# BREAK-AWAY OCTAGON ARM KIT for a 1601 / 1602

DoorKing Part Number
8080-295

This kit is designed for the 1601 **OR** a 1602 with a 17 ft arm **ONLY** barrier gate operators. It **CANNOT** be used with a 1603 auto-spikes, 1620 lane barrier or 1625 wedge barrier. The kit provides a **break-away bracket assembly** for a **OCTAGON arm** with **OR** without **Reverse/LED edge**, sold separately. Arm will reverse if lowering and a obstruction is encountered. If the arm is struck and breaks away (will pivot in **ONE DIRECTION ONLY**, see below), gate operator will **automatically** shut down. The arm manually snaps back into the release rollers to function normally again. **NO reset** is necessary.

17 ft (1602 ONLY)

14 ft

Note: 14 ft arm can be shortened if desired.   Optional Reverse/LED Edge
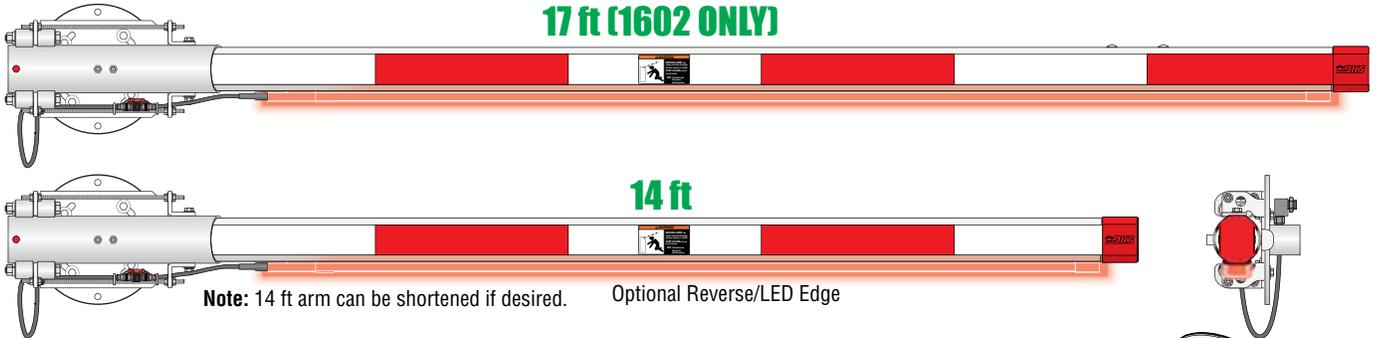
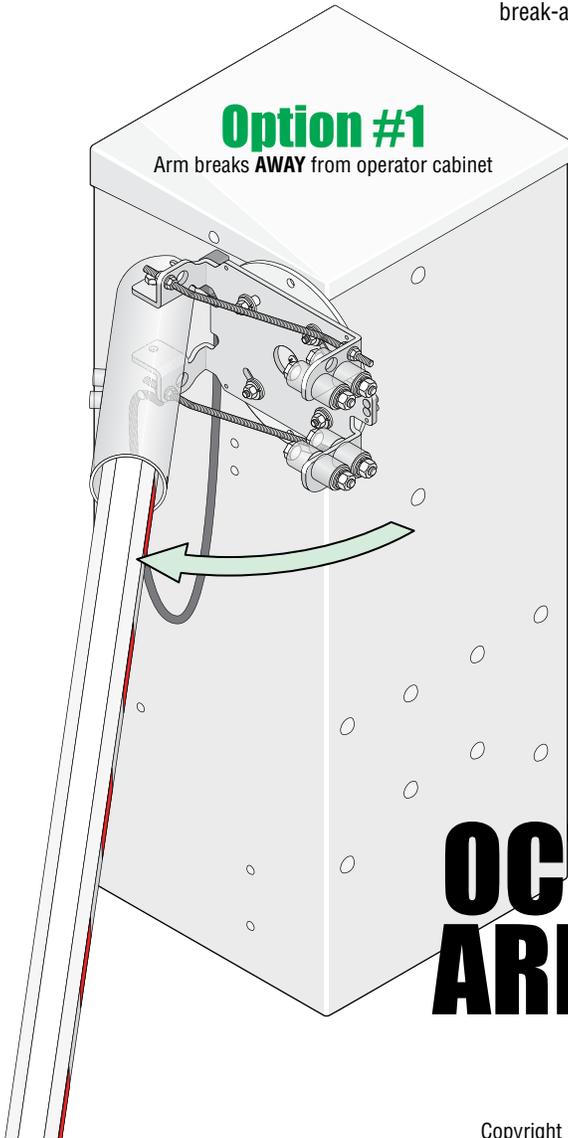## Break-Away OCTAGON Arm Bracket Direction Options

Break-Away arm bracket will only pivot in **ONE DIRECTION** depending on which way the break-away arm bracket is installed.
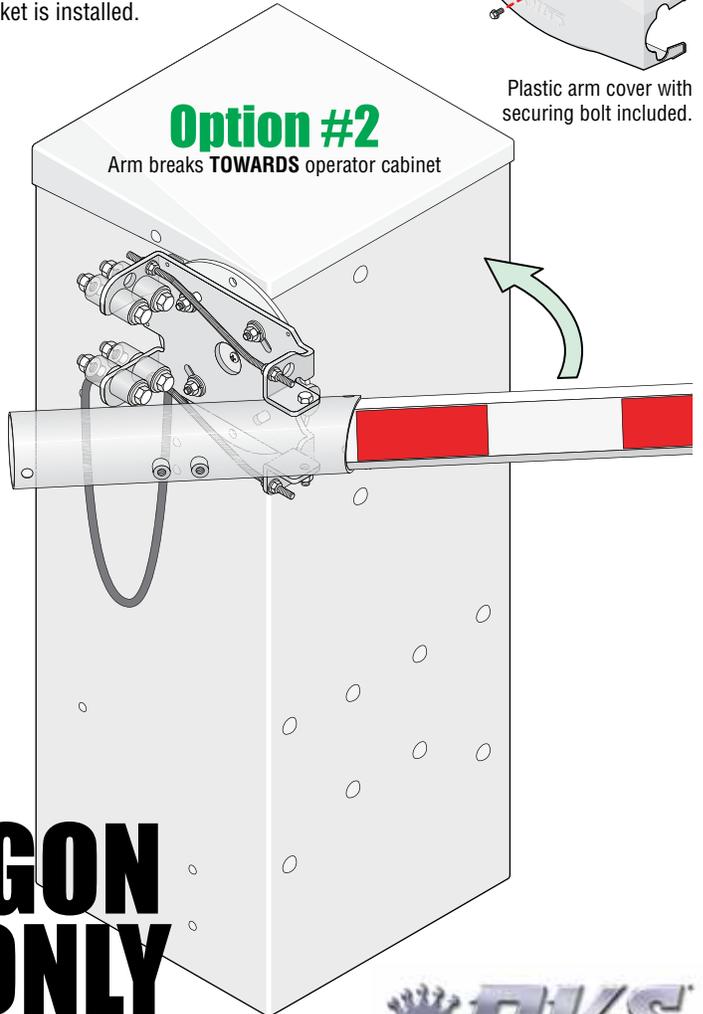
Plastic arm cover with securing bolt included.
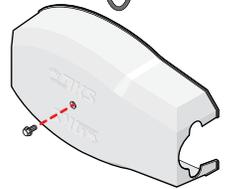
Option #1
Arm breaks **AWAY** from operator cabinet

Option #2
Arm breaks **TOWARDS** operator cabinet

OCTAGON ARM ONLY

120 S. Glasgow Avenue
Inglewood, California 90301 U.S.A.

Table of Contents

Break-Away OCTAGON Arm Bracket Installation Steps:

1 Install Hub

AFTER the barrier operator has been **PERMANENTLY INSTALLED** and has **POWER**, insert hub and secure it as shown to **YOUR DESIRED** side of the operator. A **SINGLE HUB** should be mounted on the **SAME** side as **ONCOMING** traffic.

Reverse Horizontal Arm Direction Note:
If your operator has been installed with the **access door FACING** the traffic lane, **instead of** opposite the traffic lane, the arm will face in the **REVERSE direction** from the **factory setup** shown here. The break-away bracket also has **some limitations** when used like this. See "**Reverse Horizontal Arm Direction Procedure**" in the 1601/1602 installation/owner's manual **1601-065 PDF** to reverse the factory setup for this reversed layout.

1601-269-U-3-26

Break-Away Arm Direction Options

Arm will only pivot in **ONE DIRECTION** depending on which way the break-away arm bracket is installed. **Choose the desired break-away direction** and install break-away arm bracket accordingly (note position of **arm pivot bolt** and release rollers).

