



OWNER'S MANUAL

MODEL SW470

MEDIUM DUTY SWING GATE OPERATOR

MODEL SW490

HEAVY DUTY SWING GATE OPERATOR

MODEL SW470

MODEL SW490



01-G0665F16



01-G0665F17

MODELS SW470 AND SW490 ARE FOR VEHICULAR PASSAGE GATES ONLY AND ARE NOT INTENDED FOR PEDESTRIAN PASSAGE GATE USE

2 YEAR WARRANTY

Serial # _____
(located on electrical box cover)

Installation Date _____





Before attempting to install, operate or maintain the operator, you must read and fully understand this manual and follow all safety instructions.



These instructions are intended to highlight certain safety related issues. These instructions are not intended to be comprehensive. Because each application is unique, it is the responsibility of the purchaser, designer, installer and end user to ensure that the total gate system is safe for its intended use.

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PACKING LIST

Before beginning your installation check that all components were supplied and received undamaged. Refer to list below for Factory Supplied parts.

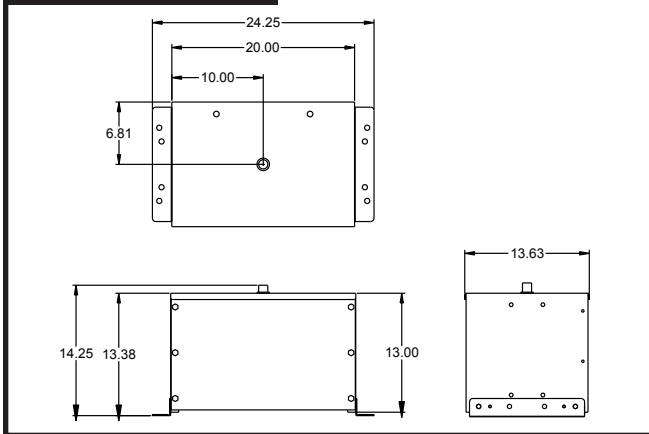
HARDWARE KIT SW470 (K77-SW470)			HARDWARE KIT SW490 (K77-SW490)		
PART #	DESCRIPTION	QTY.	PART #	DESCRIPTION	QTY.
02-401-SP	STOP BUTTON	1	02-401-SP	STOP BUTTON	1
10-2108-T	ARM CHANNEL	1	06-2025-T	ACTUATOR ARM	1
10-2109	EXTENSION ARM	1	08-2001	EXTENSION ARM HOLDER	2
10-2111	GATE BRACKET	1	10-2011	GATE BRACKET	1
40-3505	WARNING SIGN	2	70-18618	EXTENSION ARM	1
80-2103	BLACK PLASTIC KNOB	2	10-3900	39" GALVANIZED STEEL PIPE	1
82-HN38-18	3/8 x 1-1/2 HEX HEAD BOLT	2	11-18619	PIVOT PIN	1
82-SB50-08	1/2-13 x 1/2 SHOULDER BOLT	2	12-10172	3/4 BUSHING	2
84-FN-38	3/8-16 SERRATED FLANGED NUT	4	40-18627	LABEL, DISCONNECT	1
85-FW-38	3/8" FLAT WASHER	2	40-3505	WARNING SIGN	2
			80-207-20	3/8 x 3/8 x 1-1/2 KEY	1
			80-575	3/4 FLAT WASHER	4
			82-HN38-16	3/8-16 x 1 HEX HEAD BOLT	2
			82-HN75-28	3/4-10 x 3 HEX HEAD BOLT	1
			82-NH38-06CP	3/8-16 x 3/8 CONE POINT SET	6
			84-RH-75	3/4-10 HEX NUT	1
			85-LS-38	3/8 LOCKWASHER	2
			86-CP05-300	COTTER PIN	1

GATE WEIGHT SPECIFICATIONS

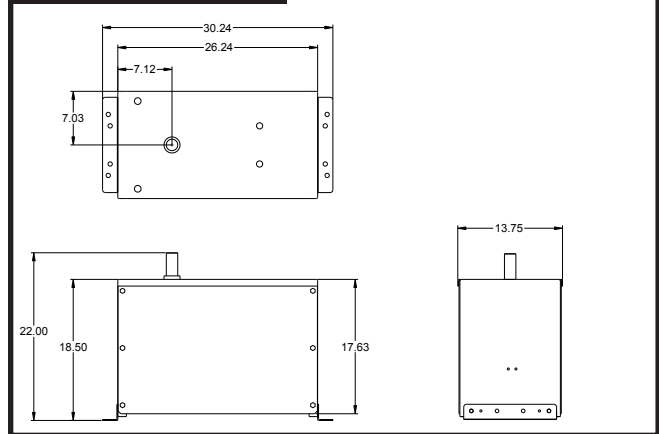
Model	HP	Max. Wt. (Lbs)	Max. Gate Width
SW470-50	1/2	500	12 FT.
SW490-50	1/2	750	16 FT.
SW490-75	3/4	900	19 FT.
SW490-100	1	1000	22.FT.

OPERATOR DIMENSIONS

MODEL 470



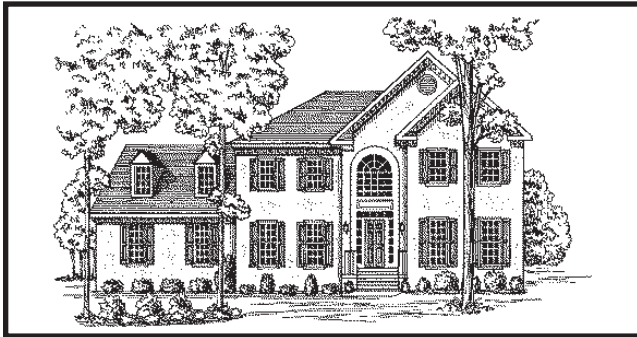
MODEL 490



UL325 MODEL CLASSIFICATIONS

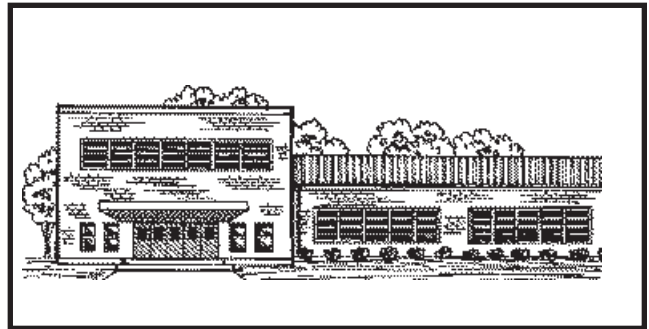
RESIDENTIAL VEHICULAR GATE OPERATOR: CLASS 1

A gate operator intended for use in one to four single family homes.



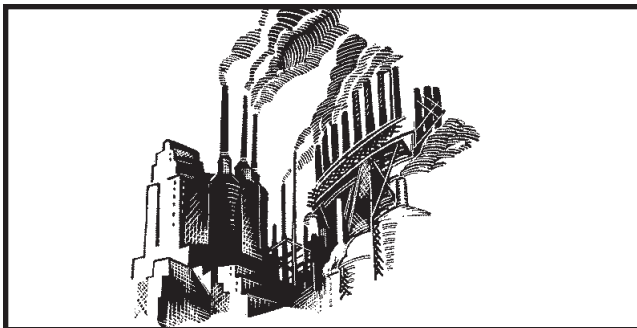
COMMERCIAL/GENERAL ACCESS VEHICULAR GATE OPERATOR: CLASS 2

A gate operator intended for use in commercial locations such as gated communities, apartment complexes, hotels, garages, retail stores, or other buildings used by the general public.



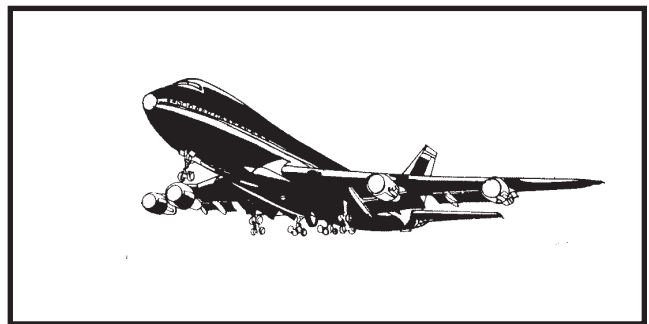
INDUSTRIAL/LIMITED ACCESS VEHICULAR GATE OPERATOR: CLASS 3

A gate operator intended for use in industrial locations such as factories, loading dock areas or other locations not intended for use by the general public.



RESTRICTED ACCESS VEHICULAR GATE OPERATOR: CLASS 4

A gate operator intended for use in a guarded industrial location such as an airport security area or other guarded location restricting access by security personnel.



NOTE: Models SW470 and SW490 meet the following specifications

MODEL	CLASS 1	CLASS 2	CLASS 3	CLASS 4
SW470	✓	✓	✓	✓
SW490	✓	✓	✓	✓

UL325 MODEL CLASSIFICATIONS (CON'T)

SAFETY ACCESSORY SELECTION-

All UL325 compliant LiftMaster gate operators will accept external entrapment protection devices to protect people from motorized gate systems. UL325 requires that the type of entrapment protection correctly matches each gate application. Below are the 6 types of entrapment protection recognized by UL325.

Entrapment Protection Types-

- Type A: Inherent obstruction sensing system, self-contained within the operator. This system must sense and initiate the reverse of the gate within two seconds of contact with a solid object.
- Type B1: Connections provided for a non-contact device, such as a photo eye can be used as a secondary protection.
- Type B2: Connections provided for a contact sensor. A contact device such as a gate edge can be used for secondary protection.
- Type C: Inherent adjustable clutch or pressure relief valve.
- Type D: Connections provided for a control requiring continuous pressure to operate the operator open and close.
- Type E: Built-in audio alarm. Examples include sirens, horns or buzzers.

Additionally UL requires that all installations must have warning signs in place to warn pedestrians of the dangers of motorized gate systems. Many signs and labels are included with each operator. These should be placed in plain view on both sides of the gate.



Miller Edge
-Type B2 entrapment protection

UL325 Entrapment Protection Requirements-

The following chart illustrates the entrapment protection requirements for each of the 4 UL325 classes (For more information on UL325 classes refer to previous page).

Gate Operator Entrapment Protection				
UL325 Installation Class	Slide Gate Operator		Swing & Gate Barrier (arm) Operator	
	Primary Type	Secondary Type	Primary Type	Secondary Type
Class I & II	A	B1, B2 or D	A or C	A, B1, C or DA, B1
Class III	A, B1, B2, or B2	A, B1, D or E	A, B1, C, or C	D or E
Class IV	A, B1, B2 or D	A, B1, B2, D or E	A, B1, C or D	A, B1, C, D or E

In order to complete a proper installation you must satisfy the entrapment protection chart shown above. That means that the installation must have one primary means of entrapment protection and one independent secondary means of entrapment protection. Both primary and secondary entrapment protection methods must be designed, arranged or configured to protect against entrapments in both the open and close directions of gate travel.

For Example:

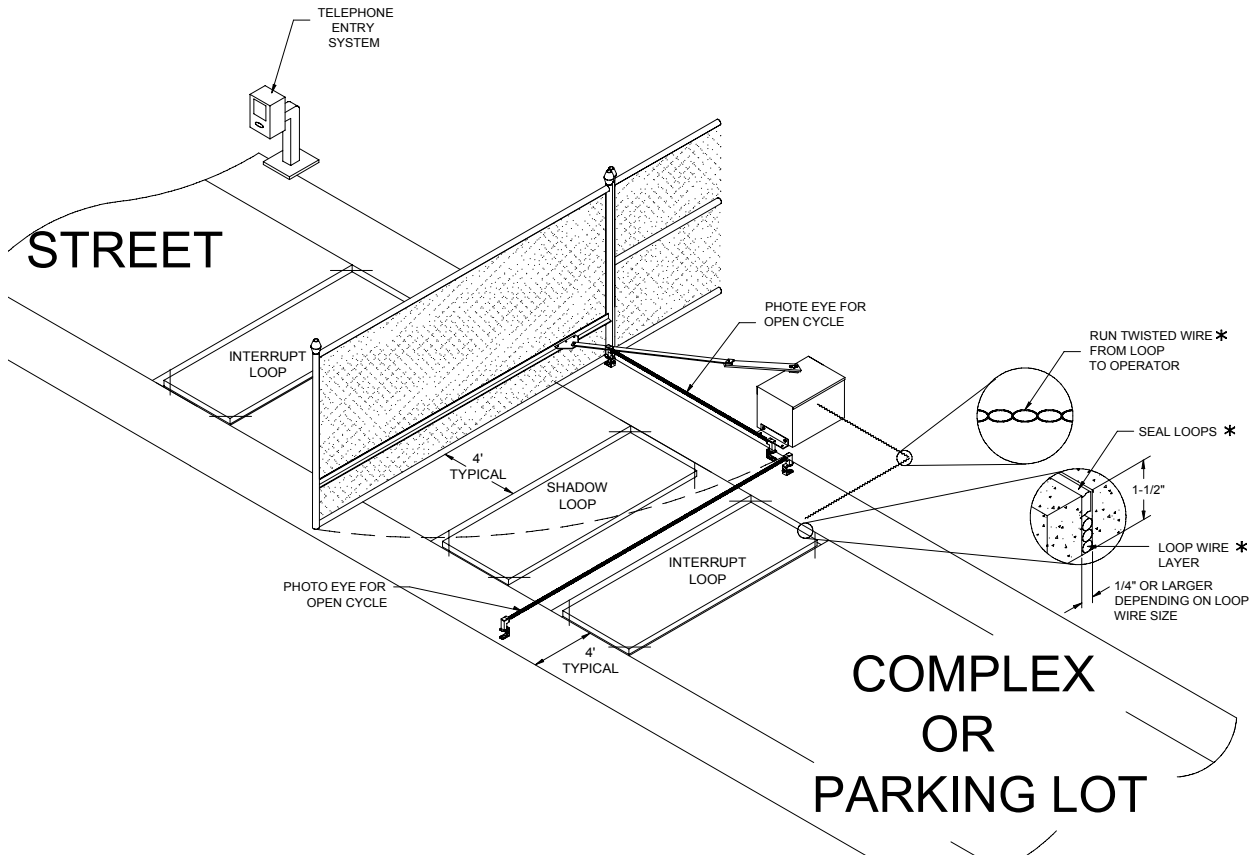
For a gate system that is installed on a single-family residence (UL325 Class I) you must provide the following: As your primary type of entrapment protection you must provide **Type A** inherent (built into the operator) entrapment sensing and *at least one of the following* as your secondary entrapment protection: **Type B1**- Non-contact sensors such as photo-eyes, **Type B2**- Contact sensors such as gate edges or **Type D**- Constant pressure control.



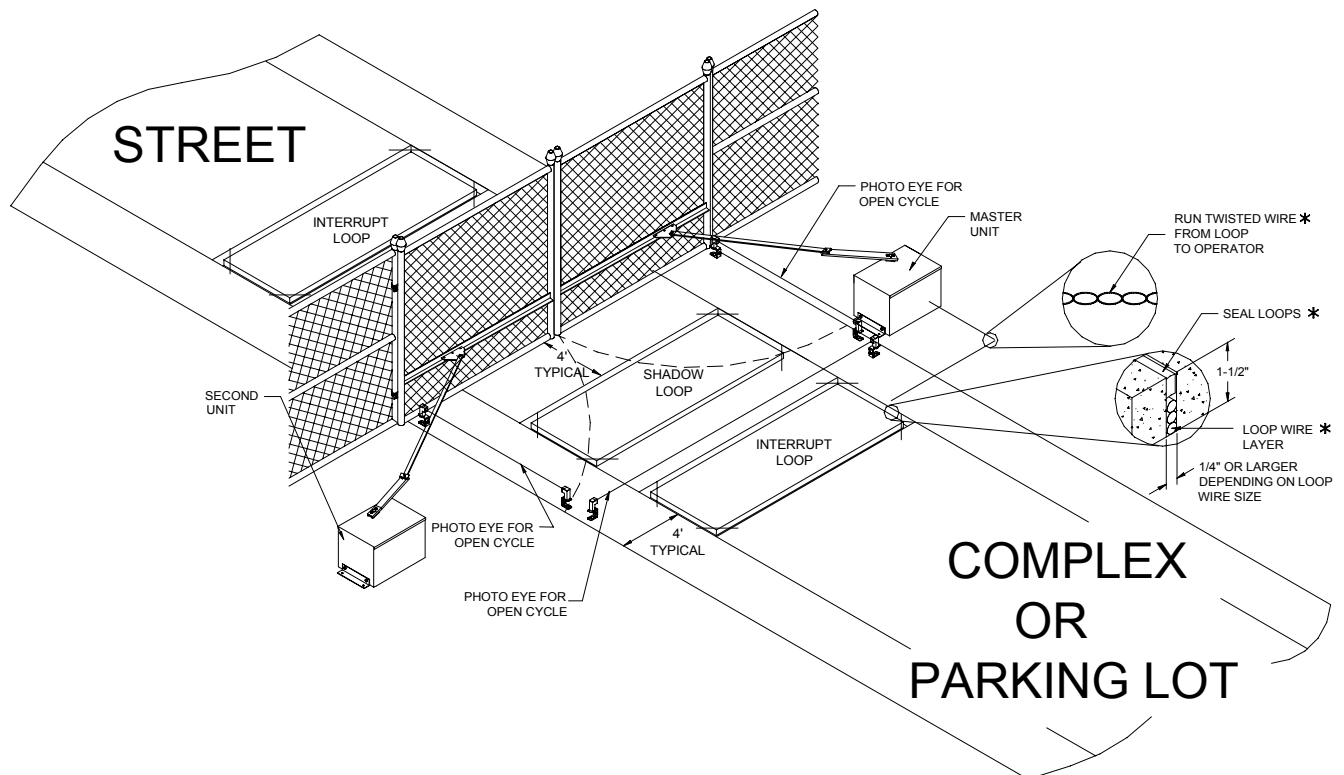
CPS Series Photo Eyes
-Type B1 entrapment protection

This document is current with the UL325 specification at the time of printing. However please check the most current version of UL325 for update information.

