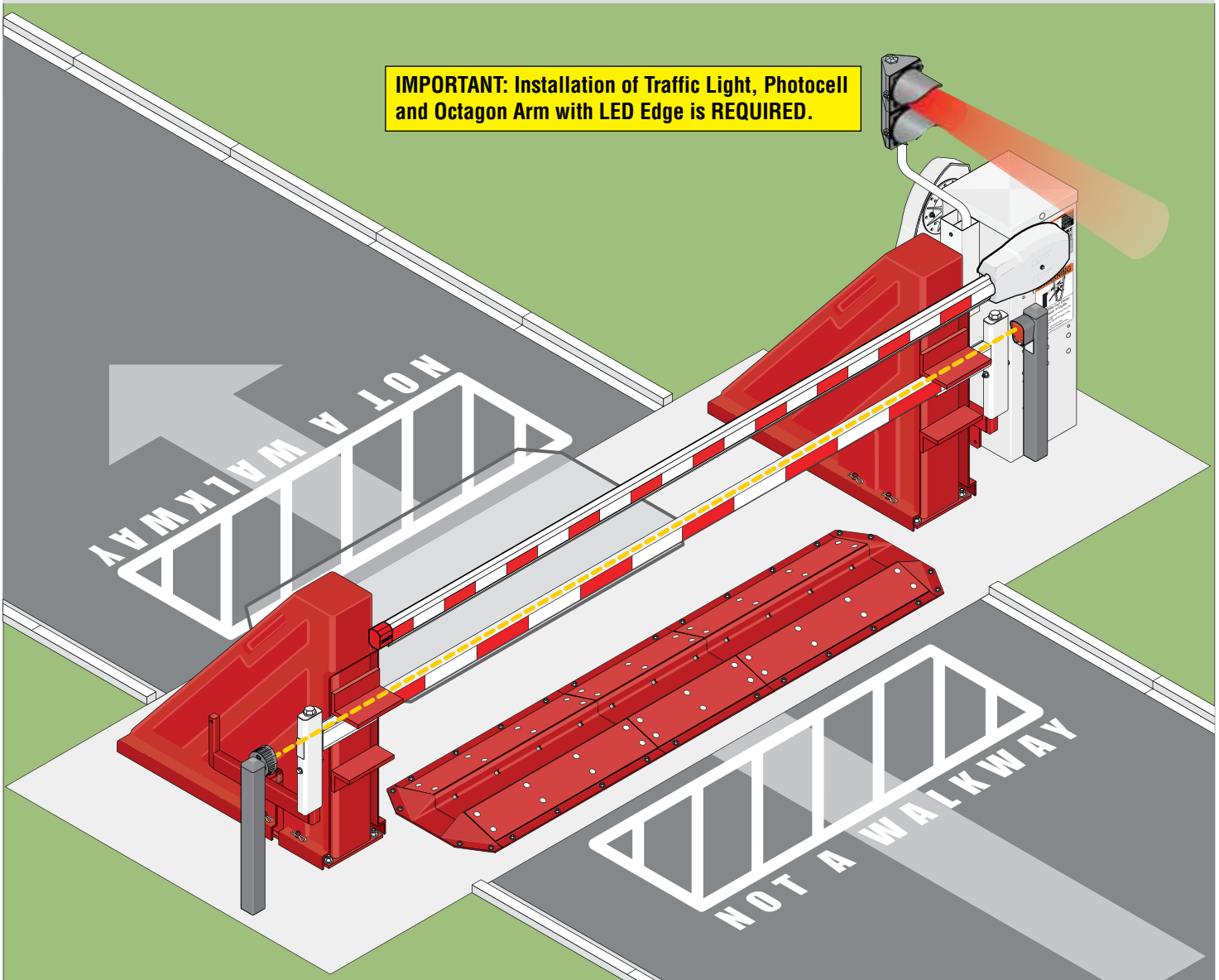
Installation Manual

1620 Lane Barrier

Surface Mount Vehicular Lane Barrier Accessory

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

1620-065-S-3-25



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

WARNING pre-stressed concrete may be used in multi-level parking garages. Cutting a tensioned cable, or tendon, can endanger the contractor and compromise the structural integrity of the floor. Contact the building structural engineer for specific instructions and information BEFORE drilling or saw cutting into the floor.

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** to find a professional installing and servicing dealer in your area.

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.

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DoorKing Safety for Lane Barrier

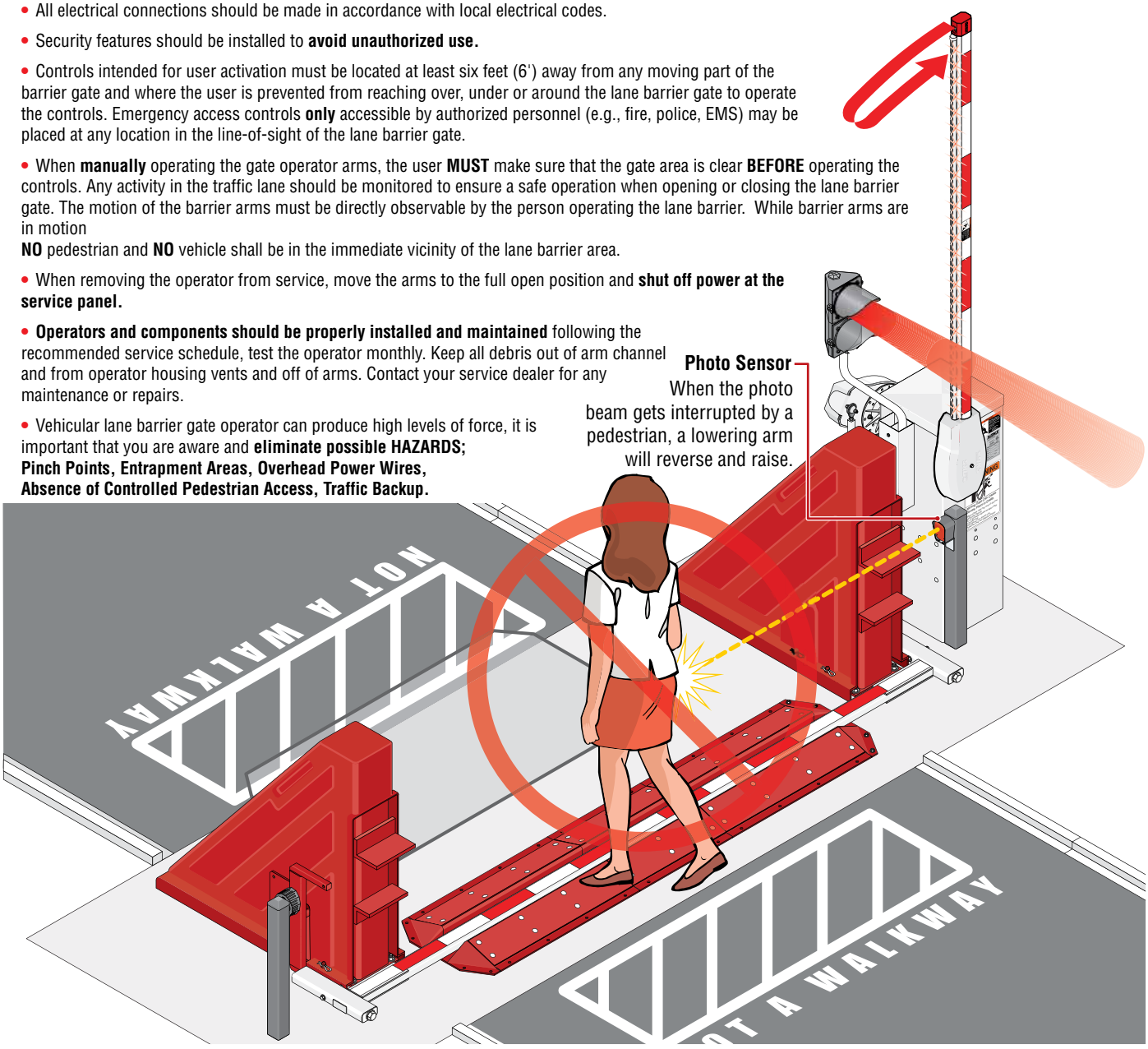
- DKS Lane Barrier System is **NOT** crash rated. It is intended to provide a formidable barrier to help prevent **passenger vehicles** and **light-duty trucks** from driving through a controlled traffic lane.
- Lane barrier **MUST** have reverse/LED edge on arm, traffic light and photoelectric cell **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!!



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.

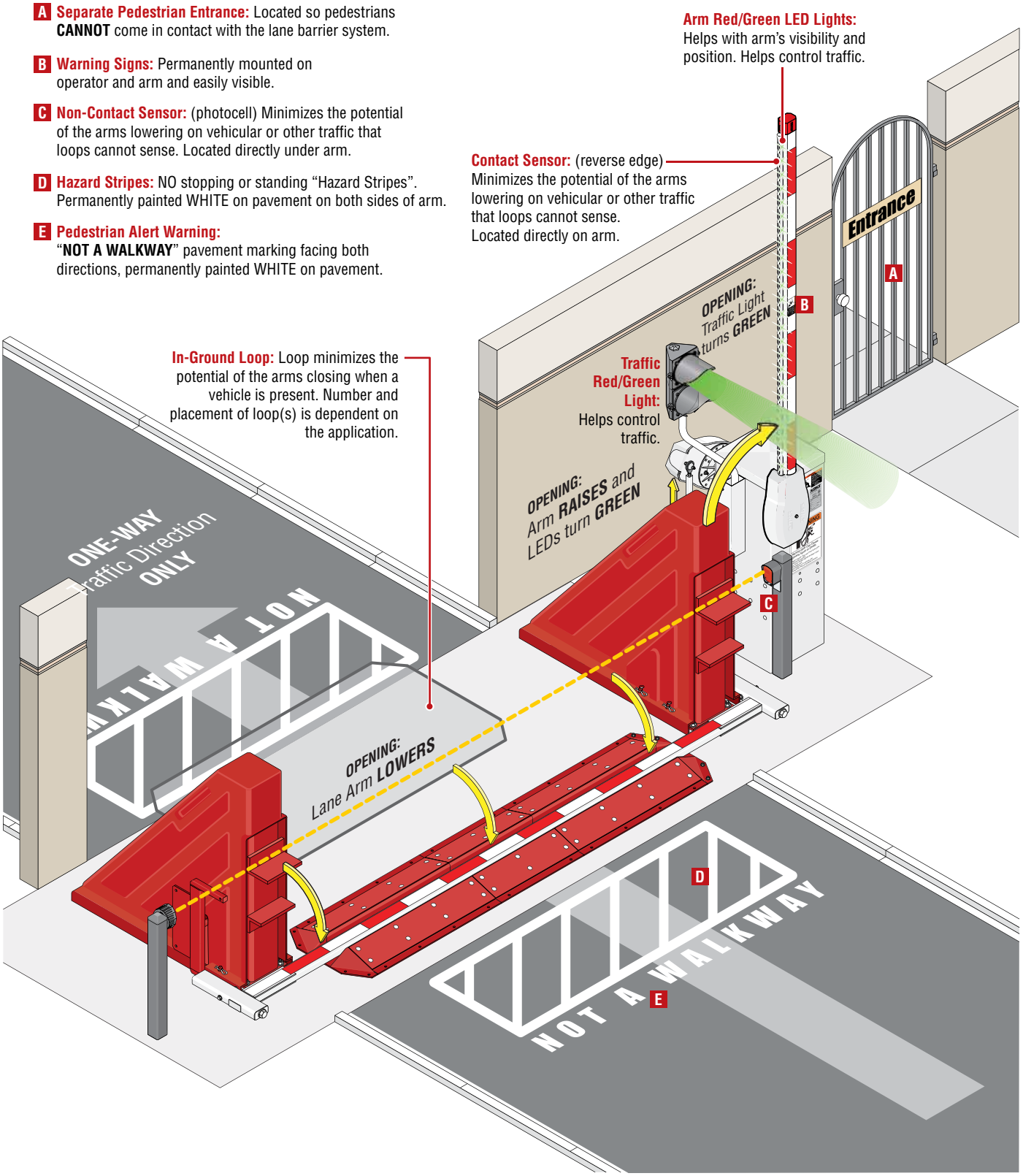
A **Separate Pedestrian Entrance:** Located so pedestrians **CANNOT** come in contact with the lane barrier system.

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.

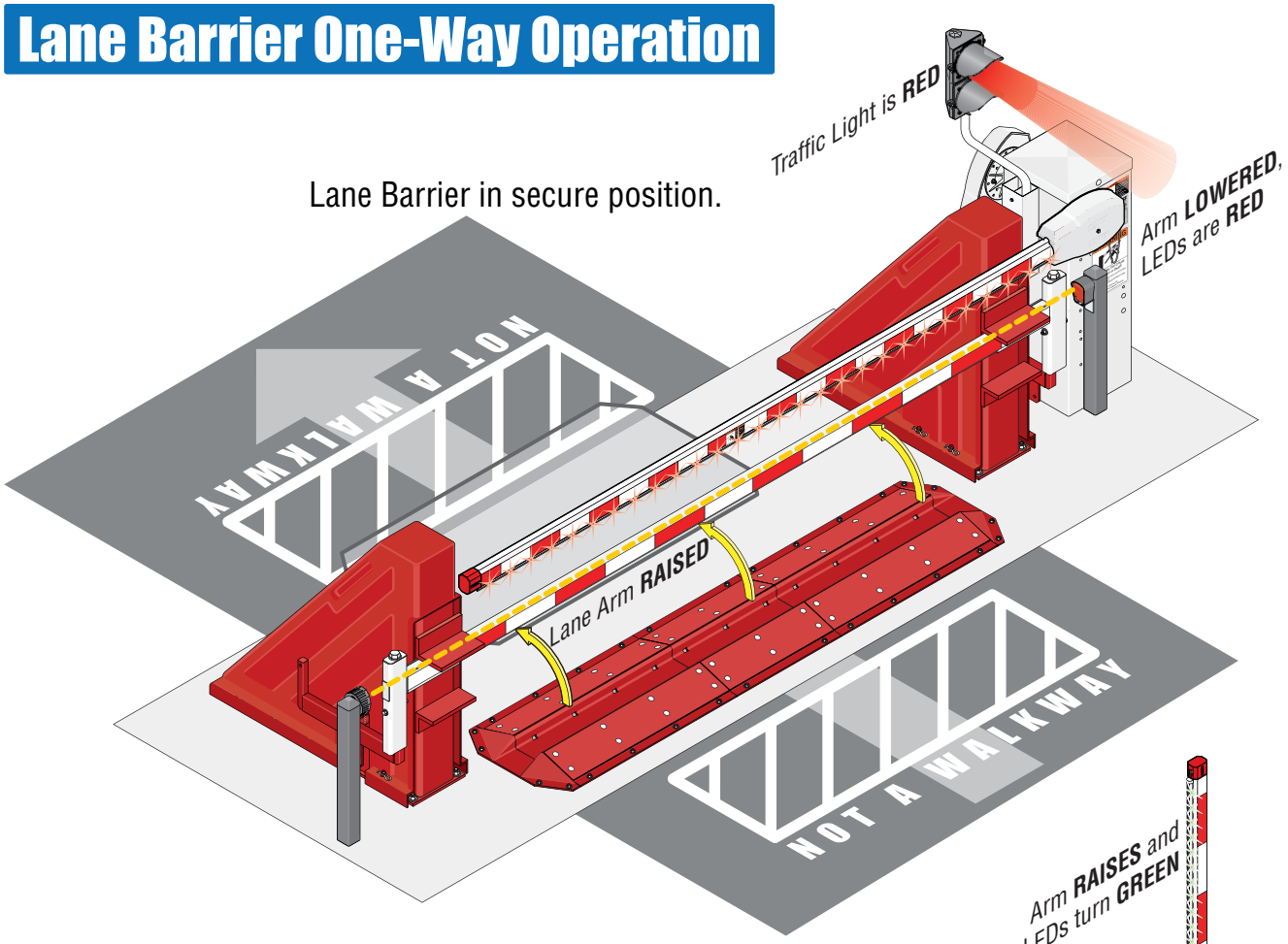
D **Hazard Stripes:** NO stopping or standing "Hazard Stripes". Permanently painted WHITE on pavement on both sides of arm.

