

American National Standard

*for Outdoor Power Equipment –
Internal Combustion Engine-Powered
Hand-Held Hedge Trimmers –
Safety and Environmental Requirements*

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American National Standard
for Outdoor Power Equipment –

**Internal Combustion Engine-Powered
Hand-Held Hedge Trimmers –
Safety and Environmental Requirements**

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Outdoor Power Equipment Institute

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American National Standard

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Foreword (This foreword is not part of American National Standard ANSI/OPEI B175.6-2018.)

This is the first edition of *American National Standard for Outdoor Power Equipment - Internal Combustion Engine-Powered Hand-Held Hedge Trimmers - Safety and Environmental Requirements*, ANSI/OPEI B175.6-2018. This standard was developed under the auspices of the Outdoor Power Equipment Institute (OPEI).

This standard contains three normative annexes, which are all considered part of this standard.

Consensus for this standard was achieved by use of the Canvass Method.

Suggestions for improvements to this standard are welcome. They should be sent to the Outdoor Power Equipment Institute, 1605 King Street, Alexandria, VA 22314.

The following organizations recognized as having an interest in the standardization of safety requirements for hedge trimmers were contacted prior to the approval of this standard. Inclusion in the list does not necessarily imply that the organization concurred with the submittal of the proposal to ANSI.

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American National Standard
for Outdoor Power Equipment –

Internal Combustion Engine-Powered Hand-Held Hedge Trimmers – Safety and Environmental Requirements

1 SCOPE AND PURPOSE

1.1 Scope

The requirements of this standard apply to:

- a) Internal combustion engine-powered, hand-held, hedge trimmers;
- b) Internal combustion engine-powered, hand-held, extended-reach hedge trimmers; and
- c) Internal combustion engine-powered, hand-held, multi-purpose machines when configured as a hedge trimmer.

NOTE – English conversions are shown in brackets and are included for information only.

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 this standard any time after the publication date.

“ANSI/OPEI B175.6-201X” and “ANSI B175.6-201X” may be used interchangeably wherever referenced or required in this standard.

1.2 Purpose

The purpose of this standard is to establish safety and environmental requirements for internal combustion engine-powered, hand-held, hedge trimmers.

2 NORMATIVE REFERENCES

The following standards contain provisions which, through reference in this text, constitute provisions of this American National Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ANSI/ASTM E29-08, *Practice for using significant digits in test data to determine conformance with specifications*

ANSI/UL 969:2012, *Marking and labeling systems*

ISO 1431-1:2012, *Rubber, vulcanized or thermoplastic – Resistance to ozone cracking – Part 1: Static and dynamic strain testing*

ISO 10517:2009 + A1:2013, *Powered hand-held hedge trimmers – Safety*

ISO 11806-1:2011, *Agricultural and forestry machinery – Safety requirements and testing for portable, hand-held, powered brush-cutters and grass-trimmers – Part 1: Machines fitted with an integral combustion engine*

ISO 22867:2011, *Forestry and garden machinery – Vibration test code for portable hand-held machines with internal combustion engines – Vibration at the handles*

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

IEC 61032:1997, *Protection of persons and equipment by enclosures – Probes for verification*

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

SAE J335-2012, *Multiposition small engine exhaust system fire ignition suppression*

SAE J184, *Qualifying a sound data acquisition system*

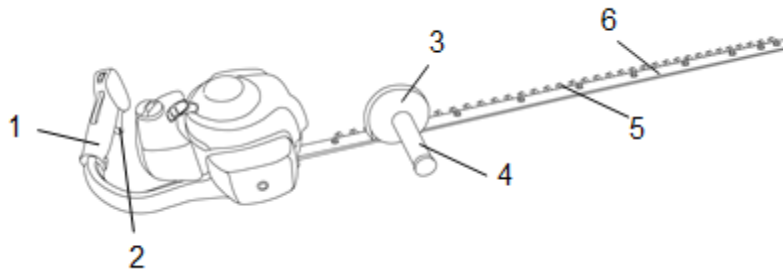
U.S. Department of Agriculture Forest Service FS5100-1, *Standard for spark arresters for internal combustion engines*

