

Installation Manual

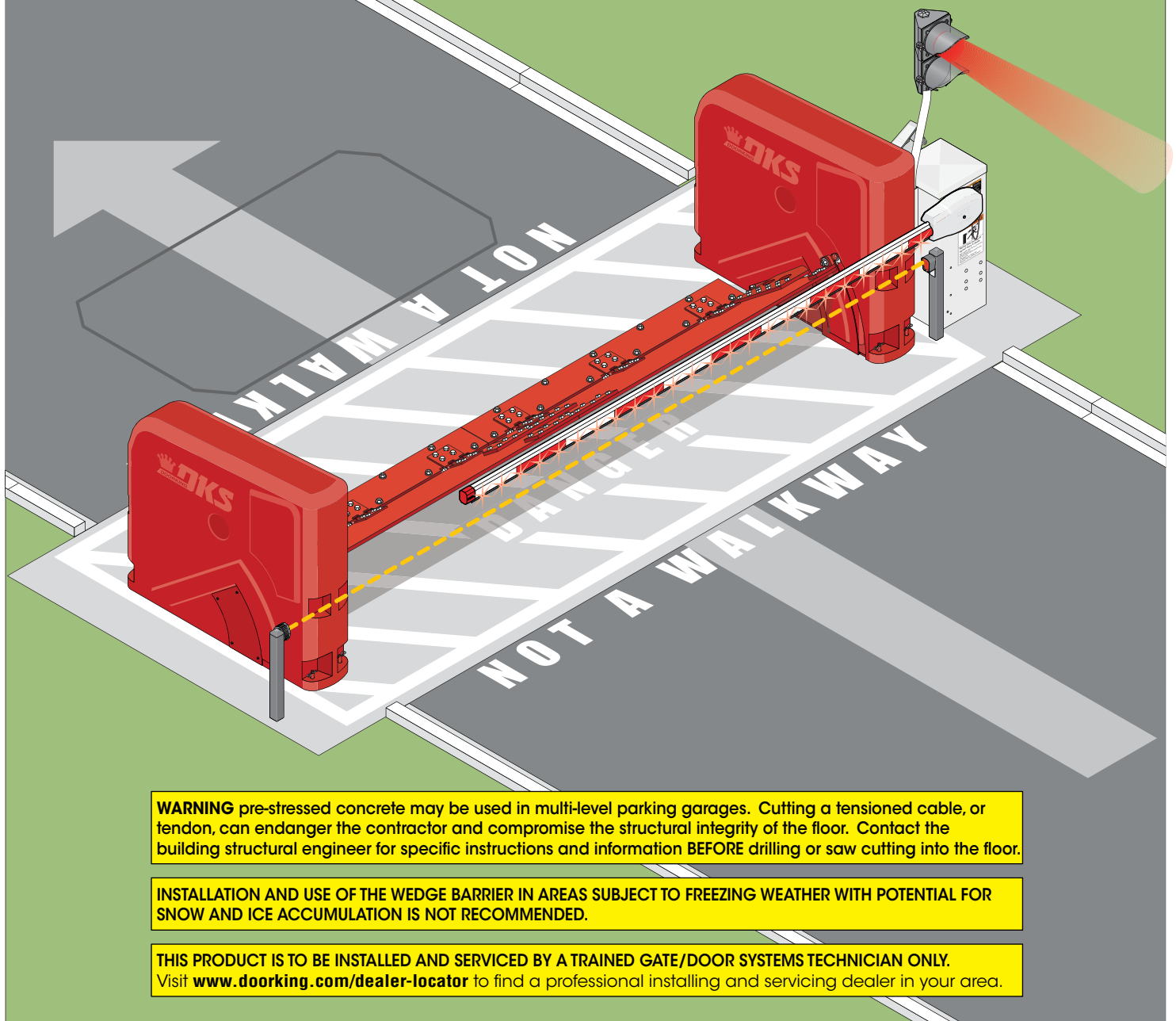
1625 Wedge Barrier

Surface Mount Vehicular Wedge Barrier Accessory

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

1625-065-F-7-24

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



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The 1625 wedge barrier is not a stand-alone product. It must be used with a 1602-590 Barrier Gate Operator (sold separately). The 1625 is crash rated (ASTM F2656 PU-30-(P1, P2)). It is intended to provide a more formidable barrier in conjunction with a standard barrier arm operator system. The 1625 is ideally used to control passenger vehicles and light duty trucks.



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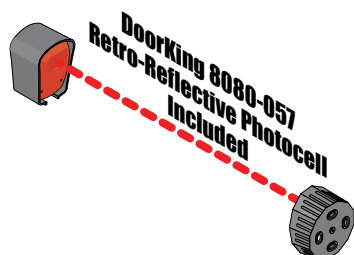
Wedge Components

Wedge Barrier Options:

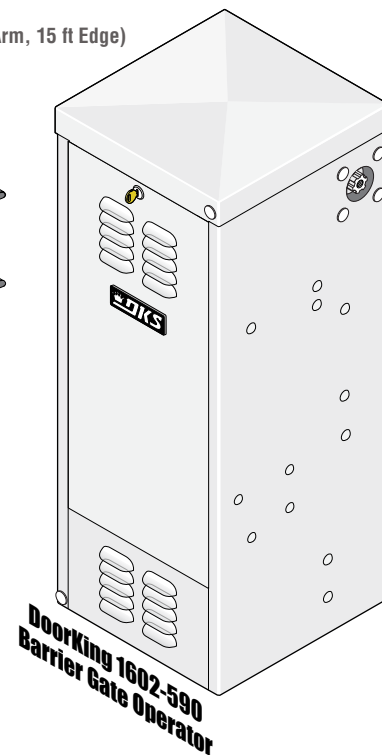
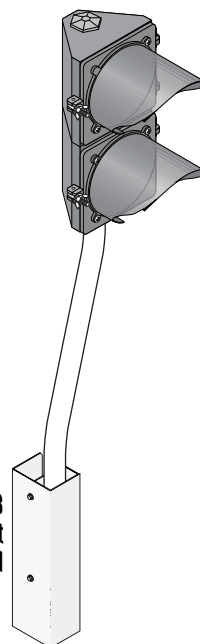
- 12 ft Wide Model** P/N 1625-612 (14 ft Octagon Arm with 12 ft Edge)
- 14 ft Wide Model** P/N 1625-614 (14 ft Octagon Arm with 12 ft Edge OR 17 ft Octagon Arm, 15 ft Edge)
- 16 ft Wide Model** P/N 1625-616 (17 ft Octagon Arm with 15 ft Edge)
- 18 ft Wide Model** P/N 1625-618 (17 ft Octagon Arm with 15 ft Edge)

Octagon Reversing/LED Edge Arm Options:

- 14 Ft 1-Piece Octagon Arm Only** P/N 1601-555
- 3 Ft Extension Arm** P/N 1602-303
- Octagon Arm Hardware Kit (Required)** P/N 1601-235
- 12 Ft Reverse Edge + Red/Green LED** P/N 8080-096
- 15 Ft Reverse Edge + Red/Green LED** P/N 8080-315



DoorKing 1603-223
LED Traffic Light
Included



DoorKing Safety for Wdge Barrier

- DKS Wedge Barrier System is crash rated (ASTM F2656 PU-30-(P1, P2). It is intended to provide a formidable barrier to help prevent **passenger vehicles** and **light-duty trucks** from driving through a controlled traffic lane.
- Wedge barrier **MUST** have reverse/LED edge on arm, traffic light and photoelectric cell **functioning** or **remove wedge 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 wedge 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.**

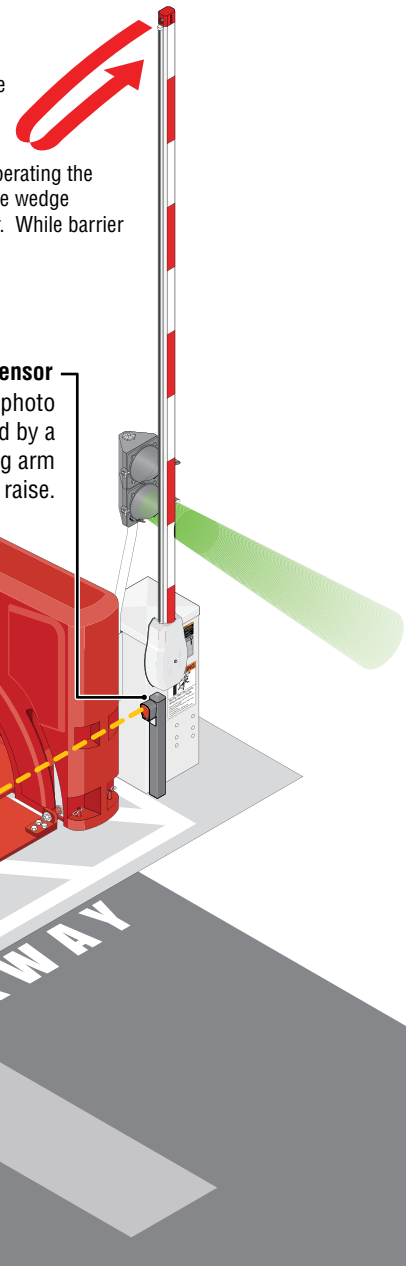
Pedestrians MUST be provided with separate access.

- 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 wedge 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 wedge 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 wedge barrier gate. The motion of the barrier arms must be directly observable by the person operating the wedge barrier. While barrier arm is in motion
NO pedestrian and **NO** vehicle shall be in the immediate vicinity of the wedge 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 from underneath wedge plate and from operator housing vents and off of arms. Contact your service dealer for any maintenance or repairs.
- Vehicular wedge 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 wedge 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!!



IMPORTANT: ALL debris and trash needs to be kept from underneath wedge plate.

Safety and Traffic Management for Wedge Barrier System

Vehicular wedge 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 wedge 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.

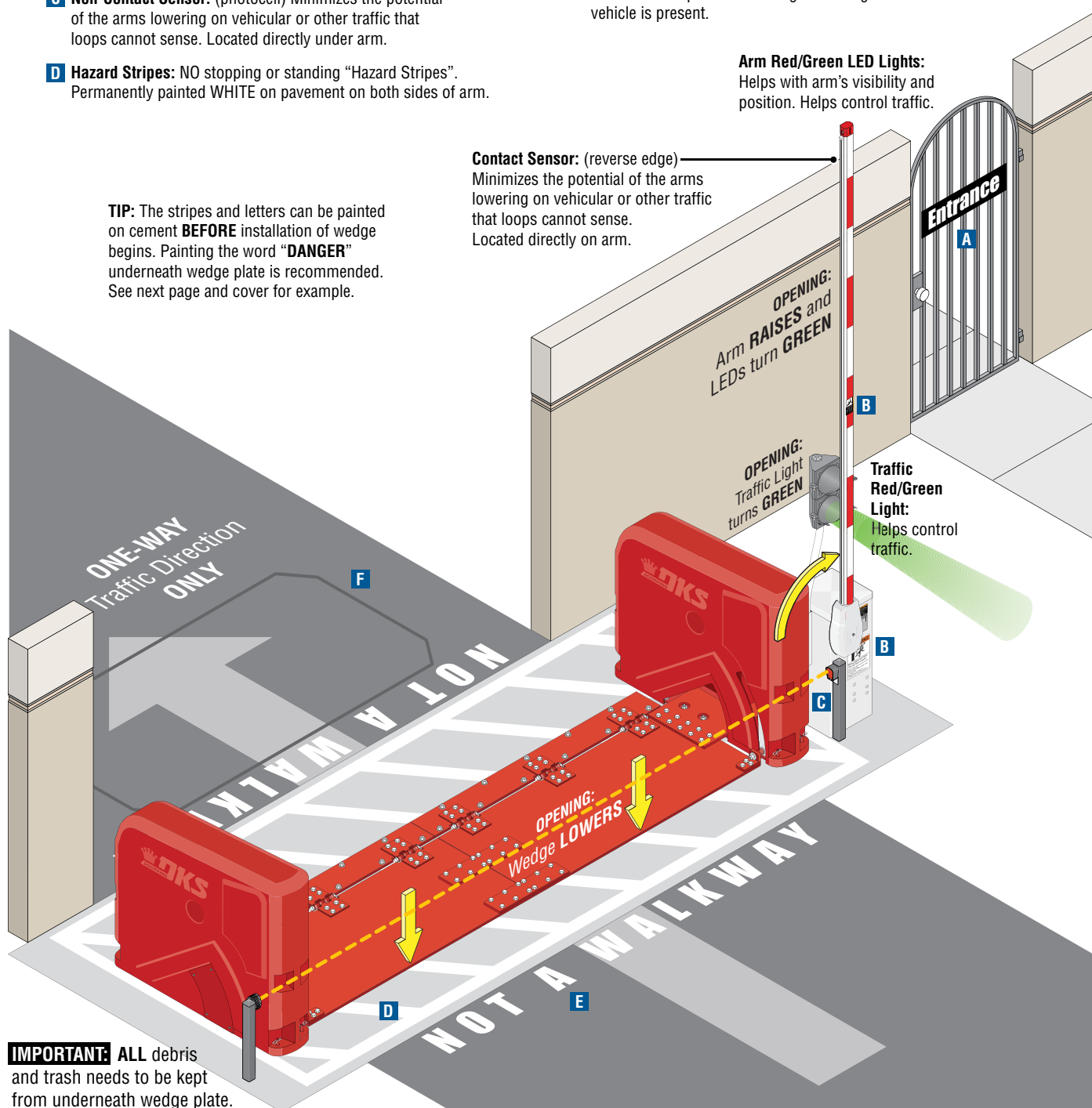
E Pedestrian Alert Warning: "NOT A WALKWAY" pavement marking facing both directions, permanently painted WHITE on pavement.

F In-Ground Loops: Minimizes the potential of the gate closing when a vehicle is present.

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.