E **Pedestrian Alert Warning:** "**NOT A WALKWAY**" pavement marking facing both directions, permanently painted WHITE on pavement.

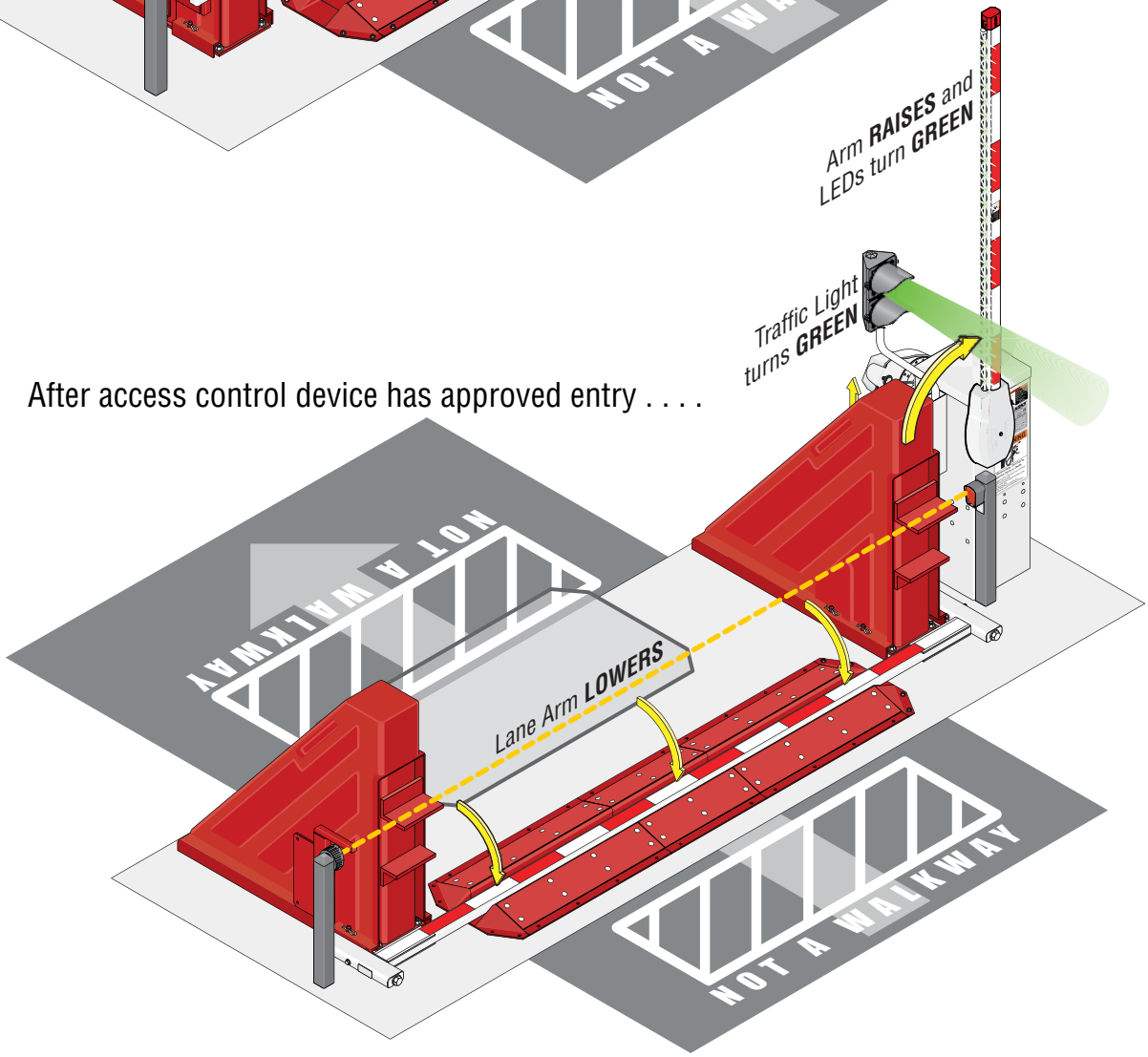


Lane Barrier One-Way Operation

Lane Barrier in secure position.

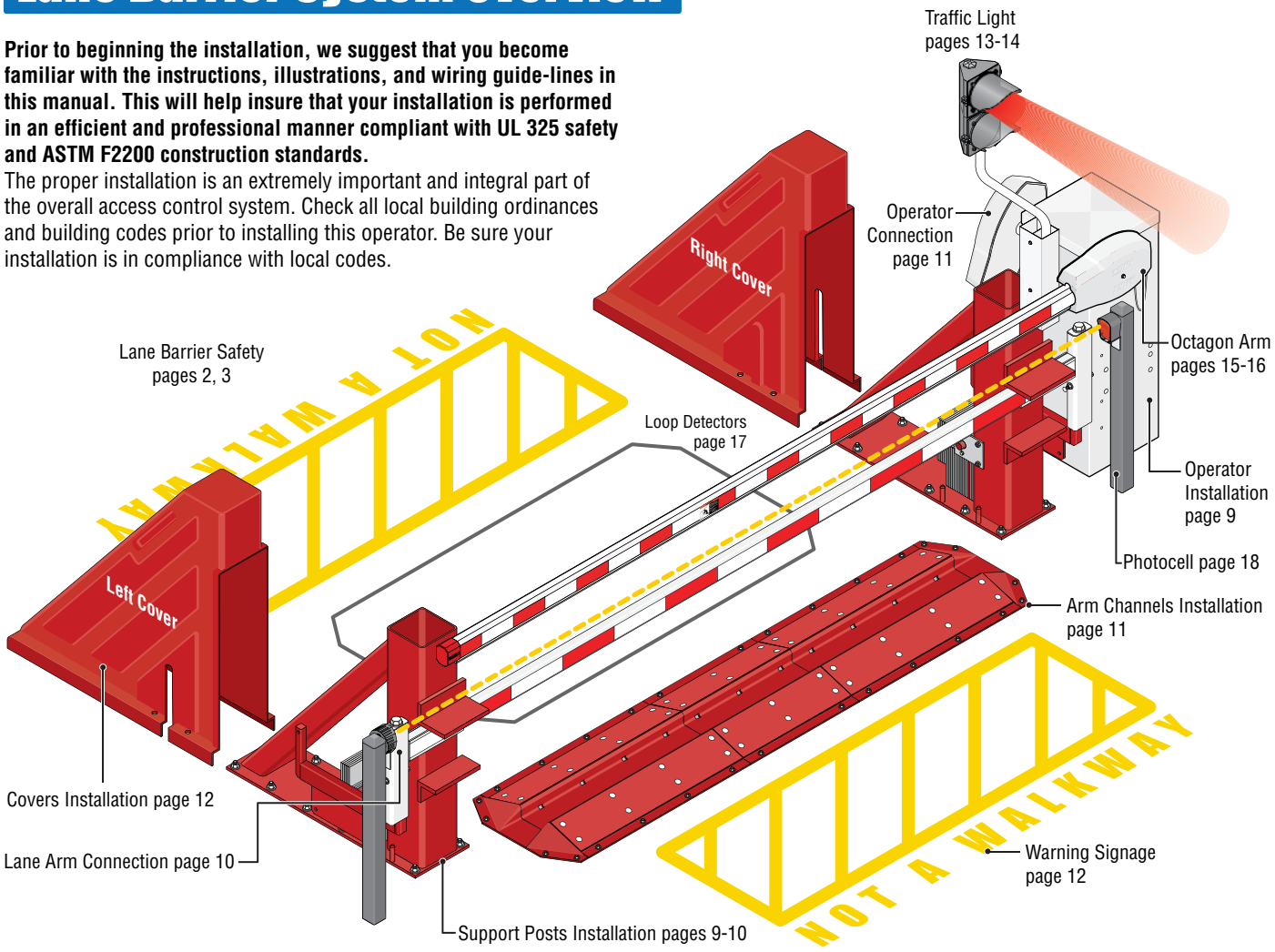


After access control device has approved entry . . . .



Lane Barrier System 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.



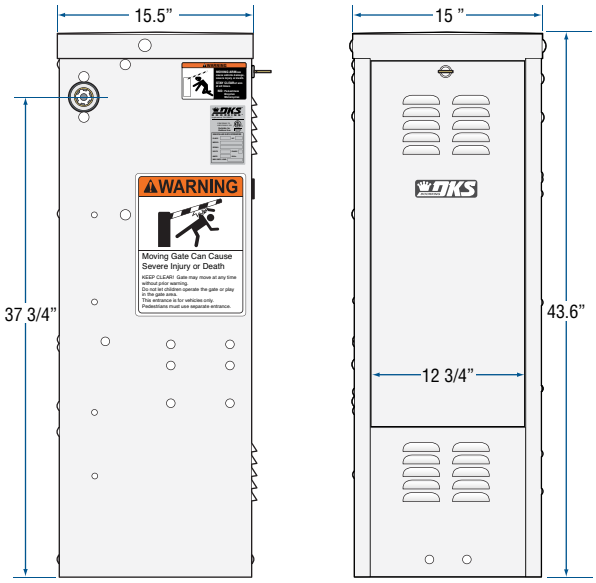
Barrier operator 1603-580 can be installed on either side of lane barrier

1603-580 Lane Barrier Operator

Class of Operation - UL 325 Class II, III, IV – ETL Listed
Type of Gate - Use with 1620 Series Lane Barriers Only
Gate Cycles - High Cycle
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 #	Convenience Open	Horsepower - Volts	Amp	Max Arm Length	Speed 90°
1603-580	No	1/2 HP - 115 VAC	5.7	14 Ft.	2.5 Sec

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).



Refer to the 1601-065 Manual for ALL information about the Barrier Operator

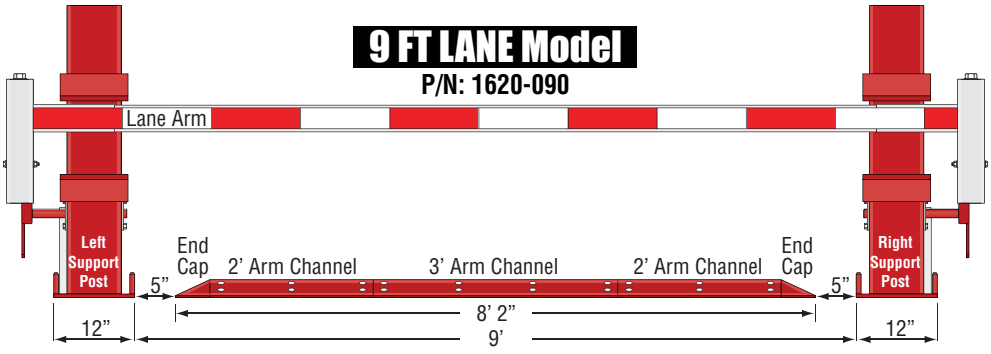
Type of wiring to be used on ALL external devices:
A) Type **CL2**, **CL2P**, **CL2R**, or **CL2X**.
B) Other cable with **equivalent** or **better** electrical, mechanical, and flammability ratings.

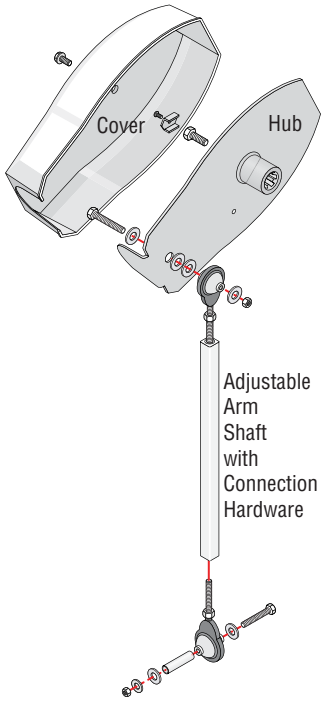
Lane Barrier Model Configurations

Prior to beginning the installation of the lane barrier, 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.

