



## Investigation Guideline

**Product: Automatic Gate Operators**

**Appendix #: 116**

**Date amended: September 2004**

### **I. Introduction**

#### **A. Background Information**

CPSC staff worked to improve the voluntary standard that applies to sliding and swinging gate operators. That standard is Underwriters Laboratory standard "The Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems" (UL325). The standard was revised on September 18, 1998 and took effect on March 1, 2000. The standard requires primary and secondary entrapment protection on residential and general access gates. Primary entrapment protection requires a gate to reverse within 2 seconds of sensing an obstruction when opening or closing. The secondary entrapment protection requires an electric eye or edge sensor to monitor the path of the gate for obstructions.

#### **B. Product Descriptions**

A gate operator is a device that automatically opens and closes barriers across openings in fences and other perimeters. The hazard created by automatic gates is that both children and adults can be entrapped and severely injured or killed. Automatic or security gates can be found around residences, apartment buildings, condominiums, public parking lots, commercial establishments, and high-security areas. Automatic gate operators can also be used in pedestrian and vehicular openings.

#### **C. Specific Items of Interest**

In addition to automatic residential gate related incidents, there will be cases involving security gates at apartments, condominiums, public parking lots, commercial establishments, and various other security areas.

#### **D. Headquarters Contacts**

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### **II. Instructions for Collecting Specific Information**

**INVESTIGATOR:** (1) Confirm with the owner (for single residence) or with the building/garage manager (for residential complex, apartment, condominium, etc.) **that the gate is an automatic/electric gate and also that the product is available** before conducting an on-site investigation.

(2) If the gate is **NOT** an automatic gate, do an abbreviated telephone investigation.

(3) If the product is **NOT** available or the respondent **does not want** an on-site investigation, do a **TELEPHONE INTERVIEW** using the **DATA RECORD SHEET** as a guideline.

(4) If the automatic gate is available and the owner or building/garage manager **agrees** to an on-site visit, **do an on-site** investigation. **Please use the DATA RECORD SHEET to record specific information** and also collect other information as described in this guideline.

(5) Warning: An automatic gate can start moving at any time. If possible, while working near the gate, have the owner cut off power to the gate and keep clear of moving parts.

## A. Synopsis

A general description of the sequence of events, the type of gate and operator mechanism, and the conditions existing at the time of the accident are necessary to determine the major hazard patterns and the risk of injury associated with the automatic gate.

## B. Description of Incident Environment

Characterize weather conditions at the time of the accident, including lighting and ground conditions.

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

Determine the accident sequence and the exact position where the gate contacted the victim (chest, back, neck, etc.) and the dimensions of the body part(s) affected. Stipulate who was operating the gate, if it was not the victim.

Indicate the victim's age, sex, height, weight, clothing, competence reducing factors (e.g., impaired vision, physical handicaps, medication, alcohol use, etc.) and knowledge of product. Note the victim's activity prior to the incident (if a child, whether the victim was playing with other children, supervised by an adult, etc.).

## D. Description of Product

- Determine the manufacturer and age of the unit or installation date and by whom it was installed (mechanic, homeowner, etc.). If the gate is labeled as to what class it is (I, II, III, or IV), record the type.
- Describe the location and principles of operation of the gate operator components.
- Obtain, in detail, the operating history of the automatic gate.
- Determine how recently the operator mechanism was checked/observed to be functioning correctly.
- Describe any previous problems with gate operation. Use pictures and sketches if appropriate.
- Describe any maintenance, adjustments, and/or repair. Determine who made them (mechanic, installer, owner, etc.), when made, and operation of gate after change.
- **If the gate is a sliding type**, obtain the measurements of the gate height, width, gap between bottom of gate and ground, gap between gate and fence, and spacing of gate surface and fence behind the gate (see Diagram 1 in Part IV).
- **If the gate is a swinging type**, obtain the gate height, overall opening width, leaf width, gap between leaves, and distance between stationary object, when open (see Diagram 2 in Part IV).

**Visually examine** the gate system including the gate hardware and gate operator. Look for signs of loose or broken attachments, bending or buckling, binding, or similar signs of damage, misalignment or other problems. Report presence or absence of such conditions. **DO NOT PERFORM AN OPERATIONAL CHECK OF THE GATE.** Please ask the owner of the gate to open and close the gate. Record the time it takes to open and the time it takes to close.

