

*National Standard of Canada*

*CSA C22.2 No. 62841-4-4:21*

***Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery — Safety — Part 4-4: Particular requirements for lawn trimmers, lawn edge trimmers, grass trimmers, brush cutters and brush saws  
(IEC 62841-4-4:2020, MOD)***

**Note:** For brevity, this Standard will be referred to as “CSA C22.2 No. 62841-4-4” throughout.

OCTOBER 29, 2021

This national standard is based on publication IEC 62841-4-4, First Edition (2020).

Prepared by  
International Electrotechnical Commission



Reviewed by



CSA Group  
CSA C22.2 No. 62841-4-4:21  
First Edition  
(IEC 62841-4-4:2020, MOD)



Underwriters Laboratories Inc.  
UL 62841-4-4  
First Edition

ICS 25.140.20



ANSI/UL 62841-4-4-2021

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## PREFACE

This is the harmonized CSA Group and UL standard for Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 4-4: Particular Requirements for Lawn Trimmers, Lawn Edge Trimmers, Grass Trimmers, Brush Cutters and Brush Saws. It is the First edition of CSA C22.2 No. 62841-4-4, and the First edition of UL 62841-4-4.

This harmonized standard is based on IEC Publication 62841-4-4: First edition, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 4-4: Particular Requirements for Lawn Trimmers, Lawn Edge Trimmers, Grass Trimmers, Brush Cutters and Brush Saws issued November 2020. IEC publication 62841-4-4 is copyrighted by the IEC.

This harmonized standard was prepared by CSA Group and Underwriters Laboratories Inc. (UL). 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 UL 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. 62841-4-4 is to be used in conjunction with the first edition of CAN/CSA-C22.2 No. 62841-1. The requirements for lawn trimmers, lawn edge trimmers, grass trimmers, brush cutters and brush saws are contained in this Part 4-4 Standard and CAN/CSA-C22.2 No. 62841-1. Requirements of this Part 4-4 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. 62841-4-4, the CAN/CSA-C22.2 No. 62841-1 subclause applies.

UL 62841-4-4 is to be used in conjunction with the first edition of UL 62841-1. The requirements for lawn trimmers, lawn edge trimmers, grass trimmers, brush cutters and brush saws are contained in this Part 4-4 Standard and UL 62841-1. Requirements of this Part 4-4 Standard, where stated, amend the requirements of UL 62841-1. Where a particular subclause of UL 62841-1 is not mentioned in UL 62841-4-4, the UL 62841-1 subclause applies.

### Level of Harmonization

This standard adopts the IEC text with editorial national differences.

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

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 UL 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**

Differences from the IEC are being added in order to address safety and regulatory situations present in Canada and the U.S.

### **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.

### **IEC Copyright**

For CSA Group, the text, figures, and tables of International Electrotechnical Commission Publication 62841-4-4, Standard for Safety for Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 4-4: Particular requirements for lawn trimmers, lawn edge trimmers, grass trimmers, brush cutters and brush saws, copyright 2020, are used in this standard with the consent of the International Electrotechnical Commission. The IEC Foreword and Introduction are not a part of the requirements of this standard but are included for information purposes only.

These materials are subject to copyright claims of IEC and UL. No part of this publication may be reproduced in any form, including an electronic retrieval system, without the prior written permission of UL. All requests pertaining to the Standard for Safety for Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 4-4: Particular requirements for lawn trimmers, lawn edge trimmers, grass trimmers, brush cutters and brush saws, UL 62841-4-4 Standard should be submitted to UL.

## NATIONAL DIFFERENCES

National Differences from the text of International Electrotechnical Commission (IEC) Publication 62841-4-4, Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 4-4: Particular requirements for lawn trimmers, lawn edge trimmers, grass trimmers, brush cutters and brush saws, copyright 2020, 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**.

**D1** – These are National Differences which are based on **basic safety principles and requirements**, elimination of which would compromise safety for consumers and users of products.

