



Investigation Guideline

Product: Hedge Trimmers
Appendix #: 60
Date amended: July 2004

I. Introduction

A. Background Information

Hedge trimmers were associated with an estimated 6,200 emergency room treated injuries in 2002.

Based on NEISS data, an estimated 49,200 injuries were associated with powered hedge trimmers between 1990 and 1996, an average of 7,000 injuries per year. Almost all injuries were treated and released from the hospital emergency departments. The largest number of injuries (66 percent) occurred to victims between the ages of 25 and 64 years of age. About 68 percent were to males. Finger injuries accounted for about 85 percent of the total number of injuries. Lacerations were the most frequently diagnosed, about 89 percent of all injuries.

Between 1990 and 1996, there were 10 deaths reported to the Commission. The common cause of death was electrocution from electric hedge trimmers and/or the attached extension cords.

B. Product Description

Power hedge trimmers have a moving blade on one or both sides of a stationary bar. The blades are usually between 16 and 22 inches in length. Most hedge trimmers function by reciprocating action: that is, the blade moves back and forth over a fixed cutting bar. There are some models, however, where both the cutting bar and the blade move during cutting operations.

Power hedge trimmers operate by one of three sources of power:

- Electric-powered units (powered via household alternating current, which necessitates the use of extension cords) (Figure 1)
- Gas-powered units (Figure 2)
- Battery-operated units (powered via direct current) (Figure 3).

When using household current, proper grounding is essential to avoid electrical problems and, ultimately, electrocution.

Figure 1. Electric-powered Hedge Trimmer



Figure 2. Gas-powered Hedge Trimmer



Figure 3. Battery-powered Hedge Trimmer



C. Specific Items of Interest

- Of particular interest are details about the operator's contact with the moving blade. Indicate the position of the operator's hands relative to the handle, hand shield, if present, and the cutting blade.
- Specify the power source and details about the extension cord, if electric, such as the age of the cord and condition.
- Specify details about the presence and dimensions of the hand guard/shield. Indicate the size of the shield and the position relative to the handle.
- Obtain product safety instructions, if available, and describe the information included on product labels: list warnings, date codes, product certification, and ratings.

D. Headquarters Contacts

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II. Instructions for Collecting Specific Information

A. Free Text Summary

- It is important to describe clearly the sequence of events. Describe what happened immediately before, during, and after the incident. Include location of the victim relative to the hedge trimmer, and a detailed description of the parts of the hedge trimmer involved in the injury.
- Describe the nature of the injuries (did they result from contact with the moving blade, contact with the extension cord, if electric, snagging of clothing on the machine, or failure of the product).
- Describe whether the victim is the operator or bystander. Describe where the incident occurred (home, school, work, etc.).

B. Description of Incident Environment

- Outline the general conditions (i.e., sunny, cloudy, any adverse weather conditions, temperature, wind speed and direction, rain, snow, etc).
- Lighting conditions at the time of the accident.
- The type and thickness of material being cut.
- Condition of the material being cut and vegetation density (i.e., wet, dry, thick, long, etc.).
- Ground surface conditions (wet, uneven, rough, slippery, etc.) and slope of terrain.

C. Description of Victim

- Indicate victim's age, sex, height, weight and whether the victim was the operator, a helper, or a bystander.
- Indicate if operator was tired, rested, distracted, etc. at the time of the incident.
- Indicate any medication or alcohol consumed by the operator and whether the operator had any physical or competence reducing handicaps or disabilities.
- Provide a complete description of clothing and safety equipment used by the operator (e.g., gloves, safety shoes, goggles, hard hat, hearing protection).
- Determine operator's awareness of possible dangers in the cutting activity and any precautions taken to prevent accidents.

- Describe the accident sequence in detail, indicating the body part injured, the nature of the injury and its severity.
- Indicate:
 - (a) The victim's knowledge of operating instructions - whether self-taught (by owner's manual) or by an instructor.
 - (b) Previous experience in operating, repair, or adjustment of the hedge trimmer.
 - (c) Previous injuries in using hedge trimmers.
 - (d) Position of operator's hands and feet relative to the hedge trimmer.
 - (e) Operator's awareness of the victim's presence.
 - (f) Victim's awareness of operator's presence.
 - (g) Victim's location in relation to trimming operation.

D. Description of Interaction between Injured Person(s) and Product

- Indicate the degree of user familiarity with product operation, repair, and product adjustment.
- Indicate whether the victim was using their hand(s) to:
 - (1) Hold branches away from the trimmer
 - (2) Feed branches into the trimmer
 - (3) Take branches away from the trimmer
 - (4) Move the extension cord.
- Note dominant arm/hand of the victim.
- For accidents involving contact with the blade, describe the part of the body injured and how it contacted the blade. Indicate the manner in which the hand shield may have been a factor in the accident. Indicate whether the victim was using one of their hands to move or position the object being cut.
- For accidents involving fires, indicate: the sequence of events, the source of fuel and the manner of ignition.
- For accidents involving electrocution, indicate: the sequence of events, power source, extension cord details, and if the victim made contact with the hedge trimmer or extension cord.

