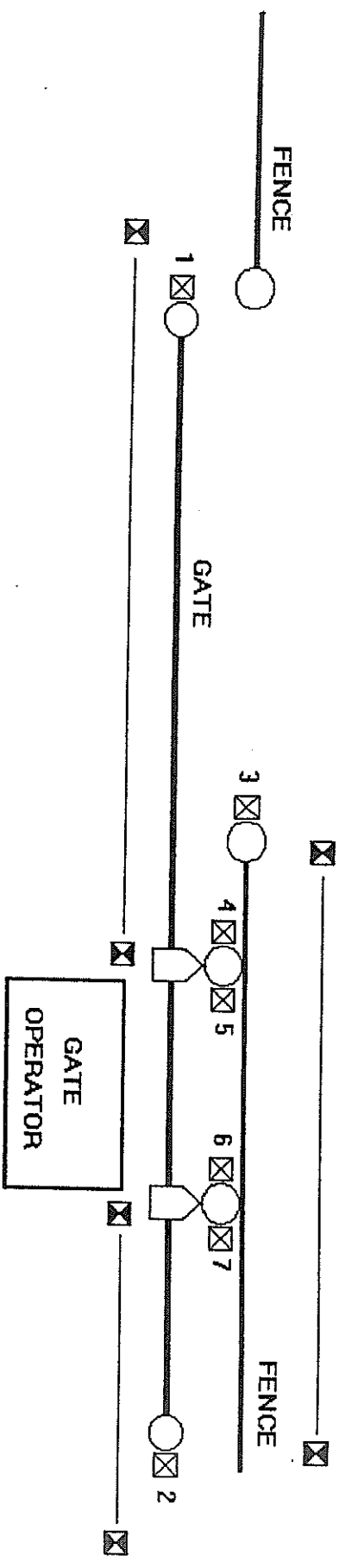


UL Suggested Safeties



-  Roller Covers
-  Photocells
-  Safety Edges

All openings of a horizontal slide gate, and the portion of the fence where the slide gate passes, must be guarded or screened. These specific requirements in UL 325 that govern this provision were developed to address "reach through" occurrences. All exposed entrapment points MUST be eliminated or guarded. It is up to individual gate and fence dealers to identify these points on a product-by-product basis, or job-by-job basis. Guarding MUST be supplied for exposed rollers. Exposed rollers are regarded as potential pinch points. All controls are to be mounted 10 feet from moving gate.

TABLE 30A.1

Protection against Entrapment

Effective: March 1, 2000

Vehicular Usage Class	Gate Operator Category			
	Horizontal Slide Vertical Lift Vertical Pivot		Swing Gate Vertical Barrier (Arm)	
	Primary Type	Secondary Type	Primary Type	Secondary Type
Class I & II	A	B1, B2, or D	A or C	A, B1, C or D
Class III	A, B1, or B2	A, B1, B2, D, or E	A, B1, or C	A, B1, C, D, or E
Class IV	A, B1, B2, or D	A, B1, B2, D, or E	A, B1, C, or D	A, B1, C, D, or E

NOTE - The same type of device shall not be utilized for both the primary and secondary entrapment protection means. Use of a single device to cover both the opening and closing directions is in accordance with the requirement; however, a single device is not required to cover both directions. A combination of one Type B1 for one direction and one Type B2 for the other direction is the equivalent of one device for the purpose of complying with the requirements of either the primary or secondary entrapment protection means.

Entrapment protection types:

Type A - Inherent entrapment sensing system. See 30A.1.2

Type B1 - Provision for connection of, or supplied with, a non-contact sensor (photoelectric sensor or the equivalent).
See 30A.1.4, 30A.1.5, 30A.1.6, 30A.1.7, and 30A.1.8

Type B2 - Provision for connection of, or supplied with, a contact sensor (edge device or the equivalent).
See 30A.1.6, and 30A.1.9 - 30A.1.11

