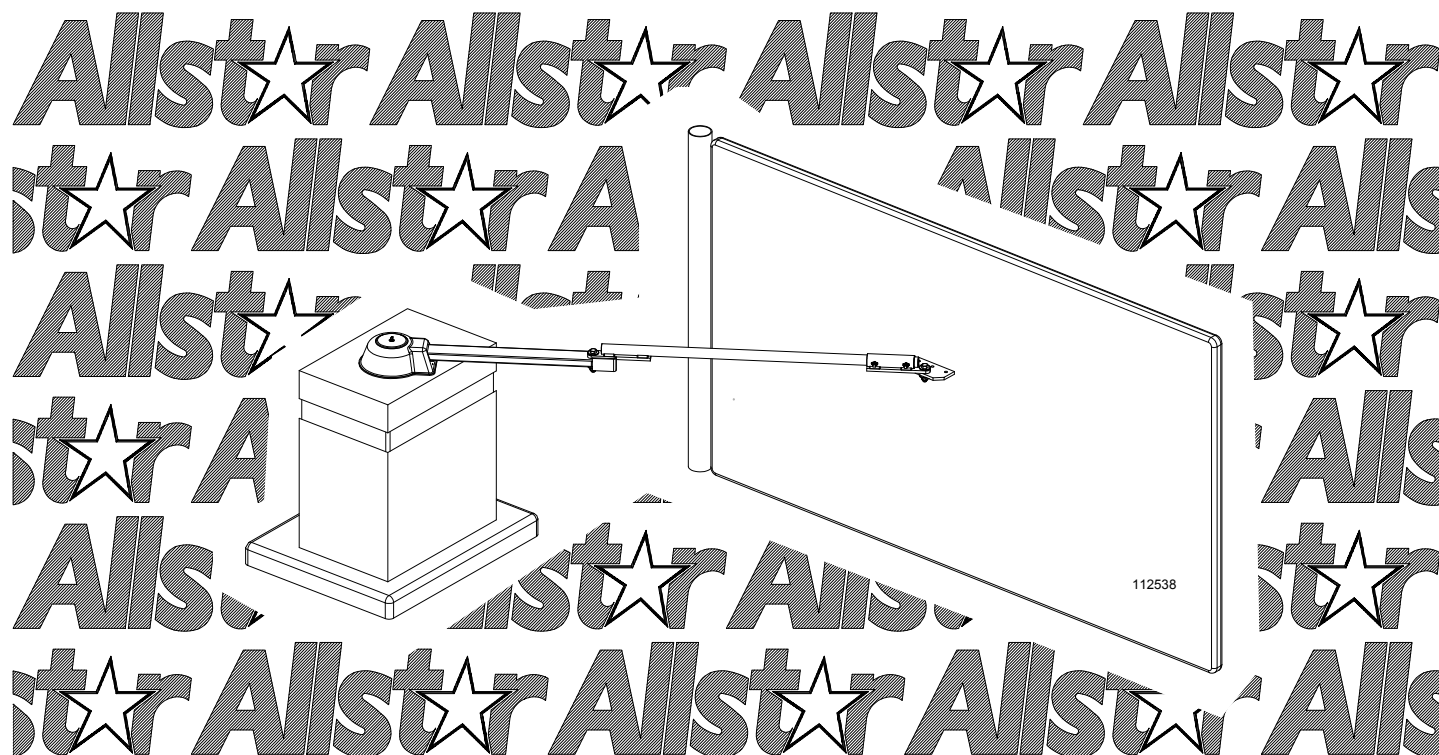


INSTALLATION AND OWNER'S MANUAL

GATE STAR 6000

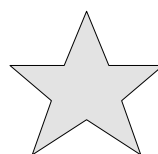
**Model GS6000 - Heavy Duty Commercial
Vehicular Swing Gate Operator**



*Proven
CGA2K™
TECHNOLOGY!*

Serial #:
Date Installed:
Your Dealer:

As of date of manufacture,
meets all ANSI/UL 325
Safety Requirements for
Vehicular gate operators



***READ THIS MANUAL
CAREFULLY BEFORE
INSTALLATION OR USE
SAVE THESE INSTRUCTIONS***

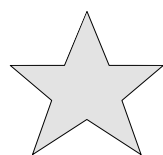
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<div> <div>WARNING HIGH VOLTAGE</div> <div>ONLY A QUALIFIED TECHNICIAN SHOULD SERVICE THIS GATE OPERATOR</div> </div>				
PERIODICALLY TEST SENSITIVITY OF OVERLOAD				*** READ MANUAL ***
LOG DATE OVERLOAD TEST				DATES OPERATOR SERVICED
DATE TESTED	DATE TESTED	DATE TESTED	DATE TESTED	

Figure 1: Test Log



READ THESE STATEMENTS CAREFULLY AND FOLLOW THE INSTRUCTIONS CLOSELY.

The Warning and Caution boxes throughout this manual are there to protect you and your equipment. Pay close attention to these boxes as you follow the manual.

WARNING

Indicates a MECHANICAL hazard of INJURY OR DEATH. Gives instructions to avoid the hazard.

CAUTION

Indicates a MECHANICAL hazard of DAMAGE to your gate, gate operator, or equipment. Gives instructions to avoid the hazard.

WARNING

Indicates an ELECTRICAL hazard of INJURY OR DEATH. Gives instructions to avoid the hazard.

CAUTION

Indicates an ELECTRICAL hazard of DAMAGE to your gate, gate operator, or equipment. Gives instructions to avoid the hazard.



The Gate Star 6000 (GS6000) Vehicular Gate Operator will provide convenience and assurance to the ultimate users for many years. It is ruggedly built of the finest materials and has been thoroughly inspected and tested at the factory. It has many features that will aid in the installation and testing of the complete gate system. The GS6000 is certified to comply with UL Standard for Safety - UL325. (115 Volt version only).



NOTICE - BEFORE ATTEMPTING INSTALLATION, READ THIS MANUAL CAREFULLY SO YOU WILL BE THOROUGHLY FAMILIAR WITH THE FEATURES OF THE GS6000 AND ITS PROPER INSTALLATION PROCEDURES.

The GS6000 Vehicular Swing Gate Operator is designated a Class I Residential Vehicular Swing Gate Operator, and is intended to operate a vehicular swing gate installed on a residential home, maximum of four single families in the dwelling, or a garage or parking area associated with that home. The GS6000 vehicular gate operator is also designated Class II (Commercial location or multi-family home); III (industrial location not intended to service the general public); and IV (secure or restricted access locations, ie. airports and prisons). The GS6000 may be used in any Class location.

Because the GS6000 (as well as gate operators sold by other manufacturers) is designed to start and move gates weighing as much as 1100 pounds,---the GS6000 is capable of producing high levels of force. It is important in the design of the total gate system that designers, installers and users be aware of the hazards that may be associated with the **IMPROPER** design, installation and use of Vehicular Gate systems and Gate Operators.

The gate operator is only one part of a complete automatic gate operating system. As each location and usage is different, a properly designed system will include all applicable safety devices.

The GS6000 CGA2K™ Technology provides several features that can help reduce the hazards of your gate system.

Built-In Overload Detector Sensing System

The GS6000 has a built-in "overload detector" that can help reduce the hazards of your gate system. This device, however, must not be considered as the primary defense system. Consider all available options (electric leading edges, photoelectric sensors, protective screen mesh, etc) to eliminate hazards in your gate system design.

The GS6000 built-in overload detector will activate if there is an abrupt increase in motor current above that normally required to move the gate. The overload detection point is an adjustable setting that must be determined at the time of installation. This setting must be tested periodically to ensure proper operation. Diligent maintenance of the gate hinges and hardware will assure the most responsive operation of the overload detector. See pages 16 & 20.

ADVISE THE PURCHASER TO CHECK THE SENSITIVITY OF THE OVERLOAD PERIODICALLY AND LOG THE DATE TESTED ON THE LOG LOCATED ON PAGE TWO OF THIS MANUAL (See Figure 1, pg. 2.)

The GS6000 is also provided with a Torque Limiter that may be adjusted to "slip" when an obstruction is encountered. However, the purpose of the Torque Limiter is to protect the GS6000 mechanical parts. Whether the overload is activated before the Torque Limiter slips will depend upon the "tightness" of the adjustment of the Torque Limiter. This adjustment will be explained in the final check out of the GS6000.

Connections for External Entrapment Prevention Sensors

Because all gate system installations are different, the GS6000 control panel provides independent connections for Open and Close non-contact (photoelectric) and contact (edge) sensors. In this way a photoelectric sensor could be utilized to guard the gate area when closing and an edge sensor would provide the protection when opening. Depending on the particular application a combination contact and non-contact sensor protection system for the open and close directions may provide more effective entrapment protection than a single device for both directions. See pages 4, 5, 14, 15, 16, 20, 25, 26, and 27.



NOTICE - THE IMPORTANT SAFEGUARDS AND INSTRUCTIONS IN THIS MANUAL CANNOT COVER ALL POSSIBLE CONDITIONS AND SITUATIONS WHICH MAY OCCUR DURING ITS USE. IT MUST BE UNDERSTOOD THAT COMMON SENSE AND CAUTION MUST BE EXERCISED BY THE PERSON(S) INSTALLING, MAINTAINING AND OPERATING THE EQUIPMENT DESCRIBED HEREIN. DO NOT USE THIS EQUIPMENT FOR ANY OTHER THAN ITS INTENDED PURPOSE — OPERATING A SWING GATE.

Audio Alarm and Safe Secure™ Open/Close Push Button Enable-on-Alarm Only (Patent No. 6,611,205)

The GS6000 has an audio alarm that sounds when a second occurrence of the built-in overload activation is registered before an end limit (open or close) is reached. The alarm continues to sound warning until a fixed wire input is activated or five (5) minutes pass. As with the built-in overload detector, diligent maintenance of the gate hinges and hardware will avoid nuisance operation of the overload detector and thereby avoid nuisance operation of the audio alarm. The patented Safe Secure™ Open/Close Push Button Enable-on-Alarm Only feature can be set to provide a secure control station that will be functional in an emergency situation. See pages 19 and 20.

SMART™ Self-adjusting MAXimum Run Timer

The GS6000 has a Self-adjusting MAXimum Run Timer, SMART™. The amount of time for the first few cycles of operation are registered and averaged within the motor controller circuitry. After the first few initial cycles, if the gate is activated and no other command is given or an end limit (open or close) is not reached in the previously counted cycle time plus approximately 4 seconds, the operator will be turned off. See page 22.

OTHER FEATURES

Auto Close Timer: Adjustable from 2 to 60 seconds, provides an automatic closure of the gate from the full open position. See page 19.

Timer Re-close On/Off Switch: Enables an automatic closure of the gate from a partially closed position if the close movement was initiated by the Auto Close Timer and the close cycle was interrupted by a non-contact (photoelectric) sensor input. See page 19.

Diagnostic LEDs on the Motor Controller Board: Provides a visual indication of the status of the gate system operation. See page 21.



WARNING!

TO REDUCE THE RISK OF SEVERE INJURY OR DEATH: READ AND FOLLOW ALL INSTALLATION INSTRUCTIONS AND GATE SYSTEM DESIGN PARAMETERS!

GATE SYSTEM DESIGN AND INSTALLATION SAFETY CHECK LIST:

- The GS6000 operator may be installed on a Class I, II, III, or IV Vehicular Swing Gate. See page 3 for an explanation of the different Class locations. See the last page of this manual for the operator specifications (voltage, maximum gate weight & length etc.).
- Make sure that the gate moves freely, all hinges are in good working order, the gate does not bind in any manner and the gate swing area is clean and free of irregularities. **DO NOT INSTALL THE OPERATOR UNTIL ALL GATE PROBLEMS HAVE BEEN CORRECTED.**
- Do not increase the built-in overload detector adjustment or overtighten the torque limiter to compensate for a poorly working gate. A well maintained gate will ensure easy manual operation (if needed) and maximum operator obstruction sensitivity.
- Install the operator on the inside of the property/fence line. **DO NOT** install an operator on the public side of the fence line or gate. Outward swinging gates should not open into public areas.
- The gate must be installed in a location so that enough clearance is supplied between the gate and any adjacent structures when opening and closing to reduce the risk of entrapment.
- Make sure the gate operating system is placed far enough back from the road to eliminate traffic backup. The distance from the road, size of the gate, usage level and gate cycle/speed must be taken into consideration to eliminate potential hazards.
- For ORNAMENTAL “GRILL TYPE” GATES (or any other type of

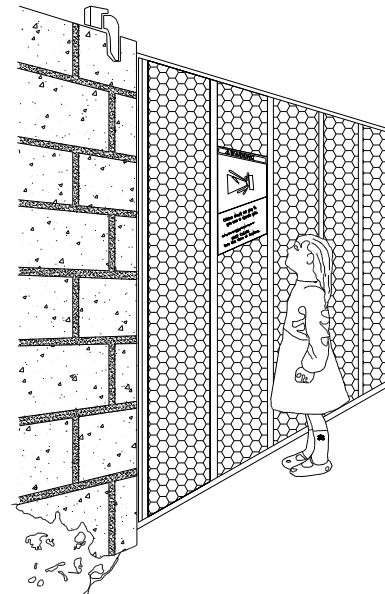


Figure 2

open gate where a handhold or toehold may be achieved), injuries may occur when people put arms through the openings or children “ride” the gate by standing on the bars and holding on to the gate. **THIS POTENTIAL HAZARD CAN BE MINIMIZED BY INSTALLING A MESH SCREEN ON THE GATE.** The manufacturer strongly recommends the entire gate and adjacent fence area the gate covers when open be meshed or guarded such that a handhold or toehold cannot be achieved. See Figure 2.

- The gate operator as described in this manual is a **VEHICULAR GATE OPERATOR** and as such is **NOT INTENDED FOR PEDESTRIAN** traffic. In installations where pedestrian passage through the fence is necessary, install a pedestrian access opening. The pedestrian access opening shall be designed to promote pedestrian usage. Locate the vehicular gate and the pedestrian access opening such that persons will not come into contact with the vehicular gate during the entire path of travel of the vehicular gate. See page 26 for additional information.
- Install leading edge detectors and/or photocells in your design to protect system entrapment zones. These devices can be provided for incorporation in your gate system design.
- Use the illustration at left (Figure 3) and the information and diagrams on pages 14, 15, and 16 to minimize the risk of injury in your design of the swing gate operator system. **IDENTIFY THE ENTRAPMENT ZONES AND PINCH POINT AREAS IN YOUR GATE.** Design the gate installation to minimize the risk of entrapment in these areas. Install additional safety equipment such as edge sensors and photocells to further minimize risk. All entrapment zones are required to be protected.
- **Entrapment Zones:** Design in personal entrapment protection devices to protect people from entrapment in the zones shown in Figure 3 and the information and diagrams on pages 14, 15, and 16.

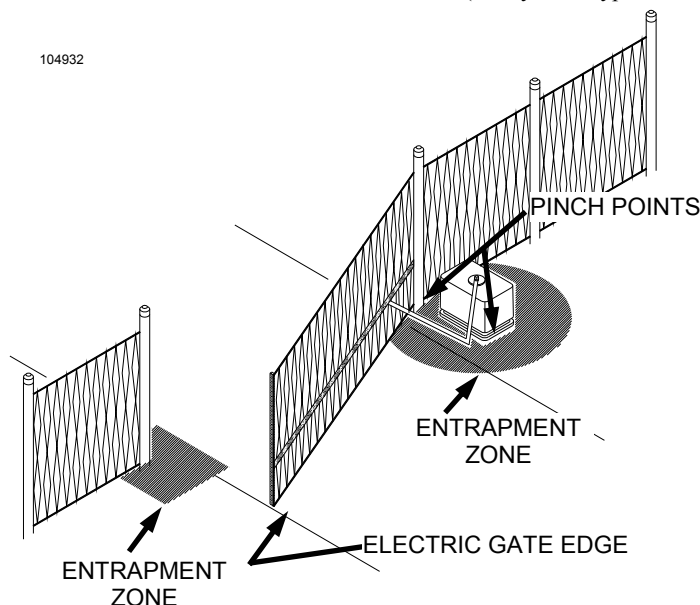


Figure 3



- **Pinch Points:** Use protective measures (guards, padded edges, etc.) to protect people from the pinch points shown in Figure 3 and the information and diagrams on pages 14, 15, and 16. Attach roller guards in cantilevered gate systems to minimize the risk of hands being caught between the top of the gate and the roller.
- **SWING GATES HAVE THE POTENTIAL HAZARD OF HANDS AND FINGERS BEING PINCHED** between the gate edge and the post to which the gate is mounted. It is recommended that the hinges be mounted so that this opening increases as the gate swings open. **PROTECT THIS "PINCH POINT" SO THIS HAZARD IS AVERTED.** See Figure 3.
- **CONSIDER ALL OTHER "PINCH POINTS" IN YOUR DESIGN** of the gate system. Observe the arm as it opens and the two arm pieces swing past each other. Use protective measures to reduce hazards at this location. Restrict access to the arm motion. See Figure 3.
- **DO NOT** consider the built-in overload detector as the primary defense system. Consider all options in the gate system design.
- **DO NOT** connect any auxiliary equipment to the GS6000 (detectors, card readers, etc.) until the gate operator and all its functions are fully tested. Only connect one device at a time and ensure its proper function(s) before moving on to the next device.
- **DO NOT** locate any control device (key switch, switch, key pad, card reader, etc.) in a position where it may be activated by a person reaching through the gate or while touching the gate in any manner. Locate all control devices a minimum of 10 feet from the gate when opened or closed.
- Outdoor or easily accessible controls must be of the security type to prevent unauthorized use of the system.
- Install all devices that will Open, Close or Stop the gate in such a manner that THE GATE WILL BE IN FULL VIEW WHEN THE DEVICE IS OPERATED.
- Before activating the "timer to close" option of the GS6000, ENSURE THE PERSONAL ENTRAPMENT PROTECTION DEVICES (operator reversing feature, edges, photocells) ARE OPERATING and install VEHICLE DETECTOR LOOPS AND VEHICLE DETECTORS for protection of user vehicles. Read the manual for information on the installation of these devices. IF VEHICLE DETECTOR LOOPS HAVE BEEN INSTALLED TO PREVENT THE GATE FROM CLOSING ON A VEHICLE, INSTRUCT THE USER TO PERIODICALLY CHECK THE OPERATION OF THE DETECTORS.
- **USE EXTREME CAUTION WHEN WORKING NEAR THE BELTS AND PULLEYS** when the operator cover is removed. Apply power to the operator only when instructed to do so.
- When the GS6000 cover is removed, high voltage is exposed in the control box area. **EVEN IF THE RED POWER LIGHT IS NOT LIGHTED, HIGH VOLTAGE AC MAY STILL BE PRESENT. NEVER LEAVE THE INSTALLATION WITH THE COVERS REMOVED.**
- **ALWAYS TURN OFF THE POWER BEFORE ATTEMPTING SERVICE OF EITHER THE ELECTRICAL OR MECHANICAL SYSTEMS.**
- **SECURELY ATTACH THE WARNING SIGNS** provided with the GS6000 on the gate (one on the outside and one on the inside) where they can be seen by persons in the area of the gate to alert them of automatic gate operation. (If the user refuses to have the warning signs installed, Allstar recommends that you note this on your

records and have the user sign a disclaimer.) See Figure 4.