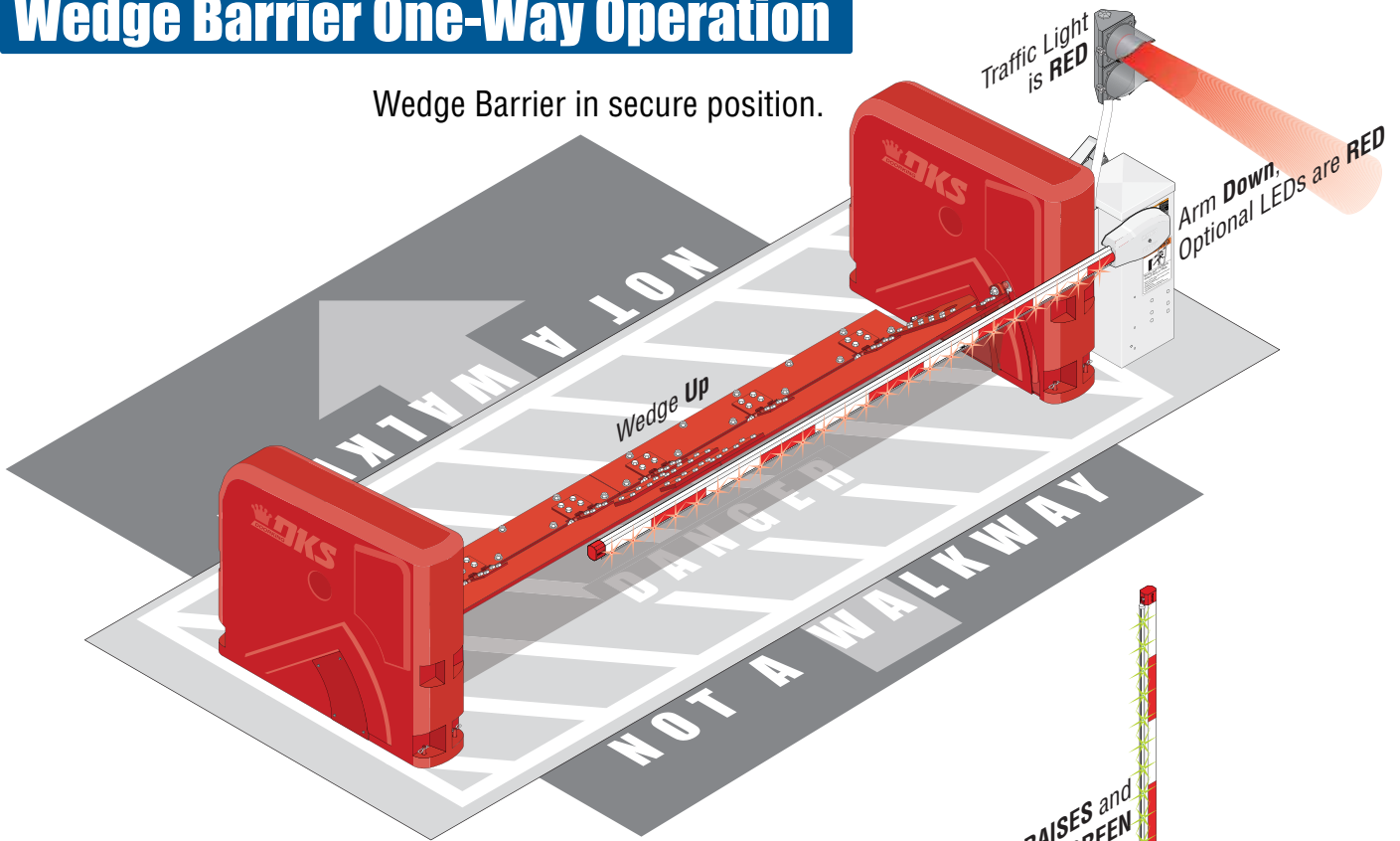
TIP: The stripes and letters can be painted on cement **BEFORE** installation of wedge begins. Painting the word "**DANGER**" underneath wedge plate is recommended. See next page and cover for example.



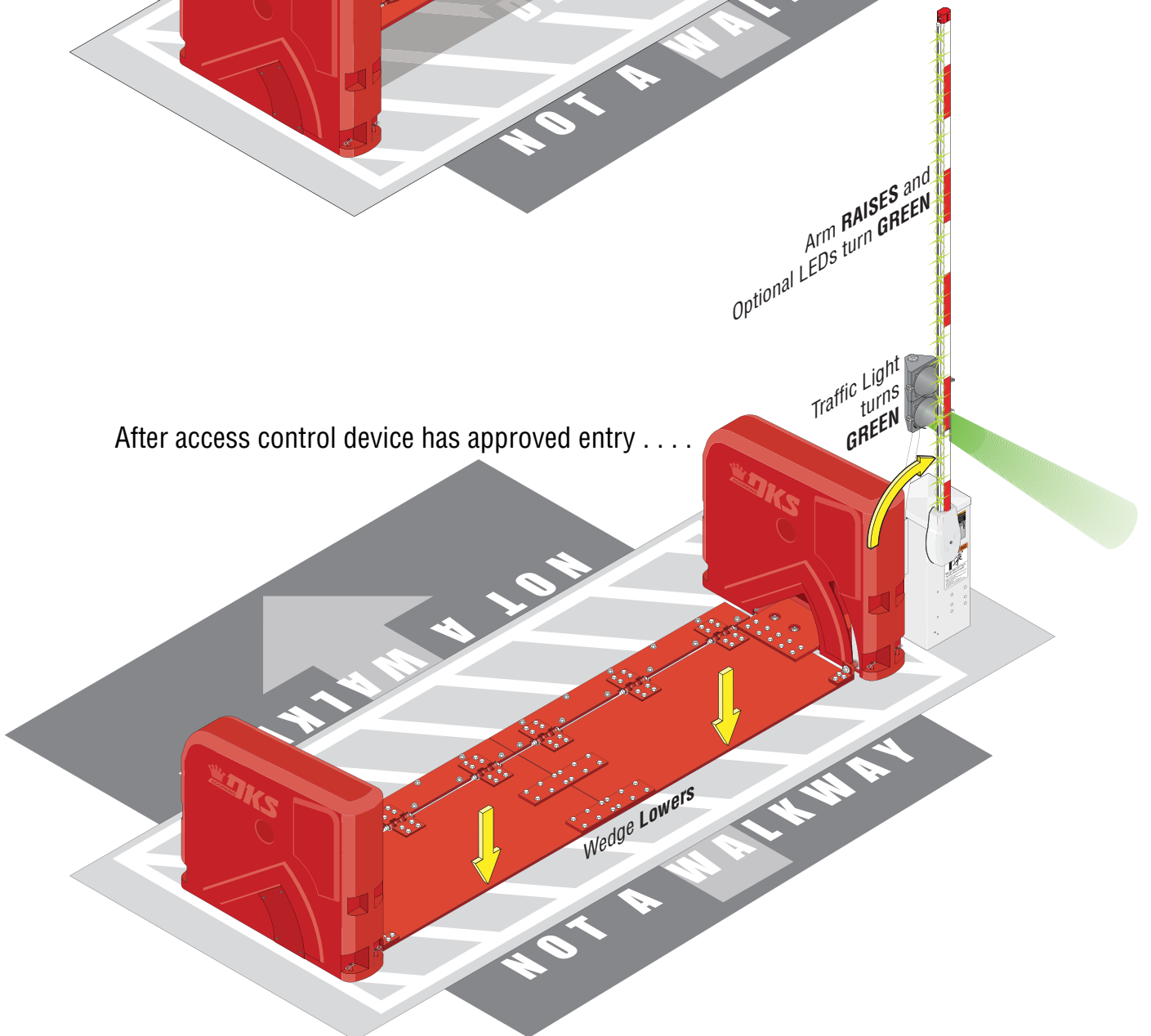
IMPORTANT: ALL debris and trash needs to be kept from underneath wedge plate.

Wedge Barrier One-Way Operation

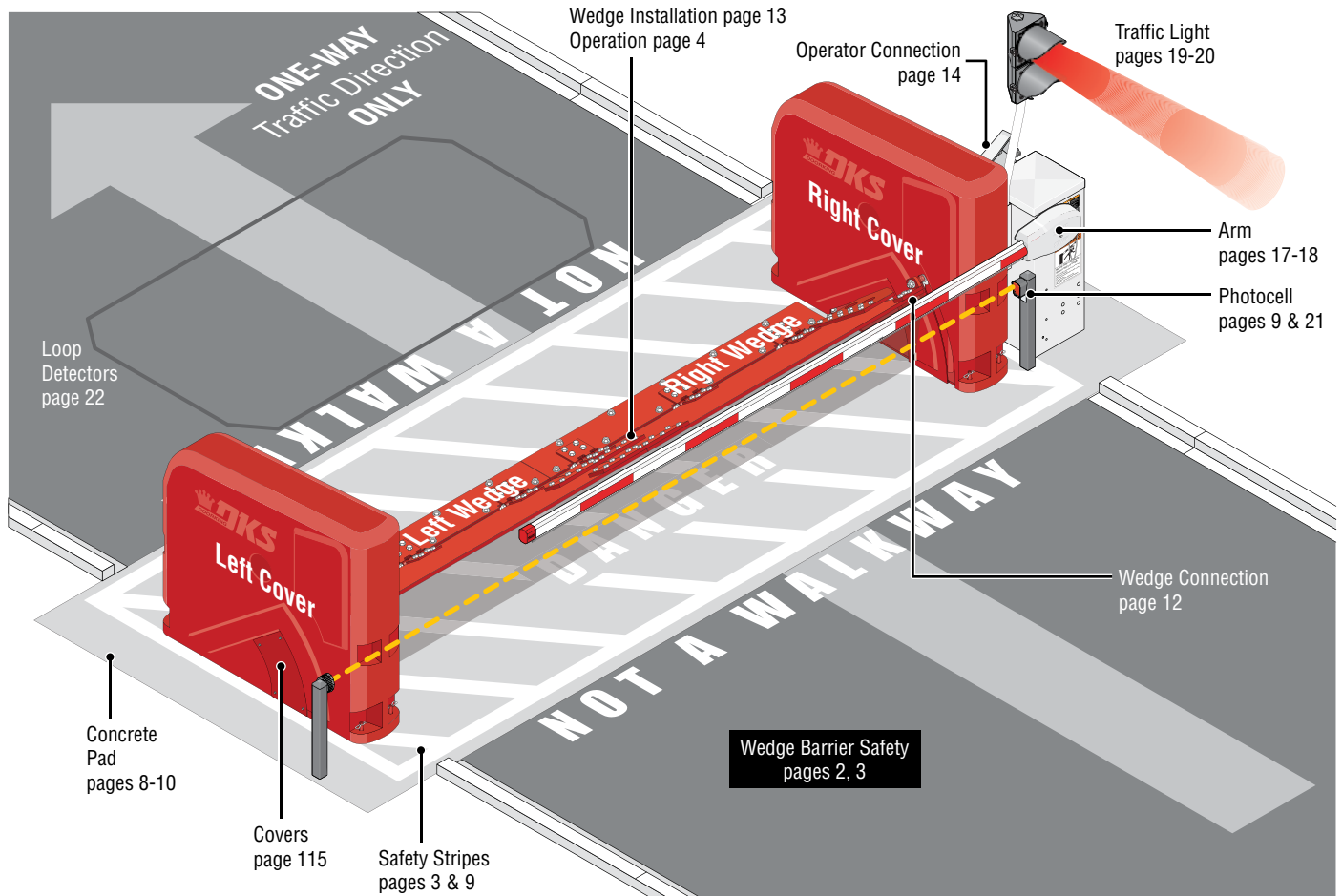
Wedge Barrier in secure position.



After access control device has approved entry



Wedge Barrier and 1602-590 Operator Overview



Use this manual for the Model 1602-590 wedge barrier operators with circuit board 1601-010 Rev AK or higher ONLY.

1602-590 Wedge Barrier Operator

Class of Operation UL 325 Class II, III, IV – ETL Listed

Type of Gate - Use with 1625 Series Wedge Barriers Only

Gate Cycles - Low 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°
1602-590	No	1 HP - 115 VAC	9.7	14 Ft.	3.5 Sec

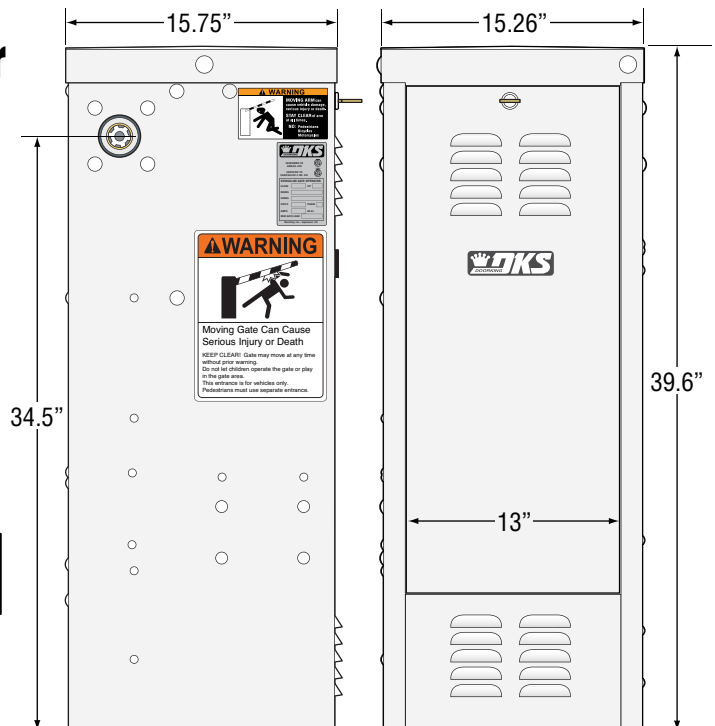
Note: 208/230/460/575 VAC input voltage can be connected to the operator by installing an "Optional" High Voltage Kit (P/N 2600-266).

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.

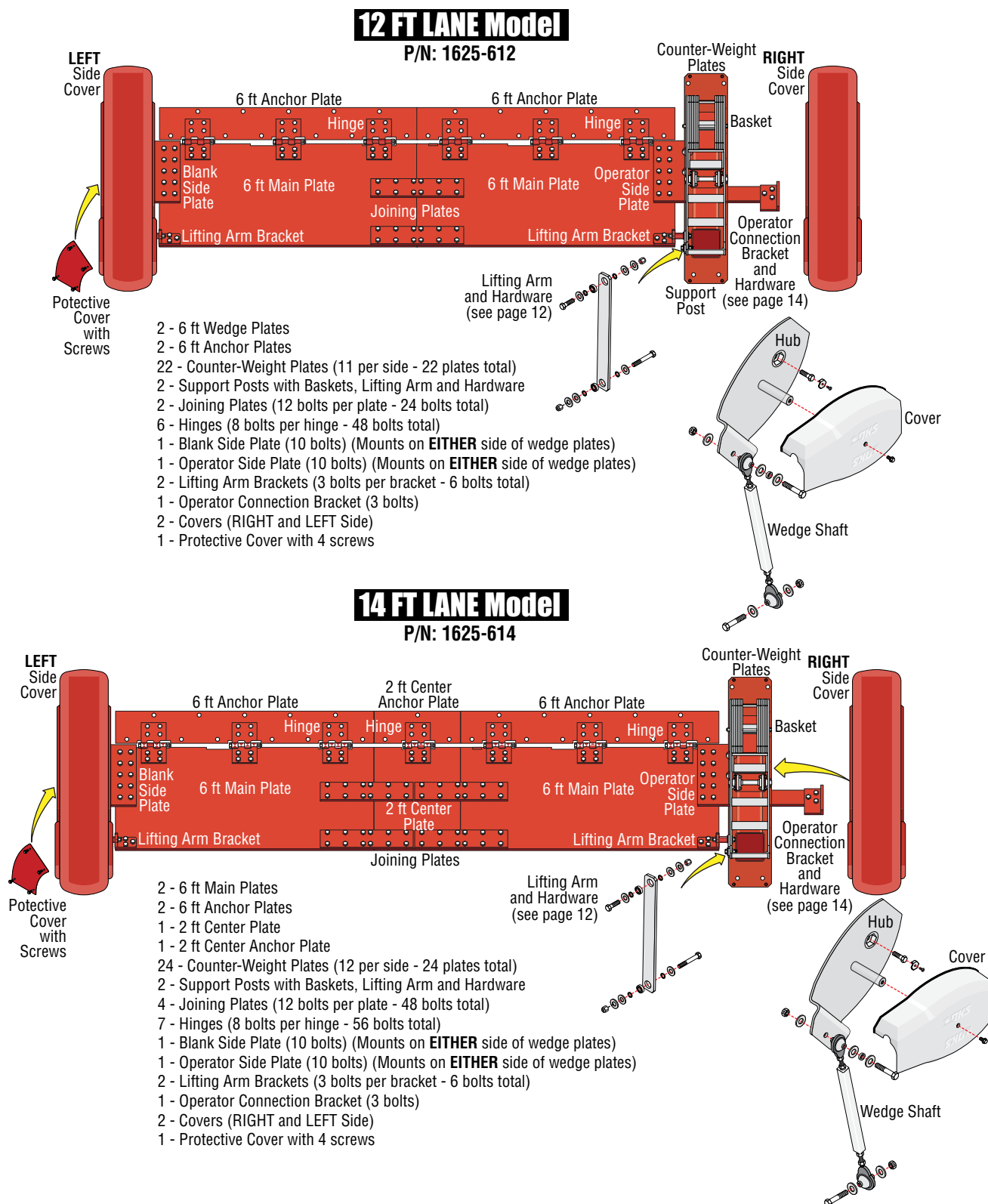
Refer to the 1601-065 Manual for ALL information about the 1602-590 Operator