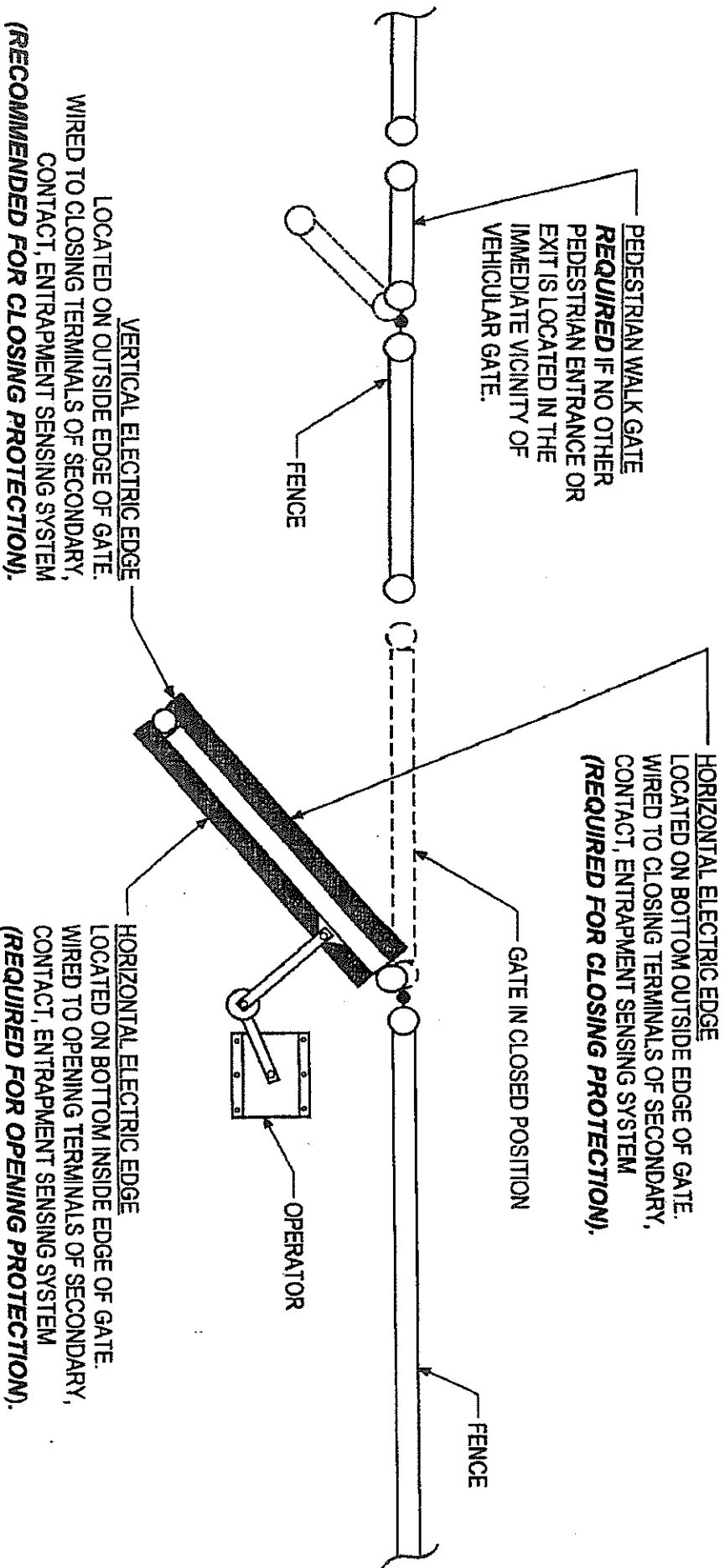
Type C - Inherent adjustable clutch or pressure relief device. See 30A.1.12.

Type D - Provision for connection of, or supplied with, an actuating device requiring continuous pressure to maintain opening or closing motion of the gate. See 30A.1.14 and 30A.1.15.

Type E - An inherent audio alarm. See 30A.1.16, 30A.1.17, and 30A.1.18.