3 DEFINITIONS

- 3.1 Blade tooth (teeth):** The part of the cutting blade that is sharpened to perform a shearing action. (See Figures 2 and 3.)
- 3.2 Blade control:** A device activated by the operator's hand or finger for controlling movement of the blade teeth. Blade control can be a throttle control.
- 3.3 Blunt extension:** An extending blunt part of the cutting device, either as a separate component or integrated into the cutting device, intended to restrict contact with the shearing action of the cutting blade.
- 3.4 Barrier:** A device intended to prevent inadvertent operator contact with the blade teeth.
- 3.5 Clutch:** A mechanism for connecting and disconnecting a driven member to and from a rotating source of power.
- 3.6 Cutting blade:** A part of the cutting device having blade teeth that cut by a shearing action, either against other blade teeth or against a shear plate. (See Figure 2.)
- 3.7 Cutting device:** A part of the assembly consisting of a cutting blade and shear plate or of two cutting blades, together with any supporting part, that performs a shearing action and that can be single or double sided. (See Figures 1 and 2.)
- 3.8 Cutting device accessories/attachments:** A device such as a tip protector or collector that can be affixed to the cutting device.
- 3.9 Cutting length:** The effective cutting length of the cutting device measured from the inside edge of the first blade tooth or shear plate tooth to the inside edge of the last blade tooth or shear plate tooth. (See Figure 3.)
- 3.10 Drive shaft:** A shaft used to transmit power from the engine to the cutting attachment.
- 3.11 Drive shaft tube:** The pole that contains the drive shaft and connects the engine to the cutting device. It may be fixed, extendable, or telescoping in length. For ease of storage and transportation, the drive shaft tube may be detachable.
- 3.12 Dry weight:** A hedge trimmer with cutting blades attached without fuel/oil, without cutting device cover and without accessories/attachments.
- 3.13 Hand-held:** A unit that during operation is supported and controlled by the operator.
- 3.14 Handle(s):** A structure that enables the operator to hold and control the unit during operation.

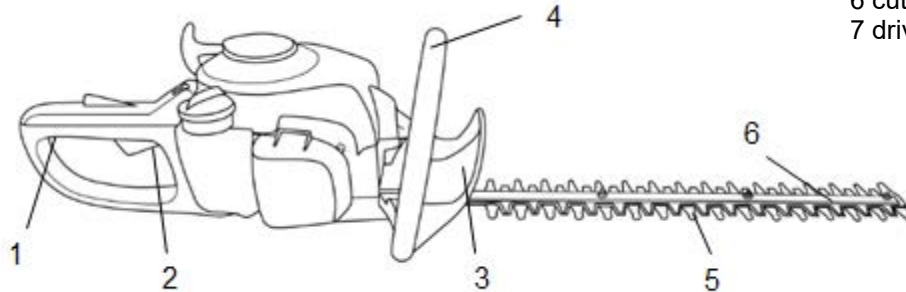
- 3.14.1 Front handle:** Handle located at or towards the cutting device. (See Figure 1.)
- 3.14.2 Rear handle:** Handle located furthest away from the cutting device. (See Figure 1.)
- 3.14.3 Adjustable rear handle:** A rear handle whose position can be modified by rotation. (See Figure 4.)
- 3.15 Hedge trimmer:** A unit fitted with a cutting device, intended to cut hedges, bushes and similar vegetation (see Figure 1) that consists of the following types:
- 3.15.1 Single-sided:** A hedge trimmer having a cutting device with cutting teeth on only one side. Cutting is possible only on one side of the cutting device. (See Figure 1(a).)
- 3.15.2 Double-sided:** A hedge trimmer with cutting teeth on each side of the cutting device. (See Figure 1(b).)
- 3.15.3 Extended-reach:** A hedge trimmer with the cutting device attached to an engine (power head) via a fixed or adjustable length drive shaft tube that contains the handles and controls. (See Figure 1(c).) The cutting device may be of a single- or double-sided cutting blade or articulating blade configuration.
- 3.16 May:** Indicates a permissive condition.
- 3.17 Muffler:** A device for reducing engine exhaust noise and directing the flow of the exhaust gases.
- 3.18 ON/OFF or Stop control:** A control that allows the engine to run or stop.
- 3.19 Occasional use:** A consumer hedge trimmer intended for infrequent or moderate, non-income use.
- 3.20 Power head:** Power source for the unit.
- 3.21 Shoulder harness:** Adjustable strap by which the weight of the unit is distributed to the shoulder of operator.
- 3.22 Shall:** Indicates a mandatory requirement.
- 3.23 Shear plate:** The part of the cutting device that assists cutting by shearing action against a cutting blade. (See Figure 2.)
- 3.24 Spark arresting muffler:** A muffler that contains a device through which exhaust gases pass to limit the size of particle emissions.

- 3.25 Throttle:** A device that adjusts the volume of fuel and air mixture delivered to the combustion chamber of an internal combustion engine.
- 3.26 Throttle control:** A device activated by the operator to regulate the throttle.
- 3.27 Throttle control latch:** A device to temporarily set the throttle in a partially open position to aid in starting the engine.
- 3.28 Throttle control linkage:** A mechanism that transmits motion from the throttle control to the throttle.
- 3.29 Throttle control lock-out:** A mechanism that prevents the unintentional activation of the throttle control, unless the operator releases it.
- 3.30 Unit (machine):** A complete hedge trimmer or extended-reach hedge trimmer without cutting device accessories and/or attachments.



