

# Installation Manual

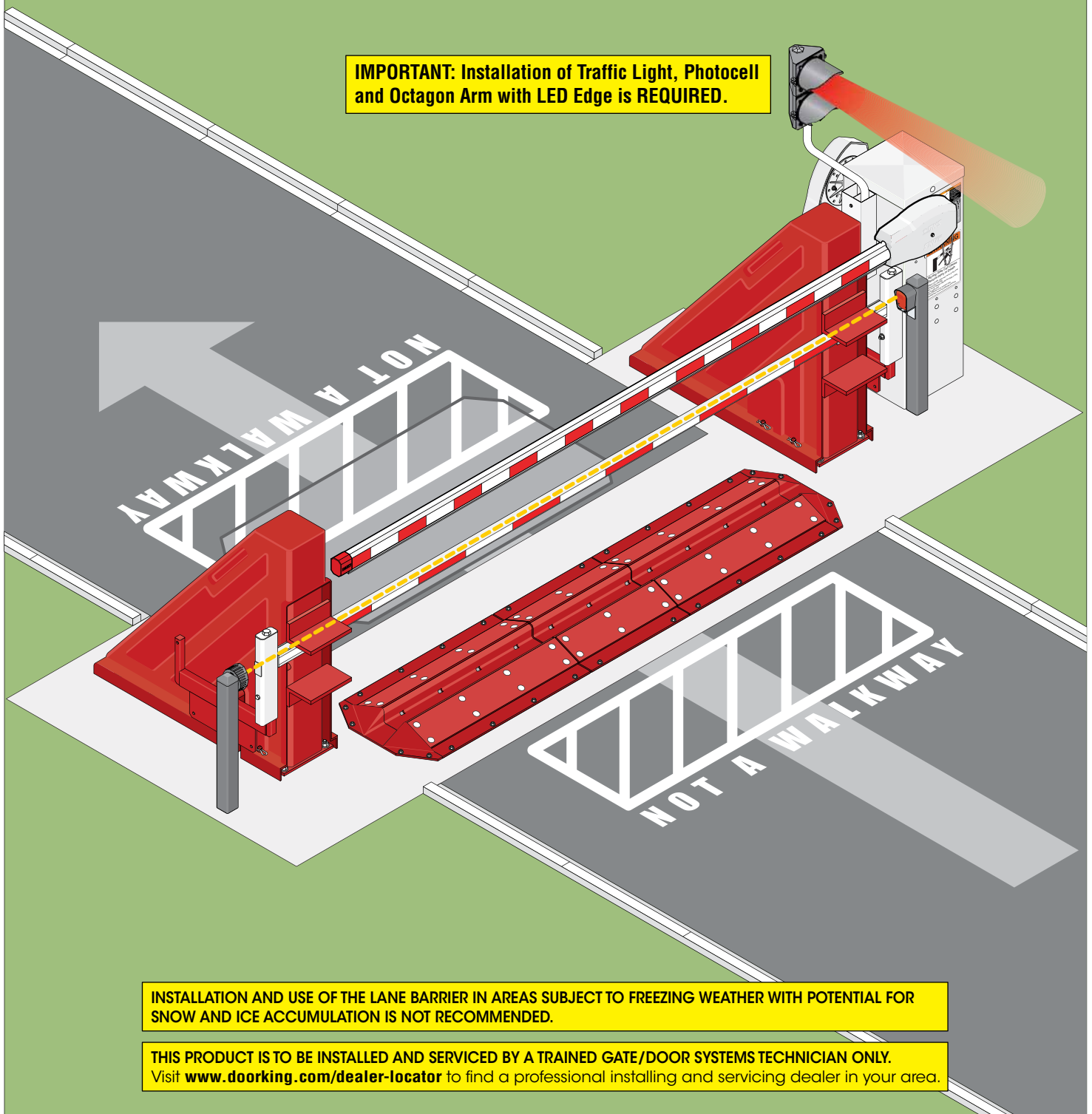
# 1620 Lane Barrier

Surface Mount Vehicular Lane Barrier Accessory

Use this manual for circuit board 1601-010 Revision W or higher.

1620-065-M-2-22

**IMPORTANT: Installation of Traffic Light, Photocell and Octagon Arm with LED Edge is REQUIRED.**



**INSTALLATION AND USE OF THE LANE BARRIER IN AREAS SUBJECT TO FREEZING WEATHER WITH POTENTIAL FOR SNOW AND ICE ACCUMULATION IS NOT RECOMMENDED.**

**THIS PRODUCT IS TO BE INSTALLED AND SERVICED BY A TRAINED GATE/DOOR SYSTEMS TECHNICIAN ONLY.**  
Visit [www.doorking.com/dealer-locator](http://www.doorking.com/dealer-locator) to find a professional installing and servicing dealer in your area.

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The 1620 lane barrier is not a stand-alone product. It must be used with a 1603-580 Barrier Gate Operator (sold separately). The 1620 is not crash rated. It is intended to provide a more formidable barrier in conjunction with a standard barrier arm operator system. The 1620 is ideally used to control passenger vehicles and lightduty trucks.


  
DOOR KING®



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# DoorKing Safety for Lane Barrier

- DKS Lane Barrier System is **NOT** crash rated. It is intended to provide a formidable barrier to help prevent **passenger vehicles** and **light-duty trucks** from driving through a controlled traffic lane.
- Lane barrier **MUST** have reverse/LED edge on arm, traffic light and photoelectric cell **functioning** or **remove lane barrier from service** until repairs have been made.
- Make sure all warning signs are on operator and arm. They **MUST** be easily visible. 
- **Do not install the operator in such a way that the arms moves within 16 inches of a rigid object or 10 feet from high voltage power wires with arm in the raised position.**
- **Speed limit through barrier area is 5 MPH.** Install speed bumps, warning signs and hazard stripes where visible in the area of the lane barrier gate, failure to do so may result in injury, damage to operator and vehicle.
- Users should be familiar with proper use of operator, these include; hardware operation, reversing functions and testing, reversing loops, inherent reversing system, electric edges, photoelectric cells related external devices and possible hazards.
- **Keep adults, children and objects away from operator and HAZARD ZONES.**
- **Automotive ONE-WAY traffic only - No bicycles or motorcycles.**

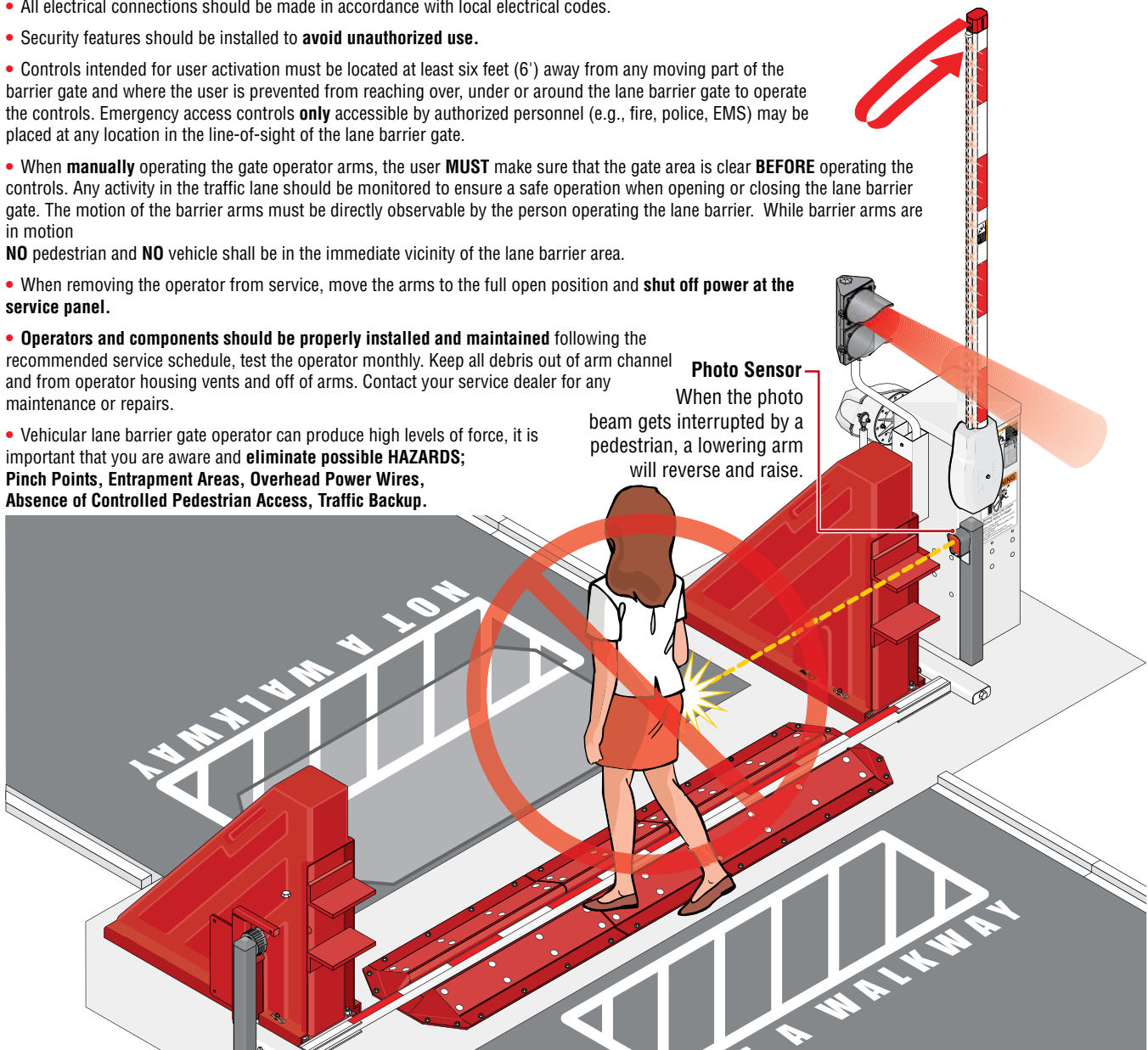
## Pedestrians **MUST** be provided with separate access.

- All electrical connections should be made in accordance with local electrical codes.
- Security features should be installed to **avoid unauthorized use.**
- Controls intended for user activation must be located at least six feet (6') away from any moving part of the barrier gate and where the user is prevented from reaching over, under or around the lane barrier gate to operate the controls. Emergency access controls **only** accessible by authorized personnel (e.g., fire, police, EMS) may be placed at any location in the line-of-sight of the lane barrier gate.
- When **manually** operating the gate operator arms, the user **MUST** make sure that the gate area is clear **BEFORE** operating the controls. Any activity in the traffic lane should be monitored to ensure a safe operation when opening or closing the lane barrier gate. The motion of the barrier arms must be directly observable by the person operating the lane barrier. While barrier arms are in motion **NO** pedestrian and **NO** vehicle shall be in the immediate vicinity of the lane barrier area.
- When removing the operator from service, move the arms to the full open position and **shut off power at the service panel.**
- **Operators and components should be properly installed and maintained** following the recommended service schedule, test the operator monthly. Keep all debris out of arm channel and from operator housing vents and off of arms. Contact your service dealer for any maintenance or repairs.
- Vehicular lane barrier gate operator can produce high levels of force, it is important that you are aware and **eliminate possible HAZARDS; Pinch Points, Entrapment Areas, Overhead Power Wires, Absence of Controlled Pedestrian Access, Traffic Backup.**



**IMPORTANT:** A lane barrier gate operator installed **WITHOUT** any external safety sensors **CANNOT** sense a person under the raised arm and can strike them while the arm is lowering.

**This scenario is VERY DANGEROUS and MUST NEVER OCCUR!!**



**Photo Sensor**  
When the photo beam gets interrupted by a pedestrian, a lowering arm will reverse and raise.

# Safety and Traffic Management for Lane Barrier System

Vehicular lane barrier gate operator can produce high levels of force. It is important that you are aware and eliminate possible HAZARDS; Pinch Points, Entrapment Areas, Overhead Power Wires, Absence of Controlled Pedestrian Access, and Traffic Management.