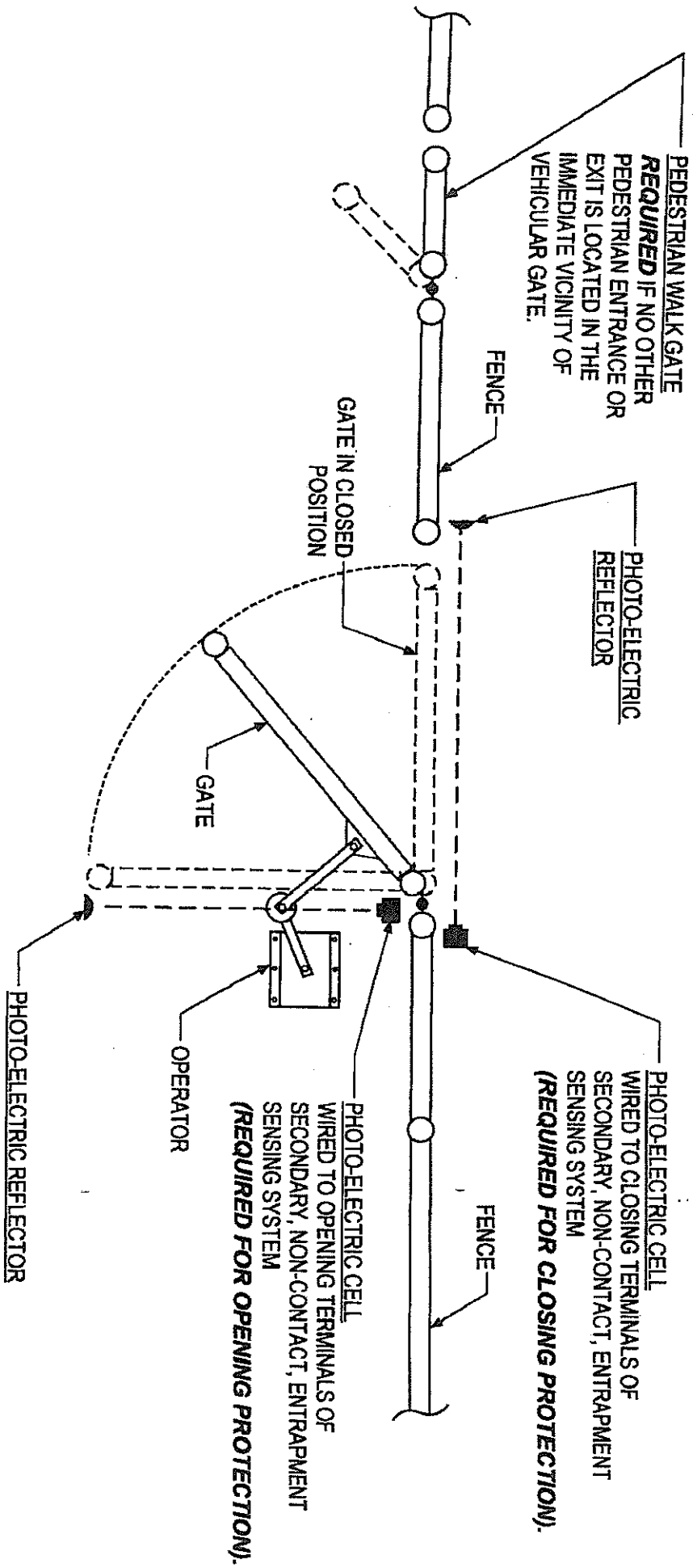
PowerMaster

ELECTRIC EDGE, CONTACT SENSOR INSTALLATION FOR SWING GATES



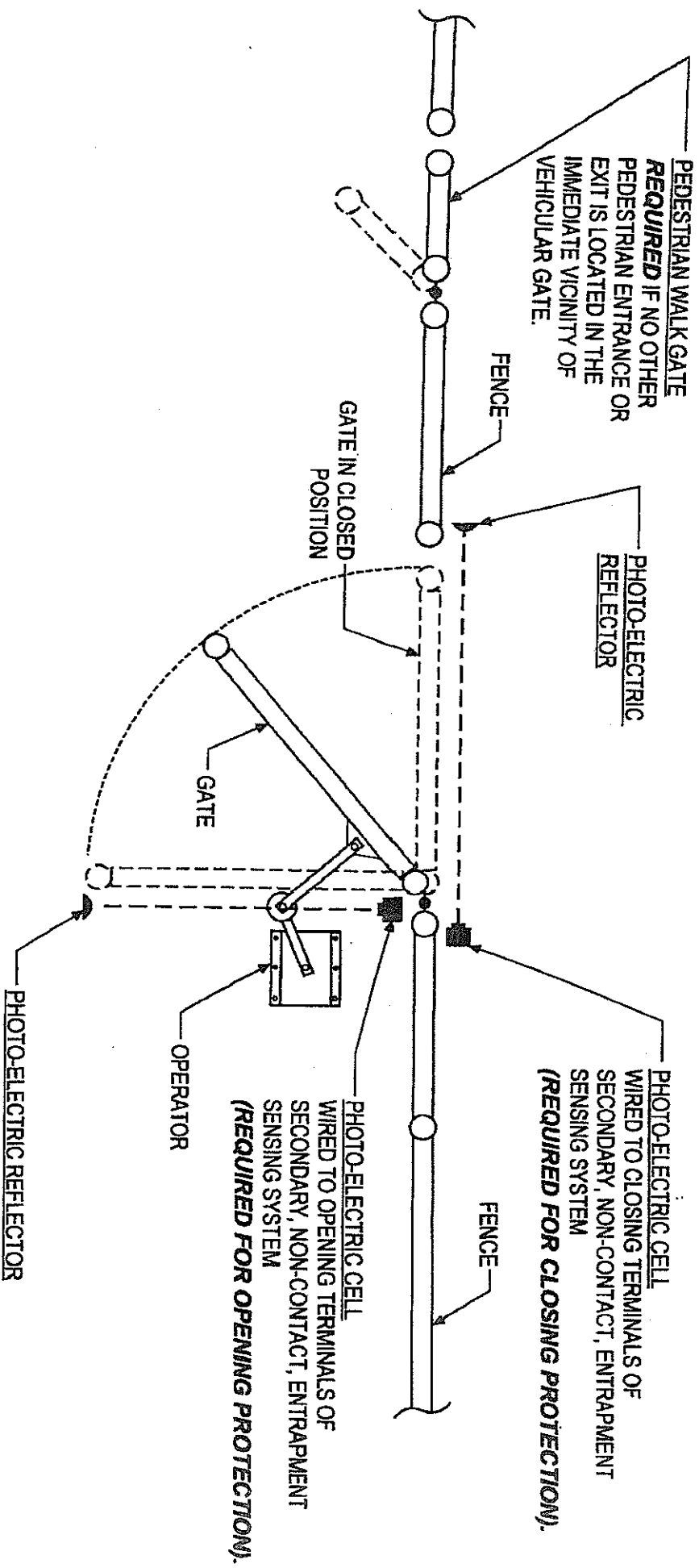
PowerMaster

PHOTO ELECTRIC CELL, NON-CONTACT