Wedge Barrier Model Parts Configuration

Prior to beginning the installation of the wedge 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 1602-590 can be installed on either side of wedge plates



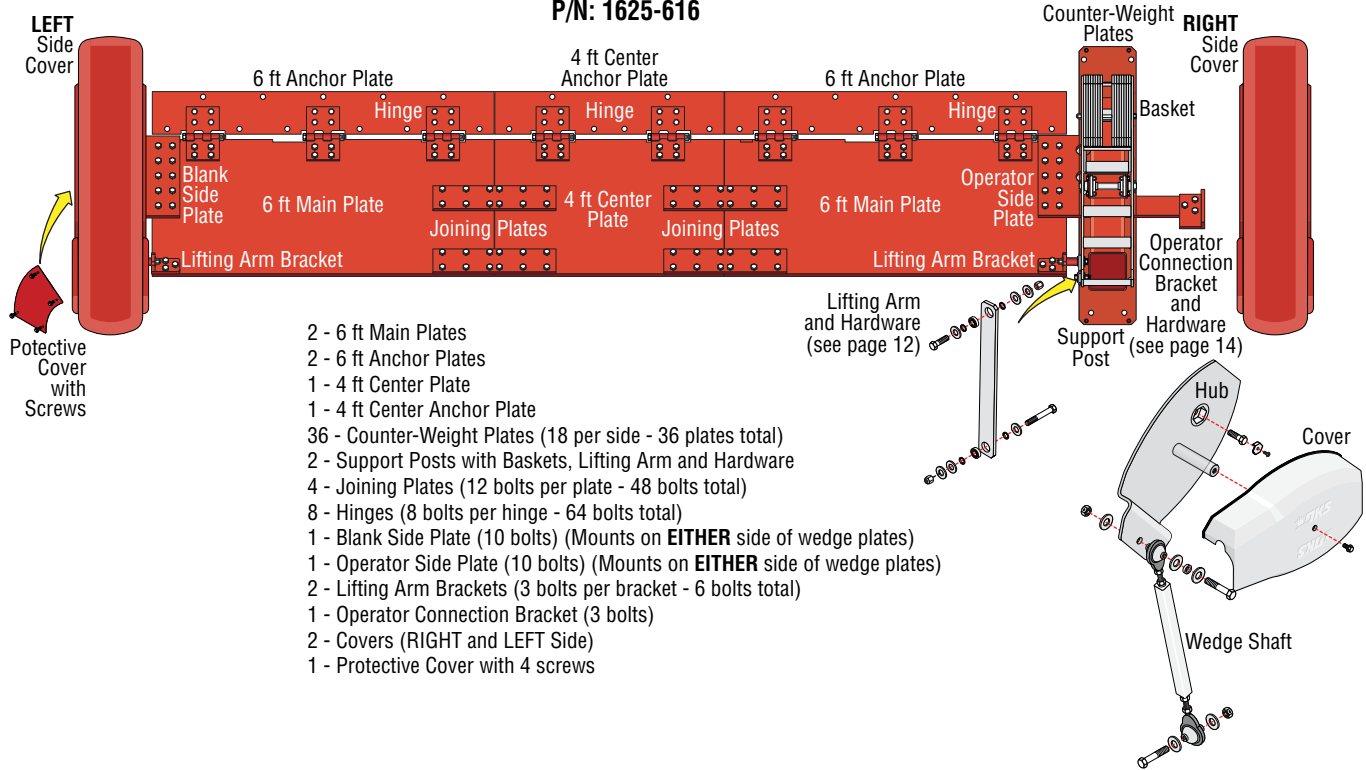
Wedge Barrier Model Parts Configuration Continued

Prior to beginning the installation of the wedge 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 1602-590 can be Installed on either side of wedge plates

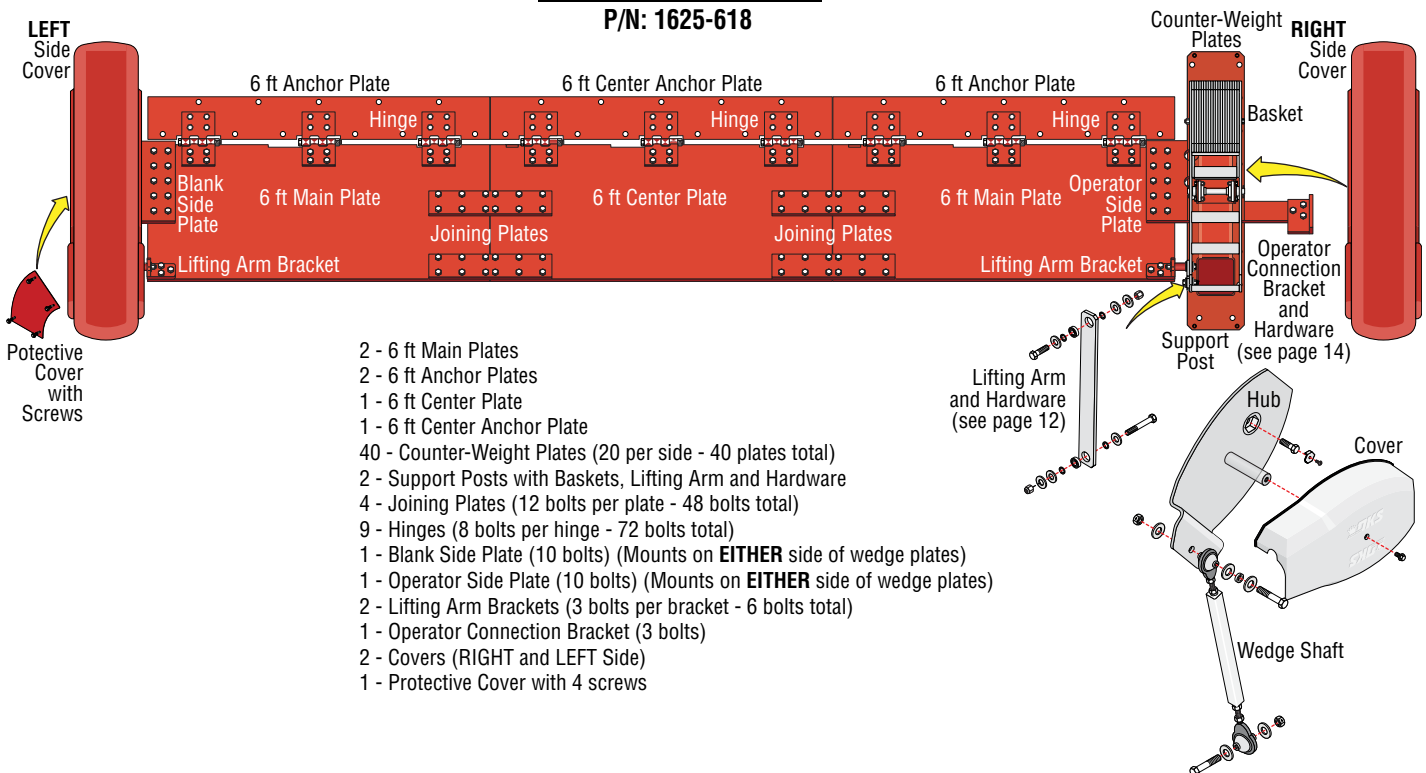
16 FT LANE Model

P/N: 1625-616



18 FT LANE Model

P/N: 1625-618



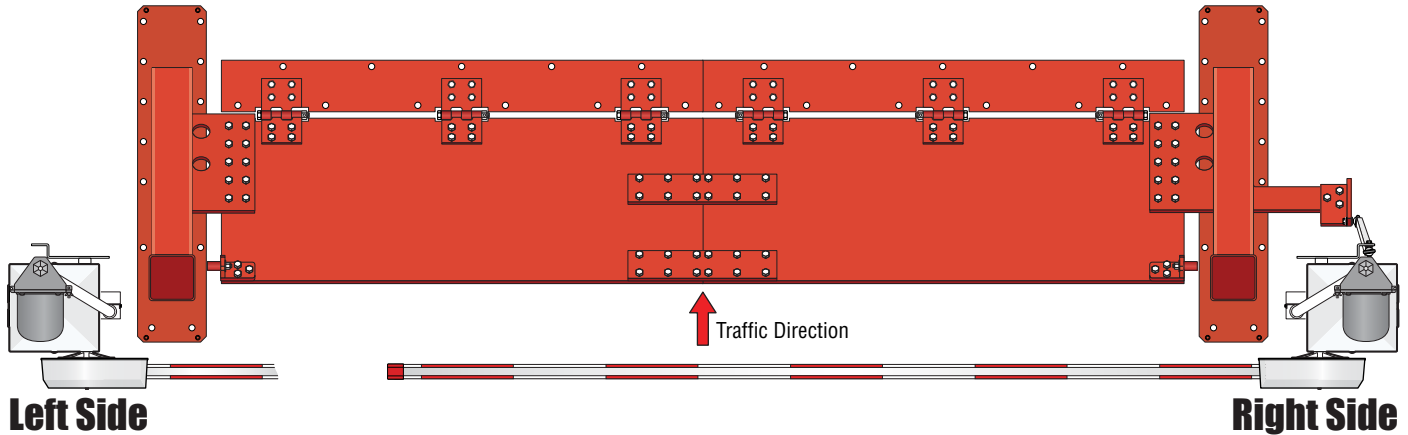
Concrete Pad Setup

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 wedge barrier to it, you must contact the building engineer before proceeding.

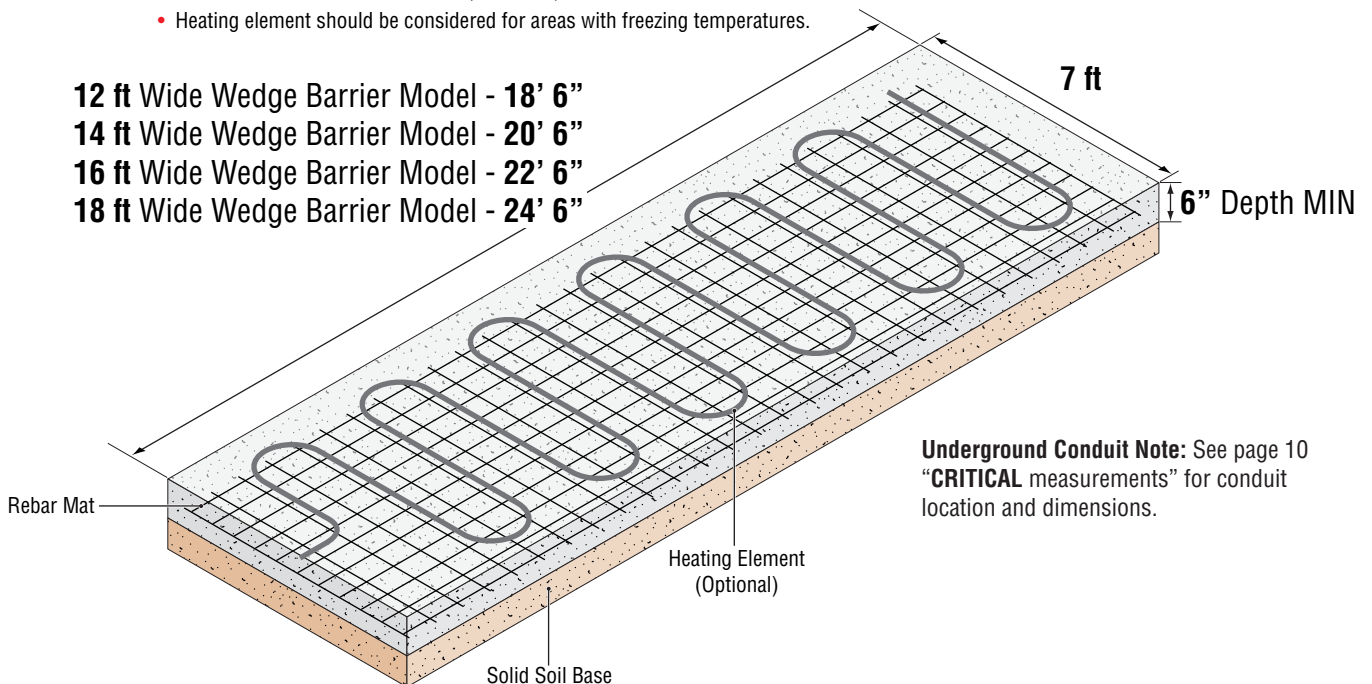
NEW Concrete Pad

Select which side of wedge barrier the operator will be installed on (manual shows installation on the **RIGHT** side of wedge. To install operator on **LEFT** side of wedge, 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 1625 Wedge 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.

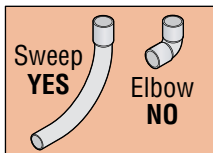


Underground Conduit and Photocell Position

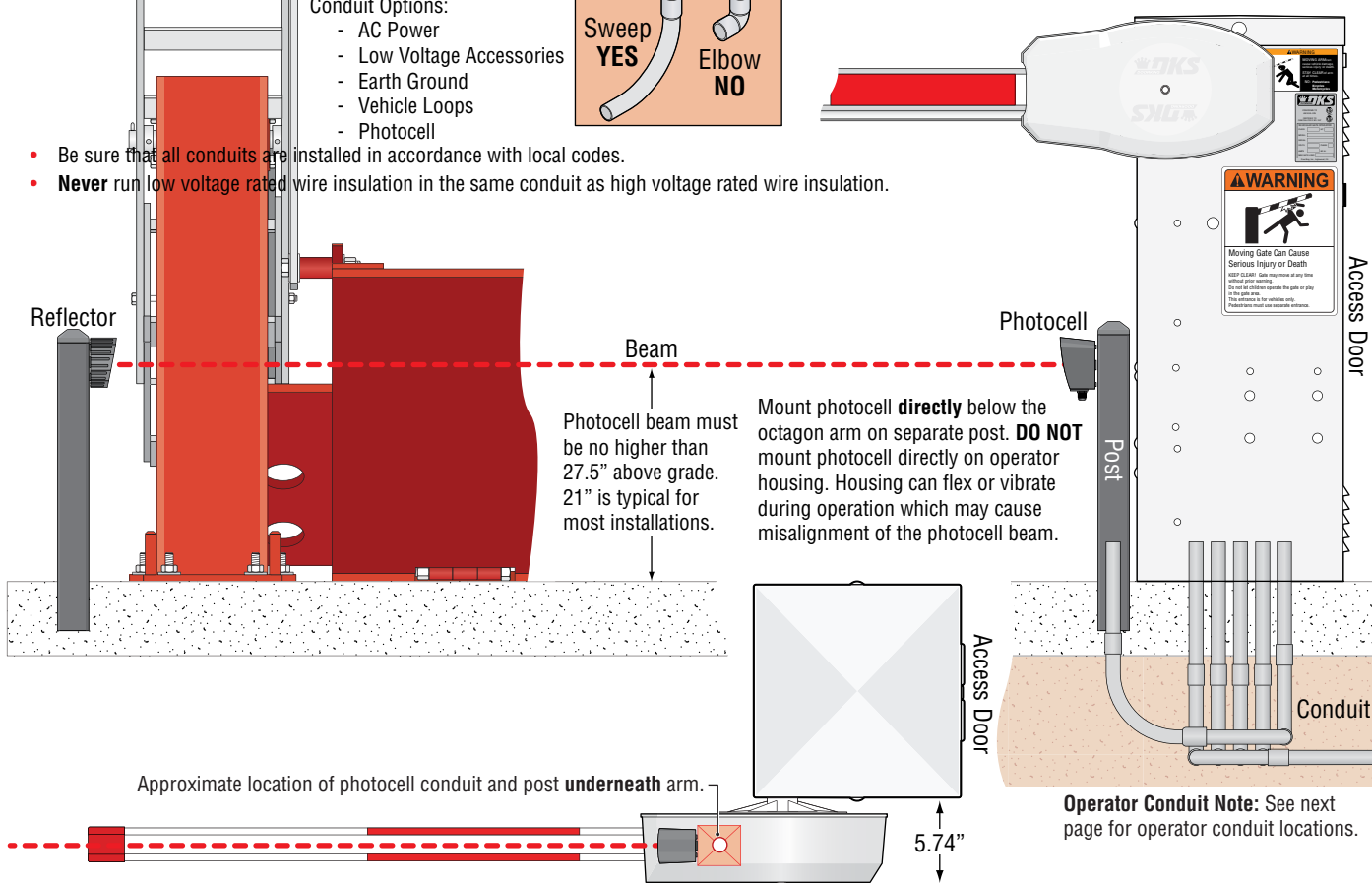
- The conduit requirements are for a typical barrier gate operator installation. The conduit requirements for your application may vary from this depending on your specific needs.
- Use only sweeps for conduit bends. **Do not use 90° elbows as this will make wire pulls very difficult and can cause damage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