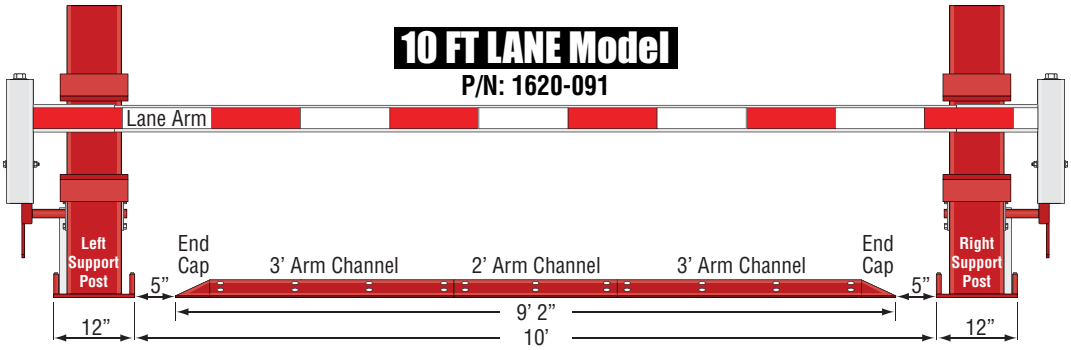
Barrier operator 1603-580 can be installed on either side of lane barrier

9 FT LANE Model
P/N: 1620-090

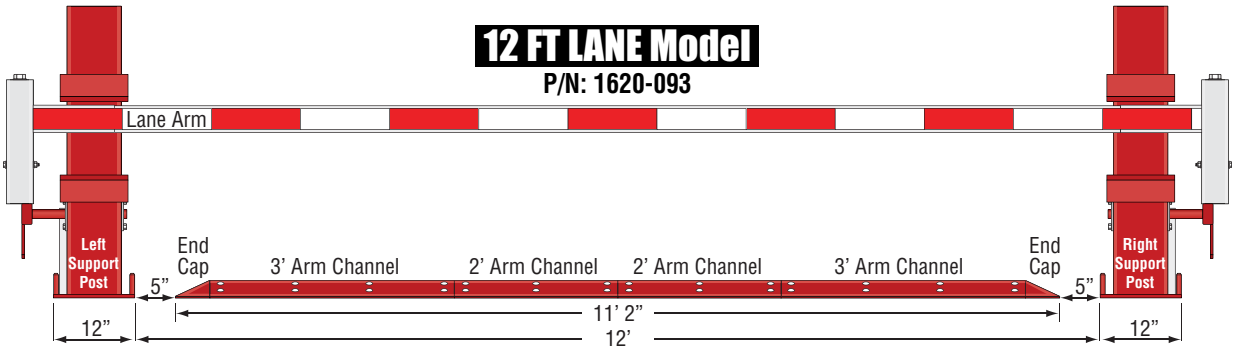




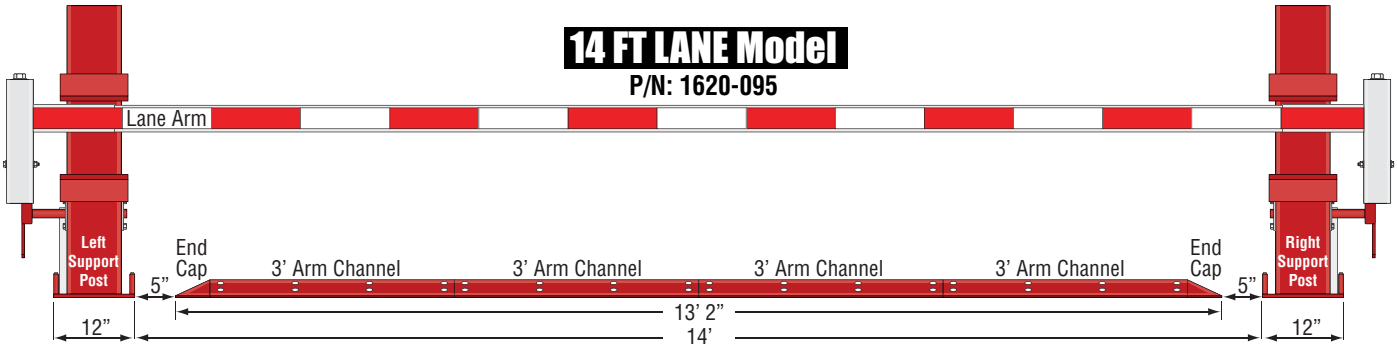
10 FT LANE Model
P/N: 1620-091



12 FT LANE Model
P/N: 1620-093



14 FT LANE Model
P/N: 1620-095



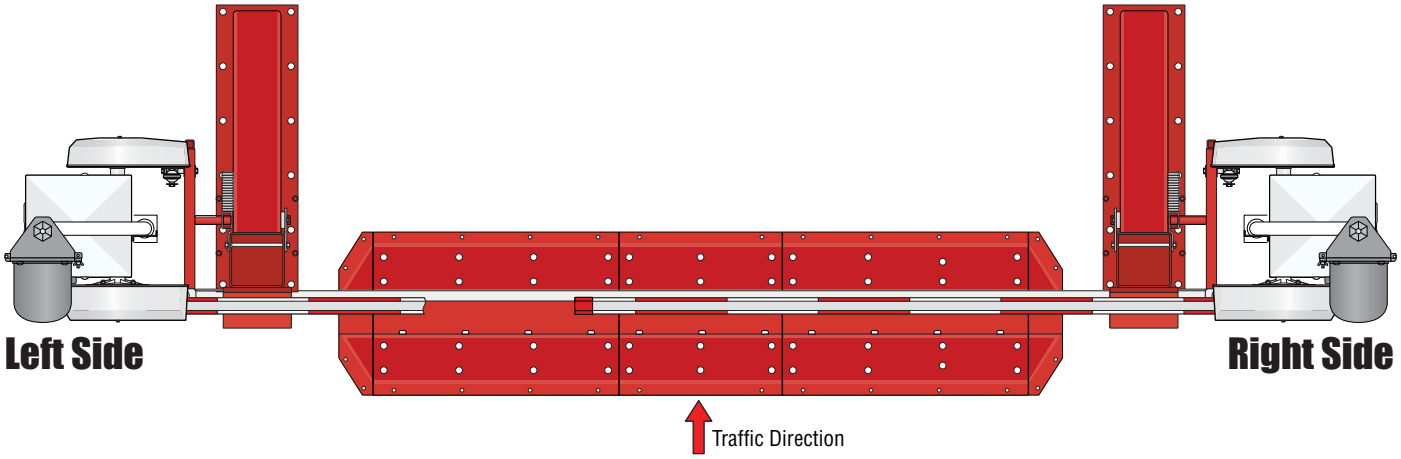
Concrete Pad Setup

EXISTING Concrete

WARNING for Precast Concrete: Drilling into precast concrete is **NOT recommended** without professional advice or assistance. If you don't know where the prestressed wire strands are located, you risk damaging the structural integrity of the precast concrete and the drilling equipment you use. If you need to drill into precast concrete to anchor the lane barrier to it, you must contact the building engineer before proceeding.

NEW Concrete Pad

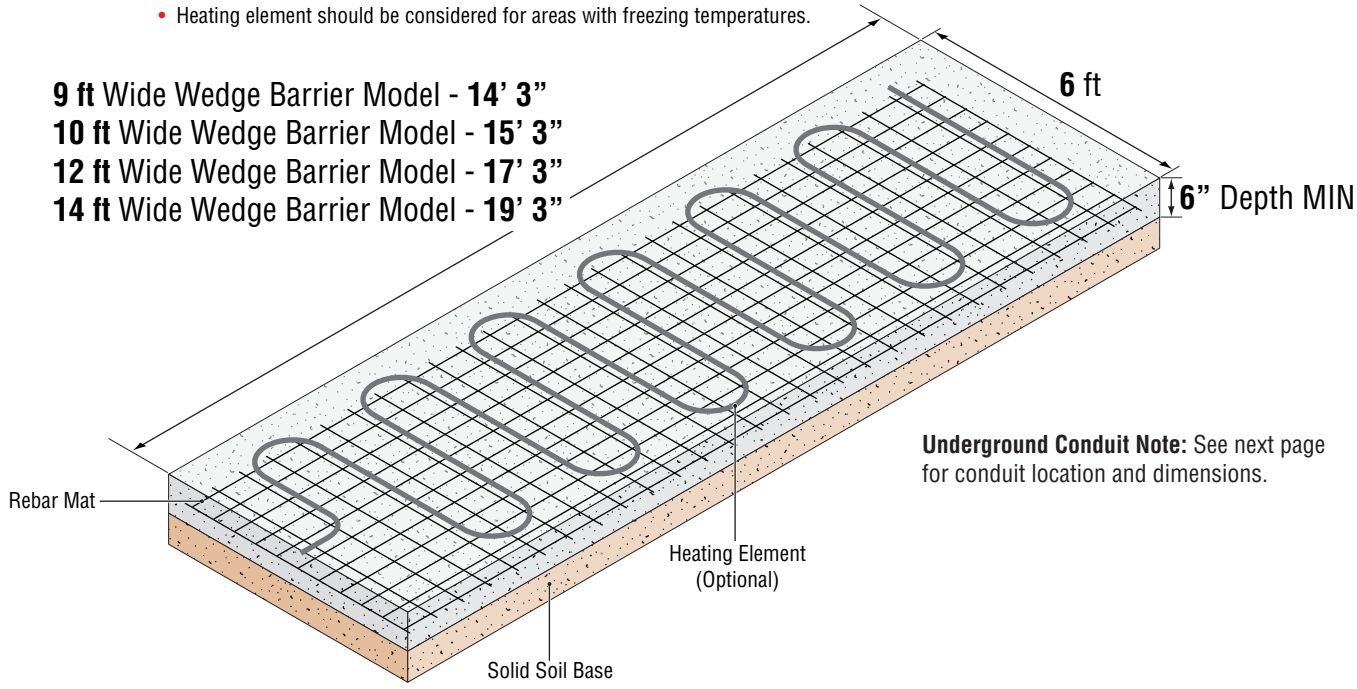
Select which side of lane barrier the operator will be installed on (manual shows installation on the **RIGHT side** of lane barrier. To install operator on **LEFT side** of lane barrier, simply flip measurements to the opposite side of concrete pad.



Concrete Requirements and Dimensions

- Concrete Pad 4,000 PSI. At least 6" deep.
- Soil compression under and around the foundation shall be compacted to a soil density of 95% of standard ASTM-698.
- Add gravel where necessary to insure a solid base. Soil must be stable and able to support the weight of the concrete pad.
- The 1620 Lane Barrier must be installed on a **flat and level concrete surface on grade with the roadway surface**.
- Place one layer **rebar mat** at eight (8) inch on-center. Use #5 (5/8 inch) Grade 40 or better.
- Cure concrete properties 4000 psi (minimum) with smooth finish and proper drainage.
- Heating element should be considered for areas with freezing temperatures.

9 ft Wide Wedge Barrier Model - **14' 3"**
10 ft Wide Wedge Barrier Model - **15' 3"**
12 ft Wide Wedge Barrier Model - **17' 3"**
14 ft Wide Wedge Barrier Model - **19' 3"**

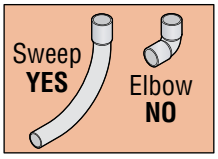


Underground Conduit Note: See next page for conduit location and dimensions.

Underground Conduit

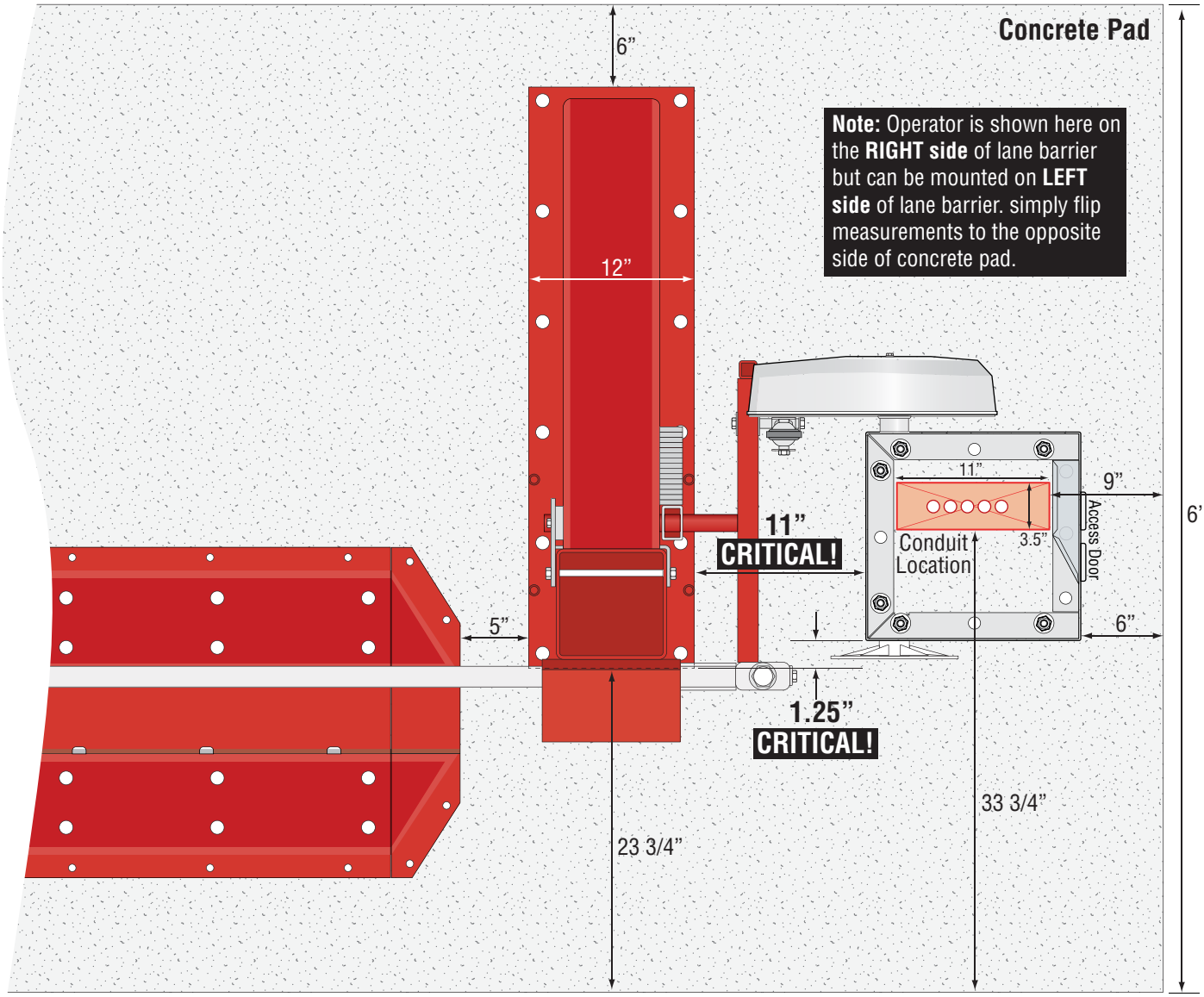
- The conduit requirements are for a typical barrier gate operator installation. The conduit requirements for your application may vary from this depending on your specific needs.
- Use only sweeps for conduit bends. **Do not use 90° elbows as this will make wire pulls very difficult and can cause damage to wire insulation.**
- DoorKing recommends using 3/4-inch conduit.