SENSOR INSTALLATION FOR SWING GATES



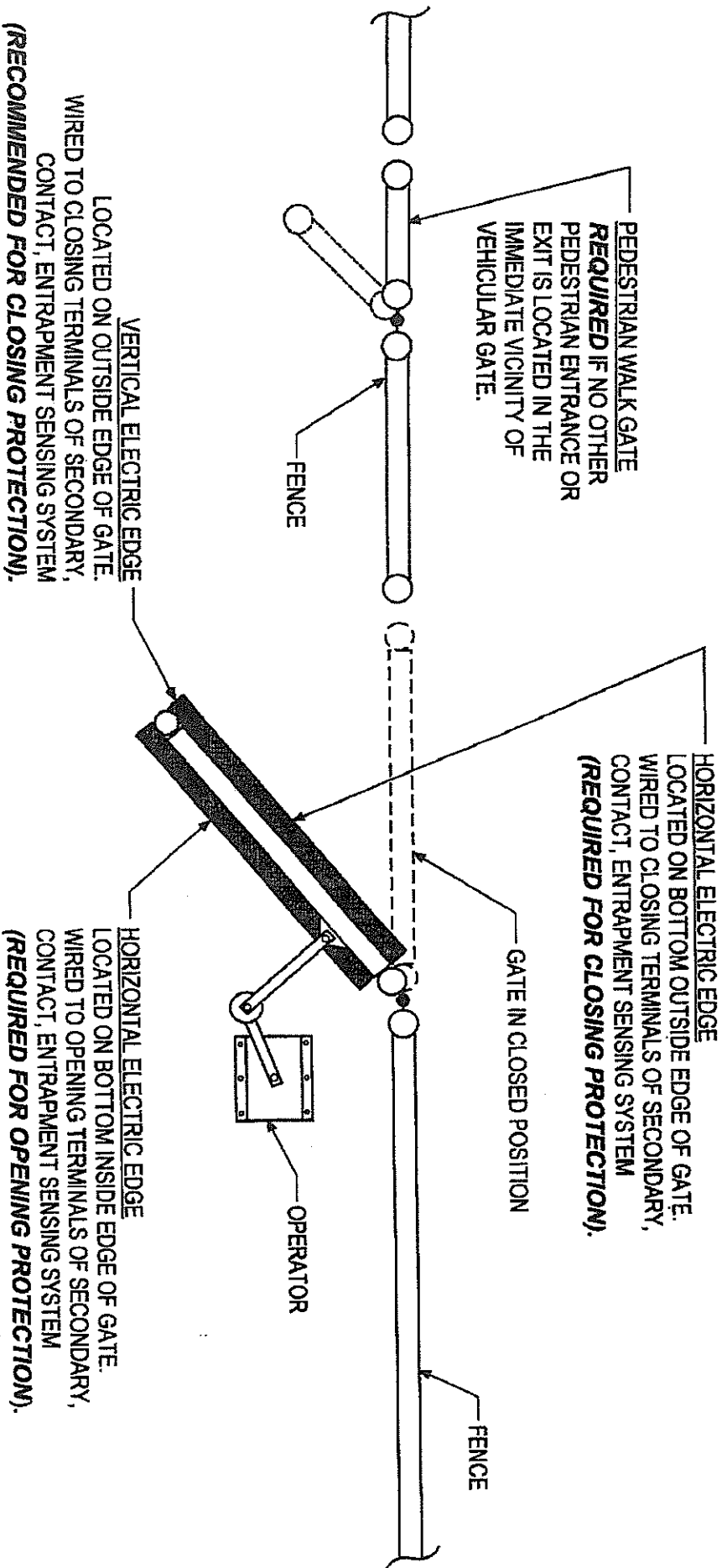
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PHOTO ELECTRIC CELL, NON-CONTACT SENSOR INSTALLATION FOR SWING GATES



