



# UL 62841-4-7

## STANDARD FOR SAFETY

Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 4-7: Particular Requirements for Pedestrian Controlled Walk-Behind Lawn Scarifiers and Aerators

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UL Standard for Safety for Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 4-7: Particular Requirements for Pedestrian Controlled Walk-Behind Lawn Scarifiers and Aerators, UL 62841-4-7

First Edition, Dated December 21, 2023

### **SUMMARY OF TOPICS**

***Adoption of the First Edition of IEC 62841-4-7, Standard for Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 4-7: Particular Requirements for Pedestrian Controlled Walk-Behind Lawn Scarifiers and Aerators, as the First Edition of UL 62841-4-7 dated December 21, 2023.***

***UL 62841-4-7 is an adoption of IEC 62841-4-7, First Edition, issued by the IEC July 2022, including Corrigendum 1, issued 2023. Please note that the National Difference document incorporates all of the U.S. national differences for UL 62841-4-7.***

The new requirements are substantially in accordance with Proposal(s) on this subject dated October 22, 2021.

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CSA Group  
CSA C22.2 No. 62841-4-7:23  
First Edition  
(IEC 62841-4-7:2022, MOD)



ULSE Inc.  
UL 62841-4-7  
First Edition

# Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 4-7: Particular Requirements for Pedestrian Controlled Walk-Behind Lawn Scarifiers and Aerators

December 21, 2023

This national standard is based on publication IEC 62841-4-7 First Edition (2022), including Corrigendum 1 (2023).

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ANSI/UL 62841-4-7-2023



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The most recent designation of ANSI/UL 62841-4-7 as an American National Standard (ANSI) occurred on December 21, 2023. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page (front and back), or the Preface. The National Difference Page and IEC Foreword are also excluded from the ANSI approval of IEC-based standards.

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## Preface

This is the harmonized CSA Group and ULSE Standard for Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 4-7: Particular Requirements for Pedestrian Controlled Walk-Behind Lawn Scarifiers and Aerators. It is the First edition of CSA C22.2 No. 62841-4-7 and the First edition of UL 62841-4-7.

This harmonized standard is based on IEC Publication 62841-4-7: First edition, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 4-7: Particular Requirements for Pedestrian Controlled Walk-Behind Lawn Scarifiers and Aerators, issued July 2022, and IEC Corrigendum 1, issued May 2023. IEC 62841-4-7 is copyrighted by the IEC.

This harmonized standard was prepared by CSA Group and ULSE. The efforts and support of the International Harmonization Committee (IHC) for the adoption of the IEC series of standards for Hand-Held, Motor-Operated, and Transportable Tools and Lawn and Garden Machinery, are gratefully acknowledged.

This standard is considered suitable for use for conformity assessment within the stated scope of the standard.

This standard was reviewed by the CSA Subcommittee on Safety of Hand-Held Motor-Operated Electric Tools, under the jurisdiction of the CSA Technical Committee on Consumer and Commercial Products and the CSA Strategic Steering Committee on requirements for Electrical Safety, and has been formally approved by the CSA Technical Committee. This standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

## Application of Standard

Where reference is made to a specific number of samples to be tested, the specified number is to be considered a minimum quantity.

Note: Although the intended primary application of this standard is stated in its scope, it is important to note that it remains the responsibility of the users of the standard to judge its suitability for their particular purpose.

CSA C22.2 No. 62841-4-7 is to be used in conjunction with the First edition of CAN/CSA-C22.2 No. 62841-1. The requirements for pedestrian controlled walk-behind lawn scarifiers and aerators are contained in this Part 4 Standard and CAN/CSA-C22.2 No. 62841-1. Requirements of this Part 4 Standard, where stated, amend the requirements of CAN/CSA-C22.2 No. 62841-1. Where a particular subclause of CAN/CSA-C22.2 No. 62841-1 is not mentioned in CSA C22.2 No. 62841-4-7, the CAN/CSA-C22.2 No. 62841-1 subclause applies.

UL 62841-4-7 is to be used in conjunction with the First edition of UL 62841-1. The requirements for pedestrian controlled walk-behind lawn scarifiers and aerators are contained in this Part 4 Standard and UL 62841-1. Requirements of this Part 4 Standard, where stated, amend the requirements of UL 62841-1. Where a particular subclause of UL 62841-1 is not mentioned in 62841-4-7, the UL 62841-1 subclause applies.

## Level of harmonization

This standard adopts the IEC text with national differences.

This standard is published as an equivalent standard for CSA Group and ULSE.