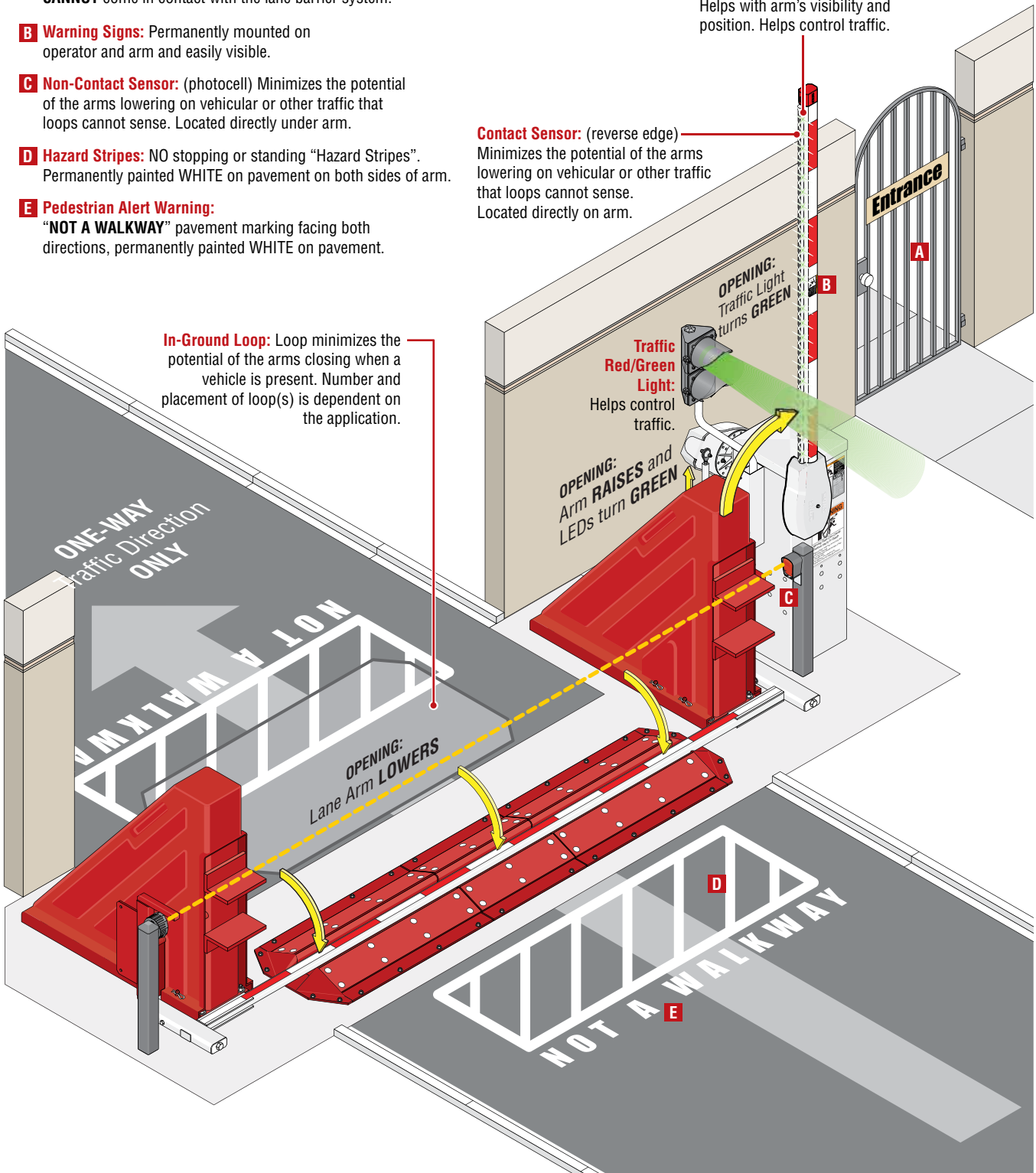
## Pedestrians MUST be provided with separate access.

- A Separate Pedestrian Entrance:** Located so pedestrians **CANNOT** come in contact with the lane barrier system.
- B Warning Signs:** Permanently mounted on operator and arm and easily visible.
- C Non-Contact Sensor:** (photocell) Minimizes the potential of the arms lowering on vehicular or other traffic that loops cannot sense. Located directly under arm.
- D Hazard Stripes:** NO stopping or standing “Hazard Stripes”. Permanently painted WHITE on pavement on both sides of arm.
- E Pedestrian Alert Warning:** “NOT A WALKWAY” pavement marking facing both directions, permanently painted WHITE on pavement.

**Arm Red/Green LED Lights:**  
Helps with arm’s visibility and position. Helps control traffic.

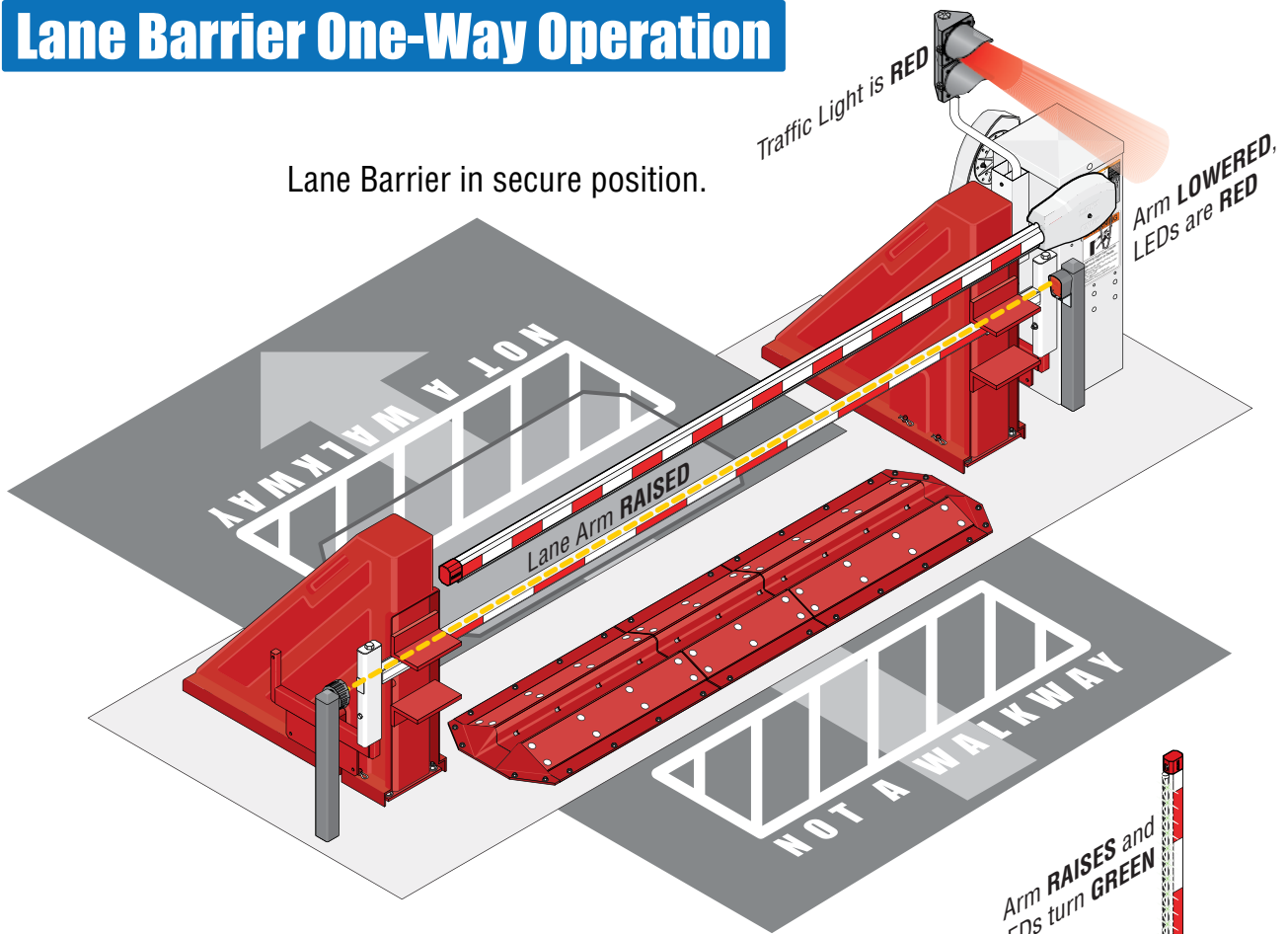
**Contact Sensor:** (reverse edge)  
Minimizes the potential of the arms lowering on vehicular or other traffic that loops cannot sense. Located directly on arm.

**In-Ground Loop:** Loop minimizes the potential of the arms closing when a vehicle is present. Number and placement of loop(s) is dependent on the application.

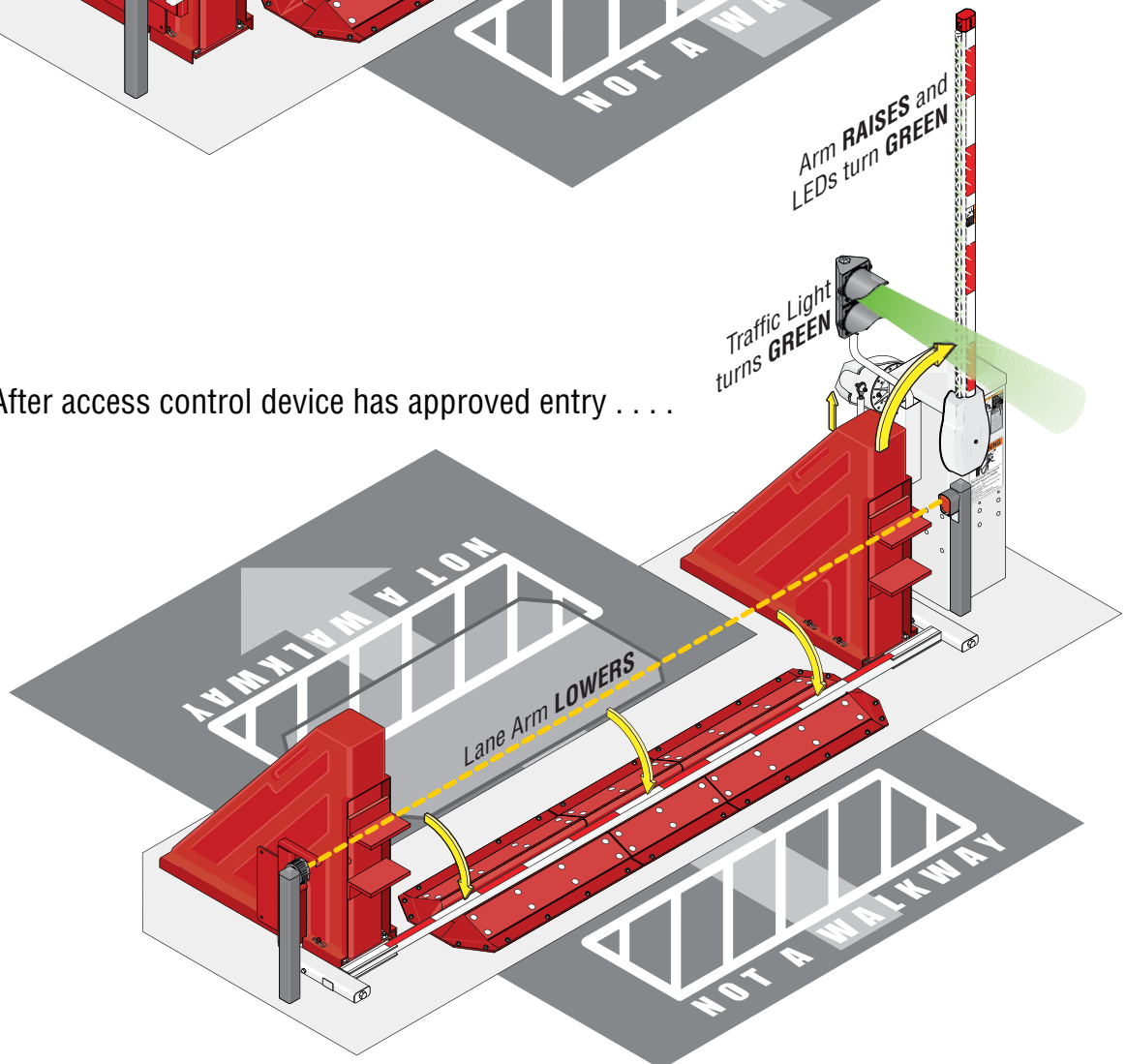


# Lane Barrier One-Way Operation

Lane Barrier in secure position.