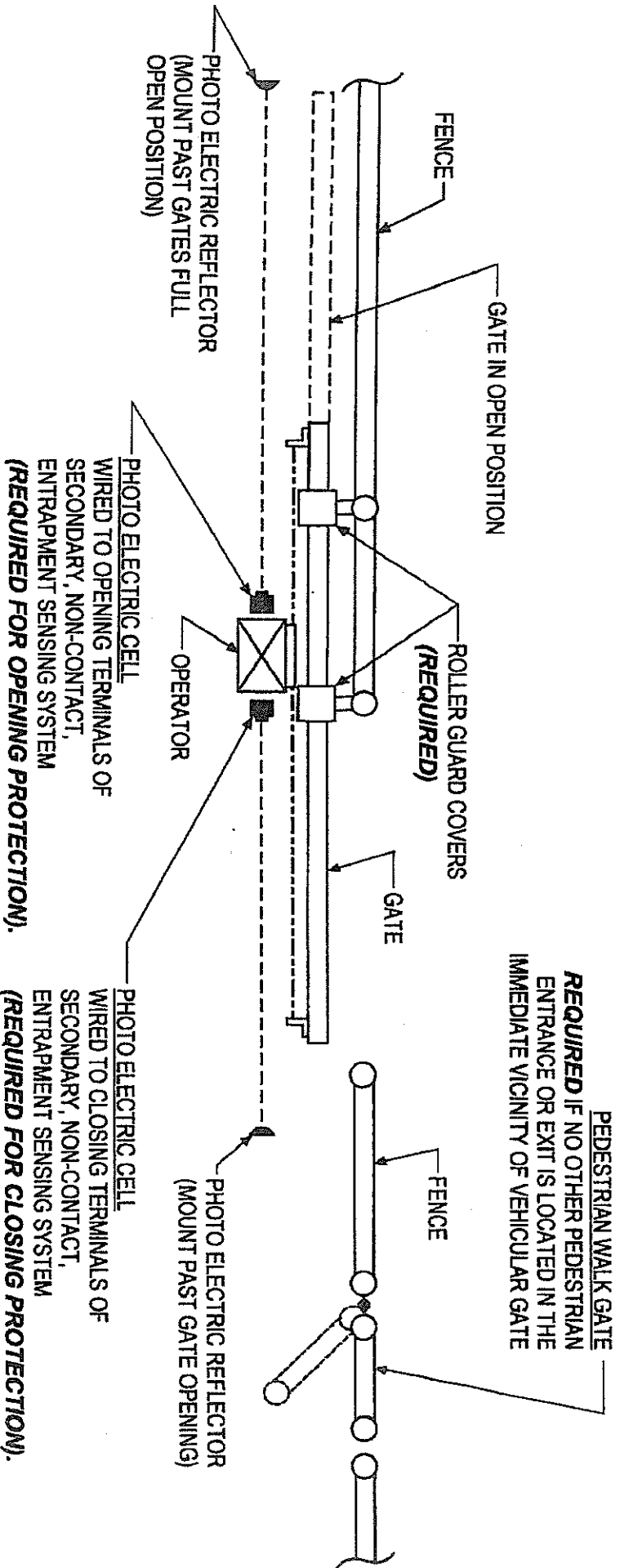
PowerMaster

ELECTRIC EDGE, CONTACT SENSOR INSTALLATION FOR SWING GATES



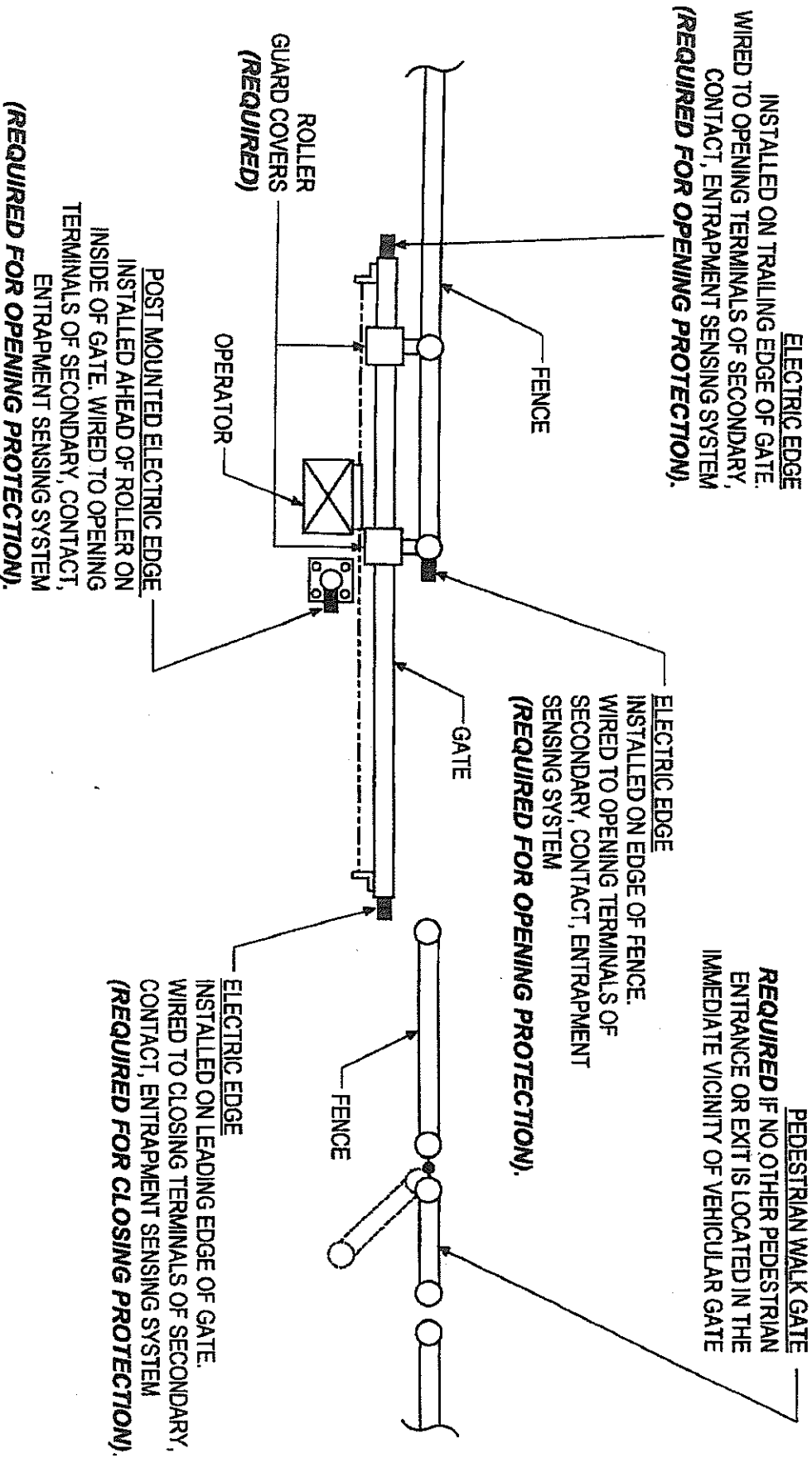
PowerMaster

PHOTO ELECTRIC CELL, NON-CONTACT SENSOR INSTALLATION FOR SLIDE GATES



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ELECTRIC EDGE, CONTACT SENSOR INSTALLATION FOR SLIDE GATES



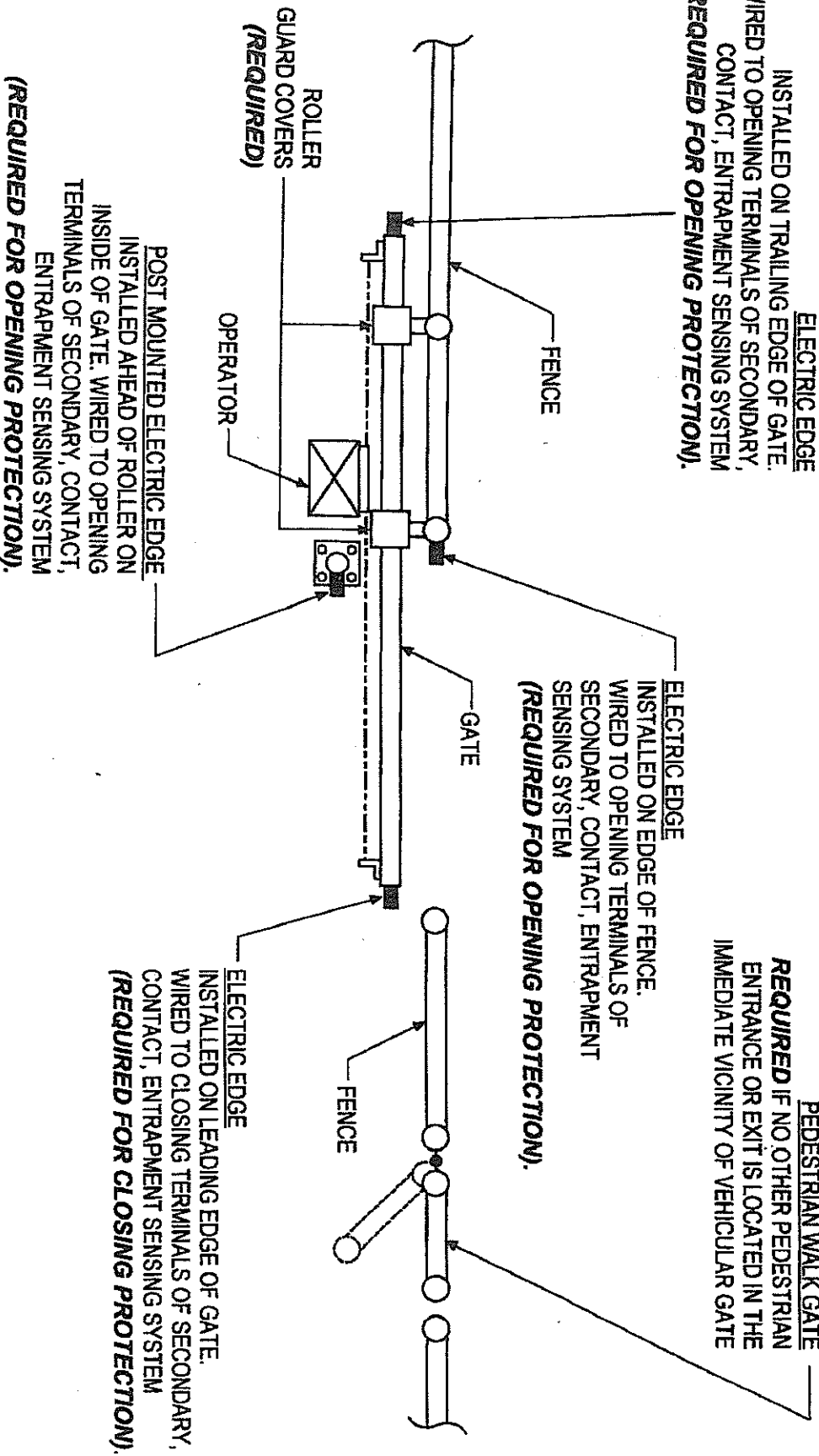
PowerMaster

ELECTRIC EDGE, CONTACT SENSOR INSTALLATION FOR SLIDE GATES

ELECTRIC EDGE
 INSTALLED ON TRAILING EDGE OF GATE.
 WIRED TO OPENING TERMINALS OF SECONDARY,
 CONTACT, ENTRAPMENT SENSING SYSTEM.
 (REQUIRED FOR OPENING PROTECTION).

ELECTRIC EDGE
 INSTALLED ON EDGE OF FENCE.