GATE SYSTEM (COMMERCIAL SWING GATE)



GATE SYSTEM (MASTER/SECOND SWING GATE)



*** REFER TO LOOP MANUFACTURER'S INSTRUCTIONS FOR DETAILED INSTALLATION & LOOP WIRING INSTRUCTIONS.**

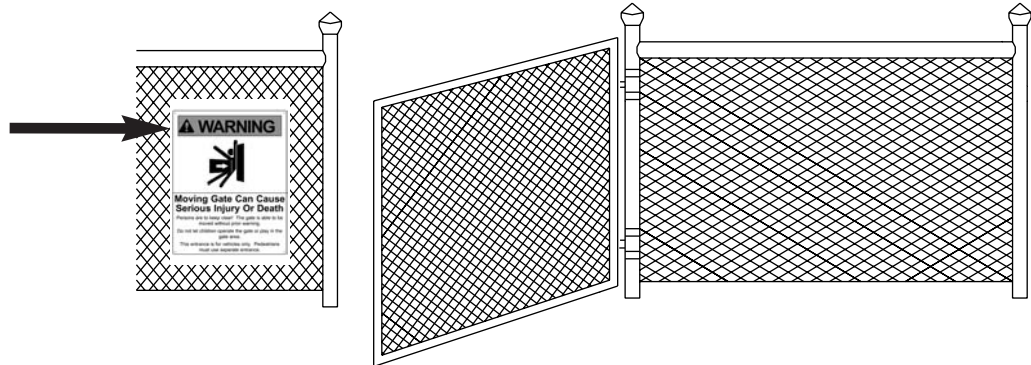
SAFETY INSTALLATION INFORMATION

1. Vehicular gate systems provide convenience and security. Gate systems are comprised of many component parts. The gate operator is only one component. Each gate system is specifically designed for an individual application.
2. Gate operating system designers, installers and users must take into account the possible hazards associated with each individual application. Improperly designed, installed or maintained systems can create risks for the user as well as the bystander. Gate systems design and installation must reduce public exposure to potential hazards.
3. A gate operator can create high levels of force in its function as a component part of a gate system. Therefore, safety features must be incorporated into every design. Specific safety features include:
 - Gate Edges
 - Guards for exposed rollers
 - Photo-Electric Sensors
 - Screen Mesh
 - Enclosed Track
 - Vertical Posts
 - Instructional and Precautionary Signage
4. Install the gate operator only when:
 - a) The operator is appropriate for the construction and the usage class of the gate.
 - b) All openings of a horizontal slide gate are guarded or screened from the bottom of the gate to a minimum of 4 feet (1.2 m) above the ground to prevent a 2 1/4 inch (57.15 mm) diameter sphere from passing through the openings anywhere in the gate, and in that portion of the adjacent fence that the gate covers in the open position.
 - c) All exposed pinch points are eliminated or guarded, and guarding is supplied for exposed rollers.
5. The operator is intended for installation only on gates used for vehicles. Pedestrians must be supplied with a separate access opening.
6. The gate must be installed in a location so that enough clearance is supplied between the gate and adjacent structures when opening and closing to reduce the risk of entrapment.
7. The gate must be properly installed and work freely in both directions prior to the installation of the gate operator.
8. Controls must be far enough from the gate so that the user is prevented from coming in contact with the gate while operating the controls.
9. Controls intended to be used to reset an operator after 2 sequential activations of the entrapment protection device or devices must be located in the line of sight of the gate, or easily accessible controls shall have a security feature to prevent unauthorized use.
10. All warning signs and placards must be installed where visible in the area of the gate.
11. For a gate operator utilizing a non-contact sensor:
 - a) See instructions on the placement of non-contact sensor for each type of application.
 - b) Care shall be exercised to reduce the risk of nuisance tripping, such as when a vehicle trips the sensor while the gate is still moving.
 - c) One or more non-contact sensors shall be located where the risk of entrapment or obstruction exists, such as the perimeter reachable by a moving gate or barrier.
12. For a gate operator utilizing a contact sensor such as an edge sensor:
 - a) One or more contact sensors shall be located at the leading edge, trailing edge and post mounted both inside and outside of a vehicular horizontal slide gate.
 - b) One or more contact sensors shall be located at the bottom edge of a vehicular vertical lift gate.
 - c) One or more contact sensors shall be located at the pinch point of a vehicular vertical pivot gate.
 - d) A hard wired contact sensor shall be located and its wiring arranged so the communication between the sensor and the gate operator is not subject to mechanical damage.
 - e) A wireless contact sensor such as the one that transmits radio frequency (RF) signals to the gate operator for entrapment protection functions shall be located where the transmission of the signals are not obstructed or impeded by building structures, natural landscaping or similar obstruction. A wireless contact sensor shall function under the intended end-use conditions.

SAFETY LABEL PLACEMENT



The UL required Warning Signs must be installed in plain view and on both sides of each gate installed. Each sign is made with fastening holes in each corner and should be permanently secured in a suitable manner. Warning label on unit should be visible.



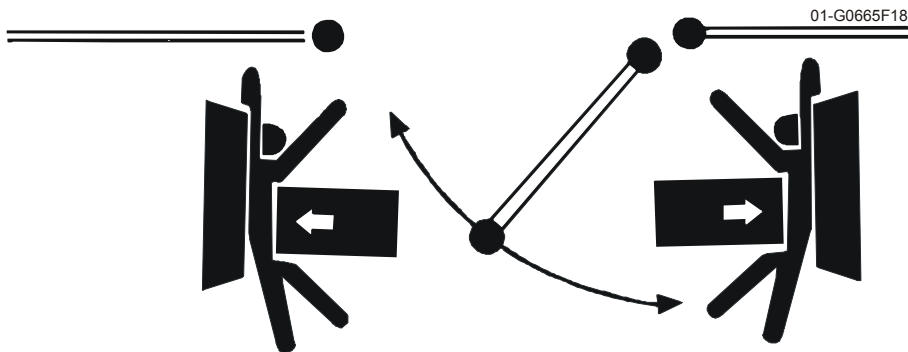
SAFETY PRECAUTIONS FOR SWING & ORNAMENTAL "GRILL TYPE" GATES



Injuries can occur when pedestrians stand in the path of a moving gate, or in their entrapment zones. Non contact sensors, such as photo eyes, must be incorporated into the swing gate system to assist in the protection of people who may come near the gate operating system. Gate edges maybe used as additional entrapment protective devices.



UL325 requires that, when used, contact sensors shall be located so that they protect against entrapment during both open and close gate cycles.



Injuries occur when people are caught between a moving gate or a rigid object such as a stationary fence post or fence (See Safety Brochure for details).

POST MOUNTING (SW470)

NOTE: For the following instructions refer to figures 1 & 2.

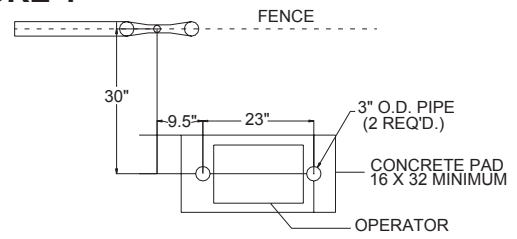
1. Locate and anchor two posts made of 3" outer diameter heavy walled pipe. Posts should be parallel and square to the gate. (See figure 1)

IMPORTANT NOTE: The distance between mounting posts and the relative location of the operator to the gate and fence is critical.

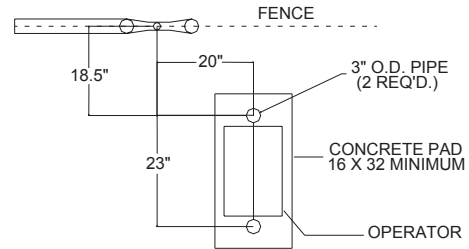
2. Locate electrical conduit, as required, prior to pouring concrete.

3. Set mounting post and electrical conduit in place. Knockouts for 3" pipe clamps (not supplied) are provided in the operator.

FIGURE 1

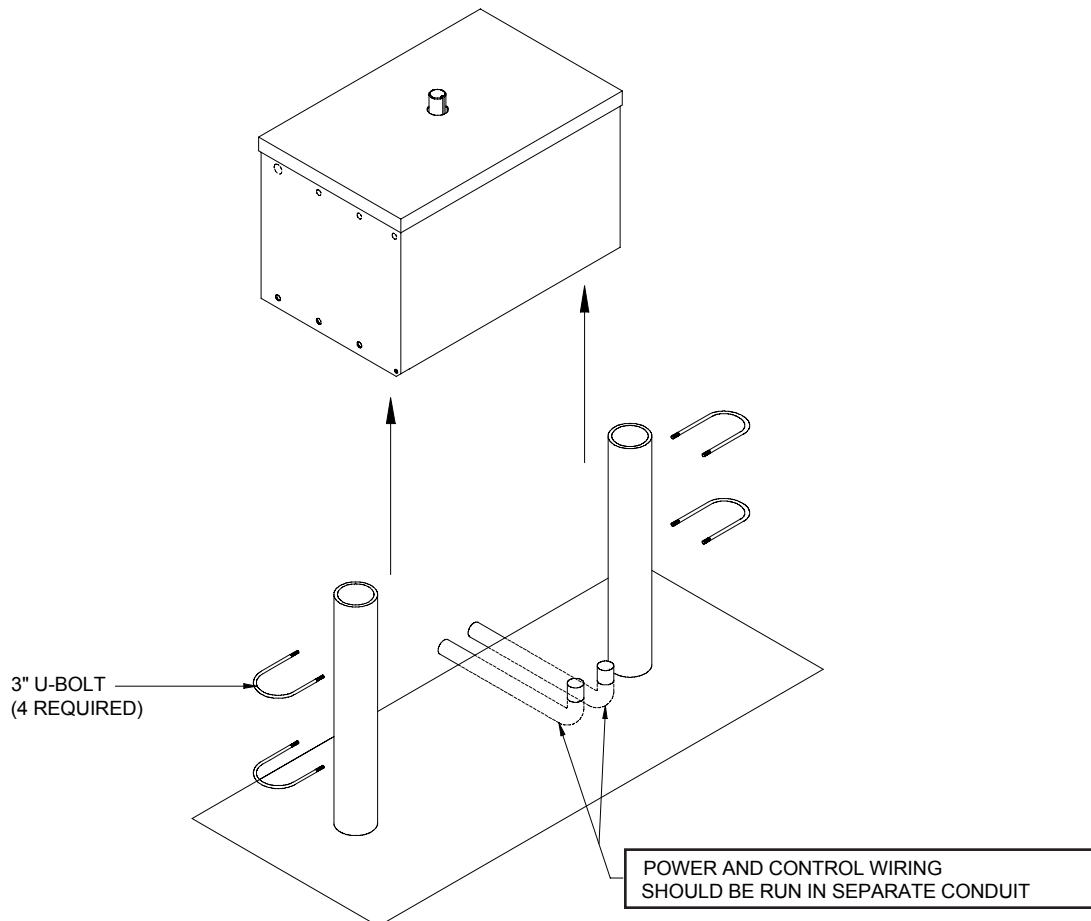


PARALLEL MOUNT



PERPENDICULAR MOUNT

FIGURE 2



PAD MOUNTING (SW470)

NOTE: For the following instructions refer to figures 1 & 2.

1. Layout the concrete pad as detailed in figure 1.

IMPORTANT NOTE: The relative location of the operator to the fence and the gate is critical. Be sure that the measurements for operator mounting are taken from the centerline of the fence and of the gate hinge.

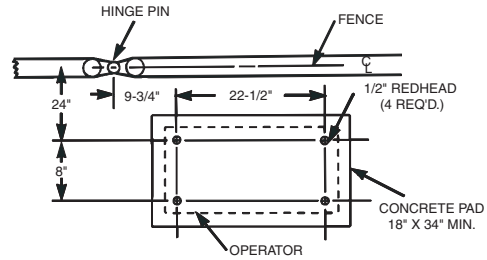
2. Locate electrical conduit, as required, prior to pouring concrete.

3. Pour concrete pad.

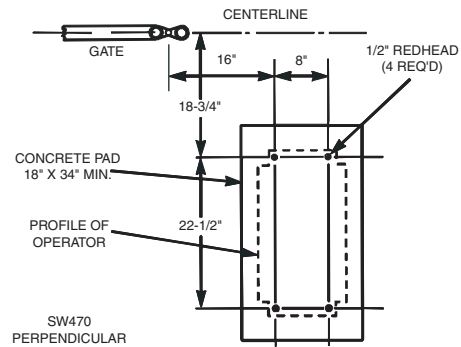
4. Bolt the (2) pad mount brackets to the bottom of the operator with the hardware provided.

5. Secure the operator to the pad. It is very important that the operator be level and square to the gate.

FIGURE 1

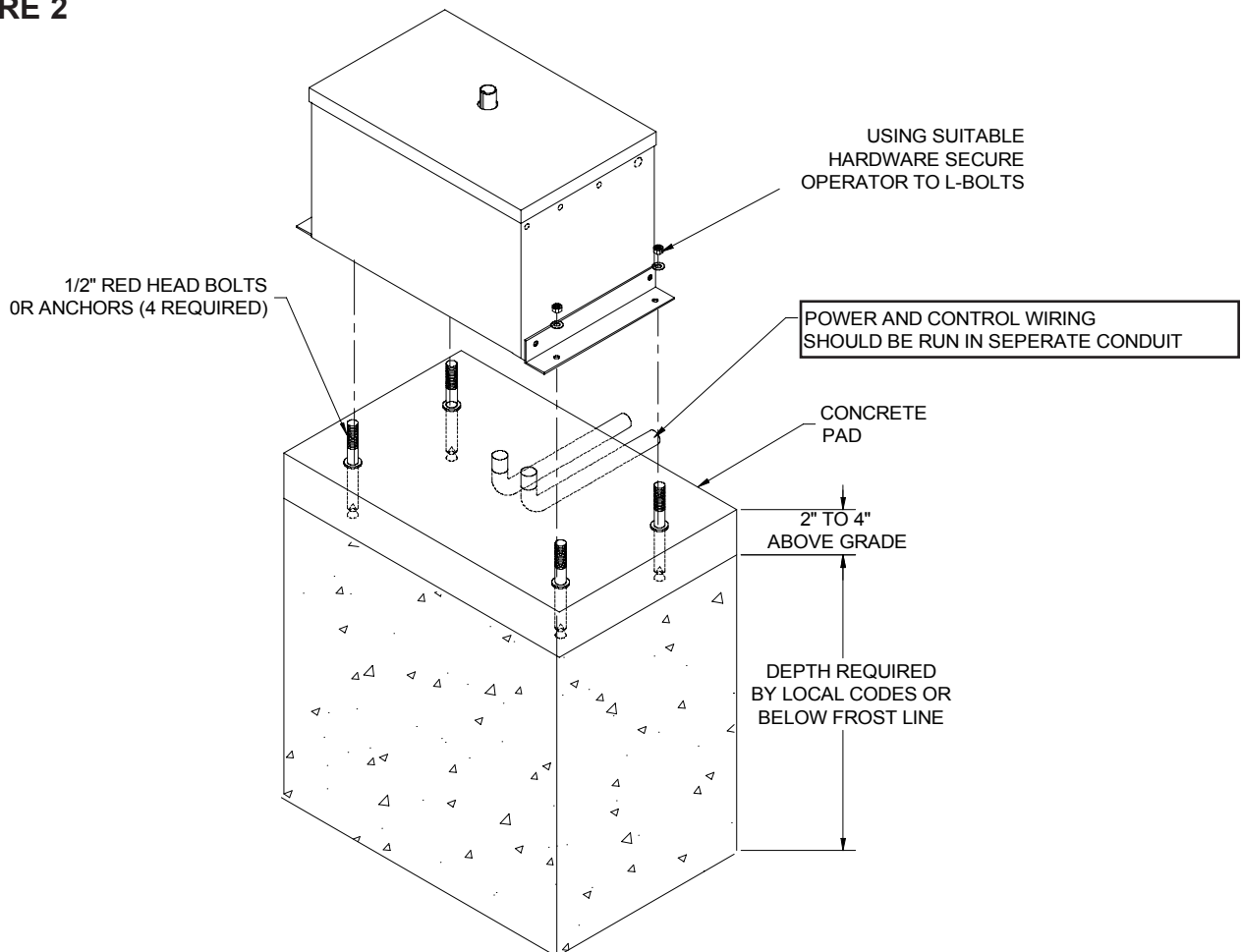


PARALLEL MOUNT



PERPENDICULAR MOUNT

FIGURE 2



PAD MOUNTING (SW490)

NOTE: For the following instructions refer to figures 1 & 2 and SW490 gate installation table below.

1. Measure the gate length and select appropriate "P" dimension from the gate installation table.
2. Layout the concrete pad as detailed in figure 1.

IMPORTANT NOTE: The relative location of the operator to the fence and the gate is critical. Be sure that the measurements for operator mounting are taken from the centerline of the fence and of the gate hinge.

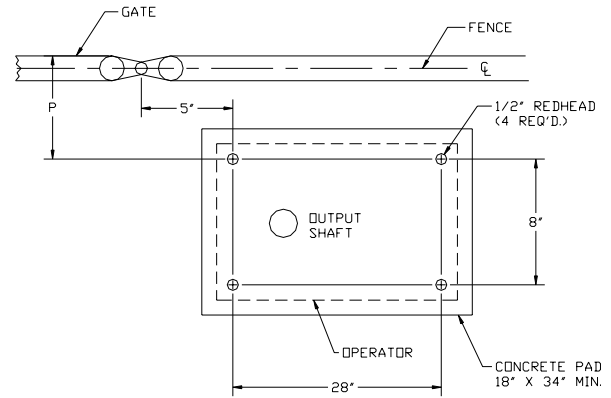
3. Locate electrical conduit, as required, prior to pouring concrete.

4. Pour concrete pad.

5. Bolt the (2) pad mount brackets to the bottom of the operator with the hardware provided (Install the operator so that the output shaft is on the side closest to the gate).