  Conduit Options:
  - AC Power
  - Low Voltage Accessories
  - Earth Ground
  - Vehicle Loops
  - Photocell



- Be sure that all conduits are installed in accordance with local codes.
- **Never** run low voltage rated wire insulation in the same conduit as high voltage rated wire insulation.

Critical Measurements

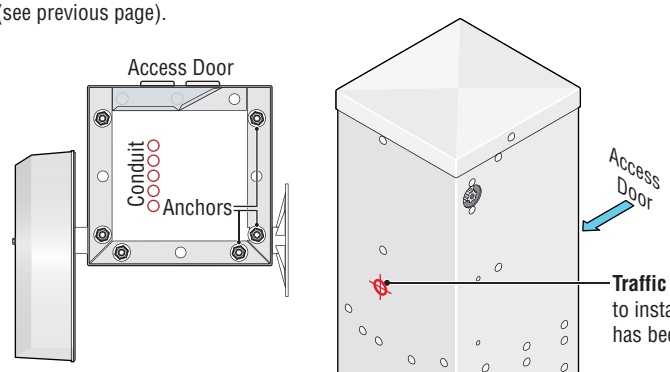


Mounting Operator and Lane Barrier on Concrete Pad

1 Permanently Mount Operator

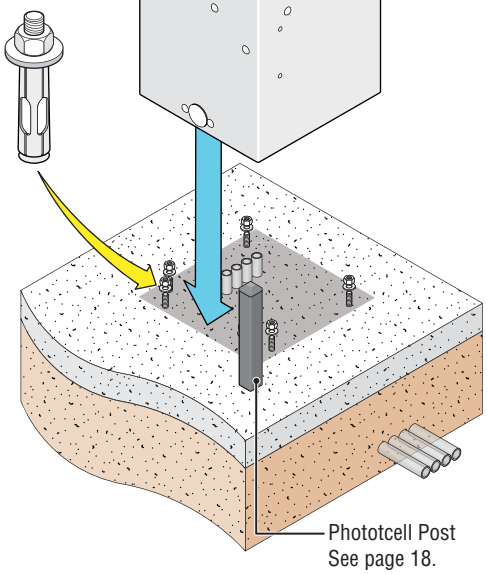
Permanently mount operator using the **CRITICAL measurements** (see previous page).

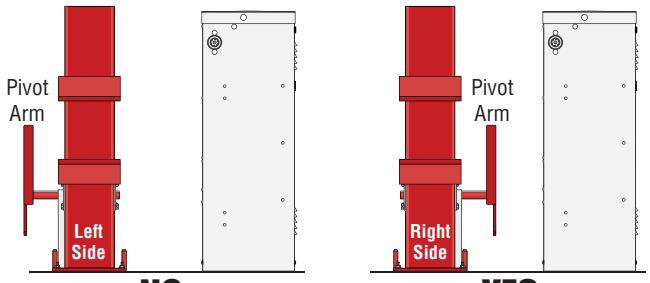
The installation shown has the operator mounted on the **RIGHT SIDE** of the lane barrier but the operator can be mounted on **either side** of the lane barrier by flipping **CRITICAL measurments** to other side of concrete pad (see previous page).



Traffic Light Installation Note: A hole **MUST** be drilled into operator housing to install traffic light. Access will be limited to drill hole **AFTER** support post has been installed next to operator (see page 13 for hole location).

Secure **operator** to the concrete using at least 6 sleeve anchors 1/2" x 3" minimum.



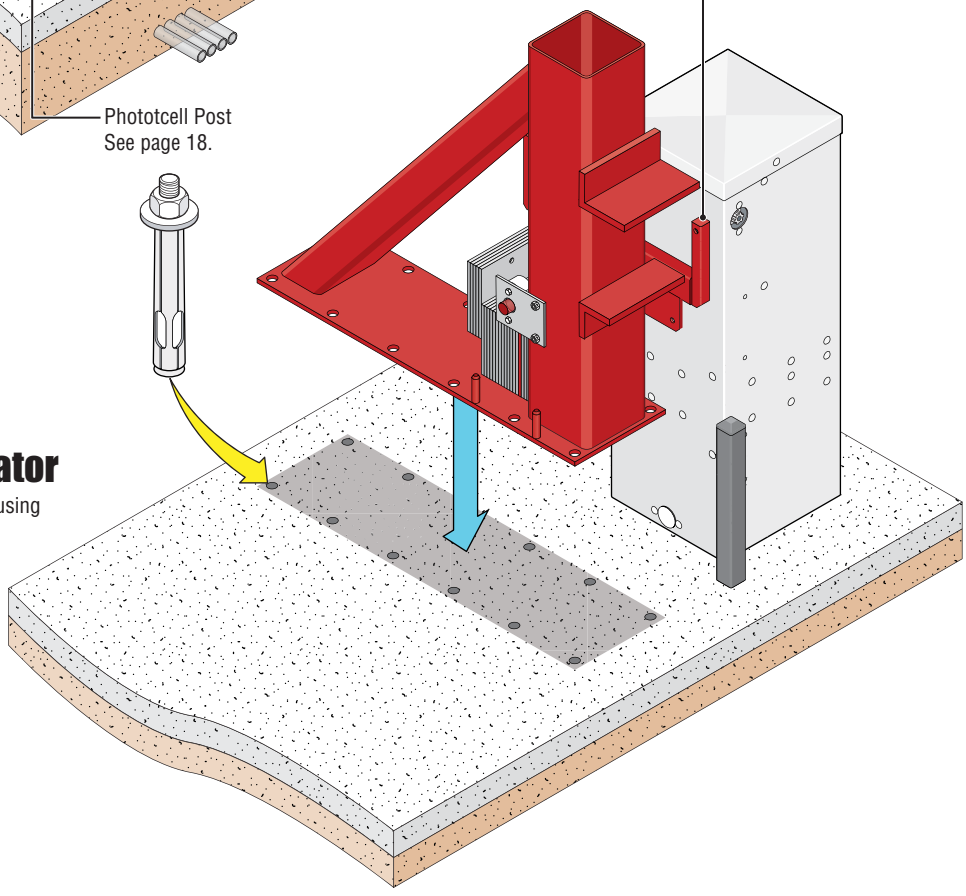


NO **YES**

IMPORTANT Pivot arm **MUST** be positioned on operator side of support post.

2 Permanently Mount Support Post Next to Operator

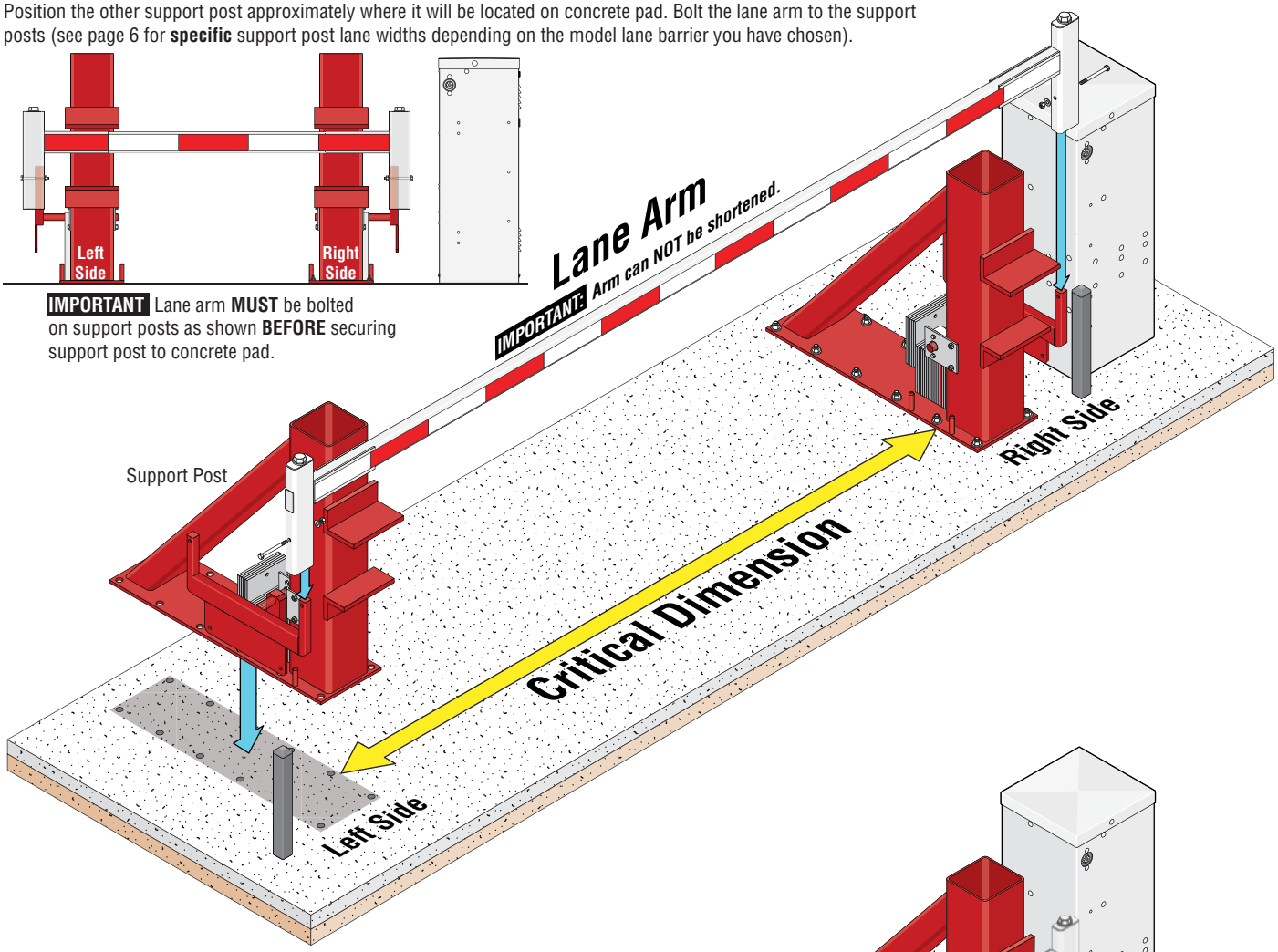
Permanently mount support post next to operator using 1" x 6" **stainless steel** sleeve anchors (7/8" x 6" minimum) in **specific** position on the concrete pad using the **CRITICAL measurements** (see page 8).



3 Bolt Lane Arm on Support Posts

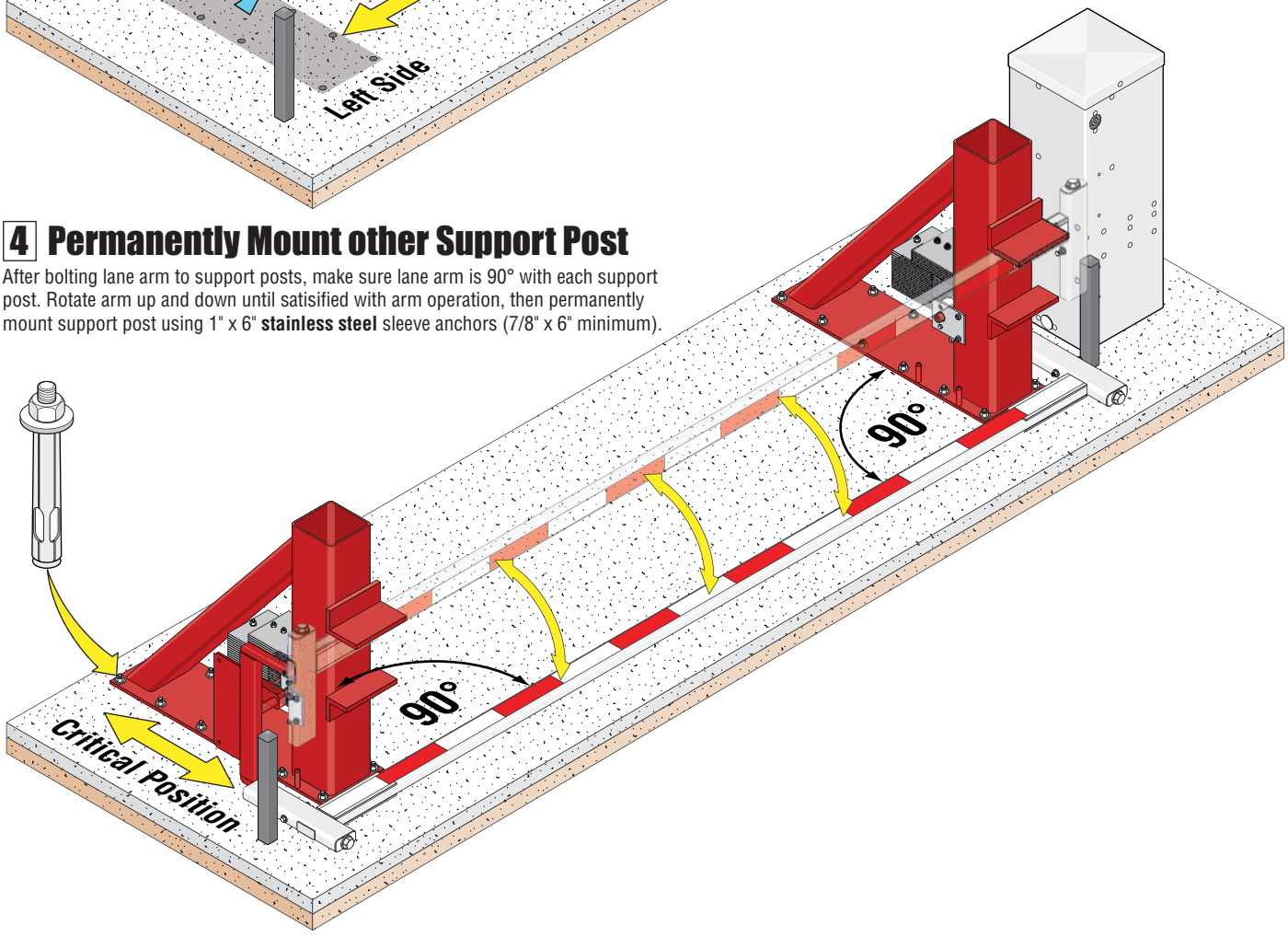
Position the other support post approximately where it will be located on concrete pad. Bolt the lane arm to the support posts (see page 6 for **specific** support post lane widths depending on the model lane barrier you have chosen).