**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.

**Modification / Modify** - A modification is an altering of the existing base IEC text such as the addition, replacement or deletion of certain words or the replacement of an entire clause, subclause, table, figure, or annex of the base IEC text.

**Deletion / Delete** - A deletion entails complete deletion of an entire numbered clause, subclause, table, figure, or annex without any replacement text.

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## FOREWORD

### INTERNATIONAL ELECTROTECHNICAL COMMISSION

#### **ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY – Part 4-4: Particular requirements for lawn trimmers, lawn edge trimmers, grass trimmers, brush cutters and brush saws**

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

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8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.

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

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

FDIS	Report on voting
116/468/FDIS	116/479/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

This Part 4-4 is to be used in conjunction with the first edition of IEC 62841-1:2014.

This Part 4-4 supplements or modifies the corresponding clauses in IEC 62841-1, so as to convert it into the IEC Standard: Particular requirements for lawn trimmers, lawn edge trimmers, grass trimmers, brush cutters and brush saws.

Where a particular subclause of Part 1 is not mentioned in this Part 4-4, that subclause applies as far as reasonable. Where this standard states "addition", "modification" or "replacement", the relevant text in Part 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 Part 1 as well as Annexes of Part 1, except as described for Annex K and Annex L below, 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 Part 4-4 are numbered starting from 301.

A list of all parts of the IEC 62841 series, 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.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<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.

**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

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of patents concerning prevention of inadvertent starting given in Subclause 21.18.101.

IEC takes no position concerning the evidence, validity and scope of this patent right.

The holders of these patent rights have assured the IEC that they are willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statements of the holders of these patent rights are registered with IEC. Information may be obtained from:

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D-70442 Stuttgart, Germany

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those identified above. IEC shall not be held responsible for identifying any or all such patent rights.

ISO ([www.iso.org/patents](http://www.iso.org/patents)) and IEC (<http://patents.iec.ch>) maintain on-line data bases of patents relevant to their standards. Users are encouraged to consult the data bases for the most up to date information concerning patents.

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# ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY –

## Part 4-4: Particular requirements for lawn trimmers, lawn edge trimmers, grass trimmers, brush cutters and brush saws

### 1 Scope

This clause of Part 1 is applicable, except as follows:

*Addition:*

This document applies to hand-held and **walk-behind lawn trimmers** and **lawn edge trimmers**, used by a standing operator for cutting grass, weeds or similar soft vegetation, and **grass trimmers**, **brush cutters** and **brush saws** used by a standing operator for cutting grass, weeds, brush, bushes, saplings and similar vegetation.

This document does not apply to

- hand-held machines having a mass of 18 kg or greater;
- self-propelled **lawn trimmers** or **lawn edge trimmers**;
- scissors type **lawn trimmers** and **lawn edge trimmers**;
- machines equipped with metallic **cutting accessories** consisting of more than one piece, e.g. pivoting chains or flail blades;
- edgers with rigid and/or metallic cutting devices.

NOTE 101 Freely pivoting non-metallic **cutting elements** are considered not to be rigid cutting devices.

NOTE 102 Edgers with rigid or metal cutting devices will be covered by a future part of IEC 62841-4.

NOTE 103 Annex [EE](#) provides an informative summary of characteristics for **lawn trimmers**, **lawn edge trimmers**, **grass trimmers**, **brush cutters** and **brush saws**.

**Brush cutters** and **brush saws** covered by this document are designed only to be operated with the machine to the right of the operator.

### 2 Normative references

This clause of Part 1 is applicable, except as follows:

*Replacement of undated normative reference for ISO 3744:*

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*

*Addition:*

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

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

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

ISO 683-4:2016, *Heat-treatable steels, alloy steels and free-cutting steels – Part 4: Free-cutting steels*

ISO 7918:1995, *Forestry machinery – Portable brush-cutters and grass-trimmers – Cutting attachment guard dimensions*

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*

ISO 22868:2011, *Forestry and gardening machinery – Noise test code for portable hand-held machines with internal combustion engine – Engineering method (Grade 2 accuracy)*