After access control device has approved entry . . . .

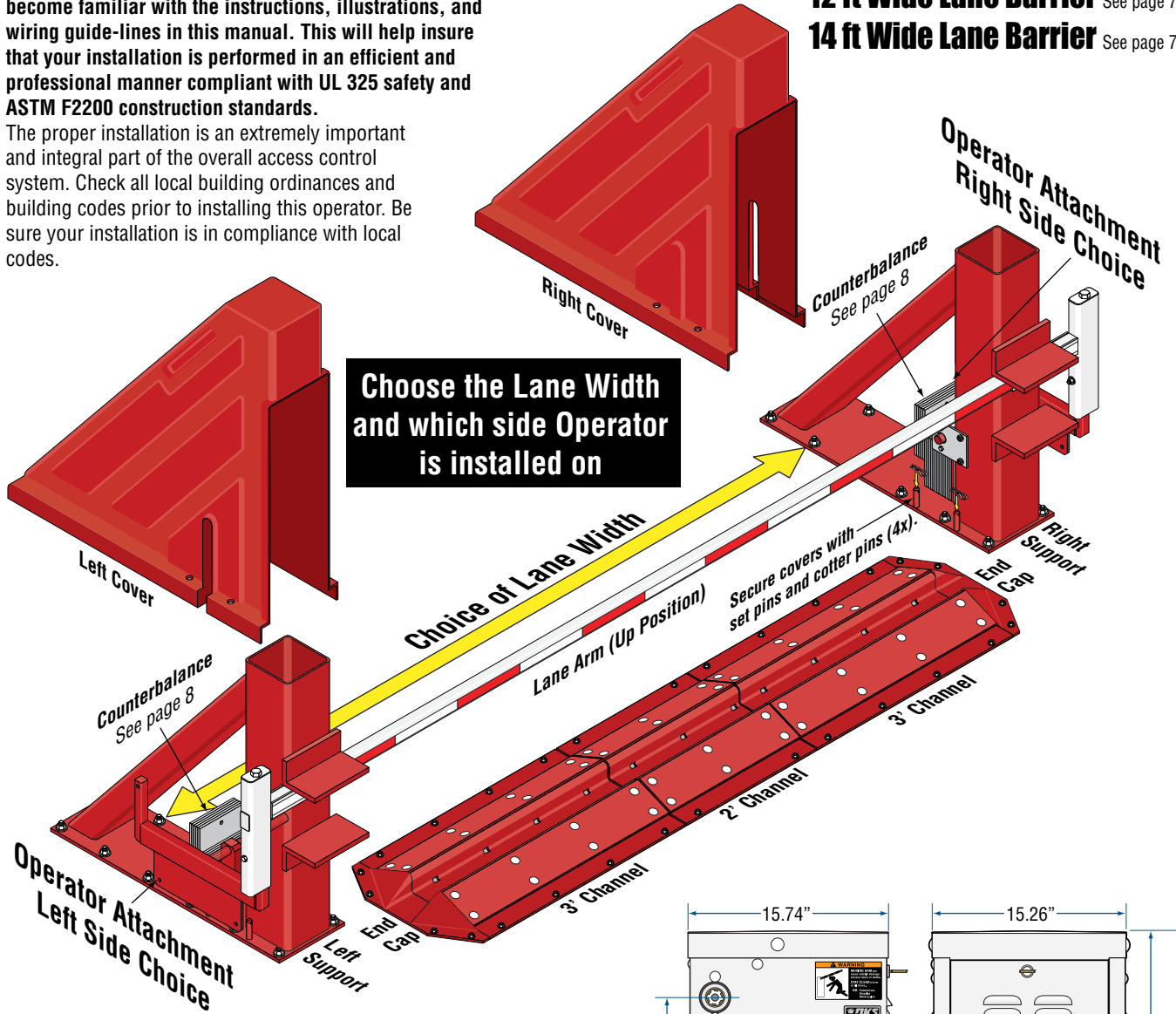


# Lane Barrier Overview

Prior to beginning the installation, we suggest that you become familiar with the instructions, illustrations, and wiring guide-lines in this manual. This will help insure that your installation is performed in an efficient and professional manner compliant with UL 325 safety and ASTM F2200 construction standards.

The proper installation is an extremely important and integral part of the overall access control system. Check all local building ordinances and building codes prior to installing this operator. Be sure your installation is in compliance with local codes.

- 9 ft Wide Lane Barrier** See page 6
- 10 ft Wide Lane Barrier** See page 6
- 12 ft Wide Lane Barrier** See page 7
- 14 ft Wide Lane Barrier** See page 7



## 1601-580 Housing

**Class of Operation** - Model 1601 - UL 325 Class II, III, IV – ETL Listed

**Type of Gate** - Single Traffic Lane Vehicular Barrier Gate Only

**Arm Type & Length** - 14 Ft. Octagon Aluminum

**Gate Cycles** - High Cycle

**Speed** - 90° in approximately 2.5 seconds

### Pedestrian Protection

Inherent entrapment sensing system (Type A)

Provision for connection of a non-contact sensor (Type B1) and/or contact sensor (Type B2)

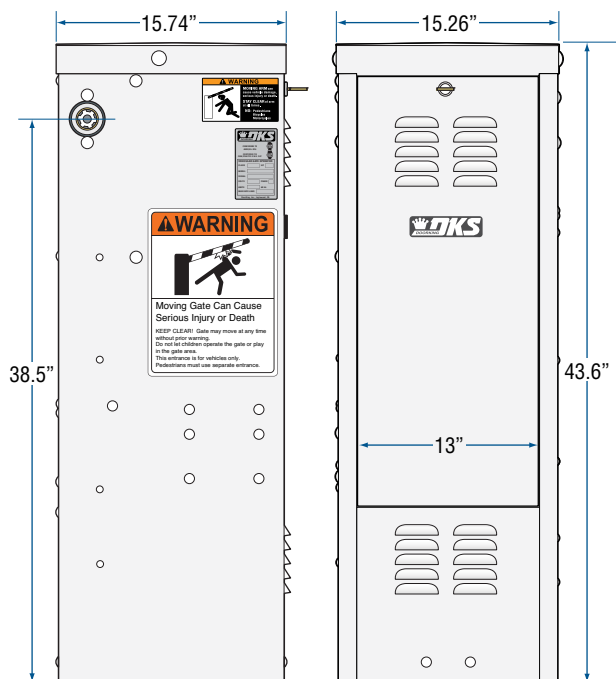
Model #	Horsepower - Volts	Amp
1601-580	1/2 HP - 115 VAC	5.7

**Note:** 208/230/460/575 VAC input voltage can be connected to the operator by installing an "Optional" High Voltage Kit (P/N 2600-266).

### Type of wiring to be used on ALL external devices:

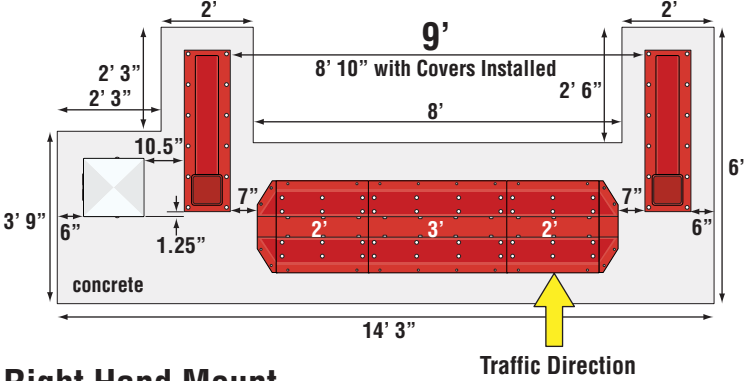
A) Type CL2, CL2P, CL2R, or CL2X.

B) Other cable with equivalent or better electrical, mechanical, and flammability ratings.



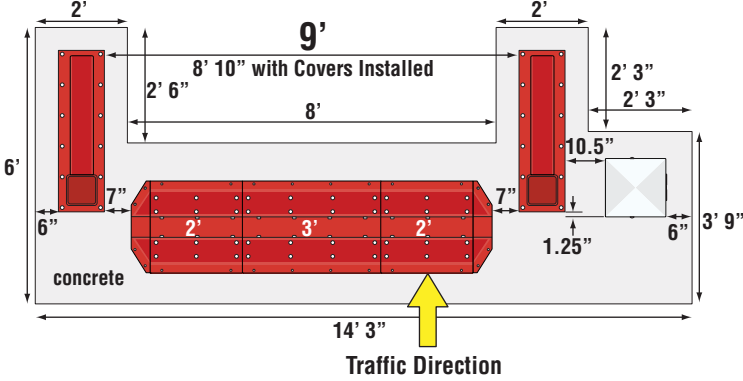
# 9 ft Layout

## Left Hand Mount



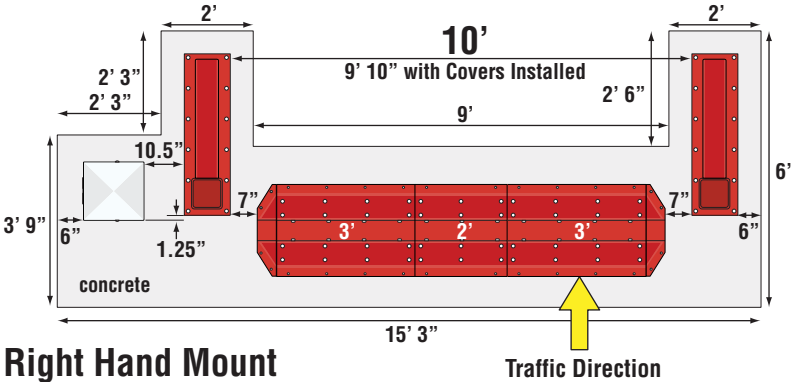
U-Channel Assemblies required for 9 Ft Lane  
 1 ea. 3-ft Channel  
 2 ea. 2-ft Channel  
 2 ea. End Cap

## Right Hand Mount



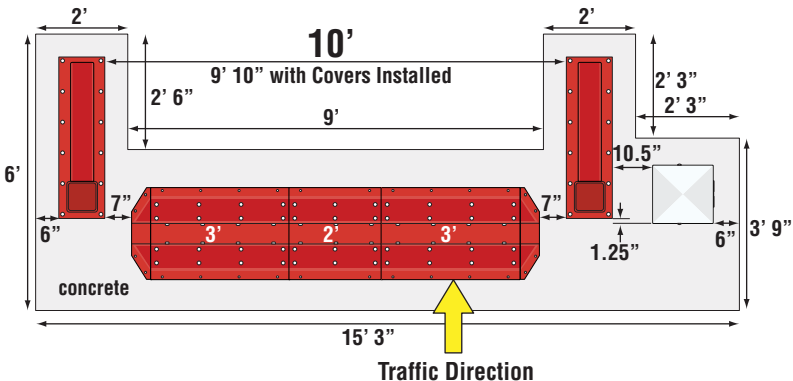
# 10 ft Layout

## Left Hand Mount



U-Channel Assemblies required for 10 Ft Lane  
 2 ea. 3-ft Channel  
 1 ea. 2-ft Channel  
 2 ea. End Cap

## Right Hand Mount



### GENERAL NOTES

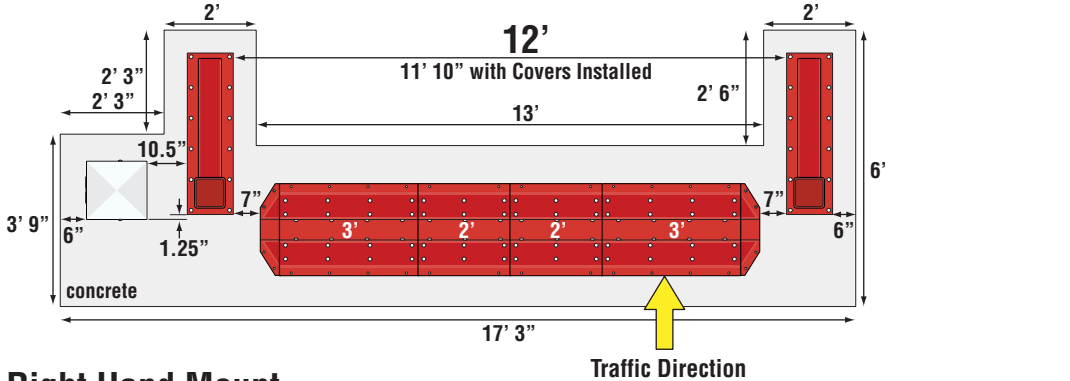
- Automated vehicular gates shall be designed and installed to be in strict compliance with the UL 325 Safety Standard and the ASTM F2200 Construction Standard.
- Automated vehicular gates that do not meet the requirements of these standards shall not be allowed.
- This drawing is for the sole purpose of general gate operator foot-print and location, photo beam coverage and placement, and vehicular loop dimensions and placement. Drawings are not all inclusive or guaranteed to scale.
- No considerations have been made for grade, existing public utilities, landscape, drainage, site peculiarities, or requirements by the authority having jurisdiction, ie; Fire Marshall, Building Inspector, Street and Alley Departments.
- Warning Signs must be installed and must be highly visible upon both entry and exit of the property, and must remain in place for the life of the gate operating system.
- Proper lane identification and vehicular direction signs should be highly visible upon entry onto the property.
- Gate dimensions, posts, guide rollers, photo beams, reversing edges, hinges, and other gate hardware may vary in size, dimension, and placement and should not be used as an exact reference.
- All loop sizing and placement dimensions indicated are solely intended for reference only, and not intended to be the final criterion for determining the loop sizing and placement on any automated vehicular gate project.
- DoorKing, Inc does not assume responsibility or liability for any installation with regard to equipment/system malfunction, vehicle detector loop sizing and placement, or consequent damages or injuries caused thereby.
- DoorKing, Inc. does not assume responsibility or liability for the installation and unauthorized changes to the design and operation of equipment, or alterations to the final site plan.

