PowerMaster

Installation Manual

SGI 2004 OPERATOR

HIGH TRAFFIC COMMERCIAL GATE OPERATOR

UL 325 AND UL 991 LISTED

TABLE OF CONTENTS

IMPORTANT!

FOR SLIDE GATE OPERATING SYSTEMS

SAFETY IS EVERYONE'S BUSINESS

Automatic gate operators provide convenience and security to 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 a component part of a total gate operating system.

The following information contains various safety precautions and warnings for the system designer, installer and end user. These instructions provide an overview of the importance of safe design, installation, and use.

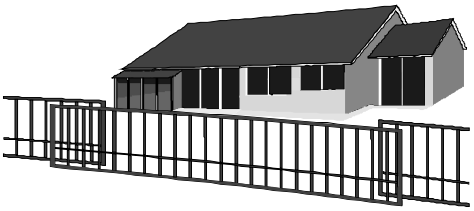
Warnings are identified with the ▲ symbol. This symbol will identify some of the conditions that can result in serious injury or death. Take time to carefully read and follow these precautions and other important information provided to help ensure safe system design, installation and use.

▲ **WARNING:** Gate operators are only one part of a ***TOTAL GATE OPERATING SYSTEM.*** It is the responsibility of purchaser, designer, and installer to ensure that the total system is safe for its intended use. All secondary entrapment safety devices must be **RECOGNIZED** by **U/L** to ensure the safety of the complete operating system.

U/L INSTALLATION AND SAFETY CONSIDERATIONS

INSTALLATION CLASSES

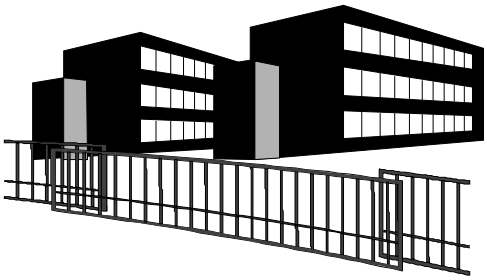
CLASS I – RESIDENTIALVEHICULAR GATE OPERATOR



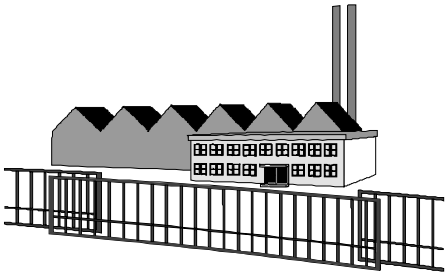
A vehicular gate operator (or system) intended for use in a home of one to four single-family dwellings, or a garage or parking area associated therewith.

CLASS II–COMMERCIAL/GENERAL ACCESS VEHICULAR GATE OPERATOR

A vehicular gate operator (or system) intended for use in a commercial location or building such as a multifamily housing unit (five or more single family units), hotel, garages, retail store or other building servicing the general public.



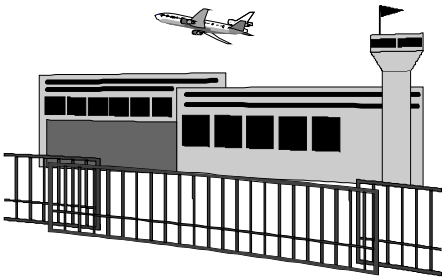
CLASS III- INDUSTRIAL/LIMITED ACCESS VEHICULAR GATE OPERATOR



A vehicular gate operator (or system) intended for use in an industrial location or building such as a factory or loading dock area or other locations not intended to service the general public.

CLASS IV- RESTRICTED ACCESS VEHICULAR GATE OPERATOR

A vehicular gate operator (or system) intended for use in a guarded industrial location or building such as an airport area or other restricted access locations not servicing the general public, in which unauthorized access is prevented via supervision by security personnel.



SYSTEM DESIGNER SAFETY INSTRUCTIONS

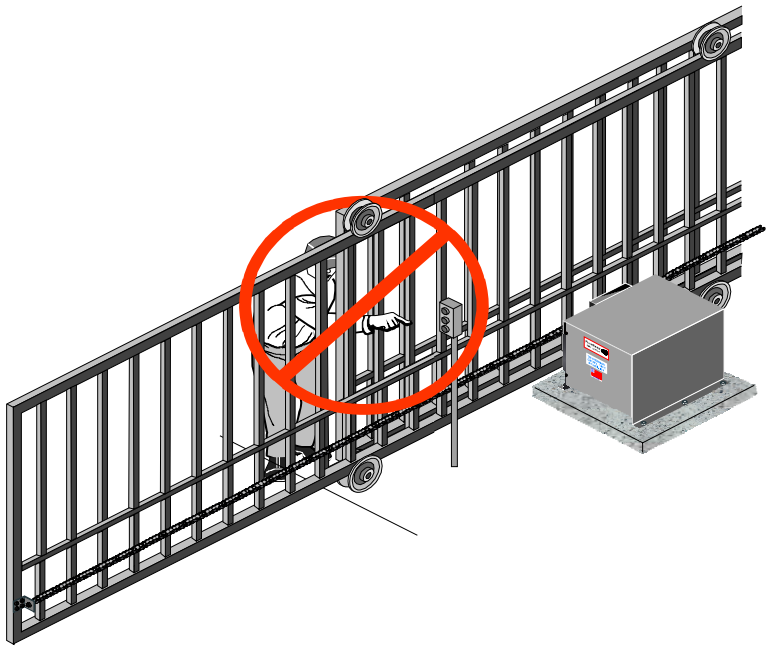
▲ 1. Familiarize yourself with the precautions and warnings for the installer. Users are relying on your design to provide a safe installation.

▲ 2. The operator is supplied with a primary obstruction sensing entrapment protection system. The installation must also have a secondary entrapment protection system installed, such as photoelectric sensors or an electric edge system.

▲ 3. When designing a system that will be entered from a highway or main thoroughfare be 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 considered to eliminate potential traffic hazards.

▲ 4. The majority of injuries from slide gate operator systems occur with Open Roller or Ornamental Grille Type Gates. **We strongly recommend the use of roller guards.** The illustrations and descriptive captions found on the following pages provide precautions to help eliminate injuries or fatalities. Familiarize yourself with them when designing the total system.

▲ 5. Design the gate system so a person cannot reach through the gate to operate any controls. Never place controls on the gate operator itself.



INSTALLER SAFETY INSTRUCTIONS

BEFORE INSTALLATION

▲ 1. Check to see that the operator is proper for this type and size of gate and its frequency of use. If you are not sure, consult factory.

▲ 2. Check to see that there are no structures adjacent to the area, which may pose a risk of entrapment when gate is opening or closing.

▲ 3. You must ensure that the gate has been properly installed and works freely in both directions. Replace 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 within the system.

▲ 4. Install the gate operator on the inside of the property and/or fence line. **DO NOT** install an operator on the public side of the gate.

▲ 5. Severe injury or death can result from entrapment by a gate. The operator is supplied with an obstruction sensing primary entrapment protection system. Additional safety equipment such as electric edges or photocell sensors must be installed to provide the required secondary entrapment protection system. For assistance in selecting the correct type of safety equipment, consult the factory.

▲ 6. Review the operation of the unit and become familiar with the manual disconnect mechanism and safety features of the system.

▲ 7. You must install a pushbutton control or key switch to allow for normal operation of the gate if the automatic controls do not work. Locate the push button or key switch and small warning placard within sight of the gate in a secured area at least 10 feet or more from the gate and fence to keep users away from the moving gate and fence.

▲ 8. Outdoor or easily accessed gate controls should be of the security type to prohibit unauthorized use.

DURING INSTALLATION

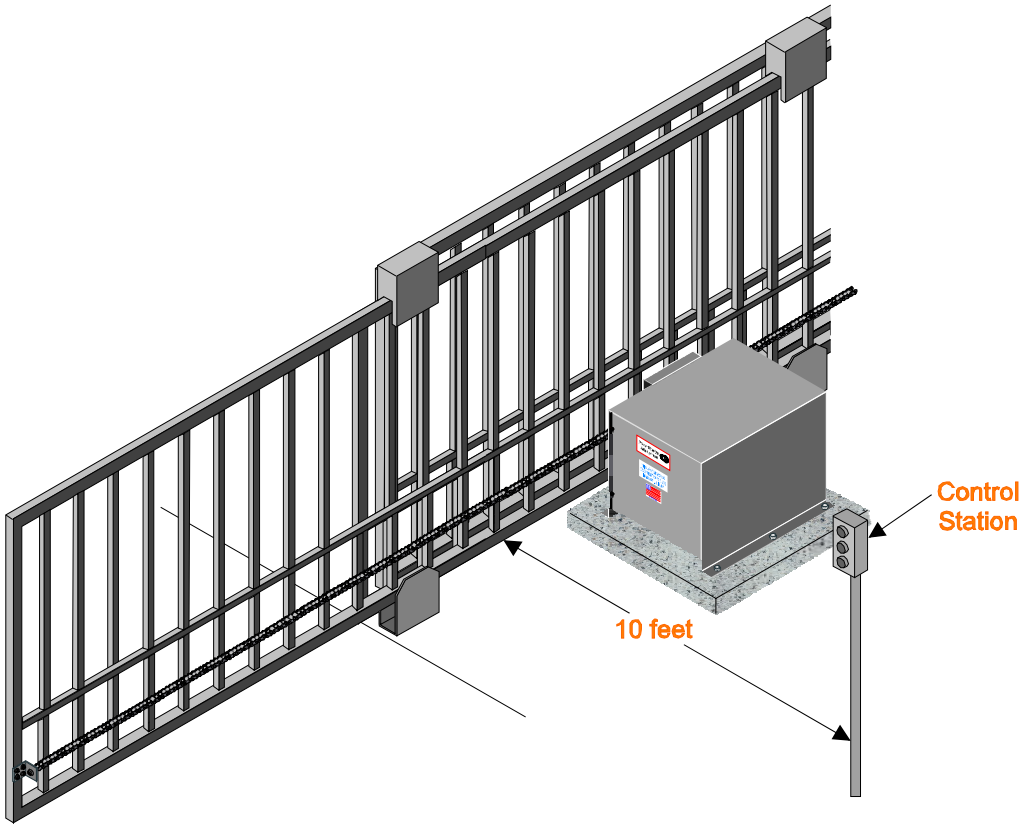
▲ 1. Be aware of all moving parts and avoid close proximity to any pinch points.

▲ 2. Disconnect power at the control panel before making any electric service connections. Connection location for controls and safety equipment can be found on the wiring diagram, and in this manual.

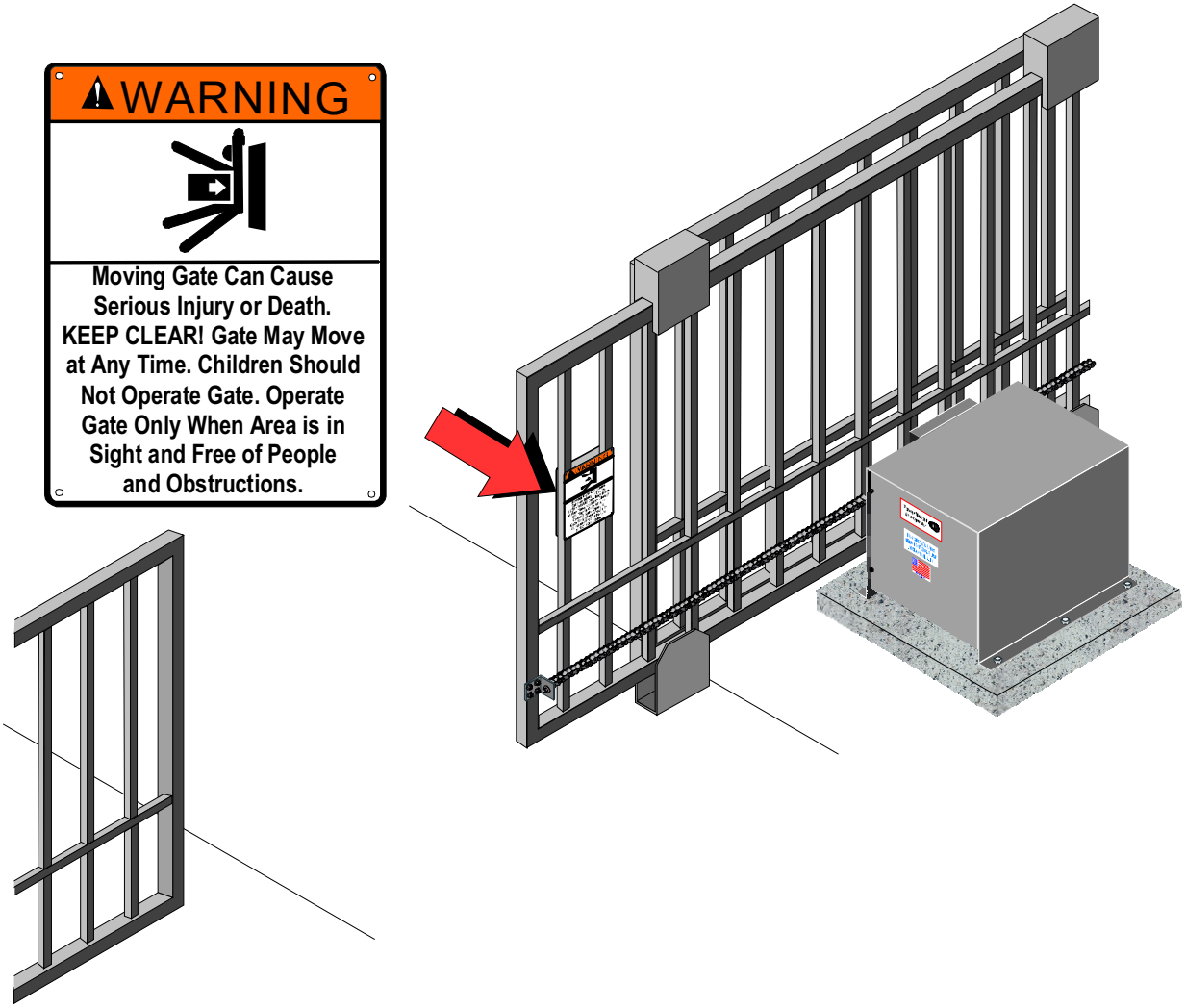
▲ 3. Know how to operate the manual disconnect mechanism.

▲ 4. Adjust the open and close force adjustment on the control board in each direction to the minimum force required to operate the gate smoothly. **DO NOT increase the force adjustment setting to makeup for rough spots in gate travel - FIX THE GATE INSTEAD!**

▲ 5. Locate the controls at least 10 feet from the moving gate so that the user can observe the gate operation, but is not able to come in contact with the gate while operating the controls.



▲ 6. Attach large warning signs provided to each side of gate in the most conspicuous place. Mount control station and smaller warning placard together within sight of the gate opening.



AFTER INSTALLATION

▲ You are responsible for ensuring that the end user understands the basic operations and safety systems of the unit, **including the location and operation of the manual disconnect.**

▲ Point out that the safety instructions in brochure are the responsibility of the end user, and then ***LEAVE A COPY OF THIS BROCHURE WITH THE END USER***

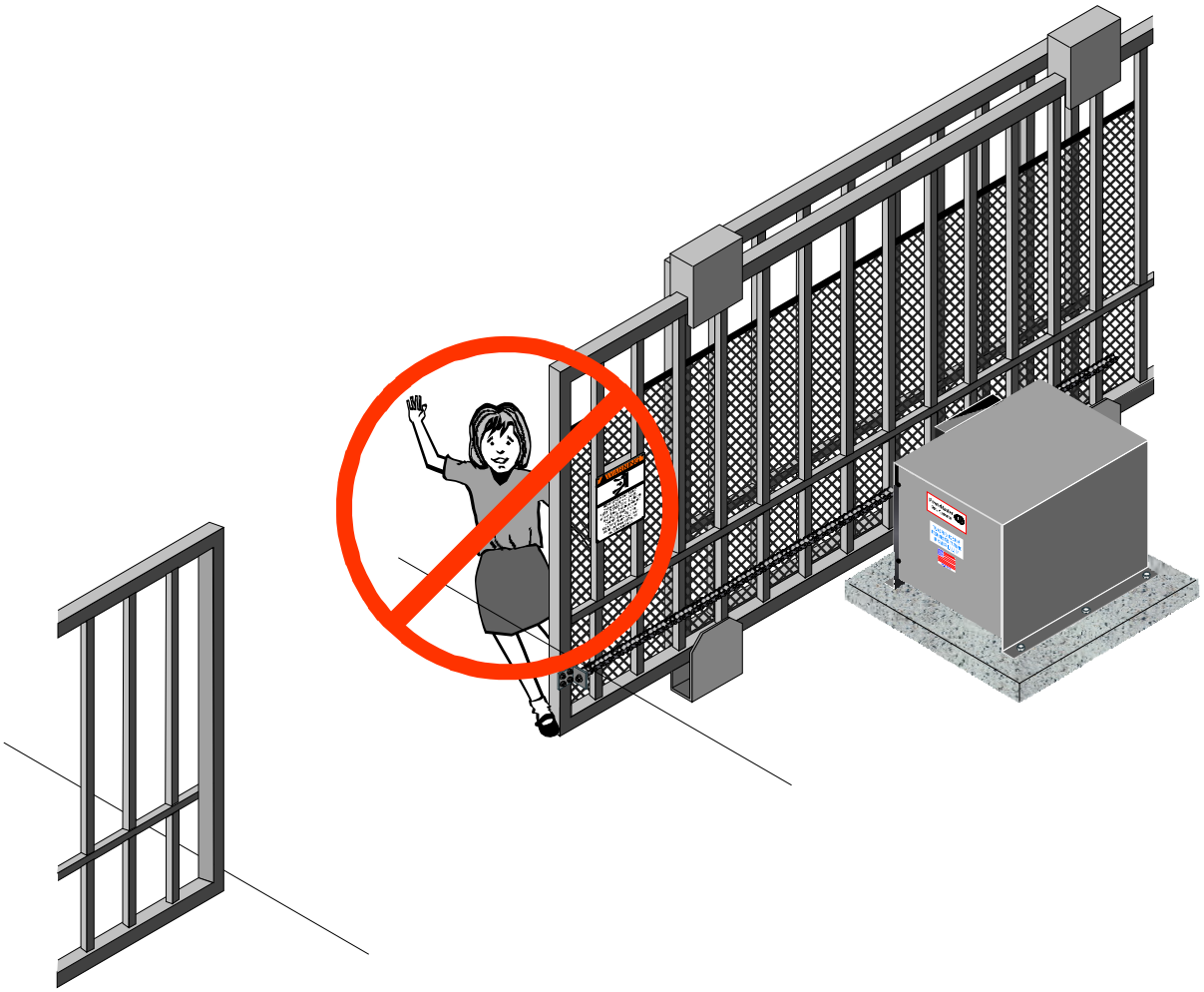
END-USER SAFETY WARNINGS

The manufacturer of the gate operator does not know what type of gate you have, or what type of automatic system is installed on your gate. Be sure you've been fully instructed on the sequence of operation for your specific gate system(s). Keep the gate properly maintained and have a qualified service person make repairs.

▲ 1. Be sure the following safety instructions are distributed to all persons authorized to use your gate.