### 3 Terms and definitions

This clause of Part 1 is applicable, except as follows:

*Addition:*

3.101

**barrier**

device attached to the machine, designed to maintain a minimum distance between the operator and the **cutting accessory** when the machine is being operated

3.102

**blade thrust**

sudden sideways, forward or backward motion of the machine, which may occur when the **cutting accessory** jams or catches on an object such as a sapling or a tree stump

3.103

**BRUSH CUTTER**

machine with a rotating **cutting accessory** intended to cut weeds, scrub, brush, and similar vegetation

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

3.104

**brush saw**

machine with a rotating circular metal cutting accessory having peripheral cutting teeth, designed to cut wood, such as small trees and saplings, by continuously removing material

Note 101 to entry: See [Figure 102](#).

3.105

**cutting accessory**

rigid cutting device made of metal or plastic, used on **brush cutters** and **brush saws**

3.106

**cutting element**

single non-metallic filament line or freely pivoting non-metallic cutter

3.107

**cutting head**

support and retention system for the **cutting means**

Note 101 to entry: **Cutting heads** are used on **lawn trimmers**, **lawn edge trimmers** and **grass trimmers**.

3.108

**cutting means**

assembly of non-metallic filament line(s) or freely pivoting non-metallic cutter(s) that rotates about an axis perpendicular to the cutting plane, used to provide the cutting action by one or more **cutting elements**

Note 101 to entry: **Cutting means** are used on **lawn trimmers**, **lawn edge trimmers** and **grass trimmers**.

3.109

**grass trimmer**

machine with a **cutting means**, intended to cut small weeds, grass or similar soft vegetation, where the **cutting means** operates in a plane approximately parallel to the ground

Note 101 to entry: See [Figure 103](#).

3.110

**hand-held trimmer**

**lawn trimmer** or **lawn edge trimmer** which is supported by hand, possibly assisted by wheel(s), skids or harness, etc. and constructed such that it cannot maintain its operating position without being held by an operator

3.111

**lawn edge trimmer**

machine with a **cutting means** for cutting grass or similar soft vegetation where the **cutting means** operates in a plane approximately perpendicular to the ground

Note 101 to entry: See [Figure 104](#).

Note 102 to entry: The maximum kinetic energy for **cutting elements** on **lawn edge trimmers** is specified in [21.101](#).

3.112

**lawn trimmer**

machine with a **cutting means** for cutting grass or similar soft vegetation where the **cutting means** operates in a plane approximately parallel to the ground

Note 101 to entry: See [Figure 105](#).

Note 102 to entry: The maximum kinetic energy for **cutting elements** on **lawn trimmers** is specified in [21.101](#).

3.113

**maximum speed**

highest output speed attainable under all conditions of **normal use**, including no load

3.114

**operator presence sensor**

device to detect the presence of an operator's hand

3.115

**shaft**

element of the machine that distances the **cutting accessory** or **cutting means** from the handles