6. Secure the operator to the pad. It is very important that the operator be level and square to the gate.

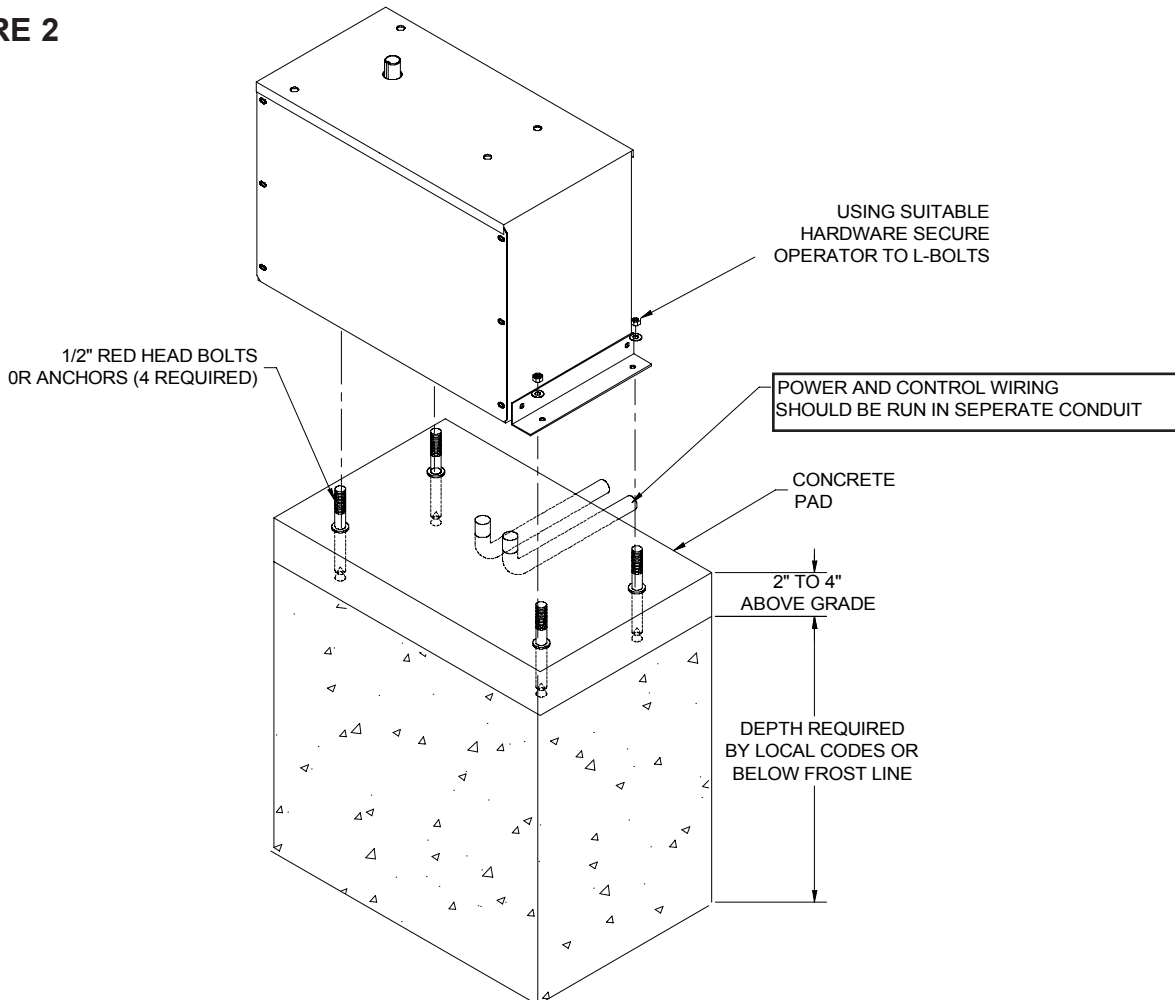
FIGURE 1



PARALLEL MOUNT

SW490 GATE OPERATOR INSTALLATION TABLE							
GATE LENGTH (FEET)	8-9	10-11	12-13	14-15	16-17	18-19	20-21
P DIMENSION IN INCHES	21.9	25.3	28.8	32.3	35.7	39.2	42.7
	46.1						

FIGURE 2



CONTROL ARM ASSEMBLY (SW470)

1. Set the control arm stop on the operator in the positions appropriate for the installation. (See figure 1)
2. Install the arm channel to the hub assembly to the operator output shaft.
3. Secure the arm channel to arm hub with 1/4-20 black plastic knobs provided (Hub is factory installed, see figure 2).
4. Assemble extension arm to control arm. Be sure to keep the extension arm with spot-faced side up. Use the holes that are appropriate for desired degree of gate opening. The extension arm should swivel easily on pivot screws when the nuts are tightened. Attach the other end of the actuator arm to the gate brackets. (See figure 3)

FIGURE 2

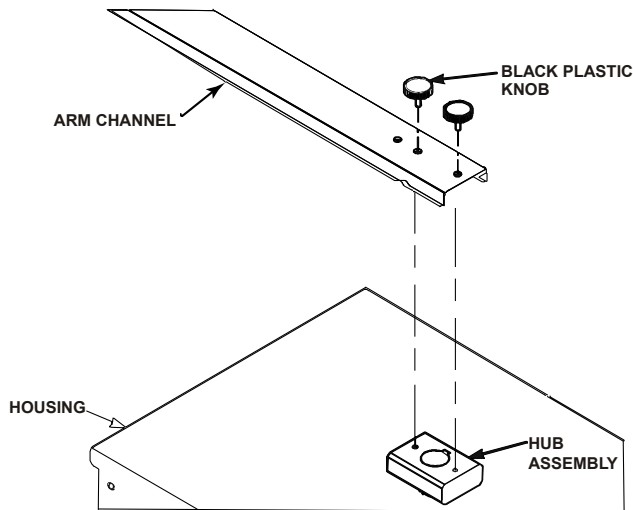


FIGURE 1

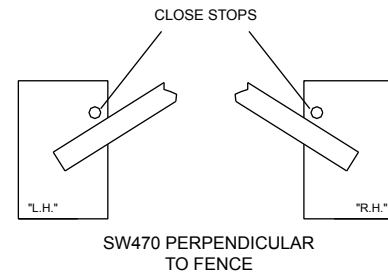
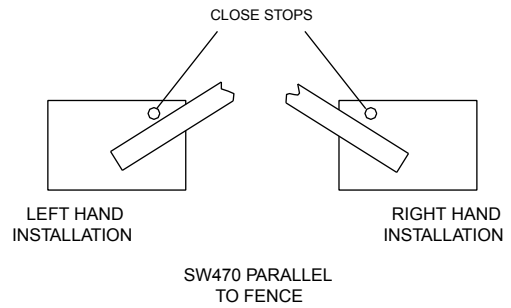
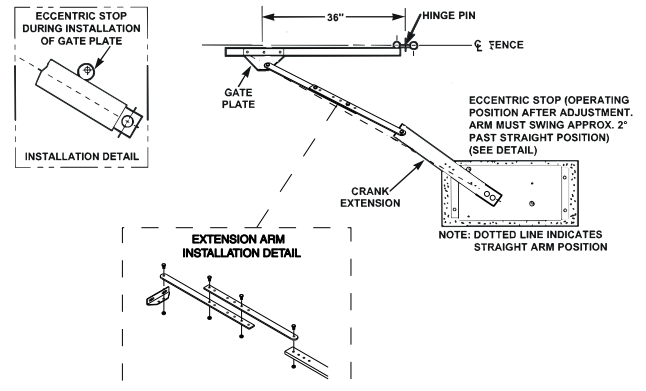


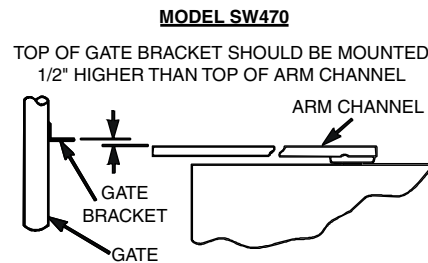
FIGURE 3



GATE BRACKET INSTALLATION (SW470)

1. Install gate bracket (supplied) or install an angle (2" x 2" x 1/4" by others) horizontally on gate, at the same height as the top surface of the control arm extension. (See figure to the right)
2. Adjust the eccentric stop as shown so that the wide area of the eccentric stop is against the arm. Be sure that the control arm and actuator are in a straight line. Install the gate bracket and if required install an angle (for SW490 2" x 2" x 1/4" by others) at the appropriate point on the gate in reference to gate hinge pin.

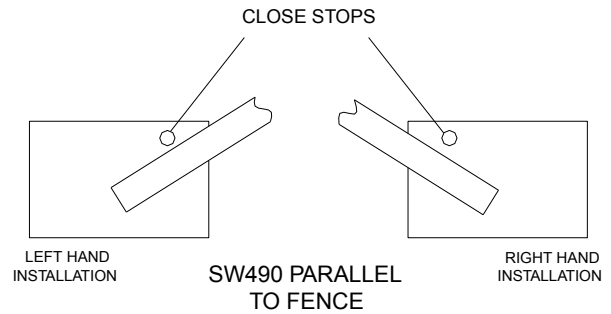
NOTE: As an alternative, (2) 3/8-16 bolts and a nut plate are provided. Adjust arm length and then rotate the eccentric stop 180 degrees so that the small thickness is against the arm. This will provide the necessary deflection in the arm assembly to lock the gate.



CONTROL ARM ASSEMBLY (SW490)

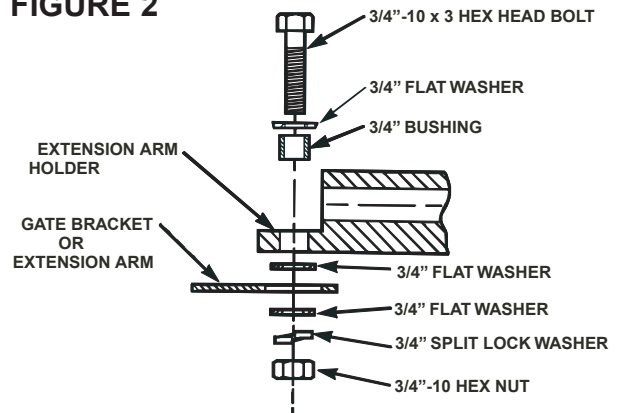
1. Set the control arm's close stop on the operator so that its position corresponds with the handling of the installation. (See figure 1)
2. Remove the open stop, as it is not to be used in this application. Use any existing hardware necessary to seal the open stop's hole in the operator's cover.
3. Measure the length of the gate panel and select the appropriate extension arm (x) and control arm (Y) dimensions from the gate installation table.
4. Install the control arm hub assembly to the operator's output shaft. Make sure that the key is properly inserted into the hub assemblies keyway. Lock the key in place with using the set screw provided in the hub.
5. Attach control arm extension to control arm hub assembly by bolting or welding the two pieces together to achieve the proper control arm dimension (Y).

FIGURE 1



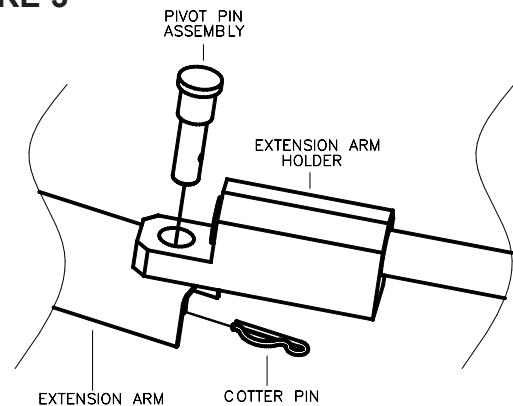
6. Determine the proper location of the gate bracket by measuring the gate panel's length and referring to the gate installation table (Dimension B) on the next page. Install the supplied gate bracket or install your own gate bracket (recommended 2" x 2" x 1/4" angle) horizontally on the gate and at the same height as the top surface of the control arm extension. Secure the gate bracket to the gate by either welding or bolting the bracket to the gate.

FIGURE 2



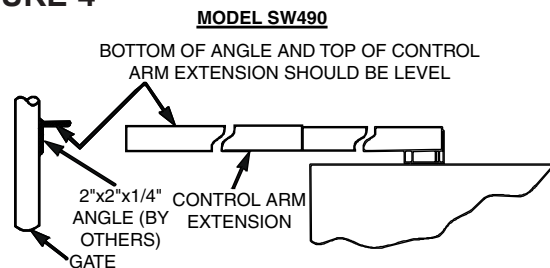
7. Assemble one extension arm holder to the gate bracket using supplied hardware. (See figure 2)
8. Assemble the other extension arm holder to the control arm extension using the supplied pivot pin assembly and cotter pin. (See figure 3)

FIGURE 3

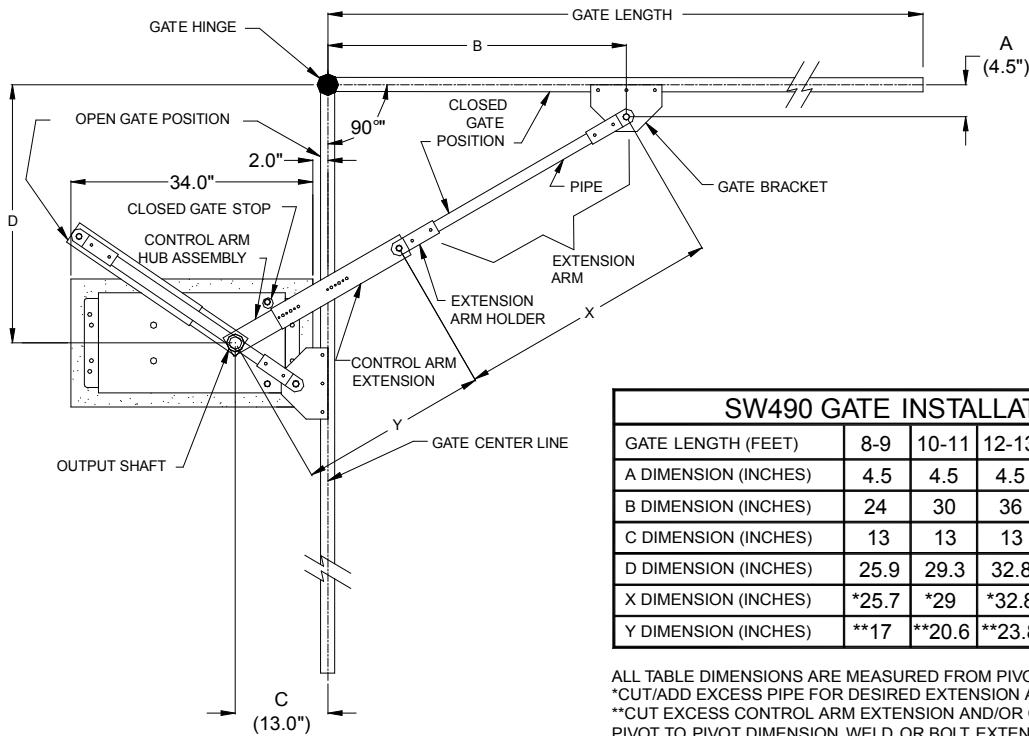


9. Measure and cut pipe (not provided) and position the pipe into the extension arm holders to achieve the proper extension arm dimension (X). Insert the hex head set screws in each extension arm holder in order to hold pipe firmly. Do not tighten until testing and all final adjustment have been completed.

FIGURE 4



CONTROL ARM ASSEMBLY (SW490) CON'T



SW490 GATE INSTALLATION TABLE								
GATE LENGTH (FEET)	8-9	10-11	12-13	14-15	16-17	18-19	20-21	22
A DIMENSION (INCHES)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
B DIMENSION (INCHES)	24	30	36	42	48	54	60	66
C DIMENSION (INCHES)	13	13	13	13	13	13	13	13
D DIMENSION (INCHES)	25.9	29.3	32.8	36.3	39.7	43.2	46.7	50.1
X DIMENSION (INCHES)	*25.7	*29	*32.8	*36.9	*41.2	*45.6	*50	*54.6
Y DIMENSION (INCHES)	**17	**20.6	**23.8	26.6	29.3	31.8	34.2	36.6

ALL TABLE DIMENSIONS ARE MEASURED FROM PIVOT TO PIVOT.
 *CUT/ADD EXCESS PIPE FOR DESIRED EXTENSION ARM PIVOT TO PIVOT DIMENSION.
 **CUT EXCESS CONTROL ARM EXTENSION AND/OR CONTROL ARM HUB ASSEMBLY FOR DESIRED PIVOT TO PIVOT DIMENSION. WELD OR BOLT EXTENSION ARM TO ARM ASSY.

MANUAL DISCONNECT

MODEL SW470

1. Remove the (2) black knobs securing the control arm to the operator.
2. Swing arm assembly off to the side. Gate should swing freely.

MODEL SW490

1. Remove hitch pin and pivot pin securing control arm to arm assembly.
2. Swing arm assembly off to the side. Gate should swing freely.

FIGURE 1

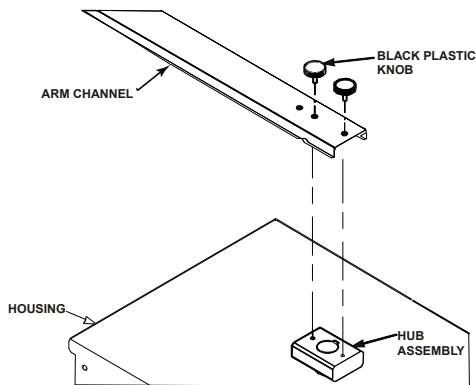
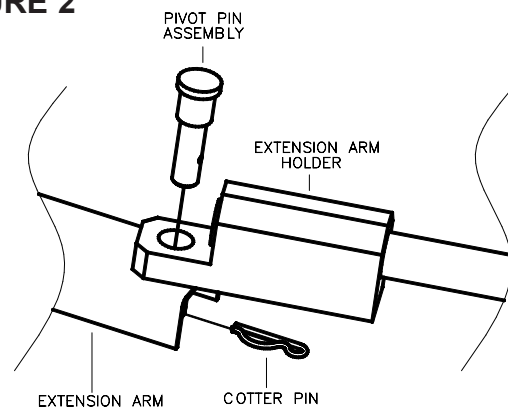


FIGURE 2



INSTALL POWER WIRING & CONTROL STATION



WARNING

ANY MAINTENANCE TO THE OPERATOR OR IN THE AREA NEAR THE OPERATOR MUST NOT BE PERFORMED UNTIL DISCONNECTING THE ELECTRICAL POWER AND LOCKING-OUT THE POWER VIA THE OPERATOR POWER SWITCH. UPON COMPLETION OF MAINTENANCE THE AREA MUST BE CLEARED AND SECURED, AT THAT TIME THE UNIT MAY BE RETURNED TO SERVICE.



