Installation Manual

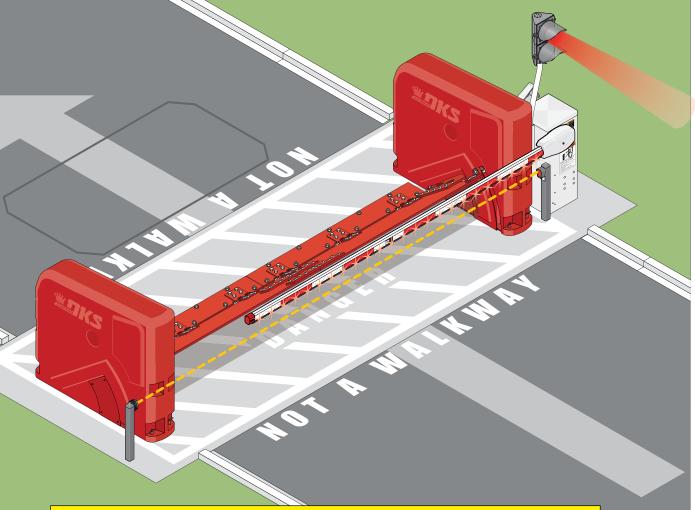
1625 Wedge Barrier

Surface Mount Vehicular Wedge Barrier Accessory

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

1625-065-L-5-25

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 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.

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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 lightduty trucks.



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DoorKing Safety for Wedge 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.
- Use the MANUAL RELEASE only when the gate is not moving. 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.
- Test the gate operator monthly. The gate MUST reverse on contact with a rigid object or stop when an object activates the non-contact sensors. After adjusting the force or the limit of travel, retest the gate operator. Failure to adjust and retest the gate operator properly can increase the risk of severe injury or death.
- 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.
- When removing the operator from service, move the arms to the full open position and shut off power at the service panel.







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!!

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

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

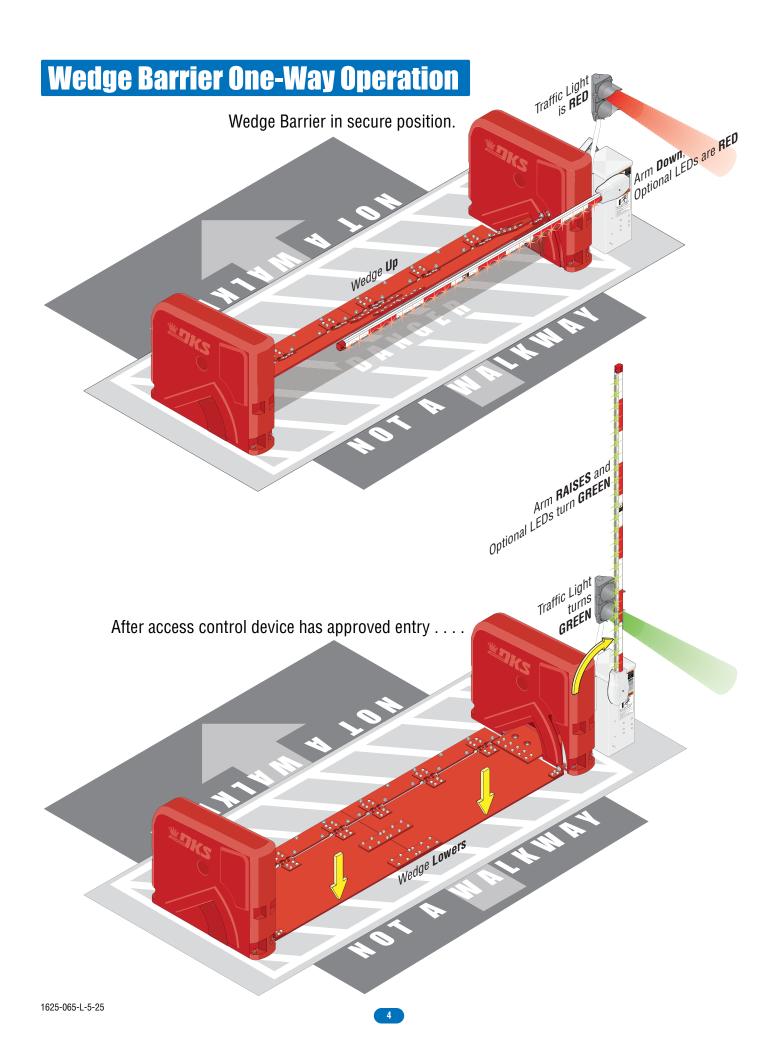
Safety and Traffic Management for Wedge Barrier System

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.

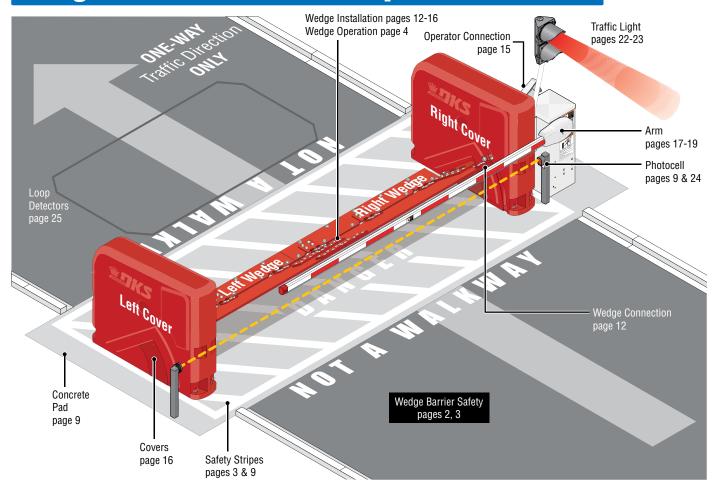
Pedestrians MUST be provided with separate access.

A Separate Pedestrian Entrance: Located so pedestrians E Pedestrian Alert Warning: **CANNOT** come in contact with the wedge barrier system. "NOT A WALKWAY" pavement marking facing both directions, permanently painted WHITE on pavement. B Warning Signs: Permanently mounted on operator and arm and easily visible. In-Ground Loops: Minimizes the potential of the gate closing when a C Non-Contact Sensor: (photocell) Minimizes the potential vehicle is present. of the arms lowering on vehicular or other traffic that loops cannot sense. Located directly under arm. Arm Red/Green LED Lights: D Hazard Stripes: NO stopping or standing "Hazard Stripes". Helps with arm's visibility and Permanently painted WHITE on pavement on both sides of arm. position. Helps control traffic. Contact Sensor: (reverse edge) Minimizes the potential of the arms lowering on vehicular or other traffic TIP: The stripes and letters can be painted that loops cannot sense. on cement **BEFORE** installation of wedge Located directly on arm. begins. Painting the word "DANGER" OPENING: underneath wedge plate is recommended. Arm RAISES and See next page and cover for example. LEDS turn GREEN В OPENING: Traffic Red/Green Light: Helps control traffic. IMPORTANT: ALL debris

and trash needs to be kept from underneath wedge plate.