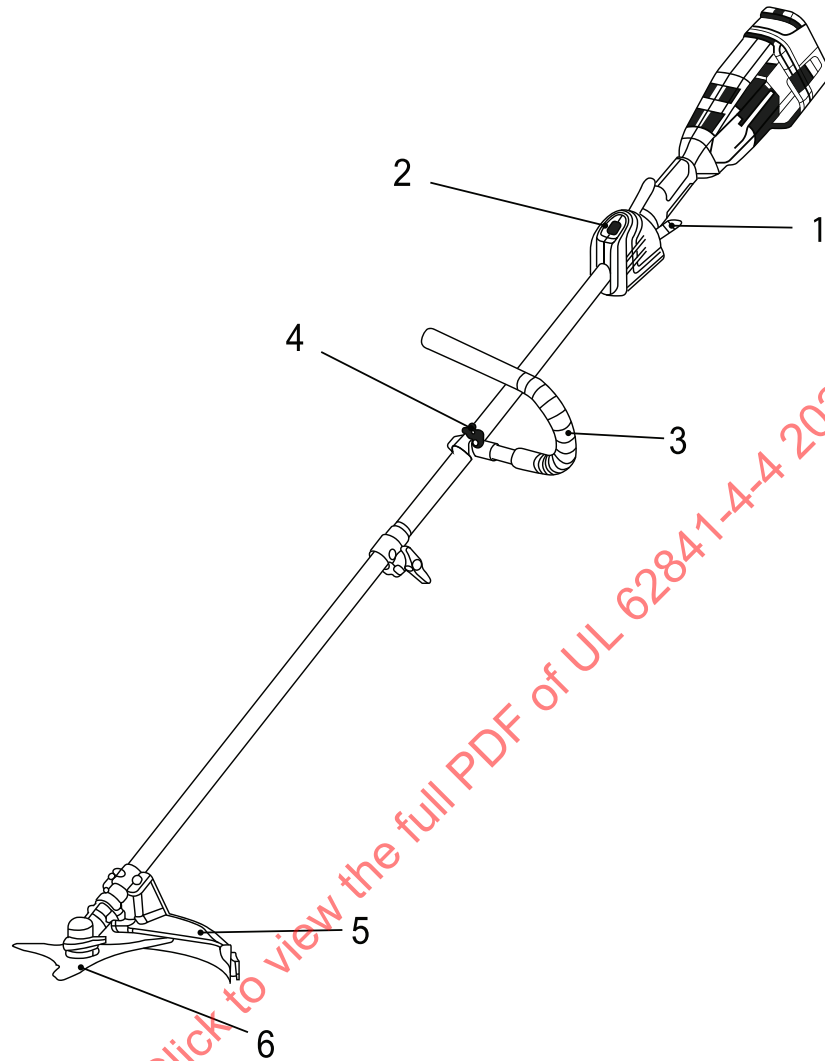
3.116

**walk-behind trimmer**

**lawn trimmer** or **lawn edge trimmer** which is ground supported, controlled by an operator walking behind and constructed such that it maintains its operating position without being held by an operator

Note 101 to entry: See [Figure 106](#).