Keep this area clear of structures

Break-Away Direction

Arm Pivot Bolt

Release Rollers

Access Door

Option #1

Traffic Direction

Option #1
Arm breaks **AWAY** from operator cabinet

Option #2
Arm breaks **TOWARDS** operator cabinet

6" Minimal Clearance needed

Access Door

Option #2

Arm Pivot Bolt

Break-Away Direction

17" Minimal Clearance needed

Release Rollers

Keep this area clear of structures

Traffic Direction

2 Install Break-Away Bracket

Arm Pivot Bolt Hole **Option #1**

Hub

Release Rollers

Arm Direction

Release Rollers

Hub

Bolt Hex 3/8-16 x 1.0

Washer 3-8 ID USS

Washer 3-8 ID USS

Washer Split 3/8-16

Nut 3/8-16

Arm Direction

Option #2 Arm Pivot Bolt Hole
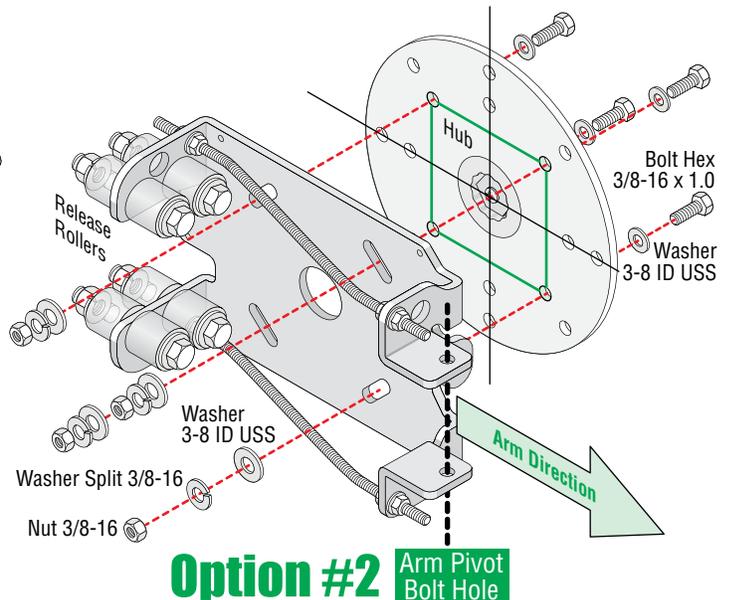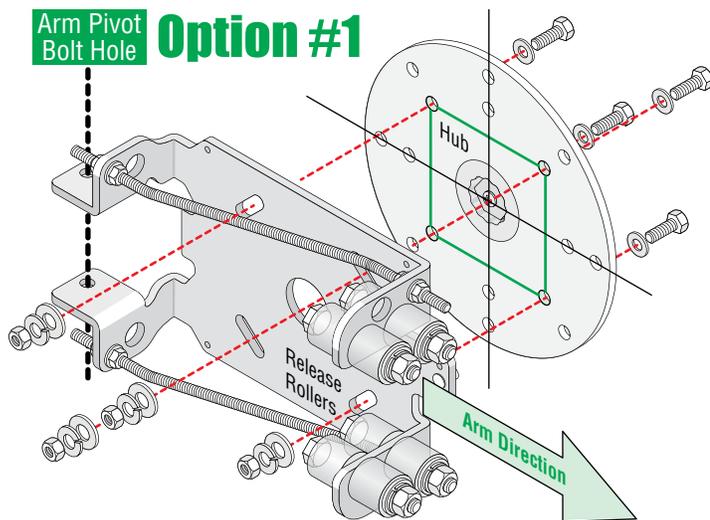
IMPORTANT Test the hub's **UP** and **DOWN** positions on the operator **BEFORE** installing arm bracket.

TURN OFF POWER BEFORE INSTALLING BRACKET

3 Install Arm

Drawings NOT to scale
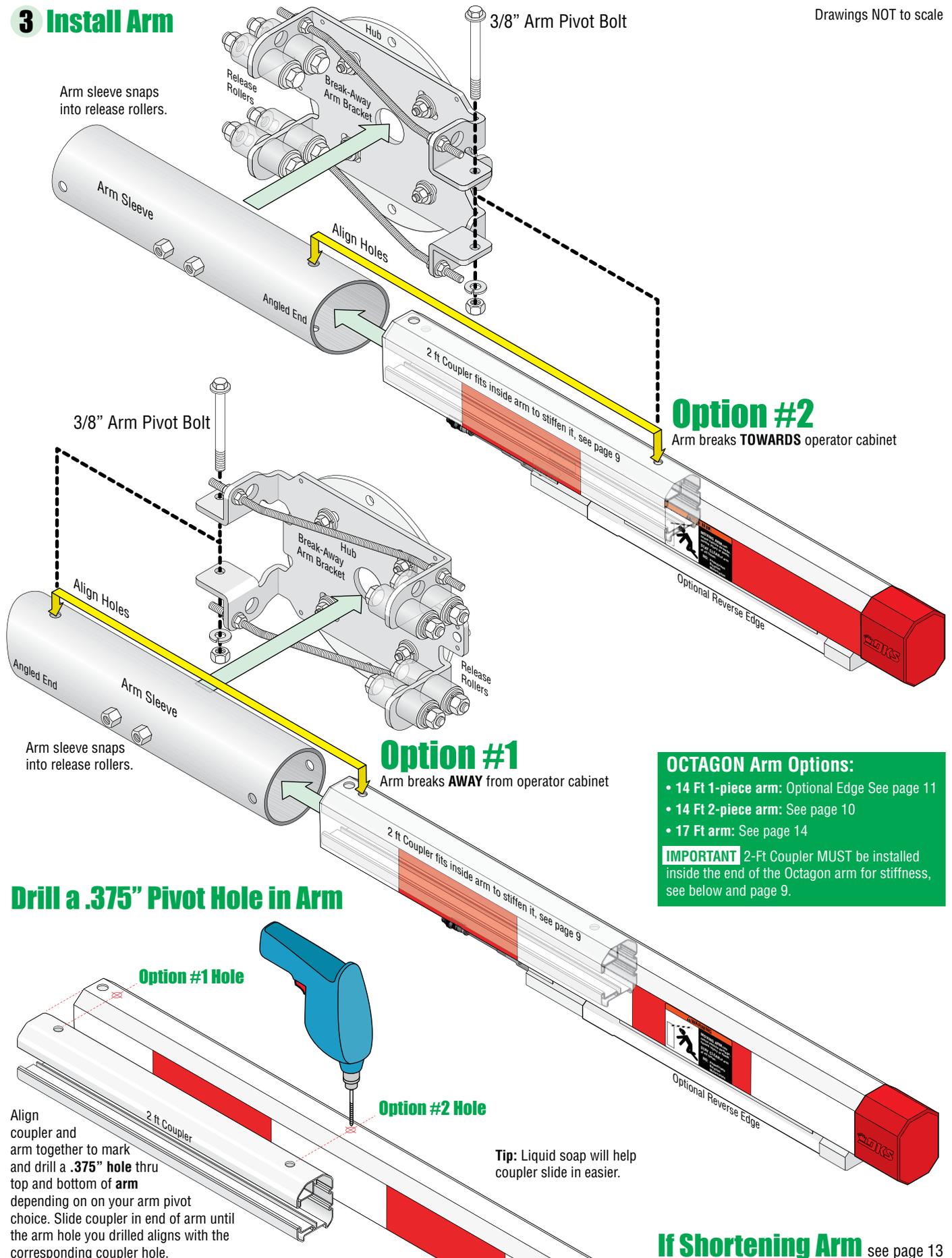
3/8" Arm Pivot Bolt

Hub

Release Rollers

Break-Away Arm Bracket

Arm sleeve snaps into release rollers.

Arm Sleeve

Align Holes

Angled End

2 ft Coupler fits inside arm to stiffen it, see page 9

Option #2
Arm breaks **TOWARDS** operator cabinet

Optional Reverse Edge

3/8" Arm Pivot Bolt

Align Holes

Angled End

Arm Sleeve

Break-Away Arm Bracket

Hub

Release Rollers

Arm sleeve snaps into release rollers.

2 ft Coupler fits inside arm to stiffen it, see page 9

Option #1
Arm breaks **AWAY** from operator cabinet

OCTAGON Arm Options:
- **14 Ft 1-piece arm:** Optional Edge See page 11
- **14 Ft 2-piece arm:** See page 10
- **17 Ft arm:** See page 14

IMPORTANT 2-Ft Coupler MUST be installed inside the end of the Octagon arm for stiffness, see below and page 9.

Drill a .375" Pivot Hole in Arm

Option #1 Hole

Option #2 Hole

2 ft Coupler
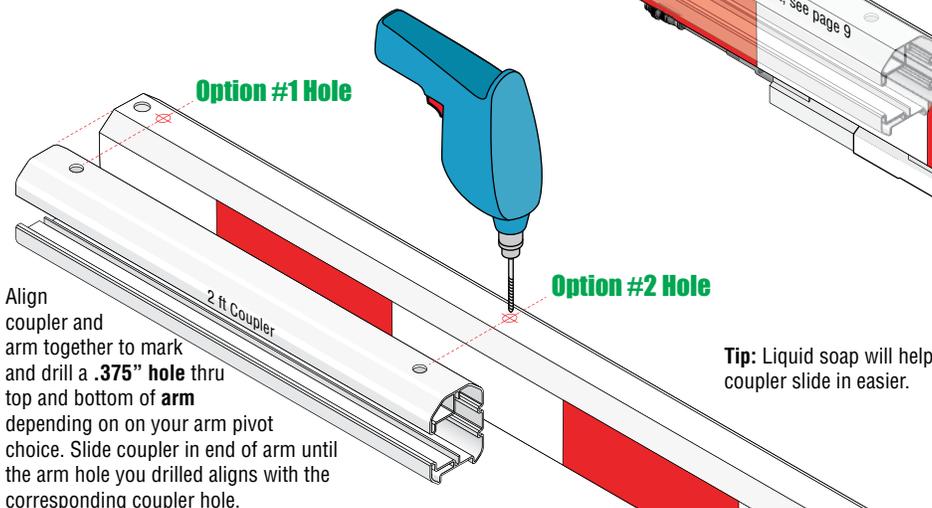
Align coupler and arm together to mark and drill a **.375" hole** thru top and bottom of **arm** depending on on your arm pivot choice. Slide coupler in end of arm until the arm hole you drilled aligns with the corresponding coupler hole.

Tip: Liquid soap will help coupler slide in easier.

