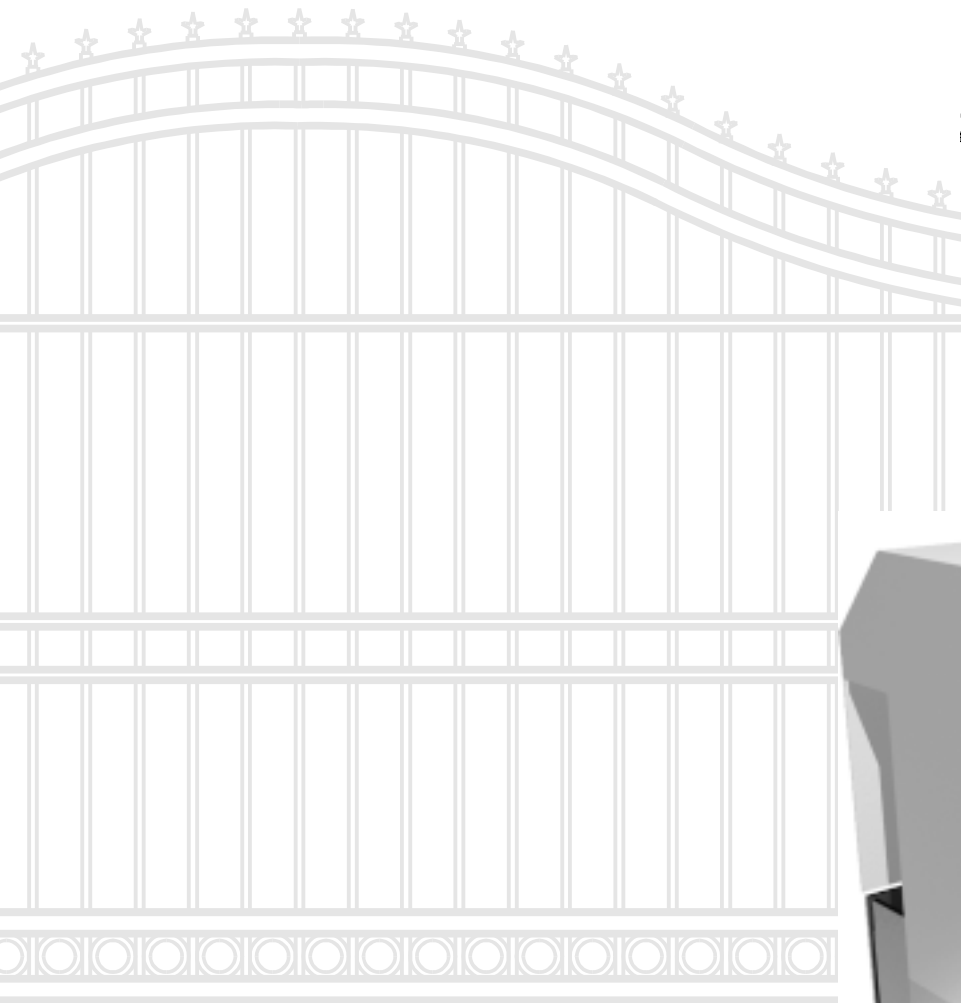


HOW TO INSTALL

AGS

2000

SLIDING GATE OPERATOR









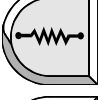



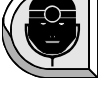


AGSTM

Manufacturing Excellence in Gate Automation

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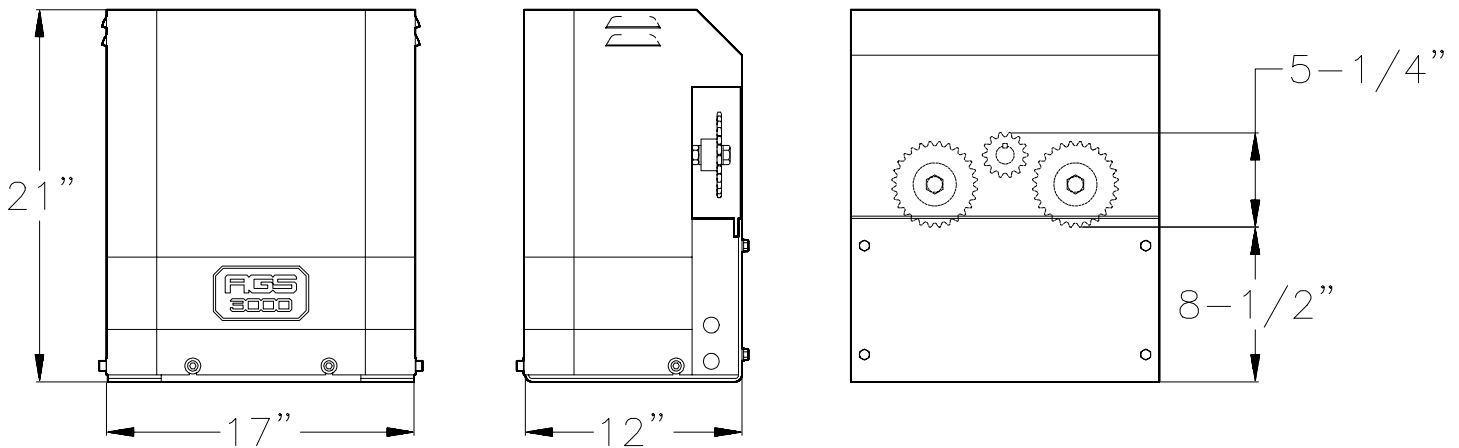
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IMPORTANT INSTALLATION INSTRUCTIONS

WARNING-To reduce the risk of severe injury or death:

- 1) READ AND FOLLOW ALL INSTALLATION INSTRUCTIONS.
- 2) Make sure that the gate is properly installed. An improperly installed door could cause severe injury. Have a qualified service person make repairs to the gate and other hardware before installing the opener.
- 3) Do not connect the opener to source of power until unstructed to do so.
- 4) Locate the control button: (a) within sight of the door, (b) at a minimum hight of 5 feet so small children cannot reach it, and (c) away from all moving parts of the door.



○ **OVERALL DIMENSIONS:** Height: 21" (53 cm) Length: 12" (30 cm) Width: 17" (43 cm)

○ **SHIPPING WEIGHT:** 125 pounds (57 kg)

● Options: Steel Mounting Stand: 23 pounds (10 kg)

○ **POWER REQUIREMENT:** Dedicated 115 Volt AC (+/- 10V), 5 AMP Power Circuit

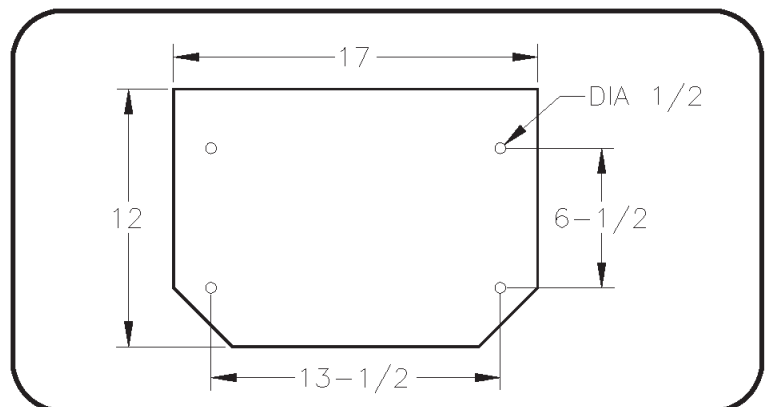
○ **APPLICATIONS:**

- Maximum Gate Weight: 500 pounds (227 kg)
- Maximum Gate Length: 25 feet (7.6 m)
- Maximum Track Grade: 5 % (1 ft rise over 20 ft run)

○ **INCLUDED WITH OPERATOR:**

- 30-Feet of # 41 Roller Chain
- 2-Master Links # 41
- 2-Zinc Plated Chain Bolts
- 2-Chain Brackets, Right and Left
- 2-U-Bolts, Round (for chain brackets)
- 2-U-Bolts, Square (for chain brackets)
- 1-Caution Safety Sign
- 1-Hex Wrench 5/16"
- 1-Instruction Manual
- 1-Flexible Conduit End Fitting 1/2"
- 4-Sleeve Anchor Bolts (red heads) 3/8" X 3"

BASE PLATE HOLE PATTERN



○ **CIRCUIT BOARD:** The AGS 2000 uses the Full Systems Capability circuit board, a powerful control system which is used on many other AGS gate operators. This circuit board operates on 12 ~ 18 Volts and can deliver power to the motor through high power switching. The limit switch input terminals require the use of normally open type limit switches. These switches are used to accurately stop the gate operator in the open and closed positions. To safeguard the operator from damage that could result from limit switch or system protection failure, the Full Systems Capability circuit board has a built-in maximum run timer which will allow the operator to run for approximately 40 seconds and then shut off automatically. The Full Systems Capability circuit board has an adjustable gate sensitivity feature which will stop or reverse the gate if the gate is pushing harder than normal because of an obstruction.

○ **GATE SENSITIVITY:** The AGS 2000 Full Systems Capability circuit board has a built-in system protection feature which when adjusted properly will deliver only enough power to the motor to overcome the resistance of the gate. The amount of power that the circuit board will deliver can be adjusted for both directions of travel to accommodate the various gate weights that the AGS 2000 operator is recommended for. (See Applications Pg. 3)

○ PERIPHERALS:

POWER SUPPLY: There is 12 VDC available on terminals 8 and 12 which is used to supply power to a radio receiver.

OPEN INPUT: Normally open devices are connected to terminals 5 and 6, Open Input to cause the gate operator to open and/or hold open the gate. This input is also used to close the gate when the AUTO CLOSE TIMER switch is OFF, (See OPERATION).

PULSE OPEN INPUT: Normally open devices are connected to terminals 6 and 7 Pulse Open Input to cause the gate operator to open the gate. This input functions identical to the Open Input with the exception that if the input remains present, the Auto Close Timer will still close the gate. (See AUTO CLOSE TIMER) The Pulse Open Input cannot be used in Push-To-Open/Push-To-Close mode (timer off), it will not close the gate. These normally open devices that are used on the Open Input or the Pulse Open Input can be push buttons, radio receivers, key switches, loop detectors, photo electric beams, 24 hour timers, etc.

SAFETY INPUT: Normally open devices are connected to terminals 4 and 8 on the AGS 2000 Full Systems Capability circuit board to cause the gate operator to reverse and/or hold the gate open in any position except the fully closed position. Normally open safety input devices that can be used are safety edges, push buttons, radio receivers, key switches, loop detectors, photo electric beams, 24 hour timers, etc.

STOP INPUT: Normally closed devices are connected to terminals 8 and 9 on the AGS 2000 Full Systems Capability circuit board to cause the gate operator to stop in any position. This stop input can be used as a simple safety device for pedestrian doors which may interfere with the gate's operation. When the stop input is used, the operator will stop and remain stopped until the stop circuit has been re-closed and until given an open input on terminals 5 and 6. Normally closed stop input devices that can be used are push buttons, key switches, loop detectors, photo electric beams, 24 hour timers, etc.

CLOSE INPUT: Normally open devices are connected to terminals 8 and 10 on the AGS 2000 Full Systems Capability circuit board to cause the gate operator to close the gate when in any position. Normally open input devices that can be used are push buttons, radio receivers, key switches, loop detectors, photo electric beams, 24 hour timers, etc.



○ OPERATION

The AGS 2000 Full Systems Capability can operate in a AUTO CLOSE TIMER (TIMER ON) or a PUSH-TO-OPEN/PUSH-TO-CLOSE (TIMER OFF) mode of operation. In the AUTO CLOSE TIMER mode of operation the operator is given a command to open the gate and hold it open until the input is released and until the auto close timer has elapsed at which point the operator will close the gate automatically. In the PUSH-TO-OPEN/PUSH-TO-CLOSE mode of operation each time a signal is sent to the operator, it will cause it to do the opposite of what it did before. (i.e., If the gate is closed, it will start opening, if it is open, it will start closing: If it is closing, it will REVERSE TO OPEN, if it is opening, it will REVERSE TO CLOSE.)

○ CONTROLS

The AGS 2000 Full Systems Capability works with the following control devices: Radio transmitters and their receiver (specified by and available from the manufacturer). Key switches, Push buttons (separate or intercom), numerical key pads and any peripheral equipment which can supply normally open or normally closed contacts. These contacts can be connected to the operator input terminals to perform the opening, close, safety, or the stop functions.

○ AUTO CLOSE TIMER

The operator comes factory preset with the auto close timer turned OFF. The auto close timer will close the gate automatically after a specific amount of time has elapsed. The amount of time can be easily adjusted between 0 and 45 seconds by turning a small "pot" located on the right edge of the circuit board (See page 17). The timer can be disabled or activated by flipping a single switch located on the top right edge of the circuit board. If the timer will be used it is recommended that some type of supplementary safety device be installed. If more time is required, there is an extended timer available from the manufacturer allowing up to 100 min. (See Options)

○ MANUAL RELEASE SWITCH

This simple on-off switch is built into the operator. In an emergency, EVEN WITH THE POWER OFF, the gate can be pushed open manually after flipping the switch from Operate to Release. This switch may also be removed and placed externally from the machine.

○ GATE SENSITIVITY ADJUSTMENT FOR SYSTEM PROTECTION

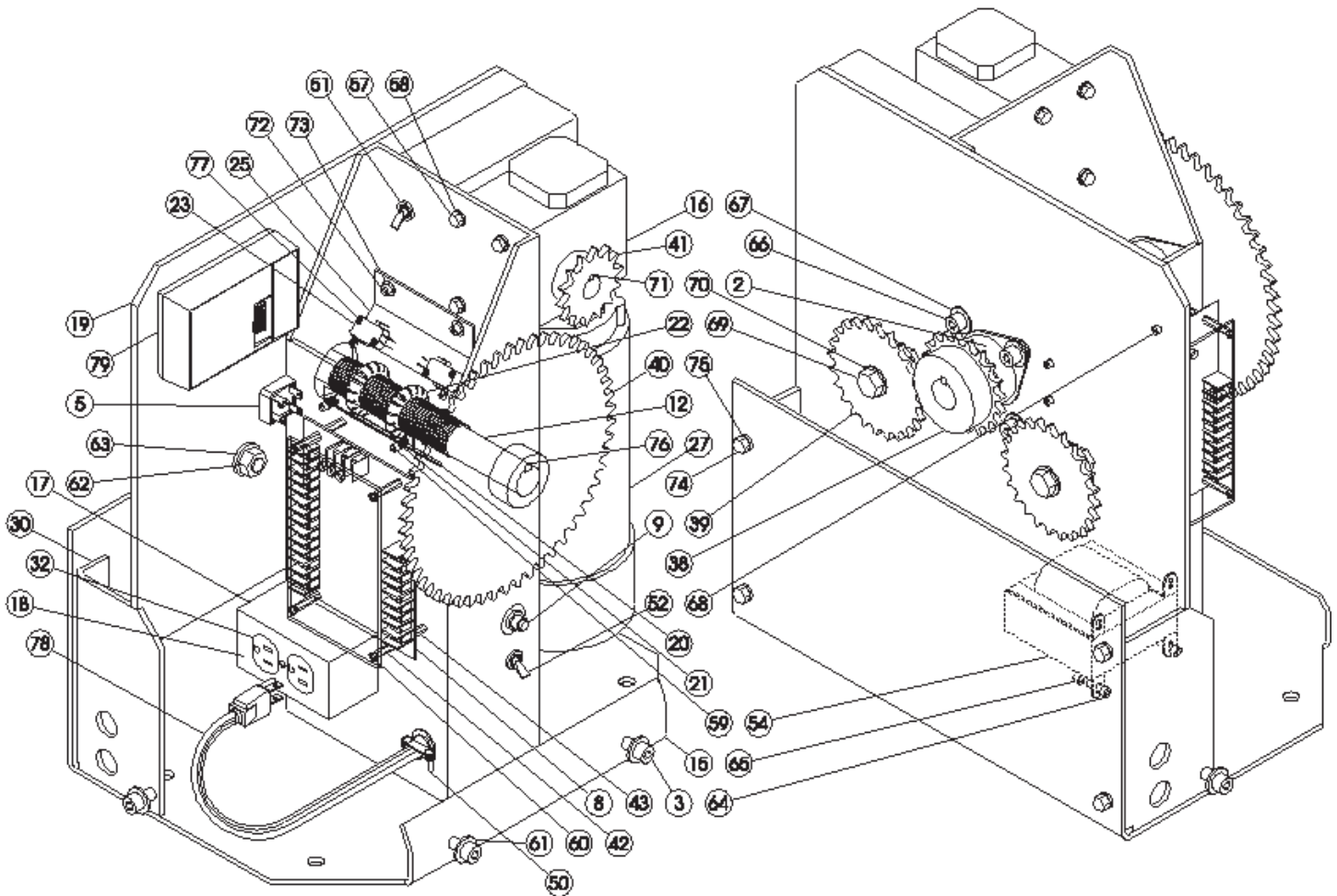
The amount of force necessary to stop the gate can be adjusted to conform to the various sizes and weights of any particular gate. When adjusting the sensitivity, the operator can be given only as much energy as is necessary to overcome the resistance of the gate. If the gate should strike an obstruction in the closing direction, the gate will reverse to the open position. If the gate should strike an obstruction in the opening direction, the gate will stop and remain stopped until commanded to return to operation. (See page 17.)