▲ 2. **KEEP GATEWAY CLEAR (Front and Back) AT ALL TIMES.** Your automatic gate is not for pedestrian use. No one should ever cross the path of the moving gate.

▲ 3. **DO NOT** allow children to play near your gate, or to operate the gate.



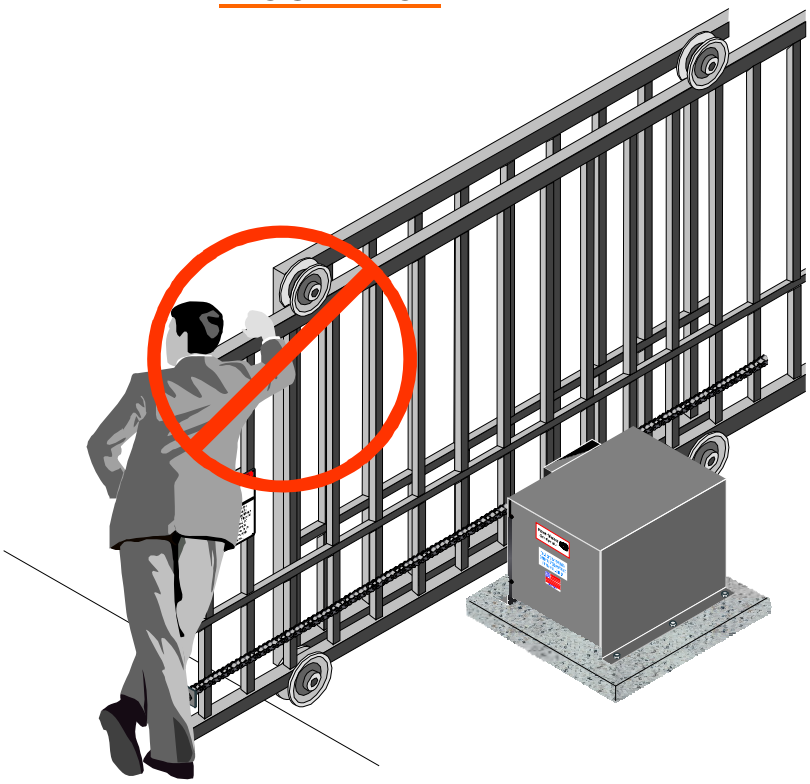
▲ 4. **DO NOT** operate your gate system unless you can see it when the gate moves.

▲ 5. Be sure a pushbutton or key switch has been installed for manual electric operation in the event your radio or card does not work. Any mounted control station should be located a minimum of 10 feet from the gate so the gate cannot be reached through or touched. Any pushbutton located in a building should be installed within sight of the gate.

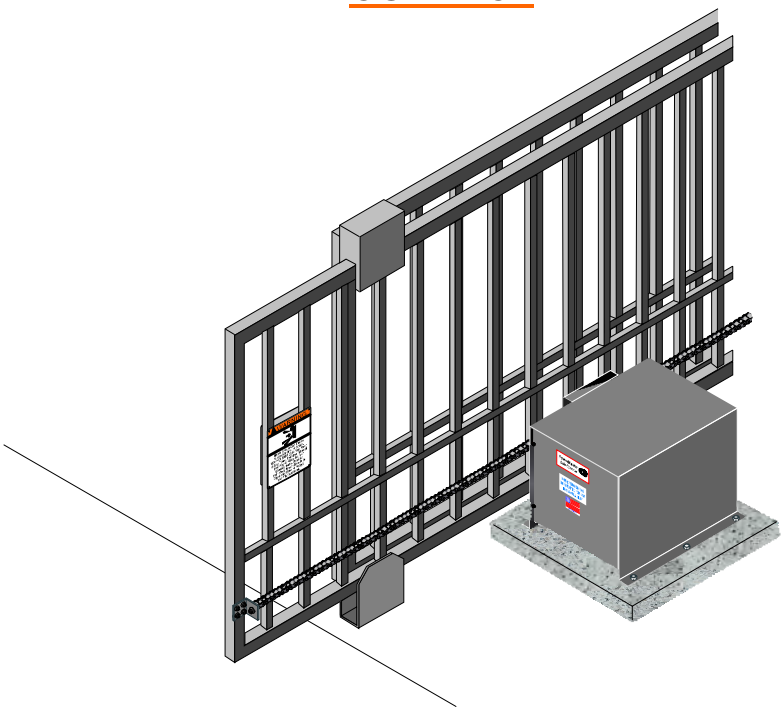
▲ **6. DO NOT operate any controls without watching the movement of the gate.**

▲ 7. If your gate has open rollers, be sure roller guards have been purchased and installed.

INCORRECT



CORRECT



▲ 8. Your gate system is required to have a primary and a secondary entrapment safety system installed and maintained.

▲ 9. If your gate closes automatically, loop detectors should be installed to detect the presence of a vehicle.

▲ 10. **DO NOT** increase force adjustment to compensate for a damaged gate. The gate should always be maintained to operate manually as easily as possible to provide maximum protection.

▲ 11. Check all safety systems at least once per month for the correct force, speed and sensitivity. Gate must reverse when hitting a rigid object, or when a non-contact sensor is activated. **If these functions are observed to operate improperly, discontinue use and have it serviced immediately!**

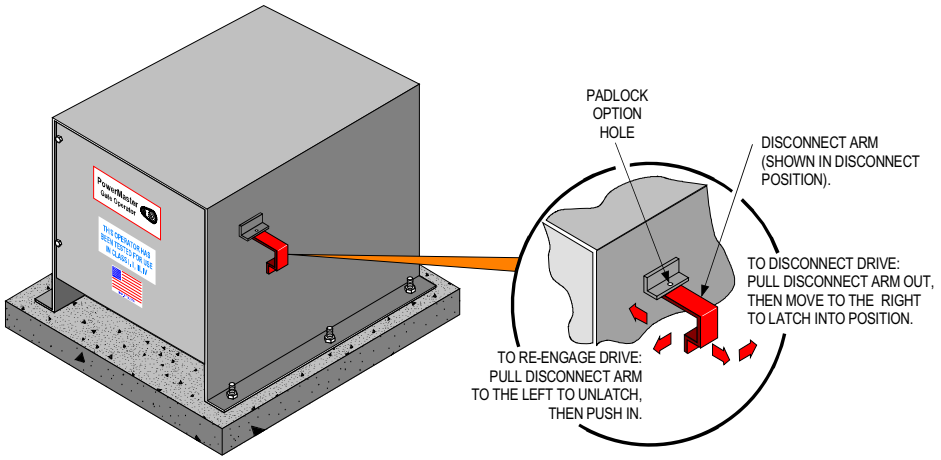
▲ 12. You are responsible for ensuring that warning signs are installed and maintained on both sides of your gate.

▲ 13. To ensure safe operation of this equipment, you must read this safety manual and keep it for reference.

MANUAL DISCONNECT OPERATION

▲ Your operator is equipped with a pad lockable emergency disconnect for manual operation. Be sure you have a key and understand how to operate this equipment. To disengage operator, move red disconnect lever to the left and latch it in place.

▲ **WARNING: NEVER OPERATE THE MANUAL RELEASE WHEN THE GATE IS MOVING.**

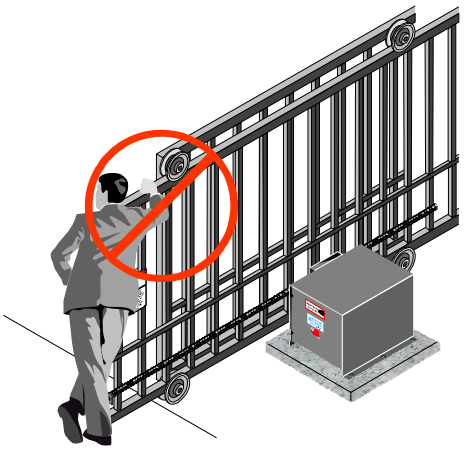


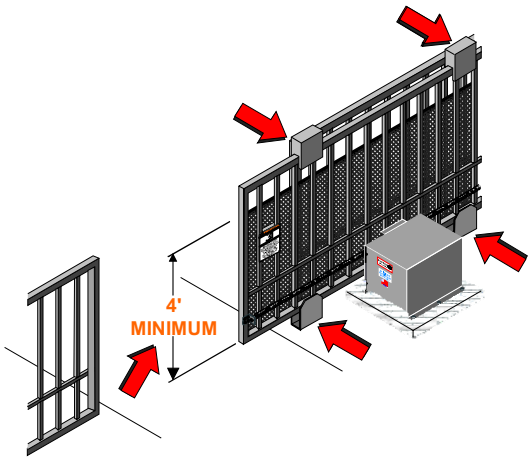
SAFETY WARNINGS FOR OPEN-ROLLER GATES AND ORNAMENTAL GRILLE-TYPE GATES

▲ **WARNING:** **INJURIES ASSOCIATED WITH AUTOMATIC GATES ARE MAINLY INCURRED WITH OPEN-ROLLER GATES AND ORNAMENTAL "GRILLE TYPE" GATES.**

OPEN-ROLLER GATES

▲ **Injuries occur when people get their hands caught between the top of the gate and the roller. This potential pinch point should be guarded whenever an automatic operator is installed. Roller Guards are available from various fence suppliers for refitting of these rollers.**





ORNAMENTAL "GRILLE TYPE" GATES

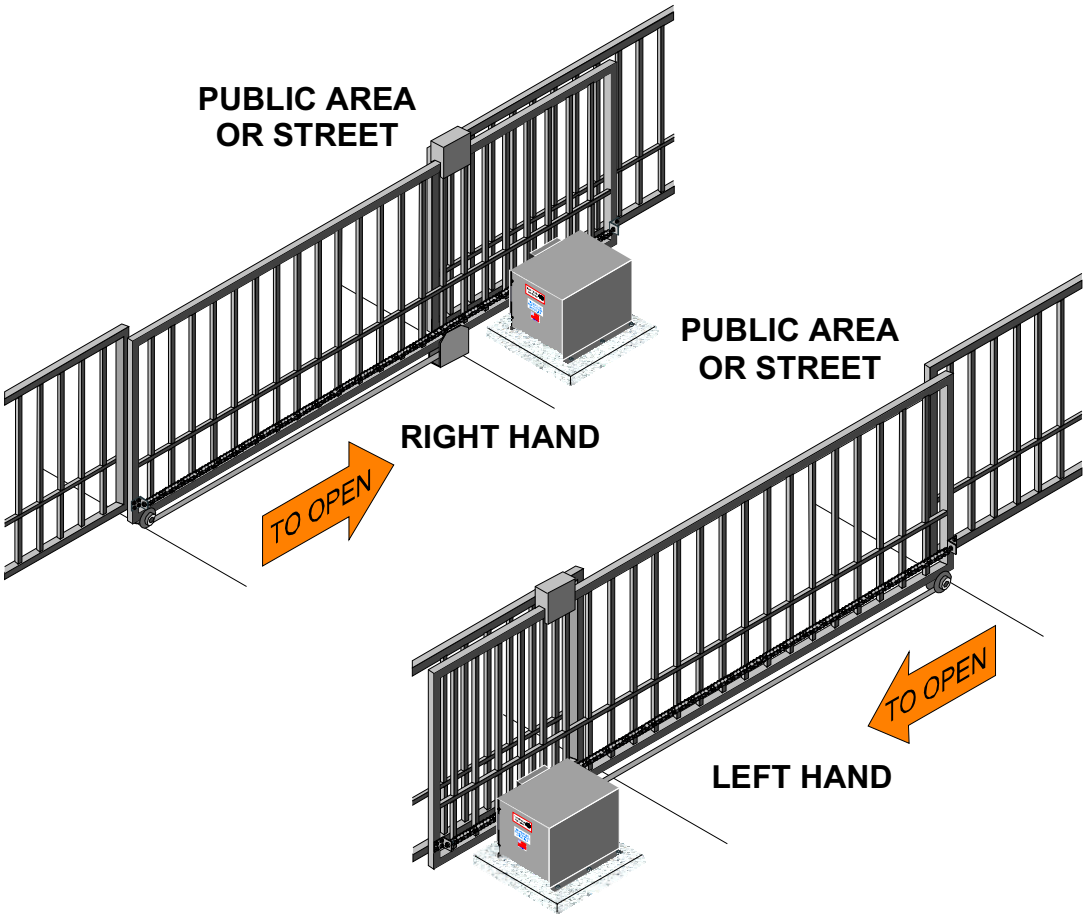
▲ Injuries occur when people put their arms through openings in the grilles when the gate is operated. The person cannot retract his/her arm and it gets caught between the grille and the fence post or fence. The potential hazard must be guarded. It can be simply done by placing a screen mesh on the gate and fence in the area of the gate. The screen must be a minimum of 4 feet high from the bottom (unless the gate and fence are shorter) with openings that a 2¼-inch sphere cannot fit through. This will help to prevent access through openings when the gate travels.

INSTALLATION INSTRUCTIONS

▲ **WARNING: DO NOT APPLY POWER UNTIL TOLD TO DO SO! RISK OF ELECTRICAL SHOCK OR INJURY MAY RESULT!**

BEFORE INSTALLING OPERATOR

IMPORTANT: Operator should always be mounted inside the gate. Determine whether the installation is Left hand or Right hand by the direction the gate moves in order to open, when viewed from inside the fence.

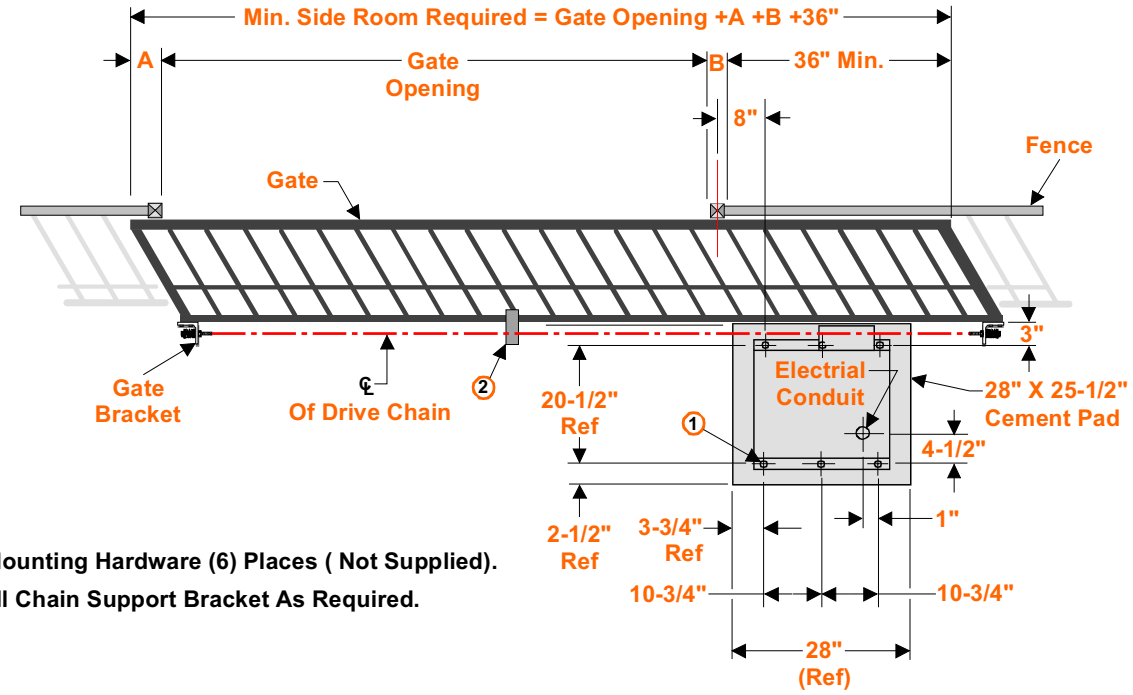


1. Gate must slide freely to fully opened and fully closed position.

2. Gate and/or extension must extend beyond the position of the operator. The operator will be located as shown above, for left and right hand installation.

INSTALLATION OF CEMENT PAD

Lay out the cement pad as shown. Be sure top surface is level. Allow 2 days cure time before installing operator. Bolt pattern must be parallel to the gate.



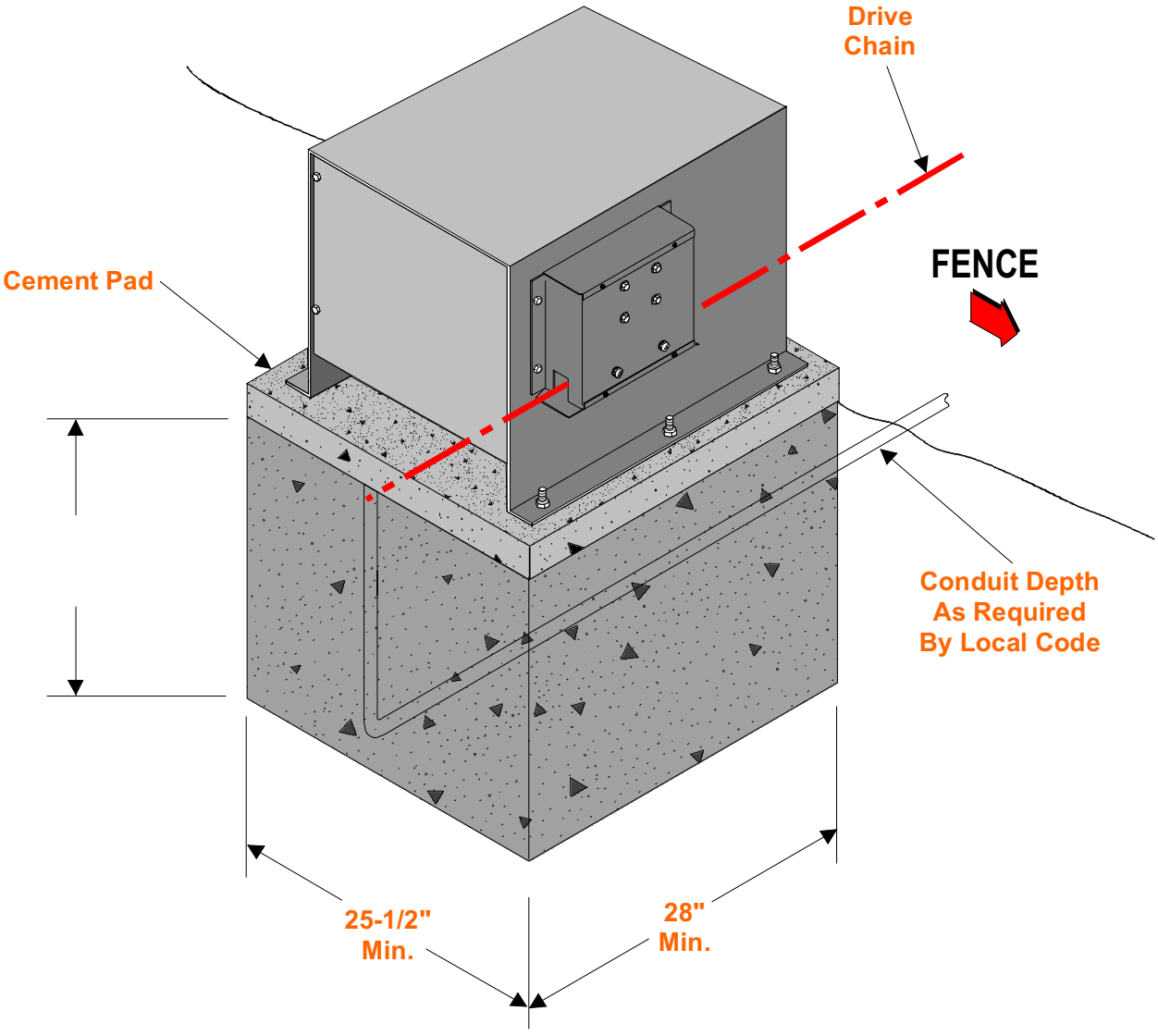
1 1/2" Mounting Hardware (6) Places (Not Supplied).

