

UL 1602

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# Gasoline-Engine-Powered, Ridgid-Cutting-Member Edgers and Edger-Trimmers



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**January 27, 1995**

**Standard for**

**Gasoline-Engine-Powered, Rigid-Cutting-Member Edgers and Edger-Trimmers**

**UL 1602, Second Edition**

Accompanying this transmittal notice is a copy of the Second edition of UL 1602.

THIS EDITION OF THE STANDARD IS NOW IN EFFECT.

Revised and/or additional pages may be issued from time to time.

**JANUARY 27, 1995**

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**UL 1602**

**Standard for**

**Gasoline-Engine-Powered, Rigid-Cutting-Member  
Edgers and Edger-Trimmers**

**First Edition – June, 1981**

**Second Edition**

**January 27, 1995**

An effective date included as a note immediately following certain requirements is one established by Underwriters Laboratories Inc.

Revisions of this standard will be made by issuing revised or additional pages bearing their date of issue. A UL Standard is current only if it incorporates the most recently adopted revisions, all of which are itemized on the transmittal notice that accompanies the latest published set of revision pages.

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## FOREWORD

A. This Standard contains basic requirements for products covered by Underwriters Laboratories Inc. (UL) under its Follow-Up Service for this category within the limitations given below and in the Scope section of this Standard. These requirements are based upon sound engineering principles, research, records of tests and field experience, and an appreciation of the problems of manufacture, installation, and use derived from consultation with and information obtained from manufacturers, users, inspection authorities, and others having specialized experience. They are subject to revision as further experience and investigation may show is necessary or desirable.

B. The observance of the requirements of this Standard by a manufacturer is one of the conditions of the continued coverage of the manufacturer's product.

C. A product which complies with the text of this Standard will not necessarily be judged to comply with the Standard if, when examined and tested, it is found to have other features which impair the level of safety contemplated by these requirements.

D. A product employing materials or having forms of construction differing from those detailed in the requirements of this Standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be judged to comply with the Standard.

E. UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. The opinions and findings of UL represent its professional judgment given with due consideration to the necessary limitations of practical operation and state of the art at the time the Standard is processed. UL shall not be responsible to anyone for the use of or reliance upon this Standard by anyone. UL shall not incur any obligation or liability for damages, including consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Standard.

F. Many tests required by the Standards of UL are inherently hazardous and adequate safeguards for personnel and property shall be employed in conducting such tests.

## INTRODUCTION

### 1 Scope

1.1 These requirements cover walk-behind gasoline-engine-powered, ground-supported edgers and edger-trimmers that employ rigid cutting members, the diameter of which is not more than 12 inches (305 mm).

1.2 These requirements also cover hand-supported, portable, gasoline-engine-powered edgers having at least one ground-support and employing a rigid cutting member that has a diameter of not more than 12 inches (305 mm).

1.3 These requirements do not cover gasoline-powered edgers and edger-trimmers that employ a cutting means:

- a) That has a maximum tip-speed of more than 12,000 surface feet per minute (3660 surface meters per minute); or
- b) That is made of nonmetallic flexible line.

1.4 These requirements do not cover accessories or attachments provided for the purpose of digging or cutting materials other than earth, grass, and the like.

1.5 A product that contains features, characteristics, components, materials, or systems new or different from those covered by the requirements in this Standard, and that involve a risk of fire, electric shock, or injury to persons shall be evaluated using the appropriate additional component and end-product requirements as determined necessary to maintain the acceptable level of safety as originally anticipated by the intent of this Standard. A product whose features, characteristics, components, materials, or systems conflict with specific requirements or provisions of this Standard cannot be judged to comply with this Standard. Where considered appropriate, revision of requirements shall be proposed and adopted in conformance with the methods employed for development, revision, and implementation of this Standard.

### 2 Glossary

2.1 **BLADE-TIP CIRCLE** – The path described by the outermost point of the cutting member as it moves about its axis.

2.2 **DEAD-MAN CONTROL** – A control that automatically interrupts drive to the cutting member when the actuating force applied by the operator is removed.

2.3 **EXPECTED LOADING CONDITION** – The stress placed on the product and its components when operated in accordance with the manufacturer's operating instructions.