- 3000 psi reinforced concrete** - minimum depth six (6) inches.
- Allow a minimum of six (6) inches** around all components.
- Concrete pad size shown is **minimum** requirement.

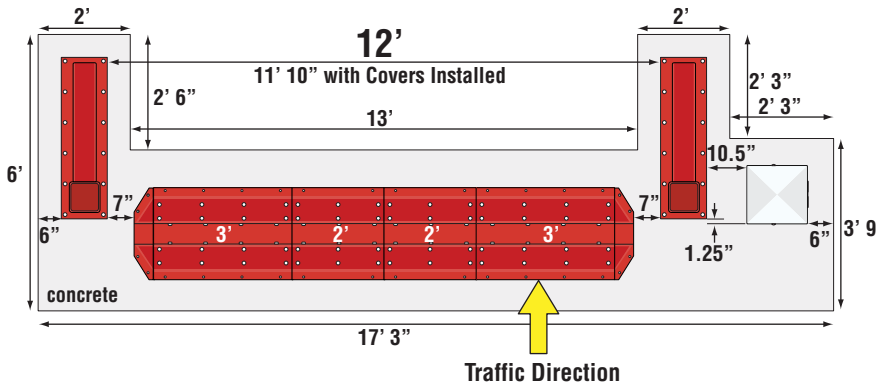


# 12 ft Layout

## Left Hand Mount

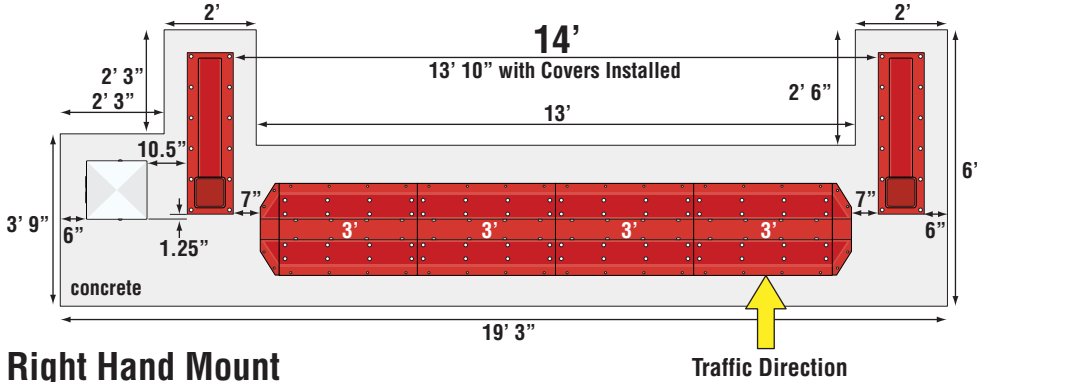


## Right Hand Mount

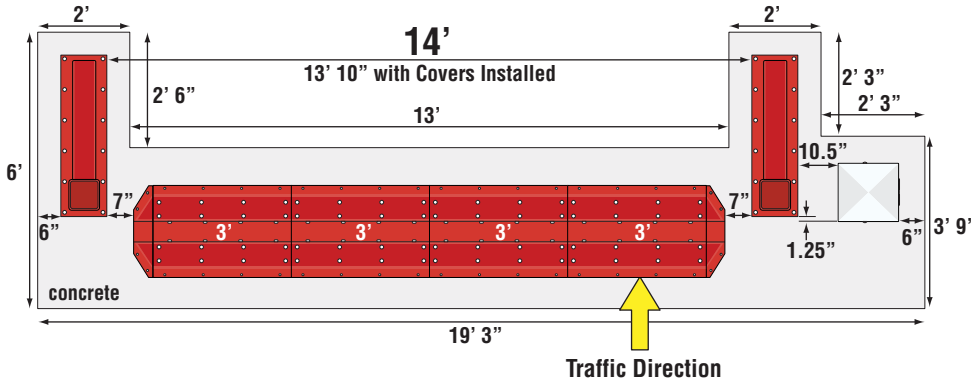


# 14 ft Layout

## Left Hand Mount



## Right Hand Mount

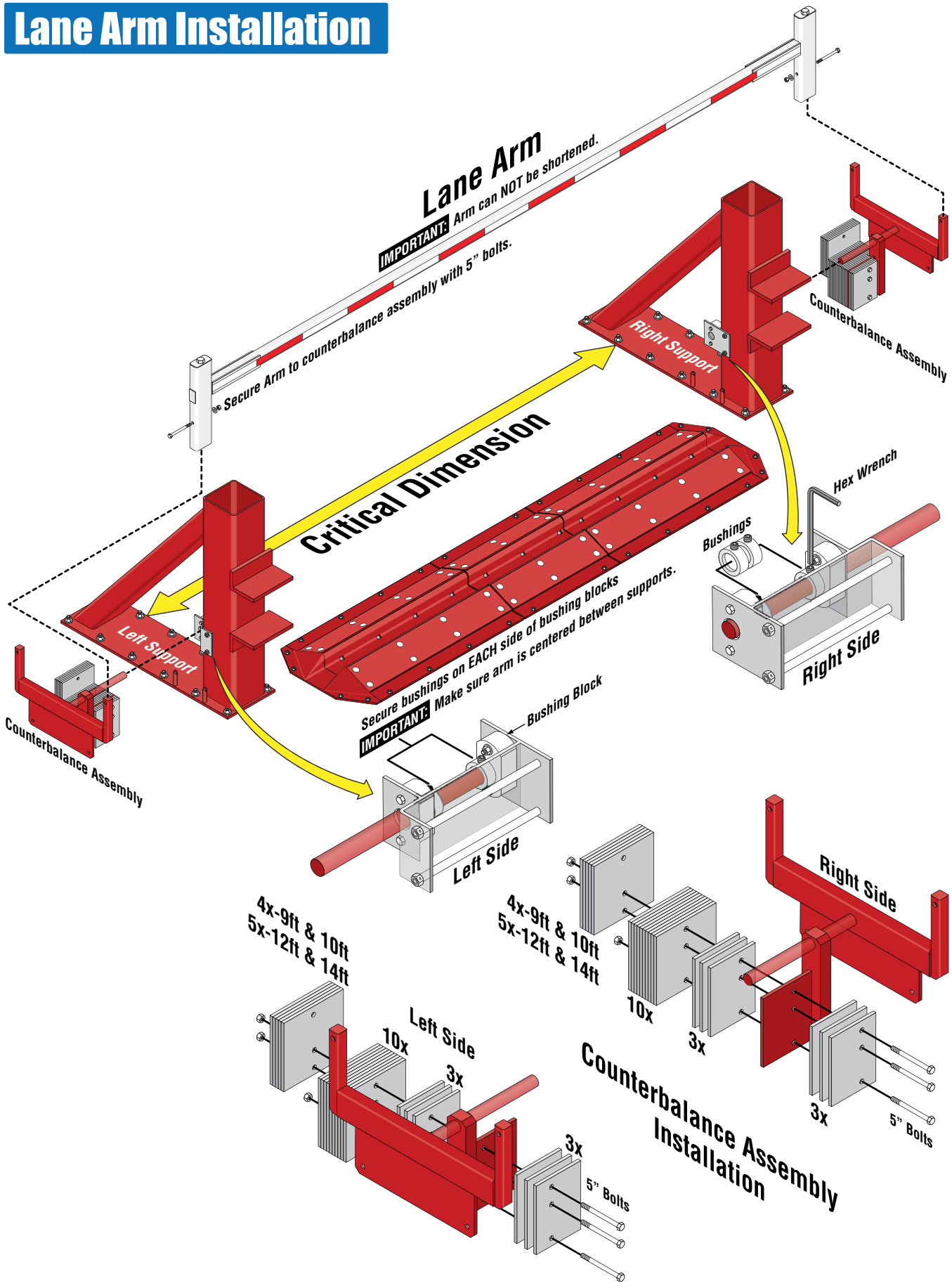


**GENERAL NOTES**

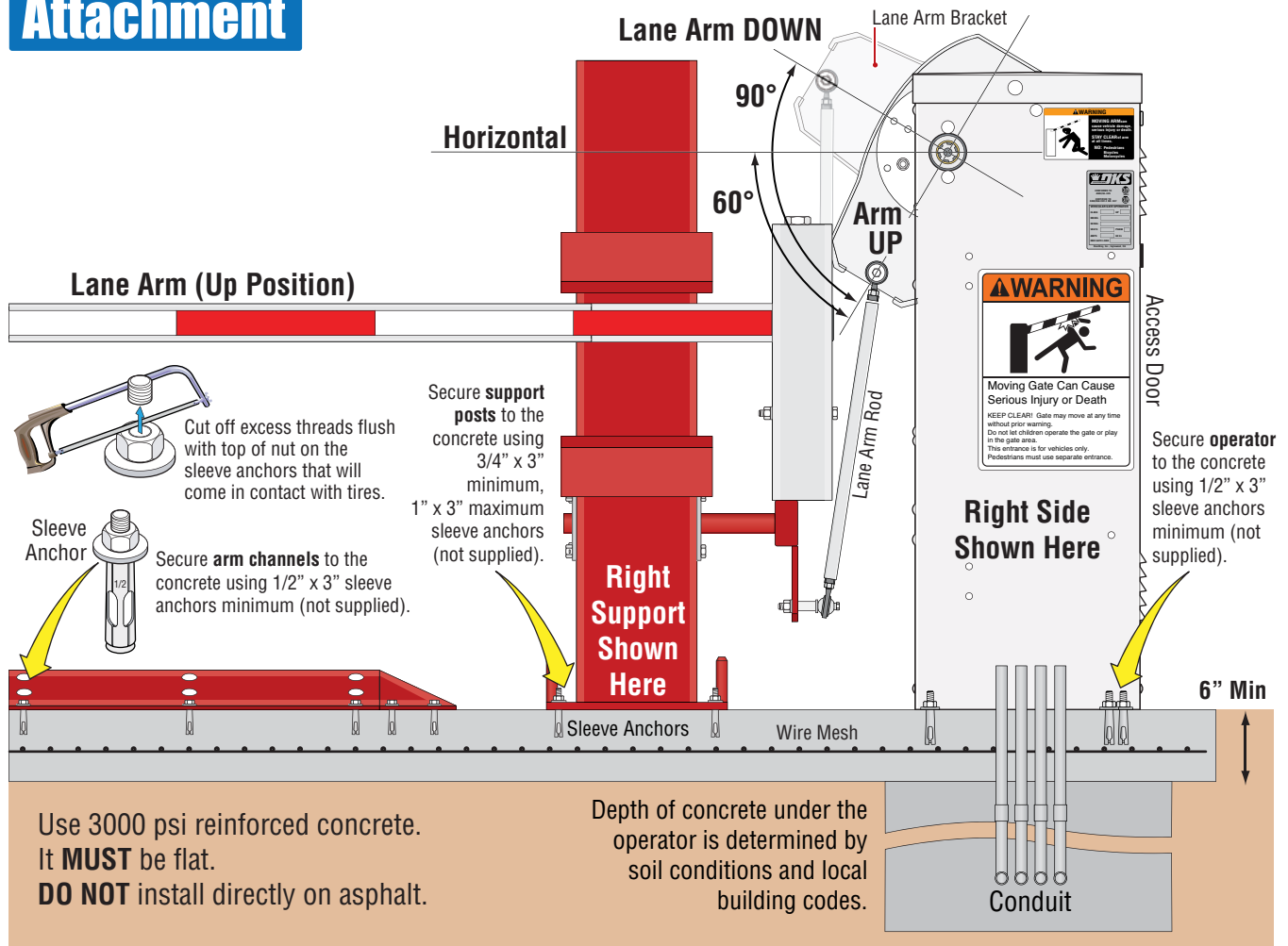
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- Allow a minimum of six (6) inches around all components.**
- Concrete pad size shown is **minimum** requirement.