Figure 4

AS THE INSTALLER YOU ARE RESPONSIBLE FOR:

- 1 **ASSURING THAT THE GATE AND OPERATOR SYSTEM, WHEN FULLY INSTALLED AND OPERABLE, COMPLIES WITH ALL APPLICABLE REQUIREMENTS OF UL325: STANDARD FOR SAFETY FOR DOOR, DRAPERY, GATE, LOUVER AND WINDOW OPERATORS AND SYSTEMS.**
- 2 **ASSURING THAT THE OWNER/END USER OF THE SYSTEM UNDERSTANDS ITS BASIC OPERATION AND SAFETY FEATURES. IN PARTICULAR, BE SURE THE OWNER/END USER UNDERSTANDS THE LOCATION AND OPERATION OF A MANUAL DISCONNECT (WHERE PROVIDED) OR HOW TO OPERATE THE GATE MANUALLY.**
- 3 **YOU ALSO HAVE THE PRIMARY RESPONSIBILITY OF INSURING THAT ALL POSSIBLE OPERATIONAL HAZARDS HAVE BEEN CONSIDERED AND ELIMINATED. YOU MUST ADVISE AND WARN THE PURCHASER AND THE ULTIMATE USER OF ANY HAZARDS THAT YOU HAVE NOT BEEN ABLE TO ELIMINATE.**
- 4 **POINTING OUT TO THE OWNER/END USER OF THE GATE SYSTEM THAT CHILDREN OR PETS ARE NOT ALLOWED TO PLAY ON OR NEAR THE GATE, FENCE OR ANY PART OF THE SYSTEM, AND THAT THE SAFETY INSTRUCTIONS SUPPLIED WITH THIS OPERATOR AND THEIR IMPLEMENTATION ARE THE RESPONSIBILITY OF THE OWNER/END USER.**
- 5 **LEAVING THE INSTALLATION AND MAINTENANCE MANUAL FOR THIS OPERATOR AS WELL AS ANY ADDITIONAL SAFETY INFORMATION SUPPLIED WITH THIS OPERATOR OR OTHER COMPONENTS OF THE GATE SYSTEM WITH THE OWNER/END USER.**
- 6 **NOT PLACING IN SERVICE THIS OPERATOR IF YOU HAVE ANY QUESTIONS ABOUT THE SAFETY OF THE GATE OPERATING SYSTEM. CONSULT THE OPERATOR MANUFACTURER.**



THE CONCRETE PAD

The standard GS6000 is designed to operate a single leaf gate. Installation requires the presence of a suitable concrete pad as a base for the operator. The dimensions of this pad should be sufficient to allow at least 3" of clearance from each edge of the pad to the nearest operator mounting hole. The top of the pad should be 3" above grade to raise the operator above any standing water, while the depth of the pad below grade is dependent on the weight and size of the gate and the soil conditions at the site of the installation. **THE SITE FOR THE OPERATOR SHOULD BE CHOSEN WITH AT LEAST 26" OF CLEARANCE ABOVE THE TOP OF THE UNIT TO ALLOW FOR COVER REMOVAL.**

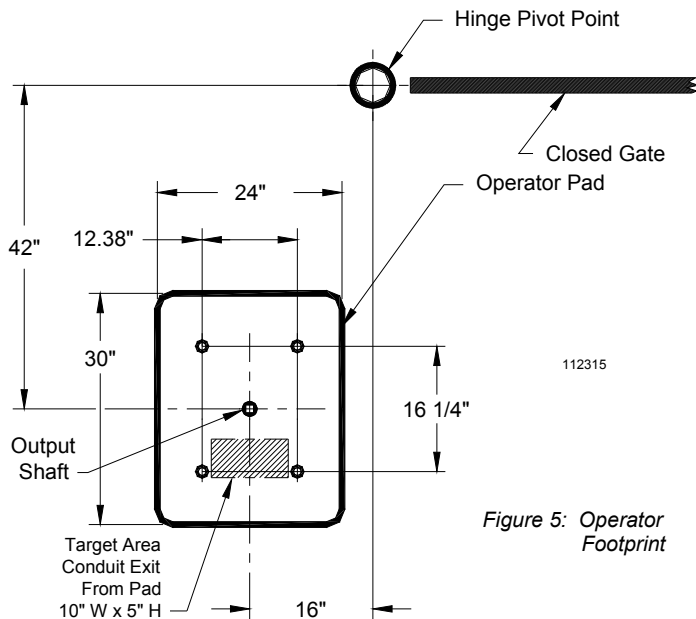
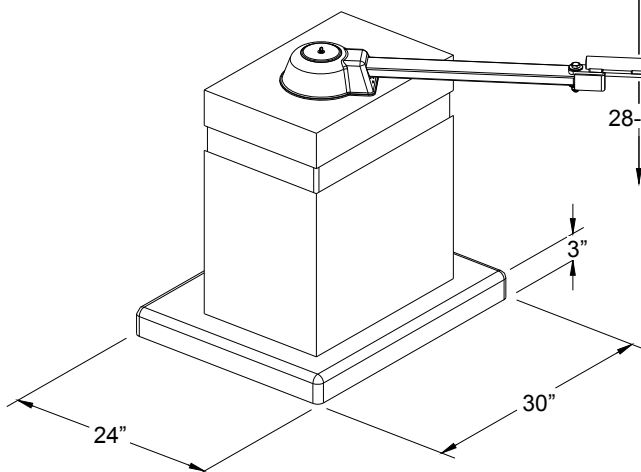


Figure 5: Operator Footprint

If no suitable concrete base exists, a pad must be poured. After completing the gate installation, place the operator pad at the appropriate location as illustrated in Figures 5 and 6. Consult local building codes for depth of base. Typical depths range from 24" to 36". In either case, if vehicles are going to be operated in the vicinity of the operator, consider installation of protective bollards in front of the operator.



To properly install a bi-parting gate system, it is necessary to use two (2) GS6000 operators in your design, one unit on each side of the opening. The operators can be linked via the control circuitry for Primary/Secondary (Master/Slave) operation. It is necessary to run an additional low voltage conduit between the two units. If desired, the service conduits can be routed up through the concrete pad. The conduits should exit the concrete pad in the 5" x 10" target area as illustrated in Figure 5. The end of the conduits should protrude a maximum of one (1) inch above the concrete surface.

PLACING THE VEHICLE DETECTOR LOOPS

If Vehicle Detectors are to be used with the GS6000, the "Loops" to be buried in the drive should be installed during the site preparation phase of the installation. Proper placement of the Vehicle Detector wire loops is critical if the loops are to provide satisfactory, extended service. **THE MOST IMPORTANT CONSIDERATIONS ARE: 1) PROPER WIRE TYPE AND, 2) GOOD, TIGHT CONNECTIONS FROM THE LOOP TO THE LOOP TERMINATING CONNECTOR. The termination of the loop wires will be at the GS6000 terminal board.** There are three pre-wired Vehicle Detector sockets provided in the GS6000 operator (detector modules not supplied as standard). These sockets are powered by 24 VAC supplied by the operator. If you as the installer utilize these socket adapters you must provide the detector modules and loop wiring. The loop detector modules supplied should be compatible with the sockets (11 pin round socket connector) and rated voltage (24 VAC). If additional loop detectors are used a separate A/C service must be provided for the detectors.

Two different types of Loop Installations will usually be encountered when placing the loops in the drive: 1) If the driveway material is already in place, saw cuts will be needed in which to place the loop wire. 2) For loops where the paving material will be installed after the loop is positioned, it is necessary that the loops be placed in Schedule 40 PVC pipe to maintain uniform loop spacing with respect to the surface of the pavement. The loop should be placed 1.5" below the surface of the pavement and at least 2" above any reinforcing steel.

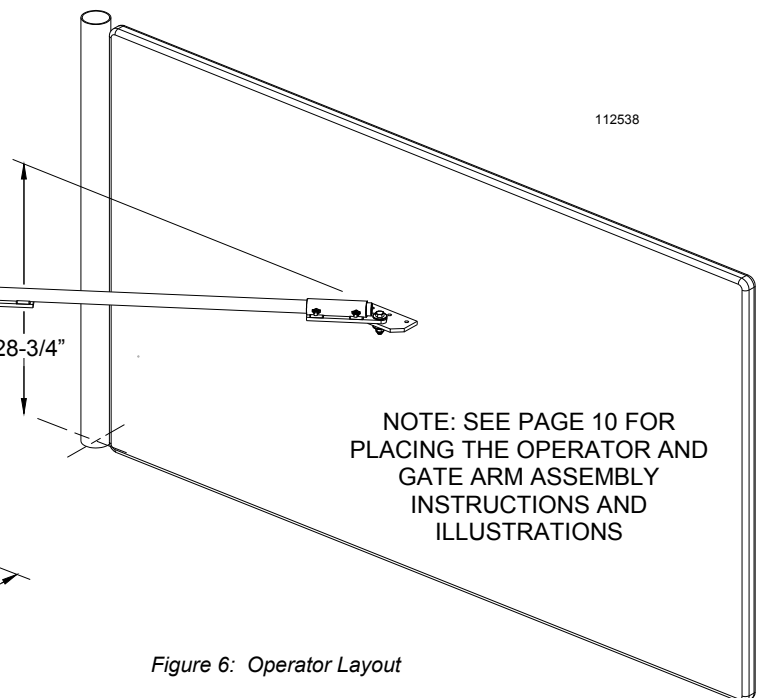


Figure 6: Operator Layout

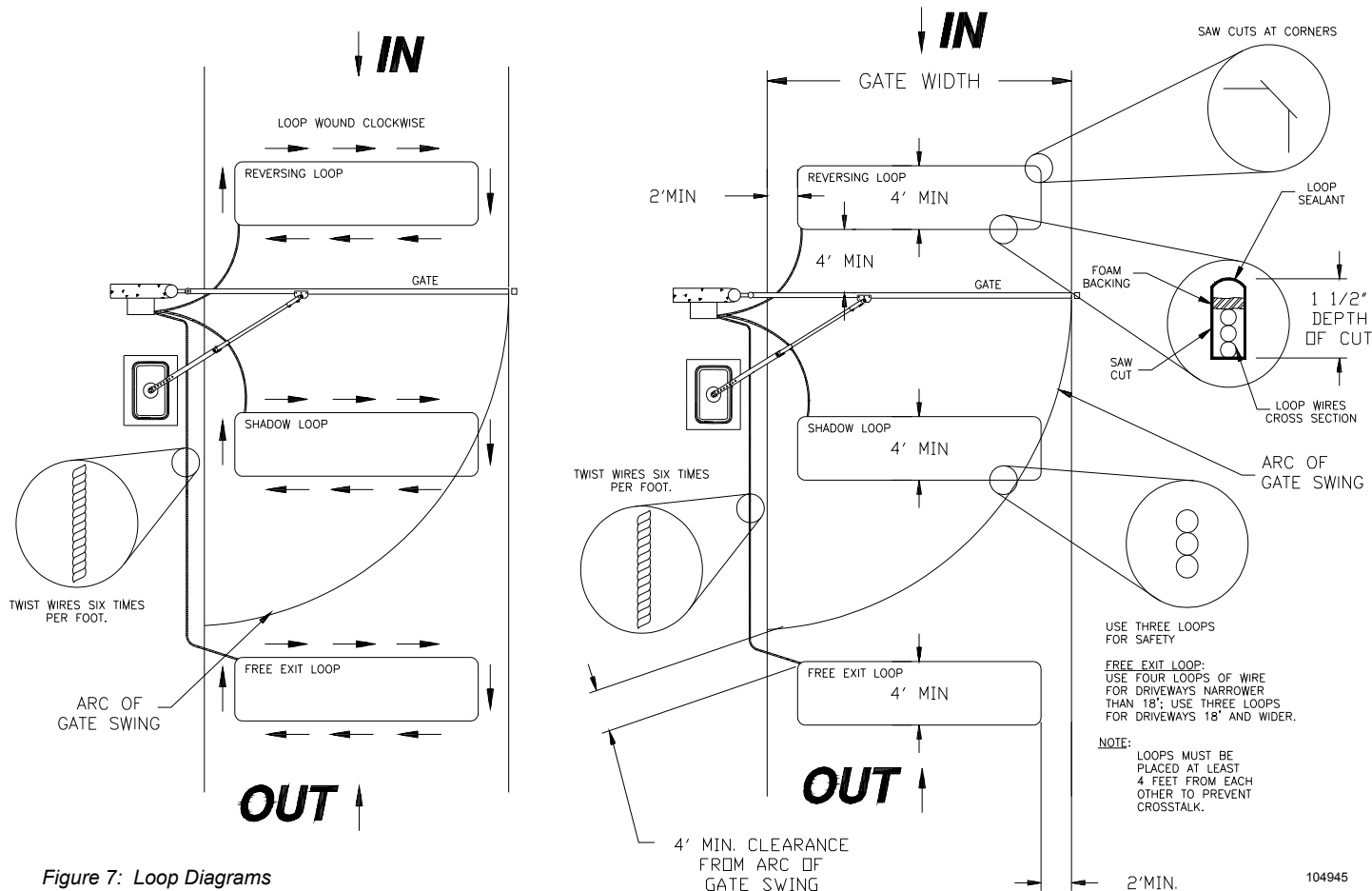


Figure 7: Loop Diagrams

The lead-in wires need not be in PVC, but must have a least six (6) twists per running foot.

THE LOOP WIRES MUST BE CONTINUOUS. NO SPLICES OR CONNECTIONS IN THE LOOP ARE TO BE PERMITTED BELOW GROUND. THE ONLY CONNECTION WILL BE AT THE TERMINATION OF THE WIRE AT THE VEHICLE DETECTOR. Above ground splices may be used providing the wire is twisted, soldered and moisture sealed. For best long term results, do not use wire nuts anywhere in the loop system. Connect to the Vehicle Detector harness by soldering.

For saw-cut installations, observe the methods recommended in Figure 7, above. The saw-cut must be to a depth of 1.5", clean and with no sharp corners. After placing the wires, it is essential that the wires be held tightly in place by a foam backing prior to pouring the sealant. THIS IS ESPECIALLY IMPORTANT WHEN FREEZING IS LIKELY. No voids should exist that will permit the collection of water that might freeze and push the loop wires out of the slot. The sealant used should not be hard setting and should be suitable for pavement material.

THE WIRE USED FOR THE LOOPS MUST BE HEAT AND WATER RESISTANT, CROSS-LINK POLYETHYLENE INSULATED. TYPE XLPE IS BEST. RHW IS O.K. DO NOT USE ANY PVC INSULATED WIRE. (PVC insulation will absorb moisture that may affect Detector operation.) WIRE SIZE SHOULD BE #16 GA. STRANDED OR LARGER.

VEHICLE DETECTOR SHADOW LOOP (BLANKING LOOP) FOR SWING GATES

The inside loop for a swing gate installation must be located at least 4 feet outside of the arc of the gate. If it is not, the Vehicle Detector may detect the gate as it moves over the loop and cause the Gate to reopen. If the gate is large and a single leaf, the arc usually requires that the loop be a considerable distance from the closed gate position. This may not be an effective position for the loop. In this case, a "shadow" or "blanking" loop may be used.

When a Shadow Loop is necessary, connect the loop wires to the operator terminals G and E, (Shadow Loop) and insert a loop detector module in the Shadow Loop socket (black, white, blue, yellow connector wires). The GS6000 circuitry will recognize a vehicle on the loop and prevent the gate from closing while the vehicle is over the Shadow Loop. When the gate is closing or opening, the GS6000 circuitry will ignore input from this loop as the gate swings over it.



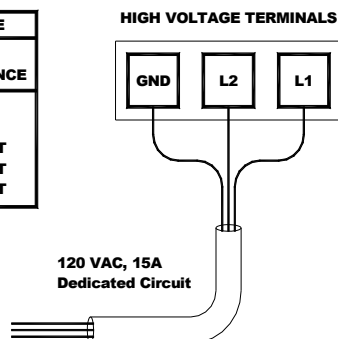
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AC POWER SOURCE TYPICAL CONNECTIONS

SINGLE GATE		DOUBLE GATE	
WIRE SIZE	DISTANCE	WIRE SIZE	DISTANCE
#14	100 FT	#14	50 FT
#12	150 FT	#12	75 FT
#10	250 FT	#10	125 FT
#8	400 FT	#8	200 FT
#6	600 FT	#6	300 FT

NOTE: DISTANCE IS TOTAL LENGTH OF WIRE FROM CIRCUIT BREAKER IN THE MAIN PANEL TO THE GATE OPERATOR.

Table 1



ELECTRICAL POWER REQUIREMENTS

The GS6000 can be ordered for 115 Volts AC (VAC) or 230 VAC operation. The AWG wire size for the electrical service depends on the distance of the operator from the breaker panel. Refer to Table 1 to determine the correct wire size.

The DISTANCE column is the ideal distance from the breaker panel to the operator for a given wire size and voltage.

NOTE! FOR A BI-PARTING INSTALLATION, THERE WILL BE TWO OPERATOR UNITS OPERATING AT THE SAME TIME. IF THESE WILL BE POWERED FROM THE SAME SUPPLY IT WILL BE NECESSARY TO REDUCE THE LENGTHS IN TABLE 1 BY A FACTOR OF TWO.

Class 2 low voltage wiring from external controls such as a key pad, card reader, telephone entry device, etc. must be brought to the GS6000 by a separate conduit from the 115 VAC electrical hook up conduit. Low voltage control wires MUST NEVER be routed in the same conduit as the HIGH VOLTAGE power wires.



WARNING!

**AVOID ELECTROCUTION:
DO NOT ROUTE LOW VOLTAGE WIRES IN SAME CONDUIT AS HIGH VOLTAGE WIRES. FOLLOW ALL LOCAL ELECTRICAL CODES OR THE NATIONAL ELECTRICAL CODE.**

Note! If a wire set (connections between Master Open and Master Close (Primary/Secondary operation terminals) is to be routed between a set of GS6000 operators for bi-parting operation these wires ARE LOW VOLTAGE WIRES AND MUST BE ROUTED IN A LOW VOLTAGE CONDUIT TO THE CONTROL BOX.

OTHER VOLTAGES AND 3 PHASE SYSTEMS.

The GS6000 can operate at other voltages or on three (3) phase systems. To operate at 440 VAC it will be necessary to install an external step down transformer. The transformer should be located in a separate electrical box and protected by suitable circuit breaker and/or fusing. A 440 Volt rated switch should also be installed. Follow local electrical codes or the National Electrical Code. The transformer selected should be UL LISTED and be rated for a minimum 600 Volt-Amperes (Watts).

IF TWO OPERATORS ARE TO BE USED FOR A BI-PARTING GATE SYSTEM, THEN A 1000 VOLT-AMPERE/WATT TRANSFORMER MUST BE USED.

Operating from a three (3) phase line will require the use of a 230 VAC rated GS6000, CHECK THE OPERATOR PRODUCT LABEL!!! The GS6000 (rated for 230 VAC) may be operated from a 230 Volt "Delta" or "Y" line. In either case, ONLY one "leg" of the three phase line will be used. The unbalance of the line will be minimal since the full rate current of the GS6000 at 230 VAC is only 2.2 amperes. (4.4 Amperes for a bi-parting system.) Connect any two wires of the three phase system to the 230 VAC GS6000. Tape the third wire carefully so that it does not short to any other object. (The "Y" system will have 4 wires, one of which will be the "common". Make sure the common is NOT selected as one of the wires connected to the GS6000.) It is always best to also pull a ground wire from the electrical service box to the GS6000 to ensure the frame is securely affixed to GROUND.

SERVICE CONDUIT

For new installations the conduit for the High Voltage may be brought to a junction box near where the GS6000 will be located or it may be brought directly to the GS6000's Control Box.

UNPACKING CHECKLIST

The GS6000 as shipped consists of the components listed below.

GS6000 Operator

Wood Pallet with 4 lag bolts

Instruction Kit

Instruction Manual

Warning signs

Swing Arm Kit

Swing Arm

Crank Arm

Crank Arm Extension

Swing Gate Fittings

Swing Arm Bracket

Swing Arm Padlock with keys

Hardware Package



TOOLS REQUIRED

The following tools and materials are required for a proper installation of the GS6000. The listing below is minimum list and not meant as definitive, allow experience to dictate if a task can be better accomplished with a different tool.