2.4 **GROUND SUPPORT** – The means by which the product is maintained in its intended operating position or conveyed during use.

2.5 **GROUND-SUPPORTED PRODUCT** – A product that, when used as intended by the manufacturer, has at least 50 percent of its weight directly supported by the ground.

2.6 **GUIDING HANDLE** – The handle of a hand-supported portable edger by which the operator supports the least percentage of product weight. See 2.14.

2.7 **HAND-SUPPORTED PORTABLE EDGER** – An edger that, when used as intended by the manufacturer, requires the operator to support more than 50 percent of the weight of the product.

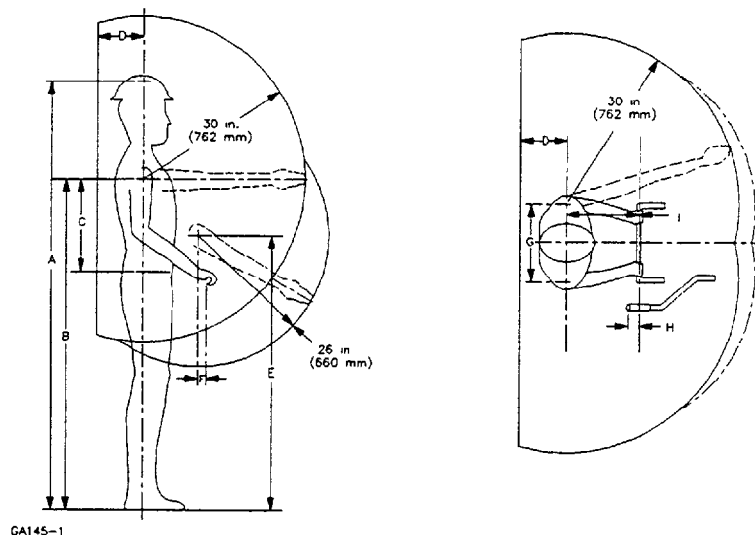
2.8 **MAXIMUM GOVERNED SPEED** – The maximum speed an engine is capable of attaining as limited by a governor or other means, and as set by the manufacturer.

2.9 **NORMAL USE AND MAINTENANCE** – Those actions performed in application of the product to its intended purposes, or for the product's continued operation, in accordance with the use and care instructions provided by the manufacturer with each product.

2.10 **OPERATING CONTROL** – Any device necessary for operating the edger or edger-trimmer, such as an engine-starting and -stopping control, a drive-engaging control, and a blade-angle adjustment.

2.11 **OPERATOR CONTROL ZONE** – The area within which controls are considered accessible by an operator standing in the operator zone. See Figure 2.1.

**Figure 2.1**  
**Operator control zone<sup>a</sup>**



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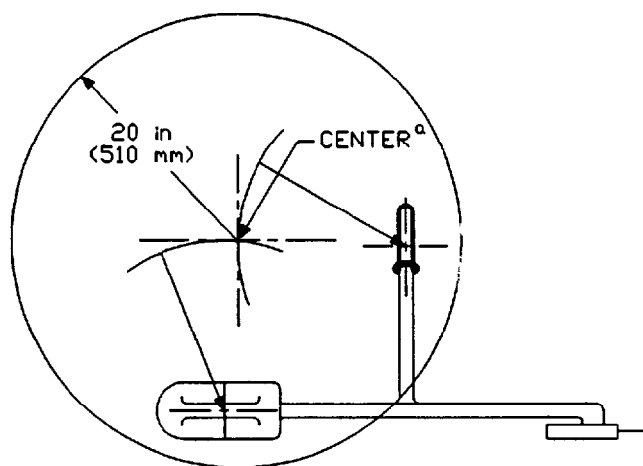
<sup>a</sup> SI values for the dimensions in this figure are:

| Dimension | Inches | Millimeters |
|-----------|--------|-------------|
| A         | 74.0   | 1880        |
| B         | 59.0   | 1500        |
| C         | 18.7   | 475         |
| D         | 10.0   | 254         |
| E         | 50.0   | 1270        |
| F         | 4.0    | 102         |
| G         | 14.0   | 356         |
| H         | 2.5    | 64          |
| I         | 12.0   | 305         |