# Lane Arm Installation

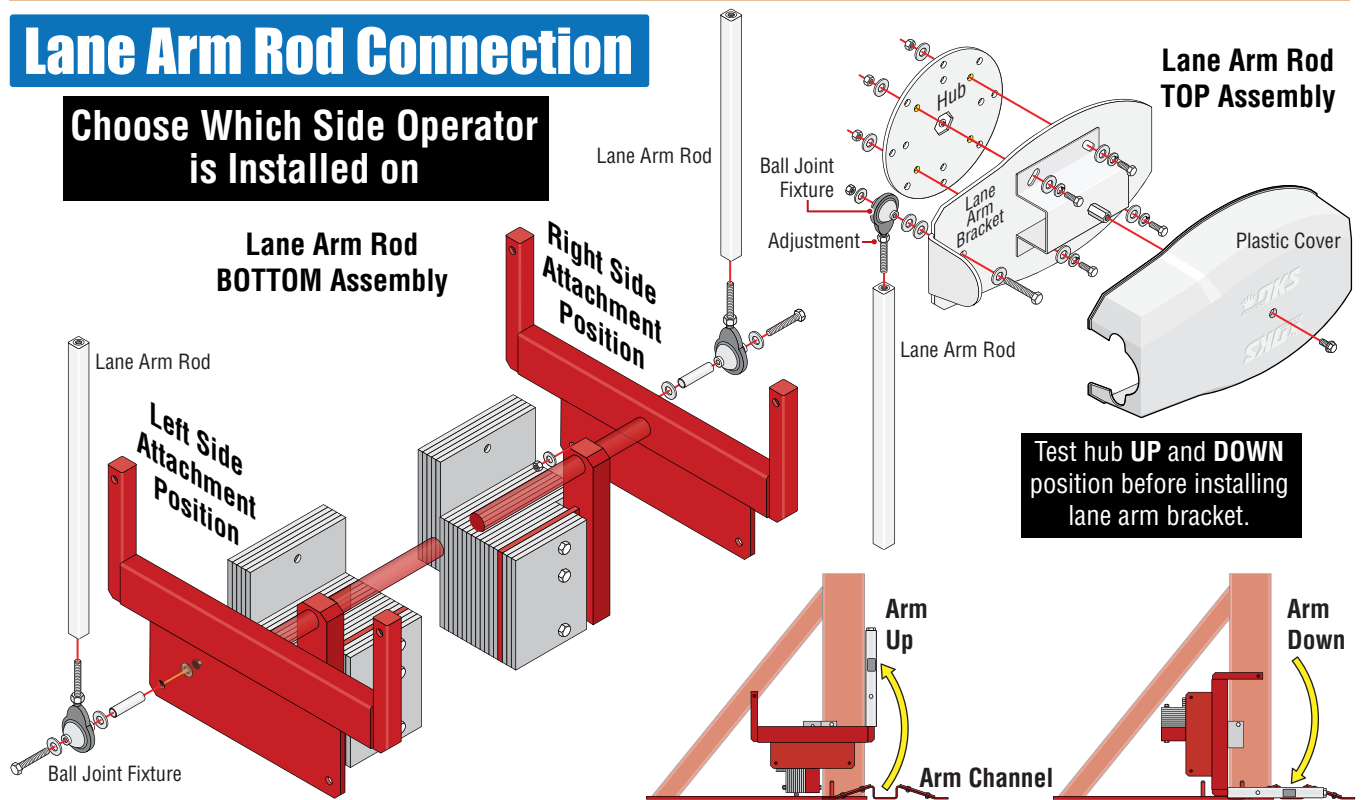


# Attachment



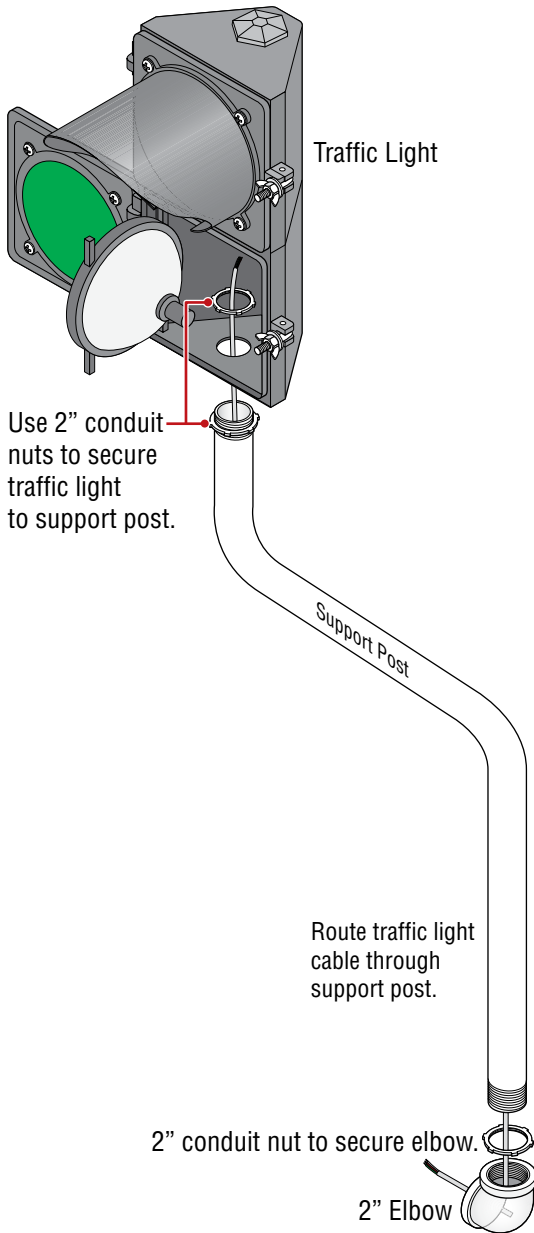
# Lane Arm Rod Connection

**Choose Which Side Operator is Installed on**

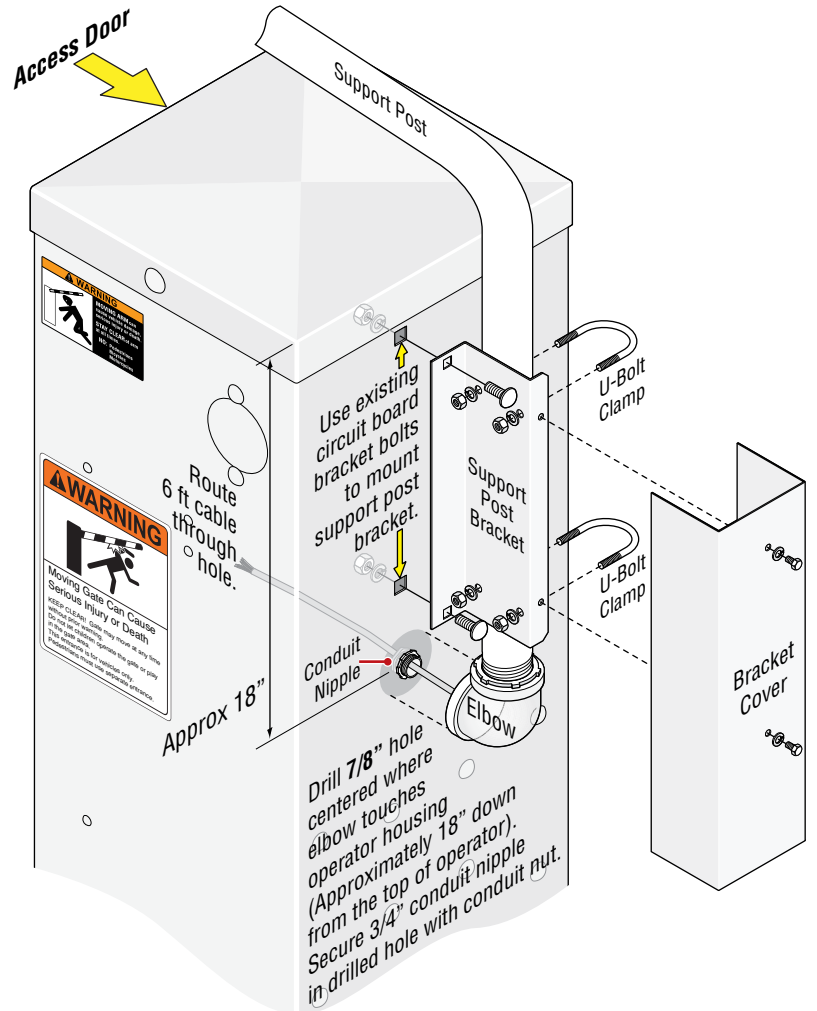


# Install Traffic Light (REQUIRED)

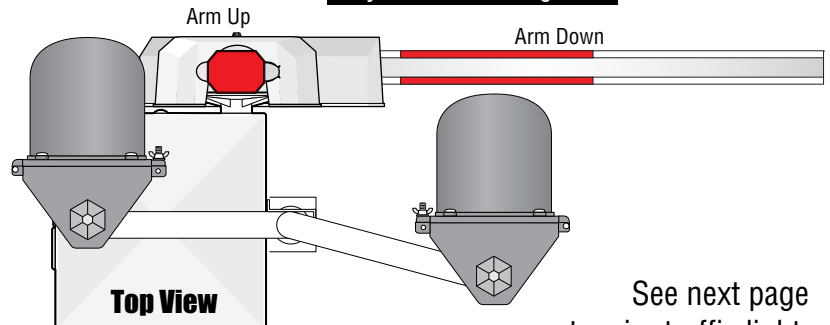
## 1 Assemble Support Post



## 2 Mount Support Post on OPPOSITE Side of Access Door



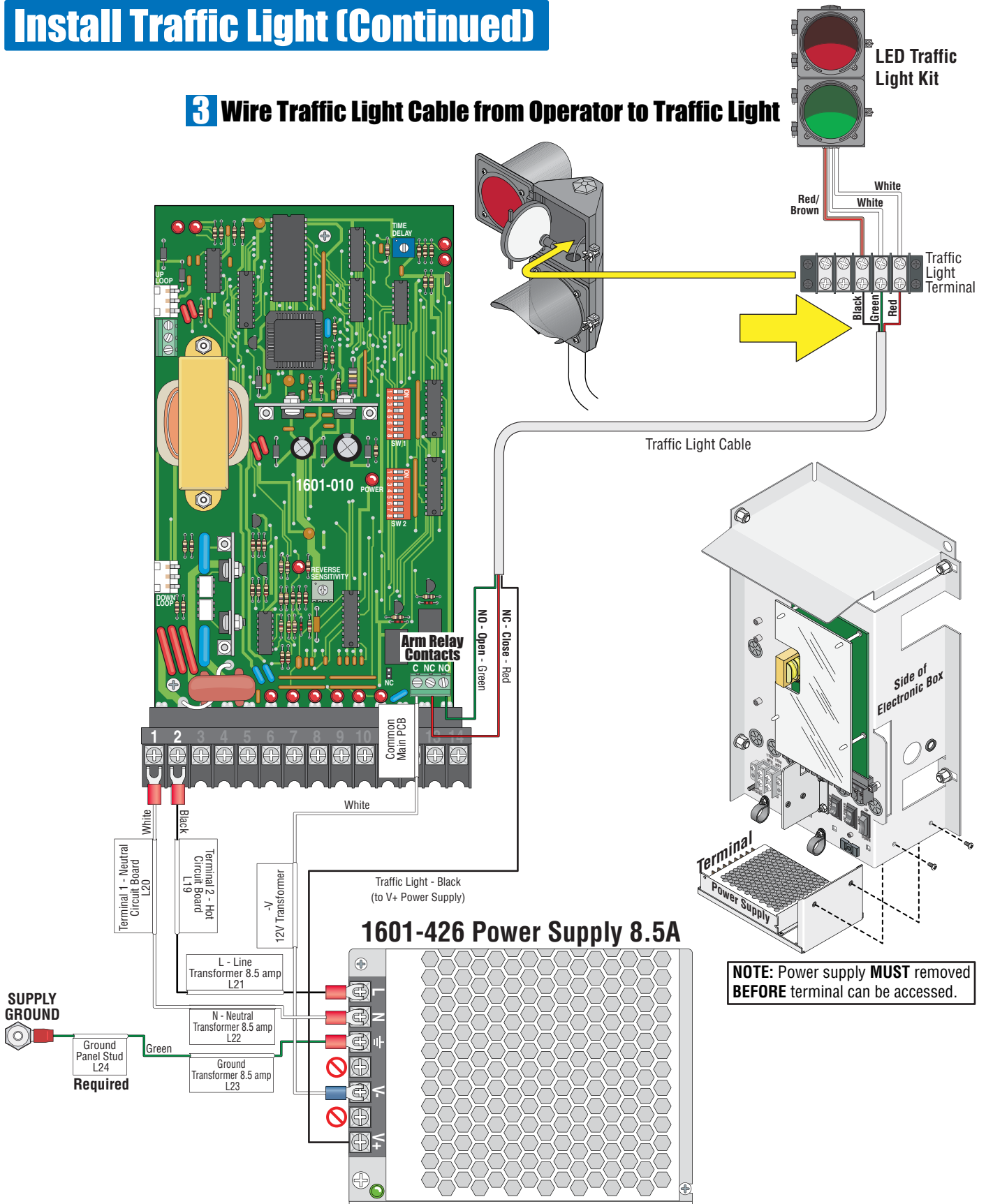
Make sure traffic light stays clear of raising arm.



See next page to wire traffic light.

# Install Traffic Light (Continued)

## 3 Wire Traffic Light Cable from Operator to Traffic Light

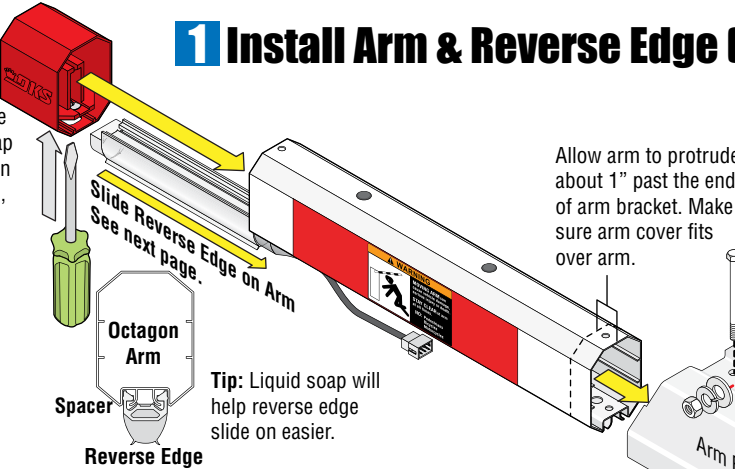


**⚠ Keep wire clear of all moving parts.**

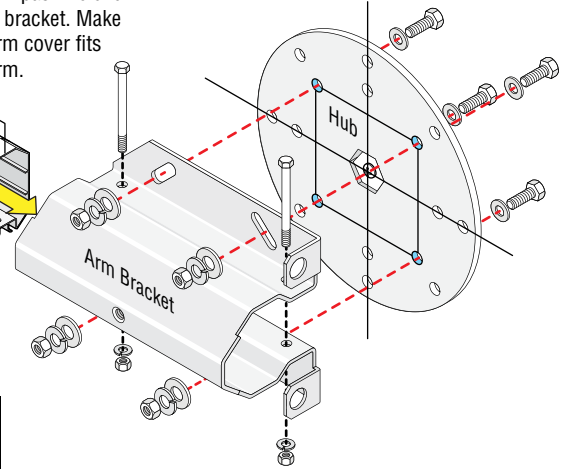
# Install Octagon Arm with Reverse/LED Edge

## 1 Install Arm & Reverse Edge (REQUIRED)

**Install End Cap**  
Push a screwdriver through the hole in the bottom of cap to release spring while pushing cap on. Keep pushing cap on until a "CLICK" is heard, locking it in place.