WARNING

DISCONNECT POWER AT THE FUSE BOX BEFORE PROCEEDING.
OPERATOR MUST BE PROPERLY GROUNDED AND CONNECTED IN ACCORDANCE WITH LOCAL ELECTRICAL CODES. NOTE: THE OPERATOR SHOULD BE ON A SEPARATE FUSED LINE OF ADEQUATE CAPACITY.
ALL ELECTRICAL CONNECTIONS MUST BE MADE BY A QUALIFIED INDIVIDUAL.



WARNING

BEFORE INSTALLING POWER WIRING OR CONTROL STATIONS BE SURE TO FOLLOW ALL SPECIFICATIONS AND WARNINGS DESCRIBED BELOW. FAILURE TO DO SO MAY RESULT IN SEVERE INJURY TO PERSONS AND/OR DAMAGE TO OPERATOR.



WARNING

DO NOT INSTALL ANY WIRING OR ATTEMPT TO RUN THE OPERATOR WITHOUT CONSULTING THE WIRING DIAGRAM. WE RECOMMEND THAT YOU INSTALL AN OPTIONAL REVERSING EDGE BEFORE PROCEEDING WITH THE CONTROL STATION INSTALLATION.

WIRING SPECIFICATIONS

NOTE: Calculated using NEC guidelines. Local codes and conditions must be reviewed for suitability of wire installation.

ON A DUAL GATE SYSTEM EACH UNIT MUST BE INSTALLED ON ITS OWN SEPARATE CIRCUITS

WIRE LENGTH IN FEET (STRANDED COPPER WIRE)						
WIRE GA.	HP	SINGLE PHASE		THREE PHASE		
		115 VAC	230 VAC	230 VAC	460 VAC	575 VAC
6	1/2	425	1845	2557	12789	15987
	3/4	291	1107	1827	6394	10657
	1	213	852	1278	5115	7993
8	1/2	269	1165	1614	8072	10089
	3/4	183	699	1152	4035	6726
	1	134	537	807	3228	5044
10	1/2	168	730	1012	5064	6330
	3/4	115	438	723	2532	4220
	1	84	337	506	2025	3165
12	1/2	105	458	634	3171	3964
	3/4	72	274	503	1585	2643
	1	53	211	316	1269	1982

NOTE: All power wiring should be dedicated and protected. Location of primary power disconnect should be labeled.

DISCONNECT SWITCH POWER WIRING

NOTE: Before running power wiring refer to wiring specifications on page 14 for correct wire gauges.

Secure all electrical power connections inside the disconnect switch electrical box. Refer to electrical wiring diagram on pages 33, 34 and 35.

Important: On three phase operators, power connections must be properly phased. If phased incorrectly, the gate operator will run reversed. To correct this situation, shut off power at main power source and at the operators electrical disconnect switch. Then reverse any two of the three power leads.

SINGLE PHASE

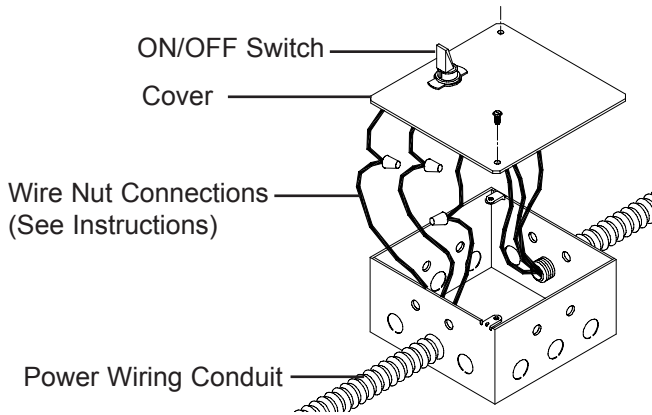
All single phase operators will have the following:

- | | |
|-----------------------|-------------------|
| 115V | 208/230V |
| ● L1 (NEUTRAL), WHITE | ● L1 (HOT), BLACK |
| ● L2 (HOT), BLACK | ● L2 (HOT), BLACK |
| ● GROUND, GREEN | ● GROUND, GREEN |

THREE PHASE

All three phase operators will have the following:

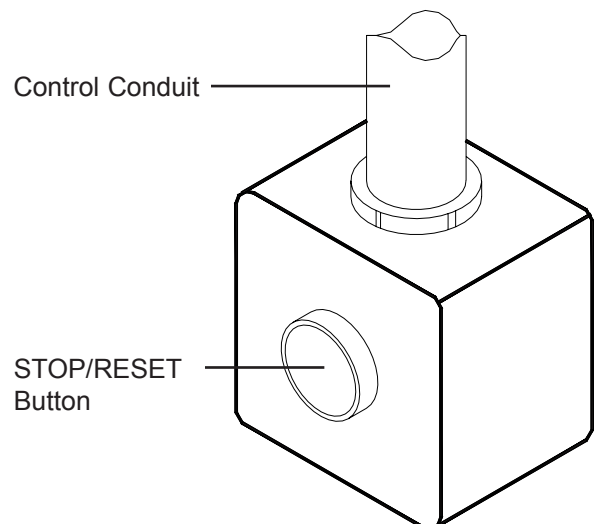
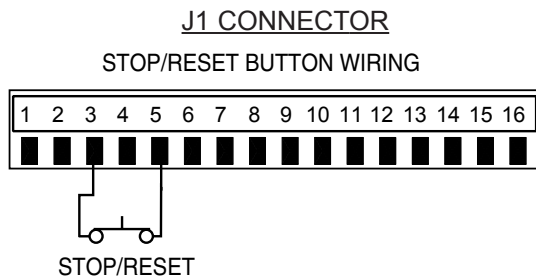
- L1 (HOT), BLACK
- L2 (HOT), BLACK
- L3 (HOT), BLACK
- GROUND, GREEN



STOP/RESET BUTTON CONTROL WIRING (REQUIRED)

1. This control will function as a Stop/Reset command and is to be wired within line of sight of the gate. **The operator will not function unless this circuit is completed.**

2. Wire control station to terminals 3 and 5 in the control box on the operator.

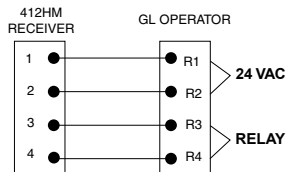


NOTE: For additional control station options refer to pages 18 & 19.

RADIO RECEIVER INSTRUCTIONS (412HM TO GL OPERATOR)

412HM to Operator Wiring Instructions

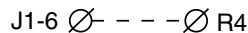
1. For Receiver Power, wire 412HM receiver terminal 1 to GL operator terminal R1 and receiver terminal 2 to operator terminal R2.
2. For Receiver Relay Control, wire 412HM receiver terminal 3 (relay) to GL operator terminal R3 and receiver terminal 4 (common) to operator terminal R4.



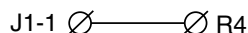
Receiver Commercial/Residential Radio Function

NOTE: SW470/SW490 operators are factory wired for commercial radio applications. This means that the R3 & R4 terminal cause the operator to **open only** when activated. To give a radio control single button operation (Residential radio application) perform the following.

1. Locate and disconnect the end of the wire running to terminal J1-6 from R4.



2. Connect end of wire removed from J1-6 to J1-1.



LIMIT SWITCH ADJUSTMENT

NOTE: For limit location and configuration refer to figure 1

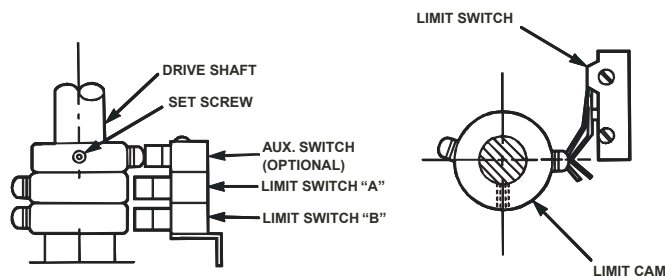
1. Before turning on power, disconnect extension arm from gate bracket so gate is no longer connected to operator.
2. The (3) collars are held to shaft by set screws. The collars should now be loose on the shaft. If not, loosen all set screws until collars are moving freely on shaft.

TO ADJUST CLOSE LIMIT SWITCH

3. Turn on electrical power.
4. Press CLOSE button (if installed) or connect terminals 4 & 5 on J1 terminal strip to cause the gate to close. The control arm should move in the close direction.
5. When control arm is pointed in approximate direction of gate bracket (on fully closed gate) press STOP button or release terminals to stop control arm.

NOTE: If control arm does not move far enough to point in proper direction, the close limit switch has been prematurely actuated. Turn off power, loosen set screw on close limit cam and rotate nut away from close limit switch. Repeat steps 3 & 4 until control arm is pointed in correct direction.

6. Turn off power. Be sure close limit cam is freely turning. Rotate cam in close direction. Stop when cam just clicks close limit switch. Tighten set screw.



CAUTION

NEVER PLACE HANDS OR TOOLS INSIDE OPERATOR OR NEAR DRIVE MECHANISM UNLESS POWER IS OFF.

7. Reconnect gate bracket to extension arm. If arm has moved too far in close direction to allow connection of gate bracket turn off power, connect terminals 5 & 7 to rotate arm in opposite direction, and press STOP button when arm is in desired position.

TO ADJUST OPEN LIMIT SWITCH

8. Turn on power. Press OPEN button (if installed) or connect terminals 5 & 7 on J1 terminal strip. Gate should open. If gate does not open the open limit cam may be already actuating open limit switch or an improper electrical connection may have been made. Turn off power, inspect, correct and repeat this step.

9. When gate reaches desired fully open position press STOP button or release terminals. Turn off power. Limit cam should turn freely. Rotate cam in open direction. Stop when cam just clicks the open limit switch. Tighten set screw.

10. Fine tune both switch settings by using J1 terminals 4 & 5 (to CLOSE) or 5 & 7 (to OPEN) and the factory supplied STOP button to move gate and rotating limit collars slightly to alter gate travel. Rotate cam away from limit switch to increase travel, toward switch to decrease travel.

LIMIT DIRECTION

DIRECTION OF GATE TO OPEN	OPEN LIMIT	CLOSE LIMIT
RIGHT	A	B
LEFT	B	A

SAMS (SEQUENCED ACCESS MANAGEMENT SYSTEM)

SAMS DEFINITION

The Sequenced Access Management System or SAMS allows the customer more control when managing vehicular entrances to areas such as apartment complexes, businesses and gated communities. The basic concept of the system is that traffic is controlled by two gates installed in tandem, a fast moving gate such as a barrier gate operator and a slower moving more secure or ornamental gate such as a single or pair of slide/swing gate operator. The design of this gate system balances the demands of speed during high traffic periods with security during low traffic periods. Barrier gates typically have the fastest open times of the many gate operator types and the slide or swing gates allow you to effectively seal off the perimeter of the complex you are planning to secure.

NOTE: Connect all entry devices to the slide or swing gate. If using a device, such as a 7-day timer, to latch the slide or swing gate open during high traffic times, connect the device's N/O relay output to the GL board's Interrupt Loop input. Once the device activates the Interrupt Loop input, the next vehicle to access the SAMS system will lock the gate in the open position until the device deactivates. When the device deactivates, the timer to close will automatically close and secure the gate.

SAMS OPERATION

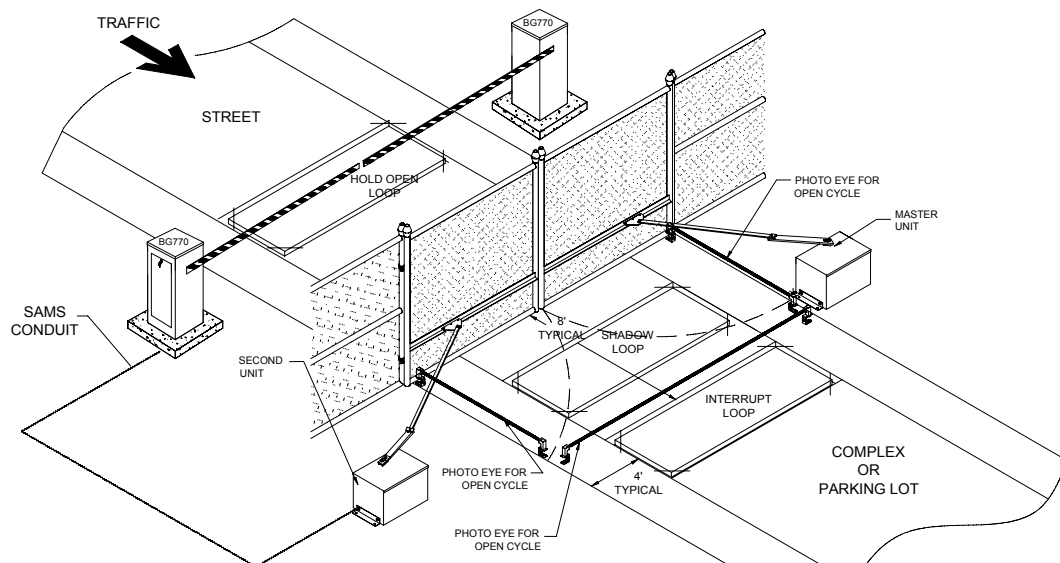
- 1) When an authorized vehicle accesses the gate system, the SAM system responds by first opening the gate farthest from the vehicle, the swing or slide gate.
- 2) Once the swing or slide gate is open, the barrier gate begins its open cycle.
- 3) Once the barrier is open the vehicle may pass through the SAM system. At this point you have two options in how you would like to initiate the SAM systems closure. You may chose to:
 - a) Use a timer to close system to automatically close the barrier gate after a preset amount of time or
 - b) Use a loop system to close the barrier gate after the vehicle has passed through the SAM system.
- 4) Once the barrier gate is closed the slide or swing gate will activate its internal timer to close and begin closing.
- 5) If another authorized vehicle accesses the SAM system before the slide or swing begins to close the barrier will open and allow the vehicle to pass through the SAM system.
- 6) If another authorized vehicle accesses the SAM system during the slide or swing gates closing cycle the SAM system will reopen the slide or swing gate. Once the slide or swing gate reaches the open position the barrier will then open to allow the vehicle to pass through the SAM system.
- 7) If no other authorized vehicles access the SAM system the swing or slide gate will close followed by the barrier.

SAMS WIRING

- 1) Install conduit between the BG770 and the SL540/570 for SAMS control wiring.
- 2) Run a 4-conductor cable in the conduit between the BG770 SL540/570.
- 3) Locate the SAMS relay terminals (J5) on the GL board in the SL540/570 and locate the auxiliary limit switch in the BG770.
- 4) Attach a wire from the SAMS relay terminal (J5) on the GL board to terminal 1 on the BG770 terminal strip.
- 5) Attach a wire from the SAMS relay terminal (J5) on the GL board to terminal 3 on the BG770 barrier gates terminal strip.
- 6) Attach a wire from terminal J1-5 on the GL board to the common (COM) on the auxiliary limit switch in the barrier gate.
- 7) Attach a wire from terminal J1-8 on the GL board to the normally open (NO) on the auxiliary limit switch.
- 8) Test for correct functionality of the SAM system.

GL Board	BG770 Barrier Gate
Interrupt Loop Input	Auxiliary Limit Switch
J1 - 5	N/O
J1 - 8	COM
SAMS Relay At J5	Terminal Strip
N/O	1 (OPEN)
COM	3 (COMMON)

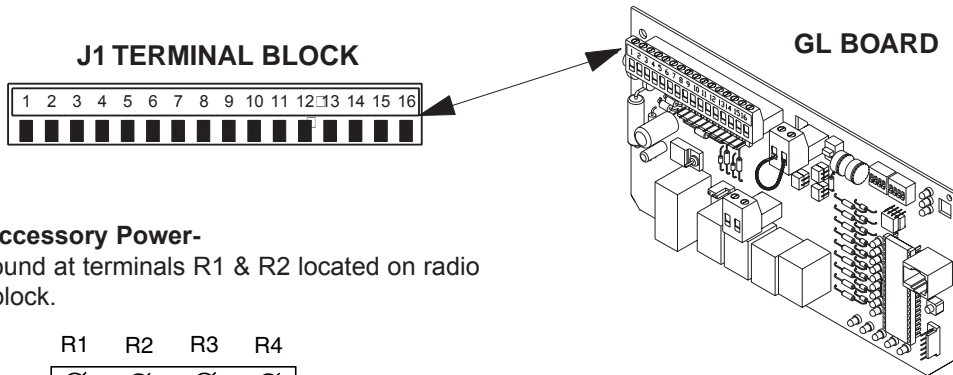
FIGURE 1



OPTIONAL CONTROL DEVICES

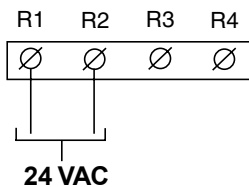
All inputs are normally open and momentary, except the stop (N.C.). The following instructions are based upon UL 325, and include recommendations for significant increase in safety.

We strongly recommend that you follow the UL guidelines presented throughout the manual. Refer to instructions shipped with optional control devices for mounting, wiring, programming and adjustment.



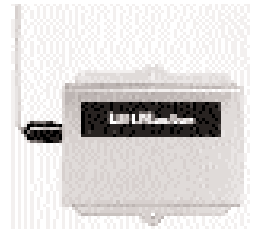
24VAC Accessory Power-

Can be found at terminals R1 & R2 located on radio terminal block.



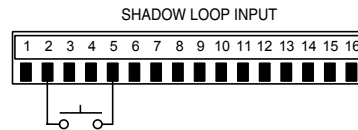
Terminals 1 & 5 - Residential Radio (single button) Input

These terminals are intended for use with a radio receiver in a residential application or as a single button control. This allows the user to open the gate by activating the transmitter when the gate is closed or between limits. This input also gives the user the ability to close the gate by activating the transmitter when the gate is on the open limit.



Terminals 2 & 5 - Shadow Loop Input

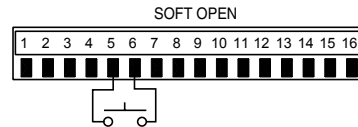
These terminals are intended for use with a loop detector and is primarily used on swing gate operators. This input protects cars by preventing the gate from moving off of the **open or close limit** when the shadow loop input is active.