Conduit Options:

- AC Power
- Low Voltage Accessories
- Earth Ground
- Vehicle Loops
- Photocell

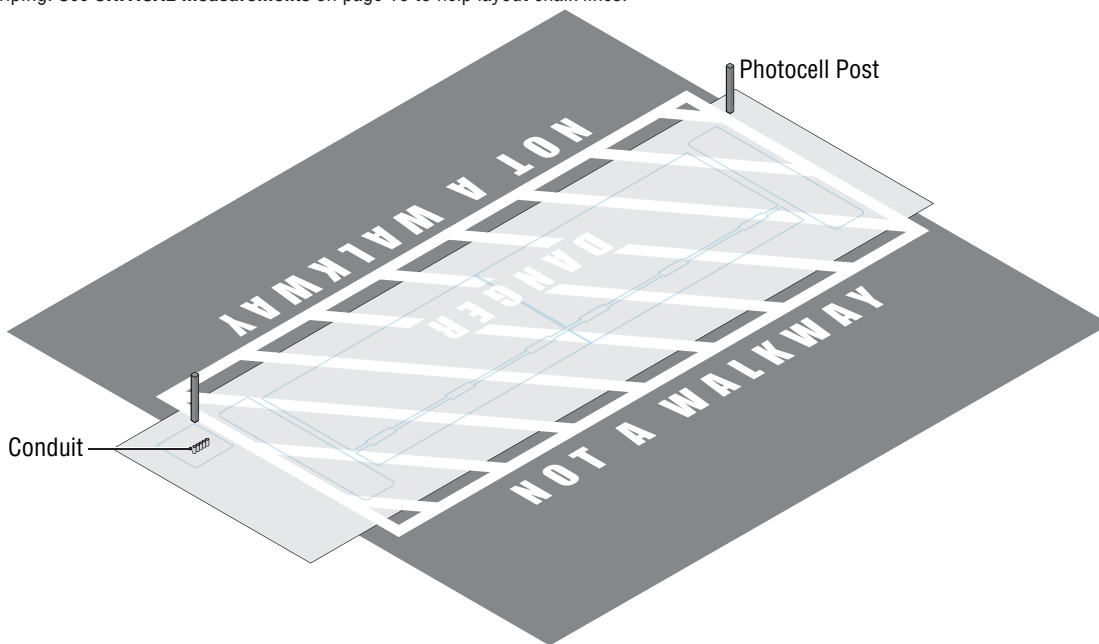


- Be sure that all conduits are installed in accordance with local codes.
- **Never** run low voltage rated wire insulation in the same conduit as high voltage rated wire insulation.

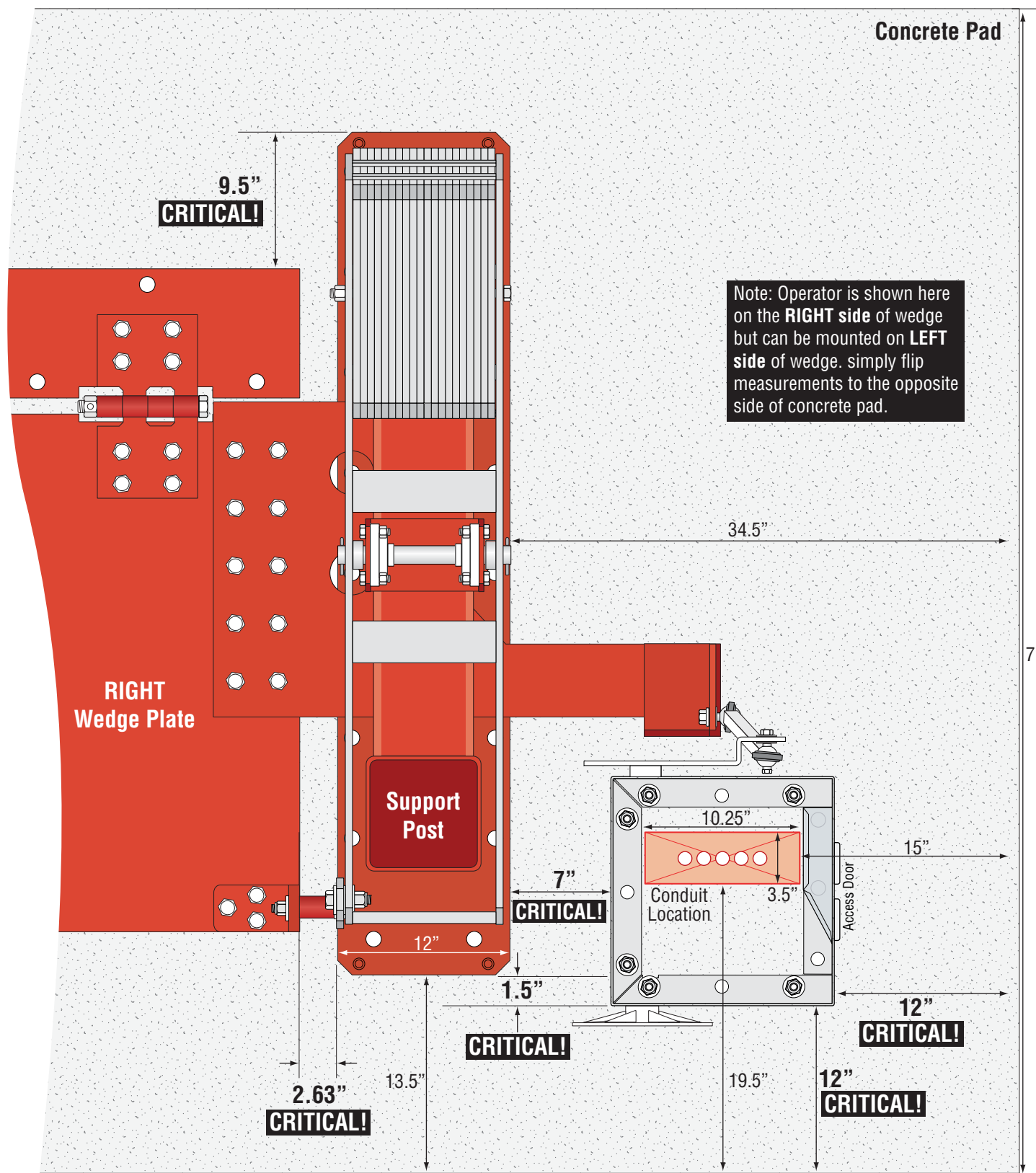


Warning Signage

AFTER concrete pad has been poured but **BEFORE** wedge and operator have been installed, warning stripes and verbage can be painted on the surface to discourage pedestrians from walking in the general area. It's much easier to paint now rather than after the installation. "**DANGER**" can be painted underneath the wedge plates that only shows when wedge plates are raised for better safety awareness. Chalk lines can be snapped on the concrete to layout where all components will be located to help when striping. See **CRITICAL measurements** on page 10 to help layout chalk lines.



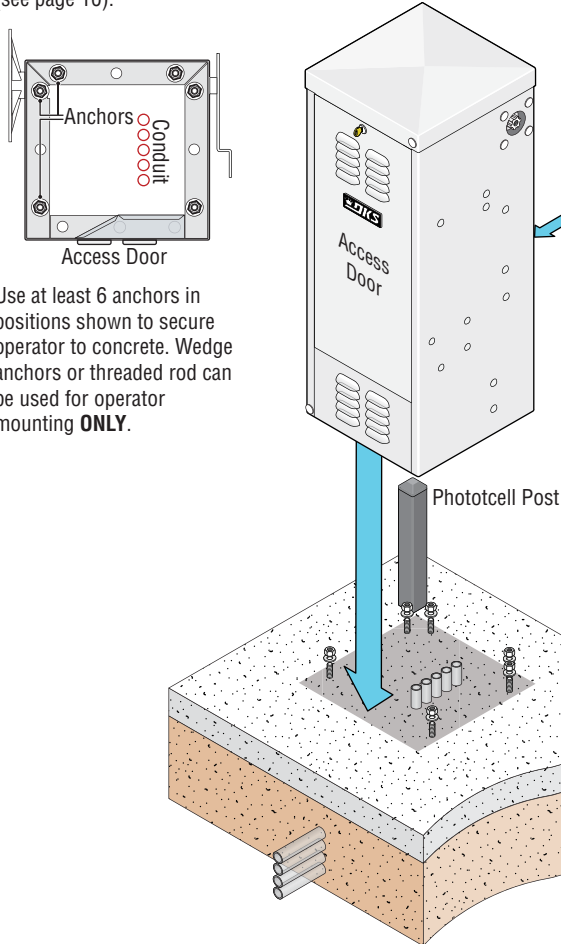
Critical Measurements



Mounting Operator and Wedge on Concrete Pad

1 Permanently Mount Operator

Permanently mount operator using the **CRITICAL** measurements (see page 10).

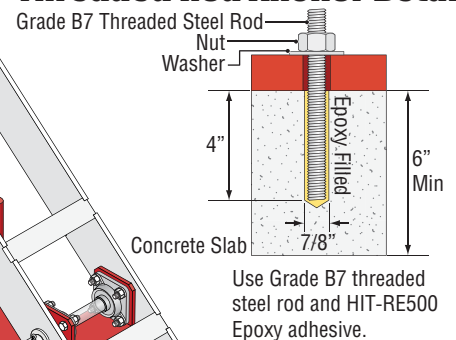


Use at least 6 anchors in positions shown to secure operator to concrete. Wedge anchors or threaded rod can be used for operator mounting **ONLY**.

The installation shown has the operator mounted on the **RIGHT SIDE** of the wedge but the operator can be mounted on **either side** of the wedge depending on the Side Plates position. See "**Bolt plates Together**" on page 12.

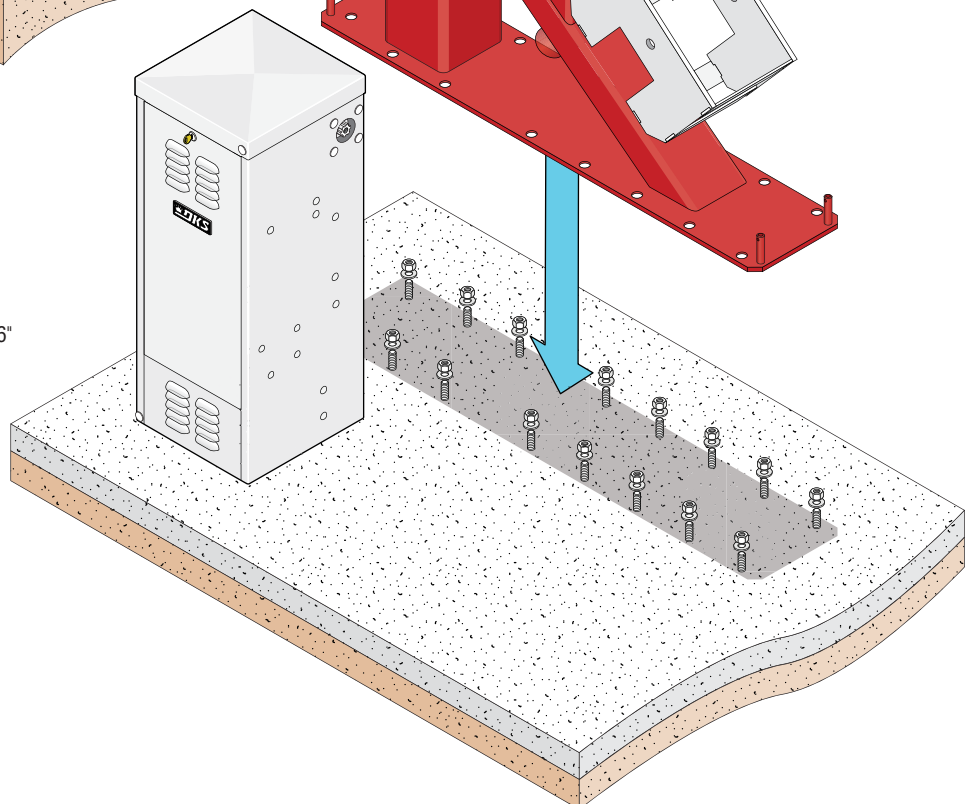
Traffic Light Installation Note: A hole **MUST** be drilled into operator housing to install traffic light. Access will be limited to drill hole **AFTER** support post has been installed next to operator (see page 19 for hole location).

Threaded Rod Anchor Detail



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 10).

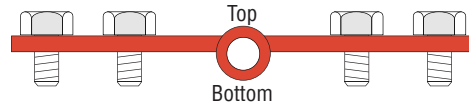


3 Bolt Plates Together

Position wedge plates and the other support post approximately where they will be located on concrete pad. Bolt the hinges, bar connectors, side plates etc. to the wedge plates depending on the model wedge barrier you have selected (see pages 6-7 for specific part configurations). The side plates lay on top of the support post base plate.