Inspect the gate operator mechanism, owner manual or other available material for the UL label. Report presence or absence of the label. Photograph label and transcribe information on the label.

Inspect the gate operator mechanism and manual for information on the manufacturer, make, model, serial number, and similar data. Photograph and transcribe this identifying information.

Inspect the gateway for any signs of settlement, heaving or similar displacement from original condition. Inquire about gate owner's knowledge of any such displacement, when it occurred and/or whether any corrective action was taken.

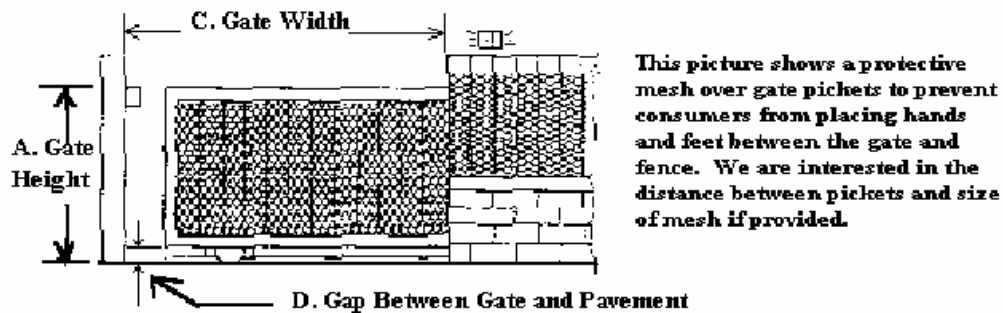
### III. Photographs/ Diagrams of Incident Scene

Photograph the accident scene showing, close-up, operator mechanism, switches and controls, and presence of the safety labeling. Important measurements are listed below.

**Warning: An automatic gate can start moving at any time. If possible, while working near an automatic gate, have owner cut off power to the gate and keep clear of moving parts.**

#### A. Sliding Gates

Diagram 1: Sliding Gate

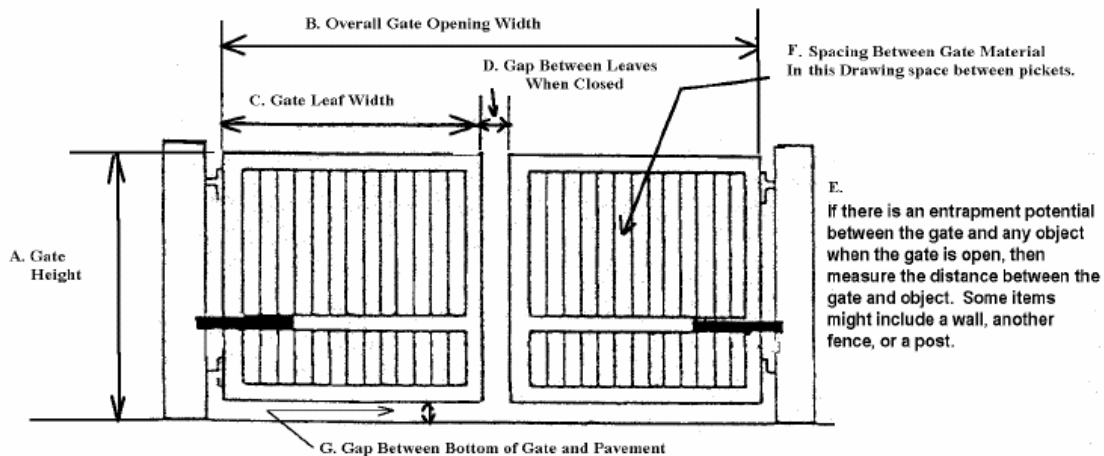


- a. **Gate height:** The vertical distance from pavement to the top of the gate. If the gate has ornamental fixtures along top, measure to the lowest portion that would be available for a person to climb over the gate.
- b. **Gate width:** The largest horizontal opening with the gate open.

- c. **Gap between bottom of gate and the ground:** The opening available for someone to slide under the gate.
- d. **Gap between gate and fence:** The size of the opening at the trailing edge of the gate between the fence and the gate. An opening large enough for a young child to slip through can be hazardous.
- e. **Spacing of gate surface and fence between gate :** The material that composes the gate surface should not have openings that allow one to place a hand or foot through the gate. If the gate is similar to a picket fence, report the picket spacing. If the gate is made of chain link, the maximum dimension of the spaces in the chain link material should be reported. Some gates may have a protective mesh over the gate and fence near the gate. Please indicate if a protective mesh is present.

