*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5673-1 and the following apply.

3.1**ambient temperature**

any temperature between 5 °C and 35 °C