2 Install Chain Support Bracket As Required.

INSTALLATION TO PAD

1. Using ½" hardware (Not Supplied) bolt assembled unit to the pad, being sure to align operator parallel to the fence.

NOTE: Sprockets must face the fence.

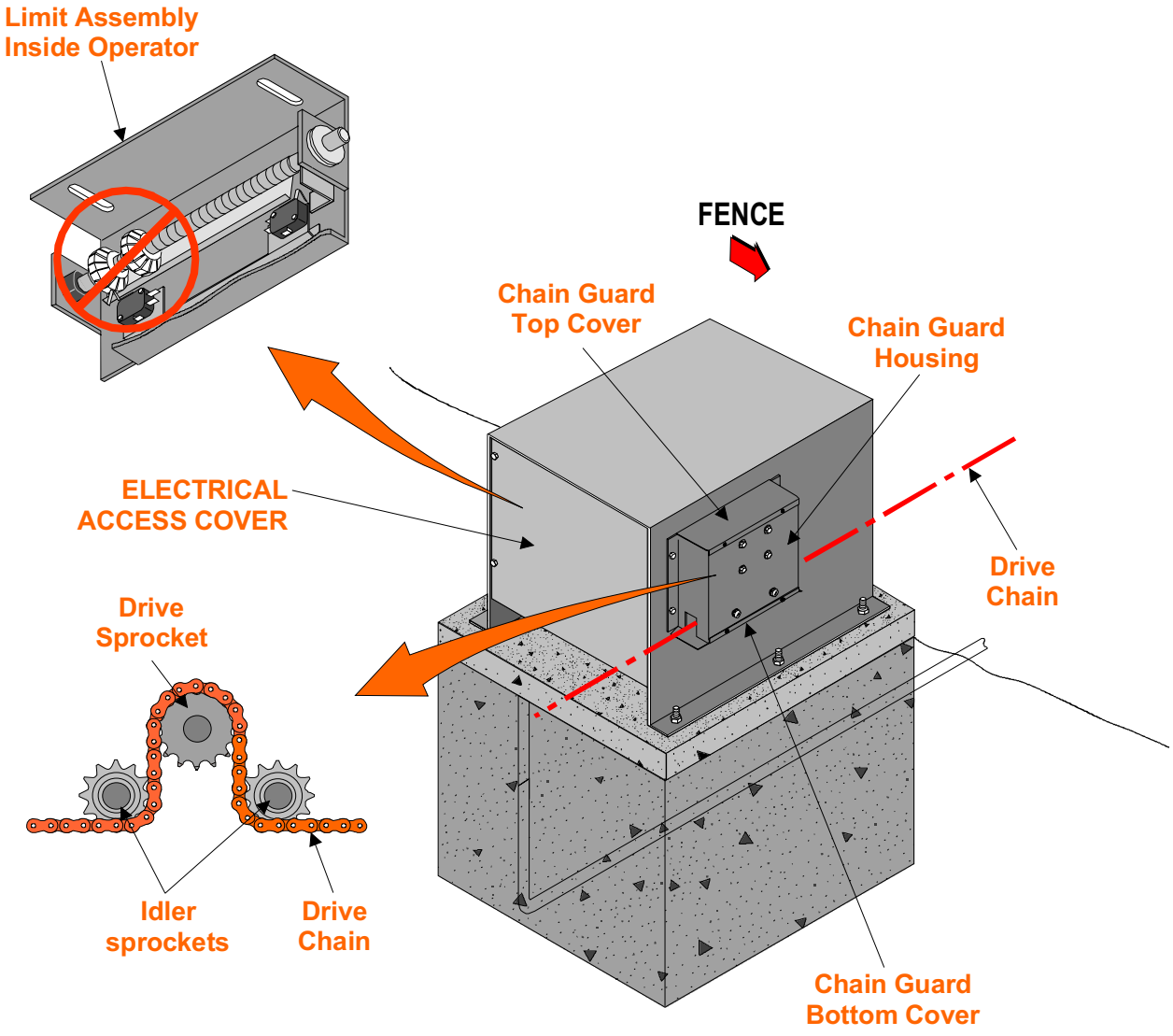


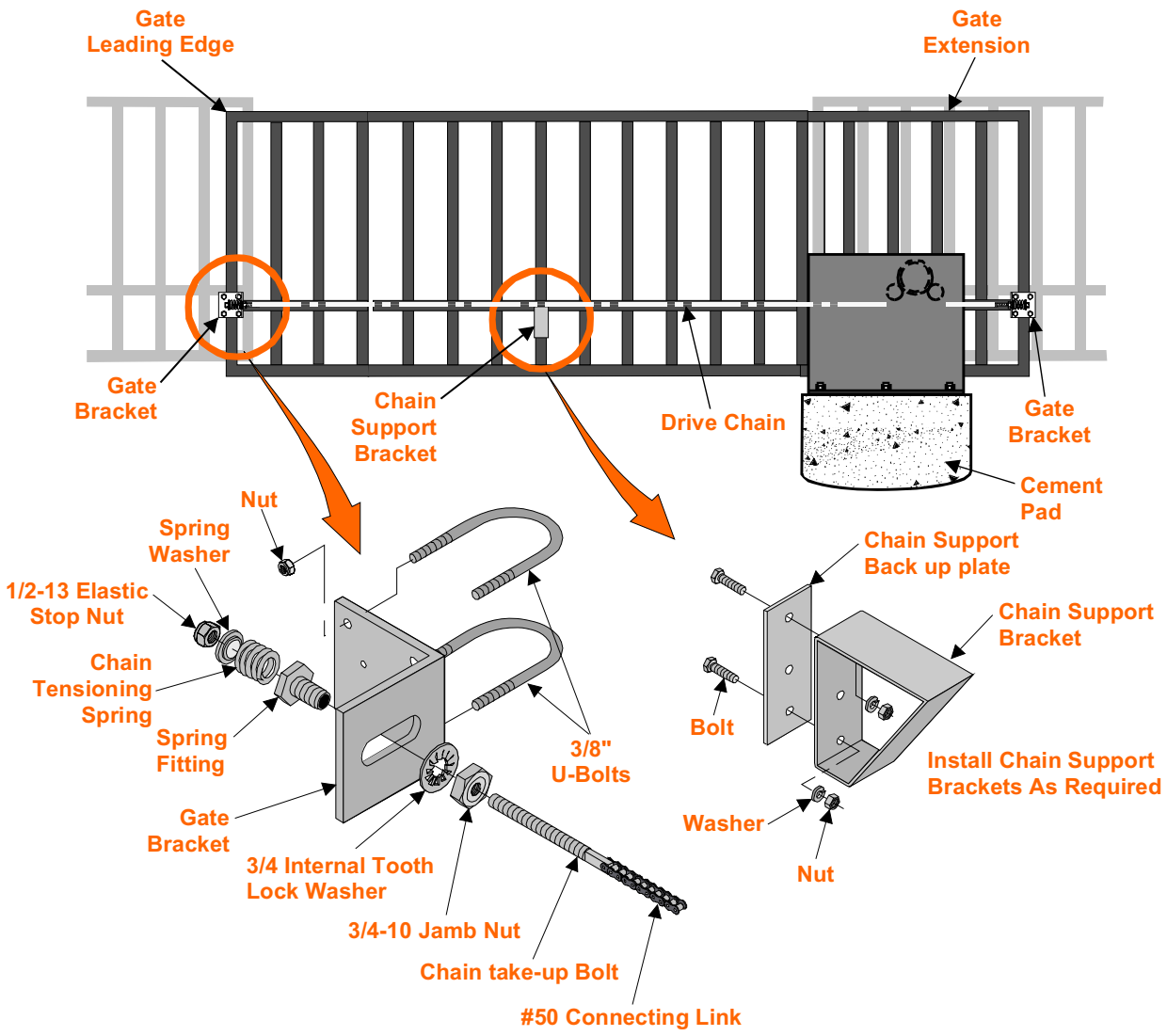
ATTACHING DRIVE CHAIN

1. Install gate brackets at each end of the gate with U-bolts provided. Do not fully tighten at this time.

2. Attach a chain take up bolt to one end of the drive chain using a #50 connecting link.
3. Install spring fittings into gate brackets using ¾" nuts and lock washers. **DO NOT** tighten.

4. Install chain take up bolt, previously attached to the chain, into spring fitting in furthest gate bracket. Secure it in position with spring, spring washer, and ½" elastic stop nut.





5. Disengage operator by moving the red disconnect lever (Located on the operator base at the opposite end from the motor) to the disconnect position, and latch in place.

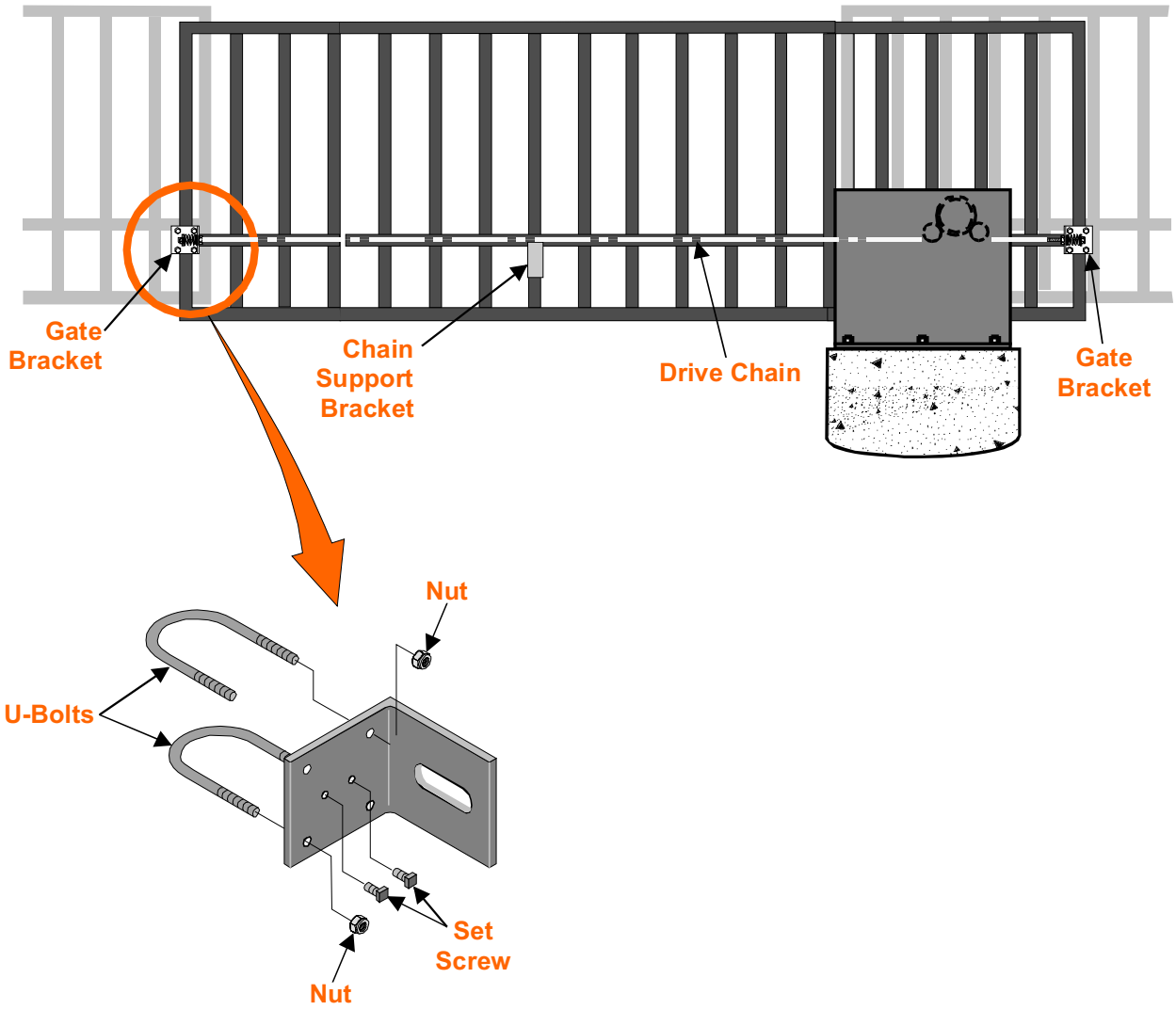
6. Thread free end of chain under first idler sprocket, up and over drive sprocket, then under the second idler sprocket.

NOTE: When pulling chain through operator sprockets, the limit nuts in the electric box can be driven passed their normal position. Reset the limit nuts as necessary.

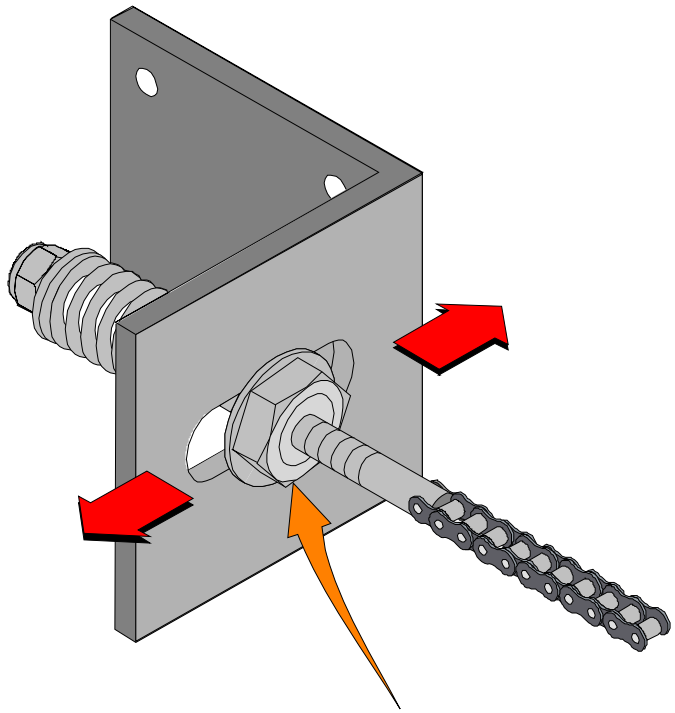
7. Pull the chain through to the opposite end of the gate. Cut the chain to the correct length, attach remaining chain take-up bolt and install in the gate bracket as in steps 2 through 4.

8. Adjust the gate bracket height at both ends of the gate to insure the drive chain aligns with the operator idler sprockets.

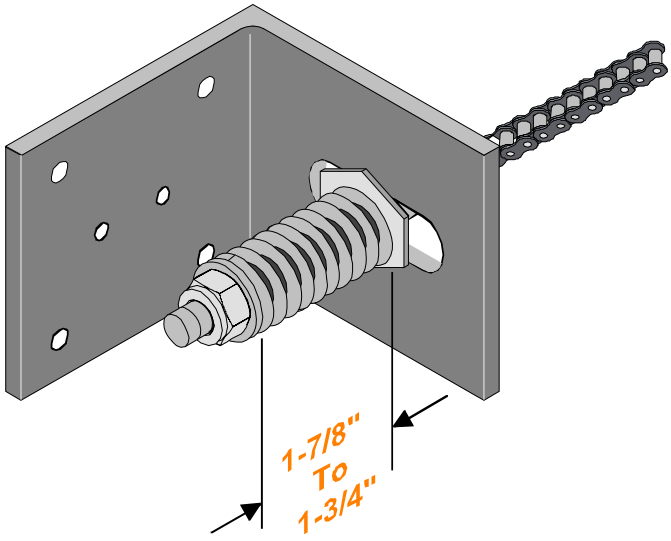
9. Tighten the gate brackets securely and lock in position with the setscrews provided.



NOTE: By moving the gate manually to each end of its travel, chain alignment is simplified.



11. Adjust chain tension so that the chain tension springs are reduced to a length within 1-7/8” and 1-3/4”.



Adjust Spring Length As Shown For Proper Chain Tension

ELECTRICAL SET-UP AND CONNECTIONS

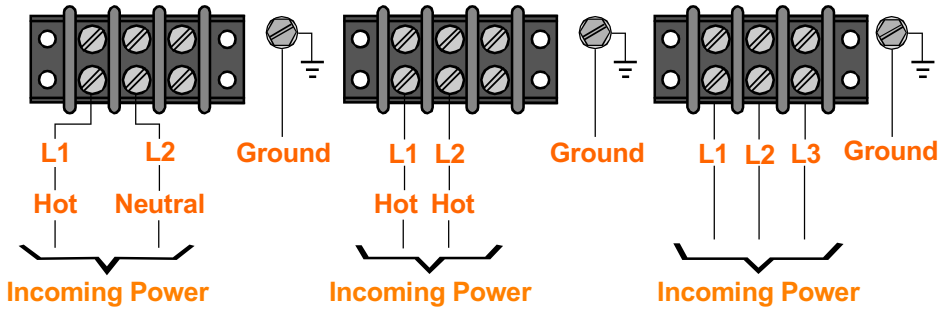
CONNECTION OF INCOMING POWER

WARNING: DO NOT APPLY POWER UNTIL TOLD TO DO SO! RISK OF SHOCK OR INJURY MAY RESULT.

NOTE: Before connecting the operator to an incoming power supply, use a voltmeter to determine that the electrical service is the same as that on the operator label. If the operator is connected to an incorrect power supply, damage will result, which is **NOT** covered by warranty.

▲ 1. Be sure the power switches at source, and at the operator are **OFF.**

▲ 2. In the diagram below find the supply power that matches your installation and connect as shown.