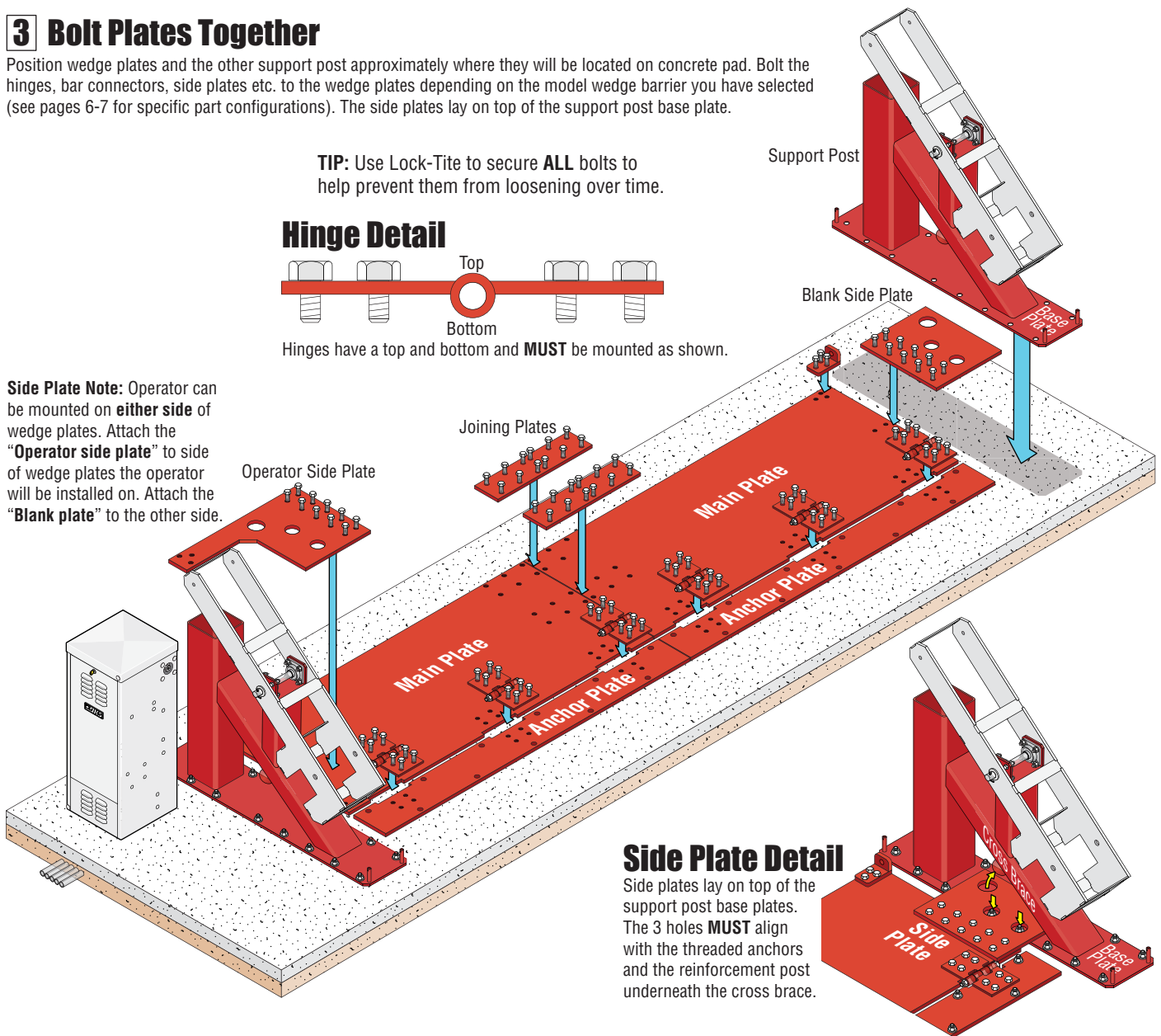
TIP: Use Lock-Tite to secure **ALL** bolts to help prevent them from loosening over time.

Hinge Detail



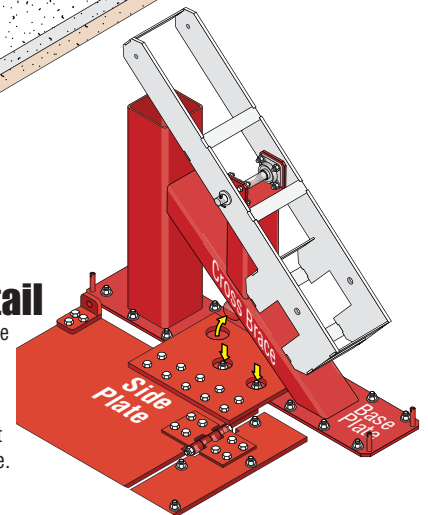
Hinges have a top and bottom and **MUST** be mounted as shown.

Side Plate Note: Operator can be mounted on **either side** of wedge plates. Attach the “Operator side plate” to side of wedge plates the operator will be installed on. Attach the “Blank plate” to the other side.



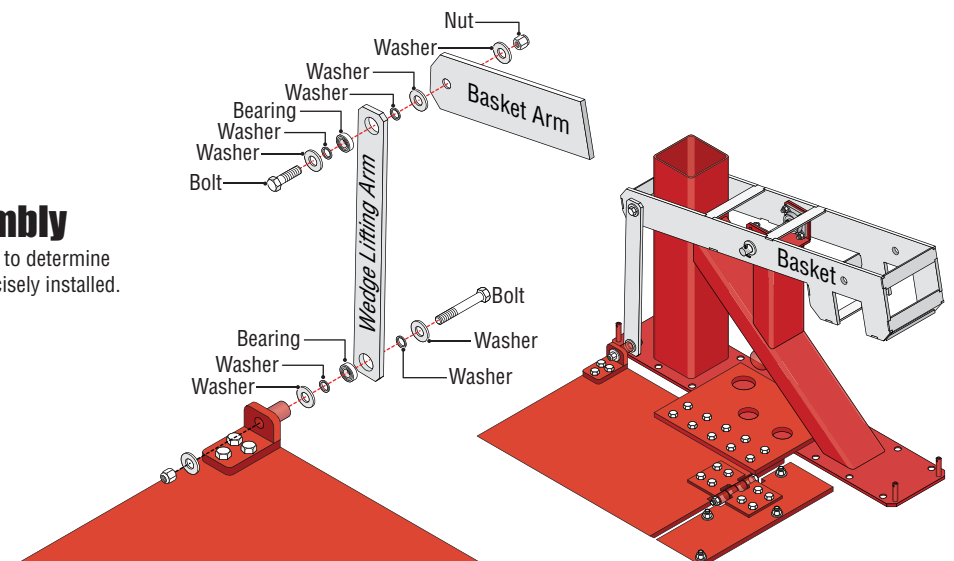
Side Plate Detail

Side plates lay on top of the support post base plates. The 3 holes **MUST** align with the threaded anchors and the reinforcement post underneath the cross brace.



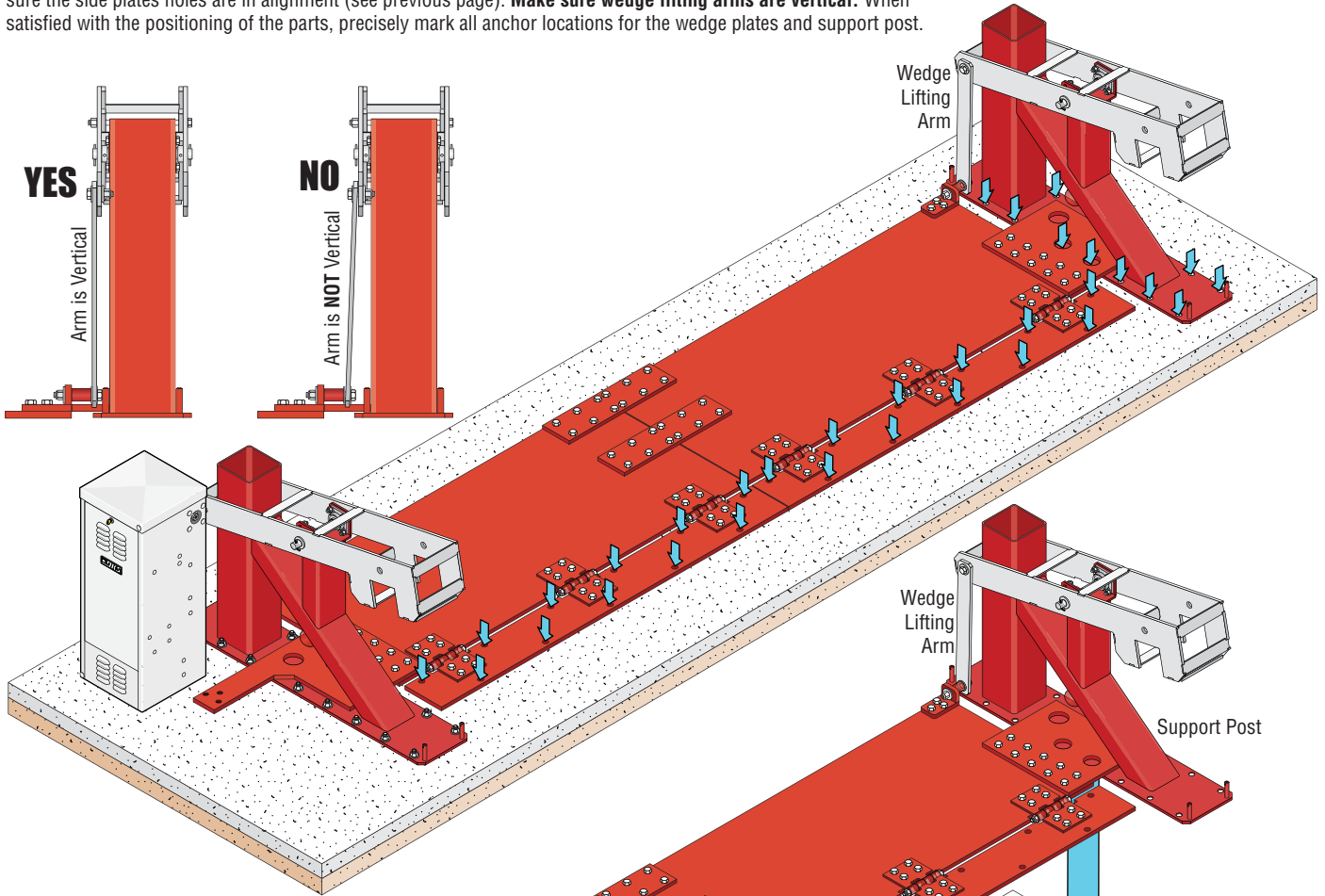
4 Wedge Lifting Arm Assembly

The wedge lifting arms **MUST** be temporally installed to determine where the wedge plates and support post will be precisely installed. **Wedge lifting arms MUST be vertical.**

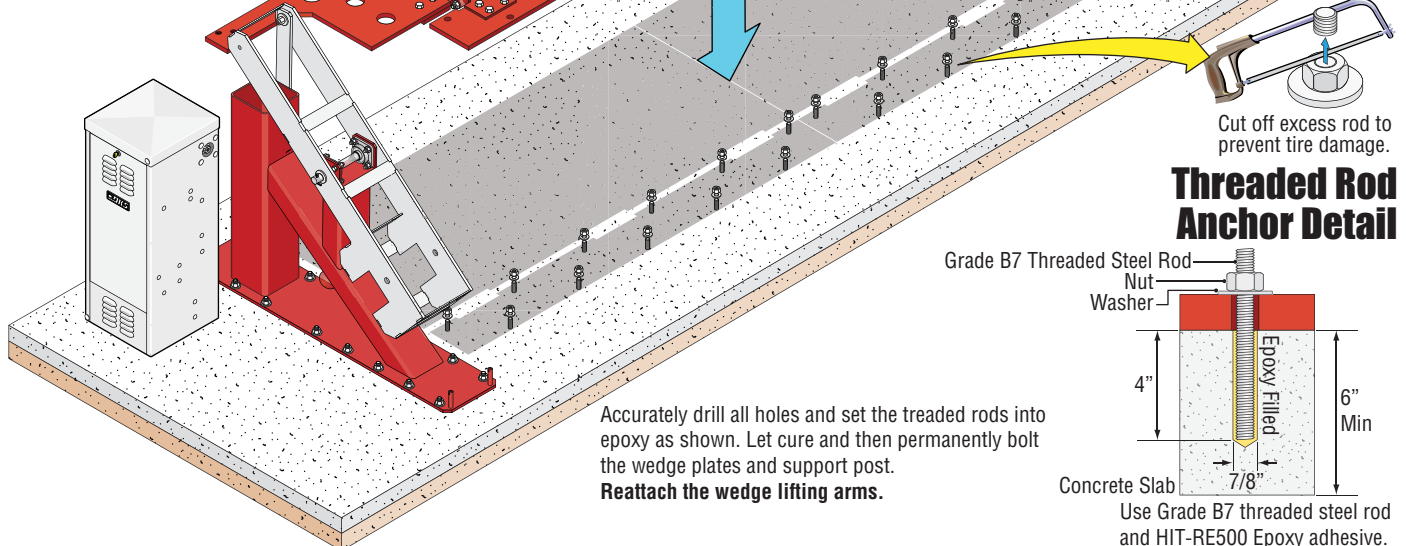


5 Precisely Mark Anchors

Fine tune the positions of the wedge plates and support post using the **CRITICAL measurements** (See page 10) making sure the side plates holes are in alignment (see previous page). **Make sure wedge lifting arms are vertical.** When satisfied with the positioning of the parts, precisely mark all anchor locations for the wedge plates and support post.

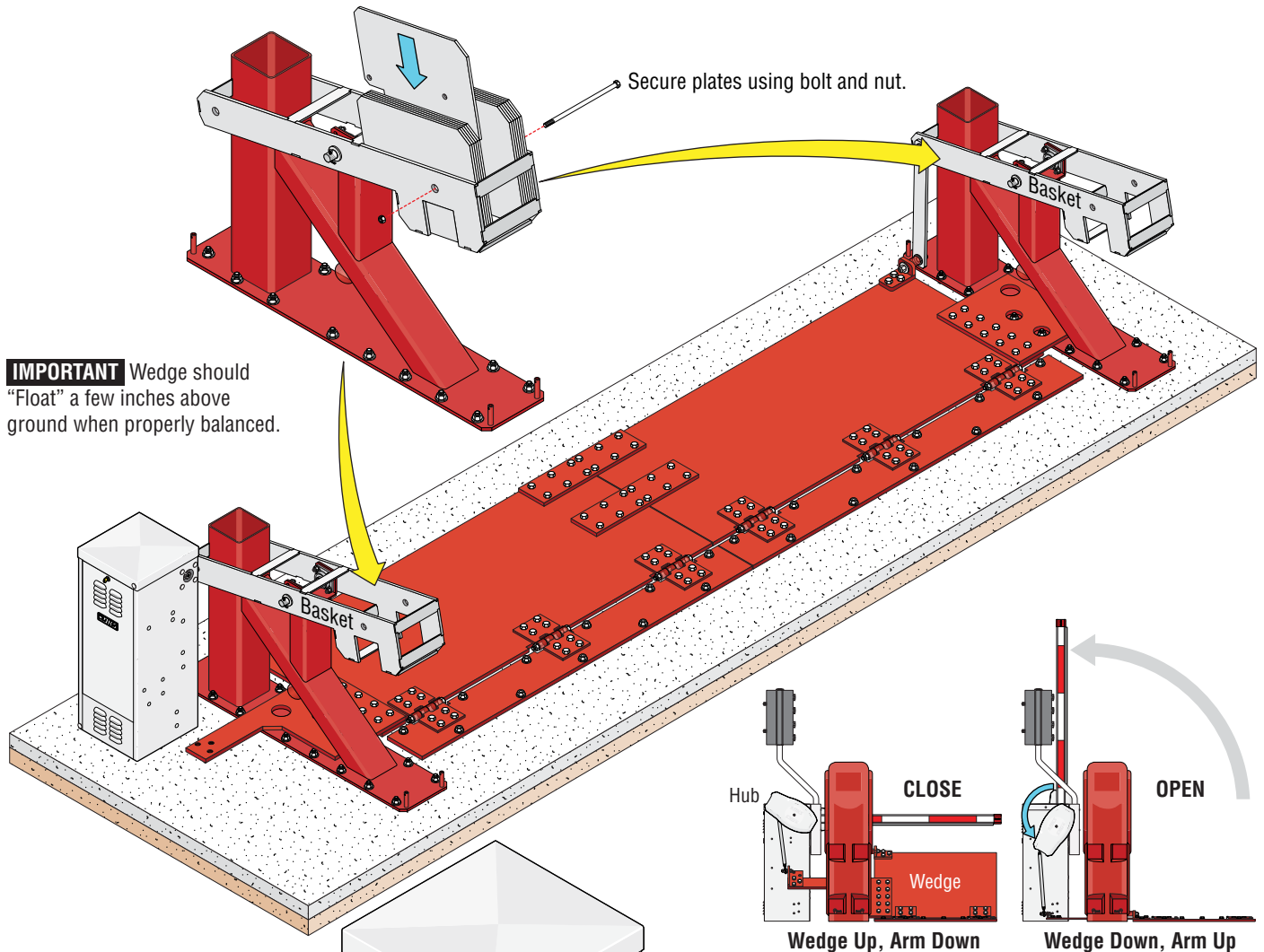


6 Permanently Mount Support Post and Wedge Plates



7 Add Counter-Weights

Add counter-weights to baskets to counter-balance wedge. There are a different number of plates installed depending on the model wedge barrier you have selected (see pages 6-7 for specific part configurations).