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	17 Ft.	3.5 Sec

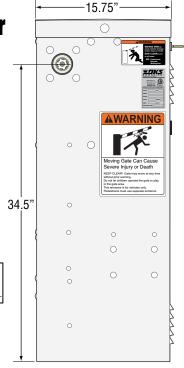
Note: 208/230/460/575 VAC input voltage can be connected to the operator by installing an "**Optional**" High Voltage Kit (P/N 2600-266).

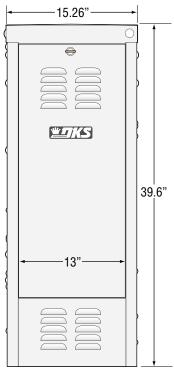
Type of wiring to be used on ALL external devices:

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

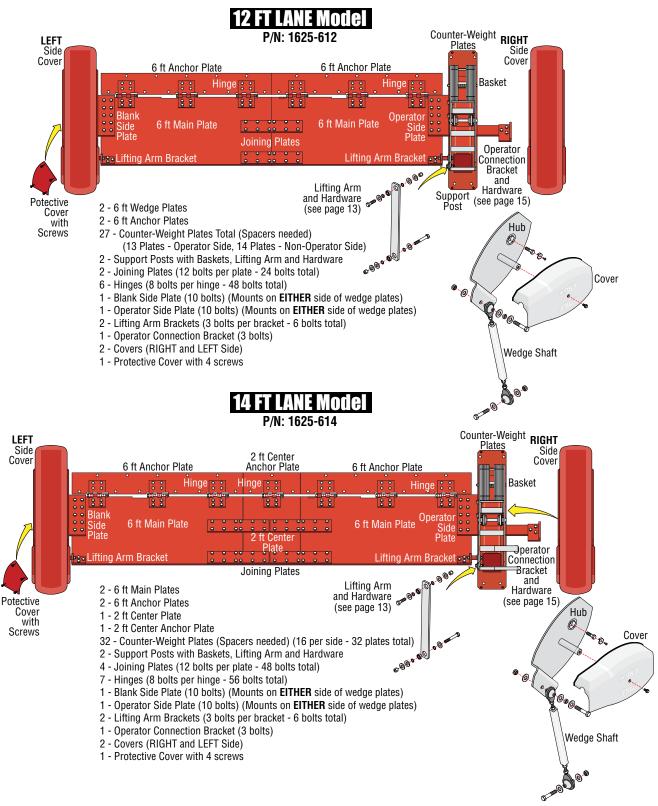




Wedge Barrier Model Parts Configuration

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

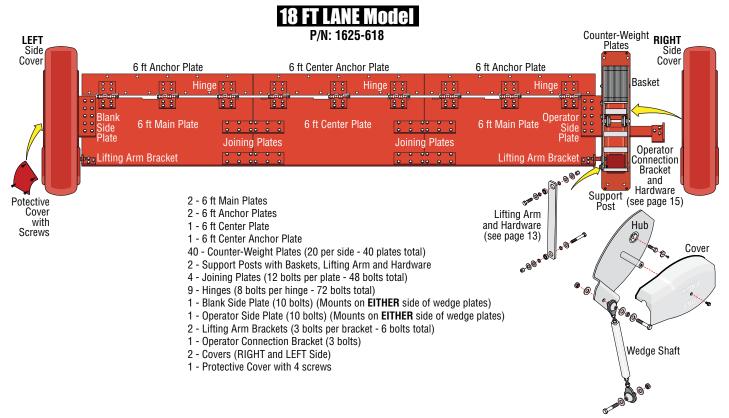


Wedge Barrier Model Parts Configuration Continued

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 Counter-Weight Plates RIGHT **LEFT** Side Cover Side 4 ft Center Cover 6 ft Anchor Plate Anchor Plate 6 ft Anchor Plate Basket Operator 6 ft Main Plate 6 ft Main Plate Joining Plates Joining Plates Operator Lifting Arm Bracket Lifting Arm Bracket Connection Bracket Lifting Arm and Hardware Hardware Support (see page 15) 2 - 6 ft Main Plates (see page 13) of Potective 2 - 6 ft Anchor Plates Cover 1 - 4 ft Center Plate Hub 1 - 4 ft Center Anchor Plate Screws 36 - Counter-Weight Plates (18 per side - 36 plates total) Cover 2 - Support Posts with Baskets, Lifting Arm and Hardware 4 - Joining Plates (12 bolts per plate - 48 bolts total) 8 - Hinges (8 bolts per hinge - 64 bolts total) 1 - Blank Side Plate (10 bolts) (Mounts on EITHER side of wedge plates) · G0.0 1 - Operator Side Plate (10 bolts) (Mounts on EITHER side of wedge plates) 2 - Lifting Arm Brackets (3 bolts per bracket - 6 bolts total) 1 - Operator Connection Bracket (3 bolts) 2 - Covers (RIGHT and LEFT Side) Wedge Shaft 1 - Protective Cover with 4 screws



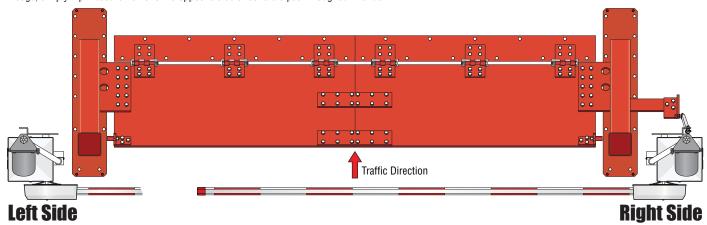
Concrete Pad Setup

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.

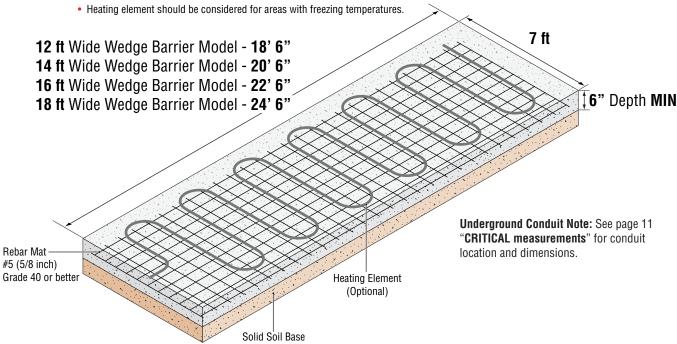
NEW Concrete Pad

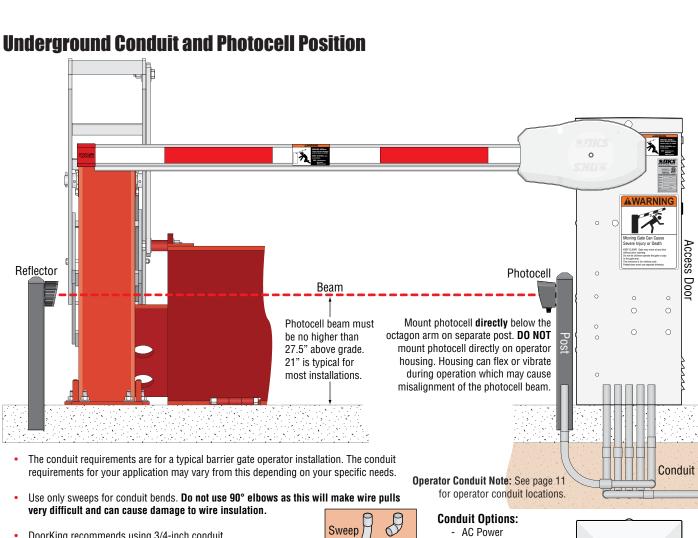
Select which side of wedge barrier the operator will be installed on (manual shows installation on the **RIGHT side** of wedge. To install operator on **LEFT side** of wedge, simply flip measurements to the opposite side of concrete pad throughout manual.



