

# American National Standard

*Powered Walk-Behind Rotary Tillers  
and Hand-Supported Cultivators –  
Safety Specifications*

---





**ANSI/OPEI B71.8-2016**

Revision of  
ANSI/OPEI B71.8-1996  
(R2005)

American National Standard

**Powered Walk-Behind Rotary Tillers  
and Hand-Supported Cultivators –  
Safety Specifications**

Sponsor

**Outdoor Power Equipment Institute, Inc. (OPEI)**

Approved January 13, 2016  
Published February 11, 2016

**American National Standards Institute, Inc.**

# American National Standard

Approval of an American National Standard requires review by ANSI that the requirements for due process, consensus, and other criteria for approval have been met by the standards developer.

Consensus is established when, in the judgement of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made towards their resolution.

The use of American National Standards is completely voluntary; their existence does not in any respect preclude anyone, whether he has approved the standards or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standards.

The American National Standards Institute does not develop standards and will in no circumstances give an interpretation of any American National Standard. Moreover, no person shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute. Requests for interpretations should be addressed to the secretariat or sponsor whose name appears on the title page of this standard.

**CAUTION NOTICE:** This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken periodically to reaffirm, revise, or withdraw this standard. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

Published by

**American National Standards Institute, Inc.  
25 West 43rd Street, New York, NY 10036**

Copyright © 2016 by Outdoor Power Equipment Institute, Inc. (OPEI)  
All rights reserved.

No part of this publication may be reproduced in any form, stored in an electronic retrieval system, or transmitted in any form or by any means (electronic, photocopying, recording, or otherwise), without prior written permission of the publisher.

Printed in the United States of America

## Contents

|  | Page |
|--|------|
| Foreword .....   | iii  |
| <b>1</b> Scope .....   | 1    |
| <b>2</b> Normative references .....  | 1    |
| <b>3</b> Definitions .....   | 2    |
| <b>4</b> Machine identification .....  | 3    |
| <b>5</b> Controls .....  | 3    |
| 5.1 Control location .....   | 3    |
| 5.2 Resistance to movement .....   | 3    |
| 5.3 Control identification .....   | 3    |
| 5.4 Shutoff control device .....   | 3    |
| 5.5 Engine (motor) speed control .....   | 4    |
| 5.6 Tine/traction control .....  | 4    |
| 5.7 Emergency stop control (powered reverse) .....   | 4    |
| <b>6</b> General requirements .....  | 4    |
| 6.1 Stabilization and starting .....   | 4    |
| 6.2 Handle structure (fastening) .....   | 4    |
| 6.3 Power disengagement (clutch action) .....  | 4    |
| <b>7</b> Shields or guards .....   | 5    |
| 7.1 Power drives .....   | 5    |
| 7.2 Attachment of shields or guards .....  | 6    |
| 7.3 Hot surfaces .....   | 6    |
| 7.4 Engine exhaust .....   | 7    |
| <b>8</b> Servicing instructions .....  | 7    |
| <b>9</b> Electrical requirements .....   | 7    |
| 9.1 General .....  | 7    |
| 9.2 Line voltage circuits .....  | 7    |
| 9.3 Low-voltage battery-powered circuits (not including magneto<br>grounding circuits) ..... | 8    |
| 9.4 High-tension cable .....   | 8    |
| <b>10</b> Label durability requirements .....  | 8    |
| 10.1 General .....   | 8    |
| 10.2 Additional requirements .....   | 8    |
| 10.3 Types considered durable .....  | 8    |
| 10.4 Silk screening .....  | 8    |

|                | Page  |
|----------------|---|
| <b>11</b>      | Safety messages ..... 9   |
| 11.1           | On-product labeling ..... 9   |
| 11.2           | Safety instructions ..... 9   |
| <b>Table</b>   |   |
| <b>1</b>       | Method for the use of the test cones ..... 7  |
| <b>Figures</b> |   |
| <b>1</b>       | Operator zone and operator hand control position ..... 10   |
| <b>2</b>       | Safe starting zone - Hand-supported cultivators..... 12   |
| <b>3</b>       | Finger probe ..... 13   |
| <b>4</b>       | Tine shielding for rear tine tillers ..... 14   |
| <b>5</b>       | Guarding of tilling means - Hand-supported cultivators ..... 15                                       |
| <b>6</b>       | Test cones for the determination of hot parts accessibility ..... 18                                  |
| <b>7</b>       | Safety instructions for powered walk-behind rotary tillers and<br>hand-supported cultivators ..... 19 |
| <b>8</b>       | Safety messaging for powered walk-behind rotary tillers and<br>hand-supported cultivators ..... 22    |
| <b>9</b>       | Safety sign ..... 22  |
| <b>Annexes</b> |   |
| <b>A</b>       | Rationale..... 23   |
| <b>B</b>       | Bibliography ..... 26   |

**Foreword** (This foreword is not part of American National Standard ANSI/OPEI B71.8-2016.)

This standard is a revision of *American National Standard for Outdoor Power Equipment – Powered Walk-Behind Rotary Tillers and Hand-Supported Cultivators - Safety Specifications*, ANSI/OPEI B71.8-1996 (R2005). This standard was first published in 1986, and the current standard is the 3<sup>rd</sup> edition.