115V - 1Ø **220V - 1Ø** **ALL - 3Ø**

NOTE: Wiring to operator must use watertight materials in accordance with local electric code. See wire gauge/distance charts for proper sizing. Master/Slave installations should have **SEPARATE** power supply wiring or length of wire runs should be figured at half that shown on the chart. **This unit must be grounded in accordance with N.E.C. and local codes.**

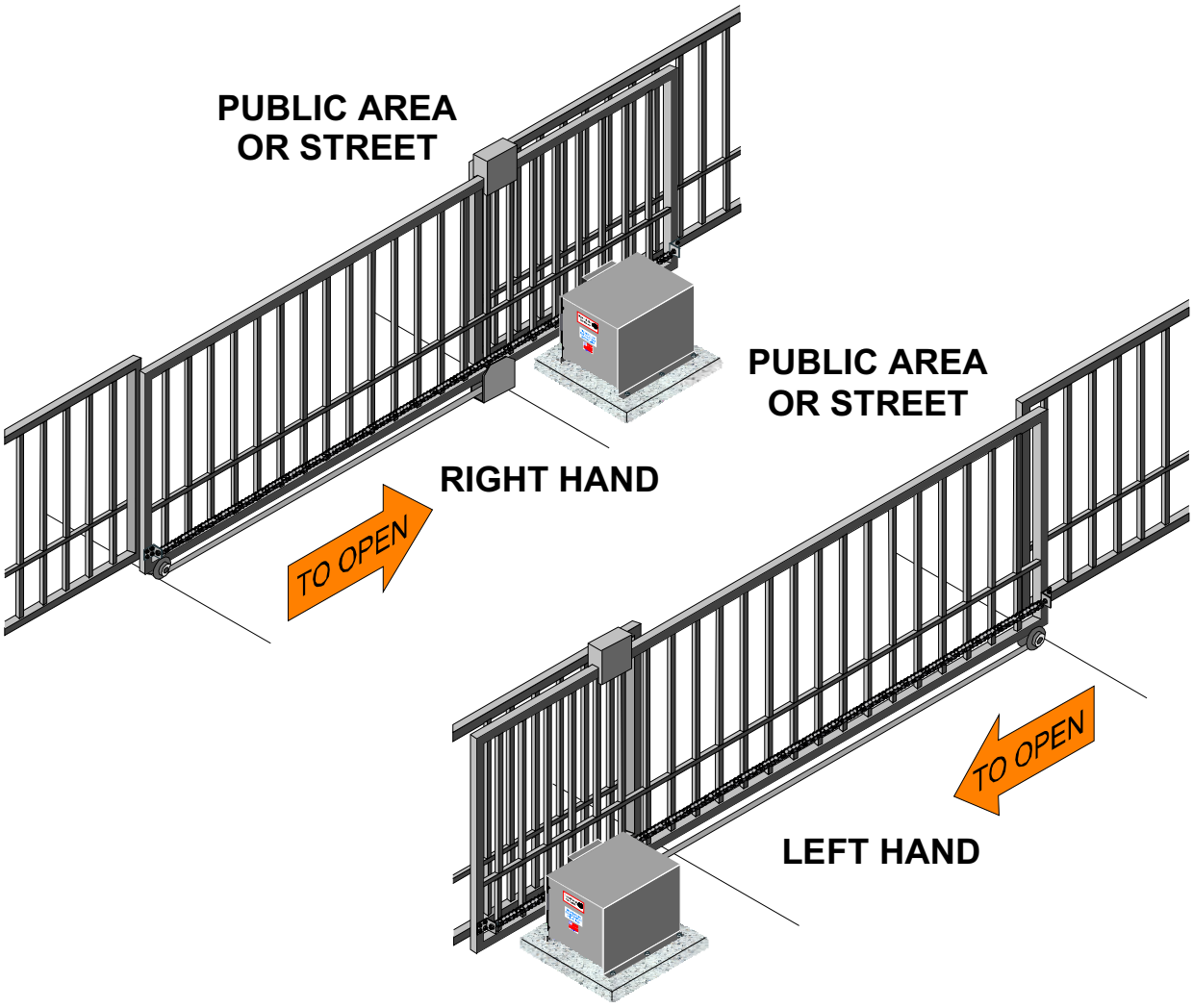
LOW VOLTAGE WIRE GAUGE/DISTANCE CHART
24 AWG: Up to 150' 20 AWG: 150' - 200' 18 AWG: 250' - 1,500' Control wiring should be run as twisted pairs. DO NOT run control wires in the same conduit as power wires. telephone wires, or loop detector leads.

LINE VOLTAGE	HP	WIRE GAUGE				
		14 AWG	12 AWG	10 AWG	8 AWG	6 AWG
1Ø 115/ 208-230						
	1/2	150/350	250/400	400/500	500/700	650/1000
	3/4	———	150/250	250/400	400/600	500/850
	1	———	———	150/300	250/450	400/700
3Ø 208-230 440-480	1/2	450/2000	750/3000	1200/4300	———	———
	3/4	350/1500	600/2400	900/3700	1100/4500	———
	1	300/1200	450/1900	750/3000	900/4800	———
	1-1/2	200/800	400/1500	500/2000	900/4800	———

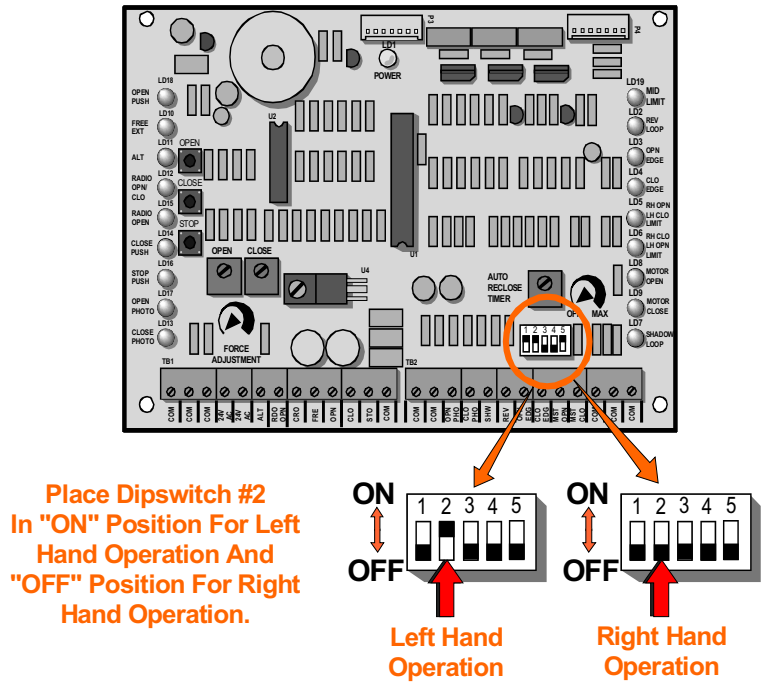
INSTALLATION OPTIONS

LEFT/RIGHT HAND CONVERSION:

Determine the hand of the operator required for this installation by checking the direction the gate moves in order to open, when viewed from inside the fence. Slides **RIGHT** to open is a right hand installation, slides **Left** to open is a left hand installation.



NOTE: This unit is factory setup for **RIGHT HAND** operation. To convert operator to left hand operation move dipswitch #2 to on position.

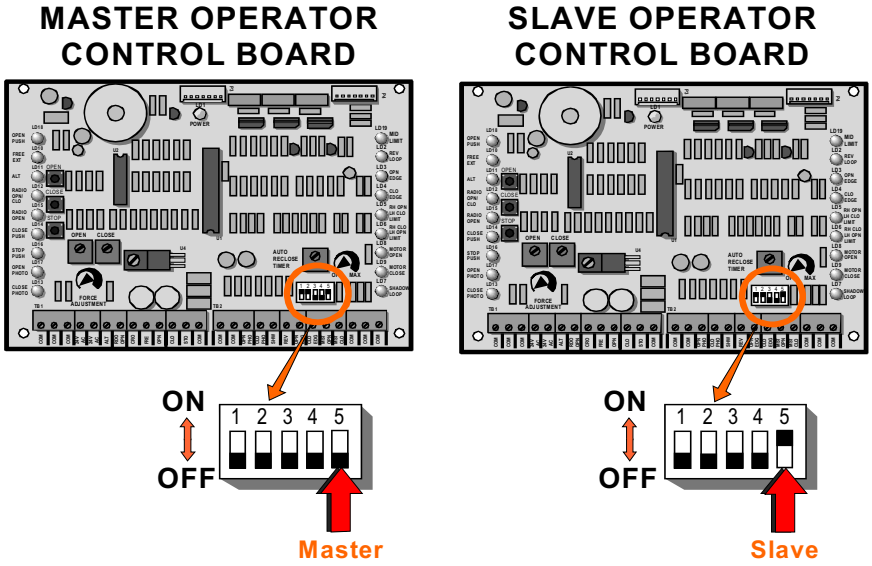


MASTER/SLAVE INSTALLATION

NOTE: A single unit is considered a Master.

1. Place dipswitch #5 on the **MASTER** operator's control board in the **"OFF"** position.

2. Place dipswitch #5 on the **SLAVE** operator's control board in the **"ON"** position.

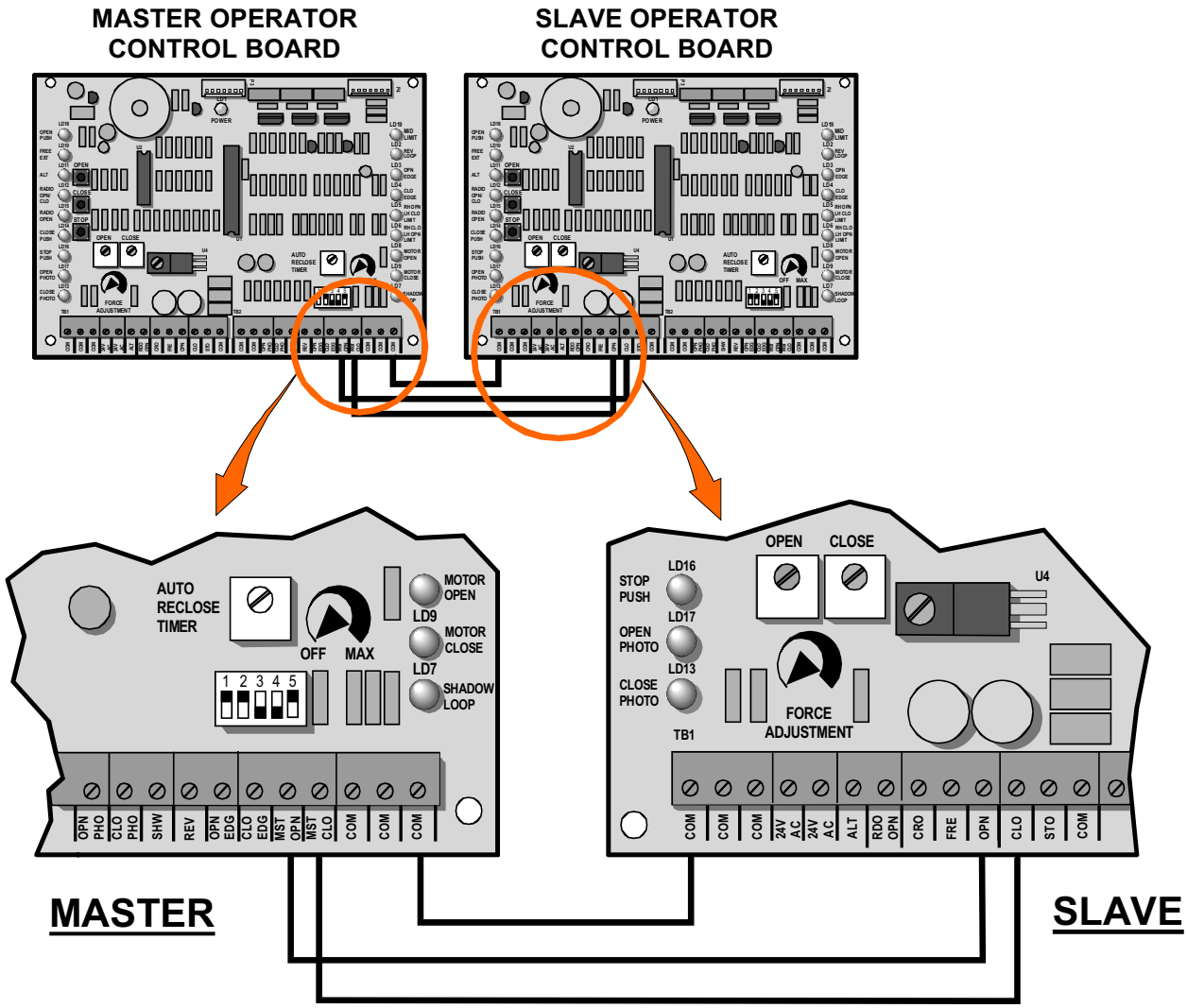


3. Connect a wire from the **"MST OPN"** terminal on the **Master** operators control board, to the **"OPN"** terminal on the **Slave** operators control board.

4. Connect a second wire from the **"MST CLO"** terminal on the **Master** operators control board, to the **"CLO"** terminal on the slave operators control board.

5. Connect a third wire from any **"COM"** terminal on the **Master** operators control board, to any **"COM"** terminal on the **Slave** operators control board.

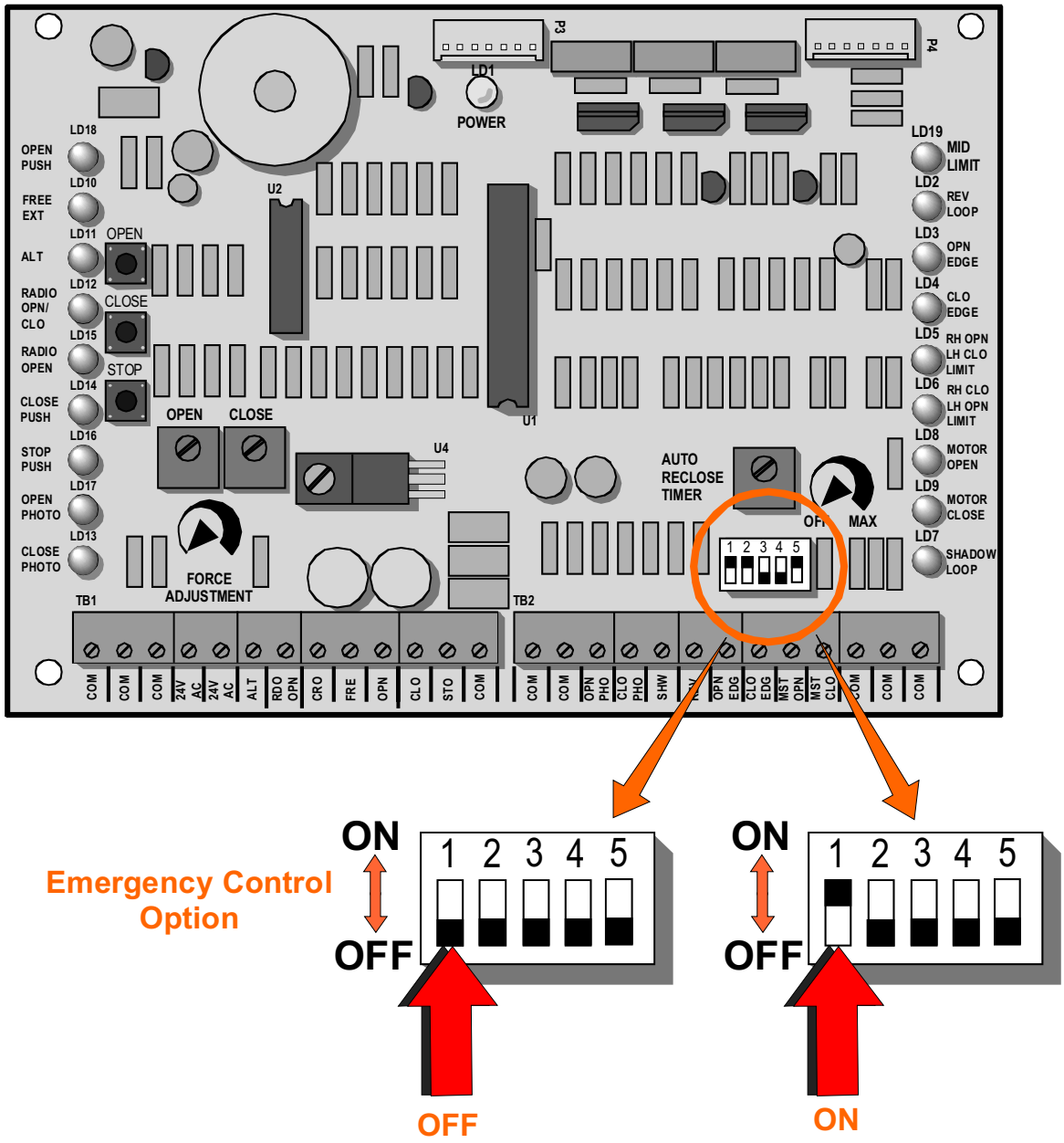
NOTE: In a Master/Slave installation, one unit must be converted to **LEFT HAND** operation.



EMERGENCY CONTROL STATION OPTION

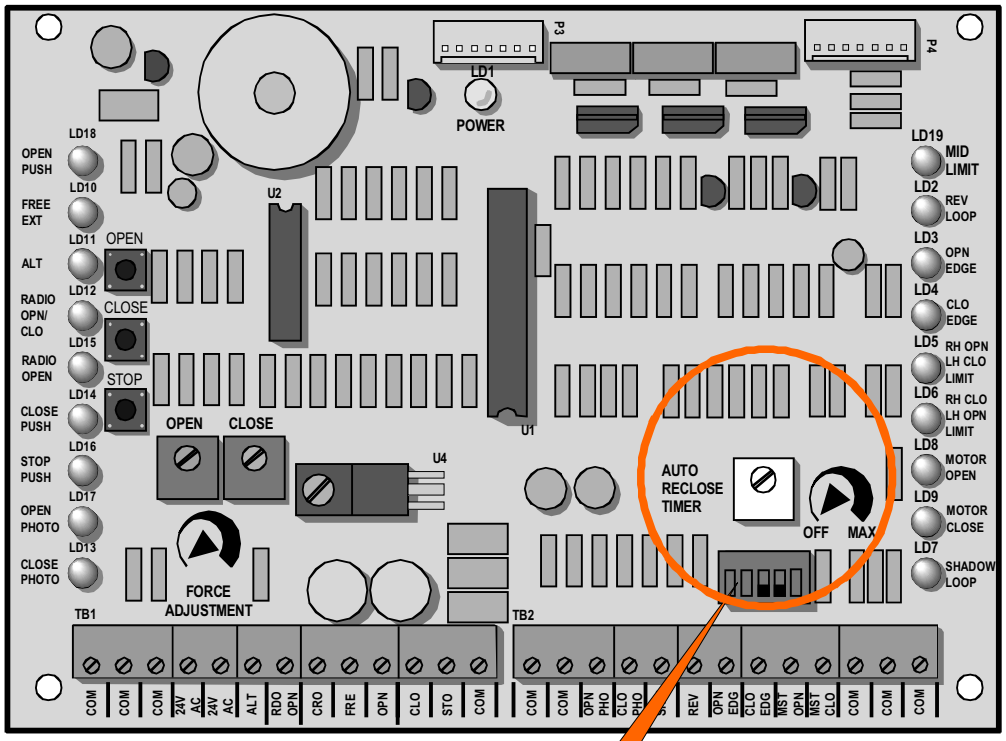
Provision has been made to change the control station operational mode to one that would only be activated when the entrapment sensing system is in stop mode; with the warning horn activated. This would give a person access to control the gate in an emergency situation, but it would be inoperative under normal circumstances. To activate this option, move dipswitch #1 to the **"ON"** position.

NOTE: When this emergency mode of operation is activated, the control station functions as a constant pressure control.