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 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.





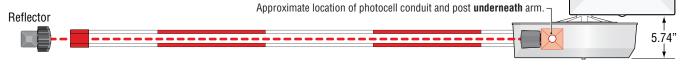


Be sure that all conduits are installed in accordance with local codes.

Never run low voltage rated wire insulation in the same conduit as high voltage rated wire insulation.

Conduit Options:

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

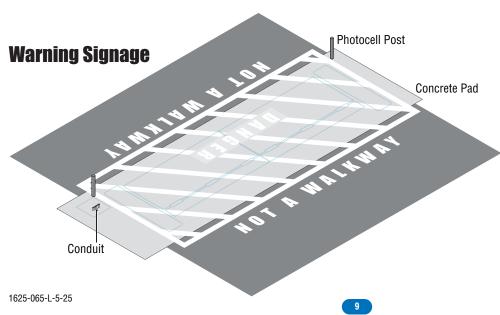


Sweep

YES

Elbow

NO



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.

Access Door

See CRITICAL measurements on page 11 to help layout chalk lines.

Anchoring Wedge Barrier to Concrete Pad Detail

Wedge Barrier Model's Anchor Requirements

Total number of threaded rods needed for each wedge barrier model's anchor plates and support posts to secure them to the concrete pad.

12 ft Wide Wedge Barrier Model - **Threaded Steel Rods Needed: 54**

14 ft Wide Wedge Barrier Model - Threaded Steel Rods Needed: 57

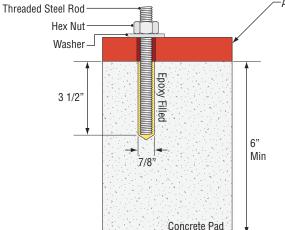
16 ft Wide Wedge Barrier Model - Threaded Steel Rods Needed: 61

18 ft Wide Wedge Barrier Model - Threaded Steel Rods Needed: 65

NOTE: An additional 6 anchors are needed to secure the operator to the concrete pad. However, these can be simple sleeve anchors if desired as the barrier operator offers NO crash resistance for the wedge system, see page 12.

IMPORTANT: Anchor Specifications

Certification to ASTM F2656-23, PU-30 (P1,P2). A vehicle weighing 5,070 lbs. traveling at 30 mph will not shear or budge the 1625 Wedge on direct impact when using these specifications to anchor wedge barrier.

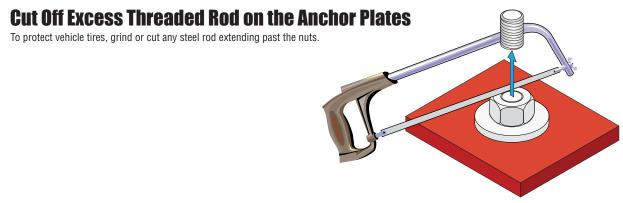


Anchor Plate **OR** Support Post Plate

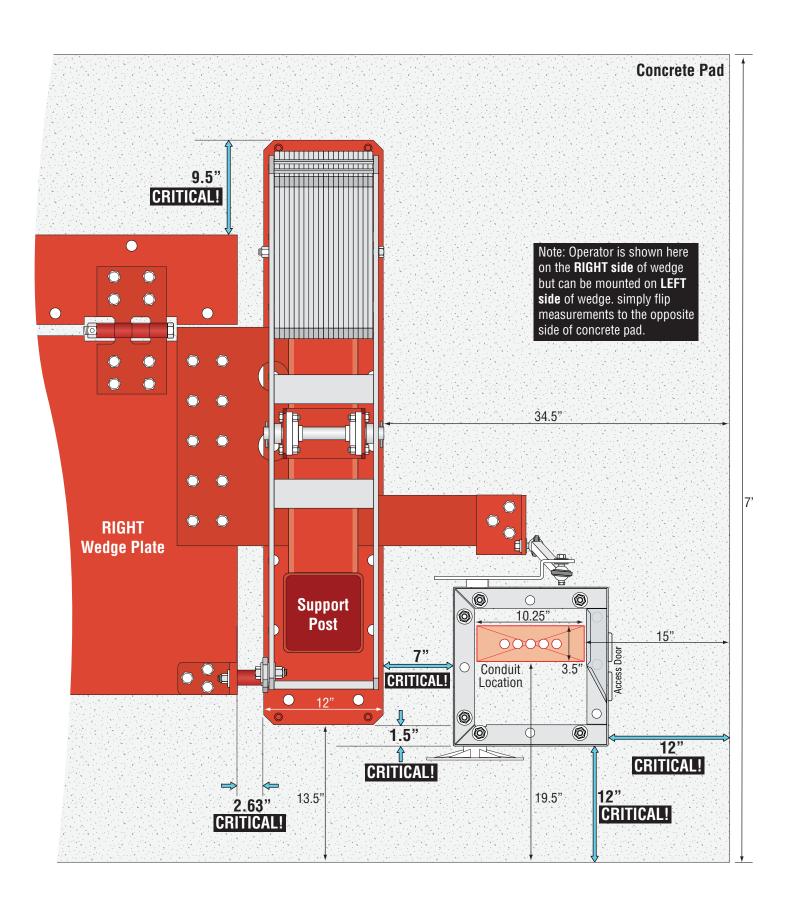
Anchor Specifications					
Item	Description	McMaster-Carr P/N			
Threaded Steel Rod	Grade B7 Steel- ¾"-10 x 5½"	98750A315			
Washer	Grade 8 Steel - 2" O.D.	98026A036			
Hex Nut	Grade 5 Steel - ¾"-10	95505A608			
Epoxy	HIT-RE500 Epoxy Adhesive				

IMPORTANT: Torque hex nuts to 100 Ft Lbs.

- Drill 7/8-inch holes to anchor the **support posts** and **anchor plates** to a depth of 3-1/2 inches.
- Use a 1/4-inch bit to drill pilot holes if necessary.
- Use Grade B7 %-inch threaded steel rod (5.5 inch length) and HIT-RE500 Epoxy adhesive.
 Follow epoxy manufacturer's instructions. Epoxy requires minimum 12 hours to cure.
- After the required cure time, install washers and nuts onto the threaded steel rods and torque to 100 Ft Lbs.