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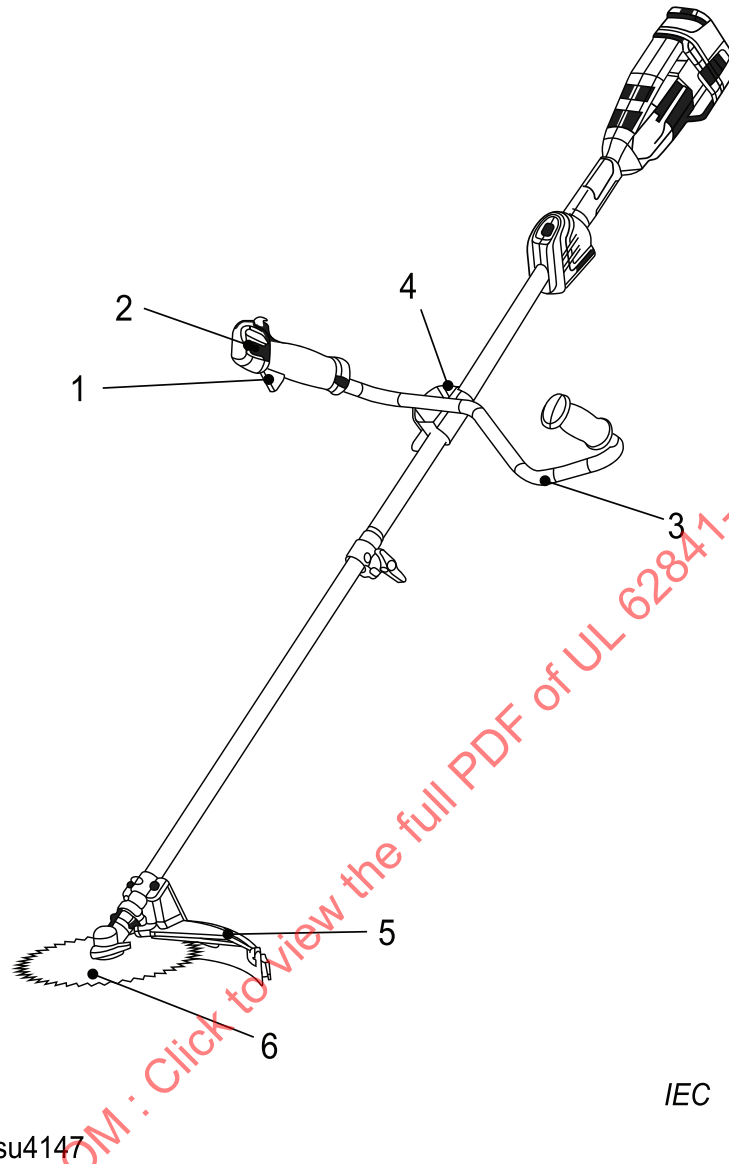
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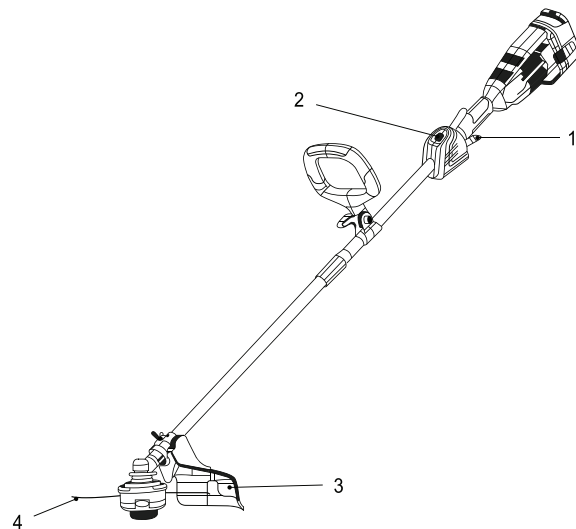
- 1 power switch
- 2 lock-off device
- 3 barrier
- 4 suspension point
- 5 cutting accessory guard
- 6 cutting accessory

**Figure 101**  
**Example of a brush cutter**

**Key**

- 1 power switch
- 2 lock-off device
- 3 barrier
- 4 suspension point
- 5 cutting accessory guard
- 6 cutting accessory

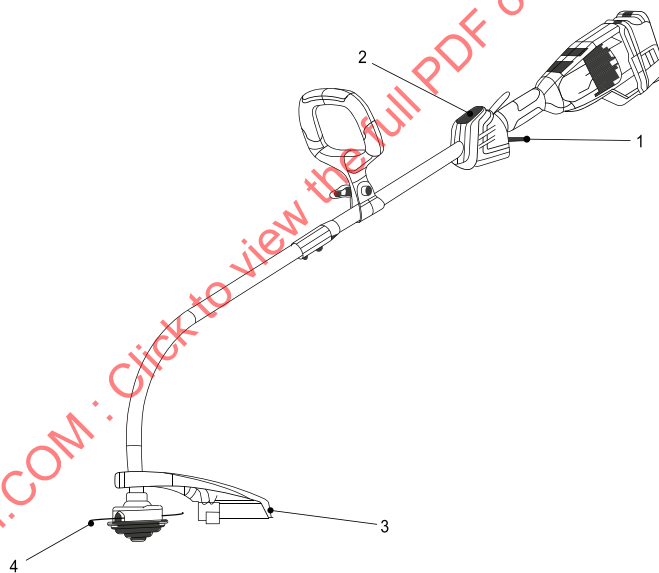
**Figure 102****Example of a brush saw**