IMPORTANT Lane arm **MUST** be bolted on support posts as shown **BEFORE** securing support post to concrete pad.



4 Permanently Mount other Support Post

After bolting lane arm to support posts, make sure lane arm is 90° with each support post. Rotate arm up and down until satisified with arm operation, then permanently mount support post using 1" x 6" **stainless steel** sleeve anchors (7/8" x 6" minimum).

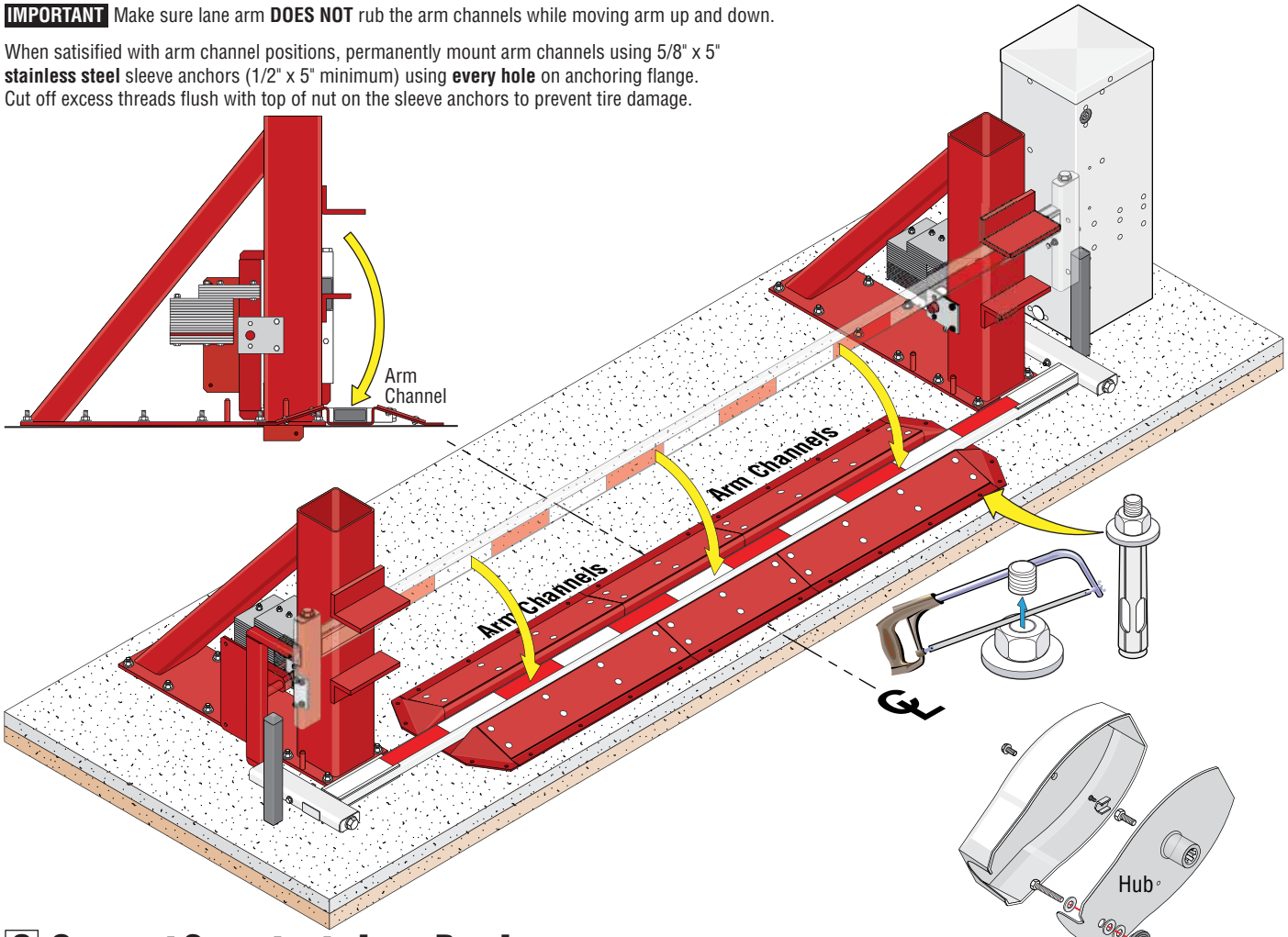


5 Permanently Mount Arm Channels

Place arm channels in position on concrete pad and center them between support posts (see page 6 for **specific** number, size and positions of channels depending on the model lane barrier you have chosen).

IMPORTANT Make sure lane arm **DOES NOT** rub the arm channels while moving arm up and down.

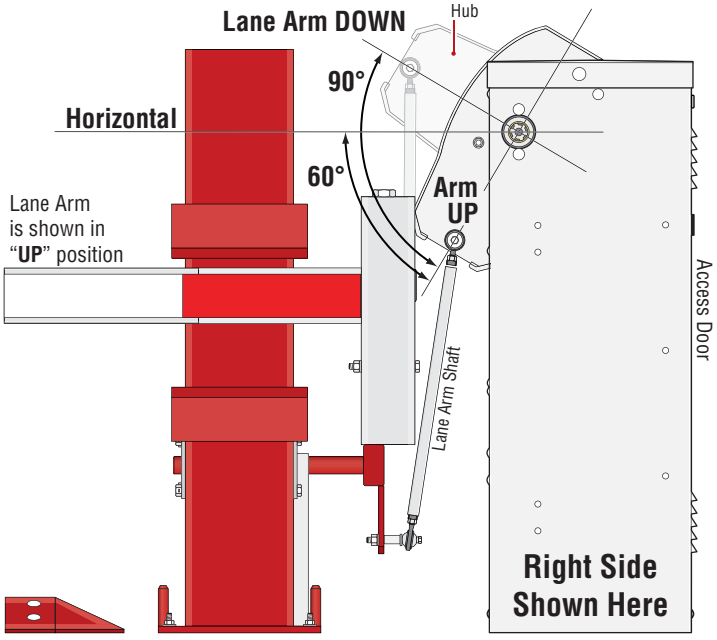
When satisified with arm channel positions, permanently mount arm channels using 5/8" x 5" **stainless steel** sleeve anchors (1/2" x 5" minimum) using **every hole** on anchoring flange. Cut off excess threads flush with top of nut on the sleeve anchors to prevent tire damage.



6 Connect Operator to Lane Barrier

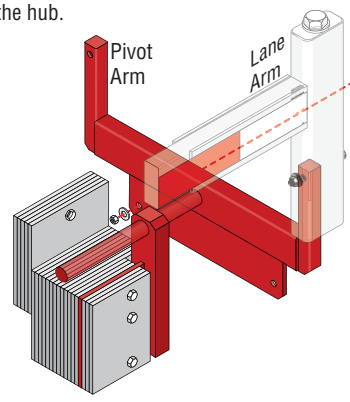
Connect lane arm shaft to the pivot arm in hole shown using hardware provided.

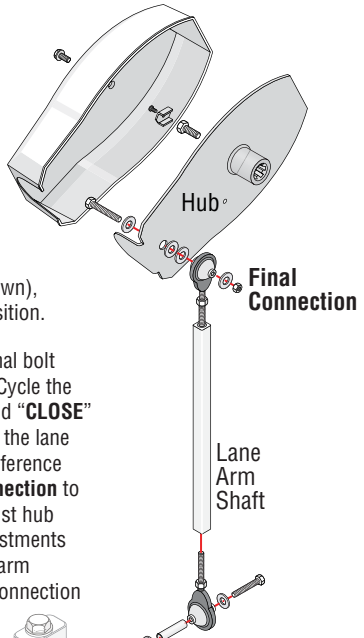
Note: Operator will require power when preforming this step.



Note: When Lane Arm is UP (as shown), operator is in the "**CLOSE**" cycle position.

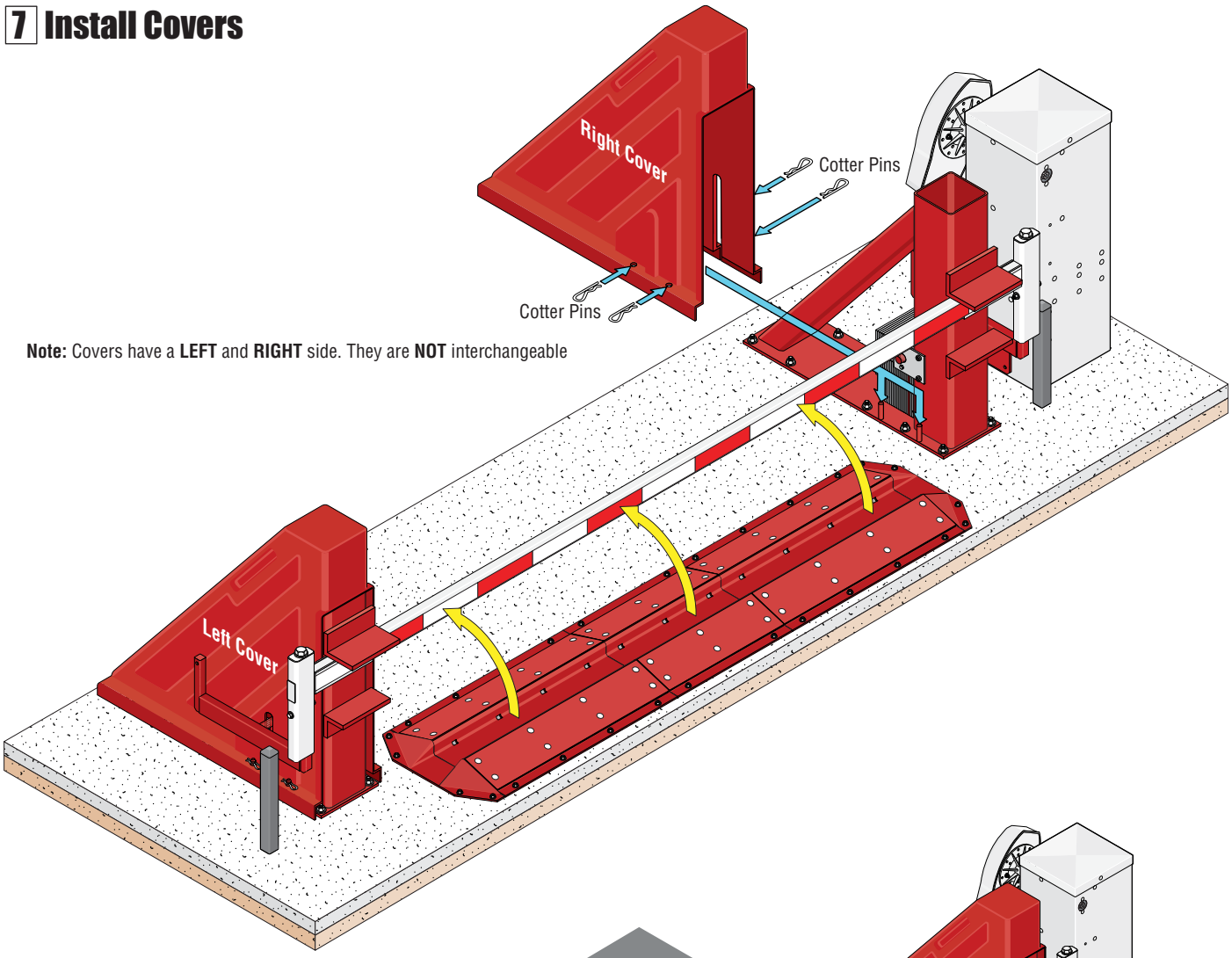
TIP: Make all connections but the final bolt connection to the hub as indicated. Cycle the operator to see the hub's "**OPEN**" and "**CLOSE**" positions while raising and lowering the lane arm shaft **by hand** to see if any interference occurs **before** making the **final connection** to the hub. If there is interference, adjust hub position and lane arm shaft nut adjustments accordingly until satisfied with lane arm operation, then make the final bolt connection to the hub.





Refer to the 1601-065 Manual for ALL information about the Barrier Operator

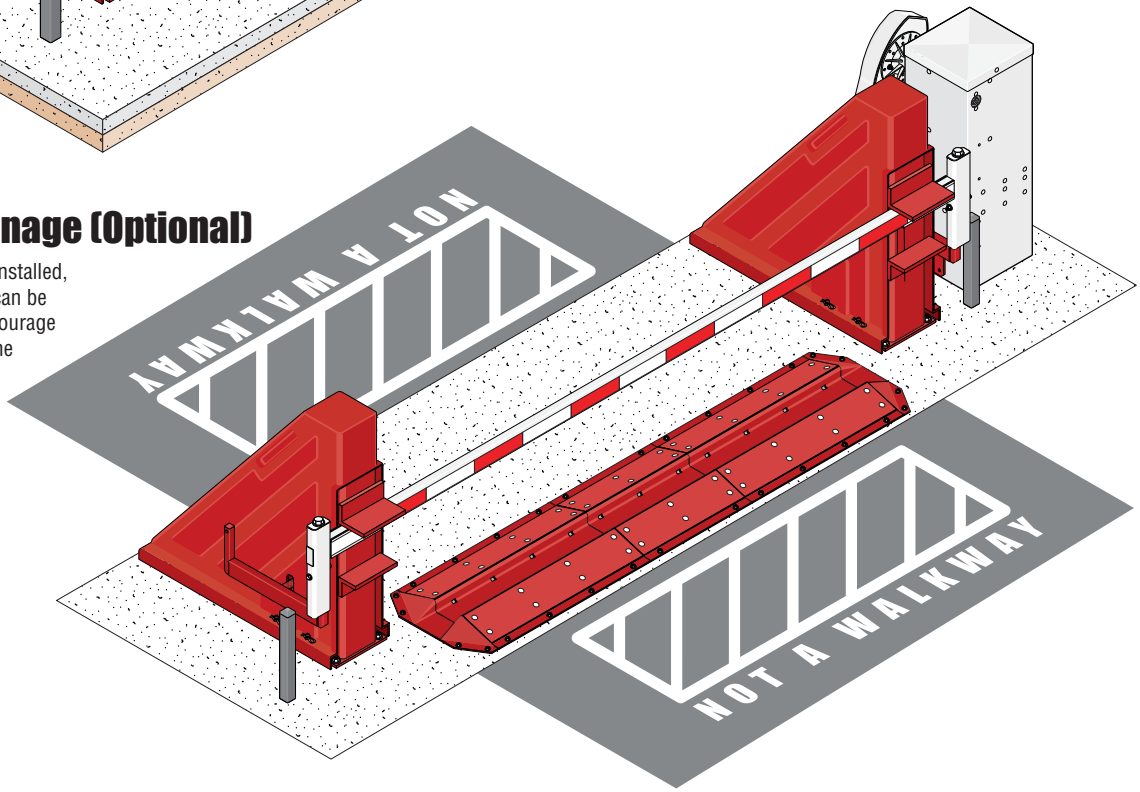
7 Install Covers



Note: Covers have a **LEFT** and **RIGHT** side. They are **NOT** interchangeable

8 Warning Signage (Optional)

AFTER lane barrier has been installed, warning stripes and verbage can be painted on the surface to discourage pedestrians from walking in the general area for better safety awareness. DoorKing highly recommends this be done.