Terminals 6 & 5 - Soft Open

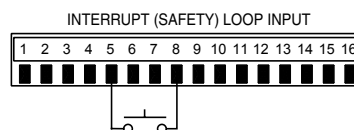
These terminals are intended for use as a general open control. Accessories that may be wired to this input include: Telephone Entry Systems, Radio Receiver (Commercial Applications), Exit Loop Detector, Keypads, 7-Day Timer.

Note: Will not override a double entrapment (signalled by the gate stopped and entrapment alarm on).



Terminals 8 & 5 - Interrupt (Safety) Loop Input

These terminals are intended for use with a loop detector. This input functions to reverse a closing gate to the open limit. Latching this input will reset the timer to close.



OPTIONAL CONTROL DEVICES

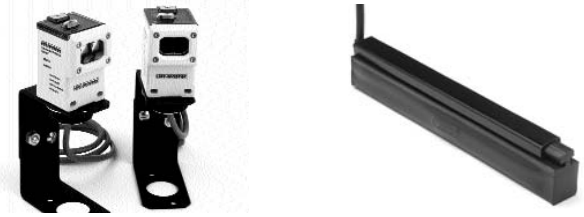
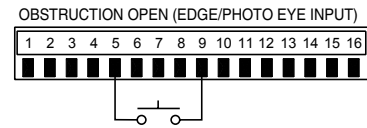
Terminals 9 & 5 - Obstruction Open (Edge/ Photo Eye Input)

Edge Input: See Programming Section

This input will reverse an opening gate to the close limit. Activating this input when the gate is closing will have no effect. **Note: If upon reversal a second separate obstruction is detected (gate edge or R.P.M. sensor), gate will stop & alarm.**

Photo Eye Input: See Programming Section

This input will pause an opening gate. Once the input (photo eye) is cleared, the gate continues to open. Activating this input when the gate is closing will have no effect.



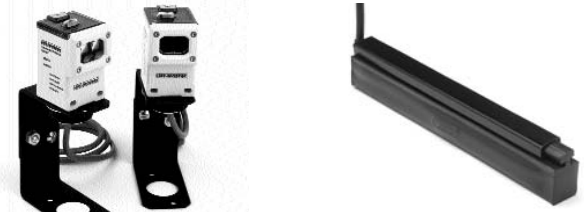
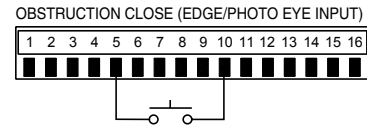
Terminals 10 & 5 - Obstruction Close (Edge/ Photo Eye Input)

Edge Input: See Programming Section

This input will reverse a closing gate to the open limit. When reaching the open limit the timer to close, if enabled, will be disabled until another command is given. Activating this input when the gate is closing will have no effect. **Note: If upon reversal a second separate obstruction is detected (gate edge or R.P.M. sensor), gate will stop & alarm.**

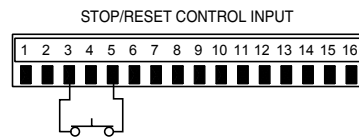
Photo Eye Input: See Programming Section

This input will reverse a closing gate to the open limit. This input will not affect the timer to close. Activating this input when the gate is closing will have no effect.



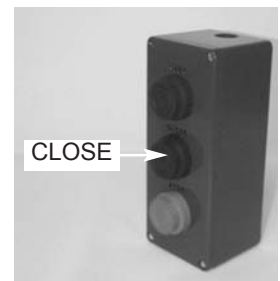
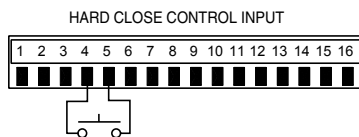
Terminals 3 & 5 - Stop/Reset Control Input

These terminals are intended for use with a single stop/reset button or the stop control of a three-button station that is installed within line of site of the gate. This input functions to stop the gate or to reset the gate after an entrapment fault. **Note: This input uses a normally closed circuit and the operator will not run until a stop control is installed.**



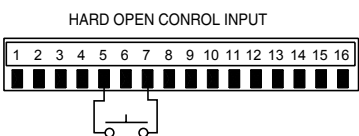
Terminals 4 & 5 - Hard Close Control Input

These terminals are intended for use only with the close control of a three-button station that is installed within line of sight of the gate. A momentary activation of this input will cause the gate to close. **Activation of this input for longer than three seconds will enable the control to be used as a constant pressure override device.** This will allow the user, in emergencies, to override a failed accessory such as a loop detector or photo-eye.

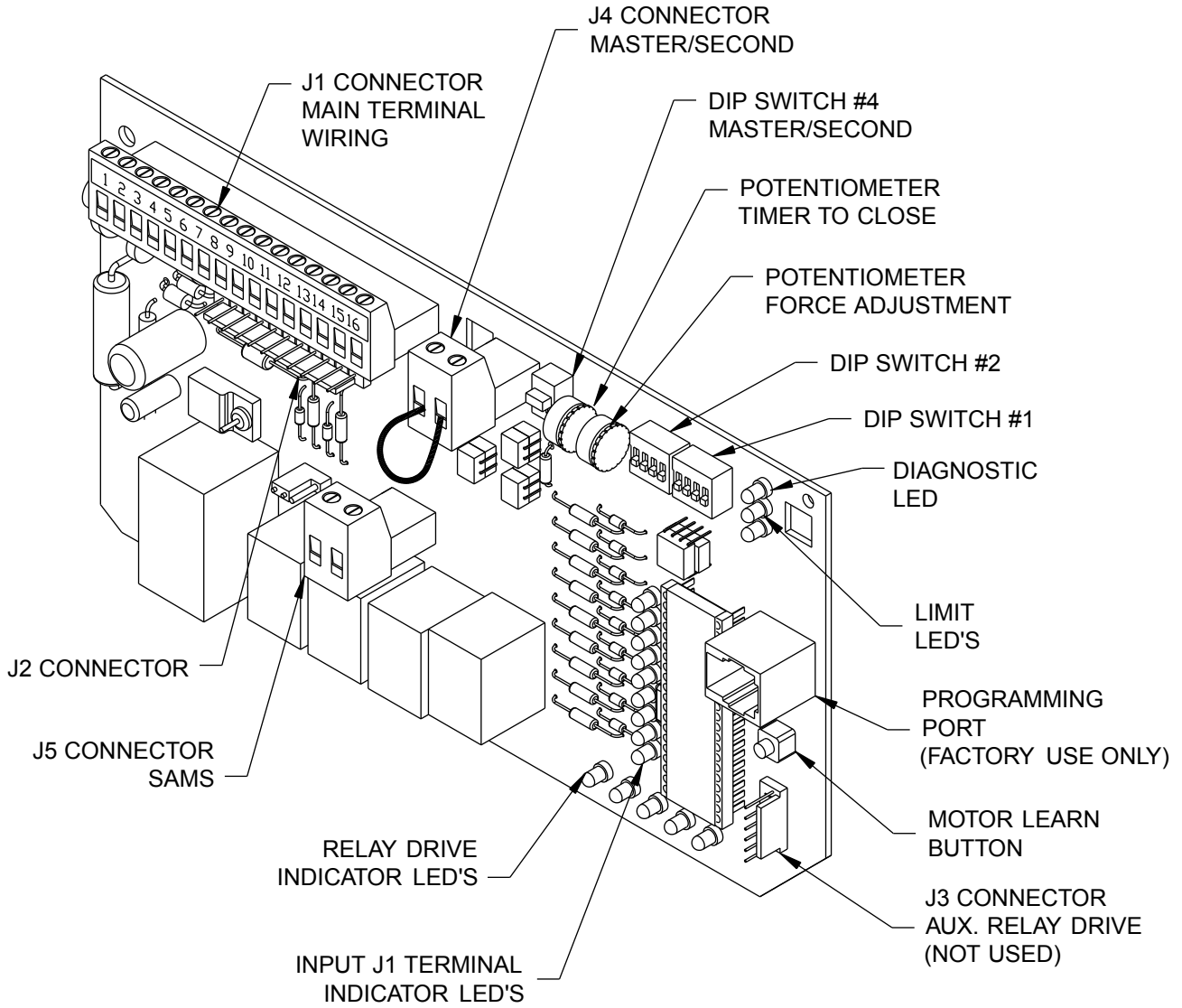


Terminals 7 & 5 - Hard Open Control Input

These terminals are intended for use only with the open control of a three-button station that is installed within line of sight of the gate. A momentary activation of this input will cause the gate to open. **Activation of this input for longer than three seconds will enable the control to be used as a constant pressure override device.** This will allow the user, in emergencies, to override a failed accessory such as a loop detector or photo-eye.



CONTROL BOARD ILLUSTRATIONS



CONTROLLER PROGRAMMING AND FEATURES

MOTOR LEARN FUNCTION (FORCE PROFILE)

This function is preprogrammed at factory. If either board or motor is replaced, the controller will need to be programmed to “LEARN” the specific motor RPM profile only of your operator. Switch “S3” is provided for this. This is important for accurate force control. Failure to do so may result in improper and unsafe operation.

To learn the motor:

NOTE: Motor Learn must be performed in stand alone mode.

1. Detach the unit from the gate, the motor needs to be learned without a load.
2. Press the motor learn button. The yellow LED should start to flash rapidly.
3. Install a jumper on either the hard open or the hard close input terminals. The motor will run for a few seconds and then stop. If the LED goes out the motor is learned. If the unit activates a limit before completing the learn or some other error occurs the LED will go back to on continuously. If this happens try learning while running in the opposite direction.

NOTE: It is important that the jumper is in constant contact while the gate is moving in learn mode.

4. Reconnect the unit to the gate, reset the limits and adjust the force control.

FORCE CONTROL

Set the force control pot such that the unit will complete a full cycle of gate travel but can be reversed off an obstruction without applying an unreasonable amount of force. On most operators this will be around the middle of the range.

NOTE: For LED location refer to illustration on previous page.

DIAGNOSTICS (LEDS AND CODES)

There are three diagnostic LEDs. Two red LEDs (OL, CL) are indicators for the open and close limits. The LEDs are illuminated when the limit switch contacts are closed.

The third amber LED (DIA) is used to blink out diagnostic codes. The number is the count of the number of times the LED is on in an 8 second period. The LED is on for approximately 1/2 second and repeats every second until the number is reached. There will be a pause following each pulse cycle (1-6 pulses) to differentiate between the different diagnostic codes.

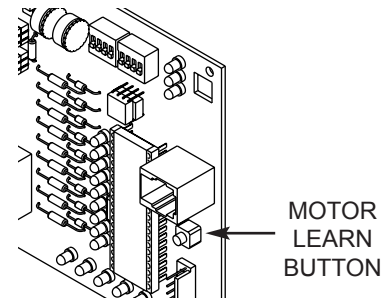
TROUBLESHOOTING LED'S

There are 9 troubleshooting LEDs (D11, D13, D15, D17, D19, D21, D24, D29, D31).

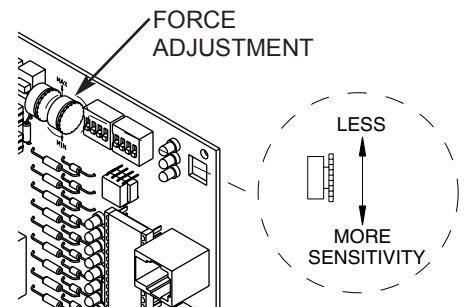
RELAY DRIVE TROUBLESHOOTING LED'S

There are 5 troubleshooting LEDs (D2, D3, D4, D5, D6) on relay drives K1 through K5. These LEDs will be illuminated when the microcontroller relay drive is activated.

MOTOR LEARN BUTTON



FORCE CONTROL



LED CODE FLASHED	DIAGNOSTIC MEANING	CLEARED BY
OFF	Normal operation.	N/A
1	Single entrapment sense.	Control Input
2	Double entrapment sense.	Hard Input*
3	Failed or no hall effect sensor.	Removal of problem.
4	Exceed maximum motor run time.	Hard Input*
5	Limit fault.	Control Input*
6	Loss of communications between master and second during run mode.	Removal of problem.
ON NO FLASH	Motor not learned.	Completion of motor Learn Routine

* **HARD INPUTS INCLUDE HARD OPEN, CLOSE AND STOP INPUTS.**

LED	LED NAME	DESCRIPTION
D11	RADIO	On when radio switch activated.
D13	SHADOW	On when shadow loop is activated.
D15	HARD CLOSE	On when hard close switch is activated.
D17	STOP	On when stop switch is not activated.
D19	SOFT OPEN	On when soft open switch is activated.
D21	HARD OPEN	On when hard open switch is activated.
D24	INT. LOOP	On when interrupt/safety loop activated.
D29	OBS. OPEN	On when edge is activated or when photo eye beam is broken.
D31	OBS. CLOSE	On when edge is activated or when photo eye beam is broken.

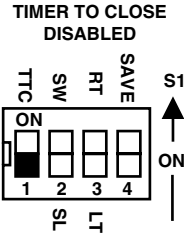
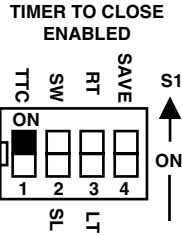
LED	LED NAME	DESCRIPTION
D6	CONT A	On when CONTACTOR A activated.
D5	CONT B	On when CONTACTOR B activated.
D4	SAM	On when Sam Relay is activated.
D3	LOCK	On when Mag Lock Relay is activated.
D2	ALARM	On when Alarm Relay is activated.

PROGRAM SETTINGS (DIP SWITCH #1)

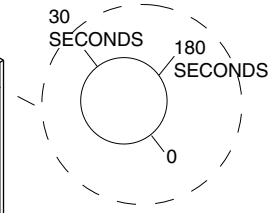
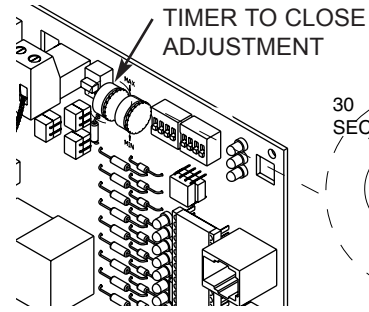
NOTE: For all S1, S2 and S4 switch settings to take effect, the Save Mode must be set to the off position.

TIMER TO CLOSE ENABLE

This switch (S1-1) enables the auto close timer. The timer to close feature works in conjunction with the potentiometer located on the board.



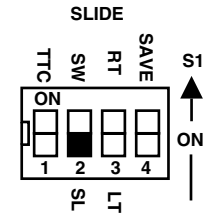
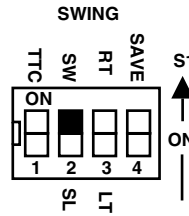
TIMER TO CLOSE



SLIDE/SWING

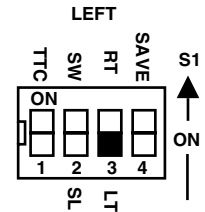
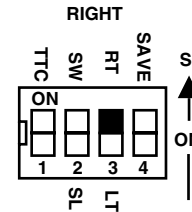
This switch (S1-2) selects slide or swing gate operation, in order to optimize gate behavior for specific application.

SL = Slide
SW = Swing



RIGHT/LEFT OPERATION

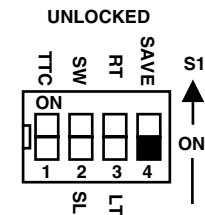
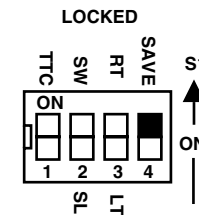
This switch (S1-3) selects the gate opening direction, to the left or to the right. Right/Left operation is determined from the inside of fence looking out.



SAVE MODE

This switch (S1-4) stores S1, S2 and S4 DIP switch settings into memory & locks out changes.

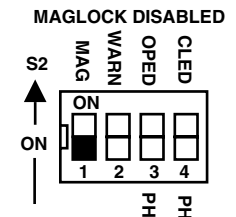
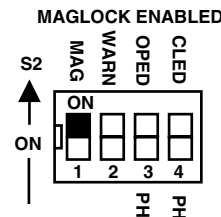
Note: For any programming changes to take effect this switch must be in OFF position.



PROGRAM SETTINGS (DIP SWITCH #2)

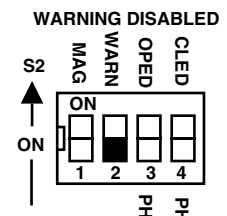
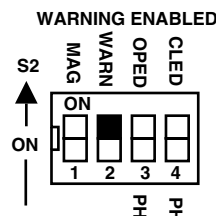
MAGLOCK ENABLE

This switch (S2-1) enables the Maglock feature. On an open command there will be a half second delay after the maglock relay is released before the motor starts.



WARNING ENABLE

This switch (S2-2) enables the gate "in motion" alarm feature. The alarm will beep 3 seconds prior to movement and throughout movement.



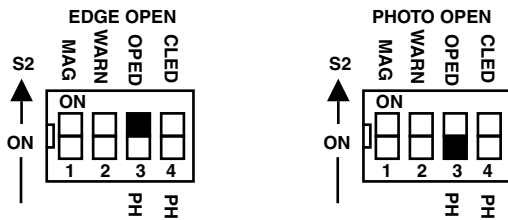
PROGRAM SETTINGS (DIP SWITCH #2) CONT'D

EDGE/PHOTO OPEN

This switch (S2-3) selects edge or photo sensor for the gate opening protection input.

Open Photo Eye (Pause): When the controller is configured for photo eyes, the input functions to pause the gate during the opening cycle. Once the input is cleared the gate continues to open.

Open Edge: When the controller is configured for safety edges, the input functions to reverse the gate to the close limit when the edge is activated during the opening cycle.



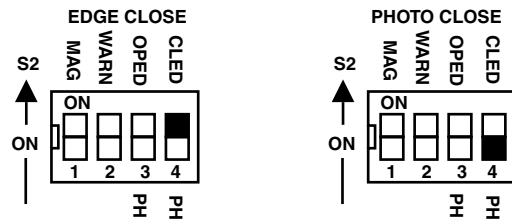
EDGE/PHOTO CLOSE

This switch (S2-4) selects edge or photo sensor for the gate closing protection input.

Close Photo Eye (Reverse): When the controller is configured for photo eyes, the input functions to reverse the gate to the open limit when activated during the close cycle.