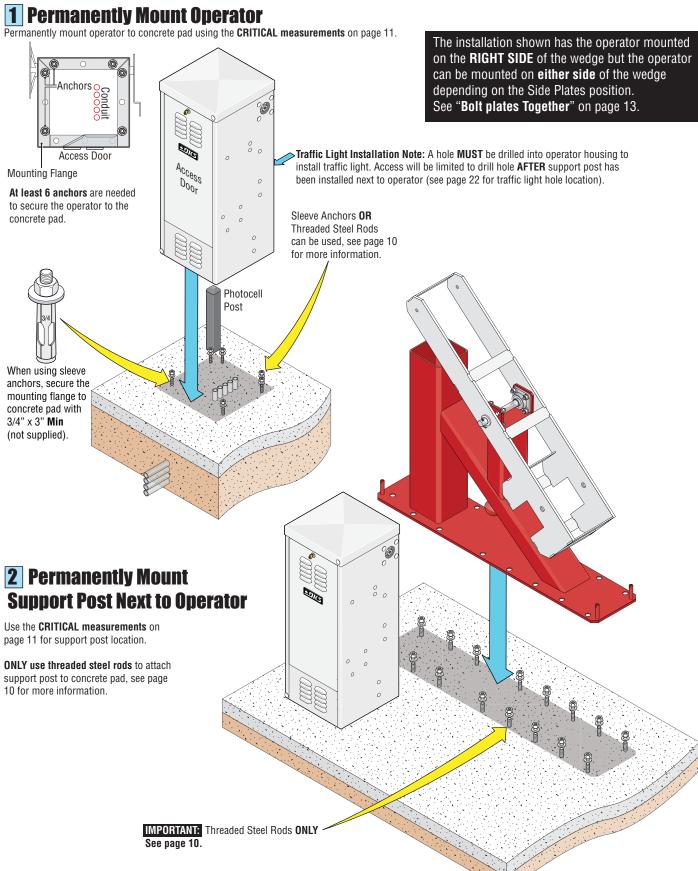


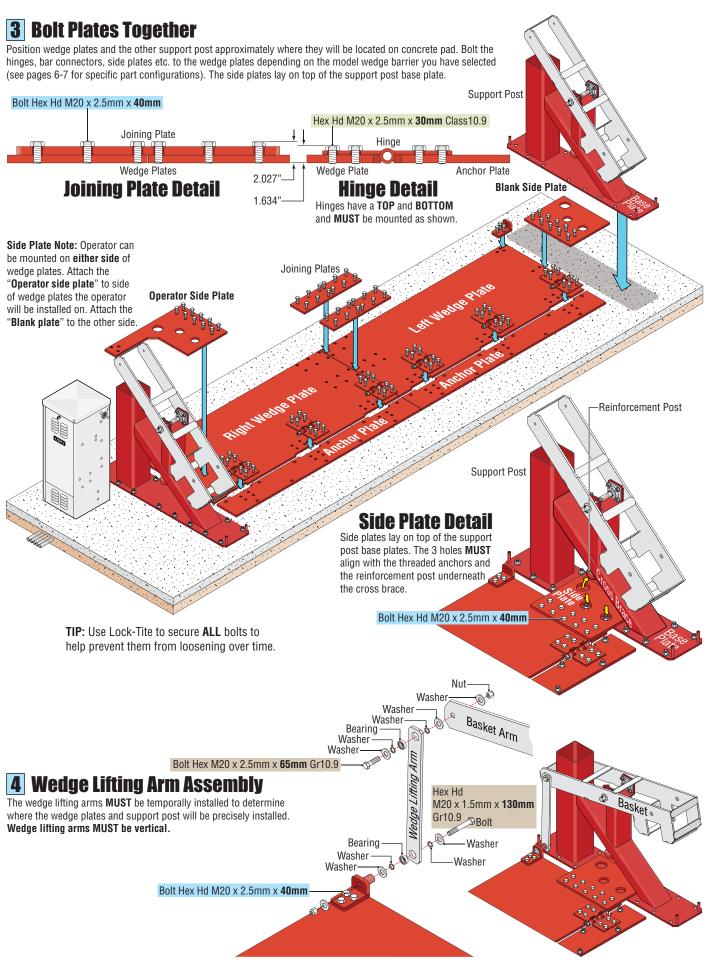
Critical Measurements



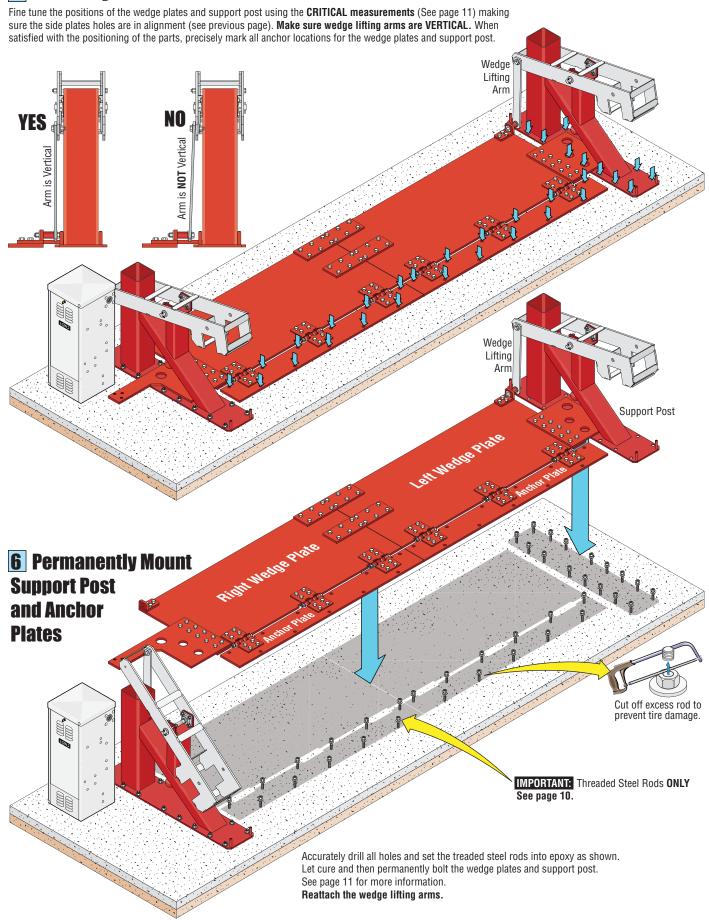
Mounting Operator and Wedge on Concrete Pad Steps