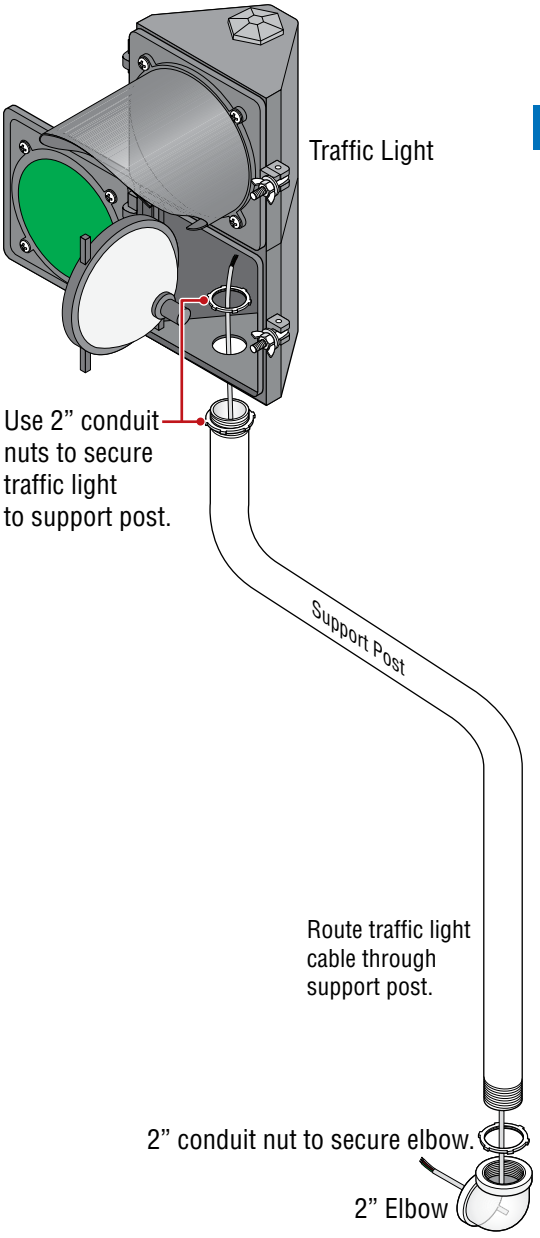
Regular Maintenance of Lane Barrier System

Regular inspection and removal of trash, debris, gravel, and rock is required in order to keep lane barrier functioning properly. Neglecting to regularly clean trash and debris **out of arm channel** is the number one cause of breakage and malfunctions.

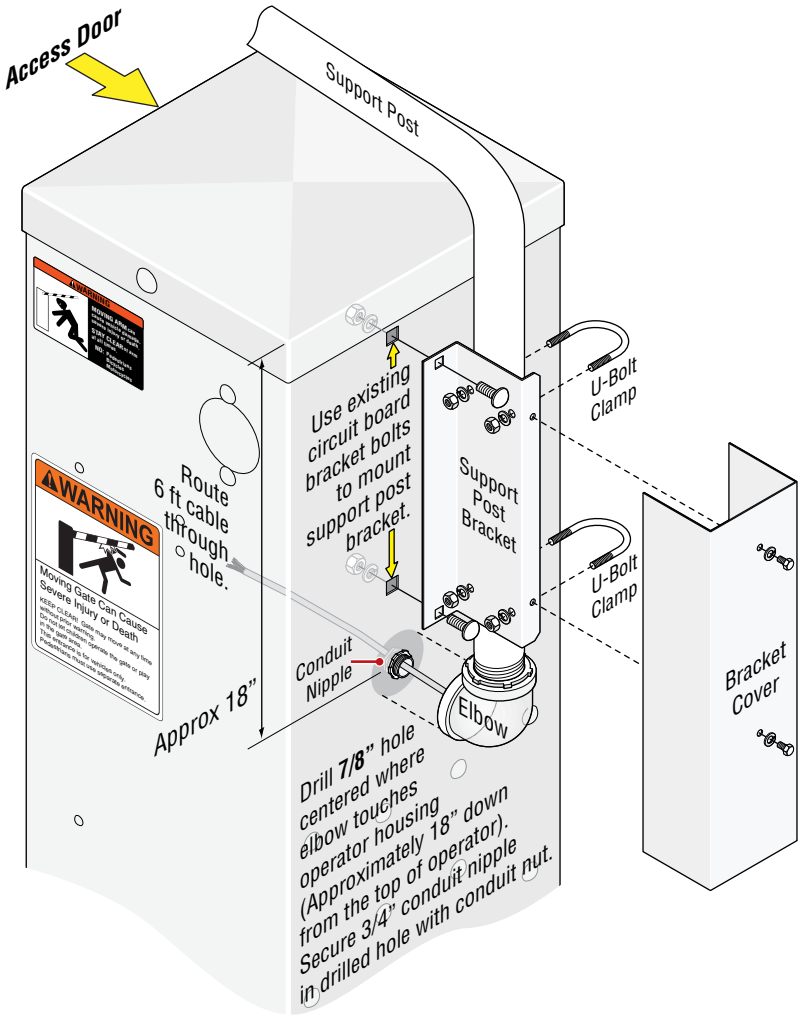
Make sure all moving parts are functioning normally. If they are **NOT**, remove lane barrier from service immediately until it can be repaired.

Install Traffic Light (REQUIRED)

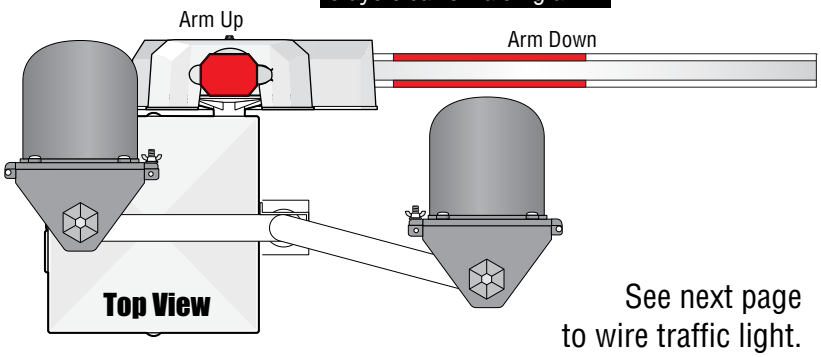
1 Assemble Support Post



2 Mount Support Post on OPPOSITE Side of Access Door



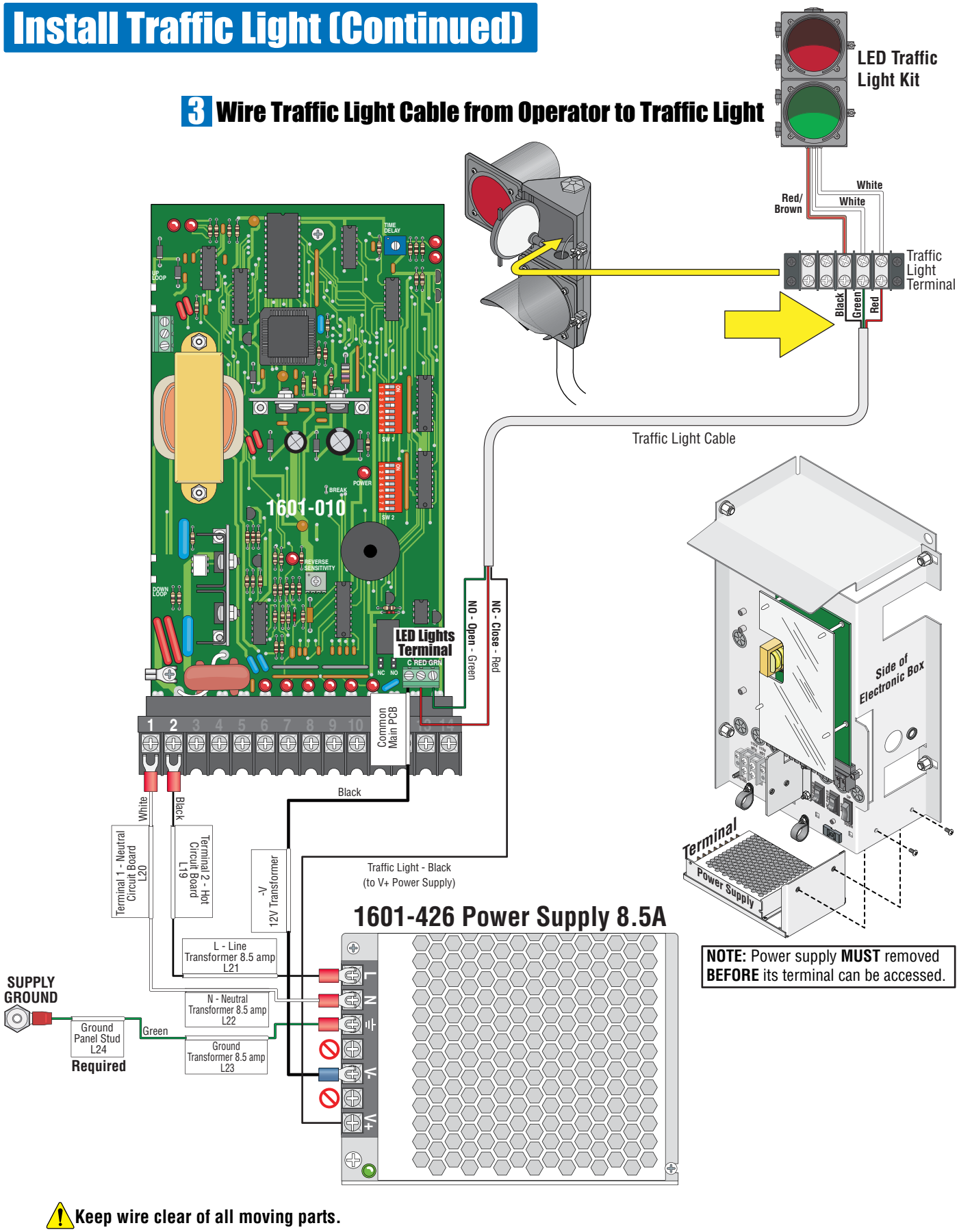
Make sure traffic light stays clear of raising arm.



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.**

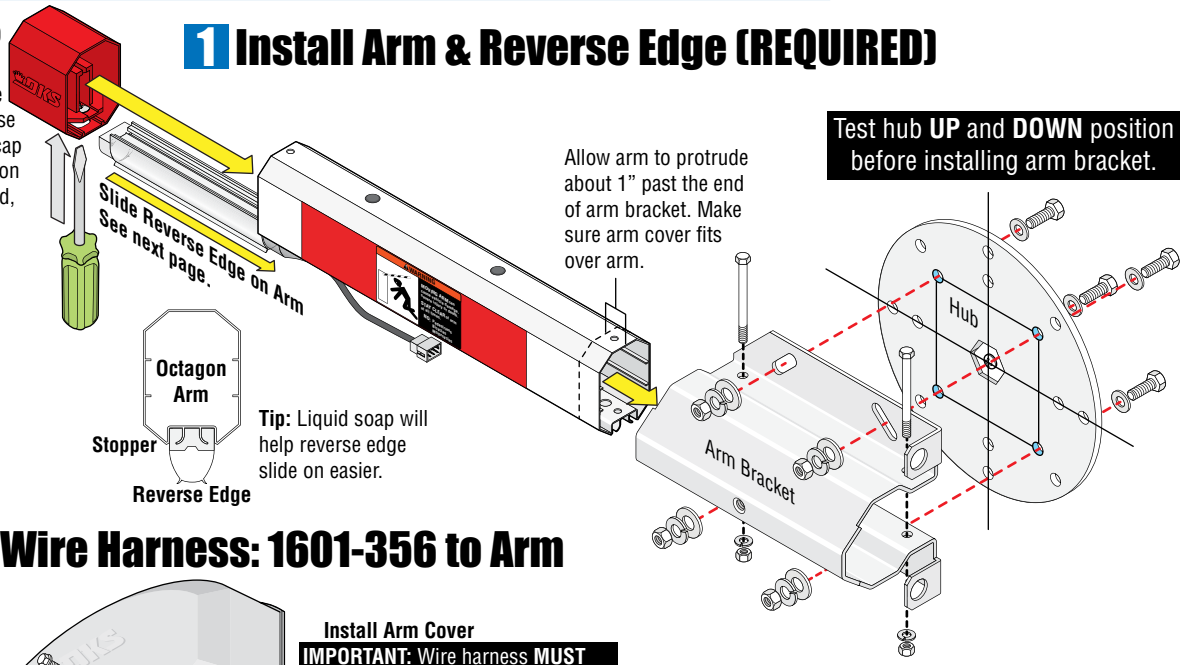
Install Octagon Arm with Reverse/LED Edge

Drawings NOT to scale.