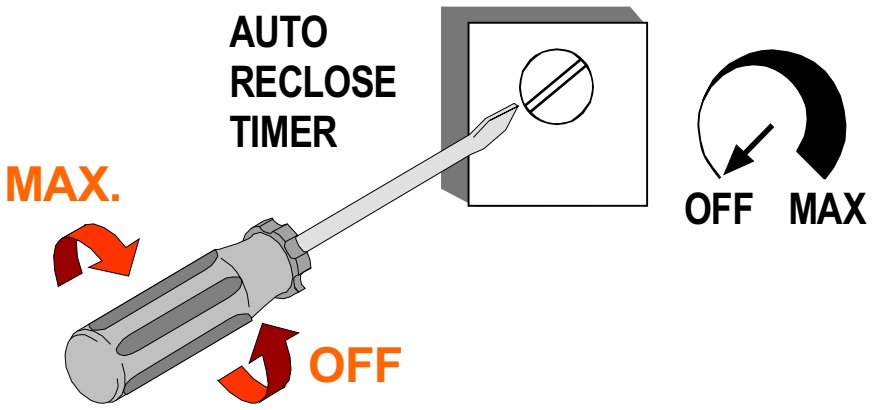


TIMER TO CLOSE OPTION

The operator is equipped with a timer to close option for use with **OPEN ONLY** control devices such as a radio control, or card key control. The **AUTO RECLOSE TIMER** adjustment screw is located on the printed circuit board. The operator is shipped from the factory with this timer preset to the off position; fully counter clockwise. As the timer adjustment screw is rotated clockwise, the closing of the gate can be delayed from 2 seconds to 60 seconds. The timer to close will be activated whenever the gate is stopped, except in the closed position.

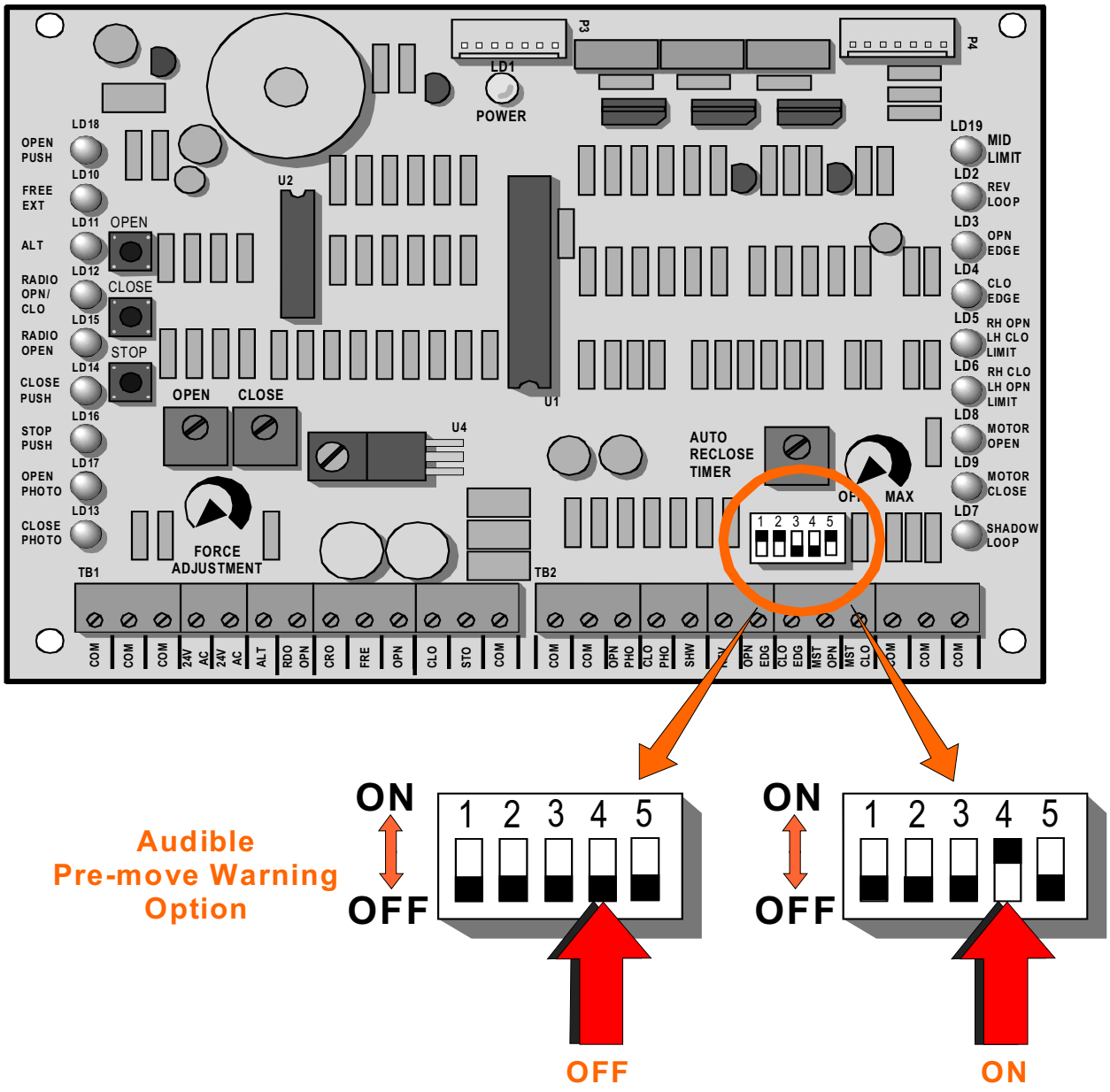


Location Of Auto Close Timer Adjustment.



AUDIBLE PRE - MOVE WARNING

By moving Dipswitch #4 to the **"ON"** position the option of a 3 second Audible Warning, before gate movement, may be selected.



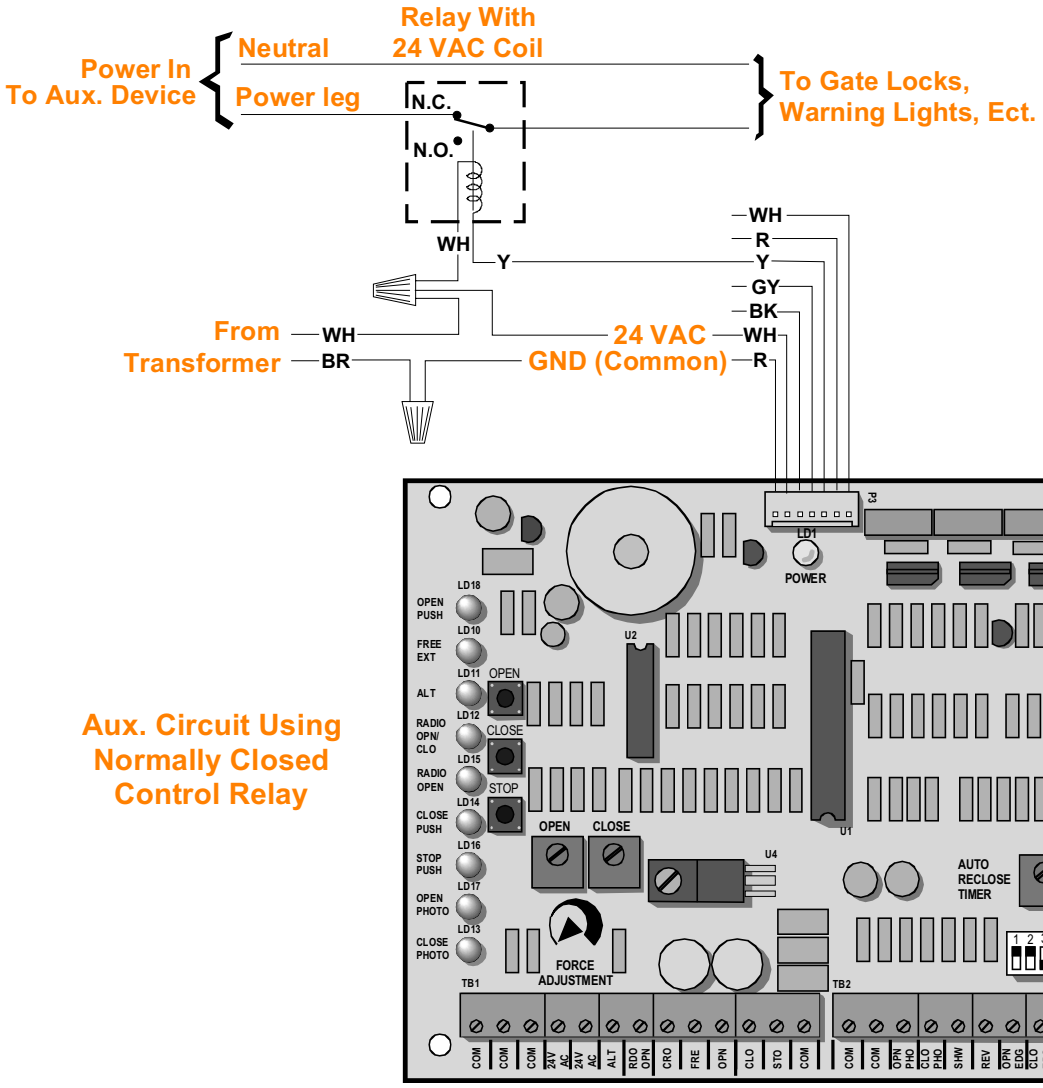
AUXILIARY CIRCUIT FOR USE WITH GATE LOCKS,

WARNING LIGHTS, ETC

An auxiliary 24 VAC power circuit, for use with a 24V control relay, has been provided. This circuit will be activated just prior to gate movement and will continue to be active until the gate stops. It may be used to control a gate lock, activate warning lights and solenoid controlled devices or any other system required during this time interval. Two control options are available.

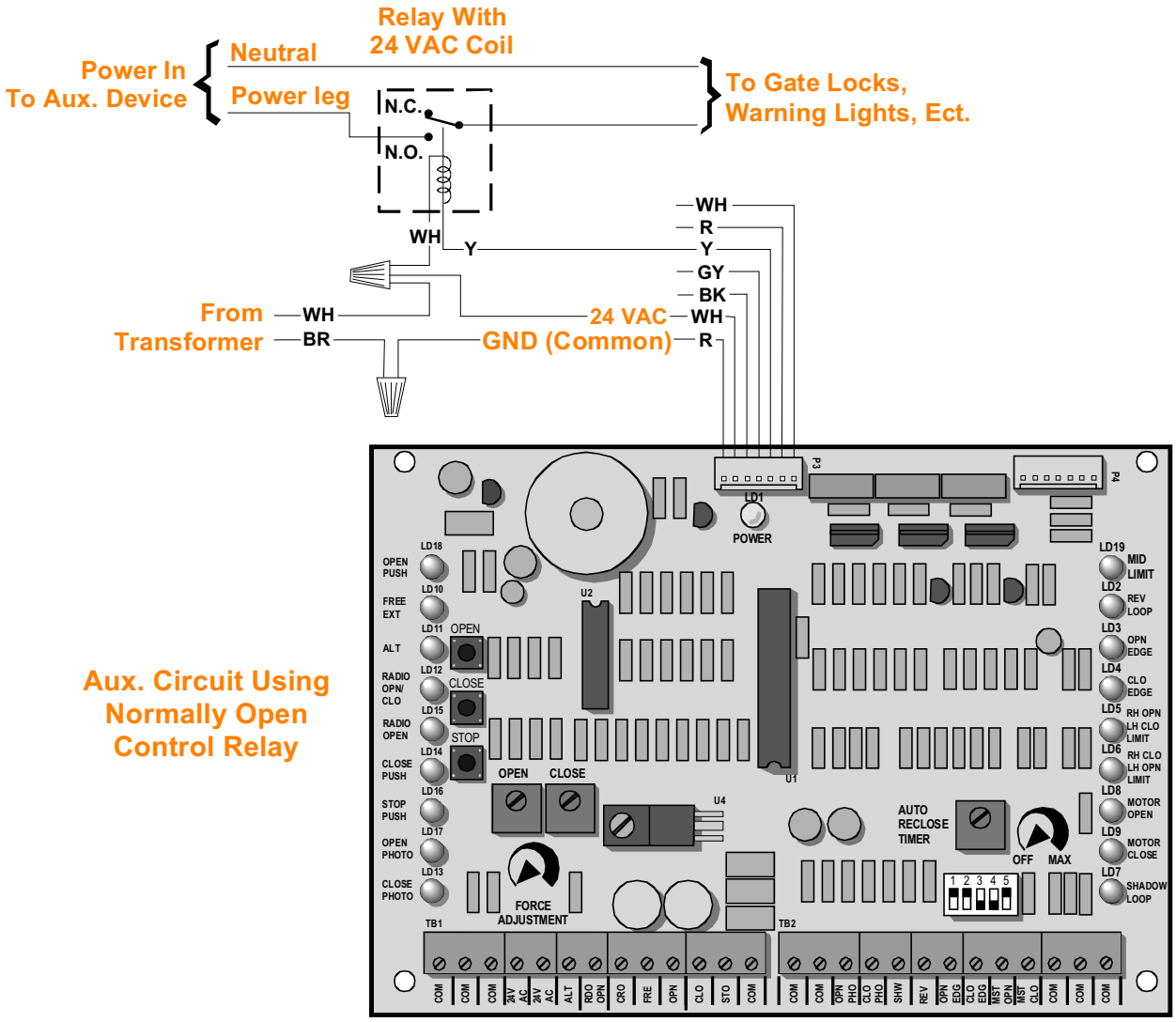
OPTION #1 – POWER REMOVED DURING GATE MOVEMENT

Below is a diagram showing the connection of a device, such as a magnetic gate lock, **requiring the removal of power during the gate movement.**



OPTION #2 – POWER SUPPLIED DURING GATE MOVEMENT

The following diagram shows the connection of a device, such as a solenoid operated gate lock, **requiring power during gate movement.**

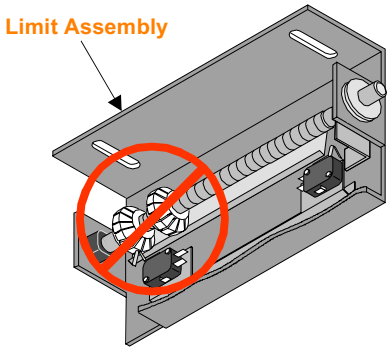


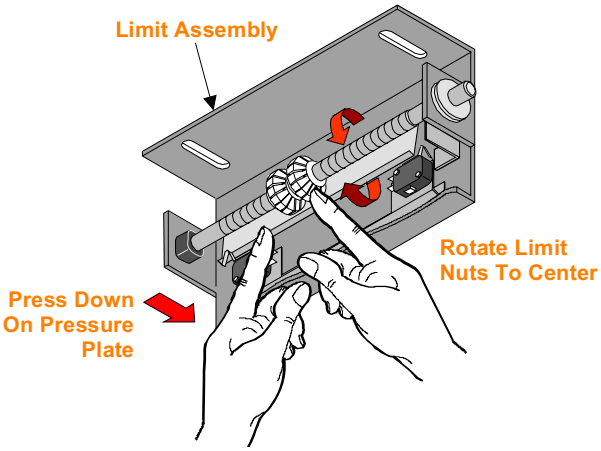
LIMIT ADJUSTMENT PROCEDURE

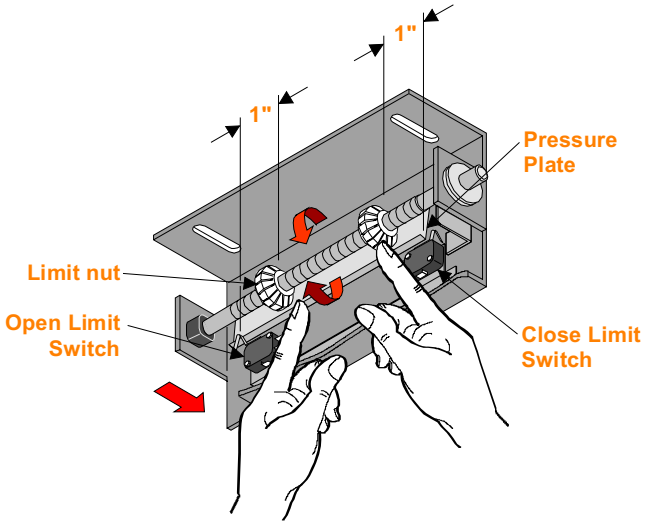
▲ **WARNING: TURN OFF MAIN POWER BEFORE MAKING ANY ADJUSTMENTS!**

1. After the gate is mechanically installed, disengage operator drive with the manual disconnect lever. Move the gate to a midway position.

NOTE: When moving the gate with the operator disengaged, the limit nuts on the limit assembly inside the operator can be driven passed their normal position. Reset the limit nuts as necessary, by depressing the pressure plate and rotating the limit nuts until they are both positioned near the center of the limit shaft.

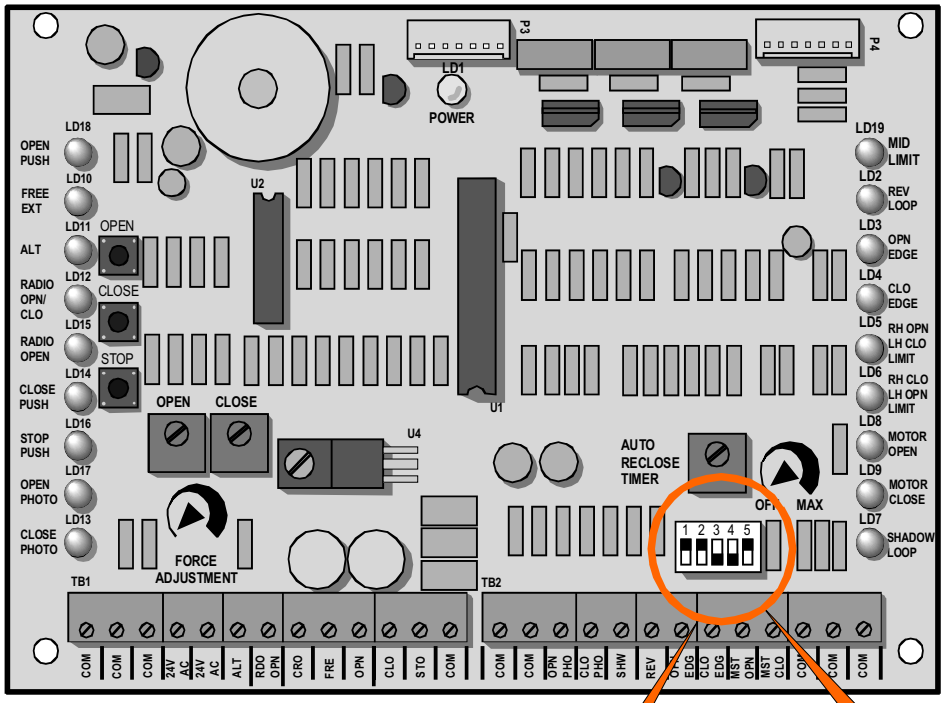




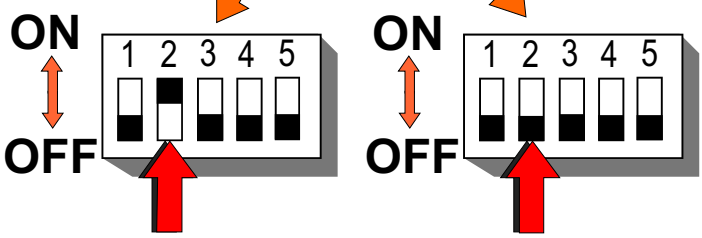


2. With the gate at mid travel, depress the pressure plate and set the grooved limit nuts approximately 1 inch from the limit switches on each side.

3. Check that Dipswitch #2 is in the correct position for left or right hand operation as determined by the location of the gate opener, when viewed from inside the fenced area.