○ MASTER AND SLAVE

Some very large entrances may require the use of two gates. If this is the case, the two gates can be easily automated using the "master and slave" configuration. This configuration uses two gates and two operators in ONE driveway. The operators used are two regular AGS 2000 Full Systems Capability operators one of which is of standard "right hand operation" and the other which is easily converted to "left hand operation" by flipping a single switch located at the top of the circuit board. (See page 17.)



Parts Identification



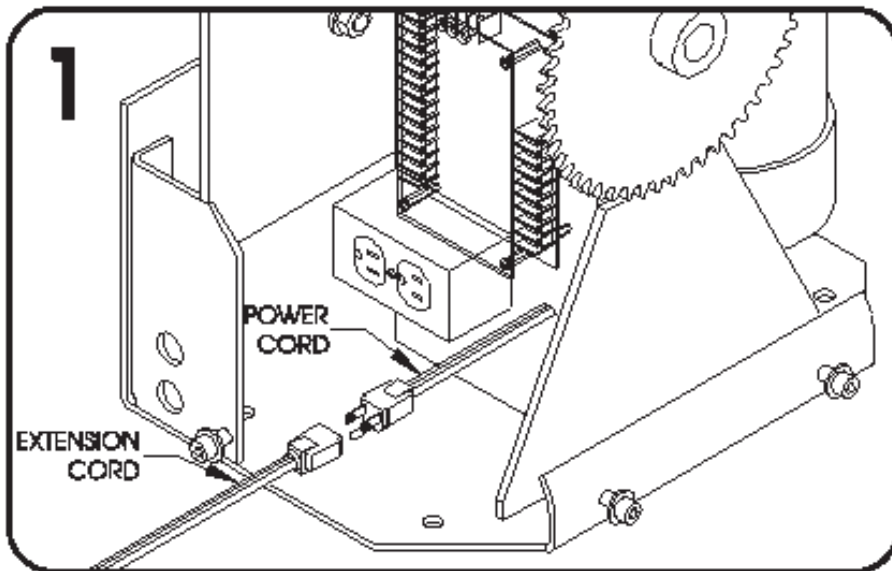
PART #	QNTY.	QNTY.
001	1	ALLEN WRENCH FOR COVER, 5/16" HEX KEY
002	2	BEARING, SELF ALIGNING, 1" BORE
003	4	BOLT, 3/8"-16 X 1", SOCKET HEAD CAP
004	4	BOLT, SLEEVE ANCHOR, 3/8" X 3"
005	1	BRIDGE RECTIFIER, 35 AMP
006	2	CHAIN BRACKET ANGLE, RIGHT AND LEFT
007	1	CHAIN, #41, 30 FT
008	1	CIRCUIT BOARD, FULL SYSTEMS CAPABILITY
009	1	CIRCUIT BREAKER RESET BUTTON, 2.5 AMP
010	1	COVER, LARGE METAL FOR OPERATOR
011	1	COVER, PLEXI GLASS FOR CIRCUIT BOARD
012	1	DRIVE SHAFT 1" WITH THREADED BODY
013	1	FITTING, 90 DEGREE FOR FLEX CONDUIT
014	1	FITTING, STRAIGHT FOR FLEX CONDUIT
015	1	FRAME SUBSTRATE
016	1	GEAR BOX SPEED REDUCER, ON MOTOR
017	1	HANDY BOX FOR 115 VOLT RECEPTACLE
018	1	HANDY BOX RECEPTACLE COVER PLATE
019	1	IDLER PLATE, FOR MOUNTING SPROCKETS
020	1	LIMIT GUIDE PLATE
021	2	COMPRESSION SPRING FOR GUIDE PLATE
022	2	LIMIT NUT
023	2	LIMIT SWITCH
024	0	LIMIT SWITCH ASSEMBLY
025	1	LIMIT SWITCH MOUNTING PLATE
026	2	MASTER LINK #41
027	1	MOTOR, 1/2 HP, 24VDC
028	0	OPTION, SPACE SAVER FOR REAR MOUNT
029	0	OPTION, STEEL MOUNTING STAND
030	2	PLATE, SIDE, RIGHT AND LEFT
031	1	POWER CORD "PIG TAIL"
032	1	RECEPTACLE, 115 VOLT DUPLEX
033		
034		
035		
036	1	RESISTOR, BALLAST, 2 OHM
037	1	SIGN, METAL CAUTION
038	1	SPROCKET, DRIVE #41, 1" BORE, 41B18
039	2	SPROCKET, IDLER #41, 3/4" BORE, 41B24
040	1	SPROCKET, LARGE GEAR REDUCTION 41B54
041	1	SPROCKET, SMALL GEAR REDUCTION ON MOTOR
042	4	STANDOFF, 1" ALUMINUM, M/F, FOR PLEXI GLASS
043	4	STANDOFF, 1/2" ALUMINUM, F/F, FOR CIRCUIT BOARD
044	1	STICKER, AGS 2000
045	1	STICKER, AGS MANUFACTURING
046	1	STICKER, CAUTION
047	1	STICKER, MANUAL RELEASE
048	1	STICKER, ON/OFF BREAKER
049	1	STICKER, PATENT
050	1	STRAIN RELIEF CONNECTOR FOR PIG TAIL
051	1	SWITCH, MANUAL RELEASE
052	1	SWITCH, POWER ON/OFF TOGGLE
053		
054	1	TRANSFORMER, 24 VOLT
055	2	U-BOLT, ROUND
056	2	U-BOLT, SQUARE
057	2	BOLT, HEX HEAD 5/16"-18 X 3/4"
058	1	WASHER, SPLIT RING 5/16" ID
059	2	SCREW, 8-32 X 1" SOCKET HEAD CAP
060	4	SCREW, 6-32 X 3/8" PAN HEAD PHILLIPS

PART #	QNTY.	QNTY.
061	4	WASHER, 3/8" ID, STAINLESS
062	4	NUT, JAM STYLE
063	2	WASHER, SPLIT RING 5/8" ID
064	4	SCREW, SOCKET HEAD CAP
065	4	LOCK NUT
066	7	SCREW, SOCKET HEAD CAP 3/8"-16
067	20	FLAT WASHER, 3/8" ID
068	7	SCREW, SOCKET HEAD CAP
069	2	BOLT, HEX HEAD
070	2	BUSHING, BRONZE
071	1	KEY, 3/16"
072	2	SCREW, SOCKET HEAD CAP
073	4	WASHER, FLAT 3/16" ID
074	4	BOLT, HEX HEAD 3/8"-16
075	4	WASHER, SPLIT RING 3/8" ID
076	2	KEY, WOODRUF 1/4"
077	4	SCREW, PAN HEAD PHILLIPS
078	1	POWER CORD (PIG TAIL)
079	1	RECEIVER (OPTIONAL)
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Installation

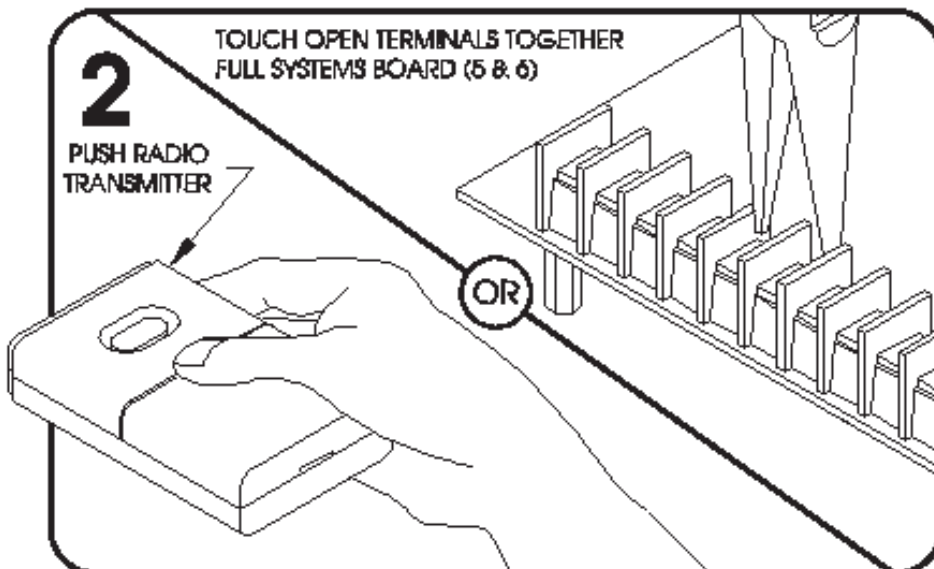
INSPECT PACKAGING



○ Remove the gate operator from its package and make sure that all parts are included. Refer to General Information and Parts Identification. If any parts appear to be missing, contact a dealer.

○ Temporarily plug the operator into 115 Volt outlet or extension cord.

TEST OPERATOR



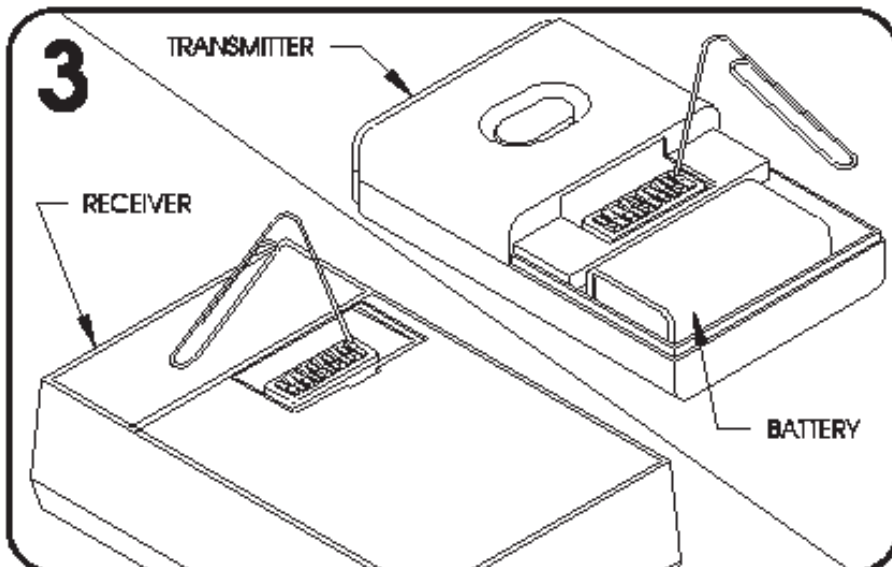
○ Before beginning installation, test the gate operator by running the operator back and fourth 2 or 3 times. If the gate operator appears to have any shipping damage, contact a dealer.

○ If the gate operator is equipped with radio controls, the operator may be run back and fourth by pressing the radio transmitter.

○ If the gate operator is not equipped with radio controls, the operator may be run back and fourth by momentarily touching the open input terminals together. The terminals can be touched together with a short length of wire, paper clip or needle nose pliers. For the full systems capability circuit board, the open input terminals are 5 and 6.

○ **Disconnect Power when finished!**

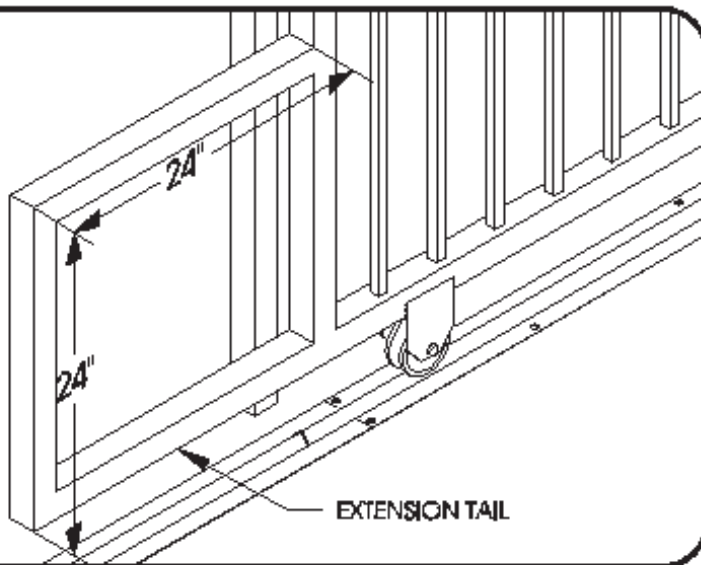
SET TRANSMITTER SWITCHES



○ If the gate operator is equipped with radio controls, now is a good time to set the radio transmitter and receiver to a unique setting. All units come from the factory with identical settings and therefore it is advisable to change the setting. To change the switch setting, simply set the switches in the radio receiver (using a paper clip or similar) to any arbitrary setting and then set the switches in the transmitter/s to match the switches in the receiver. The battery in the transmitter may last 1 to 2 years. Be sure to replace the battery only with one that is the same type as the original (9 Volt).