Test hub **UP** and **DOWN** position before installing arm bracket.

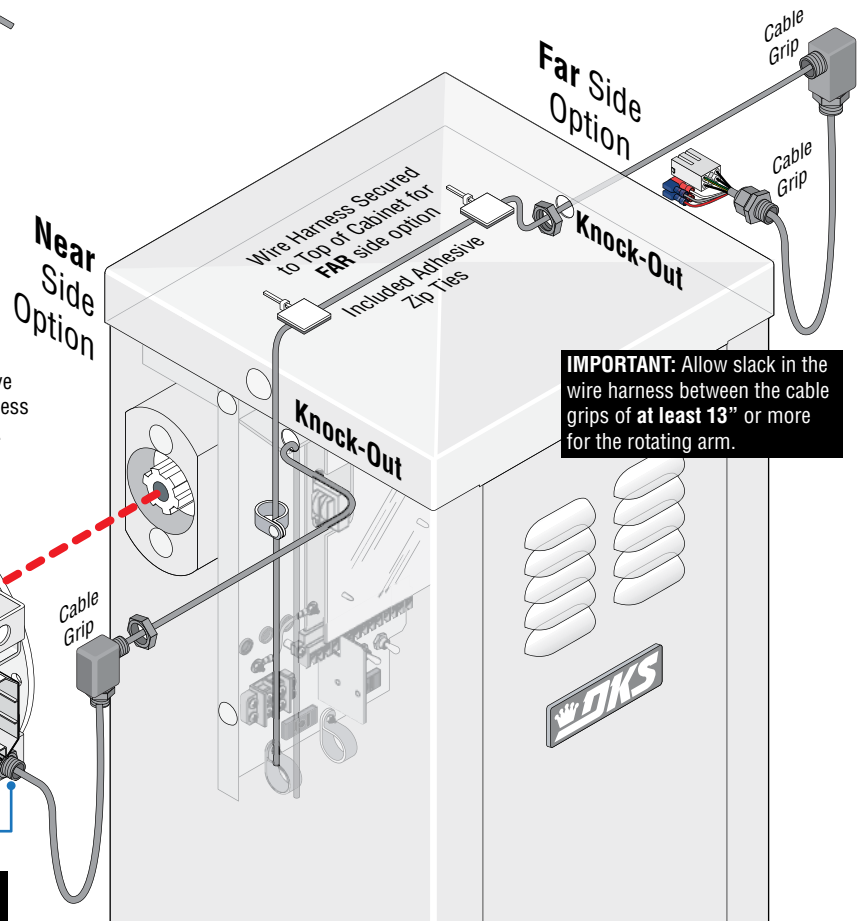
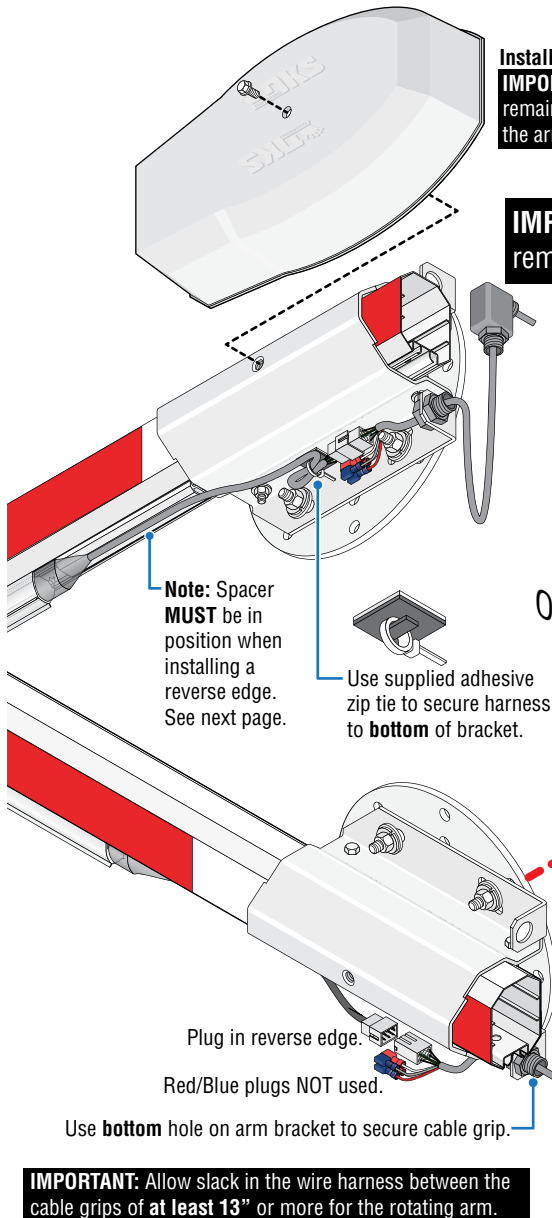


## 2 Connect Wire Harness to Arm

**Install Arm Cover**

**IMPORTANT:** Wire harness **MUST** remain clear of the rotating arm and the arm cover to avoid wire chaffing.

**IMPORTANT:** Choose which side of the operator the arm is mounted on, remove knock-out and run wire harness accordingly as shown.



**IMPORTANT:** Allow slack in the wire harness between the cable grips of **at least 13"** or more for the rotating arm.

# Install Reverse/LED Edge on Octagon Arm

Install on a 14 ft aluminum **octagon arm** for a 1601 barrier gate operator.

**Note:** DO NOT operate arm with a malfunctioning reverse edge.

DoorKing Part Numbers

**8080-080**

Reverse Edge

**8080-096**

Reverse Edge + Red/Green LED

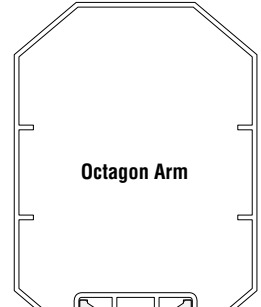
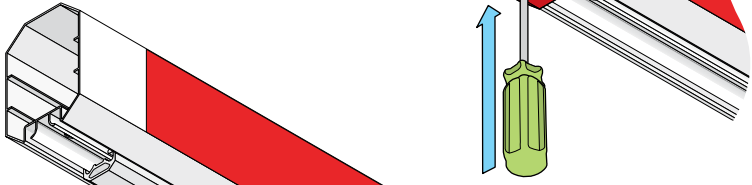
## Edge Installation

### 1 Remove End Cap

Push a screwdriver through hole in bottom of end cap to release spring **while** pulling cap off.