 WIRED TO OPENING TERMINALS OF
 SECONDARY, CONTACT, ENTRAPMENT
 SENSING SYSTEM
 (REQUIRED FOR OPENING PROTECTION).

PEDESTRIAN WALK GATE
REQUIRED IF NO OTHER PEDESTRIAN
 ENTRANCE OR EXIT IS LOCATED IN THE
 IMMEDIATE VICINITY OF VEHICULAR GATE



CLASS OF GATES

GLOSSARY

CLASS I: RESIDENTIAL VEHICULAR GATE OPERATOR (3.15)

A vehicular gate operator (or system) intended for use in a home of one to four-family dwelling, or a garage or parking area associated therewith.

CLASS II: COMMERCIAL/GENERAL ACCESS VEHICULAR GATE OPERATOR (3.16)

A vehicular gate operator (or system) intended for use in a commercial location or building such as a multi-family housing unit (five or more single family units), hotel garages, retail store or other building servicing the general public.

CLASS III: INDUSTRIAL/LIMITED ACCESS VEHICULAR GATE OPERATOR (3.17)

A vehicular gate operator (or system) intended for use in an industrial location or building such as a factory or loading dock area or other locations not intended to service the general public.

CLASS IV: RESTRICTED ACCESS VEHICULAR GATE OPERATOR (3.18)

A vehicular gate operator (or system) intended for use in a guarded industrial location or building such as a factory or loading dock area or other restricted access locations not serving the general public, in which unauthorized access is prevented via supervision by security personnel.