su4148

IEC

a) Grass trimmer with straight shaft



su4149

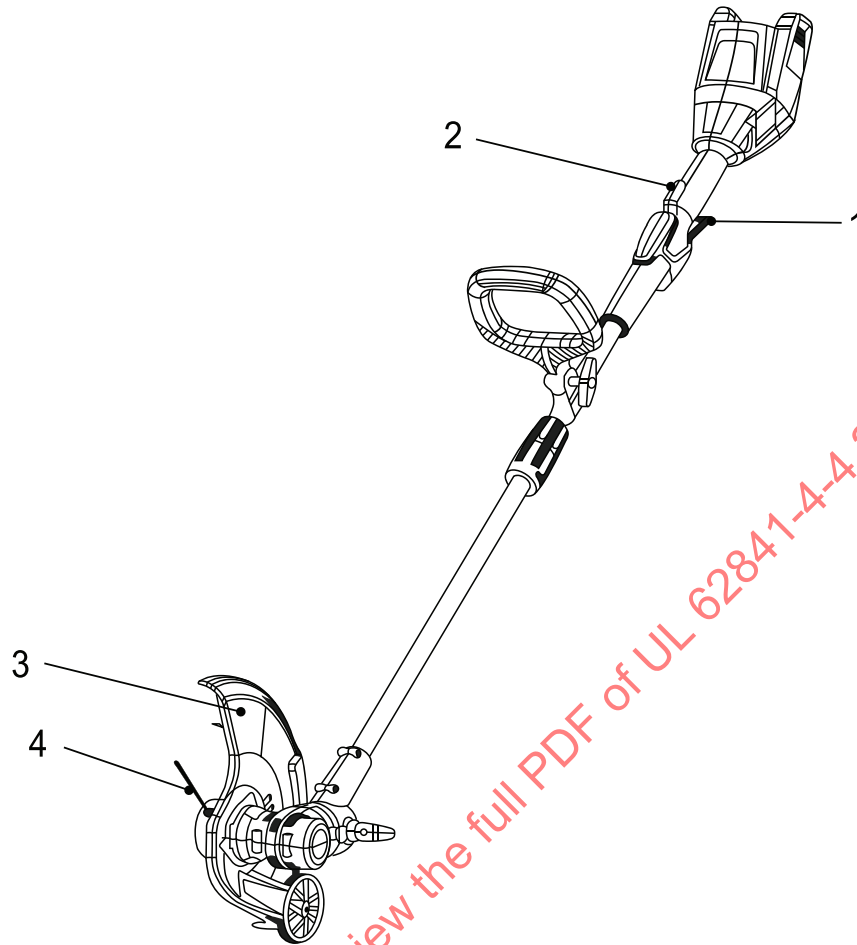
IEC

b) Grass trimmer with curved shaft

**Key**

- 1 power switch
- 2 lock-off device
- 3 cutting means guard
- 4 cutting means

**Figure 103**  
**Examples of grass trimmers**



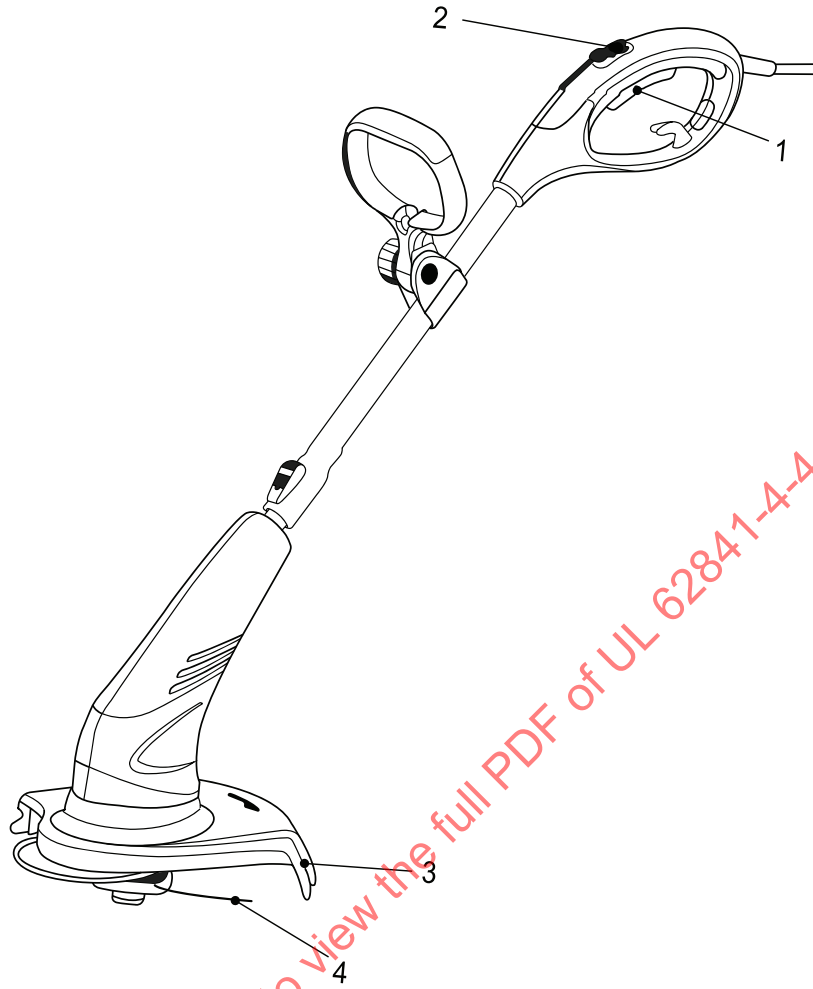
su4150

IEC

**Key**

- 1 power switch
- 2 lock-off device (if any)
- 3 cutting means guard
- 4 cutting means

**Figure 104****Example of a lawn edge trimmer**



su4151