## B. Swinging Gates

Diagram 2: Swinging Gate



- a. **Gate height:** Same as with the sliding gate.
- b. **Overall opening width:** Same as with the sliding gate.
- c. **Leaf width:** Horizontal distance from hinge side to leading edge of gate.
- d. **Gap between leaves:** Distance between leaves when gate is closed.
- e. **Distance between open gate and any stationary object:** Measure distance between gate and wall, other fence, or post. This area could create an entrapment hazard.
- f. **Spacing between pickets.**
- g. **Gap between bottom of gate and pavement.**

#### **IV. Obtaining samples and documents related to the investigation**

The gate measurements, photographs/diagrams, and any investigations by the police, coroner, manufacturer, installer, law firm, insurance company, or engineering firm are to be appended to the investigation report.

Obtain copies of the operating and installation instructions and repair history (if any) that are available and append them to the investigation report.

If necessary, these documents could be sent as an addendum to the report.

**(DATA RECORD SHEET – Attached)**

## DATA RECORD SHEET Investigation Guideline

### PRODUCT: Automatic Gates

TASK NUMBER \_\_\_\_\_ INCIDENT DATE \_\_\_\_\_

### PRODUCT QUESTIONS

1. At the time of the accident, was the gate all the way open, all the way closed, or in the process of opening or closing?

\_\_\_\_\_ All the way open  
\_\_\_\_\_ All the way closed  
\_\_\_\_\_ Opening  
\_\_\_\_\_ Closing  
\_\_\_\_\_ Don't know

2. What type of area did the gate open into- a single residence, a residential complex, an apartment or condominium, a hotel, a shopping center, a factory, an office building, or something else?

\_\_\_\_\_ A single residence  
\_\_\_\_\_ A residential complex (serving 4 families or more)  
\_\_\_\_\_ An apartment or condominium  
\_\_\_\_\_ A hotel  
\_\_\_\_\_ A shopping center  
\_\_\_\_\_ A factory  
\_\_\_\_\_ An office building  
\_\_\_\_\_ Something else -> **Specify:** \_\_\_\_\_  
\_\_\_\_\_ Don't know

3. What type of gate is it? A sliding gate, a swinging gate, or some other type?

\_\_\_\_\_ Sliding gate  
\_\_\_\_\_ Swinging gate  
\_\_\_\_\_ Other -> **Specify:** \_\_\_\_\_ (skip to Q. 6)  
\_\_\_\_\_ Don't know

4. Is there protective mesh over the gate?

\_\_\_\_\_ Yes  
\_\_\_\_\_ No (skip to Q. 6)  
\_\_\_\_\_ Don't know

5. a. If the gate is a sliding type, does the gate operate on rollers?

\_\_\_\_\_ Yes  
\_\_\_\_\_ No  
\_\_\_\_\_ Don't know

b. Are the rollers covered by something such as a shield or a guard?

- Yes  
 No  
 Don't know

6. Record the amount of time it takes to open and close the gate.

Time to open \_\_\_\_\_

Time to close \_\_\_\_\_

7. Take measurements of the gate:

**All Gates:**

- \_\_\_\_\_ Height  
\_\_\_\_\_ Overall opening width  
\_\_\_\_\_ Gap between gate and pavement  
\_\_\_\_\_ Spacing between pickets (if the gate is constructed with pickets)

**(Investigator: Include the additional dimensions, listed below, for the applicable type of gate.)**

**Sliding Gates:**

- \_\_\_\_\_ Size of the mesh  
\_\_\_\_\_ Gap between the gate and fence

**Swinging Gates:**

- \_\_\_\_\_ Leaf width  
\_\_\_\_\_ Gap between leaves when closed  
\_\_\_\_\_ Distance between open gate and any stationary object

8. About how old is the gate?

- \_\_\_\_\_ Months  
\_\_\_\_\_ Years  
\_\_\_\_\_ Don't know

9. Is the gate made of metal, wood, or something else?

- Metal  
 Wood  
 Something else (**Specify:** \_\_\_\_\_)  
 Don't know

10. Was the gate used for automobiles and trucks?

- Yes  
 No (**Specify:** \_\_\_\_\_)  
 Don't know

11. Was there a separate pedestrian gate near the incident gate?

- Yes  
 No  
 Don't know

12. Were the gate and the opener installed at the same time?

Yes, when were they installed?  
 \_\_\_\_\_ Months  
 \_\_\_\_\_ Years  
 \_\_\_\_\_ Don't know