1. Wire cutter, stripper and crimping tools. (For attaching accessory equipment to the control box barrier strip.)
2. A #2 Phillips Head screw driver for removing the screws to the High Voltage cover.
3. Medium standard straight blade screw driver for the terminal strip screws.
4. Very small blade screwdriver. (For adjusting the potentiometer on the Logic and Power board.)
5. Electric arc welder or an electric drill with a 3/8" bit. (For attaching Arm Bracket to the Gate.)
6. Several feet of #18 or #22 gauge insulated multistrand wire. (For connecting accessory equipment to the control box terminal strip, and for limit switch control wires.)
7. Four 1/2" diameter concrete anchor bolts with hex nuts, flat washers and lock washers. (For attaching the GS6000 to the concrete pad.) (Not Included)
8. Concrete drill and bit. (To drill mounting holes for concrete bolts.)
9. Multimeter. (To test line voltage and other measurements as necessary.)
10. Small level. (To level GS6000 at installation.)
11. Hex Key set (5/16" and 1/8" hex key specifically needed)
11. Torque Wrench and 1-5/8" Socket

PLACING THE GS6000 OPERATOR

Remove the turret cover and rain seal from the shaft of the GS6000. SAVE THEM! Next, remove the cover from the GS6000 by removing the 5/16 inch diameter bolts on each side of the unit and set them aside. **SAVE THEM!** The operator cover, rain seal and turret cover are to be re-installed in reverse order of removal at the completion of the installation.

The recommended procedure for attaching the GS6000 to the concrete pad is first to locate and drill the hole for the mounting hole nearest to the gate post. Locate this hole by referring to Figures 5 and 6 (Page 6) and Figure 8 (Page 10). Figure 5 features an aerial view of the operator footprint and concrete pad outline for a *left*-hand mounted GS6000 operator with gate. Figure 6 features an isometric view of a *left*-hand mounted GS6000 operator with gate. Figure 8 features an aerial view of a *right*-hand mounted GS6000 operator with gate and an isometric view of the gate arm assembly in a exploded fashion. All dimensions are applicable to either the left-hand or right-hand views, transpose them as necessary to your particular installation. **Ensure the operator is placed on the concrete pad such that the center of the output shaft is 42" vertically and 16" horizontally away from the gate center hinge point, as illustrated in Figure 5. These are the critical dimensions for this part of the installation.**

After drilling, place an anchor bolt in the initial hole, then reset the operator mounting hole over that bolt. Measure, re-measure, align, mark and drill the remaining three holes, again referring to Figures 5, 6 and 8. This can be accomplished with the operator in place or moved temporarily to the side if desired.

Before tightening the concrete anchor bolts, make sure the GS6000 is level. If any corners of the GS6000 are resting above the concrete pad, flat washers may be inserted under the frame rails. With the operator sitting level on the concrete pad, place the anchor flat washers, lock washers and nuts on the anchor bolts and tighten securely.

If 1/2" diameter anchor bolts are used, the 3/4" mounting holes on the GS6000 will allow some adjustment for desired alignment.

TO REVIEW: Make sure the correct position of the GS6000 from the center line of the gate hinge pivot point to the center line of the GS6000 output shaft is in accordance with the drawing of Figure 5.

INSTALLING THE GS6000 ARM

Temporarily locate the Gate Bracket on the gate with C-clamps or by tack welding. The gate bracket is installed to the gate so the gate arm will be level when connected to the GS6000 output shaft. See Figure 6 on page 6 and Figure 8 on page 10 for positioning of the Gate Bracket. The 28-3/4" dimension as referenced in Figure 6 assumes a pad height of 3" above ground. Adjust the placement of the gate bracket on the gate at such a height that corresponds with the height of the concrete pad (add to the 28-3/4" dimension if the pad is higher than 3", subtract if lower. **The 40" horizontal dimension referenced in Figure 8 and the 28-3/4" dimension referenced in Figure 6 are the critical dimensions for this part of the installation.** Again this is a temporary placement, the gate bracket will be permanently mounted after the gate arm is assembled and installed. Move the gate to it's fully closed position and temporarily immobilize the gate in that position.

10 | C: INSTALLING THE OPERATOR



HARDWARE LEGEND

- 1 Arm End Piece
- 2 (1 EA) 1/2-13 x 2 Hex Head Bolt
- 3 (4 EA) 1/2 Flatwasher
- 4 (2 EA) 5/16-18 X 5/8L SQ Head Set Screws
- 5 (2 EA) 1/2-13 Nylock Locknut
- 6 Gate Bracket
- 7 Gate Arm
- 8 (1 EA) 1/2-13 X 2-3/4" Hex Head Bolt
- 9 Crank Arm Extension
- 10 (2 EA) 1/4 -20 X 1-1/2" Hex Head Bolt
- 11 (4 EA) 1/4 Flat Washer
- 12 (2 EA) 1/4 INT TOOTH LOCK WASHER
- 13 (2 EA) 1/4-20 Keps Washer Hex Nuts
- 14 Operator Crank Arm

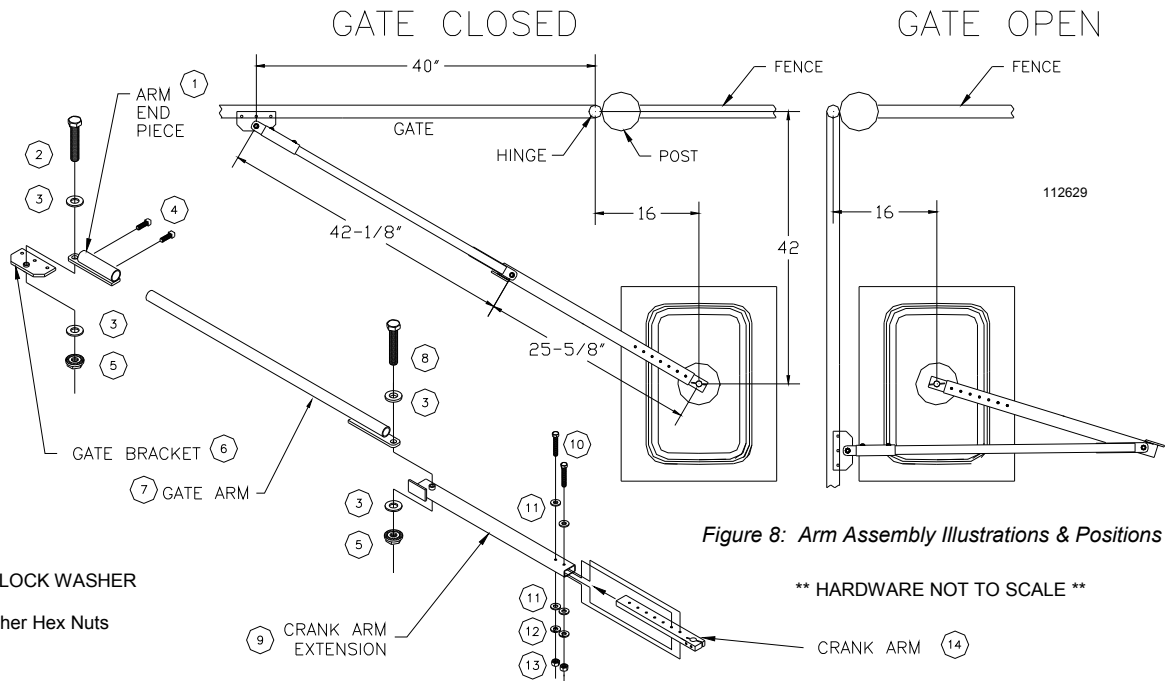


Figure 8: Arm Assembly Illustrations & Positions

Loosen the adjustment nut of the Torque Limiter located on the top of the Gear Box on the GS6000 sufficiently to allow the large drive sprocket and output shaft to turn without back driving the gear box, v-belt and motor (see exploded view at back of this manual, the Torque Limiter adjustment nut is the top component of Part No. 010217). This is done by first loosening the small set screws (5/64" hex key required) on the adjustment nut facings and then loosening the nut (1-5/8" hex socket or wrench).

At this time also loosen the Stop Pall that is mounted to the large output drive sprocket (see Figure 9 below), this requires a 1/8" hex key tool.

Attach the Crank Arm to the Output Shaft by fitting the arm's large circular opening onto the shaft, see Figure 10, Action A. Slide the crank arm onto the operator's output shaft such that the slot on the arm is roughly parallel with the closed gate. The crank arm should be pointing towards the bracket on the gate.

Turn the output shaft so that the hole to mount the clevis pin is lined up with the hole in the crank arm. Insert the clevis pin fully through the hole in the crank arm, the hole in the output shaft and extend through the other side of the crank arm, see Figure 10, Action B. The ring on the clevis pin should be on the gate side of the crank arm when fully inserted.

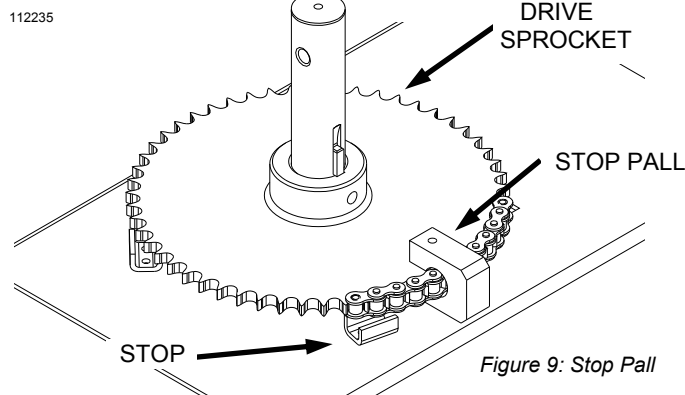


Figure 9: Stop Pall

At this time insert the release handle/bolt assembly into the outer through hole on the crank arm, see Figure 10, Action C. The release handle/bolt assembly is inserted such that it points away from the gate. Place the 3/8 internal tooth lock washer onto the bolt end and screw on the 3/8 wing nut finger tight, see Figure 10, Action D. As you are tightening the wing nut hold the handle such that it is pointing away from the crank arm. Tighten the wing nut as tight as possible with finger pressure.

Rotate the release handle 180 degrees such that it is parallel and pointing in the same direction as the crank arm, see Figure 10, Action E. This action completes the installation of the crank arm to the output shaft. Ensure the arm is tight on the shaft.

As shown in Figure 8, attach the Crank Arm Extension to the Crank Arm with the (2) 1/4-20 x 1-1/2" long bolts, (4) 1/4 internal tooth lock washers, and (2) 1/4-20 keps washer hex nuts, (Items 9 through 13) provided. For a standard installation use the two holes

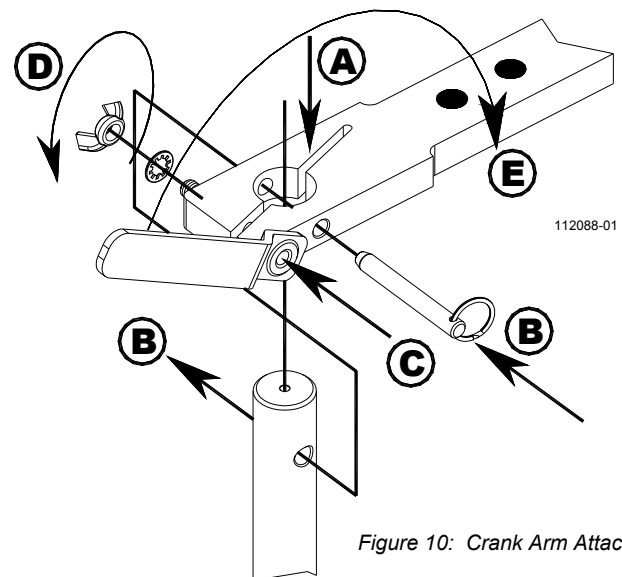


Figure 10: Crank Arm Attachment



in the crank arm closest to the end that mounts to the output shaft. The overall length of the crank arm w/extension is now 25-5/8" from the center of the Output Shaft to the center of the pivot at the "elbow." Note that the crank arm w/extension if required is adjustable and can be lengthened to a maximum of 31-5/8" long in (4) 1.5" increments. This may be required if the gate bracket cannot be mounted in the position as previously described. The prescribed installation procedure would be to follow as outlined in these paragraphs, making adjustments as needed.

Assemble the gate arm as shown in Figure 8, sliding the arm end piece onto the end of the arm tube and tightening the 5/16-18 x 5/8 long square head set screws. Again as a matter of note, the gate arm can be shortened (if necessary due to the gate bracket placement, etc.) by cutting off a length from the tube. Attach the gate arm to the crank arm extension and the gate bracket using the 1/2-13 x 2 bolt (at gate bracket), the 1/2-13 x 2-3/4 bolt (at the crank arm extension), the four 1/2 flat washers and two 1/2-13 nylock hex nuts as shown in Figure 8. The gate arm is now fully assembled with a total length of approximately 67-3/4"

With the Gate still immobilized in the closed position, the "elbow" will be up against the closed position stop on the Crank Arm Extension. At this time adjust the placement of the gate bracket and/or the length of the crank arm/extension or gate arm to ensure when the gate is fully closed the arm is in a straight and locked position (from output shaft to gate bracket) as shown in the left illustration in Figure 8.

Move the Gate to the fully open, 90 degree position as shown in the right illustration in Figure 8. The crank arm/extension should fold back over the arm as shown. If it doesn't, some adjustment of the gate bracket or operator position may be necessary. With the gate in the fully open position, adjust the stop pall on the sprocket against the stop on the GS6000 frame and tighten the set screw. Open and close the gate several times until you are satisfied that the arm position is correct.

Finish welding or bolting the Gate Bracket to the Gate and remove the C-clamps.

SETTING THE LIMIT SWITCHES

If you are resetting or checking the Limit Switches the cover must be removed from the GS6000 operator, follow the procedure as outline on page 28, to remove the gate arm from the output shaft then see the first paragraph under **PLACING THE GS6000 OPERATOR** on Page 8 to remove the cover. Reconnect the arm (if applicable) and position the gate at it's **FULLY CLOSED** position. If this is an original installation the torque limiter adjustment nut is still loosened, if resetting use the OPEN, CLOSE, and STOP buttons to place the operator into position. Temporarily immobilize the gate in this **FULLY CLOSED** position.

If this is a right hand (RH) installation (as shown in Fig. 8) the upper switch is the Close limit switch, if this is a left hand (LH) mounted operator (as shown in Fig. 6) the lower switch is the Close limit switch. Referring to Fig. 11, loosen the clamping screw and nut and the set screw on the Limit Switch Cam for the appropriate switch. Rotate the cam on the output shaft (clockwise as you look at the shaft from the control box if RH mounted, CCW if LH mounted) until it engages the Limit Switch and an audible "click" is heard. If resetting and the operator is under power the LED indicator on the control board can be used as an additional indicator that the switch has activated. Repeat this several times until you are confident that the position of the cam is such that the Limit Switch is just closed.

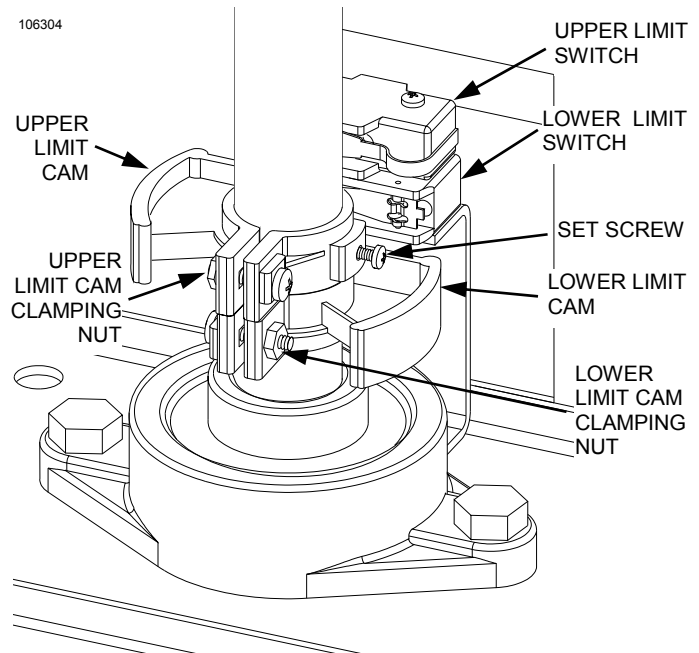


Figure 11: Limit Switches

Carefully tighten the nut on the Limit Switch Cam. Snug the set screw on the cam against the output shaft to protect the cam from accidental movement.

Remove the temporary immobilization from the gate and open the gate to it's **FULLY OPEN** position. Repeat the setting procedure for the remaining Limit Switch and Cam, ensuring to rotate the Limit Cam in the opposite direction from the rotation in the previous paragraph, also see Figure 11.

If resetting or checking the Limit switch settings at this time reinstall the operator cover and turret, reversing the removal procedure. If this is an original installation, tighten the Torque Limiter adjustment nut to an initial setting of 35 ft lbs and retighten the small set screws on the nut facings.



WARNING!

RISK OF ELECTROCUTION
DO NOT BEGIN THE ELECTRICAL CONNECTION
PROCEDURES UNTIL THE POWER IS TURNED
OFF AT THE CIRCUIT BREAKER

ELECTRICAL HOOK UP

The GS6000 electrical connection is made in the CONTROL BOX area, see Figure 12. Run a flexible water tight conduit from the service junction box to the GS6000 CONTROL BOX. Route three #14 wires (minimum size) from the service junction box in this conduit to the GS6000 Control Box. If the GS6000 is wired for 115 Volts, route a black, white and green or ground wire. If the GS6000 is wired for 230 Volts, route a black, red and green or ground wire. If the conduit has been pre-placed in the cement pad route these wires (again using flexible conduit) up through one of the large holes in the bottom operator plate and connect to the conduit hole on the right side of the CONTROL BOX area.

12 | C: INSTALLING THE OPERATOR



CONNECTING THE AC WIRING

115 VOLT INSTALLATIONS:

Before beginning to wire in the power supply connections, ensure the power is turned off at the service supply box and also ensure the operator On/Off switch is in the Off position.

Starting at the GS6000 Control box there are three wires (black, white, and green) protruding from the lower hole of the Control Box On/Off Switch / Outlet box. These wires can additionally be identified as they are capped off with large orange wire nuts. It is not necessary to remove the On/Off Switch / Outlet cover. Proceed as follows:

1. The **BLACK** wire attaches to the 115 VAC HOT wire from the service conduit, normally also a black wire.
2. The **WHITE** wire attaches the 115 VAC NEUTRAL wire from the service conduit, normally also a white wire.
3. The **GREEN** wire attaches to the green or GROUND wire from the service conduit.

230 VOLT INSTALLATIONS:

Note: in 230 VAC wiring systems, there will be two "HOT" wires, normally a red and a black wire. If there is a white wire, typically it will be a neutral wire. Starting at the GS6000 there are three wires (black, red, and green) protruding from the lower hole of the Control Box On/Off Switch / Outlet box. These wires can additionally be identified as they are capped off with large orange wire nuts. It is not necessary to remove the On/Off Switch / Outlet cover., Proceed as follows:

1. The **BLACK** wire attaches to one of the 230 VAC HOT wires from the service conduit, normally also a black wire.
2. The **RED** wire attaches to the other 230 VAC HOT wire, normally red.
3. The **GREEN** wire attaches to the green or GROUND wire from the service conduit.

PROPER OPERATION OF THE SURGE PROTECTORS MOUNTED ON THE GS6000 CONTROL BOARD DEPENDS UPON A SOLID GROUND. ALSO, UL LISTING REQUIRES THAT THE GS6000 FRAME BE GROUNDED.



WARNING!