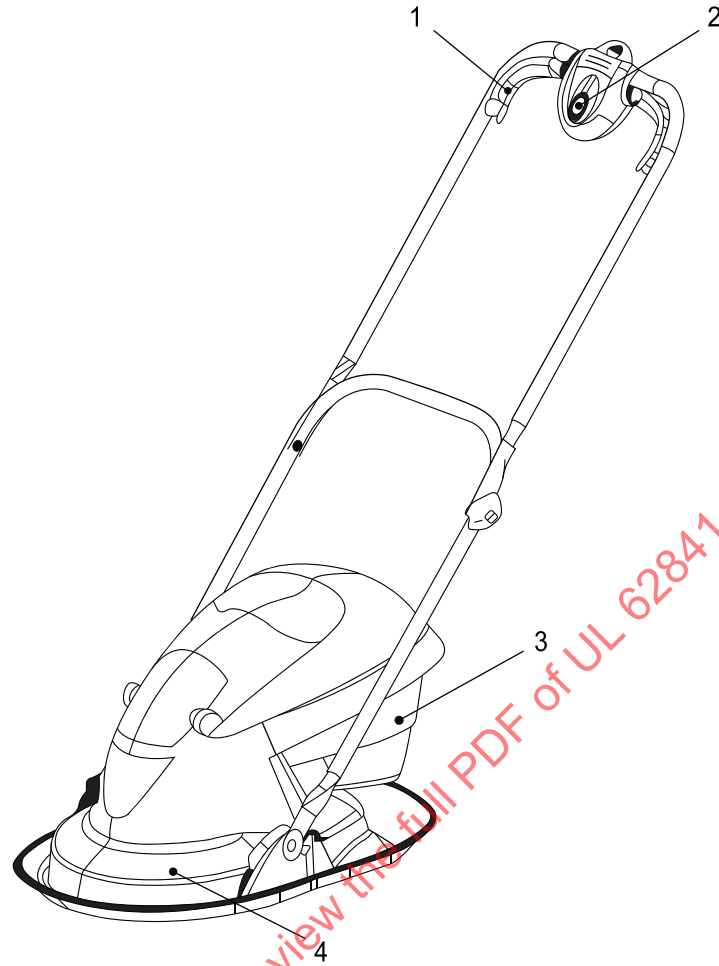
IEC

**Key**

- 1 power switch
- 2 lock-off device (if any)
- 3 cutting means guard
- 4 cutting means

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**Figure 105**  
**Example of a lawn trimmer**



su4152

IEC

**Key**

- 1 power switch
- 2 lock-off device (if any)
- 3 grass catcher (if any)
- 4 cutting means guard

**Figure 106****Example of a walk-behind trimmer**

#### 4 General requirements

This clause of Part 1 is applicable.