Optional Reverse Edge

If Shortening Arm see page 13

4 Install Wire Harness (8080-356)

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

Wire Harness Run Options

Wire harness can run from **EITHER** side of the **operator** depending on which side the arm is mounted on. "**NEAR**" and "**FAR**" side refers to the electronic box's relative distance from **YOUR** chosen arm's mounting side of operator.

Arm Direction

FAR Side Install

Cable Grip

Wire harness secured inside to **TOP** of cabinet with adhesive zip ties for **FAR** side option.

Knock-Out

Cable Grip

See page 8 for arm connection options.

Arm Direction

Knock-Out

NEAR Side Install

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

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

See page 8 for arm connection options.
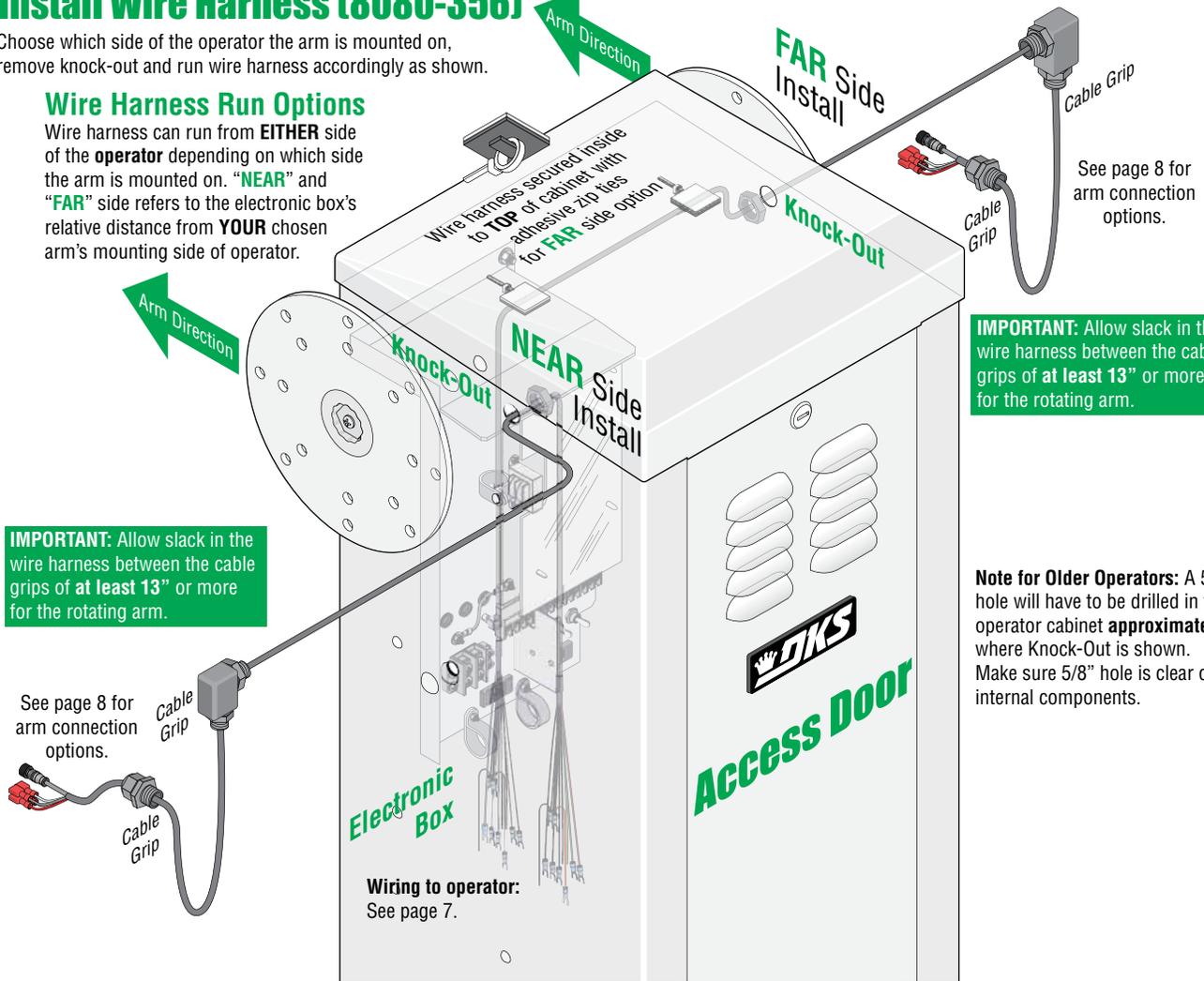
Cable Grip

Cable Grip

Note for Older Operators: A 5/8" hole will have to be drilled in the operator cabinet **approximately** where Knock-Out is shown. Make sure 5/8" hole is clear of all internal components.

Electronic Box

DKS

Access Door

Wiring to operator: See page 7.

5 Attach Wire Harness to Break-Away Bracket

Aluminum Stopper

Aluminum Stopper **MUST** be in position when installing a **Optional** reverse edge. See page 11.

Option #1

Optional Reverse Edge

Break-Away Sensors

Cable Grip

Option #2

Optional Reverse Edge
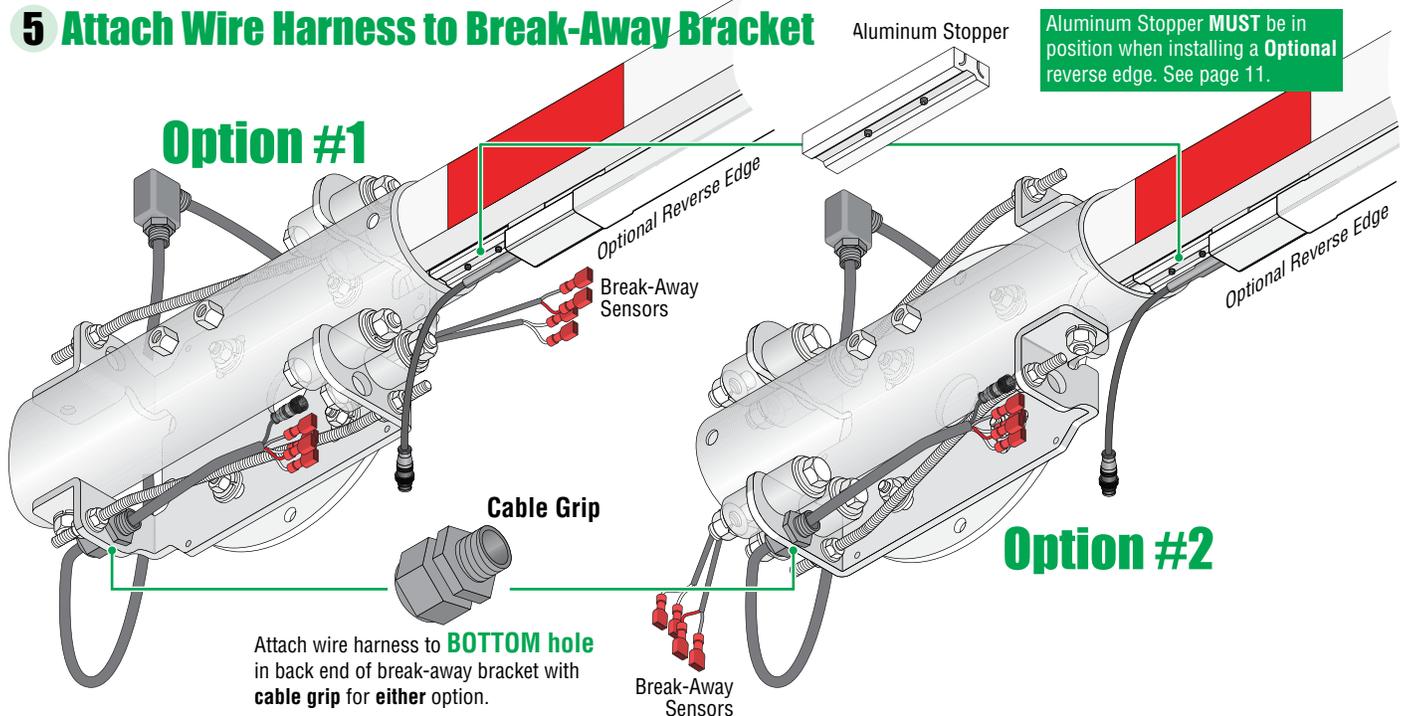
Attach wire harness to **BOTTOM hole** in back end of break-away bracket with **cable grip** for **either** option.

Break-Away Sensors

See page 8 for arm connection **options** and **securing wires** to break-away bracket.

❻ Mount Power Supply and Relay

Side of Electronic Box

Relay Mounting Plate

Relay

NEG   PO

Drill .213" Holes

1.3"   2.5"

.75"

Power Supply
Mounting Position

Drill Hole Positions

Drill holes in positions shown to mount power supply to side of electronic box.

Relay Mounting Plate

Use Operator's Existing Carriage Bolt

Side of Electronic Box

115V NEU   115V HOT

Mount Relay

Mount relay as shown.
NOTE: Relay is needed for break-away arm bracket.

Install this screw **FIRST**.

Install this screw **SECOND**.

Mount Power Supply

Terminal

Power Supply

Power Supply Mounting Plate

IMPORTANT: Power supply **MUST** be wired **BEFORE** mounting it on the operator as shown. Terminals are only accessible when power supply is **NOT** mounted. See next page for wiring.

Front of Electronic Box

1601-010

Relay

Use Existing Carriage Bolt

115V NEU   115V HOT

AC POWER   ON OFF

DC POWER   ON OFF

AUTO

UP

DOWN

SUPPLY GROUND

Power Supply

MAKE SURE ALL POWER IS TURNED OFF TO OPERATOR!