TO REDUCE THE RISK OF DAMAGE DUE TO LIGHTNING, ENSURE A SOLID GROUND FROM THE GS6000 GROUND WIRE IN THE SERVICE ENTRANCE TO THE ELECTRICAL SERVICE GROUND OR TO A EARTH GROUND STAKE NEAR THE GS6000.

ADDITIONAL LIGHTNING PROTECTION

For those areas where a high probability of ground lightning strikes exists (Florida, Georgia, etc.) additional lightning protection should be installed in the GS6000. Although it may not be possible to

protect against all strikes, additional protection will substantially reduce the occurrence of lightning damage. Industry data indicates that the most lightning strikes attempt to enter an appliance through the power lines. Effective protection requires that the surge current from the lightning strike be shunted to ground. This must be done without raising the potential of the circuitry in the GS6000, with respect to ground, to the levels that will damage the solid state circuitry. Lightning strikes generate enormous currents for very short periods of time. Unfortunately, the period of time is long enough to damage solid state components and many times, other components. The key to success is a very low resistance path from the surge protector to ground for these currents in addition to a surge protector that will act fast enough to protect the solid state circuitry. Several manufacturers offer suitable surge protectors.

RIGHT HAND AND LEFT HAND INSTALLATION

The GS6000 Control panel is configured at the factory for right hand operation - where the operator is mounted to the right of the gate leaf as you look at the installation from the inside (secured side, as shown in Fig. 8).

For left hand operation - (the operator is mounted to the left of the gate leaf as you look at the installation from the inside or secured side, reference Fig 6) - move the 8 pin high voltage harness connector (white) and the 3 pin limit harness connector (orange) from the right hand connector blocks on the control board to the left hand connector blocks, see Figure 12, below.

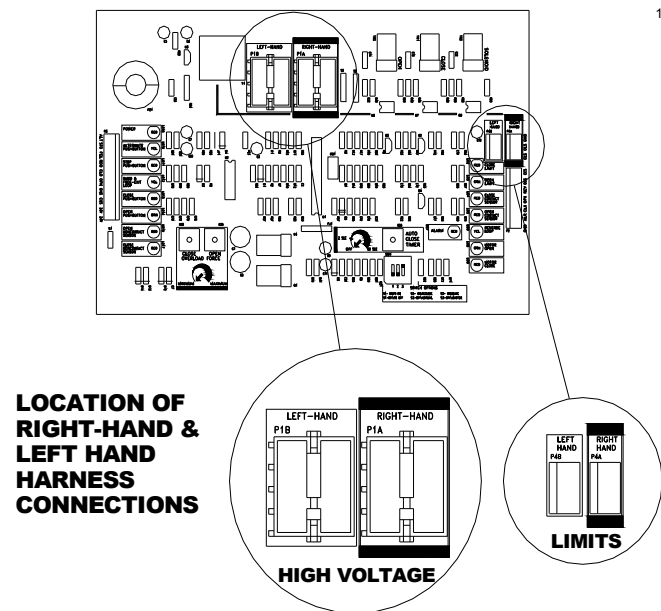


Figure 12: Right/Left Hand Control Board Connectors

PRIMARY/SECONDARY (Bi-Parting) INSTALLATION

For a Primary/Secondary installation where there are two gate leaves and two operators, an additional conduit is installed between the primary operator and the secondary operator. Both operators must be wired for AC power (as previously described) but share a common set of input controls, accessory equipment and (where applicable) external entrapment protection devices. When properly connected and configured, an input made to the control system of the Primary operator will result in an identical reaction from the Secondary

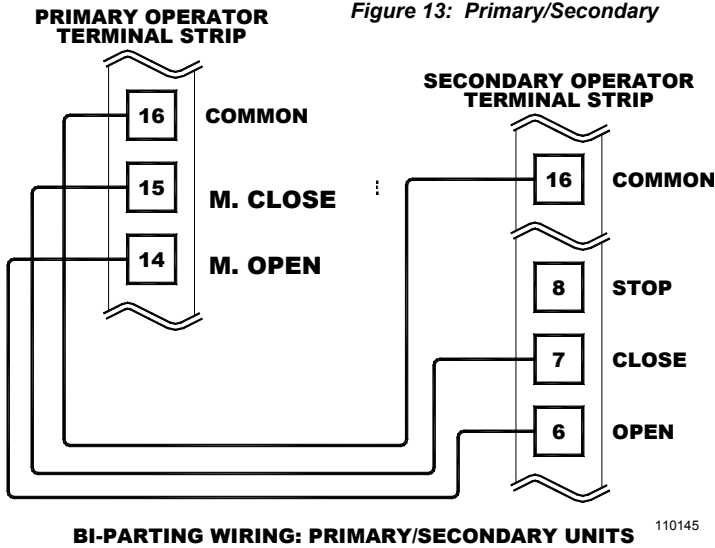


Figure 13: Primary/Secondary

ACCESSORY EQUIPMENT HOOK-UP

IMPORTANT - remove power from the operator before attempting to connect an accessory device or control station.

All accessory equipment is connected to the 22 terminal barrier strip located inside the GS6000 Control Box. To expose this terminal strip, remove the operator cover (if not already removed). NO ACCESSORY EQUIPMENT SHOULD BE INSTALLED IN THE CONTROL BOX!

If local electrical codes permit, use the operator's bottom plate for mounting accessory components. Otherwise, install the accessory equipment in an appropriate electrical box. The command inputs for the operator require a switch closure to COMMON of less than 100 OHMS resistance and for more than 100 milliseconds duration. A number of inputs can be continuous signals. A label on the control box lists the function of each of the terminals on the barrier strip. See the Reference Chart on Page 24 for the complete description of each terminal function.

The command inputs on the GS6000 require a switch or relay closure to the common terminal for a duration longer than 100 milliseconds and of a resistance of less than 100 ohms is necessary. Six of the inputs, FREE EXIT (#5), OPEN (#6), STOP (#8), CLOSE PHOTO (#10), OPEN/CLOSE EDGE (#s 12 & 13) can be continuous commands as described on Page 21. Labels identify the function of each of the terminals on the strip. The alpha labeled terminals (A, B, C, D, E, & G) provide terminals to connect a physical loop to trigger the loop detector module (both provided by others, the sockets are prewired in the operator).

The transformer mounted in the GS6000 Control Box can be used power an accessory equipment item such as a radio receiver. This is a Class II transformer and is equipped with an internal fusible link. If this link is "blown" the transformer must be replaced. The transformer is powered whenever the GS6000 main power switch is ON. The maximum power that can be supplied by the transformer for an accessory equipment item is 20 VA or about 1 Ampere at 24VAC. This is usually sufficient to supply an accessory equipment item such as a radio receiver. Check the equipment for its power specifications. The GS6000 is supplied standard with an Allstar MVP programmable radio receiver, 318 MHz operating frequency.

THE MAXIMUM POWER DRAW FOR ALL AUXILIARY EQUIPMENT SHOULD NOT EXCEED 20 VA IF POWER IS SUPPLIED FROM THE GS6000 CONTROL BOARD. FAILURE TO OBSERVE THIS RESTRICTION WILL DAMAGE THE GS6000 CONTROL BOARD AND VOID ANY WARRANTY.

All auxiliary equipment devices must be of the type that require both sides of the transformer supplying power be "floating" and not grounded. The GS6000 auxiliary equipment low voltage power, terminals 1 & 2, is not referenced to ground. **FAILURE TO OBSERVE THIS RESTRICTION WILL DAMAGE THE GS6000 CONTROL BOARD AND VOID ANY WARRANTY.**

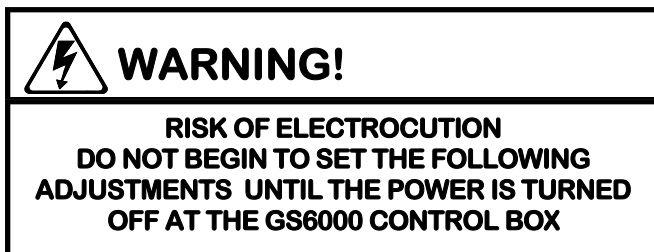
operator. For this installation, one operator must be mounted and configured for Left Hand operation and the other mounted and configured for Right Hand operation. For configuration see paragraph directly preceding, for an illustration of LH mounting see Fig. 6, page 6 and for an illustration of RH mounting see Fig. 8, page 10.

In general, all of the instructions that precede and follow this section concerning installation of individual operators are applicable in a Primary/Secondary application except as follows:

Choose one of the operators to be the PRIMARY and the other to be the SECONDARY. Route all of the control wiring and accessory wiring to the PRIMARY operator only. This will prevent grounding loop problems which can occur when more than one COMMON or ground wire is attached between separate operators. All accessory equipment should also be wired to the PRIMARY operator. An exception to this rule would be if the Secondary operator had a unique entrapment protection zone, then that device's output is wired directly to the Secondary operator.

Connect terminal #14 (M. OPEN) on the PRIMARY operator to terminal #6 (OPEN) on the SECONDARY operator. Connect terminal #15 (M. CLOSE) on the PRIMARY operator to terminal #7 (CLOSE) on the SECONDARY operator. Connect terminal #16 (COMMON) on the PRIMARY operator to terminal #16 (COMMON) on the SECONDARY operator. Use conduit separate from AC power service. See Figure 13 for the correct wiring.

The last step to complete the Primary/Secondary operator configuration is to set the Switch Selectable Options to Primary/Secondary mode as outlined on page 22.

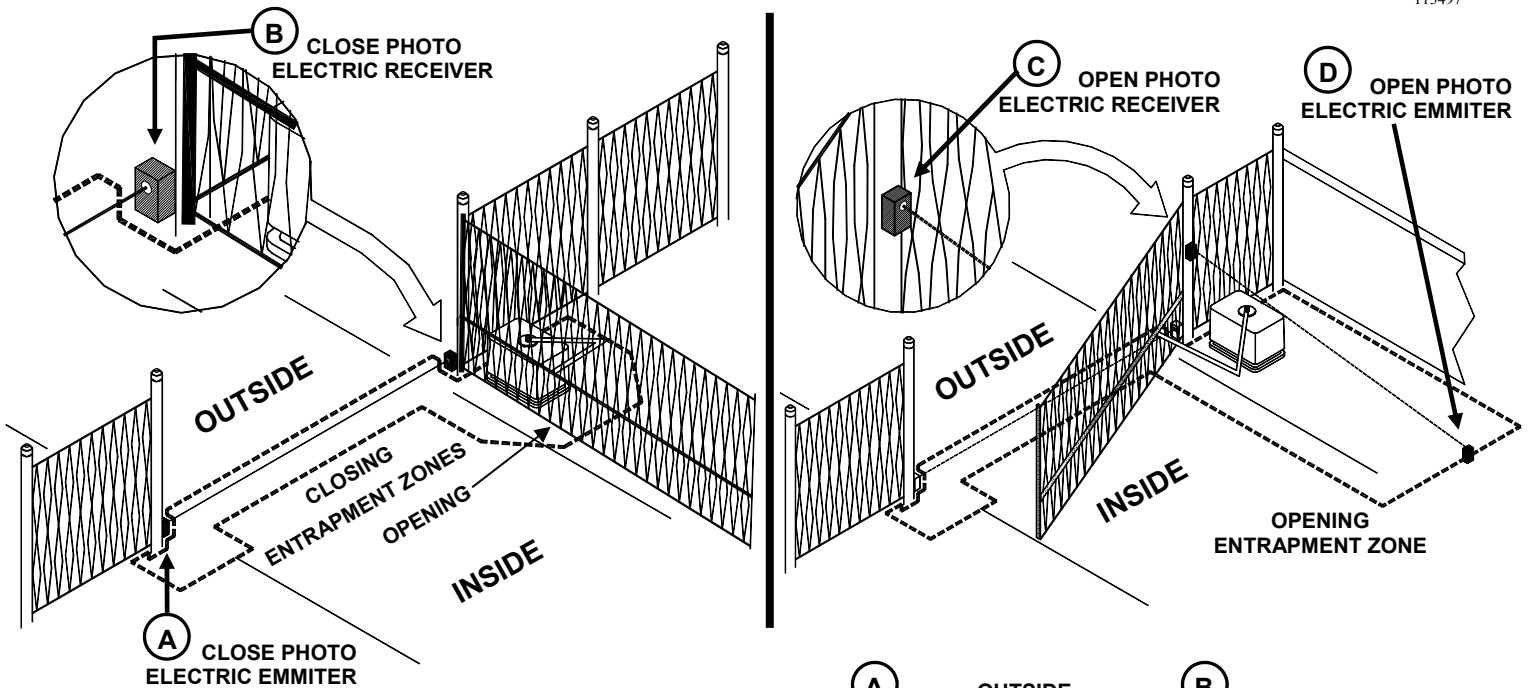


14 C: INSTALLING THE OPERATOR



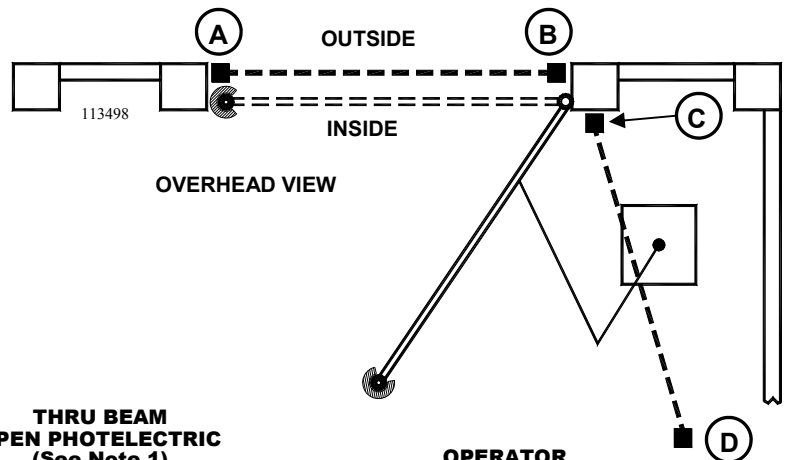
WIRING AND SUGGESTED PLACEMENT OF OPTIONAL NON-CONTACT SENSOR (PHOTOELECTRIC) SECONDARY ENTRAPMENT PROTECTION DEVICES

THRU BEAM PHOTOELECTRIC WIRING AND SUGGESTED PLACEMENT SHOWN BELOW



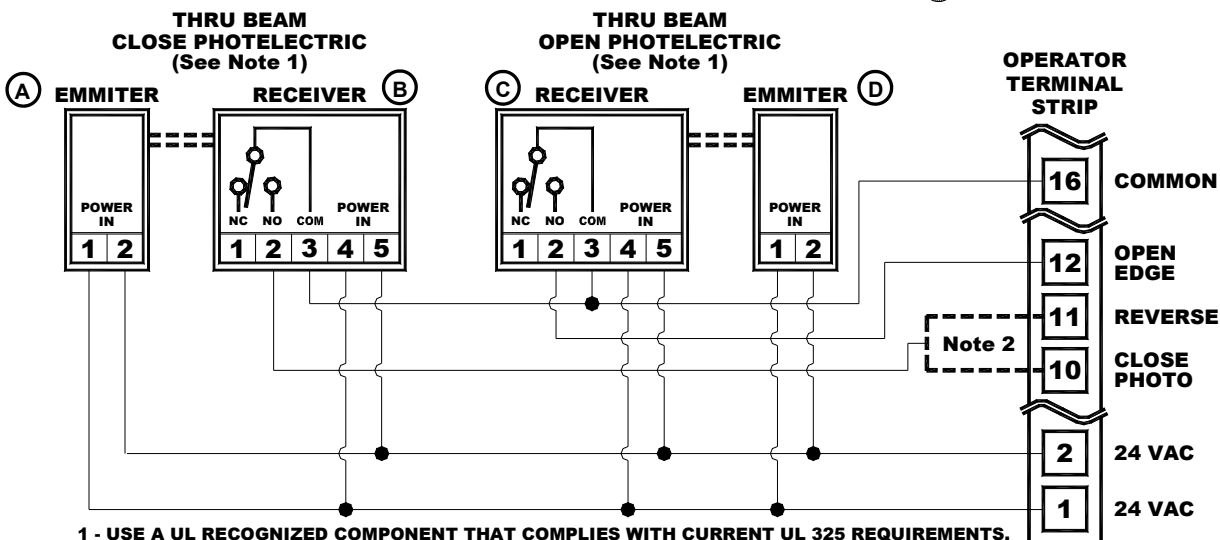
113497

NOTE: THE CLOSE PHOTOELECTRIC SENSOR IS TO BE MOUNTED NO HIGHER THAN 27 INCHES OFF THE GROUND AND NO FURTHER THAN 6 INCHES AWAY FROM THE GATE MEMBER CENTERLINE WHEN THE GATE IS FULLY CLOSED.



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OVERHEAD VIEW



113499

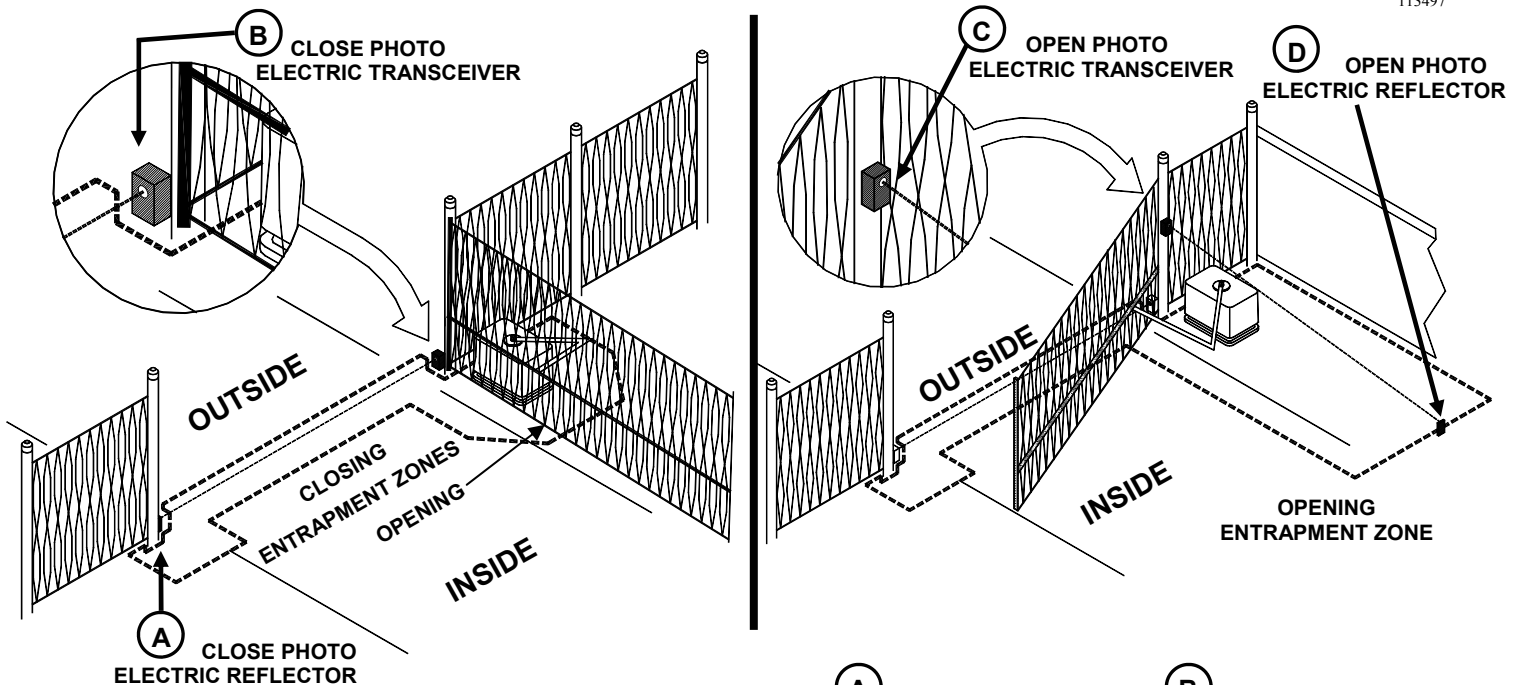
- 1 - USE A UL RECOGNIZED COMPONENT THAT COMPLIES WITH CURRENT UL 325 REQUIREMENTS, TERMINAL NUMBERS ABOVE REPRESENT MODEL IR55, WIRING FOR OTHERS SIMILAR
- 2 - SELECT TERMINAL BASED ON FUNCTION DESIRED, SEE TERMINAL STRIP REFERENCE CHART



