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# IMPORTANT!!!

## SAFETY INSTRUCTIONS FOR THE PRO-SL-1000 SLIDE GATE OPERATOR


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### *SAFETY IS EVERYONE'S BUSINESS*



Automatic gate operators provide convenience and security to their users. However, because these machines can produce high levels of force, it is important that all gate operator system designers, installers and end users be aware of the potential hazards associated with improperly designed, installed or maintained systems. Keep in mind that the gate operator is only one component of the total gate operating system—**each component must work in unison to provide the end user with convenience, security and safety.**

The following information contains various safety precautions and warnings for the system designer, installer and end user. Although the warnings are not completely exhaustive in nature (due to the many and varied possible applications), they do provide an overview of the importance of safe design, installation and use.

Some of the following precautions and warnings are identified with this (  ) warning symbol. This symbol will identify some of the conditions that can result in serious injury or death. Take the time to carefully read and follow these precautions and other information provided to help assure a safe system design, installation and use.

**NOTE:** GTO Automatic Gate Operators are intended to be part of a total gate operating system. **It is the responsibility of the purchaser, designer and installer to insure that the total system is safe for its intended use.** The manufacturer is not responsible for accidents arising from unsafe installations or improper use. Safety is your responsibility!

### *SPECIAL NOTES FOR THE SYSTEM DESIGNER*

1. Familiarize yourself with the complete safety instructions, precautions and warnings. The end user is relying on your design to provide a safe, hazard-free installation and system use.
-  2. **Additional safety features such as safety edges, photo electric sensors, and roller guards should be installed to prevent bodily injury (see pg. 5).**
-  3. When designing a system which will be entered from a highway or main thoroughfare, make sure the system is placed far enough away from the road to eliminate traffic backup. Distance from the road, size of the gate, usage levels and gate cycle/speed must be taken into consideration to eliminate potential traffic hazard.
4. This gate operator is not for pedestrian use. If pedestrian traffic is expected, install a walk-through gate for this purpose (see pg. 5).



# ***SPECIAL NOTES FOR THE INSTALLER***

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## **I. Before Installation**

1. Check to see that this operator is proper for this type and size of gate, and its frequency of use (see page 7).
2. Make sure that the gate has been properly installed and slides freely in both directions. Repair or service any worn or damaged gate hardware prior to installation. A freely moving gate will require less force to operate and enhance the performance of the operator as well as the safety devices used with the system.
3. Install the gate operator on the inside of the property and/or fence line. **Do not** install an operator on the public side/outside of the gate.
4. Additional safety equipment such as safety edges, roller guards, and/or photocell sensors should be installed to prevent bodily injury. If pedestrian traffic is expected near the gate, a walk-through gate should be installed for this purpose (see pg. 5). It is **your responsibility** to make sure the public is not exposed to a potentially hazardous situation.
5. Review the operation of the system and become familiar with the manual disconnect for the operator (see pg. 12) and the safety features of the system.
6. Secure outdoor or easily accessed gate operator controls in order to prohibit unauthorized use of the gate.

## **II. During Installation**

-  1. Be aware of all moving parts and avoid close proximity to any pinch points.
-  2. **Note that the factory obstruction setting is set for the most sensitive setting (S5), because this is the safest setting. This setting may need to be reprogrammed after installation to the most sensitive setting that will still allow regular travel of the gate (see page 19).**

The least sensitive settings (S1 and S2) may be necessary for heavy gates and gates with significant wind resistance. Determine what force it takes to stop the gate at each of the five settings, then determine which of the settings works best for your installation. **Remember, it's always safest to use the most sensitive setting possible.** Do not use obstruction sensitivity to compensate for an improperly installed gate!

-  3. Know how to operate the manual disconnect for the operator (see pg. 12).
-  4. Place access controls far enough from the gate (at least 10 ft. is recommended) so that the user has full view of the gate but cannot touch the gate while operating the controls.
5. Place the warning signs provided with the gate operator on each side of the gate or in high visibility areas to alert public of automatic gate operation.














## **III. After Installation**

1. You are responsible for explaining to the end-user the basic operations and safety systems of the entire gate operator system, including operation of the manual disconnect.
2. **Review all the safety instructions with the end-user and make sure that the packet with the safety instructions and warranty procedures is attached to the outside of the housing.**
3. Tell the end user that servicing of the operator should only be done by an experienced technician.

## ***SPECIAL NOTES FOR YOUR CUSTOMER / END USER***

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Read and follow all safety precautions. **Be certain you have thoroughly reviewed these safety precautions with your installer:**

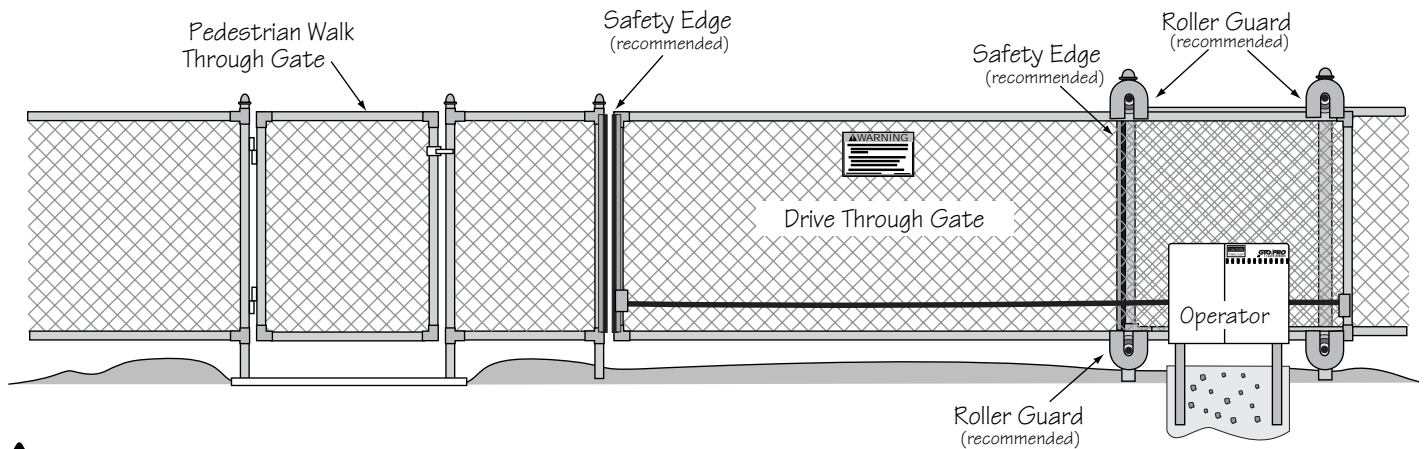
-  1. Distribute safety instructions to all persons authorized to use your gate.
-  2. **KEEP CLEAR OF THE GATE AND AREA OF GATE TRAVEL** at all times. Your automatic gate is not for pedestrian use. If pedestrian traffic is expected near the gate, a walk-through gate should be installed for this purpose. (See page 5.)
-  3. Do not allow children or pets near your gate.
-  4. Do not activate your gate operator unless you can see it and can determine its area of travel is clear of children, pets or other obstructions.
-  5. If push buttons or keyswitches are installed, they should be within sight of the gate, yet located far enough from the gate (at least 10 ft.) so the gate cannot be touched while in operation. Do not operate any control without watching movement of the gate.
-  6. If your gate has open rollers, roller guards should be installed to prevent hands and fingers from being caught in the rollers. (See page 5.)
-  7. An electric safety edge sensor or photo electric sensor should be installed to enhance the detection of obstructions in the operation of the gate system. (See page 5.)
-  8. Do not use the sensitivity adjustments to compensate for a poorly installed or damaged gate. The gate should always be maintained to operate manually as easily as possible.
-  9. Have all safety systems checked periodically. If these functions are observed to operate improperly, discontinue use and have operator serviced immediately.
-  10. To operate this equipment safely, **YOU** must receive detailed instructions on the operation of the manual disconnect. If you feel you haven't received full and proper instructions, contact your installer.
-  11. It is your responsibility to make sure that the installer posted GTO's 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 your installer or GTO for replacement.
-  12. Never remove operator housing.
-  13. Do not attempt to service this operator yourself; for service, contact your installer or another experienced technician.

### **WARNING !**

**DO NOT INSTALL THIS OPERATOR WITHOUT ROLLER GUARDS AND SAFETY EDGES. MANUFACTURER IS NOT RESPONSIBLE OR LIABLE FOR ACCIDENTS INVOLVING GATE OPERATORS INSTALLED WITHOUT THESE IMPORTANT SAFETY FEATURES.**

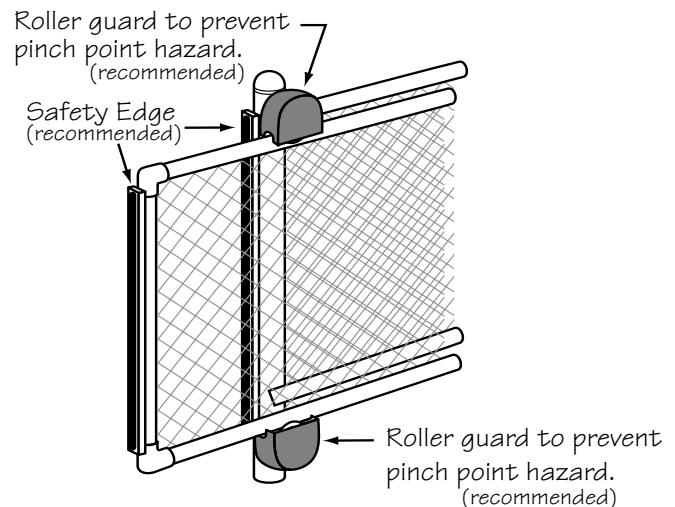
# SAFETY PRECAUTIONS FOR GATES

Obstruction settings, even when properly adjusted, may not always be sensitive enough to prevent arm or hand injuries. For this reason, safety devices such as safety edges or photoelectric sensing systems are **strongly recommended**. (See suggested system below.)



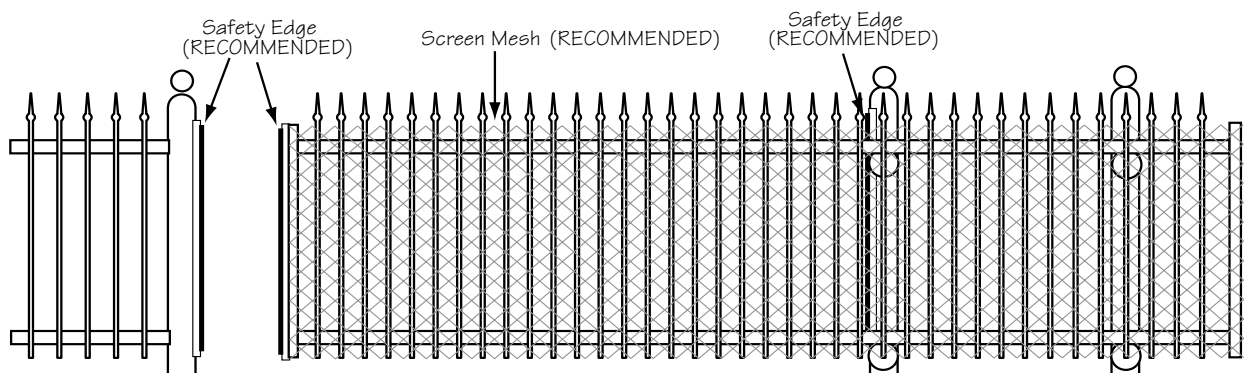
## ⚠ OPEN-ROLLER GATES

Injuries may occur when people get their hands caught between the gate and the roller. This potential pinch-point should be guarded against whenever an automatic gate operator is installed. Roller guards and enclosed tracks are **strongly recommended** and available from various fence suppliers for refitting rollers.



## ⚠ ORNAMENTAL “GRILL TYPE” GATES

Injuries may occur when people put their hands, arms, etc., through openings in the grills and the gate is operated, causing the person's hands, arms, etc., to get caught between the grill and the fence post or fence. This potential hazard can be averted by placing a screen mesh on the gate and the fence in the area of the gate. This will help to prevent access through openings anywhere the gate may travel. (See the illustration below.)



# WARNING LABELS

These warning labels should be found at the following locations on the gate operator. If any are missing, contact GTO immediately for replacements.



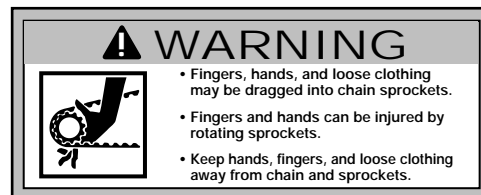
*Label located next to sprockets on back of the operator (inside).*



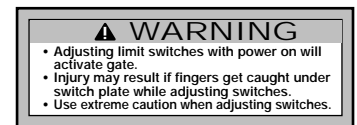
*Labels (3) located on sides and back of operator housing.*



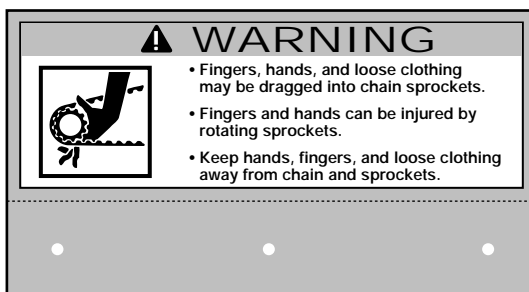
*Label located on front of operator housing.*



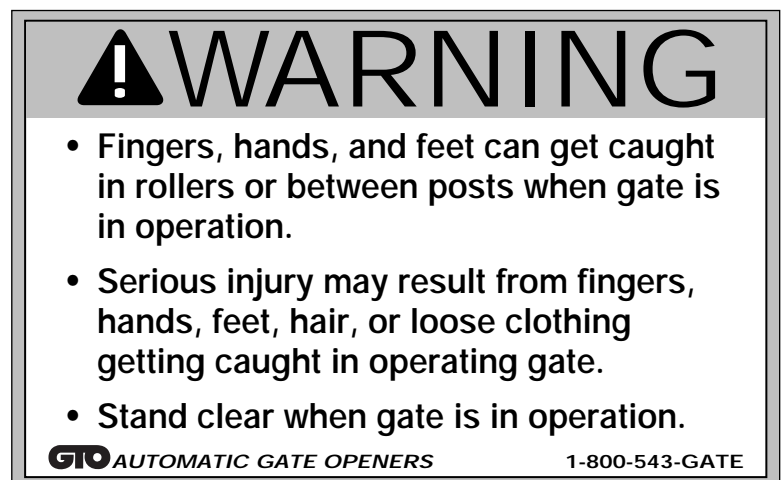
*Label located on top of control box .*



*Label located on limit switch plate.*



*Plastic sign located over the top sprocket on the back of operator (inside).*



*Plastic signs (2) to be placed on the fence gate to warn pedestrians.*

# TECHNICAL SPECIFICATIONS

## GTO PRO-SL-1000 TECHNICAL SPECIFICATIONS

### DRIVE

- Powered by a 12 volt motor with integral case hardened steel gear reduction to 90 RPM. Generates 250 inch pounds torque at 12 volts. Temperature rating of motor -30° F to +160° F.
- Opening time is one foot per second.