OPTIONAL LED Traffic Light
Different Kits Available

Convenience Open 1473 On SOME Model Operators

1473-010

RESET
115VAC INPUT
Common Open Input
1 2
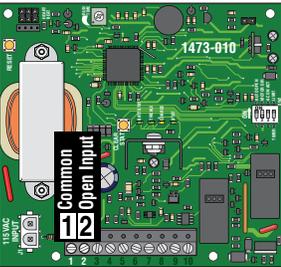
Note: Break-Away arm will **NOT** work with older model barrier operator with 2340-010 convience open circuit board.

Terminal 1 Battery Backup PCB Breakaway Sensor NC C9 L15

Terminal 2 Battery Backup PCB Breakaway Sensor NC C8 L13

OPTIONAL DKS Pedestrian Protection System Set-up

Note: The arm will **NOT** allow a tailgating vehicle unauthorized entry, **BUT** helps protect pedestrians from a lowering arm when they are in the arm's swing path.
(Sold Separately)

Devices Required:
Plug-in Single Channel Loop Detector with Auxiliary Relay **P/N 9411-010**
DKS Photocell **P/N 8080-057**
See 1601-065 PDF for more info **when used.**
HIGHLY Recommended

Down Loop
Directly under the arm
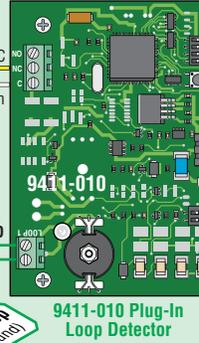
Note: The traffic light is wired together with the break-away arm in **some** installations when desired, so it's shown here for wiring reference. See Traffic Light 1603-264 PDF for more info **when used.**
Recommended

P/N 1603-221
6 Ft Cable/No Post

P/N 1603-222
6 Ft Cable/35" Post

P/N 1603-223
11 Ft Cable/95" Post

White
White
Red/Brown

Traffic Light Terminal

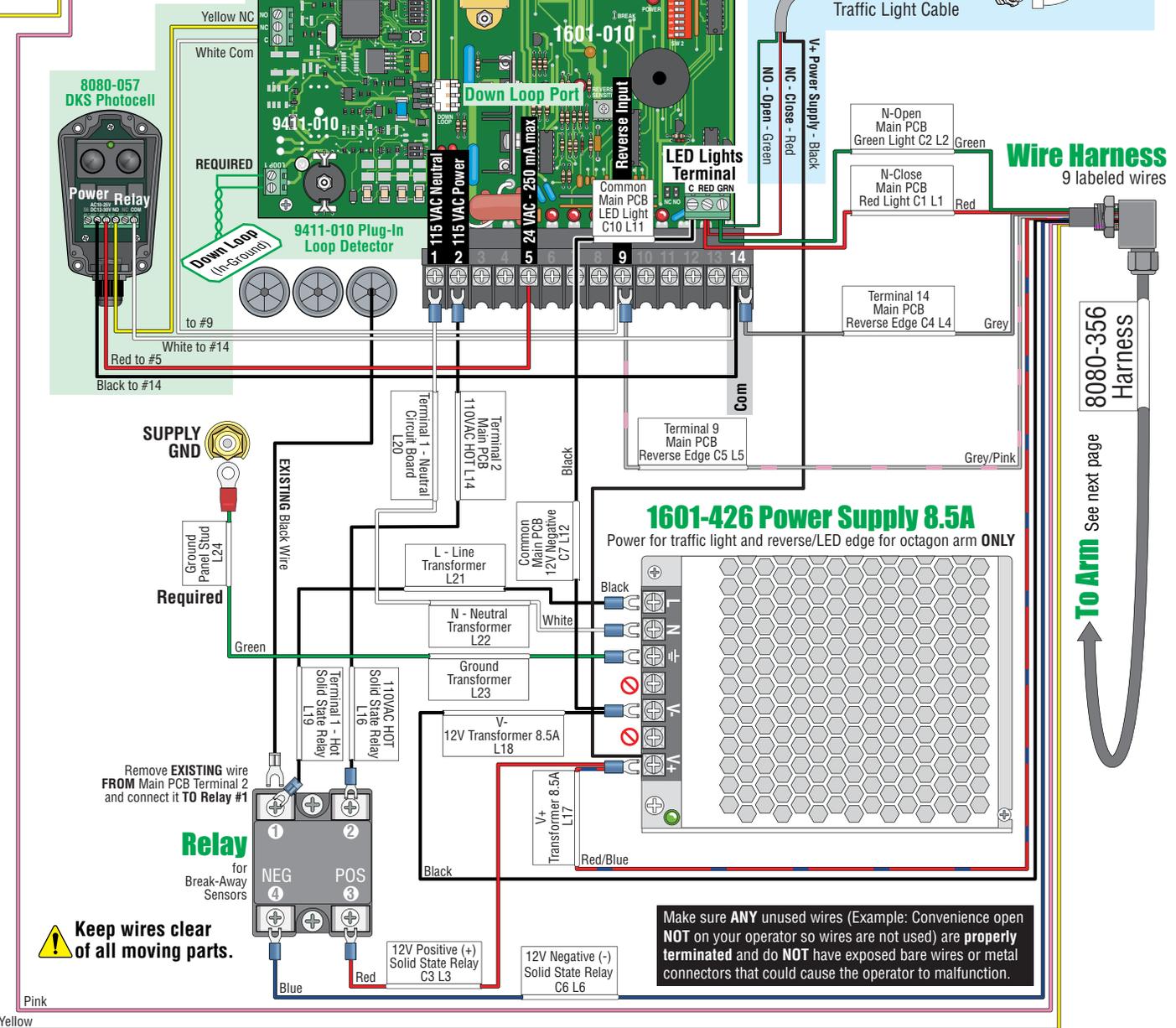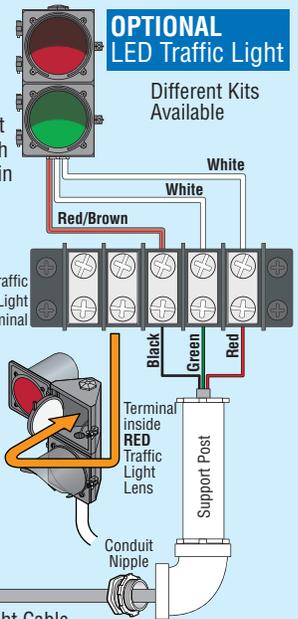Black Green Red

Terminal inside **RED** Traffic Light Lens

Support Post

Conduit Nipple

Traffic Light Cable

8080-057 DKS Photocell

Yellow NC
White Com

Power Relay
AC10-25V DC13-30V NO NC COM

REQUIRED

Down Loop (In-Ground)

9411-010

9411-010 Plug-In Loop Detector

to #9
White to #14
Red to #5
Black to #14

1601-010

Down Loop Port

Reverse Input

115 VAC Neutral
115 VAC Power
24 VAC - 250 mA max

LED Lights Terminal
C RED GRN
NC NO

Common Main PCB LED Light C10 L11

V+ Power Supply - Black
NC - Close - Red
NO - Open - Green

N-Open Main PCB Green Light C2 L2   Green

N-Close Main PCB Red Light C1 L1   Red

Wire Harness
9 labeled wires

Terminal 14 Main PCB Reverse Edge C4 L4   Grey

Terminal 9 Main PCB Reverse Edge C5 L5   Grey/Pink

Com

8080-356 Harness

To Arm See next page

1 2 3 4 5 6 7 8 9 10 11 12 13 14

SUPPLY GND

Ground Panel Stud L24

Required

EXISTING Black Wire

Terminal 1 - Neutral Circuit Board L20

Terminal 2 Main PCB 110VAC HOT L14

Common Main PCB 12V Negative C7 L12

L - Line Transformer L21

Black

Green

N - Neutral Transformer L22
White

Ground Transformer L23

1601-426 Power Supply 8.5A
Power for traffic light and reverse/LED edge for octagon arm **ONLY**

Black

L
N
⏚
V-
V-
V+

Terminal 1 - Hot Solid State Relay L19

110VAC HOT Solid State Relay L16

V- 12V Transformer 8.5A L18

V+ Transformer 8.5A L17

Red/Blue

Remove **EXISTING** wire **FROM** Main PCB Terminal 2 and connect it **TO Relay #1**

Black

Relay
for Break-Away Sensors

1 2
NEG POS
4 3

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

Blue Red

12V Positive (+) Solid State Relay C3 L3

12V Negative (-) Solid State Relay C6 L6

Make sure **ANY** unused wires (Example: Convenience open **NOT** on your operator so wires are not used) are **properly terminated** and do **NOT** have exposed bare wires or metal connectors that could cause the operator to malfunction.