1 Permanently Mount Operator



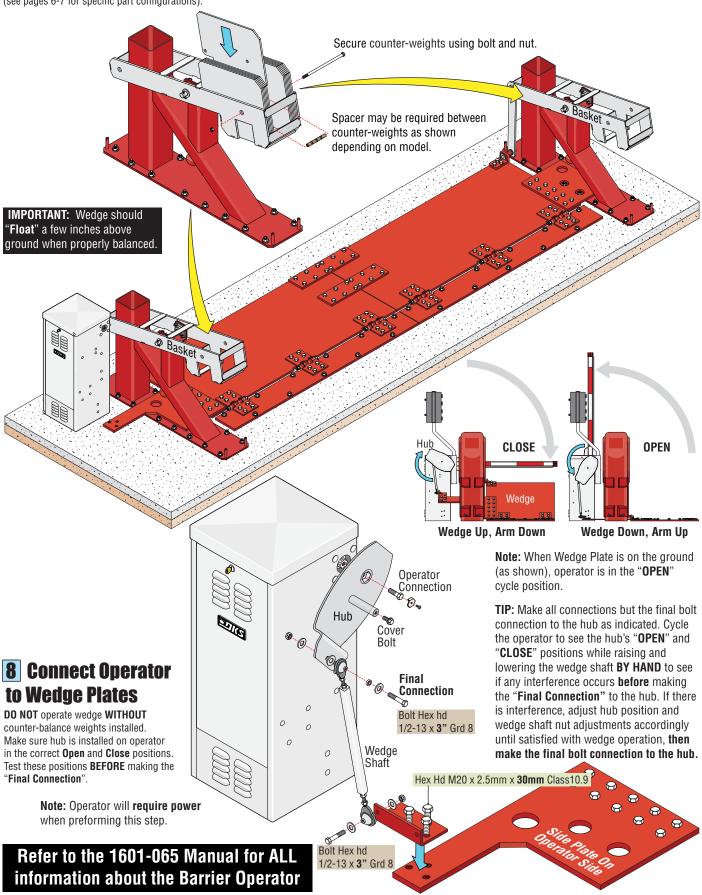


5 Precisely Mark Anchors



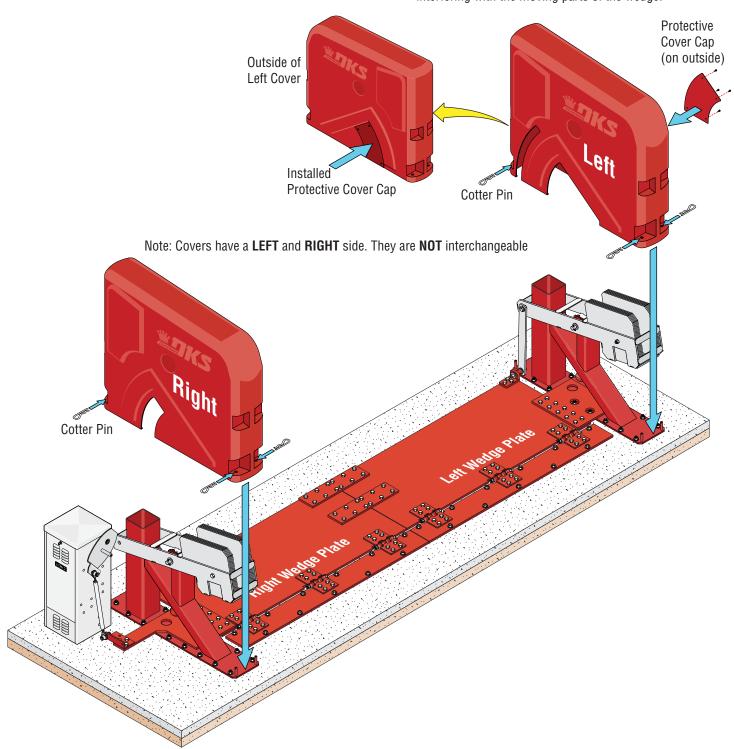
7 Add Counter-Weights

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).





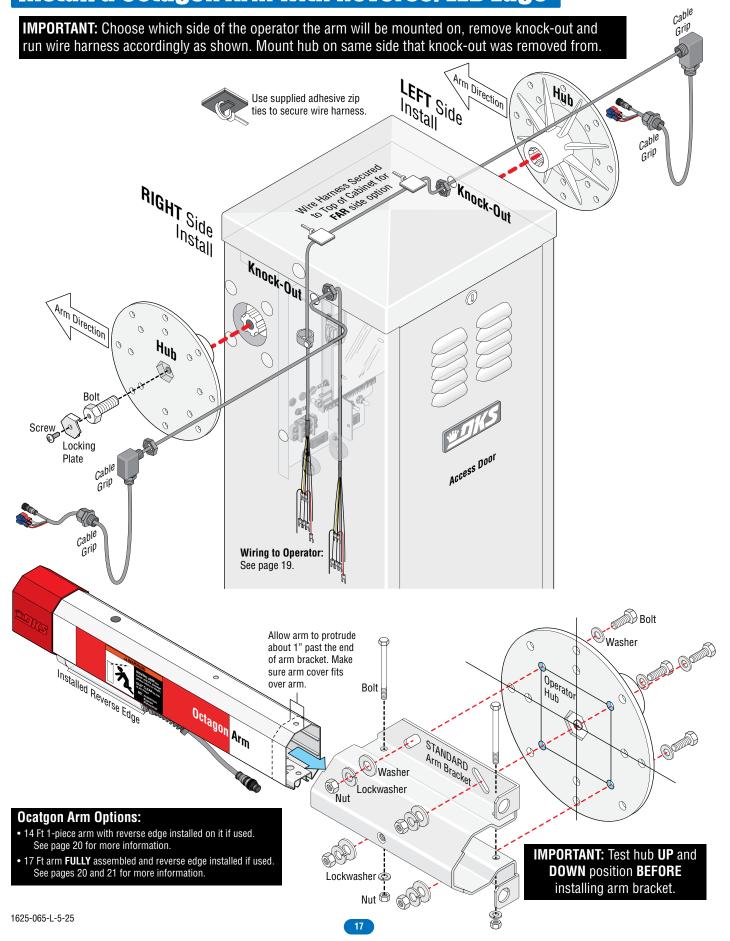
Protective Cover Cap: Only one. Install on the outside of the cover as shown, on the opposite cover from the operator side. Use 4 self-tapping screws. Helps protect against debris and trash getting inside the cover and interfering with the moving parts of the wedge.