Place Dipswitch #2 In "ON" Position For Left Hand Operation And "OFF" Position For Right Hand Operation.



Left Hand Operation

Right Hand Operation

4. Turn on power, and re-engage operator with manual disconnect lever.

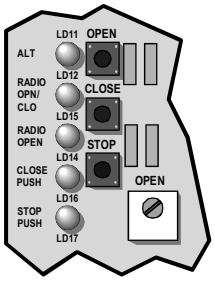
NOTE: Operator will not run if manual disconnect lever is in the disengaged position.

▲ **WARNING: STAY CLEAR OF ALL MOVING PARTS AND ELECTRICAL COMPONENTS OF THE OPERATOR WHILE TESTING!**

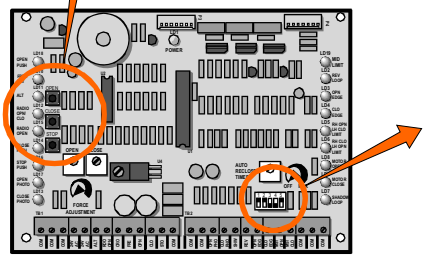
NOTE: The first time the gate operator is run after the power is turned on; a 3 second warning will sound before the operator starts.

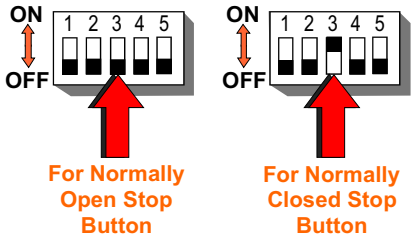
5. Open the gate electrically using the **THREE BUTTON** control station mounted on the control board.

BOARD MOUNTED CONTROL STATION



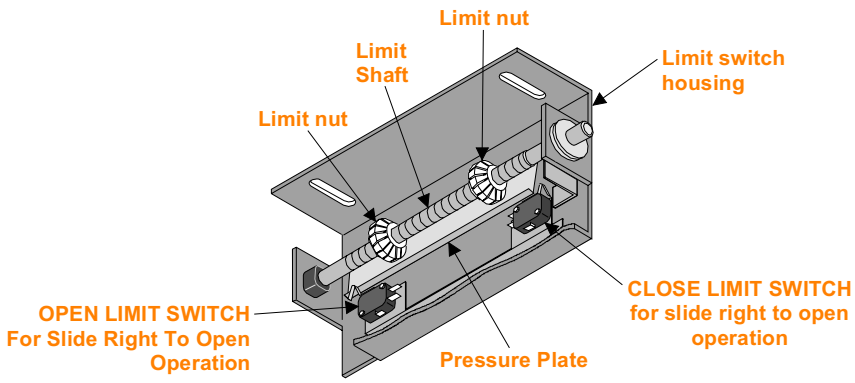
NOTE: If Dipswitch #3 is in the **"ON"** position for use with a **NORMALLY CLOSED "STOP" BUTTON,** then the board mounted "STOP" button must be held depressed in order to use the open and close buttons. Releasing the stop button will then stop the operator.





6. If the gate travels in the correct direction and stops on the open limit switch, proceed to step #11.

NOTE: Open and Close Limit Switches are **Reversed** for **Slide Left to Open Operation**.



7. If the operator runs in the wrong direction proceed to step #9.

8. If the limit nut depresses the open limit switch but does not stop the gate, press the stop button or turn off the power immediately, and consult factory. **(1-800-243-4476).**

9. Check position of dipswitch #2 to be sure it coincides with the installation. (Left Hand or Right Hand) If this is correct and operator is 1Ø consult the factory. (1-800-243-4476).
10. If dipswitch #2 is in the correct position and the operator is 3Ø, switch two incoming leads and repeat step #5.

WARNING: UNDER NO CIRCUMSTANCES SHOULD THE CONTROL STATION WIRING BE ALTERED IF THE ROTATION IS INCORRECT. TO DO SO WILL CAUSE SOME CONTROL FUNCTIONS TO BE INOPERATIVE, AND MAY RESULT IN PERSONAL INJURY OR DAMAGE TO THE GATE AND/OR OPERATOR.

11. If the operator functions properly, run the operator to the open limit switch and turn off the power.

12. If there is still a distance before the gate is fully open, turn off power, move the open limit nut away from the open limit switch a few turns and turn on the power.

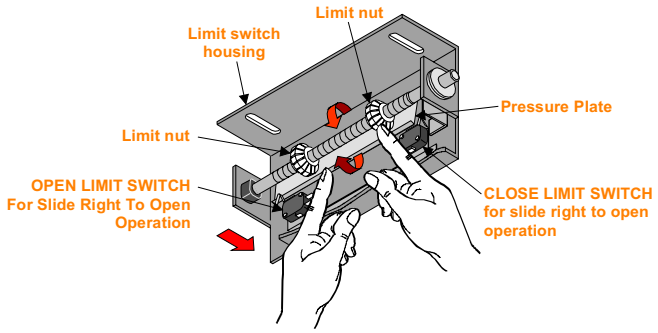
13. Press the OPEN button again to check how much further the gate opened.

14. Continue this procedure until the OPEN limit is set.

NOTE: When making fine adjustments, turn the limit nut one turn at a time; reconnect power and test run the gate.

15. Repeat procedure for the CLOSE limit adjustment.

NOTE: Open and Close Limit Switches are **Reversed** for **slide left to Open Operation.**

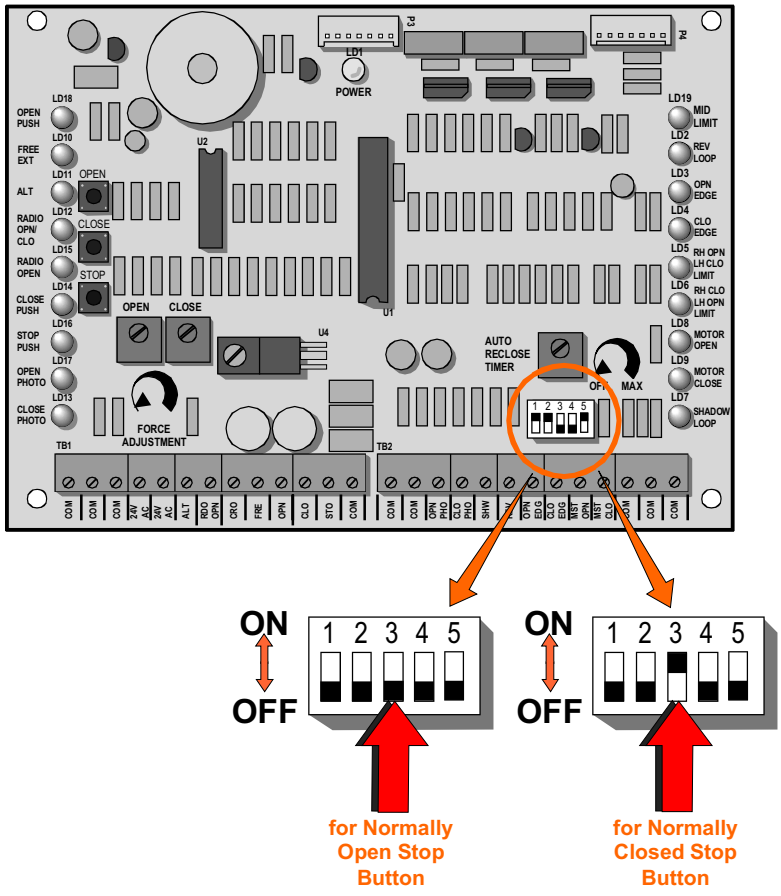


16. After the desired open and close position of the gate has been obtained, make certain that a groove in both limit nuts are engaged by the pressure plate.

CONTROL CONNECTIONS

CONNECTION OF A THREE-BUTTON STATION:

NOTE: All control contacts must be NORMALLY OPEN unless dipswitch #3 is placed to the "ON" position, which will change the circuitry to accept a NORMALLY CLOSED STOP BUTTON.

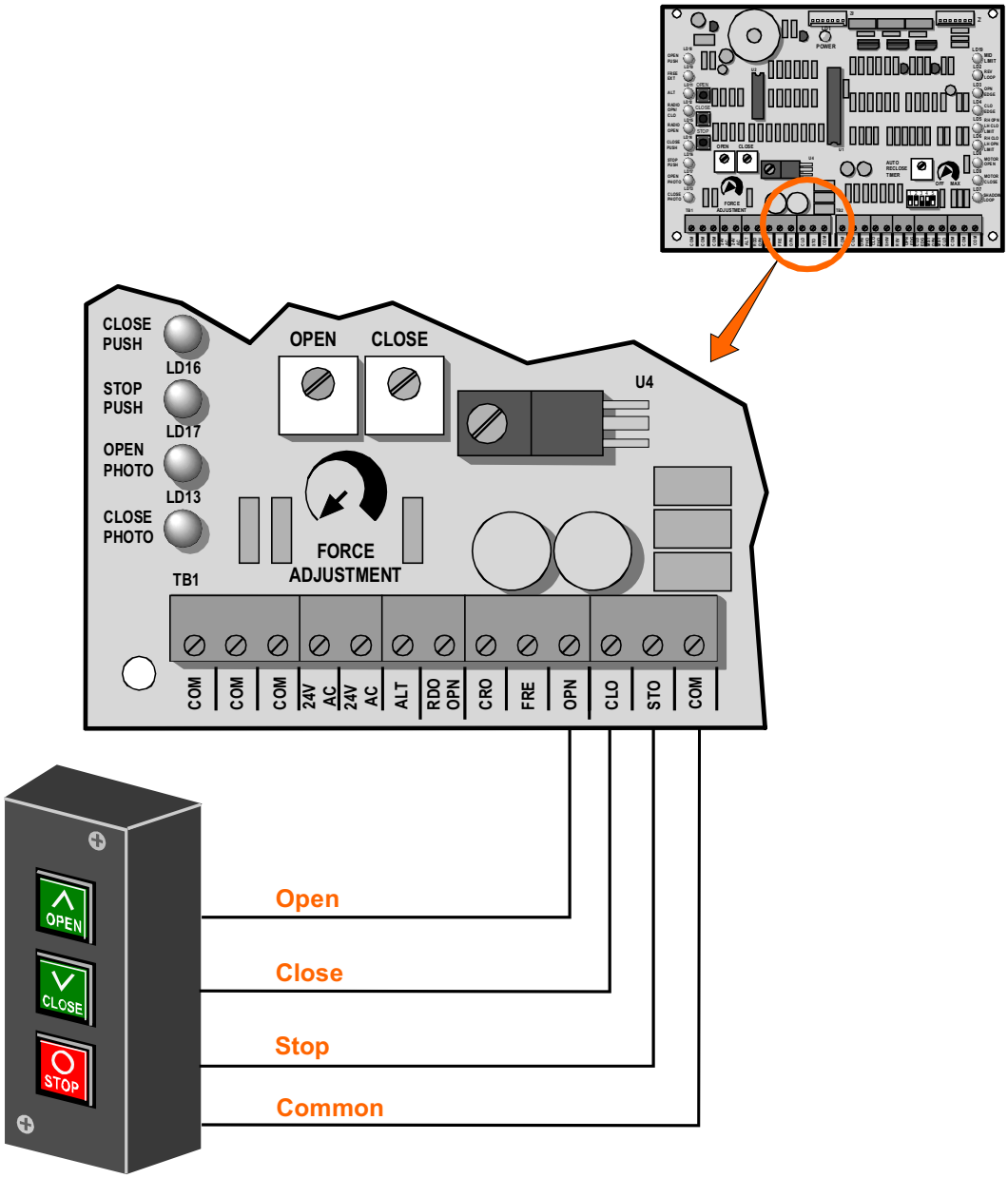


1. Connect a wire from the common connection of the control station to any **“COM”** terminal on the control board.

2. Connect a second wire from the “**OPEN”** button of the control station to the **“OPN”** terminal on the control board.

3. Connect a third wire from the “**CLOSE”** button of the control station to the **“CLO”** terminal on the control board.

4. Connect a fourth wire from the “**STOP”** button of the control station to the **“STO”** terminal on the control board.

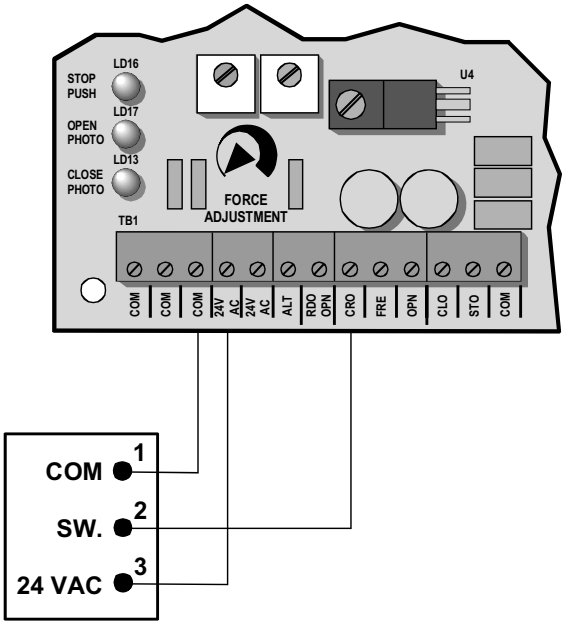


RADIO CONTROL INSTALLATION

A Three or Four wire radio control receiver can be installed on this operator. See the diagrams below for the correct connections to match your installations equipment and desired functions.

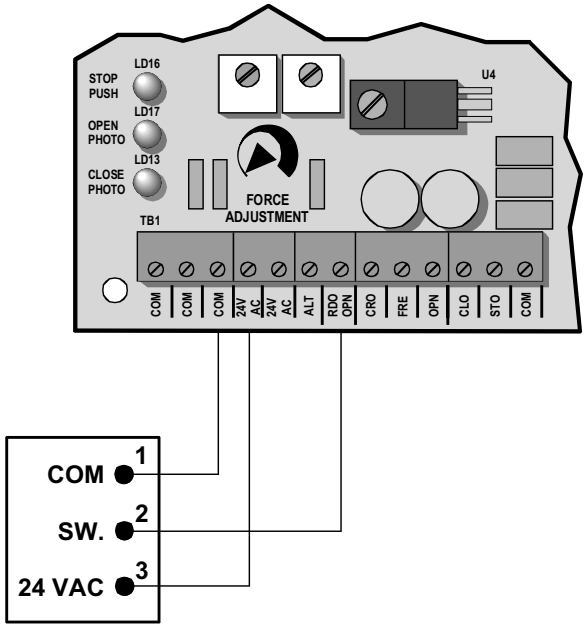
1. Choose one of the options below for connecting a **three-wire** radio control receiver to the control board terminal strip.

CONNECTION FOR OPEN/CLOSE OPERATOR



Three Wire Radio Reciever Wired For "OPEN/CLOSE"

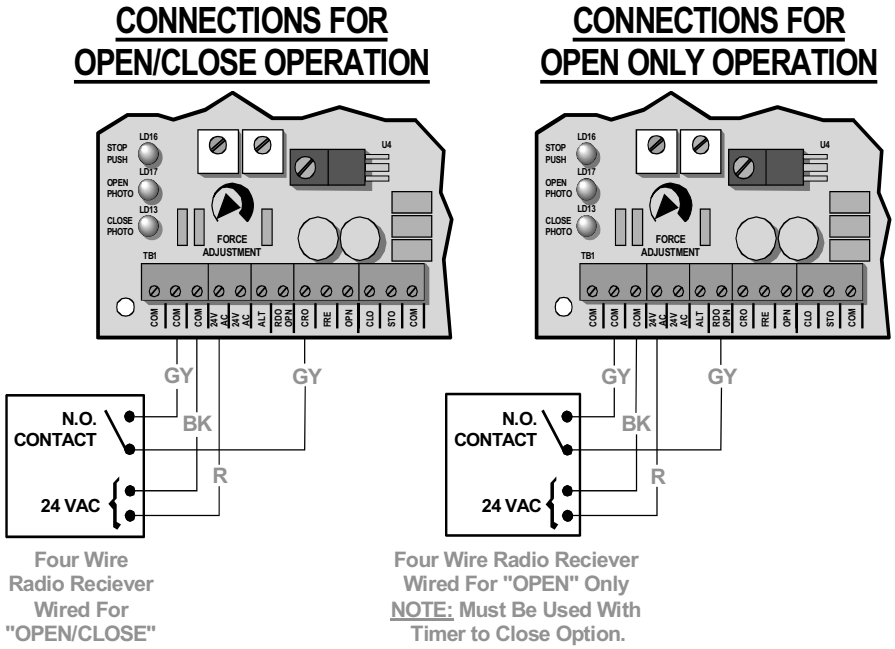
CONNECTION FOR OPEN/ONLY OPERATOR



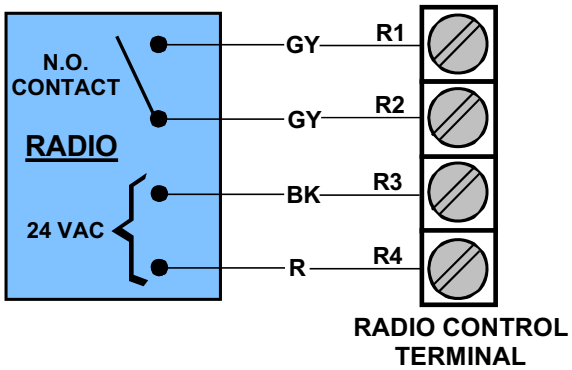
Three Wire Radio Reciever Wired For "OPEN" Only
NOTE: Must Be Used With Timer to Close Option.

2. Choose **ONE** of the options below for the connection of a **FOUR-WIRE** radio control receiver to the control board terminal strip.

NOTE: If your radio's connecting wires are not color coded as shown, see the radio's installation manual to determine which wires are for the normally open contacts and which require the 24 VAC Power Supply.