Note: Timer to close will reset if enabled.

Close Edge: When the controller is configured for safety edges, the input functions to reverse the gate to the open limit when activated during the close cycle. The entrapment is not cleared at the limit and the timer to close will be disabled. The timer to close may be enabled by activating the interrupt loop, soft open or hard open input.



PROGRAM SETTINGS (DIP SWITCH #4)

DUAL GATE COMMUNICATIONS

The controller is capable of running the operator in a master or second mode depending on (S4) switch setting.

Before initiating any command the master unit queries for the presence of a "second unit" for a time period of one second. If the master gets no response the operator will operate in a stand alone mode.

NOTE: For single unit applications, a jumper must be placed between J4-1 and J4-2. In this mode no further communications will take place during travel. If the master detects the presence of a second unit the master will continue to query the second unit during travel. The second unit will send a response to the master for every query. The second operator will stop if there is a period of one second or more of no communications.

When two operators are connected in dual gate configuration accessories may be connected to either the master or second.

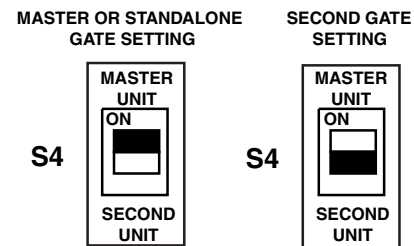
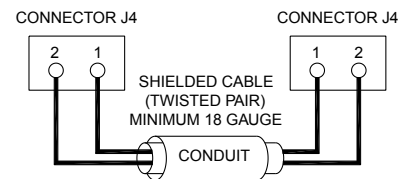


FIGURE 1

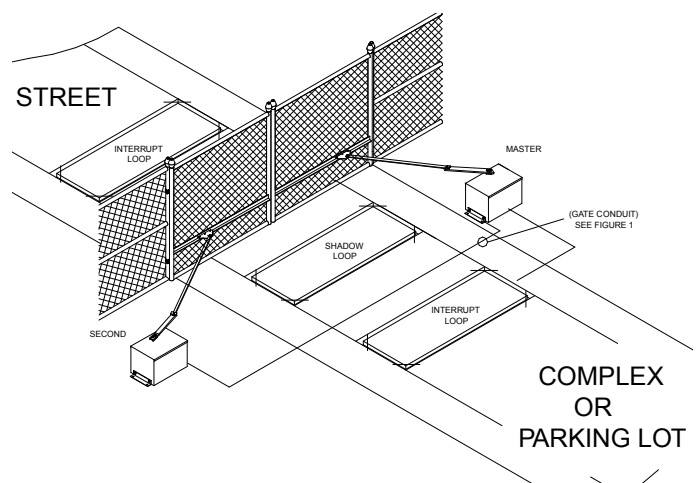


NOTE: Do not run Master/Second communication wiring in the same conduit as the power and control wiring.

NOTE: The Second unit will require a normally close stop circuit for proper system operation.

NOTE: After Master/Second wiring has been completed and the S4 switch programmed, both units must have their power cycled to initiate proper Master/Second communication.

NOTE: The motor learn function must be completed in stand alone mode prior to Master/Second wiring.



TROUBLE SHOOTING

Symptom	Possible Causes	Solution
Operator fails to run.	No Stop Control.	Check the green LED (D17) on GL board. If the green LED is off, check to make sure a stop control has been installed across terminals J1-3 & J1-5 of the GL board.
	Fault in the operator. Check the yellow diagnostic LED at the top right of the GL board next to the programming dip switches.	If the yellow LED blinks six times there is a master/second unit communication failure. If operator is a single unit make sure there is a jumper across terminals J4-1 and J4-2. If operator is in a dual gate configuration make sure that the communication wiring between the two units is undamaged and complete. If the yellow light is solid the board needs to learn the motor. Follow the directions on page 21.
	An accessory is active or malfunctioning. Check the red input status LEDs. D11-D31.	If any red LEDs are on, check the corresponding input. An installed accessory may be wired incorrectly or malfunctioning. Remove the accessory and test the operator.
	Improper J4 Connector Wiring (Master/Second)	Stand-alone Operators: make sure there is a jumper installed across the J4 connector. Master/Second Operation: Make sure that the master/second wiring is installed correctly and is intact (not damaged).
	Low or no high voltage power.	Measure the incoming voltage at the unit's on/off switch. It should be within 5% of the operator's rating when running. Make sure that the proper wire gauge was used for the distance between breaker and operator by consulting the wiring specifications section on page 14 of this manual.
	Low or no low voltage power	Measure the voltage at terminals R1 & R2 in the operator. This voltage should be within 5% of 24VAC. If the high voltage power is good and the low voltage power is bad, check to make sure the circuit fuse is not tripped and that the correct primary tap is used on the transformer. If fuse and tap are correct replace the transformer.
	No LEDs illuminated on GL board.	If both primary and secondary power is good, check to make sure that the J2 connector is making good contact with the pins on the GL board. If all is good replace GL board
The contactor chatters when the operator begins to move.	Transformer's secondary is overloaded. Low primary (high voltage) power.	Remove all accessory devices and test the operator. If the contactor stops chattering, find an alternate power source for some of the devices Measure the incoming line voltage at the unit's on/off switch. It should be within 5% of the operator's rating when running. Make sure that the proper wire gauge was used for the distance between breaker and operator by consulting the wiring specifications section on page 14 of this manual.
The operator runs slow and/or trips the internal overload.	Low primary (high voltage) power.	Measure the incoming line voltage at the unit's on/off switch as well as the meter base or sub panel. Make sure there is not a major change in voltage. The voltage at the operator should be within 5% of the operator's rating when running.
		Check the number of amps currently being drawn from the panel, make sure that the total power being drawn does not exceed the panel's rating.
		Make sure that the proper wire gauge was used for the distance between breaker and operator by consulting the wiring specifications section on page 14 of this manual.
	Problem in the motor.	Perform a visual inspection of the motor. Examine the motor's labels for any distortion or signs of over heating. Replace the motor if it is humming, grinding or making excessive noise. Note: Repeated motor problems indicate poor primary power.
Problem in the contactor.	Examine the contactor for sparking, smoke, burn marks. Remove the wires from one side of the contactor then measure the contact points for high resistance (above 1 ohm). Replace the contactor.	
Motor runs but gate doesn't move.	Damaged or imptoperly tensioned belt/drive chain.	Make sure that the operator's belt/drive chain is intact and tensioned correctly.

TROUBLE SHOOTING CONT'D

Symptom	Possible Causes	Solution
Master or Second operator is not functioning properly.	Failure to cycle power after setup.	The power to each unit must be cycled in order to initiate proper master/second communication if the operators were previously in stand alone mode.
	The communication wiring may be damaged or improperly wired for dual gate operation.	Make sure that the communication wire that is used is twisted pair and not run in the same conduit with any power wiring. Failure to do so will result in interference across the master/second communication line.
	The master or second unit is not programmed correctly.	Review program settings pages 22-23 and check both the master and second for proper programming.
Operator runs in the wrong direction.	The operator's main power is out of phase (three phase only).	Turn off the unit's main power at the breaker and swap any two power leads at the operator's main power switch. Apply power and retest the operator. See important note on page 15.
Operator runs but then stops and reverses direction.	Entrapment (Force Pot) incorrectly set.	This pot must be set so that the gate will run smoothly normally and reverse when encountering an obstruction. See page 21.
	Gate is binding or not running smoothly.	Disconnect the gate from the operator and swing the gate open and close by hand at normal operating speed. Make sure that the gate swings smoothly and does not bind. If the gate is hard to move or binds repair the gate.
	Observe red LEDs D29 and D31.	Both LEDs will indicate the activation of entrapment protection devices on terminals J1-9 & J1-10 on the GL board. Remove the devices and retest. If the operator now runs without fault, check those accessories as well as their wiring.
	The Hall Effect Sensor is not aligned/adjusted correctly.	Make sure that the sensor is adjusted so that it is within 10-15 thousandths of an inch (business card thickness) from the magnets located on the gearbox pulley. Replace the sensor if it is adjusted correctly but continues to fail.
The operator opens immediately upon power up and does not	Check the red input status LEDs, D11-D31, for indication of an active or malfunctioning accessory.	If any red LEDs are on, check the corresponding input. An installed accessory may be wired incorrectly or malfunctioning. Remove the accessory and test the operator.
Programming changes do not effect the gate.	Check the save switch on switch S1-1.	If the switch S1-1 is in the on position any subsequent programming changes will not affect the gate. To make programming changes, switch S1-1 off, make desired changes, and then switch S1-1 on.
Open photo eye reverses gate closed when activated during opening.	Open obstruction input is programmed incorrectly.	The open obstruction input has been programmed to function with gate edges not photo eyes. Refer to page 23 and reprogram the obstruction inputs for correct operation.
Gate does not activate the timer to close after the close photo eye is broken.	Close obstruction input is programmed incorrectly.	The close obstruction input has been programmed to function with gate edges not photo eyes. Refer to page 23 and reprogram the obstruction inputs to match the accessories that are installed on the operator.
Radio controls will not close the gate from the open limit.	Radio terminals R1-4 are factory configured for commercial radio function.	Configure terminals R1-4 for residential radio function by performing the modification outlined on page 16.

HALL EFFECT SENSOR ADJUSTMENT

NOTE: Normally the Hall Effect sensor does not need adjustment, but may go out of alignment due to shipping vibration or rough handling.

These operators use an internal entrapment protector system. This system consists of the GL control board, magnet, and Hall Effect sensor. It may become necessary to adjust the sensor for correct alignment. To do so please perform the following steps:

1. Loosen the two screws holding the hall bracket to the frame.
2. Adjust the hall effect bracket so that the hall effect board is:
 - a. Parallel with the pulley.
 - b. .020" away from the pulley's magnet. Use a feeler gauge to measure the distance.



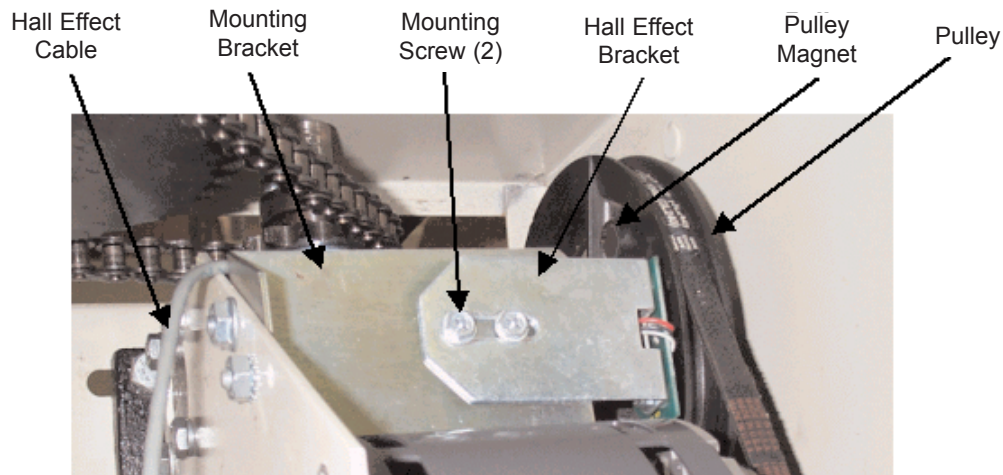
WARNING

TO AVOID SERIOUS PERSONAL INJURY OR DEATH DISCONNECT ELECTRIC POWER BEFORE ADJUSTING HALL EFFECT.

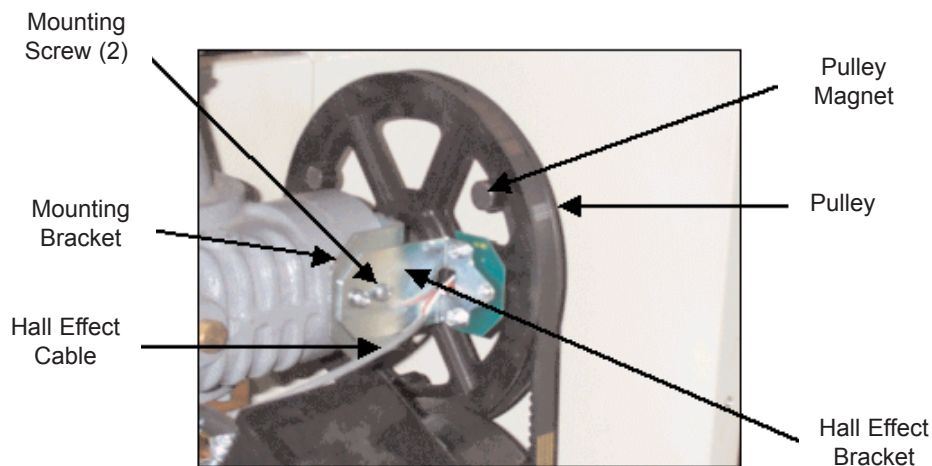
3. Tighten screws to secure assembly.
4. Manually rotate pulley to ensure that each magnet clears the hall effect board.

If a magnet does not clear the board, re-adjust the hall effect assembly accordingly.

MODEL SW470



MODEL SW490



OPERATOR MAINTENANCE

		CHECK AT LEAST ONCE EVERY		
DESCRIPTION	TASK	3 MONTHS	6 MONTHS	12 MONTHS
Internal speed sensor	Check for proper operation	●		Complete Check Out
External entrapment protection systems	Check for proper operation	●		
Gate caution signs	Make sure they are present	●		
Manual disconnect	Check and operate		●	
Drive chain	Check for excessive slack & lubricate		●	
Sprockets & Pulleys	Check for excessive slack & lubricate		●	
Gate	Inspect for wear or damage		●	
Accessories	Check all for proper operation		●	
Electrical	Inspect all wire connections		●	
Frame bolts	Check for tightness		●	
Total unit	Inspect for wear or damage		●	



All power must be disconnected from operator before maintenance can be performed.

All maintenance must be done by a LiftMaster dealer.

Notes:

1. Severe or high cycle usage will require more frequent maintenance checks.
2. Inspection and service should always be performed anytime a malfunction is observed or suspected.
3. When servicing, please do some "house cleaning" of the operator and the area around the operator. Pick up any debris in the area. Clean the operator as needed.
4. It is suggested that while at the site voltage readings be taken at the operator. Using a Digital Voltmeter, verify that the incoming voltage to the operator it is within ten percent of the operators rating.

REPAIR PARTS - SW470

Refer to the parts lists below for replacement parts available for your operator. If optional modifications and/or accessories are included with your operator, certain components may be added or removed from these lists. Individual components of each kit may not be available. Please consult a parts and service representative regarding availability of individual components. Refer to page 32 for all repair part ordering information.

Complete Electrical Panel Replacement Kits

To order a complete electrical box replacement kit, add a K- prefix to the model number of your operator. For example:

SW470-50-11 (Operator) = K73SW470-50-11 (Electrical Box Kit)

Motor Kits

To order a motor replacement kit, add a K prefix to the number of your motor and remove the second dash (-). For example:

20-2101-LD (Motor Number) = K20-2101LD (Motor Kit)

INDIVIDUAL PARTS

ITEM	PART #	DESCRIPTION	QTY
1	10-2013	MOUNTING FEET	2
2	10-18460	WRAPPER	1
3	10-2103-T	REDUCER BRACKET	1
4	10-2104-T	MOTOR BRACKET	1
5	10-G0326	SWITCH BOX COVER	1
6	10-G0387	SENSOR SUPPORT BRACKET	1
7	23-3001	DPST ON/OFF TAG	1
8	28-G0518	CONDUIT BOX	1
9	76-G0541	HALL EFFECT SENSOR ASSY	1
10	76-G0564	ALARM ASSY	1
11	82-PX08-10T	8-32 X 5/8" SELF TAP PH SCREW	2
12	82-PX10-04	10-32 X 1/4" PH SCREW	2
13	85-FW-10	#10 FLATWASHER	2
14	10-18461	SIDE COVER	2
15	35-310-032	SECONDARY FUSE	1
16	K001A5566	REPLACEMENT GL BOARD	1

DRIVE ASSEMBLY KIT (K75-18365)

ITEM	DESCRIPTION	QTY
D1	BASE PLATE	1
D2	SHAFT	1
D3	SELF ALIGNING FLGD. MOUNT	1
D4	40B42 1 X 1/4 SPROCKET	1
D5	#40B12 5/8" BORE SPROCKET	1
D6	25" BELT	1
D7	PULLEY	1
D8	MOLDED PULLEY	1
D9	#40-53 CHAIN	1
D10	#40 MASTER LINK CHAIN	1
D11	MOTOR 1/2HP (SW420-50-11)	1
D12	MOTOR 1/2HP (SW420-50-25)	1
D13	30:1 REDUCER	1
D14	LIMIT COLLAR ASSY	2
D15	1/4 X 1/4 X 1-1/4 DISCONNECT KEY	1
D16	1/4 X 1/4 X 3/4 KEY	1