GATE PREPERATION

4

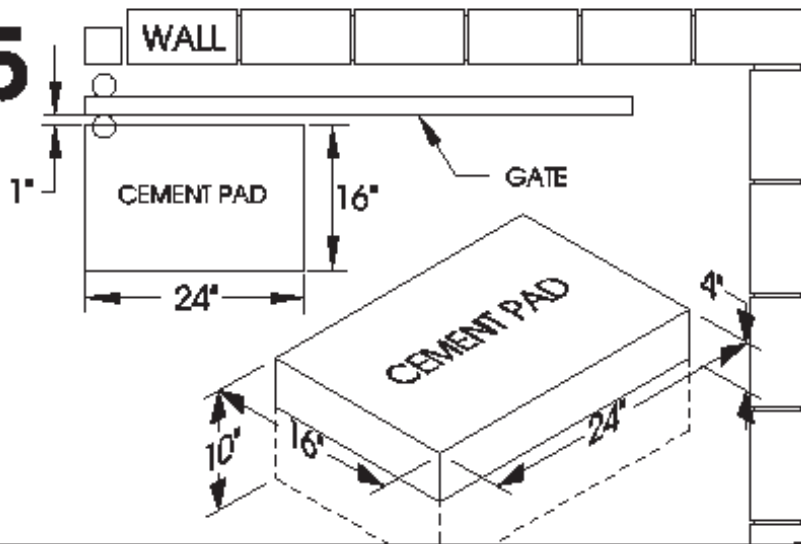


○ **Disconnect Power from the gate operator!**

○ The tail end of the gate should extend approximately 24" beyond the edge of the driveway. If this is not the case, an extension tail will need to be added to the gate. This will give room for the gate operator. Make the extension tail 24" X 24" as shown. If the gate has not yet been fabricated, add 24" to the length of the gate.

CEMENT PAD LOCATION

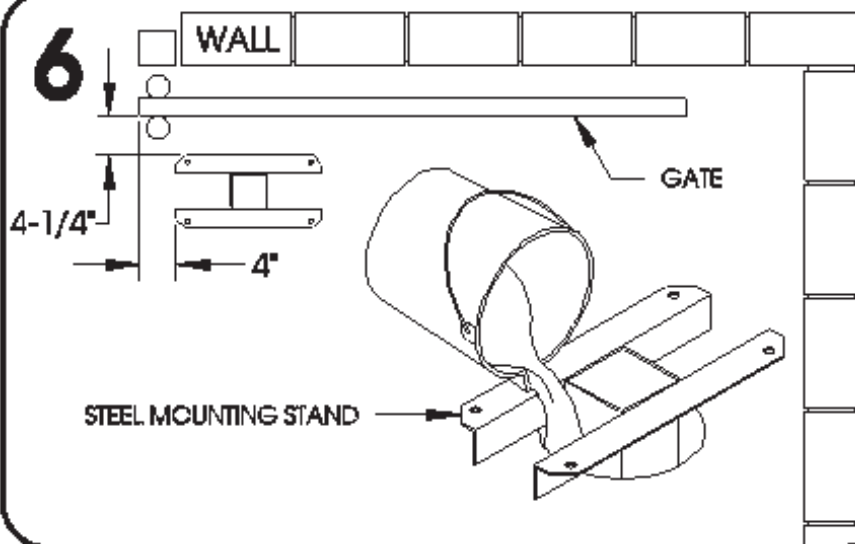
5



○ If no concrete surface exists to attach the gate operator to, make a cement pad 16" X 24" X 10" (4" above ground). Place the shortest pad edge even with the driveway edge. Place the longer edge of the pad 1" away from the gate.

OPTIONAL MOUNTING STAND

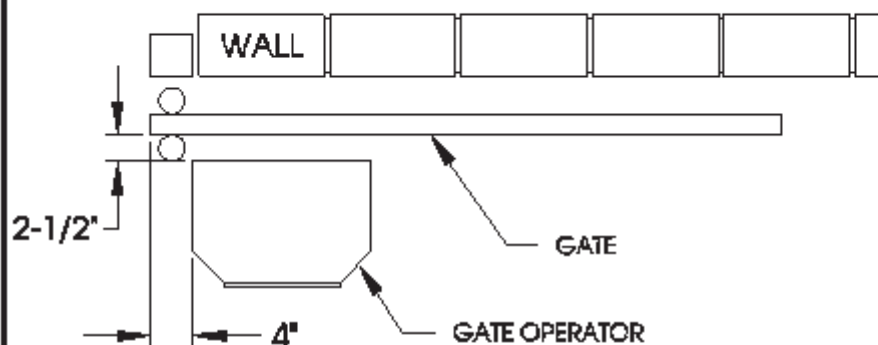
6



○ If the steel mounting stand will be used, place the shortest edge of the stand 4" from the driveway edge and place the longest edge of the stand 4-1/2" away from the gate. The top of the steel stand may sit on the ground or the stand may be elevated to keep the operator above snow, flooding etc. Make a post hole and cement the stand in place, making sure the stand is level and square to the gate.

POSITION GATE OPERATOR

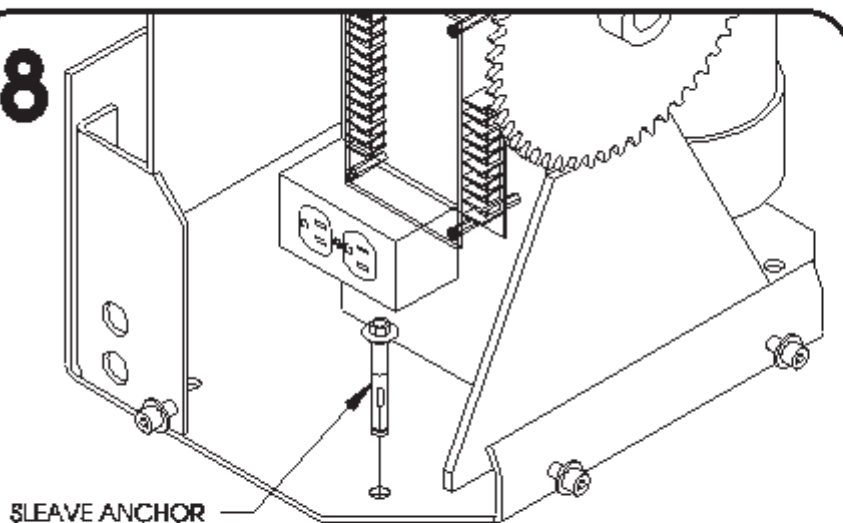
7



○ If the steel mounting stand was used, simply bolt the gate operator to the stand. If the operator will be mounted to a concrete surface or pad, place the shortest edge of the operator 4" away from the edge of the driveway. Place the longer edge of the gate operator 2-1/2" away from the gate.

ANCHOR THE OPERATOR

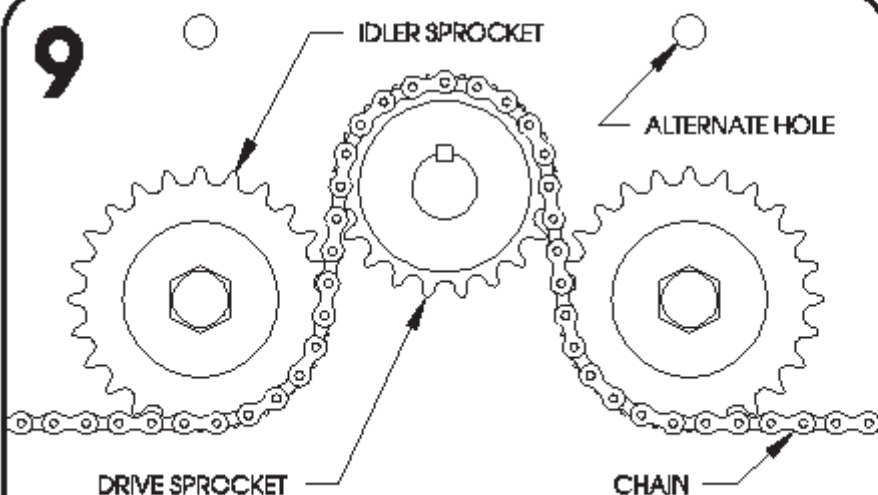
8



○ When the gate operator is correctly positioned on the concrete surface or pad, mark the base hole locations onto the cement with a felt tip marker or equivalent. Once marked, move the operator to the side and drill the 4 holes using a 3/8" masonry bit. Place the operator back into position. Insert the four sleeve anchors into the holes and firmly tighten.

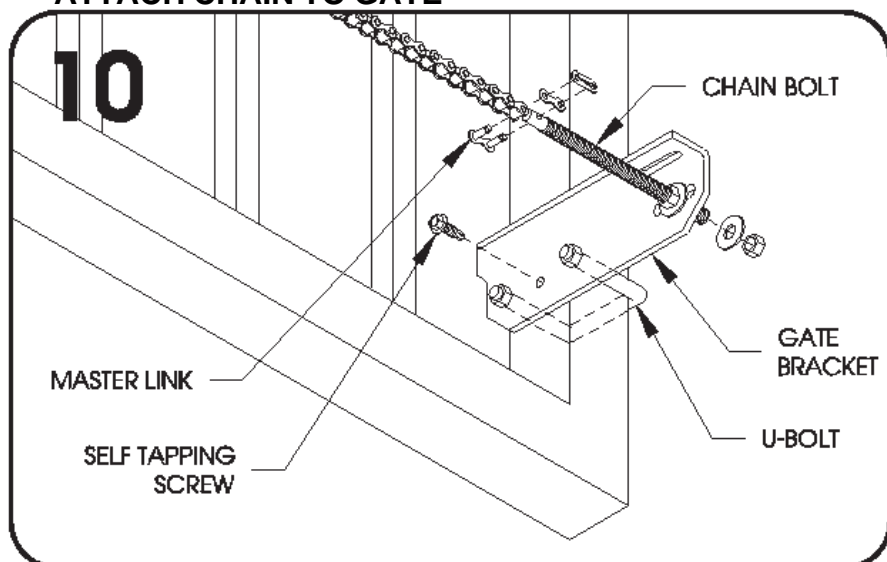
THREADING THE CHAIN

9



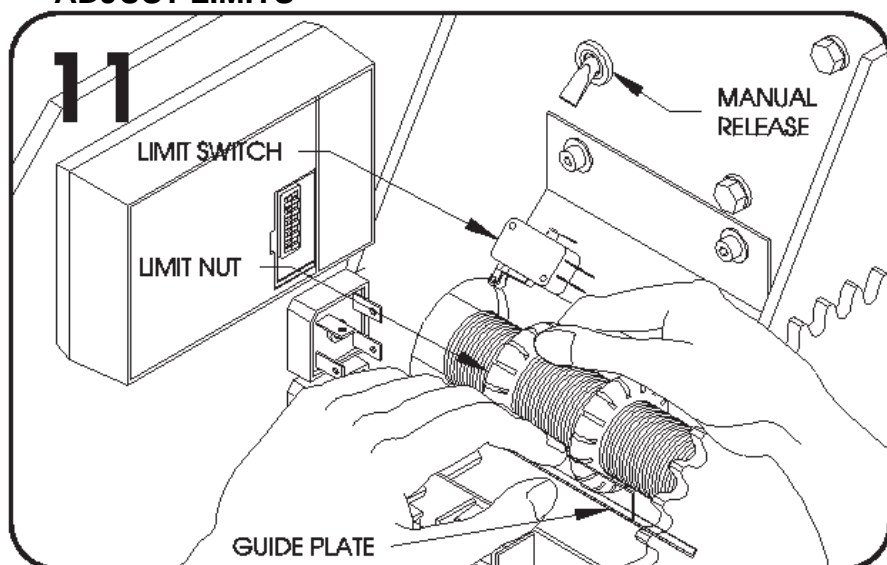
○ Now that the operator is firmly attached, the chain may now be connected to the gate and operator. Begin by threading the chain through the sprockets. The sprockets come arranged as shown so that the chain may be threaded under the idler sprockets and over the drive sprocket. Alternately, the chain may be threaded over the idler sprockets and under the drive sprocket by moving the idler sprockets to the alternate positions above. Note: the cover will need to be modified for the alternate arrangement.

ATTACH CHAIN TO GATE



○ Attach the gate bracket to the gate as shown using the round or square u-bolts for round or square gate frames respectively. Attach the chain to the gate brackets using the chain bolt and master link as shown. If necessary, the chain may be easily shortened using a chain breaker. Adjust the height of the gate brackets until the chain is level and firmly tighten the u-bolts. For round gate frames it may be necessary to drive the self tapping screw through the gate bracket, and into the gate.

ADJUST LIMITS

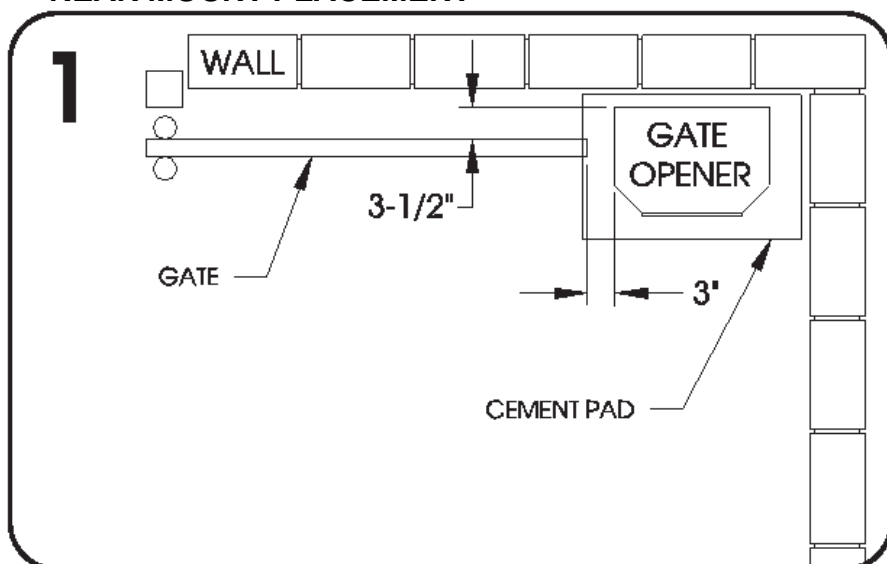


○ The limit nuts need to be adjusted to cause the gate to stop in the desired open and closed positions. These adjustments can be roughly made before power has been hooked up by flipping the manual release switch and pushing the gate manually. Push the gate to the open position and adjust the limit nut to press the limit switch in. The limit nuts can be turned after pressing down on the guide plate. Push the gate closed and adjust the other limit nut to press in the other limit switch. Caution "do not allow the limit nuts to travel past the switch as this may damage the switches". When finished, make sure the guide plate is properly engaged with the grooves on the limit nuts.



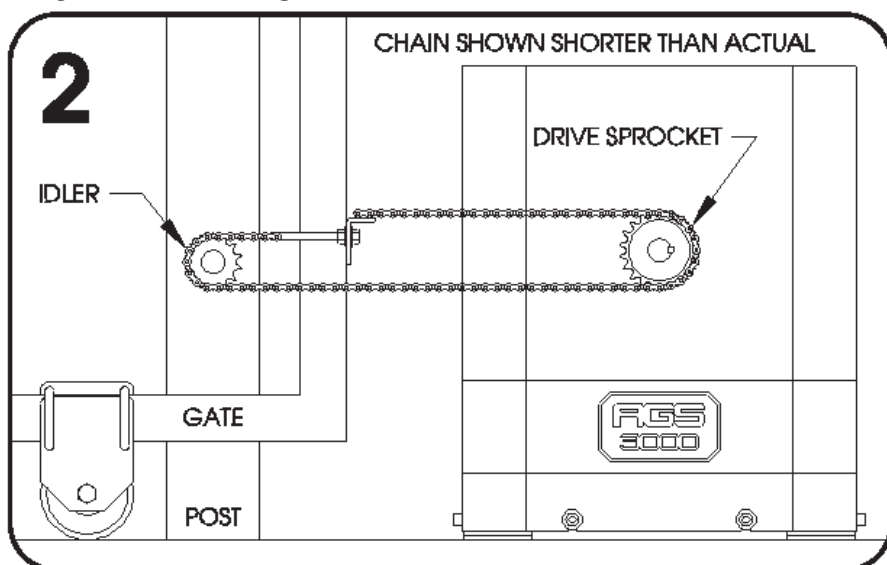
Alternate Installations

REAR MOUNT PLACEMENT



○ The rear mount installation is an excellent way to conceal the chain or operator. The operator is placed in the extreme rear of the gate as shown and the chain never goes across the driveway. The chain only goes from the gate operator to a post or wall beside the driveway. Place shortest edge of the operator 3" from the rear end of the gate and place the long edge of the operator 3-1/2" away from the gate toward the wall.