### POWER

- The **PRO-SL-1000** system is powered by a 12 volt DC / 7.0 amp hour, sealed, rechargeable gel-cell battery.
- Battery charge for **PRO-SL-1000** is maintained by a 14 volt AC transformer rectified to 14 volt DC through the **GTO** Control Board. Control board fuses are 15 amps.

**NOTE: Transformer should not be connected *directly* to any battery.**

**NOTE: Do not replace fuses with larger fuses; this will void the warranty and may damage the unit.**

- Battery charge maintained by **GTO** Solar Panel Charger: float voltage 14.5 volt DC output from a 19<sup>3</sup>/<sub>8</sub>" x 15<sup>1</sup>/<sub>4</sub>" silicon alloy panel. Generates minimum of 10 watts at 600 mA. Gated diode on the control board prevents battery discharge.

### CONTROL

- **GTO** microprocessor controlled board can be programmed to open left-to-right or right-to-left. Adjustable auto close and obstruction sensitivity. Temperature compensated circuits. Auto-memorization of digital transmitter code. Charging regulated circuit on control board. "Sleep draw" is 15 mA; "active draw" is 2 to 5 amps.
- **GTO** remote-mounted RF receiver tuned at 318 MHz.
- Limit controls are mechanical. Normally open contact.
- Fully compatible accessory terminal block provides connections for safety loops, wands, intercoms, card readers, phone systems, etc.

### OPERATIONAL CAPACITY

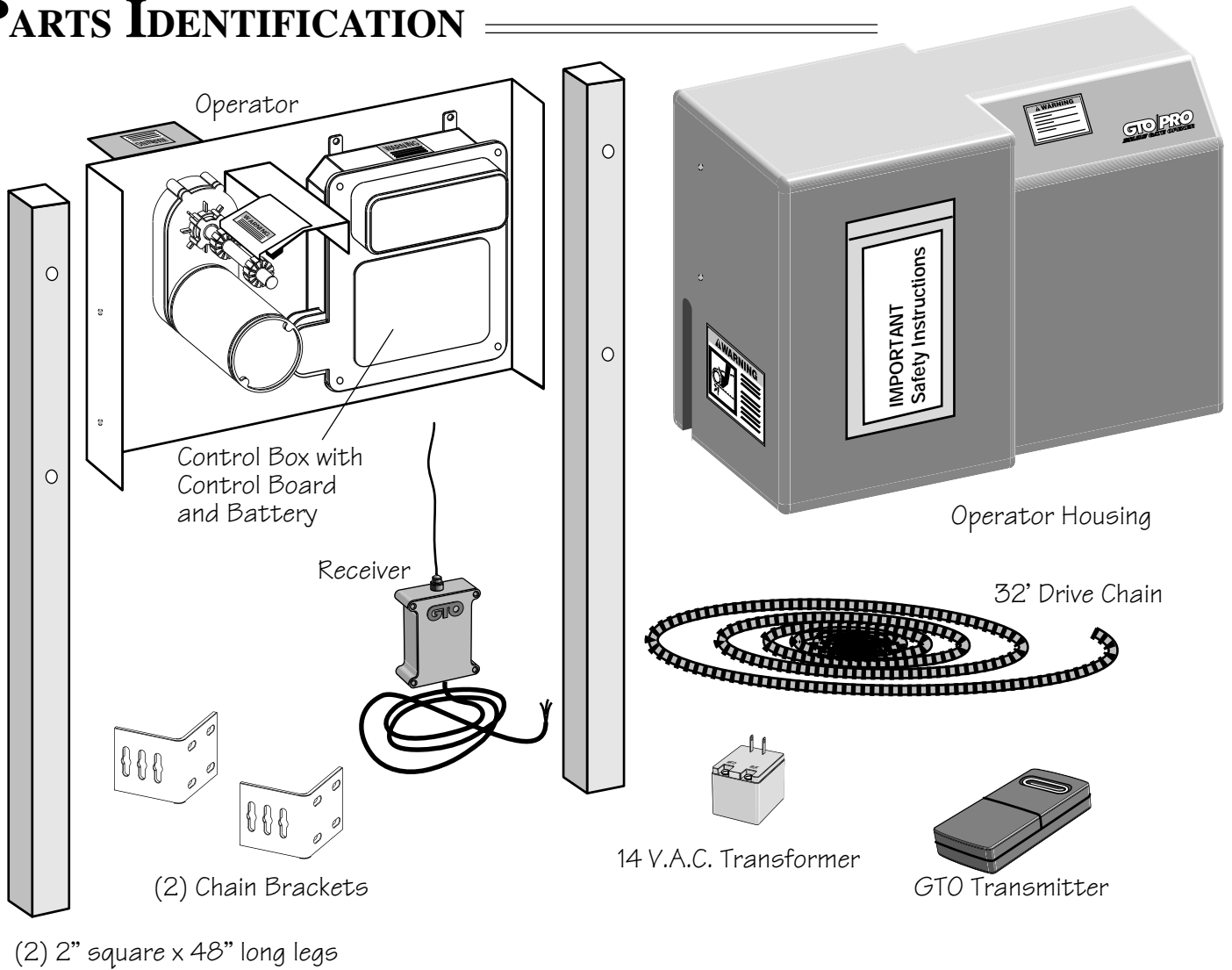
- The **GTO/PRO SL-1000** will handle gates weighing up to 500 lbs. (226.8 kg) and up to 30 ft. (9.14 m) in length (per leaf) **if all proper installation procedures have been followed.** Note that ball bearing rollers should be used on all gates weighing over 250 lbs. (113.4 kg)
- The **GTO/PRO SL-1000** series operators are capable of continuous duty cycling; however, the total cycles per day will depend on the motor current and efficiency of the gate installation (see chart on page 13). For questions relating to specific applications and for information regarding cycling duty when charged by solar panels, call the GTO service department at 1-800-543-GATE (4283).

<b>Housing Dimensions:</b>	Height: 18" Width: 21 <sup>1</sup> / <sub>2</sub> " Depth: 11"
<b>Shipping Weight:</b>	Approximately 90 lbs.
<b>Applications:</b>	Maximum gate weight: 500 lbs. Maximum gate length: 30 ft. Maximum opening: 20 ft.

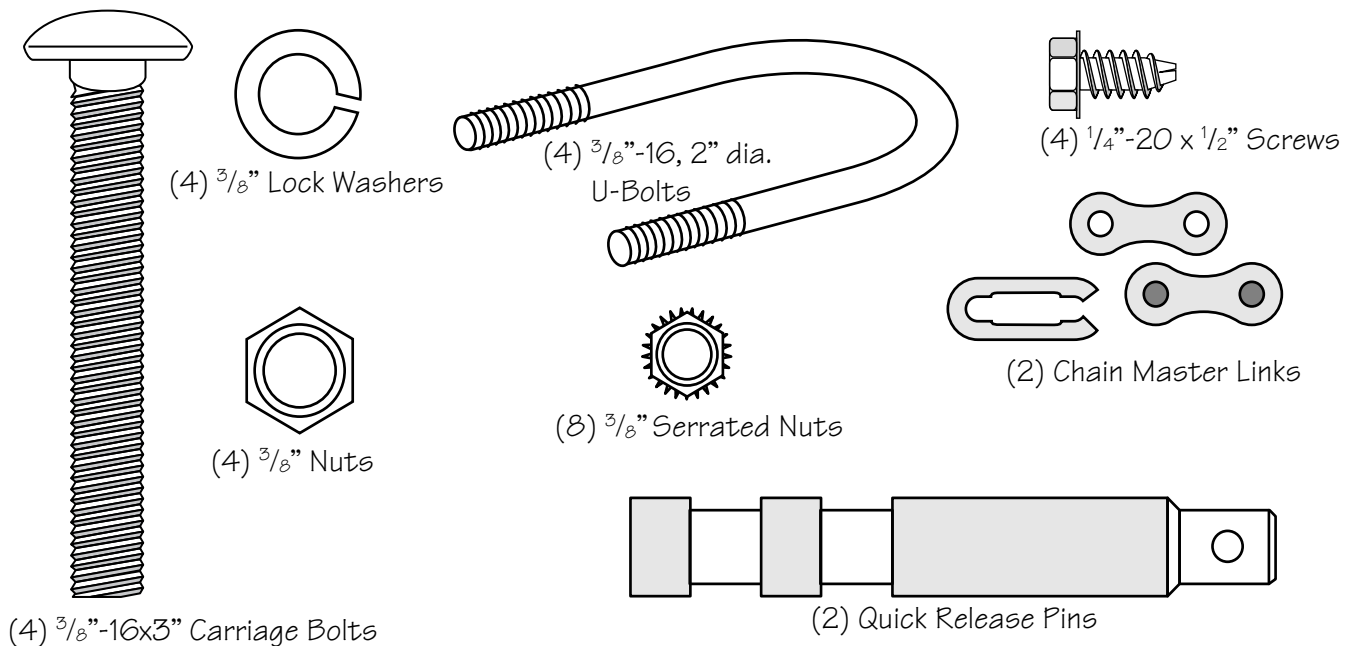
Rollers should be lubricated at least four times per year.

These Specifications are subject to change without notice.

# PARTS IDENTIFICATION



## Hardware Bag

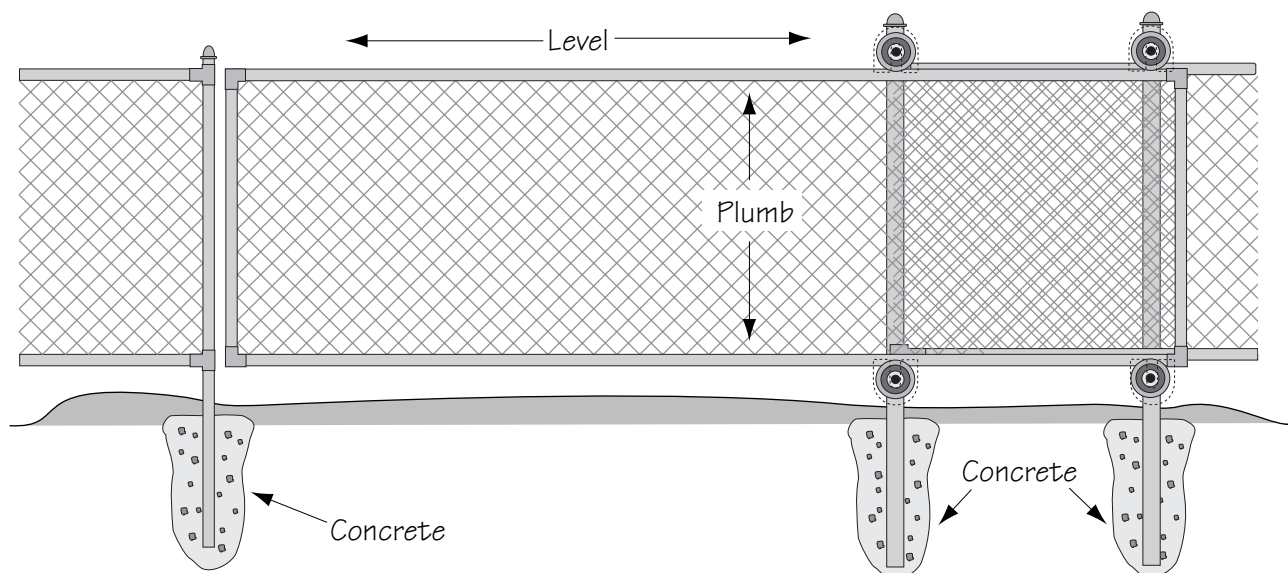




# INSTALLING THE SINGLE (FIRST) GATE OPERATOR

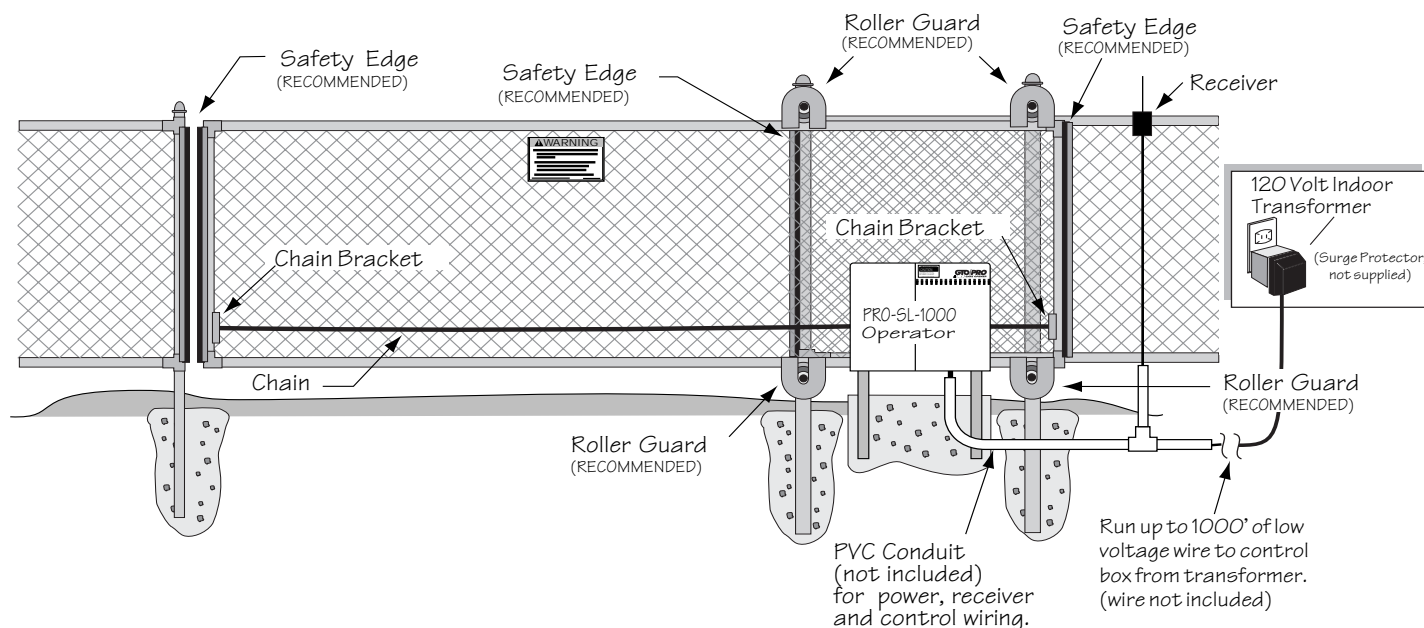
## GATE PREPARATION

Be sure the gate is properly installed and working smoothly before installing the GTO/PRO Slide Gate Operator. It is important that the gate be plumb and level and must move freely. **The gate should not bind or drag on the ground.** *Never use a wheel on the gate, because this creates additional drag and resistance, which can cause the operator to fail.*