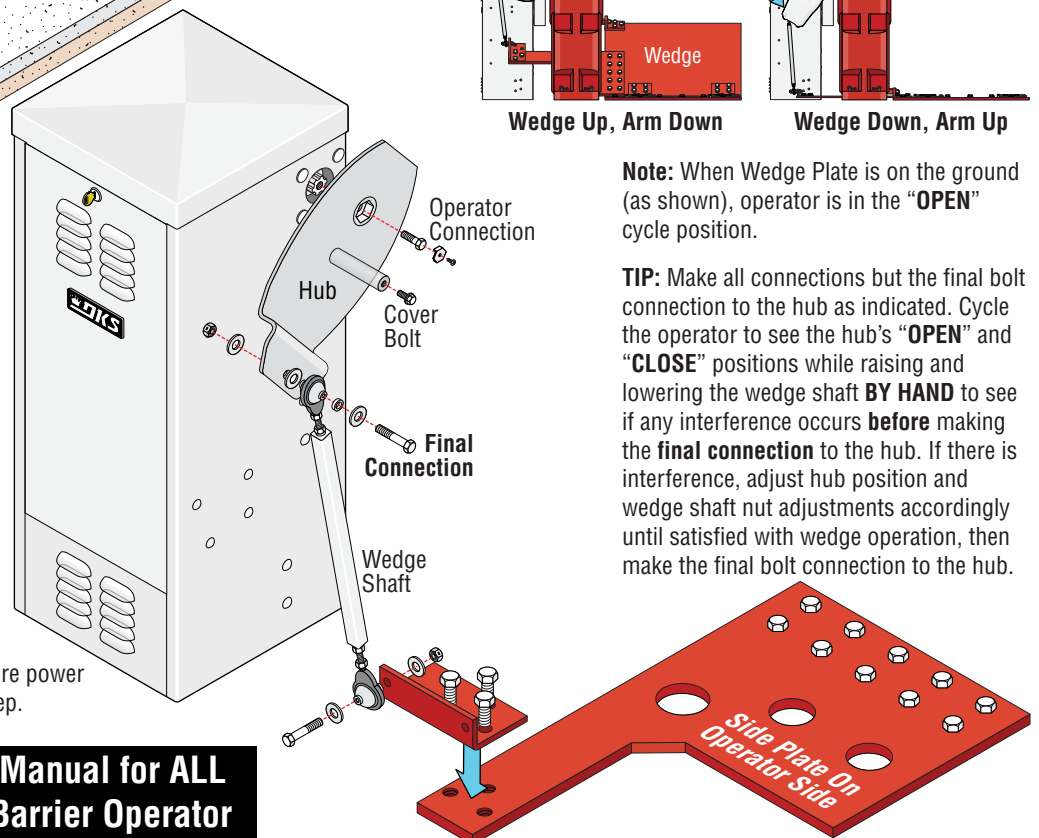


8 Connect Operator to Wedge Plates

DO NOT operate wedge **WITHOUT** counter-balance weights installed. Make sure hub is installed on operator in the correct open and close position.

Note: Operator will require power when performing this step.

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

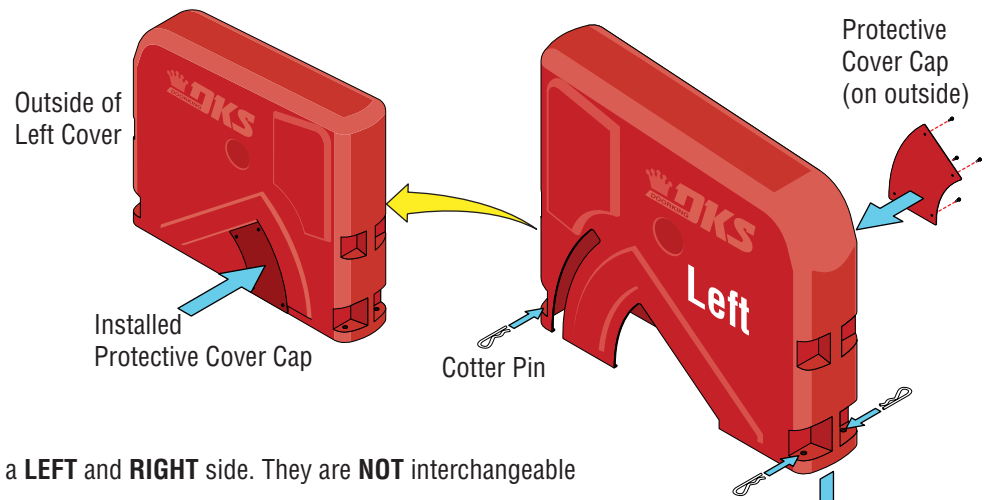


Note: When Wedge Plate is on the ground (as shown), operator is in the "OPEN" cycle position.

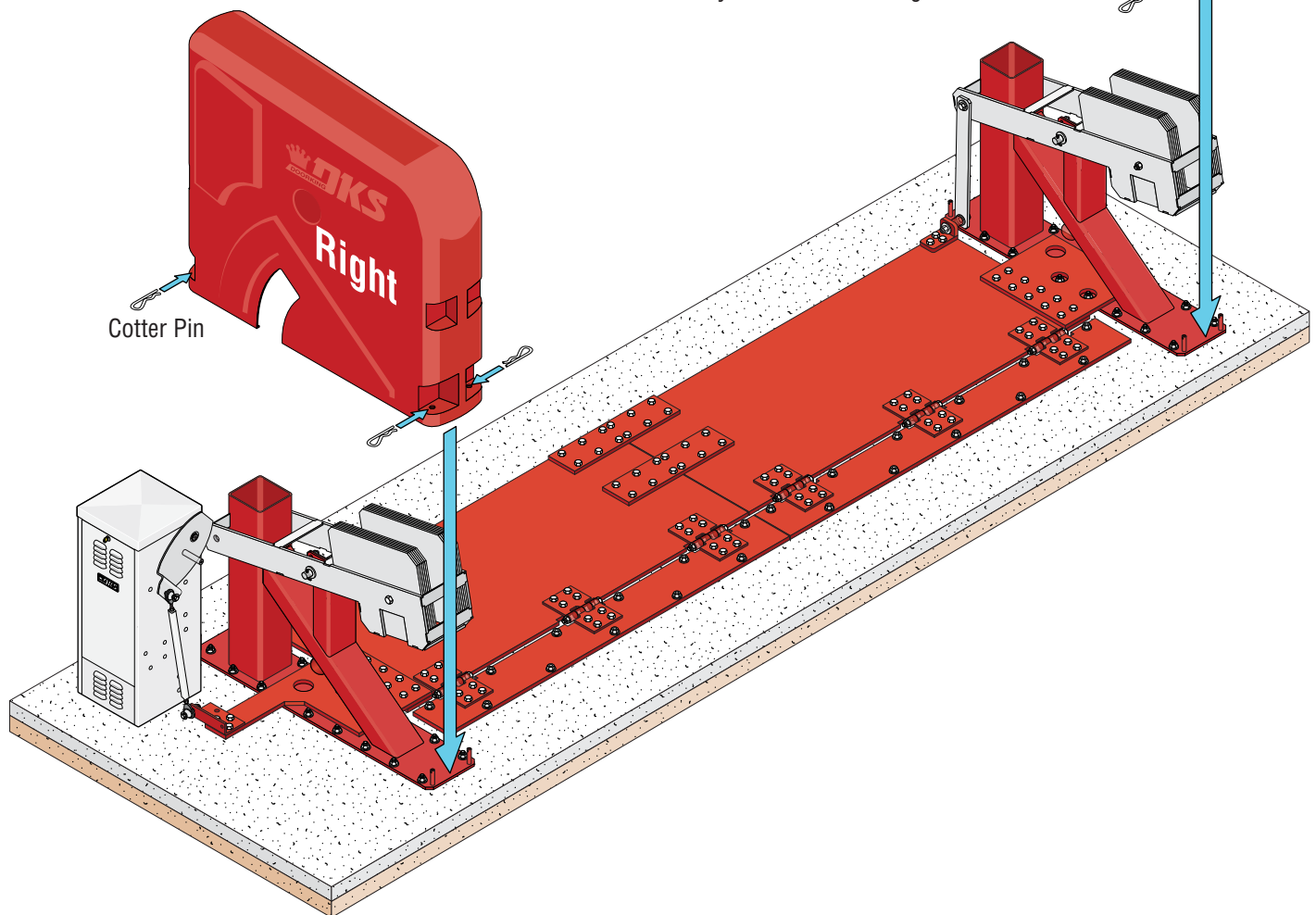
TIP: Make all connections but the final bolt connection to the hub as indicated. Cycle the operator to see the hub's "OPEN" and "CLOSE" positions while raising and lowering the wedge shaft **BY HAND** to see if any interference occurs **before** making the **final connection** to the hub. If there is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

9 Install Covers

Protective Cover Cap: Only one. Install on the outside of the cover as shown, on the opposite cover from the operator side. Use 4 self-tapping screws. Helps protect against debris and trash getting inside the cover and interfering with the moving parts of the wedge.



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



Regular Maintenance of Wedge System

Regular inspection and removal of trash, debris, gravel, and rock is required in order to keep wedge barrier functioning properly. Neglecting to regularly clean trash and debris **UNDERNEATH WEDGE PLATE** is the number one cause of breakage and malfunctions. Check all bolts for tightness which can loosen over time from normal operation.

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

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.

Drawings NOT to scale

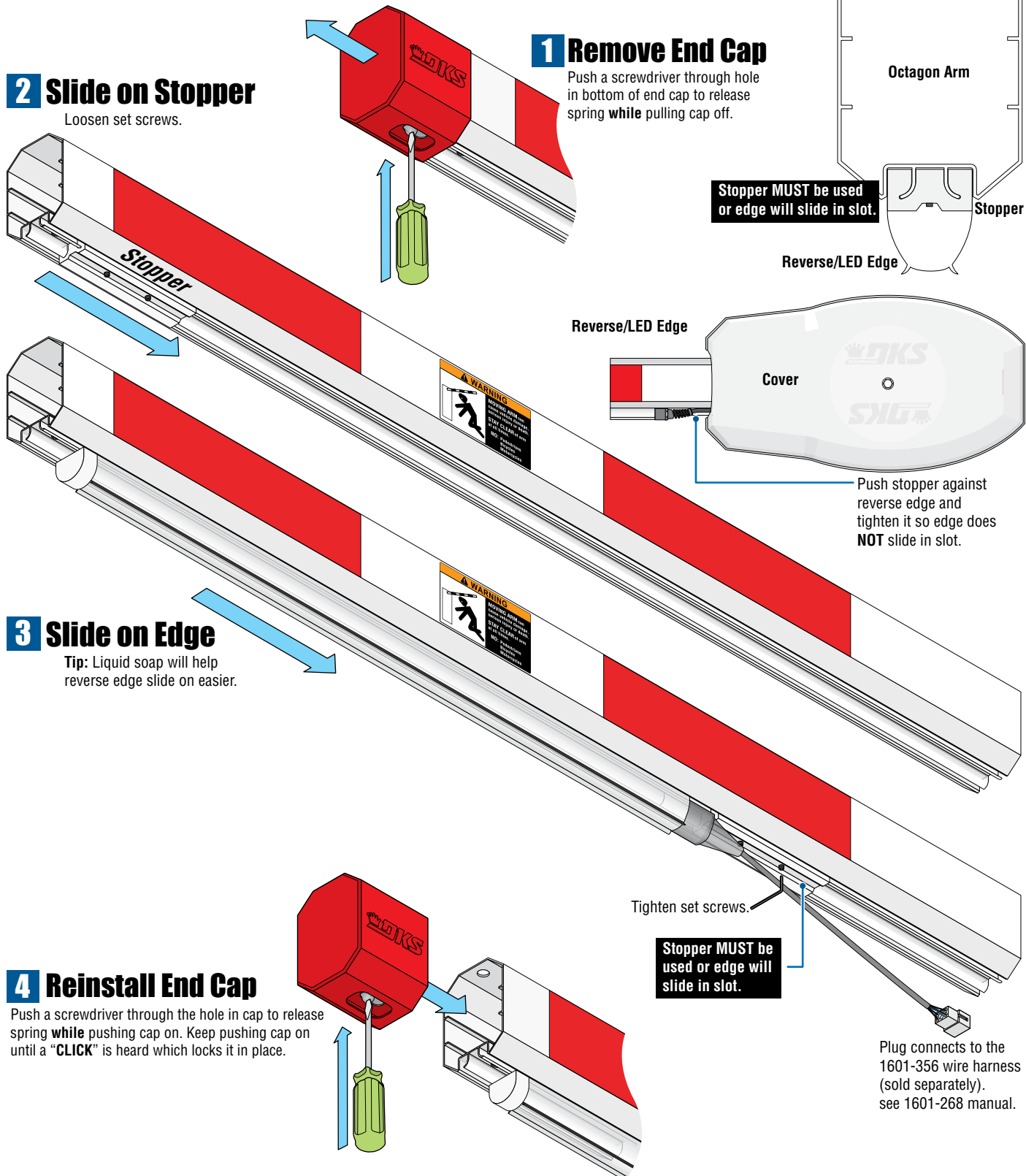
DoorKing Part Numbers

8080-080

Reverse Edge

8080-096

Reverse Edge + Red/Green LED



Install End Cap

Slide Reverse Edge on Arm
See next page.



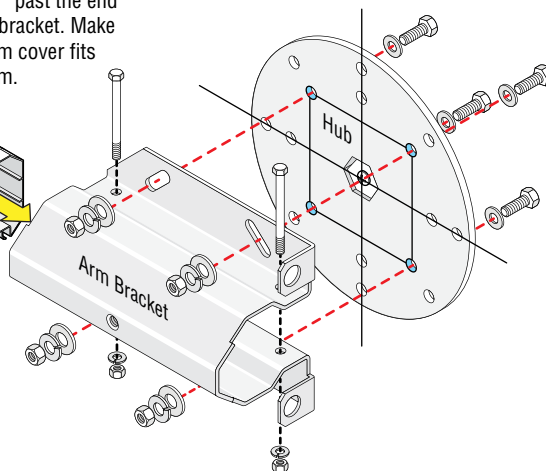
Stopper

Diagram showing the Reverse Edge of the Octagon Arm. The arm is shown in a cross-section view, with the Reverse Edge labeled. The arm is connected to the upper part of the structure.