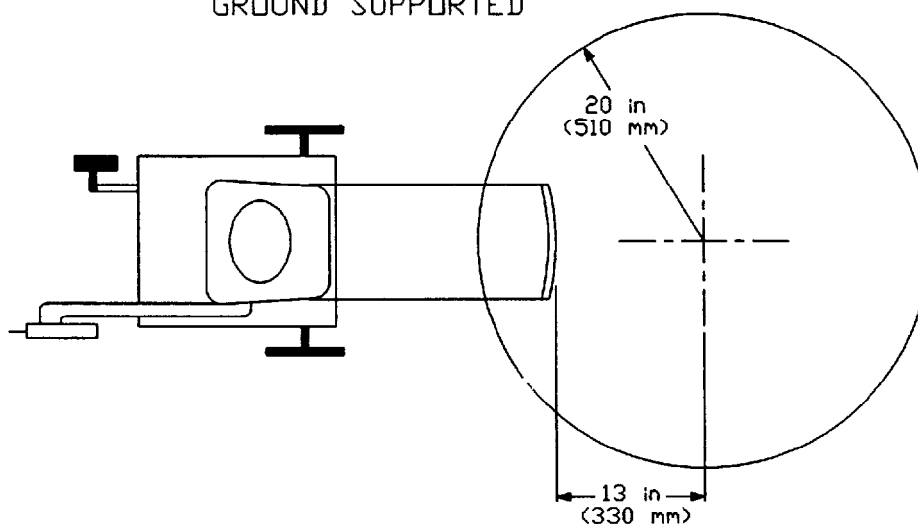
2.12 OPERATOR ZONE – When the product is performing its intended function, the operator zone is the space occupied by an operator having his hands on the handle or handles and his feet on the ground. See Figure 2.2.

**Figure 2.2**  
**Operator zone**

### HAND SUPPORTED



### GROUND SUPPORTED



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<sup>a</sup> The center of the operator zone of a hand-supported portable edger is the point of intersection of two 13 inch (330 mm) radius arcs that are drawn, one from each handle, in a plane parallel to the supporting surface. For the purposes of this measurement, the top center of the support handle is to be positioned 33.3 inches (846 mm) above the supporting surface.

2.13 **RIGHT, RIGHT HAND – LEFT, LEFT HAND** – The designation that refers to the orientation of the edger or edger-trimmer when the operator is in the operator zone, facing the intended direction of travel of the product.

2.14 **SUPPORT HANDLE** – The handle of a hand-supported portable edger by which the operator supports the greatest percentage of product weight. See 2.6.

### 3 Units of Measurement

3.1 If a value for measurement is followed by another value in other units in parentheses, the second value may be only approximate. The first stated value is the requirement.

### 4 Components

4.1 A component of a product covered by this standard shall comply with the requirements for that component. See Appendix A for a list of standards covering components generally used in the products covered by this standard.

4.2 A component need not comply with a specific requirement that:

- a) Involves a feature or characteristic not needed in the application of the component in the product covered by this standard; or
- b) Is superseded by a requirement in this standard.

4.3 A component shall be used in accordance with its recognized rating established for the intended conditions of use.

## CONSTRUCTION

### 5 General

5.1 Accessories provided or specifically recommended for use by the manufacturer shall be individually evaluated with a product to determine that the product, when used with the accessory as directed by the manufacturer, complies with the requirements in this standard.

### 6 Cutting Member

6.1 An edger-trimmer shall not employ a cutting member in which the operational plane can be adjusted more than 110 degrees from the horizontal trimming position.

6.2 An edger shall not employ a cutting member in which the operational plane can be adjusted more than 20 degrees from either side of the vertical edging position.

## 7 Protection Against Corrosion

7.1 Ferrous metal structural parts of the frame, including braces and the handle assembly, shall be protected against corrosion by galvanizing, plating, or a paint coating.