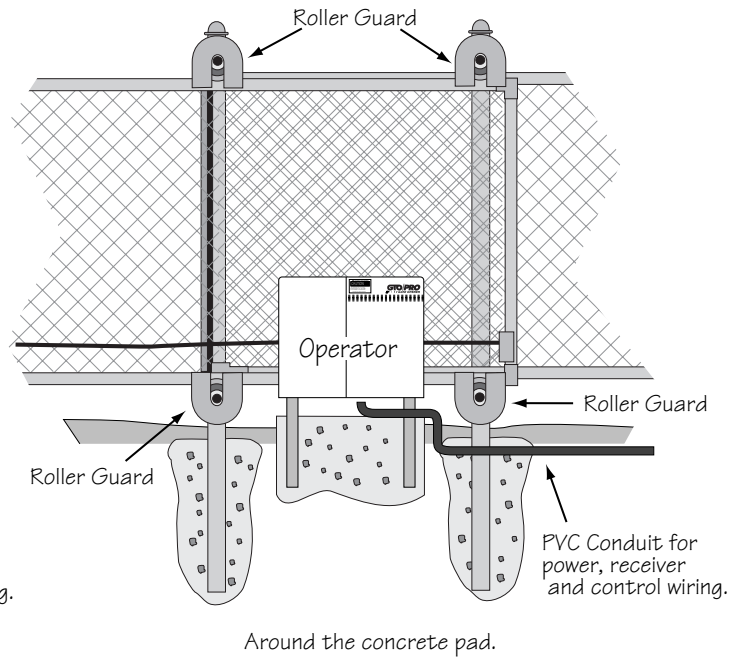
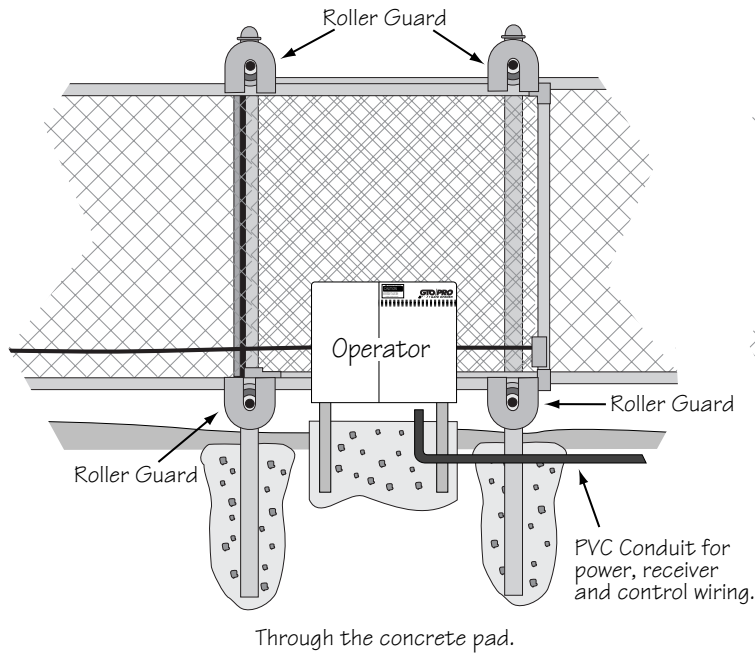
## OVERVIEW OF OPERATOR INSTALLATION

The diagram below is an example of a single slide gate installation with recommended safety features. The operator is to be installed on the **inside** of the gate. *We strongly recommend using sensor edges and roller guards to help reduce the possibility of bodily injury.*



## RECOMMENDED WIRING AND USE OF CONDUIT

Run the low voltage wire and receiver wire through PVC conduit into the slider unit to protect it from lawnmowers, weed eaters, grazing animals, etc. PVC conduit should be used for accessory wires such as loop detectors, key pads, card readers or any other entry device. Be sure to install conduit **before** pouring concrete.



## MOUNTING THE LEGS ON THE SLIDE GATE OPERATOR

### STEP 1

Mount the legs on the slide gate operator using the  $\frac{3}{8}$ "-16x3" Carriage Bolts,  $\frac{3}{8}$ " Flat Washers,  $\frac{3}{8}$ " Lock Washers, and  $\frac{3}{8}$ " Nuts. See *Illustration A*.

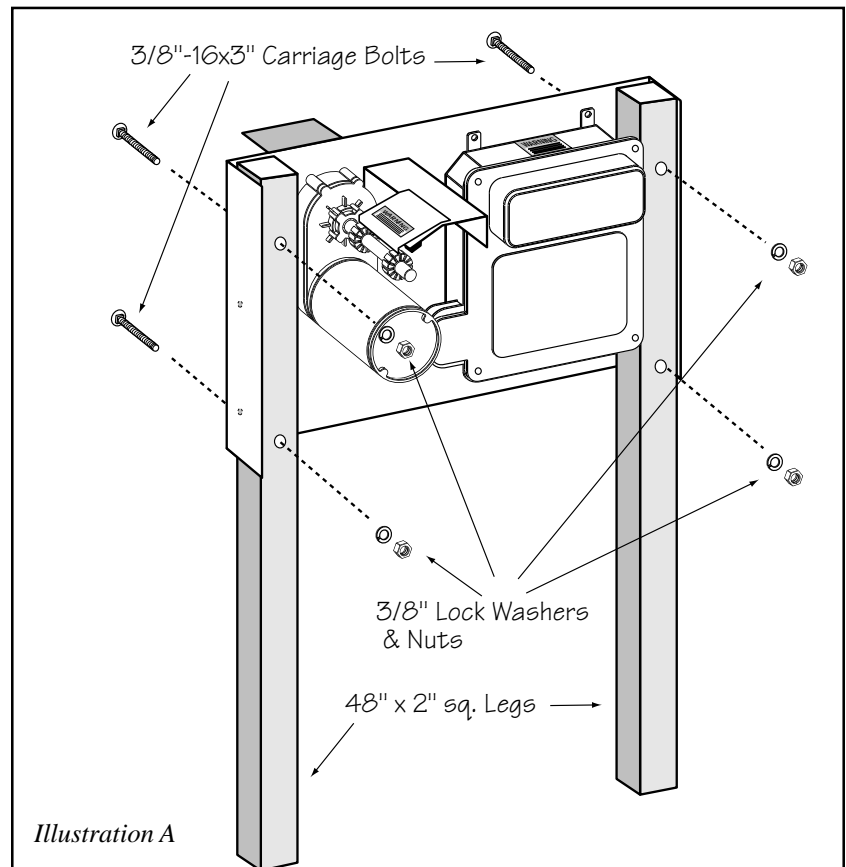
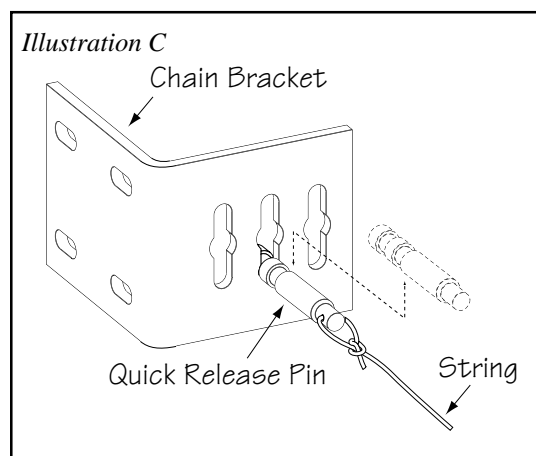
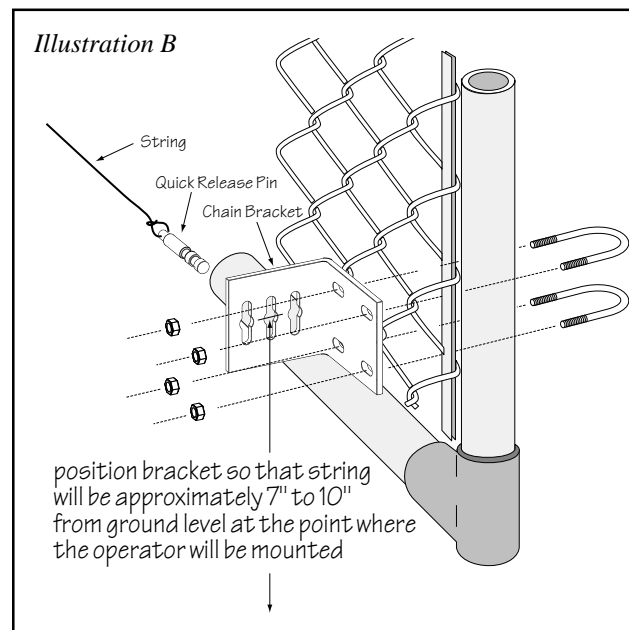


Illustration A

## DETERMINING THE MOUNTING POSITION AND MOUNTING THE OPERATOR

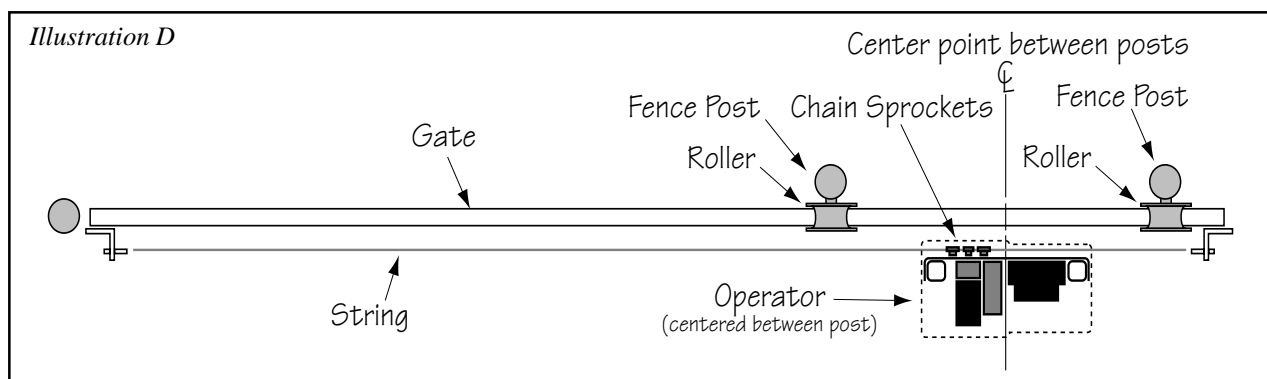
### STEP 2

Install chain brackets at each end of the gate on the inside (operator side) of the gate (see *Overview Illustration*, pg. 9). Position the tops of chain brackets no more than 6" above the bottom corners of the gate frame and secure with U-bolts (see *Illustration B*). The chain brackets will work on gate frames  $1\frac{3}{4}$ " to  $2\frac{1}{2}$ " in diameter or square tube gates. The U-bolts provided will work on 2" diameter pipe gate frames. **If the gate will not accept this hardware, it may be necessary to purchase U-bolts sized appropriately for the gate.**



### STEP 3

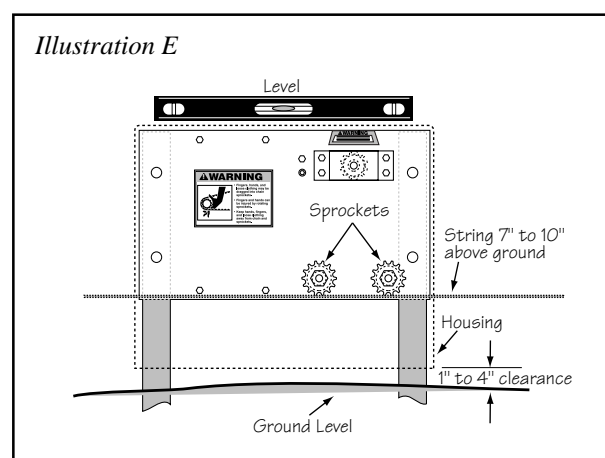
Insert a quick release pin into the center slot in each of the chain brackets (see *Illustration C*). Tie a string to the end of each quick release pin so that the string is tight between the two chain brackets (the string will be used to align the operator). The string should be 7"-10" from the ground (see *Illustration B*). The chain brackets can be adjusted up or down on the gate to achieve the proper height. The goal here is to set the height of the operator so that when the housing is in place it will clear the ground by 1" to 4" (see *Illustration E*).



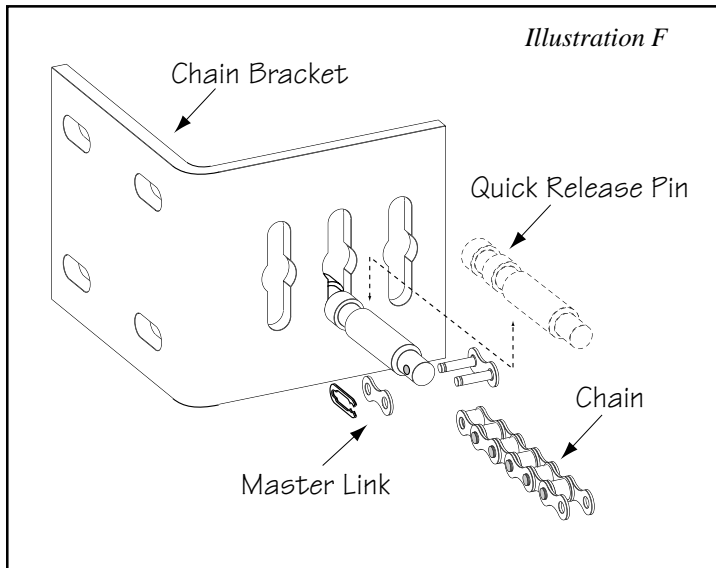
### STEP 4

Find the center point between the two roller/fence posts (see *Illustration D*). This should coincide with the position of the center point of the operator. Dig a hole approximately 12" x 28" wide x 28" deep. Place the operator in the hole on its legs and level the unit (see *Illustration E*). Make sure operator is level and plumb. With the unit level and in place, pour the concrete and **let set for 24 hours** (checking the level periodically) **before proceeding to the next step.**

**BEFORE POURING CONCRETE:** 1) Make sure operator is centered between roller posts and aligned with string; and, 2) Determine method of installing conduit for wiring (see pg. 10)!