KEY POINTS

- The sales/installation company must match the site application with the class of operator and the necessary safety devices.
- Each job must be looked at individually and each entrapment point should be protected with at least one primary and one secondary device.
- Slide gates including counterbalance as well as any fence the gate slides by should be guarded so that a 2 ¼ inch sphere cannot pass through. Gaps between fixed posts and the moving gate should also be guarded. Reach through injuries seem to be the most common and dangerous.
- No controls (push-buttons, card readers, keypads, etc) should be mounted within 10ft of a moving gate
- A pedestrian gate should always be available.
- Cantilever rollers must be guarded.
- Warning signs must be permanently affixed to the gate panel (a photograph of the installation is recommended for proof of proper installation).
- CLASS I and CLASS II gates are limited in speed to 1ft/second.
- Service and preventive maintenance contracts are recommended to ensure safe and proper operation of the system.
- UL325 does not address gate operators installed before relevant provisions have taken effect, but it is strongly recommended that you advise your customers in writing of the recommended safety standards, particularly if you have serviced the operator.
- The UL standards are considered a minimum amount of safety protection.

TABLE 30A.1

PROTECTION AGAINST ENTRAPMENT

VEHICULAR USAGE CLASS	GATE OPERATOR CATEGORY			
	HORIZONTAL SLIDE VERTICAL LIFT VERTICAL PIVOT		SWING GATE VERTICAL BARRIER (ARM)	
	PRIMARY TYPE	SECONDARY TYPE	PRIMARY TYPE	SECONDARY TYPE
	CLASS I & II	A	B1, B2 or D	A or C
CLASS III	A, B1 or B2	A, B1, B2, D or E	A, B1 or C	A, B1, C, D or E
CLASS IV	A, B1, B2 or D	A, B1, B2, D or E	A, B1, C or D	A, B1, C, D or E

NOTE: The same type of device shall not be utilized for both the primary and secondary entrapment protection means. Use of a single device to cover both the opening and closing directions is in accordance with the requirements; however, a single device is not required to cover both directions. A combination of one TYPE B1 for one direction and one TYPE B2 for the other direction is the equivalent of one device for the purpose of complying with the requirements of either the primary or secondary entrapment protection means.

ENTRAPMENT TYPES:

TYPE A: Inherent entrapment sensing system. See 30A.1.2

TYPE B1: Provision for connection of, or supplied with, a non-contact sensor (photoelectric sensor or the equivalent). See 30A.1.4, 30A.1.5, 30A.1.6, 30A.1.7 and 30A.1.8

TYPE B2: Provision for connection of, or supplied with, a contact sensor (edge device or equivalent). See 30A.1.6 and 30A.1.9 – 30A.1.11

TYPE C: Inherent adjustable clutch or pressure relief device. See 30A.1.12

TYPE D: Provision for connection of, or supplied with, an actuating device requiring continuous pressure to maintain opening or closing motion of the gate. See 30A.1.14 and 30A.1.15

TYPE E: An inherent audio alarm. See 30A.1.16, 30A.1.17 and 30A.1.18

TABLE 30A.1

PROTECTION AGAINST ENTRAPMENT

VEHICULAR USAGE CLASS	GATE OPERATOR CATEGORY			
	HORIZONTAL SLIDE VERTICAL LIFT VERTICAL PIVOT		SWING GATE VERTICAL BARRIER (ARM)	
	PRIMARY TYPE	SECONDARY TYPE	PRIMARY TYPE	SECONDARY TYPE
CLASS I & II	A	B1, B2 or D	A or C	A, B1, C or D
CLASS III	A, B1 or B2	A, B1, B2, D or E	A, B1 or C	A, B1, C, D or E
CLASS IV	A, B1, B2 or D	A, B1, B2, D or E	A, B1, C or D	A, B1, C, D or E

NOTE: The same type of device shall not be utilized for both the primary and secondary entrapment protection means. Use of a single device to cover both the opening and closing directions is in accordance with the requirements; however, a single device is not required to cover both directions. A combination of one TYPE B1 for one direction and one TYPE B2 for the other direction is the equivalent of one device for the purpose of complying with the requirements of either the primary or secondary entrapment protection means.

ENTRAPMENT TYPES:

TYPE A: Inherent entrapment sensing system. See 30A.1.2

TYPE B1: Provision for connection of, or supplied with, a non-contact sensor (photoelectric sensor or the equivalent). See 30A.1.4, 30A.1.5, 30A.1.6, 30A.1.7 and 30A.1.8

TYPE B2: Provision for connection of, or supplied with, a contact sensor (edge device or equivalent). See 30A.1.6 and 30A.1.9 – 30A.1.11

TYPE C: Inherent adjustable clutch or pressure relief device. See 30A.1.12

TYPE D: Provision for connection of, or supplied with, an actuating device requiring continuous pressure to maintain opening or closing motion of the gate. See 30A.1.14 and 30A.1.15

TYPE E: An inherent audio alarm. See 30A.1.16, 30A.1.17 and 30A.1.18