E. Description of Product (Involved in the injury)

- Indicate the manufacturer, brand, model name and/or number and serial number.
- Indicate age and whether purchased new/used or rented.

- Determine the source of energy used to run the trimmer.
 - (a) If gasoline-powered, indicate the following:
 - (1) Horsepower rating, cubic inch displacement
 - (2) Capacity of fuel tank.
 - (3) Location of fuel tank.
 - (4) Leakage in fuel tank, fuel liner, etc., if any.
 - (b) If electric-powered, indicate the following:
 - (1) Length of cord on the trimmer.
 - (2) Length and gauge of the extension cord wire.
 - (3) Type of plug on the trimmer and extension cord.
 - (4) Condition of the cord
 - (5) Type and location of outlet to which the trimmer was connected.
 - (6) Was the trimmer grounded? (two wire extension cord - not grounded, three wire extension cord and three wire plug on trimmer - grounded)
 - (7) Was the trimmer “Double Insulated”?

NOTE: *Double insulation* means that there are two separate layers of insulation between accessible parts and electrically energized parts. It would not be obvious that the hedge trimmer is double insulated. However, most new electric hedge trimmers, especially ones listed by Underwriters Laboratories, provided with double insulation will have a label indicating that they are double insulated. A symbol may be used to indicate that a hedge trimmer is double insulated. The symbol for double insulation is a square within a square. In a double-insulated hedge trimmer, the power-supply cord will not include a grounding conductor. If the hedge trimmer does not indicate that it is double insulated it should have a grounding conductor.
 - (8) How the extension cord was attached to trimmer cord (knotted together, restraining device, or plugged in only).
 - (9) Gap between the male and female plugs.
 - (c) If battery-powered, indicate the following:
 - (1) Voltage
 - (2) If recharging involved in the incident, provide description of the recharger. What are the input and output ratings (voltage and amps) of the recharging unit?
- Describe if the unit has been modified or changed. Ask who made the modifications or changes.
- If electric-powered and involving electrical shock: Document the protective device (fuse/breaker) which services the receptacle energizing the product, the grounding style utilized on the main distribution panel which services the receptacle & cord involved, and determine if prior grounding problems existed in the home.

- If gasoline-powered and involving fire: Determine if the clothing of victim was involved in ignition, include a thorough description and information of clothing. Document most recent fueling by victim and fueling technique.
- Describe the cutting blade
 - (1) Type of blade (material, design, **Double or Single-Edged Blade**)
 - (2) Dimensions (length, width, thickness).
 - (3) Include diagram or photograph showing design and size.
 - (4) Determine whether screws on the block were present and tight.
- Indicate the location and type of handle and the presence of handgrips. Is it a single handle or auxiliary handle? Determine whether the operator was using both handles. If not, which handle was the operator using?
- Describe the switch. Indicate the following: positive ON/OFF, momentary contact with lock button, momentary contact without lock button, and location of switch/switches.

NOTE: A *positive ON/OFF switch* will stay on when placed in the on position and will stay off when placed in the off position.

A *momentary contact switch* is usually spring loaded and will remain on as long as pressure is maintained on the switch. If pressure is removed the switch will turn off. A *momentary contact switch with a lock button* can be locked in the on position if the user wishes to activate the lock. The voluntary standard for hedge trimmers (UL 1448) requires that a hedge trimmer shall be equipped with a momentary contact on-off switch and may have a means for locking the switch on if unlocking can be accomplished with a single motion of that part of the switch.

- Indicate weight and length of hedge trimmer.
- Certification labels (OPEI, UL, ANSI).

II. Photographs/ Diagrams of Incident Scene

- Take a series of good, clear photographs of the incident scene and the product, simulating the incident sequence.
- Photograph the unit (front, side, rear), the manufacturers' name plate, OPEI certification, UL listings, warning signs, and safety features such as hand shield/guard.
- Provide close-up photos of labels, controls, safety devices or guards, and off-on switches.
- Have victim pose for photo that depicts his/her position in relation to the trimmer at the time of the incident (with power to the unit "off").
- Lay out, in diagram form, the distances between the operator, any objects with which the hedge trimmer made contact, and the victim (if not the operator).
- Include a diagram or photograph showing the design and size of the cutting blade (type and dimensions).

III. Obtaining samples and documents related to the investigation

- Photocopy the owners' manual and attach it to the report.
- Collect any official records associated with this incident that may be available.
- Document the victim's contacts with the retailer and manufacturer regarding the incident and obtain copies of all correspondence.