## INSTALLING THE CHAIN

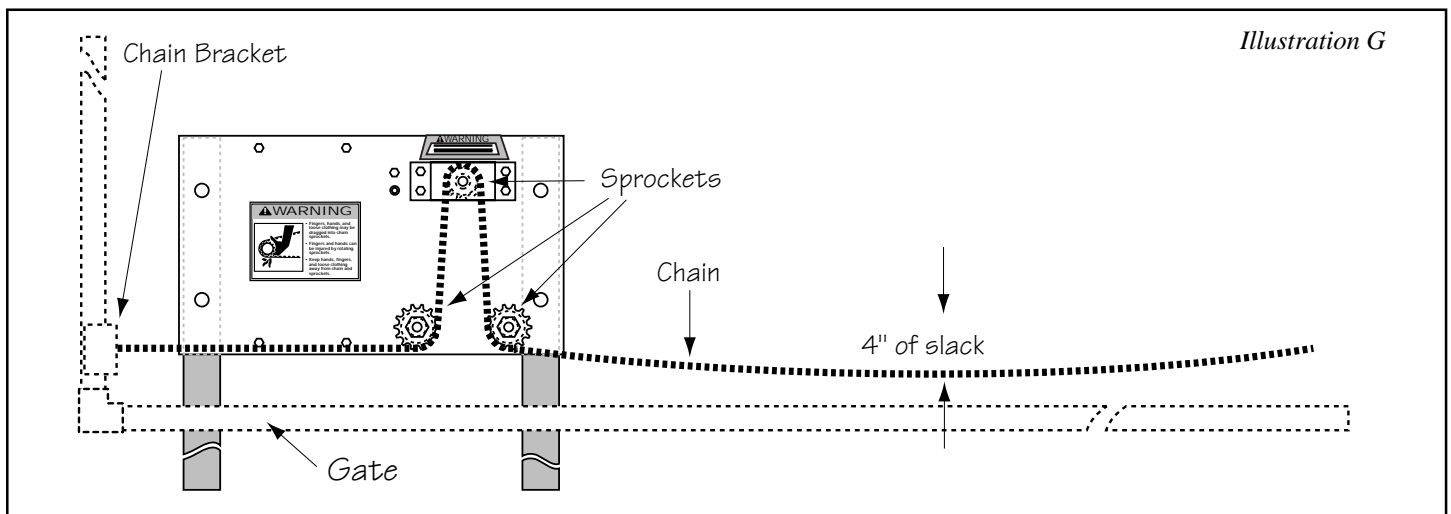


### STEP 5

After the concrete has hardened, remove the string from the quick release pins. Attach the chain to one quick release pin with a master link (see *Illustration F*). Run the chain through the chain sprockets (see *Illustration G*).

### STEP 6

Pull the chain to the second chain bracket leaving approximately four inches of slack (see *Illustration G*). **Do not pull chain tight**; a tight chain will interfere with the operation of the operator. Mark the chain where it meets the second quick release pin.



### STEP 7

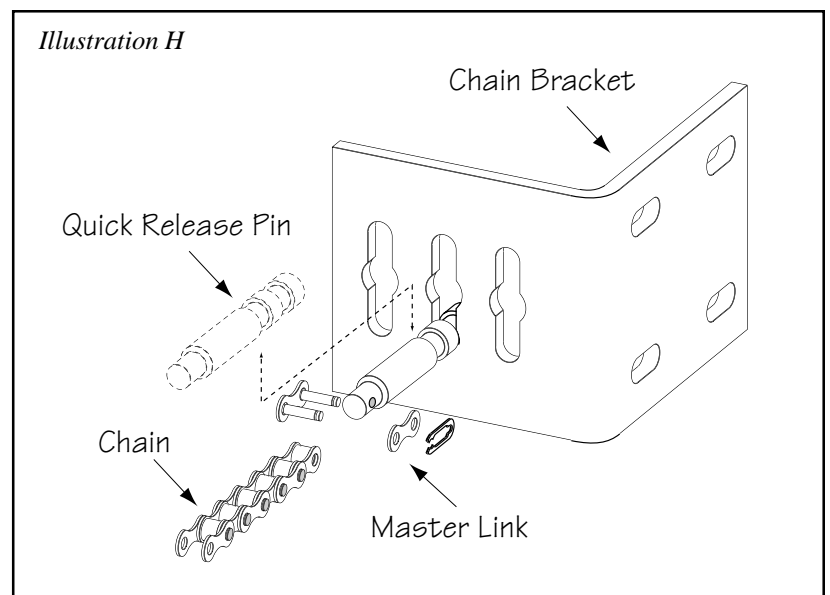
Drive the pin out of the chain link using a tool such as a punch or chain break. Connect the chain to the second quick release pin using a master link (see *Illustration H*).

#### **SAFETY NOTE:**

##### **Manual Disconnect for the Operator**

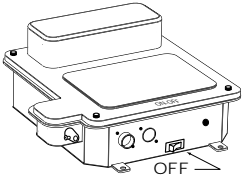
To open the slide gate manually, remove the quick release pins from the chain brackets and slide the gate open.

NOTE: For additional security and to prevent unauthorized removal of quick release pins, insert **GTO pin locks** (see Accessory Catalog) above the quick release pins in both chain brackets.



# POWERING THE SYSTEM

## CONNECTING THE BATTERY

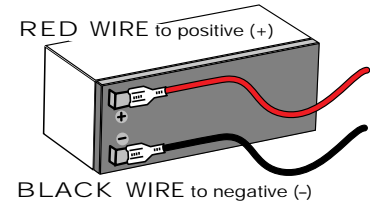


**Make sure the control box power switch is OFF before continuing.**

### STEP 8

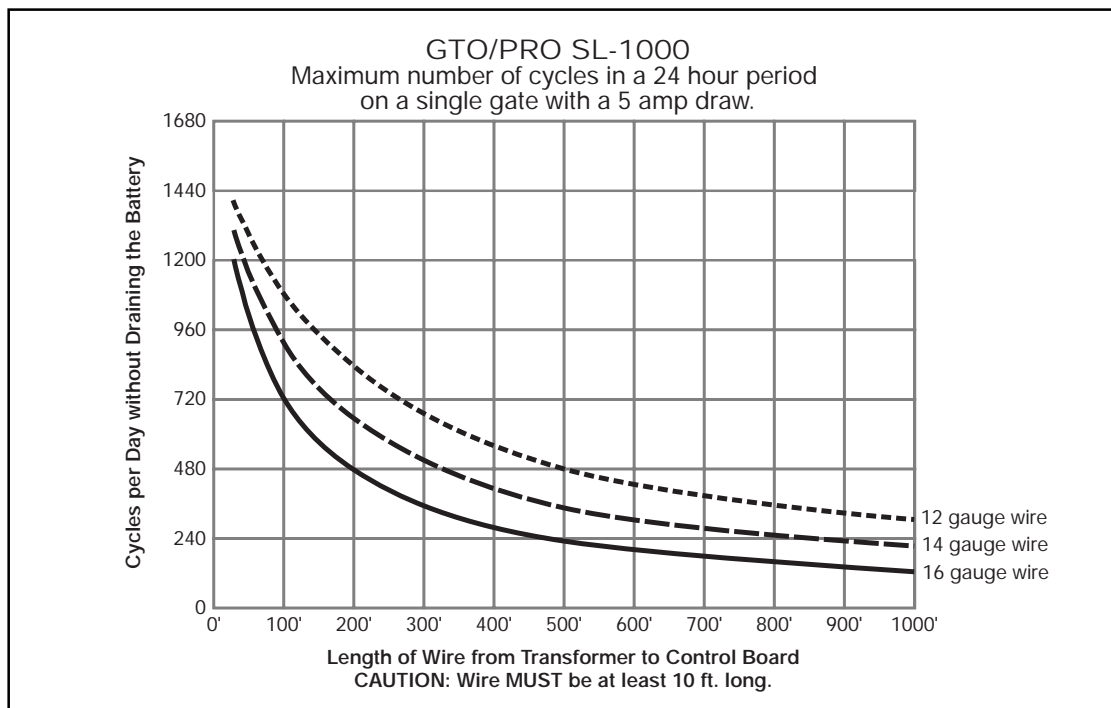
Remove the front cover of the control box and connect the battery lead wires to the battery, **red wire to (+) terminal, black wire to (-) terminal**. Hold both wires away from the control board until connection is complete. **Do not let wire ends connect with control board, as this may short out the system!**

**HINT:** a dab of household petroleum jelly on each terminal will help prevent corrosion.



## INSTALLATION OF THE GTO TRANSFORMER

Choose the electrical outlet into which the transformer will be plugged. Measure the distance from the electrical outlet to the control box, following the path where the low voltage wire will run (to prevent overpowering the charging circuit it is important to use at least 10 ft. of wire; the maximum distance can be no more than 1000 ft.).



Predicting the exact maximum number of operational cycles at peak load is more of an art form than an exact science. The above chart illustrates the average maximum number of cycles (the “MNC”) in a 24 hour period on a typical single gate that weighs 500 lbs. and is installed such that the motor draws 5 amps to move the gate. Please keep the following variables in mind:

- 1) If the gate is binding or dragging, or if ball bearing rollers are not used, it will require more than 5 amps to move it. This will reduce the MNC. Gates weighing less than 500 lbs. will have a higher MNC.

## INSTALLATION OF THE GTO TRANSFORMER CONT.

- 2) The above illustration is based on the transformer being plugged into an outlet that provides a line voltage of 120 volts; if the outlet provides less than 120 volts (for example, some rural areas may only provide 105 volts), it can reduce the MNC by as much as 50%.
- 3) A fully charged battery has an inherent reserve of 50-100 cycles without requiring a charge. This allows peak loads at several points during the day, depending upon how much time the transformer has to provide a charge to the battery between cycles. The transformer is capable of fully recharging the battery in as little as five minutes at optimum conditions.
- 4) The chart on page 13 is based upon an ambient temperature of 40° F. Battery performance and speed at which it will recharge will fluctuate based upon temperature.
- 5) The MNC for the GTO/PRO SL-1000 is roughly comparable to most AC powered operators, and the transformer provided with this operator should handle most high traffic situations. If the battery does not seem to be able to provide the constant charge required for your application, the addition of a deep cycle marine battery should provide ample power to handle any situation. For more information, call GTO's service department.
- 6) The MNC for dual gate applications will be about 50% of those for a single gate.

### IMPORTANT:

- The GTO transformer is intended **for indoor use**. If the transformer can only be plugged into an outside electrical outlet, a weatherproof housing or cover (available at electrical supply stores) **must** be used.
- Use of a surge protector is highly recommended.
- **Solar power** options are available from a GTO dealer; see Accessory Catalog.

**NOTE:** If you are considering using the GTO solar panel to maintain the system battery charge, please see the following chart:

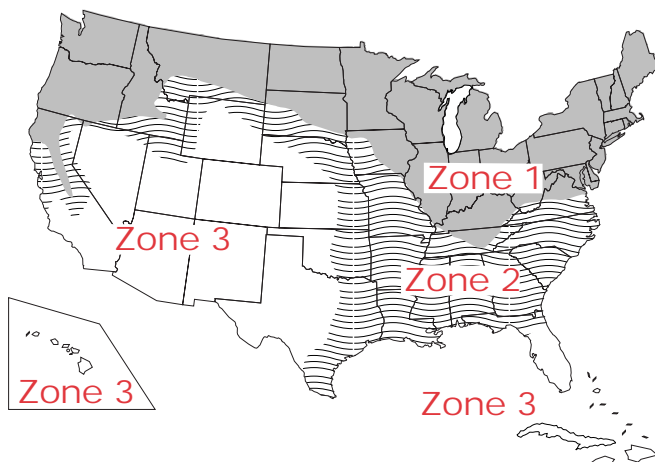
## SOLAR ZONES AND GATE ACTIVITY

This table and map illustrates the maximum number of cycles per day to be expected in a particular area, using either one or two of GTO's 10 watt solar panels (see Accessory Catalog, page 31). Figures are shown for **winter** (minimum sunlight) and do not account for use of any accessory items.

NOTE: Accessories will draw additional power from the battery.

Estimated Maximum Number of Cycles Per Day

Winter Ratings	Zone 1	Zone 2	Zone 3
Single Gate (one panel)	4	8	13
Single Gate (two panels)	8	16	26
Single Gate (three panels)	12	24	39
Single Gate (four panels)	22	32	52
Dual Gates (two panels)	7	13	20
Dual Gates (three panels)	11	21	33
Dual Gates (four panels)	14	26	40



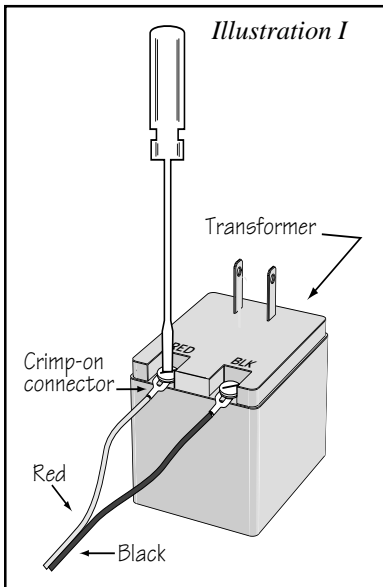


## STEP 9

Measure the distance from the electrical outlet (into which the **transformer** will be plugged) to the control box, following the path where the low voltage wire will run. **Do not exceed 1000'**.

NOTE: Pull out about 1 foot of extra wire to accommodate terminal connections. To maintain adequate charging power, use *appropriate gauge, stranded, direct burial wire* (see Accessory Catalog). **Do not use telephone wire or any solid core wire because it will not provide adequate current. Never splice wires together.**

## INSTALLATION OF THE GTO TRANSFORMER CONT.



### STEP 10:

Strip 1/4" off the ends of the low voltage wire and attach ends to the transformer terminals; **red wire to [RED], black wire to [BLK]**, (see *Illustration I*). A dab of household petroleum jelly on each terminal will help prevent corrosion.

We suggest terminating wire ends by installing crimp-on connectors (not provided) before attaching to proper terminals.