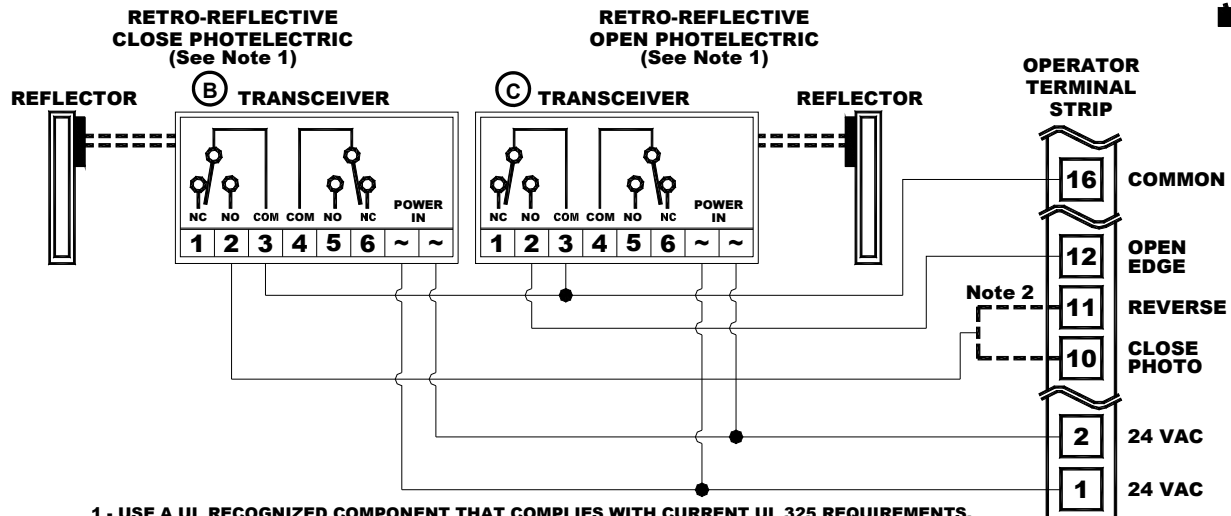
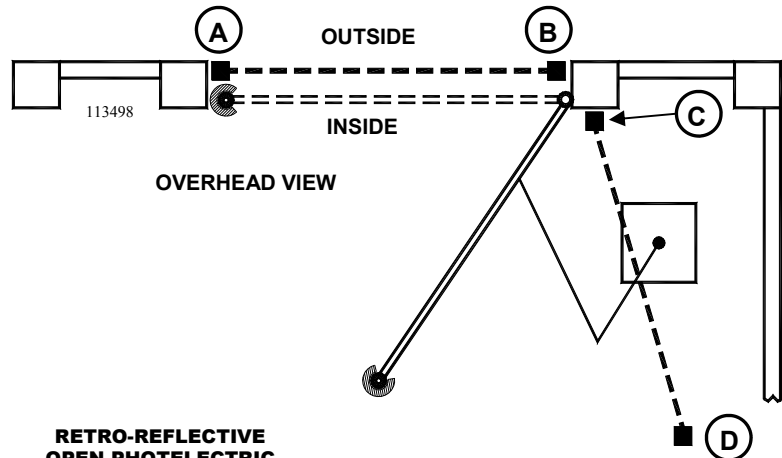
C: INSTALLING THE OPERATOR / 15

WIRING AND SUGGESTED PLACEMENT OF OPTIONAL NON-CONTACT SENSOR (PHOTOELECTRIC) SECONDARY ENTRAPMENT PROTECTION DEVICES

RETRO-REFLECTIVE PHOTOELECTRIC WIRING AND SUGGESTED PLACEMENT SHOWN



NOTE: THE CLOSE PHOTOELECTRIC SENSOR IS TO BE MOUNTED NO HIGHER THAN 27 INCHES OFF THE GROUND AND NO FURTHER THAN 6 INCHES AWAY FROM THE GATE MEMBER CENTERLINE WHEN THE GATE IS FULLY CLOSED.



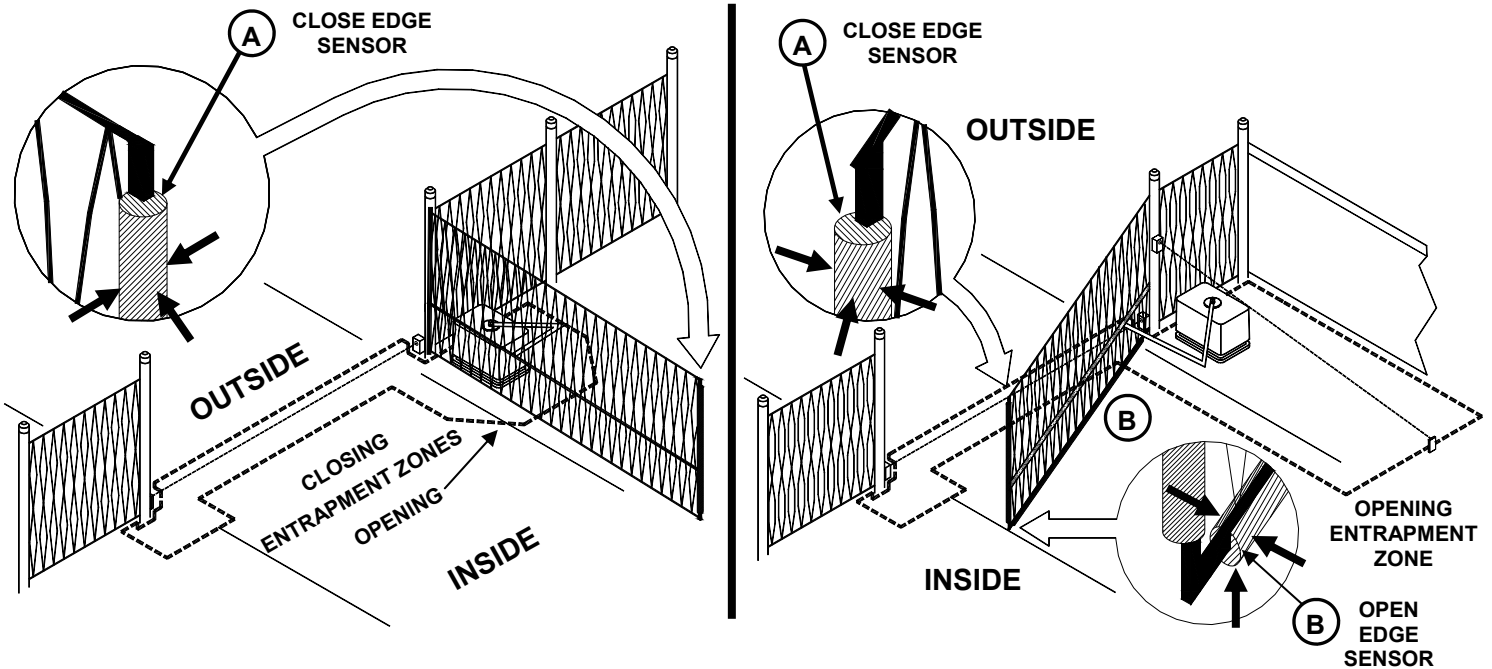
- 1 - USE A UL RECOGNIZED COMPONENT THAT COMPLIES WITH CURRENT UL 325 REQUIREMENTS, TERMINAL NUMBERS ABOVE REPRESENT MODEL E3K, WIRING FOR OTHERS SIMILAR
- 2 - SELECT TERMINAL BASED ON FUNCTION DESIRED, SEE TERMINAL STRIP REFERENCE CHART

16 | C: INSTALLING THE OPERATOR

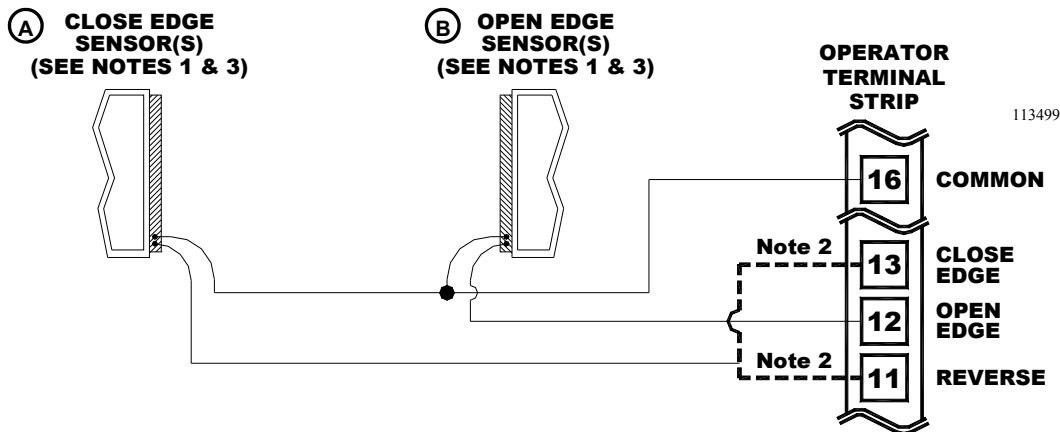
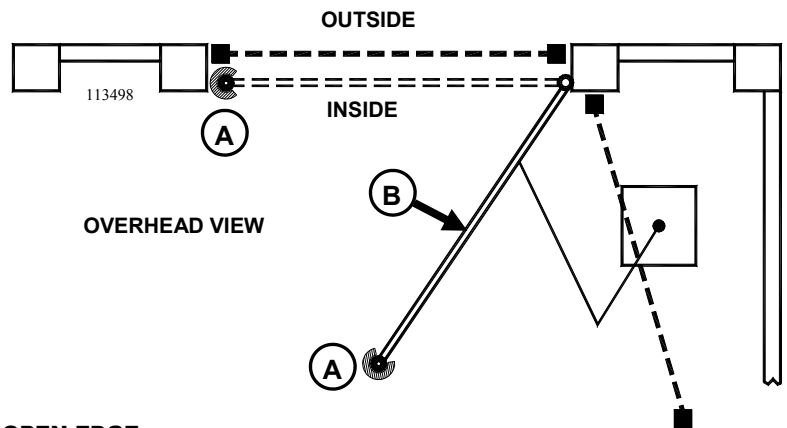


WIRING AND SUGGESTED PLACEMENT OF OPTIONAL CONTACT SENSOR (ELECTRIC EDGE) SECONDARY ENTRAPMENT PROTECTION DEVICES

113497



NOTE: USE AN EDGE SENSOR THAT CAN BE ACTIVATED ON THREE SIDES



- 1 - USE A UL RECOGNIZED COMPONENT THAT COMPLIES WITH CURRENT UL 325 REQUIREMENTS, AN EDGE SENSOR THAT ACTIVATES ON THREE (3) SIDES SHOULD BE USED
- 2 - SELECT TERMINAL BASED ON FUNCTION DESIRED, SEE TERMINAL STRIP REFERENCE CHART
- 3 - MULTIPLE EDGE SENSORS MAY BE CONNECTED IN PARALLEL

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Figure 14: Wiring 4-Wire Receiver

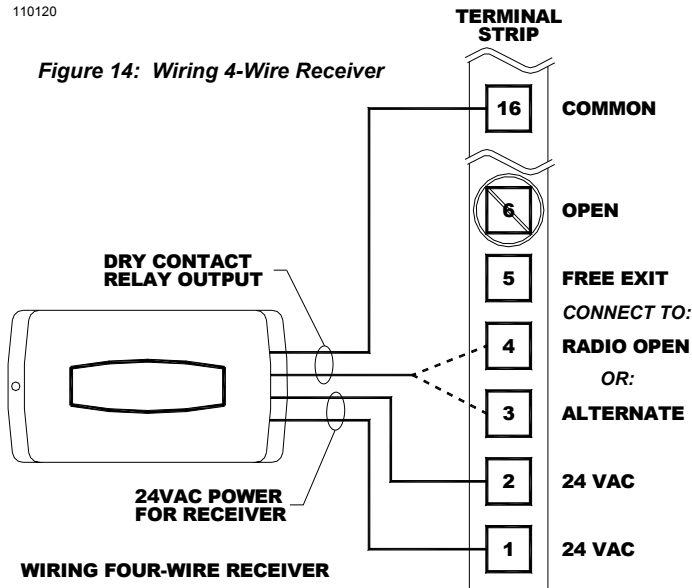
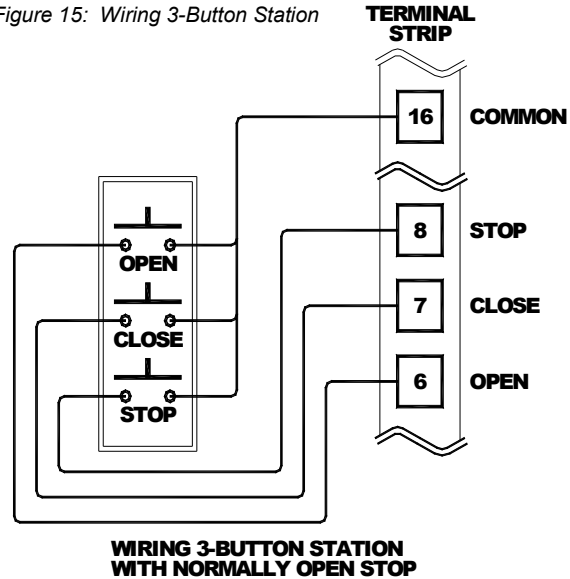


Figure 15: Wiring 3-Button Station



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WIRING RADIO RECEIVERS TO THE TERMINAL STRIP

Radio Receivers **MUST** be of the 4 wire connection hook-up type (where the power input for the receiver is separate from the receiver's output connection). The 4 wire version is necessary as the GS6000 control board 24 VAC output is not referenced to ground. See Figure 14 and the following text for proper connection.

FOUR WIRE RECEIVERS

Four wire receivers replace the "spade" terminals on the RECEIVER with 4 wires. These wires are typically color coded. The instructions with the receiver must be carefully followed to properly connect the receiver. For any 4 wire receiver, two of the wires will be for power input and two will be for the relay contacts. Connect the two wires for the power input to terminals 1 and 2 (24 VAC). Connect one of the two wires for the relay to terminal #4 (RADIO OPEN) or terminal #3 (ALTERNATE) depending on the function desired (see descriptions on the chart on page 21) and the other wire to terminal #16 (COMMON) on the GS6000 terminal strip. See Figure 14 for connecting 4 wire receivers to the GS6000.

NOTE: IF THE 4 WIRE RECEIVER INSTRUCTIONS SHOW THAT TWO OF THE WIRES ARE OF THE SAME COLOR AND ARE COMMON CONNECTIONS INSIDE THE RECEIVER, YOU WILL NOT BE ABLE TO UTILIZE THIS RECEIVER AS WIRED WITH THE GS6000 CONTROL BOX. THE POWER SUPPLY CONNECTIONS MUST BE SEPARATE FROM THE RECEIVER OUTPUT CONNECTIONS WITH NO COMMON REFERENCES INSIDE THE RECEIVER.

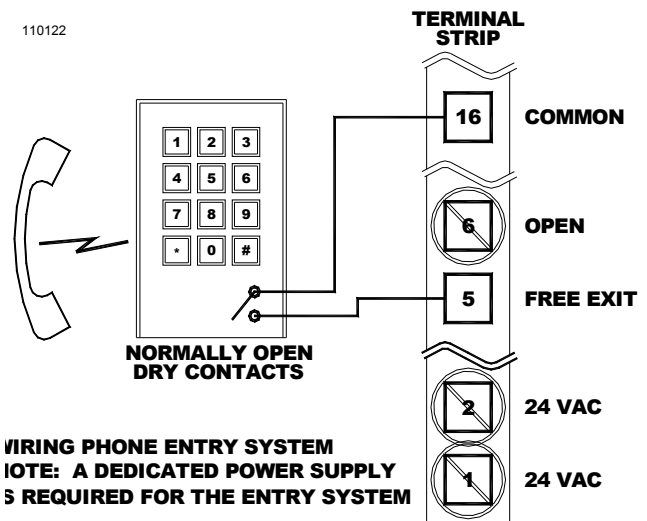
WIRING A 3-BUTTON STATION

NOTE: THE GS6000 WILL OPERATE ONLY WITH A NORMALLY OPEN STOP BUTTON. THREE BUTTON STATIONS MAY BE ORDERED FROM ALLSTAR WITH THE STOP BUTTON CONFIGURED AS NORMALLY OPEN. See Figure 15 for instructions on wiring a Three Button Station.

WIRING A KEYPAD, CARD READER OR TELEPHONE ENTRY SYSTEM

These devices activate the GS6000 by a relay contact closure within the device. Typically, these devices will be used to open a gate with the Timer-To-Close feature automatically closing the gate. In general, two wires or terminals are provided by the device to operate the gate. Follow the manufacturers instructions on locating these connections. If one of the connections at the device is labeled as COMMON, then connect this to Terminal #16 of the GS6000 Terminal strip. Connect the other contact to Terminal #5 (RADIO OPEN). If no identification

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WIRING PHONE ENTRY SYSTEM
NOTE: A DEDICATED POWER SUPPLY IS REQUIRED FOR THE ENTRY SYSTEM

Figure 16: Wiring A Phone Entry System

of the connections is noted at the device, then the two wires may be connected to terminals #16 and #5 of the GS6000 in any order. Keypads, Card Readers and Telephone Entry Systems are typically located remotely from the GS6000. The wiring used is low voltage or CLASS 2. Be sure to run an independent conduit for this wiring from the Entry Device to the GS6000. The wire size should be #16 or #18 stranded for ease of handling.



WARNING!

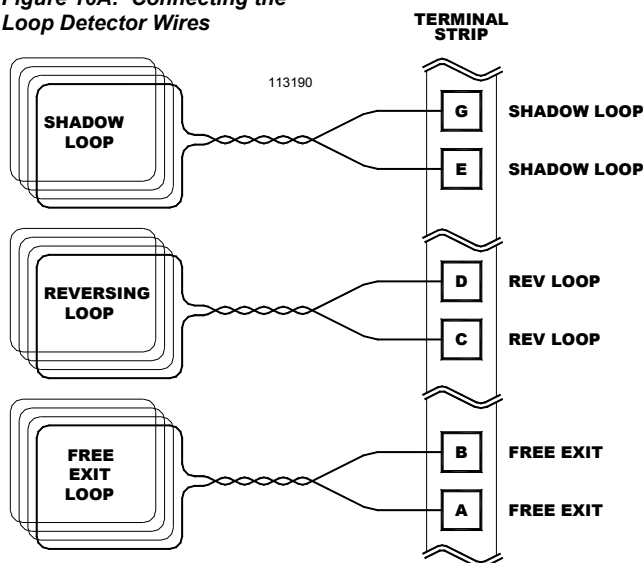
RISK OF ENTRAPMENT!
TO REDUCE THE RISK OF INJURY OR DEATH:
LOCATE KEYPAD, CARD READER, KEY SWITCH
OR SIMILAR ENTRY DEVICES IN A LOCATION
WHERE A USER CAN NOT REACH THROUGH THE
GATE OR FENCE TO ACTIVATE THE GATE
OPERATOR. THE RECOMMENDED DISTANCE
BETWEEN THE GATE OR FENCE AND ACCESSORY



WARNING!