DATA RECORD SHEET for Hedge Trimmers

1. Task Number _____
2. Incident Date (MM/DD/YYYY) _____

DESCRIPTION OF INCIDENT ENVIRONMENT

3. Describe the general weather conditions at the time of the incident.

4. What was the operator trimming at the time of the accident?
(Select as many as applicable)

_____ Branches
_____ Hedges
_____ Shrubbery
_____ Other (Specify: _____)

5. Indicate the thickness of the material being cut and the condition of the material surface being cut and vegetation density (i.e., wet, dry, thick, long)?

6. Describe whether there were any environmental conditions such as uneven surfaces (holes, bumps, rocks, or obstacles), a steep embankment or anything else that may have contributed to the incident?

DESCRIPTION OF VICTIM

7. Was the victim/injured person an operator, bystander, or helper?
- _____ Operator
_____ Bystander
_____ Helper
8. Indicate the victim's age, sex, height, and weight.
- _____ Age
_____ Sex
_____ Height
_____ Weight
9. Indicate the operator's level of alertness at the time of the injury (i.e., tired, rested, distracted, etc).
13. Determine whether the operator was ill or under any medication, drug, or alcohol at the time of the accident?
- _____ Yes → (Specify: _____)
_____ No
14. Was the operator wearing protective gear at the time of the accident?
(Select as many as applicable)
- _____ Eyeglasses
_____ Safety goggles
_____ Gloves
_____ Steel toe shoes
_____ Heavy pants
_____ Other special clothing (Specify: _____)

HAND SHIELD

15. Was there a hand shield/guard attached to the hedge trimmer?
- _____ Yes
_____ No
16. If there was a hand shield attached to the hedge trimmer, determine the dimensions and ask whether it was damaged, broken, or in good condition?

Dimensions:

- Damaged
- Broken
- In good condition

17. If the hand shield was NOT attached, ask if the product came with a hand shield at the time of purchase?

FOR INCIDENTS INVOLVING FIRE,

18. Indicate the sequence of events, source of the fuel and the manner of ignition.

FOR INCIDENTS INVOLVING ELECTROCUTION,

19. Indicate the sequence of events, power source, extension cord details, and if the victim made contact with the hedge trimmer or extension cord.

DESCRIPTION OF PRODUCT

20. Was the hedge trimmer involved in the incident gas or electric?

Gas-powered

If gasoline-powered, indicate the following:

- (1) Horsepower rating, cubic inch displacement
- (2) Capacity of fuel tank.
- (3) Location of fuel tank.
- (4) Leakage in fuel tank, fuel liner, etc., if any.

Electric-powered

If electric-powered, indicate the following:

- (1) Power cord and gauge (if available).

- (2) Length of cord on the trimmer.
- (3) Length and gauge of the extension cord wire.
- (4) Type of plug on the trimmer and extension cord.
- (5) Condition of the cord
- (6) Type and location of outlet to which the trimmer was connected.
- (7) Type of grounding, if two-wire extension cord is used.
- (8) How extension cord was attached to trimmer cord (knotted together, restraining device, or plugged in only).
- (9) Describe any gaps between the male and female plugs.

_____ Battery-powered

- (1) Voltage
- (2) If recharging involved in the incident, provide description of the recharger. What are the input and output ratings (voltage and amps) of the recharging unit?

21. Describe the cutting blade. Indicate the type of blade (Double or Single-Edged Blade) and the dimensions (length, width, thickness). Determine whether screws on the block were present and tight.

22. Indicate whether the operator was using their hand to:

- _____ Hold branches away from the trimmer
- _____ Feed branches into the trimmer
- _____ Take branches away from the trimmer
- _____ Move the extension cord.

23. Indicate the location and type of handles (single or auxiliary). Determine whether the operator was using both handles, if present. If not, which handle was the operator using?

24. About how old is the hedge trimmer?
(Write down the number of years, months, or days)

____ Years
____ Months
____ Days
____ Don't know

25. What is the brand name (manufacturer) and model name/number of the hedge trimmer?

Mfr. _____

Model # _____

Serial # _____

If gasoline-powered:
Horsepower/Displacement _____

If electric-powered:
Amperage _____

Don't know _____

26. Had the hedge trimmer been changed or modified in any way since you got it?

____ Yes
____ No

27. If changed or modified, ASK:

- How was the hedge trimmer changed or modified?

- Who did the modifications?

_____ Victim

_____ Friend

_____ Relative

_____ Other (Specify: _____)

28. Was the engine running at the time of the accident? (Determine if the hedge trimmer had just been turned “on” or “off”).

_____ Motor/engine was running.

_____ Motor/engine was not running.

_____ Motor/engine was just turned “on”.

_____ Motor/engine was just turned “off”.

29. Describe the switch.

30. Indicate the following about the switch:

_____ positive ON/OFF

_____ momentary contact with lock button

_____ momentary contact without lock button

31. Describe the location of switch/switches.

32. Determine how long the operator had been working with the hedge trimmer that day before the accident occurred? (Write down the number of hours and/or minutes)

_____ Hours _____ Minutes

33. Determine how often and for what length of time the operator used the hedge trimmer?