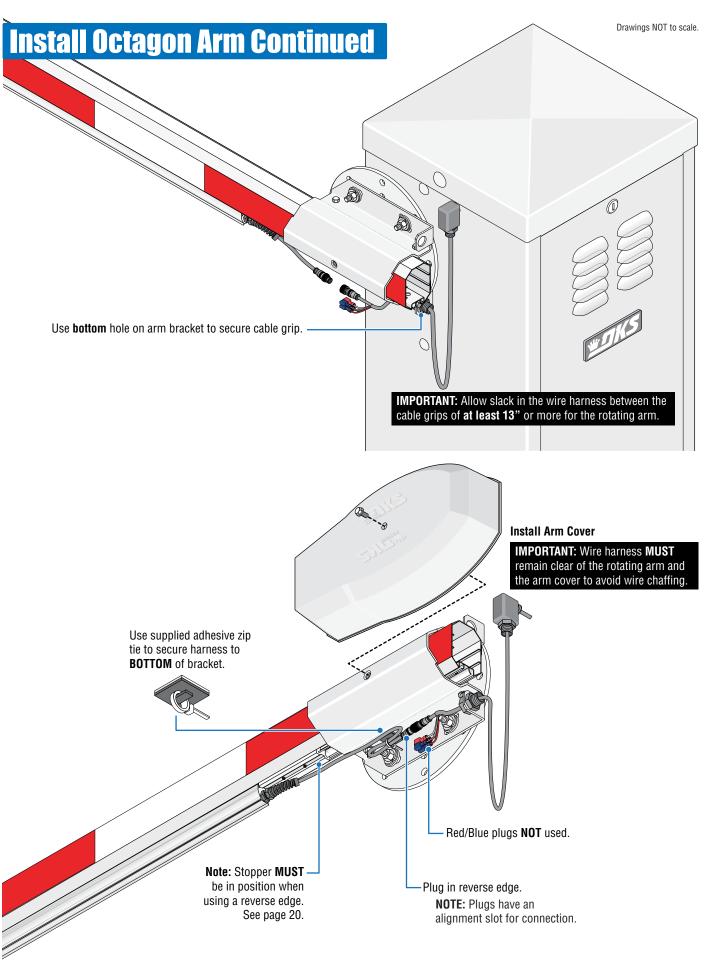


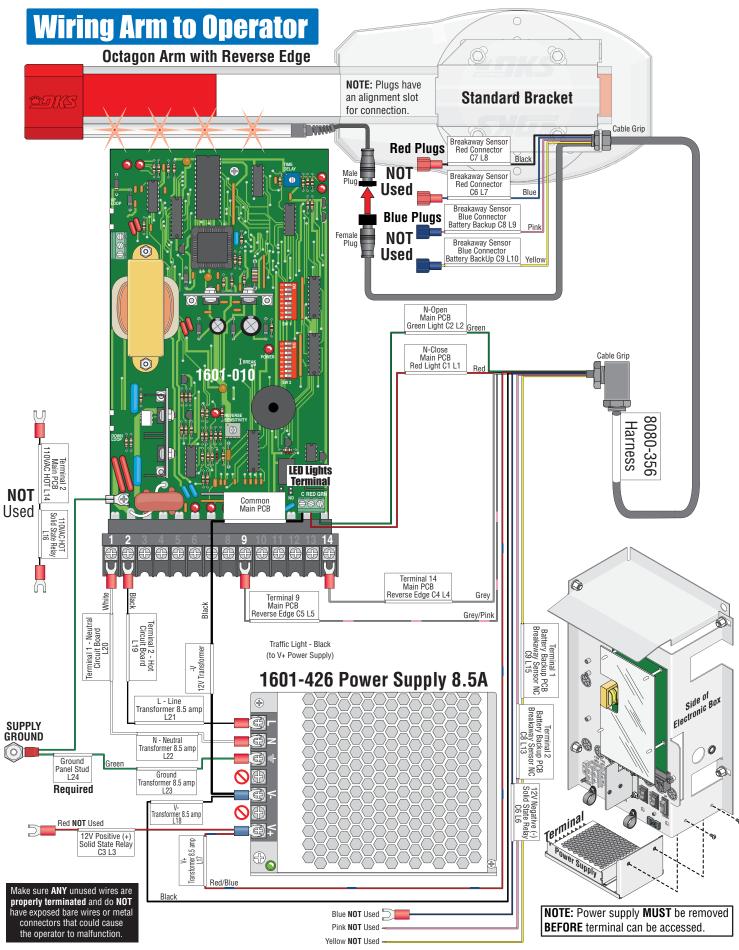
Regular Maintenance of Wedge SystemRegular inspection and removal of trash, debris, gravel, and rock is required in order to keep wedge barrier functioning properly. Neglecting to regularly clean trash and debris UNDERNEATH WEDGE PLATE is the number one cause of breakage and malfunctions. Check all bolts 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 a Octagon Arm with Reverse/LED Edge







Install Reverse/LED Edge on a Octagon Arm

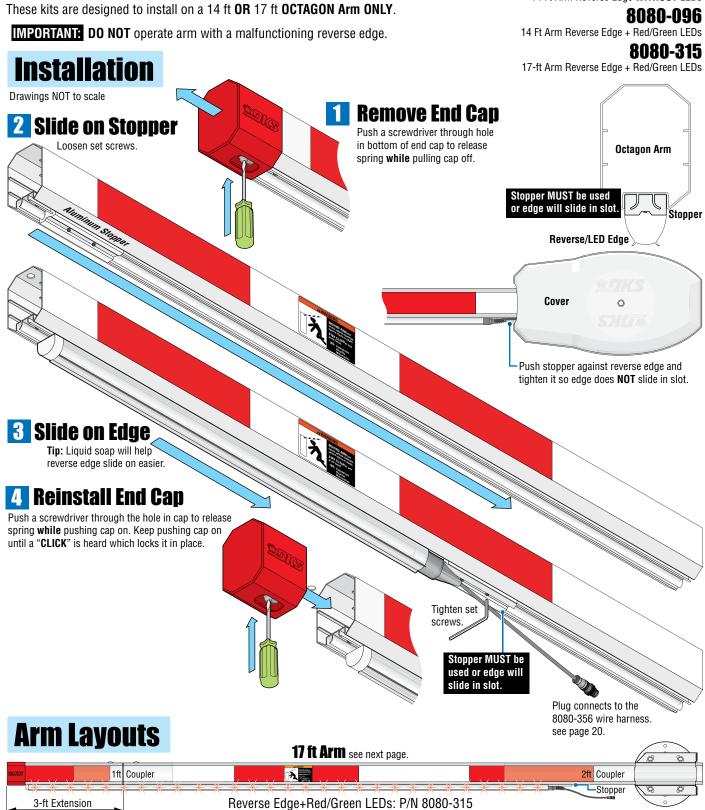
DoorKing Part Numbers:

8080-080

14 Ft Arm Reverse Edge WITHOUT LEDs

-Stopper

8080-096



Reverse Edge WITHOUT LEDs: P/N 8080-080 OR Reverse Edge+Red/Green LEDs: P/N 8080-096

14 ft Arm

À

17 Ft Octagon Arm Assembly

DoorKing Part Numbers:

1602-303

Octagon Arm 3-ft Extension Kit

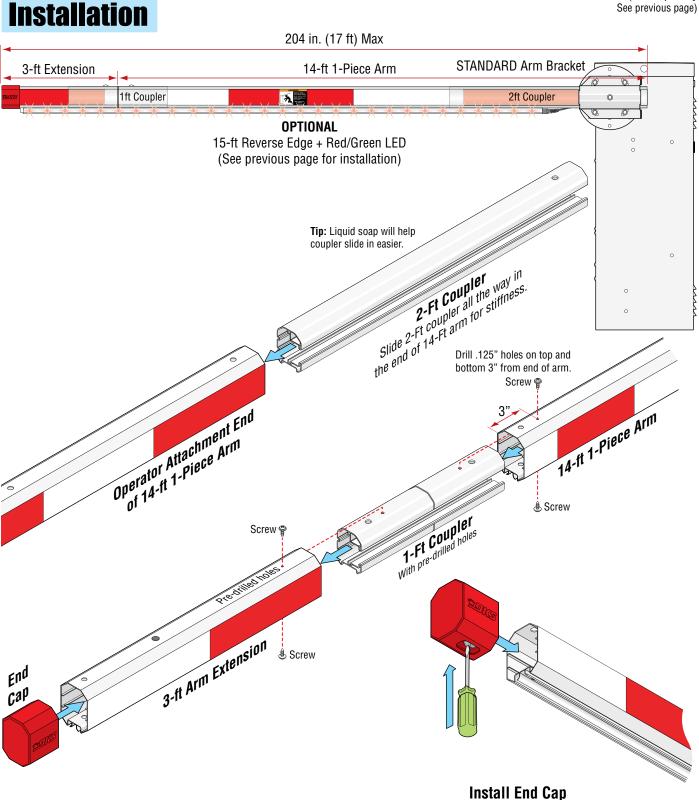
8080-315

(Sold Separately

15-ft Reverse Edge + Red/Green LED

This kit will extend a 14 ft octagonal arm an extra three feet. The reverse edge is sold separately but highly recommended for safety when lowering this very long arm.

Installation

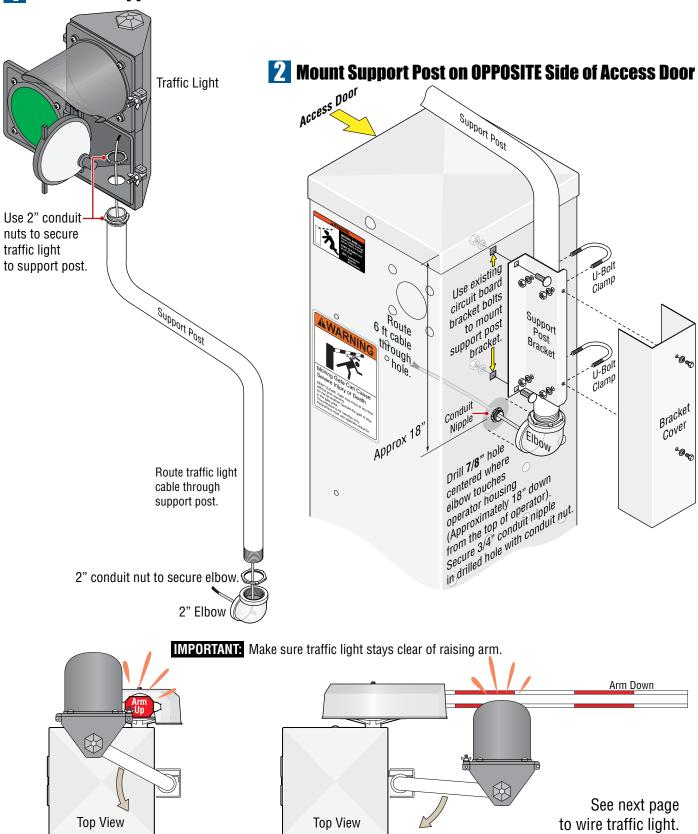


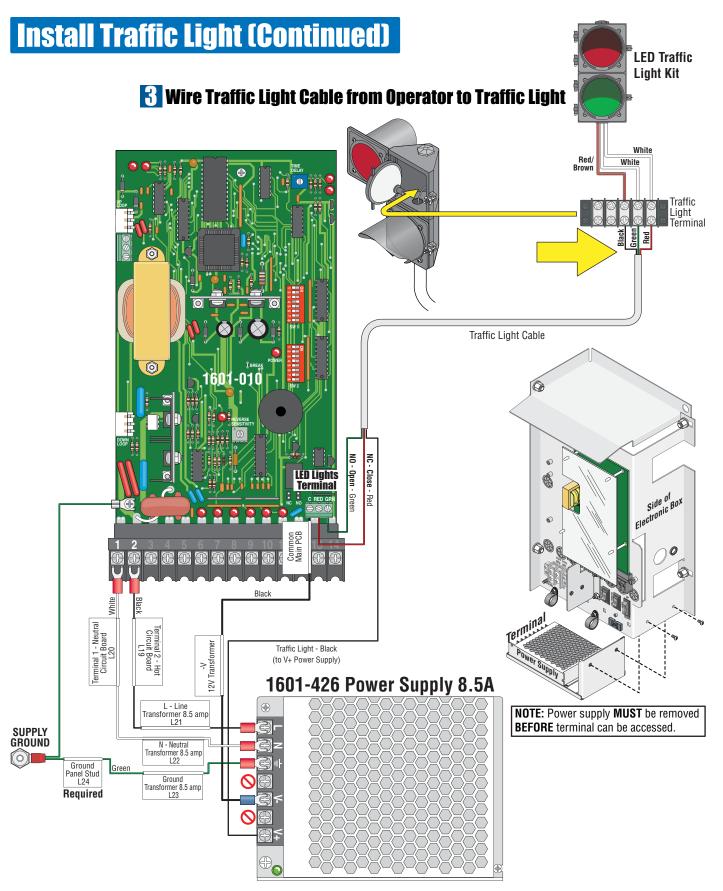
Drawing NOT to scale 1625-065-L-5-25

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

Install Traffic Light (REQUIRED)

