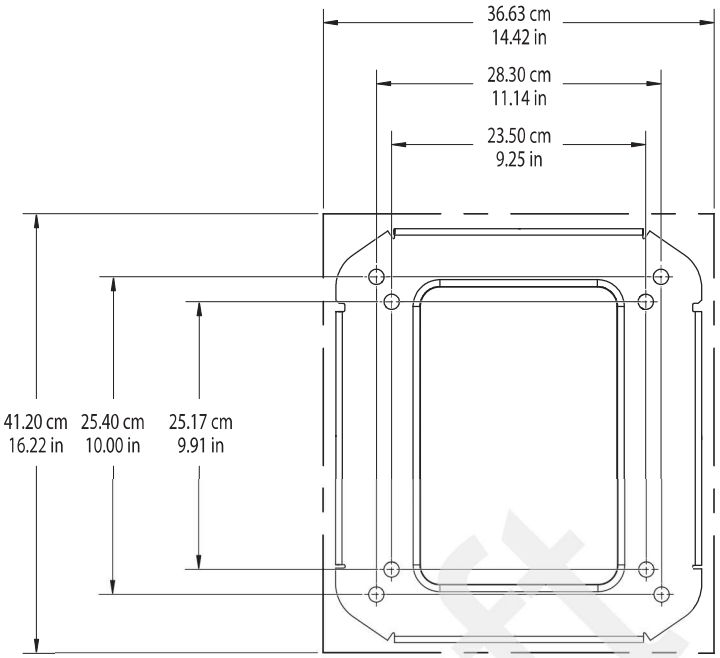
Introduction (continued)

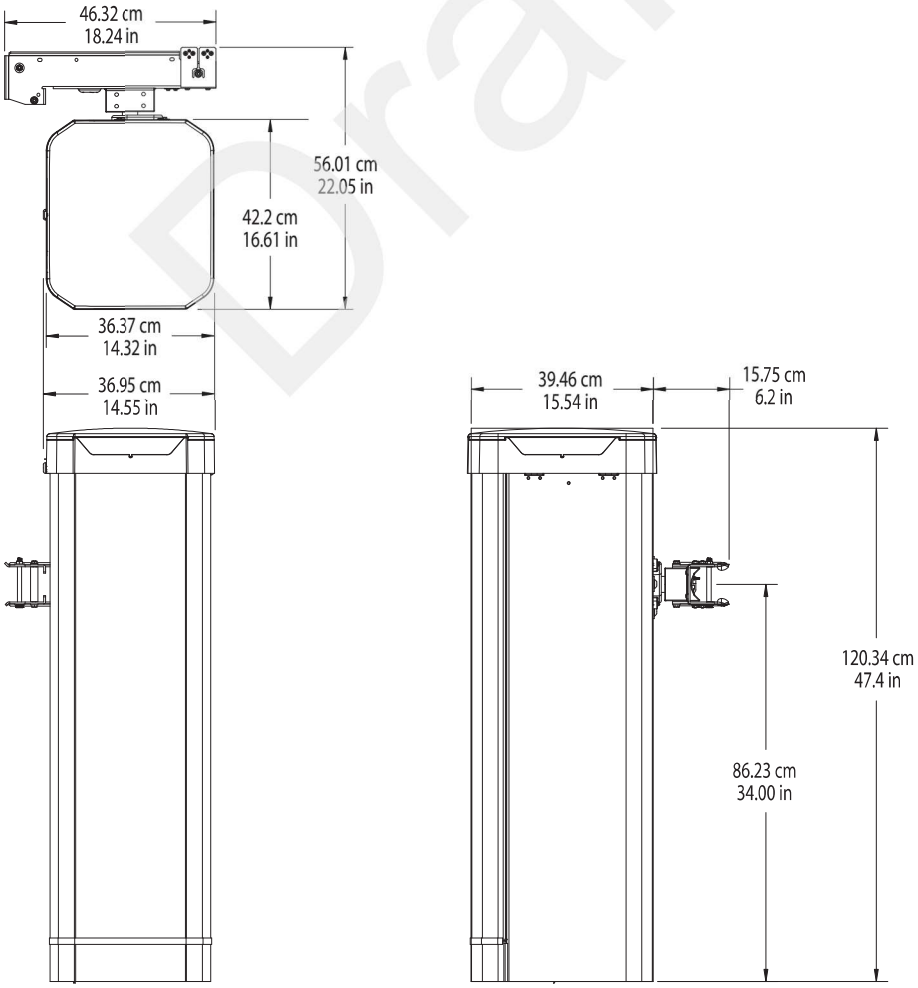
Operator Specifications

	PBG24DCW, PBG24DCG Parking Operator	CBG24DCW, CBG24DCG Commercial/Community Operator
Colors Available	White, Charcoal	
Usage Classification	Class I, II, III, and IV	
Maximum Functional Arm Length	12 feet	14 feet
Open / Close Time	1.9 seconds	2.5 seconds
Duty Cycle	Continuous	
Main AC Supply	120 VAC single phase, 12.5 Amps including Accessory Outlets OR 240 VAC single phase, 3.5 Amps	
Optional Transformer Kit	When Optional Transformer Kit Model 3PHCONV is installed in the field, operator is rated phase-to-phase. 208/240/480/575 VAC, 5.2/4.5/2.3/1.9 A, 60 Hz, 1 PH	
System Operating Voltage	24 VDC Transformer Run / Battery Backup	
Accessory Power	24 VDC, 1A max. for ON + SW (switched)	
Solar Power Max	24 VDC, 60 Watts max.	
Operating Temperature	Without Heater: -20°C to 60°C (-4°F to 140°F) With Optional Heater: -40°C to 60°C (-40°F to 140°F)	
120 VAC accessory power outlets	6 Amps When the 3PHCONV kit is used, the outlets are rated 1 Amp 240 VAC not supported	
Safety Device Inputs	Main control board maximum capacity: Up to 2 safety devices in close direction and 1 safety device in open direction. Expansion board maximum capacity: Up to 3 safety devices configurable to either the close or open direction. ***ATTENTION**: If an edge sensor is being integrated into this system, and installed on the arm, use a wireless edge kit. If a wired edge is used, there is risk of wire damage in the gate arm bracket. See "Site Preparation for Safety Devices" on page 11 for additional details.*	
Operating Wind Force	60 mph max.	

Introduction (continued)

Top View of Cabinet Footprint





Introduction (continued)

Networking Specifications

Ethernet Compatibility	10 Mbps / 100 Mbps Ethernet
Wi-Fi® Compatibility	802.11 b/g/n 2.4 GHz
Wi-Fi® Security	Operator is compatible with routers using the following security protocols: WPA3-Personal (SAE) (Recommended), WPA2-PSK (AES), WPA2-PSK (TKIP), WPA2 Personal, WPA-PSK (AES), and WPA-PSK (TKIP). Operator is NOT compatible with routers using the following security protocols; WPA3-Enterprise, WPA2-Enterprise, WEP, Open (No password or encryption).
Wi-Fi® Range	Up to 500 feet (152.4 m), Open Air/Line-of-Sight (range varies depending on obstructions)
LiftMaster Radio Compatibility	Security+ 2.0®
Wireless Communication to Access Controllers	Up to 1500 feet (450 m), Open Air/Line-of-Sight (range varies depending on obstructions), Compatible with LiftMaster CAPX Access Control Systems

INTERNET REQUIREMENTS

When selecting a router, use the information below to ensure compatibility.

The operator can be connected to a router via a wired connection or Wi-Fi. LiftMaster recommends an Internet speed of 5Mbps download speed, 5Mbps upload speed.

Operator is compatible with routers using the following Wi-Fi communication protocols:

- 802.11b
- 802.11g
- 802.11n

ADDITIONAL COMPATIBILITY CONSIDERATIONS

- Don't use Wi-Fi extender devices. These may introduce latency in the connection leading to a choppy connection.
- If using a Wi-Fi signal strength tool or app, you must ensure a continuous Wi-Fi signal strength connection of at least -65 DBM (numbers closer to zero indicate a stronger signal strength) at the operator location for an acceptable connection to the local network.
- Hidden network SSID's are not supported. The network must be selectable from the operator display.
- Wi-Fi networks requiring secondary authentication are not supported, e.g., hotels and airport Wi-Fi.
- When checking signal strength in operator network configuration mode, we recommend at least two bars, as shown on the operator LCD screen.
- If two bars are not available, relocate the router, or move the operator antenna higher up or to a location resulting in two or more bars.

Pre-Installation

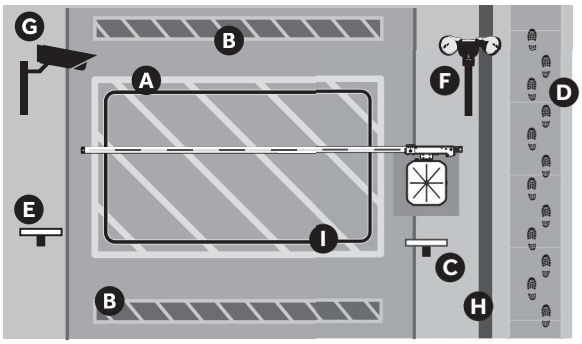
⚠ WARNING

- The entrance is for vehicular traffic ONLY. Pedestrians MUST use a separate entrance.
- Do not install operator in a manner in which the barrier arm moves within 16 in. (406 mm) of a rigid object in a location up to 6 ft. (1.8 m) above the grade. Examples include walls, ceilings, guard shacks, and posts. Doing so creates an entrapment zone.
- Ensure the barrier arm, when open, does not come in close position to high voltage power wires that may be located above or near the barrier arm gate area.

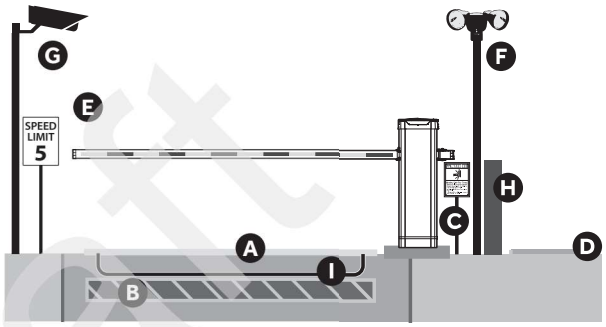
Site Preparation

Recommendations for site preparation for barrier arm gate operator installation. Every installation is unique. It is the responsibility of the installer to ensure the barrier arm gate operator is installed in a safe manner. If the area surrounding the barrier arm gate operator is expected to have high pedestrian traffic, it is recommended that safety devices, such as Liftmaster photoelectric sensors or wireless edge sensors, be installed at the site.

Bird's Eye View



Ground-Level View



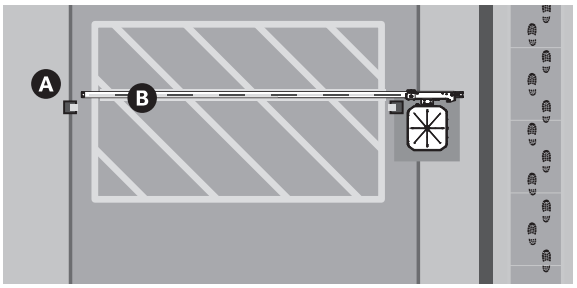
A	**Caution Lines**	Permanently fix caution lines under travel of arm indicating a no stopping or standing zone. When the swingaway mounting style is used, the swing radius of the arm should be marked on the pavement with caution lines.
B	**Speed Bump**	Permanently fix speed bump on both sides of roadway at a straight angle, to slow traffic. At minimum of 6 feet away from barrier arm.
C	**UL Warning Signs (Two Required)**	Permanently fix the two required UL warning signs in the area of the barrier arm gate operator. Each warning sign is to be visible by persons located on each side of the barrier arm gate operator on which the warning sign is installed. See page 41.
D	**Pedestrian Access**	If pedestrian traffic is in the vicinity of the barrier arm gate operator, a separate pedestrian entry/exit must be clearly visible to promote pedestrian usage and located so pedestrians do not come in contact with the barrier arm. Partition/barrier from vehicular traffic is recommended when possible. See callout H.
E	**Speed Limit Sign**	Recommend installing a permanently fixed lighted speed limit sign within line of sight from both sides of roadway. Recommended 5mph.
F	**Perimeter Lighting**	Recommend installing perimeter lighting to create awareness of the area surrounding the barrier operator. If the swingaway mounting style is used, the lighting should be placed outside the swing radius of the arm.
G	**Cameras**	Install cameras to record operation and deter unwanted operation.
H	**Partition/ Barrier**	Separation between vehicle and foot traffic.
I	**Exit, or Reversing Loop**	Protect property and manage the flow of traffic with an inground loop that reverses a closing arm for vehicle detection.

Pre-Installation (continued)

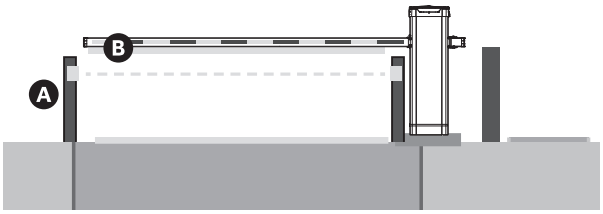
Site Preparation for Safety Devices

Every installation is unique. It is the responsibility of the installer to ensure the barrier arm gate operator is installed in a safe manner. If the area surrounding the barrier arm gate operator is expected to have high pedestrian traffic, it is recommended that safety devices, such as Liftmaster photoelectric sensors or wireless edge sensors, be installed at the site. See "Safety Devices" on page 58 for acceptable devices.

Bird's Eye View



Ground-Level View



A	**Non-contact sensor**	When a non-contact sensor is used, it is recommended to permanently fix the sensor under the path of barrier arm. Recommended to mount sensor between 21"-27" above grade. **WARNING:** Never use a non-contact sensor, microwave sensor OR any motion activated detection device to provide a close command to the barrier arm operator. This can be dangerous and is not recommended.
B	**Contact sensor**	When a contact sensor is used, it should be mounted to the bottom of the barrier arm in the existing channel. A wireless edge sensor is the only contact sensor supported by this system. This system does not support a hardwired edge sensor.

Pre-Installation (continued)

⚠ CAUTION

- To AVOID damaging gas, power or other underground utility lines, contact underground utility locating companies BEFORE digging more than 18 inches (46 cm) deep. In the US, call 811.
- Permanent wiring is to be employed as required by local codes. It is important to ensure proper grounding of the unit.
- To avoid creating an entrapment zone, do not install this vehicular barrier arm gate operator in a manner in which the arm moves within 16 in. (406mm) of a rigid object in a location up to 6ft. (1.8m) above grade. Examples include walls, ceilings, posts, pillars, columns, or guard shacks.

Operator and Arm Installation Options

NOTE: The Barrier Arm is not included and must be purchased separately. See "Accessories" on page 58.

First determine the handing, which is the side of the operator the arm will move up and down in normal operation.

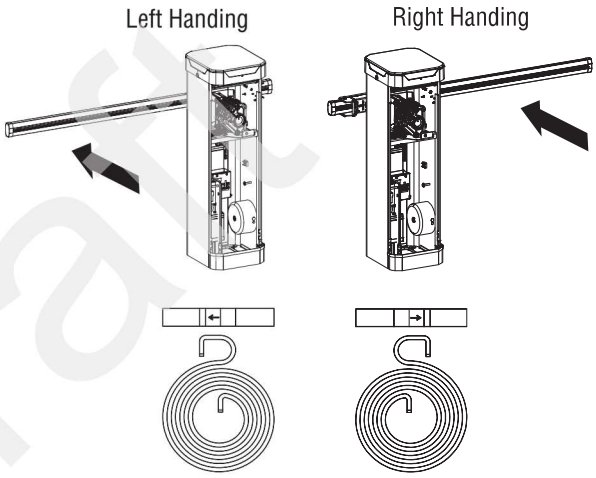
Second determine the installation type. This will determine how the arm will move when dislodged from the arm bracket during a vehicle strike into the arm. See p18 for table of these options, which includes Swingaway (pivot), Breakaway (falls perpendicular to the lane) and Fixed Arm.

CAUTION: *If the Fixed arm set up is used, damage to the operator may occur during a vehicle strike into the arm.*

HANDING OPTIONS

The barrier arm gate operator may be installed with right-hand or left-hand operation.

See the image to determine the handing in relation to the operator when facing the opening of the cabinet.



COUNTERBALANCE SPRINGS DIRECTION

The arrow of each installed spring must point in the direction of the arm in the closed position for left- or right-handing. The counterbalance spring assembly comes from the factory in the right-handed configuration.

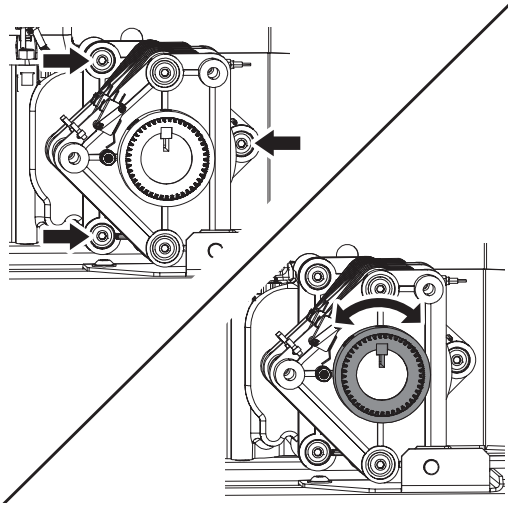
Reinstall all springs in the proper direction when the handing is changed. For instructions, see "Reverse the Spring Handing" on page 16.

NOTE: *The barrier must be fully open (arm/bracket in the vertical position) before modifying the counterbalance spring assembly.*

WARNING: FOLLOW THE STEPS OUTLINED IN "REMOVING SPRING TENSION" TO ENSURE THAT ALL TENSION IS RELEASED FROM SPRINGS PRIOR TO REMOVING BOLTS, OR THE END PLATE.

REMOVING SPRING TENSION

ATTENTION: The steps below must be used to safely remove springs from a PBG, CBG, or IBG operator. They allow the spring assembly to disengage from the gearbox while it is still mounted in place.



1. Locate the three bolts that attach the spring assembly to the gearbox. Using a socket wrench and extension to avoid accidental contact with the loaded springs inside the cabinet enclosure, loosen each screw by 3 full rotations only. Do NOT fully remove these bolts yet.
2. Use a flathead screwdriver or pry bar around the edges of the spring assembly to disengage it from the gearbox, avoiding contact with the springs and center hub. **Do not use hands or body to release tension.**
3. Verify the springs are loose before removing the three bolts completely. The shaft of the spring assembly should be able to move a few degrees by hand if the springs are disengaged.

NOTE: *The Handing of the Barrier Arm may be changed from right-hand to left-hand operation, and vice versa.*

Pre-Installation (continued)

ARM INSTALLATION TYPE OPTIONS

(See p18 for the arm installation instructions)

When choosing the arm installation type, the Breakaway setup is recommended for PBG and CBG operator models. With this setup, the arm will fall perpendicular to the lane when a low-speed vehicle strike to the arm occurs.

A second, optional, arm installation type is the Swingaway setup, compatible with the PBG and CBG operator models. With this setup, the arm will pivot and swing away from the vehicle when a low-speed vehicle strike to the arm occurs.

WARNING: **The Swingaway option requires pedestrian clearance parallel to the roadway on the side of operator a minimum of 7 ft from outer edge of operator.**

ARM SWINGAWAY SETUP (OPTIONAL)

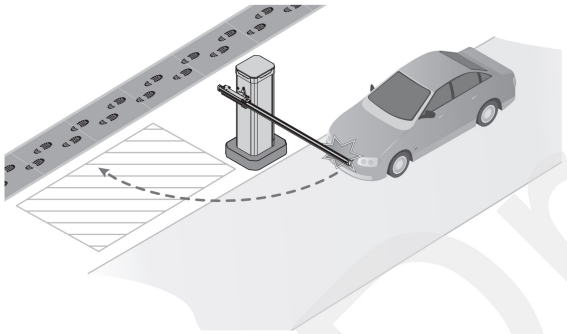
When using the Arm Swingaway System, the barrier arm will pivot in the outward direction only, away from the operato

WARNING: *THE SWINGAWAY OPTION REQUIRES PEDESTRIAN CLEARANCE PARALLEL TO THE ROADWAY ON THE SIDE OF OPERATOR A MINIMUM OF 7 FT FROM OUTER EDGE OF OPERATOR.*

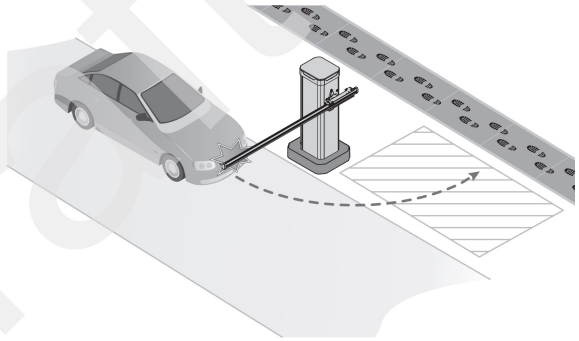
Arm Setup with Outward Swingaway

The arm can be installed on the arm bracket to pivot and swingaway outwards away from the operator.

Left Handed Outward Swingaway



Right Handed Outward Swingaway

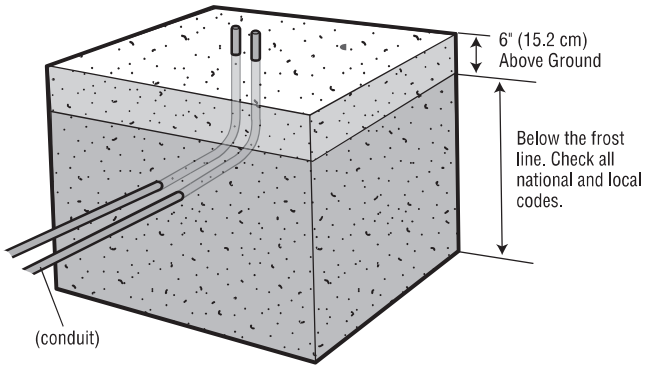


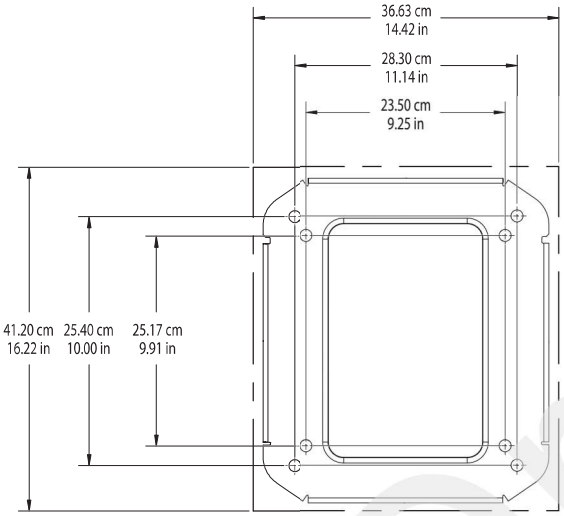
Installation

1 Determine Location for Operator

Check the national and local building codes before installation.

1. Lay out the concrete pad.
2. Install the electrical conduit.
3. Pour a concrete pad (reinforced concrete is required).



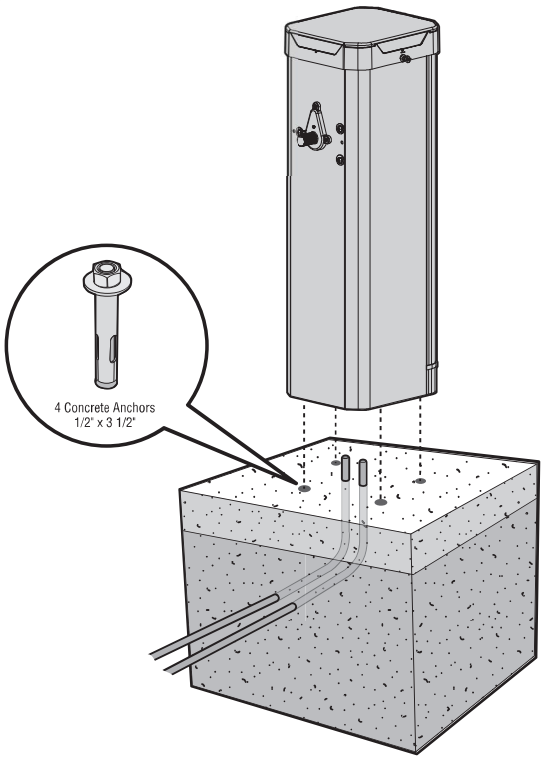


811
Know what's below.
Call before you dig.

2 Install the Operator

Attach the operator to the concrete pad with appropriate fasteners.

1. If replacing an existing operator, determine whether the existing bolt mounting pattern is compatible with the operator.
2. If installing a new operator, use the "Bolt Mounting Pattern Reference Cardboard" to mark the locations for drilling the bolts.
3. Drill the bolts into the concrete. Use the 4 oversized washers when attaching the operator to the pad.



Installation (continued)

3 Adjust the Counterbalance Spring Assembly

The counterbalance spring assembly comes from the factory in the right handed configuration with the number of springs to support the longest arm compatible with the model and most accessories installed.

1. Verify arm length, list of accessories attached to the arm, and handing direction. Use the table below to identify how many springs should be used. See "Operator and Arm Installation Options" on page 12 for details on handing.

    a. If springs need to be removed, continue to "Modify Spring Count" on page 16.

Spring Count Table						
Functional Arm Length (ft)*	**Bare Arm**	**One LED Strip**	**Foam Insert**	**Foam Insert, One LED Strip**	**Edge**	**Edge, One LED Strip**
8	3	3	3	3	4	4
9	4	4	4	4	5	5
10	5	5	5	5	6	6
11	6	6	6	6	7	7
12	7	7	7	7	7	7
13	8	8	8	8	9	9
14	9	9	9	9	9	9

ATTENTION: *Maximum arm length for PBG models is 12', CBG models is 14'.*

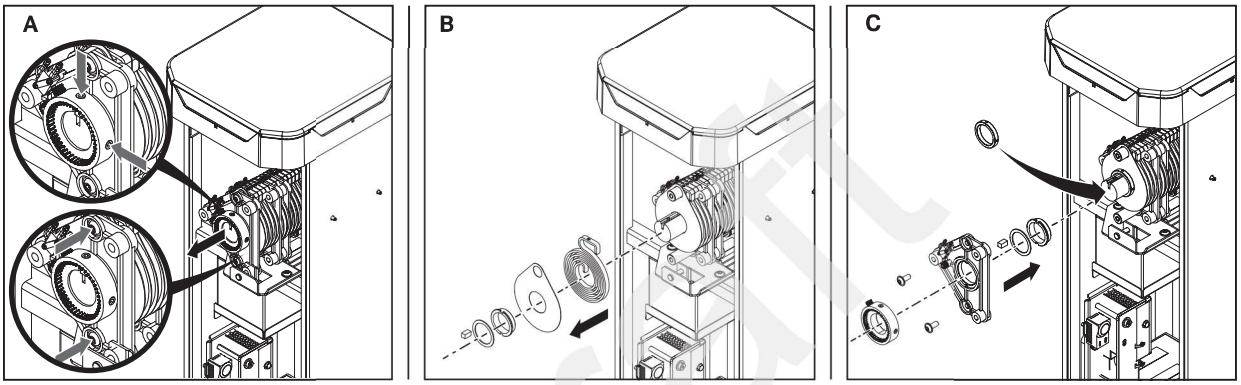
Installation (continued)

⚠ WARNING

Springs may be under tension. The tension on the counterbalance spring system must be released or removed prior to loosening or removing the bolts or any components of the spring system. See "Removing Spring Tension" on page 12.

MODIFY SPRING COUNT

1. Remove the hub by loosening the two set screws and sliding it off (see image A).
2. Remove the end plate by removing the two screws (see image A).
3. Remove unneeded springs and spacers by sliding them off (see image B).
4. Add retention collars (provided in the pack in bag) in place of the removed springs. These retention collars prevent the springs from sliding out of place during operation (see image C).
5. Replace end plate and tighten the two end plate screws to 30 ft-lbs (see image C.)
6. Replace hub and tighten the two set screws to 30 ft-lbs (see image C).



REVERSE THE SPRING HANDING

1. Remove the counterbalance spring assembly by removing three screws that attach the counterbalance spring assembly to the gearbox. Take care not to damage the switch harness.
2. Rotate the counterbalance spring assembly 180° so that the two end plates swap position. The spring arrows should still be on the top of the assembly after rotating.
3. Install the three attachment screws again to secure the counterbalance spring assembly to the gearbox.