*Exception No. 1: Mating surfaces of parts need not be protected if paint is applied to all exposed surfaces after assembly, provided such surfaces are not disassembled in normal use and maintenance of the product.*

*Exception No. 2: Metals that are inherently resistant to corrosion, such as stainless steel and certain alloys of aluminum, need not be provided with additional protection against corrosion.*

7.2 Ferrous sheet-metal guards over moving parts that are capable of causing injury to persons shall be protected against corrosion by galvanizing, plating, or painting of all surfaces. An external coating of paint may also be applied over galvanizing or plating.

## 8 Fuel Tank

8.1 A fuel tank shall permit filling from a safety can that complies with the requirements in the Standard for Metal Safety Cans, UL 30, or the equivalent.

8.2 A fill opening of a fuel tank shall have a minimum inside diameter of 0.72 inch (18 mm).

8.3 Strengthening ribs or depressions in ferrous-metal fuel tanks that may trap water on the tank top shall not be more than 1/16 inch (1.6 mm) deep.

8.4 A metal fuel tank shall be made of terneplate steel, aluminized steel, galvanized steel, aluminum, or zinc alloy (see 8.5) or shall be provided with an inorganic coating on the inside and outside surfaces that provides equivalent protection against corrosion.

8.5 A metal fuel tank may be made of materials other than those mentioned in 8.4. The materials of such a fuel tank shall be galvanically compatible and shall be provided with protection against corrosion equivalent to the protection provided by the metals mentioned in 8.4. If the corrosion resistance properties of the metal are not known, a sample shall be subjected to the corrosion test described in 24.2.1 – 24.2.3 to determine acceptability.

8.6 A nonmetallic fuel tank, and a fuel tank constructed of nonmetallic and metallic materials in combination shall be resistant to the effects of:

- a) Reference Fuel C (ASTM D471-1968, Tests for Rubber Property-Effect of Liquids);
- b) Heat aging;
- c) Low temperature; and
- d) Ultraviolet light if the nonmetallic surface is exposed to ultraviolet light during intended use.

Resistance to the effects of (a) – (d) is to be determined by the appropriate requirements in 24.3.1 – 24.6.3. See 8.7.

8.7 If a nonmetallic tank is provided with an exterior coating of paint for protection against ultraviolet light exposure, the acceptability of the paint for this purpose is to be determined by an investigation. Factors to be considered in the investigation are:

- a) Effectiveness of the paint in providing protection against ultraviolet light;
- b) Permanence and adherence of the paint in service; and
- c) Adverse effect of the paint on the plastic.

## 9 Fuel Line

9.1 A flexible fuel line shall comply with:

- a) The requirements for SAE Standard J30, Fuel and Oil Hose, or
- b) The performance requirements for determining resistance to ASTM Reference Fuel C, heat aging, low temperature, and ultraviolet light as specified in the Standard for Marine (USCG Type H) Flexible Fuel-Line Hose, UL 1114.

*Exception No. 1: The burst pressure of a fuel line need not be more than 100 psi (69 kPa) if used in a pressure system, or 10 psi (69 kPa) if used in a gravity or suction system.*

*Exception No. 2: A fuel line need not be tested for temperatures below minus 20  $\pm 2^{\circ}\text{F}$  (minus 30  $\pm 1^{\circ}\text{C}$ ).*

*Exception No. 3: Fuel line hose that is encased within the product enclosure and that is not subject to flexing during intended use or maintenance need only comply with the volumetric change requirements for resistance to ASTM Reference Fuel C, as specified in the Standard for Marine (USCG Type H) Flexible Fuel-Line Hose, UL 1114.*

9.2 A rigid fuel line shall be steel or seamless annealed copper tubing or the equivalent. Copper tubing shall have a wall thickness of 0.032 plus 0.000 minus 0.003 inch (0.81 plus 0.00 minus 0.08 mm). Steel tubing shall have a wall thickness of 0.028 plus 0.000 minus 0.003 inch (0.71 plus 0.00 minus 0.08 mm) and shall have a corrosion-resistant exterior coating equivalent to that afforded by paint.

## 10 Ignition Cable

10.1 Ignition cable provided with a product shall comply with the requirements for SAE Standard J557, High-Tension Ignition Cable.

10.2 If a product is not provided with either a dead-man control that opens the ignition circuit or a centrifugal clutch, then the cable connection to the spark plug shall be readily accessible without the use of a tool.