**To prevent damage to transformer, be certain wire ends do not touch each other!**

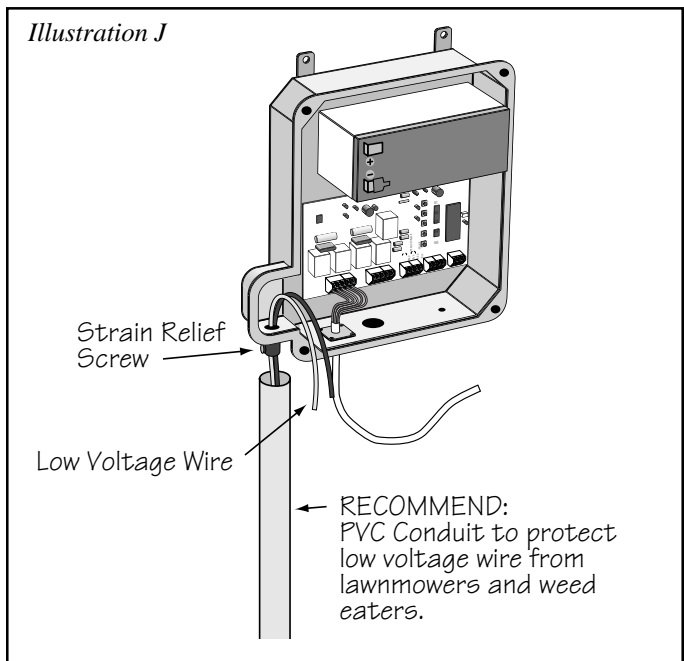
**Do not plug transformer in yet.  
The transformer is not to be plugged in until Step 13.**

NOTE: Wires coming from the ground to the control box should be run through PVC conduit to protect them from lawn mowers, weed eaters and grazing animals (see illustrations on pg. 10).

### STEP 11:

Feed the low voltage wires upward through the strain relief on the bottom of the control box (see *Illustration J*). Pull 6" to 8" of wire into the control box.

If accessories (i.e. safety loops, card readers, etc.) are to be added during this installation, do not tighten the strain relief screw against the wires until the accessories have been connected. When all accessories have been connected, fully tighten the strain relief screw against the wires.



## INSTALLATION OF THE GTO TRANSFORMER CONT.

### STEP 12:

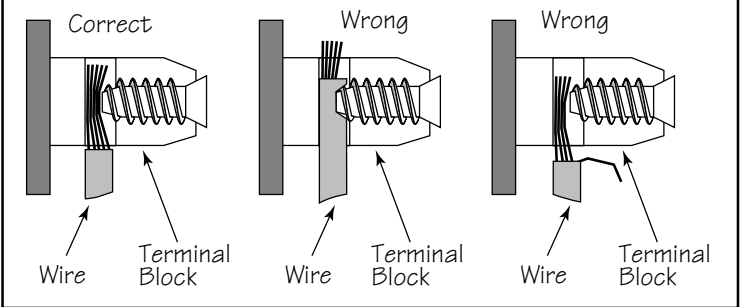
Strip  $\frac{1}{8}$ " -  $\frac{3}{16}$ " off the ends of the low voltage wire and twist tightly. These wire ends will be attached to the control board at the **Transformer** Terminals (RED/BLK) located on the Power Terminal Block (see *Illustration L*). Wire sheathing should not come in contact with terminals, however, it should not be stripped so far that wires can come in contact with one another (see *Illustration K*).

Insert the RED wire into the **RED Transformer** Terminal and the BLACK wire to the **BLK Transformer** Terminal (see *Illustration L*).

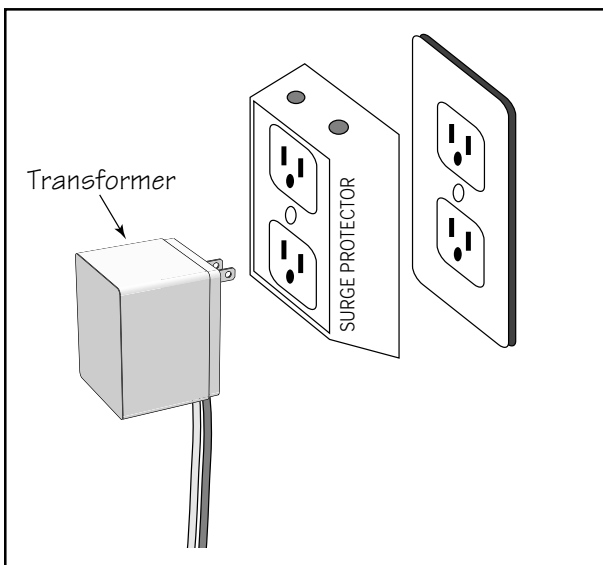
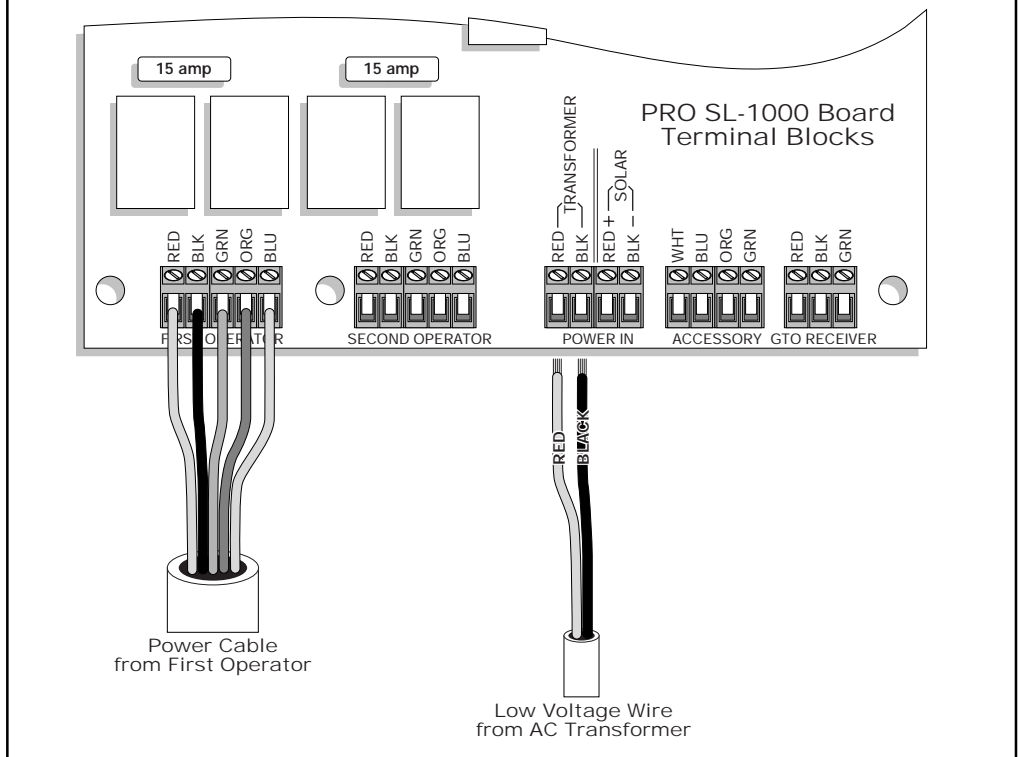
Tighten set screws against exposed end of wires (see *Illustration K*). A dab of household petroleum jelly on each wire end will help prevent corrosion.

The Accessory Terminal Block provides the connection point for safety loops, wands, push buttons, intercoms, card readers, etc. See pg. 17 for Accessory Hookups.

*Illustration K*



*Illustration L*



**HINT:** keeping a few mothballs in the control box will prevent insects from entering the control box and damaging the control board.

### STEP 13:

Plug in the transformer. Check to see if green light on control board is on. If it is not, see the Troubleshooting Guide, pg. 28.

**NOTE:** Use of a surge protector is strongly recommended.



# ACCESSORY HOOKUPS

**Be certain control box power switch is OFF before continuing.**

The Accessory Terminal Block is the connection point for accessories such as push buttons, safety loops, intercoms, etc. The Accessory Terminal marked GREEN (GRN) is the common ground for all accessories. It is used in conjunction with the following terminals for the use of accessories:

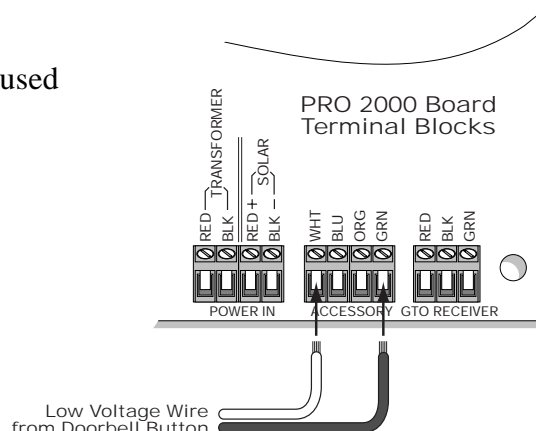
**IMPORTANT: Be sure wires are twisted and inserted into terminal connections with no loose strands touching other wires or terminal connections (see Illustration K, pg.16).** Tighten set screws against exposed end of wires. A dab of household petroleum jelly in each terminal will help prevent corrosion.

## WHITE (WHT) USED WITH GREEN (GRN):

This is a normally open contact and the most commonly used combination for a doorbell button.

- First contact will start the gate.
- Second contact will stop the gate.
- Third contact will reverse the gate.

**NOTE:** When using a doorbell button, be sure the button **does not have a light**; the light will drain the battery and cause it to fail.

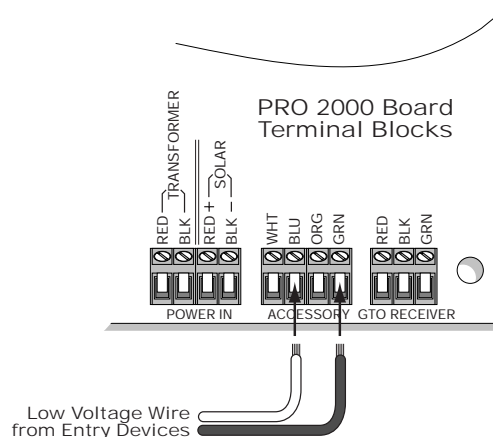


## BLUE (BLU) USED WITH GREEN (GRN):

This is a normally open contact and commonly used for an exit or entry device.

- First contact will open the gate.

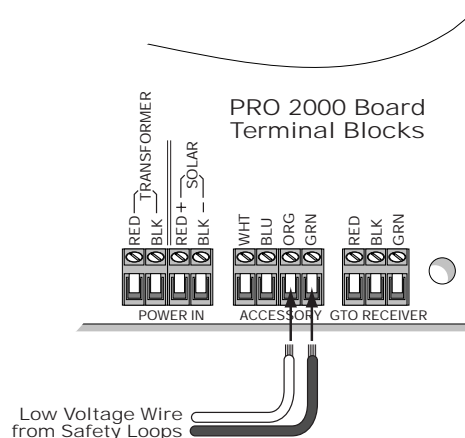
**NOTE:** If the gate is in the open position and it starts to close, the activation of the accessory device will reopen the gate. In communities where the use of a emergency entry device is mandatory, it should be connected here.



## ORANGE (ORG) USED WITH GREEN (GRN):

This is a normally open contact and commonly used for safety loops.

This contact will not open your gate. This will activate only while the gate is in use. When this connection is made, the gate will remain open or reopen if it is closing.



# PROGRAMMING THE SYSTEM

Please read these instructions completely before attempting to program the gate operator.

GTO slide gate operators come pre-programmed with the following factory settings and features:

*Type Of Installation:* Opens from right to left (as seen from inside/operator side of gate, see *Illustration 'G'* below).

*Obstruction Sensitivity:* Set for **most** sensitive (S5) obstruction setting. (See “Special Notes for Installer”, pg. 3)

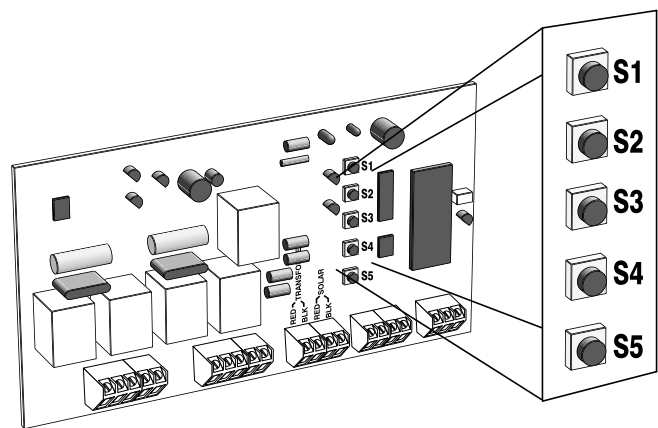
*Auto Close:* Set to close automatically 60 seconds after opening.

Study the information below and then follow the directions on the **Programming Steps** on pg. 19 and the **Programming Chart** on pg. 20.

## PROGRAMMING BUTTONS

There are 5 programming buttons on the control board, labeled S1-S5. These programming buttons serve a **dual purpose**:

- (1) to select one of the 5 features
- (2) to select different settings for each of the 5 features



## PROGRAMMING FEATURES

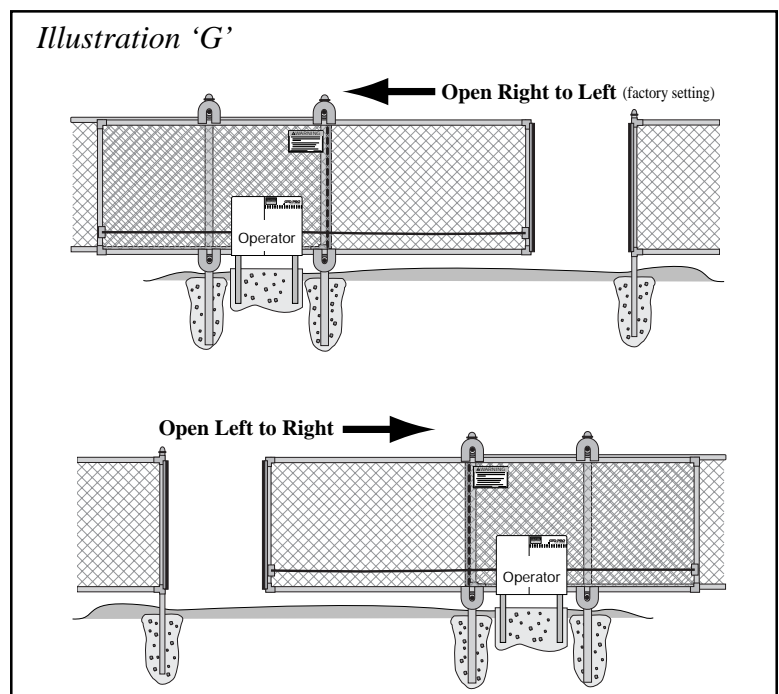
### LEARNING ABOUT THE FEATURES

**Before you begin programming**, you should learn about the 5 features. If you choose to use the factory settings, no programming is necessary.

### Feature S1 - Type of Installation

The factory setting is to **Open Right to Left**—inside gate/operator side—(see illustration). If your gate opens from right to left, do not change the factory setting.

If your gate opens from **left to right**—inside gate/operator side—(see illustration), you must change the program. Select the **Open Left to Right** setting S2.



### **Feature S2 - Obstruction Sensitivity**

This feature determines the amount of force exerted by the operator (and gate) on an obstruction before the operator reverses. The *less sensitive* the setting (S1 and S2), the *more force* the gate will exert on the obstruction before the operator reverses. The *more sensitive* the setting (S4 and S5), the *less force* the operator will exert against the obstruction before reversing.

**NOTE: The factory setting is set for the *most sensitive* (S5) setting, because this is the safest setting. However, if you reboot the system for any reason, the sensitivity setting will revert to its default less sensitive (S1) setting.**

The least sensitive settings (S1 and S2) may be necessary for heavy gates and gates with significant wind resistance. Determine what force it takes to stop the gate at each of the five settings, then determine which of the settings works best for your installation. **Remember, it's always safest to use the most sensitive setting possible.** Do not use obstruction sensitivity to compensate for an improperly installed gate!

### **Feature S3 - Automatic Close**

This feature determines whether or not the gate will close automatically after it is opened, and if so, how long will it remain open before it begins to close. At the factory setting (S5), the gate remains open for 60 seconds before closing automatically. At settings S2, S3, and S4 the gate remains open for 10, 20, and 40 seconds (respectively) before automatically closing. Setting S1 disables the automatic closing feature; the gate remains open until the transmitter (or other access control) button is pressed, and then the gate closes.

### **Feature S4 - Reserved for Factory Use**

**Do not change the factory setting. Leave program on OFF setting.**

### **Feature S5 - Programming Activation**

This feature is only used to activate the programming mode, as follows:

#### ***PROGRAMMING STEPS***

- 1:** Place the board in the **Programming Mode**, as follows;

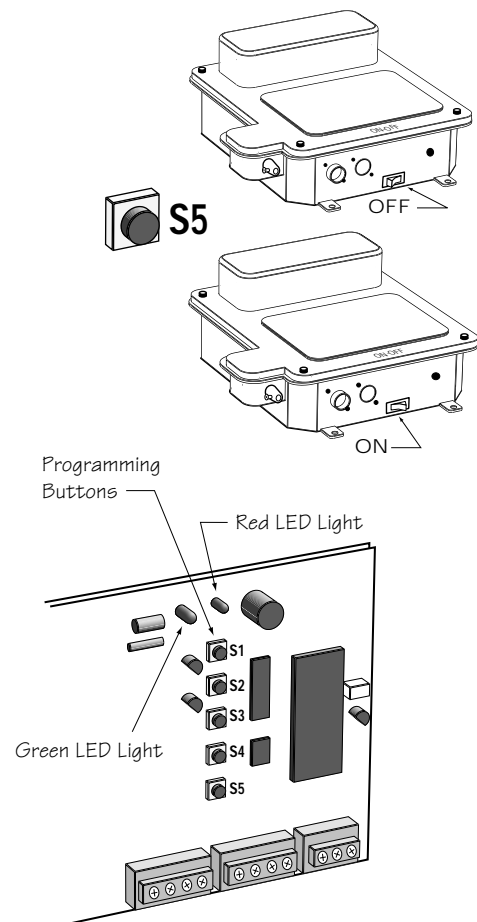
A. Turn the control box switch to **OFF** .  
B. While holding down the **S5** button, turn the control box switch to **ON**, then release the **S5** button immediately after turning the control box switch to **ON**.

- 2:** Choose the first **feature** you wish to program (S1 to S3), and push that button and release. Wait for the **RED LED** light to stop flashing.

- 3:** Within 4 seconds after the **RED LED** light stops flashing, push the appropriate button (S1 to S5) for the desired setting. The number of blinks of the **RED LED** light corresponds to the **setting** number of that feature. (S1 blinks once, S2 blinks twice, etc.)

- 4:** To program another **feature**, wait at least 10 seconds then simply repeat steps 2 & 3 above. If you wish to set the personal transmitter code, follow Steps 1, 2, and 3D on pgs. 20-21, Setting The Personal Transmitter Code.

- 5:** To set the programming into the control board memory, press the button on the transmitter until the **RED LED** light on the control board flashes bright and then returns to dim. The programming is now set.



<div> <div>FEATUES</div> <div>SETTINGS</div> </div>						
		S1	S2	S3	S4	S5
<div> <div>The first button pushed determines the <b>feature</b>. Wait until the LED light stops flashing (approx. 2 seconds) before pressing second button. The second button pushed determines the <b>setting</b>.</div> <div>NOTE: Second button must be pushed within 4 seconds after LED stops flashing.</div> </div>	Type of Installation	<div>S1</div> <div>Single Gate Open Right to Left</div> <div>Press S-1 Then S-1</div> <div>S1 S1</div>	<div>S2</div> <div>Single Gate Open Left to Right</div> <div>Press S-1 Then S-2</div> <div>S1 S2</div>	<div>S3</div> <div>Dual Gate Open Right to Left</div> <div>Press S-1 Then S-3</div> <div>S1 S3</div>	<div>S4</div> <div>Dual Gate Open Left to Right</div> <div>Press S-1 Then S-4</div> <div>S1 S4</div>	
	Obstruction Sensitivity (The more sensitive, the more likely to stop for an obstruction)	<div>S2</div> <div>Least Sensitive</div> <div>Press S-2 Then S-1</div> <div>S2 S1</div>	<div>S2</div> <div>Somewhat Sensitive</div> <div>Press S-2 Then S-2</div> <div>S2 S2</div>	<div>S2</div> <div>Medium</div> <div>Press S-2 Then S-3</div> <div>S2 S3</div>	<div>S2</div> <div>More Sensitive</div> <div>Press S-2 Then S-4</div> <div>S2 S4</div>	<div>S2</div> <div>Most Sensitive</div> <div>Press S-2 Then S-5</div> <div>S2 S5</div>
	Automatic Close (The number of seconds operator will stay open before closing automatically)	<div>S3</div> <div>OFF</div> <div>Press S-3 Then S-1</div> <div>S3 S1</div>	<div>S3</div> <div>10 Seconds</div> <div>Press S-3 Then S-2</div> <div>S3 S2</div>	<div>S3</div> <div>20 Seconds</div> <div>Press S-3 Then S-3</div> <div>S3 S3</div>	<div>S3</div> <div>40 Seconds</div> <div>Press S-3 Then S-4</div> <div>S3 S4</div>	<div>S3</div> <div>60 Seconds</div> <div>Press S-3 Then S-5</div> <div>S3 S5</div>
	Reserved for Factory Use					
	Program Activation					

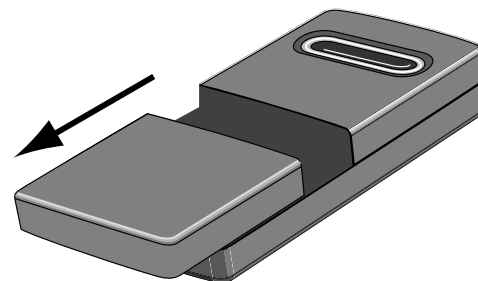
NOTES: Always wait for the LED to stop flashing after the first (Feature) button is pushed ... THEN press the second (Setting) button.  
 Highlighted areas denote factory settings.

## SETTING THE PERSONAL TRANSMITTER CODE

All GTO transmitters are set to the same code at the factory, and are ready to operate the PRO-SL-1000 gate operators. For safety and security, however, we **strongly recommend** that the factory setting be changed to the end user's own personal code, according to the following directions:

### 1. REMOVE THE TRANSMITTER COVER

Remove the access cover from the front of the transmitter by sliding the cover away from the top of the transmitter. This will expose the battery and the dip switches. The code can now be changed using a small screwdriver.

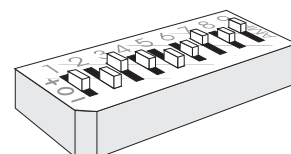


### 2. SET THE CODING SWITCHES

There are nine (9) dip switches, each of which can be placed in three different positions (+,0,-). Set dip switches to desired code. **DO NOT** set all switches in the same position, such as all +, all -, or all zeros.

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

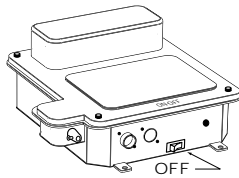
Once you have set the dip switches to the personal code, replace access cover.



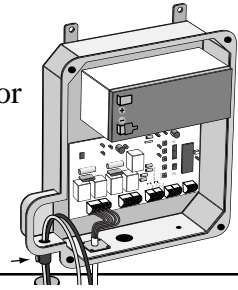
## SETTING YOUR TRANSMITTER CODE CONT.

### 3. "TEACHING" THE NEW CODE TO CONTROL BOARD MEMORY

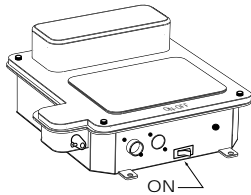
A. Turn the power switch on control box to **OFF**.



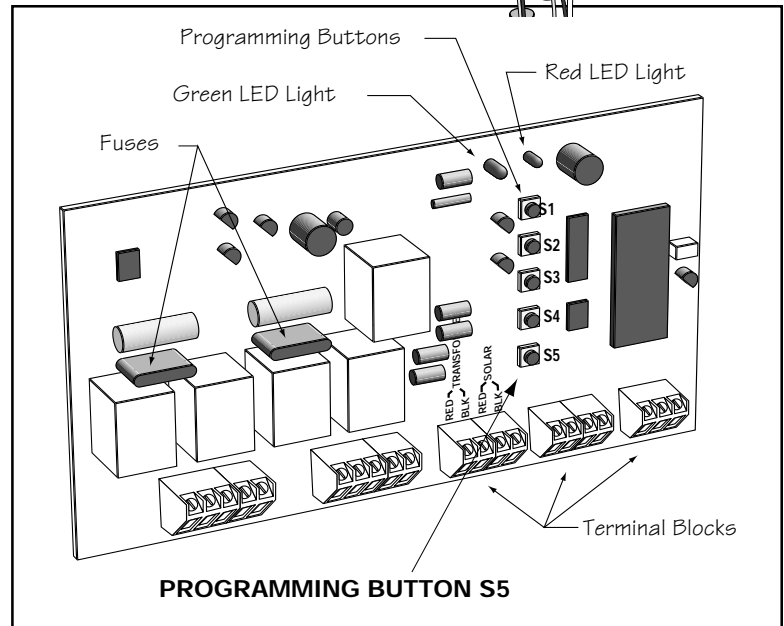
B. Remove control box lid for access to the control board.



C. While holding down **Programming Button S5** on the control board, turn the power switch to **ON** and then immediately release the Programming Button S5.



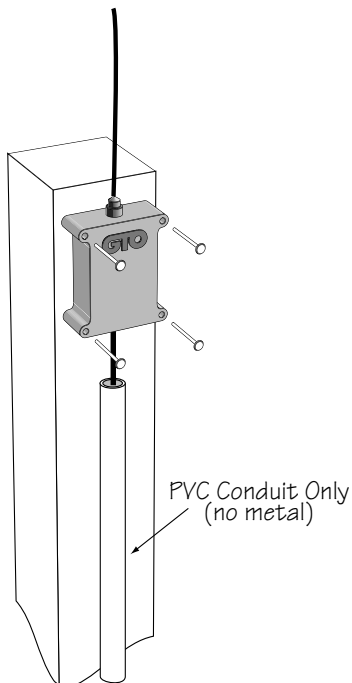
D. "Teach" the New Code to the operator using the transmitter and pressing the **transmitter button** until the **Red LED light on the control board flashes bright and then returns to dim**. Then release the transmitter button. The transmitter code has now been "taught" to the control board and the control board is now in normal operational mode.



## MOUNTING THE RECEIVER

Consider the following points when deciding where to place the receiver:

- 1) the standard cable length of the receiver is 20' (longer receiver cables are available through your dealer).
- 2) run the receiver cable through PVC conduit (see pg. 10) to prevent mowers, weed eaters or animals from damaging cables. **DO NOT run cable through metal conduit, because it will decrease the range of the signal.**
- 3) **DO NOT mount the receiver on metal post or fence**, because it will decrease the range of the signal.
- 4) **DO NOT** overtighten the screws, as this may warp the receiver housing and damage the weather seal.
- 5) the range of this device can vary from 50 to 100 feet, depending upon weather, topography and outside interference.



### F.C.C. Regulation

"This device complies with F.C.C. rules Part 15.

Operation is subject to the following two 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.

# ADJUSTING THE LIMIT SWITCHES

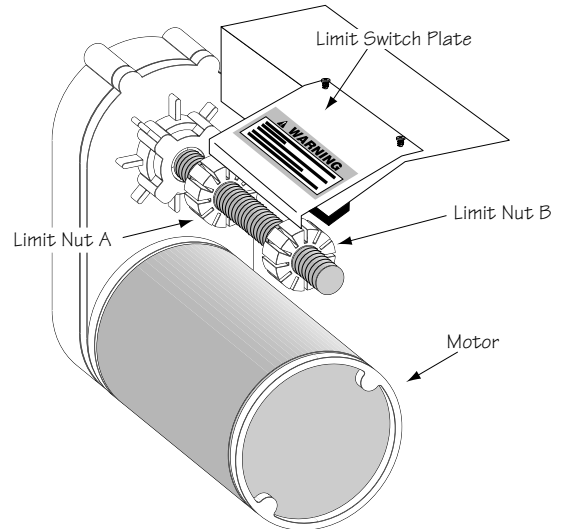
After the operator is installed, adjust the open and closed position limit switches as needed. The limit switches determine how far the gate travels to open and to close.

Adjust the limit switches using the limit nuts. Lift limit switch plate to adjust limit nuts (see *Illustration M*).

The open and closed position switches will be reversed depending on whether the gate opens from left to right or from right to left (see *Illustration N*).

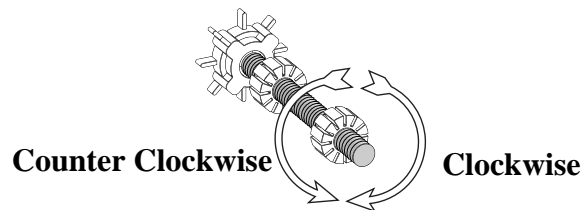
**⚠ WARNING:** In order to adjust switches, the control box must be ON. **USE CAUTION when adjusting limit switches** to prevent fingers, hair, clothing, etc., from getting caught under the limit switch plate and possibly causing bodily injury.

*Illustration M*



## If your gate Opens from Right to Left:

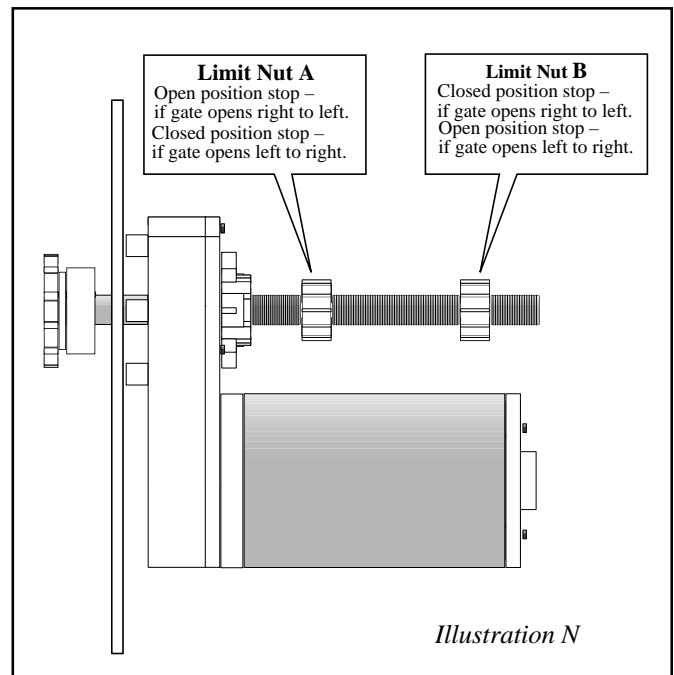
1. Gate Opening: For gate to open further, turn Limit Nut A counterclockwise. For gate to open less, turn Limit Nut A clockwise.
2. Gate Closing: For gate to close further, turn Limit Nut B counterclockwise. For gate to close less, turn Limit Nut B clockwise.



## However, if your gate Opens from Left to Right:

1. Gate Opening: For gate to open further, turn Limit Nut B counterclockwise. For gate to open less, turn Limit Nut B clockwise.
2. Gate Closing: For gate to close further, turn Limit Nut A counterclockwise. For gate to close less, turn Limit Nut A clockwise.

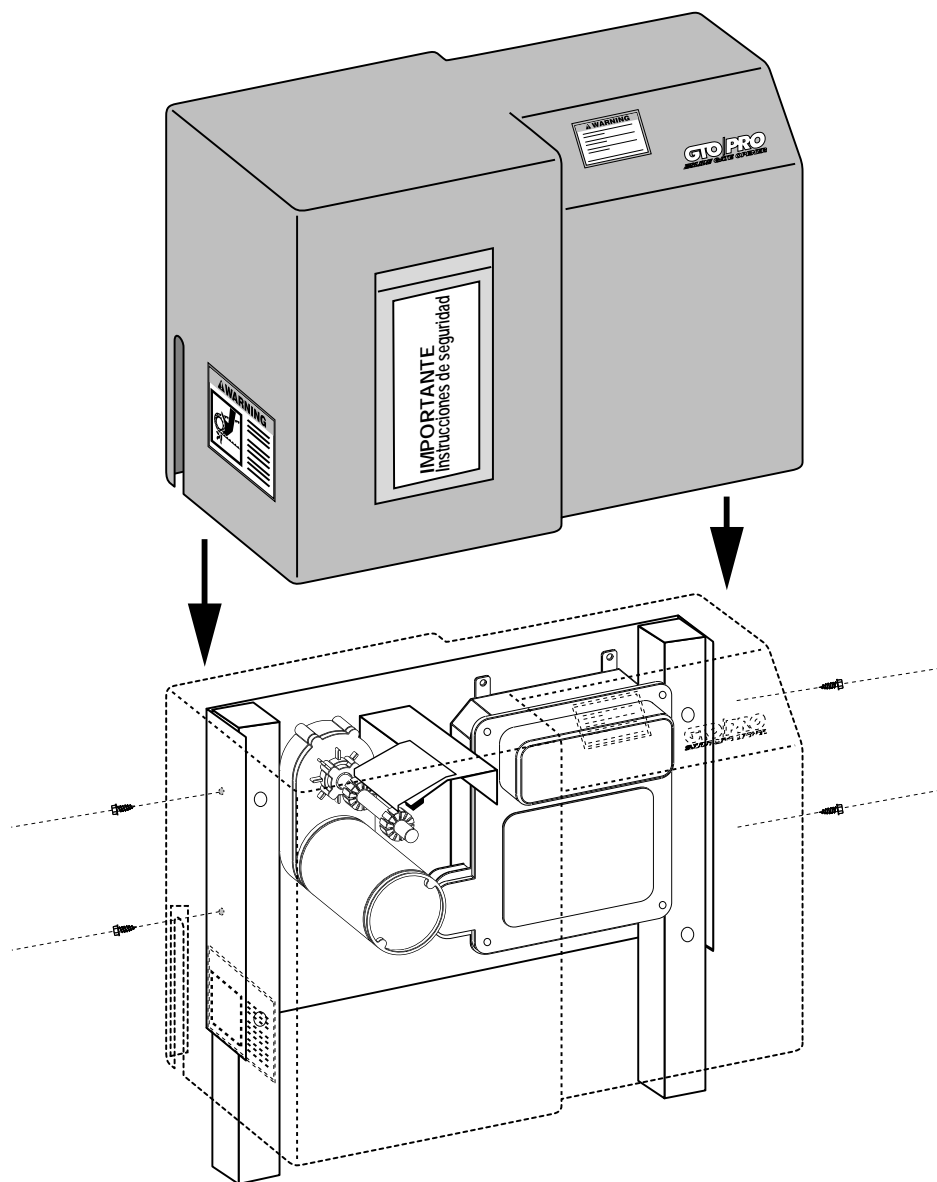
Once the limit switches are adjusted, make sure the limit switch plate rests in the grooves on both limit nuts.



*Illustration N*

# ATTACHING THE HOUSING

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Mount the operator housing after all installation procedures are complete. Slide operator housing over legs, align holes, and use screws provided to attach housing to operator.

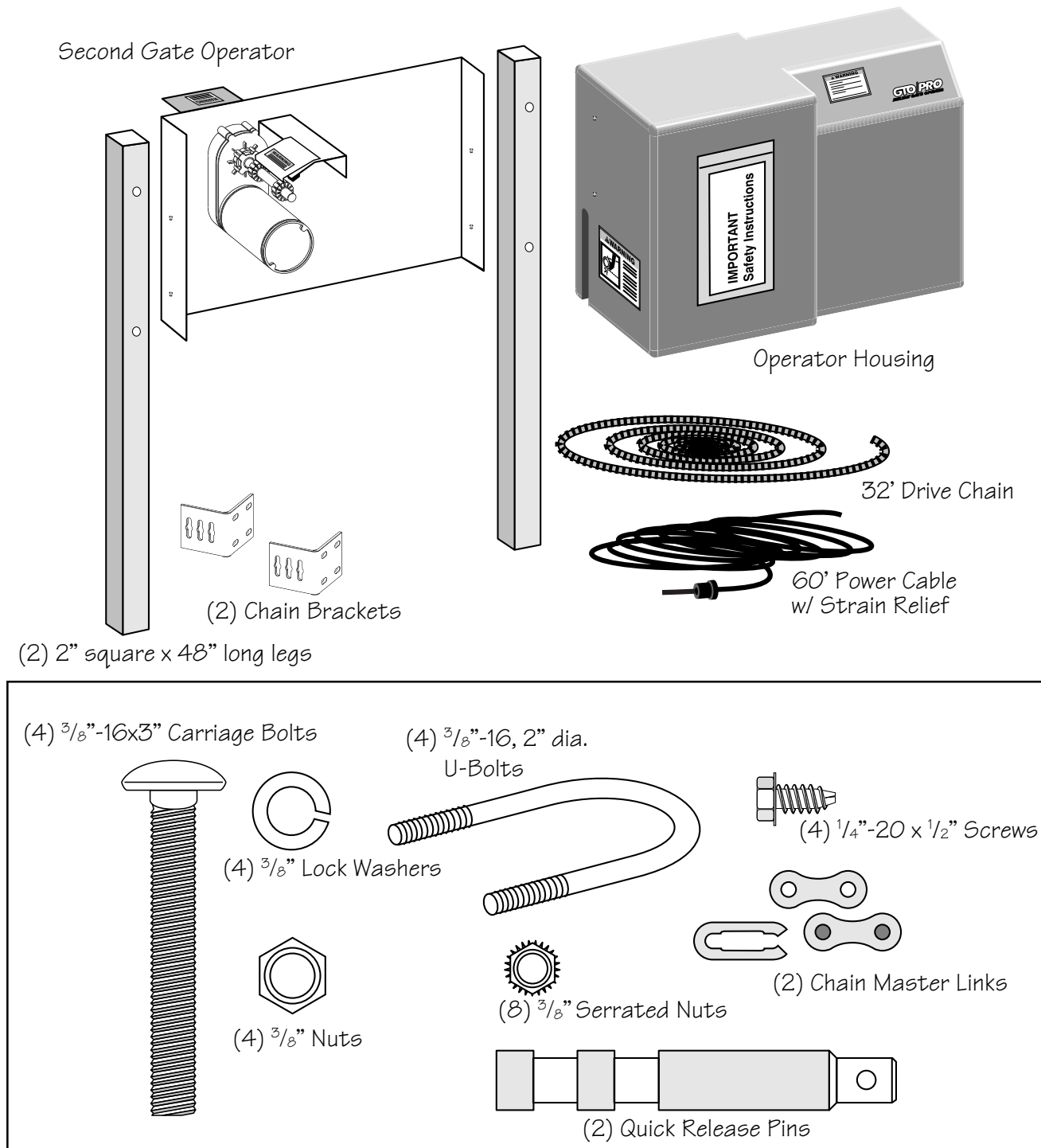
**IMPORTANT:** Hang the two (2) GTO Warning Signs (provided) on both sides of the gate before operating. **Make sure** all warning signs and labels are in place. **Make sure** that the packet containing end user safety instructions and warranty procedures remains attached to the operator housing (as shown in the illustration).



# INSTALLING DUAL (SECOND) GATE OPERATOR

Install the second gate operator in the same manner as the Single gate operator starting on page 9 of this manual. The second gate preparation and wiring of the second (auxillary) operator follow on the next two pages. Once the second gate operator is installed, return to Programming the System on page 18 and program the system for dual gates.

## SECOND GATE (AUXILLARY) OPERATOR PARTS & HARDWARE





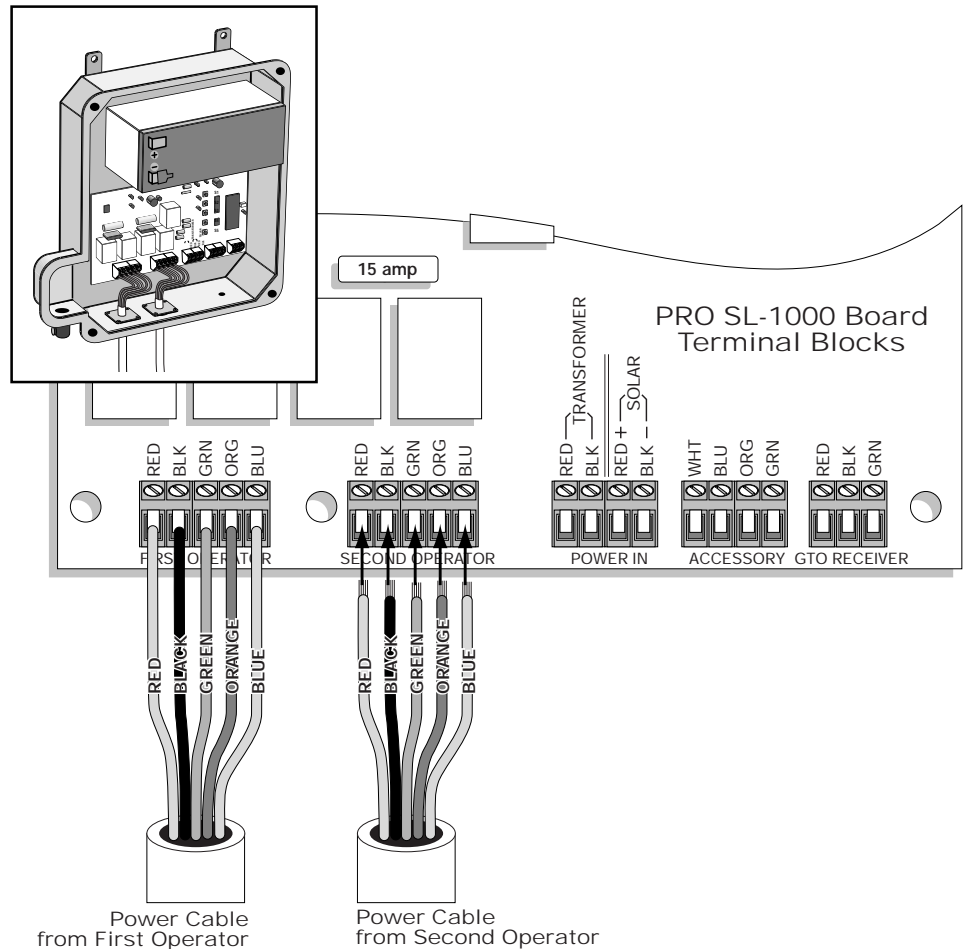
Install PVC conduit (not included) needed for power cables and low voltage wiring – see illustration below. The PRO SL-1200 power cable and safety edge (recommended) wiring should be run through PVC conduit underneath the driveway. If you cut the driveway be sure to reseal it after all wiring is installed.



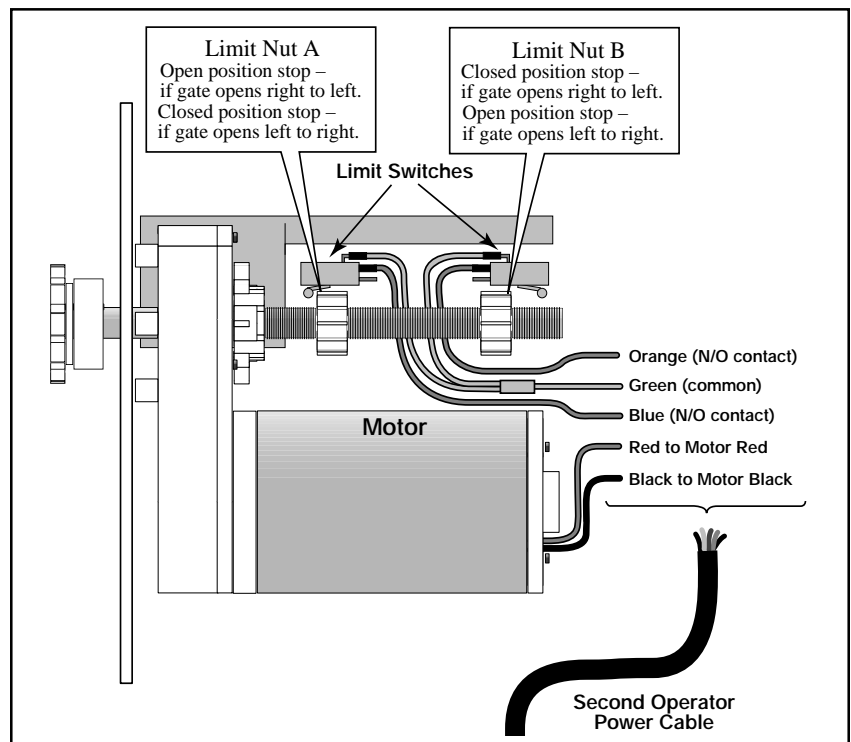
# WIRING THE SECOND OPERATOR

When the units are set in place and you have completed wiring the first unit follow the instructions below.

**Step 1:** With the PRO SL-1000 control box open, use a screw driver to punch out the round knockout hole located on the bottom next to the first operator power cable. Install the strain relief for the PRO SL-1200 power cable. Leave about 6" of the power cable and tighten the strain relief nut to secure the wires.



**Step 2:** Run the second power cable through PVC conduit to the PRO SL-1200. Connect the wires to the motor and limit switches as shown in illustration



**Step 3:** Program the PRO SL-1000 control board for the appropriate dual gate settings. See Programming the System on page 18.

# MAINTENANCE

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The **GTO Slide Gate** Operator is designed for minimum maintenance. However, for optimum performance and safety, the following maintenance procedures should be taken:

## **GATE**

Having a well maintained gate will ensure that the operator runs smoothly and safely. Make sure gate is hung level and plumb. Check and adjust periodically. Lubricate rollers periodically with grease appropriate for the coldest weather in your area.

## **SENSOR EDGES**

Periodically test the sensor edges to make sure they are functioning correctly. If they are not, discard and replace immediately.

## **CONTROL DEVICES**

From time to time, check to ensure that all of the control devices connected to the operator are functioning. **This is especially important for safety devices.**

## **OPERATOR**

Occasionally inspect the chain to ensure that it is well lubricated, and oil the chain as necessary. Use CHAIN AND CABLE LUBE for best results. Check the gear sprockets and grease them as needed. Check the rollers and spray oil on them as needed.

## **WARNING**

**DO NOT INSTALL THIS OPERATOR WITHOUT ROLLER GUARDS AND SAFETY EDGES. MANUFACTURER IS NOT RESPONSIBLE OR LIABLE FOR ACCIDENTS INVOLVING GATE OPERATORS INSTALLED WITHOUT THESE IMPORTANT SAFETY FEATURES.**

**Review the safety precautions & operator warranty procedures contained within the packet attached to the operator housing with the customer. Leave the packet attached to the housing for future reference.**

# TROUBLE SHOOTING GUIDE

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## Maintenance:

- On all gates weighing 250 lbs. or more, routinely grease the ball bearing rollers at least 4 times a year; grease more frequently if the gates are near a coastal area.
- A few mothballs in the control box will keep out insects which can damage circuits.
- Spray the push-pull tube with silicone spray about 4 to 12 times a year.
- If the safety accessories show any indication of malfunction, contact the installer or GTO Inc.

**The operator** has a 12 volt D.C. motor with mechanical limit switches.

- **To test the motor**, put a volt meter on D.C. and place the meter leads on the wire connections inside the plastic cover above the switches. The reading should be at least 11.5 volts when the system is active. If it is not, see the following section “The control board.”
- **To test the switches**, put the meter on “ohms.” Place the leads on each of the wires on the switch. You should have an open circuit. Click the switch and you should have .2 ohms. Do this for both switches.
- **To test the cable**, put the meter on ohms. At one end of the cable place the lead on the green wire, and on the other end of the cable place the lead on the green wire and the other wires. This should show a maximum of 1.0 ohms on the green wire and nothing on the other wires. Test each wire as you have above. If all have the proper readings, then this is not the problem.
- **Note:** Inspect the cable for any signs of any punctures, because wires inside the PVC jacket can be shorted and the cable will still show proper ohms.

**The control board:** This is a micro processor board. The power that runs the gate is from the battery and recharged, through the board only, by a 14 volt 40 va. (2.9 amp.) transformer.

There are 2 lights on the control board. These are for a quick reference only. All readings must be measured by a volt meter!

The red light serves two purposes. The first is to aid in the programming. See page 20 “Programming the System.”

The second is to show the condition of the battery. If it is flashing, see the following section on “Testing the battery.” The normal state of this light is on, but dim.

If the red light is flashing it means that the system has reached low voltage lockout; the unit does not have enough voltage to operate the system. One of the following problems may exist:

- Incorrect wire or trying to run the wrong gauge wire too far for the number of cycles that you need. **See chart on page 13**
- Broken or spliced wires from the transformer or solar panel to the control board.
- A transformer or solar panel that has no output voltage.
- Incorrect number of solar panels, or solar panels not properly hooked up.

The green light serves as a quick visual indication that the control board is receiving power from the transformer.

**Rebooting the system:** This function is done if all voltage and ohms tests good but the operator will not respond to anything. Reboot the system by holding down buttons labeled S3, S4 and S5 at the same time, while turning the operator off, then back on, and then releasing the three buttons. The unit has then returned to all factory settings. Please note, the factory sensitivity setting is set for the *most sensitive* (S5) setting, because this is the safest setting. However, when rebooted, the sensitivity setting will revert to its default *less sensitive* (S1) setting. Then the unit must be reprogrammed to the desired functions.

**The transformer:** Two things can cause failure: the first is shorting the leads during the installation, or letting the strands touch at the terminal on the control board. The second is a static charge (generally associated with a lightning storm or power outage); use of a surge protector will help.

**Testing the battery:** This is a 12 volt 7 amp hour battery. The proper way to test this is to perform a load test. Place the volt meter on D.C.; put the red probe on the (+) positive terminal and place the black probe on (-) negative terminal. Then activate the unit and watch the volt meter. The drop should not be more than 1 volt.

**Note:** A loose battery terminal will cause the same symptoms that a bad battery will cause. Terminals should be secure and corrosion free.

**Remote control range:** This will vary at each installation. (see F.C.C. disclaimer on page 21), but generally varies from 50 ft. to 100 ft.

- Make sure that the receiver is located above metal fences.
- Moving the receiver even a few inches can change the range of operation.
- Move the receiver as far from the motor as possible to avoid the chance of electrical interference.
- Check or change the battery in the transmitter.

### SYSTEM TEST SPECIFICATIONS

Transformer:	120 v.a.c. / 60 Hz. input. 14 v.a.c. / 40 v.a. output.
10 w Solar panel:	18-22 v.a.c. / 600 ma. per hour.
Battery:	12 v.d.c. / 7 amp hour.
Wire:	16 gauge, multi stranded, direct burial.
Motor:	12 v.d.c. 90 rpm. with case hardened gearing. The motor current should run between 2 and 5 amps if the gate is in good working order.
Receiver:	5 v.d.c./ digital communication. <b>Only GTO receivers can be used with these terminals.</b>
Control board:	Micro processor driven powered by 12 v.d.c

**The GTO, Inc. Customer Service Department is open  
Monday - Thursday 7:30 a.m. - 5:30 p.m.  
and Friday 7:30 a.m. - 12:00 p.m. (Eastern Standard Time)**

**PHONE (850)575-0176**

**FAX (850)575-8912 • email: gto@supernet.net • www.gtoinc.com**

# WARRANTY AND REPAIR SERVICE

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If the GTO gate opener system is not operating properly and you have not been able to solve the problem, please follow the steps below:

1. Check the Trouble Shooting Guide (page 25).
2. Call your installer.
3. If you still cannot solve the problem, call our Service Department at (850) 575-0176.
4. If repair or replacement is necessary, you will be assigned a Return Goods Authorization Number (RGA). Write the RGA # in BIG BOLD PRINT on the outside of the package.
5. Carefully pack the component(s) authorized for return and ship freight prepaid to GTO, Inc., 3121 Hartsfield Road, Tallahassee, FL 32303.

**NOTE: GTO products returned without a Return Goods Authorization Number (RGA) or returned freight collect will not be accepted at the factory.**

6. If the repair service or replacement is covered by warranty, GTO, Inc. will pay shipping cost for return to customer. A copy of the owner's receipt with date of sale installation must accompany warranty related request for service.



*AUTOMATIC GATE OPERATORS*

## Limited Two Year Warranty

GTO/PRO gate operators are warranted by the manufacturer against defects in materials and manufacturer workmanship for a period of two (2) years from date of purchase, provided recommended installation procedures have been followed.

In the case of product failure due to defective material or manufacturer workmanship within the two (2) year warranty period, the operator will be repaired or replaced (at the manufacturer's option) at no charge to the customer, if returned freight prepaid to GTO, Inc., 3121 Hartsfield Road, Tallahassee, Florida 32303. **IMPORTANT: Call (850)575-0176 or fax (850)575-8912 for a Return Goods Authorization (RGA) number before returning to factory.** Products received at the factory without an RGA number will not be accepted. Replacement or repaired parts are covered by this warranty for the remainder of the two (2) year warranty period. GTO will pay the shipping charges for items repaired under warranty.

The manufacturer will not be responsible for any charges or damages incurred in the removal of the defective parts for repair, or for the reinstallation of those parts after repair. This warranty shall be considered void if damage to the product(s) was due to improper installation or use, tampering, connection to an improper power source, or if damage was caused by lightning, wind, fire, flood, insects or other natural agent. This warranty gives you specific legal rights, and you may also have other rights which may vary from state to state. This warranty is in lieu of all other warranties, expressed or implied. **NOTE: Verification of the warranty period requires copies of receipts or other proof of purchase. Please retain these records.**

After the two (2) years warranty period, GTO or one of its authorized service centers will make any necessary repairs for a nominal fee. Call GTO at (850)575-0176 for more information.

# INSTALLATION CHECK-OFF LIST

(Installer should verify that each item has been completed)

- \_\_\_ Customer/end user has been fully instructed on all safety features and precautions.
- \_\_\_ The Safety / Warranty Manual is located on the outside of the operator housing.
- \_\_\_ Customer/end user has been instructed on how to remove the quick release pins to manually open or close gate.
- \_\_\_ All power cables, receiver cables and the transformer plugs are secure to assure contact is made for proper performance.
- \_\_\_ Petroleum jelly has been applied to terminals and wire ends.
- \_\_\_ Customer/end user has been instructed on proper use of transmitter.
- \_\_\_ If sensor edges and roller guards were **not** installed, the importance of these safety devices was explained to the customer/end user, and the customer/end user understands and accepts the responsibility for the liability.
- \_\_\_ It was explained to the customer that this gate is not for pedestrian use.
- \_\_\_ All warning signs have been placed or hung in a highly visible area.
- \_\_\_ A photo has been taken of completed installation from both front and back of the gate, and dated.
- \_\_\_ Accessory Catalog has been reviewed and left with customer/end user.
- \_\_\_ Customer/end user has been asked to fill out warranty registration card and mail it to GTO.
- \_\_\_ Customer/end user has been asked to keep all receipts, installation manuals, etc., for future reference.

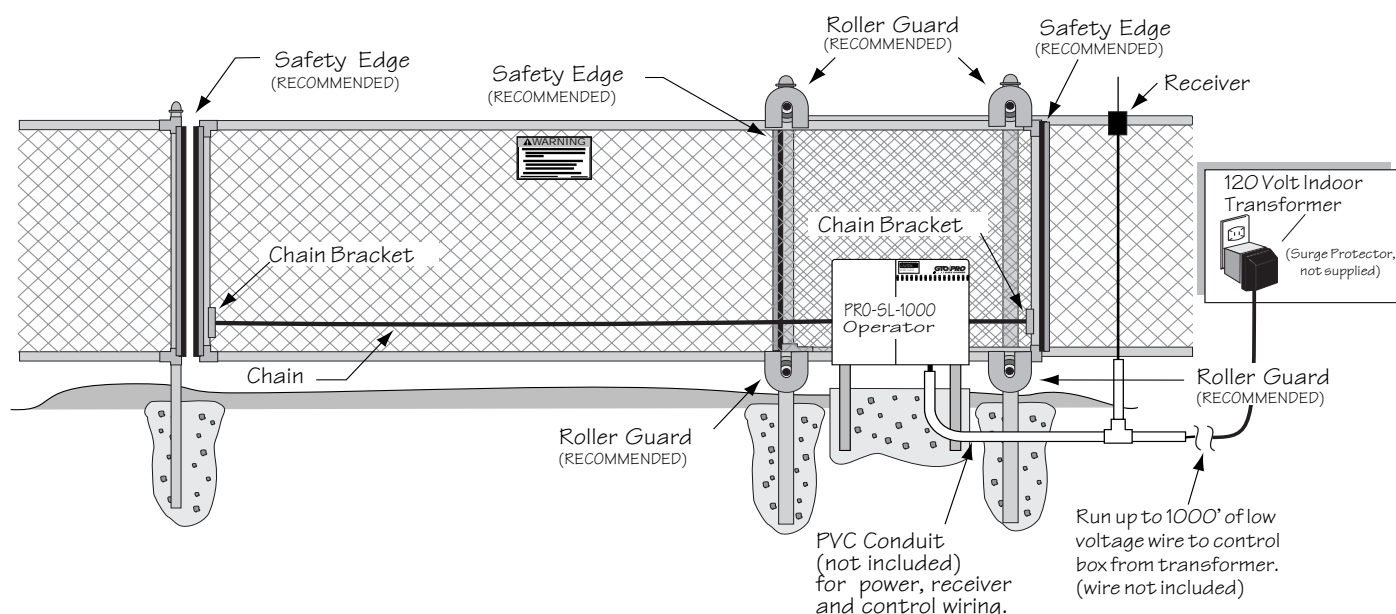
# **GTO/PRO**

## **SLIDE GATE OPERATOR**

### **PRO-SL-1000 AND SL-1200 SERIES**

• ***SINGLE & DUAL SLIDE GATES*** •

### **INSTALLATION MANUAL FOR THE PROFESSIONAL INSTALLER**



## **! WARNING !**

**This product should only be installed by an experienced technician. Read the instructions carefully and completely before attempting installation and use. Failure to do so may result in bodily injury. Stand clear when the operator is activated. This gate operator is a powerful device. Please use care and caution.**



3121 Hartsfield Road • Tallahassee, Florida 32303  
Phone (850)575-0176 • Fax (850)575-8912 • [www.gtoinc.com](http://www.gtoinc.com)