**IMPROPER WIRING COULD CAUSE
ELECTROCUTION OR DAMAGE TO CIRCUITRY.
FOLLOW LOCAL BUILDING AND ELECTRICAL
CODES.**

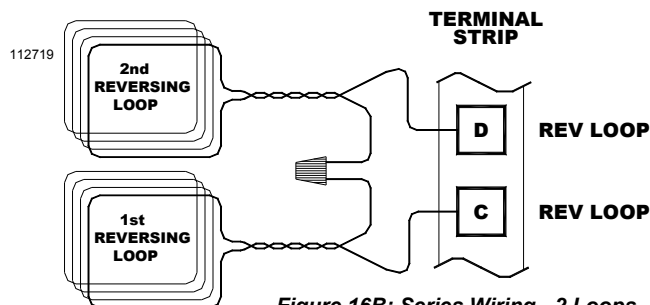
**Figure 16A: Connecting the
Loop Detector Wires**



INSTALLING AND WIRING VEHICLE DETECTORS

REVERSING LOOP VEHICLE DETECTOR: If a Reversing Loop Vehicle Detector is to be a part of this installation, start with this first. Install a 24 VAC powered, 11 pin (round configuration) vehicle detector module into the detector socket. The vehicle detector module must have a relay contact output. The Reversing Loop socket is pre-installed in the rear of the control panel. The actual loop is installed in the concrete or asphalt surface in accordance with the manufacturer's instructions and the information outlined earlier in this manual (see Page 7). Connect the wires from the actual Reversing loop to Terminals C and D, see Figure 16A. If employing two (2) Reversing Loops as shown in the diagram on Page 7, and are connecting the loops to the same Loop Detector, wire in series as shown in Figure 16B.

FREE EXIT AND SHADOW VEHICLE DETECTOR: In a



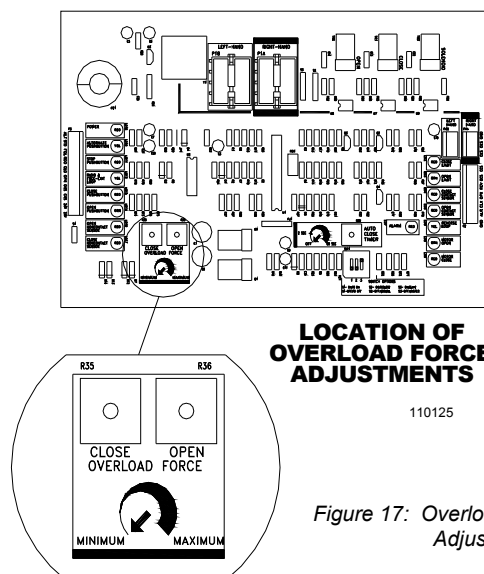
similar manner as the Reversing Loop Detector, if also employing a Free Exit or Shadow Loop Vehicle Detector, install a 24 VAC powered, 11 pin (round configuration) vehicle detector module into the appropriate detector socket. The vehicle detector module must have a relay contact output. The Free Exit and Shadow Loop sockets are pre-installed in the rear of the control panel. The actual loops are installed in the concrete or asphalt surface in accordance with the manufacturer's instructions and the information outlined earlier in this manual (see Page 7). Connect the wires from the actual Free Exit loop to Terminals A and B and/or connect the wires from the actual Shadow loop to Terminals E and G, see Figure 16A.

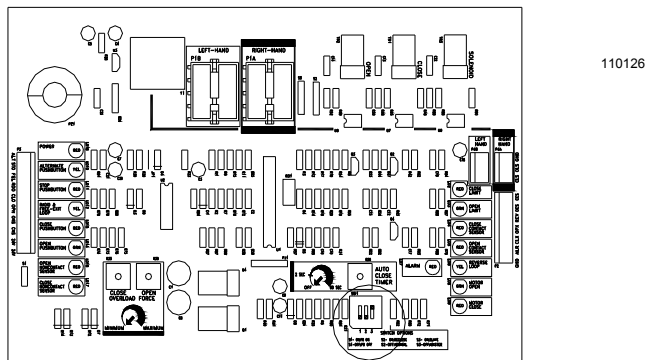
Set the frequency and sensitivity switches (if any) according to the loop detector manufacturer's instructions.

PRESETTING THE MOTOR OVERLOAD SENSITIVITY POTENTIOMETERS

The GS6000 has independent adjustments for Open and Close Overload Sensitivity. The GS6000 is shipped from the Factory with the overload settings at their most sensitive setting. During the initial check out phase, it will be necessary to adjust the sensitivity to prevent inherent overloads from gate friction and other gate anomalies. See Figure 17. Adjust the OPEN and CLOSE OVERLOAD potentiometers approximately 1/4 turn clockwise. Note! Turning the potentiometer clockwise decreases sensitivity. Turning the potentiometer counterclockwise increases sensitivity.

**WARNING: THE OVERLOAD POTENTIOMETERS MUST
BE SET MORE PRECISELY PRIOR TO COMPLETING THE
GS6000 INSTALLATION.** (See, FINAL SETTING OF THE
MOTOR OVERLOAD SENSITIVITY)





LOCATION OF SWITCH SELECTABLE OPTIONS

SETTING THE SWITCH SELECTABLE OPTIONS

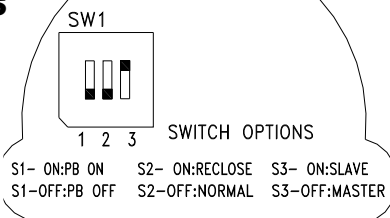


Figure 18: SETTABLE SWITCHES

The switches that control the selectable options are located on the Control board. See Figure 18.

NO-LOAD TEST MODE

To run/test the GS6000 operator when it is not connected to a gate leaf, turn all of the switches to the “ON” position. The GS6000 can then be operated without a gate leaf attached for 20 complete cycles. If more that twenty cycles are attempted in the test mode the operator control board changes to a “sleep” mode and a low pulsed tone is heard from the audible output. You can reset the operator for a renewed 20 test cycles by turning the power off and back on again. To return to normal operation turn one of the switches to the “OFF” position, then set all the switches to the desired mode of operation as described in the text that follows.

SAFE SECURE™ OPEN/CLOSE PUSH BUTTON ENABLE-ON-ALARM FEATURE (PATENT NO. 6,611,205)

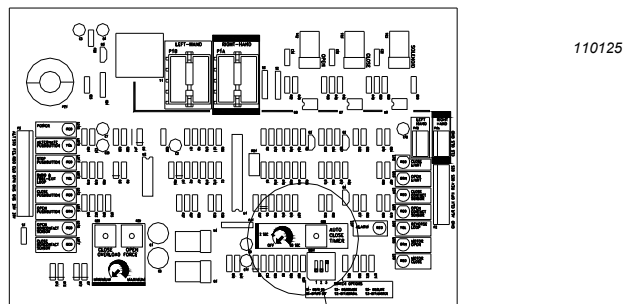
Switch S1 controls the Safe Secure Open/Close Push Button Enable-On-Alarm Feature.

SWITCH 1 OFF: Activating the Open or Close buttons the gate will open or close fully. Activation of the Open while the gate is closing will cause it to re-open. Activation of the Close while the gate is opening has no effect. Continuous activation of an opposing button while the gate is on a limit will prevent operation in that direction. Continuous signal required to move the gate when in the alarm mode.

SWITCH 1 ON: Gate does not respond to pushbutton input when in the normal mode. Continuous signal required to move the gate when in the alarm mode. This patented feature allows you to mount a two or three button station in an unsecured location as it will only be active when in the alarm mode.

TIMER TO CLOSE SETTING

The Timer to Close is controlled by the setting of the “AUTO CLOSE TIMER” potentiometer on the control board, see Figure 19. When the pot is adjusted fully counter-clockwise the Timer-To-Close is disabled. Turning the pot approximately 1/4 turn clockwise will enable the Timer To Close function with a delay of approximately 2 seconds between the gate reaching the full open position and automatically closing. To increase the time delay continue to turn the pot in the clockwise direction to a maximum delay of 60 seconds (one minute).



LOCATION OF AUTOCLOSE TIMER ADJUSTMENT

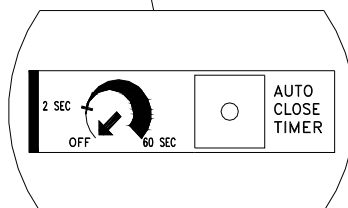


Figure 19: Location of Auto-Close Timer Adjustment

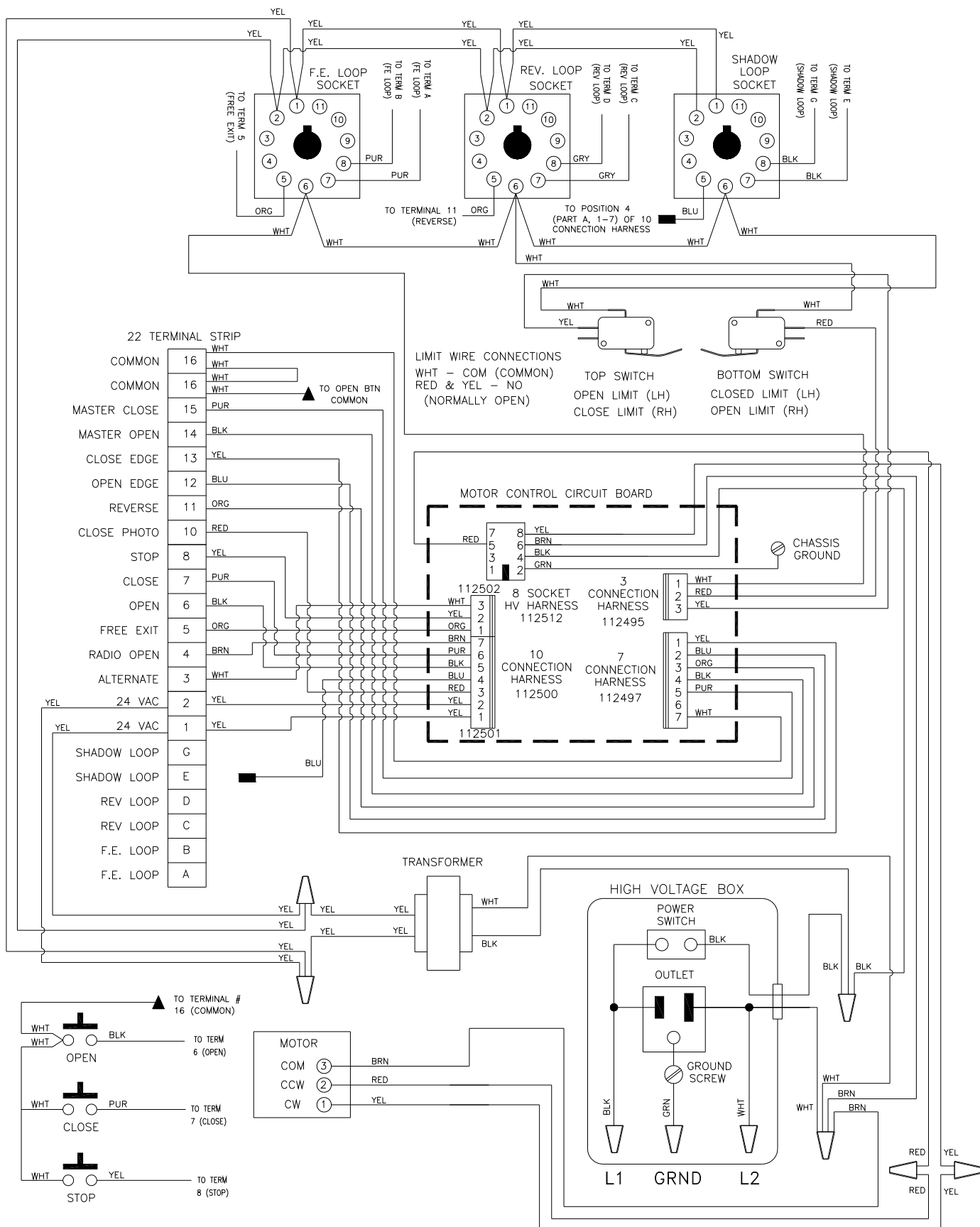
AUTO RE-CLOSE (TIMER-TO-CLOSE FUNCTION)

Switch S2 controls the Auto-Re-close function. If the Timer To Close function is enabled (see above), setting Switch S2 to the ON position will activate the Auto-Re-close feature on the motor control board. When the auto-re-close is activated, the gate will re-close after stopping and backing-off from a non-contact sensor input if the close movement was initiated by the Timer-To-Close function on the control board. The gate will not re-close if the sensor input was received from a contact sensor or if the inherent overload sensor was activated.

PRIMARY/SECONDARY CONFIGURATION

Switch S3 controls the Primary (Master) Terminals (#s 14 & 15) configuration setting. The setting is used when two control boards (boxes) are used in conjunction with two mechanical units.

With Switch S3 in the ON position terminals 6 & 7 (OPEN & CLOSE) are in the Secondary mode and could be coupled to and would be controlled by a Primary control board (box). With Switch S3 in the OFF position terminals 14 & 15 are in the Primary (output) mode and could be coupled to and would control a Secondary control board (box).



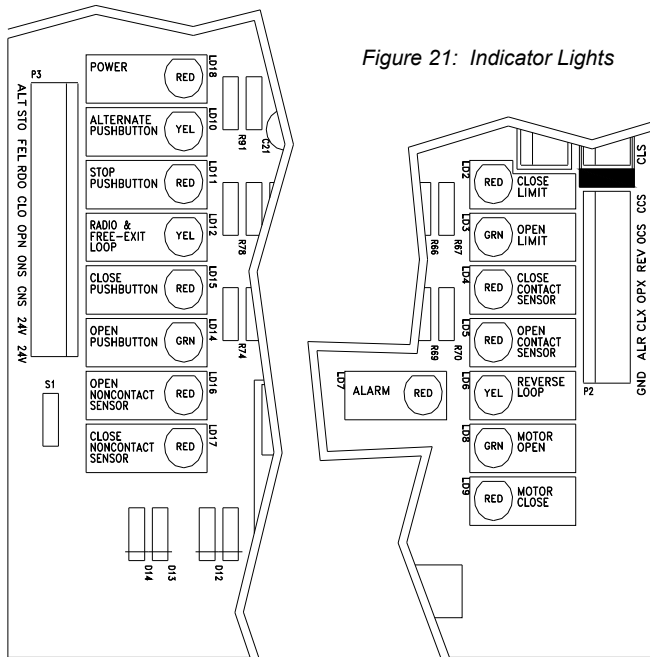


Figure 21: Indicator Lights

INDICATOR LAMPS

Before applying power to the GS6000 for the first time, go through the following check list to ensure that all is in order for the application of power.

1. Check that the GS6000 power switch is off.
2. Check that the breaker at the power panel is on.
3. With a voltmeter on the proper scale, check that the line voltage on the GS6000 control board is the voltage that is expected. Check the voltage at the power outlet for 115 VAC, uncover the wire nuts for 230 VAC. Connection of a 115 VAC GS6000 to an unexpected 230 VAC line is a common occurrence. This will cause readily identifiable board failure that **WILL NOT BE COVERED UNDER WARRANTY**.
4. Manually move the gate to the center of the gate opening.
5. Make sure the Torque Limiter is properly adjusted to slip under a load when a moderate amount of force is applied to the gate in the center of its travel. If the adjustment is too loose, the overload sensitivity will not function properly and the Torque Limiter may slip when the gate is under a wind loading. Start by tightening the large nut on the Torque Limiter to 35 ft-lbs./in. To fine tune, increase or decrease this by approximately 5 ft-lbs./in. increments. When a satisfactory setting is found, tighten the set screws in the side of the large nut.
6. Set all the Switch selectable options switches ON for the test mode.
7. Make sure that the overload sensitivity potentiometers (Open and Close) are set to their preliminary start up position.
8. **Temporarily remove the white high voltage connector from the control board and go to next section - "Checking the Indicator Lamps" (below).**

CHECKING THE INDICATOR LIGHTS

There are 16 indicator lights on the control board of the GS6000. See Figure 21. These lights are used to verify proper operation of the GS6000.

TURN ON THE MAIN POWER SWITCH TO THE GS6000.

- Note that the "POWER" lamp is lighted. This indicates that power is applied to the control board and the power supply is functioning
1. Connect one end of a short piece of wire (not supplied) to terminal #16 (COMMON).
 2. With the other end of this wire, (make sure that this loose end is free of insulation), touch the following terminals and observe the noted response of the lamps.
 3. Connect to Terminal #17, Close Limit Switch: Close Limit Switch light is ON.
 4. Connect to Terminal #18, Open Limit Switch: Open Limit Switch light is ON.
 5. Connect to Terminal #4, Radio Open.: Radio Open light is ON, Motor Open light is ON.
 6. Remove wire from Terminal #4, Radio Open. Radio Open light goes OUT, Motor Open light stays ON.
 7. Connect to Terminal #8, Stop: Both Motor Open and Motor Close lights are momentarily ON, then both Motor Open and Motor Close lights go OUT. The Stop Pushbutton light is ON as long as the wire is held on the terminal and the goes OUT when the wire is removed.
 8. Connect to Terminal #7, Close: Observe that the Motor Close light comes ON and the Close Pushbutton light is ON. Remove the wire from terminal #7 and observe that the Close Pushbutton light goes OUT and the Motor Close light stays ON.
 9. Connect to Terminal #3, Alternate: Observe that both Motor lights are ON momentarily and then the Motor Close light goes OUT and the Motor Open light stays ON.
 10. Connect to Terminal #8, Stop.: Same as above, Sequence 5.
 11. Connect to Terminal #6, Open: Observe that the Motor Open light comes ON and the Open Pushbutton light is ON. Remove the wire from terminal #6 and observe that the Open Pushbutton light goes OUT and the Motor Open light stay ON.
 12. Connect to Terminal #12, Open Contact Sensor: Note that the Open Contact Sensor light comes on & remains on until the connection is removed. Observe that the both Motor Open and Motor Close lights are momentarily ON, then the Motor Open light goes out and the Motor Close light stays on for approximately 1 second then goes out.
 13. Connect to Terminal #7, Close: Same as above Sequence #8.
 14. Connect to Terminal #10, Close Non-contact Sensor: Note that the Close Non-contact Sensor light comes on & remains on until the connection is removed. Observe that the both Motor Open and Motor Close lights are momentarily ON, then the Motor Close light goes out and the Motor Open light stays on for approximately 1 second then goes out.
 15. Connect to Terminal #7, Close: Same as above Sequence #8.
 16. Connect to Terminal #13, Close Contact Sensor: Note that the



Close Contact Sensor light comes on & remains on until the connection is removed. Observe that the both Motor Open and Motor Close lights are momentarily ON, then the Motor Close light goes out and the Motor Open light stays on for approximately 1 second then goes out.

17. Check the operation of the Loop Modules as applicable.

CHECK OF THE INDICATOR LAMPS HAS BEEN COMPLETED.

IF THE INDICATOR TEST PERFORMED SATISFACTORILY, TURN OFF THE AC POWER SWITCH AT THE GS6000 CONTROL BOX AND RECONNECT THE WHITE HIGH VOLTAGE HARNESS CONNECTOR TO THE CONTROL BOARD. RESET THE SWITCH SELECTABLE OPTIONS (S1, S2, S3) TO THE APPROPRIATE SETTINGS AS PER THE FUNCTIONS DESIRED (SEE PAGE 19).