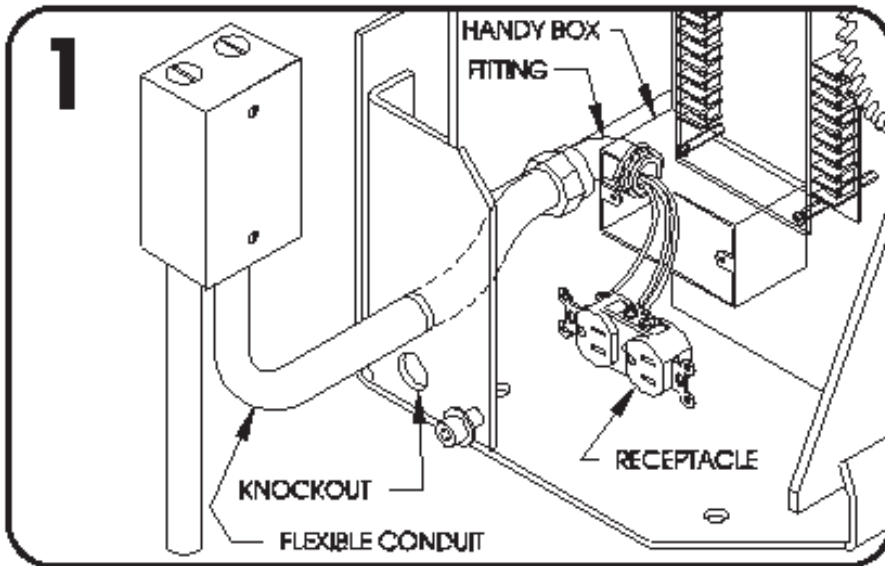
CHAIN ARRANGEMENT



○ The chain will form a continuous loop, going around the drive sprocket on the operator, and around the idler sprocket on the post or wall. Only one gate bracket is required on the rear edge of the gate where both ends of the chain come together and attach to the bracket. To prepare the AGS 2000 for a rear mount installation, remove one or both idler sprockets from the operator. Neither idler sprocket will be needed on the gate operator. For the idler sprocket, an ES130 End Sprocket Assembly with chain guard may be used. Alternately, an idler sprocket that was removed from the gate operator may be used. It is recommended that a cover be placed over the idler sprocket in this case for safety.



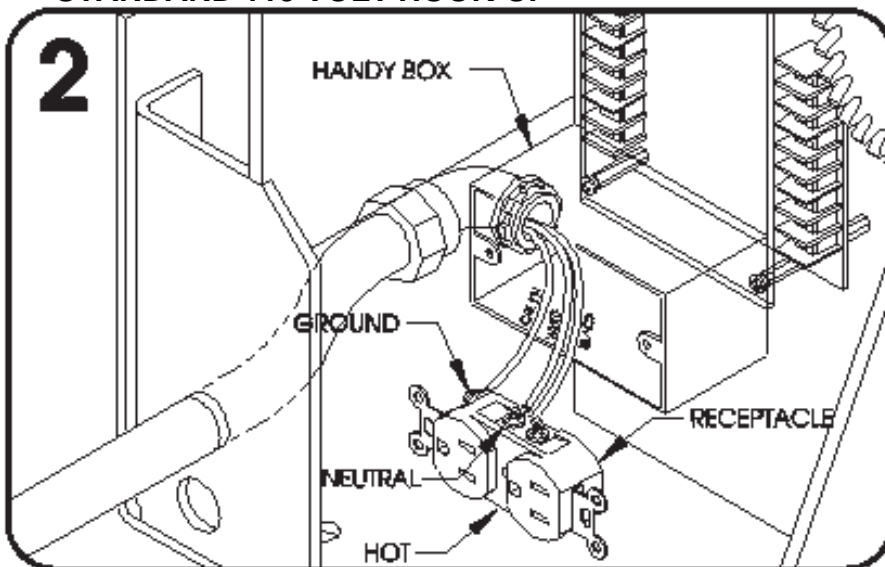
CONDUIT ROUTING



○ Make sure that power is OFF before making any electrical connections!

○ The operator is provided with two knockout holes on each side. Run 1/2" liquidtight flexible conduit through one of the four knockout holes and into the handy box where the receptacle is located. An elbow fitting is attached to the handy box and a straight fitting is supplied for the other end of the flexible conduit. Run three 12 gauge wires through the flexible conduit and into the handy box. There should be a black or other colored wire for hot, a white wire for neutral, and a green wire for earth ground.

STANDARD 115 VOLT HOOK-UP

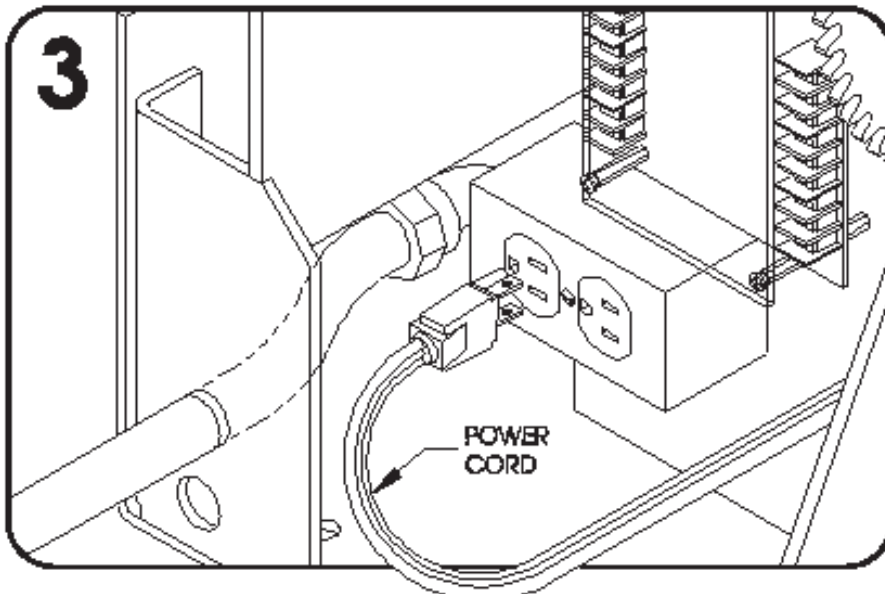


○ Connect the three 12 gauge wires to the 115 Volt receptacle.

○ Connect the black (hot) wire to the brass screw.

○ Connect the white (neutral) wire to the silver screw.

○ Connect the green (ground) wire to the green grounding screw.



○ When the wires have been connected to the receptacle, insert the receptacle back into the handy box. Secure the receptacle to the handy box with two screws. Apply the receptacle cover to the receptacle and secure it with a screw. The power cord may now be plugged into the receptacle.

○ If the gate operator is already factory

BATTERY BACK-UP

1

RIGHT/LEFT SWITCH
(Set same as RIGHT/LEFT)
(switch on control board)

MODE 1: Gate continues to operate when power is lost. When battery gets low, gate will open and stay open until power is restored.

MODE 2: Gate will open immediately when power is lost and stay open until power is restored.

MODE SWITCH

MODE 2 ← MODE 1

LEFT ↔ RIGHT



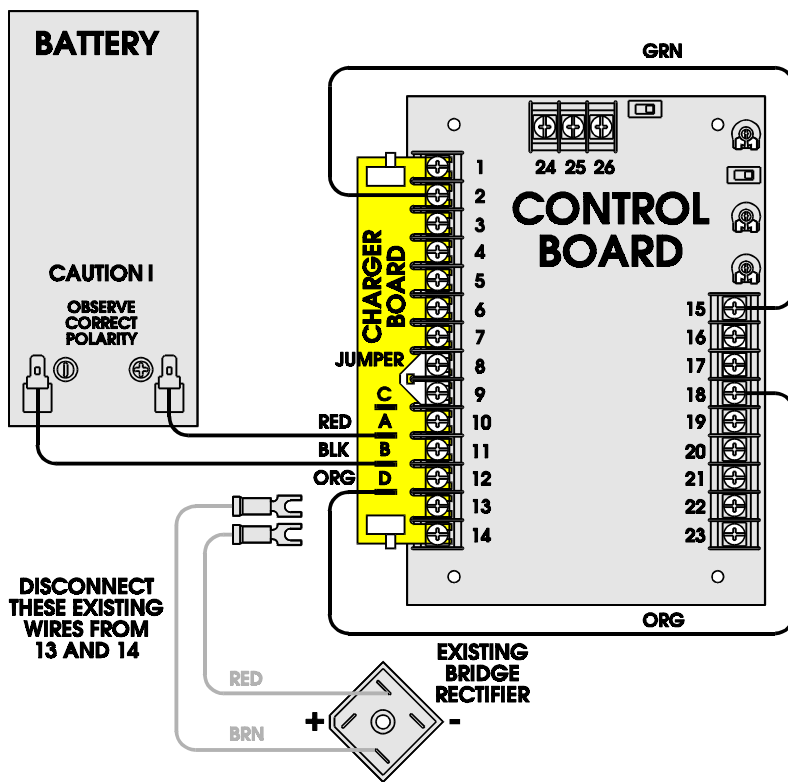
equipped with battery back-up, only the Right/Left Side switch and the Mode switch need to be set. The Right/Left switch simply needs to be set in the same position as the Right/Left switch on the main control board. (See page 17 for correctly setting the Right/Left switch on the control board) The Mode switch can be set in either the Mode 1 or Mode 2 position. This choice between Mode 1 or Mode 2 depends on how the installer or end user would like the gate to behave when power is lost.

○ **Mode 1:** Gate will continue to operate when power is lost. When battery power gets low, the gate will open and stay open until power is restored. (Fail Secure)

○ **Mode 2:** Gate will open immediately when power is lost and remain open until power is restored. (Fail Safe)

BATTERY BACK-UP

2



○ If the gate operator did not come from the factory equipped with battery back-up, field installation of battery back-up is very simple. The illustration at left shows additional wiring required for battery back-up that is not part of the standard wiring.

○ First turn power off to the gate operator.

○ Disconnect the brown and red wires from terminals 13 and 14 and insulate the ends of the wires.

○ Secure the charger board to the main control board by attaching to the 14 screw terminals on the left side of the control board.

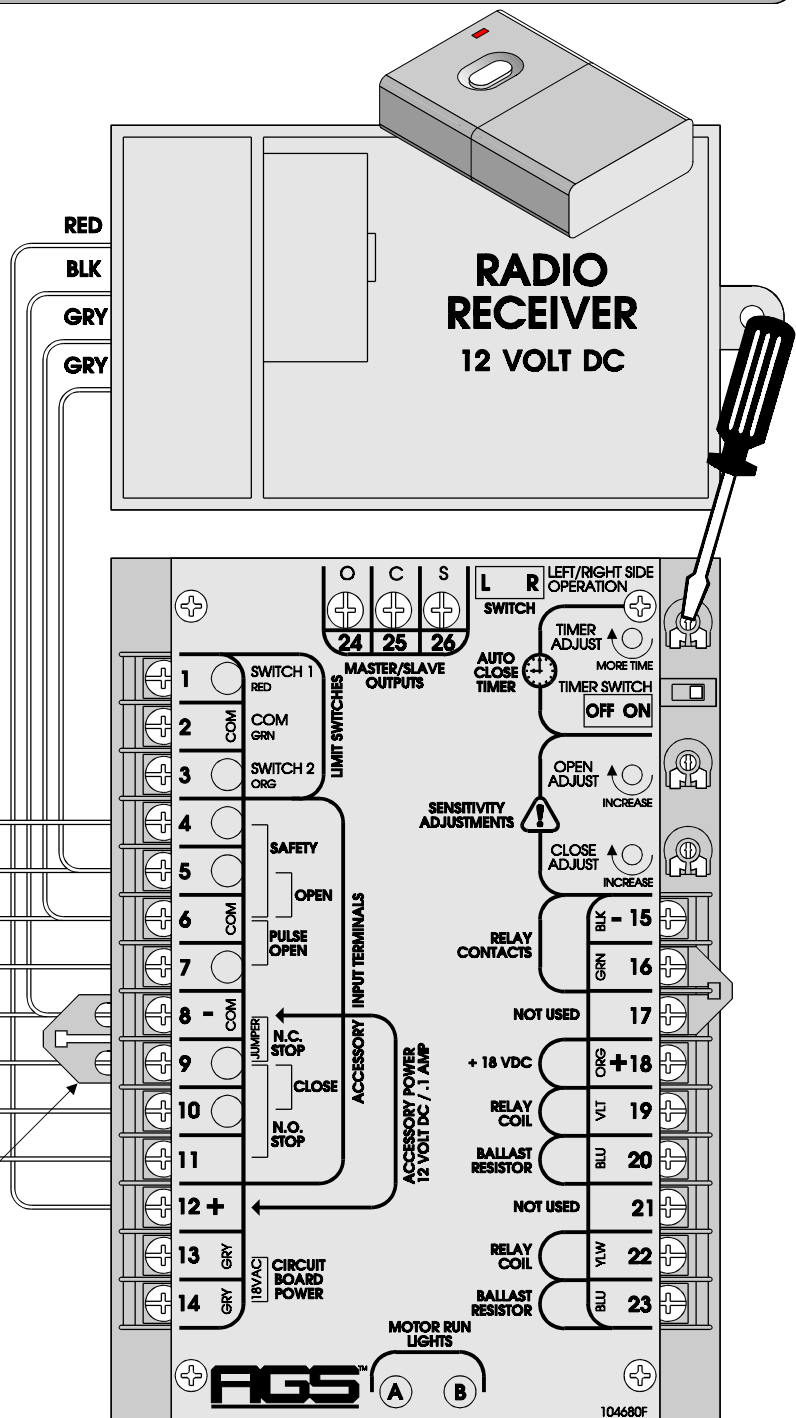
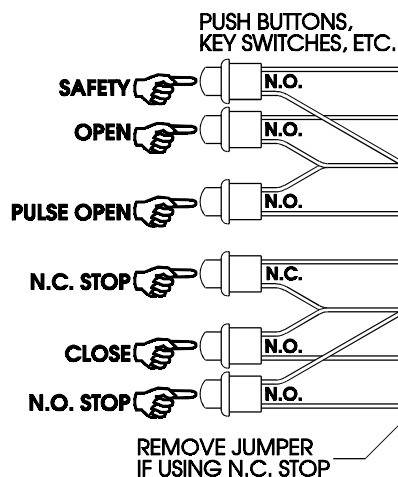
○ Connect a green wire from terminal 2 to terminal 15 of the control board.

○ Attach an orange wire from terminal D of the charger board to terminal 18 of the main control board.

○ Finally, attach a red wire from terminal A to battery positive and a black wire from terminal B to battery negative.