Assemble Support Post

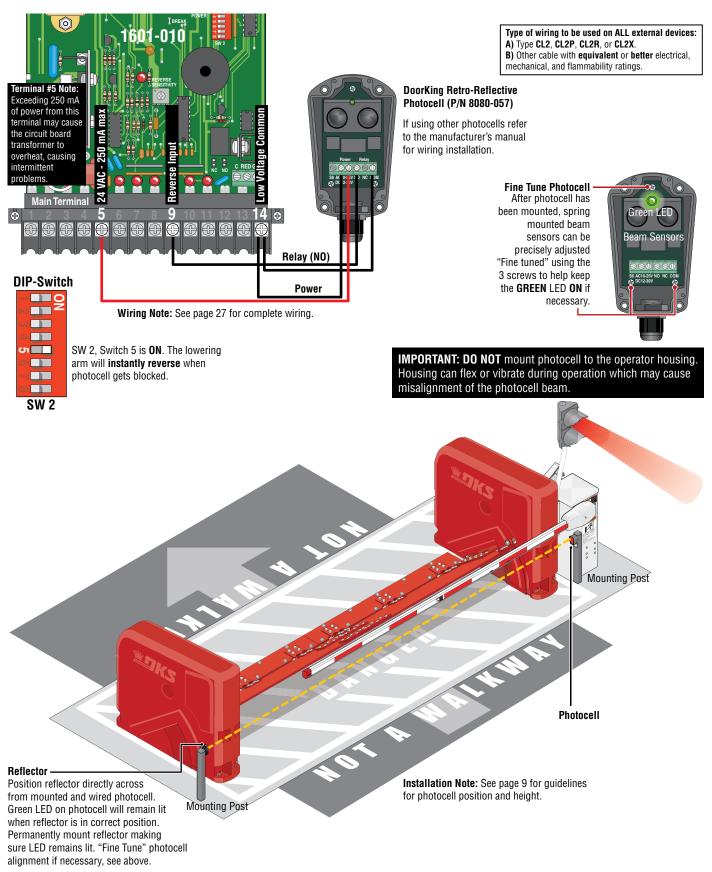




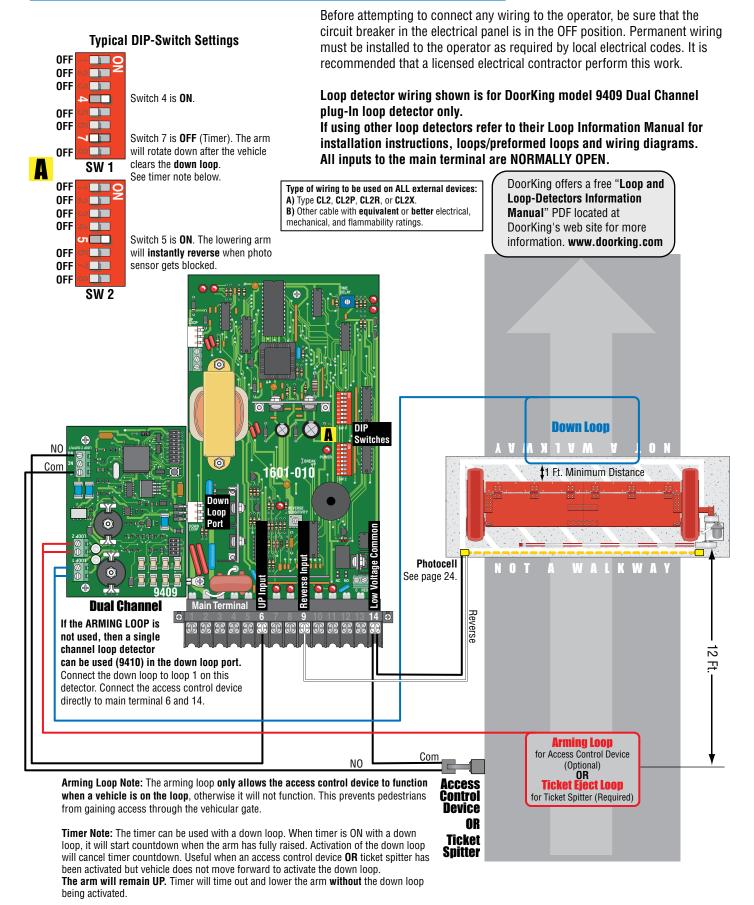
Neep wire clear of all moving parts.

Install Photocell (REQUIRED)

Mount photocell directly below the octagon arm on separate posts as shown (see page 9), mounting brackets not supplied.

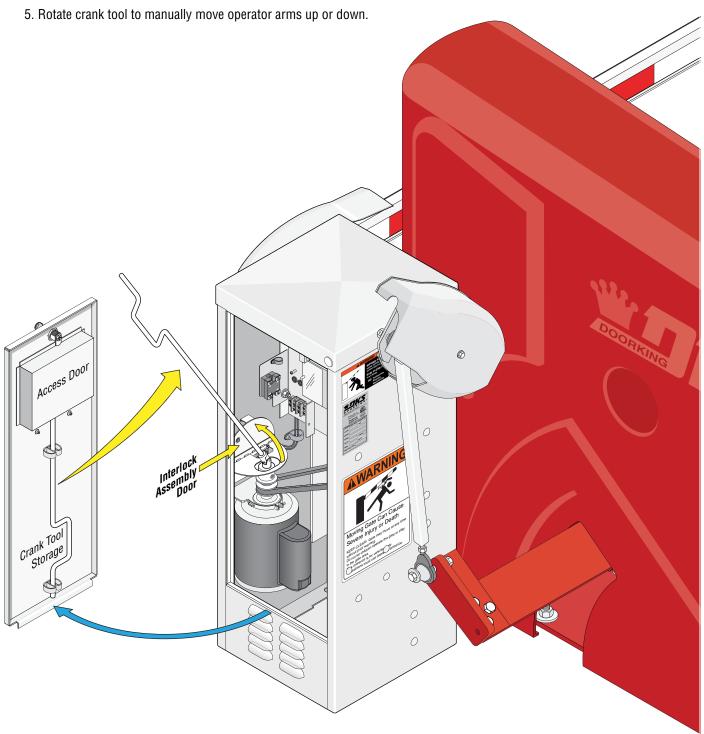


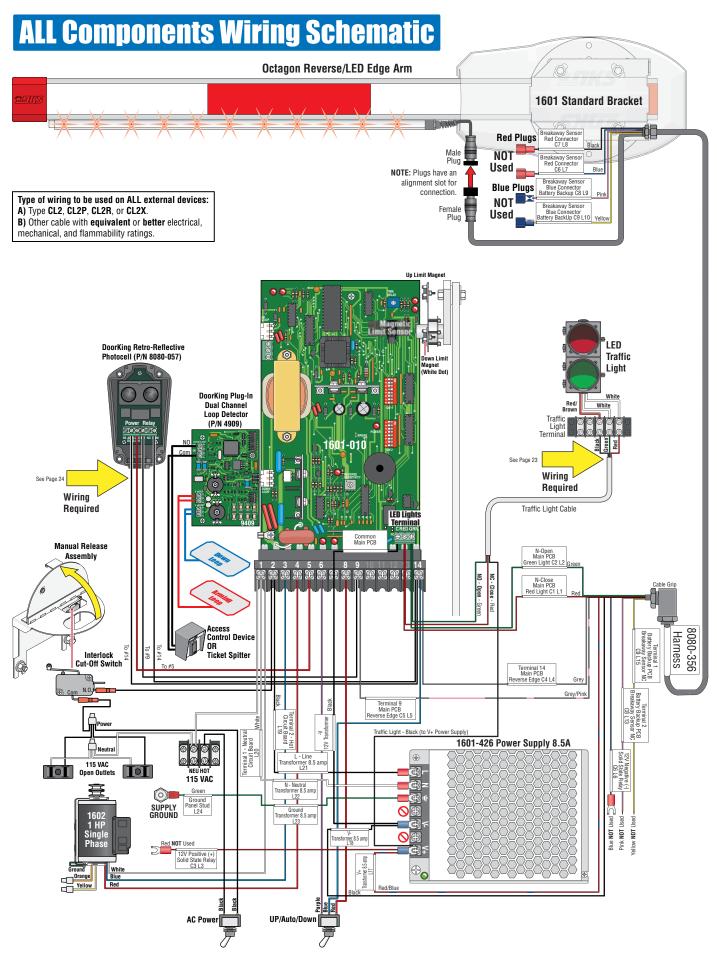
Entry Lane Only In-Ground Loop Options



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.





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