An equivalent standard is a standard that is substantially the same in technical content, except as follows: Technical national differences are allowed for codes and governmental regulations as well as those recognized as being in accordance with NAFTA Article 905, for example, because of fundamental climatic, geographical, technological, or infrastructural factors, scientific justification, or the level of protection that the country considers appropriate. Presentation is word for word except for editorial changes.

All national differences from the IEC text are included in the CSA Group and ULSE versions of the standard. While the technical content is the same in each organization's version, the format and presentation may differ.

### **Reasons for Differences From IEC**

National differences from the IEC are being added in order to address safety and regulatory situations present in the US and Canada.

### **Interpretations**

The interpretation by the standards development organization of an identical or equivalent standard is based on the literal text to determine compliance with the standard in accordance with the procedural rules of the standards development organization. If more than one interpretation of the literal text has been identified, a revision is to be proposed as soon as possible to each of the standards development organizations to more accurately reflect the intent.

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## NATIONAL DIFFERENCES

National Differences from the text of International Electrotechnical Commission (IEC) Publication 62841-4-7, Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 4-7: Particular requirements for pedestrian controlled walk-behind lawn scarifiers and aerators, copyright 2022, are indicated by notations (differences) and are presented in bold text. The national difference type is included in the body.

There are five types of National Differences as noted below. The difference type is noted on the first line of the National Difference in the standard. The standard may not include all types of these National Differences.

**DR** – These are National Differences based on the **national regulatory requirements**.

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**D2** – These are National Differences from IEC requirements based on existing **safety practices**. These requirements reflect national safety practices, where empirical substantiation (for the IEC or national requirement) is not available or the text has not been included in the IEC standard.

**DC** – These are National Differences based on the **component standards** and will not be deleted until a particular component standard is harmonized with the IEC component standard.

**DE** – These are National Differences based on **editorial comments or corrections**.

Each national difference contains a description of what the national difference entails. Typically one of the following words is used to explain how the text of the national difference is to be applied to the base IEC text:

**Addition / Add** - An addition entails adding a complete new numbered clause, subclause, table, figure, or annex. Addition is not meant to include adding select words to the base IEC text.

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## FOREWORD

### INTERNATIONAL ELECTROTECHNICAL COMMISSION

#### **ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY – Part 4-7: Particular requirements for pedestrian controlled walk-behind lawn scarifiers and aerators**

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IEC 62841-4-7 has been prepared by IEC technical committee 116: Safety of motor-operated electric tools. It is an International Standard.

The text of this International Standard is based on the following documents:

Draft	Report on voting
116/589/FDIS	116/621/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document is to be used in conjunction with the first edition of IEC 62841-1 (2014).

This document supplements or modifies the corresponding clauses in IEC 62841-1, so as to convert it into the IEC Standard: Particular requirements for pedestrian controlled walk-behind lawn scarifiers and aerators.

Where a particular subclause of IEC 62841-1 is not mentioned in this document, that subclause applies as far as reasonable. Where this document states "addition", "modification" or "replacement", the relevant text in IEC 62841-1 is to be adapted accordingly.

The following print types are used:

- requirements: in roman type;
- *test specifications: in italic type;*
- notes: in small roman type.

The terms defined in Clause 3 are printed in **bold typeface**.

Subclauses, notes, tables and figures which are additional to those in IEC 62841-1 are numbered starting from 101.

Subclauses, notes, tables and figures in Annex K and Annex L which are additional to those in the main body of this document are numbered starting from 301.

A list of all parts in the IEC 62841 series, published under the general title *Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety*, can be found on the IEC website.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under [webstore.iec.ch](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

NOTE The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 36 months from the date of publication.

The contents of the corrigendum 1 (2023-05) have been included in this copy.

**101DV DE Modification: Add the following to the IEC Foreword:**

The numbering system in the standard uses a space instead of a comma to indicate thousands and uses a comma instead of a period to indicate a decimal point. For example, 1 000 means 1,000 and 1,01 means 1.01.

**102DV DE Modification: Add the following to the IEC Foreword:**

For this Standard, all references to "Part 1" refer to CAN/CSA-C22.2 No. 62841-1 and UL 62841-1.

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## INTRODUCTION

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# ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY – Part 4-7: Particular requirements for pedestrian controlled walk-behind lawn scarifiers and aerators

## 1 Scope

IEC 62841-1:2014, Clause 1 is applicable, except as follows:

*Addition:*

This document applies to pedestrian controlled walk-behind **lawn scarifiers** and **lawn aerators** which are designed for regenerating lawns by combing out materials such as grass, thatch and moss or cutting vertically into the lawn face using

- metallic **tines**; and/or
- rigid non-metallic **tines**

which rotate about a horizontal axis.