○ **OPEN INPUT:** Any device that is used to open the gate from a closed position is an open input device. The device used must provide normally open contacts. These normally open contacts are connected to terminals 5 and 6. These open input terminals will cause the gate operator to open and/or close if the timer switch is in the OFF position. If the timer switch is in the ON position, these open input terminals will cause the gate operator to open and will hold the gate open until the input is released and the auto close time has elapsed.

○ **CLOSE INPUT:** Any device that is used to close the gate is a close input device. The device used must provide normally open contacts. These normally open contacts are connected to terminals 9 and 10. These close input terminals will cause the gate operator to close the gate any time the gate is in a non-closed position and can be used to override the timer and close the gate prematurely.



○ **N.C. STOP INPUT:** Any device that is used to stop the gate operator while it is running in the open or closed direction is a stop input device. These stop input devices must provide normally closed contacts. To connect these normally closed contacts, remove the stop jumper from terminals 8 and 9 and then connect the contacts to these same terminals 8 and 9.

○ **N.O. STOP INPUT:** This input functions identical to N.C. Stop with the exception that it requires normally open contacts. These contacts are connected to terminals 9 and 11.

○ **SAFETY INPUT:** Any device that is used to open and/or hold open the gate while the gate is in a non-closed position is a safety input device. The safety input device must provide normally open contacts. These contacts are connected to terminals 4 and 6. This function is especially useful when the auto close timer is being used in preventing the gate from accidentally closing on a pedestrian or vehicle.

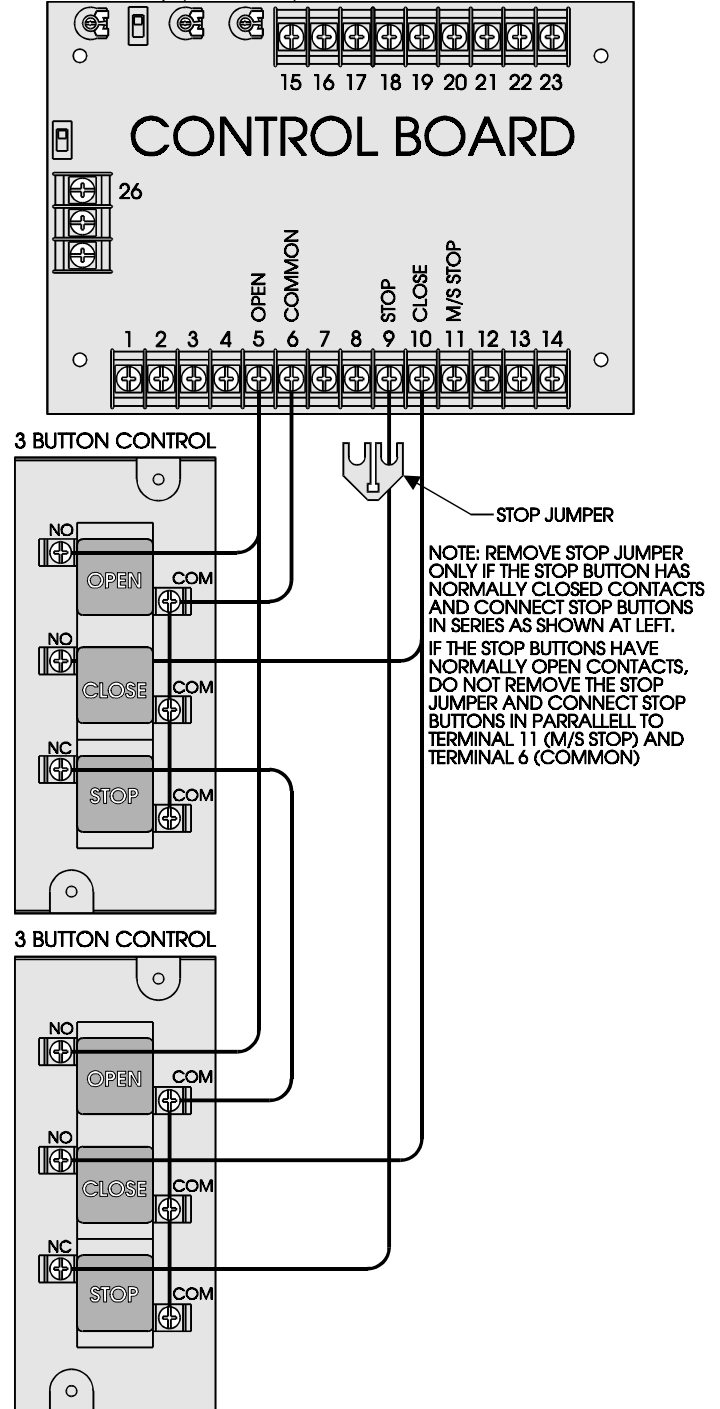
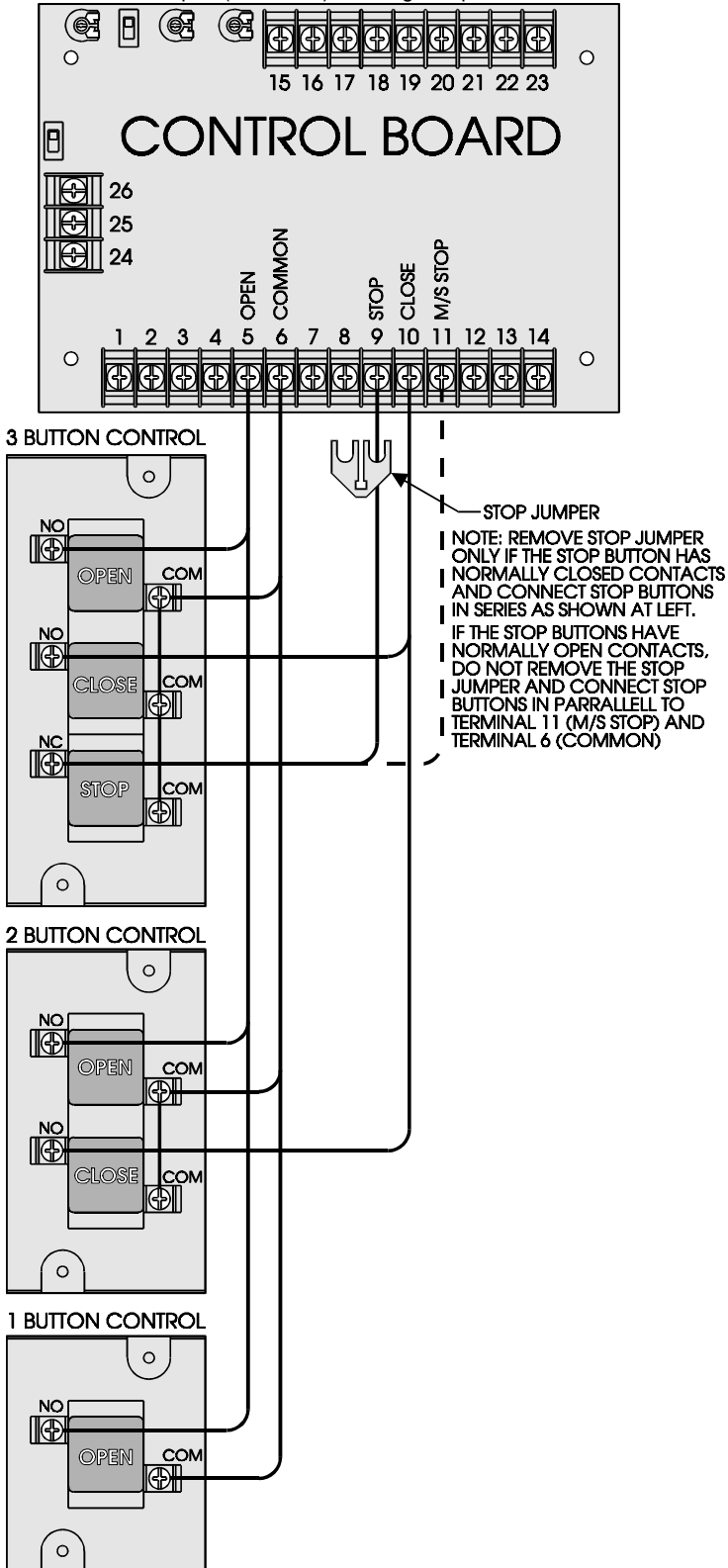
○ **PULSE OPEN INPUT:** The pulse open input terminals were put on the circuit board as an alternative connection for the radio receiver. This input functions similarly to the standard open input with the exception that it will not hold the gate open if the input remains present. This feature will add additional security to the gate operator system in the event that there is a transmitter that is stuck on. Pulse open is found at terminals 6 and 7.

Wiring Diagrams, Button Controls

- One button, two button and three button controls may be connected individually or together as shown below. Most button controls have a common "buss bar" which connects the common terminals of all buttons together so that only one common wire needs to be run back to the gate operator control board. If this is not the case, the common terminals of each button may be connected together with wire.
- Connect the common terminal or terminals (COM) of the push button control to the Common (terminal 6) on the gate operator control board. Connect the Open button NO terminal of the push button control to Open (terminal 5) on the gate operator control

board. Connect the Close button NO terminal of the push button control to Close (terminal 10) on the gate operator control board. If the stop button has normally closed contacts, connect the Stop button NC terminal to Stop (terminal 9) and remove the stop jumper that is on terminals 8 & 9. If the stop button has normally open contacts, connect the Stop button terminal NO to the NO Stop (terminal 11) on the gate operator control board.

- If more than one push button control is used on one gate operator, connect wires from the Open, Close and Common in parallel to the control board. If the stop button has normally closed, contacts connect the stop buttons in series to the control board. If the stop buttons have normally open contacts, connect the stop buttons in parallel to NO Stop (terminal 11) on the control board.





LEFT SIDE INSTALLATION

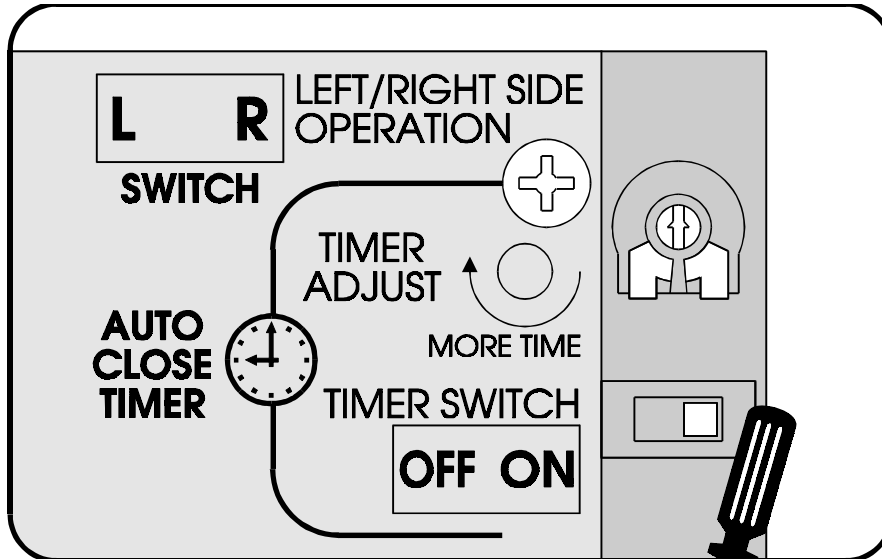
WALL

RIGHT SIDE INSTALLATION

WALL



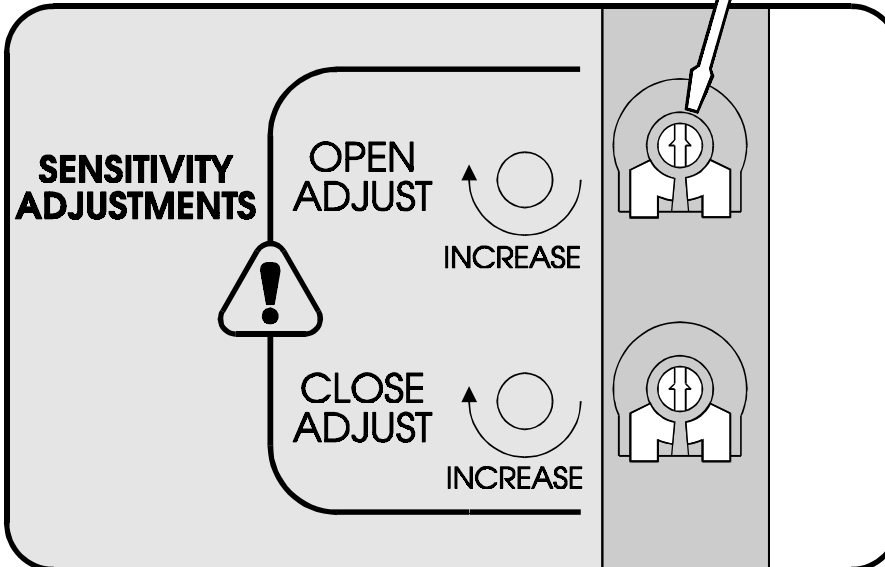
ADJUST TIMER



○ The gate operator is designed to work differently while opening then while closing to optimize safety, so the direction of the operator will need to be set. Setting the operator direction is done by flipping the right/left side switch located at the top of the circuit board. For a left side installation flip the switch to the left and for a right side installation, flip the switch to the right (see illustration above).

○ If it is desirable to have the gate close automatically after the gate has opened, flip the auto close timer switch to the ON position. Adjust the amount of time the gate stays open by turning the timer adjustment pot counter clockwise for less time or clockwise for more time. The range is roughly 0-45 seconds.

ADJUST SENSITIVITY



○ For protection of the over all system there are two "sensitivity" adjustments on the circuit board for the open and close directions. Turning the pots clockwise "increase" will cause the gate to stop or reverse more easily if there is an obstruction preventing the gate from moving. Turning the pots counter-clockwise "decrease" will cause the gate to push harder before it stops or reverses. The operator is designed to stop the gate if obstructed while opening and reverse the gate if obstructed while closing. If adjusted too sensitive the gate may stop or reverse under it's own weight, without being obstructed and the sensitivity will need to be slightly decreased. Temperature, wind, and other environmental factors may also effect the sensitivity so the setting should be made with these factors in mind. Before finalizing an installation always test the sensitivity by applying pressure against the gate while it is moving to make sure it will stop or reverse.