Pink
Yellow

8 Connect Arm to Wire Harness

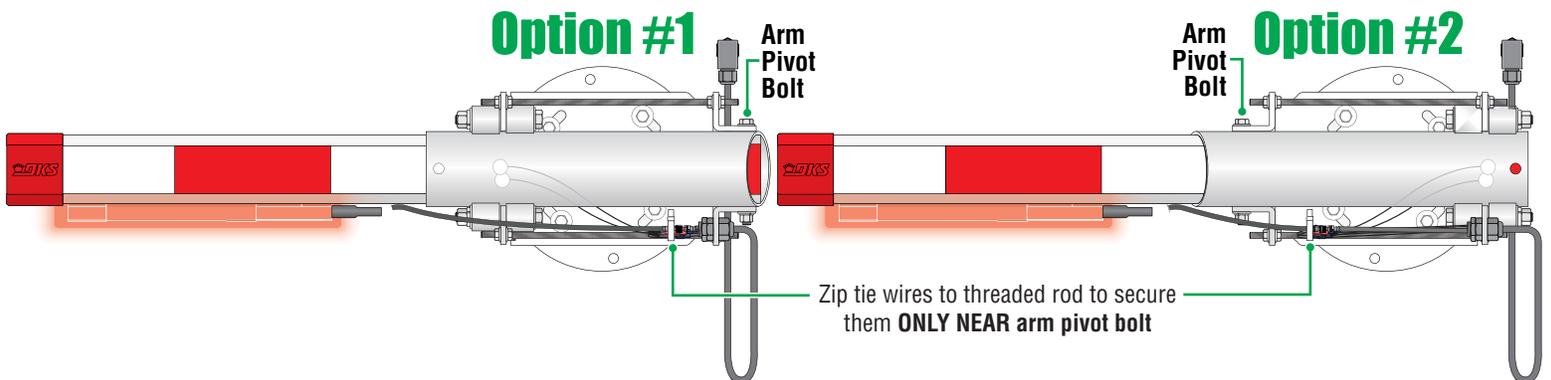## MAKE SURE ALL POWER IS TURNED OFF TO OPERATOR!

To Operator
See previous page

Cable Grip

Break-Away Sensors

Cable Grip

Reverse/LED Edge

NOTE: Plugs have an alignment slot for connection.

1601-400
Magnetic Contact
Normally Open
Breakaway

REQUIRED
Break-Away Bracket

8080-356
Harness

White **Com** — Breakaway Sensor Red Connector C7 L8 — Black

White **NO** — Breakaway Sensor Red Connector C6 L7 — Blue

Break-Away Sensors

Break-Away Bracket

Convenience Open

IMPORTANT: Break-Away sensors are located between the release rollers and **MUST** be connected to wire harness.

Release Rollers

DO NOT OPERATE ARM WITHOUT BREAK-AWAY SENSORS FUNCTIONING.

1601-401
Magnetic Contact
Normally Close
Battery Backup

On SOME Models
Convenience Open ONLY

Grey **Com** — Breakaway Sensor Blue Connector Battery Backup C8 L9 — Pink

Red **NC** — Breakaway Sensor Blue Connector Battery BackUp C9 L10 — Yellow

Make sure **ANY** unused wires are **properly terminated** and do **NOT** have exposed bare wires or metal connectors that could cause the operator to malfunction.

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

9 Secure Wires to Break-Away Bracket

Option #1

Arm
Pivot
Bolt

Arm
Pivot
Bolt

Option #2

Zip tie wires to threaded rod to secure them **ONLY NEAR arm pivot bolt**

IMPORTANT: To secure wires to bracket, allow for some slack in the wires to account for the arm pivoting when arm "Breaks Away" from bracket. Test breakaway feature to **make sure** there is enough slack in the wires when securing wires. Make sure **plastic arm cover** will fit over the wires and it doesn't **RUB** any wires during operation.
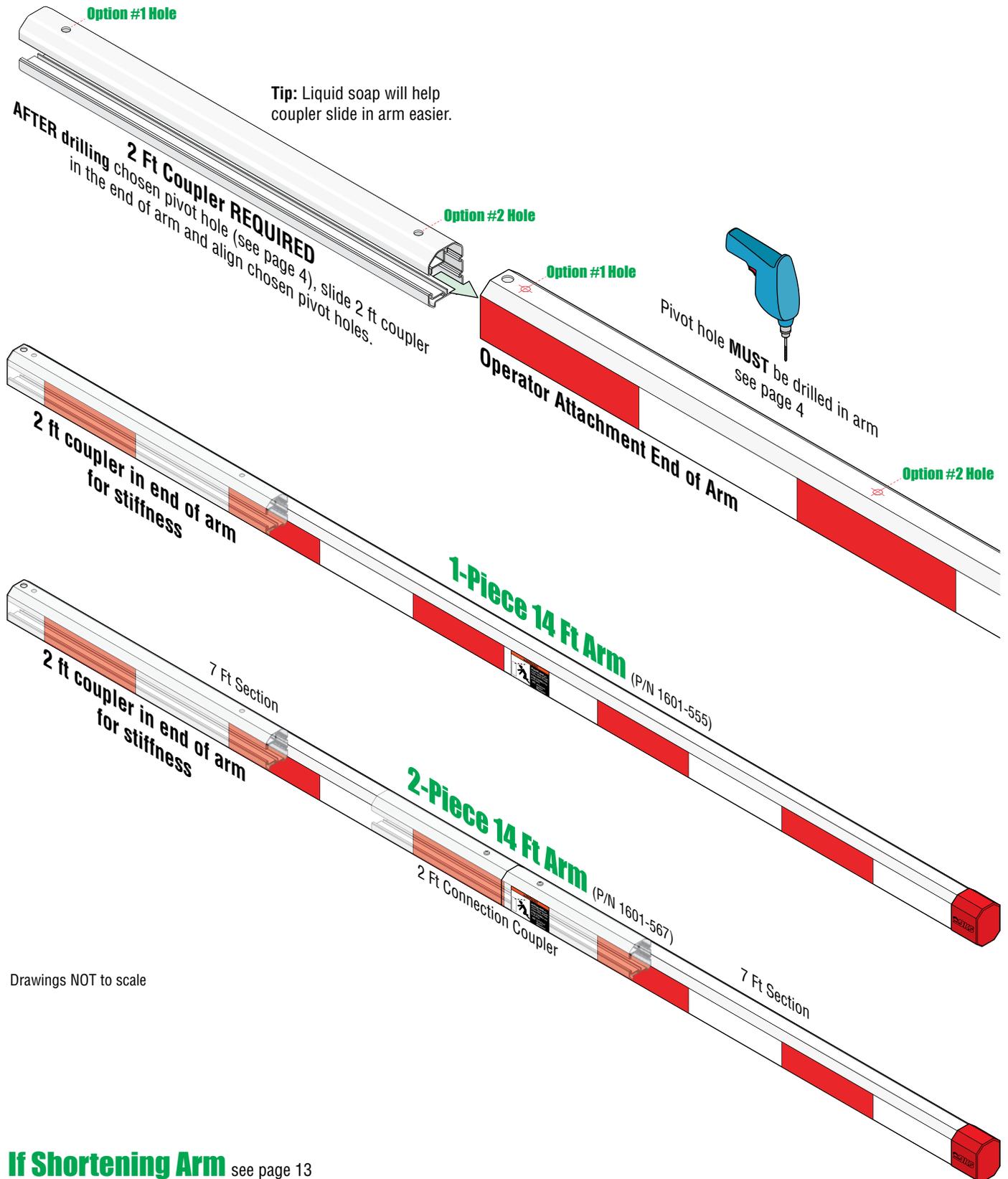
10 Break-Away Arm Reset Procedure

If arm gets struck and breaks away, gate operator will automatically shut down (Break-away sensors are tripped). Snap arm back into the release rollers. Make sure all wires are out of the way of the arm when snapping arm back in position. **NO Reset is necessary**. Normal operation can continue.

DO NOT OPERATE ARM WITHOUT BREAK-AWAY SENSORS FUNCTIONING.

1601-269-U-3-26

2 Ft Coupler Installation (Required)

2 Ft Coupler is included in the kit and **MUST** be installed on your chosen arm to **add stiffness** when arm is cycling. It will also help strengthen the arm when it gets knocked out of the guide rollers. It doesn't prevent the arm from damage in all circumstances, but will help protect the arm against minor contact.

Option #1 Hole

Tip: Liquid soap will help coupler slide in arm easier.

AFTER drilling chosen pivot hole (see page 4), slide 2 ft coupler in the end of arm and align chosen pivot holes.

2 Ft Coupler REQUIRED

Option #2 Hole

Option #1 Hole

Operator Attachment End of Arm

Pivot hole **MUST** be drilled in arm see page 4

Option #2 Hole

2 ft coupler in end of arm for stiffness

1-Piece 14 Ft Arm (P/N 1601-555)

2 ft coupler in end of arm for stiffness

7 Ft Section

2-Piece 14 Ft Arm (P/N 1601-567)