The present revision was prepared by the Outdoor Power Equipment Institute's (OPEI) Tillers Committee (B71.8), as part of OPEI's continuing work on standards.

A summary of the principal changes included in this revision are as follows:

- Revised Scope to (a) clarify this standard is applicable irrespective of the type of power source, and (b) does not apply to cultivator attachments covered by the applicable ANSI/OPEI B175 standards;
- Revised definition for hand-supported cultivator;
- Added machine identification requirements;
- Revised starting stabilization requirements for hand-supported cultivators;
- Added an operator zone emergency stop control requirement for machines with a powered reverse function;
- Revised the rear tine shielding requirements;
- Revised hot exhaust surface requirements;
- Added ANSI/UL 969 as an alternative to ASTM label durability requirements;
- Removed fuel tank overfill and fuel line pull test, covered by applicable ANSI/OPEI standards (Annex B);
- Added use of symbols as an alternative to text for on-product safety warnings;
- Revised list of required operator manual safety warnings.

Consensus for this standard was achieved by the use of the Canvass Method. The annexes in this standard (A and B) are informative and not considered part of this standard.

Suggestions for improvement of the standard will be welcome. They should be sent to the Outdoor Power Equipment Institute, 341 South Patrick Street, Alexandria, VA 22314 or [www.opei.org](http://www.opei.org), (703) 549-7600.

The following organizations are recognized as having an interest in the standardization of safety requirements for powered walk-behind rotary tillers and hand-supported cultivators and were contacted prior to the approval of this revision of the standard. Inclusion in the list does not necessarily imply that the organization concurred with the submittal of the proposal to ANSI.

**Producers**

Husqvarna  
MTD Products Inc.  
Techtronic Industries Power Equipment  
TEC International

**Users**

Briggs & Stratton Corporation  
The Toro Company

**General Interest**

American Society of Agricultural and Biological Engineers (ASABE)  
Dan Nielsen, independent consultant  
Mark Siemens, University of Arizona  
Stuart Birrell, Iowa State

## American National Standard

# Powered Walk-Behind Rotary Tillers and Hand-Supported Cultivators – Safety Specifications

## 1 Scope

The requirements provided in this standard are for powered walk-behind rotary tillers and hand-supported cultivators. This standard is intended to provide safety and design requirements to help ensure uniform operator environments, exclusive of the power source. This standard shall apply to machines specifically marketed for consumer / personal use.

This standard does not apply to commercial or agricultural machines or machines primarily for agricultural purposes such as defined in ANSI/SAE J1116 or SAE J1150. This standard does not apply to tractor mounted or drawn tillers or to cultivator attachments which are adaptations of, or accessories to, handheld string trimmers and brushcutters covered by the applicable ANSI/OPEI B175 standards. This standard is not intended to completely cover electrical requirements.

The effective implementation date of this standard shall be two (2) years after the publication date and shall apply to all products built after that date. Manufacturers may also comply with the requirements of this standard anytime after the publication date.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this American National Standard. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

ANSI/ASAE S304.5, *Graphical Symbols for Operator Controls on Agricultural Equipment*<sup>1</sup>

ANSI/NEMA Z535.4, *Product safety signs and labels*

ANSI/UL 82, *Standard for Electric Gardening Appliances*

ANSI/UL 969, *Standard for Marking and Labeling Systems*

ASTM G152, *Standard Practice for Operating Open Flame Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials*<sup>2</sup>

ASTM G155, *Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials*

ISO 3767-1, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment – Symbols for operator controls and other displays – Part 1: Common symbols*<sup>3</sup>

ISO 3767-1 / Amd 1, *Additional symbols*

ISO 3767-1 / Amd 2, *Additional symbols concerning the engine emissions system and diesel exhaust fluid*

<sup>1</sup> ANSI standards available from the American National Standards Institute, 25 West 43<sup>rd</sup> St., New York, NY 10036; (212) 642-4900; [www.ansi.org](http://www.ansi.org)

<sup>2</sup> ASTM standards available from ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428; (610) 832-9500; [www.astm.org](http://www.astm.org)

<sup>3</sup> ISO standards are available from the American National Standards Institute, 25 West 43<sup>rd</sup> St., New York, NY 10036; (212) 642-4900; [www.ansi.org](http://www.ansi.org)