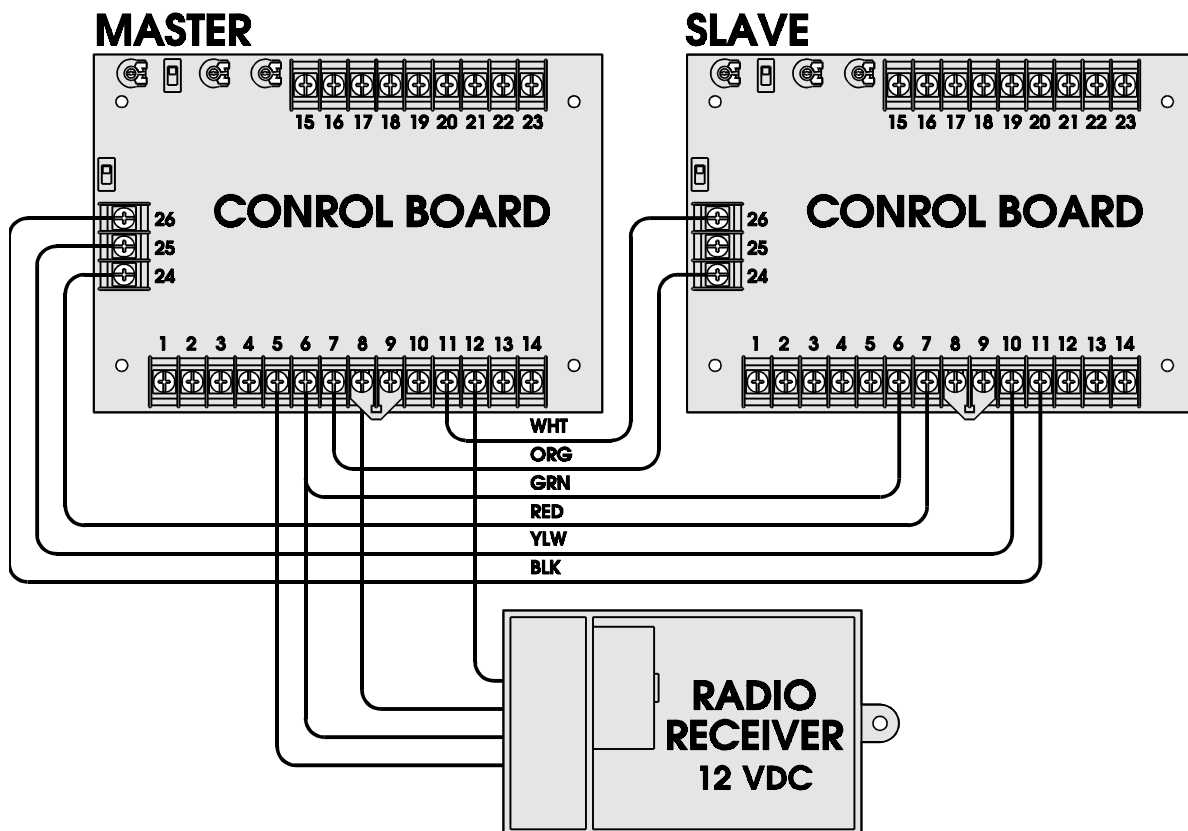
NOTE:

Counter-Clockwise makes gate push harder.
Clockwise makes gate easier to stop.

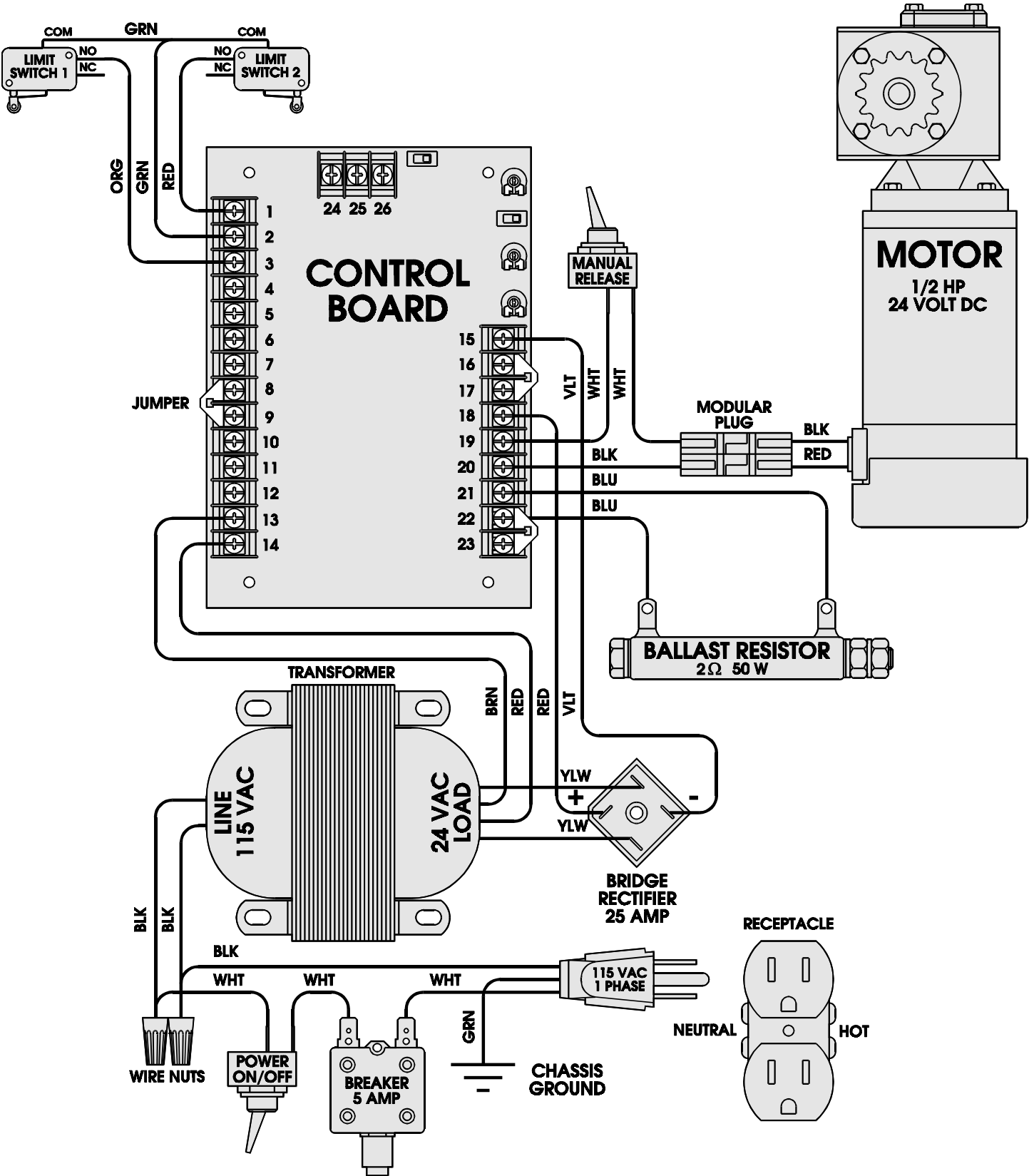


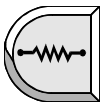
AGS 2000 MASTER/SLAVE

- Connect 115 Volts AC to each AGS 2000 gate operator. Connect the six Master/Slave wires from the master circuit board to the slave circuit board as shown below. Any operator can be used as either a master or a slave. All accessories will be connected to the master operator so the decision of which operator will be the master and which operator will be the slave is a matter of convenience. If it is more convenient to run accessory wires to one operator than to another, choose that particular operator which is most convenient to be the master so that the wires can be run in the easiest manner possible.
- Switch the Auto Close Timer switch to the OFF position on the slave circuit board. The Auto Close Timer switch on the master circuit board may be switched either ON if the timer function will be used or OFF if the timer function will not be used but the slave timer must always be switched OFF.
- If the chain is wrapped around the sprockets in the same manner on each operator (both chains under or both chains over the drive sprocket) set the Right/Left Side Operation switch on the master circuit board to be the opposite of the way it is set on the slave circuit board. If the chain wrapped around the drive sprocket on the master operator is the opposite of the way it is wrapped around on the slave operator then set the Right/Left Side Operation switches the same on both operators. The Right/Left Side operation switch is located on the circuit board. If the operators are working backwards, the Right/Left Side Operation switches on both operators must be switched. The simplest way to know if the operators are working backwards is to turn the Auto Close Timer switch on the master circuit board to ON and see whether the timer works when the gate is open or closed. The timer should work only when the gate is open. Another way to know if the operators are working backwards is to try the gate sensitivity by applying pressure against the gate while the gate is opening or closing. If pressure is applied while the gate is opening it should stop. If pressure is applied while the gate is closing it should reverse and go open. If the gate responds to pressure in a way that is opposite of this then switch the Right/Left Side Operation switch on both operators.



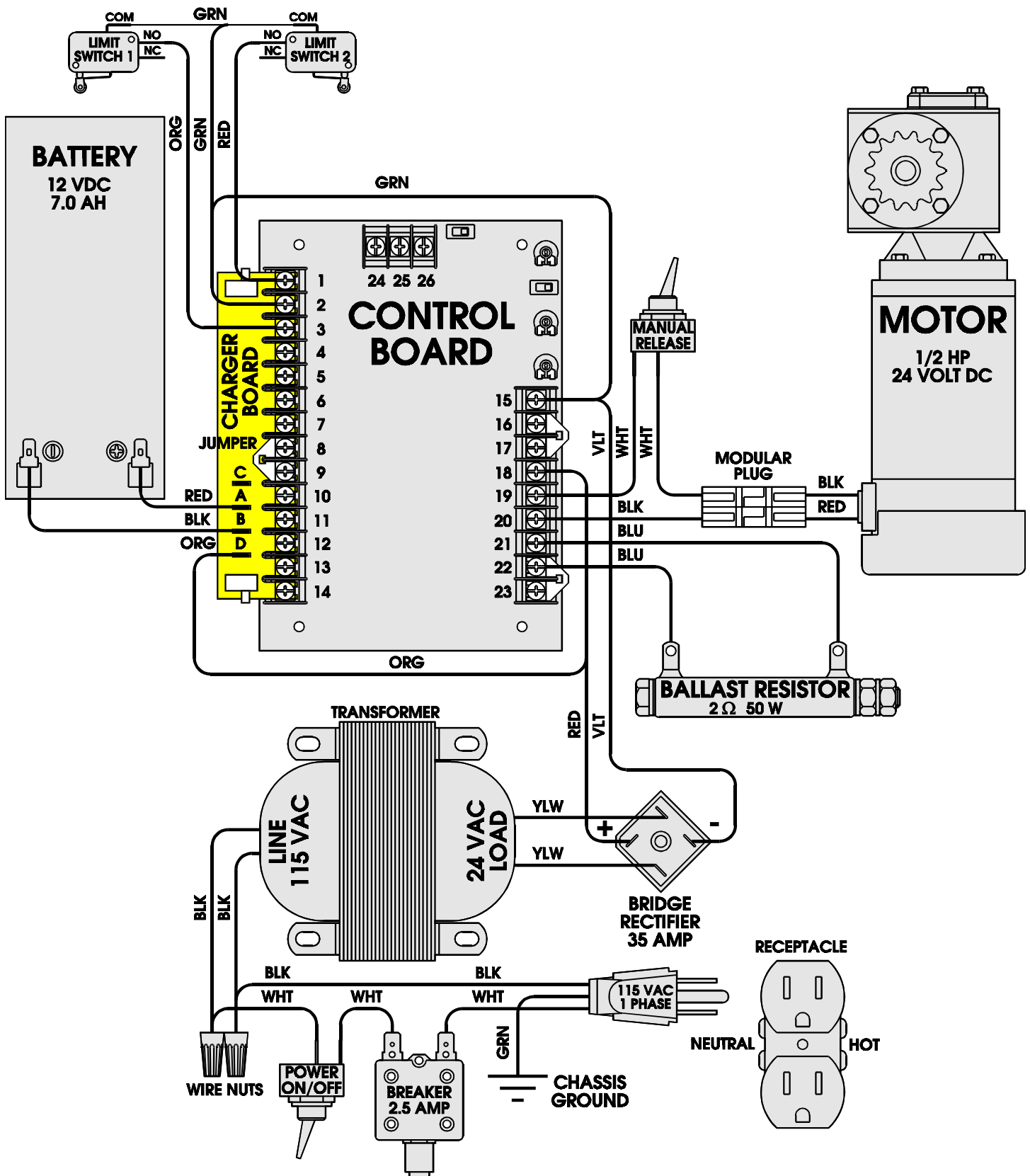
Wiring Diagram



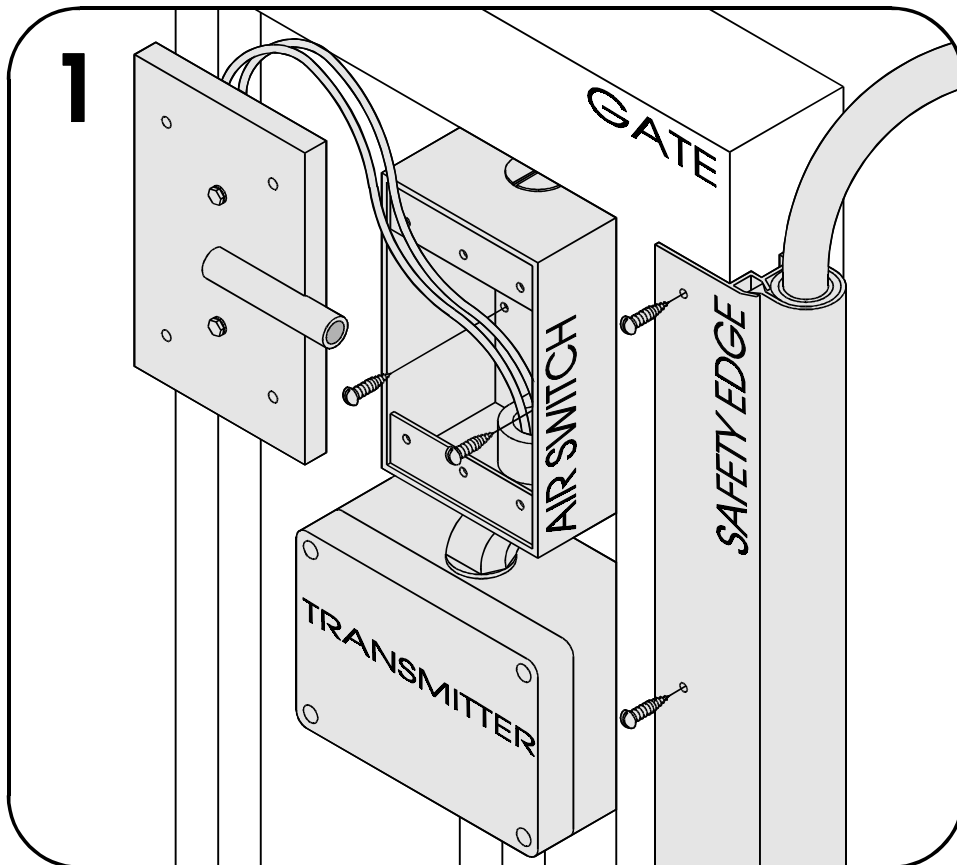


Wiring Diagrams

AGS 2000 WITH BATTERY BACK-UP

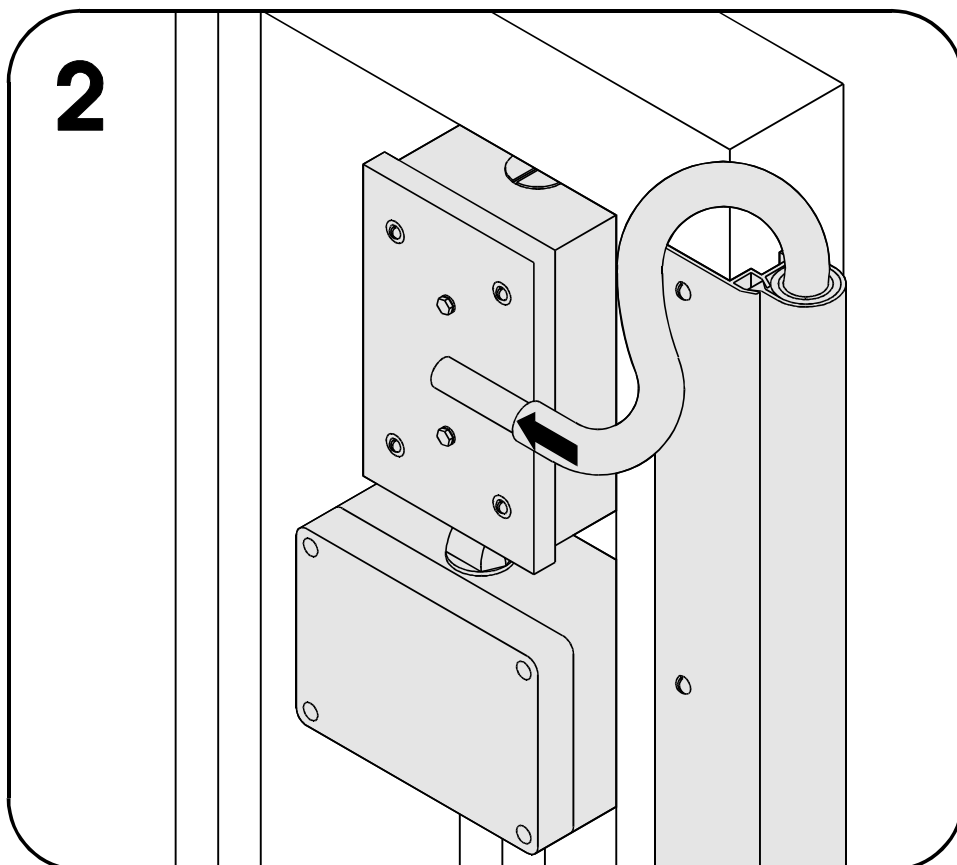


Safety Edge Installation



○ Place the safety edge against the surface of the gate to get an idea of where it will be permanently attached. It is best to attach the safety edge at a height that will cover the area that is most likely strike an obstruction. Once the permanent location is decided, attach the safety edge permanently by driving screws through the flat surface of the edge and into the gate. It is best to space the screws so that they are roughly six inches apart.