2 Ft Connection Coupler

7 Ft Section

Drawings NOT to scale

If Shortening Arm see page 13
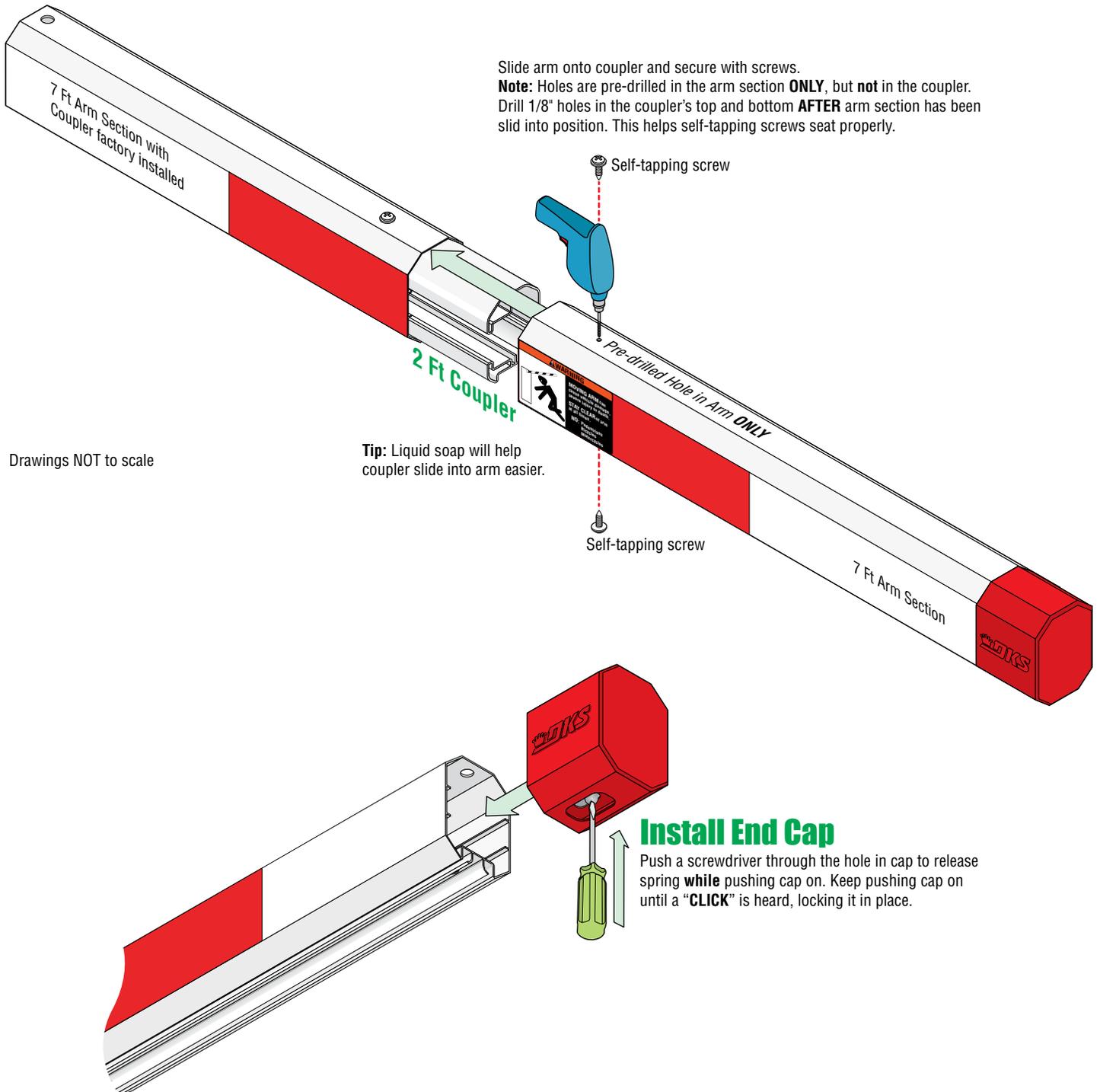
14 Ft 2-Piece Octagon Arm Assembly

This kit is designed for use on a 1601 barrier gate operator **ONLY**. It has TWO 7 ft arm sections that assemble into a 14 ft arm.

A reverse edge **SHOULD** be installed on this arm. It is sold separately but **highly recommended** for safety, see next page.

Assemble 2-Piece Arm

7 Ft Arm Section with Coupler factory installed

Slide arm onto coupler and secure with screws.
Note: Holes are pre-drilled in the arm section **ONLY**, but **not** in the coupler. Drill 1/8" holes in the coupler's top and bottom **AFTER** arm section has been slid into position. This helps self-tapping screws seat properly.

Self-tapping screw

2 Ft Coupler

Pre-drilled Hole in Arm **ONLY**

Drawings NOT to scale

Tip: Liquid soap will help coupler slide into arm easier.

Self-tapping screw

7 Ft Arm Section

Install 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, locking it in place.
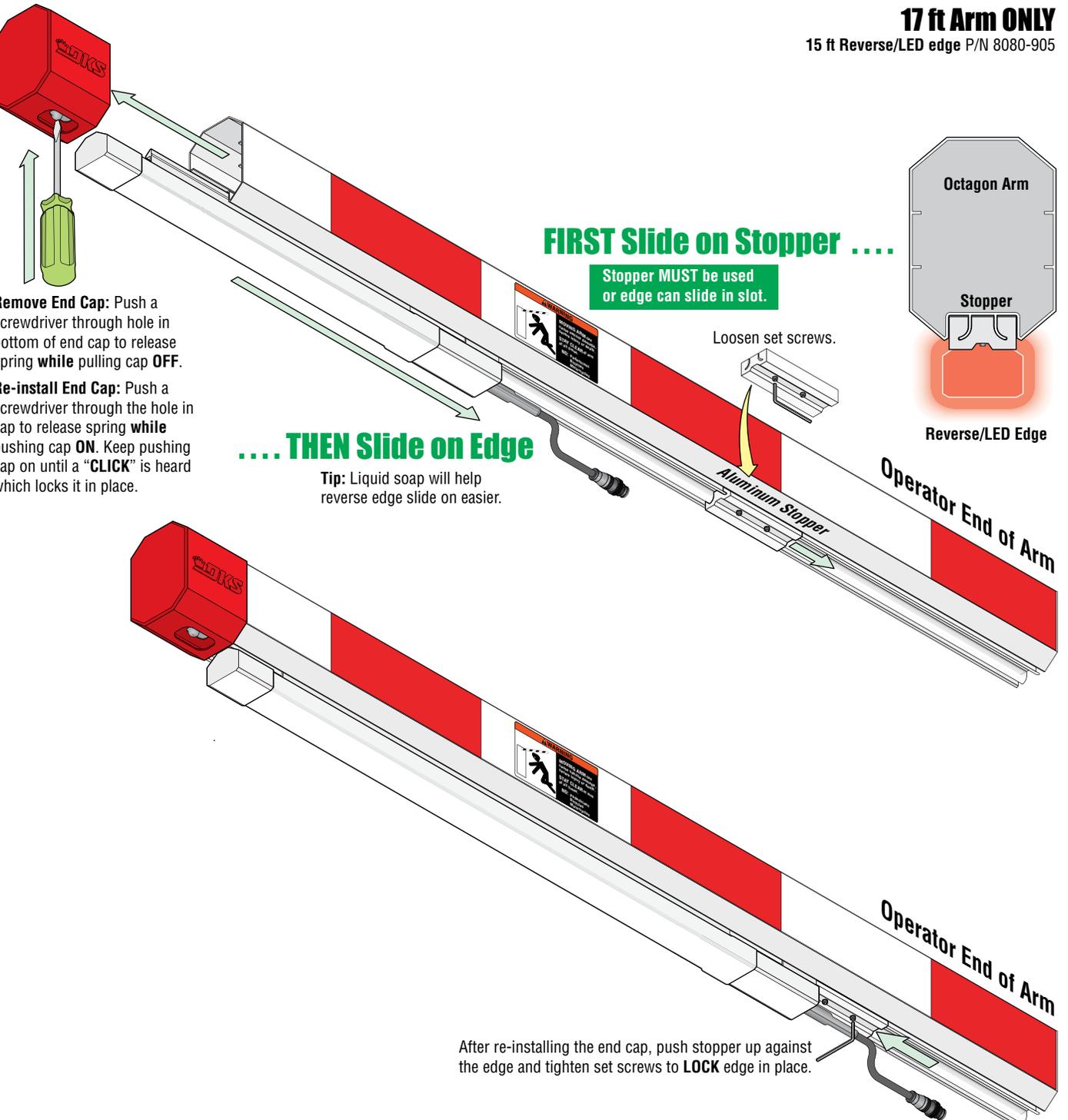
If Shortening Arm see page 13

Reverse Edge - Reverse/LED Edge Installation

These kits are designed to install on a **Break-Away** 14 ft 1-piece **or** 2-piece and a 17 ft **OCTAGON arm** (**14 ft arm** can be shortened if desired) on a 1601 or 1602 barrier gate operator. They **CANNOT** be used on a 1603 auto-spikes, 1620 lane barrier or 1625 wedge barrier operators.

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

DoorKing Part Numbers:

Reverse Edge
(14 ft Arm cut to 7 ft) **5 ft Reverse edge** P/N 8080-605
(14 ft Arm cut to 8 ft) **6 ft Reverse edge** P/N 8080-606
(14 ft Arm cut to 11 ft) **9 ft Reverse edge** P/N 8080-609
(14 ft Arm) **12 ft Reverse edge** P/N 8080-612

Reverse/LED Edge
(14 ft Arm cut to 7 ft) **5 ft Reverse/LED edge** P/N 8080-905
(14 ft Arm cut to 8 ft) **6 ft Reverse/LED edge** P/N 8080-906
(14 ft Arm cut to 11 ft) **9 ft Reverse/LED edge** P/N 8080-909
(14 ft Arm) **12 ft Reverse/LED edge** P/N 8080-912

17 ft Arm ONLY
15 ft Reverse/LED edge P/N 8080-905

Installation

Remove End Cap: Push a screwdriver through hole in bottom of end cap to release spring **while** pulling cap **OFF**.

Re-install 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.
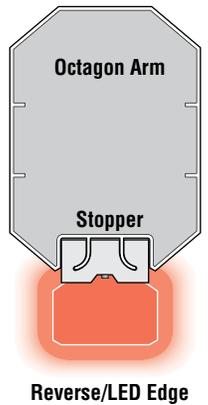
FIRST Slide on Stopper . . . .

Stopper MUST be used or edge can slide in slot.

Loosen set screws.

Octagon Arm

Stopper

Reverse/LED Edge

Aluminum Stopper

Operator End of Arm

. . . . THEN Slide on Edge

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

Operator End of Arm

After re-installing the end cap, push stopper up against the edge and tighten set screws to **LOCK** edge in place.

MALE Plug connects to the 8080-356 wire harness. see page 8.

If Shortening a 14-ft Arm see page 13
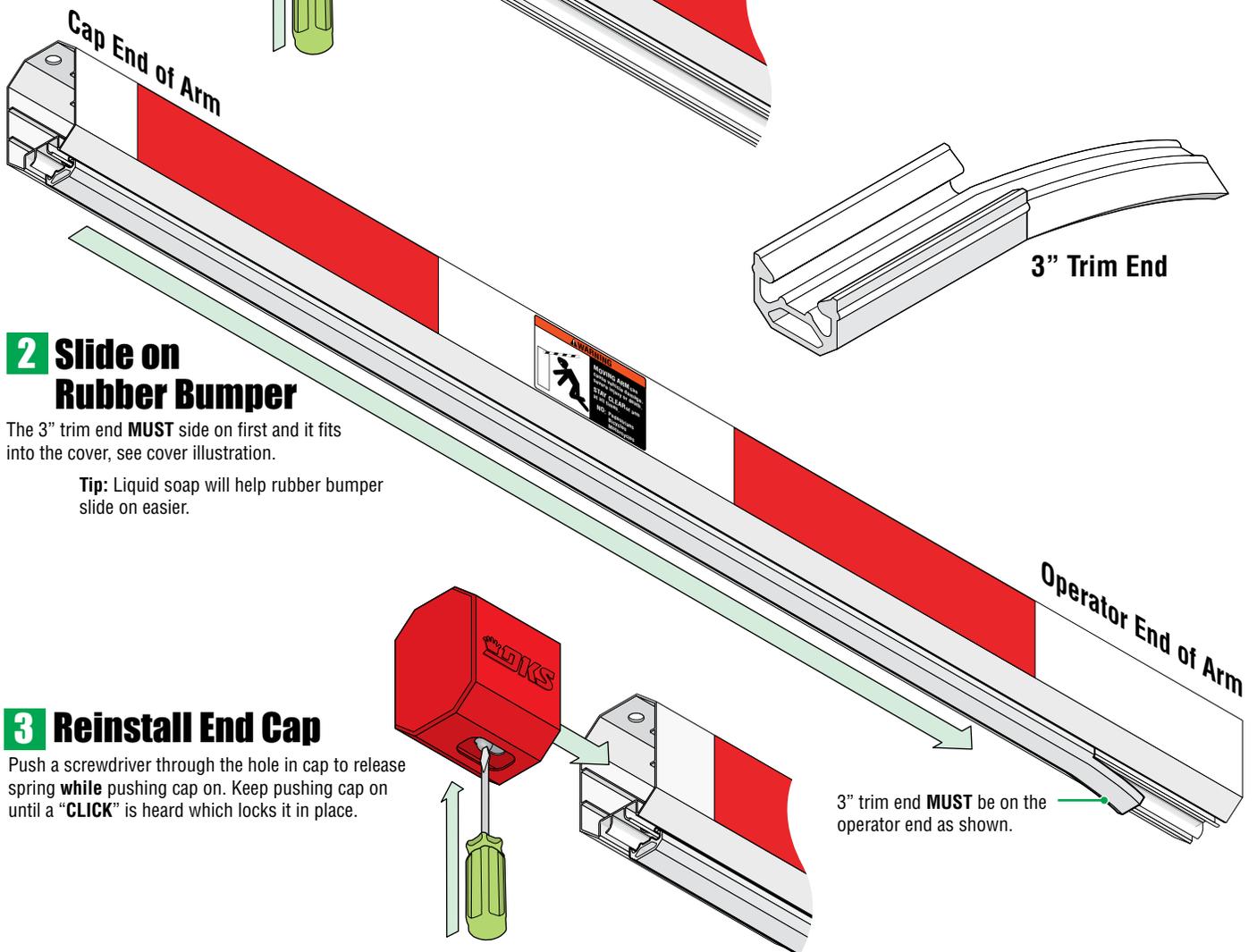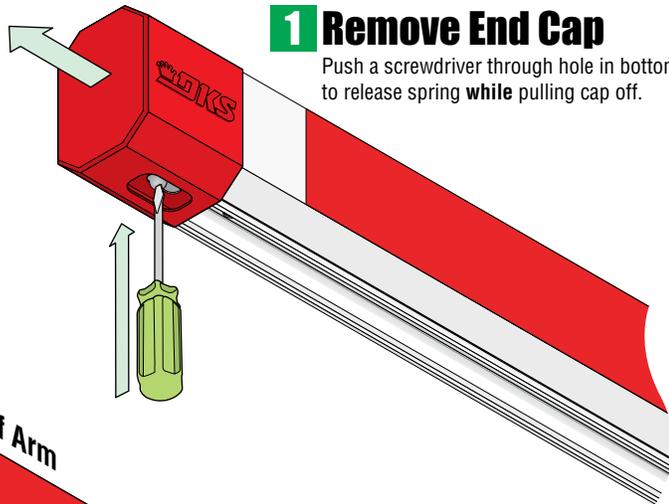
14 Ft Rubber Bumper Installation

This rubber bumper is designed to install on a 14 ft 1-piece **or** 2-piece **octagon arm** (not included) for a 1601, 1603 auto-spikes, 1620 lane barrier or a 1625 wedge barrier gate operator.
It **CANNOT** be used on a 1602 operator. it offers **MINIMAL** safety protection.

Installation

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.

Cap End of Arm

3" Trim End

2 Slide on Rubber Bumper

The 3" trim end **MUST** side on first and it fits into the cover, see cover illustration.

> **Tip:** Liquid soap will help rubber bumper slide on easier.

Operator End of Arm

3 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.

3" trim end **MUST** be on the operator end as shown.

If using a shortened arm rubber bumper can be cut to length

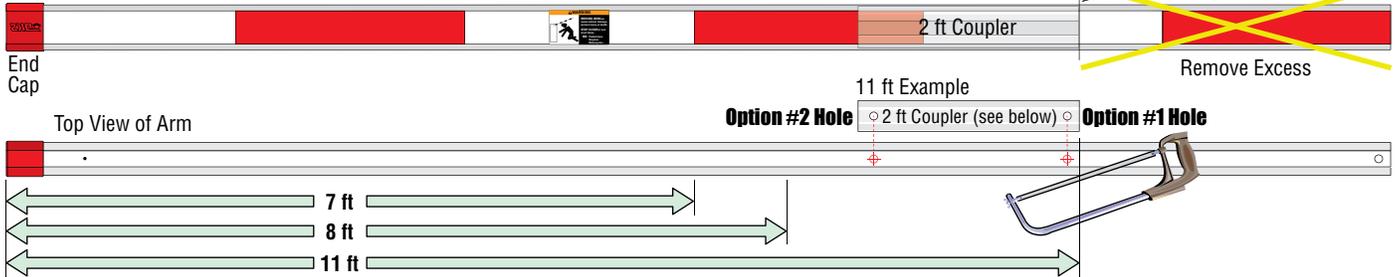# Shortening a 14-Ft Octagon Arm to 7-Ft, 8-Ft, 11-Ft

A 14 ft 1-piece **OR** 2-piece arm can be shortened to fit **different** length reverse edges. The shortened arm lengths are shown **depending on the length of the reverse edge chosen**. Follow the diagrams below depending on which style arm you have selected to shorten.

Note: Reverse edges **CANNOT** be cut down. They **MUST** remain intact.

DoorKing Part Numbers:
Reverse Edge
(Arm cut to 7 ft) **5 ft Reverse edge** P/N 8080-605
(Arm cut to 8 ft) **6 ft Reverse edge** P/N 8080-606
(Arm cut to 11 ft) **9 ft Reverse edge** P/N 8080-609
(14 ft Arm) **12 ft Reverse edge** P/N 8080-612

Reverse/LED Edge
(Arm cut to 7 ft) **5 Reverse/LED edge** P/N 8080-905
(Arm cut to 8 ft) **6 ft Reverse/LED edge** P/N 8080-906
(Arm cut to 11 ft) **9 ft Reverse/LED edge** P/N 8080-909
(14 ft Arm) **12 ft Reverse/LED edge** P/N 8080-912

Drawings NOT to scale

1-Piece 14 Ft Arm (P/N 1601-555)

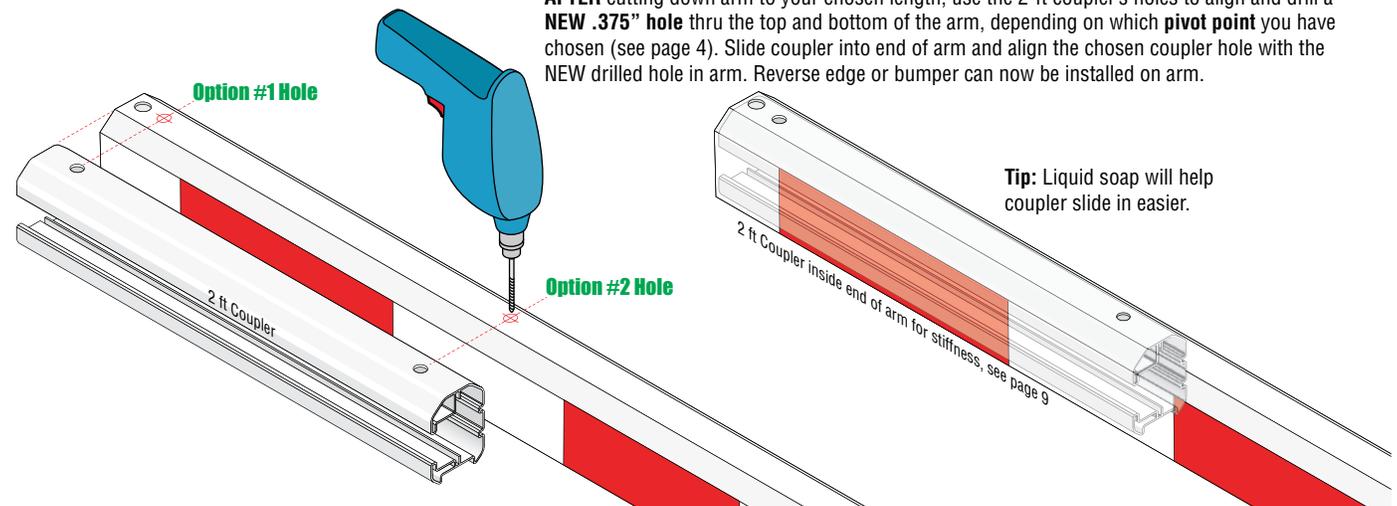2 ft coupler fits inside arm and flush with end **AFTER** cutting arm down.