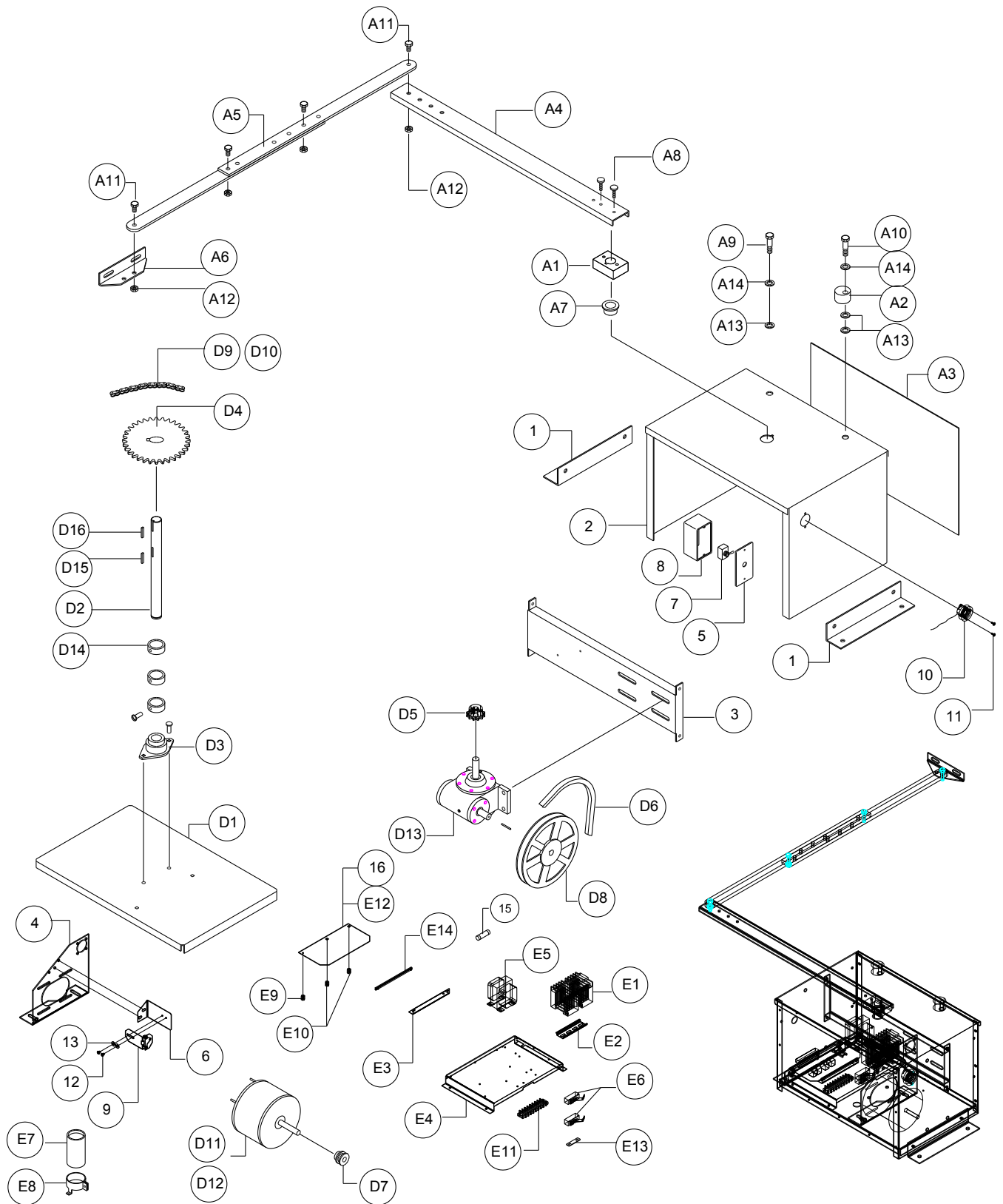
ELECTRICAL PANEL ASSEMBLY KIT (SEE ABOVE)

ITEM	DESCRIPTION	QTY
E1	24V REVERSING CONTACTOR	1
E2	DIN RAIL	1
E3	MOUNTING BRACKET	1
E4	ELECTRICAL PANEL	1
E5	TRANSFORMER 24V	1
E6	LIMIT SWITCH	2
E7	220V CAPACITOR	1
E8	CAPACITOR CLAMP	1
E9	STANDOFF, ALUMINUM	1
E10	STANDOFF, NYLON	2
E11	8 POSITION TERMINAL BLOCK	1
E12	GL PCB ASSY	1
E13	6-32 DOUBLE TINNERMAN NUT	1
E14	6" PLASTIC CARD GUIDE	1

ARM ASSEMBLY KIT (K75-18364)

ITEM	DESCRIPTION	QTY
A1	ARM HUB	1
A2	ARM STOP	1
A4	SW470 ARM CHANNEL	1
A5	EXT. ARM ASSY	1
A6	GATE BRACKET	1
A7	1-1/4" X 1/8 BEARING	1
A8	1/4-20 STUD	2
A9	1/2-13 X 1/2 HH SP SCREW	2
A10	1/2-13 X 1-1/2 FULLY THREADED HH	1
A11	1/2-13 X 1/2" SHOULDER BOLT	2
A12	3/8-16 SERRATED FLANGE NUT	4
A13	1 X 1/2 X 1/32 FLATWASHER	3
A14	1/2" FLATWASHER	2

ILLUSTRATED PARTS - SW470



REPAIR PARTS – MODEL SW490

Refer to the parts lists below for replacement parts available for your operator. If optional modifications and/or accessories are included with your operator, certain components may be added or removed from these lists. Individual components of each kit may not be available. Please consult a parts and service representative regarding availability of individual components. Refer to page 32 for all repair part ordering information.

DRIVE ASSEMBLY KIT (K75-18367)		
ITEM	DESCRIPTION	QTY
D1	SWITCH BRACKET	1
D2	SENSOR BRACKET	1
D3	OUTPUT SHAFT	1
D4	FLGD. BALL BEARING 1-1/4 BORE	1
D5	50B60 1-1/2 X 3/8 2-1/4 LTB	1
D6	50B12 1/4KW SPROCKET	1
D7	COGGED BELT	1
D8	2' PULLEY, 5/8" BORE, 3/16 KEY	1
D9	7" PULLEY	1
D10	#50-75 CHAIN	1
D11	#50 CHAIN, MASTER LINK	1
D12	MOTOR (SEE CHART)	1
D13	LIMIT SWITCH N.C SPST	2
D14	GEAR REDUCER	1
D15	SINGLE SWING COLLAR	2
D16	DOUBLE SWING COLLAR	1
D17	HALL EFFECT SENSOR ASSY	1
D18	6-32 TINNEMAN NUT	1
D19	1/4 X 1-1/2" KEY	1
D20	3/8 X 3/8 X 2-1/2 KEY	1
D21	3/8 X 3/8 X 2-1/4 KEY	1
D22	10-32 X 1/4 PHILLIPS SCREW	2
D23	#6 ZP FLATWASHER	3
D24	#10 FLATWASHER	2
D25	6/32 X 2-1/2" PAN HEAD SCREW	2

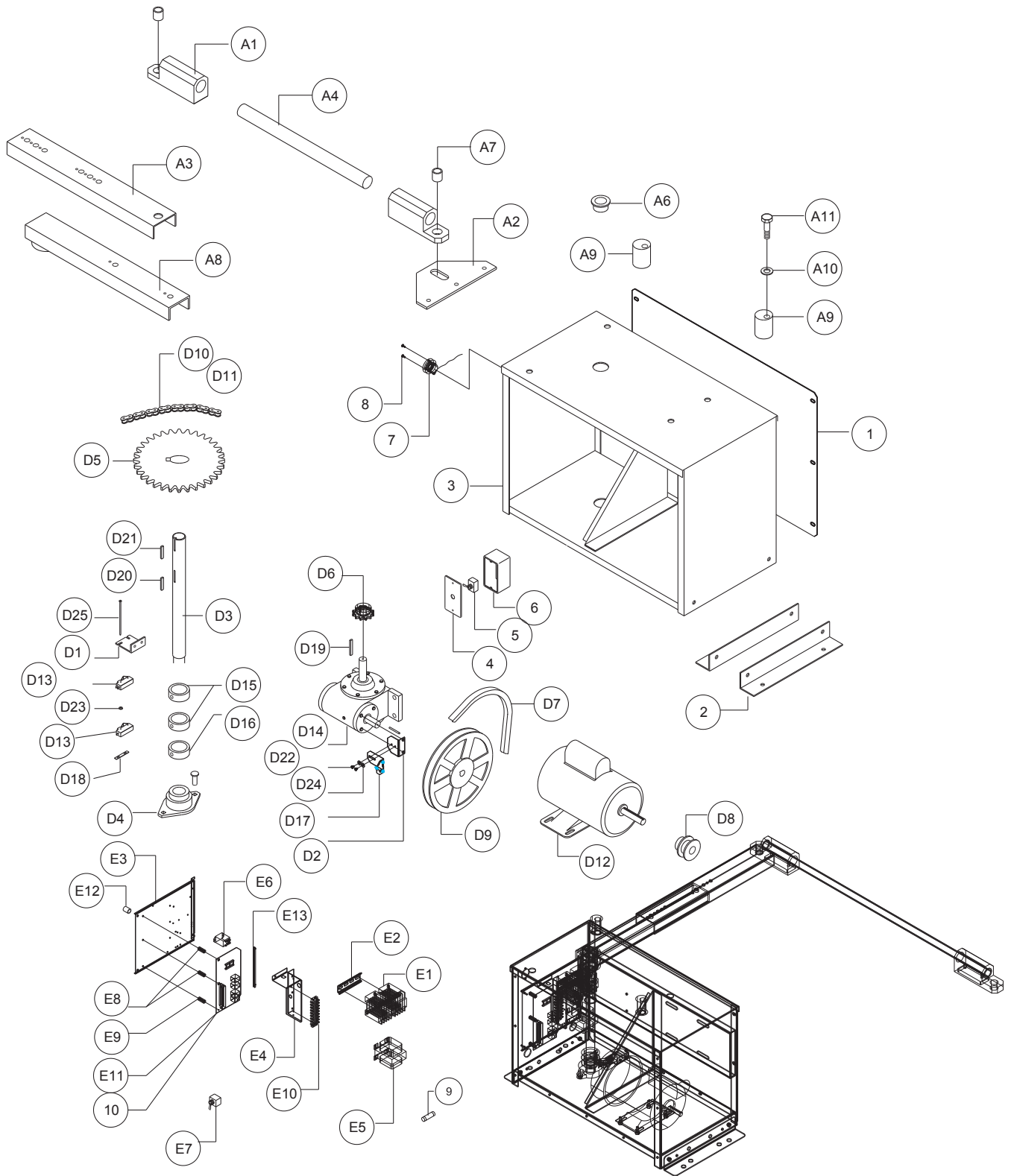
ARM ASSEMBLY KIT (K75-18366)		
ITEM	DESCRIPTION	QTY
A1	EXT. ARM HOLDER	2
A2	GATE BRACKET	1
A3	SW490 EXT ARM	1
A4	39" GALV TUBE 1"ID X 1.315"OD	1
A5	GASKET BUSHING	1
A6	FLANGE BEARING	1
A7	SLEEVE BEARING	2
A8	ACTUATOR ARM ASSY	1
A9	ACTUATOR ARM STOP	2
A10	3/4" ZP SAE WASHER	4
A11	3/4-10 X 3 H.H. BOLT PLATED	2
A12	#6-32 X 1/2 PH SCREW	2

ELECTRICAL PANEL ASSEMBLY KIT (SEE PAGE 28)		
ITEM	DESCRIPTION	QTY
E1	24V REVERSING CONTACTOR	1
E2	DIN RAIL	1
E3	SW490 ELECTRICAL PANEL	1
E4	CONTROL BOARD BRACKET	1
E5	TRANSFORMER	1
E6	RELAY (SEE CHART)	1
E7	OVERLOAD (SEE CHART)	1
E8	3/8" X 1" STANDOFF	2
E9	3/8" X 1" STANDOFF	1
E10	8 POSITION TERMINAL BLOCK	1
E11	GL PCB ASSY	1
E12	SPACER 13/32 X 3/64 X 1/2	2
E13	6" PLASTIC CARD GUIDE	1

INDIVIDUAL PARTS			
ITEM	DESCRIPTION		QTY
1	10-18458	SW490 SIDE PLATE COVER	2
2	10-2013	MOUNTING FEET	2
3	73-18457	FRAME ASSY	1
4	10-G0326	SWITCH BOX COVER	1
5	23-3001	DPST ON/OFF TAG	1
6	28-G0518	CONDUIT BOX	1
7	76-G0564	ALARM ASSY	1
8	82-PX08-10T	8-32 X 5/8 SELF TAP SCREW	3
9	35-310-032	SECONDARY FUSE	1
10	K001A5566	REPLACEMENT GL BOARD	1

Variable	P/N	Description	Used On
20-XXXX (Motor)	20-1050-1T	1PH 1/2HP BASE MNT. 115/230 TEFC	SW490-33-11, SW490-33-21, SW490-50-11, SW490-50-21
	20-1075-1T	1PH 3/4HP BASE MNT. 115/230V TEFC	SW490-75-11, SW490-75-21
	20-1100B-2T	1PH 1HP BASE MNT. 115/230V TEFC	SW490-100-11, SW490-100-21
	20-3050-1T	3PH 1/2HP BASE MNT. 230/460V TEFC	SW490-33-23, SW490-33-43, SW490-50-23, SW490-50-43
	20-3075B-4T	3PH 3/4HP BASE MNT. 230/460V TEFC	SW490-75-23, SW490-75-43
	20-3100B-4T	3PH 1HP BASE MNT. 230/460V TEFC	SW490-100-23, SW490-100-43
23-XXXX (Switch)	23-3001	On/Off SW, 1PH	ALL 1PH
	23-3005	On/Off SW, 3PH	ALL 3PH
24-XXX-X (Relay)	24-115-1	TPDT, 115V coil (IR)	ALL 115V 1PH
	24-230-5	TPDT, 230V coil (IR)	ALL 230V 1PH
25-20XX (Overload)	25-2006	6 AMP	SW490-33-21, SW490-50-21, SW490-75-21
	25-2008	8 AMP	SW490-33-11
	25-2010	10 AMP	SW490-50-11, SW490-100-21
	25-2015	15 AMP	SW490-75-11
	25-2020	20 AMP	SW490-100-11
25-40XX (Overload)	25-4002-5	1.6-2.5 AMP	SW490-100-43
	25-4006	4.0-6.0 AMP	SW490-100-23

ILLUSTRATED PARTS - SW490



WARRANTY POLICY

Seller warrants that the goods are free from defect in materials and/or workmanship for a period of two years from the date of shipment from the F.O.B. point. Goods returned to Seller for warranty repair within the warranty period, which upon receipt by Seller are confirmed to be defective and covered by this limited warranty, will be repaired or replaced (at Seller's sole option) at no cost and returned pre-paid. Defective parts will be repaired or replaced with new or factory-rebuilt parts at Seller's sole option. Authorization instructions for the return of any goods must be obtained by Buyer from Seller before returning the goods. The goods must be returned with complete identification, freight prepaid, and in accordance with Seller's instructions or they will not be accepted. In no event will Seller be responsible for goods returned without proper authorization or identification.

THIS LIMITED WARRANTY IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR OTHERWISE, AND OF ANY OTHER OBLIGATIONS OR LIABILITY ON SELLER'S PART. THIS LIMITED WARRANTY DOES NOT COVER NON-DEFECT DAMAGE, DAMAGE CAUSED BY IMPROPER INSTALLATION, OPERATION OR CARE (INCLUDING, BUT NOT LIMITED TO ABUSE, MISUSE, FAILURE TO PROVIDE REASONABLE AND NECESSARY MAINTENANCE, OR ANY ALTERATIONS TO THIS PRODUCT), LABOR CHARGES FOR DISMANTLING OR REINSTALLING A REPAIRED OR REPLACED UNIT, OR REPLACEMENT BATTERIES. UNDER NO CIRCUMSTANCES SHALL SELLER BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES ARISING IN CONNECTION WITH THE SUE, OR INABILITY TO USE, THIS PRODUCT. IN NO EVENT SHALL SELLER'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 US ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF THIS PRODUCT. Some states do not allow the exclusion or limitation of consequential, incidental or special damages, so the above limitation or exclusion may not apply to you. This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

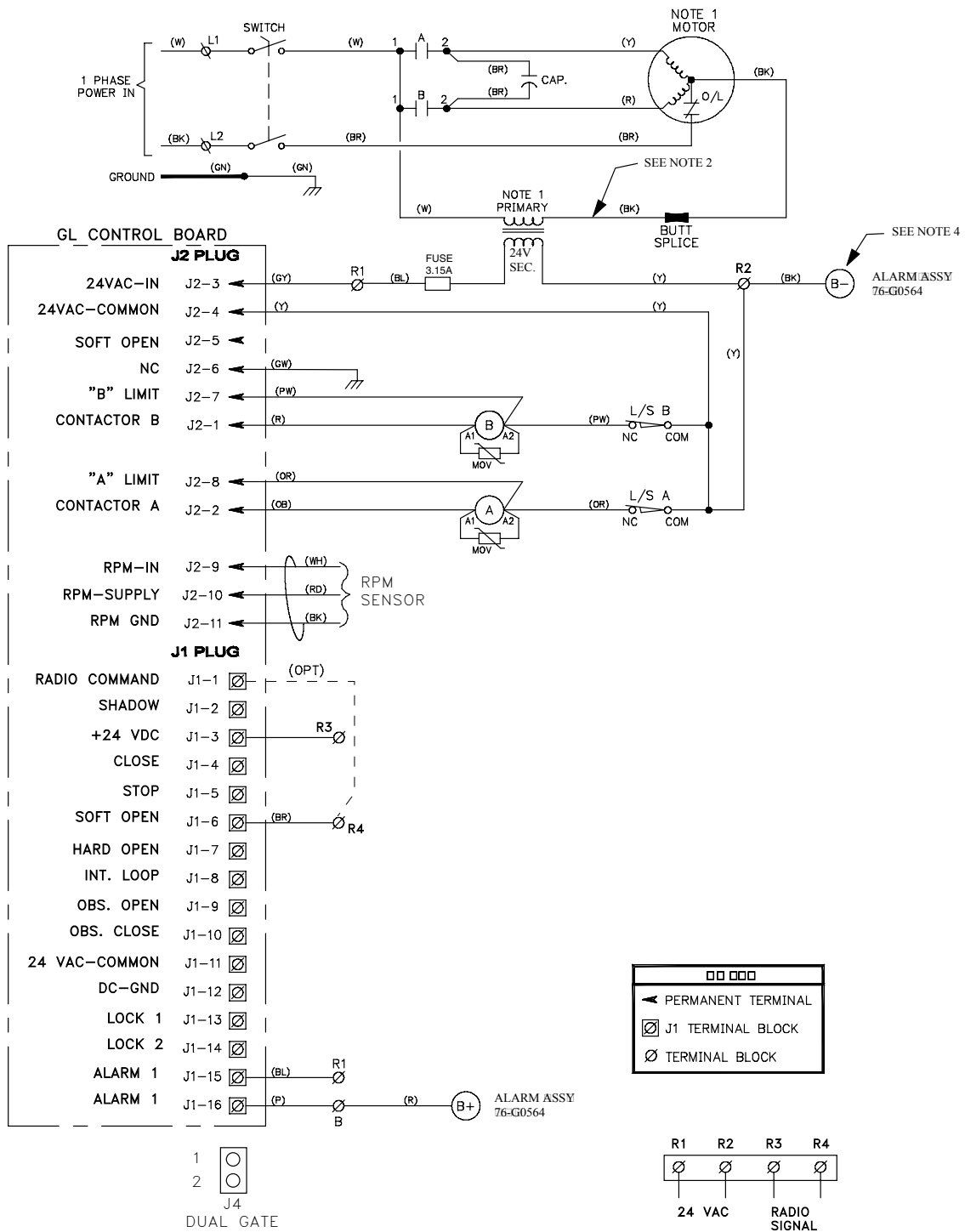
HOW TO ORDER REPAIR PARTS

OUR LARGE SERVICE ORGANIZATION
SPANS AMERICA
INSTALLATION AND SERVICE INFORMATION
ARE AVAILABLE 6 DAYS A WEEK
CALL OUR TOLL FREE NUMBER - 1-800-528-2806
HOURS 6:00 a.m. TO 7:00 p.m. (Central Std. Time)
MONDAY Through FRIDAY
HOURS 8:00 a.m. TO 6:00 p.m. (Central Std. Time)
SATURDAY
WWW.LIFTMASTER.COM

**WHEN ORDERING REPAIR PARTS
PLEASE SUPPLY THE FOLLOWING INFORMATION:**
PART NUMBER DESCRIPTION MODEL NUMBER

ADDRESS ORDER TO:
THE CHAMBERLAIN GROUP, INC.
Electronic Parts & Service Dept.
6020 Country Club Road
Tucson, AZ 85706

SINGLE PHASE WIRING DIAGRAM (SW470)



NOTES:

- 1) TRANSFORMER PRIMARY VOLTAGE SAME AS OPERATOR LINE VOLTAGE 24V SECONDARY 60VA.
- 2) TERMINAL DESIGNATIONS SHOWN FOR 115V ONLY.
- 3) OPTIONAL WIRE HARNESS.
- 4) (B+) AND (B-) ARE 100db SAFETY ALARMS.