#### 5 General conditions for the tests

This clause of Part 1 is applicable, except as follows:

##### 5.4 Addition:

*Handle positions that are used for storage or transportation purposes are not included in this requirement.*

##### 5.17 Addition:

*For **brush cutters** and **brush saws**, the mass of the machine includes the heaviest **cutting accessory** in accordance with [8.14.2 a\) 101](#)) and [8.14.2 a\) 104](#)), but excludes the **cutting accessory** cover, harness and hip pad, if any.*

*For **lawn trimmers**, **lawn edge trimmers** and **grass trimmers**, the mass of the machine includes the **cutting head***

- with freely pivoting non-metallic cutters, if any; and*
- with a spool for non-metallic filament line, if any;*
- without the non-metallic filament line, if any;*

*and for **hand-held trimmers**, wheels or skids, if any.*

5.101 *The tests are carried out on the machine as supplied. However, a machine constructed as a single machine but supplied in an unassembled state is tested after assembly in accordance with 8.14.2.*

5.102 *Unless otherwise specified, for Clause [19](#) and Clause [21](#), machines are tested in each operating configuration as described in 8.14.2.*

5.103 *For tests that are performed at **maximum speed** and no load, the manufacturer may need to provide special hardware and/or software.*

#### 6 Radiation, toxicity and similar hazards

This clause of Part 1 is applicable.

#### 7 Classification

This clause of Part 1 is applicable, except as follows:

##### 7.1 Replacement:

Machines shall be of one of the following classes with respect to protection against electric shock:

**class II tool** (machine), **class III tool** (machine)

*Compliance is checked by inspection and by the relevant tests.*

## 7.2 Addition:

Walk-behind trimmers that are a **class II tool** (machine) shall be classified at least as IPX4.

## 8 Marking and instructions

This clause of Part 1 is applicable, except as follows:

### 8.1 Addition:

**Grass trimmers, brush cutters and brush saws** shall be marked with the **maximum speed** of the spindle assigned by the manufacturer.

The **cutting head** for **grass trimmers** and the **cutting accessories** for **brush cutters** and **brush saws** shall be marked with their maximum permitted rotational speed.

### 8.2.101 Additional safety markings

#### 8.2.101.1 General

Machines shall be marked with cautionary statements or instructions as specified in [8.2.101.2](#) to [8.2.101.8](#). A combination of ISO safety signs, such as eye, ear and head protection, is allowed. In addition, a combination of safety signs as specified in [Figure AA.1](#), [Figure AA.2](#) and [Figure AA.3](#) is allowed.

*Compliance is checked by inspection.*

8.2.101.2 For all machines, unless otherwise specified:

– "Wear eye protection" or a relevant safety sign of ISO 7010 or one of the safety signs specified in [Figure AA.4](#). This marking may be omitted for **walk-behind trimmers** with 360 degree guarding of the **cutting means**;

– "Wear ear protection" or a relevant safety sign of ISO 7010 or the safety sign specified in [Figure AA.5](#). This marking may be omitted if the measured A-weighted emission sound pressure level at the operator position in accordance with Annex I does not exceed 85 dB(A);

– the primary direction of rotation of the spindle, by a legible and durable mark that is visible when operating the machine. This marking may be on the **guard**. This marking may be omitted for **walk-behind trimmers**, machines with no primary direction (i.e. dual direction) of rotation of the spindle, or machines with 360 degree guarding of the **cutting means**.

8.2.101.3 For all hand-held machines with a degree of protection of less than IPX4:

– "Do not expose to rain" or the safety sign specified in [Figure AA.6](#).

8.2.101.4 For **lawn trimmers** and **lawn edge trimmers**:

– "⚠ WARNING – Keep bystanders away" or one of the safety signs specified in [Figure AA.7](#).

8.2.101.5 For **grass trimmers, brush cutters and brush saws**: