

# Installation Manual for the



## 2000XL

### SINGLE Gate Operator System FOR PROFESSIONAL INSTALLATION ONLY!

#### **WARNING!**

This equipment is similar to other gate or door equipment and meets or exceeds Underwriters Laboratory Standard 325 (UL 325). However, gate equipment has hazards associated with its use and therefore by installing this product the installer and user accept full responsibility for following and noting the installation and safety instructions. Failure to follow installation and safety instructions can result in hazards developing due to improper assembly. You agree to properly install this product and that if you fail to do so Gates That Open, LLC, ("GTO") shall in no event be liable for direct, indirect, incidental, special or consequential damages or loss of profits whether based in contract tort or any other legal theory during the course of the warranty or at any time thereafter. The installer and/or user agree to assume responsibility for all liability and use of this product releasing Gates That Open, LLC, from any and all liability. If you are not in agreement with this disclaimer or do not feel capable of properly following all installation and safety instructions you may return this product for full replacement value.

**READ ALL INSTRUCTIONS CAREFULLY AND COMPLETELY** before attempting to install and use this automatic gate operator. This gate operator produces a high level of force. Stay clear of the unit while it is operating and exercise caution at all times.

All automatic gate operators are intended for use on *vehicular gates only*.



This product meets and exceeds the requirements of UL 325, the standard which regulates gate operator safety, as established and made effective March 1, 2000, by Underwriters Laboratories Inc.



For more information on the GTO/ACCESS SYSTEMS full line of automatic gate operators and access controls visit our website at **[www.gtoaccess.com](http://www.gtoaccess.com)**.

# Certification and Product Usage

The GTO 2000XL Gate Operator is intended for use with **vehicular swing gates in single-family residential applications**. The operator is system certified to be in compliance with UL 325, current edition, as of publication date.



Product tested to the latest UL-325 standard by ETL. Product tested to be in compliance with CAN/CSA-C22.2 No. 247-92.



Product tested to be in compliance with IEC 60335-2-103:2003 and IEC 60335-1:2004, including A1:2004.

## Converting Metric Units to English Equivalents

When You Know	Multiply By	To Find	Symbol
centimeters	0.3937	inches	in. (or ")
meters	3.2808	feet	ft. (or ')
kilograms	2.2046	pounds	lb. (or #)

## Converting English Units to Metric Equivalents

When You Know	Multiply By	To Find	Symbol
inches	2.5400	centimeters	cm
feet	0.3048	meters	m
pounds	0.4535	kilograms	kg

## Converting Temperature

deg. Celsius	$(^{\circ}\text{C} \times 1.8) + 32$	deg. Fahrenheit	$^{\circ}\text{F}$
deg. Fahrenheit	$(^{\circ}\text{F} - 32) \div 1.8$	deg. Celsius	$^{\circ}\text{C}$

## FOR YOUR RECORDS

Please record the following information product serial number (located on right side of control box), be sure to **keep all receipts for proof of purchase**. Refer to this information when calling GTO for service or assistance with your automatic gate opener.

Serial Number: \_\_\_\_\_ Date of Purchase: \_\_\_\_\_

Place of Purchase: \_\_\_\_\_

# Table of Contents

Class Rating .....	inside cover
Please Read This First.....	ii
Important Safety Instructions.....	iii
Technical Specifications.....	1
Before You Begin... ..	2
Determine Charging Option for Battery: Transformer OR Solar .....	2
Solar Panel and Gate Activity Chart .....	2
Check Direction of Gate Swing .....	3
Prepare the Gate .....	3
2000XL Parts List .....	4
Tools Needed.....	5
Materials You may Need for the Installation: .....	5
Installation Overview .....	6
Install the Operator .....	8
Install the Post Bracket Assembly .....	8
Check Clearance .....	9
Install Gate Bracket.....	10
Attach Operator Arm .....	10
Installation of the Closed Position Stop Plate .....	11
Mount the Control Box and Receiver.....	12
Connect Operator Power Cable.....	13
Connect the Transformer .....	14
Connect Battery.....	15
Program Control Board .....	16
Set the Closed Position Limit (for Pull-To-Open Applications) .....	16
Adjust the Stall Force Setting .....	17
Set Auto Close Time .....	18
Program Your Personal Transmitter Setting .....	18
Control Board Settings.....	19
Connecting Accessories .....	20
Wiring Accessories.....	21
Connecting Other Auxiliary Devices (Sirens, Lights, etc.).....	21
Push-To-Open Installation Information.....	22
Setting the Open Position Limit (Push-To-Open Installations).....	23
Column Installation .....	24
Troubleshooting Guide.....	25
Voltage Ratings.....	26
Repair Service.....	27
Accessories .....	28

# Please Read This First



Thank you for purchasing a GTO/ACCESS SYSTEMS 2000XL. When correctly installed and properly used, your 2000XL operator will give you many years of reliable service. Please read the following information to ensure you have the correct system for your particular needs. This manual will enable you to properly install your 2000XL Automatic Gate Operator.

The 2000XL operator is designed for installation on a pull-to-open single leaf gate. The gate must not exceed 16 feet in length nor weigh more than 500 pounds\* (please see Technical Specifications on page 1). The 2000XL operator can be used on vinyl, aluminum, chain link, farm tube, and wrought iron gates. **Use on solid (wood) gates is not recommended. Solid surface gates have a high resistance to the wind. If the wind is strong enough, the operator will obstruct, stop, and blow fuses.**

The 2000XL operator accommodates extra transmitters, digital keypads, solar panels, push buttons, automatic gate locks, and other access control products. **These optional accessories are noted with the + symbol.**

The 2000XL operator features **adjustable stall force**. This safety feature makes the gate stop and reverse direction within two seconds when it comes in contact with an obstruction. The "MIN" setting means the gate will exert the minimum force on an obstruction before it stops and reverses direction.

The 2000XL operator also has an **adjustable auto-close** feature. It can be set to remain open from 3 to 120 seconds before automatically closing. Pressing the transmitter button at any time after the gate fully opens will cause it to close immediately. "OFF" is the factory setting; meaning the gate will stay open until you press the transmitter button (or keypad, etc.) again.

Please call GTO at (800) 543-GATE [4283] or (850) 575-0176 for more information about our GTO/ACCESS SYSTEMS professional line of gate operators and accessories. Our Sales Department will be glad to give you the name and phone number of a GTO/ACCESS SYSTEMS dealer near you.

## BEFORE YOU BEGIN TO INSTALL YOUR AUTOMATIC GATE OPERATOR:

**Read these instructions carefully and completely to become familiar with all parts and installation steps. You must read the installation manual for detailed instructions on gate operator safety and proper use of the gate operator.**



**24/7 Troubleshooting Wizard: <http://support.gtoinc.com>**




GTO Accessories are noted with this symbol in this Installation Manual. Information about accessories can be found on page 28 and at [www.gtoaccess.com](http://www.gtoaccess.com).

# IMPORTANT SAFETY INSTRUCTIONS



Because automatic gate operators produce high levels of force, consumers need to know the potential hazards associated with improperly designed, installed, and maintained automated gate operator systems. *Keep in mind that the gate operator is just one component of the total gate operating system.* Each component must work in unison to provide the consumer with convenience, security, and safety.

This manual contains various safety precautions and warnings for the consumer. Because there are many possible applications of the gate operator, the safety precautions and warnings contained in this manual cannot be completely exhaustive in nature. They do, however, provide an overview of the safe design, installation, and use of this product. **CAREFULLY READ AND FOLLOW ALL SAFETY PRECAUTIONS, WARNINGS, AND INSTALLATION INSTRUCTIONS TO ENSURE THE SAFE SYSTEM DESIGN, INSTALLATION, AND USE OF THIS PRODUCT.**

Precautions and warnings in this manual are identified with this  warning symbol. The symbol identifies conditions that can result in damage to the operator or its components, serious injury, or death.

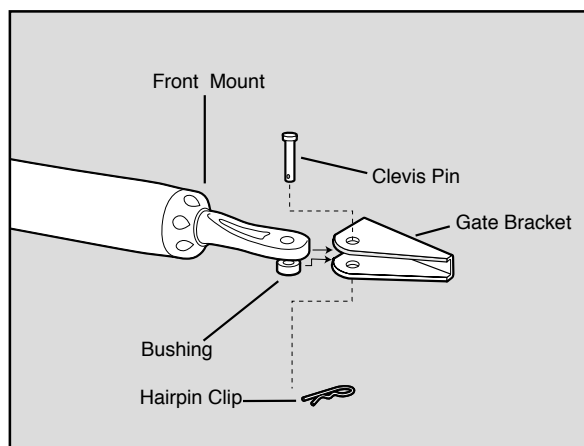
**Because GTO automatic gate operators are only part of the total gate operating system, it is the responsibility of the installer/consumer to ensure that the total system is safe for its intended use.**

## How To Manually Open and Close the Gate:


**CAUTION:** The gate can be opened and closed manually when the operator is disconnected. **ONLY** disconnect the operator when the operator power switch is OFF and the gate is NOT moving.

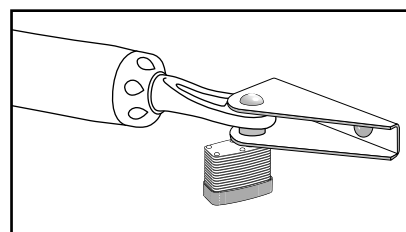
### Disconnecting the Operator

1. Turn operator power switch (Control Box) OFF.
2. Remove hairpin clip, clevis pin, and bushing from both the front and rear mounting points.
3. Remove the operator from the mount.



**CAUTION:** Because the GTO gate operator is battery powered, disconnect the operator **ONLY** when the power switch on the control box is turned OFF. Unplugging the transformer does not turn power to the operator OFF.

NOTE: Substitute a Pin Lock  [FM345] for the clevis pin on the front mount of the gate operator to prevent unauthorized removal of the operator from the gate.





# IMPORTANT SAFETY INSTRUCTIONS

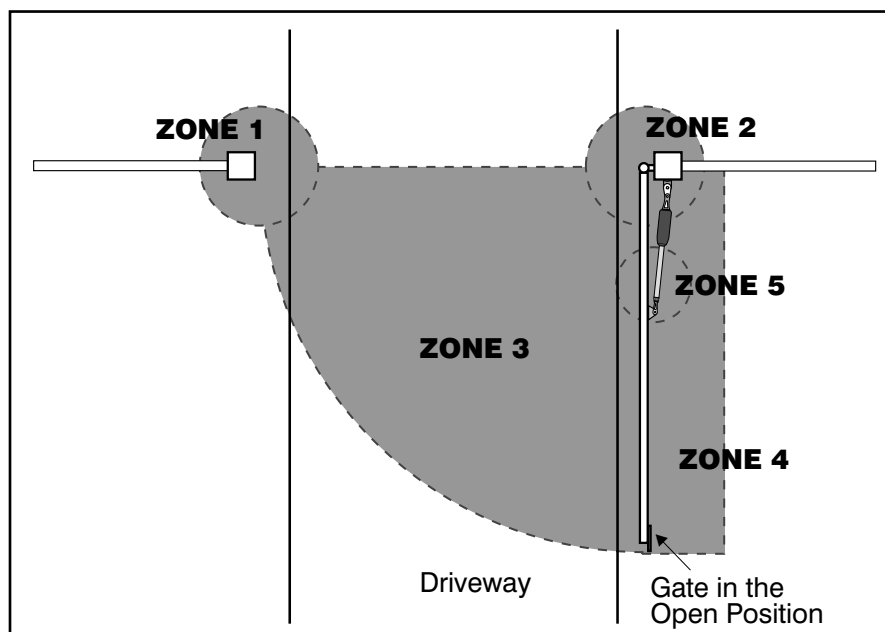
## For The Consumer

### **WARNING:** To reduce the risk of injury or death:

1. **READ AND FOLLOW ALL INSTRUCTIONS.** Failure to meet the requirements set forth in the instruction manual could cause severe injury or death, for which the manufacturer cannot be held responsible.
2. When designing a system that will be entered from a highway or main thoroughfare, make sure the system is placed far enough from the road to prevent traffic congestion.
3. The gate must be installed in a location that provides adequate clearance between it and adjacent structures when opening and closing to reduce the risk of entrapment. Swinging gates must not open into public access areas.
4. The gate and gate operator installation **must comply with any applicable local codes.**

### I. Before Installation

1. Verify this operator is proper for the type and size of gate, its frequency of use, and the proper class rating.
2. Make sure the gate has been properly installed and swings freely in both directions. Repair or replace all worn or damaged gate hardware prior to installation. A freely moving gate will require less force to operate and will enhance the performance of the operator and safety devices used with the system.
3. Review the operation of the system to become familiar with its safety features. Understand how to disconnect the operator for manual gate operation (page iii).
4. This gate operator is intended for vehicular gates **ONLY**. A separate entrance or gate must be installed for pedestrian use (page vi).
5. Always keep people and objects away from the gate and its area of travel. **NO ONE SHOULD CROSS THE PATH OF A MOVING GATE.**
6. Pay close attention to the diagram below and be aware of these areas at all times.



### Entrapment Zones for a proper Pull-To-Open installation:

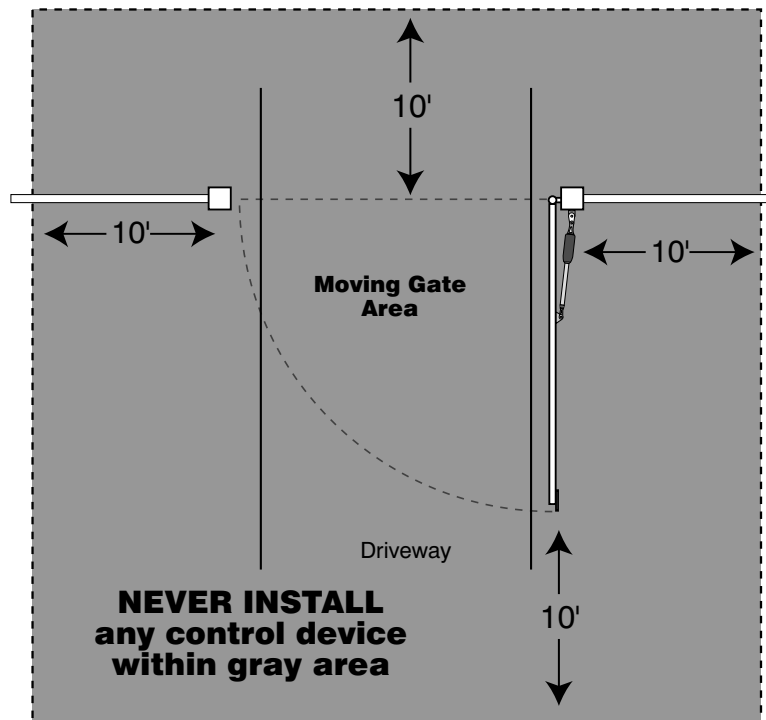
- Zone 1** – leading edge of the gate and post.
- Zone 2** – between the gate and the gate post.
- Zone 3** – the path of the gate.
- Zone 4** – the space between the gate in the open position and any object such as a wall, fence, etc.
- Zone 5** – pinch points between the operator and gate.

# IMPORTANT SAFETY INSTRUCTIONS



## II. During Installation

1. Install the gate operator on the inside of the property and fence line. **DO NOT** install an operator on the outside of the gate where the public has access to it.
2. Be careful with moving parts and avoid close proximity to areas where fingers or hands could be pinched.
3. **Devices such as contact sensors (safety edges) and non contact sensors (photo beams) provide additional protection against entrapment.**
4. If push buttons or keypads are installed, they should be within sight of the gate, yet located at least 10 feet from any moving part of the gate (see diagram below). **Never install any control device where a user will be tempted to reach through the gate to activate the gate operator.**
5. Do not activate your gate operator unless you can see it and can determine that its area of travel is clear of people, pets, or other obstructions. Watch the gate through its entire movement.
6. Secure outdoor or easily accessed gate operator controls in order to prohibit unauthorized use of the gate.



## III. After Installation

1. Attach the **warning signs (included)** to each side of the gate to alert the public of automatic gate operation. It is **your responsibility** to post warning signs on both sides of your gate. If any of these signs or warning decals become damaged, illegible or missing, replace them immediately. Contact GTO for free replacements.
2. The gate is automatic and could move at any time, posing a serious risk of entrapment. No one should be in contact with an activated gate when it is moving or stationary.
3. Do not attempt to drive into the gate area while the gate is moving; wait until the gate comes to a complete stop.
4. Do not attempt to "beat the gate" (drive through) while the gate is closing. This is extremely dangerous.
5. Do not allow children or pets near your gate. **Never let children operate or play with gate controls.** Keep ALL gate controls away from children and unauthorized users; store controls where children and unauthorized users do not have access to them.
6. **KEEP GATE AND GATE OPERATOR PROPERLY MAINTAINED.** Always turn power to operator OFF before performing any maintenance. Regularly grease the gate hinges. Clean the push-pull tube with a soft, dry cloth and apply silicone spray to it at least once per month.



# IMPORTANT SAFETY INSTRUCTIONS

7. To operate this equipment safely, YOU must know how to disconnect the operator for manual gate operation (page iii). If you have read the instructions and still do not understand how to disconnect the operator, contact the GTO Service Department.
8. Disconnect the operator **ONLY** when the power is **TURNED OFF** and the gate is **NOT** moving.
9. Make arrangements with local fire and law enforcement for emergency access.
10. Distribute and discuss copies of the **IMPORTANT SAFETY INSTRUCTIONS** section of this manual with all persons authorized to use your gate.
11. **IMPORTANT: Save these safety instructions. Make sure everyone who is using or will be around the gate and gate operator are aware of the dangers associated with automated gates. In the event you sell the property with the gate operator or sell the gate operator, provide a copy of these safety instructions to the new owner.**

Should you lose or misplace this manual, a copy can be obtained by downloading one from the GTO web site ([www.gtoaccess.com](http://www.gtoaccess.com)), by contacting Gates That Open, LLC., at 3121 Hartsfield Road, Tallahassee, Florida 32303 or by calling 1-800-543-4283 and requesting a duplicate copy. One will be provided to you free of charge.

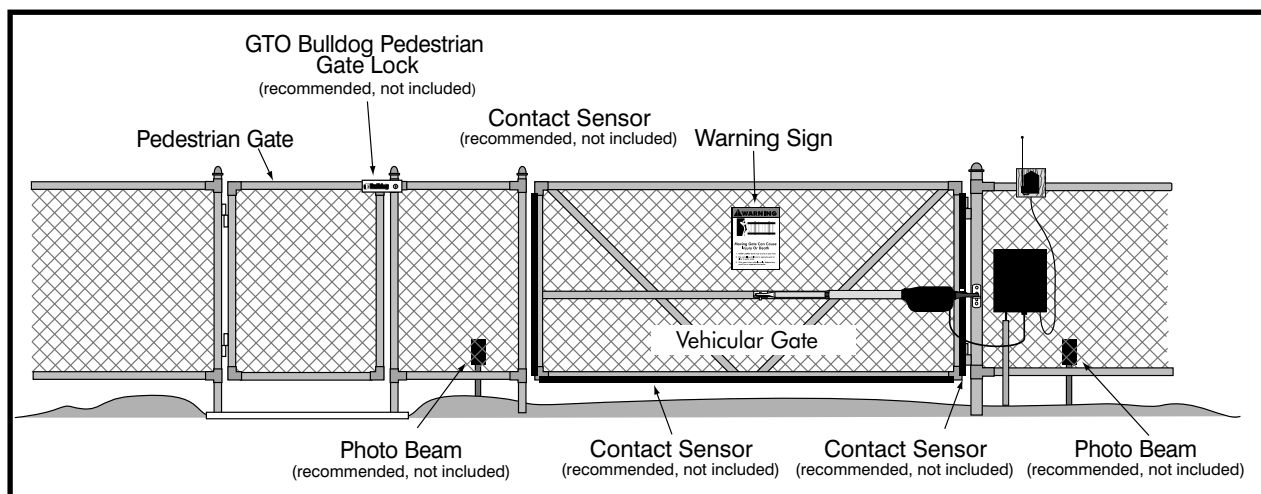
## Required Safety Precautions for Gates

### Install Warning Signs

**Warning signs** alert people of automatic gate operation and are **required** when installing the GTO Gate Operator. The Warning Signs included must be installed on both sides of each gate. Furthermore, a walk-through gate must be installed for pedestrian traffic. We recommend using the **GTO Bulldog Pedestrian Gate Lock** [FM145] for controlled access.

### Entrapment Protection

GTO's inherent obstruction settings, even when properly adjusted, **may not be sensitive enough to prevent bodily injury in some circumstances**. For this reason, safety devices such as safety edge sensors (or photoelectric sensors), which stop and reverse gate direction upon sensing an obstruction, are suggested for enhanced protection against entrapment.






# IMPORTANT SAFETY INSTRUCTIONS

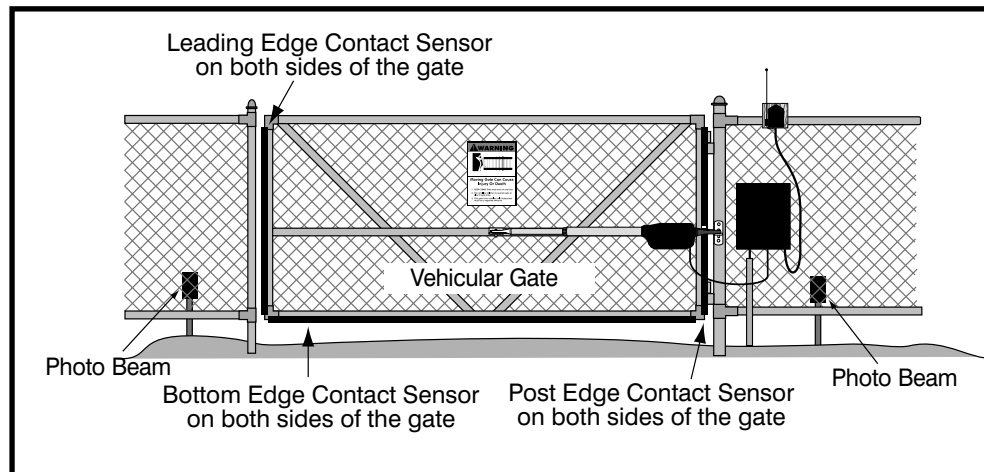


## Secondary Means of Protection Against Entrapment

As specified by Gate Operator Safety Standard, UL 325 (30A.1.1), automatic gate operators shall have an inherent entrapment sensing system, and shall have *provisions for, or be supplied with*, at least one independent secondary means to protect against entrapment. The 2000XL utilizes **Type A**, an inherent (i.e., built-in) entrapment sensing system as the **primary** type of entrapment protection. Also, the 2000XL has *provisions for* the connection of **Type B1 or B2** protection to be used as the **secondary** type of entrapment protection, if desired.

1. For gate operators utilizing a non-contact sensor (e.g., photo-electric sensor– Type B1) in accordance with UL 325 (51.8.4 [h]):
  - A. Refer to the sensor manufacturer's instructions on the placement of non-contact sensors for each type of application.
  - B. Care shall be exercised to reduce the risk of nuisance tripping, such as when a vehicle trips the sensor while the gate is still moving.
  - C. One or more non-contact sensors shall be located where the risk of entrapment or obstruction exists, such as the perimeter reachable by a moving gate or barrier.
2. For gate operators utilizing a contact sensor (e.g., safety edge sensor– Type B2) in accordance with UL 325 (51.8.4 [i]):
  - A. One or more contact sensors shall be located at the leading edge, bottom edge, and post edge, both inside and outside of a vehicular swing gate system.
  - B. A hard wired contact sensor shall be located and its wiring arranged so that the communication between the sensor and the gate operator is not subjected to mechanical damage.
  - C. A wireless contact sensor such as one that transmits radio frequency (RF) signals to the gate operator for entrapment protection functions shall be located where the transmission of the signals are not obstructed or impeded by building structures, natural landscaping or similar obstruction. A wireless contact sensor shall function under the intended end-use conditions.

You may want to consider adding photo beams to your installation. GTO Photo Beams  [R4222] provide a “non contact” means of entrapment protection.



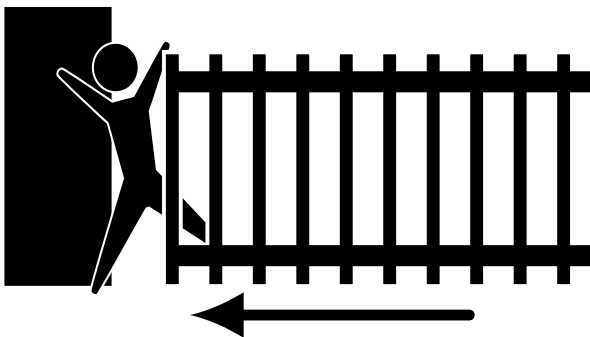
## ENTRAPMENT ALARM (UL 325; 30A.1.1A)

The 2000XL Gate Operator is designed to stop and reverse within 2 seconds when the gate comes in contact with an obstruction. Additionally, these operators are equipped with an **audio entrapment alarm** which will activate if the unit obstructs **twice** while opening or closing. This alarm will sound for a period of 5 minutes, or until the operator receives an intended signal from a hard wired entry/exit source (e.g. push button control or keypad) and the gate returns to a fully open or fully closed position. Turning the power switch on the control box OFF and back ON will also deactivate the alarm. Wireless controls such as transmitters and wireless keypads will not deactivate the alarm.



# IMPORTANT SAFETY INSTRUCTIONS

## **WARNING**



### **Moving Gate Can Cause Injury Or Death**

- 1. KEEP CLEAR! Gate may move at any time.**
- 2. Do not allow children to operate gate or play in gate area.**
- 3. This gate is for vehicles only. Pedestrians must use a separate entrance.**



#### **GTO DC SWING SERIES**

Conforms to UL 325 STANDARDS  
Maximum Gate: 500 lb. (226.7 kg); 16 ft. (4.8 m)  
Voltage: 12 Vdc; Frequency: 0 Hz; Power: 25 W  
Class I Vehicular Swing Gate Operator.

Serial Number: **SW2000-0000000**

#### **TO MANUALLY OPEN AND CLOSE THE GATE:**

1. Turn control box power switch OFF.
2. Disconnect front or rear mount from mounting bracket.
3. Pull operator away from mounting brackets and move gate.

**Disconnect operator ONLY when the control box power switch is OFF and the gate is NOT moving.**

**XXXXXX**

Gates That Open, LLC • Tallahassee, Florida USA

*Warning signs (2 enclosed) to be installed on each side of the gate (3–5 feet above the bottom of the gate).*

*Product identification and manual operation instruction label (1) installed on right hand side of control box.*



*Logo and warning labels (2) installed on each side of operator housing.*

# Technical Specifications

## GTO/ACCESS SYSTEMS 2000XL AUTOMATIC GATE OPERATOR

### DRIVE

- Low friction screw drive (linear actuator) rated for -5 °F to +160 °F (-21 °C to +71 °C). Use of heater bands on arm and control box will enhance performance in extreme cold temperatures.
- Powered by a 12 V motor with integral case hardened steel gear reducer. Motor speed reduced to 260 rpm.
- Maximum opening arc of 110°. Approximate opening time (90°): 18-22 seconds, depending on weight of gate.

### POWER

- The system is powered by a 12 Vdc, 7.0 Ah, sealed, rechargeable acid battery.
- Battery charge is maintained by a 120 Vac, 18 Vac output transformer rectified to 14.5 Vdc through the GTO control board. Blade-style control board fuse is rated for 15 A.  
NOTE: The transformer should not be directly connected to any battery. Do not replace fuses with higher ampere rated fuses; doing so will void your warranty and may damage your control board.
- For optional solar charging see page 2.

### CONTROL

- GTO microprocessor-based control board is set for pull-to-open gate installations. DIP switches can be adjusted to accommodate an optional kit for push-to-open gates (see Accessory Catalog).
- Control board has temperature compensated circuits.
- A circuit on the control board regulates charging. "Sleep draw" is 15 mA; "active draw" is 2 to 5 A.
- Auto-memorization of digital transmitter code.
- GTO remote-mounted RF receiver tuned to 318 MHz.
- Operator length with push-pull tube fully retracted is 33 3/4", mounting point to mounting point, arm stroke 15" max.
- Minimum gate length is 5 ft.
- Adjustable auto-close (3 to 120 seconds), and stall force potentiometers.
- Power terminal block accommodates a transformer or solar panels (not both).
- DIP switches simplify setup of gate operator.
- Accessory terminal block fully compatible with GTO push button controls, digital keypads, loops detectors, etc.
- Control board allows connection of safety edge sensors and photoelectric sensors.
- Audio entrapment alarm sounds if unit encounters an obstruction twice while opening or closing.

### OPERATIONAL CAPACITY

- The Gate Capacity Chart shows approximate cycles, per day, you can expect from the GTO/ACCESS 2000XL Automatic Gate Operator when powered with a transformer. Actual cycles may vary slightly depending upon the type and condition of gate and installation.

<b>PRO-SW2000XL Gate Capacity Chart</b>								
<i>Estimated number of daily cycles, based on use with a transformer and one(1) 12 Volt battery.</i>								
Gate Length	16 ft.	135	120	105	N/R	N/R	N/R	N/R
	14 ft.	145	130	115	100	80	N/R	N/R
	12 ft.	155	140	125	110	90	70	N/R
	up to 10 ft.	165	150	135	120	100	80	60
		50 lb.	100 lb.	150 lb.	200 lb.	300 lb.	400 lb.	500 lb.
Gate Weight					N/R - Not Recommended			

NOTE: BALL BEARING HINGES SHOULD BE USED ON ALL GATES WEIGHING OVER 250 LB.

To determine the number of cycles the gate operator will perform using solar panels, please see the specifications listed on page 2 or call (800) 543-1236 or (850) 575-4144 for more information.

\* An operation cycle is one full opening and closing of the gate.

These specifications are subject to change without notice.

# Before You Begin...

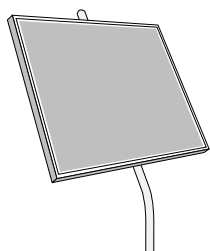
## 1. Determine Charging Option for Battery: Transformer OR Solar

**NEVER USE TRANSFORMER AND SOLAR PANEL(S) AT THE SAME TIME.**  
**It will damage the control board.**

### IMPORTANT:

- The 2000XL's 12 volt battery must be charged by either connecting the transformer (included) or solar panel kit ⊕[FM122] to the control board.
- The transformer is designed for indoor use. If the transformer can be plugged only into an outside electrical outlet, a weatherproof cover/housing (available at local electrical supply stores) must be used.
- If your gate is more than 1000 ft. from an AC power source, you will need to use at least 5 watts solar charging power to charge the battery ⊕[FM122]. Refer to the Solar Panel and Gate Activity chart below.
- All low voltage wire used with the GTO Gate Operator must be 16 gauge dual conductor, multi-stranded, direct burial wire ⊕[RB509]. **Do not** run more than 1000 ft. of wire.

## Solar Panel and Gate Activity Chart



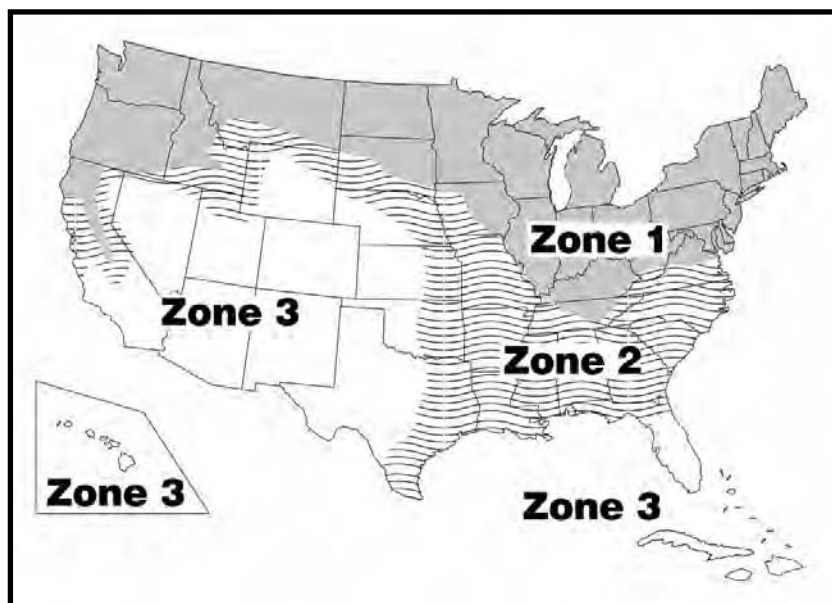
The table and map illustrate the maximum number of gate cycles to expect per day in a particular area when using from 5 to 30 watts of solar charging power. The figures shown are for winter (minimum sunlight).

Winter Ratings for 12 V Single Gate	Zone 1	Zone 2	Zone 3
5 watts	4	8	13
10 watts	8	16	26
15 watts	11	20	30
20 watts	14	28	38
25 watts	17	36	46
30 watts	20	44	54

Accessories connected to your system will draw additional power from the battery.

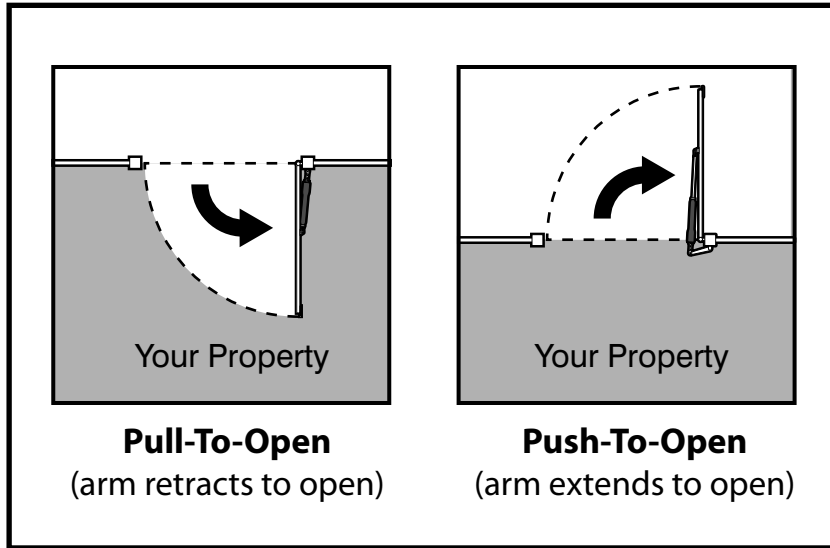
⊕ 10 Watt Solar Panel [FM123]

⊕ 5 Watt Solar Panel [FM122]



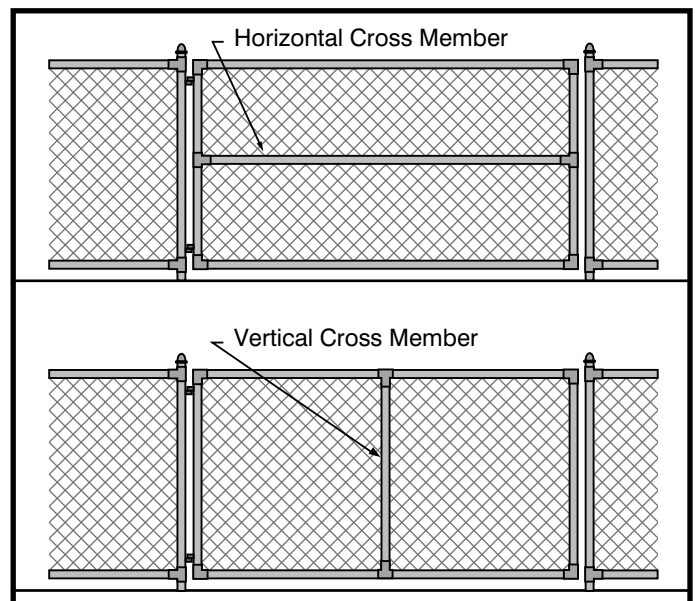
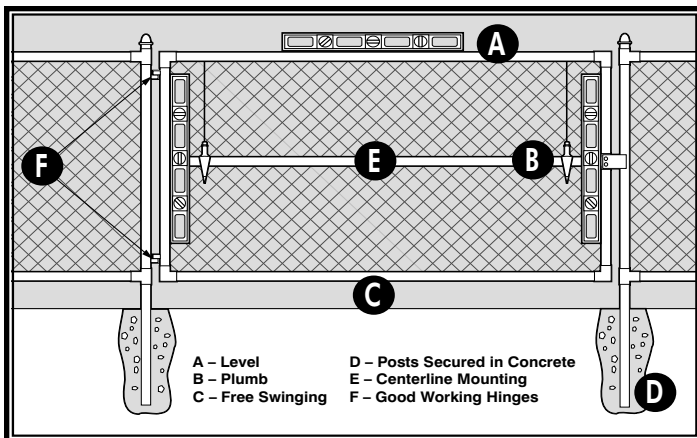
## 2. Check Direction of Gate Swing

The 2000XL kit is designed for PULL-TO-OPEN installations. PUSH-TO-OPEN installations require a Push-To-Open Bracket [347IH]. Please refer to specific Push-To-Open Installation Information on page 22.



## 3. Prepare the Gate

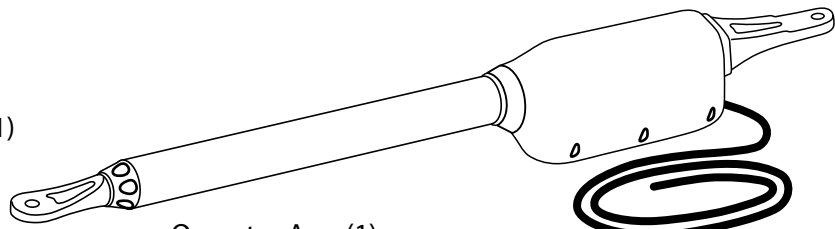
- The gate must be plumb, level, and swing freely on its hinges.
- The gate must move throughout its arc without binding or dragging on the ground.
- Wheels must NOT be attached to the gate.
- Gates over 250 lb. should have ball bearing hinges with grease fittings.
- Post must be secured in the ground with concrete (minimizes twist/flex when the operator is activated).
- Make sure there is a stable area for mounting the gate bracket (this may require the addition of a horizontal or vertical cross member).
- We recommend you position the operator near the center-line of the gate to keep the gate from twisting and flexing, and to avoid back-splash from rain.



## 4. 2000XL Parts List



Customer Support Card (1)

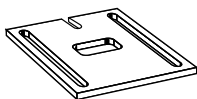


Operator Arm (1)  
PRO2000ARMXL

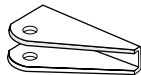


6' Power Cable

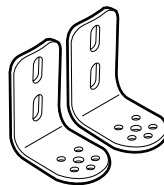
### BRACKET BOX - HB100



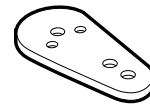
Closed Position  
Stop Plate (1)



Gate Bracket (1)



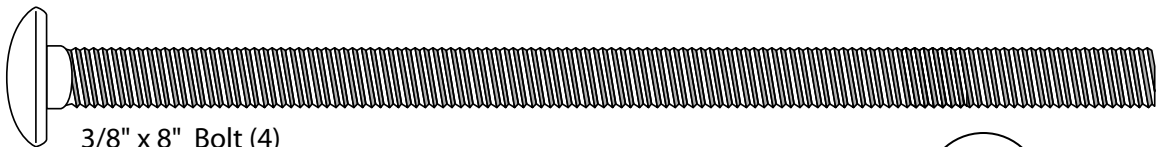
Post Bracket (2)



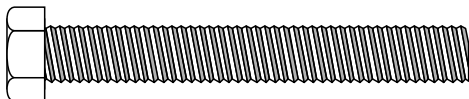
Post Pivot Bracket (1)

### HARDWARE BAG - H101P

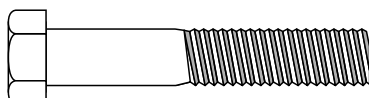
**E**



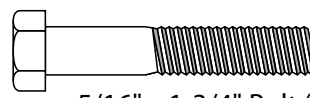
3/8" x 8" Bolt (4)



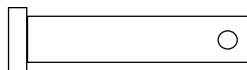
3/8" x 2-3/4" Bolt (2)



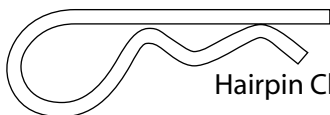
3/8" x 2" Bolt (1)



5/16" x 1-3/4" Bolt (1)

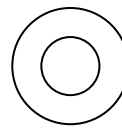


3/8" x 1-1/2" Clevis Pin (2)

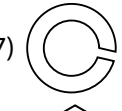


Hairpin Clip (2)

3/8" Washer (9)



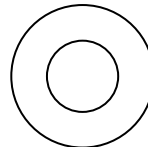
3/8" Lock Washer (7)



3/8" Nut (7)



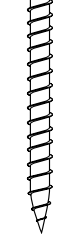
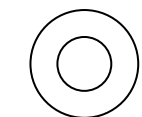
5/16" Washer (1)



5/16" Nut (1)

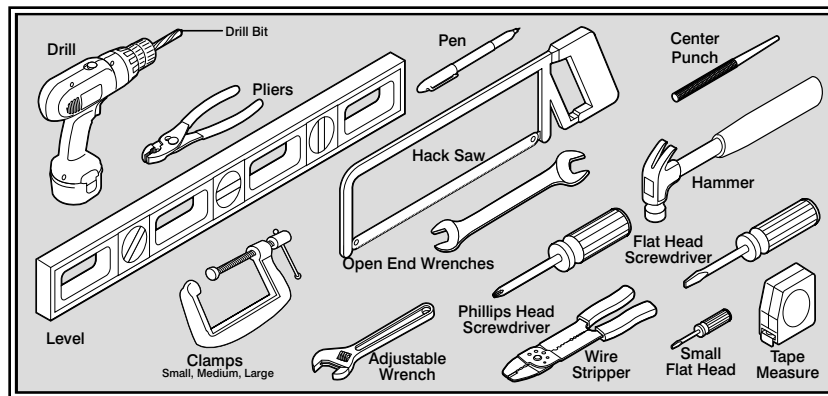
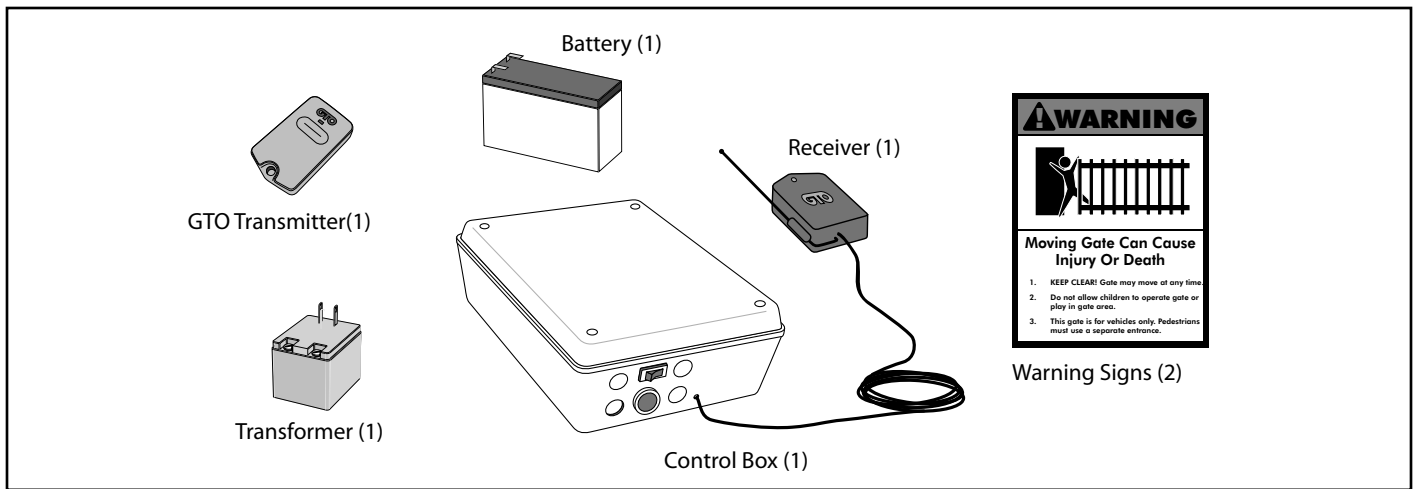


3/8" x 3/16" Bushing (2)



2" Screw (5)

8" Nylon Cable Tie (14)



## 5. Tools Needed

- Power Drill
- Level
- Wire Strippers
- Open End Wrenches: 9/16" and 3/4"
- Drill Bits: 3/8" and 1/2"
- Hacksaw or Heavy Duty Bolt Cutters
- Small (Flat Head) Screwdriver
- Phillips Screwdriver
- C-Clamps: small, medium, and large
- Adjustable Wrench
- Extra person will be helpful
- Pliers
- Tape Measure
- Center Punch

## 6. Materials You may Need for the Installation:

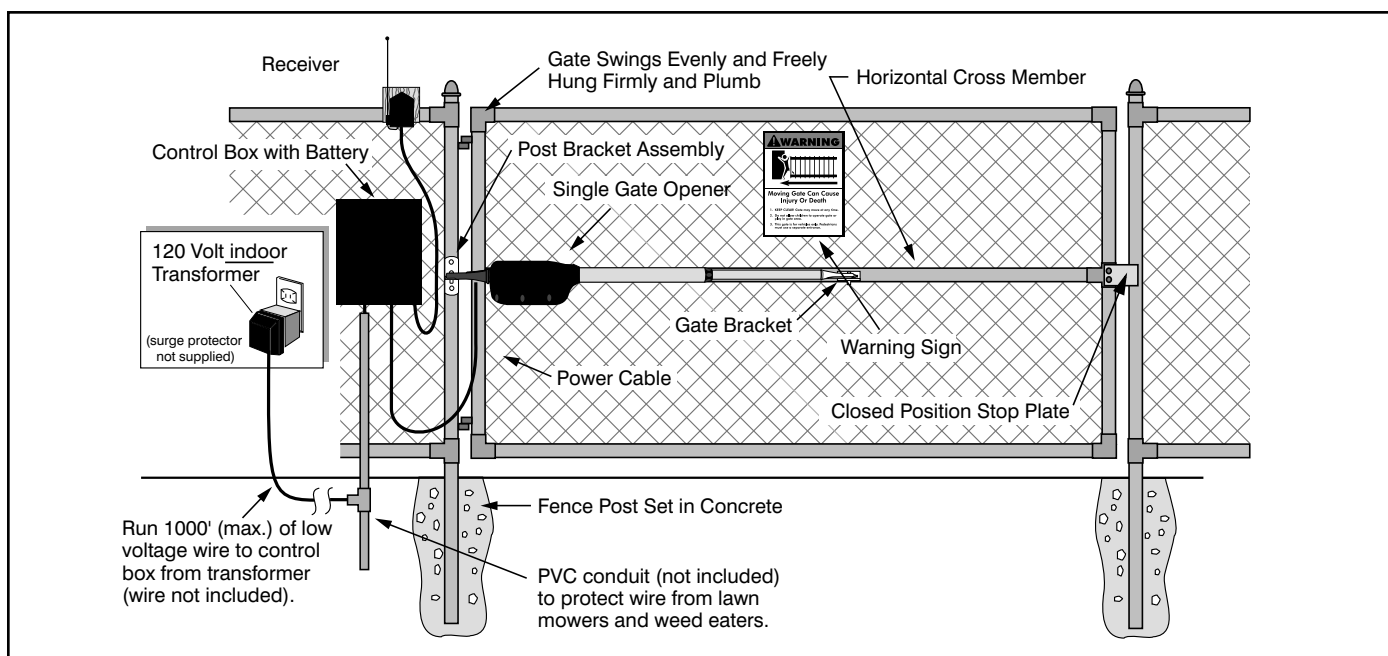
Depending on the type of gate and post, you may need some additional materials/hardware.

- Low voltage wire [RB509]. Length depends upon the distance between the transformer power supply and the control box. (Page 14)
- If the gate is more than 1000' away from an AC power source you will need to use at least one 5 watt Solar Panel [FM122] to trickle charge the battery. (Page 2)
- PVC Conduit. (Page 6)
- The diameter of the post should be at least 6" in order to mount the post bracket. (Page 9)
- Depending upon the diameter of the post, you may need longer bolts than those provided. Bolts should be at least 1" longer than the diameter of the post. (Page 9)
- Metal plate for wooden posts. (Page 9)
- A horizontal or vertical cross member or mounting plate may be needed to mount the operator to the gate. (Page 3)
- Some types of installations require U-Bolts. (Page 11)
- Surge protection for transformer. (Page 16)
- Weatherproof cover for transformer if installed outside. (Page 16)
- For push-to-open applications you must have PTO Bracket [347IH]. (Page 22)

# Installation Overview for Pull-To-Open Gate

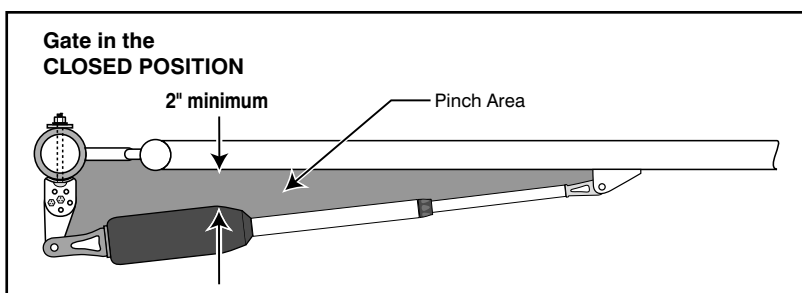
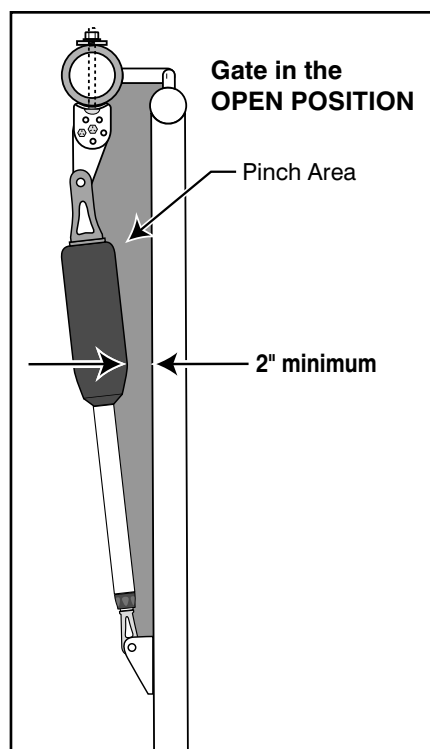
**PUSH-TO-OPEN** installation instructions begin on page 22.

Example of an installation on a chain link fence:

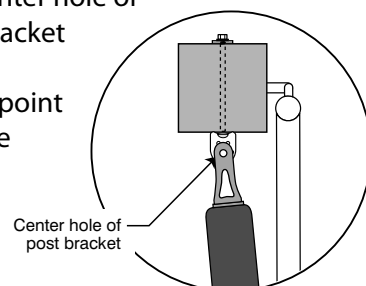


**IMPORTANT:** To achieve the most efficient leverage for the gate opener and ensure long trouble free service, the gate opener needs to be installed within the following parameters.

The diagrams below show the optimum positions for the gate opener arm in relation to the gate in the open and closed positions. Be sure the position of the gate opener and brackets allows for 2" of clearance between the gate and the opener in both the open and closed positions.



If the gate post is larger than 6" the Post Pivot Bracket can be removed and the center hole of the Post Bracket can be the mounting point for the gate opener.





We recommend you position the opener near the centerline of the gate to keep the gate from twisting and flexing and to avoid backsplash from rain water.

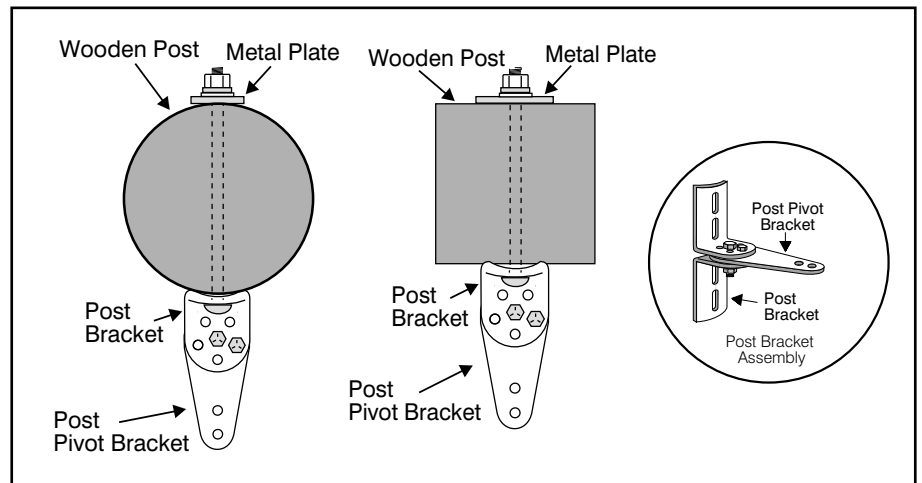
## The Post Bracket Assembly

The position of the post bracket assembly determines the leverage and efficiency of the opener. The post bracket assembly position also sets the clearance between the opener and the gate in the open and closed positions.

The post bracket works well for installations on round and square fence posts. Because the post bracket carries the entire thrust of the active opener, bolts must completely penetrate the post.

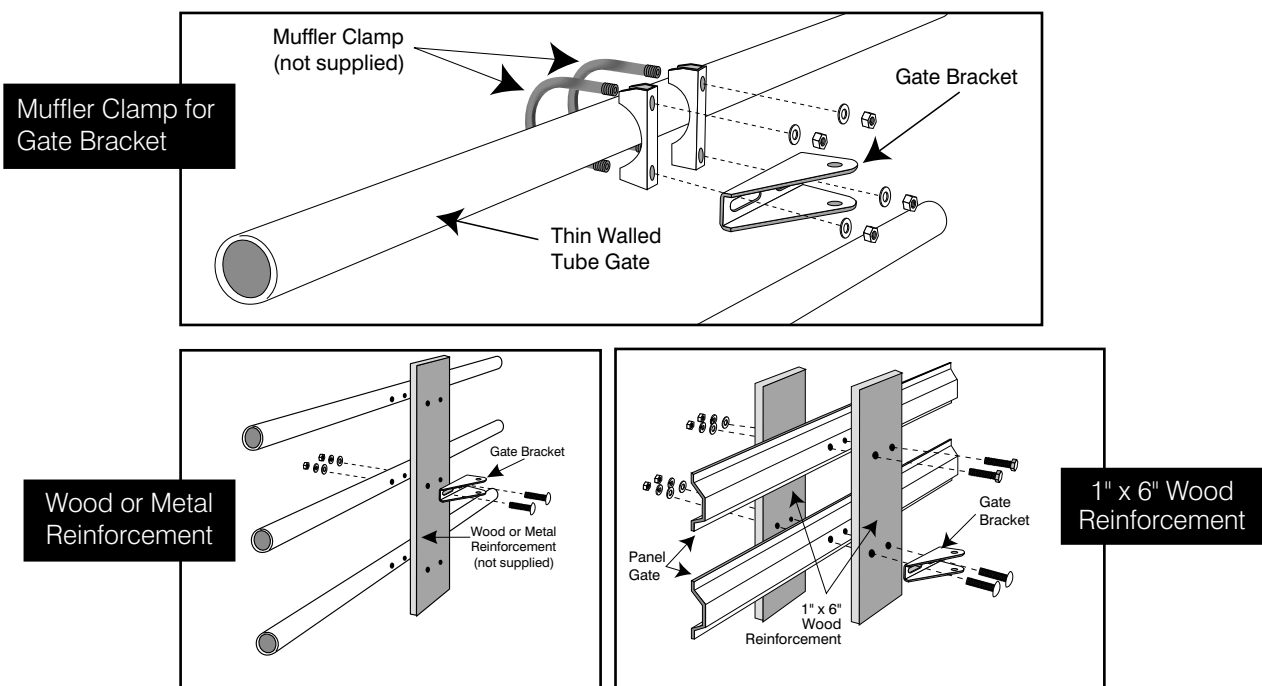
On wood posts, place a metal plate or washer (not supplied) between the nuts and the post to prevent the thrust of the opener from pulling the bolts and washers out of the wood.

The post pivot bracket may not be necessary on posts larger than 6" in diameter (see page 6). Fence posts smaller than 6" in diameter or 6" square should be made of metal instead of wood to remain stable while the opener is moving the gate.



## Reinforcing Gates for the Gate Brackets

We recommend using a muffler clamp, wood, or metal, to reinforce thin-walled tube gates, or wood to reinforce panel gates as shown. These reinforcement methods will prevent damage to the opener and gate. Additional hardware may be needed depending on the installation.



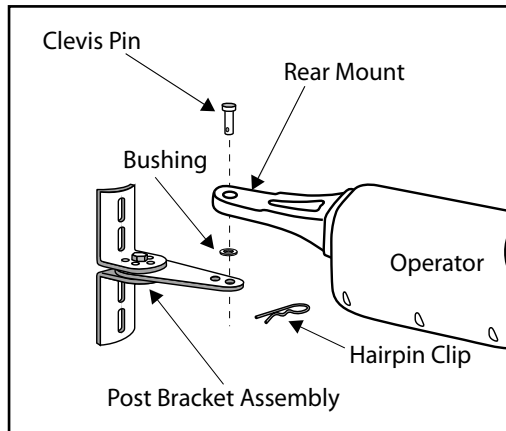
# Install the Operator

## Step 1

Insert the 3/8" x 2" bolt through the center hole of the post brackets and post pivot bracket as shown. Fasten a 3/8" lock washer, 3/8" washer and 3/8" nut on the end of the bolt. DO NOT overtighten the nut because the post pivot bracket will have to be adjusted later.

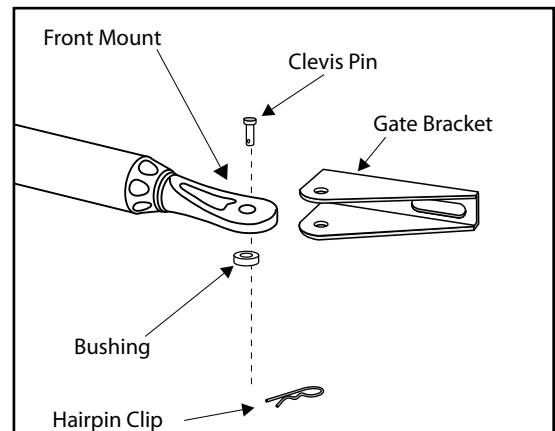
## Step 2

Attach post bracket assembly to the rear mount of the opener with a clevis pin and a 3/8" washer. Secure the clevis pin with a hairpin clip.



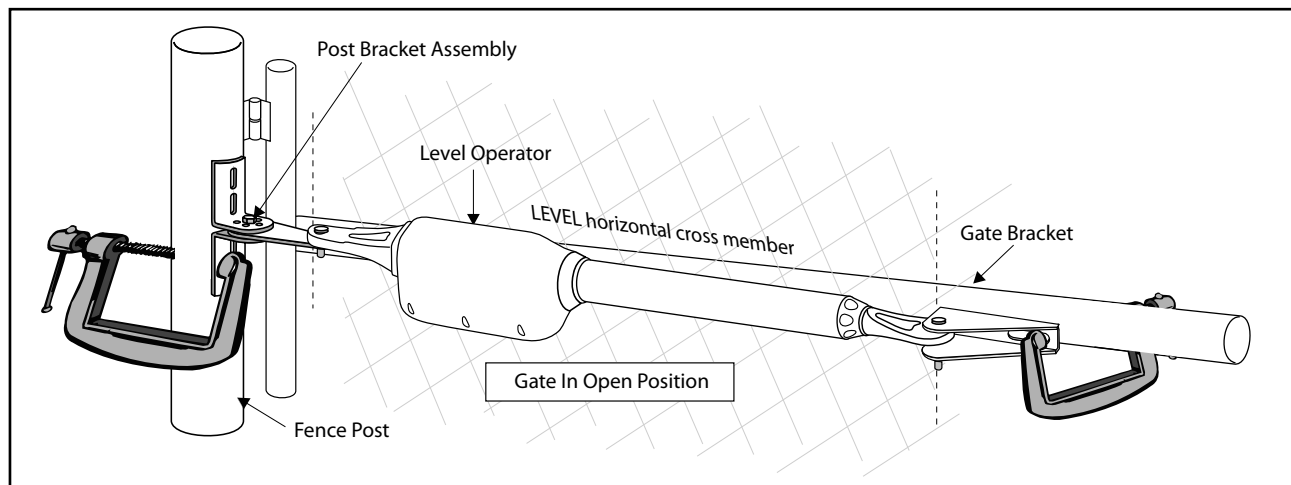
## Step 3

Attach gate bracket to the front mount of the opener with a clevis pin and a 3/8" bushing. Secure the clevis pin with a hairpin clip.



## Step 4

With the gate in the fully open position and the opener arm fully retracted, adjust the post bracket assembly and gate bracket until the opener is level. While holding the opener level, use C-clamps to temporarily secure the post bracket assembly and gate bracket to the post and gate.



## Step 5

After verifying that you have the best position for the post pivot bracket in the open position, insert the 5/16" x 1-3/4" bolt through the aligned holes of the post bracket and post pivot bracket to hold it in place. Remove the clevis pin from the front mount and while supporting the gate opener, swing the gate and gate opener to the closed position.

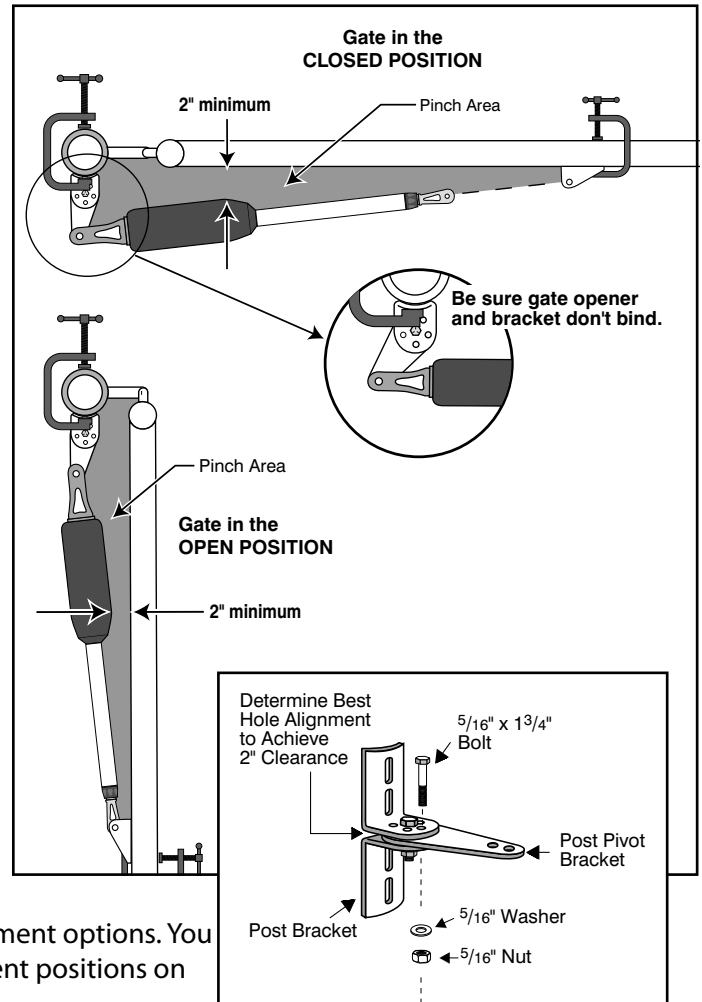
## Step 6

Be sure the position of the gate opener and brackets allows for 2" of clearance between the gate and the opener in both the open and closed positions, while at the same time maintaining a maximum distance of 13" from the end of the retracted opener arm to the gate bracket with the gate in the closed position. This mounting position will give the opener the most efficient leverage point for operation and provides the least possible pinch area.

Again, check the clearance and be sure that the gate opener is not binding at the post pivot bracket.

If you don't have the required clearance, or if the gate opener is binding on the post pivot bracket, remove the 5/16" x 1-3/4" bolt and readjust the post pivot bracket.

**TIP:** Turn the post pivot bracket over for more hole alignment options. You can also move the entire post bracket assembly to different positions on the post.

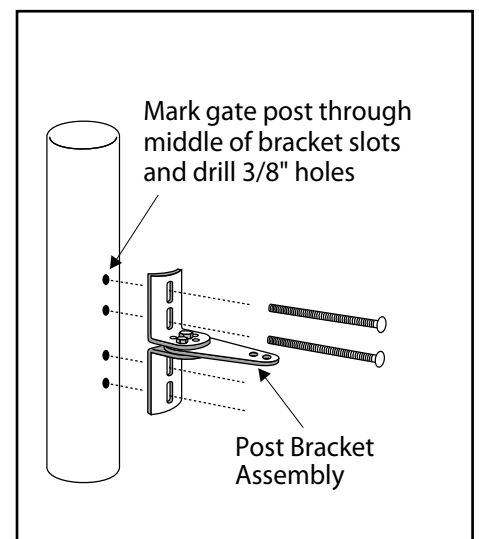
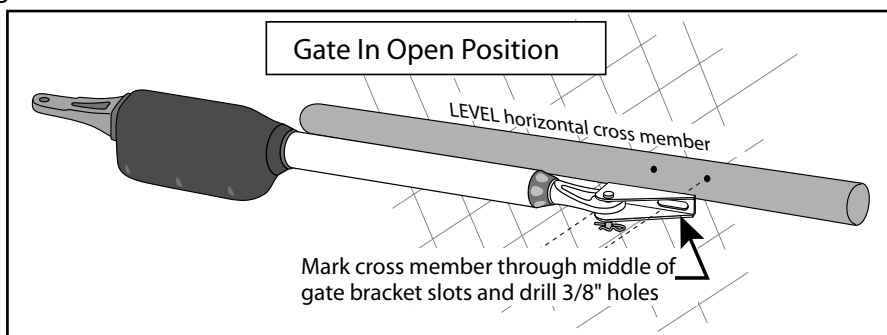


## Step 7

When the post bracket assembly is in the optimum position, reattach the opener to the gate bracket (gate in the open position); recheck the gate opener level; make sure the brackets are clamped securely.

## Step 8

Mark reference points for bolt holes on the post through middle of post bracket assembly slots. Mark reference points for bolt holes on the gate cross member through middle of gate bracket slots. After marking your reference points, remove the opener and brackets from the fence and gate.



## Step 9

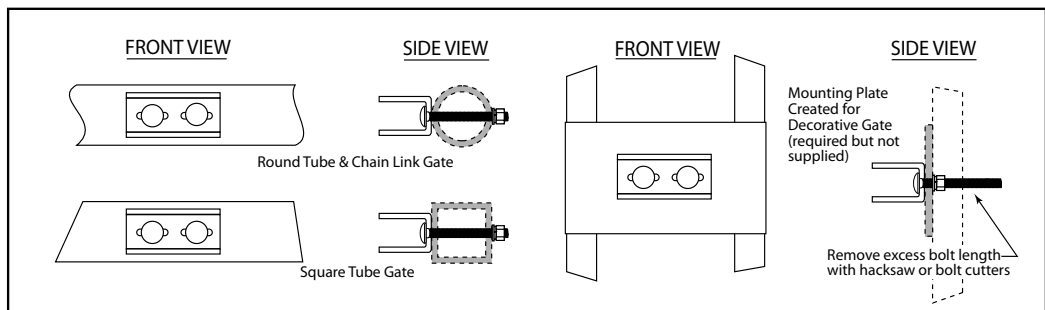
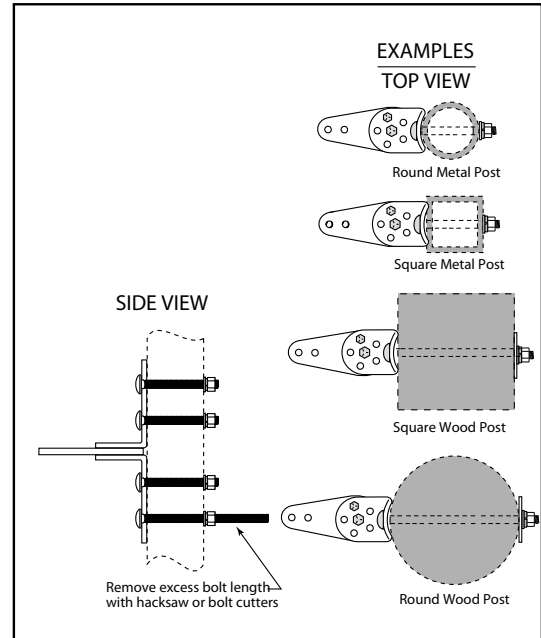
Drill 3/8" holes through post as marked. Fasten post bracket assembly to the fence post using four 3/8" x 8" bolts, lock washers and nuts. You must use bolts that completely penetrate the post.

## Step 10

Drill 3/8" holes through the gate cross member as marked. Mount gate bracket using two 3/8" x 2 3/4" bolts, lock washers, and nuts.

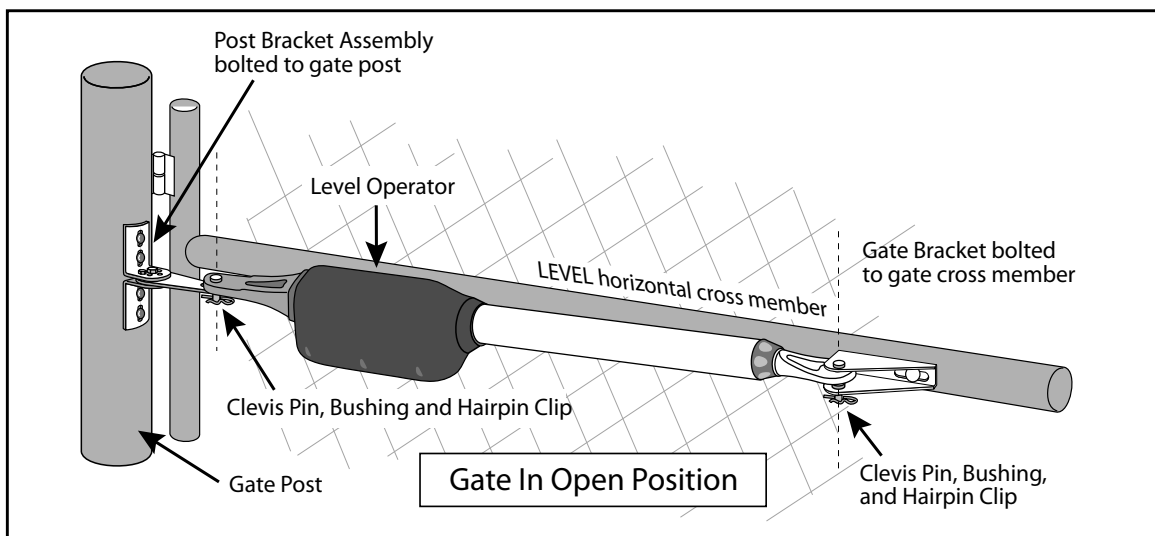
**NOTE:** After the gate opener installation is complete and operation of the opener system has been tested, you should remove excess bolt length extending beyond the tightened nuts with a hacksaw or bolt cutters.

Gate Bracket Mounting Examples



## Attach Operator Arm

Attach the opener to the securely bolted post bracket assembly and gate bracket using clevis pins, bushings, and hairpin clips, or optional Pin Lock [FM345] (page 30). Verify that the opener is level and adjust the post bracket assembly, if necessary.



# Installation of the Closed Position Stop Plate

The 2000XL Gate Operator firmly holds the gate in the closed position using the closed position stop plate. The closed position stop plate helps stabilize the gate leaf in the closed position. To further enhance the stability and security of your gate, install the optional GTO Automatic Gate Lock (see Accessory Catalog).

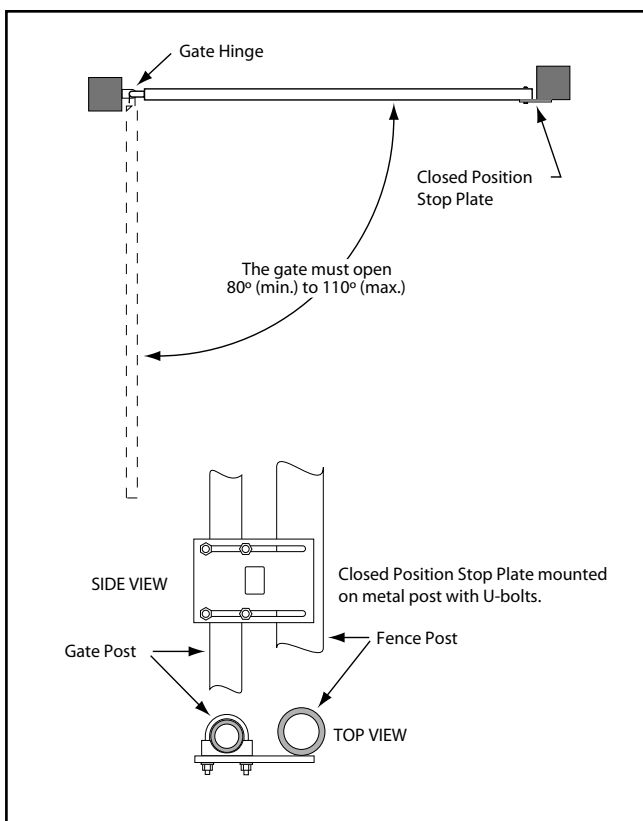
## Step 1

Remove hairpin, clevis pin, and washer from front mount and close the gate (remember to support operator). Fasten the closed position stop plate to the end of the gate frame on the gate centerline, but do not tighten it completely. Slide the stop plate toward the fence post until they touch (see illustration). Once you have moved the stop plate to the correct position, tighten its hardware completely.

Use the appropriate hardware for your type of gate (use U-bolts if you have a tube or chain link gate; wood or lag screws for wood gates; etc.). This hardware is not provided.

## Step 2

Return the gate to the open position and reattach the gate opener to the gate.



# Mount the Control Box and Receiver

## Step 1

Mount the control box using the screws (provided) or another secure mounting method. The control box must be mounted at least 3 feet above the ground to protect it from rain splash, snow, etc., and at least 3 feet from an AC power source to prevent electrical interference.

## Step 2

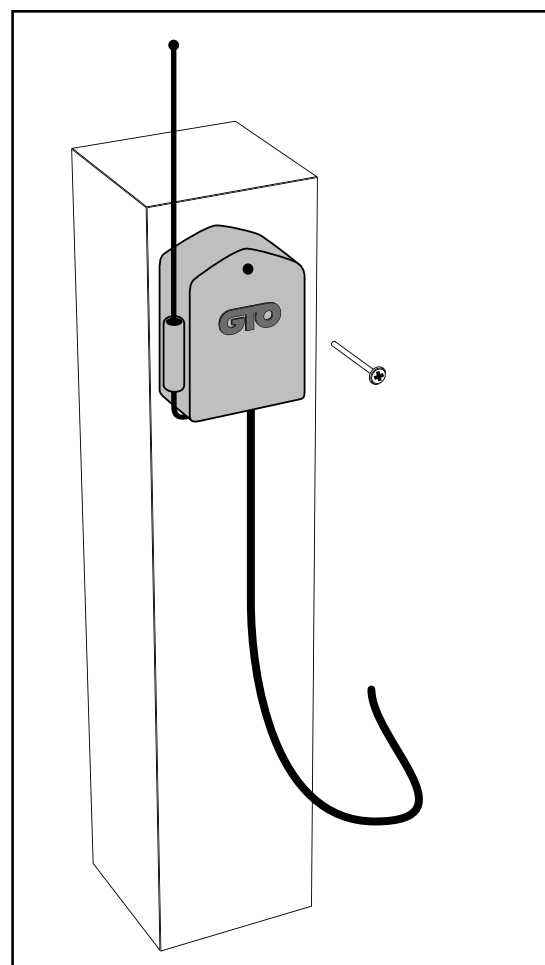
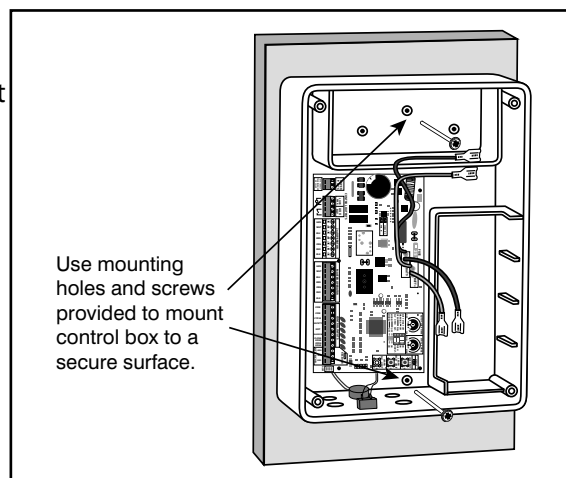
Temporarily mount the receiver at this time. You will need to use the transmitter (page 18) to check the range of the receiver before permanently mounting it. You may have to try different locations before permanently mounting the receiver. The receiver range can vary from 50 to 100 feet depending upon weather, topography, and external interference.

Mount the receiver:

- Ensuring a line-of-sight between transmitter and antenna.
- At least 3 feet away from AC voltage.
- As high as possible for optimum range.
- DO NOT mount receiver upside down.
- DO NOT mount receiver on metal fence or post (this will decrease signal range). If attaching receiver to metal fence, you should mount receiver on a piece of wood attached to the fence (see illustration).

The receiver cable:

- Cable length is 10 ft. (receivers with longer cables are available as special order items; call the GTO Sales Department).
- NEVER splice receiver cable!
- Run the receiver cable through PVC conduit to protect it from damage.
- DO NOT run cable in conduit containing AC wiring.



### FCC Regulation

This device complies with FCC rules Part 15. Operation is subject to the following conditions:

1. This device may not cause harmful interference.
2. This device must accept an interference that may cause undesired operation.

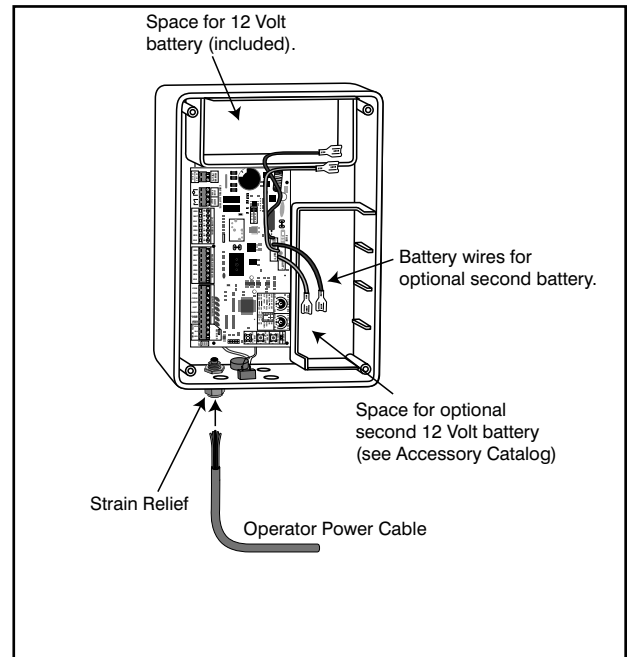
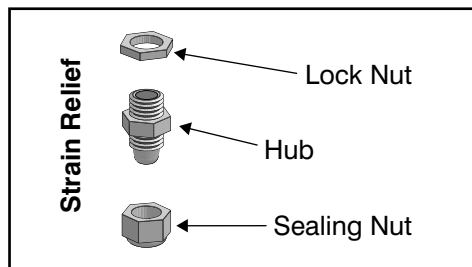
Transmitter distance may vary due to circumstances beyond our control. NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

# Connect Operator Power Cable

## Step 1

Loosen sealing nut on strain relief hub at bottom of control box. Insert power cable into control box through strain relief. Thread approximately 6" of the power cable into the control box and retighten sealing nut until the power cable locks into place.

If the seven wires of the operator power cable are not already striped, strip approximately 3/16" of insulation from each and twist exposed wires tightly.

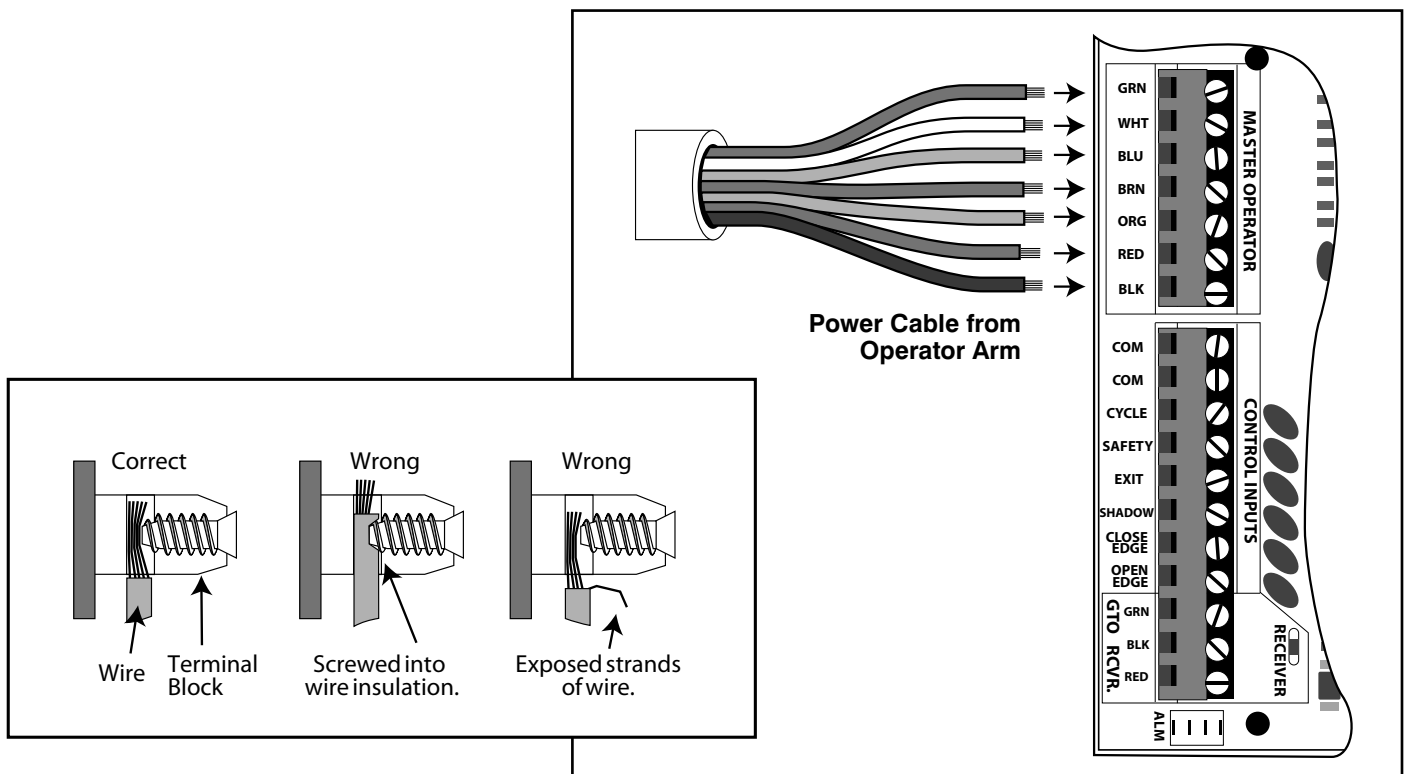


## Step 2

Insert the stripped power cable wires into the appropriate terminals on the MASTER OPERATOR terminal block. Insert the green wire into the GRN terminal, white wire into WHT, blue wire into BLU, brown wire into BRN, orange wire into ORG, red wire into RED, black wire into the BLK.

Tighten the set screws against the end of the wires.

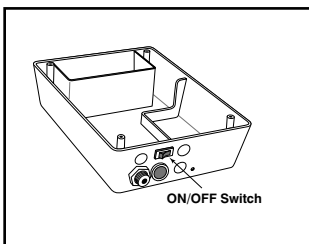
**NEVER splice wires together. Splicing permits corrosion and seriously degrades the wire's ability to carry an adequate current.**



# Connect the Transformer

## IMPORTANT:

- The transformer is designed and intended for indoor use. If the transformer can be plugged only into an outside electrical outlet, a weatherproof cover/housing (available at local electrical supply stores) must be used.
- The only wire acceptable for use with GTO products is 16 gauge multi-stranded, low voltage, direct burial wire Ⓢ[RB509]. This particular gauge enables the transformer to provide an adequate charge through the control board to the battery at distances up to 1000 ft.
- DO NOT use telephone wire or solid core wire; these types of wire may not deliver enough voltage for your gate operator.
- NEVER splice wires together. Splicing permits corrosion and seriously degrades the wire's ability to carry an adequate current.
- **NEVER USE TRANSFORMER AND SOLAR PANEL(S) AT THE SAME TIME! Doing so will damage the control board.**
- If your gate is more than 1000 ft. from an AC power source, you will need to use at least 5 watts solar charging power Ⓢ[FM122/FM123] to charge the battery. Refer to the Solar Panels and Gate Activity Chart on page 2.



### Step 1

Make sure the control box power switch is OFF.

### Step 2

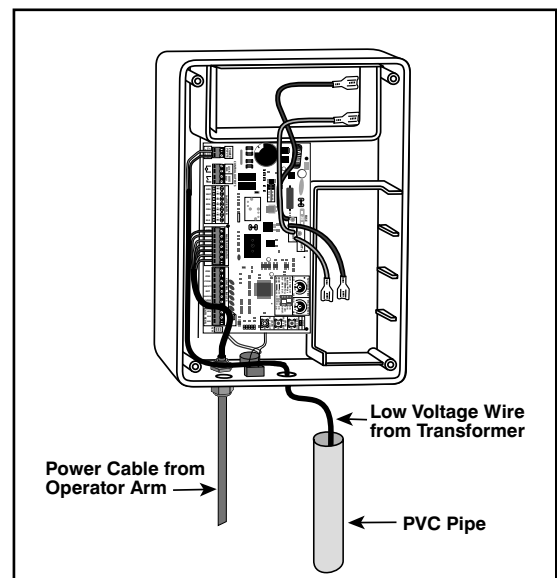
Select the electrical outlet into which you will plug the transformer. Measure the distance from this outlet to the control box following the path where the wire will be laid (allow for an additional 6" to be pulled into the control box). Make sure you have more than enough wire.

### Step 3

Lay the measured length of low voltage wire in a 6" deep trench following a path from the selected electrical outlet to the control box. Wires coming up from the ground should be run through PVC conduit to protect them from lawn mower blades, weed eaters, and grazing animals. Bury the wire in the trench.

### Step 4

Feed the low voltage wires upward through the strain relief opening on the lower left of the control box. Pull 6" to 8" of wire into the control box.



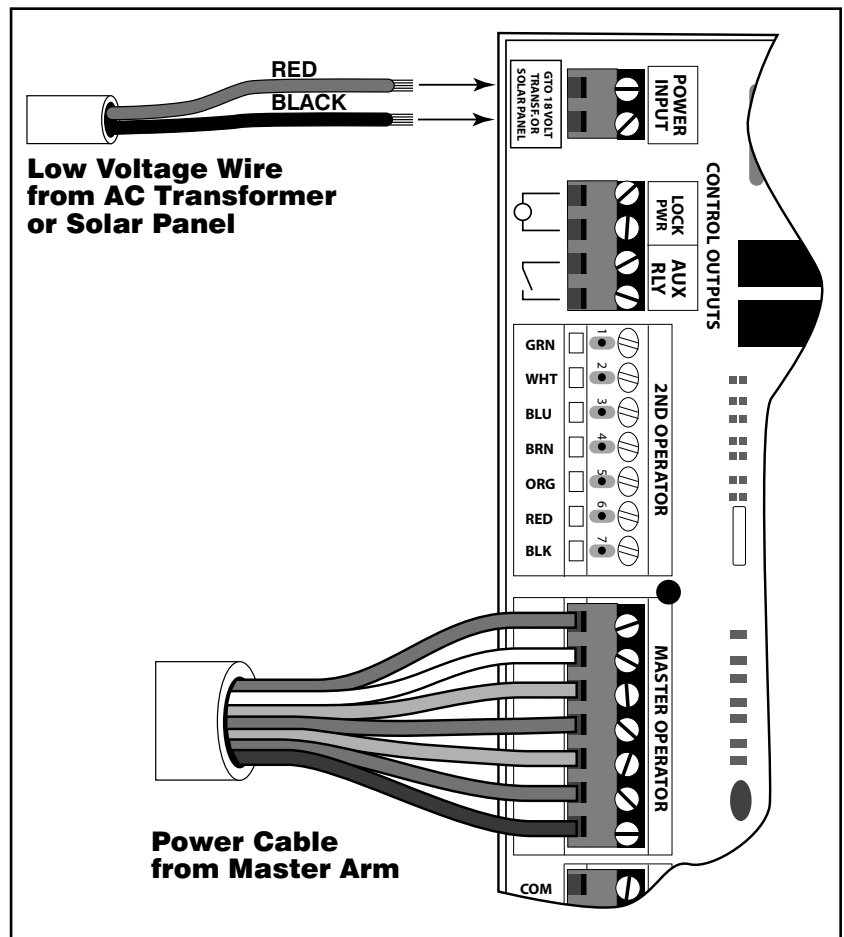
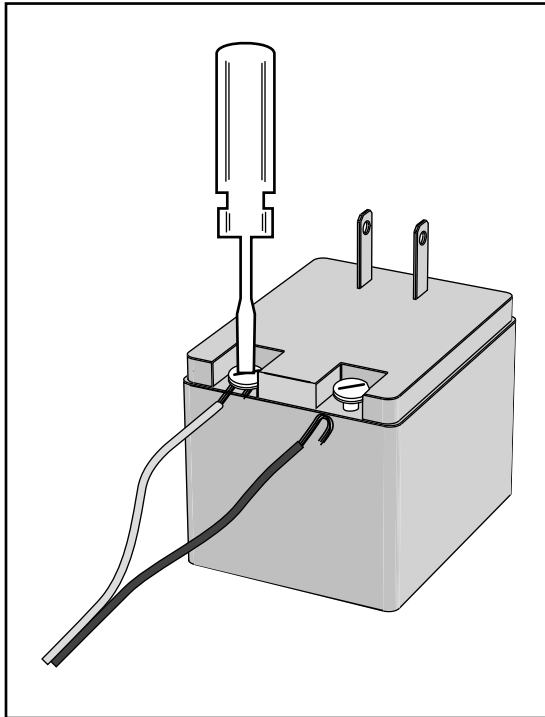


## Step 5

Strip  $\frac{3}{16}$ " off the ends of the low voltage wire and twist tightly. Attach these ends to the 18 VAC OR SOLAR terminals located on the POWER INPUT terminal block. **Be certain not to let the exposed wires touch each other!**

Insert one transformer wire into an 18 VAC OR SOLAR terminal. Insert the other transformer wire into the remaining 18 VAC OR SOLAR terminal. The transformer wires can be connected to the 18 VAC OR SOLAR terminals regardless of color/polarity.

Tighten set screws against exposed end of wires.



## Step 6

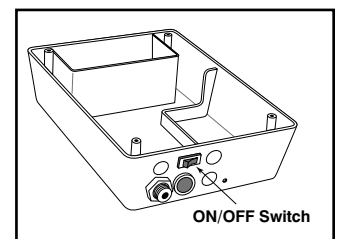
At the transformer, strip  $\frac{1}{2}$ " of insulation from the ends of the low voltage wire. Attach wires to the transformer terminals. **Make sure the exposed wires do not touch each other!**

**DO NOT PLUG THE TRANSFORMER INTO AN OUTLET DURING THIS STEP! THE TRANSFORMER MUST ONLY BE PLUGGED INTO AN OUTLET DURING STEP 3 (page 16)!**

# Connect Battery

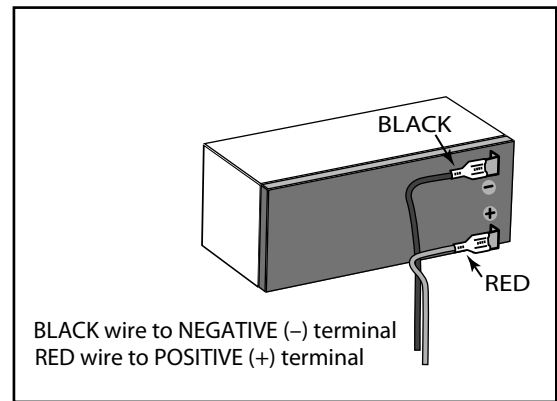
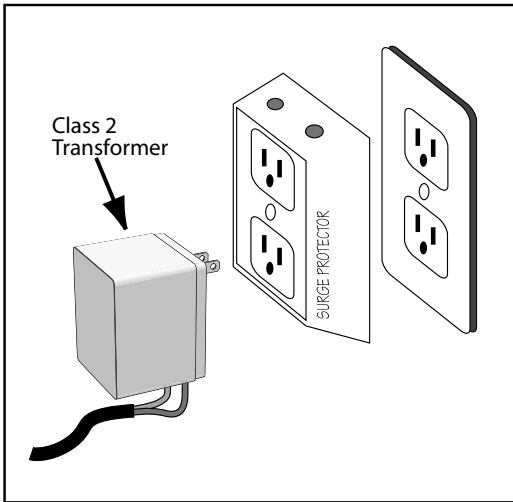
## Step 1

Make sure the control box power switch is OFF. Remove the control box cover and slide the battery into position (terminals to the right).



## Step 2

**IMPORTANT:** Connect the BLACK battery wire to the NEGATIVE (-) battery terminal. Connect the RED battery wire to the POSITIVE (+) terminal. **Reverse connection of wires will damage the control board.**



## Step 3

Plug the transformer into the electrical outlet. (Use of a surge protector with the transformer is strongly recommended.) **IMPORTANT:** This is a class II indoor transformer; if using transformer outdoors be sure to enclose it in a weatherproof case.

**The battery should have a full charge before you program the Control Board.** Please refer to the Battery/Power Troubleshooting section on page 27 to determine if the battery is connected properly and fully charged.

If the battery has a full charge and the gate fails to move you may need to adjust the STALL FORCE page 17.

# Program Control Board

## Set the Closed Position Limit (for Pull-To-Open Applications)

NOTE: For heavier gates you may need to increase the stall force (see pg 17). If the gate still does not open or close to the limits you have set, check to ensure that the gate installation was performed correctly according to the guidelines set forth on page 6. If the transmitter does not activate the gate operator you may have to reset the transmitter code (see pg 18). **If you have a Push-To-Open Installation, see page 22.**

### Step 1:

TURN CONTROL BOX ON. Your 2000XL has two Limit Settings:

OPEN Limit setting: (Gate in the OPEN POSITION/arm fully retracted). **The OPEN limit can only be adjusted by moving the gate bracket.**

CLOSED Limit setting: (Gate in the CLOSED POSITION). To achieve optimum closed position, you are required to complete the following:

### Step 2

Confirm that the power switch is in the ON position and the gate is in the OPEN POSITION (arm fully retracted).

### Step 3

Activate your operator by pressing the transmitter button. Your gate should now be moving from the fully open position toward the closed position. Prepare to STOP the gate by pressing the entry transmitter button again when the gate reaches the desired closed position. This step may be repeated until desired closed position is achieved.

#### Step 4

With the gate in the desired closed position PRESS & HOLD the "LEARN MAST LIMIT" button on the control board for 5 seconds.

#### Step 5

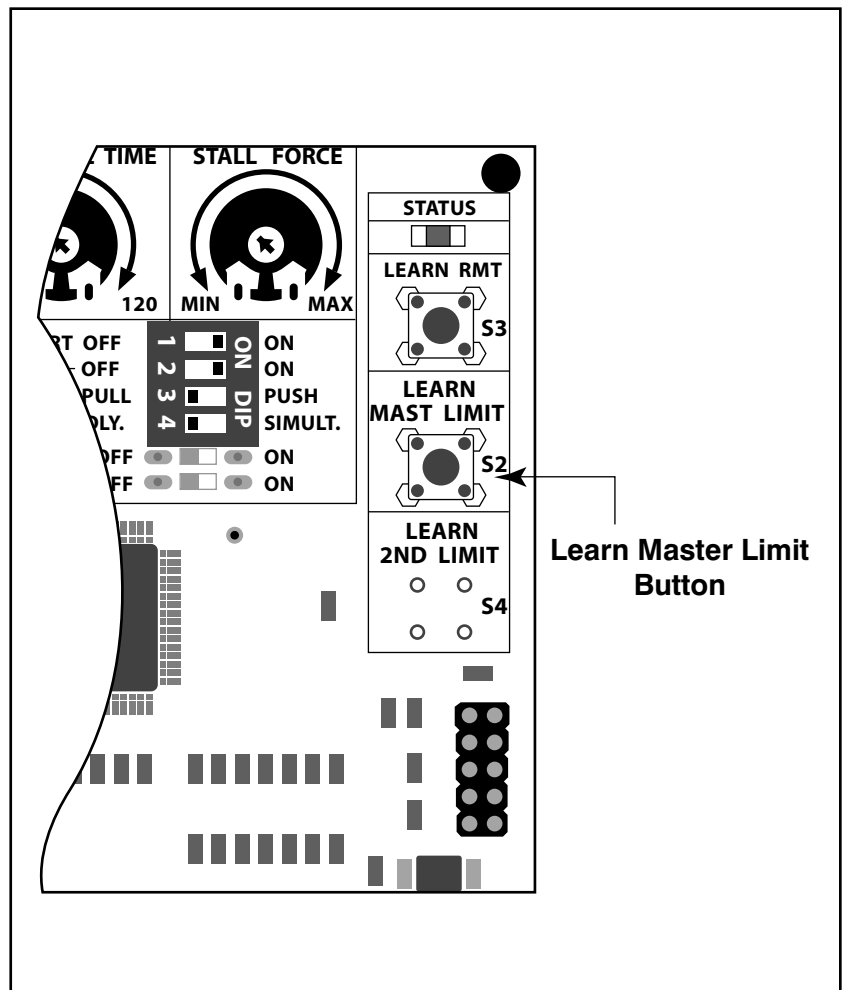
Press the transmitter button and allow the gate to return to the fully open position (arm fully retracted). The gate closed position limit is now programmed.

#### TESTING YOUR CLOSED LIMIT SETTING:

Press your entry transmitter and allow your gate to close.

#### CLEARING THE PROGRAMMED CLOSED LIMIT SETTING:

If you make a mistake and set the limit at the wrong position: press your transmitter to return the gate to the fully open position, then press and hold the "LEARN MAST LIMIT" button for 5 seconds. This will clear the memory for the closed limit position. Repeat Steps 3 and 4.



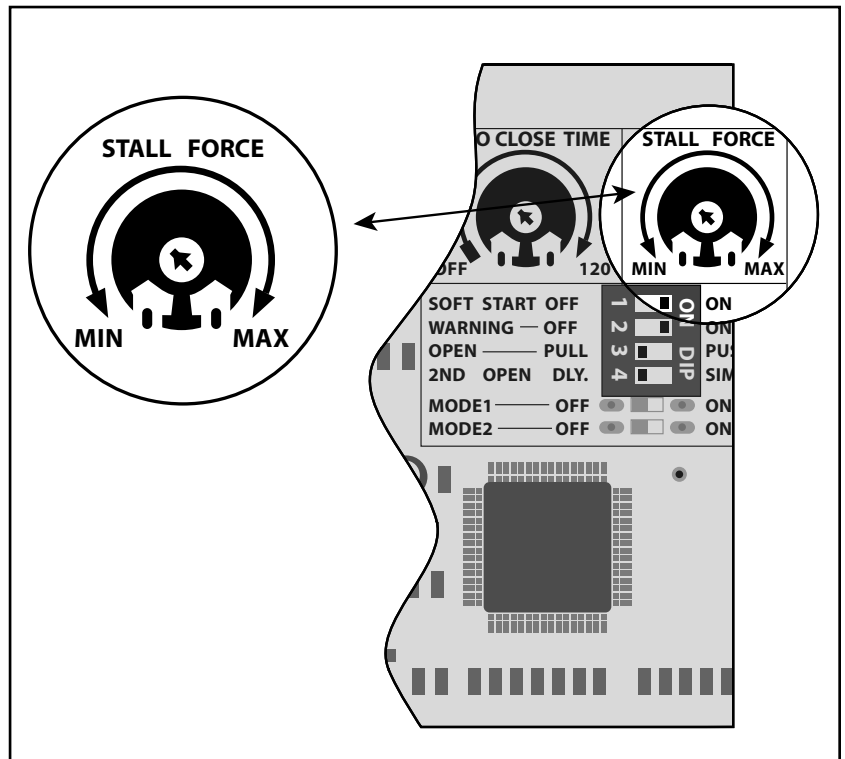
## Adjust the Stall Force Setting

The Stall Force potentiometer on the control board controls the amount of force the operator will apply to an obstruction for two (2) seconds before it automatically stops and reverses direction.

**IMPORTANT:** For safety reasons the stall force setting will need to be adjusted for your particular application.

The Stall Force potentiometer on the control board operates like a volume control on a radio. Use a small flat blade screwdriver to adjust the potentiometer. Adjust the stall force from the MIN position until the gate operates smoothly without obstructing from its own weight or wind conditions.

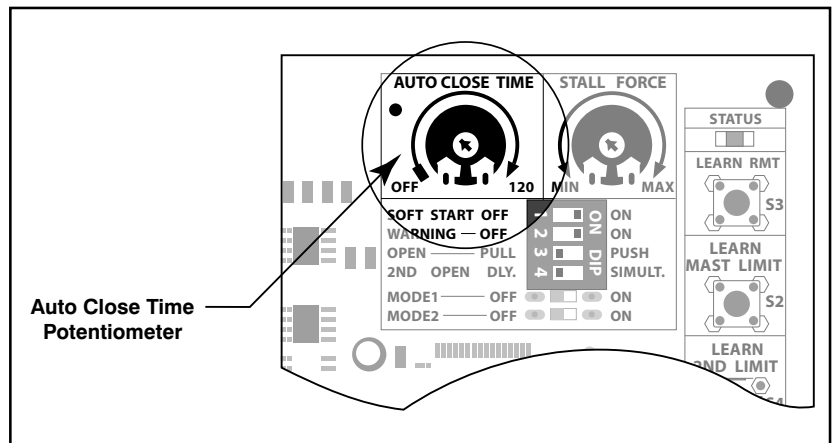
**NOTE:** you may need to increase the stall force in cold temperatures due to increased resistance from gate hinges.



## Set Auto Close Time

The Auto-Close Time potentiometer controls the Auto-Close feature, and determines how long the gate will remain open (at the fully open position) before it begins to close. The settings for this feature are OFF, or from 3 to 120 seconds.

Adjust the Auto-Close potentiometer by using a small flat blade screwdriver.



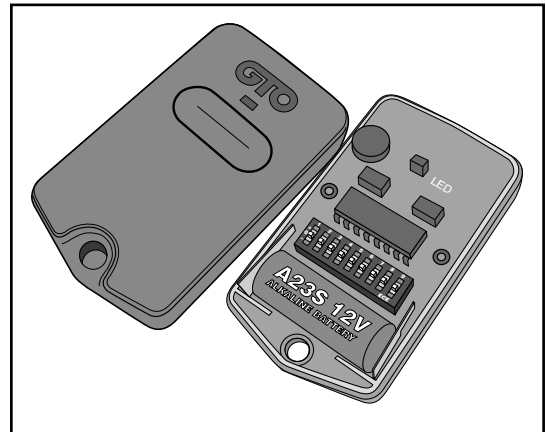
## Program Your Personal Transmitter Setting

All GTO transmitters are set to a standard code at the factory and are ready to operate your gate operator. For your safety and security, **we strongly recommend** that you replace the factory setting with your own personal setting. Follow the directions below:

**NOTE:** If you have multiple transmitters, you should adjust all of them at this time (refer to individual transmitter instructions for details). [RB741/RB742/RB743].

### Step 1

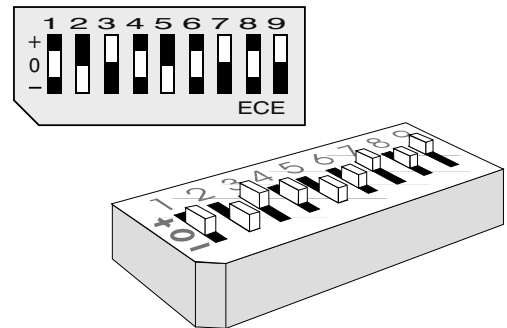
Use a small phillips head screw driver to remove the transmitter cover.



### Step 2.

Set the transmitter DIP switches using a small screwdriver. There are nine (9) transmitter DIP switches; each can be placed in three different positions (+, 0, -). **DO NOT** set all the switches in the same position, such as all +, all 0, or all -. Once the DIP switches have been reset, replace and close the access cover.

**WARNING:** No other adjustments should be made inside the transmitter.



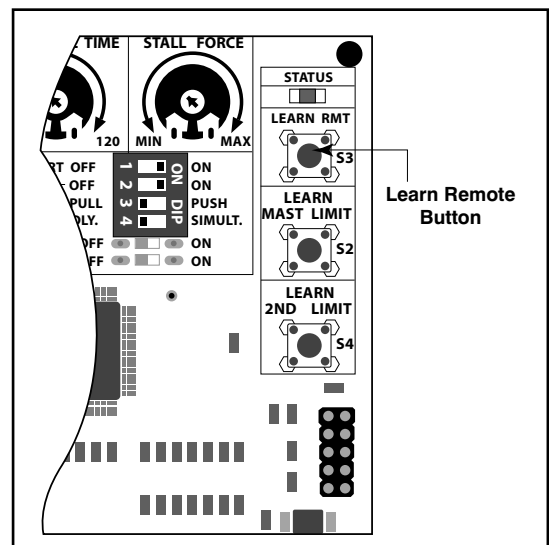
### Step 3.

Program the new setting into the control board:

- Press and hold transmitter button.
- Press and hold the LEARN RMT (Learn Remote) button on the control board until the alarm sounds.
- Release transmitter button. The new code is stored in control board memory.
- Release the LEARN RMT (Learn Remote) button.

**NOTE:** If you have purchased additional transmitters, program the settings for all at this time.

**NOW TEST RECEIVER BEFORE PERMANENTLY MOUNTING IT**  
(See page 12).



# Control Board Settings

## DIP Switches

### Main DIP Switch Settings (MODES)

#### DIP Switch #1: Soft Start/Stop

ON– Soft start enabled (factory preset).

OFF– Soft start disabled.

The Soft Start/Stop feature slowly starts the gate as it begins to open and slows the gate as it comes to the closed position. This saves wear and tear on the gate and gate operator system.

#### DIP Switch #2: Warning Buzzer

ON– Buzzer warning enabled (factory preset).

OFF– Buzzer warning disabled.

The Warning Buzzer alerts you when the gate operator is beginning to open or close the gate. It sounds for the first 2 seconds in each direction. It also sounds a warning when the gate obstructs two times in one cycle. Switching this to OFF only disables the open and close warning not the obstruction warning.

#### DIP Switch #3: Push/Pull-To-Open

ON: Push-To-Open.

OFF: Pull-To-Open (factory preset).

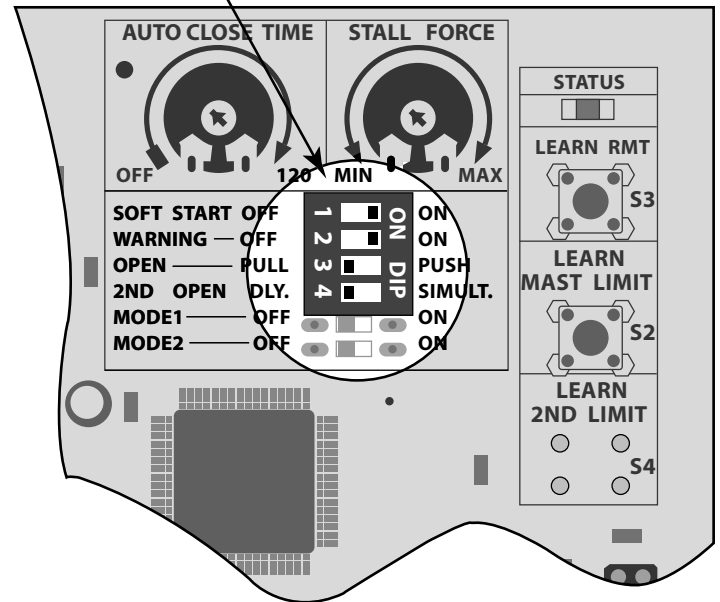
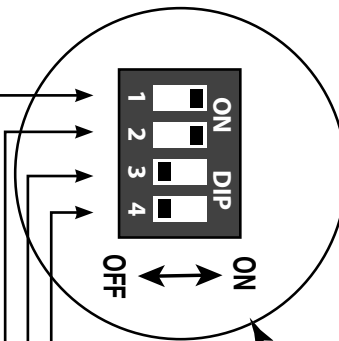
If your gate opens into the property the DIP Switch is set to the OFF position (factory setting). If your gate opens out from the property the DIP Switch must be set to the ON position. NOTE: if you have a Push-to-Open gate application you will need a Push-To-Open bracket (see Push-To-Open Instructions on page 22).

#### DIP Switch #4: Dual Operation

ON– Second opens simultaneously with master.

OFF– Second opens after master (factory preset).

Note: Not applicable for single gate operator.



# Connecting Accessories

## Input Connections

- All control inputs are dry-contact, normally open, inputs. DO NOT apply external voltage sources to these inputs.
- All inputs are connected with respect to COMMON terminal.
- The status LED will blink once when any input is activated.

**1 COM:** Circuit common (reference for all logic input)

- Two (2) terminals to provide extra common connection point.

**2 CYCLE/CLOSE:** (Typically for use with push button or hard-wired keypad)

- Each activation at this input will cycle the operation as follows:  
OPEN–STOP–CLOSE–STOP–OPEN

**3 SAFETY:** (Typically for use with photo beam device, loop detector or other non-contact sensors)

- Activation of this input while the gate is closing will cause the gate to stop and return to the opened position.
- Activation of this input while the gate is opening has no effect (gate will continue to open).
- Activation of this input while gate is idle will prevent gate from closing.

**4 EXIT/OPEN:** (Typically for use with exit loop or wand)

- Activation of this input will open the gate if it's not already at the open position
- Activation of this input while at open limit will restart the auto close time (if enabled).

**5 SHADOW LOOP:** (Typically for use with loop detector)

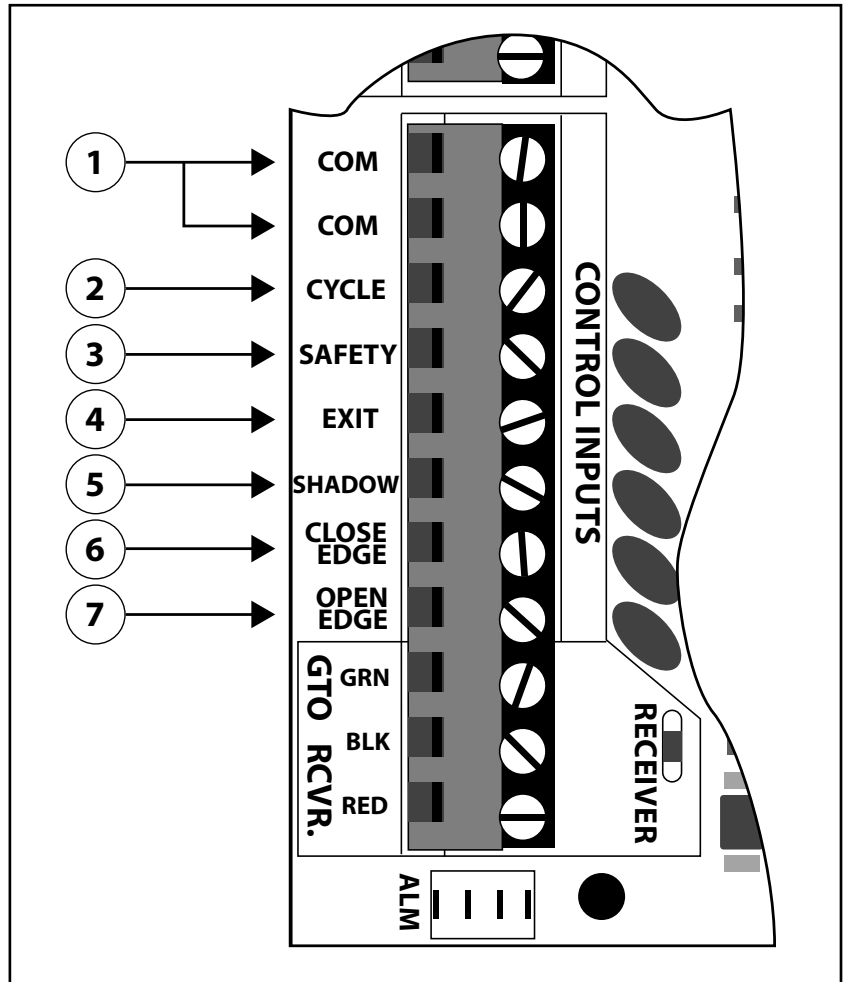
- This input is only monitored when the gate is at the fully open position. At any other position, activation of this input has no effect on gate operation.
- Activation of this input while gate at the fully open position will prevent gate from closing.

**6 CLOSE EDGE:** (Typically for use with safety edge device)

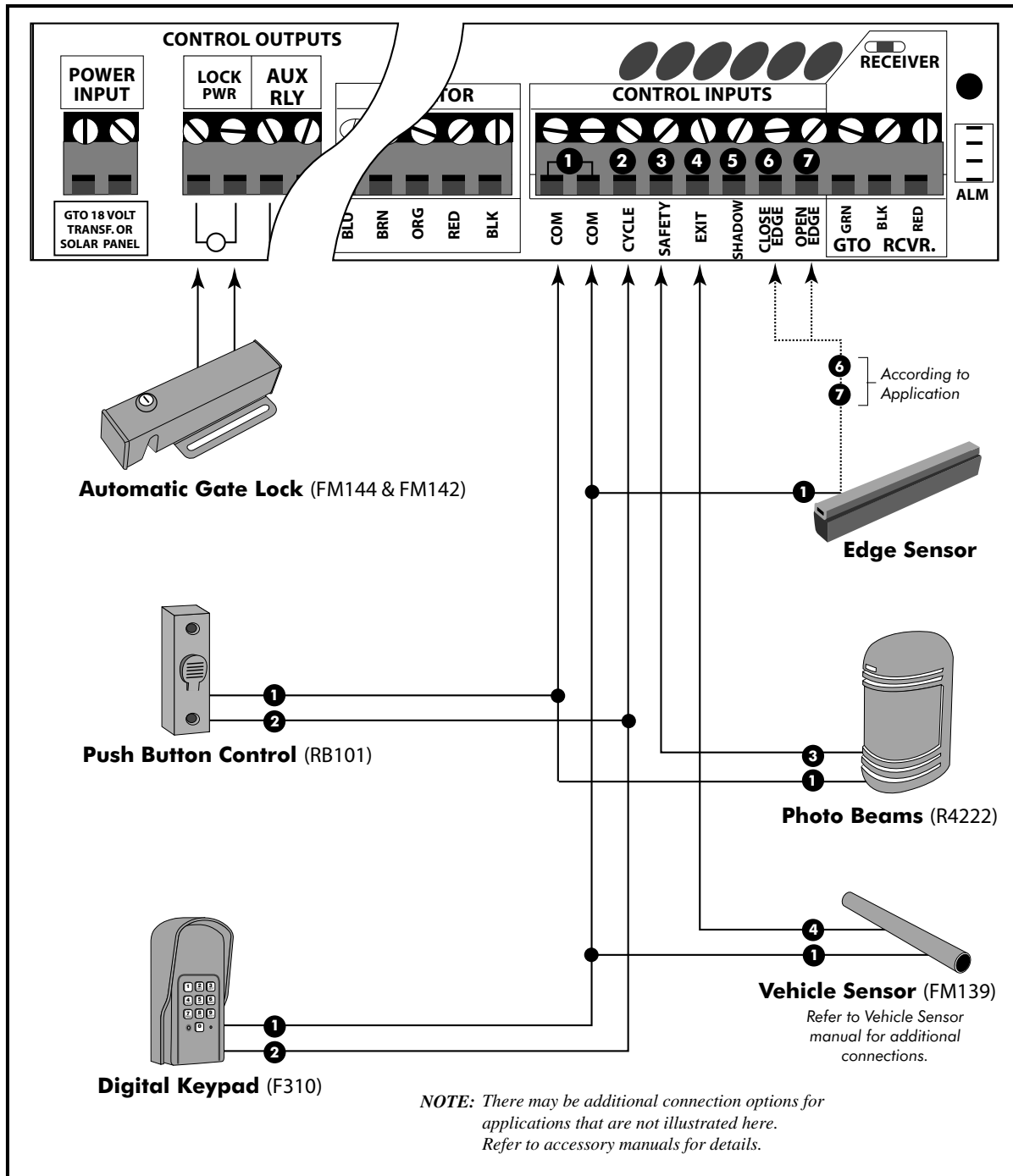
- Activation of this input while the gate is closing will cause the gate to stop and reverse direction for approximately 2 seconds.
- Activation of this input while the gate is opening has no effect (gate will continue to open).
- Activation of this input while gate is idle will prevent gate from closing.

**7 OPEN EDGE:** (Typically for use with safety edge device)

- Activation of this input while the gate is opening will cause the gate to stop and reverse direction for approximately 2 seconds.
- Activation of this input while the gate is closing has no effect (gate will continue to close).
- Activation of this input while gate is idle will prevent gate from opening.

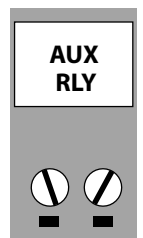


# Wiring Accessories




## Connecting Other Auxiliary Devices (Sirens, Lights, etc.)

- These 2 terminals are normally open "dry-contact" (no voltage) relay output.
- Relay is closed when the gate is in motion; Relay is open when the gate is not in motion.
- These 2 terminals maximum rating is 24Vdc, 1 Amp.



# Push-To-Open Installation Information


**Swinging gates shall not open into public access areas!**

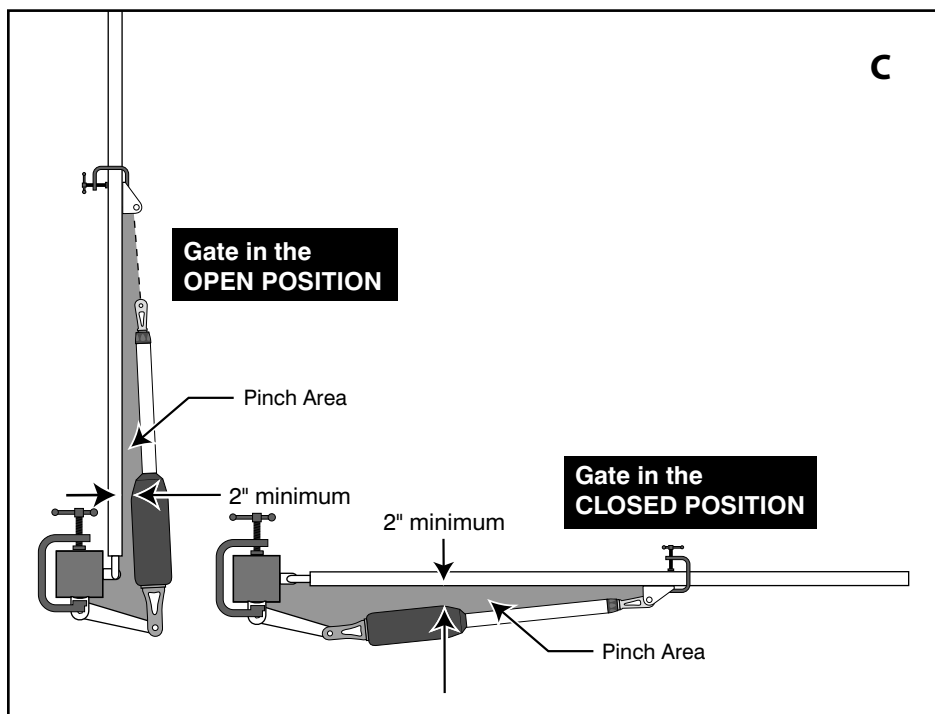
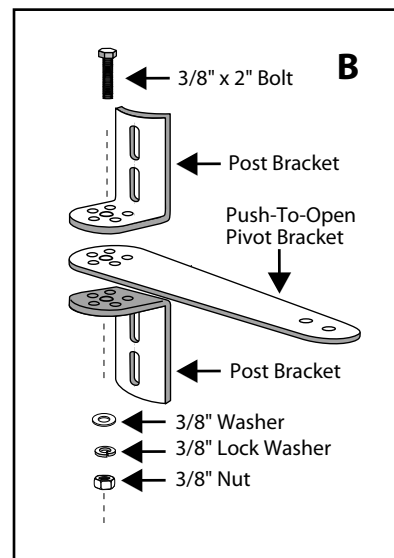
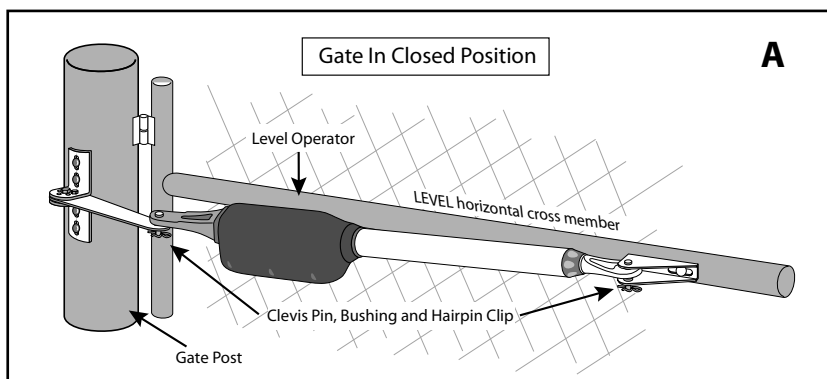
A “Push-to-Open” gate opens out from the property (operator arm extends to open the gate). A Push-To-Open installation requires the purchase of a Push-To-Open Bracket  [347IH].

**In a Push-To-Open installation the operator is installed while the gate is in the CLOSED POSITION.**

## Install the Operator

Follow directions for installing the 2000XL beginning on page 7. *The Push-To-Open installation differs from the Pull-To-Open installation in the following ways:*

1. In a Push-To-Open installation, the arm fully extends to open the gate, and it fully retracts to close the gate. (C)
2. You will install the operator while the gate is in the **CLOSED POSITION (arm fully retracted)**. (A)
3. You must use the Push-to-Open Post Pivot Bracket  [347IH] in the Post Bracket assembly(B).
4. IMPORTANT: While determining the mounting point for the post pivot bracket assembly be sure that the position allows for 2" clearance between the gate and the operator in both the open and closed positions (see diagram below). This clearance will give the operator the most efficient leverage point for opening and closing the gate and more importantly provides the least possible pinch area. (C)

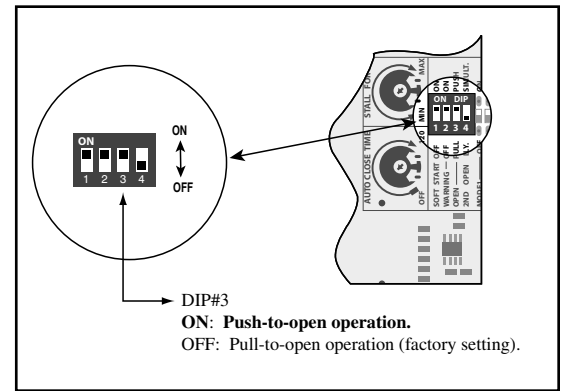


\*The Troubleshooting Wizard has detailed information on Push-To-Open installations.



## Set Control Board for Push-To-Open

Make sure the control box power switch is OFF. Use a small screwdriver to move the Number 3 DIP switch from the factory setting (OFF / Pull-To-Open) to ON for Push-To-Open. Turn power switch ON. The control board is now configured to push the gate open.



## Setting the Open Position Limit (Push-To-Open Installations)

## Step 1

Confirm that the power switch is in the ON position, and the gate is in the CLOSED POSITION.

## Step 2

Activate your operator by pressing the entry transmitter button. Your gate should now be moving from the closed position toward the open position. Prepare to STOP gate by pressing the entry transmitter button again when the gate reaches the desired open position. This step may be repeated until desired open position is achieved. Once the desired OPEN position has been achieved, proceed to Step 3.

### Step 3

With the gate in the desired open position PRESS & HOLD the "LEARN MAST LIMIT" button on the control board for 2 seconds.

### Step 4

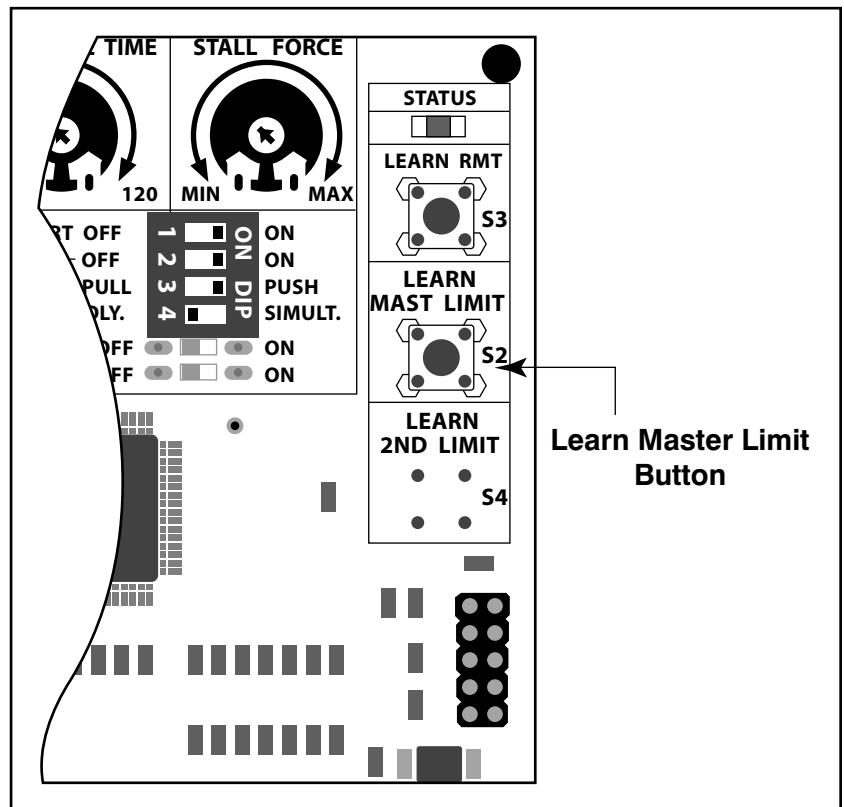
Press the transmitter button and allow the gate to return to the closed position. YOUR GATE'S OPEN POSITION LIMIT IS NOW PROGRAMMED.

### TESTING YOUR OPEN LIMIT SETTING:

Press your entry transmitter and allow your gate to open. If the OPEN position is not correct or needs to be changed, you will need to CLEAR your OPEN LIMIT settings and follow steps one (1) to four (4) again.

## CLEARING PROGRAMMED OPEN LIMIT SETTING:

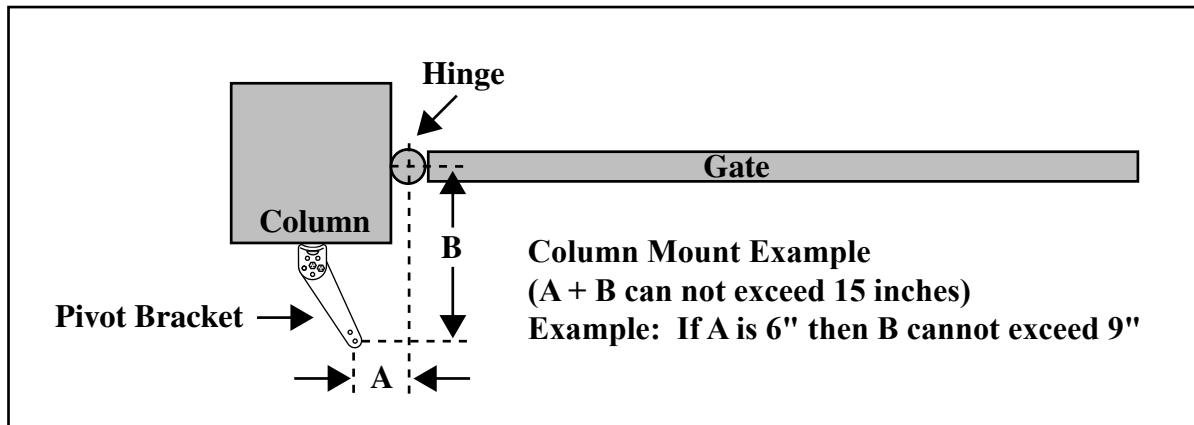
If you make a mistake and set the limit at the wrong position – press your transmitter to return the gate to the fully closed position, then press and hold the “LEARN MAST LIMIT” button for 2 seconds. This will clear the memory for the open limit position. Follow steps one (1) to four (4) again.



# Column Installation

If this operator will be used with gates that are mounted on masonry, brick, or rock (etc.) columns, read the following carefully before proceeding

- A. The simplest solution is to install the operator in a push-to-open configuration. The minimum clearance is easier to achieve and clearance is no longer a problem, since the operator will be pushing the gate away from the column instead of pulling it toward the column. It is recommended that you place a steel plate between the operator mounting brackets and masonry surface for additional strength.
- B. If a push-to-open installation is impossible due to traffic hazards, terrain, etc., another option is to re-hang the gate. You may hang it on a post, either in the center of the column or at the back corner, or move the gate to the back corner of the column.
- C. The most difficult solution is to cut a notch in the column to accommodate the operator and power cable. This job is NOT for the inexperienced!\*



\*The Troubleshooting Wizard has detailed information on column mounting.

# Troubleshooting Guide

## VOLTAGE RATINGS

18 Vac Transformer ..... 18.0 to 22.0 Vac, 2200 mA

5 W Solar panel (single) ..... 18.0 to 22.0 Vdc, 300 mA

*\* measure voltage at panel and control box.*

12 V, 7 amp hour Battery ..... 12.5 to 13.5 Vdc 7.0 Ah

or Two 12V, 7 amp hour Batteries if using solar power

*\*measure voltage at battery terminals with battery disconnected*

Charging circuit ..... 12.0 to 14.8 Vdc

*\*measure voltage at battery terminals with battery connected*

If your gate operator does not function properly after it is installed, use this guide before calling the GTO Service Department.

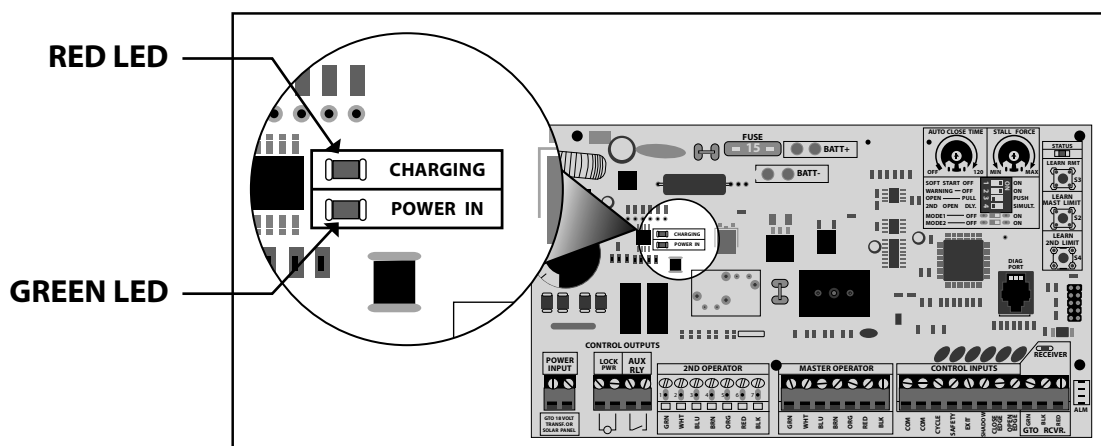
## Generation 3 Audible Feedback

SYMPTOM	DIAGNOSIS	CHECK:
1 short beep upon activation	Blown Fuse Low or Bad Battery Loose Battery Connection	<ul style="list-style-type: none"> <li>• Fuse</li> <li>• Battery Under Load</li> <li>• Battery Harness Connections</li> </ul>
1 short beep upon power up	Circuit Board Powered Up & Ready	<ul style="list-style-type: none"> <li>• Normal Operation</li> </ul>
Continuous Uninterrupted Alarm	Circuit Board Senses an Obstruction	<ul style="list-style-type: none"> <li>• Path of Gate</li> <li>• Gate for Level and Plumb</li> <li>• Stall Force Adjustment</li> <li>• Disconnect Safety Devices</li> <li>• Rev Counter</li> </ul>
1 beep with 10 seconds off	Low Battery Condition	<ul style="list-style-type: none"> <li>• Fuses</li> <li>• Battery Harness Connections</li> <li>• Battery Under Load</li> </ul>
1 beep then 2 beeps	Master Motor Terminals Shorted	<ul style="list-style-type: none"> <li>• Connections to Master Inputs</li> <li>• Master Arm Power Cable</li> <li>• Motor</li> <li>• Circuit Board</li> </ul>
1 beep with 2 seconds off	Master Arm Limit Switch Error	<ul style="list-style-type: none"> <li>• Connections to Master Inputs</li> <li>• Master Arm Power Cable</li> <li>• Master Input ORG &amp; GRN, BRN &amp; GRN voltage with wires disconnected. 11VDC across each terminal.</li> </ul>
3 beeps with 2 seconds off	Master Arm Rev Counter Error	<ul style="list-style-type: none"> <li>• Connections to Master Inputs</li> <li>• Master Arm Power Cable</li> <li>• Rev Counter</li> </ul>

## Generation 3 Visual Feedback

SYMPTOM	DIAGNOSIS	CHECK:
Status (clear) 1 blink	Cycle Terminal Shorted	<ul style="list-style-type: none"> <li>• Disconnect the push button, keypad, intercom keypad, or any other accessory wired to this terminal.</li> <li>• Try the remote. If the remote works, then the problem is the accessory.</li> </ul>
Status (clear) 2 blinks	Safety Terminal Shorted	<ul style="list-style-type: none"> <li>• Disconnect the loop detector, photo beam, or any other accessory wired to this terminal.</li> <li>• Try the remote. If the remote works, the problem is the accessory.</li> </ul>
Status (clear) 3 blinks	Exit Terminal Shorted	<ul style="list-style-type: none"> <li>• Disconnect exit wand, loop detector, photo beam, or any other accessory wired to this terminal.</li> <li>• Try remote. If the remote works, the problem is the accessory.</li> </ul>
Status (clear) 4 blinks	Shadow Terminal Shorted	<ul style="list-style-type: none"> <li>• Disconnect the loop detector, photo beam, or any other accessory wired to this terminal.</li> <li>• Try remote. If the remote works, the problem is the accessory.</li> </ul>
Status (clear) 5 blinks	Close Edge Terminal Shorted	<ul style="list-style-type: none"> <li>• Disconnect the edge sensor, photo beam, or any other accessory wired to this terminal.</li> <li>• Try the remote. If the remote works, the problem is the accessory.</li> </ul>
Status (clear) 6 blinks	Open Edge Terminal Shorted	<ul style="list-style-type: none"> <li>• Disconnect edge sensor, photo beam, or any other accessory wired to this terminal.</li> <li>• Try the remote. If the remote works, the problem is the accessory.</li> </ul>
RF (yellow) Flickers	Receiving 318 MHz RF	<ul style="list-style-type: none"> <li>• Normal operation when remote or wireless keypad is used.</li> </ul>
RF (yellow) OFF	No 318 MHz RF Received	<ul style="list-style-type: none"> <li>• Battery in Remote</li> <li>• Program Remote</li> <li>• Antenna Receiver Connections</li> <li>• Antenna Receiver</li> </ul>
Power (green) ON	AC or Solar Power Present	<ul style="list-style-type: none"> <li>• Normal Operation</li> </ul>

## Battery/Power Troubleshooting



POWER IN LED	CHARGING LED	
ON	Steady ON	Battery Charging
ON	Blinking	Battery Fully Charged
ON	OFF	Bad Charger
OFF	OFF	No AC/Solar Power
OFF	Blinking	Low Battery
OFF	Steady ON	Bad Charger

## Repair Service

If your GTO 2000XL Gate Operator is not operating properly, please follow the steps below:

1. First use the procedures found in the Troubleshooting Guide (see page 25).
2. Use the 24/7 Troubleshooting Wizard at <http://support.gtoinc.com>.
3. If you are unable to solve the problem, call the GTO Service Department at (800) 543-1236, or (850) 575-4144. Refer to the serial number (located on the right side of the control box) and date of purchase when calling for assistance.
4. If repair or replacement of your gate operator is necessary, the Service Department will assign a Return Goods Authorization (RGA) number to you.
5. Securely pack the component(s) authorized for return to the factory. Include a copy of your sales receipt for the purchase of the product(s). Write the RGA number issued to you on the outside of the package in **LARGE BOLD PRINT**.

Ship the package(s) freight prepaid to: GTO, 3121 Hartsfield Road, Tallahassee, Florida, USA 32303.

**NOTE: Products returned to GTO without a Return Goods Authorization (RGA) number in LARGE BOLD PRINT on the outside of the package WILL NOT be accepted. Also, items returned to GTO freight collect WILL NOT be accepted.**

## GTO Technical Service and Installation Assistance

8:00am–7:00pm • Monday–Friday (EST)

Toll Free Support: 800-543-1236 • Local Support: 850-574-4144 • Fax: 850-575-8950

24/7 Troubleshooting Wizard: <http://support.gtoinc.com>



# Accessories for 2000XL

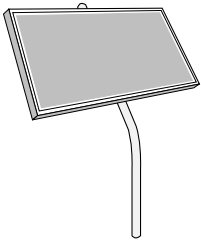
Please visit [www.gtoaccess.com](http://www.gtoaccess.com) for photos and detailed descriptions of GTO Accessories. Or call 1-800-543-GATE (4283).

## POWERING ACCESSORIES



### Low Voltage Wire [RB509]

The 16 gauge, multi-stranded, dual conductor low voltage Wire is for connecting the AC powered transformer, solar panel or wired accessories to the system's control board. This specially designed wire is UV treated, PVC coated, and ready for direct burial.



### Solar Panel Kits [FM122/FM123]

If your gate operator is more than 1000 ft. away from an AC power outlet, you can choose to maintain the battery charge with the GTO Solar Panel Kit.

- 10 Watt Solar Panel Charging Kit [FM123]
- 5 Watt Solar Panel Charging Kit [FM122]



### Additional/Replacement Battery [RB500]

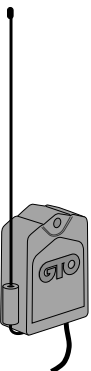
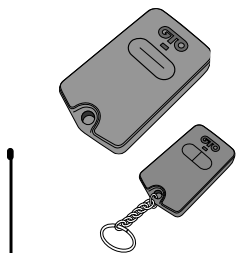
For additional battery power or replacement.

## "FROM VEHICLE" ENTRY AND EXIT ACCESSORIES

### Transmitters [RB741/RB742/RB743]

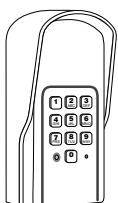
Purchase an additional transmitter for each vehicle in your family. The Two-Button Transmitter can be programmed to operate both your gate operator and a garage door opener using the Universal Receiver. Or it can be programmed to open two gate operator systems.

- Single Button Transmitter [RB741]
- Dual Button Transmitter [RB742]
- Three Button Transmitter [RB743]



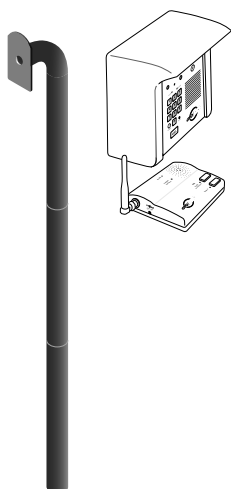
### Universal Receiver [RB709U-NB]

The Universal Antenna Receiver gives you the ability to use one remote to activate your gate operator and your garage door opener. Connects to any brand garage door opener. Up to 100 ft. range.



### Digital Keypad [F310]

Allow friends access to your property using an entry code that you provide. Program up to 25 entry codes for added security. Powered by three "AA" batteries (not included).



### **Residential Wireless Entry Intercom [F3100MBC]**

Designed for added security to your automated gate with the ability to “speak to” and “screen” visitors safely from inside your home. Ideal for securing gate entrances while providing controlled access.

### **Gooseneck Pedestal [F100/F110]**

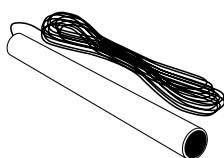
Designed to mount digital keypads, wireless intercom systems, and other access control devices for your gate automation system.

## **“HANDS FREE” ENTRY & EXIT ACCESSORIES**

### **Driveway Vehicle Sensor [FM139]**

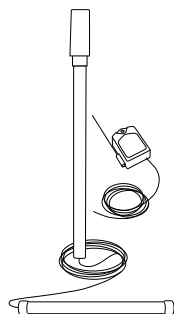
Automatically activates gate operator “Hands-Free” when a vehicle exits the property. Electromagnetic sensor detects vehicles in motion.

- 50 ft. [FM139]
- 100 ft. [FM140]
- 150 ft. [FM141]



### **Wireless Vehicle Sensor [R4500]**

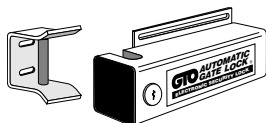
Automatically activates gate operator “Hands-Free” when a vehicle exits the property. 100 ft. range between transmitter and receiver. Easy installation.



## **LOCKING & SECURITY ACCESSORIES**

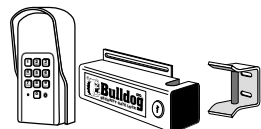
### **Automatic Gate Lock [FM144/FM142]**

The #1 Accessory For Swing Gate Operators! Designed for added security in conjunction with GTO Automatic Gate Operators. The gate lock unlocks and locks automatically when the gate opens and closes. The perfect solution for high wind conditions.



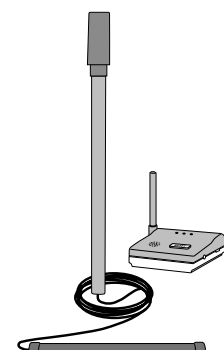
### **Bulldog Pedestrian Gate Lock [FM145]**

Designed to mount on horizontal swing “walk through” wood, chain link, and metal pedestrian gates opening in or out. Ideal for securing pools, condominiums, schools and any pedestrian gate.

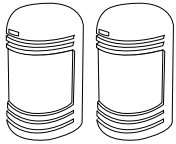


### **Wireless Driveway Alarm [R4450].**

This device alerts you of vehicles entering your driveway (with or without an automated gate). The indoor base station signals you with a door chime when a vehicle passes the driveway sensor.



## **ADDITIONAL ACCESSORIES**

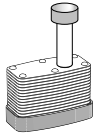
**Photo Beams [R4222]**

Primary “through beam” photo beam device. Provides “non-contact” entrapment protection.

**Pin Lock [FM345]**

Use as a substitute for the clevis pin at the front mount of the PRO-SW2000XL to prevent theft of the operator.

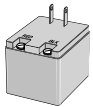
- Pin Lock 10-pack: ten Pin Locks keyed alike [FM345KA].

**Push Button Control [RB10]**

Wire this unlit push button directly to your gate operator for simple open/close/stop operation from up to 1000 ft. away. Use 16 gauge low-voltage wire.

**Replacement Transformer [RB570]**

Standard 18 volt, 2200 mA AC transformer included with the 2000XL to maintain battery charge.



## HARDWARE ACCESSORIES

**Push To Open Brackets [347IH]**

Required when the 2000XL must push a gate open (arm extends to open), such as away from a sloping driveway or where space prevents gate from opening into the property (pull to open). Order two brackets for a dual swing gate installation.

**Column Mount Lock Receiver [433IH]**

For use with the Automatic Gate Lock or Bulldog Pedestrian Gate Lock when mounting on brick columns or applications with limited space.







**3121 Hartsfield Road • Tallahassee, Florida, USA 32303**

**(850) 575-0176 • Fax (850) 575-8912**

**Web site [www.gtoaccess.com](http://www.gtoaccess.com)**



**24/7 Troubleshooting Wizard: <http://support.gtoinc.com>**