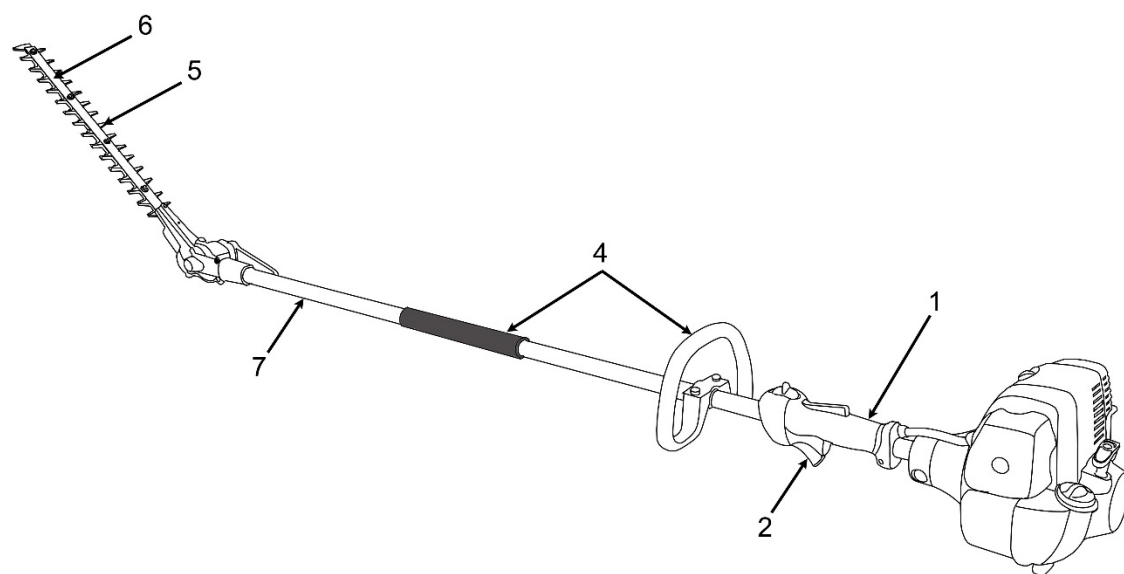
(a) – Example of single-sided hedge trimmer

Key
 1 rear handle
 2 throttle control
 3 barrier
 4 front handle
 5 blade tooth
 6 cutting device
 7 drive shaft tube



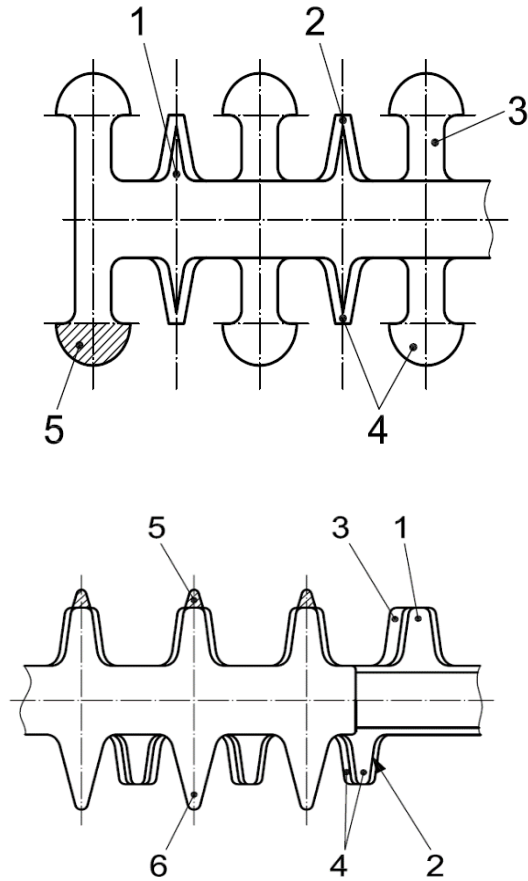
(b) – Example of double-sided hedge trimmer