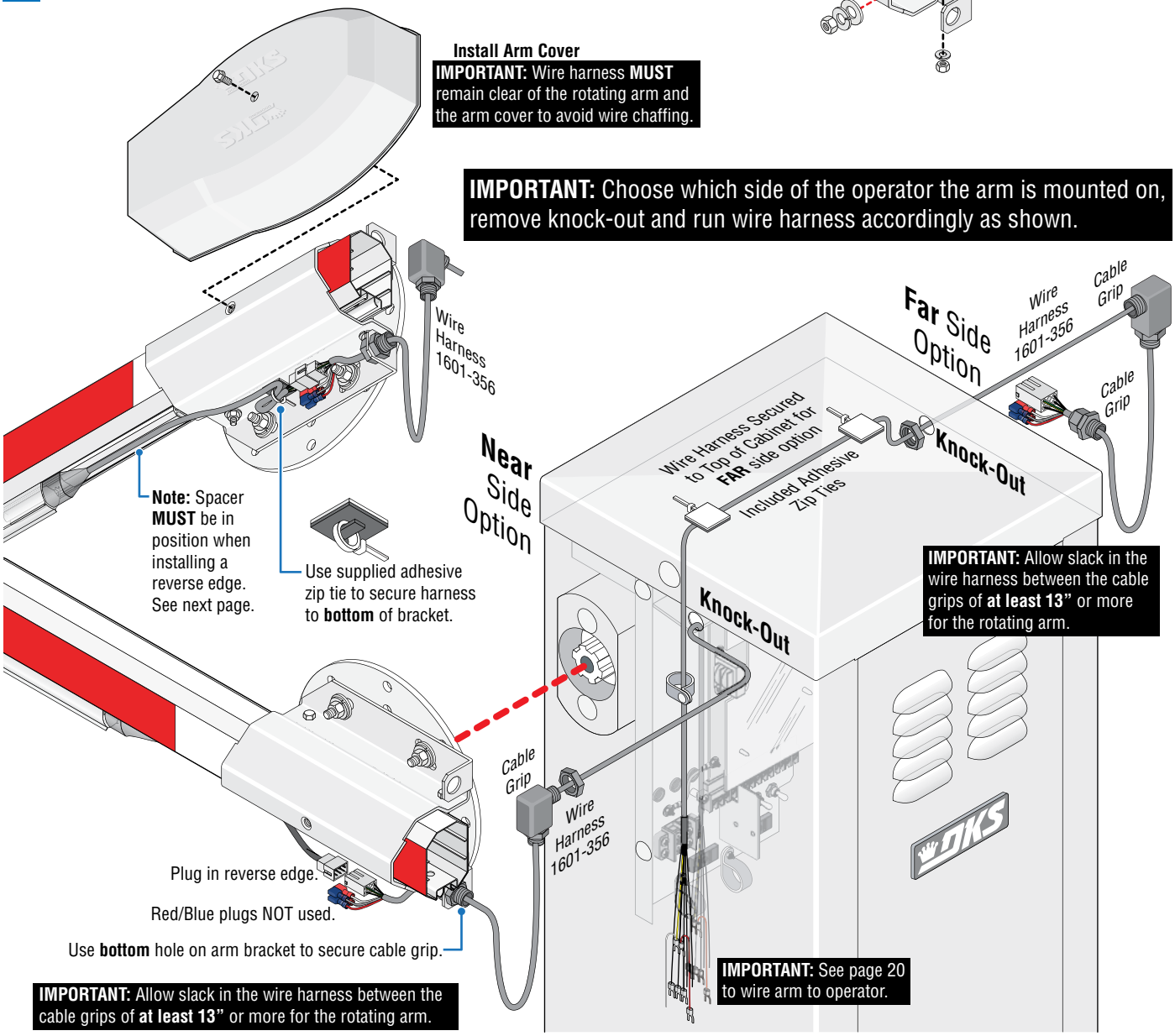
Install End Cap

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.

1 Install Arm & Reverse Edge (REQUIRED)



2 Connect Wire Harness: 1601-356 to Arm



Install Reverse/LED Edge on Octagon Arm

DoorKing Part Numbers
8080-080
Reverse Edge
8080-096
Reverse Edge + Red/Green LED

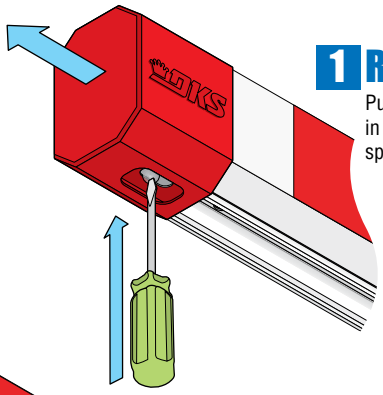
Install on a 14 ft aluminum **octagon arm** for a 1601 barrier gate operator.

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

Drawings NOT to scale

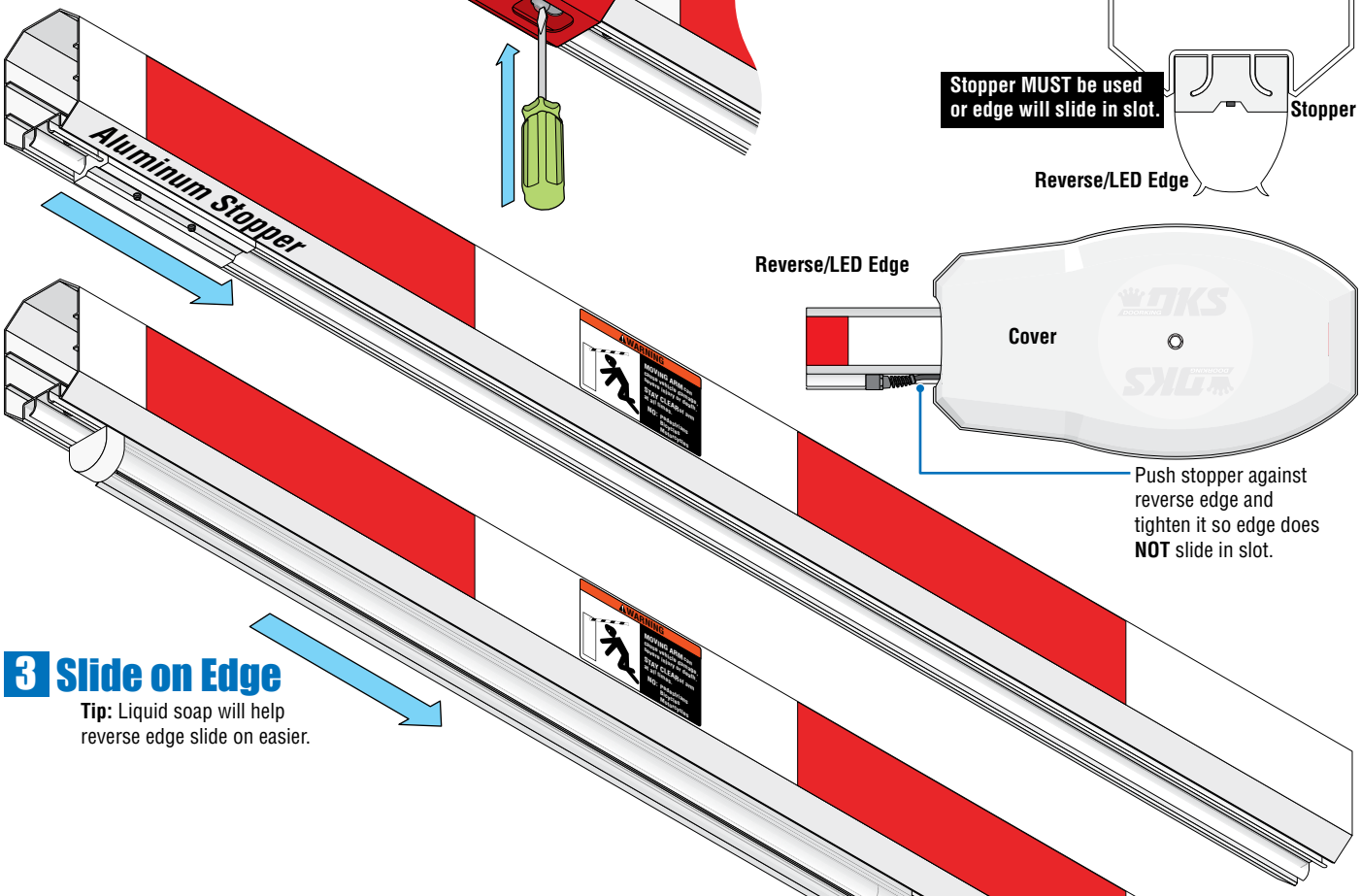
1 Remove End Cap

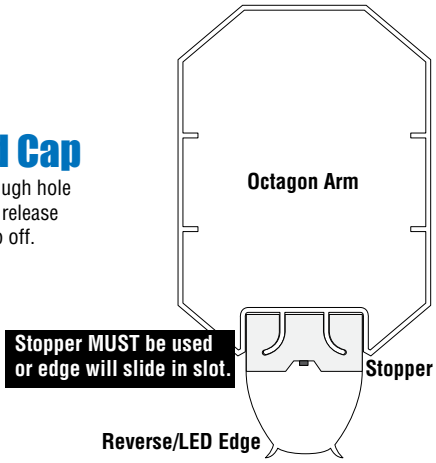
Push a screwdriver through hole in bottom of end cap to release spring **while** pulling cap off.



2 Slide on Stopper

Loosen set screws.





Push stopper against reverse edge and tighten it so edge does **NOT** slide in slot.

3 Slide on Edge

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

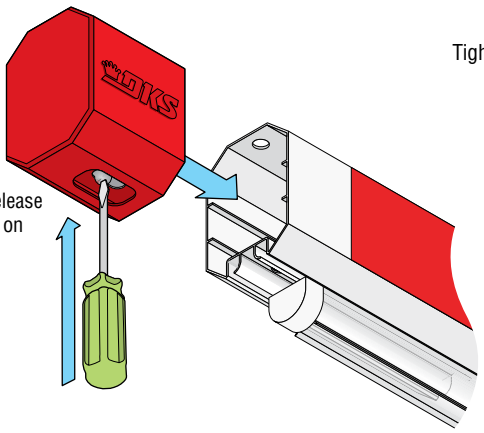
Tighten set screws.

Stopper MUST be used or edge will slide in slot.

Plug connects to the 1601-356 wire harness (sold separately). see 1601-268 manual/ or page 20.

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

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.

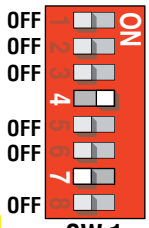
Before attempting to connect any wiring to the operator, be sure that the circuit breaker in the electrical panel is in the OFF position. Permanent wiring must be installed to the operator as required by local electrical codes.
It is recommended that a licensed electrical contractor perform this work.

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.

DoorKing offers a free "**Loop and Loop-Detectors Information Manual**" PDF located at DoorKing's web site for more information. **www.doorking.com**

Typical DIP-Switch Settings

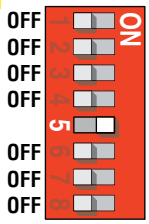
A



SW 1

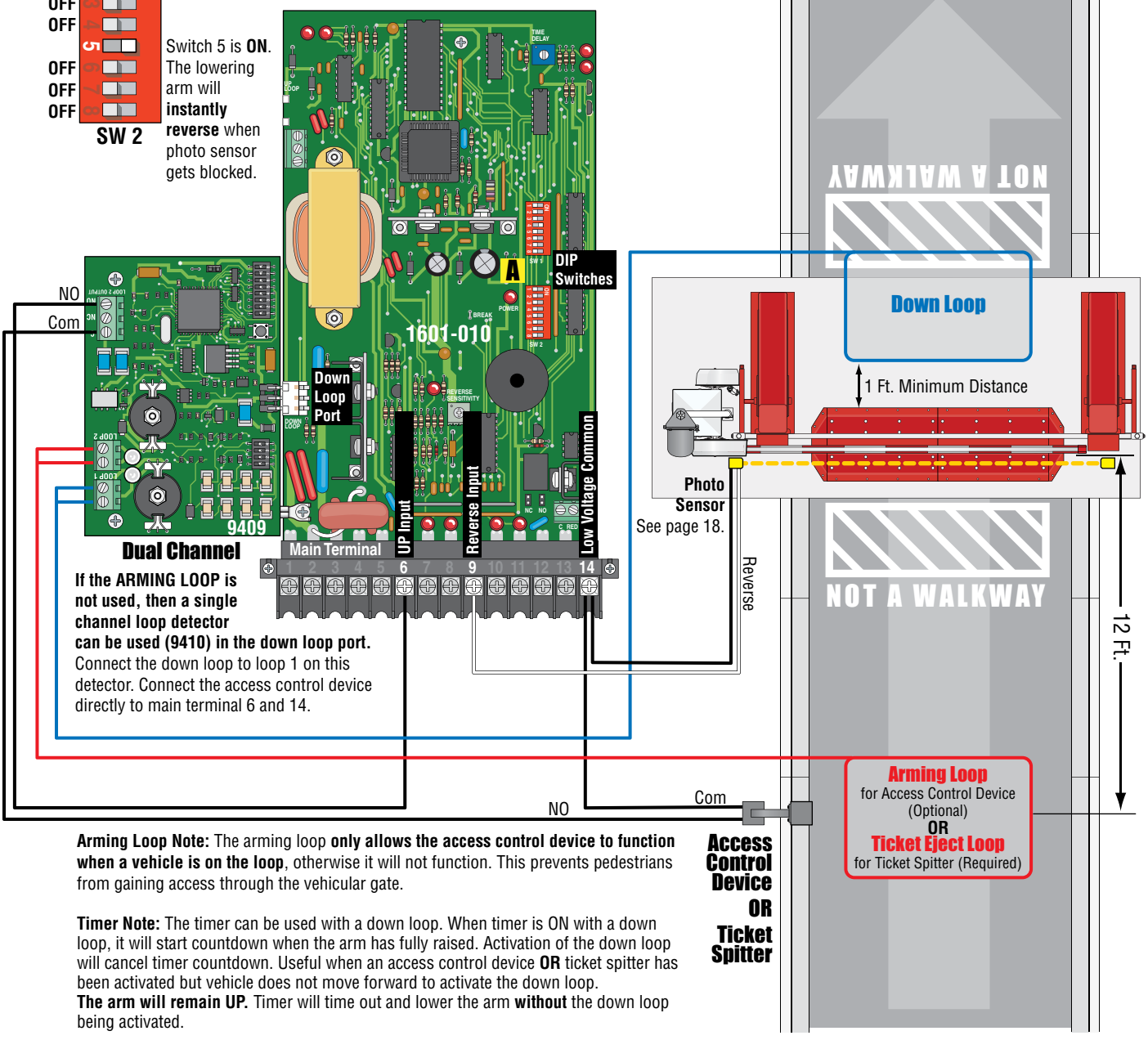
Switch 4 is **ON**.

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



SW 2

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



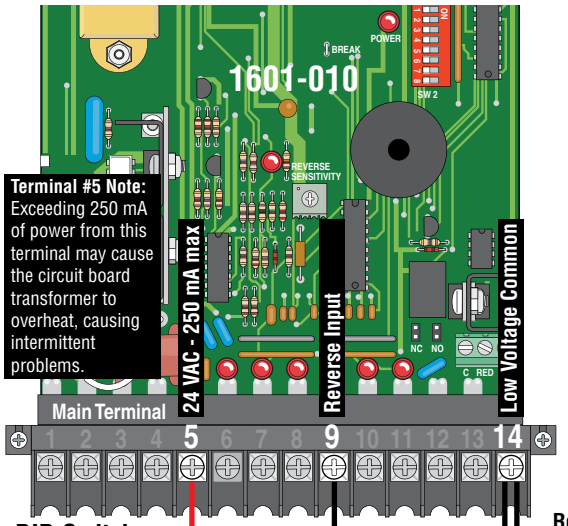
If the ARMING LOOP is not used, then a single channel loop detector can be used (9410) in the down loop port. Connect the down loop to loop 1 on this detector. Connect the access control device directly to main terminal 6 and 14.