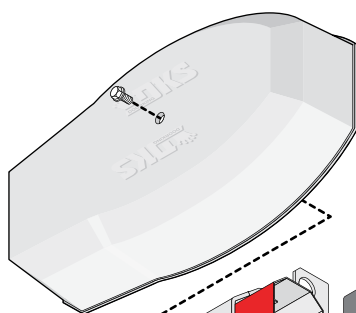
Tip: Liquid soap will help reverse edge slide on easier.

Allow arm to protrude about 1" past the end of arm bracket. Make sure arm cover fits over arm.

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.

Note: Spacer **MUST** be in position when installing a reverse edge. See previous page.

- Use supplied adhesive zip tie to secure harness to **bottom** of bracket.

Plug in reverse edge.

Red/Blue plugs NOT used.

Use **bottom** hole on arm bracket to secure cable grip.

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

**Near
Side
Option**

Wire Harness Secured
to Top of Cabinet for
FAR side option
Included Add'l
Zip

**Far Side
Option**

Cable
Grip

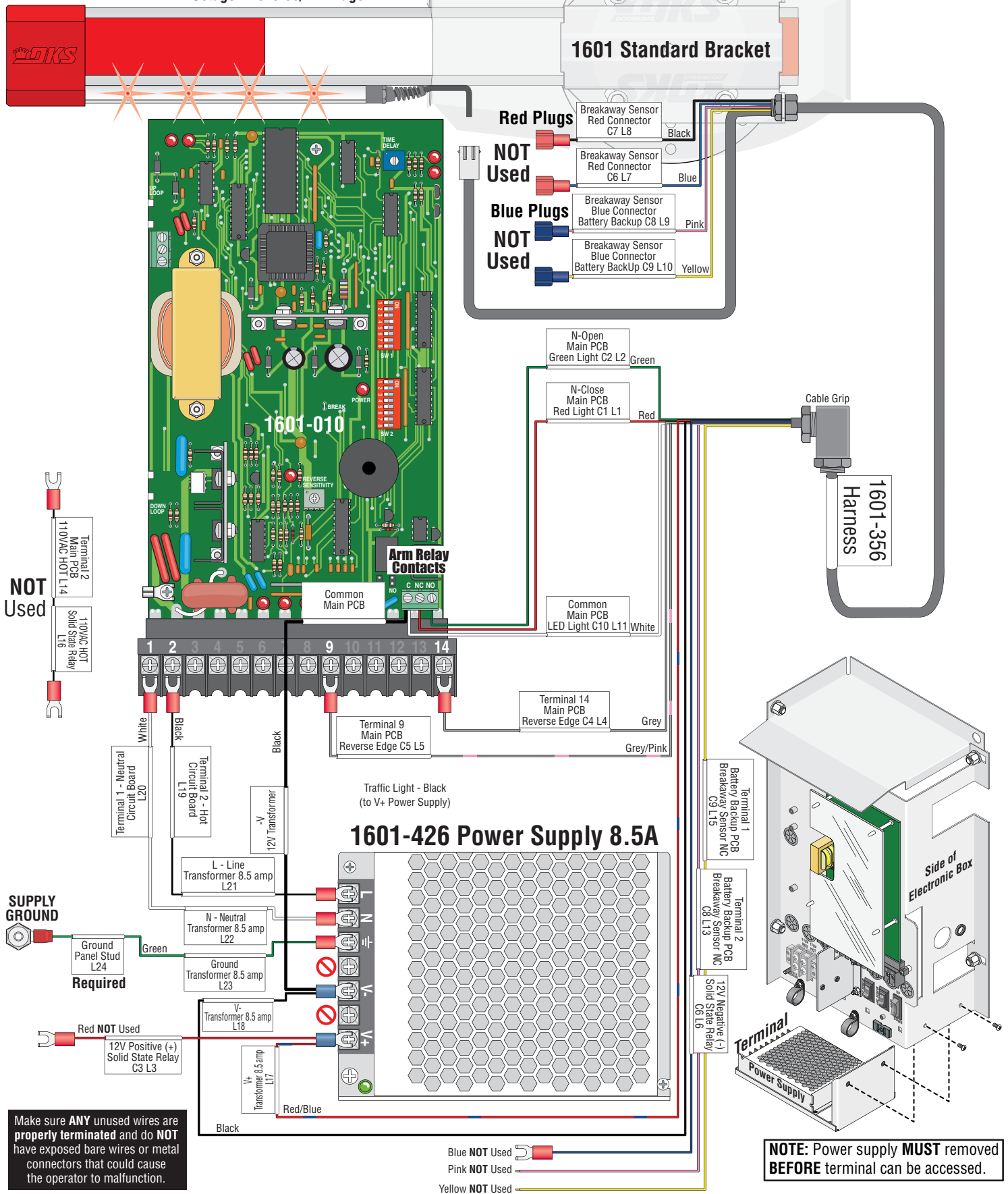
Cable
Grip

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

Wiring:
See next page.

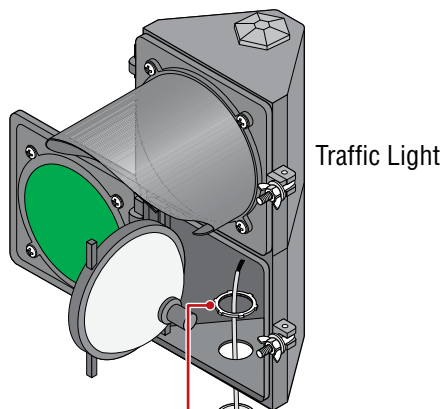
Wiring

Octagon Reverse/LED Edge Arm



Install Traffic Light (REQUIRED)

1 Assemble Support Post



Use 2" conduit —
nuts to secure
traffic light
to support post.

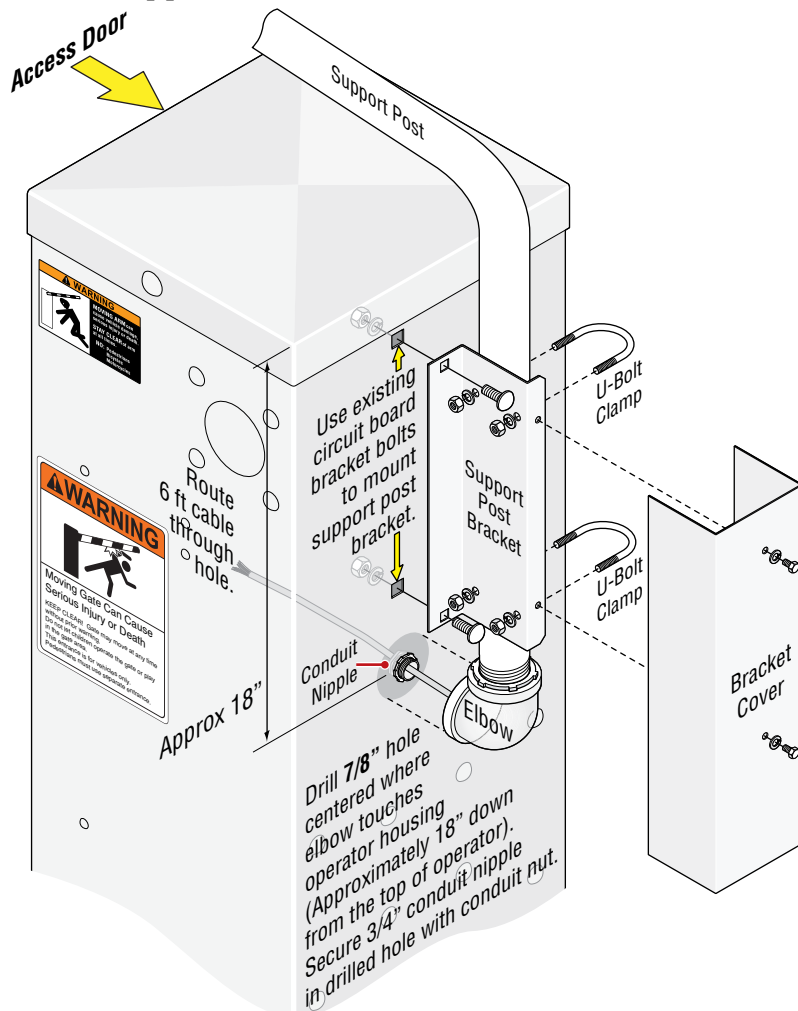
Support Post

Route traffic light
cable through
support post.

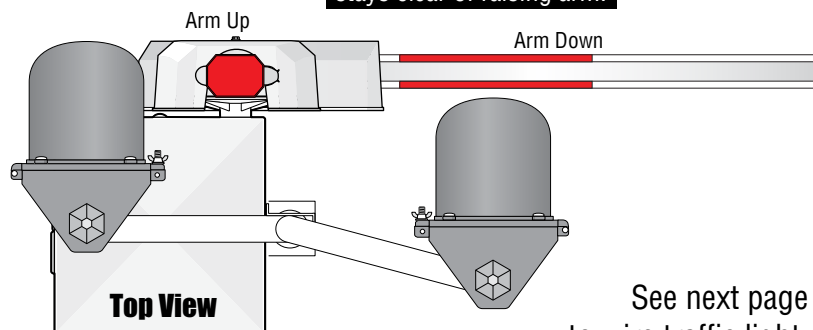
2" conduit nut to secure elbow.



2 Mount Support Post on OPPOSITE Side of Access Door



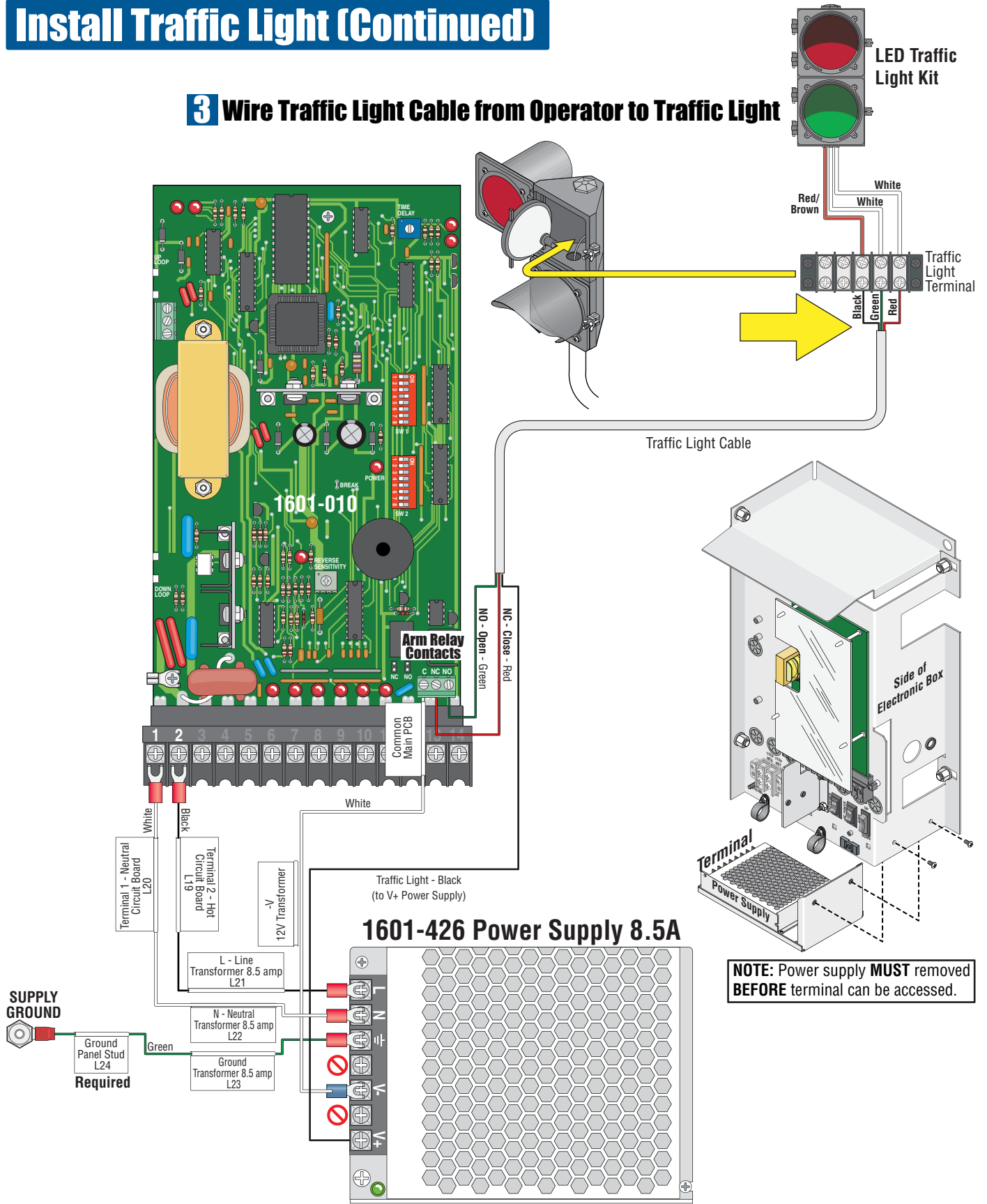
Make sure traffic light stays clear of raising arm.



See next page
to wire traffic light.

Install Traffic Light (Continued)

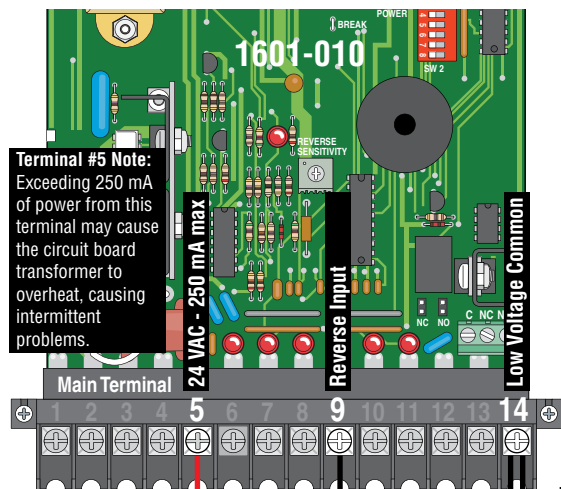
3 Wire Traffic Light Cable from Operator to Traffic Light



⚠ Keep wire clear of all moving parts.

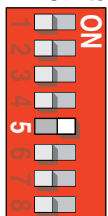
Install Photocell (REQUIRED)

Mount photocell **directly** below the octagon arm on separate posts as shown (see page 9), 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 24 for complete wiring.