### 2 Slide on Spacer

**Tip:** Liquid soap will help spacer slide on easier.



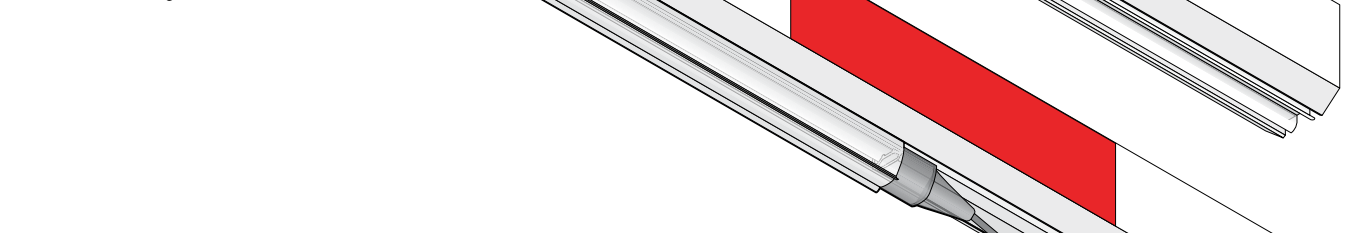
**Spacer MUST be used or edge will slide in slot.**

Reverse/LED Edge



### 3 Slide on Edge

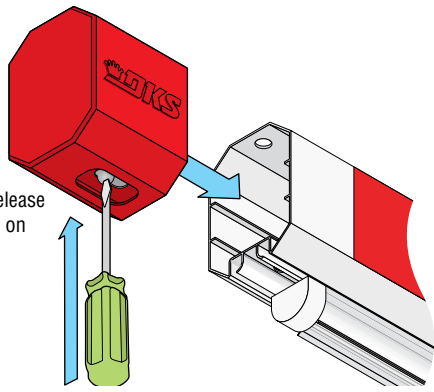
**Tip:** Liquid soap will help reverse edge slide on easier.



**Spacer MUST be used or edge will slide in slot.**

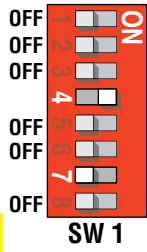
### 4 Reinstall End Cap

Push a screwdriver through the hole in cap to release spring **while** pushing cap on. Keep pushing cap on until a **"CLICK"** is heard which locks it in place.



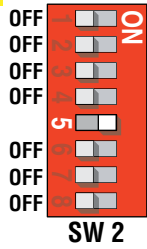
# Entry Lane Only In-Ground Loop Options

## Typical DIP-Switch Settings



Switch 4 is ON.

Switch 7 is OFF (Timer). The arm will rotate down after the vehicle clears the **down loop**. See timer note below.



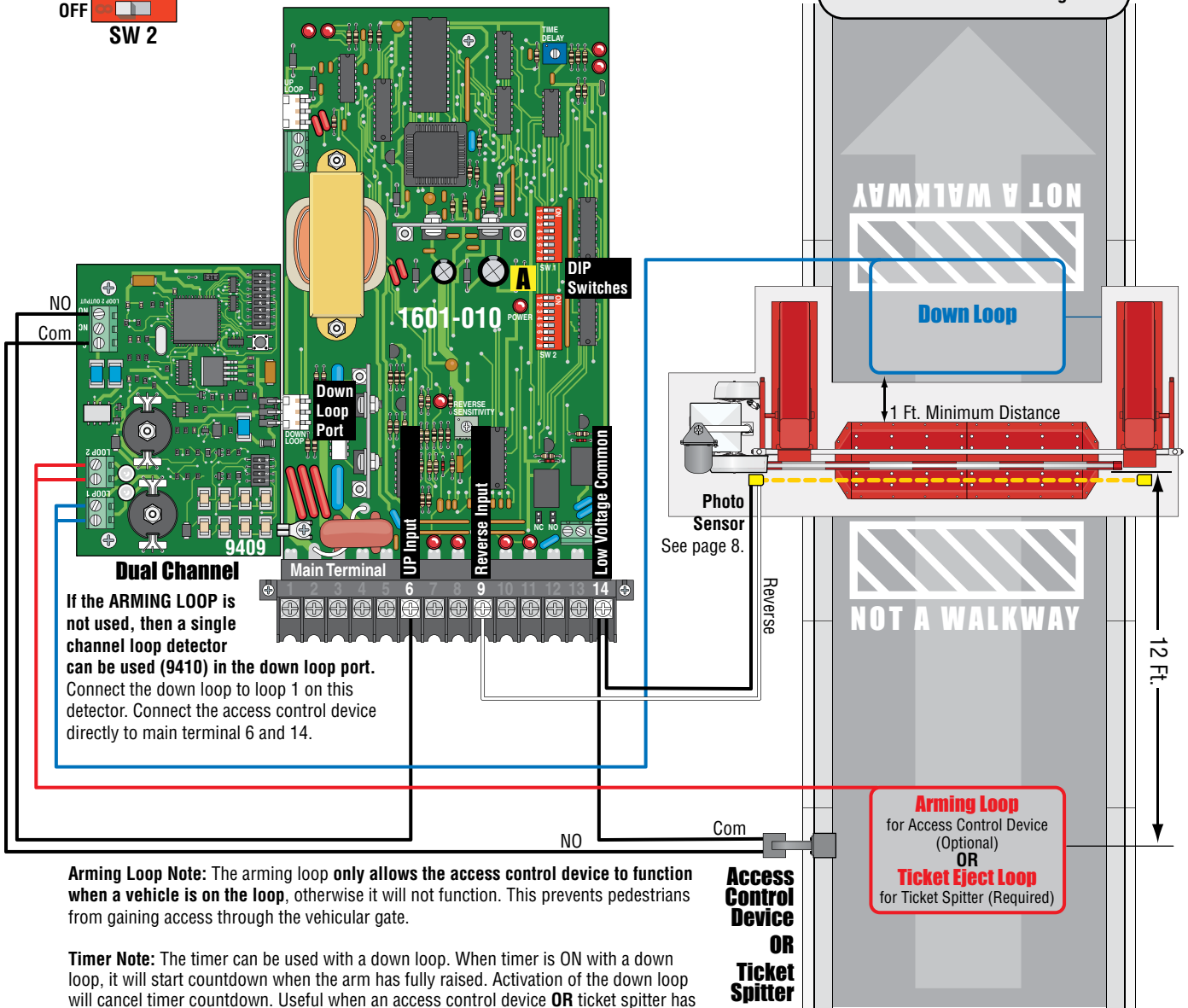
Switch 5 is ON. The lowering arm will **instantly reverse** when photo sensor gets blocked.

Before attempting to connect any wiring to the operator, be sure that the circuit breaker in the electrical panel is in the OFF position. Permanent wiring must be installed to the operator as required by local electrical codes. It is recommended that a licensed electrical contractor perform this work.

Loop detector wiring shown is for DoorKing model 9409 Dual Channel plug-In loop detector only. If using other loop detectors refer to their Loop Information Manual for installation instructions, loops/preformed loops and wiring diagrams. All inputs to the main terminal are NORMALLY OPEN.

Type of wiring to be used on ALL external devices:  
 A) Type CL2, CL2P, CL2R, or CL2X.  
 B) Other cable with equivalent or better electrical, mechanical, and flammability ratings.

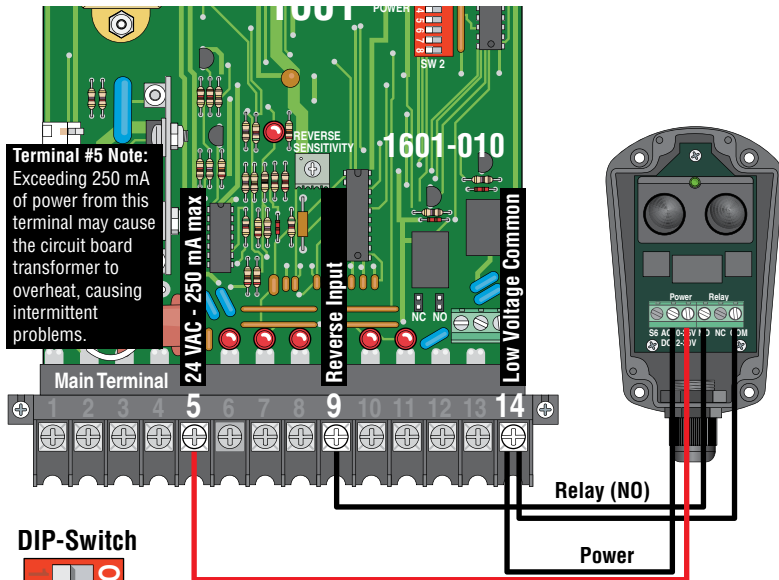
DoorKing offers a free "Loop and Loop-Detectors Information Manual" PDF located at DoorKing's web site for more information. [www.doorking.com](http://www.doorking.com)





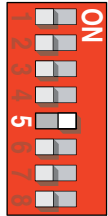
# Install Photocell (REQUIRED)

Mount photocell **directly** below the octagon arm on separate posts as shown, mounting brackets not supplied.



**Terminal #5 Note:**  
Exceeding 250 mA of power from this terminal may cause the circuit board transformer to overheat, causing intermittent problems.

### DIP-Switch



SW 2

SW 2, Switch 5 is **ON**. The lowering arm will **instantly reverse** when photocell gets blocked.

**Wiring Note:** See page 12 for complete wiring.

**IMPORTANT: DO NOT** mount photocell to the operator cabinet. Cabinet can flex or vibrate during operation which may cause misalignment of the beam.

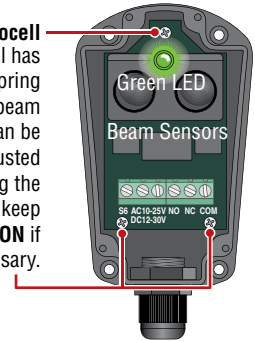
Type of wiring to be used on ALL external devices:  
A) Type CL2, CL2P, CL2R, or CL2X.  
B) Other cable with **equivalent** or **better** electrical, mechanical, and flammability ratings.

### DoorKing Retro-Reflective Photocell (P/N 8080-057)

If using other photocells refer to the manufacturer's manual for wiring installation.

### Fine Tune Photocell

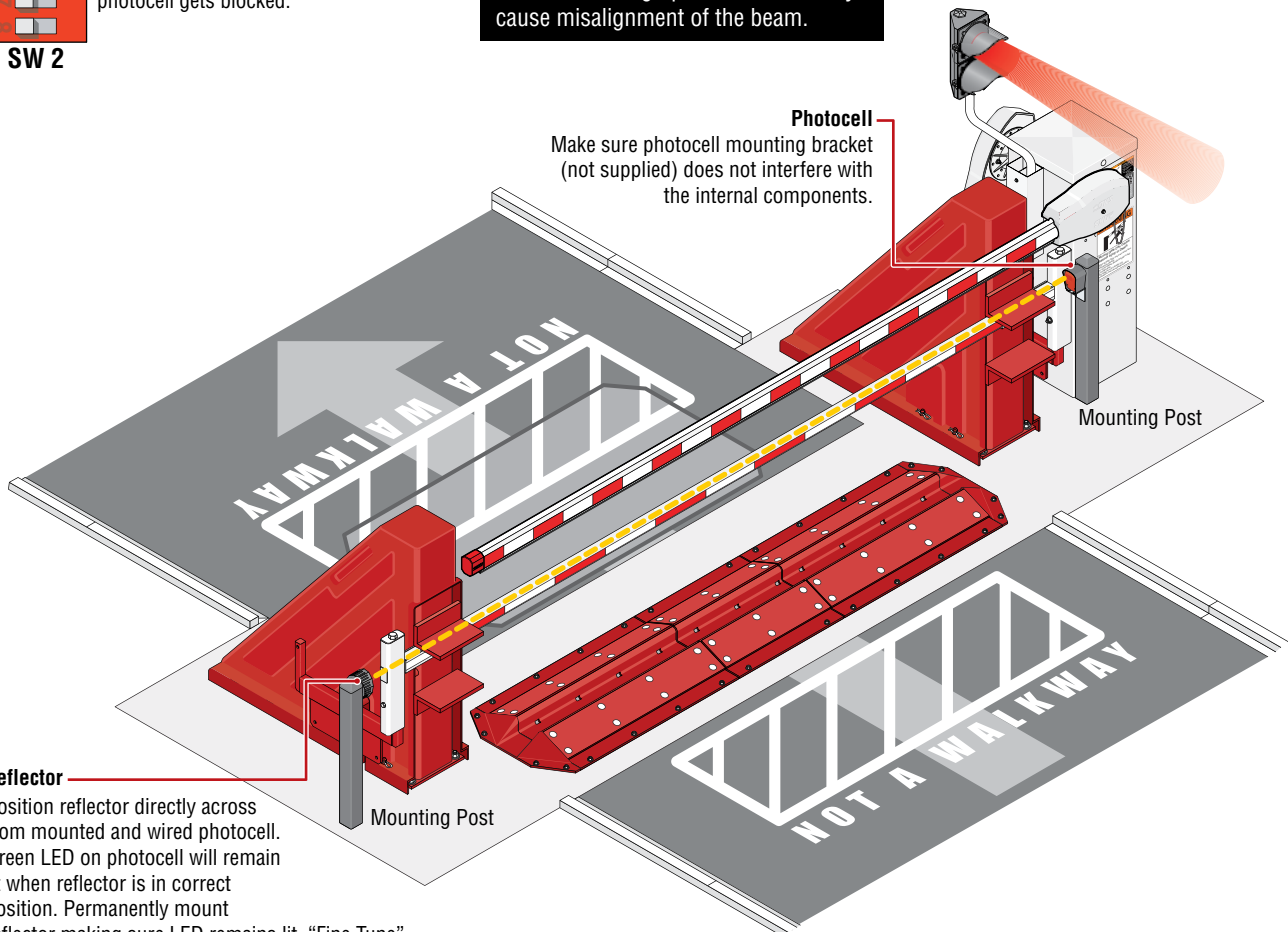
After photocell has been mounted, spring mounted beam sensors can be precisely adjusted "Fine tuned" using the 3 screws to help keep the **GREEN LED ON** if necessary.