PRE RUNNING CHECKLIST

Before running the GS6000, make sure:

1. The proper Left-or Right-hand or Bi-Parting wiring has been completed (if applicable).
2. The Limit Switch Cams have been preliminarily set.
3. The Overload Sensitivity has been preset.
4. The Switch Selectable Options have been set.
5. The Gate has been positioned in the center of it's travel.
6. The Torque Limiter is properly adjusted.
7. No other devices should be connected to the terminal strip until the powering-up procedures are completed.

RUNNING THE GS6000

Turn ON the main power switch. The Power Lamp will come on. The Alarm will sound for 1/2 second (a brief chirp), the Alarm indicator lamp will flash for 1/2 second. The gate should not move. If the gate moves in either direction turn off the power and call Factory Service for assistance.

1. Give the GS6000 a command to open by connecting the jumper wire from Terminal #16 (COMMON) to Terminal #6 (OPEN). The gate should move to the fully open position.
2. If the TIMER TO CLOSE option has been selected, the timer will activate the gate to close within a maximum of 60 seconds depending on the setting of the TIMER TO CLOSE potentiometer (See Figure 19, Page 19).
3. If the TIMER TO CLOSE is not to be used on this installation, activate the gate to Close by connecting the jumper wire from Terminal #16 (COMMON) to Terminal #7 (CLOSE). The gate should move to the fully closed position.
4. Allow the gate to close and note the position of the gate.

IF THE GATE HITS THE OPEN OR CLOSE STOPS OR EITHER THE MOTOR OPEN OR CLOSE LIGHT REMAINS ON AFTER REACHING THE MECHANICAL STOPS AND THE LIMIT SWITCH LIGHT IS "ON", TURN OFF THE MAIN POWER SWITCH. IF THE GATE HITS THE MECHANICAL

LIMIT AND THE LIMIT SWITCH LIGHT DOES NOT COME ON, THE LIMIT CAM OR THE STOP WILL NEED TO BE READJUSTED.

If the gate stops short of the desired fully open or closed position or if it bangs against the end stops, TURN OFF THE MAIN POWER and reset the appropriate Limit Switch Cam. After you have attained the final adjustment, run the GS6000 open and closed several times to ensure that the positions set will be retained.

SMART™ SETTING - MAXIMUM RUN TIMER

The GS6000 is equipped with a Self adjusting MAXimum Run Timer, SMART™, that will turn the GS6000 OFF if a Limit Switch command is not received within five seconds of the time required to fully Open or Close the gate. The purpose of the Maximum Run Timer is to turn off the GS6000 if the gate should become jammed when opening or closing. In this case, the Limit Switch will not be activated. Should this occur, the Torque Limiter will slip and the pads will be worn out prematurely. The Maximum Run Timer will prevent this by turning OFF the GS6000. Once the obstruction is removed, any command will reactive the GS6000.

To set the Smart™ Maximum Run Time fully open and close the gate five (5) times. The control board will sense the time required and add approximately four seconds.

WHEN CHECKING OPERATION OF THE LIMIT SWITCHES, BE CERTAIN THE MOTOR IS BEING TURNED OFF BY THE LIMIT SWITCH AND NOT THE MAXIMUM RUN TIMER. SHOULD THE GATE REACH THE OPEN OR CLOSED POSITION AND THE RESPECTIVE LIMIT SWITCH LIGHT DOES NOT COME ON BUT THE MOTOR STOPS RUNNING, THEN THE MAXIMUM RUN TIMER IS TURNING OFF THE MOTOR. TURNING THE GS6000 OFF BY THE MAXIMUM RUN TIMER WILL CAUSE THE TORQUE LIMITER TO SLIP FOR AN UNNECESSARY AMOUNT OF TIME EACH TIME THE GATE IS OPERATED. THE TORQUE LIMITER PADS ARE NOT CAPABLE OF LONG LIFE UNDER THESE CONDITIONS. PREMATURE WEAR WILL OCCUR AND FREQUENT ADJUSTMENT OF THE TORQUE LIMITER WILL BE NECESSARY.



WARNING!

**RISK OF ENTRAPMENT
OVERLOAD SENSITIVITY HAS NOT HAD
A FINAL ADJUSTMENT.
DO NOT ALLOW ANYONE NEAR THE GATE AND
DO NOT LEAVE GATE AND GS6000 UNIT
UNATTENDED UNTIL THE FOLLOWING
PROCEDURES HAVE BEEN COMPLETED.
USE CAUTION DURING THIS FINAL
ADJUSTMENT PERIOD.**



FINAL SETTING OF THE CLOSE TIMER

To alter the amount of time that the close timer will hold the gate open, adjust the timer potentiometer located on the Control Board. See Figure 19, page 19.

The Close Timer is adjustable from 2 to approximately 60 seconds. Turning the potentiometer **clockwise increases** the delay; turning it **counterclockwise decreases** the delay.

FINAL SETTING OF THE MOTOR OVERLOAD SENSITIVITY

The motor overload sensitivity was preset for each direction before turning on the main power to prevent the operator from "self-tripping" during the preliminary adjustment period.

Adjust the Open Overload Force potentiometer, see Figure 17, fully counter-clockwise then approximately 1/16 of a turn in the clockwise direction. Start from the closed gate position and give the GS6000 an open command and observe the Gate. If the gate stops and reverses anywhere in the cycle turn the Open Overload potentiometer approximately 1/16 in the clockwise direction. Repeat this process until the gate will open without the Open Overload tripping and with the Open Overload potentiometer in the most counterclockwise direction. (Make sure the gate swings easily and there are no obstructions in the path of the gate.)

Repeat the above adjustment procedure for the close direction.

CAUTION: During this process the alarm will sound if the overload sensor is activated two sequential times before the gate reaches a limit (open or close). To reset the alarm sensor use constant pressure on a control button connected to the OPEN or CLOSE input and move the gate to a fully open or closed position or turn off and restore the power to the operator.

When you are satisfied that you have the best settings, test these settings by striking the gate a sharp blow with the palm of your hand in both the open and close direction. The OVERLOAD should respond immediately to your blow. If the Torque Limiter slips before the overload is detected, the Torque Limiter will need to be tightened. The purpose of the Torque Limiter is to protect the mechanical components of the GS6000 (primarily the Gear Box). The Torque Limiter should be adjusted so that the OVERLOAD will be activated before slippage occurs.

IMPORTANT ! THE OVERLOAD POTENTIOMETERS MUST BE ADJUSTED TO THE MOST SENSITIVE POSITION POSSIBLE WITHOUT CAUSING "SELF-TRIPPING" DUE TO THE GATE'S INHERENT FRICTION OR TO VARIATIONS IN THE GATE HINGE. TRY ADJUSTING THE POTENTIOMETERS SEVERAL TIMES BY SMALL INCREMENTS, TESTING THE OVERLOAD BY STRIKING THE GATE WITH YOUR PALM IN BOTH DIRECTIONS OF TRAVEL. REPEAT THIS TEST UNTIL YOU ARE SATISFIED YOU HAVE THE MOST SENSITIVE SETTING OF THE POTENTIOMETERS.

Disconnect the crank arm from the output shaft to permit re-installation of the cover on the mechanical unit. Install the operator cover and secure it to the frame with (2) 1/4-20 hex bolts. Remember to re-install the rain seal on the output shaft. Re-connect

the gate arm on the GS6000 and secure it with the padlock provided. Complete the installation by replacing the cover on the Control box. Review the Installation Notes in Section A of this manual and describe the gate system operation to the end user. Review the Gate Operator System Operation and Safety Guide in Section F of this manual with the end user.

You are now ready to install and connect the ancillary equipment. **INSTALLATION STEPS DETAILED IN SECTIONS A, B, C AND D MUST BE COMPLETE BEFORE PROCEEDING.**

Installing Entry Devices

After you are satisfied that all the loops are functioning properly, proceed with the installation of any additional entry devices, such as a Radio Receiver, Telephone Entry or Key Pad. Connect the Radio Receiver and observe the precautions regarding radio receivers described on page 14. Other entry devices **MUST** be connected to the appropriate terminal(s) as their functions warrant as described on page 21.

Installing a Magnetic Lock

The GS6000 can (as an option) be configured and wired to provide a closed contact to control the power to a Magnetic Lock. This option must be ordered at the same time as the operator or as a kit installation after the original installation.

The magnetic lock must be powered by an external source, the operator provides only a contact to energize and de-energize the lock.

Note: the Allstar GS1000 (slide gate operator) uses the same Control Board as the GS6000, except for the configuration of the LOCK circuitry. If the LOCK is energized when the gate is opening or closing, a GS1000 Control Board has been accidentally installed in your GS6000 operator. It must be replaced with a GS6000 BOARD.

The Magnetic Lock will be released by the GS6000 about 100 milliseconds prior to giving the gate an Open Command. This time delay is to allow the magnetic field in the Magnetic Lock to decay and release the Lock prior to starting the gate.

AT THIS TIME REINSTALL THE OPERATOR COVER, RAIN SEAL, AND TURRET COVER IN THE REVERSE ORDER AS DESCRIBED ON PAGE 9 "PLACING THE GS6000..". ENSURE THE GATE ARM IS PROPERLY CONNECTED AS PER THE PROCEDURE ON PAGE 10.



TERMINAL STRIP REFERENCE CHART

#	NAME	DESCRIPTION
1	24 VAC	Provides maximum 10 VA auxiliary power for accessories.
2	24 VAC	Provides maximum 10 VA auxiliary power for accessories.
3	ALTERNATE	Momentary input, must be released and re-entered to be recognized. This input is used for "COMMAND OPEN/COMMAND CLOSE" applications. The 1st signal will cause the gate to begin opening. A 2nd signal received during the open cycle will stop the gate immediately. A 3rd signal will close the gate. Connect appropriate access control devices to this terminal and #16 COMMON. Disable the Close Timer (rotate pot fully counter-clockwise).
4	RADIO OPEN	Momentary input, must be released and re-entered to be recognized. Once activated the gate will open fully. Activation while the gate is closing will cause it to re-open.
5	FREE EXIT	Momentary or continuous input. Once activated the gate will open fully. Activation while the gate is closing will cause it to re-open. Continuous activation while the gate is open will prevent the Timer-To-Close function from automatically closing the gate.
6	OPEN	Momentary or continuous signal. On/Off mode set by Switch #1 WITH SWITCH 1 OFF: Once activated the gate will open fully. Activation while the gate is closing will cause it to re-open. Continuous activation while the gate is open will prevent the Timer-To-Close function from automatically closing the gate. Continuous signal required to move the gate when in the alarm mode. WITH SWITCH 1 ON: Gate does not respond to pushbutton input when in the normal mode. Continuous signal required to move the gate when in the alarm mode.
7	CLOSE	Momentary or continuous signal. On/Off mode set by Switch #1 WITH SWITCH 1 OFF: Once activated the gate will close fully. Activation while the gate is opening has no effect. Continuous signal required to move the gate when in the alarm mode. WITH SWITCH 1 ON: Gate does not respond to pushbutton input when in the normal mode. Continuous signal required to move the gate when in the alarm mode.
8	STOP	Momentary or continuous signal. Overrides all other signals. Once activated, the gate will immediately stop and await a new command. If the STOP input is continuously activated, the gate will not move.
10	CLOSE PHOTO	Momentary or continuous signal. This input is active only when referenced to the closing direction, it has no effect on the gate when opening or about to open. If activated when the gate is closing the gate will stop, pause and reverse in the open direction for 1/2 second (approx. 2 inches) and stop. Continuous activation will prevent the gate from moving in the close direction. When the input is removed normal operation is resumed. If the Timer-To-Close function initiated the close movement and Switch S2 (Re-close) is ON, the gate will automatically re-close from a partially closed position after the input to Close Photo is removed. Continuous activation while the gate is open will prevent the Timer-To-Close function (if enabled) from automatically closing the gate.

#	NAME	DESCRIPTION
10	CLOSE PHOTO (CONT.)	Momentary or continuous signal. This input is intended for photoelectric eye systems and other non-contact devices as appropriate. Connect here and to terminal #16 COMMON. Multiple devices may be connected in parallel.
11	REVERSE	Momentary or continuous signal. This input is active only when the gate is closing or when it's fully open and the Close Timer is operative. All stand-alone vehicle detectors, photo-eyes and active edges should be connected here and to terminals #16 COMMON. Multiple devices may be connected in parallel.
12	OPEN EDGE	Momentary or continuous signal. This input is active only when referenced to the opening direction, it has no effect on the gate when closing or about to close. If activated when the gate is opening the gate will stop, pause and reverse in the close direction for 1/2 second (approx. 2 inches) and stop. Continuous activation will prevent the gate from moving in the open direction. If a second activation occurs before the limit switch is activated the gate will stop and a require a renewed, intended input to move in the open direction and before an automatic activation device (timer, etc.) will operate. This input is intended for Electric Gate Edge systems and other minimum-contact devices as appropriate. Connect here and to terminal #16 COMMON. Multiple devices may be connected in parallel.
13	CLOSE EDGE	Momentary or continuous signal. This input is active only when referenced to the closing direction, it has no effect on the gate when opening or about to open. If activated when the gate is closing the gate will stop, pause and reverse in the open direction for 1/2 second (approx. 2 inches) and stop. Continuous activation will prevent the gate from moving in the close direction. Continuous activation while the gate is open will prevent the Timer-To-Close function (if enabled) from automatically closing the gate. If a second activation occurs before the limit switch is activated the gate will stop and a require a renewed, intended input to move in the close direction and before an automatic activation device (timer, etc.) will operate. This input is intended for Electric Gate Edge systems and other minimum-contact devices as appropriate. Connect here and to terminal #16 COMMON. Multiple devices may be connected in parallel.
14	MASTER OPEN	Momentary or continuous signal. Master (output configuration) This terminal is used to coordinate two independent systems (two control box/mechanical unit combinations controlling separate gate leaves). Connects to terminal #6 (OPEN) in the companion control box and controls the direction of movement in the companion box (Switch S3 ON).
15	MASTER CLOSE	Momentary or continuous signal. Master (output configuration) This terminal is used to coordinate two independent systems (two control box/mechanical unit combinations controlling separate gate leaves). Connects to terminal #7 (CLOSE) in the companion control box and controls the direction of movement in the companion box (Switch S3 ON).
16	COMMON	Common connection for low voltage signal inputs, terminals 3 through 15.



IMPORTANT SAFETY INSTRUCTIONS



WARNING!

TO REDUCE THE RISK OF SEVERE INJURY OR DEATH

1. READ AND FOLLOW ALL INSTRUCTIONS AND WARNINGS IN THIS MANUAL.
2. Never let children operate or play with gate controls. Keep the remote control away from children.
3. Always keep people and objects away from the gate. NO ONE SHOULD CROSS THE PATH OF THE MOVING GATE.
4. Test the gate operator monthly. The gate MUST reverse on contact with a rigid object or stop when an object activates the non-contact sensor. After adjusting the force or the limit of travel, retest the gate operator. Failure to adjust and retest the gate operator properly can increase the risk of injury or death.
5. Use the emergency release (if applicable on this operator) only when the gate is not moving.
6. KEEP GATES PROPERLY MAINTAINED. Read the owner's manual. Have a qualified service person make repairs to gate hardware.
7. The entrance is for vehicles only. Pedestrians must use separate entrance.
8. SAVE THESE INSTRUCTIONS.

To the Owner/End User of Allstar's GS6000:

Thank you for choosing an Allstar product. We are confident you will have many years of use and satisfaction with your gate operator.

Your GS6000 Operator is part of your unique gate operating system, which may consist of a variety of components, including the gate, the gate tracks, posts, and electronic safety features. These components combined present certain risks and safety issues of which you, the end user, must be aware.

Each unique system presents a unique set of hazards which we cannot possibly address individually. These instructions will help you to identify the potential risks and safety issues your gate operator system presents, and guide you as you make your system as safe as possible for everyone who uses it.

Your first step is to consider the intended use of the gate system, who will be using the gate system, and in what manner the system is installed. You should have a clear understanding of how often the gate will be opened, who will be opening it, whether children and the general public will be near the gate system, and how close the gate system is to public property. Once you have answered these questions, you are ready to decide what safety measures must be taken to prevent injury.



AVOID ENTRAPMENT: Stay away from the **path** of the gate and all moving parts (gate arms, etc.) at all times. Keep clear of the pinch points identified in the illustrations on Page 23 and 24. Install guards or other safety features to prevent access to pinch point areas. Install guards on open rollers.

To minimize the risk of entrapment in your gate system, install the following safety features:

- Electric gate edges
- Enclosed tracks
- Vertical guard posts
- Protective screen mesh
- Photoelectric sensors
- Instructional and precautionary signs
- Covers for exposed rollers

Each safety feature is a separate component in your gate system. Read and follow all instructions for each of the components of your unique system. **Ensure that all instructions for mechanical components, safety features and the Allstar GS6000 are available for everyone who will be using your gate system.**

The two warning signs shipped with your GS6000 Operator (See Figure 4, Page 5 of this manual) must be installed in prominent positions on both sides of your gate. Keep them clean and legible.

Read and put into practice the safety points that follow which present the basic guidelines for the safest operation of your gate operator system.



PREVENT PERSONAL INJURY OR DEATH: Do not stand near or on the gate. Gate may be activated without notice. Do not allow anyone to "ride" the gate, or place arms or legs through the gate. The force of the gate can cause serious personal injury or death. No one should cross the path of a moving gate.

26 | E: END USER INSTRUCTIONS

GATE OPENER OPERATION & SAFETY GUIDE



! NO CHILDREN OR PETS ALLOWED: Never allow a child to operate gate controls, “ride” a gate, or play in the area of a gate. **Install and store all controls out of children’s reach.** Also, pets must be kept away from the gate. Install a pedestrian gate in applications where children or pets need access. This entrance is for vehicles only. Pedestrians must use a separate entrance.

! KEEP GATE IN SIGHT: Never activate the gate unless it is in sight. Install mounted controls in full view of the gate. Be sure the gate area is clear before activating the gate, and watch the gate

! MAINTAIN ALL COMPONENTS OF GATE SYSTEM: Follow the maintenance instructions included with the gate, the gate operator, and the safety features and/or accessories that make up your gate operator system. Have a professional service technician perform any adjustments or maintenance to the components. **Fully test all safety features monthly.** Discontinue the use of faulty safety equipment immediately, and have the equipment serviced or replaced. by a qualified service technician. The gate must reverse on contact with a solid, rigid object or when an object activates the non-contact sensors. After adjusting the force or limits of travel, retest the gate operator. Failure to adjust and retest the gate operator properly can increase the risk of injury or death.

! INSTALL SAFETY DEVICES: In residential applications or in areas where pedestrians may be present, or if your gate closes automatically, be sure an electric edge(s) and/or a photoelectric sensor(s) has (have) been installed and is/are operating properly. These features are intended to detect pedestrian traffic and prevent injury or entrapment. Loop detectors may be installed to detect vehicular traffic and prevent vehicular damage.

! MAINTAIN THE GATE AND GATE HARDWARE: A damaged gate or one that cannot be easily opened and closed manually must be repaired before installing a gate operator. A poorly operating gate may cause the load sensing device of the operator to fail, causing a risk of entrapment. **Never overtighten the clutch or load sensing device to compensate for a poorly swinging gate.** Correct all mechanical problems on the gate and gate hardware before installing the gate operator. Have a qualified service technician make repairs to the gate.

! LOCATE MANUAL CONTROLS SAFELY: A manual control such as a pushbutton or keyswitch must be included in your gate system design to be used if automatic controls such as radio controls or loop detectors do not function. Carefully consider the placement of the manual control: It must be **out of reach of the gate** so that no one pushing the button or inserting the card is in the path of the gate or moving parts; it must also be **within sight of the gate** so that the operator can watch the gate and gate area during operation. *The recommended minimum distance between the gate or fence and manual controls accessory is 10 feet.*

! KNOW YOUR GATE ARM DISCONNECT FEATURE FOR MANUAL OPERATION: In the event of a power outage, you may need to manually operate your gate. For detailed instructions see page 28. For security purposes, the GS6000 may be equipped with a keyed padlock on the gate arm. Be sure to have the service technician or dealer installing your gate system give you the key to the padlock and show you how to use this feature quickly and safely. Keep the key in a safe, accessible place. Manual operation is to be attempted only when the operator is not moving the gate under power.