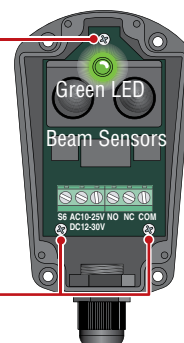
DoorKing Retro-Reflective Photocell (P/N 8080-057)

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

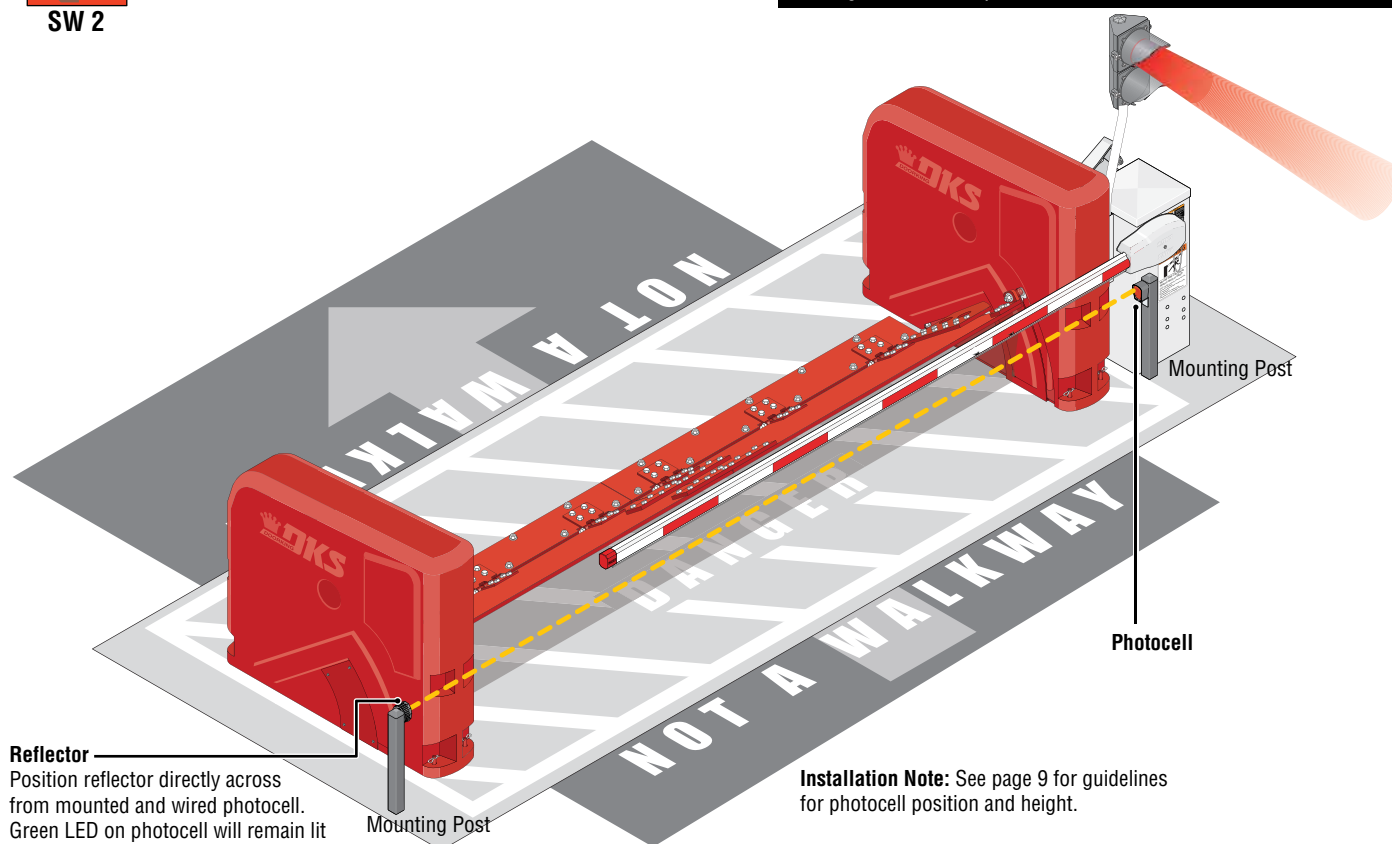
Type of wiring to be used on ALL external devices:
A) Type CL2, CL2P, CL2R, or CL2X.
B) Other cable with **equivalent** or **better** electrical, mechanical, and flammability ratings.

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.



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



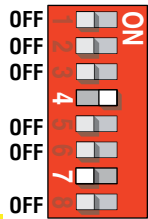
Reflector

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.

Installation Note: See page 9 for guidelines for photocell position and height.

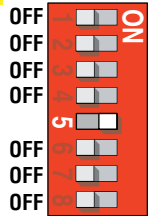
Entry Lane Only In-Ground Loop Options

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.



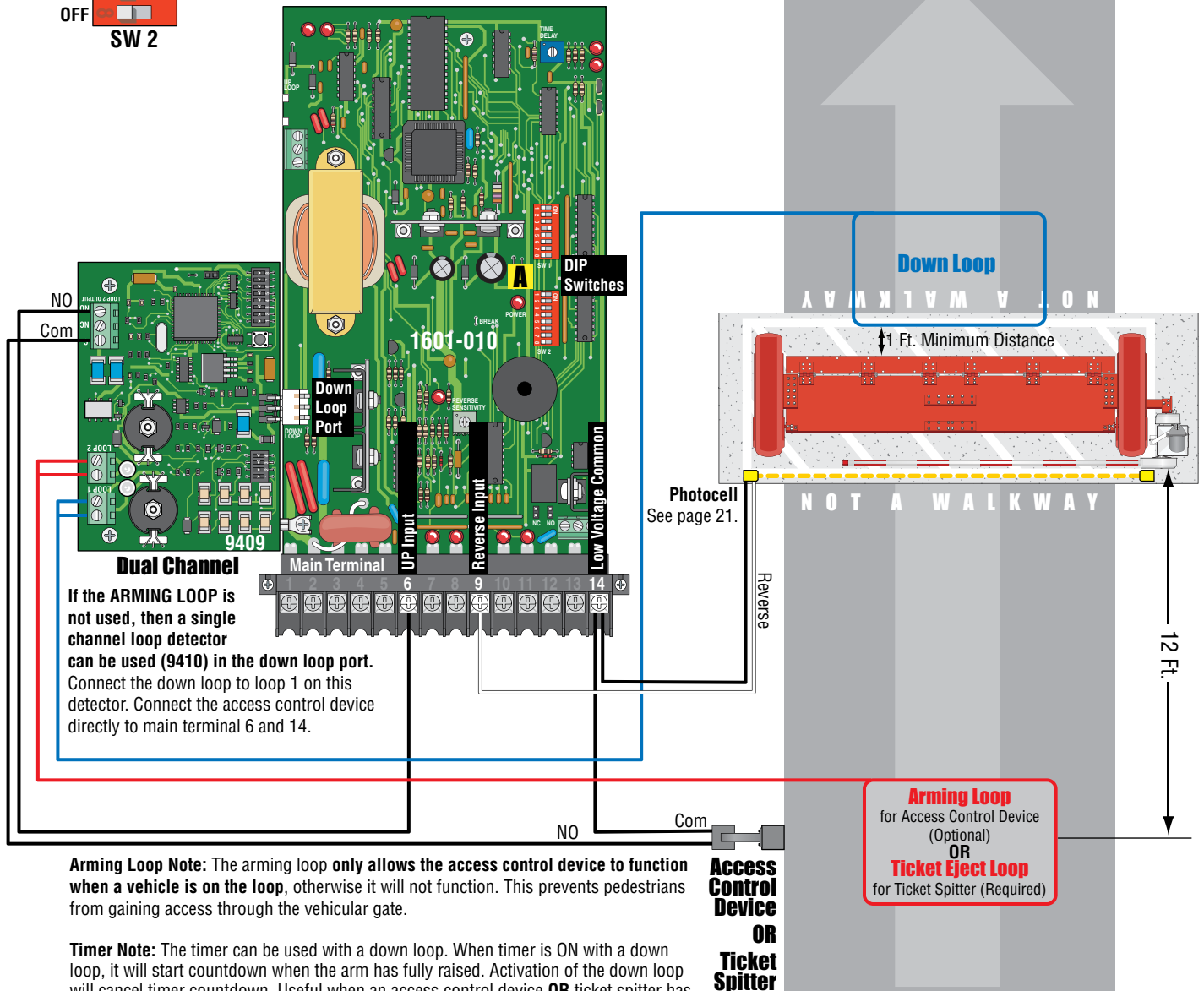
Switch 5 is **ON**. The lowering arm will **instantly reverse** when photo sensor gets blocked.

Type of wiring to be used on ALL external devices:

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

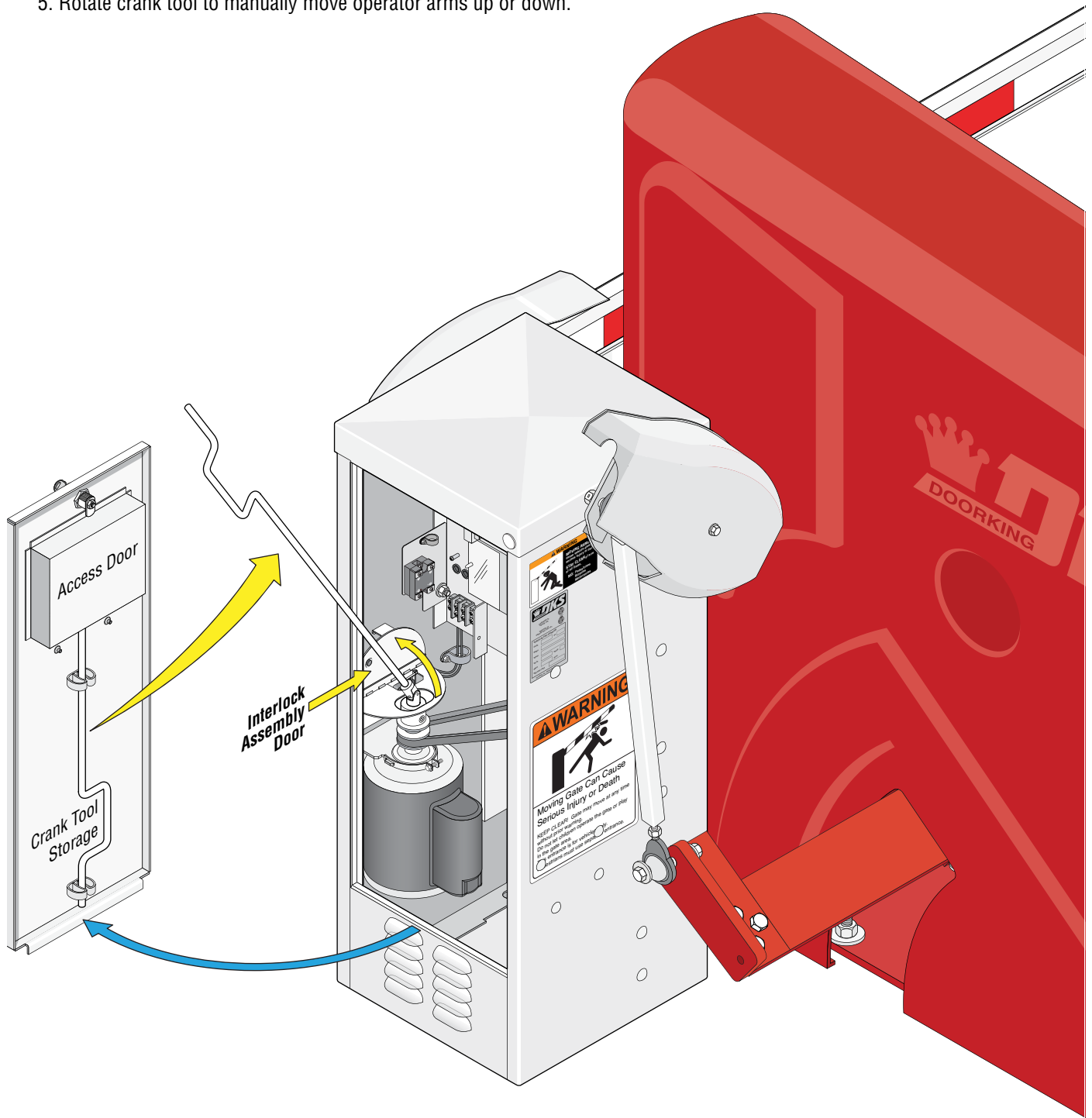
B) Other cable with equivalent or better electrical, mechanical, and flammability ratings.

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



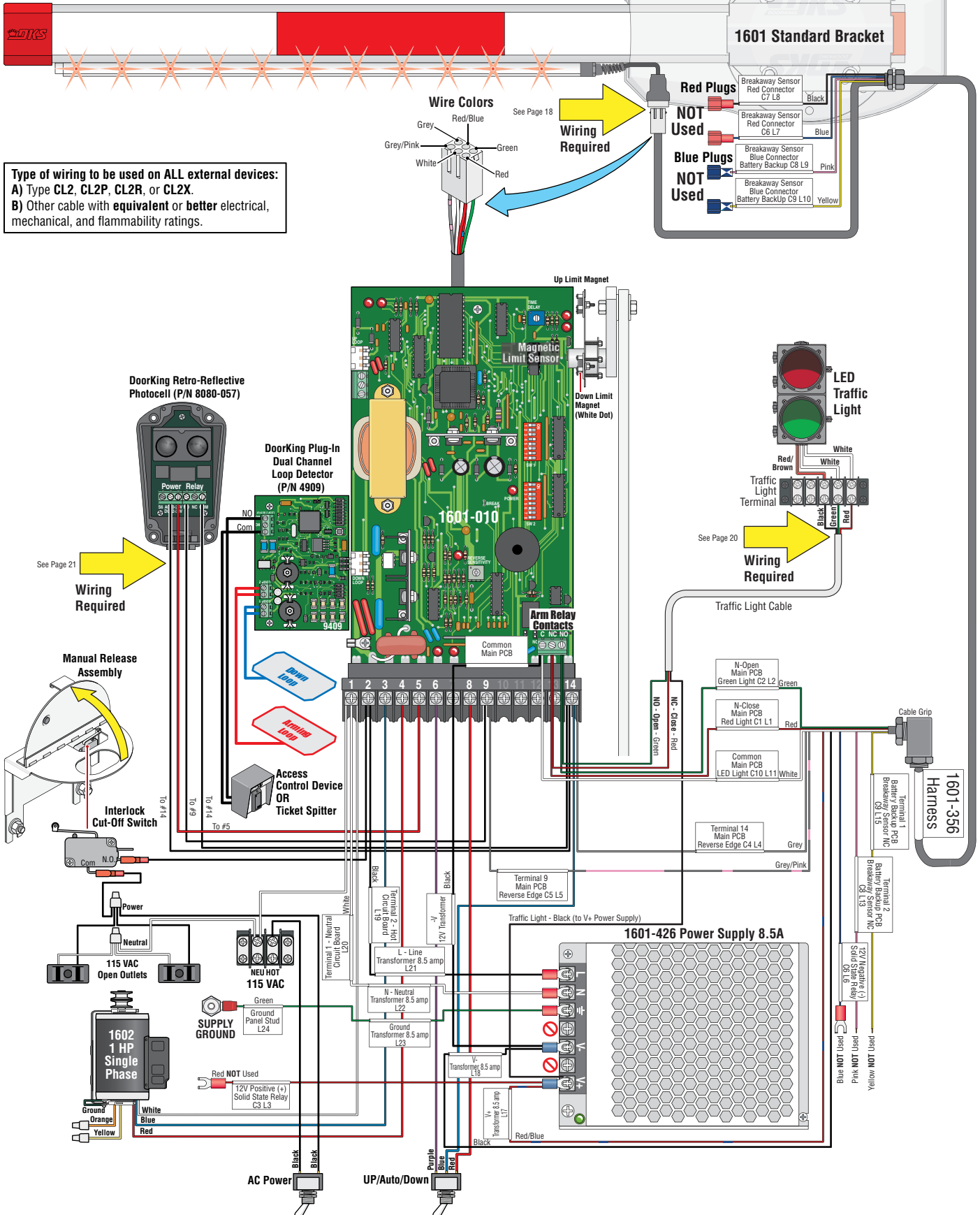
Manual Release Operation

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.



ALL Components Wiring Schematic

Octagon Reverse/LED Edge Arm



Installation Manual

1625 Wedge Barrier

Surface Mount Vehicular Wedge Barrier Accessory

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

1625-065-F-7-24

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 WEDGE 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 1625 wedge barrier is not a stand-alone product. It must be used with a 1602-590 Barrier Gate Operator (sold separately). The 1625 is crash rated (ASTM F2656 PU-30-(P1, P2)). It is intended to provide a more formidable barrier in conjunction with a standard barrier arm operator system. The 1625 is ideally used to control passenger vehicles and light duty trucks.