1. For electrical connections of a four-wire radio receiver via the external terminal strip. See below.



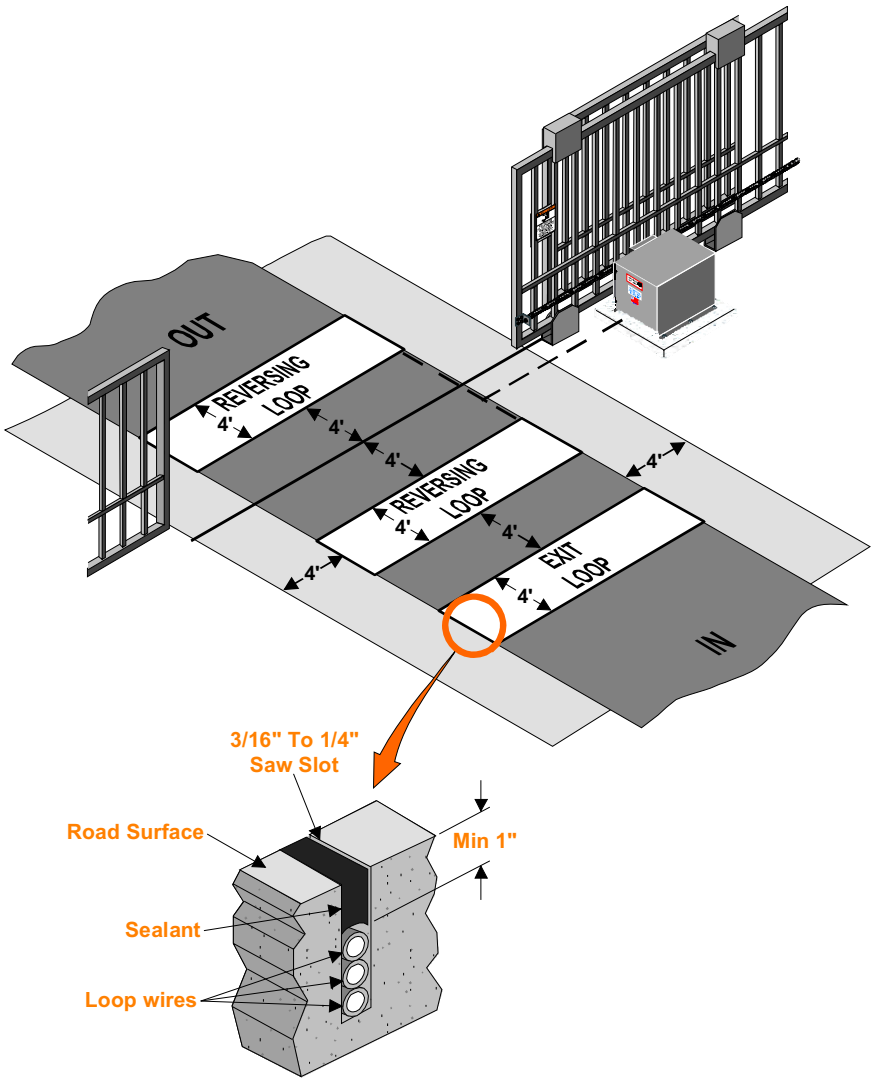
NOTE: Internal wiring for the radio control terminal strip is factory set-up for the OPEN ONLY option. For the OPEN/CLOSE option, move the wire on the control board terminal strip from the "RDO OPN" terminal to the 'CRO" terminal.

LOOP DETECTOR SYSTEMS AND INSTALLATION

The diagram below depicts the typical loop options for a Slide Gate installation.

1. The **Exit Loop** provides a signal to open the gate when a vehicle enters the loop zone.

2. **The Reversing Loops protect a vehicle in the loop zone from being contacted with the gate by overriding any close signal while the gate is open, and by reversing the gate if closing.**



LOOP INSTALLATION

1. Layout the desired loop locations per the diagram. The standard size chart below will give an approximate length of wire required for various loop dimensions and number of turns required.

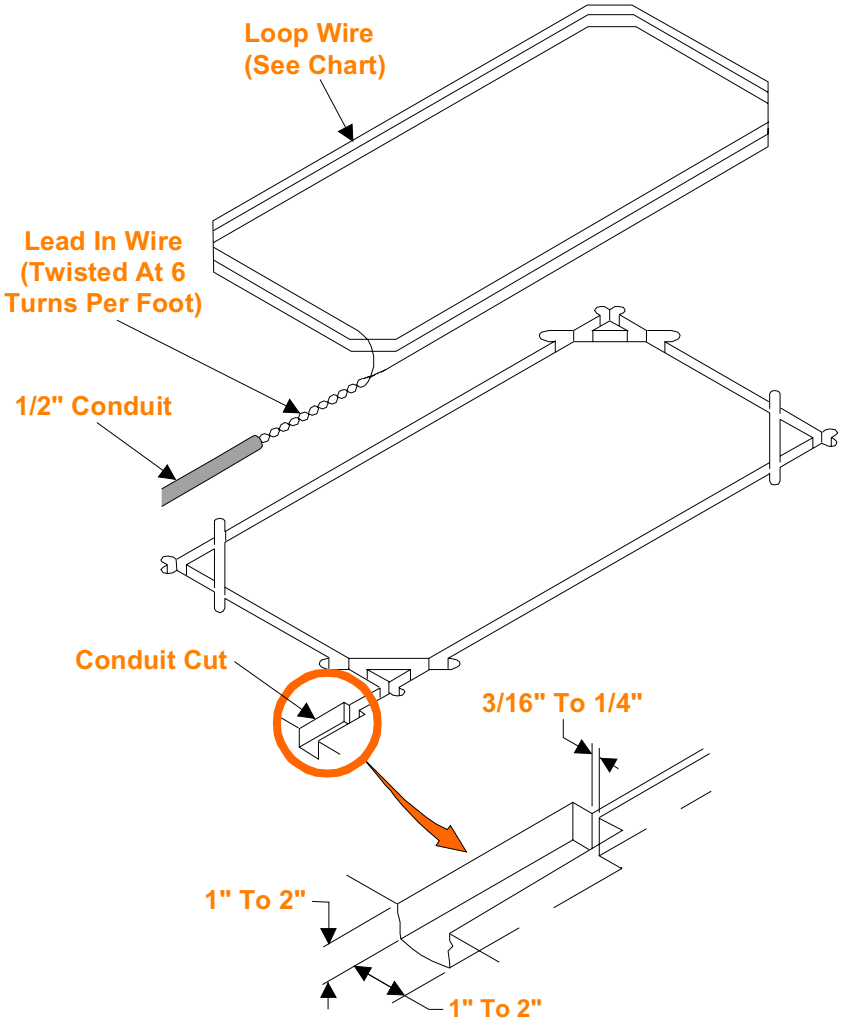
CAUTION: The Loop wires and Lead-in wires must be a continuous piece of wire without splices. Only use wire intended for this type of application. (Type XHHW insulation 16AWG)

NOTE: Buried steel from drains or other systems may affect functioning of the loop system. Check with the factory for advice on any special installations. **(1-800-243-4476).**

STANDARD LOOP LAYOUTS
FOR APPROX 36" HEIGHT DETECTION

LOOP SIZE	# OF TURNS	LOOP WIRE LENGTH (FT)
4'X4'	4	64'
4' X 6'	4	80'
4' X 8'	3	72'
4' X 10'	3	84'
4' X 12'	3	96'
4' X 14'	3	108'
4' X 16'	3	120'
4' X 18'	3	132'
4' X 20'	3	144'
4' X 22'	3	156'
4' X 24'	3	168'
4' X 26'	3	180'
4' X 28'	3	192'
4' X 30'	2	136'
4' X 32'	2	144'
4' X 34'	2	152'
4' X 36'	2	160'
4' X 38'	2	168'
4' X 40'	2	176'

2. Cut the required groove as shown in the diagram below at the locations laid out in **Step #1.**



3. Leaving enough wire for the **LEAD IN,** insert the specified number of turns of wire in the cut grooves. (See chart).

CAUTION: Be careful not to damage the wire insulation during installation.

4. After completing the required number of loop turns, twist the ends together at the rate of **6** turns per foot to form the **LEAD-IN.**

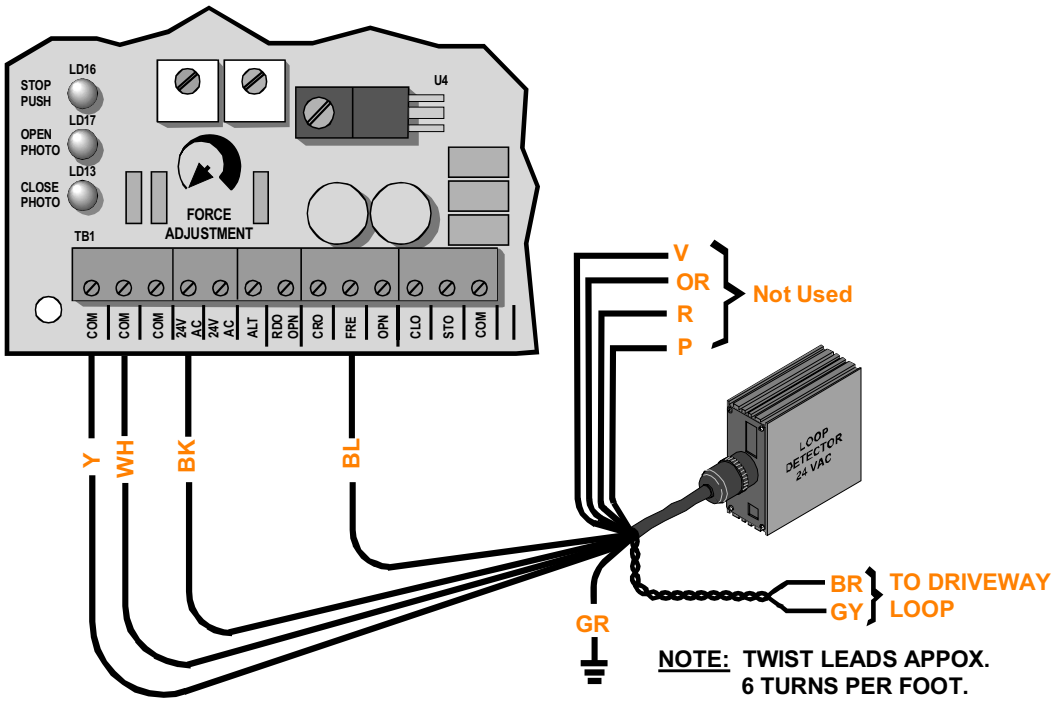
5. Seal the **LEAD-IN** wire in the conduit to prevent moisture seepage into the conduit.

6. Fill over the loop wires in the groove with a recommended loop sealant. Contact your distributor for available sealants.

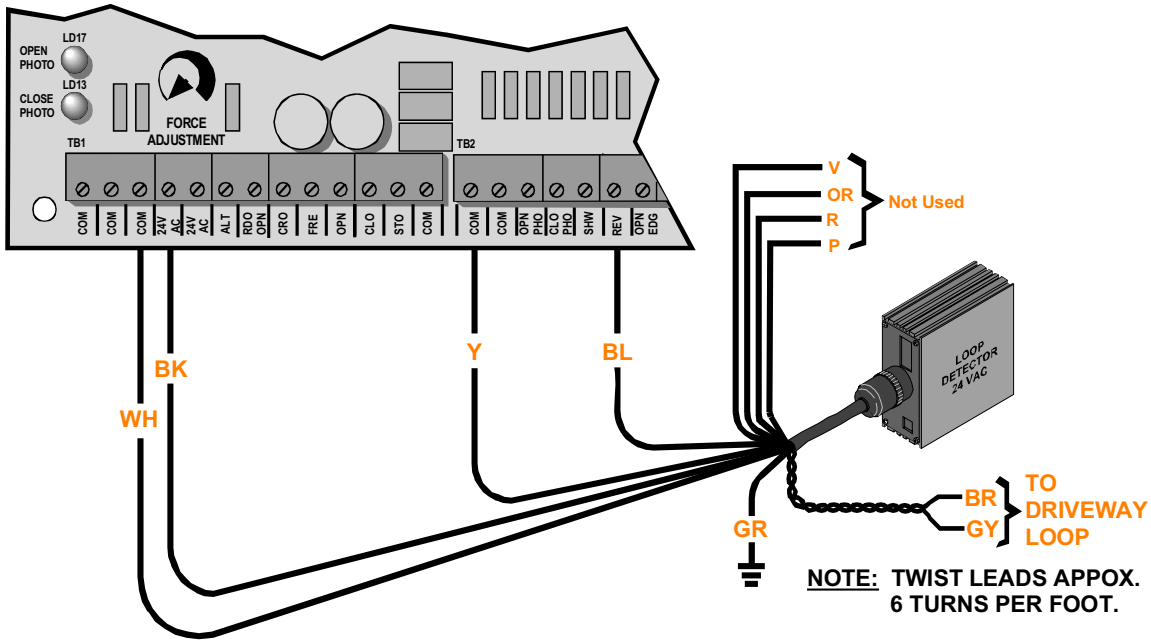
7. Mount the loop detector in the operator and connect the wire loop.

8. Connect loop detector to the control board as shown in the following diagrams.

EXIT LOOP CONNECTION



REVERSING LOOP CONNECTION



SAFETY DEVICE CONNECTIONS

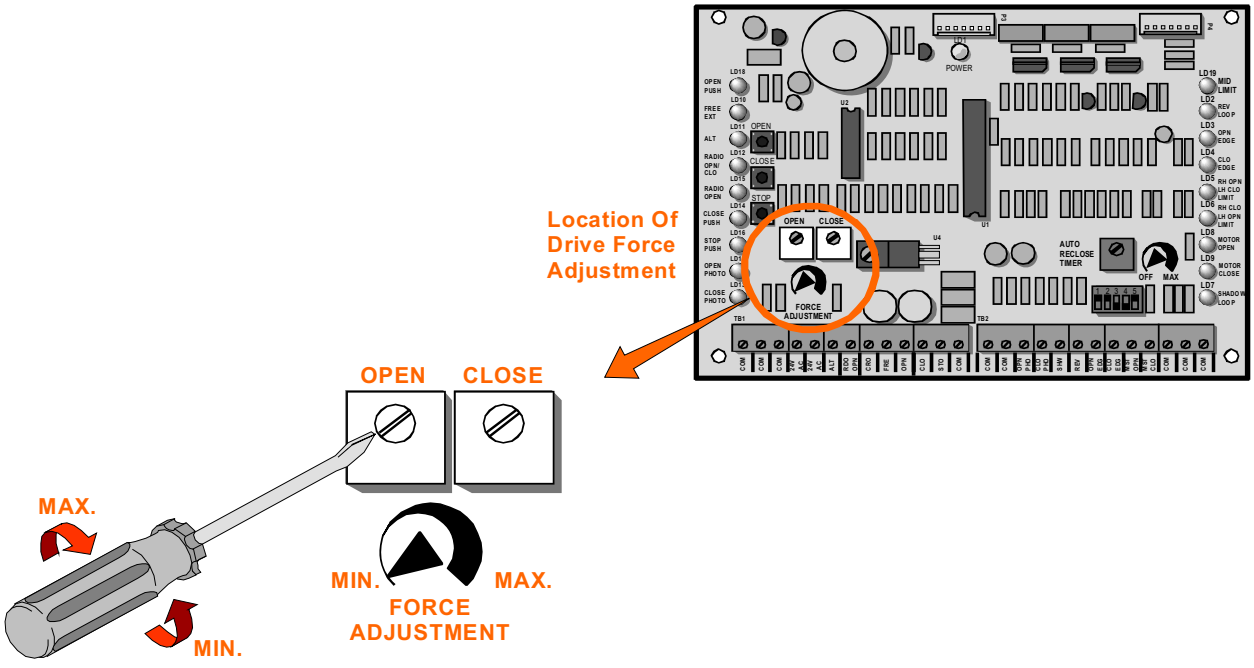
INHERENT OBSTRUCTION SENSING DEVICE:

NOTE: The gate **MUST** move smoothly and easily in manual operation before attempting this adjustment.

WARNING: TURN OFF POWER TO OPERATOR WHEN MAKING ANY ADJUSTMENTS.

This unit is supplied with a speed sensing system, which will stop the gate when it encounters an obstruction and then backs the gate off approximately 2 inches. If the gate is started again and a second encounter occurs before hitting a limit switch, the gate will stop and sound a warning signal. A constant pressure control will then be needed to start the gate. This sensing system has sensitivity adjustments located on the printed circuit board. The force required to activate the system may be adjusted in both **OPEN** and **CLOSE** directions separately. Start at minimum and increase force setting until it is just over what is required to move the gate smoothly without any nuisance tripping.

WARNING: NEVER INCREASE FORCE SETTING TO MAKE UP FOR A GATE THAT IS NOT MAINTAINED PROPERLY. THIS WILL DESENSITIZE THE OPERATION OF THE SAFETY SYSTEM.



SECONDARY OBSTRUCTION SENSING DEVICES

Another sensing device (Either a contact or a non-contact system) must be installed and connected to this unit to increase protection against entrapment per U/L requirements.

NOTE: All safety device contacts must be **NORMALLY OPEN.**

NOTE: 24 VAC power is available at marked terminals for devices that may require it (i.e., photo eyes, wireless edges, etc).

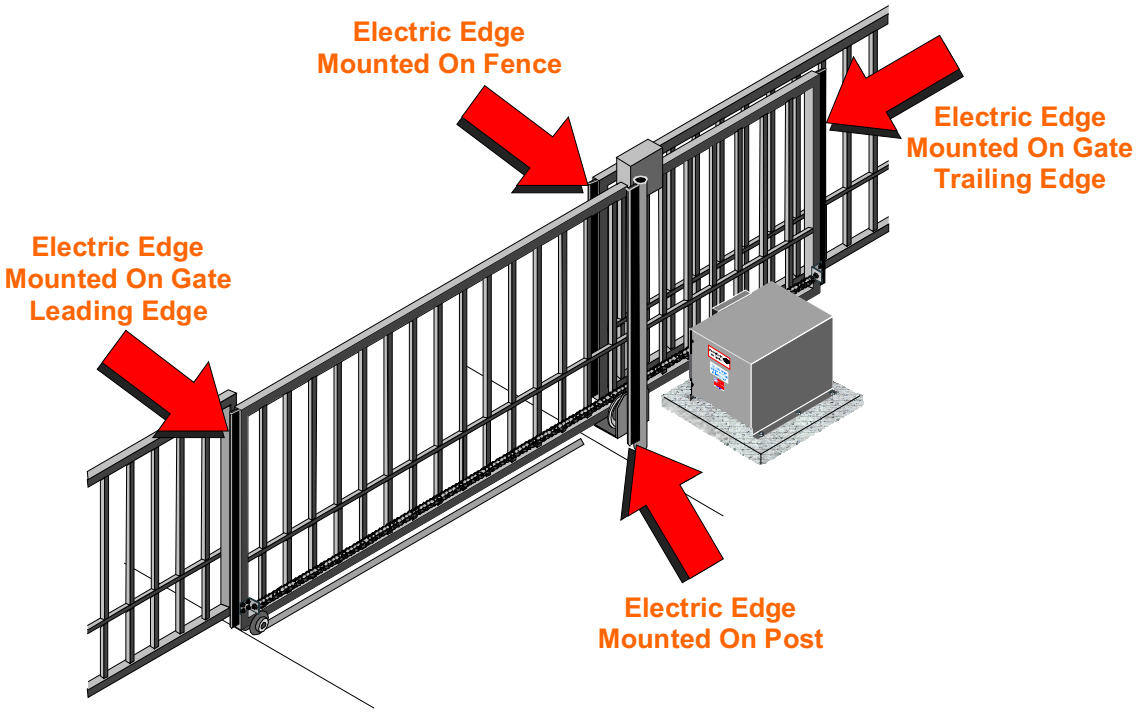
CONTACT SENSOR INSTALLATION:

NOTE: Wireless sensors must be installed so there is no signal interference.

NOTE: All hard wiring to safety edges must be installed so there is no threat of mechanical damage to wiring between components, when the gate is moving.