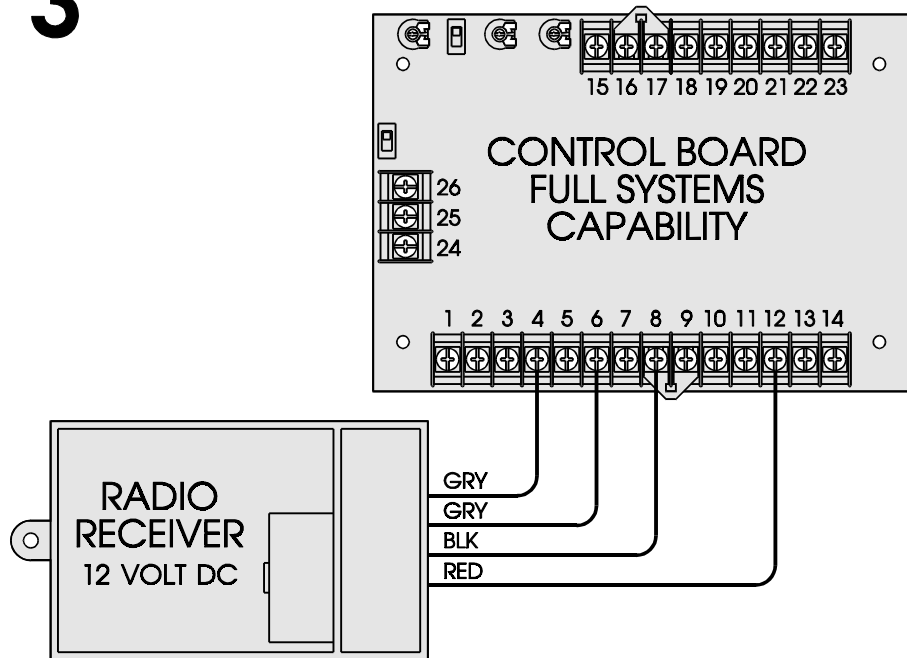
○ The transmitter/air switch assembly may now be attached to the gate. Place the assembly as close as possible to the hose end of the safety edge to make sure that the hose will be long enough to reach the air switch. Remove the air switch cover and hold it to the side while mounting the air switch box to the gate. Attach the transmitter/air switch assembly permanently by driving two or more screws through the air switch box and into the gate.



○ Once the safety edge and the transmitter/air switch assembly have been permanently attached to the gate, place the air switch cover back onto the air switch box and secure it with the four supplied screws.

○ Slide the safety edge hose onto the tube that comes out of the air switch cover. If the hose seems like it may be too long, it may be shortened by slicing portions of the end of the hose off until a desirable length is obtained. If the hose was shortened, slide the end of the hose back onto the tube that comes out of the air switch.

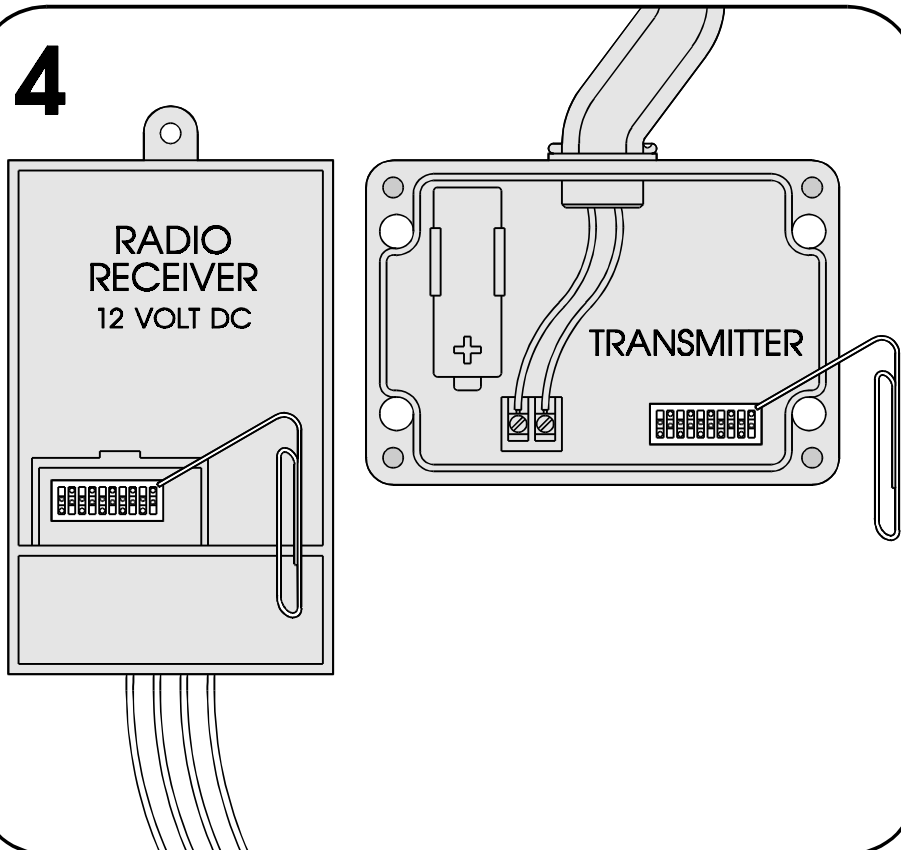
3



○ Attach the radio receiver inside of the gate operator in a place where the antenna may be extended out of the operator enclosure. This may lead to many possible locations so a suggestion would be to place the receiver beside the receiver that already exists (if equipped). If the gate operator is not equipped with a receiver, place the new receiver where the factory equipped receiver would normally go (See parts identification).

○ Attach the four wires from the receiver to the control board as indicated by the illustration to the left. Connect either one of the grey wires to terminal 4, the other grey wire to terminal 6, the black wire to terminal 8, and the red wire to terminal 12.

4

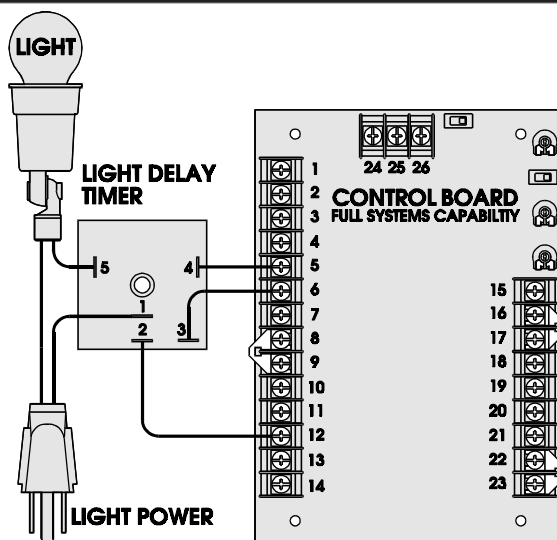


○ The switch settings inside of both the transmitter and receiver always come from the factory with the same setting and it is therefore advisable to change this setting to insure that it cannot be duplicated. This can be done by first setting the switches in the receiver to any arbitrary setting and then setting the switches inside of the transmitter to match exactly those switches that are in the receiver. A paper clip may be used to flip the switches.

○ Test the safety edge by activating the gate operator so that the gate is heading in the closing direction. While the gate is traveling closed, stand beside the gate (not directly in front of the gate) and press firmly on the safety edge to see if the gate will reverse. Repeat this several times with the gate in different positions of the closing travel.

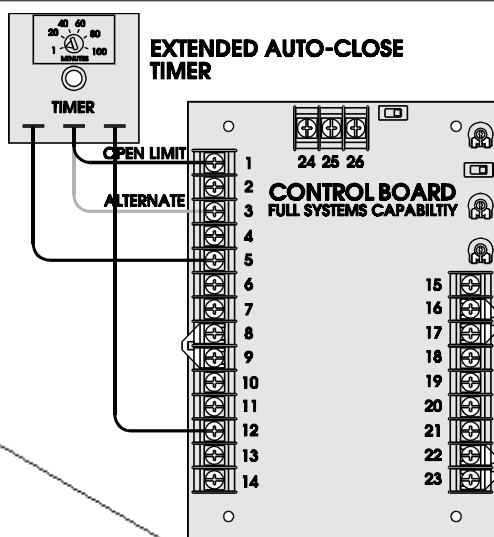
○ Test the safety edge at least once a month and replace the batteries in the transmitter if necessary.

1



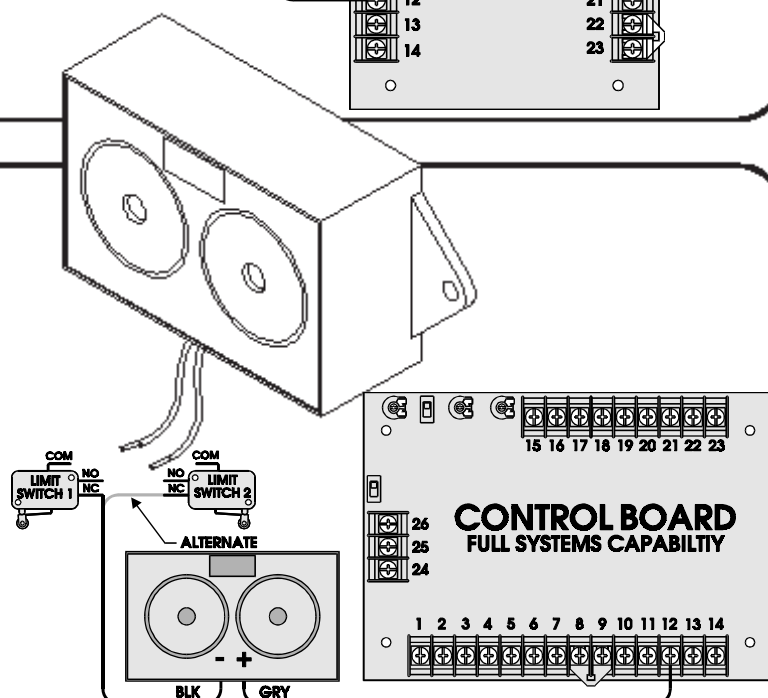
○ If it is desired that the driveway illuminate when the gate is activated, a light delay timer may be installed. The light delay timer will switch power on to the light for two minutes, then shut power back off. The timer relay is capable of switching up to 10 Amps which will handle most flood or spot lights available. A general hook-up diagram for the light and timer is shown at left.

2



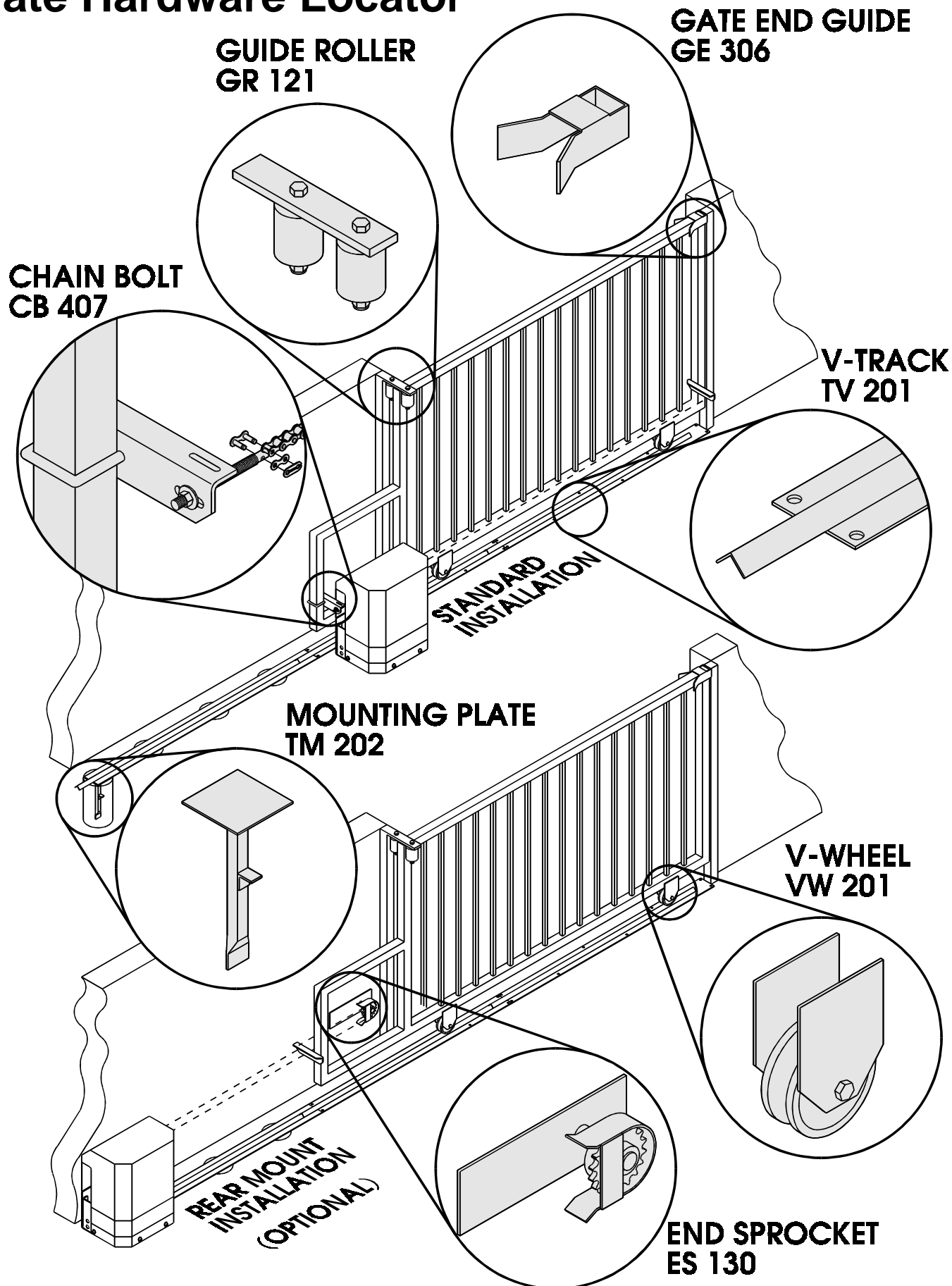
○ The standard auto close timer built into the circuit board can be adjusted to between 0 and 45 seconds. Some installations may require that the gate must stay open for more than 45 seconds before it automatically closes. The extended auto close timer may be hooked up as shown at left. This optional timer can be adjusted to automatically close the gate after the gate has been open between 1 and 100 minutes. The extended timer will add time onto the auto close timer already on the board. For more control, reduce the timer adjustment on the main control board to zero seconds and make all adjustments with the extended auto close timer knob.