Figure 1 – Examples of hedge trimmers



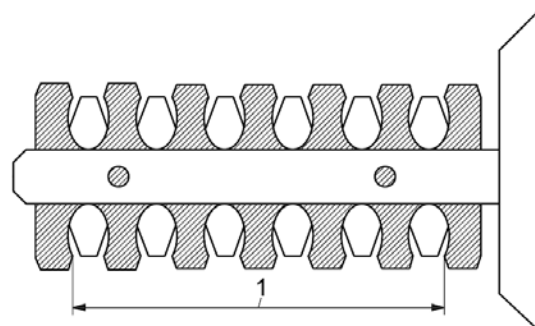
(c) – Example of extended-reach hedge trimmer with articulating cutting device

Figure 1(Continued)



- Key
- 1 cutting blade
 - 2 blade tooth
 - 3 shear plate
 - 4 cutting device
 - 5 blunt extension
 - 6 unsharpened shear plate

Figure 2 – Cutting device



- Key:
- 1 cutting length

Figure 3 – Cutting length

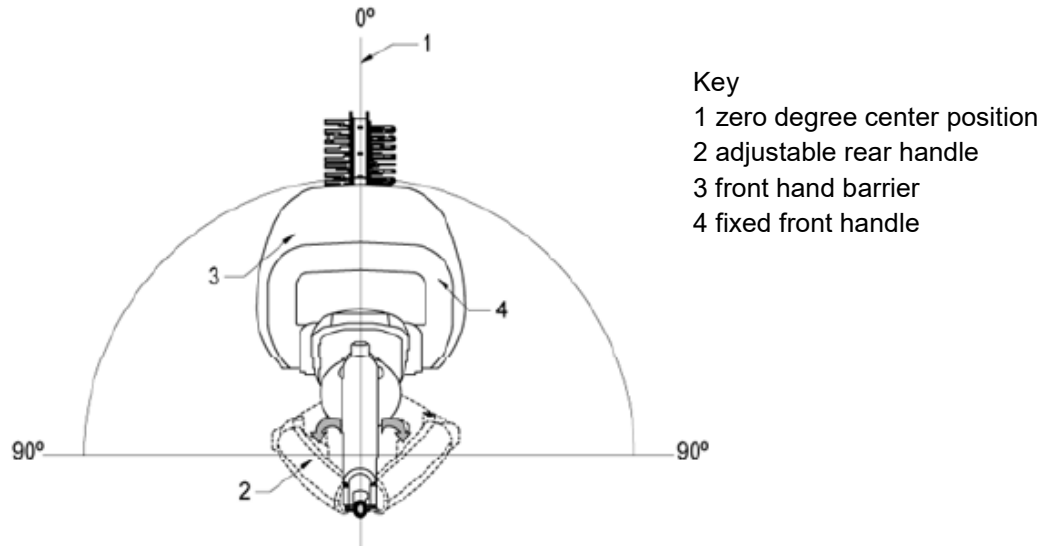


Figure 4 – Adjustable rear handle

4 HANDLES AND HAND PROTECTION

4.1 Handles

The machine shall have at least one handle for each hand. A handle may be an integral part of the drive shaft tube or the power head. The handles shall be designed in such a way as to allow each handle to be grasped with one hand.

4.1.1 Handle dimensions and requirements

The gripping surface of handles shall be at least 100 mm (3.94 in) long. Handles shall have a minimum radial clearance of 25 mm (0.98 in) around the gripping length. See Figure 5(a). If a part containing the power head complies with the dimensional requirements of this clause, it may be considered as a handle.

Where appropriate, the part of the handle containing the throttle control shall be counted as part of the handle gripping length. Finger grip or similar superimposed profiles shall not affect the method of calculating handle gripping length. If handles are adjustable to different positions, it shall not be possible to fix a handle or handles in a position which prevents compliance with other provisions of this standard. For handles with throttle control which are adjustable without the use of a tool, it shall not be possible to alter the handle position when the cutting device is powered. When altering the position of a

handle with throttle control, the throttle control shall be disabled such that the cutting device cannot be powered until the handle is locked into one of its designated operating positions (e.g., the control is automatically disengaged from the throttle of the engine, if the handle is not locked into one of the positions of use).

For closed or U-shaped handles this dimension is related to the inner width of the gripping surface. The gripping length of closed or U-shape handles shall comprise any length that is straight or curved at a radius of greater than 100 mm (3.94 in), together with any blend radius, but not more than 10 mm (0.39 in) at either or both ends of the gripping surface. See Figure 5(a).

For a straight centrally supported handle (i.e., “T” type), the gripping length shall be calculated as follows (see Figure 5(b)):

- (a) For handles with a circumference (not including the support) of less than 80 mm (3.15 in), the gripping length is the sum of the two parts of the gripping length “X” + “Y”;
- (b) For handles with a circumference (not including the support) of 80 mm (3.15 in) or more, the gripping length is the complete length “Z” from end to end.

Compliance shall be checked by inspection and measurement.