! ALL APPROPRIATE SAFETY FEATURES MUST BE INCORPORATED INTO YOUR GATE SYSTEM.

PRECAUTIONS FOR PEDESTRIAN TRAFFIC OR RESIDENTIAL AREAS.



The internal operator overload sensor may not be adequate entrapment protection in all situations to prevent arm, leg, or hand injuries. Padded electric gate edges, pneumatic gate edges, or photoelectric sensors are therefore necessary when automatic gates are used near pedestrian traffic. See the figure below. **Use of a pedestrian walk gate is mandatory where there is nearby pedestrian traffic.**

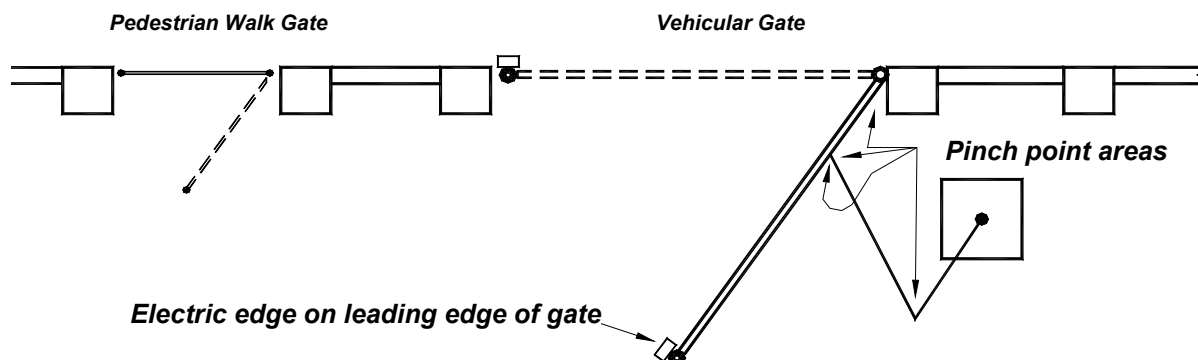
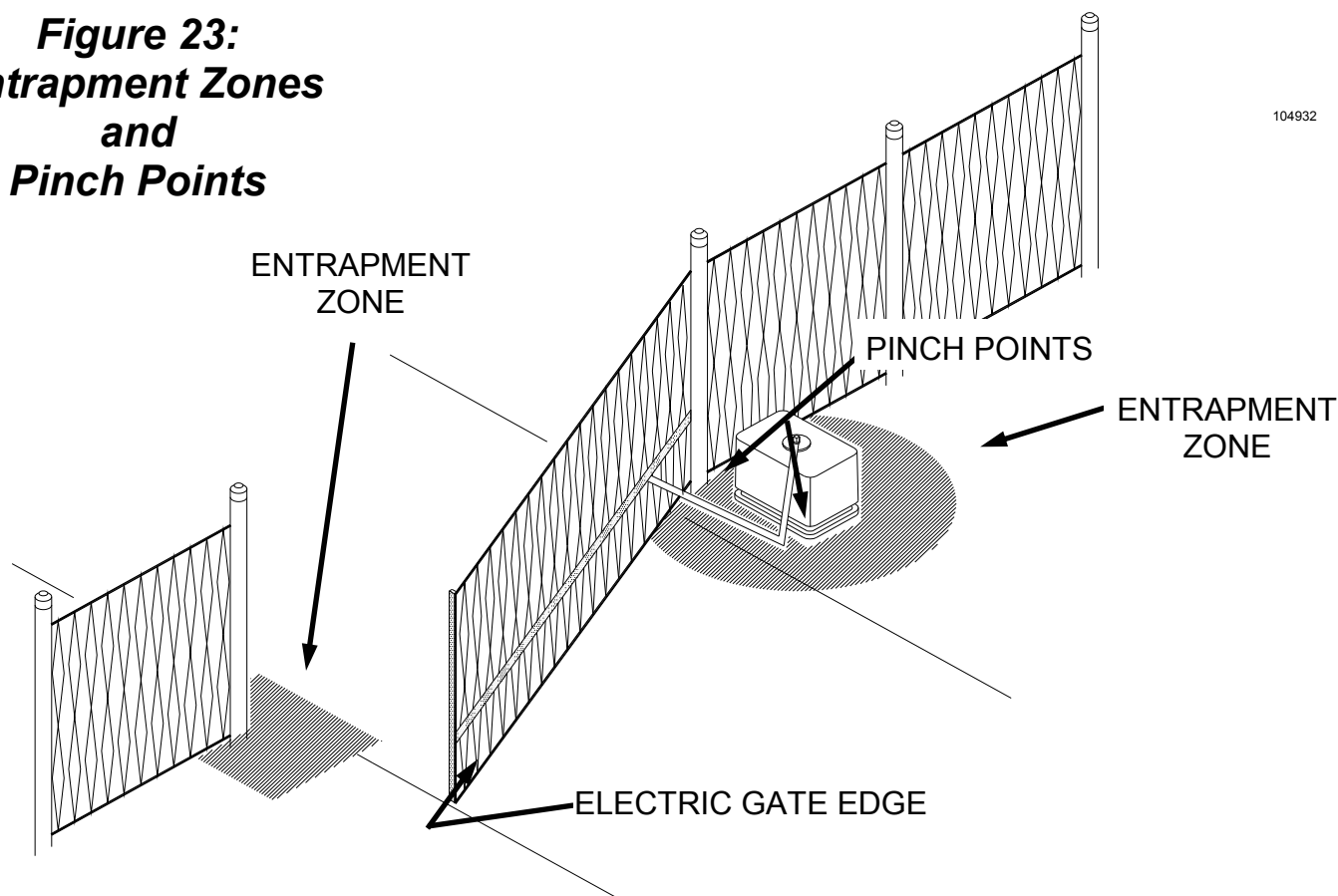


Figure 22: Entrapment Protection



Figure 23:
Entrapment Zones
and
Pinch Points



BASIC OPERATIONAL GUIDE

- If the gate is fully closed an Open Button, Alternate, Radio or Free Exit input will cause the gate to begin moving in the open direction.
- If the gate is fully open a Close Button, Alternate, or Radio input will cause the gate to begin moving in the close direction.
- If the gate is moving in a Close direction a Close Non-Contact Sensor, Close Contact Sensor input or a Close Overload activation will cause the gate to stop, pause and reverse for approximately 2 inches in the Open direction.
- If the gate is moving in a Close direction an Open Button, Radio, or Free Exit Loop input will cause the gate to stop, pause and reverse and run in the Open direction.
- If the gate is moving in a Close direction a Stop Button or Alternate input will cause the gate to stop. A subsequent Alternate input will cause the gate to begin moving in the Open direction.
- If the gate is moving in an Open direction an Open Non-Contact Sensor, Open Contact Sensor input or an Open Overload activation will cause the gate to stop, pause and reverse for approximately 2 inches in the Open direction.
- If the gate is moving in an Open direction a Stop or Alternate input will cause the gate to stop. A subsequent Alternate input will cause the gate to begin moving in the Close direction.
- Two sequential activations of the Overload detector (Open or Close direction) before the gate reaches a limit will cause the operator to go into the alarm mode. To reset the operator remove the obstruction and either use constant pressure on a control button connected to the OPEN or CLOSE input and move the gate to a fully open or closed position **OR** turn off and restore the power to the operator.



MANUAL RELEASE INSTRUCTIONS

TO OPERATE THE GATE MANUALLY:

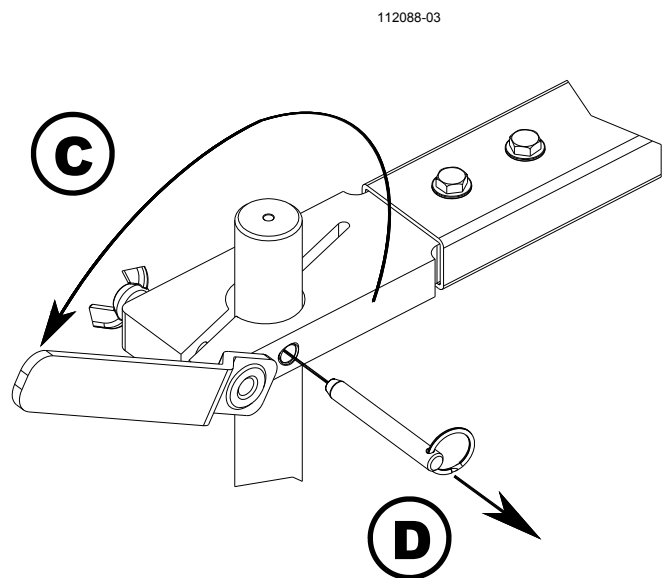
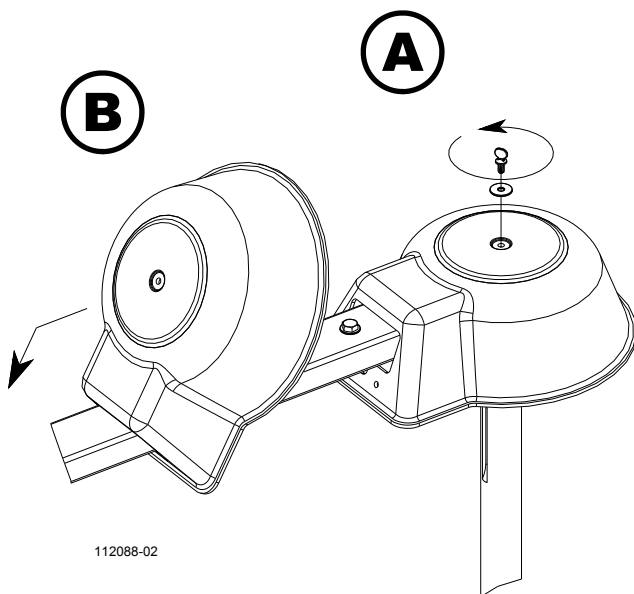
Action A - Unscrew the thumb screw that retains the turret cover.

Action B - Slide the turret cover down the gate arm an appropriate length to complete Actions C & D.

Action C - Rotate the release handle 180 degrees away from the gate arm assembly.

Action D - Pull the release pin completely out of the arm assembly.

The gate can now be moved manually.



Reverse above to put the operator back into automatic service.

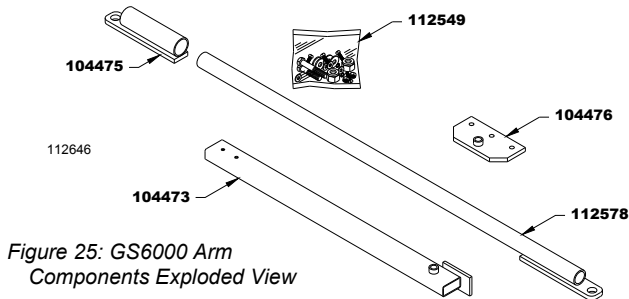




PART #	DESCRIPTION
005068	CON, 3/8 FLEX Conduit, Straight, AMP 207370-1
005244	Transformer, 120V-24V, 50/60 Hz, Class 2, 40VA
006030	Screw, 5/16-18 x 1, ZI
006034	Nut, 1/2-13, Hex
006042	Nut, 4-40, Hex, Captivated Lock Washer
006043	Nut, 5/16-18, Hex, Captivated Lock Washer
006053	Nut, 6-32, Hex, Captivated Lock Washer
006044	Nut, 8-32, Hex, Captivated Lock Washer
006123	Screw, 10-24 x 1-1/4, PN PH MA
006127	Nut, 10-24, Hex, Captivated Lock Washer
006140	Screw, 6-32 x 1, RH MA
006280	Nut, 10-32, Hex, SR FL
008029	Washer, 3/8, INT TTH Lock, 10T
010014	Nut, 5/16-18, U, Tinnerman
010019	Screw, 6-32 x 3/4, PH PN MA
010030	Screw, 10-32 x 1/2, Hex SL WA
010037	Screw, 5/16-18 x 3/4, CR, ZI
010040	Screw, 1/2-13 x 1-1/4, HX
010045	Screw, 1/4-20 x 1/2, SK, Set
010056	Washer, 5/16, INT TTH Lock
010059	Washer, 1/2, INT TTH Lock
010061	Washer, #10, Flat
010169	Connector, Conduit, N, 90 Degree
010172	Motor, 1/2HP, 115V, 56, ODP, PSC, GATE, Leeson
010185	Grommet, 5/8 ID, for 7/8 Hole
010213	Pulley, 2 IN V Belt, 5/8 IN BORE
010215	Bearing, PB, 1.25 x 1-11/16TB, CT IR
010216	Sprocket, 50B54, 1-1/4 Thru Bore, 1/4 Key
010217	Torque Limiter Assembly
010218	Speed Reducer, 60:1
010219	Pulley, 8", V-Belt, 5/8 Bore
010231	Clutch Disk, Torque Limiter
010436	Actuator, Limit Cam
010651	Screw, 5/16-18 x 5/8, SQ Head, Set
100626	Conduit, Non-Metallic, 1/4

PART #	DESCRIPTION
101490	Terminal Block, Barrier Type, 11 POS
103399	Screw, 10-32 x 3/8, HX SL WA, T/F, Green
104058	Washer, 5/16, Flat, SAE
104450	Key, 1/4 x 1/4 x 2L
104479	Arm Stop, Heavy Duty SWGO
105517	Screw, 8-32 x 1/2, PH RD MA
105561	Key, 3/16 x 3/16 x 1
105574	Screw, 8-32 x 1/4, PH PN, T/1, S/T
105575	Screw, 8-32 x 5/8, PH PN, T/1, S/T
107307	Screw, 10-24 x 3/8, HX SL WA, T/F, SS
110132	Receptacle, Duplex, Outlet/Switch, 120 VAC
111673	Control Box, GS6, HDSWG
111674	Control Box Bottom, GS6, HDSWG
111725	Socket, Octal, 11 Pin, DIN/Panel Mounting
111726	Switch, Push Button, SPST, NO, Black
111727	Switch, Push Button, SPST, NO, Red
111788	Bracket, AC Cover, High Voltage, GS6
111789	Bracket, Panel, Push Buttons, GS6
111790	Frame Pan, Loop Socket Mounting, GS6
111982	Screw, #10-32 x 3/4, Spade Head, SS
112032	Limit Switch, SPDT, Simulated Roller Lever
112484	Frame, GS6000, No Components
112487	Chain, #40, Roller, Nickel, 65P w/Master Link
112513	Belt, V, 4L440, Industrial
112518	Motor Control Board, CGO, 120V, GS6, CGA2K
112524	Arm, Crank, GS6, 1.25 Diameter Shaft
112525	Shaft, Output, GS6, Clevis Pined, 1.25 x 19.36
112528	Handle Assy, Release, 3/8-16, GS6 Crank Arm
112531	Pin, Ring Grip, 3/8 x 2.3, Quick Release
112537	Screw, 4-40 x 1-1/4, PHPM, ZI
112539	Washer, #10, Load-Distrib, 0.203 x 0.688 x 0.046
112540	Screw, 4-40 x 3/4, PHPM, ZI
112609	Wing Nut, 3/8-16 UNC-2B, S/S
157149	Standoff, PCB, 3/4IN

GATE ARM EXPLODED VIEW AND COMPONENT LIST



GATE ARM COMPONENTS

PART #	DESCRIPTION
104473	Arm, Crank Extension, GS6, 1 x 2 x 26.5
104475	Fitting, Swing Gate Arm, 1-5/8 x 8
104476	Bracket, Swing Gate, 3 x 6
112549	Hardware Assy, Swing Arm, GS6000
112578	Arm, SWG Gate, Fixed Plate, 1.315 OD x 42L

UNILLUSTRATED COMPONENT LIST

PART #	DESCRIPTION
010291	Rain Seal Rubber Ring
104442	Rain Seal Plate
104779	Antenna, Radio Reciever, FC, 10 Inch
110555	Receiver, Radio, MVP-1Channel, 318 MHz, 24 VAC

PART #	DESCRIPTION
111805	Turret Cover, GS6 Swing Gate Arm
112435	Access Door Assembly, Cover, GS6
112536	Manual, Install / User, GS6000
112666	Cover, Operator, Complete w/RainSeal & Access Door



NOTES



PHYSICAL

PAD: 24W x 30D x 3H

OVERHEAD CLEARANCE: 26 Inch Minimum

UNIT SIZE: 14 Wide x 19 Deep x 27-1/2 High

FRAME: Welded steel, Coated to UL Standards

COVER: Molded Polyethylene

SHIPPING WEIGHT: 200 lbs.

ELECTRICAL

PRIMARY VOLTAGE: 115 VAC, 60 Hz

ELECTRICAL SOURCE: One 3-Wire 15 AMP Service per

CONTROL VOLTAGE: 12/24 VDC

RADIO RECEIVER 24 VAC

MOTOR: 1/2 HP, 4.4 AMP PSC, Instant Reversing

DRIVE

DRIVE SYSTEM: 60:1 Gearbox

TORQUE LIMITER: Mounted on Output Shaft,

OUTPUT SHAFT: 1-1/4 Diameter Ball-Bearing Mounted

LIMITS: Independent Open & Close; Displaced

CAPACITIES

MAX. GATE WEIGHT: 1100 lbs.

MAX. GATE WIDTH: 18 Feet

MAX. CYCLES PER HOUR: 60 Open/Close per Hour

GATE SPEED: 13-15 Seconds for 90° Opening

Specifications subject to change without notice. Consult the factory.

Manufacturer's Limited Warranty

Linear LLC warrants its Allstar brand gate operators to be free from defect in material and workmanship for a period of five (5) years from the date of purchase for single family home use and three (3) years from the date of purchase for multi-family and commercial use. This warranty covers all components except the electronic circuit boards which are warranted for three (3) years from the date of purchase for single family home use and two (2) years from the date of purchase for multi-family and commercial use. To obtain service contact your dealer.

To obtain service under this warranty the buyer must obtain authorization instructions for the return of any goods from Linear before returning the goods. The goods must be returned with complete identification, with copy of proof-of-purchase, freight prepaid and in accordance with Linear's instructions or they will not be accepted. In no event will Linear be responsible for goods returned without proper authorization or identification.

Goods returned to Linear for warranty repair within the warranty period, which upon receipt by Linear are confirmed to be defective and covered by this limited warranty, will be repaired or replaced at Linear's sole option, at no cost and returned pre-paid. Defective parts will be repaired or replaced with new or factory rebuilt parts at Linear's sole option.

This limited warranty does not cover non-defect damage, damage caused by unreasonable use, damage caused by improper installation or care, vandalism or lightning, fire or excessive heat, flood or other acts of God (including, but not limited to misuse, abuse or alterations, failure to provide reasonable and necessary maintenance), labor charges for dismantling or reinstalling a repaired or replaced unit, or replacement batteries.

These warranties are in lieu of all other warranties, either expressed or implied. All implied warranties of merchantability and/or fitness for a particular purpose are hereby disclaimed and excluded. Under no circumstances shall Linear be liable for consequential, incidental or special damages arising in connection with the use or inability to use this product. In no event shall Linear's liability for breach of warranty, breach of contract, negligence or strict liability exceed the cost of the product covered hereby. No person is authorized to assume for the Linear any other liability in connection with the sale of this product.

This warranty gives you specific legal rights. You may also have other rights which vary from state to state. Warranty effective after October 1st, 2007.

For Information:

877-441-9300 800-421-1587 www.allstarcorp.com

**This Gate Operator is built in the USA and
complies with all requirements of
ANSI/UL Standard 325.**