No (**Specify:** \_\_\_\_\_)  
 Don't know

13. Who installed the gate and/or the gate opener?

Owner  
 Someone else (**Specify:** \_\_\_\_\_)  
 Don't know

14. What are the brand name, manufacturer, model and/or serial number of the gate opener?

Brand name: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Model and/or Serial Number: \_\_\_\_\_

Don't know

15. What is the name of the manufacturer of the gate?

Manufacturer \_\_\_\_\_

Don't know

16. Does the gate opener have on it a label with the letters "UL"?

Yes  
 No  
 Don't know

17. Is the gate labeled with what class (required by standard after 2000) it belongs to?

Class I (Residential)  
 Class II (Commercial/General Access)  
 Class III (Industrial/Limited Access)  
 Class IV (Restricted Access)  
 No "class" label, is a vehicular gate  
 No "class" label, is not a vehicular gate

18. What else does the label say? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



19. How old is the opener?

- \_\_\_\_\_ Months
- \_\_\_\_\_ Years
- \_\_\_\_\_ Don't know

20. Were there any safety devices such as an automatic reversing mechanism, a clutch, electric eyes, and/or an edge sensor(s) on the gate opener?

\_\_\_\_\_ Yes, what type of safety device is on the gate operator?

- \_\_\_\_\_ Reversing Mechanism
- \_\_\_\_\_ Clutch
- \_\_\_\_\_ Electric Eye
- \_\_\_\_\_ Edge Sensor
- \_\_\_\_\_ Other (**Specify:** \_\_\_\_\_)

- \_\_\_\_\_ No
- \_\_\_\_\_ Don't know

21. When was the opener last adjusted and/or tested?

- \_\_\_\_\_ Month
- \_\_\_\_\_ Year
- \_\_\_\_\_ Don't know

22. Are there any signs of damage on the gate? (loose or broken attachments, bending or buckling, binding, misalignment, etc.)

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23. Were there any warning labels on the gate and/or the gate opener?

- \_\_\_\_\_ Yes (**Specify:** \_\_\_\_\_)
- \_\_\_\_\_ No
- \_\_\_\_\_ Don't know

24. Photograph all labels on gate and operator.

## VICTIM QUESTIONS

25. Age \_\_\_\_\_

26. Sex \_\_\_\_\_

27. Height \_\_\_\_\_

28. Weight \_\_\_\_\_
29. Clothing worn at time of incident \_\_\_\_\_  
\_\_\_\_\_
30. Did the victim have any competence reducing factors?
- \_\_\_\_\_ Impaired vision
  - \_\_\_\_\_ Physical handicaps, **specify:** \_\_\_\_\_
  - \_\_\_\_\_ Medication, **specify:** \_\_\_\_\_
  - \_\_\_\_\_ Alcohol use
  - \_\_\_\_\_ Other, **specify:** \_\_\_\_\_
  - \_\_\_\_\_ None
  - \_\_\_\_\_ Don't know
31. Victim's knowledge of the product (prior experience)  
\_\_\_\_\_
32. Victim's activity prior to the incident (if a child, whether the victim was playing with other children, supervised by an adult, etc.) \_\_\_\_\_  
\_\_\_\_\_

## ENVIRONMENT QUESTIONS

33. Weather conditions at the time of the accident \_\_\_\_\_  
\_\_\_\_\_
34. Lighting conditions at the time of the accident \_\_\_\_\_  
\_\_\_\_\_
35. Ground conditions at the time of the accident \_\_\_\_\_  
\_\_\_\_\_
36. If we had any further questions, may we call the respondent back?
- \_\_\_\_\_ Yes
  - \_\_\_\_\_ No (**Thank the respondent and conclude the interview**)
  - \_\_\_\_\_ Don't know
37. When is a good time to reach him/her?
- Weekday:
- \_\_\_\_\_ Morning
  - \_\_\_\_\_ Afternoon
  - \_\_\_\_\_ Evening
- Weekend:
- \_\_\_\_\_ Morning
  - \_\_\_\_\_ Afternoon
  - \_\_\_\_\_ Evening