Note: Score the reflective tape **before** cutting arm.

2 ft Coupler

End Cap

Remove Excess

Top View of Arm

11 ft Example

Option #2 Hole | 2 ft Coupler (see below) | Option #1 Hole

7 ft
8 ft
11 ft

2-Piece 14 Ft Arm (P/N 1601-567)
See page 10 for arm assembly

2 ft coupler fits inside arm and flush with end **AFTER** cutting arm down.

2 ft Coupler Connects Sections

Note: Score the reflective tape **before** cutting arm.

2 ft Coupler

End Cap

7 ft Section

7 ft Section

Remove Excess

Top View of Arm

11 ft Example

Option #2 Hole | 2 ft Coupler (see below) | Option #1 Hole

7 ft (use one 7 ft section, end cap MUST lock on end of arm)
8 ft
11 ft
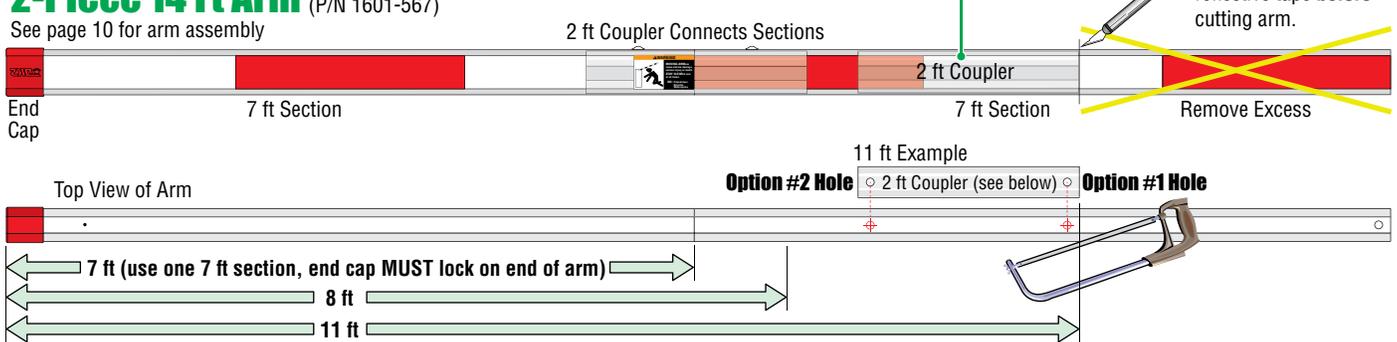
Drill a .375" Pivot Hole AFTER Shortening Arm

AFTER cutting down arm to your chosen length, use the 2-ft coupler's holes to align and drill a **NEW .375" hole** thru the top and bottom of the arm, depending on which **pivot point** you have chosen (see page 4). Slide coupler into end of arm and align the chosen coupler hole with the NEW drilled hole in arm. Reverse edge or bumper can now be installed on arm.

Option #1 Hole

Option #2 Hole

2 ft Coupler

Tip: Liquid soap will help coupler slide in easier.

2 ft Coupler inside end of arm for stiffness, see page 9

17 Ft Octagon Arm Assembly for a 1602 ONLY

This kit is designed for a **1602** barrier gate operator **ONLY.** It **CANNOT** be used on a 1601 **OR** 1603 auto-spikes. It will extend a 14 ft octagonal arm an **extra three feet**. The 15 ft reverse edge is sold separately but **HIGHLY recommended** for safety when lowering this **very long arm**.

Installation

204 in. (17 ft) Max

1602 ONLY

OPTIONAL
15-ft Reverse/LED Edge
(See page 11 for installation)

3-ft Extension

2-Ft Coupler
Slide 2-Ft coupler all the way in the end of 14-Ft arm for stiffness.

Tip: Liquid soap will help coupler slide in easier.

Screw

. . . . . **THEN** drill **.125"** holes on **top** and **bottom 3"** from end of 14-ft arm.

Option #1 Hole

Pivot hole **MUST** be drilled in arm see page 4

14-ft 1-Piece Arm

3"

Screw

Operator Attachment End of 14-ft 1-Piece Arm

Option #2 Hole

1-Ft Coupler
With pre-drilled holes

Screw

FIRST . . . . . install 1-Ft coupler in arm extension

Pre-drilled holes in extension

Screw

3-ft Arm Extension

End Cap

Install End Cap in Arm Extension
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.

Older Existing Arm Cover

Older existing plastic arm cover will need to have a notch cut out for a **OCTAGON** Arm's **Reverse Edge**. Only one side of the cover will need to be cut out depending on which side of the operator the arm is mounted on. Use this template as a guide to remove material from the cover.

Older Covers

X

X
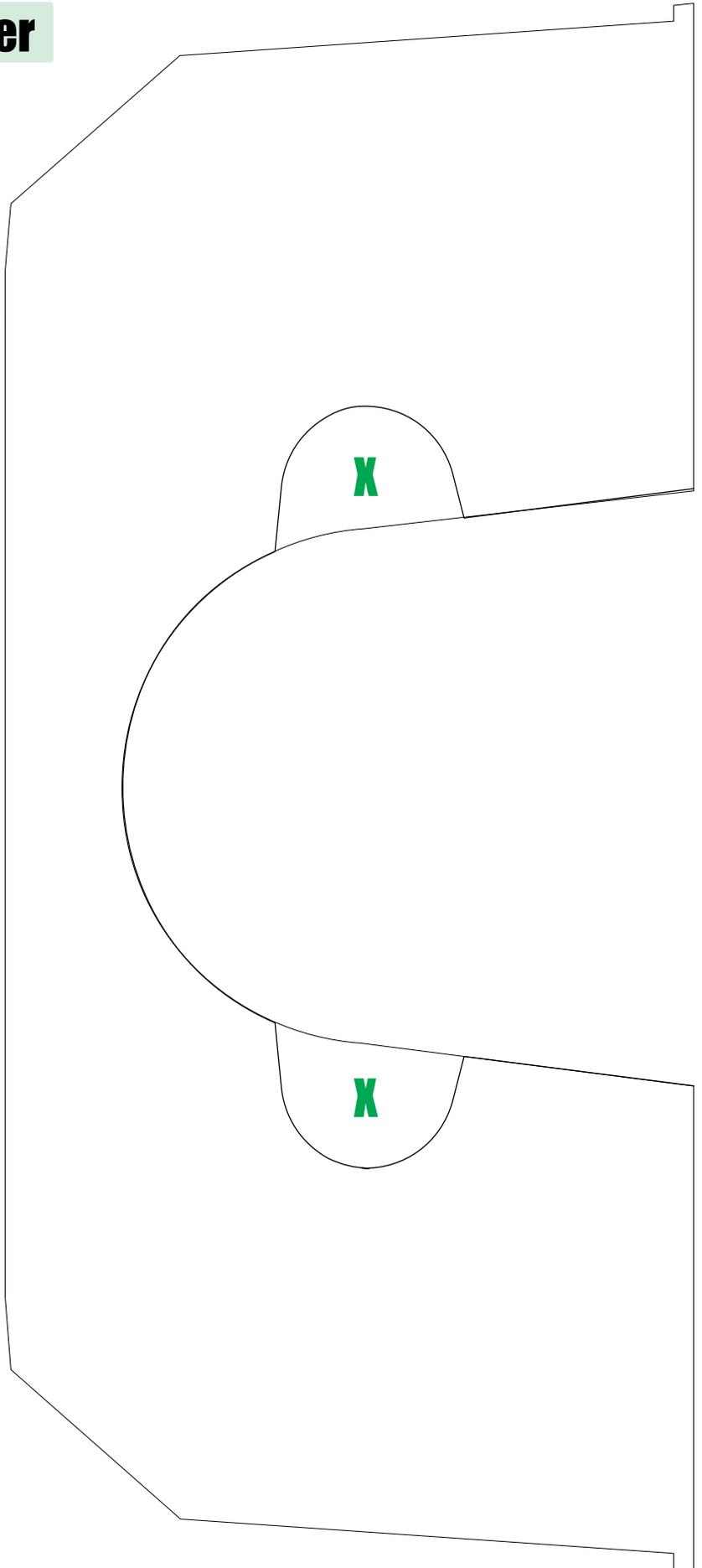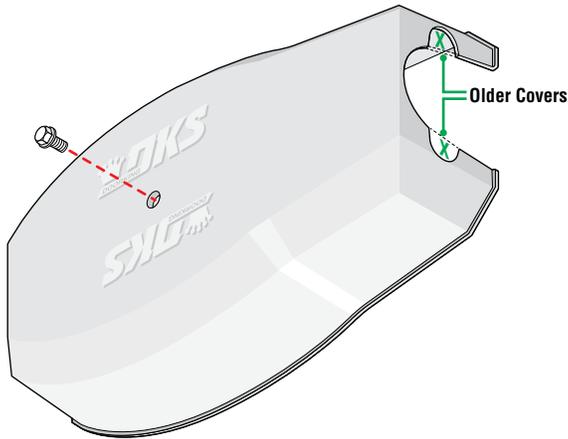
Make sure your printer is set to 100% (Actual Size)
Drawing to scale