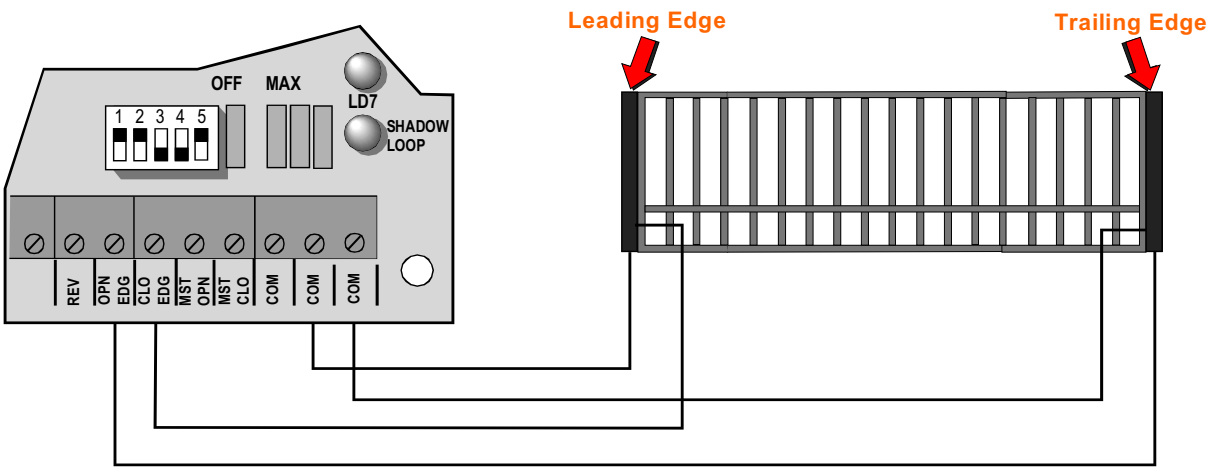
1. Install electric edge sensors in locations shown below.

NOTE: A separate pedestrian gate must be installed if there is no other entry access but the vehicular gate.



2. Connect contact sensor edges to the control board as shown in the illustration below.

CONTACT SENSOR CONNECTION



NOTE: Leading edge is connected to **"CLO EDG"** and **"COM"** terminals. Trailing edge, Post Mounted edge and Fence Mounted edge are connected to **"OPN EDG"** and **"COM"** terminals.

3. After sensors are mounted and electrically connected, turn on the power.

4. Test the close obstruction sensing system for proper operation, by depressing the leading edge sensing strip while the operator is running closed.

NOTE: The operator should stop and reverse a short distance and then stop.

5. Run the operator to the close limit.

6. Test the open obstruction sensing system by depressing one of the other three edge sensors while the gate is opening.

NOTE: The operator should repeat the STOP AND REVERSE procedure.

8. Run operator to the close limit and repeat step #6 for the other two edges.

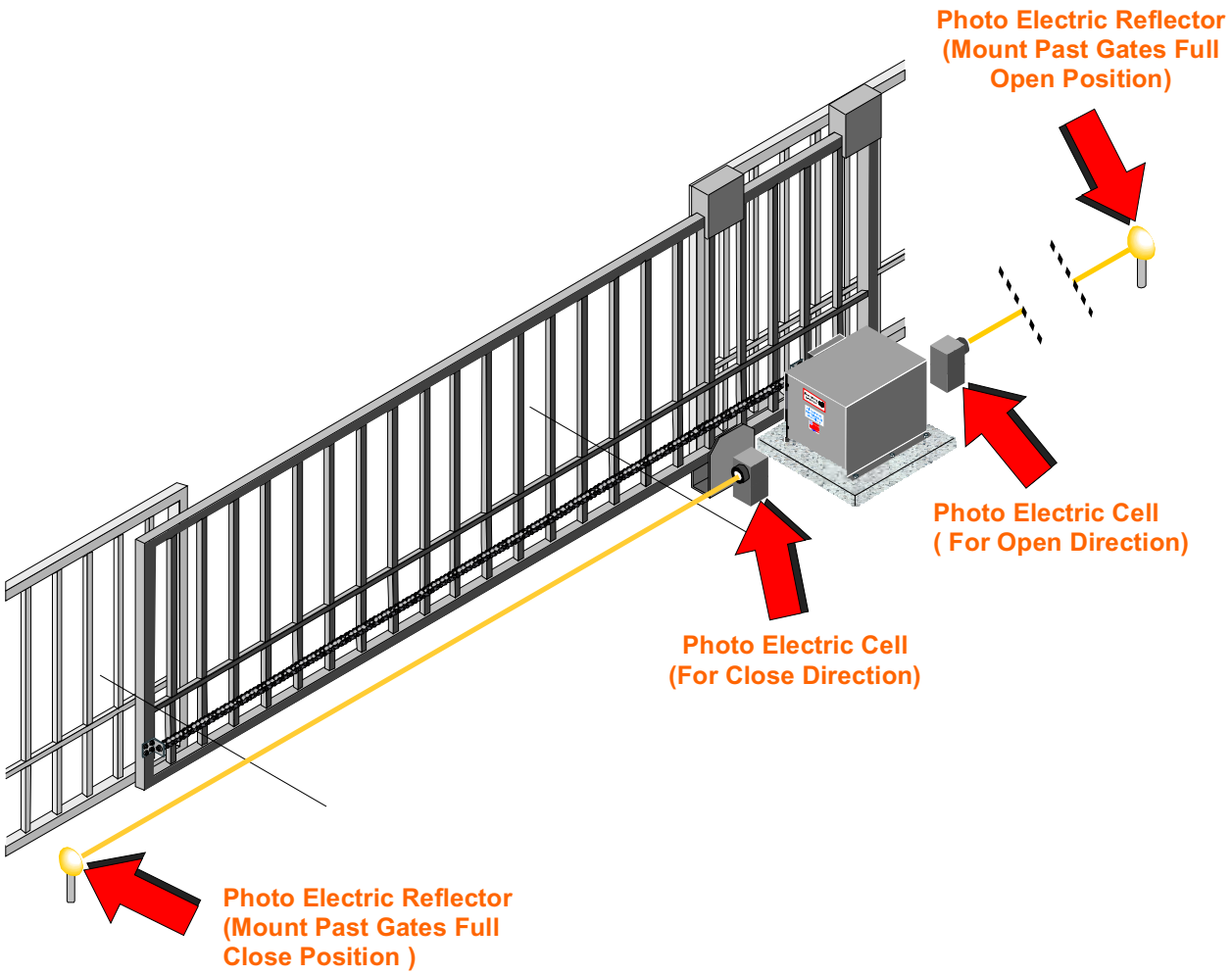
NOTE: If an edge is activated twice or a second edge is activated before a limit is hit (full open or close) operator will stop and sound a warning horn. To reactivate system turn operator power switch off then on.

NON-CONTACT SENSOR INSTALLATION

1. Install photoelectric cell as close to inside of gate as possible.

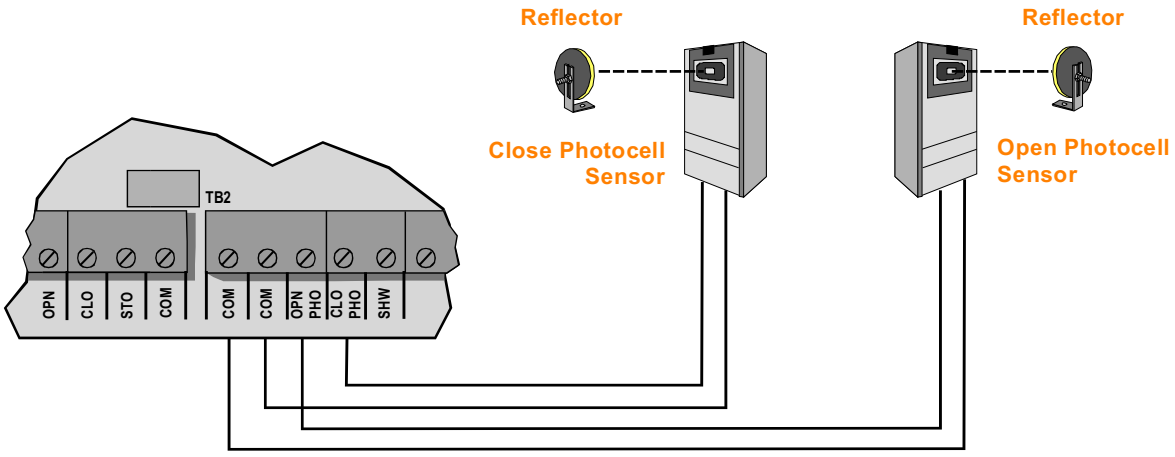
2. Photocells should be installed across the gate opening and behind the gate (as shown below) at least 10 inches above ground.

NOTE: A separate pedestrian gate must be installed if there is no other entry access but the vehicular gate.



3. Connect **NON-CONTACT** sensors to the control board as shown below.

NON CONTACT SENSOR CONNECTION



NOTE: Close photocell is connected to **"CLO PHO" and "COM"** terminals. Open photocell is connected to **"OPN PHO" and "COM"** terminals.

AFTER SENSORS ARE CONNECTED:

1. Turn on power.

2. Make sure the photo-beams are properly aligned per the manufacturer's specifications.

3. Test the **CLOSE** obstruction sensing system for proper operation, by blocking the beam across the gate opening while the gate is running closed.

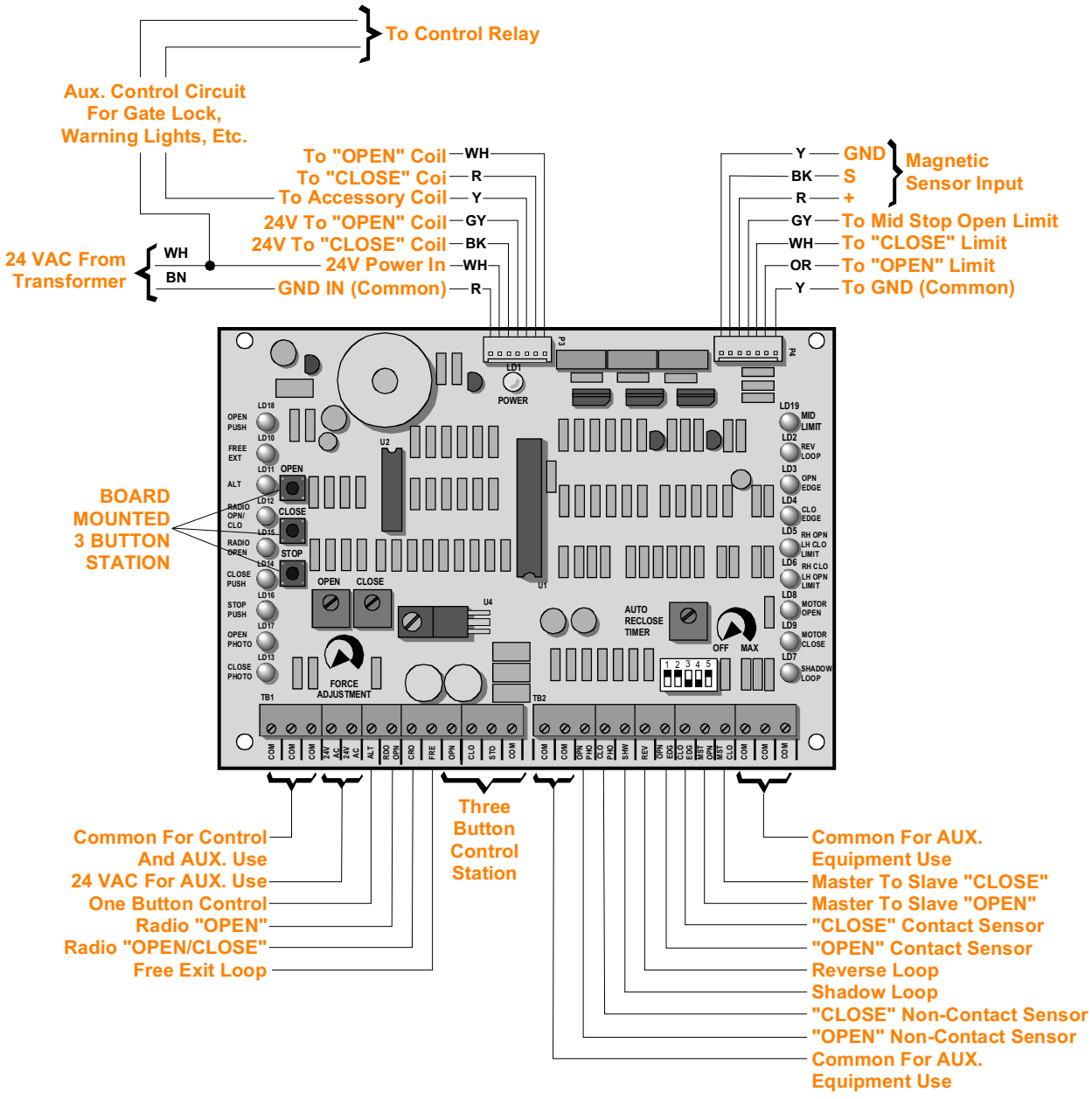
NOTE: The gate should stop and reverse a short distance and then stop.

4. Run operator to close limit.

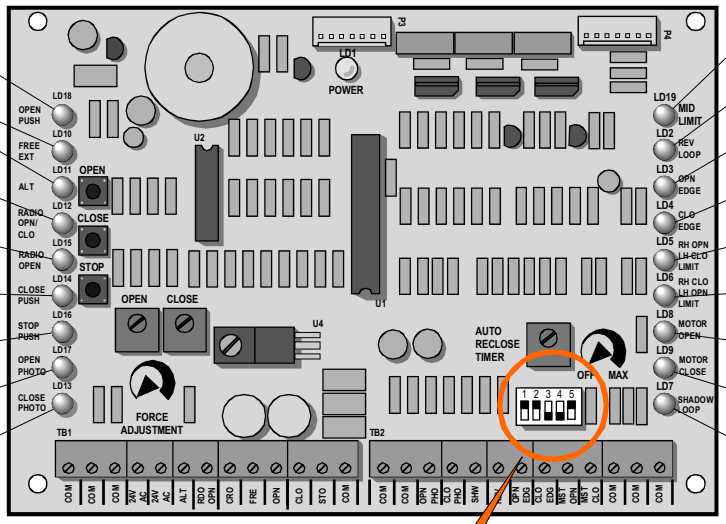
5. Test the **OPEN** obstruction sensing system by blocking the beam mounted at the back area of the gate while the gate is running open.

NOTE: The operator should repeat the stop and reverse procedure.

WIRING TO 2004 UMCB-01 CONTROL BOARD



LED AND DIP SWITCH INFORMATION FOR 2004 UMCB-01 CONTROL BOARD



Open Push button Activated

Free Exit Loop Activated

Single Contact Control Activated

Radio Control Open/Close activated

Radio Control Open Only activated

Close Push Button Activated

Stop Push Button Activated

Open Photo-Eye Activated

close Photo-Eye Activated

Mid-Stop Limit Switch Activated

Reversing Loop Activated

Open Safety Edge Activated

Close Safety Edge Activated

Limit Switch Activated

Limit Switch Activated

Power to Open Contactor coil

Power to Close Contactor coil

Shadow Loop Activated

DIPSWITCHES

S1 - OFF = NORMAL OPEN/CLOSE PB
ON = SAFETY/SECURE MODE

S2 - OFF = RIGHT HAND
ON = LEFT HAND

S3 - OFF = N.O. STOP
ON = N.C. STOP

S4 - OFF = NORMAL
ON = 3 SEC. PRE-MOVE

S5 - OFF = SINGLE OR MASTER MODE
ON = SLAVE MODE

PowerMaster

Limited 5 Year Warranty

PowerMaster warrants all gate operators to be free of defects in materials and workmanship for a period of Five (5) years from date of purchase. If any part is found to be defective during this period, new parts will be furnished free of charge. Failure of this product due to misuse; improper installation, alterations, vandalism, or lack of maintenance are not covered under this warranty, and voids any other implied warranties herein.

PowerMaster is not responsible for any labor charges incurred in connection with the installation of warranted parts.

In order to activate this warranty, the registration form below MUST be completed and returned within THIRTY CALENDER DAYS FROM DATE OF PURCHASE VIA CERTIFIED MAIL. If registration is not activated, a one year warranty will apply.

Registration Information

Model SGI2004
Date Installed_____
Serial # _____
WD# _____

Location Installed:
Address _____
Address _____
Address _____

Installer's Information

Company Name _____
Company Address _____
Company Address _____
Company Address _____
Company Telephone # _____
Company Contact _____

NOTES

MAINTENANCE SUGGESTIONS

Lubricate the drive chain and idler sprocket bearings every 3 months with 30-weight oil. Grease the drive shaft bearings every 6 months with quality grade automotive grease. The Reducer is completely sealed and should not require lubrication. Periodically check all hardware (nuts, bolts, screws, etc) for tightness.

Model SGI2004

Date Installed_____

Serial # _____

Installer's Information

Company Name _____

Company Address _____

Company Address _____

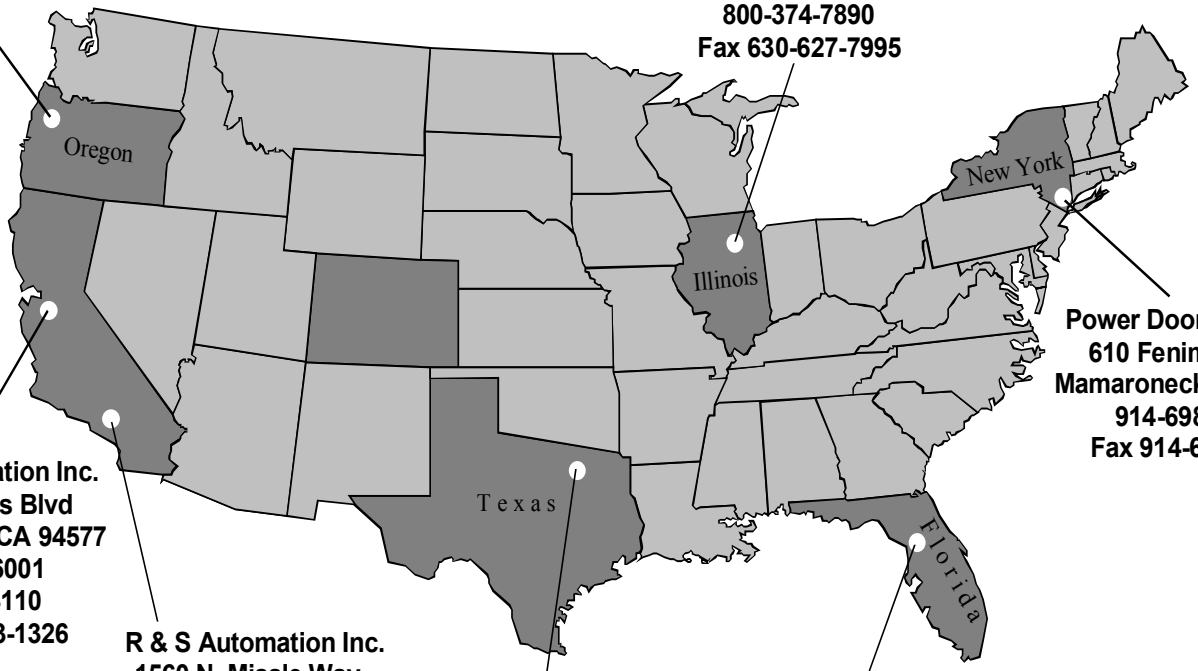
Company Address _____

Company Telephone # _____

Company Contact _____

R&S Automation
7200 E. 92nd Avenue
Unit A
Portland, OR 97266
877-388-4001
503-771-4685
Fax 503-774-6708

John Greene Corp.
2807 Center Circle Drive
Downers Grove. IL 60515
800-374-7890
Fax 630-627-7995



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