3



○ For added safety, a warning alarm may be installed in the gate operator to give audible warning that the gate is in motion. This will in some cases give extra time to get out of the way of the moving gate. The warning alarm is an ear piercing 120 decibel, dual tone, piezo siren that operates on 12 Volt DC. To install the alarm, mount the siren next to the circuit board and connect the positive wire to terminal 12 (12VDC). Connect the negative wire to limit switch 1 NC or limit switch 2 NC for the alarm to sound in the open or closed directions. Contact the manufacturer for connecting the alarm to sound in both directions. If the alarm is too loud, the sound may be partially muffled by applying tape over the two holes where the sound comes out.

Gate Hardware Locator





The AGS 2000 Full Systems Capability is designed to be MAINTENANCE FREE. However, for optimum performance and safety, the following maintenance procedures should be taken.

○ GATE SENSITIVITY ADJUSTMENTS FOR SYSTEM PROTECTION

The most important thing to maintain on any gate is the safety equipment. As the gate becomes older the amount of force necessary to move the gate will vary. When this happens, the gate sensitivity adjustments may need to be readjusted. Check to see whether the sensitivity may need adjustment at least once a month. Actuate the gate a few times and observe the amount of force that is needed to stop or reverse the gate in both directions. This can be done very easily by standing beside the gate and applying pressure with your hands against the gate while it is moving. **Do not stand directly in the path of the gate while doing this experiment.** The gate should stop or reverse relatively easy. If it does not stop or reverse easily or does not stop or reverse at all, make adjustments as shown on page 17 of Fine Tuning.

○ CONTROL DEVICES

From time to time check to see whether all of the control devices that are connected to the operator are functioning. This is especially important of anything that was installed in regards to safety.

○ GATE

Having a well maintained gate will ensure that the operator runs smoothly and safely. Occasionally inspect the chain to see whether it is well lubricated and oil the chain if necessary. Use CHAIN AND CABLE LUBE for best results (Available from the manufacturer). Check the wheels and grease them if needed. Check the guide rollers and spray oil on their bearings.

IMPORTANT INSTALLATION INSTRUCTIONS

WARNING-To reduce the risk of severe injury or death:

- 1) READ AND FOLLOW ALL INSTALLATION INSTRUCTIONS.
- 2) Never let children operate or play with door controls. Keep the remote control away from children.
- 3) Always keep the moving door in sight and away from people and objects until it is completely closed. NO ONE SHOULD CROSS THE PATH OF THE MOVING DOOR.
- 4) SAVE THESE INSTRUCTIONS.



Safety Tips

○ CHILDREN

DO NOT allow children to operate the gate or play with the gate or gate operator.
DO NOT allow children to play in the gate area.

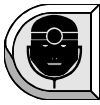
○ VISIBILITY

DO NOT activate the gate from a location where you cannot see the gate. There may be children playing in the gate area or someone who will not be able to move away from the gate in time.

○ SERVICE

DO NOT perform service on the gate or gate operator while the power is on. Always switch the power **OFF** when doing any kind of maintenance or service.

DO NOT allow anyone to perform service on the gate or gate operator who is not a professional. Have only a qualified service company perform maintenance and repair.



Trouble Shooting

○ EXPLANATION OF VISUAL FEEDBACK LED's

The AGS 2000 Full Systems Capability circuit board has been equipped with Visual Feedback LED's to simplify installation and troubleshooting. These are small lights which are located directly beside the input terminals. These LED's give visual information to the installer or service technician indicating what commands are going into the circuit board from devices such as limit switches or from peripheral devices such as radio receivers or safety loops. There are also two LED's which show output to the motor for both the opening and closing directions.

INPUT:

Limit Switch 1: This LED indicates that one of the normally open limit switches is pressed in and the gate is in the open position.

Limit Switch 2: This LED indicates that one of the normally open limit switches is pressed in and the gate is in the closed position.

Safety: This LED indicates that there is a closed contact between safety input terminal 4 and common.

Open: This LED indicates that there is a closed contact between open input terminal 5 and common.

Pulse Open: This LED indicates that there is a closed contact between Pulse Open input terminal 7 and common.

Stop: This LED indicates that there is a closed contact between stop input terminal 9 and common. Under normal operating conditions this LED must be in the on condition in order for the system to function.

Close: This LED indicates that there is a closed contact between close input terminal 10 and common.

OUTPUT:

Motor A: For RIGHT SIDE OPERATION this LED indicates that the circuit board is delivering power to the motor for the opening direction of travel. For LEFT SIDE OPERATION this LED indicates that the circuit board is delivering power to the motor for the closing direction of travel.

Motor B: For RIGHT SIDE OPERATION this LED indicates that the circuit board is delivering power to the motor for the closing direction of travel. For LEFT SIDE OPERATION this LED indicates that the circuit board is delivering power to motor for the opening direction of travel.

○ TRANSMITTER DOES NOT WORK

❶ Check the battery inside of the transmitter and/or try another transmitter. ❷ Make sure that the DIP switches inside of the transmitter are set exactly like the DIP switches inside of the receiver. ❸ Check to see which LED's are illuminated on the circuit board. For normal operating conditions the only LED's that should be illuminated are the stop input at terminal 9 and Limit Switch 1 input if the gate is in the fully open position or Limit Switch 2 input if the gate is in the fully closed position. ❹ If any of the input LED's are illuminated on terminals 4, 5, 7 or 10, disconnect wires from that input terminal that is illuminated until the LED is extinguished to determine which input device may be stuck in an on condition. ❺ If it is the radio receiver that appears to be stuck in an on condition, check all transmitters to see if any of them are stuck on. ❻ Make sure that there is power (10 to 16 VDC) to the receiver on terminals 8 and 12 and make sure that the circuit breaker button is pressed in. ❼ If a click is heard while the transmitter is being pressed and there is no response from the operator, check all receiver connections. (See page 15.) ❽ If there is still no response, see GATE WILL NOT OPEN OR CLOSE on next page.

○ GATE TRAVELS TOO FAR OR NOT FAR ENOUGH

❶ Adjust the gate sensitivity (See page 17). If the gate sensitivity adjustment is too sensitive, the gate may stop in mid-travel. ❷ It may be necessary to lubricate any mechanical parts on the gate including wheels and rollers and clean the track of any debris. ❸ Check the limit switch input LED's on terminals 1 and 3 to see if either one is illuminated. If one of the limit switch input LED's is illuminated and the gate has traveled too far or not far enough, this indicates that the limits of travel may need adjustment. Adjust the limits of travel (See page 11). This adjustment may change slightly as the chain stretches due to normal wear and it may change dramatically if the chain has been re-tightened or the limit plate is accidentally left unengaged with the limit nuts. ❹ If the limit nut has traveled past a limit switch, check the limit switch and all limit switch connections. (See page 19 or 20). ❺ Watch the stop input LED on terminal 9 while the gate operator is running and see if the LED flickers or extinguishes. This may indicate a faulty stop input device or a poor connection between the stop input terminal 9 and common. ❻ If the stop input LED on terminal 9 flickers or extinguishes check all connections to the stop input device and/or replace faulty device.

○ GATE BEGINS TO OPEN OR CLOSE, THEN STOPS OR REVERSES

① Adjust the gate sensitivity (See page 17). If the gate sensitivity adjustment is too sensitive, the gate may stop in mid-travel or reverse. ② It may be necessary to lubricate any mechanical parts on the gate including wheels and rollers and clean the track of any debris. ③ Watch the input LED's on terminals 4, 5, 7 and 10 while the gate operator is running to see if any of the LED's flicker or illuminate. ④ If there is an input LED that flickers or illuminates while the gate is running, disconnect the wires one at a time from that input terminal until the LED does not flicker or illuminate to determine which input device may be activating. ⑤ If it is the radio receiver that appears to be stuck in the on condition, check all transmitters to see if any of them may be stuck on. A stuck transmitter may cause the gate operator to reverse.

○ GATE WILL NOT OPEN OR CLOSE

Test the operator to find out whether the open input devices are functioning by following these steps. ① If a remote control is being used to open the gate, try another remote control or try using a push button if there is one installed. ② If a push button is being used try using another push button or a remote control. ③ If there is no push button installed the gate may be operated by connecting a jumper wire to terminal 8 and momentarily touching it to terminal 5 or 7. ④ If the remote controls are not working, see TRANSMITTER DOES NOT WORK on the previous page. ⑤ Check the manual release switch to make sure it is in the operate (up) position. ⑥ Check to see which LED's are illuminated on the circuit board. For normal operating conditions the only LED's that should be illuminated are the stop input at terminal 9 and Limit Switch 1 input if the gate is in the fully open position or Limit Switch 2 input if the gate is in the fully closed position. ⑦ If any of the input LED's are illuminated on terminals 4, 5, 7 or 10, disconnect wires from that input terminal that is illuminated until the LED is extinguished to determine which input device may be stuck. ⑧ If the stop input LED on terminal 9 is not illuminated, check the stop input device if any are installed and all connections to the device. If no stop input device is installed make sure that there is a jumper between terminals 8 and 9 and that it is securely fastened. ⑨ Check the circuit breaker button. If the circuit breaker is tripped, press it back in. ⑩ Make sure there is power to the circuit board on terminals 13 and 14.

○ THE GATE WILL NOT STOP OR REVERSE WHEN IT MEETS AN OBSTRUCTION

① Adjust the gate sensitivity. The operator needs to be adjusted for more sensitivity. This is done by turning the open and close gate sensitivity adjustments clockwise for more sensitivity. (See page 17).

○ GATE WILL NOT STAY CLOSED

① Make sure that the Right/Left Side operation switch is in the correct position (See page 17). If the Right/Left Side operation switch is in the incorrect position, the auto close timer feature may be working in reverse and telling the gate operator to open after the auto close time has elapsed. ② Check to see if any input LED's on terminals 4, 5 or 7 flicker or illuminate when the gate gets to the closed position. ③ If any of the input LED's flicker or illuminate on terminals 4, 5, or 7, disconnect wires from that input terminal that is illuminated until the LED is extinguished to determine which input device may be activating.

○ TIMER WILL NOT CLOSE THE GATE

① Make sure that the Right/Left Side operation switch is in the correct position (See page 17). If the Right/Left Side operation switch is in the incorrect position, the auto close timer feature may be working in reverse and telling the gate operator to open instead of close after the auto close time has elapsed. ② Make sure the auto close timer switch is in the ON position (See page 17). The auto close timer switch is located on the right edge of the circuit board. ③ Make sure that the radio receiver, push button or other open input device is connected to open input terminals 5 and 6. The timer will not work if any of these devices are connected to pulse open input terminals 6 and 7. ④ Adjust the amount of auto close time (See page 17). The auto close time may be set too high and is simply taking a long time to close. Do not continue pressing the remote control or other open or safety input devices because each time an open or a safety input is given the timer will reset and begin counting over.

○ OPERATOR RUNS IN ONLY ONE DIRECTION

① Check to see which LED's are illuminated on the circuit board. For normal operating conditions the only LED's that should be illuminated are the stop input at terminal 9 and Limit Switch 1 input if the gate is in the fully open position or Limit Switch 2 input if the gate is in the fully closed position. ② If any of the input LED's are illuminated on terminals 4, 5, 7 or 10, disconnect wires from that input terminal that is illuminated until the LED is extinguished to determine which input device may be stuck.



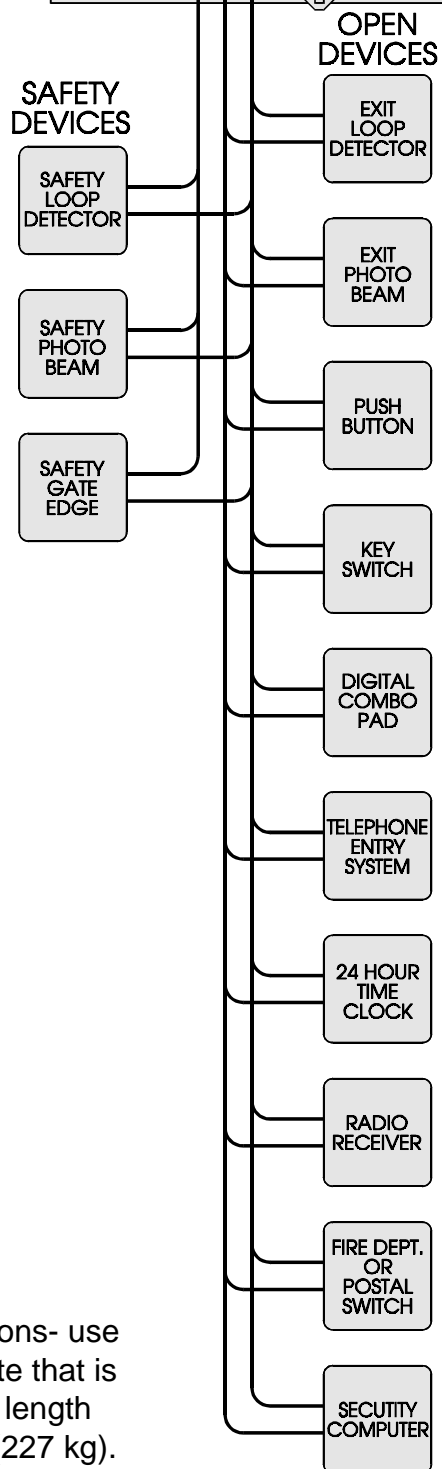
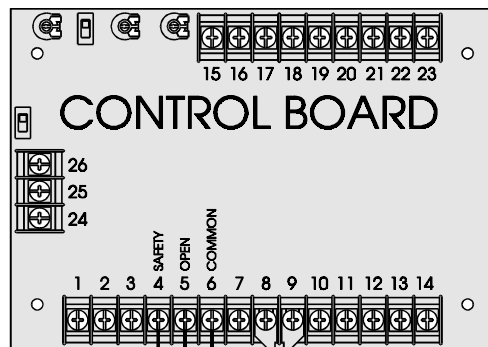
Notes

Other Commonly Used Open and Safety Devices

- Be sure to read this entire manual before attempting to perform any type of installation or service to the gate opener.
- Once the installation has been completed, this installation and service manual becomes the property of the home owner or end user and should be given to the new owner at that time.
- For a personal copy of this manual, please contact an AGS distributor.

NOTE:

- All open and safety devices must have normally open contacts.
- For Devices requiring power, refer to the specific diagram for that particular device.



WARNING

To reduce the risk of injury to persons- use this operator only with a sliding gate that is not larger than 25 feet (7.6 m) in length and not heavier than 500 pounds (227 kg).