**Photocell**  
Make sure photocell mounting bracket (not supplied) does not interfere with the internal components.

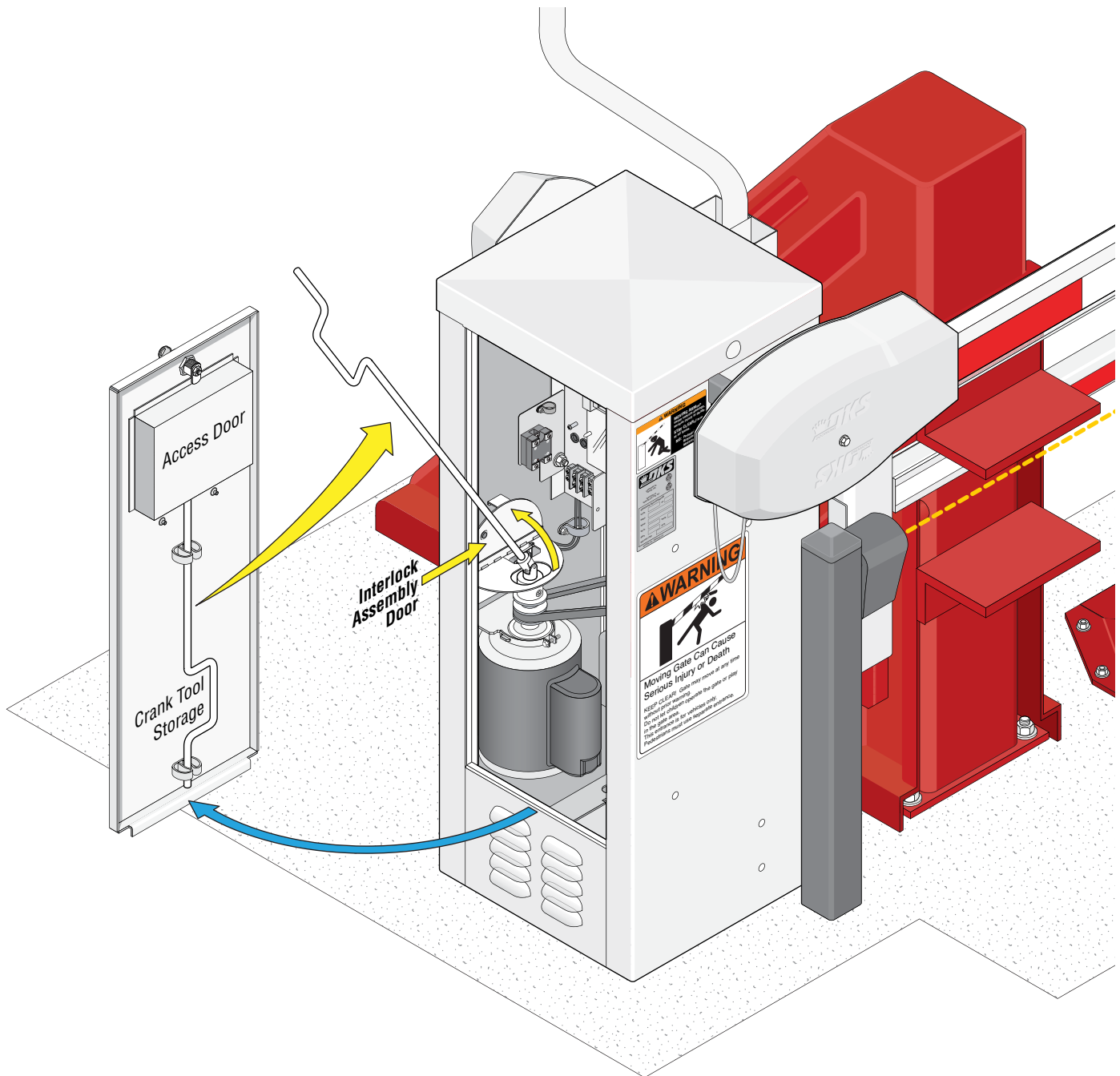
### Reflector

Position reflector directly across from mounted and wired photocell. Green LED on photocell will remain lit when reflector is in correct position. Permanently mount reflector making sure LED remains lit. "Fine Tune" photocell alignment if necessary, see above.



# Manual Release Operation

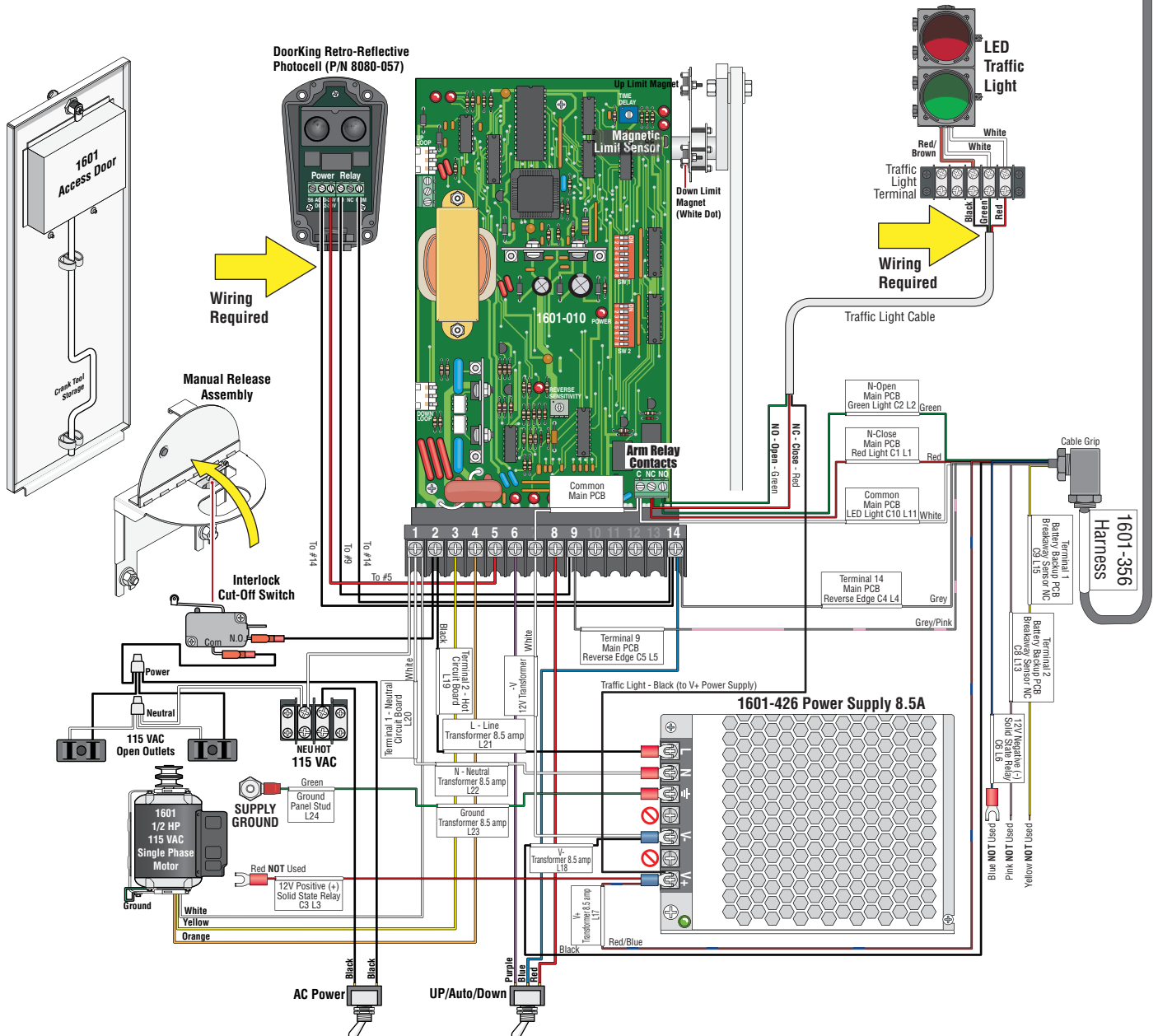
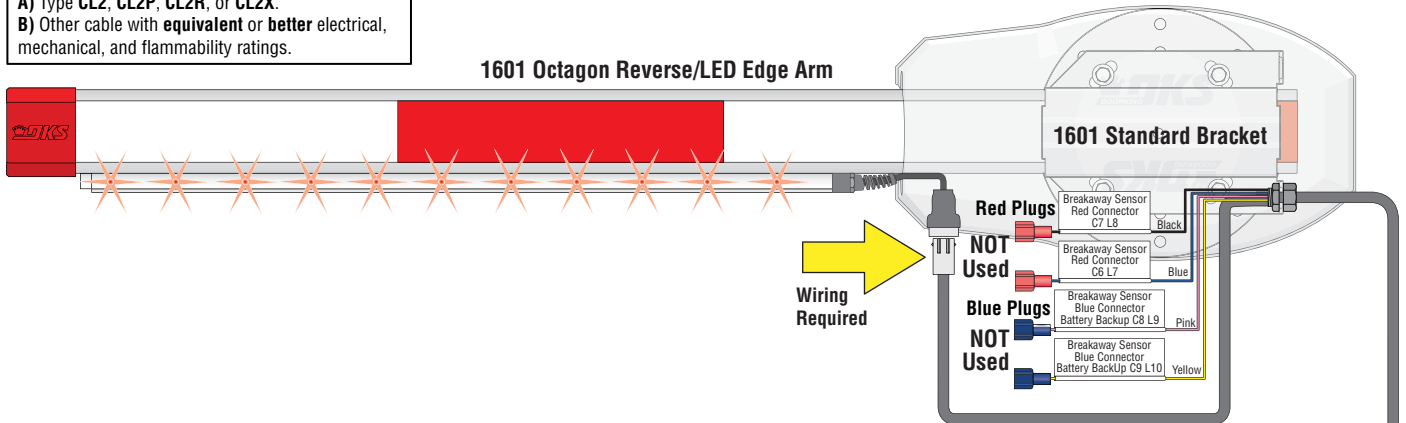
1. Unlock and remove access door.
2. Remove crank tool from inside access door.
3. Flip interlock assembly door up, power will be disabled from operator.
4. Insert crank tool into motor pulley as shown.
5. Rotate crank tool to manually move operator arms up or down.



# Operator Factory Wiring and ALL Components Wiring

Type of wiring to be used on ALL external devices:  
**A) Type CL2, CL2P, CL2R, or CL2X.**  
**B) Other cable with equivalent or better electrical, mechanical, and flammability ratings.**

## 1601 Octagon Reverse/LED Edge Arm



**IMPORTANT: Installation of Traffic Light, Photocell and Octagon Arm with LED Edge is REQUIRED.**



**INSTALLATION AND USE OF THE LANE BARRIER IN AREAS SUBJECT TO FREEZING WEATHER WITH POTENTIAL FOR SNOW AND ICE ACCUMULATION IS NOT RECOMMENDED.**

**THIS PRODUCT IS TO BE INSTALLED AND SERVICED BY A TRAINED GATE/DOOR SYSTEMS TECHNICIAN ONLY.**  
Visit [www.doorking.com/dealer-locator](http://www.doorking.com/dealer-locator) to find a professional installing and servicing dealer in your area.

[www.doorking.com](http://www.doorking.com)

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