This document does not apply to

- pedestrian controlled walk-behind lawnmowers;
- towed/semi-mounted **lawn scarifiers** and **lawn aerators**;
- ride-on machines;
- non-powered **lawn scarifiers** and **lawn aerators**;
- combustion engine powered **lawn scarifiers** and **lawn aerators**;
- plug aerators (corers);
- hybrid and fuel cell powered machines and associated charging systems; and
- garden tractors or their attachments.

NOTE 101 Pedestrian controlled walk-behind lawnmowers are covered by IEC 62841-4-3.

## 2 Normative references

IEC 62841-1:2014, Clause 2 is applicable, except as follows:

*Addition:*

IEC 60664-3:2016, *Insulation coordination for equipment within low-voltage systems – Part 3: Use of coating, potting or moulding for protection against pollution*

IEC 60664-4:2005, *Insulation coordination for equipment within low-voltage systems – Part 4: Consideration of high-frequency voltage stress*

IEC 61058-2-6:2018, *Switches for appliances – Part 2-6: Particular requirements for switches used in electric motor-operated hand-held tools, transportable tools and lawn and garden machinery*

IEC 61672-1:2013, *Electroacoustics – Sound level meters – Part 1: Specifications*

IEC 62841-1:2014, *Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 1: General requirements*

ISO 354:2003, *Acoustics – Measurement of sound absorption in a reverberation room*

ISO 2758:2014, *Paper – Determination of bursting strength*

ISO 13857:2019, *Safety of machinery – Safety distances to prevent hazard zones being reached by upper and lower limbs*

*Replacement:*

IEC 61058-1:2016, *Switches for appliances – Part 1: General requirements*

ISO 3744:2010, *Acoustics – Determination of sound power levels and sound energy levels of noise sources using sound pressure – Engineering methods for an essentially free field over a reflecting plane*

ISO 11201:2010, *Acoustics – Noise emitted by machinery and equipment – Determination of emission sound pressure levels at a work station and at other specified positions in an essentially free field over a reflecting plane with negligible environmental corrections*

### 3 Terms and definitions

IEC 62841-1:2014, Clause 3 is applicable, except as follows:

*Addition:*

#### 3.101 catcher

part or combination of parts, intended to be used with the **lawn scarifier** or **lawn aerator**, which provides a means for collecting material such as grass, thatch, moss or other debris

#### 3.102 cutting width

total width of scarification/aeration measured across the **tines** at 90° to the direction of travel

#### 3.103 discharge chute

extension of the **tines enclosure** from the **discharge opening**, generally used to control the discharge of material from the **tines**

3.104

**discharge opening**

gap or opening in the **tines enclosure** through which grass, thatch, moss and other debris may be discharged

3.104.1

**front discharge**

**discharge opening** for throwing out grass, thatch and moss so that they will be collected in a **catcher** which is located in front of the **tines**

3.104.2

**rear discharge**

**discharge opening** for throwing out grass, thatch and moss so that they will be collected in a **catcher** which is located behind the **tines**

3.105

**lawn aerator**

machine equipped with a **tines assembly** which uses the ground to determine the depth of cut, designed for penetrating the lawn surface

Note 101 to entry: See [Figure 101](#).

Note 102 to entry: **Lawn aerators** that are designed to only make shallow cuts or slices in the soil are also known as verticutters.

3.106

**lawn scarifier**

machine equipped with a **tines assembly** designed to scratch the surface or earth face

Note 101 to entry: See [Figure 101](#).

Note 102 to entry: **Lawn scarifiers** are also known as lawn rakes and dethatchers.

3.107

**maximum speed**

highest steady-state **tines** speed attainable under all conditions of **normal use**, including no-load, when adjusted in accordance with the manufacturer's specifications and/or instructions

Note 101 to entry: The steady-state **tines** speed excludes transients such as overshoot that may occur before attaining a steady-state condition.

3.108

**operator control**

device requiring operator actuation to perform specific functions during **normal operation**

3.109

**operator presence control**

device that deactivates rotation of the **tines** when the operator's hand(s) is removed from the control

Note 101 to entry: The device typically consists of a combination of a mechanical actuator and other mechanical and electrical components (e.g. tactile switch, relays, load switches or **electronic components**).

3.110

**parking brake**

device to prevent a stationary machine from moving