APPLICATIONS:

CONTROL WIRING TYPE - GL

FIELD WIRING & ADJUSTMENTS

MODEL TYPES: SW470

HORSEPOWER: 1/2

VOLTAGE/PHASE: 115V & 230V, 50/60Hz - 1 PHASE ONLY

DRAWING NUMBER:

G1978

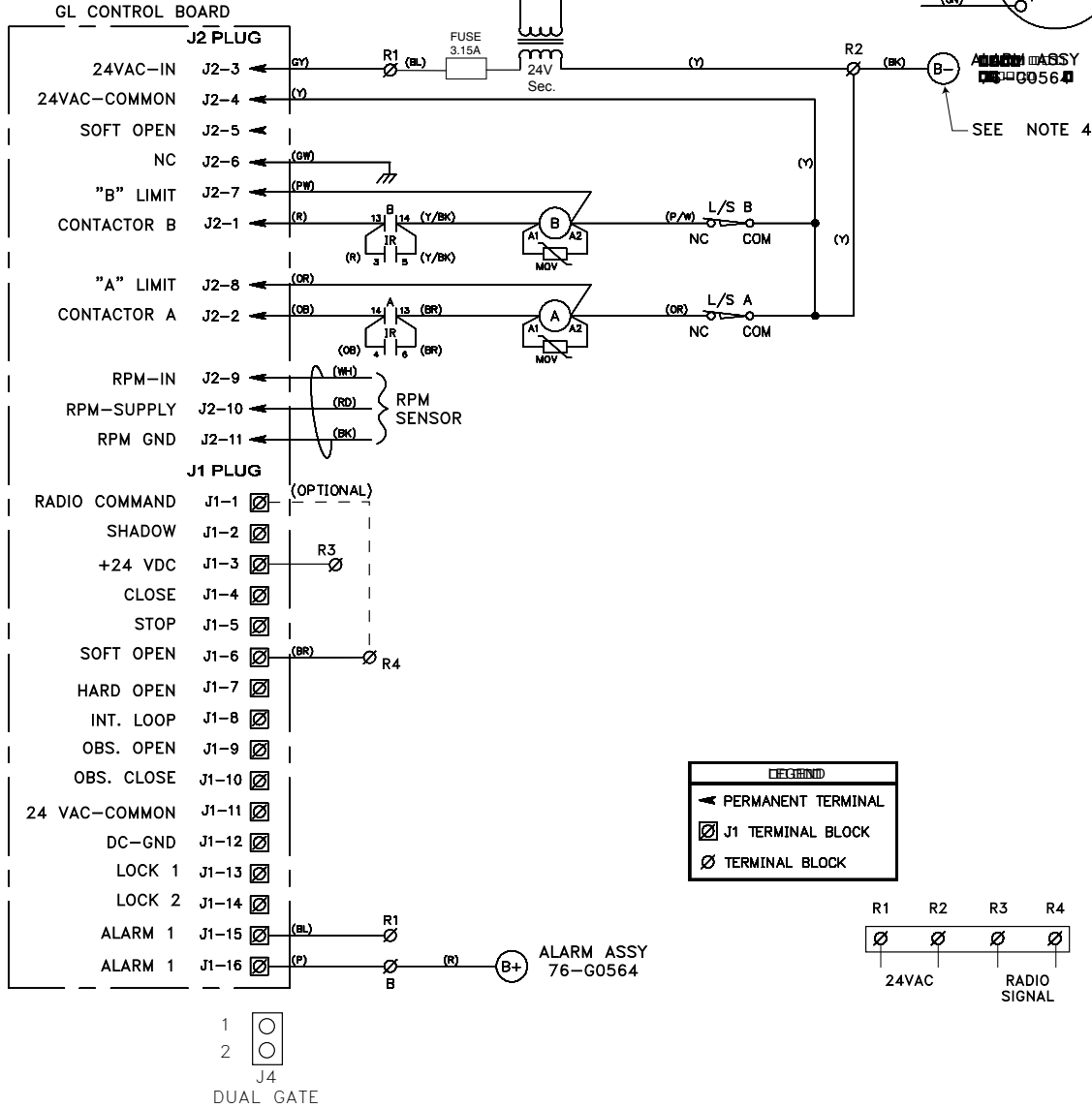
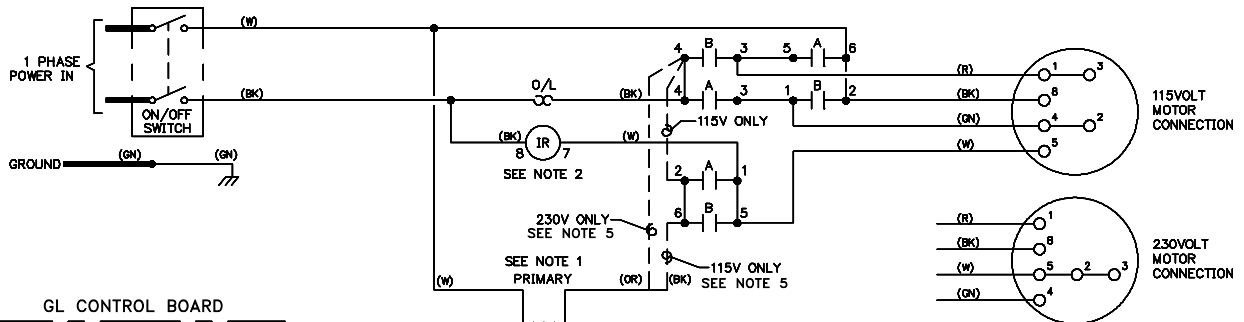
REV:

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845 Larch Avenue, Elmhurst, IL 60125

SINGLE PHASE WIRING DIAGRAM (SW490)



NOTES:

- 1) TRANSFORMER PRIMARY VOLTAGE SAME AS OPERATOR LINE VOLTAGE 24V SECONDARY 60VA.
- 2) RELAY VOLTAGE SAME AS LINE VOLTAGE.
- 3) OPTIONAL WIRE HARNESS.
- 4) (B+) AND (B-) ARE 100db SAFETY ALARMS.
- 5) WIRE COLOR: 120V BLACK, 208V RED, 230V ORANGE.

APPLICATIONS:

CONTROL WIRING TYPE - GL

FIELD WIRING & ADJUSTMENTS

MODEL TYPES: SW490
 HORSEPOWER: 1/2, 3/4 & 1
 VOLTAGE/PHASE: 115V, 208 & 230V - 1 PHASE ONLY

DRAWING NUMBER:

G1979-1

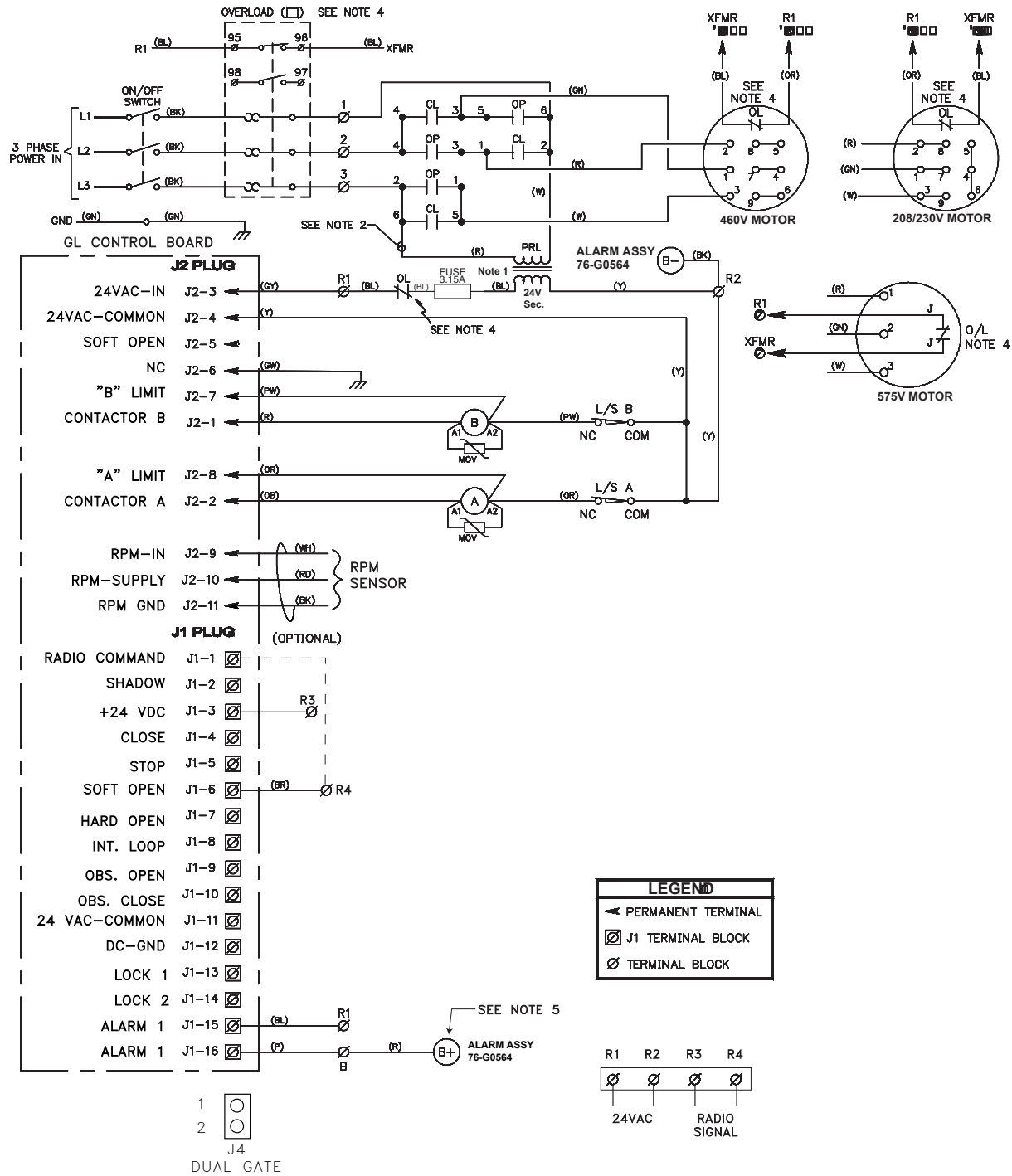
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845 Larch Avenue, Elmhurst, IL 60125

THREE PHASE WIRING DIAGRAM (SW490)



NOTES:

- 1) TRANSFORMER PRIMARY VOLTAGE SAME AS OPERATOR LINE VOLTAGE 24V SECONDARY 60VA.
- 2) WIRE COLOR: 208V RED, 230V ORANGE, 460V VIOLET, 575V GRAY
- 3) OPTIONAL WIRE HARNESS (SEE DRAWING 90-G0532).
- 4) OVERLOAD PROTECTION EITHER IN MOTOR OR FROM AN EXTERNAL OVERLOAD.
- 5) (B+) AND (B-) ARE 100db SAFETY ALARMS.

APPLICATIONS:

CONTROL WIRING TYPE - GL

FIELD WIRING & ADJUSTMENTS

MODEL TYPES: SW490
 HORSEPOWER: 1/2, 3/4 & 1
 VOLTAGE/PHASE: 208,230,460 & 575V - 3 PHASE ONLY



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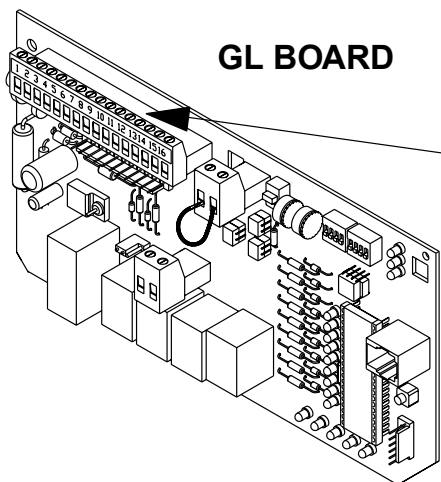
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G1979-3

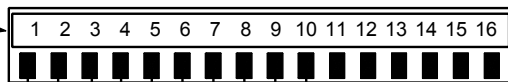
REV:

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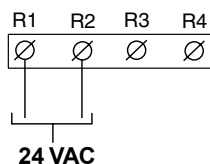
CONTROL CONNECTION DIAGRAMS



J1 TERMINAL BLOCK



24VAC ACCESSORY POWER MAY BE FOUND ON THESE TERMINALS



NOTE: SEE WIRING DIAGRAMS SHIPPED WITH KIT FOR ADDITIONAL INFORMATION. SEE OWNERS MANUAL FOR WIRING DISTANCES AND WIRE GAUGE INFORMATION. □

□

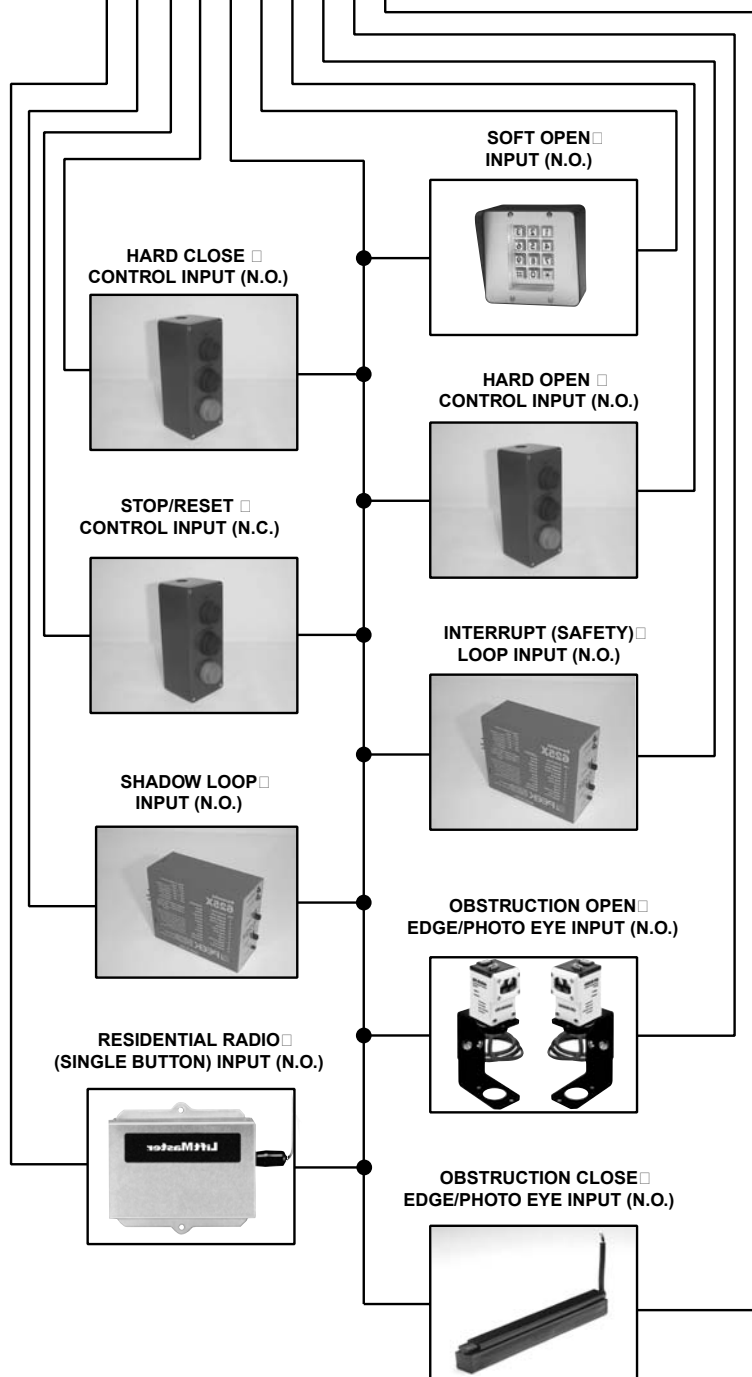
WARNING: All controls that are to be used to operate the gate system, MUST be installed where the user cannot come into contact with the gate while operating the controls. Also, always install the controls where the user has full view of gate operation. □

□

* All inputs are normally open and momentary, except the stop (N.C.). The following instructions are based upon UL 325, and include recommendations for significant increase in safety. □

□

* We strongly recommend that you follow the UL guidelines presented throughout the manual. Installation device instructions - always follow the instructions provided by the manufacturer when installing and adjusting any control device. If these instructions are contrary to the advice given here, call for assistance.



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