Arming Loop Note: The arming loop **only allows the access control device to function when a vehicle is on the loop**, otherwise it will not function. This prevents pedestrians from gaining access through the vehicular gate.

Timer Note: The timer can be used with a down loop. When timer is ON with a down loop, it will start countdown when the arm has fully raised. Activation of the down loop will cancel timer countdown. Useful when an access control device **OR** ticket spitter has been activated but vehicle does not move forward to activate the down loop.
The arm will remain UP. Timer will time out and lower the arm **without** the down loop being activated.

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.

Type of wiring to be used on ALL external devices:
A) Type **CL2**, **CL2P**, **CL2R**, or **CL2X**.
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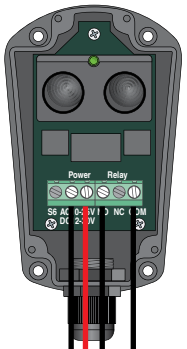


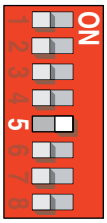
DoorKing Retro-Reflective Photocell (P/N 8080-057)

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.

Wiring Note: See page 20 for complete operator wiring of all components.

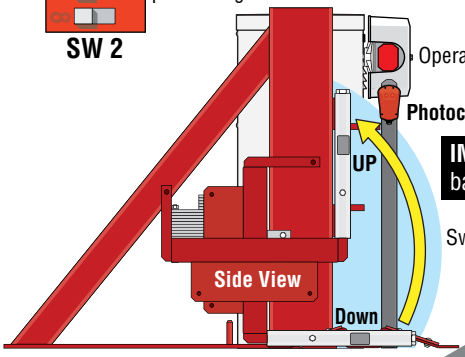
DIP-Switch



SW 2

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

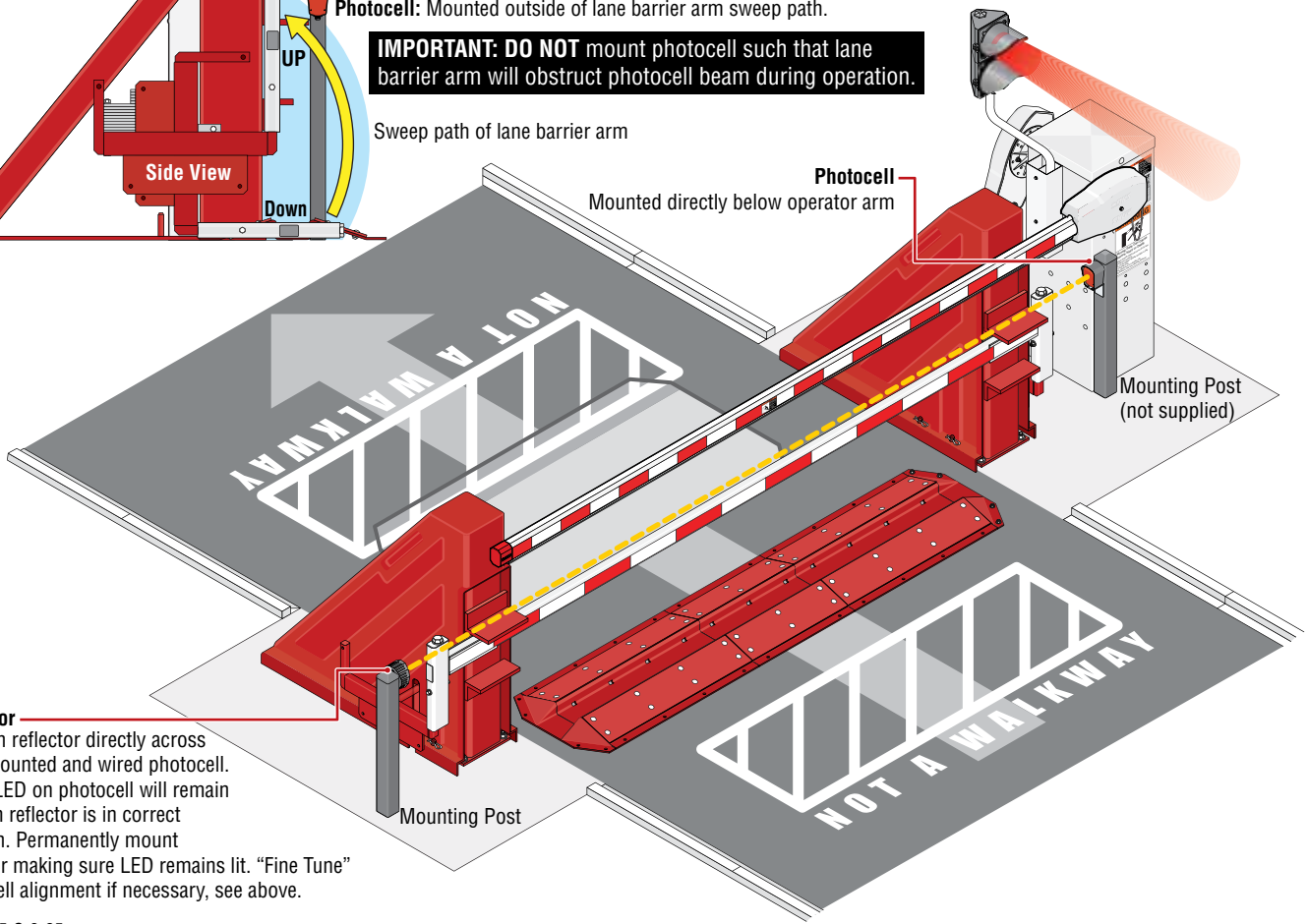
IMPORTANT: DO NOT mount photocell to the operator cabinet. Cabinet can flex or vibrate during operation which may cause misalignment of the beam.



Photocell: Mounted outside of lane barrier arm sweep path.

IMPORTANT: DO NOT mount photocell such that lane barrier arm will obstruct photocell beam during operation.

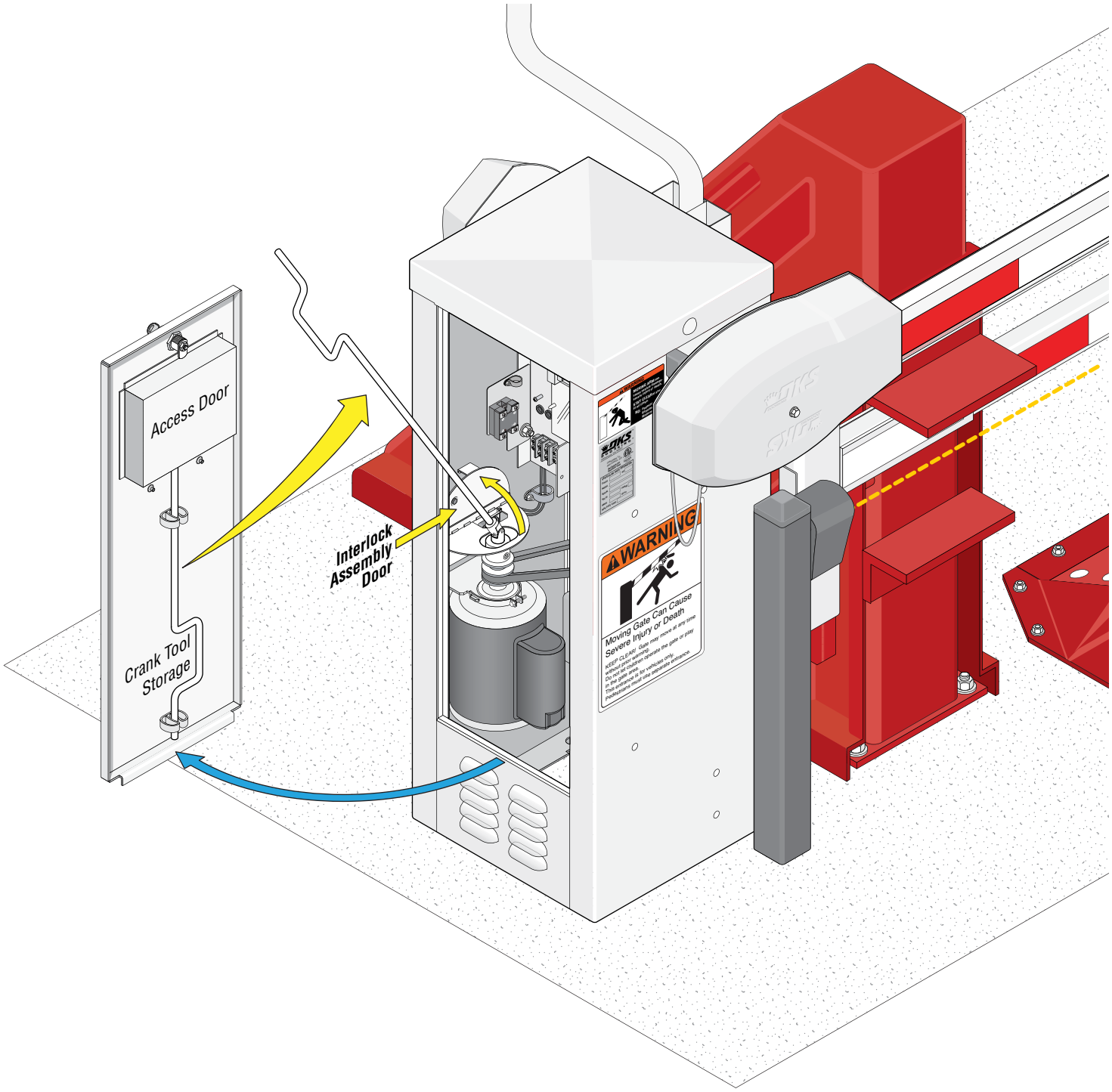
Sweep path of lane barrier arm



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.

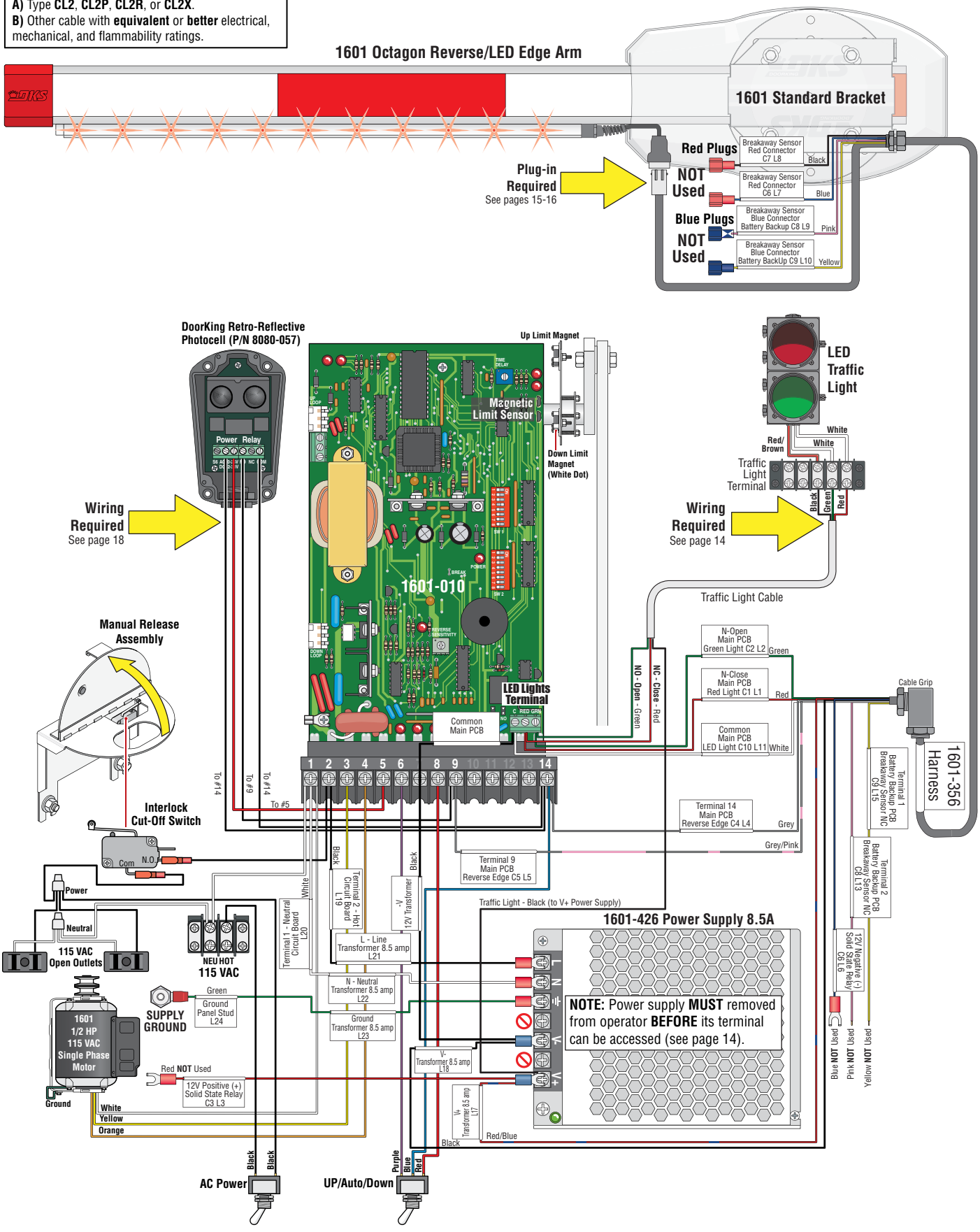
Manual Release Operation

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.



Installation Manual

1620 Lane Barrier

Surface Mount Vehicular Lane Barrier Accessory

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

1620-065-S-3-25

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

WARNING pre-stressed concrete may be used in multi-level parking garages. Cutting a tensioned cable, or tendon, can endanger the contractor and compromise the structural integrity of the floor. Contact the building structural engineer for specific instructions and information BEFORE drilling or saw cutting into the floor.

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** to find a professional installing and servicing dealer in your area.

www.doorking.com

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.

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